City of Sherwood Oregon

Home of the Tualatin River National Wildlife Refuge

ORDINANCE 2009-004

AN ORDINANCE APPROVING THE BROOKMAN CONCEPT PLAN, PLAN MAP AND TEXT AMENDMENTS TO IMPLEMENT THE BROOKMAN CONCEPT PLAN, AND ESTABLISHING AN EFFECTIVE DATE

WHEREAS, the existing Comprehensive Plan (Part 2) was approved by Ordinance 91-922, and outlines a system wide land use policy consistent with Statewide Planning Goals; and

WHEREAS, Metro brought the Brookman Area (Area 54/55) into the urban growth boundary in 2002 via Metro Ordinance 02-969B, and

WHEREAS, the Council initiated concept planning in April 2007 utilizing Metro Construction Excise Tax funds and established a Steering Committee (SC) made up of agency representatives, property owners, neighborhood association representatives and board and commission representatives who met over the course of a year between April 2007 and April 2008; and

WHEREAS, after public input and review of technical analysis, the SC recommended a concept plan to the Planning Commission and ultimately the City Council; and

WHEREAS, upon SC recommendation of the concept plan, staff prepared proposed comprehensive plan text and map amendments, along with a staff report with analysis and findings to support the SC recommendation; and

WHEREAS, the Planning Commission held a hearing June 6, 2008 followed by a serried of work sessions and a second public hearing on December 9, 2008 and provided a recommendation on January 13, 2009; and

WHEREAS, because the PC recommendation required a policy decision on the underlying assumptions of the market analysis and the Council, after the policy discussion direct staff to proceed processing the proposal consistent with the July 2008 hybrid version of the SC recommendation; and

WHEREAS, the Sherwood City Council has received the proposal materials, the Staff report including all exhibits entered into the record (PA 08-01), and the Council reviewed the materials submitted, and the findings of fact of the proposal, and conducted a public hearing for a Type 5 Legislative amendment on March 17, 2009 and April 21, 2009 and provided direction for staff to prepare final documents for Council adoption.

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

Section 1. Commission Review & Public Hearings. The proposed Brookman Concept Plan, Plan Map & Text Amendments (File No. PA 08-01) was subject to full and proper review and public hearings were held before the Planning Commission on June 6, 2008 and December 9, 2008 and the City Council on March 17, 2009 and April 21, 2009.

Section 2. Findings. After full and due consideration of the proposal, Staff report, the record, findings and evidence presented at the public hearings, the Council finds that the proposed Brookman Concept Plan and Comprehensive Plan map and text amendments are consistent with all applicable local, regional and state requirements. The findings of fact and evidence relied upon are attached to this Ordinance as Exhibit A.

Section 3. Approval. The Plan Map & Text Amendments are hereby **APPROVED;** the specific amendments approved by this Ordinance are:

Exhibit A-1 – Final Concept Plan and dated May 2009
Exhibit A-2 – Appendix to the Concept Plan dated May 2009
Exhibit A-3 - Final Comprehensive Plan modifications dated May 22, 2009
Exhibit A-4 – Final Sherwood Plan & Zone Map modifications dated May 14, 2009

Section 4. Manager Authorized. The Planning Supervisor is hereby directed to take such action as may be necessary to document the adoption of said amendment.

Section 5. Effective Date. This ordinance shall become effective the 30th day after its final adoption by the City Council and signature of the Mayor.

Duly approved by the City Council and signed by the Mayor this 2nd day of June 2009.

Keith S. Mays, Mayor

Attest:

Sylvia Murphy, City Recorder

	AYE	NAY
Folsom	✓	
Clark	✓	
Weislogel	✓	
Henderson	✓	
Grant	✓	
Heironimus	✓	
Mays	✓	

Exhibit A – 6-2-09 City Council meeting

City of Sherwood June 2, 2009
STAFF REPORT: File No: PA 08-01 – Brookman Addition Concept Plan

Signed: _____

Julia Hajduk, Planning Manger

I. INTRODUCTION

The report is organized into the following sections:

I. Introduction
II. Background (Public Involvement & Proposal Overview)
III. Affected Agency, Measure 56 Public Notice, and Public Comments
IV. Type 5 – Legislative Plan Amendment Criteria and Findings of Fact
  A. Local standards
  B. State standards
  C. Regional standards
V. Recommendation
VI. Attachments/record

The Brookman Concept Plan has been in development since April 2007. The Steering Committee provided input and guidance on the development of the concept plan which led to the April 2008 Steering Committee Recommendation. In June 2008 the Planning Commission began public hearings and work sessions on the plan and provided initial input that led to a hybrid version of the Plan very similar to the final concept plan being considered by the City Council. While the ultimate recommendation to the City Council was to modify the proposed land use within the concept plan area significantly, the Council provided policy direction to staff at their February 17, 2009 meeting to proceed with the hybrid version. The Council held a hearing on March 17, 2009 and April 21, 2009 and provided direction to staff to prepare final documents for adoption. This report, including analysis and findings, and the attached documents reflect the Council direction provided.

The proposed Concept Plan is included as Attachment 1 with Attachment 2 being an Appendix to the Concept Plan. The Concept Plan will be adopted and implemented through amendments to the Comprehensive Plan (Part 2) including proposed text changes to Chapter 8 (Attachment 3) and a proposed map amendment (Attachment 4). Further implementation of policies and recommendations in the newly adopted portions of the Comprehensive Plan will be forthcoming through amendments to the Sherwood Zoning & Community Development Code (SZCDC - Part 3), Transportation System Plan, Water Master Plan, Sanitary Sewer Master Plan, Park Master Plan and Stormwater Master plan.

Finally, the Comprehensive Plan zone designation does not officially apply to a property until the property is annexed into the City of Sherwood. It is recommended within this report and in the concept plan policies, that an annexation plan be required prior to annexation. An annexation plan would ensure funding for necessary improvements, Transportation Planning Rule (TPR) compliance and implementation of the Concept Plan vision.

II. BACKGROUND

Background

The purpose of this Brookman Addition Concept Plan is to provide a conceptual guide to the area's development as a new addition to Sherwood. As such, it articulates a clear and coherent vision for the area. The Concept Plan identifies future land uses, parks and trails, natural resource areas,

transportation improvements, and public facilities – all guided by planning efforts developed with substantial public involvement.

This Concept Plan implements Metro's decision in 2002 to expand the regional urban growth boundary (Metro Ordinance 2002-969B). The Sherwood City Council initiated the public process to comprehensively plan for the area prior to annexation and development. This represents an update of a similar plan completed in 2000 for this area. The *Southern Expansion Concept Plan*, developed in 2000, was primarily for discussion purposes. While it was never fully adopted, that plan was detailed and went through a public involvement process. For those reasons, elements of that plan were considered in the development of this concept plan.

The plan area consists of 247 acres and is located at the southern edge of Sherwood. A relatively narrow swath of land (only 1,300 feet wide in its north-south dimension), it is generally defined as bordered by Pacific Highway (99W) to the west, Brookman Road to the south, Ladd Hill Road to the east and existing residential development (and the current city limits) to the north.

Running north-south through the site are the Old Pacific Highway, an existing rail corridor and Cedar Creek. The land is a combination of moderately sloped areas adjacent to Goose Creek and Cedar Creek, and the lower slopes of Ladd Hill along Ladd Hill Road. These landforms and drainages create a series of small hills and dips that one experiences when traveling east-west along Brookman Road.

To the north, the Brookman Addition is bordered by existing residential neighborhoods and Sherwood's largest master planned community, Woodhaven. The area is approximately 2 miles from downtown Sherwood via the direct connection of Main Street and Ladd Hill Road (one of few continuous north-south routes in the City). Brookman Addition borders rural and agricultural lands to the south, which transition to the beautiful and visually impressive slopes and ridgeline of Ladd Hill.

Process and Public Involvement
The Concept Plan was developed by a 16-member Steering Committee representing residents and property owners in the Brookman Road area, Sherwood citizens, the Woodhaven Homeowners Association, the Arbor Lane Homeowners Association, Sherwood City Council and Planning Commission, Sherwood Parks Board, Sherwood School District, Metro, Washington County, Clean Water Services, Oregon Department of Transportation, and Raindrops to Refuge. The committee met seven times between May 2007 and February 2008.

In addition to the Committee meetings, additional process steps and community involvement included:

- Study area tour by the consultant team
- Two public open houses
- Project website with regular updates
- On-line opportunities to comment following the open houses
- Monthly updates in the Sherwood Gazette
- Email notice and extensive mailing prior to each public event

Early and continuous public outreach and involvement was coordinated and timed to coincide with project tasks and key outcomes. The major milestones in the process were:

- Development of a public involvement plan
- Inventory of base conditions and projections of market demand, land use, transportation, natural resources and infrastructure needs
- Establishment of project and concept plan goals
- Development of three alternative concept plans

- Evaluation of alternatives and development of a draft concept plan incorporating the most desired elements
- Refinement of the concept plan and preparation of implementation strategies
- Submission and endorsement of the final Concept Plan and implementation strategies

Appendix A to the Draft Concept Plan is the public involvement report providing a detailed list of the public involvement milestones and outcomes during this process.

After the Steering Committee recommendation, the Planning Commission held a public hearing June 10, 2008 and then a series of work sessions followed by an additional public hearing on December 9, 2008. Both public hearings were officially noticed (including Measure 56 notice for properties within the project area) in addition to periodic updates to the interested parties list prior to and after the works sessions.

The City Council held a public hearing on March 17, 2009 and April 21, 2009 and provided direction to staff to prepare final documents for adoption by Ordinance at the June 2, 2009 City Council meeting.

Proposal Overview
The Comprehensive Plan was amended in 2006 with the implementation of the Area 59 Concept Plan to provide a framework for future concept plans. The proposal is to adopt the Brookman Addition Concept Plan by reference and incorporate the key findings and recommendations from that concept plan into Chapter 8 of the Comprehensive Plan (Urban Growth Boundary Additions). Implementation of the Concept Plan as part of this proposal will also include the adoption of amendments to the Comprehensive Plan Map to include new zoning designations for the Brookman Road area. The actual zone does not change until annexation occurs.

III. AFFECTED AGENCY, PUBLIC NOTICE, AND PUBLIC COMMENTS

The City of Sherwood sent an electronic notice to DLCD on April 25, 2008, 45 days prior to the first evidentiary hearing. Notice was sent to Metro and ODOT on May 13, 2008. Mailed public notice, including Measure 56 notice, was provided on May 21, 2008, which exceeds the City requirement of 10 days prior to the first evidentiary hearing. In addition, Metro's Title 11 (Chapter 3.07.1140) requires notice sixty (60) days prior to adoption. Notice was sent to all agencies on May 22, 2008 therefore Metro has received notice more than 60 days prior to adoption. The City has continued to stay in contact with Metro and ODOT throughout this process to ensure they are up to date on the status and potential issues as the hearing process has progressed.

Agency Comments
Formal agency comments are included in the record and attached as Attachment 5A-5F to the 3/17/09 City Council Staff Report. The following is a summary of agency and public comments received:

PGE indicates that "PGE has overhead poles & wire (facilities) on Brookman Rd.(the portion running N/S) west of Ladd Hill Rd. PGE overhead on Brookman Rd. running east - west on the south side of Brookman Rd. all the way to Pacific Hwy 99W. We have OH facilities on Old Pacific (Capital) Hwy. north of Brookman rd., SW Middleton Rd. north of Brookman & on SW Pearl St. off Middleton. These facilities could be relocated or undergrounded per PGE Tariff filed with the PUC of Oregon. PGE would not underground our facilities if it didn't involve 5 poles or more at one time. If the subdivision development along any of the above mentioned roads were to be done, the city would need to provide the necessary facilities to underground our lines beyond the current development, if that development involved less than 5 PGE poles.

Any of the distribution lines, transformer and services currently serving PGE customers would be removed or relocated according to the disposition of the property it serves. If the structure was demolished PGE would remove any facilities that did not require a metered service or customer any more. If the home or facility we are serving remains within the new development, the developer would be responsible for undergrounding the existing OH facilities or rerouting the current underground facilities with PGE replacing or rerouting their facilities.

PGE has no transmission (115KV and above) facilities within this current Brookman Study area."

Clean Water Services provided general comments that will apply when development occurs but also noted that the area would need to be annexed into Clean Water Services District boundaries before any development could occur that would require Sanitary or storm sewer.

Washington County indicated that they did not have specific comments at this time, but noted that Brookman Road and Middleton are County Facilities.

Kinder Morgan, The City of Sherwood Broadband Manager and **ODOT Sign Program** responded indicating that they did not have any comments.

ODOT submitted comments prior to the public hearing with recommended changes to ensure compliance with the Transportation Planning Rule. There recommendations have been incorporated in to the staff report. The ODOT letter is Exhibit 5F to the 3/17/09 City Council Staff report.

METRO provided a letter after the March meeting which was included in the April 21, 2009 Council packet. The letter indicated that Metro will not support additional employment land and does not support designating Red Fern as bicycle, pedestrian and emergency access only. They do however support traffic calming and other strategies to reduce and limit the volumes on the street, including the language proposed in the concept plan and comprehensive plan policy text.

Staff note: Based on discussion and direction from Council at the 4/21/09 meeting, this report has been updated with additional findings on functional plan compliance with the limit of Redfern to pedestrian, bicycle and emergency access only.

Public Comments

Public comments were accepted throughout the process. Both the Planning Commission and City Council took written and verbal testimony. Written public testimony received by the Planning Commission and Council is attached to the 3/17/09 staff report and the 4/21/09 Council packet.

IV. REQUIRED FINDINGS FOR A PLAN TEXT AMENDMENT

A. Local Standards

The City shall find that the following criterion is met by the proposed amendment:

1. Section 4.203.01 Text Amendment Review Criteria

"An amendment to the text of the Comprehensive Plan shall be based upon the need for such an amendment as identified by the Council or the Commission. Such an amendment shall be consistent with the intent of the Comprehensive Plan, and with all other provisions of the Plan and Code, and with any applicable State or City statutes and regulations."

FINDING: The following section of this report addresses the need for the plan map and text amendments as well as consistency with the Plan policies and applicable regional and state standards.

2. Section 4.203.02 Map Amendment Review Criteria

A. The proposed amendment is consistent with the goals and policies of the Comprehensive Plan.

Compliance with the Comprehensive Plan policies is discussed below in IV.A.3

B. There is an existing and demonstrable need for the particular uses and zoning proposed, taking into account the importance of such uses to the economy of the City, the existing market demand for any goods or services which such uses will provide, the presence or absence and location of other such uses or similar uses in the area, and the general public good.

Metro underwent an exhaustive and rigorous process to determine a regional residential land supply and made a policy decision to add the Brookman Addition (Area 54/55) into the Urban Growth Boundary. In addition, at the beginning of the process to develop the concept plan, a market analysis was done to determine the need for the zones currently proposed. This analysis found that the need exists for the zones proposed. During Planning Commission work sessions, much discussion occurred regarding whether additional employment land could be supported in this area given the Economic Opportunities Analysis (EOA) the City has recently adopted. Based on initial Commission direction, the consultant team re-designed the concept plan to increase employment to 28.71 acres (which is roughly equivalent to the high end demand identified in the market analysis) and modified the density accordingly to stay within the Metro requirements. Based on this revision, DKS determined that an increase in employment land had no significant effect on the transportation system and identified improvements.

FINDING: As discussed above, the concept plan provides an appropriate combination of zoning addressing identified local and regional land use needs.

C. The proposed amendment is timely, considering the pattern of development in the area, surrounding land uses, any changes which may have occurred in the neighborhood or community to warrant the proposed amendment, and the availability of utilities and services to serve all potential uses in the proposed zoning district.

Clearly, the proposal is timely given the Brookman area was added to the UGB in 2002 and the original deadline to complete concept planning was March 2006. While Metro approved an extension for two years for the development of a concept plan to allow the City additional time to secure funding and see how the I-5/99W connector project was proceeding, a concept plan still must be completed to comply with the Metro requirements. The concept plan outlines the need for new residential, commercial and office land in a pattern that is interconnected where possible and compatible in land use. The concept plan has determined that public facilities are available and could be extended to serve the concept plan area. The planning effort identified cost estimates, however, because the cost to extend services exceeds existing funds and existing funding sources in some instances, it is recommended that prior to annexation, a potential developer work with the City to submit a plan for how they intend to develop the area and provide services. The plan would need to be approved by the City Council prior to or concurrent with annexation.

FINDING: As discussed above, because utilities are not immediately available to serve this concept plan area, it is recommended that annexation of the area be subject to a detailed plan for funding and extending services. This is conditioned further in this report under B (State standards), 1 (Transportation Planning Rule).

D. Other lands in the City already zoned for the proposed uses are either unavailable or unsuitable for immediate development due to location, size or other factors.

This criterion is intended for zone change applications for land inside the city limits instead of new UGB additions and therefore, this standard is not applicable to UGB expansion areas. In addition, based on the market analysis performed at the beginning of the concept planning process, it was found that additional properties with the proposed zones are needed to meet a demonstrable need, regardless of the "other lands in the City already zoned for the proposed uses".

FINDING: As discussed above, this standard is satisfied.

3. Comprehensive Plan Policies

Chapter 4:

Section E (Residential Land Use), Subsection 2 (Residential Planning Designations)

Policy 1 - Residential areas will be developed in a manner which will insure that the integrity of the community is preserved and strengthened.

Policy 2 - The City will insure that an adequate distribution of housing styles and tenures are available.

Policy 3 - The City will insure the availability of affordable housing and locational choice for all income groups.

Policy 4 - The City shall provide housing and special care opportunities for the elderly, disadvantaged and children.

Policy 5 - The City shall encourage government assisted housing for low to moderate income families.

Policy 6 - The City will create, designate and administer five residential zones specifying the purpose and standards of each consistent with the need for a balance in housing densities, styles, prices and tenures.

The plan is consistent with the residential planning designation policies by providing a range of densities from Medium Density Residential Low to High Density Residential which will provide for a mix of housing types that meets the needs at all income levels, including single-family detached and attached, townhouses, condominiums and apartments. Of the five potential residential zones available, three have been allocated for the Brookman Area. This mix of densities provides the Metro-required average density of 10 units per acre while allowing for transitions from the existing residential areas to the north towards a higher density mixed use neighborhood center along Old Pacific Highway.

FINDING: The concept plan and proposed map and text amendment are consistent with these policies.

Section I.2 (Commercial Planning Designations)

Policy 1 - Commercial activities will be located so as to most conveniently service customers.

Policy 2 - Commercial uses will be developed so as to complement rather than detract from adjoining uses.

Policy 3 - Highway 99W is an appropriate location for commercial development at the highway's intersections with City arterial and major collector roadways.

The concept plan is consistent with the applicable commercial designation policies by providing for commercial uses within close proximity to 99W and along Old Pacific Highway, a designated Collector. The locations are conveniently located to serve the High Density Residential and Medium Density Residential zones within the concept plan area as well as the existing community.

FINDING: The concept plan and proposed map and text amendment are consistent with these policies as proposed and modified with recommended conditions.

Section K.2 (Industrial Planning Designation)

Policy 1 - Industrial uses will be located in areas where they will be compatible with adjoining uses, and where necessary services and natural amenities are favorable.
Policy 2 - The City will encourage sound industrial development by all suitable means to provide employment and economic stability to the community.

The plan proposes light industrial office uses as a complement to the commercial and residential uses proposed. Because the LI zone allows manufacturing, which may not be compatible with the residential portion, it may be necessary to limit the uses to ensure the area is developed in the way envisioned in the concept plan. This can occur through the master planning or planned unit development process recommended for the western area (discussed further in this report) and further implementation of the concept plan vision through updates to the development code.

FINDING: The concept plan and proposed map and text amendment are consistent with these policies as proposed and modified with recommended conditions.

Section O (Community Design)

Policy 1 -The City will seek to enhance community identity, foster civic pride, encourage community spirit, and stimulate social interaction through regulation of the physical design and visual appearance of new development.
Policy 2 - The formation of identifiable residential neighborhoods will be encouraged.
Policy 3 - The natural beauty and unique visual character of Sherwood will be conserved.
Policy 4 - Promote creativity, innovation and flexibility in structural and site design.

The plan and plan policies meet the above policy goals by establishing a conceptual plan that includes preservation of open spaces, parks, an integrated trail system, mixed use commercial areas and both residential and commercial/office uses in close proximity to reinforce the area as a new residential neighborhood that is also connected to and expands upon the existing community.

FINDING: The concept plan and proposed map and text amendment are consistent with these policies.

Chapter 5:

Section C.3 (Natural resources and Hazards)

Policy 2 - Habitat friendly development shall be encouraged for developments with Regionally Significant Fish and Wildlife Habitats identified as Map V-2
Policy 3 - Prime agricultural soils will be reserved from development until required for other uses
Policy 4 - Provide drainage facilities and regulate development in areas of runoff or erosion hazard.

Open space, fish and wildlife habitat, and historic resources (Goal 5) will be protected. The plan has been developed with consideration of Metro's Goal 5 inventory. The concept plan reflects those areas identified under the Tualatin Basin Program as undevelopable by removing them from the density calculations. Underlying zoning has been applied, even to those identified as potential natural resources, because on the ground determinations were not made as part of this project. The City can and will require a wetland determination and delineation of wetlands and floodplains when a land use action is proposed if deemed necessary.

FINDING: The concept plan and proposed map and text amendment is consistent with these policies.

Section E.3 (Recreational Resources Policies)
Policy 1 - Open Space will be linked to provide greenway areas.
Policy 2 - The City will maximize shared use of recreational facilities to avoid cost duplication.
Policy 5 - The City will protect designated historic and cultural landmarks in accordance with the Code standards.

The plan is consistent with the applicable recreational resources Policy 1 by providing linked greenways connecting to exiting greenways and providing a trail network connection both the new development and the existing developments. The plan also recommends combing water quality facilities with parks and open spaces to maximize shared uses consistent with policy 2.

Regarding Policy 5, the planning process did not evaluate historic features as part of this scope, and therefore there are no "designated" historic resources. Staff conducted a review of state database records as well at the City's inventory if historic resources and found none previously designated. However there are some "features" of potential historical significance. Most notably is the Middleton Cemetery which was platted by the County in 1899 and the "Town of Middleton" which was originally platted in 1889 with some right of way vacations in 1911. The plan assumes that the cemetery will remain undeveloped and the Plan builds upon the historic Middleton subdivision pattern by keeping the street network generally intact. A review of the tax assessor's data indicates that the oldest structure was built in 1901 (24351 SW Middleton Rd). There are 6 additional structures built prior to 1930 which are generally located in the vicinity of the Middleton Subdivision. While there is no proposal to formally identify resources within this area as historic, the development code currently specifies a process for designation of Historic Landmarks. Should the Council, property owner or citizens initiate a landmark designation, it would be reviewed consistent with Chapter 16.166.030 of the Sherwood Development Code as a Plan Amendment.

FINDING: The concept plan and proposed map and text amendment are consistent with these policies.

Section F.(Energy Resources)
Policy 4 - The City will encourage energy efficiency in the design and use of sites, structures, transportation systems and utilities.

The area has been designed, consistent with Metro requirements, to provide an average residential density of 10 units per acre with higher densities focused around a mixed use commercial and employment area. This compact design with multi-modal

transportation choices encourages energy efficiency by providing opportunities for people to live near where they work and walk instead of drive.

FINDING: The concept plan and proposed map and text amendment are consistent with these policies.

Chapter 6, Goal 1
Provide a supportive transportation network to the land use plan that provides opportunities for transportation choices and the use of alternative modes serving all neighborhoods and businesses.

Policy 1 – The City will ensure that public roads and streets are planned to provide safe, convenient, efficient and economic movement of persons, goods and services between and within the major land use activities. Existing rights of way shall be classified and improved and new streets built based on the type, origin, destination and volume of current and future traffic.

Policy 2 – Through traffic shall be provided with routes that do not congest local streets and impact residential areas. Outside traffic destined for Sherwood business and industrial areas shall have convenient and efficient access to commercial and industrial areas without the need to use residential streets.

Policy 3 – Local traffic routes within Sherwood shall be planned to provide convenient circulation between home, school, work, recreation and shopping. Convenient access to major out-of-town routes shall be provided from all areas of the city.

Policy 4 – The City shall encourage the use of more energy-efficient and environmentally-sound alternatives to the automobile by:

- **The designation and construction of bike paths and pedestrian ways;**
- **The scheduling and routing of existing mass transit systems and the development of new systems to meet local resident needs; and**
- **Encouraging the development of self-contained neighborhoods, providing a wide range of land use activities within a single area.**

Policy 6 – The City shall work to ensure the transportation system is developed in a manner consistent with state and federal standards for the protection of air, land and water quality, including the State Implementation Plan for complying with the Clean Air Act and the Clean Water Act.

Policy 7 – The City of Sherwood shall foster transportation services to the transportation-disadvantaged including the young, elderly, handicapped, and poor.
Policy 8 – The City of Sherwood shall consider infrastructure improvements with the least impact to the environment.

The planned transportation system is generally consistent with the existing Transportation System Plan (TSP) by providing as much connectivity as possible while respecting the natural resources and physical barriers such as the railroad, topography, physical constraints on existing streets, and Pacific Highway. Recommendations for specific improvements will ensure that traffic routes and intersections are not congested beyond acceptable levels. Traffic analysis and public input indicated that Policy 2 would not be met if an extension of Red Fern were provided per the steering committee recommendation. Part of the January 2009 Planning Commission recommendation to the City Council was to remove the vehicular

connection of Red Fern from the plan and make it emergency access and bicycle pedestrian only. The revised concept plan reflects the direction that Red Fern should be pedestrian, bicycle and emergency access only.

The transportation concept was developed with consideration to the infrastructure costs and potential impact to the environment and, as a result, fewer connections through natural resource areas are planned.

FINDING: As discussed above, the proposed concept plan and Comprehensive Plan zoning is consistent with this policy.

Chapter 7:

Objective 1 – Develop and implement policies and plans to provide the following public facilities and services: public safety fire protection, sanitary facilities, water supply, governmental services, health services, energy and communication services, and recreation facilities

Objective 2 - Establish service areas and service area policies so as to provide the appropriate kinds and levels of services and facilities to existing and future urban areas. (Page 2)

Objective 3 - Coordinate public facility and service plans with established growth management policy as a means to achieve orderly growth. (Page 2)

Objective 4 - Coordinate public facility and service provision with future land use policy as a means to provide an appropriate mix of residential, industrial and commercial uses. (Page 2)

The City of Sherwood will be the primary provider of urban services with the exception of fire protection. Service areas will not extend outside the Brookman area with the exception of sanitary sewer which is proposed to extend within the creek bed of Cedar Creek. This creek runs outside the existing UGB for a distance of approximately 2,250 feet before returning back to the Brookman area and continuing northwest; however, this line will not provide sewer service to any areas outside the UGB. The plan has been developed with consideration of existing and recently adopted master plans and considered the appropriate mix of residential, industrial and commercial uses with the ability to serve them in mind.

FINDING: The concept plan and proposed map and text amendment is consistent with these policies.

Chapter 8 (Urban Growth Boundary Additions)

Policy 1 - Focus growth into areas contiguous to existing development rather than "leap frogging" over developable property.

Policy 2 - Encourage development within areas that have access to public facility and street extensions in the existing city limits.

Policy 6 - Provide multi-modal access and traffic circulation to all new development that reduces reliance on single occupant vehicles (SOV) and encourages alternatives to cars as a primary source of transportation.

Policy 7 - Establish policies for the orderly extension of community services and public facilities to areas added for new growth consistent with the ability of the community to provide necessary services. New public facilities should be available in conjunction or concurrently with urbanization in order to meet future needs. The City, Washington County, and special service districts should cooperate in the

development of a capital improvements program in areas of mutual concern. Lands within the urban growth boundary shall be available for urban development concurrent with the provision of the key urban facilities and services.
Policy 8 - Provide for phased and orderly transition from rural to suburban or urban uses. Larger UGB expansion areas shall include a phased development plan to achieve a sustainable transition over time.

The plan has been developed consistent with the applicable Urban Growth Boundary Addition policies 1, 2 and 6 by providing for a transportation system than builds upon the existing network along with mitigating improvements where impacts are anticipated. Development is planned with higher densities near employment and retail areas along with a network of walking trails connecting the developments within the concept plan area and the existing community. The Brookman Addition is contiguous to the existing city limits and no "leap frogging" over developable property is proposed.

Through the implementation and annexation of the Concept Plan area, it is recommended that an annexation plan be required prior to consideration for annexation. A plan for annexation should detail more specifically a proposed development plan consistent with the Concept Plan along with a funding plan to ensure that improvements are made in an orderly and sustainable manner. By making this a condition of any annexation within this area, Policies 7 and 8 identified above would be addressed. This is discussed in more detail and an additional condition recommended further in this report under discussion of the Transportation Planning Rule (IV.B.1)

FINDING: As discussed above, the Urban Growth Management Polices are not fully met, but will be met as conditioned further in this report.

B. State Standards

1. **Transportation Planning Rule (TPR):** The City finds that the proposed concept plan complies with applicable requirements of the state Transportation Planning Rule (OAR 660-12-0060) Plan and Land Use Regulation Amendments:

(1) Amendments to functional plans, acknowledged comprehensive plans, and land use regulations which significantly affect a transportation facility shall assure that allowed land uses are consistent with the identified function, capacity, and performance standards (e.g. level of service, volume to capacity ratio, etc.) of the facility. This shall be accomplished by either:

(a) Limiting allowed land uses to be consistent with the planned function, capacity, and performance standards of the transportation facility;
(b) Amending the TSP to provide transportation facilities adequate to support the proposed land uses consistent with the requirements of this division;
(c) Altering land use designations, densities, or design requirements to reduce demand for automobile travel and meet travel needs through other modes; or
(d) Amending the TSP to modify the planned function, capacity and performance standards, as needed, to accept greater motor vehicle congestion to promote mixed use, pedestrian friendly development where multimodal travel choices are provided.

(2) A plan or land use regulation amendment significantly affects a transportation facility if it:

(a) Changes the functional classification of an existing or planned transportation facility;

(b) Changes standards implementing a functional classification system;
(c) Allows types or levels of land uses which would result in levels of travel or access which are inconsistent with the functional classification of a transportation facility; or
(d) Would reduce the performance standards of the facility below the minimum acceptable level identified in the TSP.

The plan does not envision changing the functional classification of any of the existing roads from the current TSP; however, without mitigation, the concept plan zoning would reduce the performance standards below the minimum acceptable level of the TSP. It is therefore determined that the plan, once implemented via annexation and assignment of the specific zoning, would significantly affect the transportation system. Staff has analyzed the plan for compliance with the Transportation Planning Rule (TPR). The plan has been developed to comply through a combination of 1a-1c. Specifically:

1a - as the plan was developed, commercial zones were modified/limited from the original plans to ensure level of service remained within acceptable ranges on existing roads and intersections. The plan provides for high density residential near mixed use, commercial and office areas which will allow and encourage non-vehicular transportation. In addition, the plan identifies a network of multi-use paths that will encourage residents to walk to the new commercial areas as well as connect to the existing pedestrian system that connects to Old Town.

1b - The TSP will need to be updated to ensure full compliance with the TPR to reflect the recommendations of the Concept Plan. The TSP is scheduled for an update to address a few specific issues as well as to incorporate assumptions and recommendations of the concept plan.

1c - The plan and specifically Appendix B (Attachment 2) identifies specific improvements and costs to mitigate the impacts to comply with the TPR and level of service (LOS) standards. In order to fully comply with the TPR, a funding commitment for the improvements specified to comply with the TPR must be demonstrated. The plan identifies potential funding sources/options but does not provide or recommend a specific funding plan or mechanism for funding specific improvements. Because properties cannot develop until they have been annexed and zoning is subsequently changed to reflect urban zoning, it is necessary and appropriate to require that, prior to annexation, an annexation plan, accepted by the City via resolution, be required that identifies specific improvements. ODOT provided comments indicating that the annexation plan must also establish a funding mechanism or combination of mechanisms to ensure that land is not brought into the City and zoned for urban development without funding determined. The proposed comprehensive plan policies (8.2.a) include the requirement that annexation, and assignment of zoning can only occur if a plan is prepared and adopted to ensure that a funding mechanism or combination of reasonably likely funding mechanisms are in place for the necessary infrastructure improvements consistent with the funding options identified in the concept plan and in full compliance with the Transportation Planning Rule. With this policy, the City is confident that they will be able to fund the improvements identified in the concept plan and is committed to funding improvements with the funding options identified in the Plan.

FINDING: As discussed above, this standard is met.

2. Statewide Land Use Planning Goals

Goal 1: Citizen Involvement – This Goal calls for "the opportunity for citizens to be involved in all phases of the planning process." It requires each city and county to have a citizen involvement program containing six components specified in the goal. It also requires local governments to have a committee for citizen involvement (CCI) to monitor and encourage public participation in planning.

Appendix A to the concept plan (Attachment 2) provides a summary of the citizen involvement opportunities provided through the development of the Steering Committee recommendation. The Planning Commission, which is the designated Citizen Involvement Committee under this goal, provides advisory recommendations to the City Council for review and adoption.

FINDING: The plan has been developed consistent with this Goal.

Goal 2: Land Use Planning - outlines the basic procedures of Oregon's statewide planning program. It says that land use decisions are to be made in accordance with a comprehensive plan, and that suitable "implementation ordinances" to put the plan's policies into effect must be adopted. It requires that plans be based on "factual information"; that local plans and ordinances be coordinated with those of other jurisdictions and agencies; and that plans be reviewed periodically and amended as needed. Goal 2 also contains standards for taking exceptions to statewide goals. An exception may be taken when a statewide goal cannot or should not be applied to a particular area or situation.

The concept planning process weighed a number of land uses and zoning designations that address the local, state and regional standards. The plan was developed based on factual information regarding existing conditions and projected demands on infrastructure and density. The plan was developed with Washington County, Metro and ODOT representation on the Steering Committee and adjacent communities notified of key actions, updates and meetings through the interested parties' list notifications.

FINDING: The plan has been developed consistent with this Goal.

Goal 3: Agriculture
This goal does not apply.

Goal 4: Forestry
This goal does not apply.

Goal 5: Natural Resources - covers more than a dozen natural and cultural resources such as wildlife habitats and wetlands. It establishes a process for each resource to be inventoried and evaluated. If a resource or site is found to be significant, a local government has three policy choices: preserve the resource, allow proposed uses that conflict with it, or strike some sort of a balance between the resource and the uses that would conflict with it.

The plan was developed using the Metro inventory of significant natural resources and, once brought into the City, the Tualatin Basin Program as implemented by the City will apply. The City implemented the Basin program in 2007 after over 5 years of regional, county-wide and local discussion of the resource values compared to the ESEE consequences of prohibiting development in those resources. Because the Basin program as implemented by the City is compliant with Goal 5 at both the Regional and State level,

additional Goal 5 analysis was not conducted for this project in respect to natural resources.

As discussed previously under IV.A.3, Chapter 5, Section E.3, the project did not include scope to analyze in depth the potential for historic resources and none were raised as significant at the steering committee or public open house discussions. State rules encourage inventorying of historic resources, but does not mandate it to comply with Goal 5. In addition, unless a property owner accepts being designated as a historic resource, the City cannot designate a specific property as a historic resource that is subject to restrictions. Because the concept planning process did not designate historic resources, this element of the goal 5 standards is not applicable.

FINDING: The plan has been developed consistent with this Goal.

Goal 6: Air and Water Quality - requires local comprehensive plans and implementing measures to be consistent with state and federal regulations on matters such as groundwater pollution.

Sherwood is located in the Portland Metropolitan Air Quality Management Attainment Area. The proposal encourages alternative modes and transportation demand management to reduce reliance on the automobile and improve air quality.

FINDING: The plan has been developed consistent with this Goal.

Goal 7: Natural Hazards - deals with development in places subject to natural hazards such as floods or landslides. It requires that jurisdictions apply "appropriate safeguards" (floodplain zoning, for example) when planning for development there.

FINDING: This goal does not apply to this concept plan as the City already has "appropriate safeguards" in place for development within the floodplain.

Goal 8: Recreation - This goal calls for each community to evaluate its areas and facilities for recreation and develop plans to deal with the projected demand for them. It also sets forth detailed standards for expedited siting of destination resorts.

The plan in Exhibit A provides for approximately 8.29 acres of neighborhood and community park land in addition to tot lots and open spaces associated with natural resource protection, pedestrian paths and water quality facilities. In order to fully implement the park standard an update to the Park System Master Plan to ensure this acreage is factored into the Parks Board program and allocation of potential SDC's will be needed. In addition, it will be necessary to update the development code to require the dedication of land for small neighborhood lots in conjunction with individual developments to ensure that the "tot-lots" are provided in addition to the community and neighborhood parks at the local level. This is identified in proposed comprehensive policy 5.2.

While there has been some discussion from concerned property owners that the park locations identified in the hybrid plan are inappropriately located due to topography and proximity to natural resources, it is understood that the locations identified only conceptual locations to illustrate the overall size of parks and the desire to distribute the parks amongst the 3 sub-areas. To ensure this is more clear, comprehensive plan policy 5.1 was amended to state "Establish an open space network consistent with the Open Space Framework plan in terms of overall park acreage, general size of neighborhood and

community parks and distribution of parks amongst the 3 sub-areas. The ultimate locations of parks shall be determined by the City and Parks Board as land becomes available and in consideration of all applicable park needs and siting standards."

FINDING: The plan has been developed consistent with this Goal.

Goal 9: Economic Development - calls for diversification and improvement of the economy. It asks communities to inventory commercial and industrial lands, project future needs for such lands, and plan and zone enough land to meet those needs

Although employment zones are not a requirement by Metro for the Brookman area, the proposal allows for a mix of commercial, office and mixed use. Metro verified that, while not required, there is not a specific limit on the amount of employment land provided for in the concept planning area provided justification can be made for the need.

In 2007, the City completed an Economic Opportunities Analysis (EOA) in compliance with Goal 9 that identified a long term commercial and industrial land need. While the City has not conducted a housing needs analysis since the Comprehensive Plan was updated in 1991, it is understood that there is currently a jobs/housing imbalance of 80% housing to 20% jobs. With that in mind, along with the EOA findings, a market analysis was conducted to determine the market viability for commercial and/or industrial land in this specific location. The analysis (Attachment 7 to the 3-17-09 Council packet) analyzed a 20 year demand for residential, commercial and industrial uses and made specific recommendations for the Brookman Addition area. The resulting recommendation was for 10-26 acres of non-residential zoning in this location. While the Steering Committee recommended plan provided 14.09 acres, the Commission questioned whether this was sufficient and requested staff and the consultant to re-review the steering committee recommendation to provide the maximum employment land identified by the Market Analysis. The concept plan was revised to provide 28.71 acres of non-residential land and will provide for diverse land uses that help improve the inventory of commercial and industrial land.

FINDING: The plan has been developed consistent with this Goal.

Goal 10: Housing - This goal specifies that each city must plan for and accommodate needed housing types, such as multifamily and manufactured housing. It requires each city to inventory its buildable residential lands, project future needs for such lands, and plan and zone enough buildable land to meet those needs. It also prohibits local plans from discriminating against needed housing types.

The plan is consistent with Goal 10 by providing a range of densities from Medium Density residential Low to High Density Residential which will provide for a mix of housing types that meet the needs at all income levels, including single-family detached and attached, townhouses, condominiums and apartments. The planned land uses are consistent with the Metro 2040 Growth Concept Map design type for Outer Neighborhood and Title 11. A slightly higher density with mixed-use and interconnected transportation system will support transit and allow people to walk or bike. Sherwood will enter periodic review for Goal 10 in 2009 and will include a Goal 10 inventory and analysis in an approved work program to determine if a new land and housing policy is necessary.

FINDING: The plan has been developed consistent with this Goal.

Goal 11: Public Facilities - **calls for efficient planning of public services such as sewers, water, law enforcement, and fire protection. The goal's central concept is that public services should to be planned in accordance with a community's needs and capacities rather than be forced to respond to development as it occurs.**

This goal is addressed by the existing water, sanitary and storm sewer master plans that already have anticipated development within this area and identified projects that will ensure this area will be adequately served.

FINDING: The plan has been developed consistent with this Goal.

Goal 12: Transportation - **The goal aims to provide "a safe, convenient and economic transportation system." It asks for communities to address the needs of the "transportation disadvantaged."**

FINDING: The proposed concept plan was reviewed using the TPR standards. This staff report evaluates TPR criteria to make findings of fact and demonstrate compliance as discussed previously in this report.

Goal 13: Energy Conservation - **declares that "land and uses developed on the land shall be managed and controlled so as to maximize the conservation of all forms of energy, based upon sound economic principles."**

Compliance with Goal 13 is addressed through compliance of the City's Comprehensive Plan Policy (Chapter 3, Section F, Policy 4) regarding energy resources. As discussed previously the area has been designed to provide higher densities focused around a mixed use commercial and employment area. This compact design with multi-modal transportation choices encourages energy efficiency by providing opportunities for people to live near where they work and shop and further encourages people to walk instead of drive.

FINDING: The plan has been developed consistent with this Goal.

Goal 14: Urbanization - **This goal requires cities to estimate future growth and needs for land and then plan and zone enough land to meet those needs. It calls for each city to establish an "urban growth boundary" (UGB) to "identify and separate urbanizable land from rural land." It specifies seven factors that must be considered in drawing up a UGB. It also lists four criteria to be applied when undeveloped land within a UGB is to be converted to urban uses.**

FINDING: In the Portland Metropolitan Area, Metro has the burden and authority to conduct growth and land need projections and determine whether and where to expand the Urban Growth Boundary, therefore, Sherwood cannot address urbanization criteria outside the existing Comprehensive Plan policies.

C. Regional Standards

1. Title 11

All territory added to the Urban Growth Boundary as either a major amendment or a legislative amendment pursuant to Metro Code Chapter 3.01 shall be subject to adopted comprehensive plan provisions consistent with the requirements of all applicable titles of the Metro Urban Growth Management Functional Plan and in particular this Title 11. The comprehensive plan provisions shall be fully coordinated with all other applicable

plans. The comprehensive plan provisions shall contain an urban growth plan diagram and policies that demonstrate compliance with the RUGGO, including the Metro Council adopted 2040 Growth Concept design types. Comprehensive plan amendments shall include:

A. Specific plan designation boundaries derived from the general boundaries of design type designations assigned by the Council in the Ordinance adding the territory to the UGB.

The area was brought into the UBG with a general design type of inner neighborhood. The Plan has been designed consistent with the inner neighborhood designations with an average of 10 units per residential acre with 28.71 acres of employment land and retail to support the new neighborhood being planned as well as existing residential neighborhoods in the City.

FINDING: As discussed above this standard has been met.

B. Provision for annexation to the district and to a city or any necessary service districts prior to the urbanization of the territory or incorporation of a city or necessary service districts to provide all required urban services.

The Brookman Addition is currently in Washington County (with a small portion in Clackamas County). The City of Sherwood and Washington County have an urban planning area agreement (UPAA) specifying the City of Sherwood as the ultimate provider of urban services with the exception of Tualatin Valley Fire & Rescue, which will continue to provide emergency response services. Sherwood and Clackamas County have an Urban Growth Management Area agreement (similar to the UPAA) for the 27.3 acre portion in the eastern section of the planning area that is in Clackamas County. Under both agreements (the Washington County UPAA and Clackamas County Urban Growth Management Agreement, UGMA) it is agreed that the zoning shall be maintained as is so that development to urban densities cannot occur until the area is brought into the City.

Once the concept plan has been adopted and comprehensive plan zoning applies, annexation could potentially occur; however, as previously conditioned a plan for annexation would have be accepted by the Council prior to annexation demonstrating how the area brought into the City would be developed without negative financial impact to the existing Sherwood citizens.

FINDING: As discussed above, the concept plan is consistent with this standard provided an annexation plan is required prior to annexation of any or all of the Brookman Addition area.

C. Provision for average residential densities of at least 10 dwelling units per net developable residential acre or such other densities that the Council specifies pursuant to Section 3.01.040 of the Urban Growth Boundary Functional Plan.

The concept plan provides for a combination of zones including office and retail commercial, light industrial and medium density to high density residential. The average density for all land zoned residential is 10 units per acre. The determination of net developable residential acre was made after deducting the land assumed as wetland, floodplain, vegetated corridor, steep slopes, parks and open spaces, the existing cemetery and the proposed commercial and industrial zoned portions. As a result, if changes are made to the underlying assumptions, particularly regarding the amount of commercial or

industrial zoned property, parks and/or open spaces, the overall density will need to be recalculated to ensure continued compliance through adoption and implementation.

FINDING: As proposed in the concept plan this standard has been met.

D. Demonstrable measures that will provide a diversity of housing stock that will fulfill needed housing requirements as defined by ORS 197.303. Measures may include, but are not limited to, implementation of recommendations in Title 7 of the Urban Growth Management Functional Plan.

The existing Code and zones proposed for this area provide for a variety of lot sizes as well as the possibility for single family attached and detached dwellings, multi-family developments, condominiums and townhouses. In addition, the existing code allows for accessory dwelling units (ADU's) and home occupations to allow live/work which provide options for people to have additional income to off-set the costs of home ownership. The proposed zones do not distinguish among renter, owner occupied, or government assisted units thereby allowing all three types consistent with ORS 197.303.

FINDING: As discussed above, this standard is met.

E. Demonstration of how residential development will include, without public subsidy, housing affordable to households with incomes at or below area median incomes for home ownership and at or below 80 percent of area median incomes for rental as defined by U.S. Department of Housing and Urban Development for the adjacent urban jurisdiction. Public subsidies shall not be interpreted to mean the following: density bonuses, streamlined permitting processes, extensions to the time at which systems development charges (SDCs) and other fees are collected, and other exercises of the regulatory and zoning powers.

Affordable housing (Title 7) has largely been voluntary and Sherwood has made a policy choice not to adopt all of the land use provisions as a strategy to achieve affordable housing. However, the City has adopted provisions to allow: (1) accessory dwelling units (ADUs), (2) small lot sizes for attached housing, (3) manufactured housing, (4) encourage mixed-use development that typically includes apartments above commercial, (5) density transfer for open space, (6) waive planning fees under certain circumstances and conditions, and (7) streamlined most land use applications for housing to an "Administrative" (Type 2) and "Hearings' Officer" (Type 3) format in a 6-8 week processing performance goal. Notwithstanding these measures, the City Council also has the capability to waive SDC fees for affordable housing.

Even with all these land use and administrative measures, the median price of housing has continued to rise faster than median family income (MFI). According to the US Department of Housing and Urban Development (HUD), affordable housing is defined as a home that costs less than 30 percent of household income. Consequently, the overwhelming majority of new housing stock in the last five years has been single-family detached, generally above the median home price, and therefore out of reach for most households making at or below 80 percent of the median family income. **Table 2** illustrates the MFI and **Table 3** depicts the percentage of MFI for rent. The HUD Portland Area Median Income as of February 9, 2005 was $67,900 for a family of four[1]. Sherwood is part of the Metropolitan Statistical Area (MSA) that includes the four county region.

[1] Portland Development Commission, Housing Services. Median Income Levels (2005), April 21, 2005. http://www.pdc.us/housing_serv/general/mil.asp

Table 2: 2005 Portland-Vancouver, MSA - Median Family Income

Household Size	30%	50%	60%	**80%**	100%	120%	150%
1	14,250	23,750	28,500	**38,000**	47,550	57,050	71,300
2	16,300	27,150	32,600	**43,450**	54,300	65,200	81,500
3	18,350	30,550	36,650	**48,900**	61,100	73,350	91,650
4	20,350	33,950	40,750	**54,300**	67,900	81,500	101,850
5	22,000	36,650	44,000	**58,650**	73,350	88,000	110,000
6	23,650	39,400	47,250	**63,000**	78,750	94,500	118,150
7	25,250	42,100	50,500	**67,350**	84,200	101,050	126,300
8	26,900	44,800	53,800	**71,700**	89,650	107,550	134,450

Based on 2000 Census data, the average home price in Sherwood is $187,500, the median family income $67,277, and the average household size 2.77. Both tables have **bolded** household sizes for comparison and reference. The Portland area median sales price in March 2005 as compiled by the Regional Multiple Listing Service (RMLS) was $223,000.[2] Based on 2005 median family income and median sales price, a family would spend 30 percent of their income on a single-family unit.

Table 3: 2005 Housing Affordability: Maximum Monthly Rent Including Utilities by Median Family Income with a Housing Burden of 30%

No. of Bedrooms	Household Size	30%	50%	60%	**80%**	100%	120%	150%
Group Home	0.75	267	445	534	**713**	892	1,070	1,337
0	1	356	594	713	**950**	1,189	1,426	1,783
1	1.5	382	636	764	**1,018**	1,273	1,528	1,910
2	**3**	459	764	916	**1,223**	1,528	1,834	2,291
3	4.5	529	883	1,059	**1,412**	1,766	2,119	2,648
4	6	591	985	1,181	**1,575**	1,969	2,363	2,954
5	7.5	652	1,086	1,304	**1,738**	2,173	2,608	3,259

Alternatives to large lot single-family detached units, which would ideally cost less for first time homebuyers or provide a bridge to owner-occupied housing, are proposed through smaller lot sizes allowing single-family detached and attached units as in rowhouses and townhouses and multi-family development. According to Chapter 4 of the Comprehensive Plan (Part 2) the City has met its policy objectives.

FINDING: As demonstrated above, this standard has been met.

F. Provision for sufficient commercial and industrial development for the needs of the area to be developed consistent with 2040 Growth Concept design types. Commercial and industrial designations in nearby areas inside the Urban Growth Boundary shall be considered in comprehensive plans to maintain design type consistency.

As part of the development of the concept plan, a market analysis was completed to determine the demand for commercial and industrial land in the expansion area taking into

[2] RIVERA, DYLAN. Want to buy a home? Good luck: Portland-area inventory hits a new low despite big demand, *The Oregonian.* April 19, 2005.

account the location, transportation network, local needs and the needs of the neighboring market area (see Market Analysis). The market analysis determined that there is some small scale demand/support for commercial and office uses to support the local market but that the location was not ideal as a "draw" from the larger Market area due to its location, proximity to the transportation system, topography, etc. The recommendation was for 10-26 acres of non-residential zoning in this location. While the Steering Committee recommended the version that provided 14.09 acres, the Commission questioned whether this was sufficient and requested staff and the consultant to re-review the steering committee recommendation provide the maximum employment land identified by the Market Analysis. The current concept plan was revised to include 28.71 acres of employment land. The location of employment in both the steering committee recommended version and the current version provides access to the existing Sherwood residents as well as the higher density areas planned in the Brookman addition. The plan will provide for approximately 1,029 jobs to support the 1088 households that would be added to the area.

FINDING: As demonstrated above, this standard has been met.

G. A conceptual transportation plan consistent with the applicable provision of the Regional Transportation Plan, Title 6 of the Urban Growth Management Functional Plan, and that is also consistent with the protection of natural resources, either identified in acknowledged comprehensive plan inventories or as required by Title 3 of the Urban Growth Management Functional Plan. The plan shall, consistent with OAR Chapter 660, Division 11, include preliminary cost estimates and funding strategies, including likely financing approaches.

The transportation concept included in the concept plan provides for connections to the existing street system. Because of the limited number of existing streets, the impacts of traffic from the development of this area were carefully considered and after significant input from the traffic consultant and the public, both the Planning Commission and City Council found that the existing constraints on Red Fern drive (narrow design, existing traffic volumes, sight distance and number of curb-cuts) made it unsafe to plan on the extension of this road into the concept plan area. The Council finds that this decision is consistent with RTP policy 6.4.5.2a in that this is a unique circumstance where the existing street design creates an unsafe constraint on increased traffic volumes with no tangible benefit to circulation or volumes at other intersections or roads. A bicycle, pedestrian and emergency access connection continues to be identified to encourage non-auto trip connections and consistent with RTP policy 6.4.5.2b. In addition, there are several physical and environmental constraints that prohibit a traditional grid type street network as envisioned by the RTP, Title 6 and the TSP. Specifically, the existing railroad presents a barrier that does not allow for multiple small block crossings. Existing stream and floodplains essentially prohibit crossing because the costs to construct a connection would not be able to be supported by the limited development receiving benefit from such a connection.

During the June 10th Commission hearing, testimony was received raising concern about maintaining the "S" curves at the east end of the concept plan area. As a result of the input received, the Commission asked the consultant team to revise the plan to show a straighter connection as opposed to following the existing Brookman right of way and to re-run the transportation numbers accordingly. The concept plan reflects this change.

The transportation system planned includes specific improvements with funding estimates to ensure the area can develop while maintaining acceptable levels of service. The plan

also identifies a variety of options to close the funding gap between the costs and the projected revenues generated from existing fees and funding sources. This plan does not recommend specific funding packages; however comprehensive plan policies are included which would require a potential developer to work with the City to identify a specific plan for funding and the extension of public facilities prior to annexation.

As illustrated on the concept plan map, multiple bike/pedestrian trails are planned throughout the area to connect to existing built or planned trails and provide direct alternate connectivity options where roads are not planned. Conflicts with delineated wetlands and Goal 5 areas will be resolved through future design review of development.

FINDING: As demonstrated above, this standard has been met.

H. Identification, mapping and a funding strategy for protecting areas from development due to fish and wildlife habitat protection, water quality enhancement and mitigation, and natural hazards mitigation. A natural resource protection plan to protect fish and wildlife habitat, water quality enhancement areas and natural hazard areas shall be completed as part of the comprehensive plan and zoning for lands added to the Urban Growth Boundary prior to urban development. The plan shall include a preliminary cost estimate and funding strategy, including likely financing approaches, for options such as mitigation, site acquisition, restoration, enhancement, or easement dedication to ensure that all significant natural resources are protected.

The plan incorporated the Metro Inventory of Significant Wildlife Habitat and assumes that the Tualatin Basin program, as implemented by the City of Sherwood will apply. With that said, it is assumed that no floodplain will be developed and that wetlands will be protected or mitigated consistent with CWS, DSL and US Army Corps of Engineers standards. Habitat areas such as heavily treed areas will be encouraged to be protected through the ability to vary standards when preserving resources. In addition, the City of Sherwood has tree removal standards that provide a disincentive to removing trees. The plan has been developed so as to maximize the natural resource value by orienting trails, parks and water quality facilities adjacent to the resources. By doing this, funding would become available to protect and preserve the habitat areas as improvements are made consistent with the plan.

FINDING: As demonstrated above, this standard has been met.

I. A conceptual public facilities and services plan for the provision of sanitary sewer, water, storm drainage, transportation, parks and police and fire protection. The plan shall, consistent with OAR Chapter 660, Division 11, include preliminary cost estimates and funding strategies, including likely financing approaches.

The public facility maps illustrate the general location, size, and capacity of new sanitary sewer, storm, and transportation facilities to serve the proposed land uses in the Brookman Addition. The fiscal impact analysis identified preliminary costs and potential financing approaches.

FINDING: As demonstrated above, this standard has been met.

J. A conceptual school plan that provides for the amount of land and improvements needed, if any, for school facilities on new or existing sites that will

serve the territory added to the UGB. The estimate of need shall be coordinated with affected local governments and special districts.

The Sherwood School District was represented on the Steering Committee. As a result of input from the School District, a potential 10 acre school site was considered within the planning area. Figure 6 in the draft concept plan identified potential locations that a school could be sited within the context of the Concept Plan diagram. It was determined not to propose specific zoning to facilitate any one site over the other, however and the ultimate determination of whether to site a school within the Brookman Addition area will be made by the School District. This position was supported by Superintendant Dan Jamison at the June 24, 2008 Commission work session. Mr. Jamison has indicated that the District anticipates a need for a new elementary school with the build out of this area and they will be looking closely at the three potential sites identified, but they are fully considering their options for location of a new school site which may or may not be within this area.

FINDING: As demonstrated above, this standard has been met.

K. An urban growth diagram for the designated planning area showing, at least, the following, when applicable:

1. **General locations of arterial, collector and essential local streets and connections and necessary public facilities such as sanitary sewer, storm sewer and water to demonstrate that the area can be served;**
2. **Location of steep slopes and unbuildable lands including, but not limited, to wetlands, floodplains and riparian areas;**
3. **General locations for mixed use areas, commercial and industrial lands;**
4. **General locations for single and multi-family housing;**
5. **General locations for public open space, plazas and neighborhood centers; and**
6. **General locations or alternative locations for any needed school, park or fire hall sites.**

The concept plan map (figure 1, page 15 of the Concept Plan report) provides the general location of zones including single- and multi-family residential, industrial, commercial and mixed use areas as well as potential parks and open spaces. This figure also identifies the general location of constrained lands including possible wetlands, floodplains and Goal 5/Title 13 resource lands. Figure 5 identifies the general location of arterials, collectors, neighborhood routes and a potential local street network. Figure 6 (page 26) identifies 3 alternatives for a potential 10 acre school site, trails and open space plans. Figure 7 (page 30) identifies natural resources including steep slope constraints. Figures 8, 9 and 10 show the conceptual location of stormwater lines, water system lines, and sanitary sewer system network.

FINDING: The concept plan identifies at a conceptual level or better the required elements of Title 11, requirements J 1-6.

L. A determination of the zoned dwelling unit capacity of zoning districts that allow housing.

The proposed zoning would provide approximately 1088 dwelling units with an average of 10 units per acre of residentially zoned properties.

FINDING: As discussed above, this standard has been met.

M. The plan amendments shall be coordinated among the city, county, school district and other service districts.

As stated previously, the concept plan process included extensive public involvement overseen by the project Steering Committee consisting of representatives from ODOT, the School District, Washington County and Clean Water Services. Clackamas County was not represented on the Steering Committee but was included on the interested parties list and often had a representative in attendance at the meetings.
FINDING: As demonstrated above, this standard has been met.

Other Metro conditions
A condition of Metro Ordinance 02-969B was that the City include measures to protect the possible corridor identified in the 2000 RTP for the Tualatin-Sherwood connector. The 2000 RTP was superseded by the 2004 RTP which identifies a potential connection south of the concept plan area. In addition, the concept plan carefully followed and considered the efforts of the I-5/99W project. As a result, a key planned improvement in this concept plan is the re-alignment of the Brookman intersection to Pacific Highway. While the re-alignment provides better access and frontage for potential development within the plan area, the primary purpose of the identified re-alignment was to avoid conflict with a connector south of the project area. While the 2000 RTP did not define a specific location for a potential southern connection, through the 2004 RTP and connector project it was clear that a connection within the Brookman area was no longer being considered. Therefore the planning for this area considered measures to protect the possible corridor by accommodating for the re-aligned intersection.

V. RECOMMENDATIONS

Based on the above findings of fact, and the conclusion of law based on the applicable criteria, staff recommends the City Council approve the concept plan and the plan amendment (PA 08-01) as identified in the attached documents:

A. Concept Plan dated May 2009
B. Appendix to Concept Plan dated May 2009
C. Comprehensive Plan changes dated May 22, 2009
D. Comprehensive Plan Zone Map dated May 14, 2009

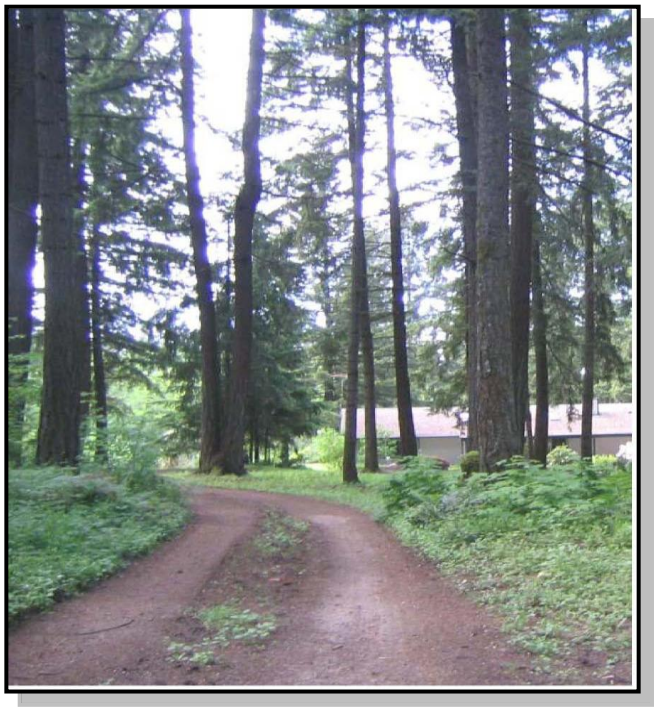
VI. Record

The record for this review includes the following documents which were presented to the Council in the 3-17-09 and 4-21-09 packets and are attached by reference only. All documents are included in their entirety in the land use file PA 08-01.

1. Draft concept plan
2. Appendix to the Concept Plan including:
    A. Public Involvement Report
    B. Transportation
    C. Stormwater
    D. Water, Sanitary and Sewer
    E. Fiscal Impact Analysis
    F. Existing Conditions
3. Proposed Comprehensive Plan Changes (Draft May 2008)

4. Proposed Comprehensive Map
5. Agency Comments (5a-5f)
6. Public Comments
   - 6a – Letter from Caral Zarzana dated May 27, 2008
   - 6b – e-mail letter from Kim Barry, dated June 7, 2008
   - 6c – letter from Doug and Paulina Davina, dated June 10, 2008
   - 6d – Written testimony from Neil Shannon, submitted at hearing, not dated
   - 6e – letter from Sue Drouin, dated January 18, 2008 to Julia Hajduk
   - 6f – Copy of police report submitted by David Villapando
   - 6g – Letter from Ryan and Charise Weller, received June 11, 2008
   - 6h – e-mail from Stephanie Austermann, dated June 12, 2008
   - 6i – letter from Kelly Housanni, dated August 19, 2008
   - 6j – e-mail letter from Kim Barry dated September 4, 2008
7. Market Analysis from Johnson Gardner dated June 2007
8. June 17, 2008 Commission memo from staff including the following documents:
   - Existing Conditions report (from Steering Committee meeting #2)
   - Design alternatives report (from Steering Committee meeting #4) – this report was in preparation of the open house #1
   - Open House #1 summary report and DKS memo dated 9/17/07 (from Steering Committee meeting #5)
   - Hybrid plan developed at meeting #5 by the Steering Committee after consideration of the Open House #1 comments (Steering Committee meeting #6)
   - Open House #2 summary report (Steering Committee meeting #7)
9. July 15, 2008 Commission memo from staff including 4 attachments (1 –comparison of park acreage, 2 - updated hybrid map, 3 – revised draft zoning map to reflect updated Hybrid map, and 4 – Exhibit 6g referenced above)
10. Copy of Powerpoint provided by DKS at the July 22, 2008 meeting
11. August 1, 2008 Commission memo from staff
12. August 19, 2008 Commission memo from staff
13. October 7, 2008 Commission memo from staff
14. 14a – Written testimony from Maureen Pierce dated December 1, 2008
    14b – Letter to Randy Myers from Randy Cunningham regarding natural resource investigation results.
    14c – Written testimony from Neil Shannon submitted at December 9, 2008 hearing
15. January 6, 2009 Commission memo from Staff with one attachment
16. January 8, 2009 memo from Dick Benner to Sherry Oeser regarding Metro compliance requirements
17. Map submitted at January 13, 2009 hearing by Commissioner Adrian Emery
18. February 17, 2009 policy memo to Council from Staff
19. March 17, 2009 City Council packet
20. April 21, 2009 City Council packet

Exhibit A-1
6-2-09 City Council, Brookman
Concept Plan



Brookman Addition Concept Plan

Final Report May 2009

City of Sherwood Oregon

otak

APPENDIX (UNDER SEPARATE COVER)

FIGURES

I. Summary

The Brookman Addition Concept Plan is a guide to the creation of a new 250-acre community in Sherwood. More specifically, it identifies the general location and intensity of future land uses, including medium-low to high density residential, mixed use commercial, employment, parks and open space. Integrated with future land uses is a conceptual layout of basic infrastructure systems including transportation, trails, utilities and stormwater management. The Concept Plan follows a 2002 decision by Metro to bring the area into the regional urban growth boundary (UGB). The central theme of the plan is to create a livable community that is an extension of existing Sherwood.

Key components of the plan are:

Future Land Uses

- Office and light industrial lands oriented toward and adjacent to Highway 99W.
- A 2-acre neighborhood serving retail mixed use center along Old Pacific Highway.
- A variety of housing ranging from single family detached to town homes to higher density condominiums and apartments.

Parks, Open Space and Natural Resource Preservation

- Four neighborhood parks totaling 8.3 acres. Nearly all residences will be within a 3-block walk of their local neighborhood park.
- Preservation of the natural resource areas, flood plains and open spaces of potential wetlands, Goose Creek, and Cedar Creek.

Brookman Addition Concept Plan

Transportation

- Brookman Road serving as the primary east-west multimodal collector between Highway 99W and Ladd Hill Road.
- A physically separated multi-use pathway for bicyclists and pedestrians running parallel to Brookman Road.
- A plan to realign Brookman Road to create a new intersection with Highway 99W 1,300 feet north of its current location. This feature responds to the potential for the I-5 – Hwy 99 Connector to be built south of the existing Brookman Road alignment.
- As part of the Brookman realignment, a new grade separated crossing of the railroad tracks.
- An analysis of transportation improvements (on-site and off-site) needed to implement the Concept Plan, and minimize impacts to adjacent areas.
- Middleton Road serving as a primary north-south route connecting Brookman Addition with existing neighborhoods.

Trails

- An extensive off-street trail system that provides walking loops, access to open spaces, connections to the Cedar Creek regional trail, and connectivity within and between the neighborhoods.

Infrastructure

- Infrastructure plans and cost estimates for storm water, water and sanitary sewer facilities.
- A storm water plan that utilizes regional facilities and encourages low-impact development practices.
- A fiscal impact analysis and finance strategy to implement the Concept Plan.

Design

- Honoring and extending the historic Middleton small block form, a conceptual local street plan that creates small blocks, multiple connections, walkable neighborhoods, and reinforces the sense of community.

Brookman Addition Parks, Trails and Schools

II. Background

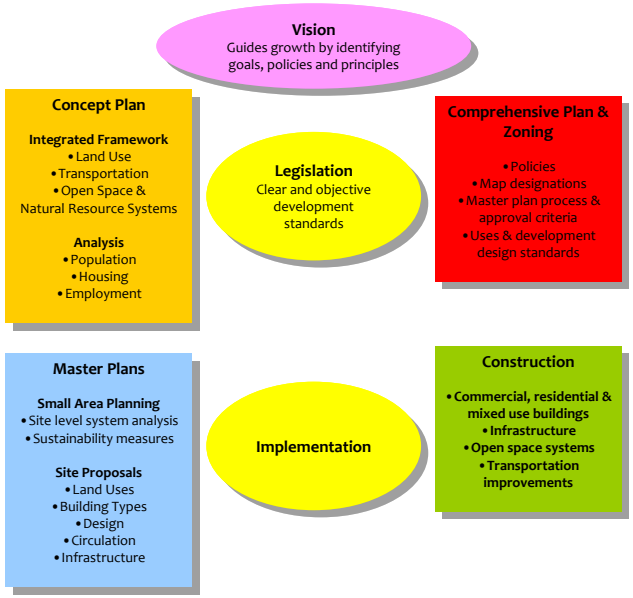
Purpose of the Concept Plan

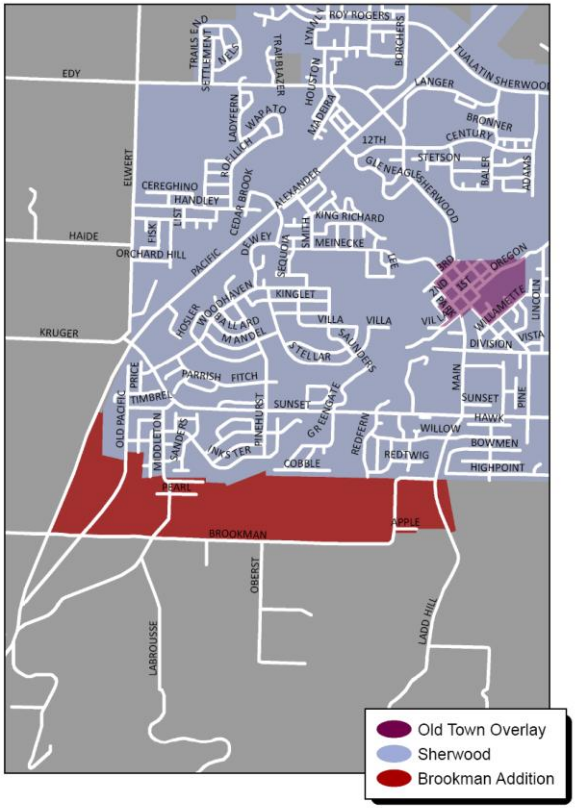
The purpose of this Brookman Addition Concept Plan is to provide a conceptual guide to the area's development as a new addition to Sherwood. As such, it articulates a clear and coherent vision for the area. The Concept Plan identifies future land uses, parks and trails, natural resource areas, transportation improvements, and public facilities – all guided by planning efforts developed with substantial public involvement.

This Concept Plan implements Metro's decision in 2002 to expand the regional urban growth boundary (Metro Ordinance 2002-969B). The Sherwood City Council initiated the public process to comprehensively plan for the area prior to annexation and development. This represents an update of a similar plan completed in 2000 for this area. The *Southern Expansion Concept Plan*, developed in 2000, was primarily for discussion purposes. While it was never fully adopted, this plan was detailed and went through a public involvement process. For those reasons, elements of that plan were considered in the development of this concept plan.

The Brookman Addition Concept Plan will be implemented through amendments to the Sherwood Comprehensive Plan, zoning and development code, and transportation system plan (TSP). Ultimately, the plan will be realized through the combined guidance of land use regulations, capital improvement planning, private sector investment and advocacy efforts by public officials and the community.

The Concept Plan was developed in coordination with many parties, including the City of Sherwood, Washington County, Oregon Department of Transportation, Raindrops to Refuge, and others. One specific area of coordination focused on the on-going I-5 – Hwy 99W Connector Study. In that study, one of the Connector alignments being considered is an alignment just south of the existing Brookman Road. The Concept Plan does not provide a preference for the ultimate alignment, rather, it simply recognizes the possibility of the Connector, and, provides specific guidance where needed. Implementation of the Plan will require continued outreach and coordination with many parties.





Brookman Addition relationship to Downtown Sherwood (Old Town)

Setting

The plan area (247 acres), hereafter referred to as "Brookman Addition", is located at the southern edge of Sherwood. A relatively narrow swath of land (only 1,300 feet wide in its north-south dimension), it is generally defined and bordered by Pacific Highway (99W) to the west, Brookman Road to the south, Ladd Hill Road to the east and existing residential development to the north.

Running north-south through the site are the Old Pacific Highway, an existing rail corridor and Cedar Creek. The land is a combination of moderately sloped areas adjacent to Goose Creek and Cedar Creek, and the lower slopes of Ladd Hill along Ladd Hill Road. These landforms and drainages create a series of small hills and dips that one experiences when traveling east-west along Brookman Road.

To the north, Brookman Addition is bordered by existing residential neighborhoods and Sherwood's largest master planned community, Woodhaven. The area is approximately 2 miles from downtown Sherwood via the direct connection of Main Street and Ladd Hill Road (one of few continuous north-south routes in the City). Brookman Addition borders rural and agricultural lands to the south, which transition to the beautiful and visually impressive slopes and ridgeline of Ladd Hill.

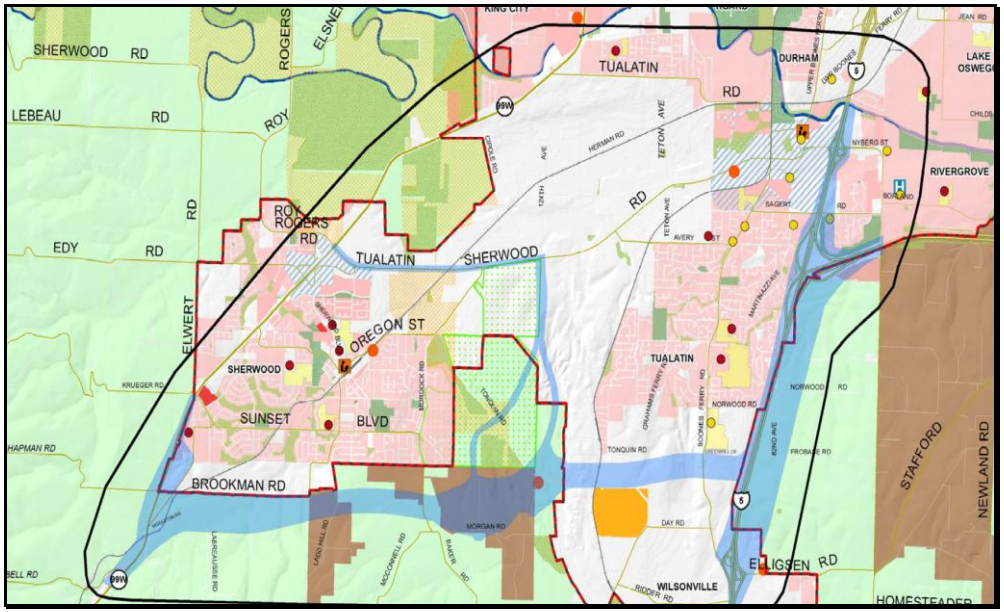
Looking Southeast over the site from above Highway 99W

With Highway 99W, a key transportation corridor in south Washington County, as its western edge, the area is centrally located between Newberg (7 miles) to the southwest and Tigard (8 miles) to the northeast. The area also enjoys good access to the jobs and services of nearby Tualatin (7 miles) and Wilsonville (8 miles) Regionally, Brookman Addition is 18 miles from downtown Portland and 14 and 18 miles from the high-tech employment centers of Beaverton and Hillsboro respectively.

Interstate 5 to 99W Connector

During the preparation of the Brookman Addition Concept Plan options were studied to address travel demand in the southwestern portion of the Portland region. Traffic demand in the southwestern portion of the region has grown substantially leading to increasingly congested conditions. This growth comes from more people living, working and moving freight in Tualatin, Sherwood and Wilsonville, and from growth throughout the region, particularly in Marion and Yamhill counties. Metro's Regional Transportation Plan and Sherwood and Tualatin's transportation plans identify the need for a transportation solution in this area to address the growing east-west travel demand. The Oregon Transportation Commission designated this as a project of statewide significance, further confirming its importance.

A joint effort between Metro, Washington County and ODOT, the *I-5 to 99W Connector Project* developed a range of alternatives including a connection south of the Brookman Addition project boundary near portions of Brookman Road (Alternative 5B). Given the project timeline, the ultimate location of the connection and its corridor was not assumed within the concept plan process. However, coordination of processes resulted in the recommendation that the existing intersection of Brookman Road and Pacific Highway be realigned to the north to avoid conflicts with a potential southern alignment.



(Blue areas represent only where corridor improvements could potentially occur)

Steering Committee Meeting

Open House #1 (October 10th, 2007)

Local Context

Brookman Addition is contiguous with the southwest border of Sherwood in Washington County. Situated in the Tualatin Valley outside of Portland, Sherwood saw an influx of settlers in the latter part of the 19th century. Its unique spatial organization, a diagonal grid with streets running northwest-southeast and northeast-southwest, was oriented toward the new railroad line passing through the property of J.C. Smock. Hence, the town which emerged was originally known as Smockville.

In these early years, Sherwood's primary industry was a brickyard serving the building demands of Portland's growth. Most of Sherwood's commercial buildings in the nine-block area known as Old Town were built at this time. Once the brickyard closed in 1895, the economy diversified to include a fruit and vegetable cannery and tannery, which supported Sherwood until 1971. Manufacturing has since become the predominant form of industry.

In the last twenty years, Sherwood has been “discovered” as an attractive residential alternative for Portland area commuters. With its rural character and charming downtown, it was recently named as one of Money Magazine’s Best Places to Live in 2007. This recognition is reflected in the significant population growth. Between 1990 and 2000, incorporated Sherwood grew from 3,093 to 11,791 residents, representing a strong annual growth rate of 14.3 percent per year (U.S. Census). According to Portland State University’s Population Research Center, the population has continued to increase at a rate of 5.3 percent per year since 2000, rising to 16,115 by the summer of 2006.

Sherwood remains largely a bedroom community with limited expansion in employment uses. The residential to nonresidential tax base ratio is 80 percent residential and 20 percent non-residential (*Washington County Tax Assessor*). Job growth lags behind population growth, increasing from 6,557 in 2000 to 7,085 in 2007, a rate of 1.1 percent per year.

To anticipate and plan for this continuing growth in the Sherwood Urban Area, the Sherwood Comprehensive Plan, Part 2 (referred to as *Chapter 8: Urban Growth Boundary Additions*) supports and reinforces the adopted policies in *Chapter 4: Growth Management*. Urban growth boundary additions, including the Brookman Addition, are defined as lands that are officially added to the regional urban growth boundary (UGB). The growth management policies are intended to guide the decision-making process prior to the addition of more land and when land is ready to urbanize. Chapter 8 of the Comprehensive Plan contains the data, assumptions, policy goals, objectives, and

implementation strategies to accomplish the community's needs and vision as expressed in the respective concept plans. A brief narrative of each concept plan is also included to capture the unique and historical aspects of the concept planning process.

Regional Context

With the exception of modest expansions prior to 1998, the Portland metropolitan region's urban growth boundary (UGB) had largely remained unchanged since its inception. Responsible for managing the UGB, the Metro Council has since authorized more substantial additions including over 700 acres to the Sherwood urban area in two separate decisions in 2002 and 2004. Metro requires a "concept plan" prior to annexation by a local jurisdiction. A concept plan is similar to a master plan, but with less detail; it outlines the future land uses, public facilities, and other urban services, but does not mandate the specifics associated with an actual development proposal.

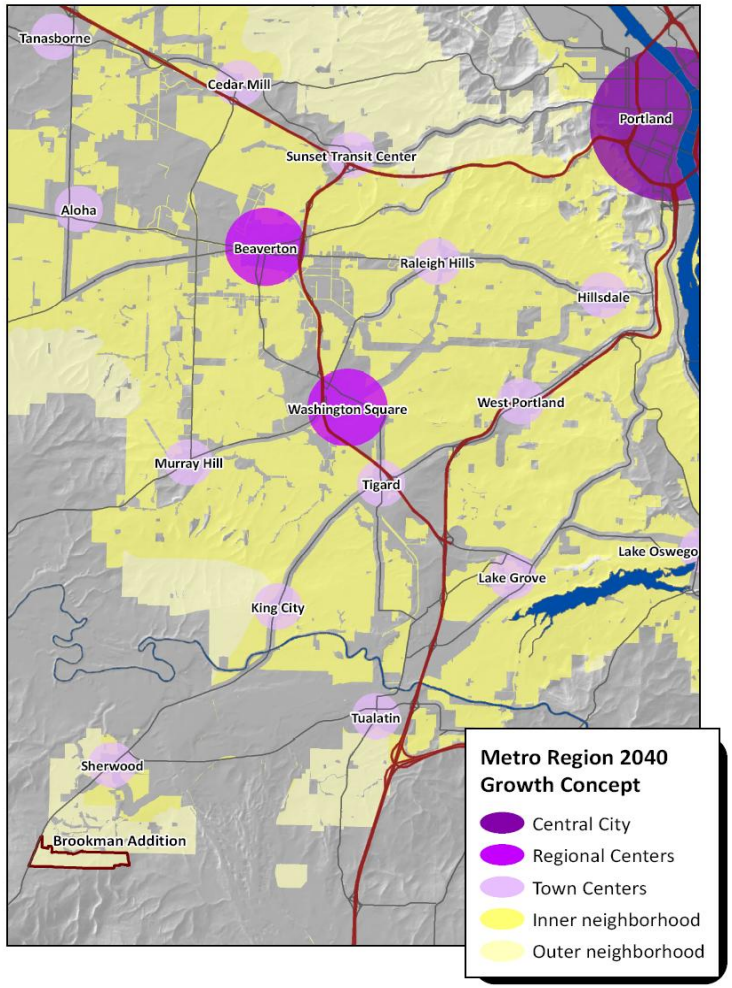
As part of the regional strategy for managing growth with land use and transportation "building blocks", Brookman Addition has been designated as an *Outer Neighborhood* design type. According to Metro's 2040 Growth Concept, new neighborhoods such as Brookman Addition are likely to have an emphasis on smaller single-family lots, mixed uses and a blend of housing types including row houses and accessory dwelling units. The growth concept distinguishes *Outer Neighborhoods* (with larger lots and fewer street connections) from the slightly more compact *Inner Neighborhoods*.

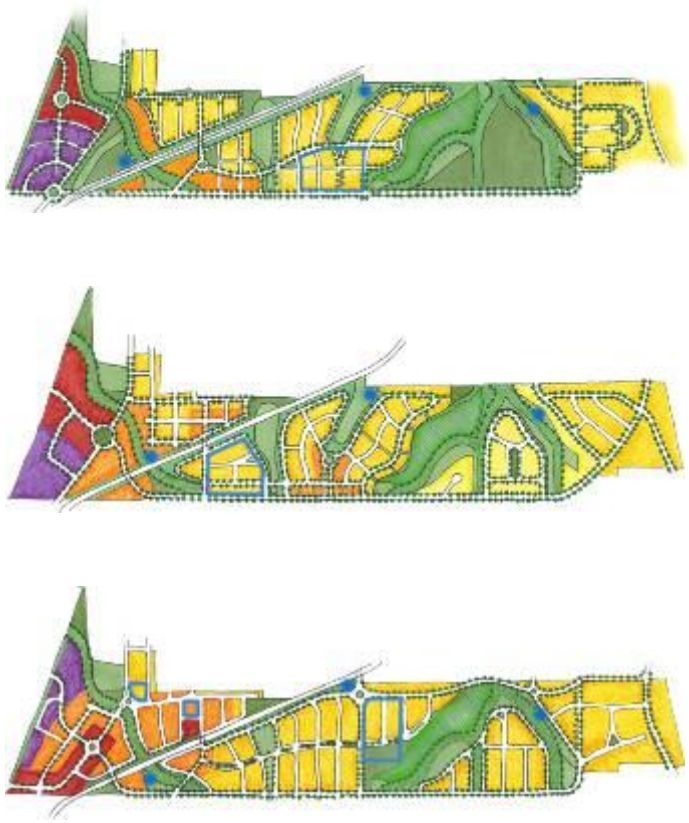
Process and Public Involvement

The Concept Plan was developed by a 16-member Steering Committee representing residents and property owners, Sherwood citizens, Woodhaven Homeowners Association, Arbor Lane Homeowners Association, Sherwood City Council and Planning Commission, Sherwood Park Board, Sherwood School District, Metro, Washington County, Clean Water Services, Oregon Department of Transportation, and Raindrops to Refuge (see Project Participants list at the beginning of this report). The committees met 7 times between May 2007 and February 2008.

In addition to the Committee meetings, additional process steps and community involvement included:

- Study area tour
- Two public open houses
- Project website with regular updates
- On-line opportunities to comment following the open houses
- City newsletter information





Alternative Concept Plans were developed and evaluated at the first Open House in October of 2007

- Email notice and extensive mailing prior to each public event

Early and continuous public outreach and involvement was coordinated and timed to coincide with project tasks and key outcomes (see Appendix: *Brookman Addition Concept Plan: Work Plan Summary)*.

The major milestones in the process were:

- Development of a public involvement plan
- Inventory of base conditions and projections of market demand, land use, transportation, natural resources and infrastructure needs
- Establishment of project and concept plan goals
- Development of three alternative concept plans
- Evaluation of alternatives and development of a draft concept plan incorporating the most desired elements
- Refinement of the concept plan and preparation of implementation strategies
- Submission and endorsement of the final Concept Plan and implementation strategies

Please refer to Appendix A for a summary of the public involvement process.

During the Planning Commission review of the proposal, the plan was modified to provide for the maximum amount of employment land recommended in the market analysis. The commission spent a great deal of time considering the project and changes were made to the concept based on early direction received from the Commission. Ultimately, the Commission identified issues for Council policy decision and the resulting plan within this document reflects the policy direction received.

III. Goals

During the first Steering Committee meeting, participants were asked to evaluate the original goals of the *Southern Expansion Concept Plan* and to convey their vision for Brookman Addition. Steering Committee members related visions of a European village, natural areas, walkable neighborhoods, and the creation of a place that their children could afford to live. The project team combined this input with planning principles to create goals that would support a complete community. These goals guided the direction of the Brookman Concept Plan.

The draft Brookman Concept Plan Goals called for the planning effort to create a community that has all of the following elements:

Goal 1 - Connections to Sherwood
Brookman Addition will be related to the community character and harmonize with Sherwood.

Goal 2 - A Complete Community
Brookman Addition will be complete in its variety of housing, mix of uses, walkable streets, public facilities and shared community spaces, transportation connections, a variety of green spaces, and diversity of residents.

Goal 3 -Transition of Land Intensities
Brookman Addition will contain a variety of intensities of land use. The intensity of uses will taper down from 99W to the surrounding neighborhoods and open spaces.

Goal 4 - Transportation Choices
Multi-modal choices for walking, biking, driving and transit will be provided and connected throughout Sherwood and the larger transportation system.

Goal 5 - Parks and Green Spaces
A variety of parks, pathways along streams, protected open spaces and water quality facilities will result in a connected system.

Goal 6 - Long Term Quality
Development will be designed to be high quality and long-lasting for a livable future in the next generation. The plan encourages development guided by green principles.

Goal 7 - Consensus, Involvement and Partnerships
The process involves partnerships with service providers to produce a community supported concept plan that addresses community issues and concerns, and meets applicable state, regional, city and community planning objectives.

Goal 8 - Implementation
The concept plan shall consider the feasibility of implementation, including financing, construction, and phasing.

Using these goals, evaluation criteria for concept plan alternatives were developed. Listed below are the key elements of the draft evaluation criteria (see Appendix for complete *Brookman Concept Plan Evaluation Criteria*):

- Street, trail, and path connections between Brookman Addition and downtown Sherwood;
- Variety of housing, mix of uses, walkable streets, potential public facilities and shared community spaces, transportation connections, a village center, a variety of green spaces, and diversity of residents;
- Land uses, densities, and design treatments promote transitions of intensities of land use within the neighborhoods of Brookman Addition;
- Multi-modal choices for walking, biking, driving and transit that adhere to City, County, and ODOT standards; safe railroad crossings; and mixed use development that limits driving trips;
- A range of distributed parks serve the whole community; protected natural resources; green spaces along Cedar Creek; integrated, sustainable storm water management; and the provision of water and sanitary facilities;
- High quality, sustainable, and long-lasting development for a livable future; and
- Consensus, involvement, and partnerships to produce a community supported concept plan.

IV. Concept Plan Summary

Framework Plan

The Brookman Addition Concept Plan is a framework for a new, urban community. The plan is comprised of maps and policies that integrate land use, transportation, open space, and green infrastructure. The approach here is to establish the broad framework and intent for the figures and concepts in this plan. Detailed development plans demonstrating compliance with the Concept Plan should be required in the implementing code.

The framework plan approach is intended to:

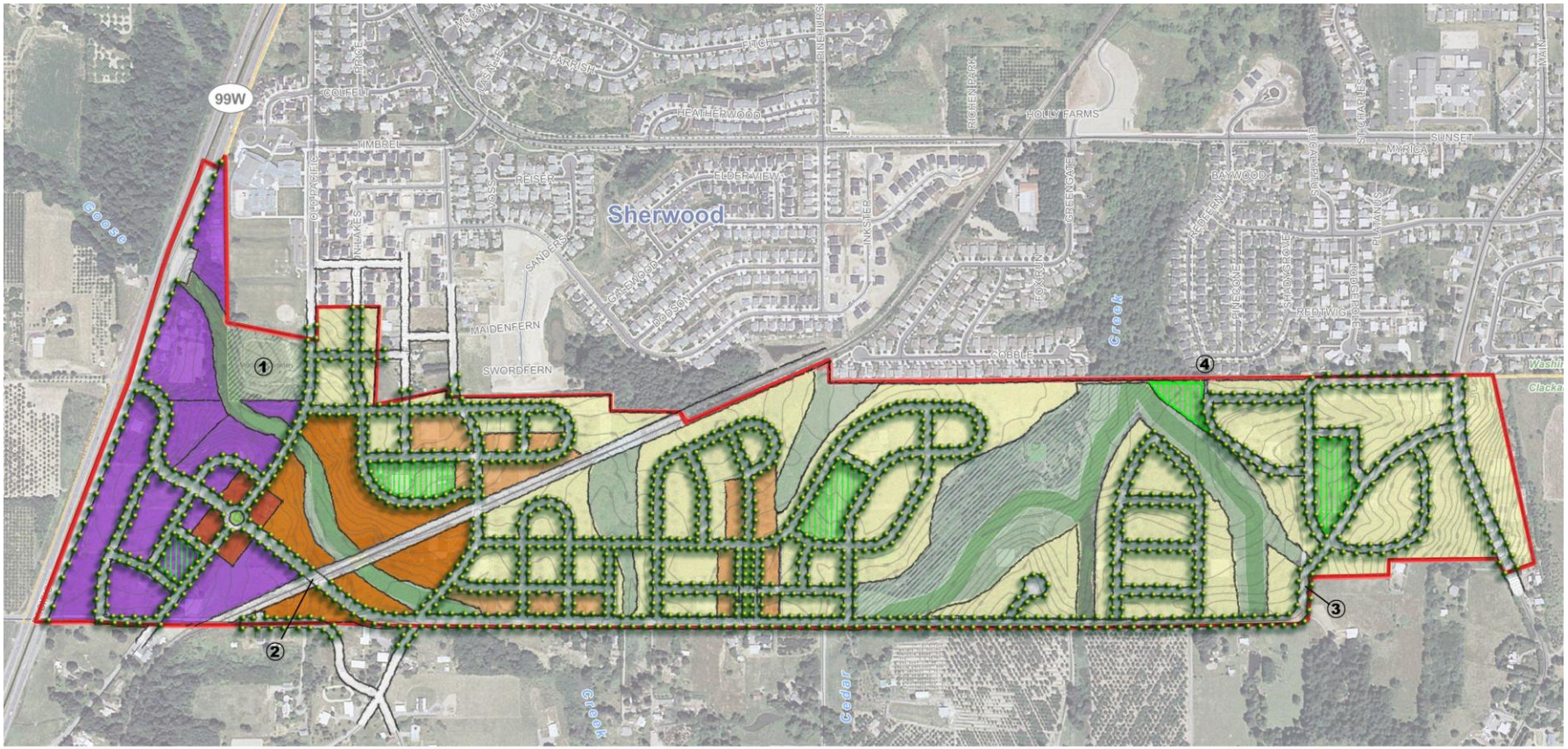
- Set the vision, goals and principles as requirements for all land use decisions.
- Provide for flexibility in site specific design and implementation of the Plan and code.
- Allow for phased development over a long period of time (20+ years).

Code requirements such as urban design and form, building orientation and scale, street connectivity, block configuration, pocket parks, pedestrian connections, low impact development features, landscaping, tree preservation, and sustainable buildings will be essential to the success of the area as a walkable, mixed use community. The design of this Plan is that the flexibility is coupled with high expectations for quality development and sustainable pedestrian-oriented design.

Land Use Concepts

The Concept Plan map is the visual manifestation of the community vision for Brookman Addition. It is designed to meet plan goals and evaluation criteria. Figures 2 through 4 illustrate the land use sub areas within the Brookman Addition Concept Plan. Each has a specific focus of land use integrated with its setting and the plan's transportation and open space systems. Maps and narratives describing each of the sub areas follow this section.

Figure 1 Land Use Concept Plan



Brookman Addition Concept Plan

Notes:
1. Existing Cemetery (Constrained Land)
2. Railroad Crossing (Grade Separated)
3. All street alignments are conceptual.
4. Redfern connection is pedestrian, bicycle and emergency access only.

0' 250' 500' 1000'

Final-May 2008

Legend

- High Density Residential 24 du/ac
- Medium Density Residential- High 11 du/ac
- Medium Density Residential- Low 8 du/ac
- Commercial / Mixed Use
- Employment
- Neighborhood Parks (Locations are conceptual)
- Constrained Lands (Goal 5 resource lands, subject to on-site verification)
- Constrained Lands (Vegetated corridor proxy, subject to on-site verification)
- Constrained Lands (Potential wetlands, subject to on-site verification)

Land Use Metrics

Based on the acreage and land use assumptions listed below, the Brookman Addition Concept Plan has the potential at build-out to yield an estimated 1,029 jobs and 1,088 dwellings.

Table 1 Land Use Metrics

	Acres	Units/Acre[1]	Estimated Households	Jobs/Acre[2]	Estimated Jobs
Commercial - Retail	2.07			14	29
Employment - Office	13.32			58	774
Employment - Industrial	13.32			17	226
Medium Density Residential Low (MDRL)	85.53	8	684		
Medium Density Residential High (MDRH)	10.39	11	114		
High Density Residential (HDR)	12.07	24	290		
Park (Community & Neighborhood)[3]	8.29				
Total	144.98		1,088		1,029
Net Residential Households	1,088		Net Jobs		1,029
Net Residential Acres	108		Net Employment Acres		28.71
Density (Households/Acre)[4]	**10.08**		**Density (Jobs/Acre)[5]**		**35.83**

1 Units/Acre equal to the maximum density for the respective plan districts

2 Jobs/Acre numbers from Metro 2002-2022 Urban Growth Report

3 Tot lots are assumed to be part of residential developments

4 Residential density based upon residential acreage only

5 Employment density based upon commercial and employment acres only

Commercial

The concept plan assumes the mixed use area in the West Sub-Area will be based on either Sherwood's Neighborhood Commercial (NC) plan district or a yet undeveloped mixed use plan district that will limit commercial activity similarly. Respecting and enhancing the surrounding neighborhood character and context, the NC zoning district provides for small scale retail and service uses, located in or near residential areas.

Employment

For the purposes of the metrics analysis, employment land uses are designated 50 percent office and 50 percent industrial.

The concept plan assumes the application of Sherwood's Office Commercial (OC) plan district to the office portion of the employment area:

- *The OC zoning district provides areas for business and professional offices and related uses in locations that are adjacent to housing and supported by an adequate road system.*

The concept plan assumes the application of Sherwood's Light Industrial (LI) plan district to the industrial portion of the employment area:

- *The LI zoning district provides for the manufacturing, processing, assembling, packaging and treatment of products which have been previously prepared from raw materials. Industrial establishments shall not have objectionable external features and shall feature well-landscaped sites and attractive architectural design.*

Residential

The analysis assumes maximum residential densities will be achieved in determining the estimated number of households at build-out. The concept plan assumes application of the following existing Sherwood residential plan districts to the Brookman Addition residential areas:

- *Medium Density Residential Low (MDRL): 5.5 to 8 units/acre*
- *Medium Density Residential High (MDRH): 5.4 to 11 units/acre*
- *High Density Residential (HDR): 16.8 to 24 units/acre*

West Sub-Area

The West Sub-Area is approximately 80 acres situated between two large transportation barriers, 99W to the west and the rail corridor to the east. The purpose of West Sub Area is to capitalize on highway access and visibility by providing space for business and employment opportunities within Brookman Addition. Easing in intensity away from the highway, the concept plan includes a complementary mix of compact residential and neighborhood-serving uses before reaching the rail tracks and primarily single family detached areas to the east.

The west end office and light industrial "edge" is envisioned as a more urban, pedestrian friendly, mixed use setting than traditional suburban industrial and/or business parks. Assuming approximately 27 acres of land dedicated to a mix of light industrial, flex and office users, the area could generate between an estimated 1,000 jobs, thereby creating potential for new residents to work near where they live. The land use mix, employment densities and design shall be oriented to warrant the extension of TriMet transit service to the area by attracting new origin and destination riders to the system. Site designs and urban forms shall create pedestrian-friendly spaces and places including outdoor areas and pedestrian connections. Buildings shall be encouraged to utilize cost effective and energy efficient green development practices. Businesses making sustainable products and utilizing sustainable materials and practices are encouraged to reinforce the identity of the area and promote the overall vision for Brookman Addition.

The purpose of the two-acre mixed use core, or "village center", of the West Sub-Area is to create a community destination for errands, shopping, dining and neighborly interaction. It is not designed or intended to accommodate regional retail or entertainment uses. This area shall invite neighborhood oriented retail and services that serve the daily needs of the surrounding area. "Main Street" design will include buildings oriented to the street, required weather protection and minimum building heights to create a sense of safety and enclosure, attractive streetscaping, active ground floor uses and other design elements that support pedestrian activity, place identity and economic vitality.

West Sub-Area
Design Themes

Land Use

- *Office, flex and light industrial employment uses oriented toward Hwy 99W*
- *Mixed use "village center" with neighborhood-serving retail and commercial services*
- *Mix of condominiums and apartments close to village center tapering off to town houses and single family*

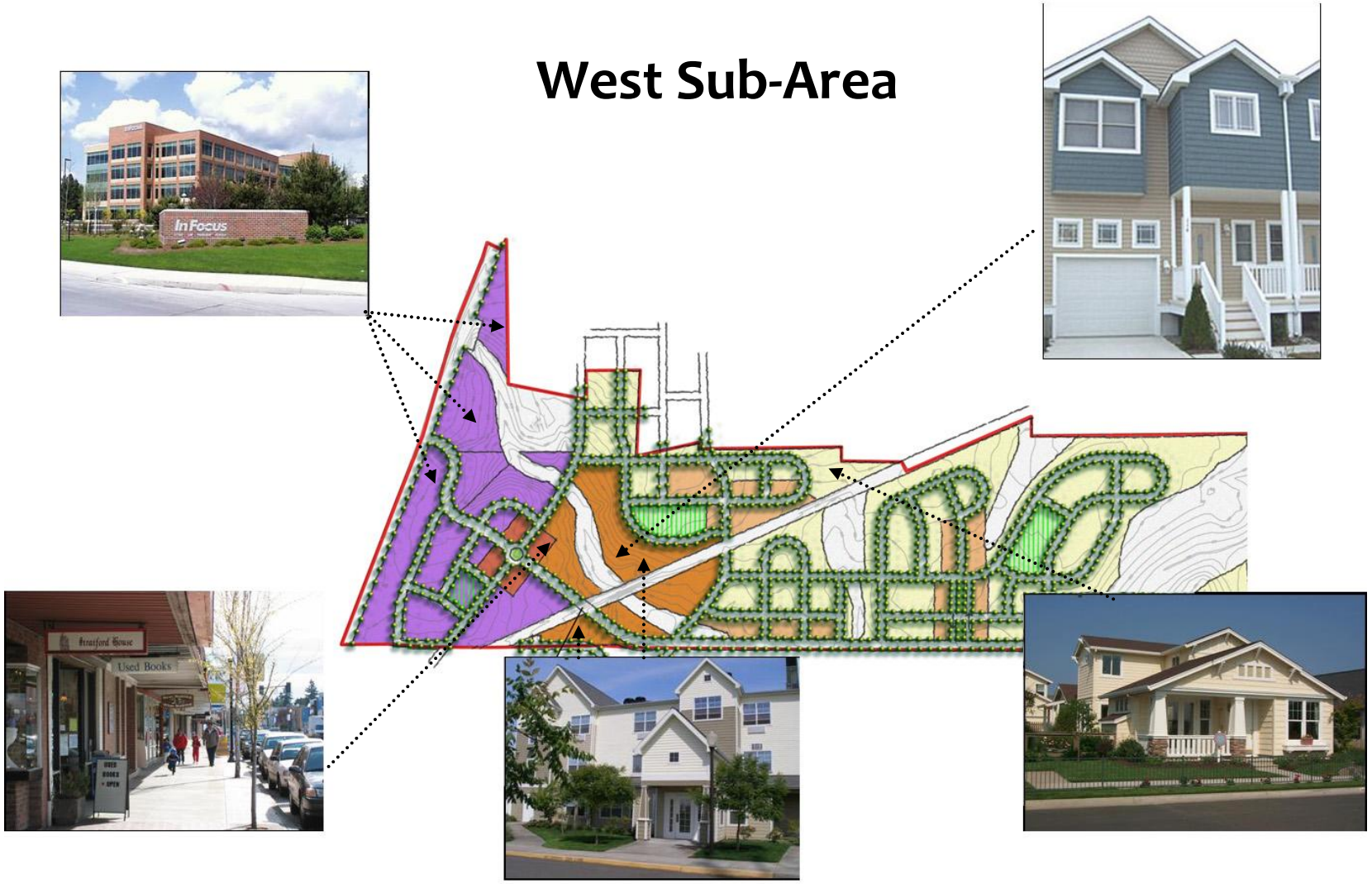
Transportation

- *Brookman Road will be realigned to provide better access through the sub area*
- *The gateway to West Sub Area will be a new intersection of Brookman Road and Hwy 99W*

Parks & Open Space

- *The community will be served by two new parks*
- *A one-acre park is envisioned near the mixed use village center*
- *A neighborhood park serving nearby single family homes and town houses is envisioned just east of Middleton Road and north of the rail tracks*
- *Goose Creek shall be preserved as an open space corridor*
- *A series of off-street trails shall be linked with parks and open space*

Figure 2 West Sub-Area



Central Sub-Area

Bordered by the rail tracks to the west and Cedar Creek to the east, the Central Sub-Area is designed to be a quiet, tree-lined, walkable residential area adjacent to the West Sub-Area. The neighborhood shall allow a mix of housing types while maintaining lower residential densities. Restricted home occupations encourage in-home work options and telecommuting, which establish daytime presence and activity. The neighborhood's design goals are to integrate open spaces by framing them with tree-lined streets and activating them with on looking homes. Residential developments providing housing for a range of income levels should exhibit architectural variety and incorporate green building practices.

Figure 3 Central Sub-Area

Central Sub-Area
Design Themes

Land Use

- *Primarily single family detached residential (8 dwelling units per acre) in nature*
- *A row of medium density town houses (11 dwelling units per acre) line central green space*
- *Lower densities and/or clustering to protect tree canopies and topography*

Transportation

- *Brookman Road will provide primary east-west access at the southern edge of the neighborhood*
- *Middleton Road will provide north-south neighborhood route with existing at-grade rail crossing*
- *Rail corridor limit other north-south connections*

Parks & Open Space

- *The community will be served by one signature community park, centrally located both within the neighborhood and larger concept plan area*
- *A two-block landscaped common space lined with town houses*
- *Cedar Creek, the natural neighborhood edge to the east, shall be preserved as an open space corridor*
- *A series of off-street trails shall be linked with parks and open space*

East Sub-Area
Design Themes

Land Use
- *Single family detached residential (8 dwelling units per acre)*
- *Lower densities and/or require clustering to protect tree canopies and topography*

Transportation
- *Brookman Road will provide primary east-west access to the neighborhood with enhanced pedestrian and bicycle facilities*
- *Safety and speed reduction elements should be included when Brookman Road is improved*
- *Ladd Hill Road will provide north-south neighborhood access*
- *Where local street connections are not feasible due to existing constraints such as Redfern Drive, bicycle pedestrian and emergency access shall be provided.*

Parks & Open Space
- *The community will be served by one neighborhood park*
- *Cedar Creek, the natural neighborhood edge to the west, shall be preserved as an open space corridor*
- *A series of off-street trails shall be*

East Sub-Area

Bordered by Cedar Creek to the west and Ladd Hill Road, generally, to the east, the East Sub-Area shall be similar to the Central Sub Area in its residential character. Further removed from retail and transportation services, the neighborhood shall maintain lower residential densities. The areas near Cedar Creek have extensive tree cover, which should be protected through the provision of larger lots and cluster-style development.

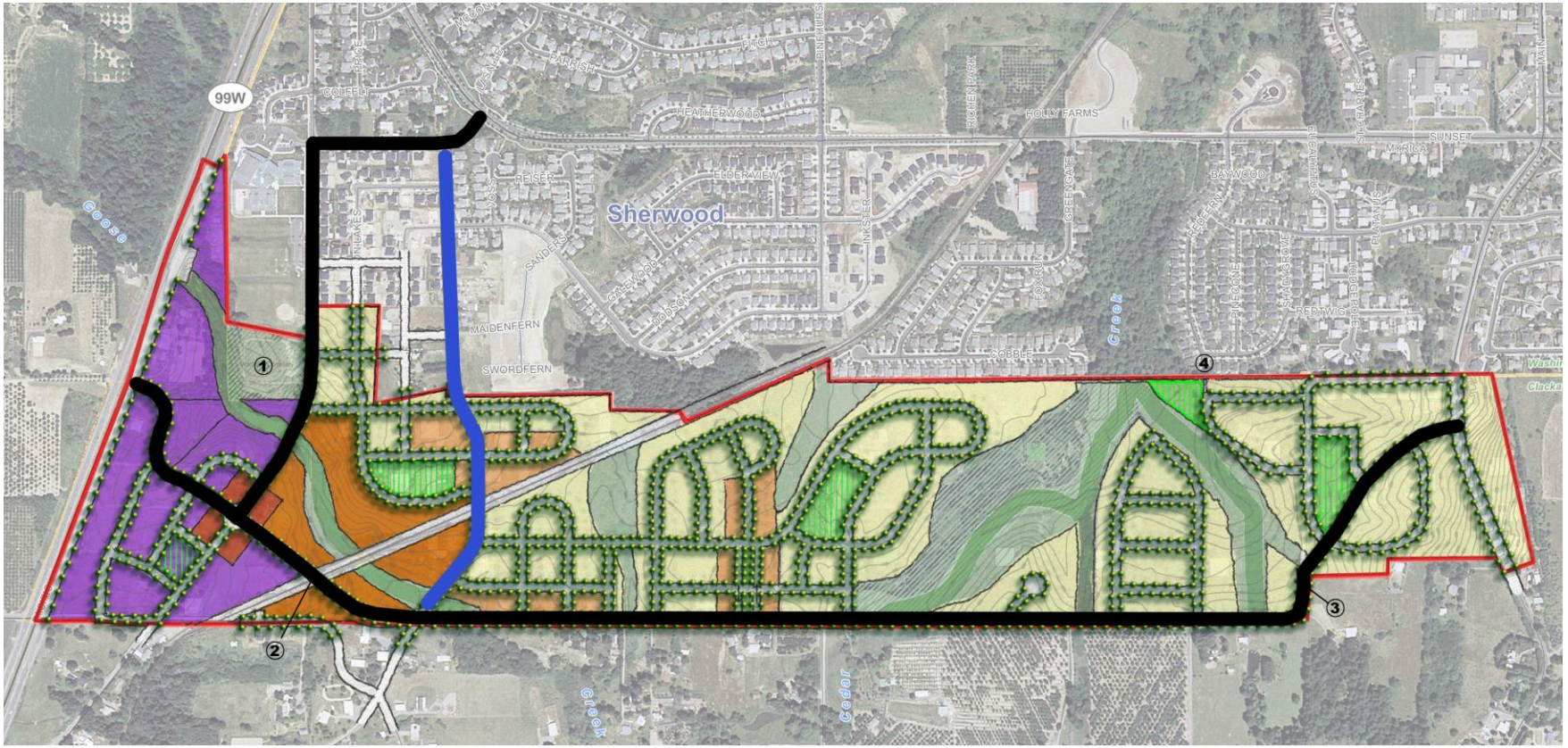
Figure 4 East Sub-Area

Transportation

The Brookman Addition Concept Plan fully integrates land use concepts with a multimodal transportation strategy. The plan incorporates a mix of land uses, promotes compact development, and provides for transportation facilities that support transportation options allowing residents to live without the daily use of a private automobile. In summary, the key elements of the Concept Plan transportation strategy are:

- Transportation Options
  - Provide a robust multimodal transportation network with effective internal (routes to employment, the village center, civic uses and open spaces) and external (routes to local and regional transit service, bicycle facilities) links.
  - Attract and support transit through increased residential and employment densities near potential transit stops.
- Connectivity within Brookman Addition
  - Require local street and pedestrian way connectivity.
  - Provide a system of interconnected trails and bikeways.
- Design
  - Maximize walking routes and disperse traffic with a modified street grid pattern.
  - Shorten block lengths to minimize walking distances for pedestrians and bicyclists.
  - Update the Sherwood Transportation System Plan (TSP) to include the Brookman Addition Concept Plan, provide necessary off-site improvements, and, assure continued compliance with Oregon's Transportation Planning Rule.
- Connectivity to Sherwood
  - Connect to the City's existing street system via Brookman Road, Middleton, and Old Pacific Highway.
  - Identify a local connection to Redfern Drive as an "area of special concern." Identify the extensions as appropriate for bicycle, pedestrian, and emergency access only due to the constraint of the existing street design

Figure 5 Functional Street Classification



Brookman Addition Concept Plan

Functional Street Classification

Notes:
1. Existing Cemetery (Constrained Land)
2. Railroad Crossing (Grade Separated)
3. All street alignments are conceptual.
4. Redfern connection is pedestrian, bicycle and emergency access only.

0' 250' 500' 1000'

Final-May 2008

Legend

- High Density Residential 24 du/ac
- Medium Density Residential- High 11 du/ac
- Medium Density Residential- Low 8 du/ac
- Commercial / Mixed Use
- Employment
- Neighborhood Parks (Locations are conceptual)
- Constrained Lands (Goal 5 resource lands, subject to on-site verification)
- Constrained Lands (Vegetated corridor proxy, subject to on-site verification)
- Constrained Lands (Potential wetlands, subject to on-site verification)
- Collector
- Neighborhood Roads

Streets

The Concept Plan displays a street network, in which, street alignments are conceptual. The proposed functional classification designations for the conceptual street network are indicated in Figure 5. During the preparation of alternatives, a Neighborhood Connector street paralleling Brookman Road was evaluated. This new east-west street would have introduced a new crossing of Cedar Creek. It was not included on the final Concept Plan because the costs and environmental impacts exceeded the benefits of the new route.

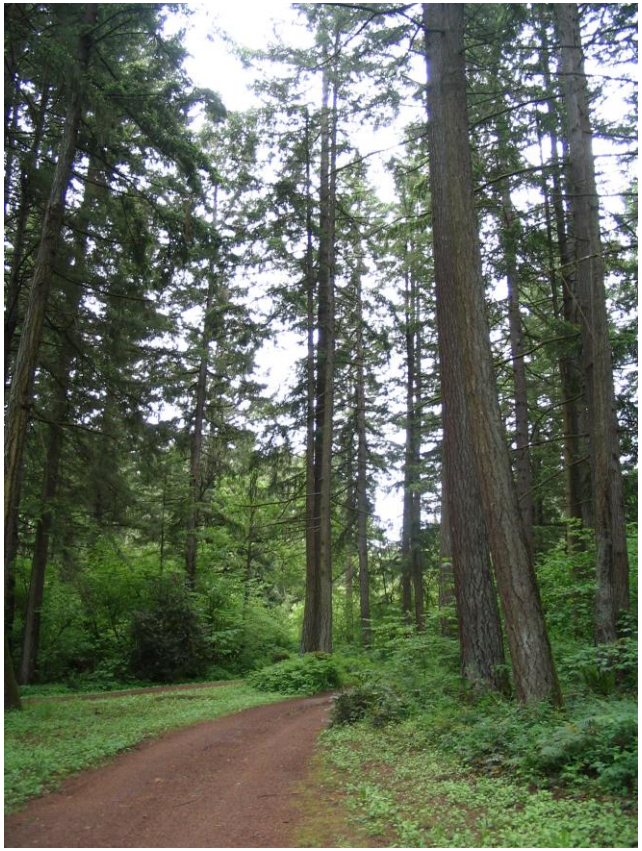
A significant challenge to development of Brookman Addition is providing connections to the surrounding street network without degrading livability on residential streets. North of the site, there are several local or neighborhood route street connections that will be provided, which will increase traffic volumes on those roadways. To monitor the impacts of the Concept Plan, a screenline analysis was conducted to determine traffic volumes at key points on the system. A variety of connections and options were tested with the connections shown representing options that could be implemented without unacceptably negative impacts to the existing neighborhoods.

Table 2 lists the existing, future no-build, and Concept Plan weekday traffic volumes at four locations north of the site. Generally, daily traffic volumes below 2,000 to 3,000 vehicles are considered livable for residential streets. However, narrow residential streets (28 feet wide) have a lower traffic volume threshold of 1,000 vehicles per day, as adopted in the City of Sherwood TSP. Locations with traffic volumes exceeding these levels should be considered for a traffic management program (which could include the installation of traffic calming devices to manage vehicle speeds). Volumes listed in Table 2 for the Concept Plan assume that traffic calming projects and other network mitigation would be implemented with development of the Concept Plan. With the inclusion of traffic calming measures, traffic volumes will be within facility standards for most neighborhood streets.

Table 2 Residential Street Weekday 2-Way Traffic Volumes

		2007	2030	
	Facility Threshold	Existing	No-Build	Concept Plan (May 2009)
SW Woodhaven Dr. south of Sunset Blvd	3,000	1,200	1,200	1,700
SW Timbrel Ln. south of Sunset Blvd	*	2,300	2,400	6,400
SW Pinehurst Dr. south of Sunset Blvd.	3,000	1,500	1,700	1,800
SW Middleton Road south of Inkster Dr.	3,000	300	400	500

* SW Timbrel lane is designated as a collector roadway in the City of Sherwood TSP. Therefore, residential street thresholds were not applied.



Transit

The Concept Plan anticipates future transit service by incorporating precepts of transit oriented development (TOD). In the near-term, gross residential density of the plan supports local and regional bus service. In addition, the West Sub Area includes a high concentration of potential employment oriented toward 99W and a mixed use retail center along Old Hwy 99. In the long-term, this area is designed to potentially attract a spur of Tri-Met's Westside Express Service (WES) commuter rail. Specifics of transit service will depend on the actual rate and type of development built, Tri-Met resources and policies, and, consideration of local options.

Please refer to Appendix B for the complete transportation technical memorandum.

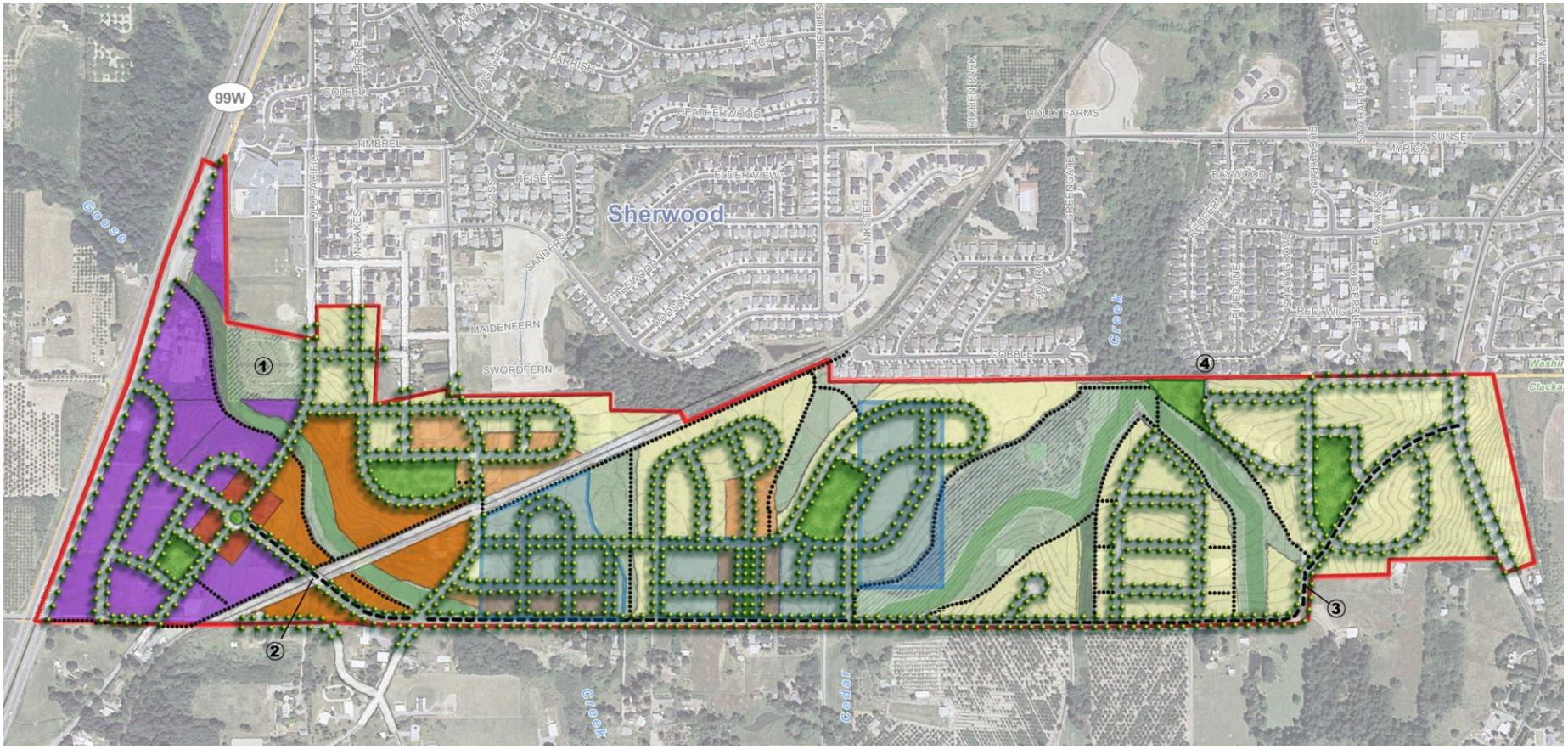
Parks, Trails, and Schools

The Parks, Trails, and Schools Framework (Figure 6) is intended to provide an interconnected network of open spaces, pathways, and civic spaces. This "green network" provides:

- scenic amenities
- community gathering places
- access to nature
- tree and natural area preservation
- green spaces near the system of trails and pedestrian connections
- open spaces which complement buildings and the urban built environment
- opportunities to incorporate innovative stormwater management

Five neighborhood parks are proposed. Two of these parks are located in the West Sub Area - one park serves the more dense mixed use area, while the other serves the less dense residential area. One neighborhood park is included the Central Sub Area and two are located in the East Sub Area. It is assumed that tot lots will be incorporated into individual residential developments to supplement the proposed parks. Open spaces along Goose Creek and Cedar Creek provide natural neighborhood boundaries. The trails and off-street paths link the parks and three sub areas of the plan. Many participants at the open house placed a high priority on trails. Brookman Road was a specific concern, so the plan includes a separated multi-use pathway along Brookman Road. The alternative sites shown for an elementary school are conceptual. They are ideas for locations that would work well with the plan, but do not endorse a specific site location or anticipate zoning to ensure a specific location.

Figure 6 Parks, Trails and Schools



Brookman Addition Concept Plan

Parks, Trails and Schools

All park, trail and school locations are conceptual.

Notes:
1. Existing Cemetery (Constrained Land)
2. Railroad Crossing (Grade Separated)
3. All street alignments are conceptual.
4. Redfern connection is pedestrian, bicycle and emergency access only.

0' 250' 500' 1000'

Final-May 2008

Legend

- High Density Residential 24 du/ac
- Medium Density Residential- High 11 du/ac
- Medium Density Residential- Low 8 du/ac
- Commercial / Mixed Use
- Employment
- Alternative Sites for 10-acre Elementary School (Locations are conceptual and for illustrative purposes only)
- Neighborhood Parks (Locations are conceptual)
- Constrained Lands (Goal 5 resource lands, subject to on-site verification)
- Constrained Lands (Vegetated corridor proxy, subject to on-site verification)
- Constrained Lands (Potential wetlands, subject to on-site verification)
- Brookman Multi-Use Path
- Off-Street Trails

According to the U.S. Green Building Council, buildings in the United States account for:

- *65% of electricity consumption*
- *36% of energy use*
- *30% of greenhouse gas emissions*
- *30% of raw materials use*
- *30% of waste output (136 million tons annually)*
- *12% of potable water consumption*

Sustainability

Sustainability is a key theme in the Brookman Addition Concept Plan. One of the adopted goals explicitly promotes long term sustainability by promoting high quality long-lasting development and green building practices. Underlying all of the plan goals and principles is a commitment to building a more self-sufficient enduring community within the local and regional economy and environment.

The final plan assumes that sustainable practices will be a combination of private initiatives (such as LEED certified buildings), public encouragement through facilitation, incentives and possibly requirements (green streets and low impact development policies), and public-private partnerships. It is recommended that Sherwood employ incentives, education and policy support as much as possible for promoting sustainability within Brookman Addition. Some initiatives will require regulation and City mandates, but caution and balance should be used. Ultimately, it is up to the private sector to support and invest in sustainable development. Brookman Addition's legacy as a model of sustainable design will depend on the built projects that are successful in the marketplace and help generate the type of reputation that the community desires and deserves.

The key to fulfilling the above-listed goal will be in the implementation. For the City's part, implementation strategies that support sustainable design will be included within the Sherwood Comprehensive Plan policies and Code provisions. Some of these strategies will be "required" while other are appropriate to "encourage." Examples of these sustainability strategies include:

- Green Building
- Energy efficiency
- Water conservation
- Compact development
- Solar orientation
- Green streets/infrastructure
- Adaptive reuse of existing buildings/infrastructure
- Alternative transportation
- Pedestrian/Cyclist friendly developments
- Natural drainage systems
- Tree preservation and planting to "re-establish" a tree canopy
- Minimizing impervious surfaces

During the preparation of this plan, the steering committee emphasized the importance of sustainability by recommending the following: "Brookman Addition will be a green development. The City and partners will create a Sustainability Implementation Plan that includes the above-cited sustainability strategies. The City will consider creation of a Task Force to prepare the plan.

Natural Resource Protection

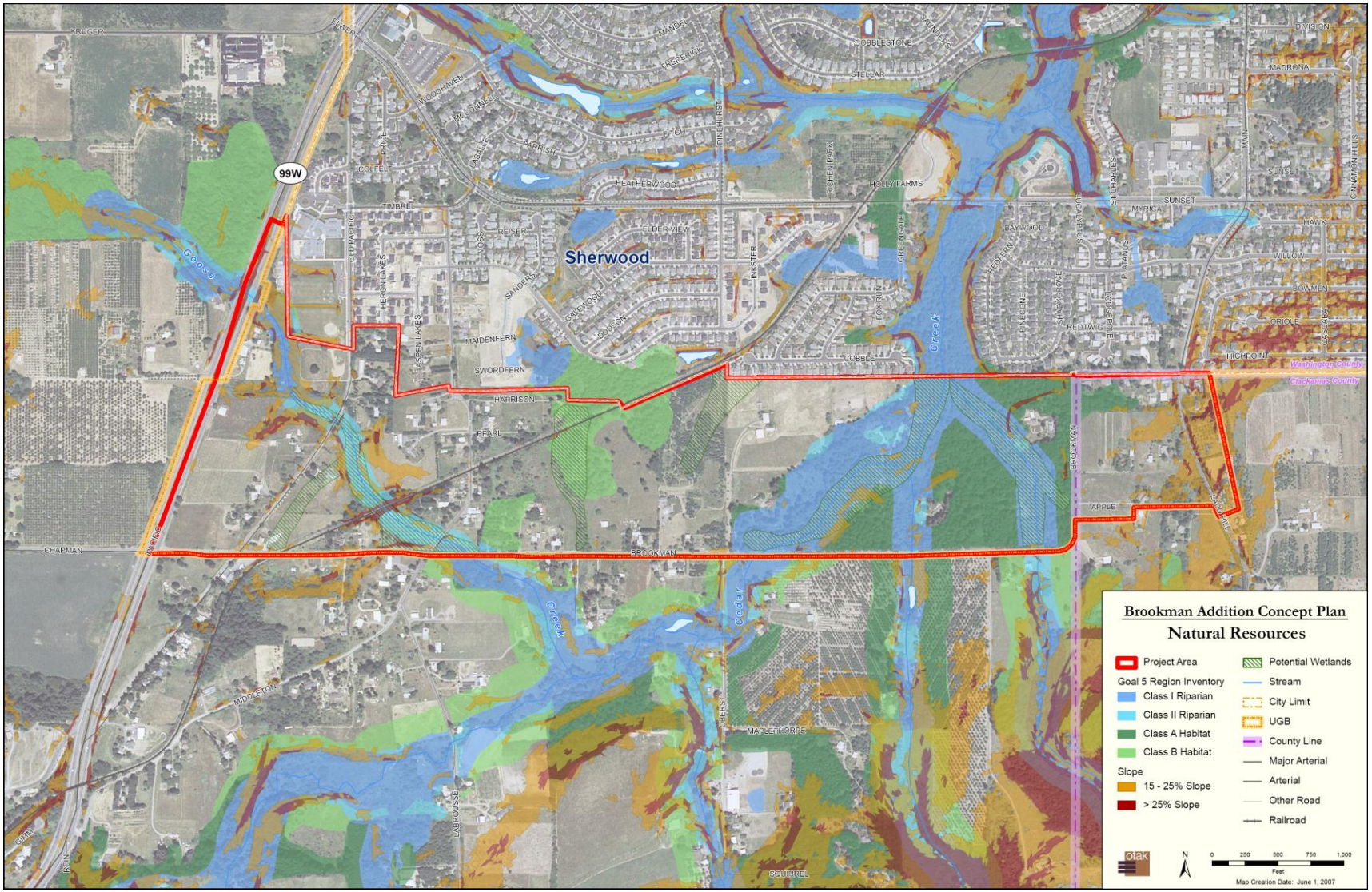
Development of Brookman Addition must be balanced with the preservation of key elements of the natural environment. The identification and mapping of natural resources including habitat areas and riparian corridors informed the concept plan process and helped determine those lands unsuitable for development. Figure 7 illustrates the inventory of natural resources within a one-mile radius of the Brookman Addition plan area.

The purpose of this section is to lay out a suite of strategies for ensuring that the future built environment respects the legacy of the natural landscape. Possible strategies could include:

- As appropriate, amend the City's Wetland Inventory and Comprehensive Plan Natural Resource Inventory to include Brookman Addition's natural resources as identified and mapped, thereby subjecting new development to Wetlands, Habitat and Natural Resource Standards of the Sherwood Municipal Code (Chapter 16.144).
- Designate and reserve areas for Concept Plan parks and open space on the Comprehensive Plan Recreation Plan Map.
- Identify, define, and map protected zones for lands deserving of protection but which are not yet protected from development, with development rights transferable to a developable zone.
- Include site development specifications within medium and high density zones to encourage greater preservation and development of vegetation (e.g. trees).
- Define the medium density residential-low zone to:
  - Maximize and expand natural resources areas
  - Encourage preservation of intact tree stands, farmland parcels and land adjacent to protected natural resource areas.
- Define medium and high density development zones so as to encourage clustering of units on a site and expanding contiguous open space.

- Require a natural resource inventory and protection plan for new development proposals in low and medium development zones.
- Require monitoring for any new development to ensure that there are no increases in stormwater runoff, thereby encouraging developers to design new developments to accomplish this protection by:
  - Incorporating low-impact development (LID) practices
  - Minimizing impermeable surfaces
  - Protecting and increasing vegetation on stream banks
- Work with land conservancies (e.g. Three Rivers Conservancy) to protect land adjacent to Cedar Creek.
- Encourage, provide incentives, and/or require cluster development and other techniques that will preserve open space and tree canopy in the Cedar Creek area.

Figure 7 Natural Resources



Note: Information used for most map layers are based on generalized information from a variety of sources. In all cases, on-site verification will be required to determine the extent and location of resources.

Examples of Multi-functional Regional Stormwater Facilities

Stormwater Wetland

Terraced Outdoor Seating

Water Feature along a Trail

Stormwater

The Stormwater Management Strategy for Brookman Addition is consistent with the adopted Stormwater Management Plan. The strategy describes the recommended stormwater management tools to be applied within Brookman Addition. The following goals were incorporated into the stormwater management strategy with respect to parks and green spaces:

- Regional stormwater facilities should be designed to blend with the other uses of the open space area, and can be designed as a water feature that offers educational or recreational opportunities.
- Protection of natural resource areas consistent with the City of Sherwood's Goal 5 program and other priority resource areas identified by the Steering Committee.
- Sustainable, system-based solutions such as regional stormwater management and other low-impact development practices.

The recommended Stormwater Management Strategy for Brookman Addition is to collect and convey all runoff from the site primarily within the road right-of-way (R.O.W.), and then route stormwater to regional detention and water quality facilities. After all runoff has been treated and detained, it will be discharged into natural drainage ways adjacent to each facility. Design of the regional stormwater facilities should be integrated with the urban and natural areas to provide additional habitat value or public open space for recreation. Photograph examples of integrated facilities are shown at left.

While not assumed as a requirement in the recommended stormwater infrastructure, Low Impact Development Applications (LIDA) should be encouraged for new development. The integration of LIDA to new development will reduce impervious areas and may also reduce effective runoff that is generated from a particular site. Consequently, regional facility sizes may ultimately be reduced per design standards in place at the time the proposed regional facilities are implemented. Incorporation of LIDA will help achieve the vision of Brookman Addition as a green development.

Conveyance of stormwater through Brookman Addition is illustrated in the Stormwater Concept Plan Diagram (Figure 8). Much of the site runoff will need to be conveyed through pipes. All stormwater runoff is conveyed to one of six proposed regional facility sites. While the specific locations have not been identified, coordinating the use of these for multiple properties will require land owner cooperation during development reviews, and/or, City initiative in advance of development. As noted above, Low Impact Development Applications are encouraged where feasible; examples of site-related LIDAs are illustrated on this page; however they may not be fully applicable or currently permissible in the City of Sherwood at this time.

Regional water quality facilities are recommended for the treatment of all site runoff. Vegetated swales are recommended for treating new impervious area within each of the six basins, and should be integrated with the regional stormwater detention facilities.

The regional facilities should be incorporated into the open space areas wherever possible to reduce land costs, and reduce impacts to the buildable land area. Stormwater runoff should be considered as a resource, rather than a waste stream. The collection and conveyance of stormwater runoff to regional facilities can offer an opportunity to collect the water for re-use.

Please refer to Appendix C for the complete stormwater technical memorandum.

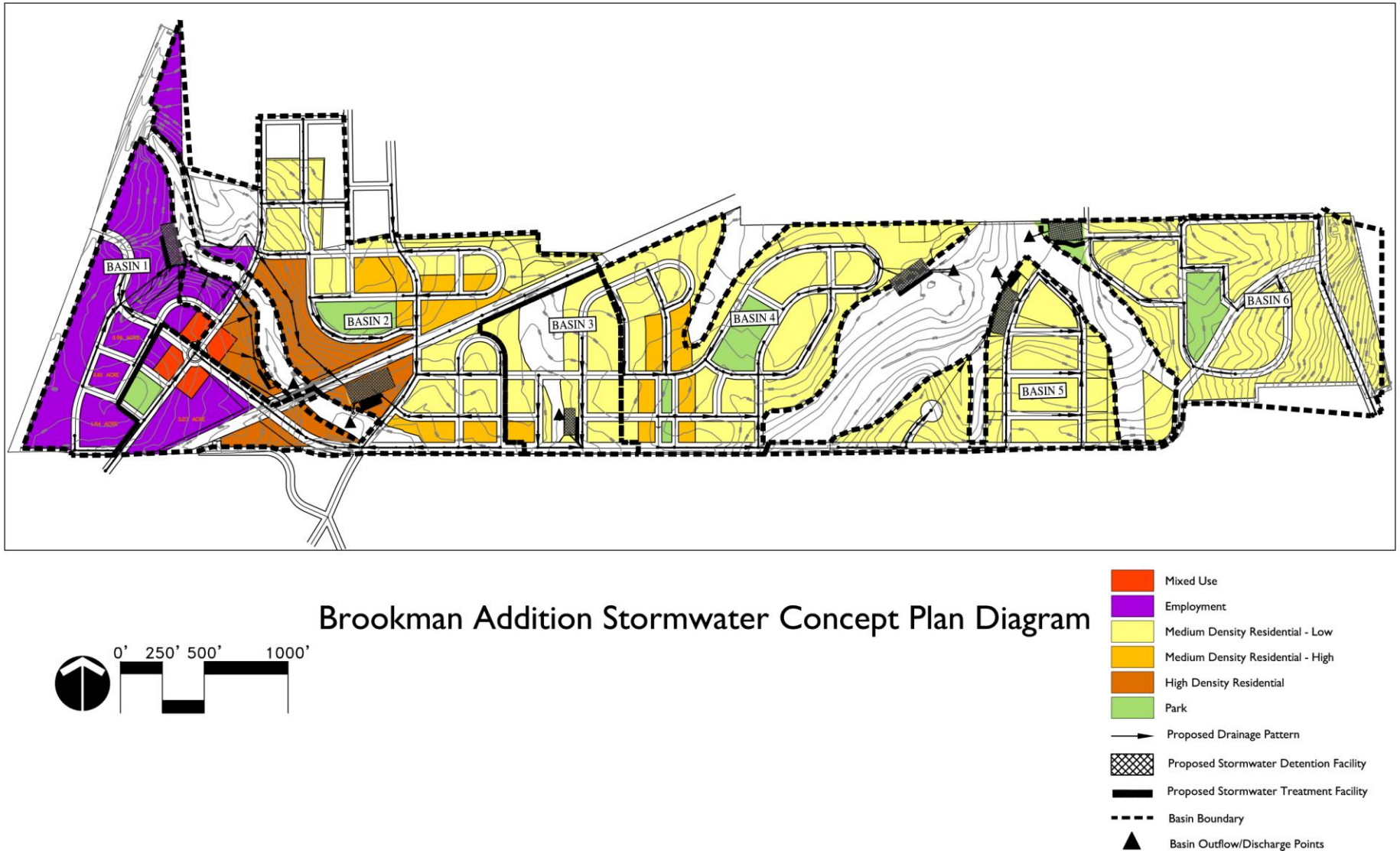
Single Family Residential

Multi-Family Residential

Parking Lot

Illustrations by Greenworks

Figure 8 Stormwater Concept Plan



Note: While the locations of the proposed stormwater detention facilities are conceptual, the general locations shown in Figure 8 reflect consideration of topography, existing resources, proposed land uses, and proposed street network.

Water System

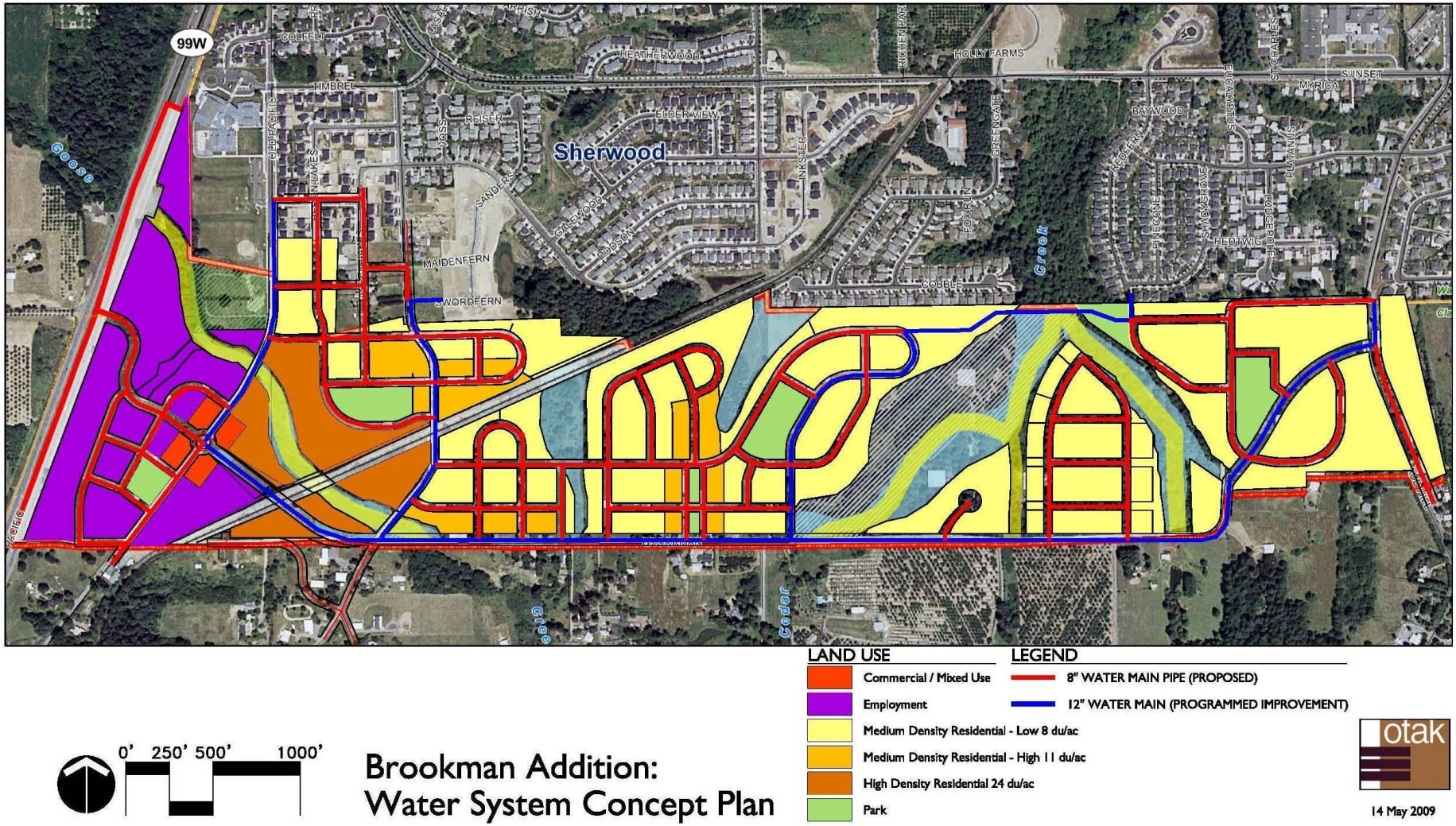
The existing water system currently provides potable water to the area immediately north of Brookman Addition. It is part of the 380-foot pressure zone, the largest pressure zone in Sherwood, and it serves all customers below an approximate ground elevation of 250 feet above mean sea level. The zone includes residential, commercial, and industrial land uses. It is served by the Main Reservoir at SW Division Street east of Southwest Pine Street. All four of the City's groundwater wells and the City's Tualatin Supply Connection provide water to this pressure zone.

The Water System Master Plan identifies the need for several major improvements to extend water service to the concept plan area. These projects include: the seismic upgrade to the existing reservoirs; construction of new reservoirs; installation of a pressure reducing valve; and the addition of several pipeline segments. These improvements are required to provide a "backbone" network that will serve the concept plan area.

The master plan has programmed the construction of approximately 17,000-feet of 12-inch water main that would bring service into the concept plan area. The connections to the existing system will occur at designated locations along the northern edge of Brookman Addition. These connections to the existing system are planned to occur at the proposed 12-inch stub located in S.W. Ladd Hill Road, the existing 8" stubs located in S.W. Redfern Drive and Swordfern Lane, and at the proposed Southwest Sherwood Pressure Reducing Valve PRV.

The 12-inch water main will provide direct service to many of the properties in the concept plan, but most importantly, it will provide water to a network of 8-inch mains that will serve the remainder of the properties identified in the concept plan area.

Figure 9 Water System Network



Sanitary Sewer System

The sanitary sewer system infrastructure to serve the Brookman Addition Concept Plan area is assumed to be a traditional gravity flow municipal system. It will be an extension of the existing system that is documented in the *Sanitary System Master Plan* (July 2007). Design, construction, and operation of the proposed infrastructure will follow current city and state standards.

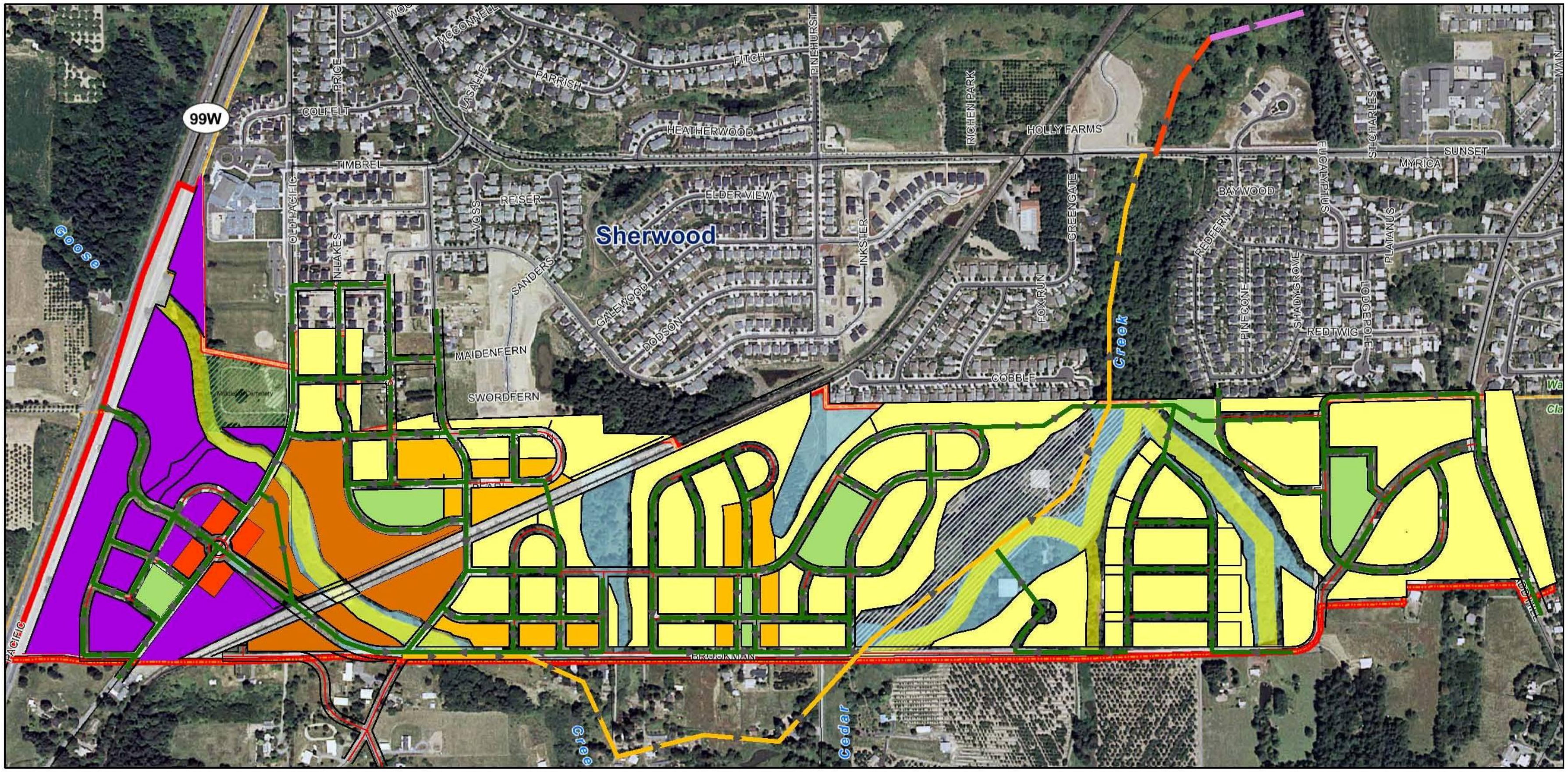
The sanitary system master plan anticipated the expansion of the Urban Growth Boundary (UGB) to include the Brookman Addition Concept Plan area and beyond. The concept plan area is served by the Cedar Creek Basin. The Cedar Creek sanitary sewer basin drains to the Sherwood Trunk Interceptor Sewer, operated and maintained by Clean Water Services (CWS). The Sherwood Trunk Interceptor extends to the Sherwood Pump Station, also owned and operated by CWS. Wastewater is then pumped to the Durham Advanced Wastewater Treatment Plant for final treatment and disposal.

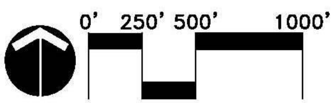
Like the Water System, basic system extensions are needed to bring the sewer pipes to the concept plan area. There are three projects identified in the Sanitary System Master Plan that are needed to serve the area. Two of these projects upgrade a small portion of the existing 12-inch collector sewer. One of the projects extends the 12-inch collector sewer along Cedar Creek and into the Urban Growth Boundary Areas 54 & 55, which comprise the Brookman Addition Concept Plan area.

The two system upgrades and the 6,430-foot extension project will provide the "backbone" sanitary sewer system for the Brookman Addition Concept Plan area. A local network of sanitary sewers will need to be constructed in order to completely serve the Brookman Addition. The "backbone" system identified in the Sanitary System Master Plan would extend outside the current UGB to follow the creek. Following the existing grades along the creek allows the system to operate under gravity flows and eliminate the need for pumping to serve the lower portions of the Concept Plan Area. It is assumed that this extension is acceptable provided no areas outside the UGB are permitted to obtain service from this line.

Please refer to Appendix D for the complete water and sanitary sewer technical memorandum.

Figure 10 Sanitary System Network





Brookman Addition: Sanitary Sewer System Concept Plan

LAND USE

- Commercial/Mixed Use
- Employment
- Medium Density Residential - Low 8 du/ac
- Medium Density Residential - High 11 du/ac
- High Density Residential 24 du/ac
- Park

LEGEND

- 8" SANITARY SEWER PIPE (PROPOSED)
- 12" SANITARY SEWER MAIN (COLLECTION SYSTEM EXTENSION)
- 15" SANITARY SEWER MAIN (CAPACITY UPGRADE)
- 18" SANITARY SEWER MAIN (CAPACITY UPGRADE)

otak

14 May 2009

V. Fiscal Impact Analysis Summary

The Fiscal Impact Analysis compares the cost of constructing infrastructure to serve Brookman Addition to revenues generated to pay for those costs. Costs are based on infrastructure analyses prepared for the plan. Revenues are based on infrastructure fee information provided by the City of Sherwood.

In Oregon, the primary funding mechanism for funding infrastructure for new development is the System Development Charge, or SDC. SDCs are one-time fees levied on new development to recover a fair share of the costs of existing and planned future improvements to infrastructure to serve that development. The City of Sherwood also collects a Traffic Impact Fee (TIF) for Washington County, which is a countywide charge to fund transportation infrastructure.

SDC revenue for non-residential development may be significantly different from what is estimated in this analysis. The SDCs will vary with size of building and type of use. Residential SDCs, however, are likely to be roughly equivalent to the estimates in this analysis, if build-out is similar to the Concept Plan. The great majority of the development in Brookman Addition is residential, and the great majority of SDC revenue is from residential development. Therefore, total SDC revenue projections are likely to be fairly accurate.

Figure 10 and Table 3 display the total costs and revenues for four basic urban infrastructure types. The data show only the costs that are expected to be paid by the City. The numbers do not include costs typically paid by developers. The following text explains the reasons for the funding gap in stormwater and transportation, and then discusses potential funding sources to fill the gap.

Figure 11 Total Costs and SDC/TIF Revenue

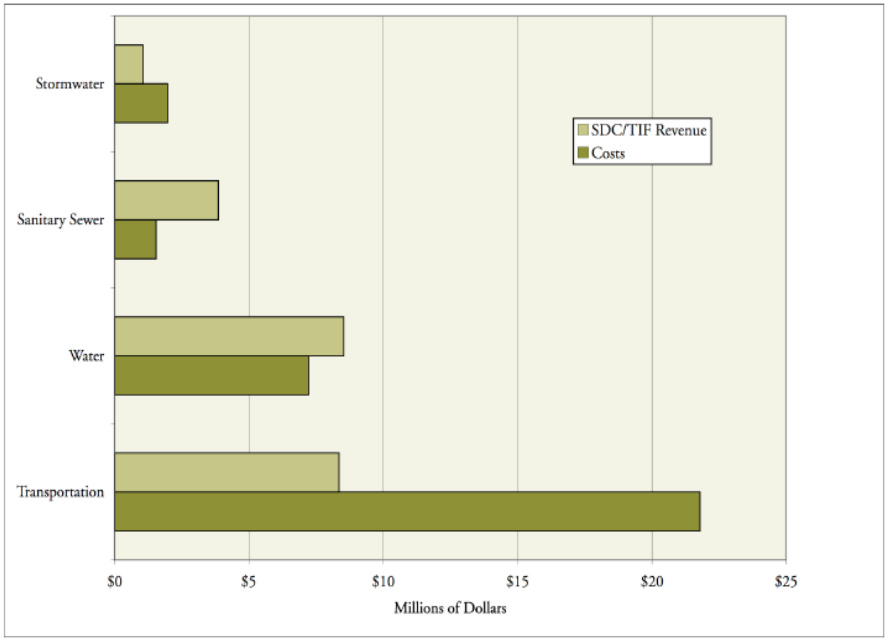


Table 3 Fiscal Impact Analysis Summary*

	Cost	SDC/TIF Revenue	Cost - Revenue	% Funded by SDC/TIF
Transportation	$21,790,000	$8,349,051	$13,440,949	38%
Water	$7,221,000	$8,517,869	($1,296,869)	118%
Sanitary Sewer	$1,538,782	$3,853,792	($2,315,010)	250%
Stormwater	$1,965,160	$1,042,449	$922,711	53%
Parks	not estimated	$8,105,625	n/a	n/a

*Based on Draft Concept Plan – June 2008
See Appendices for final infrastructure costs

- **Transportation.** There is a large funding gap for transportation. The large gap is not unexpected. SDC and TIF revenues are not intended to cover 100% of costs. The City of Sherwood reduced its transportation SDC in November 2007 because of complaints from developers in the City. The County is working to expand the revenue generated by the TIF, but the revised TIF calculation is not known at this time. The City's transportation SDC is expected to be reduced proportionate to any increases in the County TIF.

- **Water.** SDCs fund just over 100% of expected infrastructure costs for Brookman Addition. Revenues exceed costs because Brookman Addition is able to connect to existing capacity.

- **Sanitary Sewer.** SDCs fund 250% of expected infrastructure costs for Brookman Addition. Revenues exceed costs because Brookman Addition is able to connect to existing capacity. The excess revenues support capital improvements to the entire system.

- **Stormwater.** SDCs fund about half of expected costs for Brookman Addition. The City may be able to apply revenue generated by a park SDC to stormwater services. If open space is designed to provide recreation and stormwater infiltration, park SDC revenue can help fund the stormwater infrastructure.

The funding gap for transportation and stormwater is about $14.3 million, or about $11,600 per residential unit in the Concept Plan.

Funding Sources

The following is a list of potential funding sources that could be considered to fill the funding gap. These alternatives are all legal in Oregon and a combination of the alternatives could be combined into a funding strategy. The first two funding mechanisms, a Local Improvement District and a County Service District, are the most appropriate funding solutions, given the relatively small funding gap.

Local Improvement District (LID)

The landowners could create a taxing district of the Brookman area, where the revenue funds infrastructure improvements. Future property owners in the area would pay the tax. The funding gap is less than $12,000 per household, and that amount could be financed with a LID in the Brookman District.

County Service District

This is a special district that can fund construction, operation, and maintenance of public facilities and services. Similar to a LID, but the tax does not need to be based on property value, but some other factor (e.g., square feet of structure). Such a tax structure avoids statewide property tax limitations. The funding gap is small enough that it could be financed with a County Service District.

Expand Developer Requirements

The City could require that developers build infrastructure in addition to the local infrastructure. Although the developer pays for developer requirements, the expenditures do not necessarily come from the developers' pocket. The total cost will affect how much developers are willing to pay current landowners for the land, likely reducing the purchase price. The increase cost of development will affect the type of housing the developer is willing to build due to the potentially sizeable impact to development financial feasibility.

Expand SDCs

The City is already working on an update of the sanitary sewer and stormwater SDC and Washington County is considering an expansion of the TIF. It is expected, however, that the City's transportation SDC will be reduced proportionate to any increases in the County TIF. As with developer requirements, the total cost of SDCs will affect how much developers are willing to pay current landowners for the land, and the increased cost of development will affect the type of housing the developer is willing to build due to the impact to financial feasibility.

Transportation Utility Fees

A Transportation Utility Fee (TUF) is a monthly charge assessed to households and businesses, based on the average number of trips generated by types of land uses. The fee is often collected as part of a utility bill. The revenue typically funds road maintenance.

Bonds

A General Obligation (GO) Bond is a traditional tool used to fund capital improvements. The voters of Sherwood would have to approve a bond, which would be secured by property tax revenue. GO Bonds are not subject to property tax limitations established by Measures 5, 47, and 50. Revenue bonds are typically secured by water/wastewater/stormwater billing revenue. The City could institute a transportation utility fee to secure a bond for roads.

Urban Renewal District

Urban Renewal allows a jurisdiction to use tax increment financing to fund infrastructure. Tax increment financing 'freezes' the assessed value of the district, and all property tax revenue associated with any incremental growth in assessed values goes to the UR District. It is likely that the value of improvements in Brookman Addition is currently low enough to legally permit the establishment of an UR District. The primary disadvantage with Urban Renewal is that the existing taxing district does not collect property tax revenue generated by the new, higher value development. That revenue funds operations for the City, the County, and any special districts. However, compromises, such as dedicated matching funds and/or projects mutually beneficial to the City/District can be planned to mitigate potential negative effects of foregone revenues. By State statute, school districts do not forego property tax revenues with establishment of urban renewal.

Property Taxes

Brookman Addition is in the jurisdiction of other taxing districts, but this analysis focuses on the City of Sherwood, the jurisdiction with primary responsibility for basic infrastructure provision. At full build-out, Brookman Addition will generate close to $1.0 million a year in property tax revenue to the City of Sherwood. Property taxes support the City's General Fund. In Fiscal Year 2007-08, the General Fund is budgeted to be about $12 million, with $3.7 million of total revenue generated by property taxes. The development in the Brookman Addition would increase total revenue to about $4.7 million.

Please refer to Appendix E for the complete Fiscal Impact Analysis technical memorandum.

VI. Implementation Policies

In order to meet the goals and adhere to the principles of the concept plan for Brookman Addition, the following policies are recommended for adoption into the Sherwood Comprehensive Plan. The goal statements are those developed by the Steering Committee as goals for the plan.

Goal 1 - Connections to Sherwood

Brookman Addition will be related to the community character and harmonize with Sherwood.

1.1 New development shall respect the scale of adjacent residential development.
1.2 Promote neighborhood "seams" rather than hard edges through compatible building height, size, densities and general architecture in areas where new development interfaces with existing residential areas.
1.3 Require pedestrian and vehicular connections to Sherwood be consistent with the Concept Plan Circulation Framework.

Goal 2 - Complete and Sustainable Community

Brookman Addition will be complete in its variety of housing, mix of uses, walkable streets, public facilities and shared community spaces, transportation connections, green spaces, and diversity of residents.

2.1 Adopt new comprehensive plan and zone designations, and development code, that implement the Brookman Addition Concept Plan. Require all development to be consistent with the plan and implementing code.
2.2 Establish land use sub-districts within the code to implement the Concept Plan. The sub-districts are *West Sub Area*, *Central Sub Area* and *East Sub Area*.
2.3 Within the *West Sub Area* sub-district, promote job creation, a mix of neighborhood-serving retail and services, multiple housing options and transit oriented, pedestrian friendly development. Adopt minimum densities, limitations on stand-alone residential developments, parking maximums, urban design standards (e.g. buildings brought up to the sidewalk) and other development regulations that implement this policy.
2.4 Promote a jobs-housing balance by preserving lands designated for employment uses.

2.5 The mixed use village center will be located along Old Pacific Hwy and fall between three and five gross acres. The specific configuration of the village center will be established as part of a master plan.
2.6 Buffer lower density residential areas from major transportation corridors including Hwy 99W, the Pacific & Western Railroad, and Brookman Road with higher intensity land uses, wide sidewalks and tree lawns and/or generous landscaping.
2.7 Within the *Central Sub Area* and *West Sub Area*, encourage a variety of single family housing types. Allow smaller lot sizes, lot size averaging and other techniques that help create housing variety while maintaining overall average density.

Goal 3 - Transition of Land Intensities

Brookman Addition will contain a variety of intensities of land use. The intensity of uses will taper down from 99W to the surrounding neighborhoods and open spaces.

3.1 Promote compatibility with existing urban residential areas to the north and rural residential areas to the south of the Concept Plan area. Transitioning to lower densities, setbacks, landscaped buffers and other techniques shall be used to create smoother transitions in the built environment.
3.2 Focus growth and development intensity near the existing high capacity transportation facility of Hwy 99W and the potential transit node at or near the village center.
3.3 Maintain natural (hydrology, open space) and built (transportation corridors) barriers as logical transition between residential density and development intensity (bulk, heights).
3.4 Create residential density transitions and gradients by permitting medium density dwellings such as, townhomes (11 dwelling units per acre) between higher intensity residential and mixed use areas and detached residential settings.

Goal 4 - Transportation Choices

Multimodal choices for walking, biking and transit will be provided and connected throughout Sherwood and the larger transportation system.

4.1 Work with Tri-Met to extend local and regional bus service to the concept plan area in anticipation of transit supportive densities and uses.
4.2 As land use reviews and development occur prior to extension of bus service, ensure that the mix of land uses, residential and employment density and

urban design support transit as an attractive and viable transportation option in the future.

4.3 As physical conditions (topography, street capacity) permit, ensure that local street connectivity and off-street pedestrian routes link together into a highly connected pedestrian system that is safe, direct, convenient, and attractive to walking.

4.4 Identify a local connection to Redfern Drive as an "area of special concern." Identify the extension as appropriate for bicycle, pedestrian, and emergency access only due to the constraint of the existing street design.

4.5 In cases where road and sidewalk connections are not feasible, require pedestrian and bicycle trail connections.

4.6 Disperse traffic evenly by requiring local street connectivity and discouraging dead-end streets. Cul-de-sac streets shall be minimized and used primarily to increase density by opening up land not otherwise accessible through a connected street pattern due to topography or other constraints.

4.7 The "walkability" of the Concept Plan area will be one of its distinctive qualities. The density of walking routes and connectivity should mirror the urban form – the higher the density and larger the building form, the "finer" the network of pedestrian connections.

4.8 Where roadway and sidewalk improvements are impractical or cost prohibitive, provide trails in-lieu of extensive roadway and sidewalk improvements.

4.9 Require trails to be provided consistent with the Concept Plan Circulation Framework.

4.10 Provide bike lanes and/or separated multi-use paths on all collector streets. Bike routes will be coordinated with the trails shown on the Circulation Framework.

Goal 5 - Parks & Green Spaces

A variety of parks, pathways along streams, protected open spaces and water quality facilities will result in a connected system.

5.1 Establish an open space network consistent with the Open Space Framework Plan.

5.2 Develop an open space requirement (e.g. as a percentage of land area) for all new development.

5.3 Neighborhood parks, trails and other open spaces shall be within a short walk (approximately one-quarter mile unimpeded by major physical or psychological barriers) of all homes and businesses.

5.4 Provide a mix of open space and recreation opportunities for all ages and abilities including tot-lots, playgrounds, ball fields, and passive recreation such as nature trails
5.5 Link all parks and open spaces with direct pedestrian and bicycle connections.
5.6 Create functional open spaces, natural water quality facilities and wildlife corridors. Aggregate on-site open space and link to adjacent off-site open spaces as site conditions allow.
5.7 Encourage use of low impact development practices and stormwater system designs where appropriate and permissible, that mimic natural hydrologic processes, minimize impacts to natural resources and eliminate pollution to watersheds.
5.8 Preserve and enhance the existing tree canopy as much s possible. Encourage incorporation of significant tree cover into master plans and site specific designs.

Goal 6 - Long Term Quality

Development will be designed to be high quality and long-lasting for a livable future in the next generation. The plan encourages development guided by green principles.

6.1 Create timeless mixed use and residential neighborhoods by translating concept plan land use concepts into zoning and urban design standards.
6.2 Implement human scale design through building orientation, attractive streetscapes, building form/architecture, subordinated parking facilities and other techniques that is matched to the purpose of the sub-district. The design qualities of the community should mirror the urban form – the higher the density and larger the buildings, the higher the expectation for urban amenities and architectural details.
6.3 Utilize the land use application and site plan review process to ensure high quality development and consistency between projects. Allow flexibility in development standards and the configuration of land uses when they are otherwise consistent with the comprehensive plan, development code, and vision to create a complete and sustainable community.
6.4 Consider incentives, such as density bonuses, for the development community to seek green building and neighborhood design certification (*LEED-Leadership in Energy and Environmental Design, Earth Advantage, EnergyStar* or equivalent).
6.5 Plan Brookman Addition as a green development.

Goal 7 - Consensus, Involvement and Partnerships

The process involves partnerships with service providers to produce a community supported concept plan that addresses community issues and concerns, and meets applicable state, regional, city and community planning objectives.

7.1 Foster stewardship or "ownership" of the concept plan through continuing public outreach and education among stakeholders including, but not limited to, neighborhood groups, local agencies and officials and the development community.

7.2 Seek innovative funding techniques including joint development opportunities with public and private partners to finance infrastructure improvements.

7.3 Work externally with local and regional government partners and service providers to ensure consistency with plan goals and policies.

Goal 8 - Implementation

The concept plan shall consider the feasibility of implementation, including financing, construction, and phasing.

Financing strategies for implementation

8.1 Consider the implementation of one or a combination of multiple alternative funding strategies to decrease the gap between costs and current revenues. Strategies to be considered include (but are not limited to):

a. Local Improvement District (LID)
b. County Service District
c. Expanded developer requirements
d. Expanded System Development Charges
e. Transportation Utility Fees
f. Bonds
g. Urban Renewal District

Exhibit A-2
6-2-09 CC, Brookman Concept Plan

Appendix A – Public Involvement Report

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Brookman Road Concept Plan
Public Involvement Report

Prior to beginning the Brookman Road Concept Plan project, the City developed a public involvement plan to engage and inform as many property owners and citizens as possible. The Plan included providing multiple opportunities for formal and informal comments. The plan included the formation of a steering committee consisting of property owners, residents, agencies and representatives from boards and commissions; public open house meetings, monthly updates in the gazette, and regular web updates.

The following is a detail of the multiple outreach actually provided through this process.

	date	Comment
Mailers to property owners in the Brookman Road area	March 23, 2007	
Article in Gazette regarding "kick-off" and soliciting applications for steering committee		
Council forms Steering Committee and formally authorizes contract	April 3, 2007	
Mailer to property owners in area and within 100 feet announcing project kick-off	May 23, 2007	Included scheduled steering committee and public open house dates as well as web address
Steering Committee meeting	June 2, 2007	
Steering Committee meeting	June 27, 2007	
Park Board meeting	July 9, 2007	
Steering Committee meeting	July 18, 2007	
Steering Committee meeting	August 22, 2007	
Open House #1	October 10, 2007	Notices mailed to property owners within 100 feet, within the Brookman Road area, to all Woodhaven HOA members (507 e-mail addresses), to the Arbor Lane HOA contact, to the Interested Parties list, notice posted on the website, on the Robinhood Theater Sign prior to the event, articles in the archer and included on a citywide post card about several events of citywide interest.
Steering Committee meeting	October 24, 2007	
Steering Committee meeting	December 12, 2007	
Park Board meeting	January 7,2008	
Open House #2	January 9, 2008	Notices mailed to property owners within 100 feet, within the Brookman Road area, to all Woodhaven HOA members (507 e-mail addresses), to the Arbor Lane HOA contact, to the Interested Parties list, notice posted on the website, on the Robinhood Theater Sign prior to the event, and articles in the archer.

In addition to the above date specific meetings or mailings, articles were published monthly in the Archer to inform the public that this project was taking place. The City also provided regular updates on the City web site and had copies of all materials received by the Steering Committee available on the web site.

Detailed interested parties list with updates provided when Steering Committee updates were provided.

Steering Committee
The public outreach and resulting input helped shape the plan. Specifically, each Steering Committee member represents an agency or group of people and brings their own perspective to the process. Simply through the SC participation, multiple view points were considered and heard.

In addition to the Steering Committee representation, the meetings were open to the public with an opportunity to comment at the beginning of every meeting. The Steering Committee heard a presentation from one property owner with specific transportation concerns during this comment period. In addition, there were times at which the Committee would welcome input from the "audience" as they were discussing issues. The Steering Committee meetings were attended by members of the public with as few as two (2) at some and as many as eleven (11) at others.

Open House #1
Approximately 70 total participants attended the Open House. Most of the survey participants live in Sherwood (67%), with a minority that live within the Brookman Addition area. Most survey participants have lived in their existing homes for more than five years (78%).

During the Open House, a presentation was given and posters were exhibited explaining differing aspects of the project, including: Project Timeline, Project Goals. Background Maps, Natural Areas and Goal 5 Resources, Slope, Buildable Lands, Ownership, Market Analysis, Infrastructure, Parks, Stormwater, Sewer and Water Service, Transportation Elements, I-5/99W Connector Study, Existing Transportation Analysis, Transportation Analysis of Three Preliminary Alternatives, and the Three Preliminary Alternatives developed by the Steering Committee and Consultant team.

An on-line survey was created (with hard copies also provided at the open house for those that did not want to complete the survey on line) to obtain feedback on the three alternatives presented and the underlying goals. Most survey participants found each Brookman Addition Goal to be very important or important; some participants felt that the goals should reflect an emphasis on green development and protect existing farmland by encouraging the I-5/99W Connector to be placed north of the study area. Survey participants liked Alternative One's open spaces and economics, but disliked the transportation and town planning aspects. Most liked the economics and town planning of Alternative Two, but disliked the open spaces and transportation, especially the Ladd Hill realignment. Most liked the transportation elements of Alternative Three, but disliked the lack of green space and high density layout. Of the three alternatives, most survey participants preferred the Western Town Center & Historic Railroad Village and Cedar Creek and Ladd Hill neighborhoods of Alternative One and preferred the Central Neighborhood in Alternative Two.

Survey participants also mentioned that the plan should consider the rural south side of Brookman Road. There were also concerns about the amount of traffic on residential roads north of the Brookman Addition area and concerns about traffic and infrastructure impacts outside of the Brookman Addition area. There were some that preferred a fourth "No Build, No Annexation" alternative.

Approximately 13 Open House attendees then participated in the workshop portion of the Open House where there were facilitated discussions and the opportunity for hands-on participation. Below is a summary of what came out of the workshop session:

Alternative 1
The groups liked the lower density, increased open space and lots of green. The street system seemed less linear, perhaps creating quieter more private neighborhoods. The groups generally disliked the limited connectivity to the north.

Alternative 2
Liked the realignment of Brookman Road. Disliked the amount of high density residential and the fact that it was "chopped up" and not consolidated. Townhomes are preferred over high-density attached

residential. Concerned about the green spaces lost between Alternative 1 and Alternative 2, particularly in the Cedar Creek area. Also disliked the intersection in the Ladd Hill area.

Alternative 3
Liked the better connectivity to the north. They liked the idea of a street on the north edge, but not as a collector. Interested in the idea of "main street" commercial area. Felt this alternative eliminates too much green space and packs in too much density. Loses its character. They disliked the idea of a collector along the north edge, due to the impacts on existing homes on the boundary of the area. The groups disliked the amount of retail and commercial lands in all alternatives.

The groups were then asked to construct their own versions of the Brookman Addition Concept Plan using "puzzle pieces" from the three preliminary alternatives. Three groups completed this activity, resulting in: One concept plan identical to Alternative 1, except with a variation in the alignment of Brookman Road in the Eastern section. One concept plan with the Western and Central areas of Alternative 1 and the Eastern section of Alternative 3, with the addition of a Northern Road. One concept plan with the Western area of Alternative 2, the central area of Alternative 3, and the Eastern area of Alternative 1.

Several Steering Committee members were in attendance at the Open House and participated in the workshop. The entire Steering Committee was presented an Open House Summary report at the October 24, 2007 Steering Committee meeting and the members were asked to consider the public input and provide direction on revisions prior to additional analysis and review by the consultant team.

After considering the public input as well as agency concerns and additional consultant analysis, the Steering Committee took elements of each of the 3 original alternatives and provided specific direction to the consultant team to provide even more analysis to determine if specific transportation elements were more feasible than others.

Open House #2
Prior to holding the second Open House the Consultant Team presented the revised plan based on the direction provided to the consultants and providing the additional analysis requested regarding transportation impacts and improvement costs. The Steering Committee gave the approval to forward that revised plan to the public open house for review and comment.

The purpose of Open House was to: Update the public concerning the progress and current status of the Brookman Addition Concept Plan; Provide a forum for the public to ask questions and elicit responses from the project team; Be available to answer questions and inform the public about the Brookman Addition Concept Plan process; and Receive community input both during the open house and through an optional survey available to citizens at the open house and online.

Approximately 70 total participants attended the Open House. The survey garnered 59 respondents. Most of the survey participants live in Sherwood (75%) and close to half live or own property in the Brookman Addition Area (47%). Most survey participants have lived in their existing homes for more than five years (76%).

The Open House was a question and answer event focused on posters that were exhibited explaining differing aspects of the project, including: Project Timeline, Project Goals, Existing Conditions Maps, Natural Areas and Goal 5 Resources, Buildable Lands, Property Ownership, Market Analysis, Transportation Elements, I-5/99W Connector Study, Existing Transportation Analysis, Preliminary Concept Plan - Land Use Map, Preliminary Concept Plan - Functional Transportation Classification Map, Preliminary Concept Plan - Parks, Trails & Schools Map, Transportation Analysis of the Preliminary Concept Plan.

In addition to input and comments provided at the Open House itself, residents were encouraged to fill out a Preliminary Concept Plan survey on-site or online. Project goals developed by the Steering Committee were used as criteria for respondents to evaluate the plan, its design elements and sub areas. The survey focused on four main aspects on the concept plan: transportation; open spaces, parks, and stormwater; economics; and town planning. Survey participants provided opinions on these aspects for the overall draft concept plan and in the three specific sub areas, referred to as the West Sub Area, Central Sub Area, and East Sub Area.

Regarding how well the Draft Concept Plan met a variety of specific project goals, the response was positive in terms of meeting goals for a transition of land intensity throughout the site and the preservation of land for parks and green spaces. Respondents were more neutral when evaluating the Preliminary Concept Plan in terms of creating connections to Sherwood, establishing a complete community, providing for transportation choices, encouraging long-term quality of development, a planning process rooted in consensus, involvement, and partnerships and implementation of the Concept Plan. Implementation drew the most uncertainty with 56% of participants responding "neutral/don't know."

Regarding the Concept Plan in general the majority of survey participants liked the approach to open spaces, parks, and stormwater areas in the draft concept plan. Survey participants disliked the approach to transportation and town planning.

Regarding specific Sub Areas in the Concept Plan participants liked the open spaces, parks, and stormwater planning in each sub area. Of the three sub areas, participants responded most favorably to the West Sub Area and least favorably to the East Sub Area.

- West Sub Area:
  Participants liked the approach to economics and town planning
  Responses regarding transportation planning were more evenly distributed between "like" (33%) and "dislike" (39%).
- Central Sub Area:
  Participants largely responded "no opinion" to transportation, economics, and town planning.
- East Sub Area:
  65% of participants disliked the approach to transportation.
  Responses were evenly distributed for town planning.
  Responses were largely "no opinion" for economics.

Survey participants also:

- Strongly opposed the connection of Redfern Drive with the Brookman Addition area;
- Requested additional connections, especially north-south, with Sherwood;
- Expressed a desire for additional parks and open space in the plan;
- Raised concerns about the enhancement of Brookman Road's level of service in terms of potential impacts to existing property owners and traffic safety;
- Questioned infrastructure capacity and public facility impacts, especially on the schools, outside of the Brookman Addition area.

Final Steering Committee Recommendation

At the February 27, 2008 Steering Committee meeting, the members were asked to provide direction on several key issues identified in the second open house. Specifically:

- Connection of Redfern into the Brookman Road area
- Alignment of Brookman Road
- Parks and Open Spaces (amount and location)
- Densities (overall and in the eastern portion)

- Constrained lands as mapped do not necessarily reflect what is "on the ground"
- How much "green" development should be encourage, required or provided

After discussion of the public input and the key issues, the Steering Committee provided the following direction to the consultant team to make modifications to the draft concept plan report:

- Connection of Redfern into the Brookman Road area – keep the connection in the plan but provide specific recommendation that the traffic volumes on Redfern may not exceed the typical volumes for a local street of this size (1000 ADT). If this is adopted as part of the concept plan, implementation would be via amendment to the Transportation System Plan.
- Alignment of Brookman Road – The committee discussed comments supporting the realignment of Brookman to remove the "S" curve. Ultimately, it was determined that the existing alignment was preferred.
- Parks and Open Spaces (amount and location) – The Committee supported re-locating the eastern most proposed park to the Cedar Creek area near Red Fern. No specific recommendations were made to increase the total number or general amount of park space.
- Densities (overall and in the eastern portion) – The committee recommended coordinating with Metro to determine if a reduction in density in the Cedar Creek area would be accepted if it would help preserve additional openspace and natural vegetation. If Metro was not supportive of a density reduction, the Committee recommended the Planning Commission look at either further up-zoning property to the west to allow lower densities adjacent to Cedar Creek or look at other ways to help enable the retention of large standards of natural vegetation in the Cedar Creek area.
- Constrained lands as mapped do not necessarily reflect what is "on the ground" – The Committee determined not to modify maps at this time, but rather reflect in documents and maps that the information is for general planning purposes and will have to be defined in greater detail as development occurs.
- How much "green" development should be encourage, required or provided – The Committee discussed and decided to recommend that an action plan be developed to help facilitate green development throughout the Brookman Road area.

With the direction provided, the Steering Committee agreed to forward a recommended concept plan to the Planning Commission and, ultimately, City Council for review.

Planning Commission Recommendation

In June 2008 the Planning Commission began public hearings and work sessions on the plan and provided initial input that led to a hybrid version of the Plan (referred to as the July 2008 Hybrid). Ultimately, the Planning Commission made a recommendation to the Council in December 2008 which was a significant change from the Steering Committee recommendation and required a policy direction from Council. The Council considered the Commission recommendation and the opportunities and consequences of proceeding consistent with their recommendation. After discussion at a public meeting, the City Council provided direction to staff to proceed with the Steering Committee recommendation.

Attachments:
Open House Report #1
Open House Report #2
Meeting summaries from the steering committee meetings
Copy of project kick-off flyer
Copy of open house #1 flyer
Copy of open house #2 flyer

Appendix B – Transportation

DKS Associates July 2008 Update – Power Point Presentation
DKS Transportation Analysis dated April 22, 2008

Brookman Addition Update

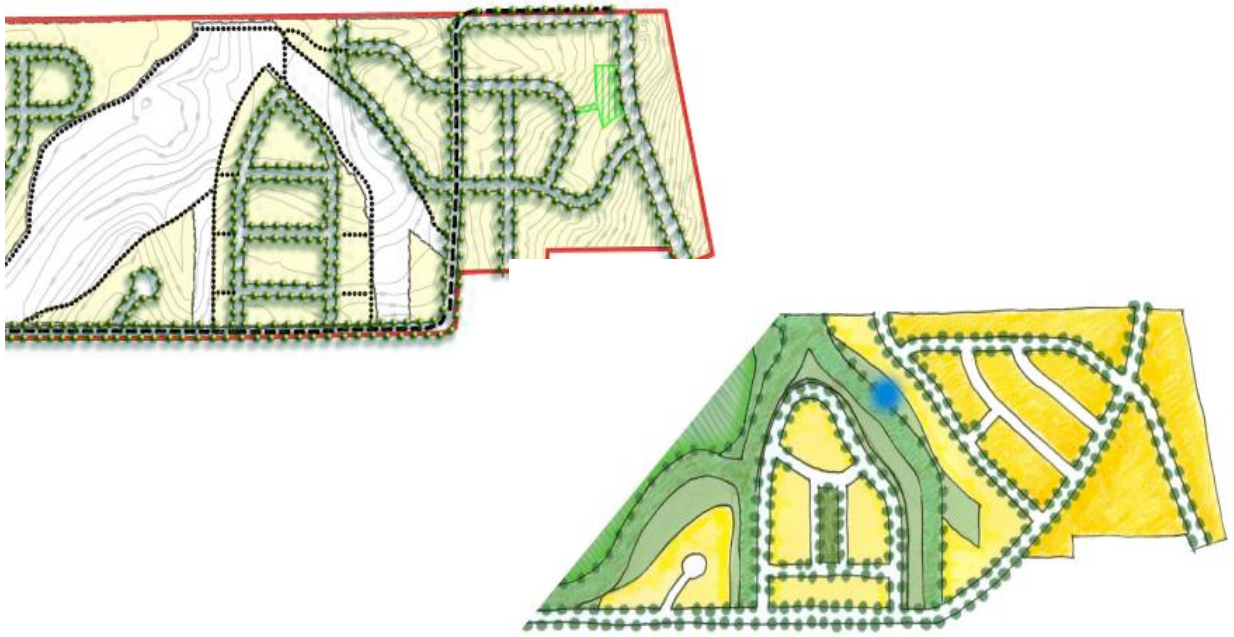
July, 2008

Revised Concept Plan

- Transportation Review
  - Roadway system
  - Trip generation
  - Local street impacts
  - Off-site impacts

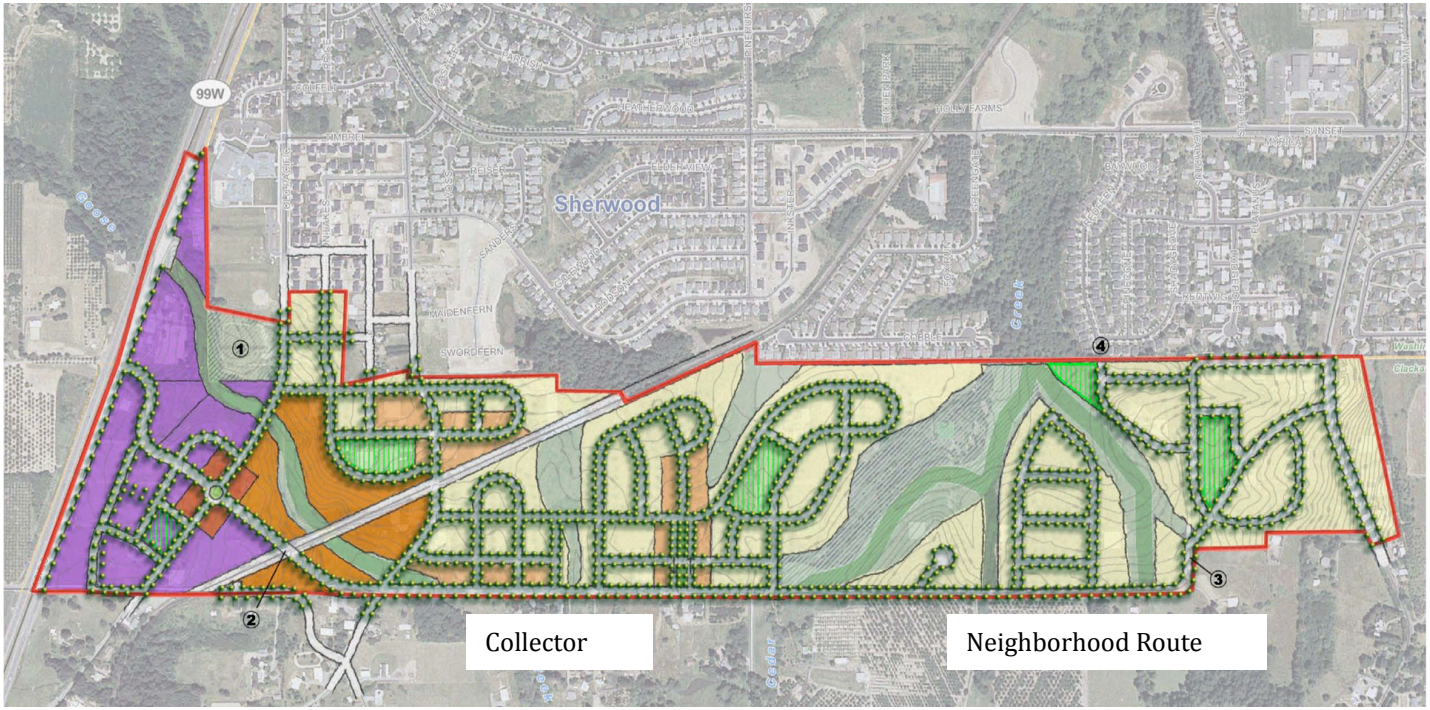
Roadway System

- Brookman Road Alignment:
  - Widening and potential ROW acquisition
  - Impacts on water & septic systems



Roadway System

- Revised Layout/Functional Class



Trip Generation

Table 1: Motor Vehicle Trip Generation – Committee Recommended Plan

			PM Peak Hour Trips		
Land Use	**ITE Code**	**Size**	**In**	**Out**	**Total**
Commercial - Retail	814	29 employees	33	42	75
Employment – Office	710	349 employees	27	134	161
Employment – Industrial	110	102 employees	9	34	43
Medium Density Residential	210	943 households	600	353	953
High Density Residential	220	296 households	119	65	184
TOTAL	-	-	788	628	1,416

Table 2: Motor Vehicle Trip Generation – July 2008 Update

			PM Peak Hour Trips		
Land Use	**ITE Code**	**Size**	**In**	**Out**	**Total**
Commercial - Retail	814	29 employees	33	42	75
Employment – Office	710	774 employees	61	295	356
Employment – Industrial	110	226 employees	20	75	95
Medium Density Residential	210	798 households	509	298	807
High Density Residential	220	290 households	117	63	180
TOTAL	-	-	740	773	1,513

Local Street Impacts

Table 3 – Residential Street Weekday Two-Way Volumes

	Facility Threshold	*2007*	*2030*		
		Existing	*No-Build*	*Concept Plan (April 2008)*	*Concept Plan Update (July 2008)*
SW Woodhaven Dr. south of Sunset Blvd	3,000	1,200	1,200	1,900	1,700
SW Timbrel Ln. south of Sunset Blvd	*	2,300	2,400	6,600	6,400
SW Pinehurst Dr. south of Sunset Blvd.	3,000	1,500	1,700	2,100	1,800
SW Middleton Road south of Inkster Dr.	3,000	300	400	500	500

* SW Timbrel lane is designated as a collector roadway in the City of Sherwood TSP. Therefore, residential street thresholds were not applied

Local Street Impacts

- Redfern Connection
  - No significant change in findings
    - 1,200 vehicles per day (vpd) with full connection
    - Serving traffic into Brookman Addition, not cut-through between Ladd Hill and Sunset
  - Sample Roadways with approx. 1,000 vpd:
    - Woodhaven south of Sunset (1,200 vpd)
    - Brookman east of Hwy 99W (1,100 vpd)
    - Lincoln north of Willamette (1,000 vpd)
    - Pine north of Sunset (1,100)
    - Willamette southwest of Pine (800 vpd)

Off-Site Impacts

- Hwy 99W/Sunset/Elwert
  - Prior mitigations (turn lanes) no longer needed to meet rezone TPR requirements
- No Other Significant Changes

DKS Associates
TRANSPORTATION SOLUTIONS

Memorandum

DATE: April 22, 2008

TO: Joe Dills, Otak

FROM: Chris Maciejewski, PE; Garth Appanaitis

SUBJECT: **Brookman Addition Concept Plan: Committee Recommended Plan – Transportation Analysis**

P07124-000-000

The purpose of this memorandum is to review the transportation performance and other key characteristics of the project committee recommended Sherwood Brookman Road Concept Plan. The first two sections of this memorandum discuss compliance of the proposed Concept Plan with City functional classification and access spacing standards. The final five sections discuss the traffic impacts of the Concept Plan, including trip generation, study area operations analysis, neighborhood street impacts, recommended mitigation measures, and transportation cost estimates. The traffic impact analysis for the potential land use addresses long term issues utilizing a forecast year of 2030.

Functional Classification

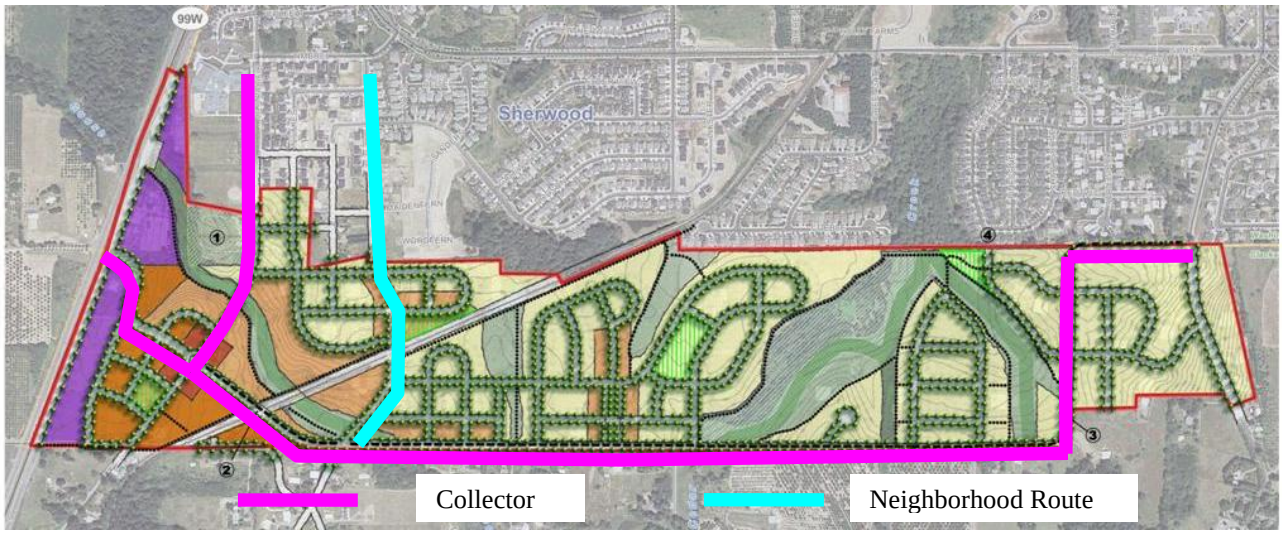
Highway 99W is classified as a statewide highway in the Oregon Highway Plan[1]. The City's Transportation System Plan (TSP)[2] identifies Brookman Road and Old Pacific Highway as collector roadways, Middleton Road as a neighborhood route, and Highway 99W as an arterial. Brookman Road is also identified as a collector in the Washington County TSP. The Brookman Road Concept Plan includes a roadway network that is significantly different than the existing system, and was reviewed to determine which streets should be classified as collectors or neighborhood routes. Brookman Road and Old Highway 99W were maintained as collector designations and Middleton Road was maintained a neighborhood route. The additional proposed roadways would be local streets. Figures 1 shows the recommended functional classifications.

[1] *1999 Oregon Highway Plan*, Oregon Department of Transportation, January 2006.
[2] *City of Sherwood Transportation System Plan*, Prepared by DKS Associates, March 2005.

1400 SW Fifth Avenue
Suite 500
Portland, OR 97201

(503) 243-3500
((503) 243-1934 fax
www.dksassociates.com

Figure 1: Brookman Concept Plan Functional Classification



Access Spacing Review

The proposed functional classification designations indicated in Figure 1 establishes the access spacing standards for the roadway network. Along the collector roadways, access spacing should be a minimum between off-sets of 100 feet and a maximum of 400 feet to meet City of Sherwood and Washington County standards. In general, the Concept Plan achieves these standards, with several minor exceptions. Access spacing standards in excess of 400 feet occur along green-spaces where motor vehicle access will not be provided, as well as at the grade-separated rail crossing on Brookman Road.

In addition to meeting City of Sherwood access spacing standards within the study area street network, access spacing along Highway 99W was reviewed. The Oregon Highway Plan access spacing standard for Highway 99W in Sherwood with a posted speed of 45 miles per hour (mph) is 990 feet. However, the Brookman Road Concept Plan is working in coordination with the I-5 to 99W Connector Study, which is in the process of analyzing six possible alternatives, one of which has identified a potential interchange location near the existing intersection of Highway 99W/Brookman Road. To work around the potential interchange location, the Concept Plan has closed the existing Brookman Road access to Highway 99W and proposes a new connection as far to the north as possible given the topographic features of the area (between 1,000 feet and 1,300 feet may be possible). Therefore, the Concept Plan is as consistent as feasible with the state access spacing standards while maintaining one connection to Highway 99W.

Trip Generation

To determine the impact of rezoning the study area, the amount of motor vehicle traffic generated development of the Concept Plan was determined. Trip generation was estimated based on rates provided by the Institute of Transportation Engineers[3] (ITE) for similar land use types. Table 1 lists the estimated PM peak hour trips for each proposed land use of the Concept

[3] *Trip Generation Manual, 7th Edition*, Institute of Transportation Engineers, 2003.

Plan. Because the existing zoning of the study area is rural residential which allows little growth, the entire amount of trips listed in Table 1 was included in the impact analysis. The total PM peak hour trips generated by the concept plan is approximately 1,400 trips (which is roughly equivalent to build-out of the same number of single family homes – for comparison, there are approximately 850 existing homes in the area bounded by Brookman Road/Sunset Boulevard/Highway 99W/Ladd Hill Road).

Table 1: Motor Vehicle Trip Generation

			PM Peak Hour Trips		
Land Use[4]	**ITE Code**	**Size**	**In**	**Out**	**Total**
Commercial - Retail	814	29 employees	33	42	70
Employment – Office	710	349 employees	27	134	161
Employment – Industrial	110	102 employees	9	34	43
Medium Density Residential	210	943 households	600	353	953
High Density Residential	220	296 households	119	65	184
TOTAL	-	-	788	628	1,416

Operations Analysis

The following sections describe the future forecasting and operations analysis completed for the Brookman Concept Plan. The future conditions evaluation includes future forecasting, identification of study area improvements, and motor vehicle intersection capacity analysis.

Future Forecasting

Future travel demand forecasting for the Brookman Road study area utilized the latest 2030 model developed by Metro, Washington County, and DKS Associates for the I-5 to 99W Connector Study. As part of the model development for the I-5 to 99W Connector Study, the Sherwood TSP travel demand model zone structure and network detail was used as a guideline to refine the regional model. In addition, a detailed focus model was created for the Bookman Road Concept Plan study area, which incorporates the use of *HCM 2000 Methodology* for node delays (instead of the regional model macroscopic delay functions).

Future 2030 PM peak hour volumes at study intersections were developed for the Brookman Concept Plan land uses scenario by adjusting the travel demand model trip tables to reflect the trip rates listed in Table 1. These volumes were then used to analyze and determine future impacts from the proposed Brookman Road area on the planned roadway network. The future 2030 PM peak hour scenarios include:

- 2030 No Build (no development in the Brookman Road area)
- 2030 with Brookman Road Concept Plan

[4] Park space generates a nominal amount of trips (ITE Code 411 - 1.59 trips/acre/weekday). These neighborhood parks were assumed to be limited to internal use and were not included in the external trip generation for the plan.

Planned Study Area Roadway Improvements
The City of Sherwood TSP provides specific information regarding future transportation projects that were identified to meet needs created by future growth within the study area without growth along Brookman Road. For the study area intersections, the only capacity improvement project identified with committed funding is the City's capacity enhancements at the intersection of Sunset Boulevard/Sherwood Boulevard (signal or roundabout). The remaining projects in the study area that may provide additional capacity (e.g. the I-5 to 99W Connector) were not included in any of the future analysis scenarios in order to meet OAR 660-012-060 requirements.

Concept Plan Assumed Projects
Several transportation improvements (in addition to the construction of the general roadway facilities shown in Figure 1) were assumed to be constructed in order to improve traffic operations in the study area and limit the impact to neighborhood streets with the proposed Concept Plan. Analysis conducted for the preliminary Concept Plan alternatives determined that the following projects would be needed with development of the concept plan:

- Traffic signal control at Hwy 99W/Brookman Road
- All-way stop control (or a roundabout) at Brookman Road/Ladd Hill Road
- Traffic calming measures on Pinehurst Drive and Inkster Drive
- Southbound right turn lane at Brookman Drive/Ladd Hill Road (not needed if roundabout)

These projects are associated with development of the Concept Plan and were not assumed in the 2030 No Build analysis. Costs estimates for these projects (and other Concept Plan transportation improvements) are included in Table 6.

Redfern Drive has been identified as an area of special concern, and an extension into the concept plan area may be considered if motor vehicle volumes do not exceed 1,000 vehicles per day. For the purposes of this analysis, no motor vehicle connection was assumed since prior analysis[5] indicated volume thresholds would be exceeded. However, the potential for pedestrian, bicycle, emergency vehicle or a full motor vehicle connection remains, pending refined future development layout of the site if the connection does not exceed 1,000 motor vehicles per day.

Capacity Analysis
In order to provide a baseline comparison to the future Brookman Road Concept Plan, the 2030 No Build scenario evaluates future traffic volumes assuming the planned roadway geometry and no development of the Brookman Road project area beyond what currently exists today. The Concept Plan was evaluated to determine the impacts to the study area. Intersections that do not meet performance standards under the Concept Plan must be mitigated to the level of performance that would occur without development of the area per Oregon's Transportation Planning Rule (TPR).

The performance standard for intersections controlled by City of Sherwood is Level of Service (LOS) D. For intersections along Highway 99W, performance standards are based on the

[5] *Brookman Addition Concept Plan – Transportation Analysis*, prepared by DKS Associates, March 19, 2008.

volume-to-capacity (v/c) ratio of the intersection. The v/c standard for Highway 99W/Brookman Road and Highway 99W/Sunset Boulevard is 0.99. As listed in Table 2, the intersections of Hwy 99W/Sunset Boulevard, Highway 99W/Brookman Road, and Sunset Boulevard/ Woodhaven fail to meet ODOT/City standards in the No-Build scenario. Under the Brookman Road Concept Plan development (and construction of assumed projects) the intersection of Highway 99W/Brookman Road would meet performance standards as a signalized intersection. However, the intersections of Highway 99W/Sunset Boulevard and Sunset Boulevard/Woodhaven Drive would continue to not meet performance standards. In addition, Sunset Boulevard/Timbrel Lane would not meet performance standards. While the intersection of Sunset Boulevard/Woodhaven Drive would not meet performance standards, the performance would improve due to traffic shifts associated with the adjacent improvements at Sunset Blvd/ Timbrel Ln. Therefore, mitigation would not be required at this location. Two intersections have impacts that will require mitigation (indicated in bold type).

Table 2: 2030 PM Peak Hour Intersection Performance

		Intersection Performance (Delay LOS V/C)	
Intersection	**Agency**	**No Build**	**Concept Plan**
Signalized Intersections			
Hwy 99W / Sunset Blvd	ODOT	94.3 F 1.24	**111.0 F 1.28**
Sunset Blvd / Sherwood Blvd	City	15.5 B 0.46	22.6 C 0.62
All-Way Stop Intersections			
Brookman Rd / Old Hwy 99[6]	City	7.0 A 0.43	0.4 A 0.20
Sunset Blvd / Pinehurst Dr	City	23.0 C 0.81	28.0 D 0.87
Unsignalized Intersections			
Hwy 99W / Brookman Rd[7]	ODOT	1126 A/F 3.20	29.7 C 0.93
Sunset Blvd / Woodhaven Dr	City	86.2 A/F 0.91	88.9 A/F 0.89
Sunset Blvd / Timbrel Ln	City	24.3 A/C 0.34	**134.4 B/F 1.02**
Sunset Blvd / Redfern Dr	City	26.2 A/D 0.14	32.1 A/D 0.17
Brookman Rd / Ladd Hill Rd[8]	County	16.3 A/C 0.35	13.7 B 0.68
Brookman Rd / Middleton Rd[9]	County	10.8 A/B 0.23	9.2 A 0.33

2-Way Stop Intersection LOS:
A/A = Major Street turn LOS/ Minor Street turn LOS
All-Way Stop/Signalized Intersection LOS:
LOS = Level of Service
Delay = Average delay per vehicle (seconds)
V/C = Volume to Capacity Ratio

[6] Analyzed as single-lane roundabout for Concept Plan
[7] Analyzed as signalized intersection for Concept Plan. ODOT's desired signal spacing standard is one half mile, MUTCD signal warrants must be met based on ODOT methodology and OAR 734-020-460 (1) A traffic signal shall not be installed unless one or more of the warrants identified in the MUTCD are met or will be met consistent with the requirements of OAR734-020-0490. The satisfaction of a warrant or warrants, however, is not in itself justification for a traffic signal. Installation of a signal must be approved by the State Traffic Engineer.
[8] Analyzed as all-way-stop control for Concept Plan
[9] Analyzed as all-way stop control for Concept Plan

Mitigation Measures

To offset the negative impacts of the Brookman Road area development on the surrounding transportation system, mitigation measures are required. In addition, more extensive mitigation measures would be needed to bring each study intersection into conformance with ODOT/City operational standards. Table 3 lists a series of mitigation measures (including those previously assumed to be constructed with development) that would be required for the Concept Plan.

Table 3: Intersection Mitigations

Location	Project	Scenario	
		No Build	Concept Plan
Hwy 99W/Sunset Blvd	Add eastbound right turn overlap		X
	Add westbound right turn lane		X
	Add westbound right turn overlap		X
	Hwy 99W 7-lane section	+	+
Hwy 99W/Brookman Rd	Add a traffic signal*	+	X
Sunset Blvd/Woodhaven Drive	Prohibit left turns; or Construct a roundabout	+	+
Sunset Blvd/Timbrell Ln	Construct a roundabout		X
Brookman Rd/Ladd Hill Rd	All-way stop control[10]*		X
	Add a southbound right turn lane*		X
	-or-		
	Construct a roundabout		X

X – Required to meet OAR 660-012-060 Transportation Planning Rule (TPR) requirements for rezone approval
+ - Needed to meet State/City operations standards
* - Project was assumed in Capacity Plan analysis

Based on the mitigation measures listed for in Table 3 for TPR compliance (projects indicated with an "X"), operations analysis was performed for the Concept Plan. The results are listed in Table 4. As listed, each intersection would be mitigated to either meet operations standards, or to a level not worse than 2030 No-Build conditions. Two locations (Hwy 99W/Sunset Boulevard and Sunset Boulevard/Woodhaven Drive) would not meet performance standards for either the No Build or Concept Plan scenarios. Improvements are triggered due to background traffic and these locations would not require additional mitigation to that identified in Table 3 to meet TPR requirements for this plan. These system capacity deficiencies will need to be addressed by City of Sherwood, Washington County or ODOT for meeting long-term needs.

[10] Assumed improvement for capacity analysis.

Table 4: 2030 PM Peak Hour Intersection Performance – Mitigated for TPR Compliance

		Intersection Performance (Delay LOS V/C)	
Intersection	**Agency**	**No Build**	**Concept Plan**
Signalized Intersections			
Hwy 99W / Sunset Blvd	ODOT	92.7 F 1.23	66.5 E 1.14
Sunset Blvd / Sherwood Blvd	City	15.5 B 0.46	22.5 C 0.63
Hwy 99W / Brookman Rd[11]	ODOT	1126 A/F 3.20	30.3 C 0.93
All-Way Stop Intersections			
Sunset Blvd / Pinehurst Dr	City	23.0 C 0.81	30.9 D 0.91
Brookman Rd / Ladd Hill Rd[12]	County	16.3 A/C 0.35	13.2 B 0.66
Brookman Rd / Middleton Rd[13]	County	10.8 A/B 0.23	9.0 A 0.31
Roundabout Intersections			
Brookman Rd / Old Hwy 99[14]	City	7.0 A 0.43	0.5 A 0.21
Sunset Blvd / Timbrel Ln[15]	City	24.3 A/C 0.34	3.6 A 0.49
Unsignalized Intersections			
Sunset Blvd / Redfern Dr	City	26.2 A/D 0.14	33.2 A/D 0.19
Sunset Blvd / Woodhaven Dr	City	86.2 A/F 0.91	68.7 A/F 0.79

2-Way Stop Intersection LOS:
A/A = Major Street turn LOS/ Minor Street turn LOS

All-Way Stop/Signalized Intersection LOS:
LOS = Level of Service
Delay = Average delay per vehicle (seconds)
V/C = Volume to Capacity Ratio

Residential Street Impacts

A significant challenge to development of the Brookman Road area is providing connections to the surrounding street network without degrading livability on residential streets. North of the site, there are several local or neighborhood route street connections that will be provided, which will increase traffic volumes on those roadways. To monitor the impacts of the Concept Plan, a screenline analysis was conducted to determine traffic volumes at key points on the system.

Table 5 lists the existing, future no-build, and Concept Plan weekday traffic volumes at four locations north of the site. Generally, daily traffic volumes below 2,000 to 3,000 vehicles are considered livable for residential streets. However, narrow residential streets (28 feet wide) have

[11] Intersection is unsignalized in No Build scenario
[12] Intersection is unsignalized in No Build scenario
[13] Intersection is unsignalized in No Build scenario
[14] Intersection is all-way stop controlled in No Build scenario
[15] Intersection is unsignalized in No Build scenario

a lower traffic volume threshold of 1,000 vehicles per day, as adopted in the City of Sherwood TSP. Locations with traffic volumes exceeding these levels should be considered for a traffic management program (which could include the installation of traffic calming devices to manage vehicle speeds).

Volumes listed in Table 5 for the Concept Plan assume that traffic calming projects and other network mitigation would be implemented as previously stated with development of the Concept Plan. With the inclusion of traffic calming measures, traffic volumes will be within facility standards for most neighborhood streets.

Table 5 – Residential Street Weekday Two-Way Volumes

	Facility Threshold	*2007 Existing*	*2030*	
			No-Build	*Concept Plan*
SW Woodhaven Dr. south of Sunset Blvd	3,000	1,200	1,200	1,900
SW Timbrel Ln. south of Sunset Blvd	*	2,300	2,400	6,600
SW Pinehurst Dr. south of Sunset Blvd.	3,000	1,500	1,700	2,100
SW Middleton Road south of Inkster Dr.	3,000	300	400	500

* SW Timbrel lane is designated as a collector roadway in the City of Sherwood TSP. Therefore, residential street thresholds were not applied

Cost Estimates

Planning level cost estimates for transportation facility construction, traffic calming measures, and intersection improvements that were developed for the Concept Plan are listed in Table 6. The total cost of the transportation network in the Concept Plan area is approximately $105 million.

Table 6: Transportation Planning Cost Estimates

Location	Project	Planning Cost ($1,000s)
	Concept Plan Infrastructure Projects	
Concept Area	Construct new 2-lane local roadways	$80,400
Old Highway 99	Upgrade to collector standards	$1,235
Brookman Road east of Middleton Road	Urbanize and rebuild existing roadway	$10,855
Brookman Road west of Middleton Road	Construct new collector with grade-separated rail crossing	$6,770
Brookman Road/Old Hwy 99	Construct a roundabout	$800
	Traffic Calming / Neighborhood Cut-through Reduction Projects	
Redfern Drive/Pinehurst Drive/Inkster Drive	Install speed cushions	$50
	Intersection Mitigation Projects*	
Hwy 99W/Sunset Blvd	Add eastbound right turn overlap phase	$10
	Add westbound right turn lane	$250
	Add westbound right turn overlap phase	$10
Hwy 99W/Brookman Rd	Add a traffic signal	$250
Sunset Blvd/Timbrell Ln	Construct a roundabout	$800
Brookman Rd/Ladd Hill Rd	All-way stop control	$10
	Add a southbound right turn lane	$250
	-or-	
	Construct a roundabout	$800
	Concept Plan Infrastructure Projects Subtotal	$100,060
	Traffic-Calming Subtotal	$50
	Intersection Mitigation Subtotal	$1,580-$2,120
	TRANSPORTATION TOTAL	**$101,690-$102,230**

* – Required to meet OAR 660-012-060 Transportation Planning Rule (TPR) requirements for rezone approval

Appendix C – Stormwater

Technical Memorandum

17355 SW Boones Ferry Rd.
Lake Oswego, OR 97035
Phone (503) 635-3618
Fax (503) 635-5395

To: Julia Hajduk - City of Sherwood

From: Ashley Cantlon, PE, Kevin Timmins, PE

Copies: Joe Dills

Date: April 9, 2008

Subject: Brookman Addition Stormwater Infrastructure Plan

Project No.: 14156

Introduction

This memorandum presents a Stormwater Infrastructure Plan (SWIP) for the Brookman Addition Concept Plan. The purpose of the infrastructure plan is to:

- Describe the recommended stormwater management strategy for Brookman Addition Concept Plan Area.
- Show how the strategy would be applied to the concept plan.
- Provide a cost estimate for the stormwater management infrastructure.
- Document supporting calculations.

An existing conditions analysis was performed by Otak, Inc. in June of 2007, and a technical memorandum was created to document findings. The original analysis provided a basis for developing the draft Brookman Addition SWIP (December, 2007.) Subsequent to the draft SWIP, the concept plan was revised and the draft SWIP was updated to produce this final SWIP. An updated version of the Concept Plan can be seen in Attachment A.

Stormwater Strategy

The Stormwater Management Strategy describes the recommended stormwater management tools to be applied within the Brookman Addition Concept Plan Area to help achieve the City of Sherwood's goals during its expansion. The following goals were incorporated into the stormwater management strategy for this project with respect to parks and green spaces:

- Protection of natural resource areas consistent with the City of Sherwood's Goal 5 program and other priority resource areas identified by the Steering Committee.
- Sustainable, system-based solutions such as regional stormwater management and other low-impact development practices.

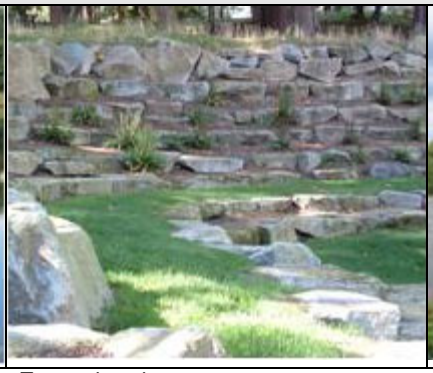
- Stormwater follows the City of Sherwood recommendations.

The recommended Stormwater Management Strategy for Brookman Addition is to collect and convey all runoff from the site primarily within the road right-of-way (R.O.W.), and then route stormwater to regional detention and water quality facilities. After all runoff has been treated and detained, it will be discharged into natural drainage ways adjacent to each facility.

Design of the regional stormwater facilities should be integrated with the urban and natural areas to provide additional habitat value or public open space for recreation. Photograph examples of integrated facilities are shown below.

Examples of Multi-functional Regional Stormwater Facilities

Stormwater Wetland



Terraced outdoor seating

Water Feature along a Trail

While not accounted for in the recommended stormwater infrastructure for this SWIP, Low Impact Development Applications (LIDA) should be encouraged for new development. The integration of LIDA to new development will reduce impervious areas and may also reduce effective runoff that is generated from a particular site. Consequently, regional facility sizes may be reduced per design standards in place at the time the proposed regional facilities are implemented.

Increased interest of LIDA over the past few years has resulted in more literature and design guidance. Clean Water Services is currently developing a LIDA Guidance Manual, which is the suggested reference for design guidance. Pending the release of this document, the following documents are recommended reference materials that include more information about use of LIDA in the Pacific Northwest.

- City of Portland. (September 2004). Stormwater Management Manual. Revision 3. Portland, OR: Bureau of Environmental Services.
- Puget Sound Action Team and Washington State University Extension Pierce County. (January 2005). Low Impact Development Technical Guidance Manual for Puget Sound. (PSAT 05-03). Olympia, WA.

- City of Gresham. (July 2007). Green Development Practices for Sustainable Stormwater Management. Gresham, OR: Department of Environmental Services, Community and Economic Development Department.

Stormwater Concept Plan

The Stormwater Concept Plan Diagram provides a schematic representation of the recommended stormwater system in Brookman Addition. This plan illustrates the application of the recommended stormwater management strategy to the current version of the Brookman Addition Concept Plan, and is used to document assumptions made about the Stormwater Infrastructure Costs. Additional assumptions and calculations performed to determine facility sizes are presented later in the Stormwater Calculations section of this memorandum.

Conveyance of stormwater through the Brookman Addition Concept Plan Area is illustrated in the Stormwater Concept Plan Diagram. Much of the site runoff will need to be conveyed through pipes. All stormwater runoff is conveyed to one of six regional facility sites.

Regional Detention Facilities

Regional detention facilities were sized per *CleanWater Services Design and Construction Standards*. Currently, the standards require that the 2-, 10-, and 25-year post-development runoff rates will not exceed the respective 2-, 10-, and 25-year pre-development runoff rates. Six regional facility sites were identified based upon existing site topography and location of natural systems. Six drainage basins were delineated based on existing drainage patterns as contributing runoff to each regional facility. Locations of recommended regional stormwater facilities and the associated tributary drainage areas are illustrated in the Stormwater Concept Plan Diagram.

Regional Water Quality Facilities

Water quality facilities were also sized per *CleanWater Services Design and Construction Standards (June 2007)* using a water quality flow produced by a design storm of 0.36 inches over four hours applied to 100 percent of new impervious area.

This Storm Water Infrastructure Plan (SWIP) recommends all site runoff to be treated by regional water quality facilities. Vegetated swales are recommended for treating new impervious area within each of the six basins, and were designed to be integrated with the regional stormwater detention facilities. Impervious areas were calculated based on land use assumptions within each basin, as presented in the stormwater calculations section of this memorandum. Proposed locations of facilities are shown in the Stormwater Concept Plan Diagram. Each is next to a detention facility, with the exception of one located in the undetained portion of Basin 1.

Estimated Cost

The Stormwater Infrastructure Cost Estimate includes stormwater infrastructure costs for the following elements:

- Required public conveyance elements that do not follow a road shown in the concept plan.
- Regional facilities.

It is assumed that stormwater conveyance infrastructure shown in within the right of way is part of road cost, and is included in the transportation cost estimate.

The total estimated cost to construct Stormwater Infrastructure for the Brookman Addition Concept Plan Area is $2.6 million. Soft costs for implementation are estimated to cost an additional $1.3 million. Land acquisitions costs for regional facilities are estimated to be $3.3 million.

A detailed breakdown of the Stormwater Infrastructure Cost Estimate is provided in Attachment B.

Costs for Regional Stormwater Facilities were determined according to estimates for facility size (footprint and volume). Assumptions and calculations used to estimate facility sizes are presented later in the Stormwater Calculations section of this memorandum. The following standard assumptions were made about the geometry of the regional stormwater management facilities.

- Facility side slopes were assumed to be 3H:1V.
- Each regional facility site was assumed to require a flow splitter manhole incorporated into the design to route water quality flows to the water quality facility and bypass higher flows directly to the regional detention facility.
- Regional stormwater facilities for detention were assumed to require an excavation volume based upon five to six feet of storage depth, plus an additional one foot for freeboard. Facility footprints were assumed based on depth, bottom area, and side slope.
- Costs for inlet/outlet pipes, manholes, inlets, flow splitters, and flow control devices were based on recent bid tabulations for projects in the area.

Stormwater Calculations

There is a strong correlation between new impervious area and increased stormwater runoff. The first step toward sizing water quality facilities and estimating site runoff is to estimate the amount of impervious area associated with the various types of development planned for the Brookman Addition Concept Plan. Actual imperviousness will vary throughout Brookman Addition and will need to be recalculated as development occurs. Assumptions about impervious area used for the SWIP are documented in this section of the memorandum.

Several calculations were then made as part of developing the SWIP and cost estimate as documented in this section of the memorandum. The calculations include:

- Sizing of regional stormwater facility for water quality.
- Sizing of regional stormwater facility for stormwater detention.

Impervious Area

At the concept planning stage, seven types of residential land uses were mapped for the Brookman Addition community: medium density residential - low, medium density residential - high, high-density residential, employment, mixed use, parks, and streets. Estimated dwelling units per acre for residential lots were estimated to be 8 for Medium Density Residential – Low, 11 for Medium Density Residential – High, and 24 for High Density Residential. Non-residential land uses identified include parks, civic uses, and other open space areas.

Average values for percent impervious area were assumed for each development zone. Table 1 shows the assumed percentages for impervious area associated with each land use that were used in the design of stormwater facilities for the site. These values are based upon a comparison of typical values published in regional stormwater design manuals and local studies of development practices similar to those anticipated to occur in Brookman Addition.

Table 1 – Summary of Impervious Area Reference Calculations

Description	Density (units/acre)	Impervious Area (%)
Employment	N/A	85
High Density Residential	24	65
Medium Density Residential – High	11	60
Medium Density Residential – Low	8	55
Mixed Use	N/A	85
Parks	N/A	10
Streets	N/A	80

Downstream Analysis

City of Sherwood's Stormwater Management Plan requires detention to be provided for all new development within the city, therefore a downstream analysis was not conducted as part of this concept plan.

Regional Stormwater Facility for Stormwater Detention

Regional stormwater pond sizes were estimated for each of the six basins. As part of the draft SWIP analysis, Hydraflow Hydrographs 2004 software was used to estimate peak flows and required pond volumes in accordance with Santa Barbara Urban Hydrograph (SBUH) methodology. Hydrologic curve numbers (CN) of pervious areas with C type soils were assumed to be 86 except for one forested area, where a CN of 79 was assumed. Pervious areas with B type soils were assumed to

have a CN value of 80. For proposed conditions, pervious areas were given the same corresponding CN values, as the land covers were similar. Impervious areas were assigned a CN of 98. Table 2 summarizes area, time of concentration (TOC), and 2-, 10-, and 25-year peak flows for each basin under existing conditions. Basins 4 and 6 would drain to a single regional pond. Table 3 summarizes impervious area, time of concentration, 25-year peak flow and estimated required storage volume for each drainage basin.

Table 2: Summary of Existing Condition Parameters [1]

Basin	Area (ac)	TOC (min)	2-yr Peak (cfs)	10-yr Peak (cfs)	25-yr Peak (cfs)
1	25.3	23.4	4.43	9.45	12.1
2	83.6	30.8	19.49	33.29	40.2
3	12.5	25.9	2.61	4.65	5.7
4 + 6	80.2	24.0	22.79	42.12	51.9
5	22.8	22.0	1.34	3.92	5.4

Table 3: Summary of Proposed Condition Parameters (Preliminary) [1]

Basin	Impervious Area (ac)	Impervious TOC (min)	Pervious Area (ac)	Pervious TOC (min)	25-year peak flow (cfs)	Calculated Storage Volume (cf)
1	19.1	5	6.0	10	9.6	60,489
2	42.6	5	24.9	10	40.1	148,665
3	7.3	5	5.2	10	5.6	19,227
4 + 6	48.7	5	31.4	10	51.9	144,333
5	13.4	5	9.4	10	5.3	91,742

As part of the final SWIP, adjustments were made to pond sizes by calculating new impervious areas based on the latest Brookman Addition concept plan. Modifications including land use areas, and basin connectivity were made to each basin. Ratios were obtained for each basin by comparing total percent impervious areas under the draft SWIP analysis and the final SWIP. Table 4 summarizes results for adjusted detention facility sizing based on these ratios.

Table 4: Summary of Proposed Condition Factors (Adjusted) [2]

Basin	Impervious Area (ac)	Pervious Area (ac)	April 2008 SWIP Impervious Area (%)	Draft SWIP Impervious Area (%)	Updated Pond Sizing Ratio	April 2008 Storage Volume (cf)

[1] Based on calculations from December 2007 analysis

[2] Based on calculations from April 2008 analysis

1	16.3	4.9	77	79	0.98	59,279
2	44.0	20.2	69	67	1.02	151,638
3	8.0	4.8	63	58	1.09	20,957
4	23.7	16.2	59	59	1.0	87,768
5	14.3	8.5	59	63	1.07	98,164
6	26.5	16.7	61	62	0.98	96,642

During the final review process, adjustments were made to the land uses which increased impervious areas in basins 1, 2, and 3. Final runoff volumes for these basins were calculated using methodology described in the preliminary site analysis to produce more refined estimates. Table 5 lists basin parameters and calculated required storage volumes for the final concept.

Table 5: Summary of Proposed Condition Parameters (Final)

Basin	Impervious Area (ac)	Pervious Area (ac)	25-year peak flow (cfs)	Calculated Storage Volume (cf)
1	19.9	4.4	7.87	70,385
2	47.5	19.4	40.1	150,657
3	8.0	4.8	5.66	19,058
4	23.7	16.2	N/A[3]	87,768
5	14.3	8.5	N/A[3]	98,164
6	26.5	16.7	N/A[3]	96,642

Regional Stormwater Facility for Water Quality

Standards indicate a maximum flow depth of six inches, 4:1 side slopes or shallower, one foot of freeboard over the water quality event, minimum longitudinal slope of 0.5 percent, and a minimum length of 100 feet. Table 4 summarizes the calculated water quality flow, and design dimensions for each swale.

During implementation, it may be determined through an alternative analysis that an underground treatment device, or volume based treatment device is a more feasible design solution. Calculated water quality volumes for each basin are also shown in Table 5.

[3] New flows not calculated. Storage volumes are based on April 2008 analysis.

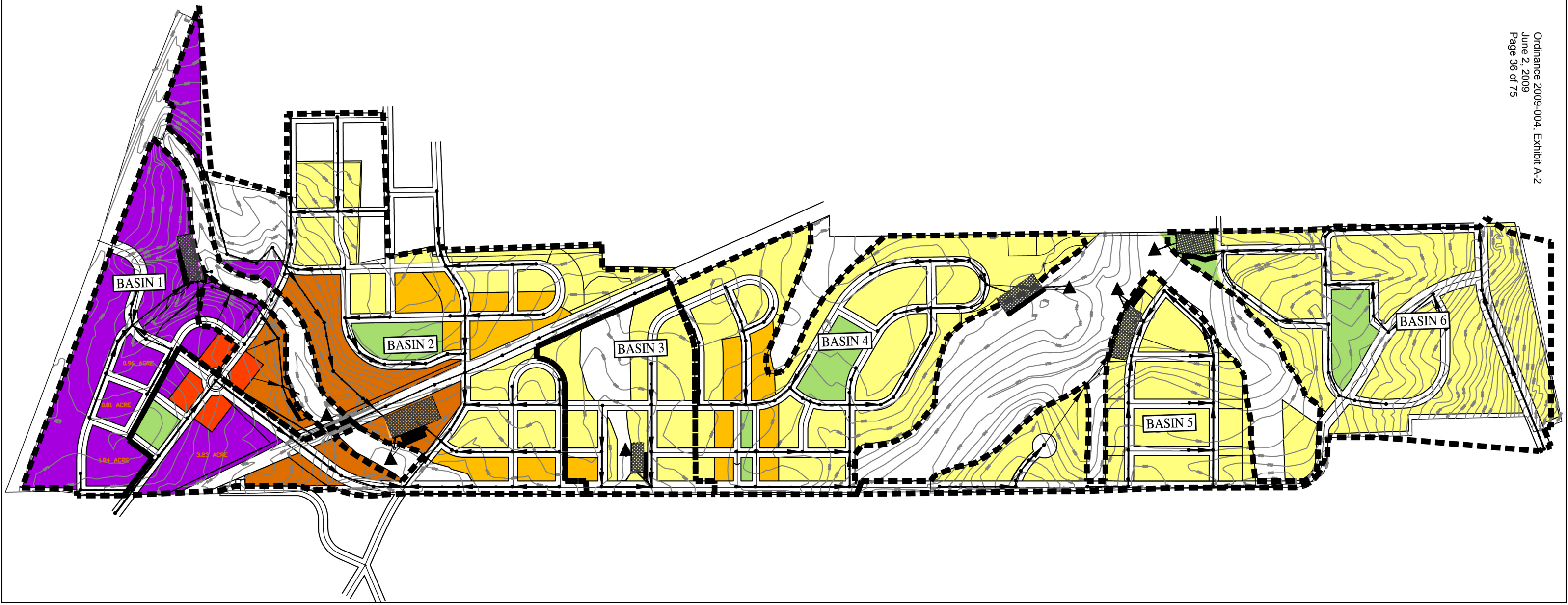
Table 6: Summary of Water Quality Facility Parameters (Final)						
Basin	Water Quality Flow (cfs)	Water Quality Volume (cu. ft.)	Length (ft.)	Width (ft.)	Footprint Area (sq. ft.)	Longitudinal Slope (ft./ft.)
1	1.81	26,031	184	9	4116	0.01
1 (undetained)	0.19	2859	105	4	1872	0.01
2	4.31	57,467	238	18	7500	0.015
3	0.73	10,437	122	4.5	2211	0.005
4	2.15	31,004	226	8.5	4879	0.015
5	1.3	18,662	178	6	3420	0.01
6	2.4	34,624	189	12	4824	0.01

Alternative Analysis

At the City's request, an alternative scenario was analyzed under the condition that Basin 5 would be 50% developed, and the other 50% would remain forested. Under this condition, total impervious area was calculated to be 8.3 ac., which would require a detention pond with a footprint of 184'X93'. A water quality flow of 0.75 cfs was calculated, which would require a regional swale facility with a 4' bottom width, and a length of 160'. These facilities would be located in the same place as proposed in the draft SWIP for Basin 5.

Attachments

Attachment A – Brookman Addition Concept Plan Diagram



Brookman Addition Stormwater Concept Plan Diagram

0’ 250’ 500’ 1000’

- Mixed Use
- Employment
- Medium Density Residential - Low
- Medium Density Residential - High
- High Density Residential
- Park
- Proposed Drainage Pattern
- Proposed Stormwater Detention Facility
- Proposed Stormwater Treatment Facility
- Basin Boundary
- Basin Outflow/Discharge Points

Attachment B – Cost Estimate

CONCEPTUAL PLAN CONSTRUCTION COST ESTIMATE

Brookman Addition Concept Plan Stormwater Infrastructure

CITY: Sherwood, OR

TYPE OF WORK: Stormwater Management Infrastructure | AREA | DATE: 5/14/2009 | Drainage System Designer: Ashley Cantlon

	ITEM DESCRIPTION	UNIT	AMOUNT	UNIT COST	TOTAL
	Base Construction Items (Mobilization, Traffic Control, Erosion Control, etc.)			**20%**	**$526,657**
	Conveyance Infrastructure				
	12 INCH STORM CONDUIT, CP	LF	1,932	$60	$115,920
	15 INCH STORM CONDUIT, CP	LF	692	$68	$47,056
	18 INCH STORM CONDUIT, CP	LF	387	$70	$27,090
	30 INCH STORM CONDUIT, CP	LF	938	$105	$98,490
	36 INCH STORM CONDUIT, CP	LF	322	$175	$56,350
	42 INCH STORM CONDUIT, CP	LF	190	$190	$36,100
	CONC INLET STRUCTURE, CATCH BASIN	EA	36	$1,500	$53,532
	MANHOLE STRUCTURE	EA	15	$3,200	$47,584
	Regional Stormwater Management Facilities				
	EXCAVATION & GRADING	CY	34,700	$12	$416,400
	LANDSCAPING	SY	17,712	$10	$177,120
	PRE-TREATMENT DEVICE	EA	7	$15,000	$105,000
	FLOW SPREADER	EA	16	$1,000	$16,000
	DITCH INLET	EA	13	$2,000	$26,000
	FLOW SPLITTER	EA	4	$1,500	$6,000
	FLOW CONTROL MANHOLE	EA	6	$10,000	$60,000
	RIPRAP OVERFLOW WEIR	EA	6	$2,500	$15,000
	ADDITIONAL STORM PIPE	LF	650	$65	$42,250
	RIPRAP INLET/OUTLET PROTECTION	EA	27	$310	$8,370
SUBTOTAL, Construction					$1,880,919
	CONSTRUCTION CONTINGENCIES			40%	$752,368
SUBTOTAL, Total Construction Cost					$2,633,287
	PRELIMINARY ENGINEERING			25%	$658,322
	PERMITTING			5%	$131,664
	CONSTRUCTION ENGINEERING			20%	$526,657
SUBTOTAL, Implementation					$3,949,931
	LAND ACQUISITION for Regional Stormwater Facilities	SF	159408	$17	$2,709,936
	STAFFING COSTS			17%	$460,689
	APPRAISAL COSTS			5%	$135,497
GRAND TOTAL					**$7,256,053**

Assumptions: 1) Unit Costs are presented in 2007 U.S. Dollars

2) Infrastructure quantities do not include conveyance systems associated with site development beyond the framework illustrated in the SWIP.

3) Costs for conveyance facilities located within road right-of-ways shown in the concept plan are included in the transportation cost estimate.

Appendix D – Water, Sanitary, and Sewer

Technical Memorandum

17355 SW Boones Ferry Rd.
Lake Oswego, OR 97035
Phone (503) 635-3618
Fax (503) 635-5395

To:	Julia Hajduk—City of Sherwood
From:	Jerry Markesino, PE Ian Fabik, PE
Copies:	Project File
Date:	May 15, 2009
Subject:	Brookman Addition Concept Plan—Water Supply and Sanitary Sewer Infrastructure
Project No.:	14156

Introduction

Otak has reviewed the existing and proposed water and sanitary sewer infrastructure projects for the Brookman Addition Concept Plan area. The primary source of this information is the City's *Water System Master Plan* (August 2005) and the *Sanitary Sewer Master Plan* (Draft, May 2007). From these documents we have identified the costs related to providing water supply and sanitary sewer facilities to the concept plan area.

Otak has developed a preliminary infrastructure plan for the draft hybrid alternative. We have also created cost estimates to build the infrastructure needed to serve the draft hybrid alternative of the Brookman Addition Concept Plan area at full build-out. The cost estimates are based on unit cost factors provided in the appropriate master plan. When the final hybrid plan is selected, we will update the infrastructure cost estimates in our final report.

Water System

The existing water system currently provides potable water to the area immediately north of the Brookman Addition Concept Plan area. It is part of the 380-foot pressure zone, the largest pressure zone in Sherwood, and it serves all customers below an approximate ground elevation of 250 feet above mean sea level. The zone includes residential, commercial, and industrial land uses. It is served by the Main Reservoir at SW Division Street east of South Pine Street. All four of the City's groundwater wells and the City's Tualatin Supply Connection provide water to this pressure zone.

Programmed Capital Improvement Projects – Water System

The Water System Master Plan identifies the need for several major improvements to extend water service to the concept plan area. These projects include: the seismic upgrade to the existing reservoirs; construction of new reservoirs; installation of a pressure reducing valve; and the addition of several pipeline segments. These improvements are required to provide a "backbone" network that will serve the concept plan area.

The City's Water System Master Plan has programmed the existing Main Reservoir for a seismic upgrade in year 2009/2010, in order to extend the reservoir's service life until additional storage facilities are constructed. It also identifies the need for a new reservoir to be located adjacent to the current main reservoir. This new reservoir will be constructed with a 4.0 million gallon capacity. This project is programmed for year 2012/2013.

The Southwest Sherwood Pressure Reduction Valve (PRV) station and associated piping will be constructed in the right-of-way of Old Highway 99 at the border of the 455-foot pressure zone. This connection will provide service to the western portion of the concept plan area, located in the 380-foot pressure zone. The PRV reduces the water pressure in the piping as it moves from the 455-foot pressure zone to the lower pressure, 380-foot pressure zone. This project is programmed for 2024/ 2025.

Programmed Capital Improvement Projects – Pipeline Segments

The master plan has programmed the construction of approximately 17,000-feet of 12-inch water main that would to bring service into the concept plan area. The connections to the existing system will occur at designated locations along the northern edge of the Brookman Addition Concept Plan area. These connections to the existing system are planned to occur at the 12-inch stub located in S.W. Ladd Hill Road, the existing 8" stubs located in S.W. Redfern Drive and Swordfern Lane, and at the proposed Southwest Sherwood PRV.

In the development of the hybrid plan for the Brookman Addition Concept Plan area, Otak developed a system layout that would provide the backbone pipeline system that is envisioned in the Master Plan. The 12-inch water main system will be approximately 12,675-feet long with an expected cost of $1,648,000. However, according to the Master Plan, the construction of these pipe segments is not expected to occur until year 2023/2024.

Non-Programmed Capital Improvement Projects – Pipeline Segments

The 12-inch water main will provide direct service to many of the fronting properties in the hybrid plan, but most importantly, it will provide water to a network of 8-inch mains that will serve the

remainder of the properties identified in the concept plan area. The 8-inch system will include 35,922-feet of connected pipe lines with an expected cost of $3,521,000.

The water mains will be installed within the proposed public rights-of-way of the hybrid plan. The estimated costs for the improvements required to provide water services to the Brookman Addition Concept Plan Area will be approximately $10.5 million, based on the Master Plan data and our recent estimates. The costs have been broken down in the following table:

Capital Improvement Project	Project Description	Project Cost
Main Reservoir Upgrade	Seismic upgrades to the existing Main reservoir	$400,000
Reservoir No. 2	Construction of new 4.0 million gallon reservoir	$4,700,000
SW Sherwood PRV	New Pressure reducing valve	$190,000
12-inch Water Main pipes	New piping system to provide water supply to the Brookman area	$1,648,000
	Subtotal	**$ 6,938,000**
8-inch Water Main pipes (not in Master Plan)	New piping system to provide full service within the Brookman area	$3,521,000
	Total Cost	**$10,459,000**

Sanitary Sewer System

The sanitary sewer system infrastructure to serve the Brookman Addition Concept Plan area is assumed to be a traditional gravity flow municipal system. It will be an extension of the existing system that is documented in the *Sanitary System Master Plan* (Draft, May 2007). Design, construction, and operation of the proposed infrastructure will follow current city and state standards.

The master plan anticipated the expansion of the Urban Growth Boundary (UGB) to include the Brookman Addition Concept Plan area. The concept plan area is served by the Cedar Creek Basin. The Cedar Creek sanitary sewer basin drains to the Sherwood Trunk Interceptor Sewer, operated and maintained by Clean Water Services (CWS). The Sherwood Trunk Interceptor extends to the Sherwood Pump Station, also owned and operated by CWS. Wastewater is then pumped to the Durham Advanced Wastewater Treatment Plant for final treatment and disposal.

Programmed Capital Improvement Projects – Sanitary Sewer System

Like the Water System, basic system extensions are needed to bring the sewer pipes to the concept plan area. There are three projects identified in the Sanitary System Master Plan that are needed to serve the area. Two of these projects upgrade a small portion of the existing 12-inch collector sewer. One of the projects extends the 12-inch collector sewer along Cedar Creek and into the Urban Growth Boundary Areas 54 & 55, which comprise the Brookman Addition Concept Plan area.

In order for the Cedar Creek basin to accept the additional flows from the Brookman area, two capacity upgrades are needed. A 537-foot section of the existing 12-inch pipe near SW Sunset Boulevard needs to be upsized to an 18-inch pipe. Further, an adjacent 533-foot section also needs to be upsized to a 15-inch pipe. These two projects are identified as projects # 2 and # 3 in the Recommended Capital Improvements section of the master plan.

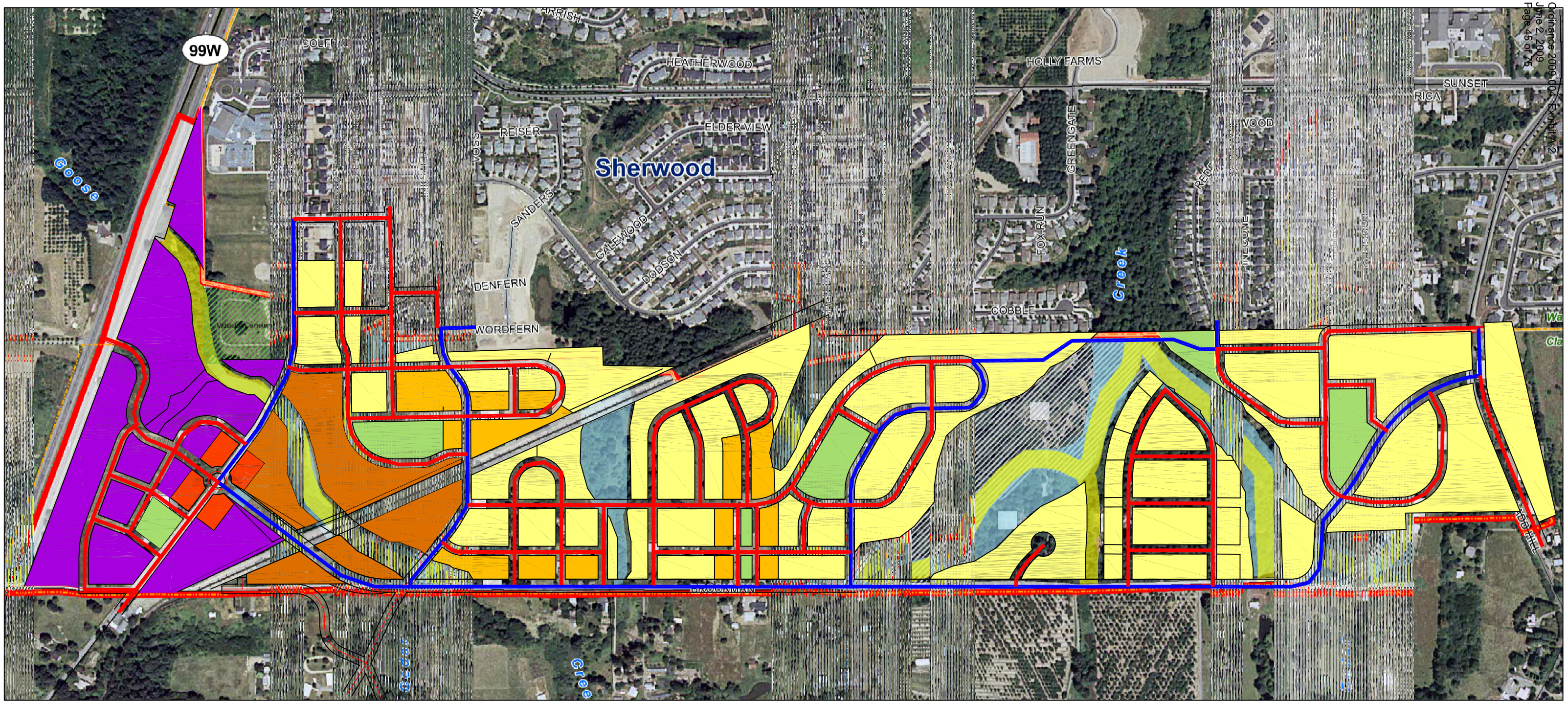
To bring sanitary sewer service to the concept plan area, a 12-inch gravity sewer collector pipe line extension (project # 4 in the master plan) will need to be constructed. From Manhole 236NSan, which is located in the right-of-way of SW Sunset Boulevard just west of SW Redfern Place, a 12-inch pipe will be extended southerly and parallel to Cedar Creek. It will travel south and west along the Cedar Creek drainage and cross under SW Brookman Road. It will extend westerly to the vicinity of SW Brookman Road and SW Middleton Road.

The two system upgrades and the 6,430-foot extension project will provide the "backbone" sanitary sewer system for the Brookman Addition Concept Plan area. A local network of sanitary sewers will need to be constructed in order to completely serve the Brookman Addition.

Non-Programmed Capital Improvement Projects – Sanitary Sewer System

Otak has developed a preliminary sanitary sewer system design that will serve the properties in the hybrid alternative of the Brookman Addition Concept Plan area. It will be composed of six sub-basins and consist of about 45,000-feet of 8-inch diameter sanitary sewer pipes. The approximate cost for this sewer system is $8,465,000 in 2007 dollars.

Project No.	Capital Improvement Project	Project Description	Project Cost
4	Collection System Extension Area 54/55	6,430-feet of new piping for the system expansion	$1,292,430
3	Capacity Upgrade Area 54/55	533-feet of new 15-inch pipe, capacity upgrade from 12-inch to 15-inch	$113,176
2	Capacity Upgrade Area 54/55	537-feet of new 18-inch pipe, capacity upgrade from 12-inch to 18-inch	$133,176
		Subtotal	**$1,538,602**
NEW	Local sewer network	44,900 feet of 8-inch sanitary sewers	$8,465,000
		Total	**$10,003,602**



LAND USE

- Commercial / Mixed Use
- Employment
- Medium Density Residential - Low 8 du/ac
- Medium Density Residential - High 11 du/ac
- High Density Residential 24 du/ac
- Park

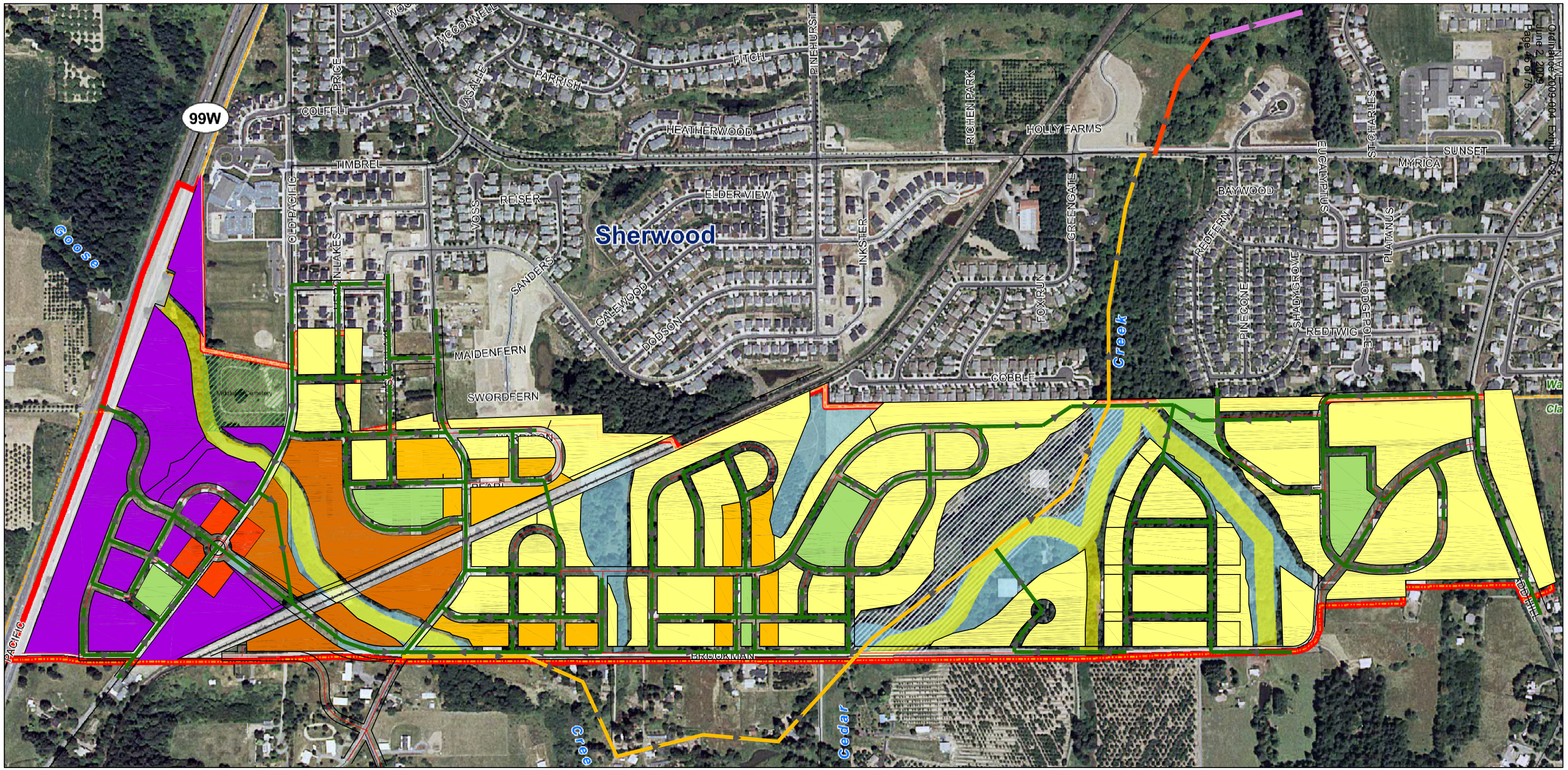
LEGEND

- 8" WATER MAIN PIPE (PROPOSED)
- 12" WATER MAIN (PROGRAMMED IMPROVEMENT)

0’ 250’ 500’ 1000’

Brookman Addition: Water System Concept Plan

14 May 2009



0’ 250’ 500’ 1000’

Brookman Addition: Sanitary Sewer System Concept Plan

LAND USE

- Commercial/Mixed Use
- Employment
- Medium Density Residential - Low 8 du/ac
- Medium Density Residential - High 11 du/ac
- High Density Residential 24 du/ac
- Park

LEGEND

- 8" SANITARY SEWER PIPE (PROPOSED)
- 12" SANITARY SEWER MAIN (COLLECTION SYSTEM EXTENSION)
- 15" SANITARY SEWER MAIN (CAPACITY UPGRADE)
- 18" SANITARY SEWER MAIN (CAPACITY UPGRADE)

otak

14 May 2009

Appendix E – Fiscal Impact Analysis

JOHNSON GARDNER

MEMORANDUM

DATE: April 18, 2008

TO: Joe Dills
Otak

FROM: Anne Fifield
JOHNSON GARDNER

SUBJECT: Fiscal impact analysis for the Brookman Addition-Final

JOHNSON GARDNER was retained by Otak and their client, the City of Sherwood, to conduct a fiscal impact analysis of a hybrid concept plan for the Brookman Addition. This memorandum summarizes the results of the analysis.

A fiscal impact analysis estimates the costs and revenues to a local jurisdiction directly associated with new development. This analysis estimates the costs and revenues associated with the development of infrastructure and operations. It is based on Otak's *Brookman Addition Concept Plan, Steering Committee Recommended Draft*, dated March 28, 2008, and data supporting the Concept Plan.

This memorandum is organized into four sections:

I. Summary of Key Issues summarizes the analysis and describes different tools the City can use to fund infrastructure.

II. Assumptions and Methods discusses the basic elements of the Concept Plan that affect costs and revenues.

III. Infrastructure describes estimated costs to build expanded infrastructure and projected revenue from System Development Charges. The section discusses transportation, water, sanitary sewer, stormwater, and parks.

IV. Property Tax Revenue estimates the property tax revenue generated by new development in the Brookman Addition.

I. SUMMARY OF KEY ISSUES

A. Costs and Revenues

This analysis compares the cost of constructing infrastructure to serve the Brookman Addition, and compares costs to revenues generated to pay for those costs. Costs are based on analyses by Otak and DKS Associates. Revenues are based on analysis conducted by Johnson Gardner.

Please see Section III, Infrastructure, for a detailed discussion of how the figures were determined.

The costs shown in this summary are those typically borne by the City, not the developer. There are additional costs that developers would fund. The text in Section III, Infrastructure, discusses the costs for local infrastructure that developers typically build.

The revenue calculations are focused on those generated by System Development Charges, or SDCs. SDCs are one-time fees levied on new development to recover a fair share of the costs of existing and planned future improvements to infrastructure to serve that development. The City of Sherwood also collects a Traffic Impact Fee (TIF) for Washington County, which is a countywide charge to fund transportation infrastructure. SDCs vary by development type, and this analysis is a reasonable estimate of expected revenues. [1]

Figure 1 and Table 1 shows the total costs and revenues for four basic urban infrastructure types. The data show only the costs that are expected to be paid by the City. The numbers do not include costs typically paid by developers. The following text explains the reasons for the funding gap in stormwater and transportation, and then discusses potential funding sources to fill the gap.

[1] SDC revenue for non-residential development may be significantly different from what is estimated in this analysis. The SDCs will vary with size of building and type of use. Residential SDCs, however, are likely to be roughly equivalent to the estimates in this analysis, if build-out is similar to the Concept Plan. The great majority of the development in the Brookman Addition is residential, and the great majority of SDC revenue is from residential development. Therefore, total SDC revenue projections are likely to be fairly accurate.

Figure 1
Total Costs and SDC/TIF Revenue

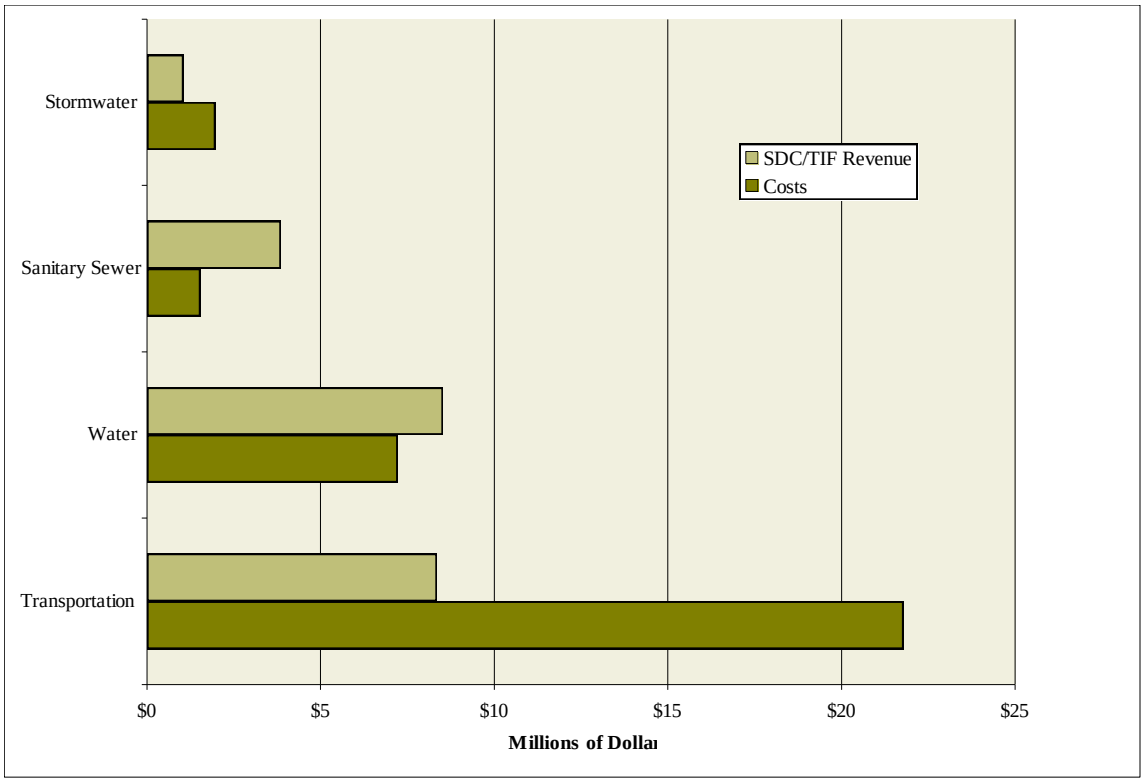


Table 1
Total Costs and SDC/TIF Revenue

	Cost	SDC/TIF Revenue	Cost - Revenue	% Funded by SDC/TIF
Transportation	$21,790,000	$8,349,051	$13,440,949	38%
Water	$7,221,000	$8,517,869	-$1,296,869	118%
Sanitary Sewer	$1,538,782	$3,853,792	-$2,315,010	250%
Stormwater	$1,965,160	$1,042,449	$922,711	53%
Parks	not estimated	$8,105,625	n/a	n/a

- **Transportation.** There is a large funding gap for transportation. The large gap is not unexpected. SDC and TIF revenue is not intended to cover 100% of costs. The City of Sherwood reduced its transportation SDC in November 2007 because of complaints from developers in the City. The County is working now to expand the revenue generated by the TIF, but how the revised TIF will be calculated is not known at this time. The City's transportation SDC is expected to be reduced proportionate to any increases in the County TIF.
- **Water.** SDCs fund just over 100% of expected infrastructure costs for the Brookman Addition. Revenues exceed costs because the Brookman Addition is able to connect to existing capacity.

- **Sanitary Sewer.** SDCs fund 250% of expected infrastructure costs for the Brookman Addition. Revenues exceed costs because the Brookman Addition is able to connect to existing capacity. The excess revenues support capital improvements to the entire system.
- **Stormwater.** SDCs fund about half of expected costs for the Brookman Addition. The City may be able to apply revenue generated by a parks SDC to stormwater services—open space can provide recreation and stormwater infiltration services. If the open space is designed to do so, parks SDC revenue can help fund the stormwater infrastructure.

The funding gap for transportation and stormwater is about $14.3 million, or about $11,600 per residential unit in the Concept Plan.

B. How Can Sherwood Close the Gap?

Sherwood is not alone with its gap for transportation and stormwater. Other urban reserve areas have large funding gaps for infrastructure, and there are no obvious or easy solutions. Infrastructure is expensive, and nobody likes to pay for it. Sherwood will have to consider all funding options, and work to identify which funding mechanisms will be politically palatable to Sherwood residents.

The following is a brief discussion of some potential funding sources. The first two funding mechanisms, a Local Improvement District and a County Service District, are the most appropriate funding solutions, given the relatively small funding gap.

Local Improvement District (LID)

The landowners could create a taxing district of the Brookman area, where the revenue funds infrastructure improvements. Future property owners in the area would pay the tax. The funding gap is less than $12,000 per household, and that amount could be financed with a LID in the Brookman District.

County Service District

This is a special district that can fund construction, operation, and maintenance of public facilities and services. Similar to a LID, but the tax does not need to be based on property value, but some other factor (e.g., square feet of structure). Such a tax structure avoids statewide property tax limitations. The funding gap is small enough that it could be financed with a County Service District.

Expand Developer Requirements

The City could require that developers build infrastructure in addition to the local infrastructure. Although the developer pays for developer requirements, the expenditures do not necessarily come from the developers' pocket. The total cost will affect how much developers are willing to pay current landowners for the land, likely reducing the purchase price. The increased cost of development will affect the type of housing the developer is willing to build due to the potentially sizeable impact to development financial feasibility.

Expand SDCs

The City is already working on an update of the sanitary sewer and stormwater SDC and Washington County is considering an expansion of the TIF. It is expected, however, that the City's transportation SDC will be reduced proportionate to any increases in the County TIF.

As with developer requirements, the total cost of SDCs will affect how much developers are willing to pay current landowners for the land, and the increased cost of development will affect the type of housing the developer is willing to build due to the impact to financial feasibility.

Fuel Tax

A fuel tax is levied when drivers buy fuel for vehicles. In Oregon, the tax ranges between 1 and 5 cents per gallon. The revenue typically funds road maintenance. It would be impossible to tax only the residents of the Brookman for their fuel, and existing residents of Sherwood would be unlikely to approve a city-wide tax to fund improvements to one part of town.

Transportation Utility Fees

A Transportation Utility Fee (TUF) is a monthly charge assessed to households and businesses, based on the average number of trips generated by types of land uses. The fee is often collected as part of a utility bill. The revenue typically funds road maintenance.

Bonds

A General Obligation (GO) Bond is a traditional tool used to fund capital improvements. The voters of Sherwood would have to approve a bond, which would be secured by property tax revenue. GO Bonds are not subject to property tax limitations established by Measures 5, 47, and 50.

Revenue bonds are typically secured by water/wastewater/stormwater billing revenue. The City could institute a transportation utility fee to secure a bond for roads.

Urban Renewal District

Urban Renewal allows a jurisdiction to use tax increment financing to fund infrastructure. Tax increment financing 'freezes' the assessed value of the district, and all property tax revenue associated with any incremental growth in assessed values goes to the UR District. It is likely that the value of improvements in the Brookman Addition are currently low enough to legally permit the establishment on an UR District. The primary disadvantage with Urban Renewal, is that existing taxing district do not collect property tax revenue generated by the new, higher value development. That revenue funds operations for the City, the County, and any special districts. However, compromises, such as dedicated matching funds and/or projects mutually beneficial to the City/District can be planned to mitigate potential negative effects of foregone revenues. By State statute, school districts do not forego property tax revenues with establishment of urban renewal.

MSTIP

The Major Streets Transportation Improvement Program (MSTIP) is a funding mechanism for roads in Washington County. The MSTIP was originally a countywide serial levy, but as a result of statewide property tax limitations, the levy became part of the County's permanent rate. Funds

are now transferred from the County's General Fund to the MSTIP at the discretion of the County Board of Commissioners. The Board of Commissioners has approved projects to be funded between 2007 and 2012, and none of the improvements identified in the Brookman Addition Concept Plan are included.[2] At this time, the MSTIP is *not* an option for the Brookman Addition.

State funds

The roads identified in the Concept Plan are *not* eligible for funds from ODOT. That could change, depending on *if* the Highway 99/I-5 connector is built, and where that connector is located. If it is built, it will affect traffic volumes on Highway 99 and what improvements on Highway 99 can be funded by ODOT. ODOT is in the planning process now, to determine the future of that connector.[3]

II. ASSUMPTIONS AND METHODS

Otak provided Johnson Gardner with land uses, densities, and other descriptive data for the 143-acre Brookman Addition. Table 1 summarizes the development data used in the fiscal analysis.

The Concept Plan shows the number of acres for each use. Otak provided Johnson Gardner with the estimates of square feet of space required per employee and the total number of employees for non-residential uses. Johnson Gardner used those estimates to calculate the square feet of built space for retail, office, and industrial uses.

Table 2
Projected acres, built square feet, jobs, and dwelling units in the Brookman Addition

Non-Residential Land Uses	Acres	Built Square Feet	Jobs
Retail	2.07	27,550	29
Office	6.01	78,525	349
Industrial	6.01	78,540	102
Parks	6.21	**0**	
Total	**20.3**	**184,615**	**480**
Residential Land Uses	**Acres**	**Dwelling Units**	
Medium-Density Residential Low	90.43	723	
Medium-Density Residential High	20.01	220	
High-Density Residential	12.32	296	
Total	**122.76**	**1,239**	

Source: Otak, Brookman Addition Concept Plan-Metrics, April 2, 2008.

[2] Personal communication with Dan Brown, Washington County Capital Project Management, December 11, 2007.
[3] Personal communication with Marah Danielson, ODOT Development Review Planner, December 12, 2007.

All figures reported in this analysis are in 2007 dollars.

III. INFRASTRUCTURE

This analysis compares the cost of constructing infrastructure to serve the Brookman Addition to revenues generated to pay for those costs. The primary funding mechanism for funding infrastructure for new development is the System Development Charge, or SDC. SDCs are one-time fees levied on new development to recover a fair share of the costs of existing and planned future improvements to infrastructure to serve that development. In Oregon, local governments have legal authority to collect SDCs for five types of infrastructure: transportation, water, sanitary sewer, stormwater, and parks. The Oregon Legislature recently enabled school districts to charge a tax on new construction based on square footage. While not technically a SDC, the construction tax is imposed on new development and the revenue is limited to funding capital improvements for K-12 schools.

The City of Sherwood also collects a Traffic Impact Fee (TIF), which is a countywide charge to fund transportation infrastructure.

This analysis compares the costs and SDC and TIF revenue for transportation, water, sanitary sewer, and stormwater. At this time, there are no cost estimates for parks, but Johnson Gardner calculates the revenue the parks SDC will generate.

A. Transportation

Transportation infrastructure in the Brookman Addition has three funding sources: developer requirements, system development charges (SDCs), and Washington County's Traffic Impact Fee (TIF).

Costs

DKS Associates provided planning cost estimates for transportation, summarized in Table 3. The table shows a low and high estimate, and identifies how each project will be funded, either by developers or through the City's SDC and the County's TIF.

Johnson Gardner worked with City staff to identify which improvements could be funded by the City's transportation SDC and the County TIF.[4] Table 3 identifies which projects will be built and paid for by developers, and the remainder will be funded by the SDC and the County TIF. Based on that data, total transportation cost that will be funded by SDCs and the TIF is between $21 and $22 million.

[4] Personal communication with Gene Thomas, City of Sherwood Civil Engineer, December 11, 2007.

Table 3
Transportation Planning Cost Estimates, Non-local Roads

Location	Project	Built and Paid for by Developer	Funded by TIF/SDC	Estimated Cost Low	Estimated Cost High
Concept Plan Infrastructure Projects					
Concept Area	Construct new 2-lane local roadways	x		$80,400,000	$80,400,000
Old Hwy 99	Upgrade to collector standards		x	$1,235,000	$1,235,000
Brookman Rd east of Middleton Rd	Urbanize and rebuild existing roadway		x	$10,855,000	$10,855,000
Brookman Rd west of Middleton Rd	Construct new collector with rail crossing		x	$6,770,000	$6,770,000
Brookman Rd/Old Hwy 99	Construct a roundabout		x	$800,000	$800,000
Traffic Calming/Neighborhood Cut-through Reduction Projects					
Redfern Dr/Pinehurst Dr/Inkster Dr	Install speed cushions	x		$50,000	$50,000
Intersection Mitigation Projects					
Hwy 99W/Sunset Blvd	Add eastbound right turn overlap phase		x	$10,000	$10,000
	Add westbound right turn lane		x	$250,000	$250,000
	Add westbound right turn overlap phase		x	$10,000	$10,000
Hwy 99W/Brookman Rd	Add a traffic signal		x	$250,000	$250,000
Sunset Blvd/Timbrell Ln	Construct a roundabout		x	$800,000	$800,000
Sunset Blvd/Redfern Dr	All-way stop control		x	$10,000	$10,000
Brookman Rd/Ladd Hill Rd	All-way stop control		x	$10,000	
	Add a southbound right turn lane		x	$250,000	
	-or-				
	Construct a roundabout		x		$800,000
Totals	**Total Cost**			**$101,700,000**	**$102,240,000**
	Built and Paid for by Developer			**$80,450,000**	**$80,450,000**
	Funded by TIF/SDC			**$21,250,000**	**$21,790,000**

Source: DKS Associates, Draft Memorandum, December 5, 2007. Funding method based on personal communication with Gene Thomas, City of Sherwood Civil Engineer.

SDC Revenue

Johnson Gardner estimated the transportation SDC revenue associated with the development described in the *Concept Plan*, based on current SDC rates in the City of Sherwood, as reported in the City of Sherwood Rates and Fees Schedule, posted on the City's website. In November 2007, the City reduced its transportation SDCs by 25%.[5] To estimate SDC revenue, Johnson Gardner made the following assumptions:

- **Retail.** The concept plan estimates there will be 27,550 square feet of retail space. The SDC is the average (mean) of "commercial/services" SDCs based on gross floor area. SDCs excluded from the average calculation are those based on the numbers of rooms (hotels and motels) and vehicle fueling positions (e.g., gas stations).[6]
- **Office.** The concept plan estimates there will be 78,525 square feet of office space. The estimate is based on the SDC for "general office building" uses.
- **Industrial**. The concept plan estimates there will be 78,540 square feet of industrial space. The estimate is based on the SDC for "general light industrial" uses.
- **Medium-density residential.** All units are detached, single-family homes.

[5] Personal communication with Debra Czysz, City of Sherwood Development Program Coordinator, December 13, 2007.

[6] Square footage figures are based on the number of jobs and square feet per job figures provided by Otak. Square feet per job estimates are: retail, 950; office, 225; industrial, 770.

- **High-density residential.** All units are condominiums/townhouses.[7]

Table 4
Transportation SDC Revenue

Land Use	SDC	Unit	Number of 1,000 S.F. Units	Total SDC Revenue
Retail	$18,367	1,000 s.f.	28	$506,020
Office	$4,065	1,000 s.f.	79	$319,204
Industrial	$2,328	1,000 s.f.	79	$182,841
Single Family (medium density-low and high)	$2,721	dwelling unit	943	$2,565,903
Multi-Family (high density)	$1,726	dwelling unit	296	$510,822
Total				**$4,084,790**

Source: Johnson Gardner based on City of Sherwood SDCs and Brookman Concept Plan.

Traffic Impact Fee Revenue

The City of Sherwood collects Washington County's Traffic Impact Fee (TIF) and directs the revenue to the County. The TIF can only be used to pay for road capacity improvements that serve future growth, and is limited to funding arterials and collectors on the TIF list. The TIF cannot be used to address existing capacity deficiencies. The TIF revenue must be spent within the TIF jurisdiction where it is collected, or to the direct benefit of that district.

The TIF is calculated based on the estimated number of weekday trips generated by different land uses, multiplied by a fee and thousand gross square feet of the development. The number of trips per use is based on standard data produced by the Institute of Transportation Engineers, as reported by Washington County.[8] To estimate TIF revenue, Johnson Gardner made the following assumptions:

- **Retail.** The average number of trips is the average (mean) of weekday average trip rate for "business & commercial". The calculation of the average number of weekday trips excludes shopping centers larger than 50,000 square feet and those not based on thousand gross square feet of space, such hotels and motels (based on numbers of rooms) and gas stations (based on number of vehicle fueling positions).
- **Office.** The average number of trips is for "general office, under 100,000 gross square feet".
- **Industrial.** The average number of trips is for "general light industrial".

In this analysis, we assume that 100% of the TIF generated in the Brookman Addition will be applied to funding improvement in the Brookman Addition.

[7] The SDC for apartments is slightly higher than the SDC for condominiums and townhouses. This analysis uses the SDC for condominiums and townhouses , to be consistent with other parts of the analysis.
[8] Washington County memorandum from Kathy Lehtola, "Traffic Impact Fee Rate Increase", dated April 25, 2007.

Table 5
Washington County TIF Revenue

Land Use	Fee per Average Weekday Trip	Average Weekday Trips	Unit	Number of Units	Total TIF Revenue
Retail	$81	65.63	1,000 s.f.	28	$146,457
Office	$294	16.31	1,000 s.f.	79	$376,538
Industrial	$308	6.97	1,000 s.f.	79	$168,607
Single Family (medium density-low and	$320	10	dwelling unit	943	$3,017,600
Multi-Family (high density)	$320	5.86	dwelling unit	296	$555,059
Total					**$4,264,261**

Source: Johnson Gardner based on Washington County TIF and Brookman Concept Plan.

The transportation and TIF generate just under 40% of expected public costs for roads.

B. Water

Costs

Otak provided planning cost estimates for water capital improvement projects to serve the Brookman Addition, summarized in Table 6. Total cost for water infrastructure to service the Brookman Addition is $10.5 million.

Otak identifies 'programmed' and 'non-programmed' capital improvements. 'Programmed' improvements are those that are in the City's Water System Master Plan, and can be funded with the City's SDC for water. The total cost for programmed improvements is $7.2 million, and non-programmed improvements is $3.3 million.

Table 6
Water Planning Cost Estimates

Project	Built and Paid for by Developer	Funded by SDC	Cost
Main Reservoir Upgrade		x	$400,000
Reservoir No. 2		x	$4,700,000
SW Sherwood PRV		x	$190,000
12-inch Water Main pipes		x	$1,931,000
8-inch Water Main pipes	x		$3,321,000
	Total		**$10,542,000**
	Built and Paid for by Developer		**$3,321,000**
	Funded by SDC		**$7,221,000**

Source: Otak, Technical Memorandum, "Brookman Addition Concept Plan—Water Supply and Sanitary Sewer Infrastructure," November 28, 2007.

SDC Revenue

Table 7 shows estimated revenue generated by the City's current water SDC rates. Sherwood's water SDC includes an improvement and installation charge, which varies by meter size. The

City also charges a per-building fee for fire flow-sprinklered buildings and a single administrative set-up charge. To estimate SDC revenue, Johnson Gardner made the following assumptions:

- **Retail.** The concept plan estimates there will be 27,550 square feet of retail space. This analysis assumes that every 5,000 square feet of built retail space uses a one-inch meter (rounding total square feet to the nearest 5,000). We assume that each 5,000-square foot space has a fire flow sprinkler.[9]
- **Office.** The concept plan estimates there will be 78,525 square feet of office space. This analysis assumes that every 10,000 square feet of built office space uses a one-inch meter (rounding total square feet to the nearest 10,000). Each 10,000-square foot space has a fire flow sprinkler.
- **Industrial.** The concept plan estimates there will 78,540 square feet of industrial space. This analysis assumes that every 20,000 square feet uses a two-inch meter (rounding total square feet to 20,000). Each space has a fire flow sprinkler. Industrial development has widely varied demands for water service dependent upon the nature of industrial user on-site, therefore actual demand could be significantly lower or higher than this assumption.
- **Residential.** All residential units use a 5/8 x 3/4-inch meter.

Table 7
Water SDC Revenue

Land Use	SDC	Unit	Number of Units	Total SDC Revenue
Retail	$18,976	1" meter	6	$113,858
Office	$18,976	1" meter	8	$151,811
Industrial	$54,718	2" meter	4	$218,871
Residential	$6,484	dwelling unit	1,239	$8,033,329
Total				**$8,517,869**

Source: Johnson Gardner based on City of Sherwood SDCs and Brookman Concept Plan.

SDCs generate more than 100% of expected costs for water infrastructure.

C. Sanitary Sewer

Costs

Otak provided Johnson Gardner with planning cost estimates for sanitary sewer improvements, summarized in Table 8. Total costs for sanitary sewer are about $10.0 million.

Similar to the water cost estimate, Otak identifies 'programmed' and 'non-programmed' capital improvements. 'Programmed' improvements are those that are in the City's Sanitary System Master Plan and can be funded by the City's sanitary sewer SDC. The total cost for programmed improvements is $1.5 million, and non-programmed improvements is $8.5 million.

[9] Square footage figures are based on the number of jobs and square feet per job figures provided by Otak. Square feet per job estimates are: retail, 950; office, 225; industrial, 770.

Table 8
Sanitary Sewer Planning Cost Estimates

Project	Built and Paid for by Developer	Funded by SDC	Cost
Collection System Extension Area 54/55		x	$1,292,430
Capacity Upgrade Area 54/55		x	$113,176
Capacity Upgrade Area 54/55		x	$133,176
Local sewer network	x		$8,465,000
	Total		**$10,003,782**
	Built and Paid for by Developer		**$8,465,000**
	Funded by SDC		**$1,538,782**

Source: Otak, Technical Memorandum, "Brookman Addition Concept Plan —Water Supply and Sanitary Sewer Infrastructure," November 28, 2007.

SDC Revenue

Table 9 shows estimated revenue generated by the City's current sanitary sewer SDC rates. Sherwood's water SDC includes a connection charge of $2,700 per dwelling unit equivalent and reimbursement and improvement charge based on estimated gallons of sewerage flow per day. Non-residential developments use the number of fixture units to determine the number of dwelling unit equivalents. There are 16 fixture units in one dwelling unit equivalent. To estimate SDC revenue, Johnson Gardner used the same estimates of the number of units as calculated in the Water section. The analysis uses the following additional assumptions:

- **Retail and Office.** Each unit has 60 fixture units and generates 2,000 gallons of sewerage flow per day.[10]
- **Industrial.** Each unit has 200 fixture units and generates 5,000 gallons of sewerage flow per day. Industrial development has widely varied demands for sewer service based on industrial use, therefore actual demand could be significantly lower or higher than this assumption.
- **Residential.** Each residential unit is a dwelling unit equivalent and generates 535 gallons of sewerage flow per day.

[10] Retail, office, and industrial assumptions are based on recent development in Sherwood.

Table 9
Sanitary Sewer SDC Revenue

Land Use	Connection Charge	Per Gallon Reimbursement & Improvement Charge	Equivalent Dwelling Units	Total Gallons per Day	Total SDC Revenue
Retail	$2,700	0.326	23	12,000	$64,662
Office	$2,700	0.326	30	16,000	$86,216
Industrial	$2,700	0.326	50	20,000	$141,520
Residential	$2,700	0.326	1,239	662,865	$3,561,394
Total					**$3,853,792**

Source: Johnson Gardner based on City of Sherwood SDCs and Brookman Concept Plan.

The City of Sherwood is in the process of evaluating its SDC for sanitary sewer. The current SDC is based on old data, and is likely to be significantly changed. When the revised SDC is established, the SDC revenue estimates in this analysis will be invalid.

Under the current SDC structure, sanitary sewer SDCs revenue exceed cost, leaving no funding gap.

D. Stormwater

Costs

Otak provided Johnson Gardner with planning cost estimates for stormwater infrastructure, summarized in Table 10. Total costs, including construction, engineering, and land acquisition, equal $7.3 million.

Otak staff reported that the cost items identified as "regional stormwater management facilities" are detention facilities, typically paid for by the developer. Johnson Gardner assumed that developers will pay for the full costs of these detention facilities, plus land acquisition.

Otak estimated base construction items, construction contingencies, engineering, and permitting costs as percents of total construction costs. To identify costs covered by the developer, Johnson Gardner assumed that the same percents for those costs would apply the developer

Total costs to the City of Sherwood are about $2.0 million.

Table 10
Stormwater Planning Cost Estimates

Project	Built and Paid for by Developer	Funded by SDC	TotalCost
Base Construction Items	$341,173	$181,771	$522,944
Conveyence Infrastructure		$467,412	$467,412
Detention Facilities	$877,301		$877,301
Construction Contigencies	$487,389	$259,673	$747,063
Engineering & Permitting	$852,932	$454,428	$1,307,360
Land Acquisition	$2,735,793		$2,735,793
Staffing & Appraisal		$601,875	$601,875
	Total		**$7,259,748**
Built and Paid for by Developer			**$5,294,588**
Funded by SDC			**$1,965,160**

Source: Otak, Technical Memorandum, "Brookman Addition Stormwater Infrastructure Plan," April 9, 2008.

SDC Revenue

Table 11 shows estimated revenue generated by current stormwater SDC rates for the City and Clean Water Services. Sherwood's stormwater SDC is $0.043 per square foot of impermeable surface. Clean Water Service's SDC is $619 per Equivalent Service Unit (ESU), which equals 2,640 square feet. To calculate impermeable square feet, this analysis uses the following percent impervious for each land use type, as reported by Otak.[11]

- **Retail, Office, and Industrial.** 85% of land will be impermeable.
- **Medium-density Residential-low.** 55% of land will be impermeable.
- **Medium-density Residential-high.** 60% of both medium-density categories will be impermeable.
- **High-density Residential.** 65% of land will be impermeable.

[11] As reported in a Technical Memorandum dated April 9, 2008, subject "Brookman Addition Stormwater Infrastructure Plan," from Ashley Cantlon, EI, and Kevin Timmins, PE.

Table 11
Stormwater SDC Revenue

Land Use	City Charge per S.F.	Clean Water Services Charge per ESU	Impermeable Square Feet	ESU	Total SDC Revenue
Retail, Office, Industrial	$0.043	$619	521,696	197.6	$144,755
Medium-density Residential	$0.043	$619	2,886,460	1,093.4	$800,905
High-Density Residential	$0.043	$619	348,828	132.1	$96,789
Total					**$1,042,449**

Source: Johnson Gardner based on City of Sherwood SDCs, Brookman Concept Plan, Otak's impervious area calculations.

The City of Sherwood is in the process of evaluating its SDC for stormwater. The current SDC is based on old data, and is likely to be significantly changed. When the revised SDC is established, the SDC revenue estimates in this analysis will be invalid.

Under the current SDC structure, stormwater SDCs generate just over half of expected costs. The City may be able to apply revenue generated by a parks SDC to stormwater services—open space can provide recreation and stormwater infiltration services. If the open space is designed to do so, parks SDC revenue can help fund the stormwater infrastructure.

E. Parks and Recreation

At the writing of this memorandum, there are no cost estimates for parks infrastructure. Table 12 shows estimated revenue generated by current parks and recreation SDC rates for the City. This analysis used the following assumptions to estimate SDC revenue:

- **Retail, Office, and Industrial.** Sherwood's SDC for non-residential development is $72 per employee, which we applied to the employment estimates generated by Otak, shown in Table 2.
- **Low and medium-density residential.** All units are detached, single-family homes.
- **High-density residential.** All units are multi-family.

Table 12
Parks and Recreation SDC Revenue

Land Use	SDC	Unit	Number of Units	Total SDC Revenue
Retail, Office, Industrial	$72	employee	480	$34,560
Single Family (medium density)	$6,927	dwelling unit	943	$6,532,161
Multi-Family (high density)	$5,199	dwelling unit	296	$1,538,904
Total				**$8,105,625**

Source: Johnson Gardner based on City of Sherwood SDCs and Brookman Concept Plan.

As noted by Otak in its technical memorandum on the Stormwater Infrastructure Plan, stormwater facilities should be integrated to provide habitat or public open space for recreation. If designed to meet the two functions, the City could use combined parks and stormwater SDC revenue to fund stormwater and open space in the Brookman Addition.

IV. PROPERTY TAX REVENUE

Property tax revenue is calculated by multiplying the City's permanent tax rate by total assessed value (i.e., taxable value). Assessed value is based on the real market value of property according to guidelines established by Measure 50. A new building's assessed value is determined by multiplying its market value by the local 'changed property ratio' (CPR). The CPR is the ratio of the assessed value to market value for a land use type (such as residential).

In Oregon, the assessed value is limited to 3% annual growth. Although property prices may grow at a higher rate, assessed value escalation may not exceed 3%, per Measure 50. A local government's tax base increases when new construction comes onto the tax rolls, but the assessed value of new construction is constrained. If market values grow at a higher rate than 3% a year, the CPR becomes a smaller ratio and diminishes over time. As the CPR diminishes, the assessed value of new construction brought onto the tax rolls becomes smaller.

The City of Sherwood's tax rate is $3.2975 per $1,000 of assessed value. Property owners in Washington County receive a 3% discount on their property tax if they pay the full amount by November 15. This analysis assumes all property owners in the Brookman Addition pay their taxes by November 15, so total revenue is discounted by 3%.

To estimate real market values for residential units, Johnson Gardner used the median list price (rounded to $1,000) for detached and attached homes in Sherwood region in January 2008. We applied the CPR for residential property in Washington County, 0.572, to the market value.[12]

To estimate assessed values for non-residential property, Johnson Gardner relied on per-acre assessed values of existing commercial property in the Sherwood area, provided by the Washington County Assessor's Office. We calculated the median assessed value, per acre, and applied those values to the acres of non-residential land in the Concept Plan.

[12] CPR reported by the Washington County Department of Assessment and Taxation in "Summary of Assessment & Tax Roll", Fiscal Year 2006-07.

Table 13
Annual Property Tax Revenue to the City of Sherwood, 2007 dollars

Non-Residential Land Uses	Acres		Assessed Value per Acre	Revenue per Acre (with Discount)	Total Property Tax Revenue (with Discount)
Retail	2.07		$599,477	$1,917	$3,969
Office	6.01		$701,690	$2,244	$13,489
Industrial	6.01		$385,455	$1,233	$7,410
Non-Residential Total					**$24,868**
Residential Land Uses	**Dwelling Units**	**Market Value per Unit**	**Assessed Value per Unit**	**Revenue per Unit (with Discount)**	**Total Property Tax Revenue (with Discount)**
Detached units (medium density)	943	$485,000	$277,420	$887	$836,770
Attached units (high density)	296	$230,000	$131,560	$421	$124,558
Residential Total					**$961,328**
Total Property Tax Revenue					**$986,196**

Table 13 shows the estimated property tax revenue that the Brookman Addition would generate to the City of Sherwood at full build-out. The area is in the jurisdiction of other taxing districts, but this analysis focuses on the City, the jurisdiction with primary responsibility for basic infrastructure provision. The table shows that the developed Brookman Addition will generate about $990,000 a year in property tax revenue to the City of Sherwood.

Appendix F – Existing Conditions, Opportunities, and Constraints Summary

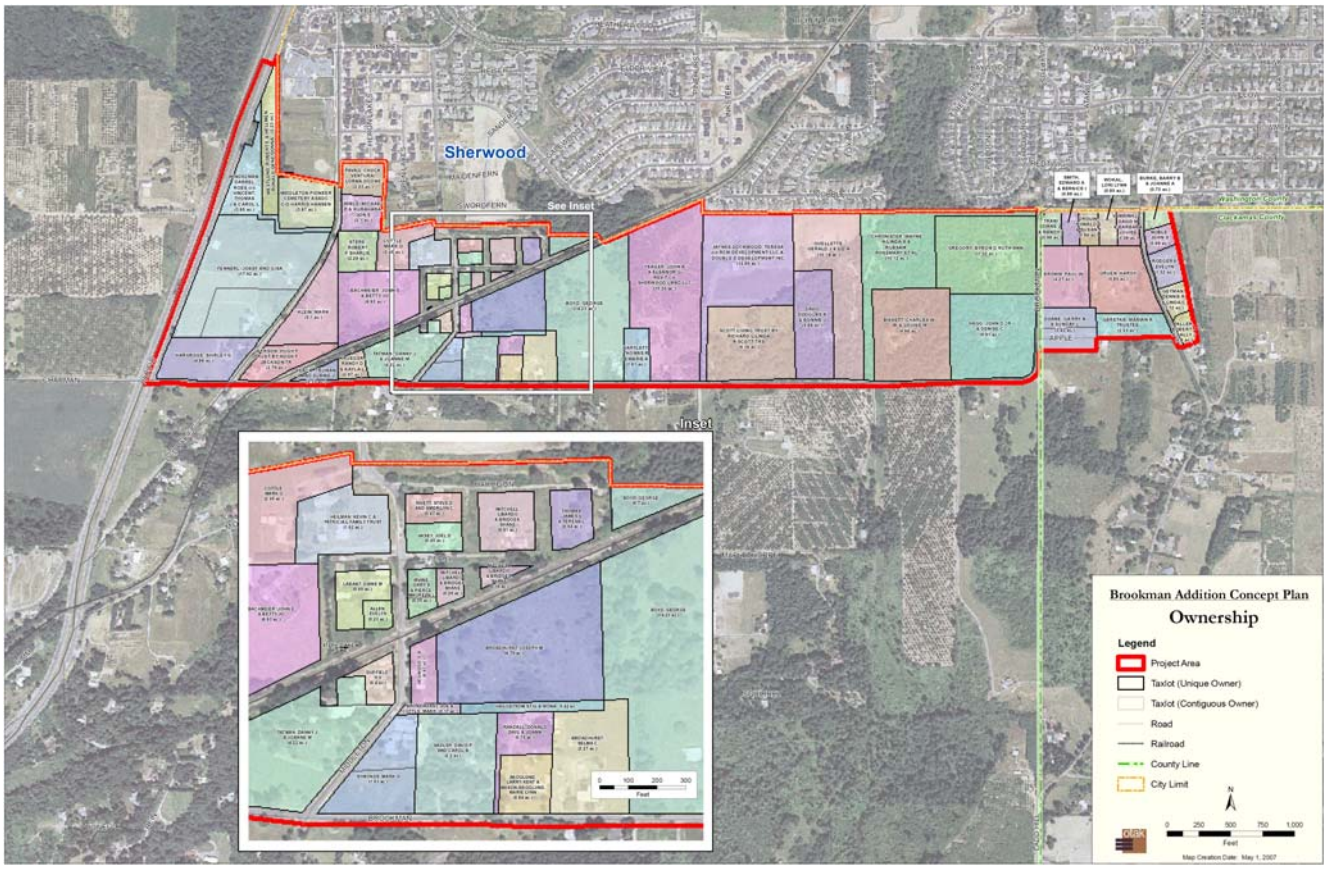
Appendix F - Existing Conditions, Opportunities & Constraints Summary

The following is a synopsis of existing conditions and opportunities in the Brookman Addition Concept Plan area. Eight subject areas are summarized: land availability; market assessment; parks and open space; natural resources; water and sanitary sewer; storm water and water quality; and transportation. Complete reports for each of these subject matters are contained in the Concept Plan Report Technical Appendix.

Land Availability

Ownership

The area is characterized by multiple property ownership. Ranging in size from 0.1 to 17 acres, there are 66 total properties with 59 different owners. Forty eight (48) of those properties have buildings or structural improvements ranging in size from just under 800 square feet to nearly 6,000 square feet. Of these developed properties, 14 are considered single family residential with the remainder coded as agricultural or rural land uses. The median year of construction for these improvements is 1966.



The remaining 18 properties are undeveloped.

Buildable Lands

Estimating the location and amount of buildable land is an important early step in the concept planning process. It establishes a building envelope for development or redevelopment by considering lands constrained by steep topography, hydrology, wetlands, and habitat areas. The exercise also estimates the amount of land required for public rights-of-way and facilities such as schools. The net yield of buildable lands ultimately is used in preparing land use programs of housing, mixed use, commercial, employment, and parks and open space. Its

spatial organization informs, guides and shapes the arrangement of concept plan neighborhoods, districts, and corridors.

The estimating process starts with the total gross acreage of the Brookman project area and subtracts out constrained, committed and nonresidential land. The total Brookman Concept land area is approximately 247 acres. Of this gross acreage, approximately 48 acres, or 20 percent of the total area, contains environmentally sensitive lands in its potential wetlands, floodplain areas, slopes of over 25 percent, and its vegetated corridor proxy as defined by the Tualatin Basin Natural Resources Protection Program. Committed lands in Brookman Addition include existing road and railroad rights-of-way, homes that will not likely redevelop the Middleton Pioneer Cemetery, and 10 acres for a potential school. These committed lands account for another 48 acres and 20% of the total area that is not available for development. This leaves approximately 150 acres available for urban use.

Table 4 Buildable Lands Summary

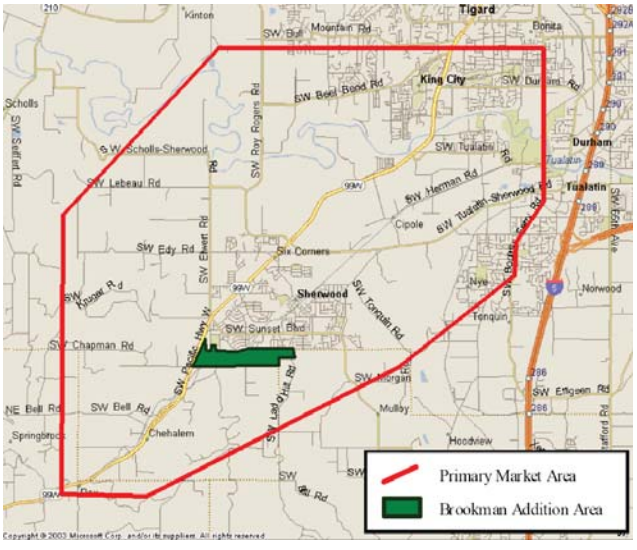
	Estimated Acres	Percent of Total Acres
Total Planning Area	**247.0**	**100%**
Constrained Lands		
Less >25% Slope	0.8	0%
Less Natural Resources	47.7	19%
Committed Lands		
Less Existing Street/Railroad Rights-of-Way	27.9	11%
Less 1/4 acres for each taxlot with a building value that is over half the land value	7.8	3%
Less Middleton Cemetery	3.0	1%
Less Potential School	10.0	4%
Gross Development Area	**149.9**	**61%**

To inform the planning process, an initial working estimate of land available for residential development was developed. Naturally, as concept plan alternatives were created and refined, this acreage would change. The initial estimate was determined by first deducting lands for nonresidential uses such as commercial, mixed use, industrial (27 acres) and parks (8 acres). Based on these land use assumptions, land was then taken out for the right-of-way of all of the future streets (33 acres). In total, these deductions equal approximately 68 acres, or 28% of the total area. Thus, the initial estimate for residential land amounted to 82 net acres. This number increased by approximately 40 acres over the course of the concept plan development phases as nonresidential lands were reprogrammed for residential uses and project constraints limited the amount of land identified as public rights-of-way.

Market Factors

Primary Market Area

Brookman Addition is partially defined by the surrounding market area and its associated demographics. The Primary Market Area (PMA) of Brookman Addition covers the area of the city of Sherwood, King City and the unincorporated area of Bull Mountain to the north, and much of Tualatin to the east. The PMA had an estimated population of 51,105 residents in 2007 and an average income that is significantly higher than the region ($79,000). The majority of households in 2007 have an age of 25 to 45, with a shift to the age of 45 to 75 within the next ten years, reflecting the regional Baby Boomer demographic shift. The current estimated employment in the PMA is 25,900, and employment in the area has recovered from pre-recession levels.



Market Trends

Market statistics about existing residential, commercial, and industrial lands surrounding Brookman Addition provide insight on potentially appropriate uses for the area. Residential homes in Washington County have a

median price of $480,950. In Sherwood, over 95% of new dwelling units permitted between 2000 and 2006 were single family, compared to 67% countywide. Retail centers in the area are experiencing very low vacancy, but the households in the PMA spend almost $158 million on retail items outside of the area per year, which indicates sales leakage. However, Sherwood is attracting external business in home furnishings, building and gardening materials, and grocery/convenience stores. The Sherwood area is not an epicenter of existing office development, but there is currently a relative scarcity of office space to meet the projected demand. In the Southwest I-5 submarket, there exist significant industrial lands between Sherwood and Tualatin as well as some along Highway 99W. Industrial and flex-space buildings have lower than average vacancy rates, indicating a healthy market and the scarcity of industrial lands elsewhere in the region.

Development Strategy Considerations

In order to determine potential land use in Brookman Addition, the market analysis considered the types of development that will most likely thrive in that market. According to the market assessment, the study area is excellently suited for residential development. The study area is not the ideal location for retail development, but it would be a natural place to serve the needs of the surrounding neighborhoods and travelers on Highway 99W. The study area presents some challenges for large-scale office development, but should support smaller-scale office development to suit the needs of the south Sherwood market. The Brookman location might be well-suited for some light industrial uses, although it is further from the freeway than industrial lands along Tualatin-Sherwood Road.

Key Market Findings

Residential

- *Excellent location for housing development*
- *Market for low to mid-density owner-occupied housing*

Retail

- *The Brookman Addition location is on the periphery of the UGB is not ideal for significant retail development*
- *Market potential for retail supporting the new community located near Highway 99w*

Employment (Office & Industrial)

- *Location of periphery of UGB creates challenges for employee commuting, freight and access to market*
- *Flat areas abutting Highway 99w are best alternative for employment uses*
- *An aggressive amount of planned employment lands would likely depend on economic development activities to promote them*

Parks & Open Space

Inventory

The City of Sherwood has seven parks, open spaces, linear parks, and natural areas within a two mile radius of Brookman Addition. Six public regional school grounds also provide shared park space in the Sherwood School District. In the region, the Tualatin National Wildlife Refuge includes the Tualatin River Water Trail and seasonal trails that could potentially link to Sherwood's local trail system. In addition, the Tonquin Trail and the Lower Tualatin River Greenway Trail are projects listed in the Metro Trails Master Plan that could also create connections to Brookman Addition.

Level of Service

The level of service for parks is outlined in "Chapter 5- Environmental Resources" in the *Sherwood Comprehensive Plan, Part 2*. The level of service indicates the amount of acres and location to meet the needs of the community. The City of Sherwood defines several types of park and the facilities and activities necessary in each park designation. Types of parks include tot lots, neighborhood parks, community parks, general open space, nature trails, conservation and management areas, cultural facilities, historic sites, and community sites. After determining the buildable residential land acres, it was estimated that Brookman Addition will need to have at a minimum 2.25 acres of Tot Lots/Mini-Parks, 4.5 acres of neighborhood parks, and 2.25 acres of community parks. For the purposes of the concept plan, it is assumed that the Tot Lots/Mini-Parks will be incorporated within residential subdivision plats and site plans.

Strategies

Several strategies could be considered to increase the viability and strength of the parks system in Brookman Addition. These strategies include park and open space connectivity, creation of a unique park system, coordination with existing park facilities, and the integration of parks with natural systems.

Connectivity will be the most important factor in creating a seamless and integrated open space system. Key connectivity strategies include reserving open space along vegetated corridors, creating greenways between districts, using parks as access points, keeping trail access along the rail corridor, and planning for tree-lined streets. Sidewalks could have adjacent storm water swales and direct links to parks or trail heads, seamlessly weaving urban and natural pedestrian corridors.

The perception of a park, open space, or trail as a special and unique feature builds pride and ownership in the users of the amenities. Strategies include building on the history of the agrarian landscape, associating parks with Cedar Creek, placing parks near a village center or schools, or locating linear parks next to the vegetated stream corridors.

Coordination with the existing parks and open space network off the site optimizes facilities and avoids duplication. Brookman Addition has the opportunity to capitalize on the three schools within a half-mile and a nearby YMCA facility. Additional strategies for integrating parks, open spaces and trails with natural systems include preserving the tree canopy, locating storm detention in the parks, green streets and connecting habitat areas.

Transportation

Existing System

With low intensity land uses such as large lot (average size is 3 acres) single family residential, the plan area is currently served by a limited transportation system. Primary access to the area is by a small number of public and private vehicular roads. The system currently lacks transportation routes and choices for bicyclists, pedestrians and transit users.

Given the area does not currently possess the primary generators of walking and biking trips including schools, parks and mixed use shopping areas, pedestrian and bicycle activity is limited within the plan area. The closest schools, Middleton and Archer Glen Elementary Schools, are respectively located outside of the northwest and northeast corners of the plan area. Within Brookman Addition, existing sidewalks are located along Middleton Road. Ladd Hill has sidewalks that end at the entrance to the Brookman Addition. No designated bike lanes are found in the project area.

TriMet bus service does not currently reach Brookman Addition. Local and commuter service is provided from downtown Sherwood. Route 94, the Sherwood-Pacific Highway Express offers express service to downtown Portland with short 6 to 15 minute headways during the morning and evening peak periods. Route 12, Barbur Boulevard, offers more local connections en route to Portland through the day.

The existing study area roadway characteristics are listed in Table 5. Most roads are posted at 25 mph and have two lanes. Forming the western edge of Brookman Addition, four-lane Highway 99W exhibits posted speeds of 45 and 55 mph. Highway 99W is a state highway and subject to the standards of the Oregon Highway Plan. According to the Oregon Highway Plan, at 45mph posted speed, access points should be spaced no closer than every 990 feet and at 55 mph posted speed, access points should be spaced no closer than every 1,320 feet. Currently, segments of Highway 99W do not meet these standards as a result of frequent roadway intersections or driveways located along the highway.

Table 5 Study Area Roadway Characteristics by Functional Classification

Corridor	Functional Class	Posted Speed	Street Width[1]	Right-of-Way Width	Number of Lanes	Lane Width
Highway 99W	Principal Arterial	45-55	132'	174'-184'	4	12'
Sunset Boulevard	Arterial	35	52'	75'-85'	2	12'
Ladd Hill Road	Arterial	25	39'-45'	65'-70'	2	12'
Old Highway 99	Collector	25	20'	60'	2	10'
Brookman Road	Collector	25-35	22'-24'	40'-50'	2	11'-12'
Timbrel Lane	Collector	25	27'	50'	2	12'-13'
Middleton Road	Neighborhood Route	25	20'	40'	2	10'
Redfern Drive	Local	25	30'	50'	2	15'

[1] *Street width includes traffic island.*

Level of Service (LOS) and volume to capacity (v/c) ratios are both used as performance standards, or measures of effectiveness, for intersection operation. Seven intersections within Sherwood were selected for existing and future operations analysis. Each of the studied seven intersections meets performance standards under existing conditions.

Future No-Build Scenario

The future year 2030 no-build scenario was also analyzed for intersection performance. The 2030 no-build scenario represents development and growth of the region without a change in existing zones in the Concept Plan area. With the forecasted growth, many of the seven intersections will degrade in performance, but continue to meet operating standards. However, the all-way stop at Sunset Boulevard and Ladd Hill Road would cease to function within acceptable standards. The intersection of Highway 99W and Brookman Road would fail to meet ODOT standards. The failure of both of these intersections could be mitigated with the installation of traffic signals. The intersection at Sunset Boulevard and Ladd Hill Road could also consider a roundabout as a solution.

Please refer to the Appendix B for the complete transportation technical memorandum.

Natural Resources

Planning Goal 5

According to Oregon Statewide Planning Goal 5, "local governments shall adopt programs that will protect natural resources and conserve scenic, historic, and open space resources for present and future generations. These resources promote a healthy environment and natural landscape that contributes to Oregon's livability." Goal 5 Resources include wetlands, streams and their riparian areas, wildlife habitat and other resources. Oregon's statewide planning guidelines require that natural areas be inventoried and evaluated, and that natural areas with high resource values be protected from development.

Inventory

The evaluation of natural resources within Brookman Addition consisted primarily of an examination of existing resource information including a review of existing documents such as Metro Goal 5 Inventory maps, National Wetlands Inventory maps, Natural Resource Conservation Service (NRCS) Soils Survey, StreamNet fisheries data, and other sources of existing information. Site visits to the Plan Area were also conducted where some of the resource areas were observed.

Stream Corridors

The study area occupies 247 acres within the Cedar Creek watershed. Cedar Creek is a tributary to Chicken Creek, which enters the Tualatin River approximately two miles north of Sherwood. Cedar Creek enters the eastern portion of the Plan Area from the southwest. Two unnamed tributaries of Cedar Creek are located near the eastern boundary of the Plan area. Riparian corridors and forest habitat associated with Cedar Creek and these two unnamed tributaries occupy most of the eastern one third of the Plan Area.

Goose Creek, which is also a tributary to Cedar Creek, enters the Plan Area from the northwest at Highway 99W. Goose Creek flows southeast across the western part of the Plan Area to its confluence with Cedar Creek south of the Plan Area boundary. The riparian corridor and upland habitat associated with Goose Creek is less extensive than the habitat areas adjacent to Cedar Creek and its unnamed tributaries.

Habitat Areas

In addition to the stream corridors and their associated upland habitats, natural features in the Plan Area include significant pockets of forest habitat centrally located between Goose Creek and Cedar Creek. Cedar Creek, its unnamed tributaries and their associated riparian areas possess extensive tree and shrub cover, and appear to provide high value wildlife habitat according to Metro inventories. Much of the reach of Goose Creek that flows through the Plan area is degraded, and historic disturbances such as clearing and grazing have reduced habitat values.

Upland forest communities adjacent to the Cedar Creek riparian corridors provide additional high quality wildlife habitat within the Plan Area, and enhance the habitat value of these riparian areas. Upland areas adjacent to the Goose Creek riparian corridor possess limited habitat value.

Wetlands

Potential wetlands were also determined to be present within the Plan Area. A substantial portion of these potential wetland areas overlay Metro-designated habitats, particularly the Goose Creek and Cedar Creek riparian corridors. While some of these areas, particularly those areas adjacent to existing stream reaches, are almost certainly jurisdictional wetlands, other areas may not currently have wetland characteristics due to historic draining, filling or other disturbances. Further investigation would be required to confirm whether jurisdictional wetland criteria are met in any of these areas.

Endangered Species

According to the Oregon Department of Fish and Wildlife (ODFW), it is not likely that anadromous fish such as salmon and steelhead currently use any of the stream reaches within the Plan Area. Upper Willamette River steelhead, a species listed as *Threatened* under the Federal Endangered Species Act, are present in the Tualatin River, and may use Cedar Creek for rearing as far upstream as SW Washington Street in Sherwood, which is north (downstream) of the Plan Area limits.

Passage barrier removal efforts such as those under Clean Water Services' Healthy Streams Plan will provide access for these fish to the upper reaches of Cedar Creek in the near future. For example, the City of Sherwood has completed a feasibility study and is currently in preliminary design for a project to replace the existing culvert at Washington Street, which has been identified as a passage to juvenile fish, with a fish-passable bridge structure.

Table 1 provides additional information on mapped resource areas. These areas are identified by location (west half or east half of the Plan Area), size, type of resource and Goal 5 designation. The Class 1 and Class A designations identify a resource of high value, while the Class 2 and Class B designations identify resources of lesser value. Within the Plan Area, approximately 61 acres are designated as Class1 or Class A resource areas, while about 21 acres are designated as either Class 2 or Class B.

Development Constraints

The presence of natural resources within Brookman Addition may present a number of constraints to development. Clean Water Services designates buffer areas ("vegetated corridors") adjacent to water features including wetlands; rivers, streams, and springs with year round or intermittent flow; and impoundments including natural lakes and ponds. The purpose of these buffer areas is to preserve the natural function of water features from surrounding development. The width of these areas can vary from as little as 15 feet to as much as 200 feet, depending on the type of water feature and steepness of adjacent slopes. Development is restricted within these areas. Preliminary evaluation of the water features present within the Plan Area indicate that most if not all of these features would require a buffer of 50 feet.

Development in natural areas such as streamside habitats, floodplains and wetlands is also subject to Metro's Title 13 rules. These rules were developed to protect the water quality and ecological benefits these resources provide. The level of development constraint in these areas varies with the type and quality of the resource. Resources considered to be of high quality receive a greater level of protection, and development in these areas may be highly restricted or prohibited. Resources considered to be of lower quality may provide some level of development opportunity. In Sherwood, Title 13 compliance was achieved by implementing the Tualatin Basin Program which relied on CWS buffers for protection and flexibility and encouragement for low impact development techniques for remaining areas.

Disturbances to wetlands and streams within the Plan Area would also require authorization from the US Army Corps of Engineers (USACE) and/or the Oregon Department of State Lands (DSL). Formal studies for wetlands and stream areas proposed for disturbance would need to be conducted, and findings of these studies would need to be submitted for agency concurrence to support wetland fill permit applications to USACE and DSL. Mitigation would also need to be provided to address any development impacts to these areas.

Enhancement Opportunities

In addition to identifying natural resource areas, it is consistent with Metro's Urban Growth Management Functional Plan to identify natural resource areas that call for maintenance, restoration, or enhancement. Resource areas with high enhancement potential are those resources that are highly degraded and provide few habitat functions. Since most of the resource areas within in the Plan Area are of high value, these are likely to offer few enhancement opportunities. Of all the resources present, the lower two-thirds of Goose Creek as it passes through the Plan Area may provide the greatest opportunity. A reach of Goose Creek approximately 2,300 feet in length is identified as having a degraded riparian corridor. Enhancements to this area could include invasive plant species removal, additional native plantings, or structural improvements such as channel meandering.

Water, Sanitary Sewer and Stormwater Infrastructure

Stormwater

Brookman Addition contains 100-year floodplains, potential wetlands, and Cedar and Goose Creeks. The City of Sherwood is has recently adopted a Storm Water Master Plan (July 2007). This plan recommends three regional storm water quality facilities in the area. These potential sites are reflected on the draft concept plan.

The Brookman Concept Plan is an opportunity to plan for the integration of development of the area with the infrastructure needed to manage storm water runoff while protecting natural resources. The plan could do this by imposing more rigorous storm water design standards; applying flow duration based design standards; creating regional detention facilities that blend with other natural resources, open space, or recreation areas; or by situating low impact development near the storm water source.

Water

The City of Sherwood's current water distribution system has three separate water pressure zones supplied by two storage facilities and two pumping stations. The Brookman Addition plan area is within the 380-foot pressure zone. The 380-foot pressure zone is the largest pressure zone in Sherwood, and it serves all customers below an approximate ground elevation of 250 feet above mean sea level. The zone includes residential, commercial, and industrial land uses. It is served by the Main Reservoir at SW Division Street east of South Pine Street. All four of the City's groundwater wells and the City's Tualatin Supply Connection provide water to the 380-foot pressure zone.

The City of Sherwood Water System Master Plan indicated the need for several major improvements including reservoirs, several pipeline segments, and the Southwest Sherwood pressure reducing valve (PRV) in Brookman Addition. Most of the water mains will be installed within the existing right-of-way.

Sanitary Sewer

The sanitary sewer system to serve Brookman Addition will most likely be a traditional gravity flow municipal system. The City of Sherwood Sanitary System Master Plan lists a future 12-inch collector sewer extension along Cedar Creek and two capacity upgrade projects downstream of the extension as future improvements.

Please refer to Appendices C and D for the complete stormwater, water, and sanitary sewer technical memorandums.

Appendix G – Acknowledgements

Acknowledgements

Brookman Addition Steering Committee
Dennis Derby, Property Owner
Richard Scott, Property Owner
Dave Sadler, Property Owner
Diane Labant, Citizen at Large
David Heath, Woodhaven HOA
John Meyer, Arbor Lane HOA Management Staff
Todd Skelton, Planning Commission
Dave Grant, City Council
Kelly Hossani, School District
Jenner Keiper, Park Board
Sherry Oeser, Metro
Steve L. Kelly, Washington County
David Schweitzer, Clean Water Services
Tom Pessemier, City Engineering
Marah Danielson, ODOT
Lisa Jo Frech, R2R
Unfilled, Washington County Citizen

Project Management
Julia Hajduk, Planning Manager, City of Sherwood
Rob Dixon, Community Development Directory, City of Sherwood (July 2007)
Tom Pessemier, Community Development Director (December 2007)
Cynthia Butler, Administrative Assistant III, City of Sherwood

Consultant Team
Joe Dills, Project Manager, Otak
Crista Gardner, Planner, Otak
Chris Yake, Planner, Otak
Warren Greaser, Planner, Otak
Kevin Timmins, Water Resources Engineer, Otak
Ashley Cantlon, Water Resources Designer, Otak
Ian Fabik, Engineer, Otak
Katheryn Yagodinski, Project Assistant, Otak
Barbara Blair, Project Assistant, Otak

Chris Maciejewski, Transportation Planner, DKS

Robin Craig, Landscape Architecture and Design, Greenworks

Jack Dalton, Environmental, ESA–Environmental Science and Assessment
Wallace Leake, Environmental, ESA–Environmental Science and Assessment

Jerry Johnson, Real Estate Economist, Johnson Reid
Ann Fifield, Impact Analysis, Johnson Reid

Proposed Brookman Addition
Comp Plan Changes
5-22-09 draft

Sher

Exhibit A-3
6-2-09 CC, Brookman Concept Plan

Chapter 8 - URBAN GROWTH BOUNDARY ADDITIONS

A. INTRODUCTION

The urban growth boundary (UGB) has largely remained unchanged since it was drawn in the 1980s. The planning period of the last "periodic review" of the Comprehensive Plan in 1991 was extended from 2000 from the original adoption of the Comprehensive Plan – Part 1 (1980) to 2010. Conversely, the City of Sherwood experienced rapid growth in the 1990s and continues to add more residents in the twenty-first century. Policy makers did not anticipate rapid changes to the UGB when policies were established over fifteen years ago and the 1990 population was 3,093.

The Metro Council added over approximately 700 acres to the Sherwood portion of the regional UGB in two separate decisions in 2002 and 2004. Metro will consider additional lands in 2007 to meet a twenty year supply of residential land in a five year periodic review interval. Metro requires a "concept plan" prior to annexation by a local jurisdiction. A concept plan is similar to a master plan, but with less detail; it outlines the future land uses, public facilities, and other urban services, but does not mandate the specifics associated with an actual development proposal.

In order to plan for the projected period of strong growth pressure in the Sherwood Urban Area the City has developed a new element to the Comprehensive Plan – Part 2 referred to as Chapter 8 – Urban Growth Boundary Additions. This Chapter will support and reinforce the adopted policies in Chapter 4 – Growth Management and will overlap in other areas. Additions are considered lands that are officially added to the regional UGB and the growth management policies are intended to guide the decision-making process prior to addition of more land and while land is ready to urbanize. The ultimate level, rate, and direction of growth can, to a large extent, depend on the urban growth management policies and objectives of the City, Metro, and the State. This Chapter of the Plan contains the data, assumptions, policy goals, objectives, and implementation strategies to accomplish the community's needs and vision as expressed in the respective concept plans as well as general goals and objectives for consistent UGB additions. A brief narrative of each concept plan is also included to capture the unique and historical aspects of the concept planning process.

This Chapter will also summarize the results and recommendations of each concept plan over time as new additions are made to the UGB the Plan can respond accordingly. Sections are organized by each concept plan that reinforces the overall policy goals and objectives. For example, in 2004 the City established the Area 59 Citizens Advisory Committee (CAC) to make recommendations to be reviewed and revised by the Planning Commission and City Council. This Plan element designates specific land, such as Area 59, within the UGB to meet the needs of a projected population increase; provides for the orderly and economic

extension of urban services; and specifies policies for the conversion of rural, agricultural and urbanizable land to certain urban uses. The overall purpose of this Chapter is to establish policies for the management of the City's UGB additions consistent with LCDC Goal 14 and Title 11 of the Metro Urban Growth Management Functional Plan (i.e. Functional Plan).

Until 1985, this Plan was a complementary plan, that is, it applied within the City limits. The Washington County Comprehensive Plan continued to apply to land within the Sherwood Planning Area, but outside of the City limits, via the Sherwood Community Plan. The Washington County/Sherwood Urban Planning Area Agreement (UPAA) was developed to meet intergovernmental coordination requirements of LCDC Goal 1, and details the on-going relationship between the City and County in developing, implementing, and revising their respective Comprehensive Plans for the Sherwood Planning Area. This agreement was updated biennially, the most recent in 1988. Recent amendments to the agreement have been approved by the City Council in 2006 (Resolution 2006-037) and are incorporated into this section. Additional amendments will be adopted and reviewed separately from any plan amendment process for a concept plan.

B. URBAN GROWTH BOUNDARY DATA & ASSUMPTIONS

The Sherwood Urban Growth Boundary (UGB) is currently defined as the area west of Cipole Road, east of Elwert Road, north of Brookman Road, and south of the Tualatin River National Wildlife Refuge and is included within the regionally adopted Metro Urban Growth Boundary.

The growth assumptions developed and selected for Sherwood during the previous Plan preparation in 1991 were low. At that time, the Plan projected 5,355 people in the urban area by 1988 as opposed to an actual 10,600 people by 2000 projected in the 1980 Plan. This difference arose from a projected 7% to 12% annual increase anticipated by connection of the Sherwood sewer system to the Durham Sewage Treatment Plant owned and operated by Clean Water Services. Since then growth has overwhelmed Sherwood: the population according to the 2000 US Census was 11,791 and 14,410 in 2005 inside the City limits, according to an estimate by Portland State University’s Population Research Center.

Sherwood has become a bedroom community for families that work elsewhere in the Portland Metro area. According to the Washington County Tax Assessor’s Office, the residential to non-residential tax base ratio is 80 percent residential and 20 percent non-residential. This jobs housing imbalance does not provide a sustainable economy for providing urban services and has repercussions on providing cost-effective urban services.

The Metro Region 2040 Growth Concept Map designates land use for future urban growth areas. The following table summarizes the acreage, planned land use

designation, applicable planned densities, and the year the land was brought into the UGB.

Table VIII -1 - Summary of UGB Additions 2002-2004

UGB Addition	Year	Acres	2040 Land Use Type	Planned Density*
Area 59	2002	85	Outer Neighborhood	7.3 to 10 units per acre
Area 54-55	2002	235	Inner Neighborhood	9.6 to 10 units per acre
99W Areas	2002	23	Employment/Industrial	N/A
Area 48	2004	354	Industrial	N/A

*Metro Code 3.07.170 describes the design type as persons per acre versus units per acre. This metric is converted to planned density for comparison purposes.

As the above table illustrates, the design types provide a range of net densities within developable areas. The Metro Housing Rule (OAR 600-007-035) requires Sherwood to plan for six (6) units per acre. The maximum density of ten (10) units per acre is a requirement under Title 11 of the Metro Functional Plan where the minimum density threshold is set by the design type in the 2040 Growth Concept Map. Concept plans for UGB additions will need to account for these minimum and maximum ranges. For the purposes of concept planning UGB additions, 25 percent of each subject area is netted from the gross density calculation to plan for public facilities, including streets, utilities, stormwater retention, and dedicated open space. Dedicated parks and civic uses are not counted towards a density calculation.

Table VIII – 2: Concept Plan Summary by Area

Land Use	Acres	Planned Density
AREA 59		
Single-family detached	19	5 – 8 units per acre
Single-family attached	5	8 – 10 units per acre
Live-Work / Neighborhood Commercial	3	8-10 units per acre
Civic/Institutional Public	29	
Open Space (Goal 5)	12.5	
Neighborhood Park	3.5	
Streets (right-of-way)	12	
Area 54-55 – Brookman		
Commercial –retail	2.07	
Employment – Offcie	13.32	
Employment – Industrial	13.32	
Medium Density Residential Low	85.53	5.6-8 units per acre
Medium Density Residential High	10.39	5.5-11 units per acre
High Density Residential	12.07	16.8-24 units per acre
Park (community and neighborhood)	8.25	
Area 48 – Tonquin Industrial	TBD	
99W Areas	TBD	

Deleted: TBD

Format note – **not to be incorporated into final document** – deleted column specifying lot size/dimensions as this is redundant and not necessary.

Annexation in Sherwood requires voter approval. Sherwood has the choice of devising an annexation plan that would determine the pace, criteria, and size of future annexations. An annexation plan is a Title 11 requirement, but this is intended to address the delivery of services among multiple jurisdictions. It is assumed that Sherwood will provide most urban service short of emergency response, and continue to have a voter annexation process. This policy choice will substantially limit the amount of developable property because annexations require a petition by the owner to be referred to the ballot and voter approval.

During the 1989-90 Plan update the City adopted an additional provision to be incorporated into the Urban Planning Area Agreement, which governs the administration of planning duties between the City and Washington County. Since the Sherwood Comprehensive Plan employs a one-map system wherein an illustrative requirement fulfills a dual role by serving as both Plan Map and Zone Map, the map establishes land use designations or zones for unincorporated portions of the Urban Planning Area. Therefore, to simplify the process, the agreement provides that with adequate notice to the affected property owners, upon annexation of any property within the urban planning area to the City, the land use designation specified by the Sherwood Comprehensive Plan and Zone Map is automatically applied to the property on the effective date of the annexation (as authorized by ORS 215.130(2)a and after adequate notice to the property owner). As it relates to the concept planning process, a general land use designation, such as residential, civic, or commercial is proposed and approved consistent with the Region 2040 Growth Concept Map. Subsequently, through the implementation or legislative process, actual zoning designations are applied through a plan amendment to the Plan and Zone Map for adoption.

C. GENERAL POLICY GOALS AND OBJECTIVES

Goal 1: To adopt and implement an orderly urban growth boundary addition and management policy which will accommodate future growth consistent with established growth limits, planned residential densities, neighborhood oriented services, employments opportunities, and land carrying capacity based on environmental quality and livability.

OBJECTIVES

Policy 1 Focus growth into areas contiguous to existing development rather than "leap frogging" over developable property.

Policy 2 Encourage development within areas that have access to public facility and street extensions in the existing city limits.

Policy 3 Encourage annexation inside the UGB where City services area available and can be extended in a cost-effective and efficient

manner.

Policy 4 When Metro and Sherwood designates future urban growth areas, consider lands with poorer agricultural soils before prime agricultural lands, lands that are contiguous to areas planned for urban services, and land that resides in Washington County to reduce confusion over jurisdictional administration and authority.

Policy 5 Achieve the maximum preservation of natural and historic resources and features consistent with Goal 5 of the Statewide Land Use Planning program and Chapter 5 of this Plan.

Policy 6 Provide multi-modal access and traffic circulation to all new development that reduces reliance on single occupant vehicles (SOV) and encourages alternatives to cars as a primary source of transportation.

Policy 7 Establish policies for the orderly extension of community services and public facilities to areas added for new growth consistent with the ability of the community to provide necessary services. New public facilities should be available in conjunction or concurrently with urbanization in order to meet future needs. The City, Washington County, and special service districts should cooperate in the development of a capital improvements program in areas of mutual concern. Lands within the urban growth boundary shall be available for urban development concurrent with the provision of the key urban facilities and services.

Policy 8 Provide for phased and orderly transition from rural to suburban or urban uses. Larger UGB expansion areas shall include a phased development plan to achieve a sustainable transition over time.

Policy 9 To provide a regionally consistent population projection methodology and the accurate allocation of people, a revised population projection for Sherwood should be developed and coordinated with other County jurisdictions, Washington County, and Metro during periodic review of the Metro UGB and Sherwood's Comprehensive Plan.

Policy 10 - The City of Sherwood shall lead the concept planning for areas contiguous to the existing UGB. The City of Sherwood and special districts, such as Tualatin Valley Fire & Rescue, are the primary service providers. Washington County does not want to provide urban services outside of city limits. Sherwood will work cooperatively with the County, special districts, and neighboring cities, including Tualatin, to determine urban service boundaries, service delivery, and when feasible share resources, such as public facilities to encourage

cooperation, cost-effective delivery, and economic development in future growth areas.

Policy 11- As part of the concept planning process, the City will submit findings from any study or technical analysis to inform Metro on appropriate future revisions to the Urban Growth Boundary (UGB) in conformance with the Metro 2040 Growth Concept Plan and the need to accommodate urban growth to the year 2017 and beyond. The City will work with neighboring cities, Washington County, and Metro on an "urban reserve" program that identifies future lands beyond a 20 year planning horizon to facilitate efficient and well planned public facilities and services.

Policy 12 - Changes to concept plans can be made prior to implementation based on supported evidence and may be proposed by the City, County, special districts, and individuals in conformance with City, County, and Metro procedures for amendment of their respective Comprehensive Plans. Concept plan maps shall be adopted in this Chapter and new development shall conform to the land uses, transportation network, parks and open space, and other applicable concept level designs.

Policy 13 - Generally, new concept plans shall conform to Title 11 requirements and any conditions of approval related to the addition of the land. Concept plans shall strive to balance the needs of existing and new residents and businesses to ensure a sustainable tax base to deliver services. Mixed residential and mixed use shall be considered for each concept plan as an opportunity to provide neighborhood and civic oriented services within walking distance, efficient, transportation alternatives, and a variety of housing and employment choices.

Policy 14 - Generally, new neighborhoods shall be designed and built based on architectural form as opposed to land based regulatory tools, such as setbacks, lot sizes, and lot coverage. In lieu of these requirements more shared and usable open space and parks can be dedicated to the public in addition to any non-buildable areas. Furthermore, a form-based code is preferable to reduce regulatory hurdles and costs for customers and the City, respectively.

Policy 15 - The City shall work with the Tualatin River National Wildlife Refuge on a long term urbanization plan that could include provision of urban services and preservation of additional lands for fish and wildlife habitat.

Policy 16 - Consistent with Goal 1, the City shall establish an advisory committee to develop evaluation criteria and a concept plan for any area over 20

acres while collecting input from affected agencies, property owners, and other stakeholders.

Policy 17 As new UGB areas are added and approved through the concept planning process, the geographic boundaries of Sherwood will change. Specifically, a new UGB boundary with Tualatin needs to be determined through the concept planning process for Area 48 (Quarry Area).

Policy 18 - Regarding the concept planning process, the following steps shall be required to initiate the concept plan through annexation:

(1) Governance:	Determine jurisdictional boundaries and urban service providers.
(2) Concept Plan:	Develop a concept plan consistent with Metro 2040 Growth Concept.
(3) Implementation:	Adopt comprehensive plan policies, zoning codes, etc. by ordinance.
(4) Annexation:	Allow property owners to petition the City for annexation after concept plan implementation is substantially complete.

Policy 19 City plan and zoning designations will be determined consistent with the Metro 2040 Growth Concept Design Types illustrated on the 2040 map, unless the 2040 map designation is inappropriate, in which case the City will propose that Metro change their map consistent with City policy.

Policy 20 The City shall find outside sources of funds, including participation in Metro's Construction Excise Tax program, to finance the concept planning in lieu of general funds.

D MAPPING OF URBAN GROWTH BOUNDARY ADDITIONS

Goal 2: The addition of land to the Urban Growth Boundary is depicted on the Plan and Zone Map in Chapter 4. Each new area added will have a concept plan map in this Chapter that illustrates the general layout of land uses, streets, and open spaces. The mapping of concept plan areas shall generally conform to Metro's Title 11:J requirements for an "urban growth diagram." The following considerations shall be used based on the "Livable New Communities" handbook published in 2002:

Policy 1 Identify local and regional Goal 5 resource areas such as creeks, floodplains, wetlands, and historic sites.

Policy 2 Identify transportation corridors, including: railroad tracks, streets, paths, as well as public transportation, school bus, and truck routes.

Policy 3 Use property lines to facilitate eventual development in existing dispersed land use patterns that make implementation of master plans more difficult due to definability, service provision, cost sharing of facilities, and coordination among jurisdictions.

Policy 4 Identify public facility service locations and providers, which would best utilize and deliver the service.

Policy 5 Identify land use types consistent with the Metro Growth Concept Plan Map including residential, commercial, mixed-use centers, industrial, parks, and civic uses.

1. Area 59 – A New Neighborhood in Sherwood

Background
As mentioned previously Area 59 is an 85 acre area brought into the UGB in 2002. "Area 59" is a nameless designation placed by Metro and does not reflect the local history of the area. "Blue Town", as it was called by the pioneer families at the turn of the 20th century, is predominantly a rural residential and farming community. Blue Town received its name because German immigrants painted farm buildings the same color blue. The area is characterized by historic farmhouses, newer large lot country estates, rolling hillsides, a neatly groomed landscape, stunning views of Mount Hood, and forested riparian areas that feed Chicken Creek and the Tualatin River Basin. The CAC developed a list of new names for the neighborhood, but none were recommended to the policymakers. Without a clear designation, future development will be assigned subdivision names for final platting purposes. The City has a policy choice, and a clear opportunity, to designate a coherent new neighborhood either as part of implementation or through some other yet to be determined process.

Area 59 is the first UGB expansion area that required a concept plan under Metro's Functional Plan Title 11 requirements. The relatively small size of the subject area offered an opportunity to the stakeholders to create a neighborhood scale plan with roads, land uses, and public spaces all integrated into the existing urban fabric of Sherwood. The City took the lead in concept planning the area because the County did not express an interest and the Sherwood School District lacked expertise in land use planning and real estate development. The City provided the planning through general funds and in kind services.

Public Involvement
The City officially initiated the concept planning process in late 2004. The City Council established a Citizens Advisory Committee (CAC) via Resolution 2004-090 on October 12, 2004 to guide the development process and provide recommendations to the Planning Commission. The City held numerous types of meetings to develop a concept plan for Area 59. These included: work sessions open to the public, a public workshop (the first charrette in Sherwood), a field trip, regular public meetings with two advisory groups, and finally public hearings. Throughout the concept planning process individual

electronic notice was sent to those that expressed interest. A project website was developed on the City's homepage to provide a clearinghouse for all meeting materials and project binders were created for public use at City Hall and the Library. Although not required for the concept planning phase, the City sent mailed notice twice: after the second Citizens Advisory Committee (CAC) meeting in March 2005 and prior to the charrette in July 2005. Monthly project updates were provided in the *Archer* portion of the *Sherwood Gazette* in addition to numerous newspaper articles that appeared in the *Oregonian*.

In addition to general public outreach efforts, the CAC met from December 2004 to December 2005 to rigorously review City staff and consultant findings. The CAC consisted of three representatives from the City Council, Planning Commission, and Parks Board, two property owners from Area 59, two property owners who reside in the County but outside the study area, ad the Sherwood School District. A technical advisory committee, referred to as the "Project Team," was established by the Planning Department to advise City staff on regulatory and technical issues that pertain to concept planning. Affected agencies include:

- Clean Water Services
- ODOT
- DLCD
- Metro
- Washington County
- Raindrops to Refuge
- Tualatin Valley Water District
- Tualatin Valley Fire & Rescue

The Project Team met periodically (five times) from January 2005 to October 2005 to review consultant and staff findings, draft alternatives, and various staff reports on the framework of a concept plan. The CAC met six times in addition to the charrette that was held in July 2005 at the Sherwood Police Facility. The combined efforts of the advisory committees resulted in one set of goals for the project referred to as the "Goals Matrix."

Issue	Citizen's Advisory Committee	Project Team
Land Use	Single family units only, no apartment complexes.	Goal conflicts resolved: Metro density requirements (Metro Housing Rule).
	Mixed use: Small retail/commercial with housing above.	
	Schools (30 acres): Middle & Elementary Meet timeline for increased enrollment.	
Quality of Life	Recreational fields: Co-share fields & facilities with schools?	Natural area protection & Goal 5 resources.
	Green Space: Parks (tennis courts), trails, greenways, open space.	Open spaces: Integrate active & passive parks; Co-locate these to other lands.
	Livability: "Proud to live there".	Create unique neighborhood structure: "Sense of place".
	Farmland: Allow existing agriculture; co-exist with new neighborhood.	
Transportation	Traffic management plan	Connectivity: Road system, bicycle & pedestrian pathways; off-site mitigation.
Public Facilities		Adequate water supply & pressure for fire suppression.
		Address stormwater impacts; provide sanitary sewer.
		Infrastructure Costs? Avoid expensive and determine how to pay.

The above goals, a balancing act or competing priorities, were the basis for the development of evaluation criteria. The design alternatives produced through the charrette were analyzed and "graded" based on the criteria approved by the CAC and Project Team. Staff made findings throughout the process that demonstrated how the evaluation criteria were met or not met for each alternative.

Land Use

Not withstanding the competing stakeholder objectives, the primary focus of the concept plan was to determine a location and an adequate size site for new school facilities. The original impetus for the UGB expansion, via Metro Ordinance 2002-969B, was to provide a new elementary and middle school for the rising enrollment in the Sherwood School District 88J. In short, once a new school site was identified the remaining land use pieces of the puzzle fell into place around the school. After a thorough examination of the charrette alternatives through a traffic analysis and CAC review, the process eventually determined that a 29 acre site was adequate to co-locate the facilities along with recreation fields and attendant uses related to school business. Some stakeholders wanted more land while others wanted a new school on less land. The remaining "pieces" or in this case buildable land was planned for a mix of residential and neighborhood commercial served by a street grid network of local street and a north-south and east-west neighborhood route to reduce vehicle miles traveled, encourage alternative modes of transportation, provide emergency access, and a site for a neighborhood park to serve the new neighborhood and the existing

west side neighborhoods.

Policy Outcomes
In December 2005, the Citizens Advisory Committee recommended a third party alternative that was based on a hybrid of two designs - Alternative A/G. The Planning Commission recommended a revised Alternative A/G to the City Council in February 2006, which was approved, albeit in lesser detail, via Resolution 2006-017 in April 2006. This policy direction authorized the City to initiate the plan amendment process to implement the concept plan map through the comprehensive plan and zoning code.

The following map illustrates the adopted concept plan for Area 59 through the plan amendment process.

2. Area 54-55 – Brookman Road Concept Plan

A. Background

The Brookman Addition Concept Plan is a guide to the creation of a new 250-acre community in Sherwood. More specifically, it identifies the general location and intensity of future land uses, including medium-low to high density residential, mixed use commercial, employment, parks and open space. Integrated with future land uses is a conceptual layout of basic infrastructure systems including transportation, trails, utilities and stormwater management. The Concept Plan follows a 2002 decision by Metro to bring the area into the regional urban growth boundary (UGB). The central theme of the plan is to create a livable community that is an extension of existing Sherwood.

B. Plan Elements

Key components of the plan are:

Future Land Uses

- Office and light industrial lands oriented toward and adjacent to Highway 99W.
- A 2-acre neighborhood serving retail mixed use center along Old Pacific Highway.
- A variety of housing ranging from single family detached (79% of net residential lands) to town homes (10%) to higher density condominiums and apartments (11%).

Parks, Open Space and Natural Resource Preservation

- Four neighborhood parks totaling 8.29 acres. Nearly all residences will be within a 3-block walk of their local neighborhood park.
- Preservation of the natural resource areas, flood plains and open spaces of potential wetlands, Goose Creek, and Cedar Creek.

Transportation

- Brookman Road serving as the primary east-west multimodal collector between Highway 99W and Ladd Hill Road.
- A physically separated multi-use pathway for bicyclists and pedestrians running parallel to Brookman Road.
- A plan to realign Brookman Road to create a new intersection with Highway 99W 1,300 feet north of its current location. This feature responds to the potential for the I-5 – Hwy 99 Connector to be built south of the existing Brookman Road alignment.
- As part of the Brookman realignment, a new grade separated crossing of the railroad tracks.
- An analysis of transportation improvements (on-site and off-site) needed to implement the Concept Plan, and minimize impacts to adjacent areas.
- Middleton Road serving as a primary north-south route connecting Brookman Addition with existing neighborhoods.

Trails

- An extensive off-street trail system that provides walking loops, access to open spaces, connections to the Cedar Creek regional trail, and connectivity within and between the neighborhoods.

Infrastructure

- Infrastructure plans and cost estimates for storm water, water and sanitary sewer facilities.
- A storm water plan that utilizes regional facilities and encourages low-impact development practices.
- A fiscal impact analysis and finance strategy to implement the Concept Plan.

Design

- Honoring and extending the historic Middleton small block form, a conceptual local street plan that creates small blocks, multiple connections, walkable neighborhoods, and reinforces the sense of community.

C. Public Involvement

The Concept Plan was developed by a 16-member Steering Committee representing residents and property owners, Sherwood citizens, Woodhaven Homeowners Association, Arbor Lane Homeowners Association, Sherwood City Council and Planning Commission, Sherwood Park Board, Sherwood School District, Metro, Washington County, Clean Water Services, Oregon Department of Transportation, and Raindrops to Refuge (see Project Participants list at the beginning of this report). The committees met 7 times between May 2007 and February 2008.

In addition to the Committee meetings, additional process steps and community involvement included:

- Study area tour
- Two public open houses
- Project website with regular updates
- On-line opportunities to comment following the open houses
- City newsletter information
- Email notice and extensive mailing prior to each public event

Early and continuous public outreach and involvement was coordinated and timed to coincide with project tasks and key outcomes. The major milestones in the process were:

- Development of a public involvement plan
- Inventory of base conditions and projections of market demand, land use, transportation, natural resources and infrastructure needs
- Establishment of project and concept plan goals
- Development of three alternative concept plans
- Evaluation of alternatives and development of a draft concept plan incorporating the most desired elements

- Refinement of the concept plan and preparation of implementation strategies
- Submission and endorsement of the final Concept Plan and implementation strategies

D. Goals and Policies

In order to meet the goals and adhere to the principles of the concept plan for Brookman Addition, the following policies are adopted to guide the implementation and development of the Brookman Addition area. The goal statements are those developed by the Steering Committee as goals for the plan.

Goal 1 - Connections to Sherwood
Brookman Addition will be related to the community character and harmonize with Sherwood.

1.1 New development shall respect the scale of adjacent residential development.
1.2 Promote neighborhood "seams" rather than hard edges through compatible building height, size, densities and general architecture in areas where new development interfaces with existing residential areas.
1.3 Require pedestrian and vehicular connections to Sherwood be consistent with the Concept Plan Circulation Framework.

Goal 2 - Complete and Sustainable Community
Brookman Addition will be complete in its variety of housing, mix of uses, walkable streets, public facilities and shared community spaces, transportation connections, green spaces, and diversity of residents.

2.1 Adopt new comprehensive plan and zone designations, and development code, that implement the Brookman Addition Concept Plan. Require all development to be consistent with the plan and implementing code.
2.2 Establish land use sub-districts within the code to implement the Concept Plan. The sub-districts are *West Sub Area*, *Central Sub Area* and *East Sub Area*.
2.3 Within the *West Sub Area* sub-district, promote job creation, a mix of neighborhood-serving retail and services, multiple housing options and transit oriented, pedestrian friendly development. Adopt minimum densities, limitations on stand-alone residential developments, parking maximums, urban design standards (e.g. buildings brought up to the sidewalk) and other development regulations that implement this policy.
2.4 Promote a jobs-housing balance by preserving lands designated for employment uses.
2.5 The mixed use village center will be located along Old Pacific Hwy and fall between three and five gross acres. The specific configuration of the village center will be established as part of a master plan.
2.6 Buffer lower density residential areas from major transportation corridors including Hwy 99W, the Pacific & Western Railroad, and Brookman Road with higher intensity land uses, wide sidewalks and tree lawns and/or generous landscaping.

2.7 Within the *Central Sub Area* and *West Sub Area*, encourage a variety of single family housing types. Allow smaller lot sizes, lot size averaging and other techniques that help create housing variety while maintaining overall average density.

Goal 3 - Transition of Land Intensities

Brookman Addition will contain a variety of intensities of land use. The intensity of uses will taper down from 99W to the surrounding neighborhoods and open spaces.

3.1 Promote compatibility with existing urban residential areas to the north and rural residential areas to the south of the Concept Plan area. Transitioning to lower densities, setbacks, landscaped buffers and other techniques shall be used to create smoother transitions in the built environment.

3.2 Focus growth and development intensity near the existing high capacity transportation facility of Hwy 99W and the potential transit node at or near the village center.

3.3 Maintain natural (hydrology, open space) and built (transportation corridors) barriers as logical transition between residential density and development intensity (bulk, heights).

3.4 Create residential density transitions and gradients by permitting medium density dwellings such as, townhomes (11 dwelling units per acre) between higher intensity residential and mixed use areas and detached residential settings.

Goal 4 - Transportation Choices

Multimodal choices for walking, biking and transit will be provided and connected throughout Sherwood and the larger transportation system.

4.1 Work with Tri-Met to extend local and regional bus service to the concept plan area in anticipation of transit supportive densities and uses.

4.2 As land use reviews and development occur prior to extension of bus service, ensure that the mix of land uses, residential and employment density and urban design support transit as an attractive and viable transportation option in the future.

4.3 As physical conditions (topography, street capacity) permit, ensure that local street connectivity and off-street pedestrian routes link together into a highly connected pedestrian system that is safe, direct, convenient, and attractive to walking.

4.4 Identify a local connection to Redfern Drive as an “area of special concern.” Identify the extension as appropriate for bicycle, pedestrian and emergency access only due to the constrain of the existing street design..

4.5 In cases where road and sidewalk connections are not feasible, require pedestrian and bicycle trail connections.

4.6 Disperse traffic evenly by requiring local street connectivity and discouraging dead-end streets. Cul-de-sac streets shall be minimized and used primarily to increase density by opening up land not otherwise accessible through a connected street pattern due to topography or other constraints.

4.7 The "walkability" of the Concept Plan area will be one of its distinctive qualities. The density of walking routes and connectivity should mirror the urban form – the higher the density and larger the building form, the "finer" the network of pedestrian connections.
4.8 Where roadway and sidewalk improvements are impractical or cost prohibitive, provide trails in-lieu of extensive roadway and sidewalk improvements.
4.9 Require trails to be provided consistent with the Concept Plan Circulation Framework.
4.10 Provide bike lanes and/or separated multi-use paths on all collector streets. Bike routes will be coordinated with the trails shown on the Circulation Framework.

Goal 5 - Parks & Green Spaces
A variety of parks, pathways along streams, protected open spaces and water quality facilities will result in a connected system.

5.1 Establish an open space network consistent with the Open Space Framework plan in terms of overall park acreage, general size of neighborhood and community parks and distribution of parks amongst the 3 sub-areas. The ultimate locations of parks shall be determined by the City and Parks Board as land becomes available and in consideration of all applicable park needs and siting standards.
5.2 Develop an open space requirement (e.g. as a percentage of land area) for all new development .
5.3 Neighborhood parks, trails and other open spaces shall be within a short walk (approximately one-quarter mile unimpeded by major physical or psychological barriers) of all homes and businesses.
5.4 Provide a mix of open space and recreation opportunities for all ages and abilities including tot-lots, playgrounds, ball fields, and passive recreation such as nature trails
5.5 Link all parks and open spaces with direct pedestrian and bicycle connections.
5.6 Create functional open spaces, natural water quality facilities and wildlife corridors. Aggregate on-site open space and link to adjacent off-site open spaces as site conditions allow.
5.7 Encourage use of low impact development practices and stormwater system designs where appropriate and permissible, that mimic natural hydrologic processes, minimize impacts to natural resources and eliminate pollution to watersheds.
5.8 Preserve and enhance the existing tree canopy as much s possible. Encourage incorporation of significant tree cover into master plans and site specific designs.

Goal 6 - Long Term Quality
Development will be designed to be high quality and long-lasting for a livable future in the next generation. The plan encourages development guided by green principles.

6.1 Create timeless mixed use and residential neighborhoods by translating concept plan land use concepts into zoning and urban design standards.

6.2 Implement human scale design through building orientation, attractive streetscapes, building form/architecture, subordinated parking facilities and other techniques that is matched to the purpose of the sub-district. The design qualities of the community should mirror the urban form – the higher the density and larger the buildings, the higher the expectation for urban amenities and architectural details.
6.3 Utilize the land use application and site plan review process to ensure high quality development and consistency between projects. Allow flexibility in development standards and the configuration of land uses when they are otherwise consistent with the comprehensive plan, development code, and vision to create a complete and sustainable community.
6.4 Consider incentives, such as density bonuses, for the development community to seek green building and neighborhood design certification (*LEED-Leadership in Energy and Environmental Design, Earth Advantage, EnergyStar* or equivalent).
6.5 Plan Brookman Addition as a green development.

Goal 7 - Consensus, Involvement and Partnerships
The process involves partnerships with service providers to produce a community supported concept plan that addresses community issues and concerns, and meets applicable state, regional, city and community planning objectives.

7.1 Foster stewardship or "ownership" of the concept plan through continuing public outreach and education among stakeholders including, but not limited to, neighborhood groups, local agencies and officials and the development community.
7.2 Seek innovative funding techniques including joint development opportunities with public and private partners to finance infrastructure improvements.
7.3 Work externally with local and regional government partners and service providers to ensure consistency with plan goals and policies.

Goal 8 - Implementation
The concept plan shall consider the feasibility of implementation, including financing, construction, and phasing.

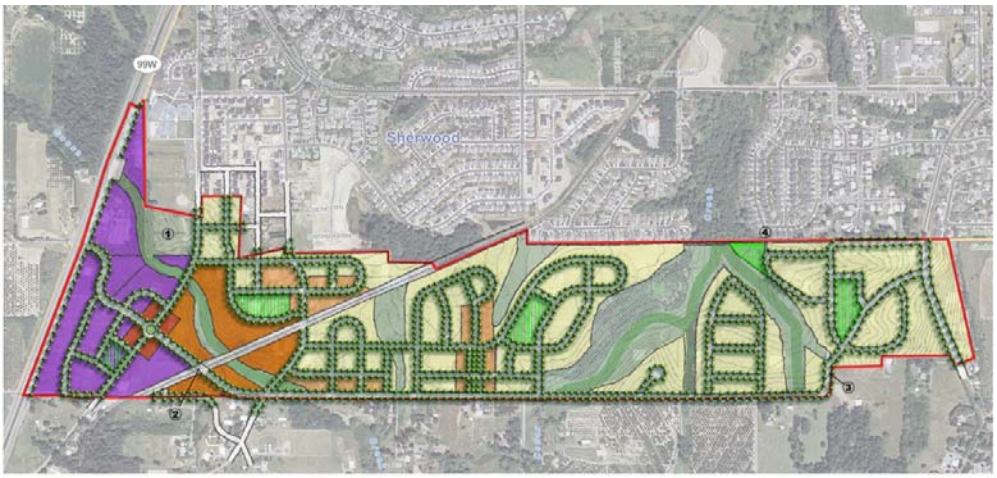
Financing strategies for implementation
8.1 Consider the implementation of one or a combination of multiple alternative funding strategies to decrease the gap between costs and current revenues. Strategies to be considered include (but are not limited to):
a. Local Improvement District (LID)
b. County Service District
c. Expanded developer requirements
d. Expanded System Development Charges
e. Transportation Utility Fees
f. Bonds
g. Urban Renewal District

8.2 To facilitate and ensure implementation in accordance with the concept plan policies, annexation of properties within the Brookman Addition concept plan area may not occur until development code amendments are made to implement applicable policies, including but not limited to policy 4.4

a. prior to or concurrent with annexation, and assignment of zoning of properties within the Brookman addition area, a plan shall be prepared and adopted by Council to ensure that necessary infrastructure improvements will be available and a funding mechanism or combination of funding mechanisms are in place for the necessary infrastructure improvements consistent with the funding options identified in the concept plan and in full compliance with the Transportation Planning Rule. The plan for annexation may address all or part of the concept plan area, subject to Council approval."

8.3 The portion of the concept plan area west of Old Pacific Highway and east of Highway 99W shall be subject to Master Plan or PUD approval. Development of this area shall be approved by the City Council following a public hearing, shall generally be consistent with the Concept Plan and shall provide no net change in the amount of land area designated to a specific zone; however the exact location may change depending on the development proposed through the master plan or PUD

The following maps illustrate the adopted concept plan for the Brookman Addition, the Comprehensive Plan map is intended to implement this concept; however actual development may differ slightly.



Brookman Addition Concept Plan

Notes:
1. Existing Cemetery (Constrained Land)
2. Railroad Crossing (Grade Separated)
3. All street alignments are conceptual.
4. Redfern connection is pedestrian, bicycle and emergency access only.

Legend

- High Density Residential 24 du/ac
- Medium Density Residential- High 11 du/ac
- Medium Density Residential- Low 8 du/ac
- Commercial / Mixed Use
- Employment
- Neighborhood Parks (Locations are conceptual)
- Constrained Lands (Goal 5 resource lands, subject to on-site verification)
- Constrained Lands (Vegetated corridor proxy, subject to on-site verification)
- Constrained Lands (Potential wetlands, subject to on-site verification)

Final-May 2008

Brookman Addition Concept Plan

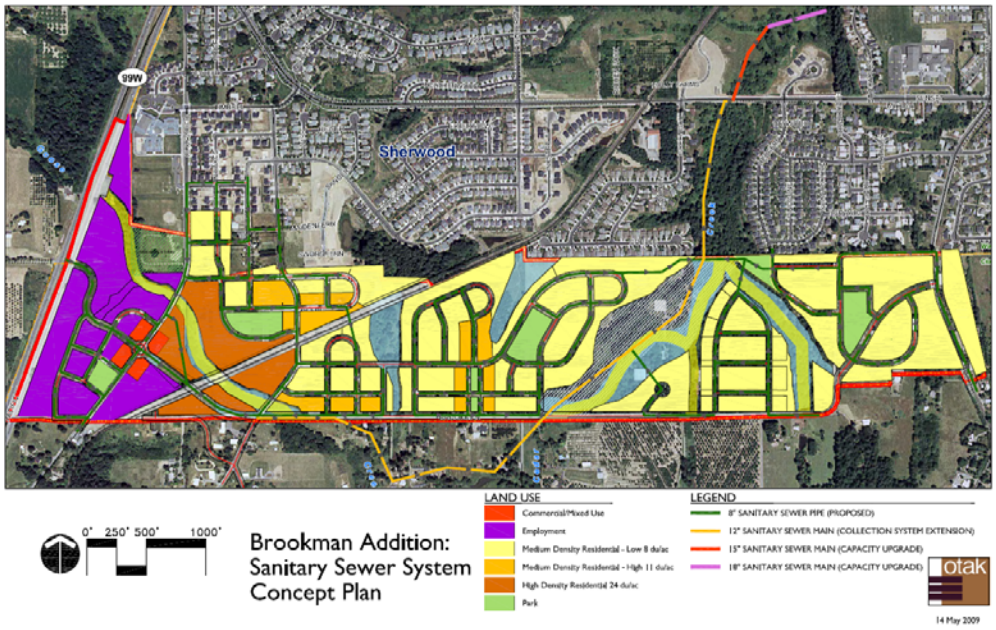
Functional Street Classification

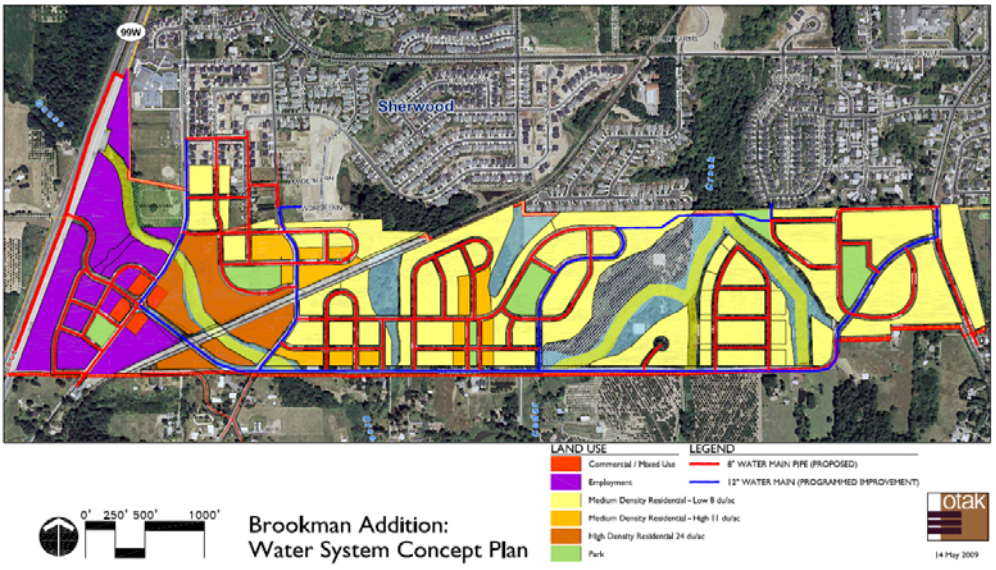
Notes:
1. Existing Cemetery (Constrained Land)
2. Railroad Crossing (Grade Separated)
3. All street alignments are conceptual.
4. Redfern connection is pedestrian, bicycle and emergency access only.

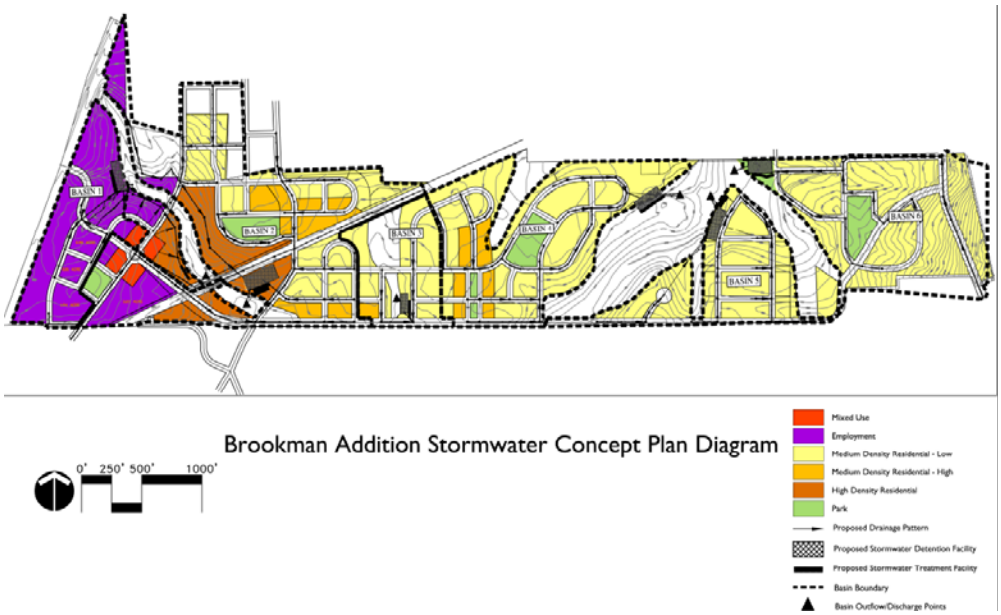
Legend

- High Density Residential 24 du/ac
- Medium Density Residential- High 11 du/ac
- Medium Density Residential- Low 8 du/ac
- Commercial / Mixed Use
- Employment
- Neighborhood Parks (Locations are conceptual)
- Constrained Lands (Goal 5 resource lands, subject to on-site verification)
- Constrained Lands (Vegetated corridor proxy, subject to on-site verification)
- Constrained Lands (Potential wetlands, subject to on-site verification)
- Collector
- Neighborhood Roads

Final-May 2008


99W
Sherwood
0' 250' 500' 1000'
Brookman Addition:
Sanitary Sewer System
Concept Plan
LAND USE
Commercial/Mixed Use
Employment
Medium Density Residential - Low 8 du/ac
Medium Density Residential - High 11 du/ac
High Density Residential 24 du/ac
Park
LEGEND
8" SANITARY SEWER PIPE (PROPOSED)
12" SANITARY SEWER MAIN (COLLECTION SYSTEM EXTENSION)
15" SANITARY SEWER MAIN (CAPACITY UPGRADE)
18" SANITARY SEWER MAIN (CAPACITY UPGRADE)
otak
14 May 2009


99W
Sherwood
0' 250' 500' 1000'
Brookman Addition:
Water System Concept Plan
LAND USE
Commercial / Mixed Use
Employment
Medium Density Residential - Low 8 du/ac
Medium Density Residential - High 11 du/ac
High Density Residential 24 du/ac
Park
LEGEND
8" WATER MAIN PIPE (PROPOSED)
12" WATER MAIN (PROGRAMMED IMPROVEMENT)
otak
14 May 2009


BASIN 1
BASIN 2
BASIN 3
BASIN 4
BASIN 5
BASIN 6
Brookman Addition Stormwater Concept Plan Diagram
0' 250' 500' 1000'
Mixed Use
Employment
Medium Density Residential - Low
Medium Density Residential - High
High Density Residential
Park
Proposed Drainage Pattern
Proposed Stormwater Detention Facility
Proposed Stormwater Treatment Facility
Basin Boundary
Basin Outflow/Discharge Points

Brookman Addition Zoning- May 14, 2009

Exhibit A-4
6-2-09 CC, Brookman Concept Plan

City of Sherwood
Oregon
Home of the Tualatin River National Wildlife Refuge

Legend

- Low Density Residential (LDR)
- Medium Density Residential Low (MDRL)
- Medium Density Residential High (MDRH)
- High Density Residential (HDR)
- Institutional and Public (IP)
- Neighborhood Commercial (NC)
- Office Commercial (OC)
- Light Industrial (LI)
- Planned Unit Development (color of underlying zone)
- Floodplain
- Master Plan Required
- City Boundary
- Urban Growth Boundary