City of Sherwood
PLANNING COMMISSION
Sherwood City Hall
22560 SW Pine Street
Sherwood, OR 97140
✓June 8, 2010 – 7 PM

Planning Commission will hold a work session on June 8, 2010. Work sessions are informal. Public may attend.

Work sessions are informal meetings where the Commission and staff can discuss topics but no formal action is taken from these meetings. Work sessions are open to the public in accordance with public meeting laws.

Planning Commission Work Session agenda items:

1. Tonquin Employment Area (TEA)

2. Code Clean–up Discussion
   a. Open space requirements – Update from Parks Board
   b. Application Submittal Requirements
   c. Other

Next Meeting:
June 22, 2010 – Work Session Code Clean-up Discussion and tentative Listening Session

Tonquin Employment Area Concept Plan:
Preferred Concept Plan Report

June 2010

Stakeholder Review Draft

City of Sherwood Oregon

Tonquin Employment Area Concept Plan
Project Team

City of Sherwood

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I. Summary

The Tonquin Employment Area Preferred Concept Plan is intended to guide growth on approximately 300 acres near Sherwood's eastern boundary in an area that is expected to help fulfill the city's and, in part, the region's future employment needs. The Preferred Concept Plan identifies the anticipated employment types this area will best accommodate, the associated number of jobs, and the key infrastructure needs that will support this future employment population. The Preferred Concept Plan Report provides background information on regional policy and physical opportunities and constraints that guided the planning process and a summary of the process that resulted in the selection of a preferred alternative. Elements of the Preferred Concept Plan are detailed in Section IV of this report and include:

- Land Use and Employment Assumptions
- Transportation System Needs
- Infrastructure Needs

The Plan includes draft policies and implementation measures that will support the growth of employment in the area. As described in Sections V and VI of the Preferred Concept Plan, implementation includes recommended language to be incorporated into the City of Sherwood's Comprehensive Plan and a new Industrial Employment (IE) zoning district that will regulate development in the Tonquin Employment Area.

II. Background

A. Policy Framework

Figure I-1: Tonquin Employment Area

The Tonquin Employment Area (previously referred to as Study Area 48) shown on Figure I-1 was added to the Urban Growth Boundary (UGB) by the Metro Council in 2004 (Ordinance 04-1040B). The area includes approximately 300 acres of property adjacent to the City of Sherwood's eastern boundary and south of SW Tualatin-Sherwood Road.

Before the land in the Tonquin Employment Area can be converted to urban use, Metro requires that a Concept Plan complying with Title 11 of the Urban Growth Management Functional Plan be prepared by the city that will specify development policies, implementation strategies and define anticipated services for the new urban area. The cities of Sherwood and Tualatin entered into a Memorandum of Understanding (MOU) agreeing that Sherwood would be the service provider for the area from the existing city limits east to SW

124th (City of Sherwood Resolution 2007-083, see Exhibit A-2 in the *Area 48 Concept Plan: Existing Conditions Report*, March 2009). The MOU further grants the City of Tualatin general control over access onto the future extension of SW 124th, with both cities agreeing to participate in funding future improvements to the street. The MOU requires both cities to concept plan the area in a way that limits direct access onto SW Tualatin-Sherwood Road and the future SW 124th extension. Both cities agree that the area will generally be considered for industrial-type zoning.

The Tonquin Employment Area is designated an Industrial Area per Title 4 of Metro's Urban Growth Management Functional Plan. Title 4 requires that cities limit retail commercial uses and professional services in areas designated for industrial uses. To protect industrial areas, Title 4 limits non-industrial uses to ensure that they primarily serve the needs of workers in the area. For Industrial Areas, Title 4 states, "new buildings for stores, branches, agencies or other outlets for retail uses and services cannot occupy more that 5,000 square feet of sales or service area in a single outlet, or in multiple outlets that occupy more than 20,000 square feet of sales or service area in a single building or in multiple buildings that are part of the same development project".

Another Title 4 requirement that shapes future growth and development in the Tonquin Employment Area is one that governs subdividing designated Industrial Areas (see Subsection 3.07.430.D). Title 4 requirements stipulate:

> *"Lots or parcels smaller than 50 acres may be divided into any number of smaller lots or parcels.*
>
> *Lots or parcels larger than 50 acres may be divided into smaller lots and parcels pursuant to a master plan approved by the city or county so long as the resulting division yields at least one lot or parcel of at least 50 acres in size.*
>
> *Lots or parcels 50 acres or larger, including those created pursuant to paragraph (2) of this subsection, may be divided into any number of smaller lots or parcels pursuant to a master plan approved by the city or county so long as at least 40 percent of the area of the lot or parcel has been developed with industrial uses or uses accessory to industrial use, and no portion has been developed, or is proposed to be developed with uses described in subsection A of this section."*

Only one parcel in the Tonquin Employment Area meets the 50-acre threshold, the approximately 90 acre parcel in the northeast corner of the site, at the intersection of SW Tualatin-Sherwood Road and SW 124th Street.

Once the City of Sherwood adopts the Tonquin Employment Area Concept Plan, and Metro acknowledges that it meets the Urban Growth Management Functional Plan, this area becomes eligible for annexation to the City of Sherwood.

B. Physical Features

Three existing roadways create part of the boundary of the Tonquin Employment Area: SW Oregon Street, SW Tualatin-Sherwood Road, and SW 124th Street (future extension). The location of this site at the intersection of arterial level streets affords it good visibility and access. There is a unique opportunity for this area to develop in a compatible manner with existing development to the north and west and with future development to the east in the City of Tualatin, which will follow the Southwest Tualatin Concept Plan. There are several man-made and natural features internal to the site that also help define the Tonquin Employment Area. These features are shown on Figure III-1. Prominent natural features on the site include the buttes in the northeast corner, wetlands associated with this topography, and steep slopes that form the western border. Utility right-of-ways and easements, most prominently one belonging to the Bonneville Power Administration (BPA), run diagonally across the site. These create areas of constraint, where development will be restricted, as well as opportunities where preservation of natural areas could contribute to a parkway/trail-type feel along a collector street system or to open space that helps define an industrial campus.[1]

III. Concept Planning Process Overview

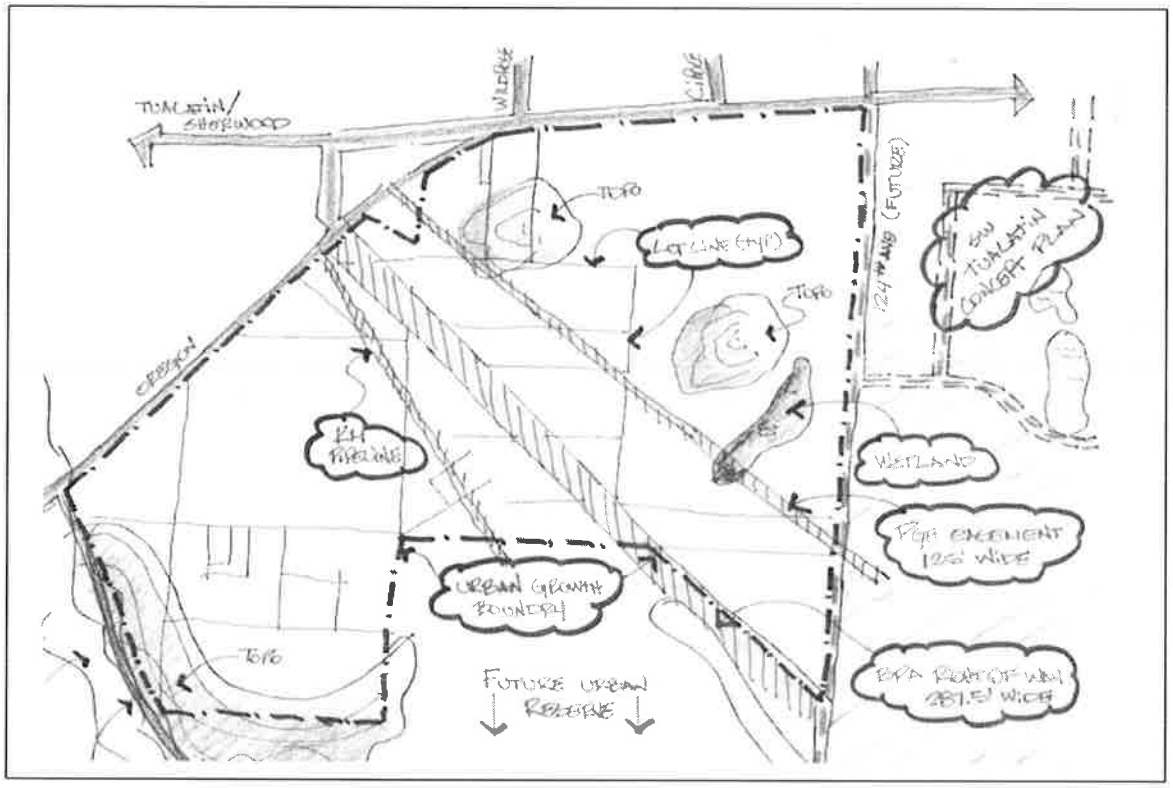
A. Phase I: Existing Conditions

Phase I of the concept planning process included researching and documenting the existing conditions on the site and developing preliminary development concepts. City staff and project consultants generated, reviewed, and refined the information for the first phase of the project. Guiding the process was a Technical Advisory Committee (TAC) consisting of representatives from ODOT, Metro, Washington and Clackamas Counties, the City of Tualatin, Clean Water Services, Raindrops to Refuge, Tualatin Valley Fire and Rescue, Bonneville Power Administration, Portland General Electric, Kinder Morgan, and the City's Parks and Urban Renewal Boards, as well as well as a Stakeholder Advisory Committee (SAC) consisting of all area property owners. The SAC met two times during Phase I to discuss project objectives and to provide feedback on future land uses and transportation facilities on the site. Both groups continued to meet during Phase II of the project to review technical information and to provide suggestions for what became the Preferred Concept Plan.

A public open house was also held in the spring of 2009 to provide an opportunity for property owners outside of the study area and other interested parties to review the project objectives and background information.

[1] Metro Ord. 04-1040B states "Title 11 planning shall incorporate the general location of the projected right-of-way for the Tonquin Trail as shown on the 2004 Regional Transportation Plan (Exhibit F, page 3, item II.D.4)." The general location of the Tonquin Trail will be shown on the Final Preferred Concept Plan.

Figure III-1: Existing Conditions



Phase I work resulted in an existing conditions report (*Area 48 Concept Plan: Existing Conditions Report* March 2009) that detailed the existing physical conditions on the site. The information found in this report, including information on utility infrastructure, public facilities, natural resources, cultural and historic resources, and the transportation system, informed a series of two Project Team design workshops held in April and May 2009 to explore possible development concepts for the area. The outcome of the two design workshops was three Preliminary Concept Plan Alternatives. Phase I work also included a set of Project Goals and Evaluation Criteria (Table III-1) developed to steer the project towards a suitable land use and transportation system that will support future employment in the Tonquin Employment Area. This list was consulted in the development of three concept alternatives and ultimately was used to guide the selection of the Preferred Concept Plan.

Table III-1: Tonquin Employment Area Goals and Evaluation Criteria

Goals	Evaluation Criteria	Criteria Type
Adequate public and private utilities are proposed.	The plan can be served by public and private utilities per the Water, Stormwater and Sanitary Sewer Master Plans	Qualitative
Transportation connectivity is provided.	The plan provides local vehicular connectivity as well as multimodal (bike/ped) options.	Quantitative
Transportation performace standards are maintained.	The resultant performance levels at key intersections meet City, County and State standards, as applicable.	Quantitative
The plan provides the ability to serve truck (freight) traffic.	Identified existing truck routes are preserved and new routes are established as necessary to serve the area.	Qualitative
Infrastructure costs are taken into consideration.	Capital cost (planning level capital cost of construction of major roads, water, sewer and stormwater systems)	Quantitative
The plan encourages sound economic development.	The plan is consistent with the market study for the area and Sherwood's Economic Opportunities Analysis.	Qualitative
The plan provides opportunities for various industrial users.	The plan is responsive to multiple user types and provides opportunities for a variety of industrial/employment uses.	Qualitative
Provide appropriate level of commercial use to support needs of area's employees.	The plan identifies and provides the appropriate level and location(s) of limited commercial use.	Qualitative
Preserve significant natural resources.	The plan preserves significant natural resources where appropriate and feasible, including riparian areas and upland habitat.	Qualitative
Include Tonquin Trail elements.	The plan considers the potential Tonquin Trail alignments.	Qualitative
The plan meets the requirements of Metro Ordinance 04-1040B.	The proposed plan is consistent with the requirements of Ordinance 04-1040B and Metro Title 11.	Qualitative
Coordinate with SW Tualatin Concept Plan.	The proposed plan coordinates with the SW Tualatin Concept Plan.	Qualitative
Consider the I-5/99W Connector Project.	The proposed plan considers the I-5/99W Connector Project.	Qualitative
The plan meets the provisions of the MOU with Tualatin.	The proposed plan is consistent with the provisions of the MOU with Tualatin.	Qualitative

Goals	Evaluation Criteria	Criteria Type
Involve the broader Sherwood Community in the Planning Process.	Provide opportunities for property owners and interested parties to participate in the plan's development.	Qualitative
Consider access and response times for emergency services.	Maintain and enhance the transportation network to and through the area to provide adequate accessibility for first responders.	Qualitative

B. Phase II: Tonquin Employment Area Concept Planning

The Preferred Concept Plan is the result of the second and final phase of the concept planning process. Phase II explored in more detail the three Preliminary Concept Plan Alternatives developed in 2009. The Preliminary Concepts Alternatives Analysis Report (September 2009) provides a summary of alternatives developed, including a description of each alternative and a qualitative and quantitative analysis that informed the selection of a Preferred Concept. The analysis of alternatives explored the physical opportunities and constraints of the site and made assumptions regarding the level of development and the types of employment the area could support. Specifically, land use assumptions and information on infrastructure (transportation, sewer, water, and storm drainage) needs and costs were developed for each of the three alternative concepts.

The transportation analysis performed as part of the second phase concluded that development in the Tonquin Employment Area will require an east-west connection from SW 124th Avenue to SW Oregon Street through the site. This collector-level roadway is a vital component of future development because it would help to facilitate east-west mobility through the area and would serve as a parallel route to SW Tualatin-Sherwood Road by connecting to SW Blake Street in the Southwest Tualatin Concept Plan area. Beyond the internal circulation function it provides, this collector is shown to provide an overall benefit to the existing transportation system, in particular by reducing future traffic demand on SW Tualatin-Sherwood Road. All three of the Preliminary Concept Alternatives included this necessary east-west collector. The conceptual alignment for this roadway is shown on Figure IV-1.

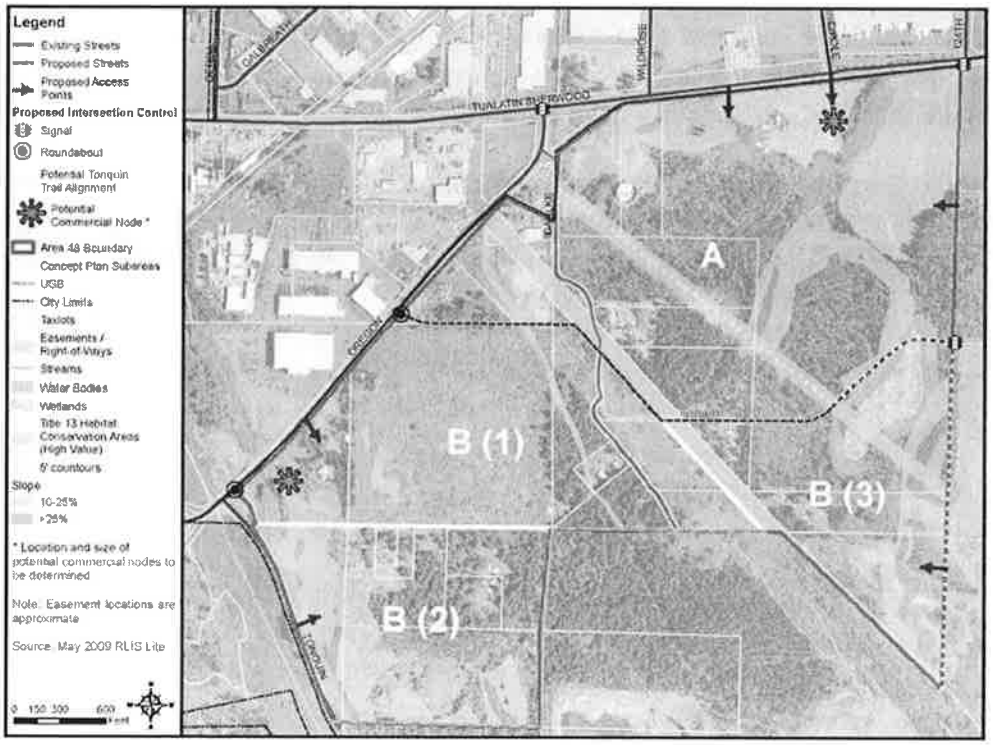
A striking conclusion from the analysis was that the land use and infrastructure variables explored did not definitively point to one Concept Alternative being the clear choice for further refinement. All three of the Preliminary Concept Alternatives adequately met the Goals and Evaluation Criteria (Table III-1) by illustrating a land use pattern and supportive infrastructure that could promote sound economic development and provide opportunities for various industrial users. As documented in the Preliminary Concepts Alternatives Analysis Report, with the exception of differences in the internal circulation systems explored, there were few differences between the alternatives that could be used for significant comparative analysis.

IV. Tonquin Employment Area Preferred Concept Plan

A. Overview

A graphic representation of the Preferred Concept Plan for the Tonquin Employment Area is shown in Figure IV-1. While no one Preliminary Concept Alternative directly led to a clear choice for the future development of the Tonquin Employment Area, some additional analysis further shaped what is proposed as the Tonquin Employment Area Preferred Concept. Parcel lines and property ownership were not defining factors in the development of the Preliminary Concept Alternatives. Developing a rational and implementable concept plan, however, required a closer accounting of property ownership. This was particularly important when meeting the requirements of the Urban Growth Management Functional Plan Title 4, the intent of which is to create and preserve large lots for industrial development in the Metro area. Specifically, the requirements assigned to the Tonquin Employment Area include preserving a parcel 50 acres in size or larger for industrial uses. A distinguishing characteristic of the Preferred Concept Plan is that is shows a proposed alignment for a future east-west collector street that minimizes the bisection of developable land. In particular, the proposed location of this future collector preserves over fifty of the most developable acres of the largest parcel of land in the northwest corner of the site, as well as keeps whole the second largest (~30 acre) parcel.

Figure IV-1: Preferred Concept Plan



The other distinguishing characteristic of the Preferred Concept Plan is the division of the Tonquin Employment Area into two areas: Area A, north of the proposed collector, and Area B, south of the proposed roadway. These areas are distinguished not only by their relationship to the proposed internal street network, but also their location in respect to the BPA easement and their orientation to the existing street network (Area A to SW Tualatin-Sherwood Road; Area B generally to SW Oregon Street and the new collector roadway). It is also assumed that Area A, due to its visibility from the intersection of SW 124th Avenue /SW Tualatin-Sherwood Road and SW Oregon Street/SW Tonquin Road, will be first to develop and that parts of Area B, due in large part to the lack of visibility and transportation access in the short term, will develop later. To better examine the likely phasing of development, Area B was further divided into Subareas B(1), B(2) and B(3). Each of the four delineated Subareas were assessed for their likely development potential (type and amount) and assigned future employment numbers. The Tonquin Employment Area 20-Year Employment Forecast, as presented in Subsection B and summarized in Table IV-1 of this report, details both the expected employment in each Subarea and the percentage of development expected over the 20-year time horizon.

B. Land Use and Employment Assumptions

1. Employment Forecast

As shown below in Table IV-1, the Tonquin Employment Area is projected to accommodate 2,290 jobs during the next 20 years. Approximately 83 percent of total forecasted employment (1,909 jobs) is projected to be industrial employment. The remaining 17 percent of forecasted employment (381 jobs) is projected to be a mix of retail/commercial services and office employment supporting the industrial uses and employees.

Table IV-1: Tonquin Employment Area 20-Year Employment Forecast

Area / Component	Total Acres	Buildable Acres	Employment Type	FAR	Building Area (s.f.)	Job Density (empl. per 1,000 s.f.)[2]	% Developed in 20 Years	Total Jobs in 20 Years	Jobs/Net Acre in 20 years	Total Jobs at Buildout	Jobs/Net Acre at Buildout	Land Use Assumptions
A - All	129.1	101.8	Retail/Commercial Services and Light Industrial[1]				100%					5-acre Commercial Center[3] Remaining Acreage: 100% Light Industrial
Retail/Commercial Services		*5.0*	*Retail/Commercial Services*	*0.35*	*76,230*	*2.5*	*100%*	*191*		*191*		
Light Industrial		*96.8*	*Light Industrial*	*0.20*	*843,322*	***1.6***	***70%***	***945***		***1,349***		
B(1) - All	71.0	67.3	Retail/Commercial Services and Light Industrial				100%					5-acre Commercial Center Remaining Acreage: 100% Light Industrial
Retail/Commercial Services		*5.0*	*Retail/Commercial Services*	*0.35*	*76,230*	*2.5*	*100%*	*191*		*191*		
Light Industrial		***62.3***	***Light Industrial***	***0.20***	*542,758*	*1.6*	*70%*	*608*		*868*		
B(2)	48.1	36.3	Light Industrial	0.20	316,246	1.6	50%	253		506		100% Light Industrial
B(3)	47.9	29.8	Light Industrial	0.20	259,618	1.6	25%	104		415		100% Light Industrial
Total	**296.1**	**235.2**			**2,114,402**			**2,290**	**10**	**3,520**	**15**	

Notes
[1] Flex space is anticipated to be one of the dominant building types in the light industrial areas.
[2] Employment density figures derived from the City of Sherwood Economic Development Strategy.
[3] Commercial center includes retail, commercial services and, potentially, lodging.

Sources: Leland Consulting Group, City of Sherwood Economic Development Strategy and Metro 1999 Employment Density Study.

2. Assumptions

The 20-year employment forecast for the Tonquin Employment Area was developed based on the following assumptions:

The Tonquin Employment Area (formerly known as Study Area 48) was annexed into the Urban Growth Boundary with the express intent of increasing the inventory of land available for industrial employment uses. Therefore, the forecast assumes that the vast majority of the study area (225 net acres) will develop as industrial uses.

In addition to industrial uses, the Tonquin Employment Area is anticipated to accommodate 10 net acres of retail/commercial uses concentrated in two small 5-acre commercial centers. The centers are anticipated to locate at the readily accessible and visible, high traffic intersections of SW Cipole Road /SW Tualatin-Sherwood Road and SW Oregon Street/SW Tonquin Road. They are intended to accommodate business-serving retail and commercial services targeted to nearby businesses and workers, and are therefore not expected to have a regional draw. Limited office uses may be incorporated into the centers.

The forecast assumes a floor area ratio (FAR) of 0.20 and an average job density of 1.6 employees per 1,000 square feet of building area for light industrial areas and an FAR of 0.35 and an average job density of 2.5 employees per 1,000 square feet of building area for retail/commercial services areas. These FAR and job density assumptions are derived from the City of Sherwood Economic Development Strategy and confirmed in Metro's 1999 Employment Density Study.

Given that the Tonquin Employment Area is large, spanning nearly 300 gross acres, and the fact that certain subareas – B(2) and B(3) in particular – are constrained by poor transportation access, visibility, utility easements, wetlands, and other site challenges, the entire planning area is not anticipated to achieve 100 percent buildout during the next 20 years.

Subareas A and B(1), which have good transportation access and visibility and high traffic intersections, are anticipated to develop first. In 20 years, the retail/commercial services components of these subareas are expected to be fully built out and the light industrial components are expected to achieve 70 percent buildout.

Subareas B(2) and B(3) are anticipated to develop more slowly than Subareas A and B(1) due to their more significant site and development constraints. In 20 years, these subareas are projected to achieve a range of 25 to 50 percent buildout.

Growth assumptions for all Subareas were calibrated to fall between the low and medium growth forecasts for industrial jobs in the 2007 City of Sherwood Economic Development Strategy (Strategy). This assumption reflects the fact that most, but not all, new industrial jobs

in Sherwood will locate in the Tonquin Employment Area. Although this analysis forecasts job growth through approximately 2030 while the Strategy forecasts job growth through 2025, the difference is likely to be minimal due to the current economic recession that will result in several years of zero job growth or even net job losses, neither of which was predicted in the Strategy.

C. Transportation System

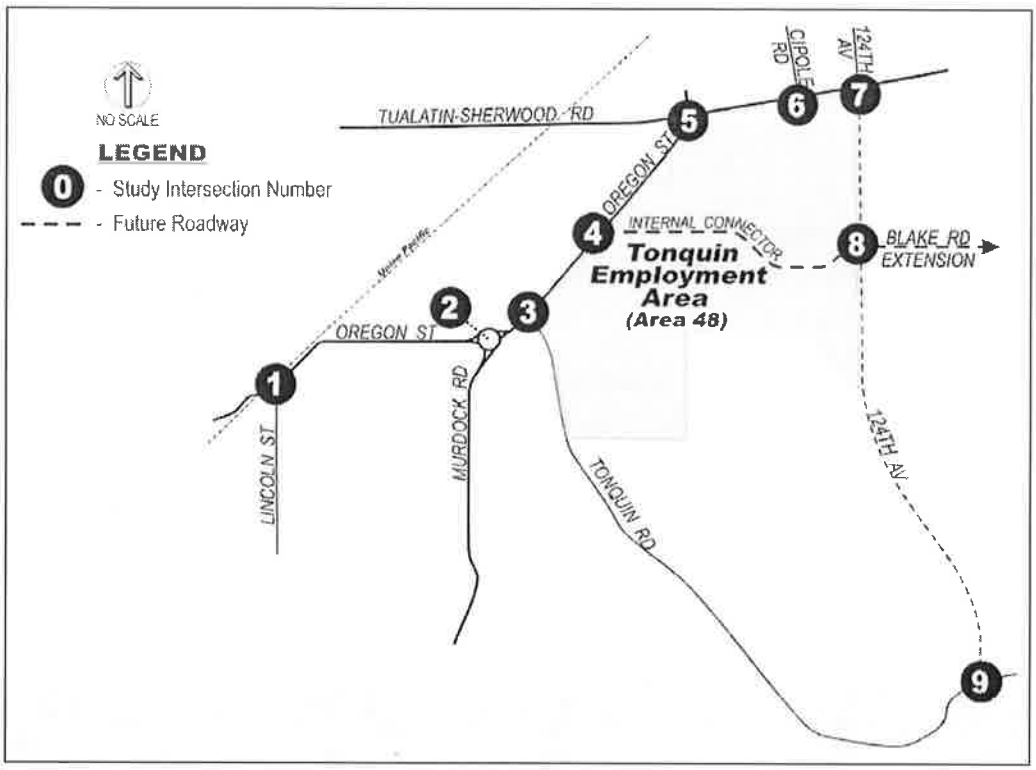
The purpose of the transportation analysis is to summarize the transportation impacts of the proposed Tonquin Employment Area Preferred Concept Plan to meet Transportation Planning Rule (TPR) requirements. The following includes a review of existing transportation conditions and standards, as well as the projected traffic operations with the existing zoning and proposed zoning for the year 2030.

1. Study Area and Transportation Facilities

The Tonquin Employment Area is bordered by SW Tualatin-Sherwood Road to the north, SW 124th Avenue to the east, SW Tonquin Road to the south, and SW Oregon Street to the west. The Tonquin Employment Area is considered the project study area; for purposes of transportation analysis, a larger area is being considered for potential impacts from rezoning the study area for more intensive uses (see Figure IV-2, Transportation Analysis Area). Nine study intersections were selected for analysis based on proximity to the study area and potential impacts from land use intensification within the study area:

- SW Oregon Street/SW Lincoln Street (1)
- SW Oregon Street/SW Murdock Road (2)
- SW Oregon Street/SW Tonquin Road (3)
- SW Oregon Street/Internal Connector (4)
- SW Tualatin-Sherwood Road/SW Oregon Street (5)
- SW Tualatin-Sherwood Road/SW Cipole Road (6)
- SW Tualatin-Sherwood Road/SW 124th Avenue (7)
- SW 124th Avenue/Internal Connector (SW Blake Road Extension) (8)
- SW 124th Ave/SW Tonquin Road (9)

Figure IV-2: Transportation Analysis Area



Pedestrian Facilities

An inventory of sidewalks along key roadways within the transportation analysis area was conducted. Currently, SW Tualatin-Sherwood Road has sidewalks on both sides in this area. Oregon Street has sidewalks on both sides near the SW Tualatin-Sherwood Road intersection and also near the intersections with SW Murdock Road and SW Tonquin Road. Along SW Oregon Street between SW Tualatin-Sherwood Road and SW Tonquin Road, sidewalks are currently located on the west side of the street. Sidewalks are also present on the majority of the south side of SW Oregon Street between SW Lincoln Street and SW Murdock Road. SW Murdock Road has sidewalks along the west side of the street. Sidewalks are not provided on Tonquin Road. SW Lincoln Street and SW Cipole Road both have sidewalks on the east side of the street in the transportation analysis area.

In general, the pedestrian network provides connectivity to most of the streets in the vicinity of the Tonquin Employment Area. However, the current gaps in the pedestrian system along SW Oregon Street do not allow pedestrians from Old Town Sherwood to access the proposed Tonquin Employment Area.

Bicycle Facilities

To assess the adequacy of bicycle facilities within the vicinity of the Tonquin Employment Area, a brief field inventory of designated bike lanes and shoulder bikeways along key roadways was conducted. There are bike lanes in both directions along SW Tualatin-Sherwood Road and on SW Oregon Street from SW Tualatin-Sherwood Road to SW Murdock Rd. No other key roads in the area have bike lanes.

Public Transit

Public transit service is currently not offered in the transportation analysis area. The nearest transit service (TriMet Routes 12 and 94) is located over a mile away in Old Town Sherwood.

Motor Vehicle Facilities

Field inventories were conducted to determine characteristics of roadways within the transportation analysis area. Data collected included posted speed limits, roadway lanes, lane configurations, and intersection controls. These characteristics define corridor capacity and operating speeds through the street system, which affect travel path choices for drivers in the vicinity of the Tonquin Employment Area. The summary of area roadway characteristics is listed in Table IV-2.

Table IV-2: Existing Key Transportation Analysis Area Roadway Characteristics

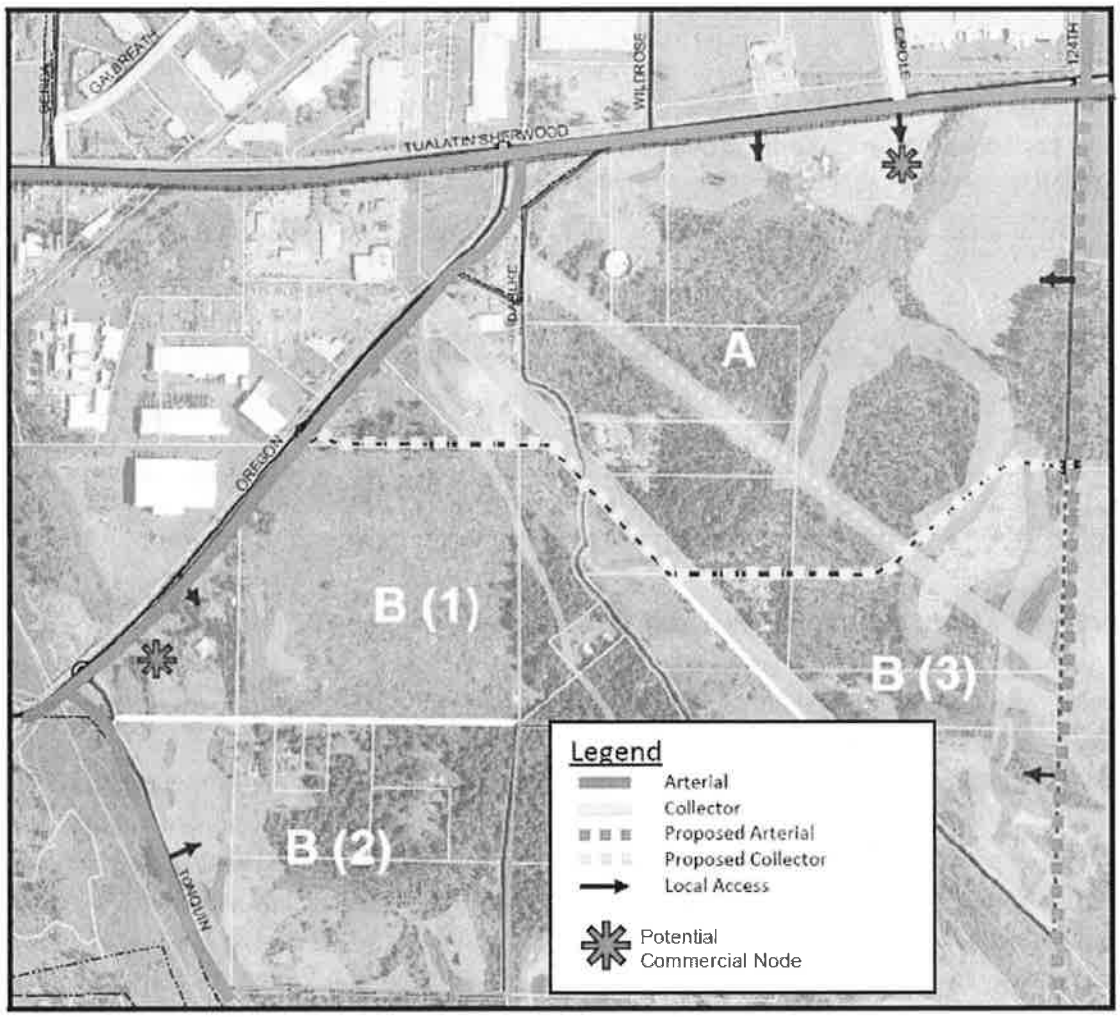
Roadway	Agency	Functional Classification	Posted Speed Limit (mph)	Number of Lanes	Lane Width (ft)	Shoulder Width (ft)
SW Tualatin-Sherwood Road	County	Arterial	45	3	12	6.0
SW Oregon Street	County	Arterial	35	3	12	1.5
SW Murdock Road	City	Arterial	35	2	12	1.5-8.0
SW Tonquin Road	County	Arterial	55	2	11	1.5
SW Cipole Road	County	Collector	45	2	11	1.5
SW 124th Avenue	County	Arterial	35	5	12	6
SW Lincoln Street	City	Local Road	25	2	11	6

Functional Class

The proposed Tonquin Employment Area is bordered by SW Tualatin-Sherwood Road to the north, SW 124th Avenue to the east, SW Tonquin Road to the south, and SW Oregon Street to the west. Each of these roadways is classified as an arterial. Additional key streets in the transportation analysis area include SW Murdock Road (classified as an arterial) and SW Cipole Road (classified as a collector). The development of the Tonquin Employment Area will require a new roadway network to be constructed through the area to facilitate connectivity. The

proposed primary east-west connection is a collector roadway that would help to facilitate east-west mobility through the Tonquin Employment Area and would serve as a parallel route to SW Tualatin-Sherwood Road by connecting to SW Blake Street in the Southwest Tualatin Concept Plan area. The existing and proposed functional classification of the roadways serving the future Tonquin Employment Area can be seen in Figure IV-3.

Figure IV-3: Proposed Functional Classification



2. Transportation Standards and Constraints

The following sections describe the transportation standards for the street network serving the proposed Tonquin Employment Area, including functional classification, access spacing, and mobility.

Access Management Standards

Proper roadway access spacing is important to maintain operations and safety. While all parcels must be allowed access, it is desired that access points on major roadways be limited. This can be accomplished by limiting parcel access to side streets or reducing access points by requiring closure, relocation, and/or consolidation. However, it can be difficult to modify existing access locations and it is best to incorporate appropriate access spacing practices upon initial development or redevelopment to limit the amount of management required in the future. The access management standards that are established by agencies to guide this process vary depending on the classification of the roadway. Access spacing standards for transportation analysis area roadways are identified in Table IV-3.

Table IV-3: Access Management Standards

Facility (by Agency)	Minimum Access Spacing (ft)	Maximum Access Spacing (ft)
Washington County[a]		
- Arterial	600	-
- Collector	100	-
City of Sherwood[b]		
- Arterial	600	1,000
- Collector	100	400

[a]*Source: Washington County Community Development Code, Article V. Section 01-8.5.B*
[b]*Source: Sherwood TSP, Table 8-12*

Opportunities and Constraints for Roadway Connections

Access spacing requirements constrain the potential locations for the proposed east-west connector through the Tonquin Employment Area. On SW Oregon Street, roughly 3,000 feet of property frontage exist between the SW Oregon Street/SW Tonquin Road intersection and SW Oregon Street and the driveway entrance located just south of SW Tualatin-Sherwood Road. In the event that the SW Oregon Street/SW Tonquin Road intersection is shifted northeast, it would limit the amount of available roadway space for the proposed east-west connector intersection with SW Oregon Street. Accounting for the shift in intersection alignment, it is likely that one full-access intersection would be located along SW Oregon Street to provide access to a collector roadway through the site. In addition, there is a potential for one or two other right-in/right-out access points on SW Oregon Street to connect to local roadways. These access points, if provided, will need to be reviewed with Washington County to coordinate access management policies and standards.

At the main east-west connector intersection along SW Oregon Street, a roundabout has been proposed for traffic control. If a roundabout is ultimately selected, topographic constraints should be considered when selecting the appropriate location along SW Oregon Street as roundabouts require a level site.

The main consideration in proposing a location for an east-west collector to connect to SW 124th Avenue is the proposed extension of SW Blake Street as it is shown in the Southwest Tualatin Concept Plan.[2] The extension of SW Blake Street would connect SW 108th Avenue and SW 115th Avenue as a collector and then would become a major collector between SW 115th Avenue to SW 124th Avenue. The intersection of SW Blake Street and SW 124th Avenue is likely the only full access intersection on SW 124th Avenue that may be permitted along the study area and should be the connection point for an east-west collector through the site. Additional right-in/right-out connections to local streets may be possible along SW 124th Avenue. Potentially a second full access intersection may be feasible (based on access spacing requirements) if it is located at the south edge of the site and connects to a future collector or arterial roadway.

Access from the site to SW Tualatin-Sherwood Road can be provided via the existing traffic signals at SW 124th Avenue and SW Cipole Road. In addition, a third connection to SW Tualatin-Sherwood Road may be possible for a right-in/right-out local street at SW Wildrose Place (located between SW Cipole Road and SW Oregon Street).

Access to SW Tonquin Road to the south is somewhat limited by topographic constraints, but a single access to the site was assumed as shown in Figure IV-3.

Mobility Standards

Intersection operations are important to consider to ensure that mobility needs of the transportation system are being met. The performance standard for intersections controlled by the City of Sherwood is Level of Service (LOS) D.[3] The maximum volume/capacity (v/c) ratio specified by Washington County is 0.99 for signalized intersections.[4] The minimum operational standard for unsignalized intersections specified by Washington County is LOS E.[5]

Relationship to the I-5 to 99W Connector Project

Transportation planning in the southwest Metro area has been in flux over the past three years due to the effort to plan a major facility improvement between I-5 and Highway 99W in the Tualatin, Sherwood, and Wilsonville area. Recently, the I-5 to 99W Connector Study concluded with a Project Steering Committee recommendation for Metro to include Alternative 7 (shown on the map in Appendix A) in the Metro RTP update process. As shown, the recommended future improvements with this alternative would have significant changes to the transportation system in the Tonquin Employment Area, including:

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[2] *Draft Southwest Tualatin Concept Plan*, August 2005
[3] Page 8-25, City of Sherwood Transportation System Plan, March 15, 2005.
[4] Washington County 2020 Transportation Plan, Adopted October 29, 2002, Table 5.
[5] *ibid*

- Completion of the SW 124th Avenue Extension south of SW Tualatin-Sherwood Road as a 5-lane roadway connection to a new southern arterial
- Completion of constructing a new 5-lane southern arterial from Highway 99W (south of Brookman Road) to I-5 (north of the North Wilsonville interchange)
- Completion of widening SW Tualatin-Sherwood Road to 5-lanes (included in the baseline conditions)
- Completion of an extension of Herman Road as a 3-lane roadway from SW Cipole Road to Highway 99W
- Completion of an extension of Lower Boones Ferry Road to Tualatin Road and widening of the corridor to 5-lanes from I-5 to Herman Road.

This series of improvements would provide enhanced circulation and capacity in the transportation analysis area, including opportunities for freight traffic to reach Highway 99W or I-5 on three corridors (instead of just using SW Tualatin-Sherwood Road). Many of the project recommendations in the I-5 to 99W Connector Study are not funded and, therefore, cannot be assumed as "committed" when analyzing the future traffic operations and impacts of the Tonquin Employment Area. However, there are recommendations in the I-5 to 99W Connector Study that are in the transportation analysis area (e.g., providing right of way on SW 124th Avenue for an ultimate 5-lane arterial cross section and maintaining arterial standard access control) and these improvements should be incorporated into the Tonquin Employment Area Preferred Concept Plan as feasible and necessary for the future transportation system in the area.

3. Existing Traffic Conditions

The following sections summarize the existing transportation facilities in the transportation analysis area, (pedestrian, bicycle, public transit, and motor vehicle facilities), provide a review of adopted transportation standards, and summarize the existing traffic volumes and operations.

Motor Vehicle Volumes

The five existing intersections within the transportation analysis area were selected for focused analysis in order to address areas of concern along the associated major roadways and to monitor impacts of potential built-out within the Tonquin Employment Area. Traffic volumes along SW Tualatin-Sherwood Road were obtained from the Sherwood Adams Avenue North Improvement Project[6] and volumes at the other study intersections were from the Sherwood

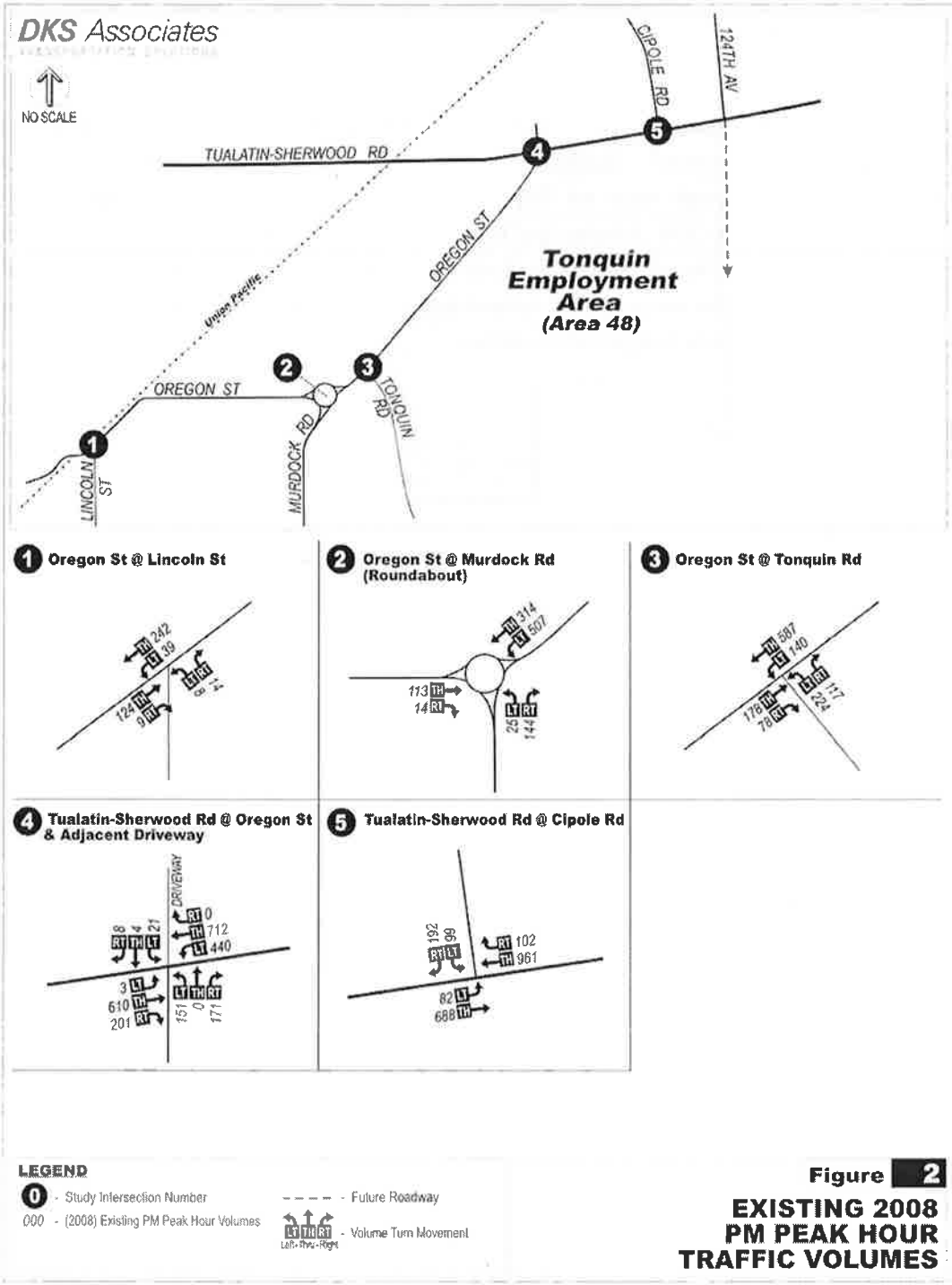
[6] Sherwood Adams Avenue North Improvements Project: Existing and Future Conditions Technical Memorandum, DKS Associates, December 2008.

Cannery Site PUD Project.[7] Traffic counts for the study intersections were performed in November 2008 and January 2009.[8] Turn movement counts were conducted at the study intersections during the weekday PM peak hour (4:00 to 6:00 p.m.). The count data was then used as a basis for evaluating traffic performance at the study intersections for existing PM peak hour conditions. The existing PM peak hour traffic volumes at study intersections are shown in Figure IV-4.

The traffic volumes were compared to year 2006 historic data in the study area documented in the I-5 to 99W Connector Project.[9] Current traffic volumes were found to have decreased significantly during the PM peak hour on SW Tualatin-Sherwood Road in the westbound direction, with reductions up to 300 vehicles per hour. While these reductions in traffic volume could be a result of day-to-day or seasonal fluctuation, they could also be the result of decreased traffic volumes in the area due to current economic conditions or they could reflect driver route changes to other less congested corridors.

[7] Sherwood Cannery Site PUD Project: Traffic Impact Analysis Report, DKS Associates, March 2009.
[8] Traffic counts for the Adams Avenue North Improvements Project were performed in November 2008 and traffic counts for the Cannery Site PUD Project were performed in November 2008 and January 2009
[9] I-5 to 99W Connector Project: Baseline Transportation Conditions Report, David Evans and Associates and DKS Associates, April 2007.

Figure IV-4: Existing 2008 PM Peak Hour Traffic Volumes



Existing Intersection Operations

The PM peak hour intersection volumes were used to determine the existing study intersection operating conditions based on the 2000 Highway Capacity Manual (HCM)[10] methodology for signalized and unsignalized intersections. Roundabout analysis was performed using SIDRA. The results of this analysis are listed in Table IV-4 for the PM peak hour. As listed, each of the signalized study intersections meet mobility standards during the PM peak hour. The unsignalized intersection of SW Oregon Street/SW Tonquin Road fails to meet LOS standards due to the heavy volume of left turns from SW Tonquin Road.

Table IV-4: Existing Intersection Performance (PM Peak Hour)

Intersection	Delay (sec)	LOS	V/C	MOEs	
				Agency	Standard
Signalized Intersections					
SW Tualatin-Sherwood Rd/ SW Oregon St	22.2	C	0.76	County	v/c ≤ 0.99
SW Tualatin-Sherwood Rd/ SW Cipole Rd	14.8	B	0.69	County	v/c ≤ 0.99
Unsignalized Intersections					
SW Oregon Street/ SW Murdock Rd (Roundabout)	0.35	A	0.39	City	LOS D
SW Oregon Street/ SW Tonquin Rd	>100	A/F	>1.00	County	LOS E
SW Oregon Street/SW Lincoln Street	10.3	A/B	0.04	City	LOS D

Signalized/Roundabout Intersection:
Delay = Average Intersection Delay (sec.)
LOS = Level of Service
V/C = Volume-to-Capacity Ratio
Shaded values do not meet standards

Unsignalized Intersection:
Delay = Critical Movement Approach Delay (sec.)
LOS = Major Street LOS/Minor Street LOS
V/C = Critical Movement Volume-to-Capacity Ratio

4. Transportation System Impacts

The transportation system impacts of future development in the Tonquin Employment Area are summarized in the following sections. The future conditions evaluation includes future forecasting, a summary of planned roadway improvements, and motor vehicle intersection capacity analysis.

Future Land Use

Transportation Analysis Zone (TAZ) land use allocations for horizon years that have been used for planning efforts in the area (e.g., the Sherwood TSP and the Metro RTP) were reviewed and the portion of the land use that corresponds to the Draft Tonquin Employment Area Concept

[10] 2000 Highway Capacity Manual, Transportation Research Board, Washington DC, 2000.

Plan was estimated and summarized in Table IV-5. The study area was not forecasted to develop as an urban industrial area in the year 2020 forecasts that were utilized to develop the Sherwood and Washington County TSPs. However, the land use forecasts used to develop the 2030 and 2035 forecasts for Metro RTP Updates and the I-5 to 99W Connector Study did incorporate urbanization of the concept plan area.

Table IV-5: Concept Plan Area Land Use Forecasts

Scenario	Relevant Plan	Households	Retail Employees	Non-Retail Employees	Total Employees
2020	Sherwood and Washington County TSPs	12	0	0	0
2030	I-5 to 99W Connector Study	7	164	1,910	2,074
2035	Current Metro RTP	7	175	2,032	2,207
Proposed Concept Plan 2030	Tonquin Concept Plan	0	114	2,176	2,290

As listed in Table IV-5, the Draft Tonquin Employment Area Concept Plan land use estimates for the year 2030[11] total 2,290 employees. Compared to the 2030 Metro forecast used for past RTP Updates and the I-5 to 99W Connector Study, this represents an increase of 216 employees. However, the proposed Concept Plan land use estimates have less retail and more industrial types of employment. The lower amount of retail employees reduces the trip generation potential of the proposed land use, which based on model trip rates for the affected TAZ would represent an increase of approximately 30 PM 2- hour vehicle trips over what was included in the 2030 Metro forecasts.

The adopted Transportation System Plans for Sherwood and Washington County did not assume urban development in the concept plan area. Therefore, TPR analysis for impact on those adopted plans should consider the full development impact and not just the increment of growth beyond what is included in Metro 2030 or 2035 forecasts. The full trip increment is summarized in Table IV-6 (year 2030 proposed trips vs. previously evaluated year 2020 trips). As listed in Table IV-6, urbanization in the study is consistent with the Draft Tonquin Employment Area Concept Plan would represent an increase of approximately 1,120 PM peak period trips.

[11] 20-Year Employment Forecast Methodology, prepared by Leland Consulting Group, November 11, 2009.

Table IV-6: Metro Travel Demand Model Trip Comparison for Tonquin Employment Area

Scenario	Land Use			PM 2 Hour Model Trips		
	HH	RET	OTH	In	Out	Total
2020 Sherwood and Washington County TSPs	12	0	0	9	5	14
2030 Tonquin Employment Area	0	114	2,176	270	864	1,134
Difference (Tonquin minus RTP)	**-12**	**114**	**2176**	**261**	**859**	**1,120**

Notes:
HH = Households
RET = Retail Employees
OTH = Non-retail employees (includes all other employment types)

Future Forecasting Methodology

Future travel demand forecasting for the Tonquin Employment Area utilized the 2030 model developed by Metro, Washington County, and DKS Associates for the I-5 to 99W Connector Study. Future 2030 PM peak hour volumes for the Existing Zoning and Proposed Zoning scenarios were developed for the study area by adjusting the travel demand model trip tables to reflect the land use listed in Table IV-5. The 2030 Existing Zoning scenario included no land use growth in the project area (as considered in the 2020 Sherwood and Washington County TSPs), while total land use and trips from the 2030 Metro RTP model were increased to the projected totals for the Southwest Tualatin Concept Plan.[12] A post processing technique following NCHRP 255 methodology[13] was used to refine model travel forecasts to the volume forecasts used for 2030 intersection analysis for both scenarios. These volumes were then used to analyze and determine future impacts from the proposed concept plan area on the planned roadway network.

In order to provide a baseline comparison for the Tonquin Employment Area Concept Plan alternatives, the 2030 No Build scenario was established. The 2030 No Build scenario evaluates future traffic volumes and assumes the planned roadway geometry and limited development of the Tonquin Employment Area based on existing zoning.

Planned Area Roadway Improvements

The future operations of the study intersections were analyzed with the assumed completion of the financially constrained roadway improvements included in Metro's 2035 Regional Transportation Plan (RTP).

[12] *Draft Southwest Tualatin Concept Plan*, Prepared for City of Tualatin, August 2005.
[13] *Highway Traffic Data for Urbanized Area Project Planning and Design – National Cooperative Highway Research Program Report 255*, Transportation Research Board, Washington DC. 1982.

The roadway improvements identified as "reasonably likely to be funded" in the 2030 travel demand model were:

- Widening of SW Tualatin-Sherwood Road and Roy Rogers Road to 5-lanes from Teton Avenue in Tualatin to Borchers Drive in Sherwood
- Completion of the Adams Avenue South Extension
- Completion of the Adams Avenue North Extension
- Intersection geometric, turn lane, and signal phasing improvements at Highway 99W/Tualatin-Sherwood Road
- Completion of the SW 124th Avenue extension from SW Tualatin-Sherwood Road to SW Tonquin Road
- Widening of SW Tonquin Road to 3-lanes
- Signalization of SW Tualatin-Sherwood Road/Gerda Lane
- Completion of SW 112th Extension to Myslony Street in Tualatin
- New east-west roadway through the Tualatin Employment Area connecting SW 124th Avenue to SW Blake Street

Future 2030 Volumes

The 2030 PM peak hour study intersection volumes for the existing zoning and the proposed zoning scenarios were compared and are shown in Figure IV-5. Volumes were relatively similar between the two scenarios with intersections experiencing both projected increases and decreases in individual turn movements. The largest increase in volume is projected to occur along the new internal connector roadway. This collector facility as proposed would carry approximately 500 trips during the PM peak hour and would serve both site traffic and trips that are continuing west from the SW Blake Road Extension. Both the westbound through movement at the intersection of SW 124th Avenue/SW Blake Road and the westbound left movement at SW Oregon Street/Internal Connector are expected to increase over 200 vehicles during the PM peak hour.

The Internal Connector would serve as a parallel facility to SW Tualatin-Sherwood Road and improve connectivity of the transportation system. With the proposed concept plan and the additional collector, projected volumes would be reduced at the intersections of SW Tualatin-Sherwood Road/124th Avenue and SW Tualatin-Sherwood Road/SW Cipole Road. Roadway users heading southwest through the Tonquin Employment Area would use a variety of routes

and help spread the volumes through the study area for an overall reduction in individual intersection volumes at these intersections.

2030 Intersection Operations

A capacity analysis of area intersections was completed for the 2030 Existing Zoning and the 2030 Proposed Tonquin Employment Area zoning. The results of the capacity analysis are listed in Table IV-7, which indicates that the intersection of SW Oregon Street/SW Tonquin Road would fail to meet the v/c ratio standard for the 2030 Existing Zoning condition.

With the added development of the Tonquin Employment Area, the intersection of SW Oregon Street/SW Tonquin Road would actually improve with shifted traffic patterns (V/C improves to 2.09 from 2.25).

Figure IV-5: Future 2030 Existing Zoning and 2030 Proposed Zoning PM Peak Hour Traffic Volumes

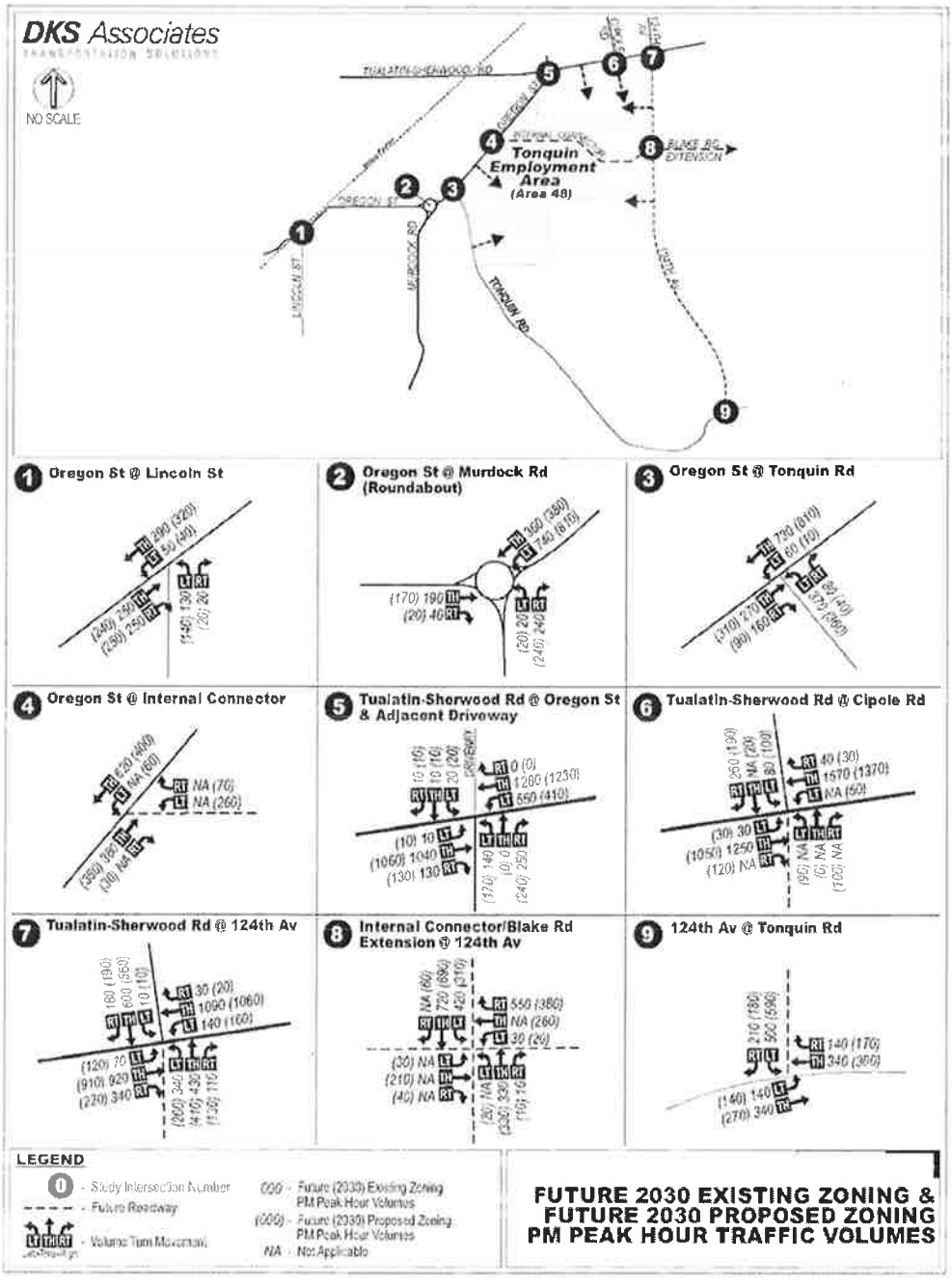


Table IV-7: 2030 PM Peak Hour Intersection Performance

		Intersection Performance (Delay LOS V/C)	
Intersection	**Agency**	**2030 Existing Zoning**	**2030 Proposed Zoning**
Signalized Intersections			
SW Tualatin-Sherwood Rd / SW Oregon St	County	23.0 C 0.84	20.5 C 0.77
SW Tualatin-Sherwood Rd / SW Cipole Rd	County	8.2 A 0.66	11.5 B 0.66
SW Tualatin-Sherwood Rd / SW 124th Ave	County	51.0 D 0.97	46.4 D 0.92
SW 124th Ave / SW Blake Rd Extension/Internal Connector	County	26.3 C 0.62	40.1 D 0.80
SW 124th Ave/ SW Tonquin Road	County	22.2 C 0.75	25.0 C 0.79
Unsignalized Intersections			
SW Oregon St / SW Murdock Rd	City	0.93 A 0.50	0.68 A 0.56
SW Oregon St / SW Tonquin Rd	County	**A/F 2.25**	**A/F 2.09**
SW Oregon St/ SW Lincoln St	City	A/C 0.32	A/D 0.47
SW Oregon St / SW Blake Rd Extension/Internal Connector	County	-	B 0.59

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

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

Recommendation

The traffic impact analysis completed for the proposed future urbanization of the Tonquin Employment Area found that if the site were rezoned for employment uses, as proposed in Table IV-1, and employment reached the level noted in Table IV-5 the resulting traffic increase would not significantly affect the surrounding transportation system and would satisfy the requirements of the Transportation Planning Rule, Oregon Revised Statue (OAR) 660-012-0060. The proposed rezone would not require additional off-site transportation improvements (beyond the reasonably likely to be funded roadway improvements included in Metro's RTP and assumed for this analysis, as listed under the *Planned Area Roadway Improvements* subsection above) since there would not be a significant effect to the transportation system.

D. Infrastructure Analysis

The following summarizes the sewer, water and storm drainage network associated with the Tonquin Employment Area Preferred Concept Plan alternative as shown on Figure IV-6. A description of existing infrastructure considerations is provided, as well as a description of the internal infrastructure systems for the Preferred Concept Plan. The Preferred Concept Plan assumes 2,290 new jobs in the Tonquin Employment Area over the next 20 years. This employment forecast was used to prepare the operations analysis and mitigation for the Preferred Concept Plan. A planning level cost estimate is also provided for this preferred alternative. The estimate includes both on- and off-site improvements needed to provide the necessary infrastructure network.

1. Sanitary Sewer System Analysis and Performance

Sanitary sewer service can be provided to the Tonquin Employment Area by the City of Sherwood and Clean Water Services (CWS). The sanitary sewer system was evaluated for its ability to accept the wastewater from the planning area using information provided in the *Sanitary System Master Plan for City of Sherwood, July 2007* (sanitary master plan), prepared by Murray, Smith, and Associates. Based on that evaluation, improvements needed to serve the area were identified.

For areas within its city limits, Sherwood shares wastewater management responsibilities with CWS. Sherwood is responsible for sanitary sewers smaller than 24 inches in diameter located within city limits, and CWS owns and maintains interceptor sewers 24 inches and larger, sewage lift stations, and force mains. CWS conveys sewage to the Sherwood Pump Station, which discharges into the Upper Tualatin Interceptor. The interceptor conveys sewage to the Durham Advanced Wastewater Treatment Facility for treatment.

Sanitary sewer service can be provided to the Tonquin Employment Area by Sherwood's Rock Creek interceptor. The sanitary master plan identifies capacity improvements to the Rock Creek interceptor needed to serve growth in the basin, including the Tonquin Employment Area. In addition to improvements made by Sherwood to serve new customers, CWS will need to construct a new interceptor and expand the Sherwood Pump Station.[14]

[14] The *Sanitary System Master Plan for City of Sherwood* reports that CWS plans to upgrade the Sherwood Pump Station and force main to serve saturation development.

Figure IV-6: Proposed Sanitary Sewer Improvements

Source: *Sanitary System Master Plan for City of Sherwood, July 2007*; Murray, Smith, and Associates

Rock Creek Basin
Proposed Sanitary Sewer Improvements

Sherwood's sanitary sewer system serves two drainage basins, the Rock Creek basin and the Cedar Creek basin. The Tonquin Employment Area is in the Rock Creek basin. The sanitary sewer system serving the area is shown in Figure IV-7, as well as the improvements identified in Sherwood's sanitary master plan. The Rock Creek basin is currently served by a trunk sewer that starts as an 18-inch diameter pipe at the Sherwood Pump Station and eventually becomes a 15-inch diameter pipe as it progresses upstream. The Tonquin Employment Area would be served by sanitary sewers connecting to the 15-inch diameter pipe north of the intersection of SW Oregon Street and SW Tonquin Road and to an existing 8-inch sewer in SW Tualatin-Sherwood Road.

The approximately 300 acres in the Tonquin Employment Area will be developed in mixed-use commercial, office, and light industrial land uses employing 2,290 people based on estimates detailed in the Land Use and Employment Assumptions (Section IV.B) of this report. The design wastewater flows reported in the Sherwood sanitary master plan for commercial, office, and light industrial land uses are 3,660 gallons per acre per day plus 1,760 gallons per acre per day for peak infiltration and inflow, for a total contribution of 5,420 gallons per acre per day. Developing the approximately 300 acres in the Tonquin Employment Area is expected to contribute 1,626,000 gallons of wastewater per day to the Sherwood sanitary sewer system during wet weather. The sanitary master plan reports that peak flows were evaluated using a hydrograph approach combining loading from sanitary flows, steady wet-weather infiltration, and storm induced inflows rather than applying peaking factors.

Needed Improvements

Sewer improvements with a total estimated cost of $6,890,000 (rounded) will be needed to serve the Tonquin Employment Area at saturation development. In addition, CWS plans to upgrade the Sherwood Pump Station and force main to serve saturation development. System development charges will also be assessed as the area develops. The sewer improvements include:

- Approximately $4,357,813 in trunk sewer improvements to serve the Rock Creek Basin and the Tonquin Employment Area.
- Approximately $2,532,000 for local sewer improvements within the development to extend sewer service from the trunk sewers to individual lots.

The cost estimates are based on unit prices in the sanitary master plan, which are based on construction pricing in 2007. Current construction pricing is similar to that in 2007, so no pricing adjustments have been made.

The sanitary master plan identified the following trunk sewer improvements with a total estimated project cost of $4,357,813 in 2007 as being needed to extend service to the Tonquin Employment Area at saturation development:

- Capacity Upgrade - Rock Creek Trunk - 1,436 linear feet of 15-inch diameter Rock Creek Trunk would be replaced with new 18-inch diameter pipe from Manhole 414NSan to Manhole 402NSan. This is shown as Project 6 on Figure IV-7. The sanitary master plan estimated the project cost of this sewer at $356,128.

- Capacity Upgrade - Rock Creek Trunk - Approximately 1,349 linear feet of 18-inch diameter Rock Creek Trunk would be replaced with new 24-inch diameter pipe from Manhole 402NSan to Manhole 396NSan. This is shown as Project 7 on Figure IV-7. The sanitary master plan estimated the project cost of this sewer at $366,928.

- Capacity Upgrade – Tonquin Employment Area North - Approximately 3,011 linear feet of 8-inch and 10-inch diameter collection pipe would be replaced with new 12-inch diameter pipe from Manhole 402NSan to Manhole 440NSan. This is shown as Project 8 on Figure IV-7. The sanitary master plan estimated the project cost of this sewer at $683,497.

- Collection System Extension – Tonquin Employment Area North – The collection system would be extended from Manhole 402NSan, with approximately 3,280 linear feet of new 12-inch diameter pipe to serve Area 48. This is shown as Project 9 on Figure IV-7. The sanitary master plan estimated the project cost of this sewer at $744,560.

- Collection System Extension – Tonquin Employment Area South – The collection system would be extended from Manhole 414NSan, with approximately 2,650 linear feet of new 15-inch diameter pipe to serve the south side of Area 48. This is shown as Project 10 on Figure IV-7. The sanitary master plan estimated the project cost of this sewer at $630,700.

- CWS Rock Creek Trunk - Approximately 5,200 linear feet of 18-inch diameter trunk will need to be upsized to 24-inch diameter pipe from the city limits to the existing 24-inch diameter Sherwood. Using the unit estimating price of $272 per linear foot in the sanitary master plan, the estimated project cost of this sewer was $1,576,000.

The sanitary master plan reports that CWS plans to upgrade the Sherwood Pump Station and force main to serve saturation development.

In addition to the improvements identified in the sanitary master plan, approximately 12,000 linear feet of local sewers will be needed within the Tonquin Employment Area to extend sewer service to the lots. Using the unit estimating price in the sanitary master plan for 8-inch diameter sewer of $211 per linear foot, the estimated cost of 12,000 feet of local sewers is estimated to cost $2,532,000.

Sanitary sewer improvements are expected to be located within road right-of-way.

2. Water System Analysis and Performance

Water service can be provided to the Tonquin Employment Area from the City of Sherwood's water system. The water system was evaluated for its ability to provide adequate pressure and supply peak hour and fire demands for the Preferred Concept Plan based on information provided in *Water System Master Plan for City of Sherwood, August 2005* (water master plan), prepared by Murray, Smith, and Associates. Based on that evaluation, improvements needed to serve the planning area were identified.

Water service can be provided to the Tonquin Employment Area from the City of Sherwood's 380-ft pressure zone. According to the water master plan, the 380-ft pressure zone is designed to provide a minimum pressure of 50 psi at elevations of approximately 250-feet. Approximately 270 (90%) of the 296 acres in the planning area are below an elevation of 250 ft, except for approximately 12 acres along the extreme northeast edge of the property which has elevations of 250 to 305 feet, and a second area of approximately 15 acres in the northeastern portion of the property that has elevations of approximately 250 to 270 feet. If system pressure was 52 psi at an elevation of 250 feet, it would be approximately 47 psi at an elevation of 270-feet and approximately 27 psi at an elevation of 305 feet. Given the small amount of area above an elevation of 250-feet, water system pressures should generally be adequate for typical office, commercial, and light industrial development.

The 380-ft pressure zone is the lowest and largest pressure zone in the City of Sherwood system and serves 2,513 of the 2,994 acres in the water service area. The pressure zone is developed in residential, commercial and industrial land uses. The zone is served by gravity from a 2 million gallon reservoir.[15] All four of the city's groundwater wells and the city's Tualatin Supply Connection supply the 300-foot pressure zone directly. The city has a capital improvement plan identifying water mains, additional storage reservoirs and new water source development needed to meet demands at saturation development.

The Tonquin Employment Area will be developed in mixed-use commercial, office, and light industrial land uses employing 2,290 people, based on estimates detailed in the Land Use and Employment Assumptions (Section IV.B) of this report. The Sherwood water master plan does not separately estimate water demand for these land uses, so water demand in the planning area was estimated assuming that there will be no process water uses and applying an average day demand of 45 gallons per employee per day, making total average day demand 103,500 gallons per day in the Tonquin Employment Area when it is fully developed. This is equivalent to a peak demand of 430 gpm if all use occurs over an 8-hour work day with a peaking factor of 2. The water master plan recommends a fire flow demand of 3,500 gpm with duration of 3 hours

[15] Note: the City has a 4 million gallon water reservoir in the 380 zone (Snyder Park) that will be operational in time to serve future development in the Tonquin Employment Area.

for office, commercial, and light industrial land uses. Since the fire flow requirement is higher, it will govern design of the water distribution system.

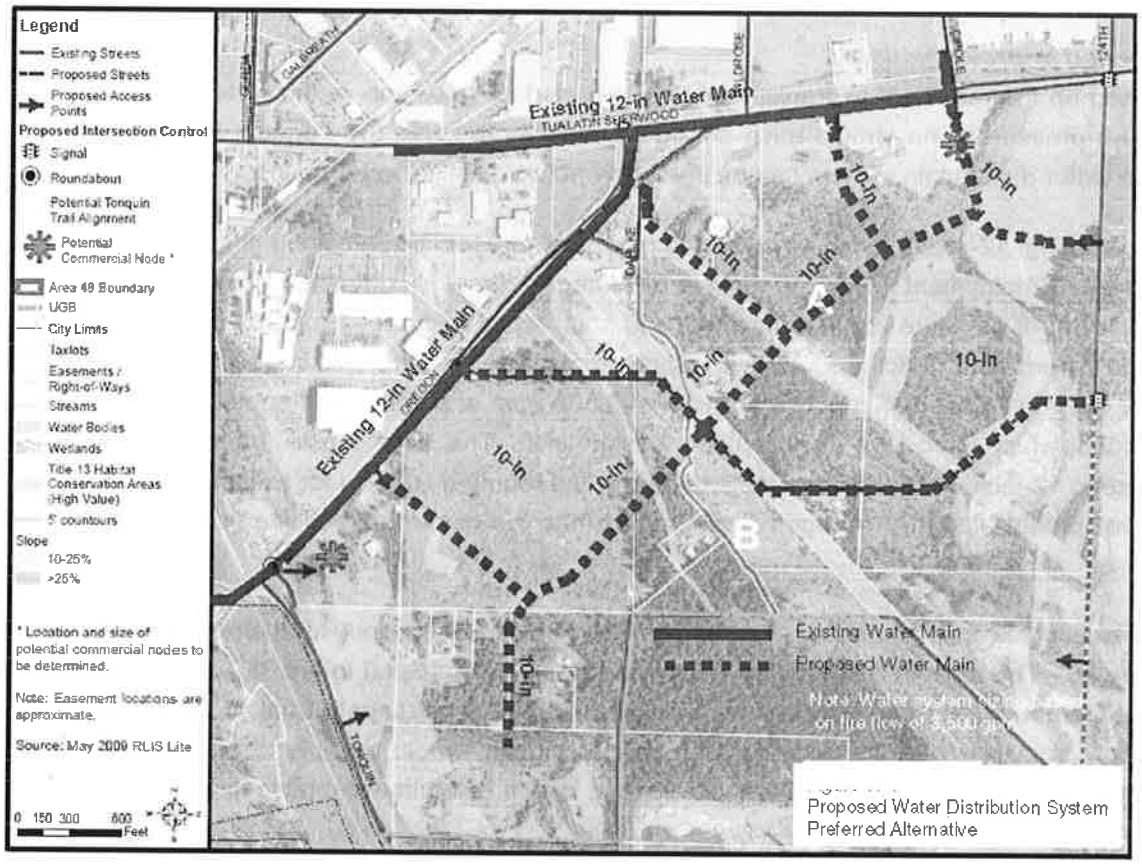
Needed Improvements

Based on the results of hydraulic modeling reported by MSA, Inc. in the water master plan, the 380-ft pressure zone should have adequate capacity to serve the Tonquin Employment Area. The water distribution system can be served from two existing water mains:

An existing 12-inch diameter water main in SW Oregon Street along the west side of the Tonquin Employment Area. The main in SW Oregon Street is connected to existing water mains in the 380-ft pressure zone on its north and south ends and appears to have a good source of supply from both directions. With a supply from each end, the existing 12-inch water main in SW Oregon Street can supply a fire flow of 3,500 gpm at a velocity of approximately 5 feet per second, which is well within acceptable design limits. The water master plan indicates that the existing 12-inch main should be able to deliver the required fire flow for existing light commercial development along SW Oregon Street, which has the same required fire flow as the planning area.

An existing 12-inch diameter water main in SW Tualatin-Sherwood Road along the north side of Area 48. The main in SW Tualatin-Sherwood Road is connected to the 380-ft pressure zone at SW Oregon Street and appears to have a good source of supply from its west end. With a supply from one end, the existing 12-inch water main should be able to supply a fire flow of 3,500 gpm at a velocity of 9.93 feet per second, which is within acceptable design limits.

Figure IV-7: Proposed Water Distribution System



The internal water system concept was developed to support the employment projections for the Preferred Concept Plan. Water main velocities were limited to a maximum of 15 feet per second under fire flow conditions. Approximately 12,000 feet of 10-inch diameter pipe would be needed to provide water service to the area, as shown in Figure IV-7. The estimated construction cost of the water system is $2,600,000, as shown in Table IV-8. In addition to the costs of constructing the water mains within the Tonquin Employment Area, system development charges would be assessed as the area develops.

Table IV-8: Estimated Water Distribution System Project Costs

Item	Quantity	Unit	Unit price	Item price
10-inch water main in new development	12,000	Linear feet	$112	$1,344,000
Fire hydrant assemblies	20	Each	$4,500	$90,000
10-inch gate valves	16	Each	$2,400	$38,400
Tap existing water main	5	Each	$5,000	$25,000
Subtotal				$1,497,400
Overhead and profit at 20%				$299,480
Subtotal				$1,796,880
Contingencies, engineering, legal, and management at 45%				$808,596
Total estimated project cost				$2,605,476
Rounded to				$2,600,000

3. Storm Drainage System Analysis and Performance

This section describes the conceptualized stormwater infrastructure needed to serve the Tonquin Employment Area. The 296.1 acre planning area drains to three different receiving waters: Hedges Creek, Upper Coffee Lake Creek, and Rock Creek. An analysis of stormwater system improvements needed as a result of future development in the Tonquin Employment Area has been completed for each of these drainage basins and is consistent with the concepts presented in the Stormwater Master Plan for the City of Sherwood (June 2007) and the CWS Design and Construction Standards (June 2007). With mixed-commercial and light industrial development expected in the planning area, regional stormwater facilities were sized for each drainage basin and planning level cost estimates have been included. This analysis addresses the major publicly owned stormwater management facilities.

Topography, soil type, the amount of impervious area, and storm intensity and duration are important parameters for determining stormwater runoff volume and peak flow rates. To be consistent with CWS Standards, the Santa Barbra Urban Hydrograph Method (SBUH) was used to estimate runoff volume and peak flow rates for the 25-year, 24-hour and 100-year, 24-hour storms. CWS provides an equation for use in calculating the water quality peak flow rate and total water quality volume in Section 4.05.6 of the 2007 Design and Construction Standards.

Peak flows and storm water volumes were developed for the Draft Preferred Alternative for this analysis. The Soil Conservation Service (SCS) Technical Release 55 (TR-55) associates land

use type with a percentage of impervious area and a Curve Number (CN), based on hydrologic soil type. Hydrologic soil types of B, C, and D are present in the Tonquin Employment Area. See Table IV-9 below for a summary of the land-use classifications, associated impervious area percentage and CNs that were used for the analysis.

Table IV-9: Percent Imperviousness and CN based on Land Use Type

Land Use	Percent Imperviousness	Curve Number for Hydrologic Soil Groups			
		A	B	C	D
Mixed Commercial	85%	89	92	94	95
Industrial	72%	81	88	91	93
Open Space (grass cover >75%)	10%	39	61	74	80

The regional stormwater facility for each basin is sized for water quality purposes only. This is based on the assumption that the developer will provide on-site detention. Therefore, the facilities were designed to convey the water quality storm (dry weather storm event totaling 0.36 inches of precipitation falling in 4 hours with an average annual storm return period of 96 hours), in accordance with CWS requirements.

The Santa Barbara Urban Hydrograph (SBUH) method was used to produce stormwater runoff volumes and peak flow rates for the 25-year, 24-hour and 100-yr, 24-hour storms. Rainfall volumes for the 25 and 100-year events were consistent with CWS standards and the adopted master plan; 3.9-inches in 24 hours for the 25-year event and 4.5-inches in 24 hours for the 100-year event. See Table IV-10 for the results.

Table IV-10: SBUH Results Summary

Drainage Basin	Impervious Area in Drainage Basin (acres)	WQ Storm Peak Design Flow Rate (cfs)	WQ Storm Total Runoff Volume (ft3)	25-Year, 24-Hour Storm Peak Design Flow Rate (cfs)	25-Year, 24-Hour Storm Total Runoff Volume (ft3)	100-Year, 24-Hour Storm Peak Design Flow Rate (cfs)	100-Year, 24-Hour Storm Total Runoff Volume (ft3)
Coffee Lake Creek	28.1	2.55	36,740	13.91	574,107	16.58	681,420
Hedge Creek	69.5	6.30	90,790	28.91	1,311,633	34.19	1,549,206
Rock Creek	28.1	7.48	107,661	34.42	1,539,929	40.76	1,820478

Needed Improvements

Three regional stormwater facilities will be needed. Their size is based on the peak flows and runoff volumes provided by the previously described analysis. Each facility is an extended dry basin, designed to CWS standards. The facilities have been designed to provide water quality treatment, and it is assumed that detention will be provided on-site, by the developer. The area required for each extended dry basin footprint is shown by basin in Table IV-11. The facility identifiers in Table IV-11 are consistent with the projects listed in the 2007 Stormwater Master Plan for the City of Sherwood.

Table IV-11: Area of Regional Stormwater Facility by Basin

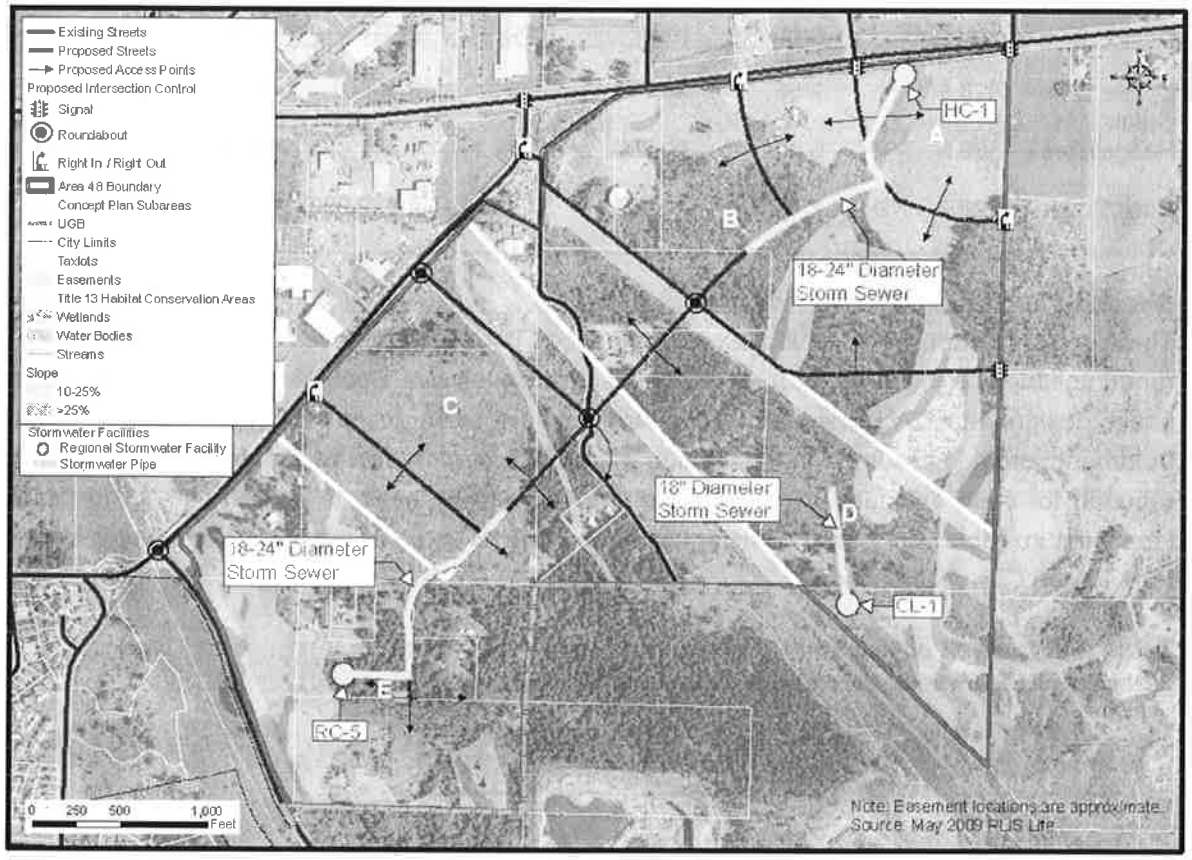
Drainage Basin	Facility Identifier	Required Area for Regional Stormwater Facility (acres)
Coffee Lake Creek	CL-1	0.57
Hedge Creek	HC-1	1.04
Rock Creek	RC-5	1.17

For locations of the facilities, see Figure IV-8.

For the purpose of this study we have assumed that regional water quality facilities will be constructed; however, alternative development opportunities are possible. Regional detention facilities or combination regional detention/water quality facilities are possible. Alternatively, developers could be required to construct all of their stormwater management facilities on-site; with no regional detention or water quality facilities.

It is recommended that developers be made aware of the advantages of implementing low impact development approaches (LIDA) for stormwater quality and detention purposes. The appropriate LIDA will minimize stormwater runoff generated by the development and is considered the most appropriate method of stormwater management where possible. LIDA shall be designed and constructed in accordance with CWS's 2007 Design and Construction Standards (Section 4.07).

Figure IV-8: Proposed Stormwater System



Cost estimates for the stormwater infrastructure projects in each basin are summarized in Table IV-12.

Table IV-12: Conceptual Level Cost Estimates for Stormwater Projects by Basin

Item No.	Description	Total
	Coffee Lake Creek Regional Stormwater Facility	
1	2500 CY of Excavation and Grading	$50,000
2	0.57 AC Landscaping and Temporary Irrigation	$17,100
3	200 LF Access Road	$10,000
4	700 LF Access Control Fencing	$17,500
5	Pre-Treatment (Sedimentation MH)	$10,000
6	Inlet and Outlet Structures	$17,500
7	Plant Maintenance	$3,075
8	5% Erosion Control	$6,350
	Total Estimated Construction Cost	$131,525
	45% Contingency, Administration, and Engineering	$59,186
	Total Estimated Project Cost	$190,711
	Rounded to	**$191,000**
	Hedges Creek Regional Stormwater Facility	
1	5100 CY of Excavation and Grading	$102,000
2	1.04 AC Landscaping and Temporary Irrigation	$31,200
3	450 LF Access Road	$22,500
4	1000 LF Access Control Fencing	$25,000
5	Pre-Treatment (Sedimentation MH)	$10,000
6	Inlet and Outlet Structures	$17,500
7	Plant Maintenance	$8,850
8	5% Erosion Control	$10,853
	Total Estimated Construction Cost	$227,903
	45% Contingency, Administration, and Engineering	$102,556
	Total Estimated Project Cost	$330,459
	Rounded to	**$331,000**
	Rock Creek Regional Stormwater Facility	
1	6000 CY of Excavation and Grading	$120,000
2	1.17 AC Landscaping and Temporary Irrigation	$35,100
3	475 LF Access Road	$23,750
4	1100 LF Access Control Fencing	$27,500
5	Pre-Treatment (Sedimentation MH)	$10,000
6	Inlet and Outlet Structures	$17,500
7	Plant Maintenance	$8,850
8	5% Erosion Control	$12,135
	Total Estimated Construction Cost	$254,835
	45% Contingency, Administration, and Engineering	$114,676
	Total Estimated Project Cost	$369,511
	Rounded to	**$370,000**
	Conveyance Infrastructure	
1	1800 LF 18-inch Diameter Storm Sewer Trunk Piping	$270,000
2	1800 LF 24-inch Diameter Storm Sewer Trunk Piping	$315,000
3	(9) 48-inch Diameter Manholes	$47,835
	Total Estimated Construction Cost	$632,835
	45% Contingency, Administration, and Engineering	$284,776
	Total Estimated Project Cost	$917,611
	Rounded to	**$918,000**

E. Infrastructure Financing Analysis

The infrastructure financing analysis summarizes the projected infrastructure costs and funding sources associated with the development of the Tonquin Employment Area. The intent of the analysis is to discover if any financial gaps exist between the costs to prepare the Tonquin Employment Area for development and the fees that such development will generate as it occurs.

The analysis categorizes costs into three main categories:

- Development site costs: These are costs that are internal to development parcels such as driveways, internal circulation, utility extensions, and utility connections to buildings. Developers typically are responsible for such costs as a part of development. Thus, the analysis excludes development site costs.

- Onsite costs: These costs are for improvements within the Tonquin Employment Area boundaries (hence, "onsite") that will benefit many different properties and are not attributable to any single development site. In this analysis, onsite costs that will be a public financing obligation are limited to the main east-west connector road (and its associated underground utilities) and one roundabout that will be located at the intersection of SW Oregon Street and the east-west collector.

- Offsite costs: Offsite costs are for infrastructure investments that will be made outside the Tonquin Employment Area boundaries, but that are necessary to serve the level of development planned in the Area.

The infrastructure financing analysis summarizes the cost estimates for infrastructure improvements in each of the main infrastructure categories: transportation, water, sanitary sewer, stormwater, and parks. It includes summaries of the anticipated costs and a comparison of those costs to the anticipated revenues from development under a 20-year development horizon. As described in this section, the analysis indicates that mandatory fees and charges that private developers are assessed at the time of development are expected to generate enough revenues to finance all required onsite and offsite infrastructure improvements. Although fees from development are expected to fully fund the needed infrastructure, the analysis concludes with a description of public financing tools that could be utilized to help offset developer costs as an incentive to spur new investment and job creation.

1. Transportation

Transportation Costs

The transportation infrastructure analysis, developed by DKS Associates and included in Section IV.C of this report, identifies transportation infrastructure improvements that will be required in the Tonquin Employment Area to serve development over the next 20+ years.

The projected cost of onsite transportation infrastructure in the Tonquin Employment Area is $6.4 million. This includes $5.6 million for the construction of a 4,000-foot east-west collector street from SW Oregon Street to SW 124th Street, which will serve as the primary access road through the area. It also includes $800,000 for one roundabout on SW Oregon Street to connect to the future east-west collector. Based on the consultant team's assessment of transportation needs, development in the Tonquin Employment Area is not anticipated to trigger any offsite transportation improvements.

Transportation Revenues

Development in the Area will contribute to transportation funding in three primary ways:

- Development site infrastructure. Developers will be responsible for improvements within development parcels.

- City of Sherwood TIF. The City of Sherwood assesses a transportation impact fee (TIF) on all new development, which is assigned to one of six general use categories: residential, recreational, institutional/medical, commercial/services, office, or port/industrial. TIFs are calculated based on the total trips a development is projected to generate. Within each general use category, a fee is assigned to different types of facilities and reflects the magnitude of the impacts the facility is anticipated to have on the local transportation system. For example, the fee for a specialty retail center ($10,961 per 1,000 square feet of gross leasable area) is higher than the fee for a general light industrial facility ($2,421 per 1,000 square feet of gross floor area) because retail uses, which attract visitors throughout the day, generate more trips—and, thus, have a much greater impact on the transportation system—than industrial uses, which have a low job density and relatively few visitors. TIF fees generated by new development will be used to finance required Area transportation improvements such as the east-west collector road.

- Washington County TDT. Washington County assesses a transportation development tax (TDT) when a building permit or occupancy permit is issued for new development. Remodeling, temporary uses, and state and federal government buildings are exempt. Calculated on a per-unit basis for residential development and on a varying basis for different types of commercial and industrial development, the TDT is based on the estimated traffic generated by each type of development. The TDT is collected and distributed to cities for use in making transportation capital improvements designed to

accommodate growth. Eligible projects are on major roads, including sidewalks and bike lanes, as well as transit capital projects.[16]

Figure IV-1, shows the Tonquin Employment Area Concept Plan and its associated subareas. Table IV-13 below shows projected 20-year TIF revenues for the area. Development in the Tonquin Employment Area is projected to produce $4.6 million in TIF revenues, which may be used to finance the east-west collector and other onsite transportation improvements.

Table IV-13: Projected TIF Revenues for Tonquin Employment Area

Subarea/ Employment Type	Total Acres	Buildable Acres	FAR	Building Area (s.f.)	% Developed in 20 Years	Building Area (s.f.) in 20 years	Land Use Category	TIF Assessment	TIF Assessment Unit	Estimated TIF Assessment
A - All	129.1	101.8								
Retail/Commercial Services		*5.0*	*0.35*	*76,230*	*100%*	*76,230*	*Specialty Retail Center*	*$10,961*	*per 1,000 SF of GLA*	*$835,523*
Light Industrial		*96.8*	*0.20*	*843,322*	*70%*	*590,325*	*General Light Industrial*	*$2,421*	*per 1,000 SF of GFA*	*$1,429,248*
B(1) - All	71.0	67.3								
Retail/Commercial Services		*5.0*	*0.35*	*76,230*	*100%*	*76,230*	*Specialty Retail Center*	*$10,961*	*per 1,000 SF of GLA*	*$835,523*
Light Industrial		*62.3*	*0.20*	*542,758*	*70%*	*379,930*	*General Light Industrial*	*$2,421*	*per 1,000 SF of GFA*	*$919,857*
B(2) Light Industrial	48.1	36.3	0.20	316,246	50%	158,123	*General Light Industrial*	$2,421	per 1,000 SF of GFA	$382,834
B(3) Light Industrial	47.9	29.8	0.20	259,618	25%	64,904	*General Light Industrial*	$2,421	per 1,000 SF of GFA	$157,141
Total	**296.1**	**235.2**		**2,114,402**		**1,345,743**				**$4,560,127**

Source: Leland Consulting Group and the City of Sherwood

Table IV-14 shows projected 20-year TDT revenues for the Area. Development in the Tonquin Employment Area is projected to produce $8.6 million in TDT revenues, which may be used to finance the east-west collector and other onsite transportation improvements.

[16] Levied countywide and in effect since July 2009, the TDT replaced the Washington County Traffic Impact Fee (TIF). The TDT doubled the TIF rates developers pay for the impact new development has on the transportation system. The new rate is being phased in over 4 years, through July 1, 2012. After July 1, 2013 the rates can increase at a rate of no more than 10% per year, based on an index tracking the costs of road construction material, labor, and right-of-way. Non-residential developments which had land use approvals prior to July 1, 2009 are charged based on the prior TIF rates. Developments may also receive credits for constructing eligible transportation improvements.

Table IV-14: Projected TDT Revenues for Tonquin Employment Area

Subarea/ Employment Type	Buildable Acres	Average FAR	Building Area (s.f.)	% Developed in 20 Years	Building Area (s.f.) in 20 years	Land Use Category	TDT Assessment Fee (7/1/2012)	TDT Assessment Unit	Estimated TDT Assessment
A - All	101.8								
Retail/Commercial Services	*5.0*	*0.35*	*76,230*	*100%*	*76,230*	*Specialty Retail Center*	*$10,913*	*per 1,000 SF of GFA*	*$831,898*
Light Industrial	*96.8*	*0.20*	*843,322*	*70%*	*590,325*	*General Light Industrial*	*$5,835*	*per 1,000 SF of GFA*	*$3,444,547*
B(1) - All	67.3								
Retail/Commercial Services	*5.0*	*0.35*	*76,230*	*100%*	*76,230*	*Specialty Retail Center*	*$10,913*	*per 1,000 SF of GFA*	*$831,898*
Light Industrial	*62.3*	*0.20*	*542,758*	*70%*	*379,930*	*General Light Industrial*	*$5,835*	*per 1,000 SF of GFA*	*$2,216,893*
B(2) Light Industrial	36.3	0.20	316,246	50%	158,123	*General Light Industrial*	$5,835	per 1,000 SF of GFA	$922,647
B(3) Light Industrial	29.8	0.20	259,618	25%	64,904	*General Light Industrial*	$5,835	per 1,000 SF of GFA	$378,717
Total	**235.2**		**2,114,402**		**1,345,743**				**$8,626,600**

Source: Leland Consulting Group and Washington County

At $13.2 million, the TIF and TDT fees generated by development in the Tonquin Employment Area during the next 20 years are projected to significantly exceed the cost of onsite transportation costs ($6.4 million). However, depending on the pace of development, the east-west collector may need to be constructed in two phases if sufficient revenues are not available to finance the entire project at once.

Within the broader Tonquin Employment Area, it is anticipated that Subareas A and B (1), which have the best existing access and visibility, will develop first. Much of Subarea A, which includes the proposed retail/commercial services center at the intersection of 124th and Tualatin-Sherwood Road, can be accessed from existing roadways and could develop prior to the construction of the east-west collector. If Subarea A achieves 50 percent build out (including full development of the five-acre commercial center) early on, for example, TIF and TDT revenues assessed to new development would exceed the estimated $3.6 million needed to construct half of the east-west collector and the roundabout at SW Oregon Street and SW Tualatin-Sherwood Road. Further, any development that occurs in Area B is anticipated to require access from the new east-west collector. Thus, development in Area B could help finance the first phase of the east-west collector on a "pay as you go" basis. Developers who provide upfront financing for the east-west collector may be eligible for a TDT or TIF credit.

2. Water

Water Costs

The Water System Concept Design, developed by CH2M HILL and included in Section IV.D or this report, identifies water system infrastructure improvements that will be required for the Tonquin Employment Area, which will be served by the City of Sherwood.

The total construction cost estimate for Tonquin Employment Area water improvements is $2.6 million and includes a 45 percent contingency for engineering, legal, and management expenses.

Water Revenues

The water system improvements described above are considered development site improvements that would be the responsibility of developers. Thus, while the City of Sherwood may be required to finance the upfront costs associated with providing water facilities in conjunction with the east-west collector, there will be no public utility obligations to fund water infrastructure in the Tonquin Employment Area.[17]

Development within the Tonquin Employment Area will generate revenues based on system development charges (SDCs) that are levied on development as it occurs. These fees, assessed by the City of Sherwood, will enable the city to build and maintain the internal capacity to serve the area. The City of Sherwood assesses a one-time water SDC to new development to help finance costs associated with building capital facilities needed to accommodate growth. The SDC ranges from $6,319 for a ¾" meter to $568,781 for an 8" meter.

3. Sanitary Sewer

Sanitary Sewer Costs

The Sanitary Sewer System Concept Design developed by CH2M Hill (see Section IV.D) identifies sanitary sewer system infrastructure improvements that will be required for the Tonquin Employment Area, which will be served by the City of Sherwood and Clean Water Services (CWS).

The total construction cost estimate for area sanitary sewer system improvements is $6.9 million. This includes approximately $4.4 million in trunk sewer improvements and $2.5 million is local sewer improvements within the development to extend the sewer from the trunk to individual lots.

Sanitary Sewer Revenues

Based on CH2M HILL's analysis of sanitary sewer infrastructure requirements, it is assumed that private development will bear the total cost of sanitary sewer improvements associated with build out in the Tonquin Employment Area.

[17] As development occurs, the City will be reimbursed for these water system improvements through system development charges generated by new development.

Specifically, developer requirements will include:

- Development site infrastructure. Developers will be responsible for all onsite infrastructure costs.

- Connection fees/SDCs. Depending on the diameter of the sewer line, the City of Sherwood or CWS will assess SDCs to new development to finance connection charges, which may include:

  a. Direct connections to the district sewer system;

  b. Indirect connections to the district sewer system including, but not limited to, building additions, or expansions, which include sanitary facilities;

  c. Change in the use of an existing connection; and

  d. Substantial increase(s) in the flow of or alteration of the character of sewage to an existing connection.

For commercial and industrial uses, connection fees will be calculated as Dwelling Unit Equivalents (DUEs) based on the estimated or actual metered flow in incoming water, or metered effluent. The fees are calibrated to match the expected true cost of any offsite improvements required by the development. Thus, there will be no unmet funding obligation as a result of development in the Area.

4. Stormwater

Stormwater Costs

The Stormwater System Concept Design developed by CH2M HILL (see Section IV.D) identifies storm drainage system infrastructure improvements that will be required for the Tonquin Employment Area, which will be served by the City of Sherwood and CWS.

The total construction cost estimate for area stormwater improvements, including a 45 percent contingency for administration and engineering expenses, is $918,000. This includes improvements to three regional stormwater facilities as well as conveyance infrastructure improvements.

Stormwater Revenues

Based on CH2M HILL's analysis of stormwater infrastructure requirements, it is assumed that private development will bear the total cost of stormwater improvements associated with build out of the Area.

Specifically, developer requirements will include:

- Development site infrastructure. Developers will be responsible for all development site infrastructure costs, including, at a minimum, the provision of stormwater detention facilities.[18]

- Regional water quality facilities (assuming developers are not required to construct all their stormwater management facilities on site).

- SDCs. The City of Sherwood and CWS will assess the following SDCs to new development to finance local and regional storm drainage facilities:

  a. Water quantity SDC (regional/CWS)

  b. Water quality SDC (regional/CWS)

  c. City of Sherwood storm drainage SDC

Regional water quantity and water quality SDCs assessed by CWS are calculated as Equivalent Service Units (ESUs) based on the total area of impervious surface attributed to a new development.[19] The City's storm drainage SDC is calculated on a per-square-foot basis, based on the total area of impervious surface attributed to a new development.[20] These fees are calibrated to match the expected true cost of any offsite local and regional stormwater improvements required by the development. Thus, there will be no unmet funding obligation as a result of development in the Tonquin Employment Area.

5. Parks

Although the analysis of the Area's onsite infrastructure and public facilities needs does not specifically identify any parks projects, the Area could include public parks and open space.

The City of Sherwood assesses a Parks SDC of $75 per employee on new development. As shown in Table IV-15, based on proposed development projections, the Tonquin Employment Area is projected to generate $172,000 in Parks SDC revenues.

[18] Developers could be required to construct all stormwater management facilities within development sites. Under this scenario, no regional water quality facilities would be needed.
[19] One ESU = 2,640 square feet of impervious surface. Currently, CWS assesses new development a water quantity SDC of $275 per ESU and a water quality SDC of $225 per ESU.
[20] Currently, the City of Sherwood's storm drainage SDC is $0.043 per square foot of impervious surface.

Table IV-15: Projected Parks SDC Revenues for Tonquin Employment Area

Subarea/ Employment Type	Total Acres	Buildable Acres	FAR	Building Area (s.f.)	% Developed in 20 Years	Building Area (s.f.) in 20 years	Job Density (empl. per 1,000 s.f.)[1]	Total Jobs in 20 Years	Sherwood Parks SDC Assessment	Parks SDC Assessment Unit	Estimated Parks SDC
A - All	129.1	101.8									
Retail/Commercial Services		*5.0*	*0.35*	*76,230*	*100%*	*76,230*	*2.5*	*191*	*$75*	*per employee*	$14,000
Light Industrial		*96.8*	*0.20*	*843,322*	*70%*	*590,325*	*1.6*	*945*	*$75*	*per employee*	$71,000
B(1) - All	71.0	67.3									$0
Retail/Commercial Services		*5.0*	*0.35*	*76,230*	*100%*	*76,230*	*2.5*	*191*	*$75*	*per employee*	$14,000
Light Industrial		*62.3*	*0.20*	*542,758*	*70%*	*379,930*	*1.6*	*608*	*$75*	*per employee*	$46,000
B(2) Light Industrial	48.1	36.3	0.20	316,246	50%	158,123	1.6	253	$75	per employee	$19,000
B(3) Light Industrial	47.9	29.8	0.20	259,618	25%	64,904	1.6	104	$75	per employee	$8,000
Total	296.1	235.2		2,114,402		1,345,743		2,290			$172,000

[1] Employment density figures derived from the City of Sherwood Economic Development Strategy.

Source: Leland Consulting Group and the City of Sherwood

F. Financing Tools

After a thorough examination of potential financing tools, Leland Consulting Group has identified a range of funding tools that may be used to finance transportation and public facilities infrastructure in the Tonquin Employment Area. As described in the Section E above, mandatory fees and charges assessed to new development in the Tonquin Employment Area are anticipated to exceed the cost of required onsite and offsite transportation and infrastructure improvements. Nevertheless, additional funding tools could be used to reduce the obligations of developers as an investment incentive to attract high quality projects that support local and regional planning and economic development objectives.

The funding tools presented below have been selected based on their track record of use in the region. Several transportation funding tools are funded via the Oregon Department of Transportation (ODOT) through competitive grants that are offered annually or biannually. Local funding tools, such as urban renewal and Local Improvement Districts (LIDs), may be used to finance capital improvements within designated geographic areas or special districts. Tools that have little likelihood of being used in the Tonquin Employment Area (e.g., federal earmarks, City general fund money, etc.) are not represented on the list. It is important to note that none of these funding sources are actually committed today. However, now is the time to start laying the groundwork so that they are in place when funds are needed. This groundwork may include tasks such as applying for grants and adding Tonquin Employment Area improvements to local and regional transportation plans[21]. Seeking financial assistance through a range of programs and initiatives is a strategy that is likely to increase opportunities to attract the types of industries and employment that the City and the region have targeted for the Area.

[21] This would include identifying the new East/West Collector and the roundabout on SW Oregon as projects in the Sherwood TSP and Metro's RTP.

1. Local Funding Tools

Tax Increment Financing/Urban Renewal

Tax increment financing (TIF) is one of the most powerful public funding tools for revitalization. TIF is a mechanism where public projects are financed by debt borrowed against the future growth of property taxes in a defined urban renewal district. The assessed value of all properties within the district is set at the time the district is first established (the frozen base). As public and private projects enhance property values within the district, the increase in property taxes over the base (the increment) is set aside. Debt is issued, up to a set maximum amount (the maximum indebtedness), to carry out the urban renewal plan and is repaid through the incremental taxes generated within the district. The duration of urban renewal districts typically ranges from 15 to 25 years. When the district is retired, the frozen base is removed and all property taxes in the district return to normal distribution. The City would need to prepare an urban renewal plan, which would identify specific projects to be funded and the likely funding capacity from tax increment revenues.

Local Improvement District

A Local Improvement District, or LID, is a special assessment district where property owners are assessed a fee to pay for capital improvements such as sidewalks, underground utilities, shared open space, and other features. LIDs are typically petitioned by, and must be supported by, a majority or supermajority of the affected property owners. Since LIDs are funded by private property owners, they can help share the funding burden in a public-private partnership. Further, since it requires private property owner support, it is a good mechanism to help organize property owners around a common goal. Such a mechanism could be a useful tool to fund shared amenities and infrastructure in the Tonquin Employment Area.

Washington County Major Street Transportation Improvement Program (MSTIP)

The MSTIP is a Washington County funding mechanism that uses property tax revenues to issue bonds for capital construction of major transportation projects with countywide benefit. Most of these projects take place on county roads. The program, which generates approximately $26 million annually, will allocate approximately $140 million for at least 19 major projects over the next five years. The amount of funding individual projects receive varies greatly depending on the size and scale of the project. Improvements to 124th and Tualatin-Sherwood Road are examples of projects in the Tonquin Employment Area that may be eligible for MSTIP funds.

2. Regional Funding Tools

Metropolitan Transportation Improvement Program (MTIP)

Federally funded by the Federal Highway Administration and the Federal Transit Administration, and administered through Metro, MTIP grants are generally authorized for transportation projects. Funds have been allocated for the 2010-2013 funding cycle currently underway. However, now would be the time to seek funding for the next cycle. A project must be listed in

the Regional Transportation Plan (RTP) in order to be eligible for MTIP funds. The extension of 124th Street, which includes the construction of a new five-lane street from SW Tualatin-Sherwood Road to SW Tonquin Road, is identified as a project in the RTP. This project is scheduled for completion between 2008 and 2017 at an estimated cost of $82.5 million. Other identified transportation improvements such as the east-west collector could potentially be added to the list for funding.

3. State/Federal Funding Tools

Special Public Works Fund

Business Oregon's (formerly the Oregon Community and Economic Development Department) Special Public Works Fund (SPWF) provides funds for publically owned facilities that support economic and community development in Oregon. Funds are available to public entities (e.g., cities, counties, tribal entities, etc.) for planning, designing, purchasing, improving and constructing publically owned facilities, such as roadways and bridges, storm drainage, wastewater and water systems, and the purchase of land, rights of way and easements necessary for a public facility. While primarily a loan program, grants are available for projects that will create or retain traded-sector jobs. Low interest loans typically range from $100,000 to $9 million. Loan terms can be up to the lesser of 25 years or the useful life of a project. Grants are limited to the lesser of $500,000 or 85 percent of the project cost. The grant amount per project is based on up to $5,000 per eligible job created or retained.

Oregon Department of Transportation Grant Programs

The Oregon Department of Transportation (ODOT) has numerous grant programs to assist local government and public agencies on projects that encourage "smart" land use and transportation planning, enhance community livability and promote pedestrian and bicycle access and safety. The programs are funded through federal and state transportation funds. The Tonquin Employment Area includes transportation improvements that may be eligible for select ODOT grants.

- Oregon Pedestrian and Bicycle Program (ODOT). A range of pedestrian and bicycle improvements will be a part of the Tonquin Employment Area transportation infrastructure. ODOT provides grants for crosswalks, bike lane striping, and pedestrian crossing islands that fall within the rights-of-way of streets, roads and highways. During the 2010-11 funding cycle, approximately $5 million in grants ranging from $100,000 to $600,000 were awarded to 16 jurisdictions, including smaller cities, such as Talent and Sweet Home, and larger cities and counties, such as Gresham and Deschutes County.

- Oregon Transportation Enhancements (TE) Program. Using federal transportation funds, ODOT TE grants are awarded to local governments and other public agencies to support projects that improve communities and enhance the experience of traveling. New sidewalks, bike lanes, and pedestrian amenities such as benches and streetlights are eligible TE projects, as are the restoration of historic railroad stations, bus stations,

and bridges. During the 2009-11 funding cycle, approximately $11 million in grants ranging from $280,000 to $1.2 million were awarded to 14 jurisdictions throughout Oregon. Pending availability of additional funding, approximately $5 million was approved for projects on the "reserve" list. Local governments must contribute 10 percent of the project's cost.

State Transportation Improvement Program (STIP)

The STIP is Oregon's adopted four-year investment program for major state and regional transportation systems, including interstate, state, and local highways and bridges, public transportation systems, and federal and tribal roads. It covers all major transportation projects for which funding is approved and project implementation is expected to occur during a certain time frame. The STIP includes all major transportation projects and programs in Oregon that are funded with federal dollars. It also includes state-funded projects that relate to the state highway system, and "regionally significant" locally funded projects in metropolitan areas that affect the state's transportation system.

Immediate Opportunity Fund (IOF)

The IOF program is administered by the ODOT Financial Services' Economics and Policy Analysis Unit. It was created in 1988 by the Oregon Transportation Commission (OTC) in order to quickly process and fund transportation improvements that would attract or retain jobs. The fund is a collaborative effort between Business Oregon and ODOT. It is intended as quick-response or incentive funding for either targeted business development projects or business district revitalization projects. Projects are either pulled from a city or county's transportation system plan (TSP), or are small projects that are not listed in the TSP and may be added onto other larger projects.

The IOF program funds three types of projects, several of which could support development in the Tonquin Employment Area.

- Type A: Specific economic development projects that affirm job retention and job creation opportunities. Maximum grant: $1,000,000.
- Type B: Revitalization of business or industrial centers to support economic development. Maximum grant: $250,000.
- Type C: Preparation of Oregon Certified Project Ready Industrial Sites. Maximum grant: $500,000.

4. Other Funding Initiatives

The financial landscape is changing rapidly and new funding mechanisms are emerging to address a variety of community infrastructure and economic development needs, in particular smart growth projects that link transportation and land use, as well as development that

supports energy efficiency and sustainability goals. Examples of recent funding tools and initiatives that the City may wish to track include:

Sustainable Communities Initiative

The Sustainable Communities Initiative is a new collaboration formed in early 2010 between the Department of Housing and Urban Development (HUD), the U.S. Environmental Protection Agency (EPA), and the U.S. Department of Transportation (DOT) encourages better coordination in planning to support smart growth and more efficient development. Currently, most grants are focused on either transportation improvements or planning projects.

Transportation Investment Generating Economic Recovery (TIGER) Discretionary Grants

As part of the 2009 American Recovery and Reinvestment Act, the federal government appropriated $1.5 billion in discretionary grants to finance capital investments in surface transportation projects that will have a significant impact on the nation, a metropolitan area or a region. While the TIGER grants, which are administered through the Department of Transportation and available to state and local governments through September 2011, have already been awarded, it is possible that the federal government will renew this program or fund a similar program in the future.

V. Implementation Policies

A. Existing Policies

The City of Sherwood has identified a series of goals, objectives and an action plan in its Economic Development Strategy that will guide future community discussions and decisions on economic growth in the city. The overall economic development vision articulated in the Economic Development Strategy is:

> *City of Sherwood Economic Development Strategy – Vision Statement*
>
> *The City of Sherwood will drive economic development and support businesses that provide jobs for our residents by building on our assets and developing the necessary infrastructure to retain existing businesses and support new businesses. Economic development also will be supported by maintaining our livability and character as a clean, healthy, and vibrant suburban community where one can work, play, live, shop and do business.*

The Economic Development Strategy includes short-term and long-term strategies to enhance Sherwood's economic opportunities. The Strategy states:

> *In the short-term, Sherwood should develop a proactive marketing strategy aimed at further defining, enhancing, and attracting existing high-growth industry clusters, including industries such as:*
>
> - *Small to mid-size light manufacturing establishments*

- *Specialty contractors and construction firms*
- *Creative service individuals and establishments*
- *Amusement, recreation, sporting and lodging services*
- *Educational facilities*
- *Nursing and health care support services*

Long term strategies should include planning for new industrial sites (with integrated commercial and residential development) within future master-planned employment districts in Area 48. New zoning codes may be needed to accomplish this objective.

Specific to the Tonquin Employment Area (Area 48) the Strategy notes:

Effective economic development strategies must also confront challenges regarding cost effective delivery of adequate project ready sites. At issue is the additional industrial land supply that was brought into the Portland Metro UGB in 2002 and 2004. While the majority of this land does not yet have adequate public roads, sewer, and water lines, the supply increase will likely create a short term industrial land surplus. Hence, Sherwood must carefully evaluate prospective land absorption and return on public investment before making major fiscal expenditures aimed at increasing its industrial land base.

B. Proposed Policies

The following proposed goal and policies are intended to implement the city's objectives for attracting state-identified industry clusters in the Tonquin Employment Area and to support the rationale for include the planning area in the Urban Growth Boundary. Once adopted, it is possible that these goals and policies could be applied to existing employment areas to support a change in land use designation, but they are principally intended to describe opportunities in the TEA and future urban expansion areas.

One of the Oregon Business Development Department's stated goals, as articulated in the 2009 Strategic Plan,[22] is to help existing businesses retain jobs while growing and attracting sustainable businesses by focusing value-added services in key industries. The identified industries are Clean Technology, Wood and Forest Products, Technology and Advanced Manufacturing, and Outdoor Gear & Active Wear. Of these four key industries, only one - wood and forest products - is not compatible with the City's and the region's employment goals for the TEA and other employment areas planned for urban levels of development.

[22] http://www.oregon4biz.com/assets/docs/agency-strategic-plan.pdf

Of the proposed policies for the IE zone, only one is specific to the TEA and would not be applicable to other areas within the City. This policy, proposed Policy 5, acknowledges the need for a 50-acre parcel within the area, a requirement imposed when the land became part of the Metro urban growth boundary. If the IE designation is to be applied to urban reserve areas in the future, than the City may desire, or may be required, to modify the policy language to include special circumstances or requirements associated with these new areas.

Tonquin Employment Area Development Goal:

To expand and diversify the Sherwood industrial economic base by establishing employment areas that are suitable for, and attractive to, key industries and industry clusters that have been identified by the State of Oregon and the city's economic development strategy as important to the state and local economy. Industrial Employment areas provide for:

1. *Large and medium-sized parcels for industrial campuses and other industrial sites that can accommodate a variety of industrial companies and related businesses in the following preferred industry sectors:*

   Clean Technology

   - *Renewable energy/energy efficiency*
   - *Sustainable environmental products*

   Technology & Advanced Manufacturing

   - *Manufacturing/metals*
   - *High technology*
   - *Biotechnology and bio-pharmaceuticals*

   Outdoor Gear & Active Wear

   - Sports apparel/recreation products

2. *Flex building space within small- and medium-sized industrial campuses and business parks to accommodate research and development companies, incubator/emerging technology businesses, related materials and equipment suppliers, and or spin-off companies and other businesses that derive from, or are extensions of, larger campus users and developments.*

Policies

1. *Facilitate and foster the siting, development, and growth of employers whose operations can be described as part of the preferred industry sectors desired for Industrial Employment areas.*

2. *Provide development opportunities for employers of varying sizes within the Industrial Employment areas for manufacturing and other industrial uses that fall within preferred industry sectors.*

3. *Encourage business that supply and support preferred industries and that benefit from close proximity to the industry served to located in Industrial Employment areas.*

4. *Permit light industrial uses not associated with the preferred industry sectors in Industrial Employment areas provided that such uses are not incompatible with the types of industry preferred for these areas.*

5. *Encourage and accommodate the creation of larger industrial parcels including at least one parcel 50-acre or larger parcel within Sub-area "A" of the Tonquin Employment Area through zoning provisions that facilitate land assembly consolidations and/or partitioning to create large campus-like industrial sites.*

6. *Encourage aesthetically attractive, well designed industrial uses and sites within development approved for construction in the Industrial Employment areas.*

7. *Where applicable, require development in Industrial Employment areas to be designed within the context of adjacent existing or future employment areas, in particular with respect to site design, building orientation, and the continuation of the existing transportation system.*

Implementation

1. *The City of Sherwood shall amend the Zoning and Community Development Code to include an Industrial Employment zone that implements the goals and policies in this section.*

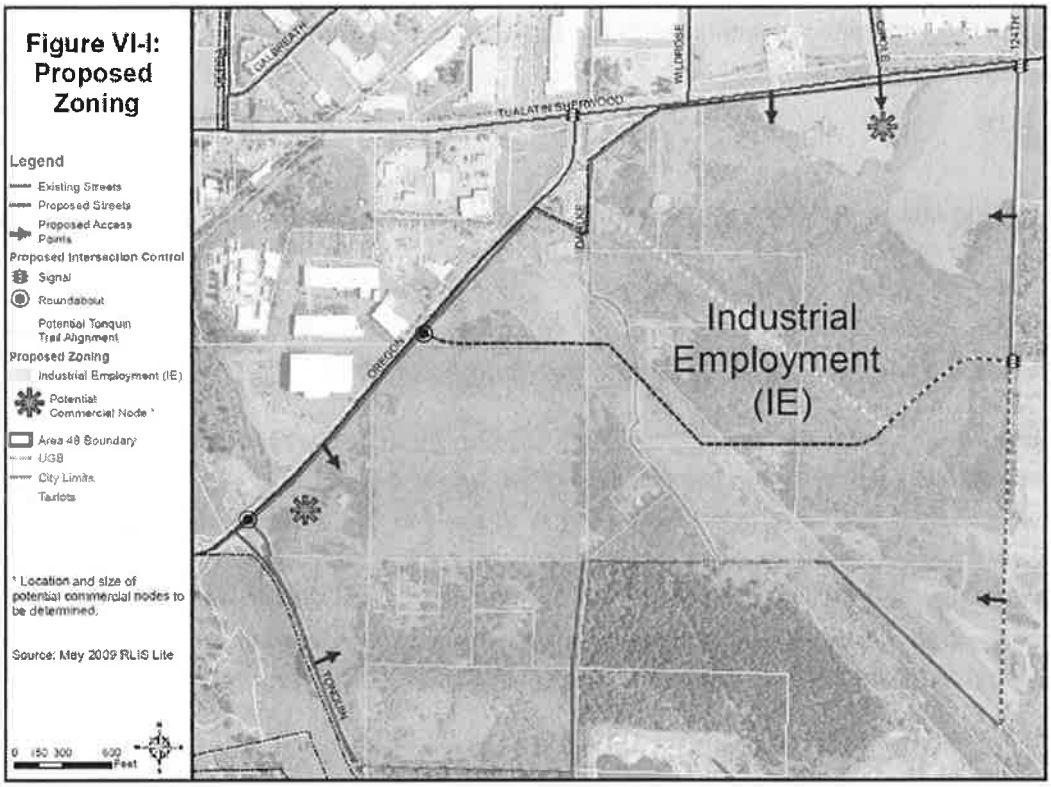
2. *The Industrial Employment zone may be applied only to those properties within city limits, or upon their annexation to the city.*

VI. Zoning Code Requirements

A proposed new chapter for the City of Sherwood Zoning and Development Code has been developed in order to implement the Tonquin Employment Area Preferred Concept Plan. Specifically, the Industrial Employment (IE) zone (Appendix B) is intended to implement the city's development strategies for the Tonquin Employment Area. While supportive of economic growth, the IE zone is targeted to support the type of employment opportunities envisioned for

the Tonquin Employment Area when it was included in the Urban Growth Boundary. As described below, the zone is intended to promote preferred industry sectors that the city has targeted in its Economic Development Strategy, as reflected in the proposed Comprehensive Plan policies in Section V.B of this report. As such, the proposed list of permitted uses is somewhat more restrictive in terms of allowing general industrial uses. At the same time, the zone restricts uses that would impede or be inconsistent with the types of employment uses targeted for the area. The IE zone also implements the land division requirements of Metro's Title 4. Figure VI-1 shows the application of the IE zone to the Tonquin Employment Area.

Figure VI-1: Proposed Zoning



Guidance for the development of the Industrial Employment (IE) zone came from the participants in a TEA Economic Development Meeting, November 2009, discussing the topic of future employment uses in the TEA. Participants included key members of the TEA Concept Plan development team, Tom Nelson, the City's Economic Development Manager, and commercial real estate brokers. Additional input from City staff refined the approach and resulted in the proposed draft IE zone chapter.

The model for the draft Industrial Employment (IE) zone chapter is the city's existing Light Industrial zone. The IE zone is distinguishable from the City's existing LI zone by the new zone's purposed statement and the permitted uses. The following purpose statement has been drafted for the IE zone that reflects the proposed policy language and emphasizes that areas with the IE zone designation are intended to be attractive to and suitable for key industries and the businesses that supply them.

Purpose

The IE zoning district provides employment areas that are suitable for, and attractive to, key industries and industry clusters that have been identified by the State of Oregon and the City's economic development strategy as important to the state and local economy. The following are preferred industry sectors for areas zoned IE: Clean Technology; Technology and Advanced Manufacturing; and Outdoor Gear and Active Wear.

Land zoned IE shall provide for large and medium-sized parcels for industrial campuses and other industrial sites that can accommodate a variety of industrial companies and related businesses. Areas zoned IE are also intended to provide the opportunity for flex building space within small- and medium-sized industrial campuses and business parks to accommodate research and development companies, incubator/emerging technology businesses, related materials and equipment suppliers, and or spin-off companies and other businesses that derive from, or are extensions of, larger campus users and developments.

Industrial establishments shall not have objectionable external features and shall feature well-landscaped sites and attractive architectural design, as determined by the Commission.

Reflecting the conversation at the TEA Economic Development Meeting, the challenge with regulating new employment areas can be characterized as the tension between aspirations, as described in the IE policies and reflected in the purpose statement, and the current, market-driven demand that exists today. In anemic growth periods such as exists today it is politically unpopular to deny permitting any business or industry that brings employment opportunities. However, permitting uses that do not fulfill long-term economic development objectives may result in short-term employment gains but future land uses that hinder or preclude the identified desired industries. The intent of the proposed IE zone is to provide a unique place for emerging technologies and for the possibility of synergistic clusterings of similar uses, while at the same

time allowing for more traditional light industrial uses that could be sited in, or compatibly among, industrial park or campus developments.

Consistent with the zone's purpose statement, uses associated with the three identified key industries are permitted outright. Through a conditional use permit process, uses that can be shown to be "consistent with, or a variation of" target industry uses will also be permitted. No other additional uses have been included in the IE zone, but many uses have been modified to better meet the objectives of the new employment area(s). Some uses that are permitted in the LI zone are not recommended for the IE zone because they are not closely related to the targeted industries or are uses that have the potential to remove a large amount of buildable land from the available inventory without providing the type of employment envisioned for the IE designated-areas.

The City has recently modified both the Light Industrial (LI) and the General Industrial (GI) zone chapters to include Metro Title 4 limitations on commercial uses in industrial zones. The proposed IE zone also includes these requirements, but they are located in the standards, not the use, section of the chapter. All other standards remain identical to the existing LI zone.

Finally, some additional definitions will need to be adopted to describe new terms in the IE zone. Draft definitions have been included at the end of the Industrial Employment (IE) Zone document for convenience, but ultimately should be incorporated into the definitions section of the Zoning and Community Development Code. Proposed definitions have been modified from definitions readily available via dictionary and industry-related internet sites.

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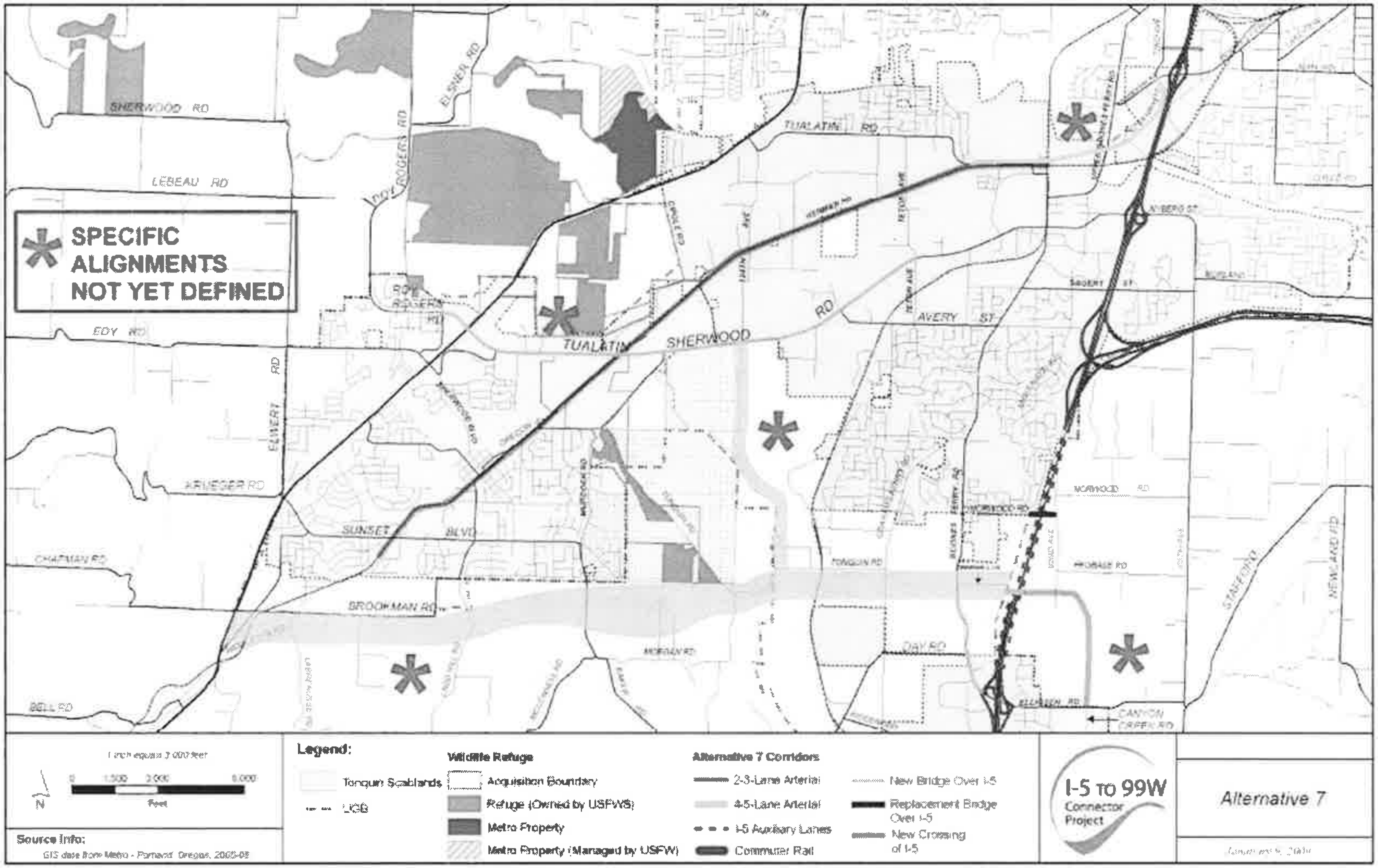
APPENDIX


SPECIFIC ALIGNMENTS NOT YET DEFINED
SHERWOOD RD
LEBEAU RD
EDY RD
ELWERT RD
KRUEGER RD
CHAPMAN RD
BELL RD
ROY ROGERS RD
ELSNER RD
TUALATIN RD
TUALATIN SHERWOOD RD
AVERY ST
SUNSET BLVD
BROOKMAN RD
MORGAN RD
DAY RD
TONQUIN RD
NORWOOD RD
PROBABE RD
STAFFORD
NEWLAND RD
CANYON CREEK RD
Legend:
Tonquin Scablands
UGB
Wildlife Refuge
Acquisition Boundary
Refuge (Owned by USFWS)
Metro Property
Metro Property (Managed by USFW)
Alternative 7 Corridors
2-3-Lane Arterial
4-5-Lane Arterial
I-5 Auxiliary Lanes
Commuter Rail
New Bridge Over I-5
Replacement Bridge Over I-5
New Crossing of I-5
Feet
N
Source Info:
I-5 TO 99W Connector Project
Alternative 7

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Chapter 16.XX

INDUSTRIAL EMPLOYMENT (IE)

Sections:

16.XX.010 Purpose
16.XX.020 Permitted Uses
16.XX.030 Conditional Uses
16.XX.040 Prohibited Uses
16.XX.050 Dimensional Standards
16.XX.060 Community Design
16.XX.070 Flood Plain
16.XX.080 Commercial Use Restrictions

16.XX.010 Purpose

The IE zoning district provides employment areas that are suitable for, and attractive to, key industries and industry clusters that have been identified by the State of Oregon and the City's economic development strategy as important to the state and local economy. The following are preferred industry sectors for areas zoned IE: Clean Technology; Technology and Advanced Manufacturing; and Outdoor Gear and Active Wear.

Land zoned IE shall provide for large and medium-sized parcels for industrial campuses and other industrial sites that can accommodate a variety of industrial companies and related businesses. Areas zoned IE are also intended to provide the opportunity for flex building space within small- and medium-sized industrial campuses and business parks to accommodate research and development companies, incubator/emerging technology businesses, related materials and equipment suppliers, and or spin-off companies and other businesses that derive from, or are extensions of, larger campus users and developments.

Industrial establishments shall not have objectionable external features and shall feature well-landscaped sites and attractive architectural design, as determined by the Commission.

16.XX.020 Permitted Uses

The following uses are permitted outright, provided such uses meet the applicable environmental performance standards contained in Division VIII. Incidental retail sales, limited to 10% of the total floor area of a business, may be permitted as a secondary function of a permitted or conditional use, subject to the review and approval of the Hearing Authority.

A. Manufacturing, compounding, processing, assembling, packaging, treatment, fabrication or wholesaling of articles or products associated with the preferred industry sectors identified for the IE zone, including uses associated with the following:
   1. Renewable energy/energy efficiency
   2. Sustainable environmental products
   3. Advanced manufacturing
   4. High technology
   5. Biotechnology and biopharmaceuticals
   6. Sports apparel and other recreation products

B. Contractor's offices and other offices associated with a use permitted in the IE zone.

C. Public and private utilities, including but not limited to telephone exchanges, electric substations, gas regulator stations, sewage treatment plants, water wells, and public works yards.

D. Laboratories for testing and medical, dental, photographic, or motion picture processing, except as prohibited by Section 16.XX.040(E).

E. Industrial hand tool and supply sales primarily wholesaled to other industrial firms or industrial workers.

F. Dwelling unit for one (1) security person employed on the premises, and their immediate family.

G. PUDs subject to the provisions of Chapter 16.40. New PUDs may mix uses which are permitted in the IE zone.

H. Temporary uses, including but not limited to construction and real estate sales offices, subject to Chapter 16.86.

I. Wireless communication antennas co-located on an existing tower or on an existing building or structure not exceeding the roof of the structure provided the applicant can demonstrate to the satisfaction of the City that the location of the antenna on City-owned property would be unfeasible.

J. Business and professional offices (such as financial, insurance, real estate, legal, medical and dental offices), provided that they are associated directly with another permitted use in this zone and do not cater to daily customers.

K. Business and professional offices (such as financial, insurance, real estate, legal, medical and dental offices) that cater to daily customers that meet the requirements of 16.XX.080.

L. Training facilities whose primary purpose is to provide training to meet industrial needs.

M. Blueprinting, printing, and other reproduction services, provided that the service is associated directly with another permitted use.

N. Medical, dental and similar laboratories.

O. Manufacture, compounding, processing, assembling, packaging, treatment, fabrication or wholesaling of the following articles or products, except as prohibited in Section 16.XX.040:

1. Food products, including but not limited to candy, dairy products, beverages, coffee, canned goods and baked goods.
2. Cosmetics, drugs, pharmaceuticals, toiletries, chemicals and similar products.
3. Electrical, radio, television, optical, scientific, hearing aids, electronic, computer, communications and similar instruments, components, appliances and systems, and similar products and associated small parts.
4. Building components and household fixtures, including but not limited to furniture, cabinets, and upholstery, ladders, mattresses, doors and windows, signs and display structures, and similar products and associated small parts.
5. Recreational vehicles and equipment, including but not limited to bicycles, recreational watercraft, exercise equipment, and similar products and associated small parts, but excluding motorized equipment unless otherwise permitted by Section 16.XX.020 or 16.XX.030.
6. Musical instruments, toys and novelties.
7. Pottery and ceramics, limited to products using previously pulverized clay.
8. Textiles and fiber products.
9. Other small products and tools manufactured from previously prepared or semi-finished materials, including but not limited to bone, fur, leather, feathers, textiles, plastics, glass, wood products, metals, tobacco, rubber, and precious or semi-precious stones.

P. Manufacturing of appliances, including but not limited to refrigerators, freezers, washing machines, dryers, small electronic motors and generators, heating and cooling equipment, lawn mowers, rototillers, and chain saws, vending machines, and similar products and associated small parts.

16.XX.030 Conditional Uses

The following uses are permitted as Conditional Uses provided such uses meet the applicable environmental performance standards contained in Division VIII and are approved in accordance with Chapter 16.82:

A. Any use that can be shown to be consistent with, or a variation of, the uses associated with allowed uses in 16.XX.020(A).

B. Government facilities, including but not limited to postal, police, fire, and vehicle testing stations.

C. Light metal fabrication, machining, welding and electroplating and casting or molding of semi-finished or finished metals.

D. Offices associated with a use conditionally permitted in the IE zone.

E. Transmitters and wireless communication towers except for towers located within 1,000 feet of the Old Town District which are prohibited.

F. Restaurants without drive-thru that meet the requirements of 16.XX.080.

G. Commercial trade schools.

H. Retail uses for warehousing or manufacturing operations, limited to 10% of the total floor area and not to exceed 20,000 square feet of gross leaseable area per building or business. The retail area shall be physically separated by a wall or other barrier from the manufacturing or warehousing operation. Warehousing and storage areas shall not be used as showrooms and are subject to the restrictions of 16.XX.40(N).

I. Retail uses for warehousing or manufacturing operations, limited to 10% of the total floor area and not to exceed 60,000 square feet of gross leaseable area per building or business. The retail area shall be physically separated by a wall or other barrier from the manufacturing or warehousing operation. Warehousing and storage areas shall not be used as showrooms.

J. Power generation plants and associated facilities serving a permitted use.

K. Daycares and preschools if fully integrated with and secondary to a use elsewhere permitted in Section 16.XX.020 or 16.XX.030.

L. Public recreational facilities including parks, playfields and sports and racquet courts on publicly owned property or under power line easements.

16.XX.040 Prohibited Uses

Any use that is not permitted or conditionally permitted under Section 16.XX.20 or Sectoin16.XX.030 is prohibited in the IE zone. In addition, the following uses are expressly prohibited:

A. Adult entertainment businesses.

B. Meat, fish and poultry processing.

C. Auto wrecking and junk or salvage yards.

D. Distillation of oil, coal, wood or tar compounds and the creosote treatment of any products.

E. Manufacture, compounding, processing, assembling, packaging, treatment, fabrication, wholesale, warehousing, or storage of the following products or substances, except for any incidental business, service, process, storage, or display that is essential to and customarily associated, in the City's determination, with any otherwise permitted or conditionally permitted use:
   1. Abrasives, acids, disinfectants, dyes and paints, bleaching powder and soaps and similar products.
   2. Ammonia, chlorine, sodium compounds, toxins, and similar chemicals.
   3. Celluloid or pyroxylin.
   4. Cement, lime, gypsum, plaster of Paris, clay, creosote, coal and coke, tar and tar-based roofing and waterproofing materials and similar substances.
   5. Explosives and radioactive materials.
   6. Fertilizer, herbicides and insect poison.
   7. Other similar products or compounds which are determined to be detrimental to the health, safety and welfare of the community.

F. Metal rolling and extraction mills, forge plants, smelters and blast furnaces.

G. Pulp mills and paper mills.

H. Slaughter of livestock or poultry, the manufacture of animal by-products or fat rendering.

I. Leather tanneries.

J. General purpose solid waste landfills, incinerators, and other solid waste facilities.

K. Restaurants with drive-thru facilities.

L. Business and professional offices in buildings that cater to daily customers (such as financial, insurance, real estate, legal, medical and dental offices) that do not meet the requirements of 16.XX.080.

M. Retail trade, except as permitted by Section 16.XX.020 above.

N. Warehousing and storage not associated with a permitted use.

16.XX.050 Dimensional Standards

No lot area, setback, yard, landscaped area, open space, off-street parking or loading area, or other site dimension or requirement, existing on, or after, the effective date of this Code shall be reduced below the minimum required by this Code. Nor shall the conveyance of any portion of a lot, for other than a public use or right-of-way, leave a lot or structure on the remainder of said lot with less than minimum Code dimensions, area, setbacks or other requirements, except as permitted by Chapter 16.84.

A. Lot Dimensions

Except as otherwise provided, required minimum lot areas and dimensions shall be:

1.	Lot area:	10,000 sq ft
2.	Lot width at front property line:	100 feet
3.	Lot width at building line:	100 feet

B. Setbacks

Except as otherwise provided, required minimum setbacks shall be:

1.	Front yard:	Twenty (20) feet, except when abutting a residential zone, then there shall be a minimum of forty (40) feet.
2.	Side yard:	None, except when abutting a residential zone, then there shall be a minimum of forty (40) feet.
3.	Rear yard:	None, except when abutting a residential zone, then there shall be a minimum of forty (40) feet.
4.	Corner lots:	Twenty (20) feet on any side facing a street, except when abutting a residential zone, then there shall be a minimum of forty (40) feet.

C. Height

Except as otherwise provided, the maximum height shall be fifty (50) feet, except that structures within one-hundred (100) feet of a residential zone shall be limited to the height requirements of that residential zone.

16.XX.060 Community Design

For standards relating to off-street parking and loading, energy conservation, historic resources, environmental resources, landscaping, access and egress, signs, parks and open space, on-site storage, and site design, see Divisions V, VIII and IX.

16.XX.070 Flood Plain

Except as otherwise provided, Section 16.134.020 shall apply.

16.XX.080 Commercial Use Restrictions

Retail and professional services that cater to daily customers, such as restaurants and financial, insurance, real estate, legal, medical and dental offices, shall be limited in the IE zone. New buildings for stores, branches, agencies or other retail uses and services shall not occupy more than 5,000 square feet of sales or service area in a single outlet and no more than 20,000 square feet of sales or service area in multiple outlets in the same development project.

New Definitions

Advanced Manufacturing. The application of cutting edge concepts in electronics, computers, software and automation to enhance manufacturing capabilities and improve production. Advanced manufacturing technology is used in all areas of manufacturing, including design, control, fabrication, and assembly. This family of technologies includes robotics, computer-aided design (CAD), computer-aided engineering (CAE), MRP II, automated materials handling systems, electronic data interchange (EDI), computer-integrated manufacturing (CIM) systems, flexible manufacturing systems, and group technology.

Biopharmaceuticals. Medical drugs derived from biological sources and produced using biotechnology.

Biotechnology. Technology based on biology, especially when used in agriculture, food science, and medicine, and includes any technological application that uses biological systems, living organisms, or derivatives thereof, to make or modify products or processes for specific use.

Clean Technology. A diverse range of products, services, and processes that harness renewable materials and energy sources, dramatically reduce the use of natural resources, and cut or eliminate emissions and wastes. Clean technology includes wind power, solar power, biomass, hydropower, biofuels, information technology, green transportation, electric motors, and innovations in lighting and other appliances related to energy efficiency.

High Technology. Scientific technology involving the production or use of highly advanced, sophisticated, or specialized systems or devices, especially those used in the fields of electronics and computers.

Renewable Energy. Energy derived from, or effectively using resources which may be naturally replenished. such as sunlight, wind, rain, tides and Renewable energy technologies include those associated with solar power, geothermal heat, wind power, hydroelectricity, and biofuels used for transportation.

Sustainable environmental products. Products that are designed to lessen negative impacts on the natural environment or to enhance the potential longevity of vital human

ecological support systems, such as such as the planet's climatic system and systems of agriculture, industry, forestry, fisheries, and the systems on which they depend.

Application Submittal Requirement – Issue Paper

Description of issue:

The Application Submittal Requirements are a part of the Zoning and Community Development Code. The Application Materials (16.70.020) and Application Submittal requirements (16.70.030) are not flexible. They are also not consistent with current practices, especially concerning the number of copies needed and process for dealing with incomplete applications.

Section 16.78 (Application Information Requirements) has a matrix that indicates which materials are generally required for specific land use applications. The matrix has an index that assigns a number to the type of proposed development. The number is placed in a table that identifies which materials are generally required. The code indicates that the City Manager has the authority to waive information requirements that are clearly not material or relevant. The matrix is very complex and it is not closely followed due to its level of detail. While it is acknowledged that the information in the matrix is detailed enough that it would allow someone that never spoke to staff a complete list of required materials it is never used by an applicant in that way..Because the matrix is so detailed, hard to read and the City Manager has the authority to waive any information requirements not material, applicants still question staff on all required elements regardless of what the list says. This also results in confusion and frustration by applicants who want to ensure they submit a complete application.

The code specifies the number of copies of application materials that must be submitted (15) however this does not reflect current technology or need. Fifteen copies are rarely needed for most land use actions. In addition, because all application materials are available electronically, the need for surplus copies for agencies, in the event of appeals, etc is significantly diminished.

Section 16.70.030 is inconsistent with the application submittal practices. This section of the code indicates that "incomplete applications shall be returned to the applicant along with a written notification of the application's deficiencies." In practice, applications that meet the minimum requirements outlined on the application form are accepted at the counter and reviewed for completeness within 30 days by the project manager. The incomplete applications are not returned to the applicants. Doing so would cause additional frustration for the applicants, take additional time and is not very customer service oriented.

Additionally, section 16.70.030 indicates that fees are non-refundable however there is a refund breakdown in our fee schedule.

Code Sections (language included on page 3-10):

16.70.020 - Application Materials
16.70.030 - Application Submittal

Section 16.78 - Application Information Requirements

Public input received:

No specific input received regarding this code update issue; however staff has had many questions from applicants regarding the number of plans required for submittal. Given that the majority of information can now be shared electronically, the argument has been made that fifteen copies are no longer needed.

Staff also regularly receives questions from applicants or applicant's representatives questioning what is required for application submittal and what elements of the submittal requirements are not applicable.

Comparison to other jurisdictions and the Oregon Model Code:

See attached table on page 11.

Initial Staff Recommendation

Number of Copies
It is recommended that the number of copies be removed from the code and allow staff to determine the number of copies based on the type of land use review or the number of copies be outlined based on the Type of application. This is consistent with many other jurisdictions that do not list the number of required copies in there code. The City of Lake Oswego does not list the number of required copies in their code however they do reference that the applicant must submit "the number of copies required by the City Manager" (See Attachment 1).

Process for incomplete applications
The current language regarding incomplete applications should be removed. It is recommended that language be replaced with something that reflects current application submittal practices, for example:

"The application will not be accepted unless the minimum application submittal requirements are met as described on the application form provided by the City"

Fees
Regarding the fees being non-refundable, it is recommended that this language be removed or revised to reference the fee schedule.

Submittal requirements
Based on review of other jurisdictions and staff experience, it is recommended that the City explore ways to simplify the matrix for easier use and only require information relevant to the specific land use application and applicable review criteria. The application submittal requirements should be more adaptable to the project that is under review. It is recommended that the submittal requirements be inserted into the respective Land Use Review section before the "Required Findings" in each land use

review section of the code. By adding the submittal requirements to each Land Use section this would eliminate the need for the matrix in section 16.78 or section 16.78 entirely. This is also consistent with the Oregon Model Code. The Oregon Model Code's first requirement is to submit the application materials on the application form. Then, there are application submittal requirements that are outlined in each land use review code section in addition to the materials on the form. An example of the Oregon Model Code is the Type I Procedure (Administrative) section 4.1.200 which is attached as Attachment 2.

Discussions may need to occur with the Engineering Department, Fire Department, Public Works, and others to determine the type of materials that are needed and the quantity.

Code Language (Current)

Chapter 16.70 General Provisions

16.70.020 Application Materials
A. Form
Any request for a land use action shall be made on forms prescribed and provided by the City and shall be prepared and submitted in compliance with this Code. A land use application shall be reviewed against the standards and criteria effective at the time of application submittal.
(Ord. 91-922 § 3)
B. Copies
To assist in determining the compliance of proposed land use actions with the Comprehensive Plan and provisions of this Code, applicants shall submit fifteen (15) copies of: the completed application form, with attachments or exhibits specifying and illustrating the proposed land use action; an existing conditions inventory; the proposed development plan; and any supplemental materials, as required by Section 16.78.010. Additional information may be required at the discretion of the City.
(Ord. 91-922 § 3)

16.70.030 Application Submittal
Acceptance
Within thirty (30) calendar days of the date of initial submission, the City shall determine whether the application is complete and so notify the applicant in writing. Incomplete applications will not be accepted by the City. Incomplete applications shall be returned to the applicant along with a written notification of the application's deficiencies. The application fees submitted are non-refundable. Provided however, that incomplete applications may be resubmitted when the noted deficiencies have been corrected to the City's satisfaction.
(Ord. 98-1053 § 1; 91-922)

Chapter 16.78 Application Information Requirements

16.78.010 Application Content

This Chapter sets forth the application contents generally required for the review of proposed land use activities. The City Manager or his or her designee is authorized to waive information requirements that are clearly not material or relevant to the specific proposal being made. In addition to these requirements, Divisions V, VI, and VII of this Code must be reviewed for other applicable requirements.
(Ord. 86-851 § 3)

INDEX	
REFERENCE NUMBER	TYPE OF PROPOSED DEVELOPMENT
1	Annexation
2	Plan Map Amendment
3	Variance
4	Conditional Use
5	Minor Partition
6	Subdivision/Major Partition
7	Planned Unit Development
8	Site Plan

TYPE OF APPLICATION
(See Index)

TYPE OF INFORMATION		INFORMATION ITEM
EXISTING CONDITIONS INVENTORY		
General Information	1-8	A tax map showing property within 300 feet with scale (1"=100' or 1"= 200') north point, date and legend.
	1-8	A current preliminary title report or lot book search.
	1-8	Name, address and phone numbers of all owner(s) and applicants. (Ord. 86-851 § 3)
Citizen Involvement	1-8	A list of tax lots, owners and their addresses within the following distances from the property subject to a land use action for which a public hearing is required: Wholly or partially within the UGB = 100 feet; Outside UGB, not in farm or forest zone = 250 feet; Outside UGB, in farm or forest zone = 500 feet. (Ord. 91-922 § 3; 86-851)
Growth	1-8	Vicinity Map of property showing City limits and Urban Growth

Management		Boundary (Ord.86-851§ 3)
Land Use	1-8	Acreage of property, lot lines and dimensions.
	1-8	City and County zoning designations.
	1-8	Maximum allowable density.
	1-8	Existing land use including nature, size and location of existing structures within 300 feet.
	1-8	Map location, purpose, dimensions and ownership of easements. (Ord. 86-851 § 3)
Environmental Resources & Hazards	4-8	Topography map showing 5 foot contours.
	2-8	SCS Soil Information Map the following: 1) Areas with severe soil limitations for buildings, roads and streets, and the nature of the limitation including weak foundation, slopes above 10%, slide hazards, etc. 2) Areas with adverse soil characteristics including rapid run-off, high erosion hazard and poor natural drainage. 3) Agricultural capability classes.
	2-8	Flood Plains - Map all 100-year flood plain and floodway lines.
	2-8	Natural Drainage - Map streams, wetlands, ponds, springs and drainage patterns.
	2-8	Significant vegetation - Map general location, size and species of trees.
	2-8	Distinctive natural areas - Indicate views, historic sites, rock out-croppings, etc.
	2-8	Sun and wind exposures - Map general orientation. (Ord. 86-851 § 3)
Environmental Quality	3-8	Air, Water, Land Pollution, Noise Sources - Indicate the location of existing uses producing significant levels of air, water, land or noise pollution. (Ord. 86-851 § 3)
Recreational Resources	3-8	Existing Facilities - Map the location, size and distance to nearest park and open spaces. (Ord. 86-851 § 3)
Transportation	1-8	Street Locations and Dimensions - Map centerline and pavement locations and rights-of-way within 300 feet.

	1-8	Traffic Volumes - Indicate existing volumes for all streets on and within 300 feet.
	2-8	Access Points - Indicate access points to property within 300 feet.
	3-8	Street Condition - Map general condition of streets within 300 feet of property.
	3-8	Street Improvements - Indicate any committed street improvement projects within 300 feet and projected completion date (if known).
	3-8	Public Transit - Indicate routes and stops within 300 feet.
	3-8	Bikeways/Pathways - Map existing routes within 300 feet.
	3-8	Traffic Impact Analysis (for developments likely to generate more than 400 average daily trips (ADT). (Ord. 2005-009 § 3)
Water	1-8	Existing Facilities - Map locations, sizes and distances to water mains.
	3-8	Existing Services - Describe service levels, capacity, pressure and fire flow characteristics of water mains.
	1-8	Planned Improvements - Indicate sizes and locations of planned improvements. (Ord. 86-851 § 3)
Sewer	1-8	Existing Facilities - Map locations, sizes and distances to the nearest sewers.
	1-8	Existing Services - Describe flow characteristics, capacity and condition of sewers.
	1-8	Planned Improvement - Indicate sizes and locations of planned capital improvements. (Ord. 86-851 § 3)
Drainage	3-8	Existing Facilities - Map locations, sizes and distances to drainage facilities or natural drainage-ways.
	3-8	Existing Service - Describe capacity and condition of on-site and downstream drainage courses and facilities.
	3-8	Runoff Analysis - Indicate SCS soil permeability ratings.
	3-8	Planned Improvements - Indicate sizes and locations of planned improvements. (Ord. 86-851 § 3)
Private Utilities	3-8	Existing Facilities and Services - Describe availability of utilities. (Ord. 86-851 § 3)
Schools	3-8	Existing Facilities and Services - Indicate location, type, enrollment, capacity and distance to nearest schools.

	3-8	Planned Improvements - Describe planned improvements. (Ord. 86-851 § 3)

PROPOSED DEVELOPMENT PLAN

General Information	1-8	A plat or plan map depicting the proposed land use or change, showing properties within 300 feet, with scale appropriate to Project size, north point, date and legend.
	1-8	Name of Development - Indicate name of proposed development.
	1-8	Vicinity map showing Property within one-half mile. (Ord. 86-851 § 3)
Citizen Involvement	1-8	Describe contacts with citizens or agencies including the Fire District, public and private utilities, schools, etc. (Ord. 86-851 § 3)
Land Use	5-8	Proposed Lots - Map lot lines, dimensions, average and minimum lot sizes, block and lot numbers.
	2-8	Setbacks - Indicate all setbacks.
	1-8	Buildable Acres - Indicate net buildable acres.
	3-8	Proposed Land Use - Indicate the location of all proposed land uses. Show relationship to existing land use to be retained. Provide tables with total acres, densities, dwelling units, floor area, percentage distribution of total site acreage by use, and percentage dwelling unit distribution by dwelling type.
	2-8	Map location of proposed structures.
	2-8	Proposed Easements - Map location, purposes, and widths. (Ord. 86-851 § 3)
Environmental Resources & Hazards	5-8	Topography - Map topography at 2 foot contours.
	6-8	Landscaping Plan - Provide plan in accordance with Chapter 16.92.
	4-8	Streams, Ponds, Wetlands - Indicate location and any measures to avoid environmental degradation.
	5-8	Natural Hazards - Provide soil analysis by a registered Soils Engineer or Geologist and any measures protecting against hazards.
	3-8	Significant natural areas - Indicate how areas are protected and

		preserved.
	5-8	Energy Conservation - Indicate relationship of site design to sun and wind exposure. (Ord. 86-851 § 3)
Environmental Quality	4-8	Provide certification by a Registered Engineer that the proposed uses meet or exceed City environmental performance standards. (Ord. 86-851 § 3)
Recreation Resources	4-8	Describe how proposal meets park and open space needs and requirements.
	5-8	Map proposed park and open space areas and describe maintenance provisions. (Ord. 86-851 § 3)
Transportation	5-8	Proposed Facilities - Provide general circulation plan showing location, widths and direction of existing and proposed streets, bicycle and pedestrian ways and transit routes and facilities. Describe the proposed circulation plan's conformity to Chapter VI, Community Development Plan.
	5-8	Indicate estimated curve and curb radii and typical street cross sections.
	5-8	Emergency Access - Show emergency access.
	5-8	Lot Access - Show the location and size of accesses, sight distances and any fixed objects on collectors or arterials.
	3-8	Future Rights-of-Way - Indicate distances from property lines to street centerlines and pavement.
	5-8	Traffic Volumes - Indicate existing and future traffic volumes.
	5-8	Street Profiles - Map profiles and indicate cuts and fills for roads with grades of 15% or more.
	5-8	Parking - Indicate the location, number and size of off-street parking spaces and loading and maneuvering areas. (Ord. 86-851 § 3)
Water	5-8	Proposed Facilities - Indicate the location and size of the proposed water distribution system and fire hydrants. (Ord. 86-851 § 3)
Sewer	5-8	Proposed Facilities - Indicate the location and size of the proposed sewage collection systems. (Ord. 86-851 § 3)
Drainage	5-8	Proposed Facilities - Indicate proposed runoff control and conveyance system. (Ord. 86-851 § 3)
Private Utilities	5-8	Lighting Plan - Indicate location, height, and sizes of street lighting structures and their connection points to power lines.(Ord. 86-851 § 3)
Economic	4-8	Industrial and Commercial Uses - Indicate number of new jobs to be created, the ratio of employees to site acreage, anticipated capital

Development		investment and tax impact.
	4-8	Commercial Uses - Provide evidence of local markets for the service or product to be marketed.
	4-8	Residential Uses - Provide evidence of local markets for type of housing proposed. (Ord. 86-851 § 3)
Structural Design and Construction	8	Proposed Structures - Provide architectural sketches and elevations of all proposed structures as they will appear upon completion.
	8	Construction Materials - Provide a description of external structural design including materials, textures and colors. Describe compatibility with other uses and natural features.
	8	Energy Conservation - Show the relationship of building orientation and sun and wind exposures. Describe how structures address energy conservation.
	8	Hazard Protection/Resources Preservation - Show how proposed structures relate to natural features and hazards.
	8	Signs - Indicate the locations, sizes and design of proposed signs.
	8	Solid Waste Storage - Indicate the location and design or storage facilities.
	8	Privacy - Describe how privacy is protected.
	8	Construction Measure - Describe how erosion, siltation and noise will be controlled during construction.
	8	Fencing and Screening - Indicate the location, size and design of screening including fencing, berms and walls. (Ord. 86-851 § 3)

Jurisdiction	Are the basic submittal requirements in the Code?	Are detailed elements of the submittal requirements in a specific code section?	Where are the application submittal requirements listed in the code?	Does the code list the number of required submittal packages?	Number of required copies for application submittals	Additional Comments
Sherwood	Yes	Yes (matrix)	In sections 16.70.020, 16.70.030 and 16. 78	Yes, 15 copies are required for land use actions.	15 per the SZCDC	N/A
Newberg	Yes	No	The submittal requirements are in the respective code sections	No, Materials are listed but not the number of required copies.	Typically 18 (depends on the type of application)	The number of copies are listed on the application form.
Tualatin	Yes	No	The submittal requirements are in the respective code sections.	No	Varies by the type of application	N/A
Tigard	No	No	N/A	No	Listed on the application form	There are separate forms that list the submittal requirements.
Lake Oswego	Yes	No	The submittal requirements are in the respective code sections.	No, section 50.77 ("the number of copies required by the City Manager".)	Generally, 7 copies (smaller projects only 5) listed on handout	General application submittal requirements in section 50.77.
Wilsonville	Yes, the basic elements are in section 4.035.04	No	The submittal requirements are in the respective code sections.	Yes, section 4.035.04 lists the number of copies and it is cross referenced throughout the code	10, per section 4.035.04	The number of copies are required "unless specifically waived by the director".
Beaverton	Yes	No	The submittal requirements are in the respective code sections.	No	Generally, 8 copies (smaller projects only 3) listed on the application form	There is also a section regarding completeness that has general requirement information.
Oregon Model Code	Yes	No	Some requirements are listed in the respective codes sections. One of the requirements is to submit the materials that are referenced on the application form.	No, it indicates that the materials on the application form and one copy of the narrative are required.	N/A	N/A

Application Information Requirement Comparison Among Jurisdictions

Attachment 1

Lake Oswego Community Development Code

Article 50.69 Conditional Uses
Section 50.69.015 Procedure

1. Application. Application for a conditional use shall be made on forms provided by the City for that purpose and shall be signed by the property owner, or shall be accompanied by the owner's written authorization. The application shall include:
   a. Name, address and telephone number of applicant,
   b. Map number and/or subdivision block and lot.
   c. Narrative concerning the proposed request explaining how the applicable criteria are complied with.
   d. Copy of deed, signed earnest money agreement, or other document showing ownership or interest in property.
   e. Vicinity map.
   f. Comprehensive Plan and zoning designations.
   g. One map showing existing uses and a second map drawn in the same scale showing proposed development, placement of lot lines, etc. A survey map is not required.
   h. Detailed plans for the specific project (working drawings are not required).
   i. Names and addresses of property owners whose property is within 300 feet of the applicant's property which is the subject of the application or contiguous property owned by the applicant.
   j. Proof of payment of the applicable fees.
   k. Additional drawings, topographic surveys, photographs or other material necessary to understand the proposed use, and of its relationship to surrounding properties, may be required. The City Manager shall determine the completeness of an application within seven days. Variances may be applied for and considered concurrently with a conditional use application. All notifications for the conditional use application or hearing shall specifically state that variances have been applied for and clearly describe the proposed variances in terms understandable to a person of ordinary intelligence.
2. The City Manager shall prepare a report to the hearing body evaluating the application for conformance with applicable requirements and standards, including the City Manager's recommended conditions of approval and commission action. The staff report shall be made available to the applicant, the hearing body, the public and the affected recognized neighborhood association, not less than 10 days prior to the public hearing. The staff report shall contain factual findings and information supporting its conclusions and recommendations.
3. The hearing body shall hold a public hearing within approximately 30 days of the filing of a completed application for conditional use in accordance with the hearings and notification procedures in LOC Articles 50.82 and 50.83.

(Ord. No. 2316, Added, 03/05/2002)

Lake Oswego Community Development Code

Section 50.77.030 Filing an Application; Determination of Completeness.

1. A minor or major development Application shall be filed along with the number of copies required by the City Manager, and the applicable filing fee.

2. The purpose of this subsection (2), and subsections (3) and (4), is to codify the "120-Day Rule" in ORS 227.178. In the event of a difference in procedure for determining when an application is complete, the provisions of then ORS 227.178 shall supersede any inconsistent provisions of this subsection (2), and subsections (3) and (4). This subsection (2), and subsections (3) and (4) are applicable only to those minor and major development applications that are subject to the requirements of the 120-Day under state law.

The City Manager shall review the application and determine whether it is complete. The City Manager shall mail a written notice of such determination within 30 days of the date of filing of the application. If the City Manager determines that the application is incomplete, the City Manager shall inform the applicant in the written notice of the additional information necessary to make the application complete. The application shall be complete at such time as:

a. All of the missing information is submitted;

b. Some of the missing information is submitted and written notice from the applicant that no other information will be provided; or

c. Written notice from the applicant is submitted that none of the missing information will be provided.

The applicant shall have 180 days to complete the application.

If the City Manager fails to mail notice of the determination within 30 days from the date of filing of an application the application shall be deemed complete on the 31st day following filing of the application for the purposes of the 120 Day Rule.

3. When the City Manager determines the application is complete, the City Manager shall inform the applicant of the completeness by mail. A copy of the completeness letter shall also be mailed to the affected neighborhood associations identified in LOC 50.77.025 (3)(a)(i) and (ii). Within 10 days of the mailing of the notice of completeness to the respective neighborhood associations, the chair, or the chair's representative, of any of the noticed neighborhood associations may request a meeting with the City Manager to discuss the application. The purpose of this meeting is to identify issues. No evidence or argument presented at this meeting shall be deemed to be made part of the record; any evidence or argument shall be submitted in the manner required by LOC 50.81.010 (minor developments) or LOC 50.82.010 and 50.83.005 (major developments; appeals of minor developments). If a meeting is requested, the applicant shall be notified of the meeting and invited to attend the meeting.

4. A final decision on an application, including resolution of all appeals, shall be rendered within 120 days after the application is deemed complete pursuant to ORS 227.178 (referred to herein as the "120 Day Rule").

5. Nothing in this section shall be deemed to be a limitation on the City's ability to render a final decision on a land use application after the expiration of 120 days.

(Ord. 2398, Amended, 12/06/2005, Prior Text; Ord. 2313, Added, 03/05/2002; Ord. 2316, Added, 03/05/2002)

Attachment 2

Oregon Model Code

4.1.200 Type I Procedure (Administrative).

A. Application Requirements.

1. Application Forms. Type I applications shall be made on forms provided by the City Planning Official or designee.

2. Application Requirements. Type I applications shall:

   a. Include the information requested on the application form;

   b. Address the criteria in sufficient detail for review and action; and

   c. Be filed with the required fee.

B. Administrative Decision Requirements. The City Planning Official or designee's decision shall address all of the approval criteria, including applicable requirements of any road authority. Based on the criteria and the facts contained within the record, the City Planning Official shall approve or deny the requested permit or action. A written record of the decision shall be provided to the applicant and kept on file at City Hall.

C. Final Decision. A Type I decision is the final decision of the City. It cannot be appealed to City officials.

D. Effective Date. A Type I decision is final on the date it is made.