

Tualatin Comprehensive Plan Proposed Draft 11-19-20

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PART I: ABOUT TUALATIN

Part I contained in design copy.

PART II: ABOUT THE COMPREHENSIVE PLAN

A. INTRODUCTION

Purpose. The general purpose of this Comprehensive Plan is to guide the physical development of the City is an official land use guide for City development. The Comprehensive Plan outlines the goals and policies, as well as significant projects and plan maps that guide future development. The Comprehensive Plan is then implemented by the zoning code, zoning maps, service coordinator agreements, annexations, Urban Renewal Areas, and development agreements. The Comprehensive Plan is used when making land use decisions, particularly those that include a change or exception to the established development regulations.

Timeline of Major Comprehensive Plan Updates:

- 1913: City incorporated
- 1972: City's first Comprehensive Plan
- 1975: City's first Urban Renewal Area plan
- 1973: Oregon establishes Land Conservation and Development Commission
- 1979: City adopts revised Comprehensive Plan
- 1981: DLCDC acknowledges Comprehensive Plan
- 1982: City annexation of western industrial lands
- 1993: Historic Resource Technical Study and Inventory
- 1995: Natural Resource Inventory and Local Wetlands Inventory
- 2001 Transportation System Plan (TSP)
- 2002 and 2004: Metro Urban Growth Boundary expansions
- 2012 Transportation System Plan Update
- 2010: Southwest Concept Plan
- 2015: Northwest Tualatin Concept Plan
- 2018: Tualatin Development Code Improvement Project
- 2019: Basalt Creek Concept Plan
- 2020: Update to Housing Element and policy-neutral update to remainder of Comprehensive Plans to highlight goals and policies.

(Ord. 590-83, 04-13-83; Ord. 592 83, §22, 06-13-83; Ord. 1191-05, 06-27-05; Ord. 1321-11 §2, 04-25-11; Ord. 1414-18, 12-10-2018)

(Ord. 1414-18, 12-10-2018)

(Renumbered by Ord. 844-91, §2, 10-14-91; Ord. 1191-05, 06-27-05; Ord. 1414-18, 12-10-2018)

Planning Area Description.

This planning effort studied an area that is described on the Plan Map in Chapter 9 and referred to as the Study Area.

The study area corresponds to the Urban Growth Boundary (UGB) adopted by the Columbia Region Association of Governments (CRAG) in 1976 or as modified by Metro in 1981, 1986, 1991, 1998, 2002 and 2004. In the eastern and southern portions of the City the line follows the 1976 UGB and the Metro 2002 and 2004 UGB Expansion Decision and the Urban Reserve recommended by Metro in 2010. The western portion of the Study Area corresponds to a line generally following Cipole Road, Pacific Highway and the Bonneville Power Administration right-of-way, while the northern portion of the Study Area follows the natural divide of the Tualatin River and the political boundaries of the cities of Durham, Tigard, Lake Oswego and Rivergrove.

(Ord. 1191-05, 06-27-05; Ord. 1321-11 §3, 04-25-11)

Agency Coordination.

- (1) Numerous public agencies have been involved in the planning process. This Plan, as well as Phase I Technical Memoranda, the data base for this Plan, and subsequent modifications to this Plan, were sent to the following public agencies for comment. This coordination is required by statewide planning legislation, and agency comments are on file at the Tualatin City Hall.
 - (a) Land Conservation and Development Commission.
 - (b) Columbia Region Association of Governments.
 - (c) Metropolitan Service District (Metro).
 - (d) Portland Metropolitan Area Local Government Boundary Commission.
 - (e) Tri-Met.
 - (f) Washington County Planning Commission.
 - (g) Clackamas County Planning Commission.
 - (h) Cities of Durham, Lake Oswego, Rivergrove, Sherwood, Tigard, Wilsonville.
 - (i) Tigard-Tualatin School District 23 J.
 - (j) Sherwood School District 88.
 - (k) Tualatin Valley Fire and Rescue (Tualatin Rural Fire Protection District).
 - (l) Clean Water Services (Unified Sewerage Agency).
 - (m) Oregon State Highway Division (Oregon Department of Transportation).
 - (n) Oregon Department of Environmental Quality.

- (o) Federal Environmental Protection Agency.
 - (p) U.S. Army Corps of Engineers.
 - (q) Oregon Division of State Lands.
- (2) Additionally, the planning process included the following private utility companies:
- (a) Verizon (General Telephone Company of the Northwest, Inc.)
 - (b) Northwest Natural Gas Company.
 - (c) Portland General Electric Company.
 - (d) Comcast

(Ord. 1191-05; 06-27-05; Ord. 1414-18, 12-10-2018)

ADMINISTRATION PROVISIONS

Interpretation.

Where differences exist between the Plan Map and Plan Text, the Plan Map controls Plan intent unless, otherwise determined by the City Council.

Definitions.

Definitions of some terms used within the Comprehensive Plan are included below. Where no definition has been provided, a dictionary definition may be presumed.

Acre. A measure of land area containing 43,560 square feet. Gross Acreage is the land area within the lot lines of a unit of land. Net Acreage is the land area within the lot lines of a unit of land after removing land for rights-of-way and tracts.

Annexation. The formal act of adding land to the corporate limits of a City.

Buildable Lands. Land within an Urban Growth Boundary that is vacant, has access to public streets, water and sewer services, and is not subject to natural hazards such as flooding, landslides, etc.

City. The City of Tualatin, Oregon; a municipal corporation.

Conditional Use. A land use category in a Planning District for land uses that may have an adverse impact on other land uses within that district. These uses require special approval procedures and may have conditions attached to their approval so they can be made compatible with surrounding land uses.

Dedication. The act of permanently de-voting a portion of private land to a public purpose, which includes, but is not limited to, road right-of-way or a public park.

Density:

Gross Residential Density. The number of dwelling units per gross acre. See also Acre.

Housing Density. The number of dwelling units per acre of land rounded to the nearest whole number.

Maximum Net Density. Maximum net density applies only to partition, subdivision, and architectural review applications reviewed through the Expedited Process set forth in House Bill 3065, Sections 6-11, 1995 Legislature, and is the land area within the lot lines of a unit of land after land has been removed for rights-of-way and tracts. House Bill 3065's reference to 80 percent of maximum net density in Section 7(1)(a)(E) is calculated by taking the gross acreage and subtracting land removed for rights-of-way and tracts and multiplying that net acreage figure by the maximum allowed density and then multiplying that figure by 80 percent.

Net Residential Density. The number of dwelling units per net acre. See also Acre.

Design Standards. Specific defined criteria formulated to guide the preparation of plans for buildings, landscaping, parks, etc.

Development Agreement. An agreement between either the City or the Tualatin Development Commission and a developer that clearly establishes the developer's responsibility regarding project phasing, the provision of public and private facilities, improvements, and any other mutually agreed to terms and requirements.

Floodplain. See, TDC Chapter 70 (Floodplain District).

Grade Crossing. A crossing of high-ways, railroad tracks, or pedestrian walks or combinations of these at the same ground elevation.

Greenway. A naturally landscaped area of land usually located adjacent to watercourses and roadways.

Growth Controls. A combination of regulations, public policy and capital expenditures designed to either limit growth or to direct growth into specific geographic areas.

Historic Resource. See, Chapter 31 and 68 definitions.

Housing Starts. The number of building permits issued for the construction of dwelling units for a specific period of time.

Land-Extensive. An industrial use characterized by large storage areas or large land areas needed for manufacturing processes and relatively few employees per acre.

Land Use Intensity. The relative concentration or activity generated on a parcel of land by a specific land use.

Moratorium. A temporary deferment or delay of construction activity, usually based on the lack of adequate capacity for public facilities such as schools, roads, and sewer and water systems.

Multi-Mode Transportation. A mix of transportation forms usually integrated as a system.

Needed Housing. As defined by the State of Oregon, means housing types determined to meet the need shown for housing within an urban growth boundary at particular price ranges and rent levels, including at least the following housing types:

- (a) Attached and detached single-family housing and multiple family housing for both owner and renter occupancy;
- (b) Government assisted housing;
- (c) Mobile home or manufactured dwelling parks as provided in ORS 197.475 to 197.490;

(d) Manufactured homes on individual lots planned and zoned for single-family residential use that are in addition to lots within designated manufactured dwelling subdivisions; and

(e) Housing for farmworkers.

Official Map. A legislatively adopted map indicating the exact location of public improvements such as streets, with the purpose of prohibiting uses within these locations that would prohibit future municipal use of the location.

Peak Hour. A specific period of time at which traffic counts are highest.

Planning District. See, Chapter 31 definitions.

Right-of-Way. A strip of land reserved for public uses, which includes, but is not limited to, roadways, sewer facilities, water facilities, and stormwater facilities.

Transportation Mode. A form of transportation such as the automobile mode, bus mode, light rail mode, etc.

Truck Route. A selected course of travel for trucks, primarily intended to route trucks away from residential neighborhoods.

Unincorporated Land. Land not within the corporate or city limits of a city.

Urban Growth Boundary. An adopted line at or outside the current City limits defining an area that would accommodate future City growth.

Urban Growth Management Agreement (UGMA). An agreement between the City and Clackamas County establishing a process for coordinating comprehensive planning and development in a geographically defined area composed of both area within city limits and unincorporated properties.

Urban Planning Area Agreement (UPAA). An agreement between the City and Washington County establishing a process for coordinating comprehensive planning and development in a geographically defined area composed of both area within city limits and unincorporated properties.

(Ord. 743-88, §34, 3-28-1988; Ord. 818-91, §1, two & 3, 1-14-91; Ord. 844-91, §1, 10-14-91; Ord. 849-91, §1 & 2, 11-25-91; Ord. 882-92, §1, 12-14-92; Ord. 890-93, §1, 4-12-93; Ord. 956-96, §1 & 2, 01-8-96; Ord. 988-97, §1, 12-8-97; Ord. 1026-99, §1, 08-9-99; Ord. 1277-09, §1, 03-9-09; Ord. 1310-10 §1, 09-13-10; Ord. 1321-11 §1, 04-25-11; Ord. 1339-12 §1, 01-23-12; Ord. 1414-18, 12-10-2018)

B. PLAN IMPLEMENTATION**Background.**

(Ord. 1103-02, 03-25-02; Ord. 1191-05, 6-27-05, Ord. 1354-13 §2, 02-25-13)

TECHNICAL MEMORANDA

Background and Supporting Documents Adopted as part of the Comprehensive Plan		
Title	Year	Ordinance
Economic Opportunities Analysis	2019	TBD
Housing Needs Analysis	2019	TBD
Parks and Recreation Master Plan	2019	1427-19
Sewer Master Plan	2019	1427-19
Water Master Plan	2013	1359-13
Transportation System Plan (TSP)	2012	1354-13
Natural Resource Inventory and Local Wetlands Inventory	1995	979-97
Historic Resource Technical Study and Inventory	1993	844-91; 894-93
Tualatin Drainage Plan	1979	491-79

Area-Specific Concept Plans		
Title	Year	Ordinance
Basalt Creek Concept Plan	2019	1418-19
Southwest Tualatin Concept Plan	2010	1321-11
Northwest Tualatin Concept Plan	2005	1191-05

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(Ord. 1103-02, 03-25-02; Ord. 1354-13 §3, 02-25-13)

PART III: GOALS AND POLICIES:

CHAPTER 1 – COMMUNITY INVOLVEMENT

Purpose. The purpose of this chapter is to provide a framework for community input into the land use planning process and to meet Oregon Statewide Planning Goal 1 (Citizen Involvement). In Tualatin, Goal 1 is met by the Tualatin Planning Commission, an advisory body to the Tualatin City Council.

Citizen Involvement.

- (1) The first Statewide Planning Goal is the Citizen Involvement
- (2) Goal. This goal provides that each community must adopt, implement and periodically review a citizen involvement program. In 1976, the Tualatin City Council appointed a seven member Committee for Citizen Involvement (CCI) to draft a Citizen Involvement Program. This program was adopted by the City Council on April 12, 1976, and has been the basis for the City's citizen involvement activities. After the adoption of the Citizen Involvement Program, the City Council formed two new advisory committees to provide recommendations to the Council on planning matters. These new groups were the Tualatin Planning Advisory Committee (TPAC), which became the Planning Commission in 2012, and the Urban Renewal Advisory Committee (URAC). URAC provides planning assistance to the Tualatin Development Commission on matters within the Urban Renewal Area, and the Planning Commission provides planning recommendations for the general community.
- (2) The City Council transferred the Citizen Involvement Program responsibility to the Tualatin Planning Advisory Committee in 1976. This responsibility was transferred to the Tualatin Planning Commission in 2012.
- (3) Another advisory group influencing the plan is the Tualatin Park Advisory Committee (TPARK). This committee over-sees the City's park and recreation pro-grams and thus has an interest in the park and recreation element of the Public Facilities Plan, which is also reflected on the community's General Land Use Plan. Both TPAC (changed to the Tualatin Planning Commission) and TPARK have met regularly to review the plan proposals and to take actions recommending this plan to the City Council. Meeting minutes and recordings are available for public review at the Tualatin City Hall. The powers, duties and organizational structure of TPAC (changed to the Tualatin Planning Commission) and TPARK are described in The Tualatin Municipal Code.

(Ord. 1119-02, 10-14-02; Ord. 1414-18, 12-10-2018)

Goals and Policies.

- **Goal 1.1** Implement community involvement practices in line with Statewide Planning Goal 1.
 - **Policy 1.1.1** Support community advisory committees to provide recommendations on planning matters.
 - **Policy 1.1.2** Foster civic pride and community spirit so as to improve the quality and quantity of citizen participation in local government and in community growth, change and improvement.
 - **Policy 1.1.3** Conduct the planning process with adequate input and feedback from citizens in each affected neighborhood.

CHAPTER 2 - COMMUNITY DESIGN

Purpose.

Purpose. The purpose of this chapter is to express elements of community design that guide functional and aesthetic development standards including those regarding site development, trees in the context of urban design, and sign regulation.

Goals and Policies.

- **Goal 2.1** Promote the City's natural beauty, and achieve pleasant environments for living and working that sustain the comfort, health, tranquility, and contentment of people who live, work, and enjoy time in Tualatin.
 - **Policy 2.1.1:** Encourage structures be planned in ways that relate to the site and surrounding context.
 - **Policy 2.1.2:** Encourage meaningful public engagement with community design projects.
 - **Policy 2.1.3:** Promote design that fosters a sense of place and community identity through the Central Design District.
- **Goal 2.2** Promote the preservation and establishment of trees throughout the city, in order to protect and enhance the aesthetic character of Tualatin, protect and improve air and water quality, provide noise and visual screening, and protect habitat for wildlife.
 - **Policy 2.2.1:** Require the establishment and protection of street trees.
 - **Policy 2.2.2:** Promote the protection and establishment of trees during the development process.

(Ord. 1097-02, 02-11-02)

(Ord. 960-96, §2, 5-28-96)

(Ord. 960-96, §3, 5-28-96)

(Ord. 963-96, §1, 6-24-96; Ord. 1227-07 §1, 2-12-07)

- **Goal 2.3:** Balance the right of free speech, business needs, public wayfinding, safety for all modes, and diverse aesthetic interests, through a functional sign regulation program.
 - **Policy 2.3.1:** Protect public health and safety by limiting distracting signs, ensuring that signs do not interfere with multi-modal transportation safety, and ensuring safe construction and installation of signs.

- **Policy 2.3.2:** Align the range of allowed sign types with the urban design context, such as additional small signs in pedestrian-oriented development areas.
- **Policy 2.3.3:** Encourage attractive, creative, and unique sign types through the City's review program. Encourage the improvement and maintenance of non-conforming signs.

(Ord. 960-96, §4, 5-28-96; Ord. 1120-02, 11-15-02; Ord. 1176-04, 11-22-04; Ord. 1216-06, 7-24-06; Ord. 1261-08 §1, 6-9-08.; Ord. 1302-10 §1, 5-24-10)

CHAPTER 3- HOUSING AND RESIDENTIAL GROWTH

Purpose

This purpose of this chapter is to provide the community's goals and policies for housing and future residential growth in Tualatin, which are generally implemented by more specific provisions in the Tualatin Development Code. These goals and policies are based on Tualatin's most recent Housing Needs Analysis ([Appendix XX](#)) and Housing Strategies ([Appendix XX](#)), which are incorporated by reference into the Comprehensive Plan. Strategic actions are also included that reflect policies identified in the Housing Needs Analysis and Housing Strategies that are not implemented by Tualatin Development Code or may require further evaluation.

A Housing Needs Analysis examines a city's existing supply of buildable lands (Buildable Lands Inventory), and compares that with projected population growth, in order to identify housing needs for a 20 year period as well as housing and growth policy recommendations based on those needs. Tualatin's housing and residential growth chapter also incorporates Oregon state and Portland metropolitan regional housing policy. The state's housing policy guidance is provided by Oregon Statewide Planning Goal 10 and Oregon Administrative Rule (OAR) 660 Division 7. The Portland metropolitan region's housing guidance is provided by Metro Urban Growth Management Functional Plan Title 7.

Since the Tualatin Comprehensive Plan's initial adoption in the late 1970s, to present, the City's housing and residential growth have changed tremendously as Tualatin has experienced periods of rapid growth on its way from a small town comprised of mostly single-family housing to a medium-sized city with a diverse mix of housing types. Looking forward, as Tualatin's future housing needs and residential growth outlook continue to evolve, Tualatin is committed to regular periodic updates of its Buildable Lands Inventory and Housing Needs Analysis, which are incorporated by reference, and to the extent necessitated by these updates, updated Comprehensive Plan goals, policies, and strategic actions.

Goals and Policies

- **Goal 3.1: Housing Supply.** Ensure that a 20-year land supply is designated and has urban services planned to support the housing types and densities identified in the Housing Needs Analysis.
 - **Policy 3.1.1 Density.** Maintain a citywide residential density of at least eight (8) dwelling units per net acre.
 - **Policy 3.1.2 Zoning for multifamily.** Provide zoning for multifamily development, which may be located in areas adjacent to transit.
 - **Policy 3.1.3 Commercial activity.** Allow home-based businesses and occupations in all residential zones, subject to regulations to minimize impact to housing supply and uses in commercial and industrial zones. Provide for compatible agricultural uses in areas where significant development barriers are present, or where compatible with permitted residential uses.

- **Policy 3.1.4 Clear and objective review.** Provide for clear and objective review standards for all residential development and redevelopment.
- **Policy 3.1.5 Functional planning.** Consider the development-ready residential land supply as part of ongoing functional planning efforts to provide necessary urban services in support of residential development.
- **Policy 3.1.6 Infrastructure planning.** Evaluate future infrastructure planning for consistency with the Housing Needs Analysis and Housing Strategies.
- **Policy 3.1.7 Coordination.** Coordinate with local, state, and regional governments, districts, and stakeholders to support Tualatin's housing land supply needs.

- **Strategic Actions:**
 - Evaluate opportunities to increase development densities to address deficiencies identified in the Housing Needs Analysis within Tualatin's existing zones by modifying the Development Code.
 - Evaluate opportunities to rezone land to provide additional opportunities for multifamily housing development.
 - Evaluate Tualatin's land supply every two years, and make regular updates to the City's Buildable Lands Inventory and Housing Needs Analysis.

- **Goal 3.2: Housing for All.** Encourage development and preservation of housing that is affordable for all households in Tualatin.
 - **Policy 3.2.1 Housing type diversity.** Support development of townhomes, duplexes, triplexes, quadplexes, cottages, courtyard housing, accessory dwelling units, single story units, senior housing, and extended family and multi-generational housing in all residential zoning districts.

 - **Strategic Actions:**
 - Identify policies to support development of housing affordable to households earning less than 60% of the median family income in Washington County as identified in the most recent American Community Survey.
 - Develop policies to prevent and address homelessness.
 - Develop policies to prevent or mitigate residential displacement resulting from redevelopment and increases in housing costs in Tualatin.
 - Evaluate partnerships with organizations to establish a land bank or land trust.
 - Evaluate system development charge financing opportunities.

- **Goal 3.3: Affordable Housing.** Encourage the establishment of funding sources to support development of affordable housing and related public infrastructure.

- **Strategic Actions:**
 - Evaluate how best to leverage funds from regional, state, and other sources to support development of affordable housing.
 - Evaluate the establishment of local funding sources for affordable housing such as a construction excise tax.
- **Goal 3.4: Redevelopment.** Encourage timely strategic planning and redevelopment in Tualatin to create new mixed-use residential and commercial planning districts.
 - **Policy 3.4.1 Coordination.** Coordinate economic development planning and housing planning.
 - **Policy 3.4.2 Mixed-use commercial.** Support the application of mixed-use commercial designations that in areas of Tualatin that are suitable for a mix of office, retail commercial, and high-density housing.
 - **Strategic Actions:**
 - Evaluate establishment of a new urban renewal district to include a minimum 25% funding set aside for affordable housing for households earning 60% or MFI or less.
 - Evaluate incentivizing redevelopment to include a portion of housing that addresses deficiencies identified in the Housing Needs Analysis.
 - Evaluate policies and/or incentives to support redevelopment of underutilized commercial buildings for housing.
- **Goal 3.5: Housing and transportation.** Encourage development and redevelopment in Tualatin that supports all modes of transportation, including walking, biking, and mass transit.
 - **Policy 3.5.1 Coordinated planning.** Coordinate updates to the Transportation System Plan consistent with housing and residential growth goals, policies, and strategic actions.
 - **Strategic Actions:**
 - Evaluate development of a design and planning framework for neighborhoods that includes a mixture of housing types, neighborhood uses, and amenities, enabling Tualatin residents to access services and amenities through active modes.
- **Goal 3.6: Residential growth.** Residential growth by annexation or expansion to the Urban Planning Area or Urban Growth Boundary will be coordinated with local, state, and regional governments, districts, and stakeholders.
 - **Policy 3.6.1 Consent-driven annexation.** Only property owners may initiate annexation of property within Tualatin's Urban Planning Areas, including cases involving unincorporated "islands" of property surrounded by land annexed previously. Property owner petitions for annexation may be granted if the petition is in conformance with local, state and regional policies.

- **Policy 3.6.2 Coordination.** Coordination will be made with local, state, and regional governments, districts, and stakeholders on residential growth.
- **Goal 3.7 Residential growth, and the environment.** Plan for housing and residential growth to minimize and mitigate for environmental impacts.
 - **Policy 3.7.1 Environmental protection.** Housing and residential growth policies will be evaluated for consistency with the environmental protection goals and policies of Chapter 7 (Parks, Open Space, and the Environment).

CHAPTER 4 – ECONOMY, COMMERCIAL AND INDUSTRIAL DEVELOPMENT

Purpose. The purpose of this chapter is to guide employment uses, planning, and development in Tualatin.

Tualatin’s Buildable Lands Inventory and Economic Opportunities Analysis provide a basis for understanding the current trends and projected demand for new commercial and industrial land.

Goals and Policies.

- **Goal 4.1:** Encourage commercial development that provides employment opportunities, as well as access to goods and services for residents, employees, and the general community.
 - **Policy 4.1.1 Location.** Locate and design areas that allow commercial development in a manner that increases access to goods and services while minimizing traffic impacts, including the location of commercial services where accessible through transit and active transportation modes, the encouragement of mixed use development, and small neighborhood commercial nodes.
 - **Policy 4.1.2 Critical services.** Provide for the continued development of major medical services and other critical infrastructure within the City of Tualatin.
 - **Policy 4.1.3 Design.** Encourage functional and attractive commercial development through standards for site design and landscaping.
 - **Policy 4.1.4 Mixed Use.** Encourage mixed use commercial and residential development.

(Ord. 592-83, §27, 6-13-83; Ord. 827-91, §2, 3-25-91; Ord. 1062.00, §2, 12-11-00; Ord. 1133-03, 3-24-03; Ord. 1062-00, 1-03-01)

(Ord. 1191-05; 6-27-05; Ord. 1321-11 §5, 4-25-11; Ord. No. 1418-19, § 1, 4-22-19)

(Ord. 592-83, §29, 6-13-83. Ord. 1026-99, §6, 8-9-99)

MANUFACTURING PLANNING DISTRICTS

- **Goal 4.2** Encourage new industrial development in ways that strengthen the local tax base and support Tualatin’s industrial lands as a major local and regional employment center.

- **Policy 4.2.1** Preserve and protect, with limited exceptions, the City's existing industrial land.
- **Policy 4.2.2** Fully develop planned industrial areas, providing full transportation, sewer, and water services prior to or as development occurs.
- **Policy 4.2.3** Cooperate with Washington County, Metro, and the State of Oregon to study the methods available for providing transportation, water, and sewer services to growing industrial areas.

- **Goal 4.3** Manage industrial impacts to the environment and other uses
 - **Policy 4.3.1** Cooperate with the Department of Environmental Quality and Metro to meet applicable air quality standards.
 - **Policy 4.3.2** Protect residential, commercial, and sensitive industrial uses from the adverse environmental impacts of industrial use.
 - **Policy 4.3.3** Protect adjacent land uses from noise and adverse environmental impacts by adopting industrial noise and environmental impact standards.
 - **Policy 4.3.4** Protect environmentally sensitive areas, including the Hedges Creek Wetland and Tonquin Scablands from adverse impacts of adjacent development.
 - **Policy 4.3.5** Encourage industrial firms to use co-generation as a means to utilize waste heat from industrial processes and consider solar access when designing industrial facilities.
 - **Policy 4.3.6** Protect wooded and other natural areas by requiring their preservation in a natural state or by integrating the major trees into the design of the parking lots, buildings, or more formal landscaping areas of an industrial development. If it is necessary to remove a portion or all of the trees, require mitigation.
 - **Policy 4.3.7** Administer specific and enforceable architectural and landscape design standards for industrial development.
 - **Policy 4.3.8** Provide truck routes for industrial traffic that provide for efficient movement of goods while protecting the quality of residential areas.

(Ord. 592-83, 6-13-83; Ord. 1212-06, 6-26-06; Ord. 1321-11 §6, 04-25-11)

(Ord. 592-83, 6-13-83; Ord. 1212-06, 6-26-06; Ord. 1321-11 §6, 04-25-11)

URBAN RENEWAL

Tualatin has employed Urban Renewal Areas in the Tualatin Central Urban Renewal Plan (1984) and Leveton Tax Increment Plan (1985). Future Urban Renewal Areas may be employed to spur economic development, support infrastructure, and provide housing opportunity accessible to job centers.

CHAPTER 5- OTHER LAND USE

Purpose. The purpose of this chapter is to guide the development of uses other than residential, industrial, commercial, open space, and mixed-use development, such as utilities and institutional uses

(Ord. 849-91, §4, 11-25-91; Ord. 1216-06, 7-24-06)

- **Goal 8.1 Location of public services and utilities.** Locate public services and utilities in a manner that minimizes negative impacts and enhances public benefits.
 - **Policy 8.1.1 Government Services.** Locate government offices in a central location that serves the public, except operations functions, which may be appropriately located in the industrial districts. (
 - **Policy 8.1.2 Public safety.** Locate facilities such as utilities and other critical infrastructure to minimize the risk of hazards the facility may pose to surrounding uses, or risks that natural or other hazards may pose to the facility and surrounding uses alike.
 - **Policy 8.1.3 Compatibility.** Encourage attractive design, screening, and use of landscaping to moderate visual impacts of utilities and public facilities with their urban design context.
 - **Policy 8.1.4 School siting.** Locate schools to complement neighborhood park facilities and integrate the location of schools with surrounding residential neighborhoods. Locate schools to support multi-modal access and to avoid impacts from industrial or other uses that could be harmful to student health.
 - **Policy 8.1.5 Child care siting.** Allow the location of child care facilities within commercial, residential, and light industrial areas consistent with state law.
 - **Policy 8.1.6 Wireless facilities.** Allow the siting of wireless communication facilities consistent with federal and state law, while encouraging design measures to mitigate visual impacts of facilities and encourage safety and

sound construction. Encourage siting strategies that reduce redundant facilities.

- **Policy 8.1.7 Intergovernmental cooperation.** Cooperate with local school districts to plan adequate facilities. Actively involve school districts where school capacity or regulations applicable to school facilities may be considered. Cooperate with regional, state, and federal agencies in planning for medical facilities, solid waste.
- **Goal 8.2** Location of residential facilities, medical facilities, and religious institutions. Allow flexibility to allow residential facilities, medical facilities, and religious institutions in residential, commercial, and mixed use areas while managing impacts between uses.
 - **Policy 8.2.1** Allow the location of religious institutions as retirement homes and hospitals in commercial and residential planning districts, subject to conditional use approval, and allow congregate care facilities, assisted living facilities and residential care facilities and hospitals as permitted uses in the Medical Center District.
 - **Policy 8.2.2** Allow residential facilities and residential homes as permitted uses in all residential planning districts.
 - **Policy 8.2.3** Limit the siting of residential facilities, retirement homes, and medical services in industrial areas.
 - **Policy 8.2.4** Ensure that service uses with the potential for increased traffic impacts are appropriately served by surrounding transportation infrastructure.

(Ord. 964-96, §3, 6-24-96)

(Ord. 1216-06, 7-24-06)

CHAPTER 6 – HISTORIC PRESERVATION

Purpose. The purpose of this chapter is to guide the conservation of historic resources in the City of Tualatin. The City's Historic Resource Technical Study and Inventory (1993) provides the basis for identifying historic and cultural resources within the City of Tualatin.

(Ord. No. 844-91, §1, 10-14-91)

- **Goal 6.1: Preservation.** Promote the historic, educational, architectural, cultural, economic, and general welfare of the public through the identification, preservation, restoration, rehabilitation, protection and use of those buildings, structures, sites and objects of historic interest within the City. **Policy 6.1.1** Strengthen the economy of the City by encouraging property owners to preserve historic resources for tourists, visitors and residents.
 - **Policy 6.1.2** Identify and preserve diverse architectural styles reflecting periods of the City's historical and architectural development, encourage complementary design and construction for alterations affecting historic resources and encourage relocation of historic resources over demolition.
 - **Policy 6.1.3** Identify and resolve conflicts between the preservation of historic resources and alternative land uses.
 - **Policy 6.1.5** Integrate the management of historic resources into public and private land management and development processes.
 - **Policy 6.1.6** Upon annexation, potential historic resources located outside of the City, but within the City's planning area shall proceed through the significance review, conflicting use and economic, social, environmental and energy analysis.
 - **Policy 6.1.7** Identify and list additional properties to the current list of protected historic resources. Review the impacts on landmarks when public improvement projects are proposed.
 - **Policy 6.1.8** Retain landmarks on parcels which cannot be partitioned or subdivided by preserving and not demolishing or relocating them. Retain landmarks located on parcels which can be partitioned or subdivided by property owners and developers integrating the resource into proposed lot configurations and development proposals.
 - **Policy 6.1.9 Encourage adaptive use.** Allow conflicting uses where necessary to encourage preservation and maintenance of historic resources. Favor relocation over demolition.
- **Goal 6.2: Education.** Foster community and neighborhood pride and sense of identity based on recognition and use of historic resources.

- **Policy 6.2.1** Encourage public awareness, understanding and appreciation of the City's history and culture. Promote the enjoyment and use of historic resources appropriate for the education and recreation of the people of Tualatin.

(Ord. No. 844-91, §3, 10-14-91. Ord. No. 894-93, §2, 5-24-93)

CHAPTER 7 - PARKS, OPEN SPACE, ENVIRONMENT

Purpose. The purpose of this chapter is to guide the conservation of natural resources and open space areas, as well as the development of recreational areas and trails.

Natural Resources.

Renewable and nonrenewable natural resources were listed along with an inventory of soil types, air pollution potentials, and noise pollution potentials.

- (1) *Geology.*
 - (a) *Uplands.* The southern half of the Study Area consists of irregular uplands varying from 250 feet to 550 feet in relief, with several small creeks draining to the north. These uplands grade into a northward-sloping terrace at an estimated elevation of 250 feet.
 - (b) *Low-Lying Areas.* Columbia River Basalt underlies the valley and is covered with a fine-grain sedimentary material consisting of silts and clays. Flood-deposited sand, gravel and boulders occur over some parts of the area.
 - (c) *Tualatin River.* The Tualatin River originates on the eastern slope of the Coast Range. The watershed averages 40 miles long and 25 miles wide, draining 711 square miles before entering the Willamette River. About 1/2 of the watershed is in the valley, where the stream is flat with wide flood plains.
 - (d) *Drainages.* Numerous minor drainages into the Tualatin River within the Study Area have required the development of a Drainage Plan for the City of Tualatin. Major drainage basins within the Study Area are Hedges Creek and Nyberg Creek. Saum Creek and Athee Creek also have substantial drainage areas within the planning area. The majority of drainage structures within the City of Tualatin are open ditches and creeks combined with culverts at road crossings.
 - (e) *Wetlands.* Wetlands are mapped as areas of shallow groundwater tables subject to frequent inundation that have developed vegetation tolerant of abundant soil moisture. Wetlands are often transition areas between uplands and waterways. These areas commonly store flood waters, provide wildlife habitat, and supply primary protection to the adjacent waterway ecosystems. Hedges Creek Wetland is the largest wetland area in Washington County. The Army Corps of Engineers regulates any filling or dredging of the Hedges Creek Wetland.
- (2) *Fish.* A wide variety of fish live in the Tualatin River system. The river supports both migratory fish and resident fish populations.
 - (a) *Migratory.* Migration lasts from late August to early September. During low water periods, flow of the Tualatin River is diverted for irrigation and municipal water use upstream from the Oregon Iron and Steel Company Dam. When low flow periods extend into October and November, migratory fish are prevented from entering the Tualatin River. Increased flow from impoundment of the Scoggins Dam has improved fish passage conditions.

- (b) *Resident.* Warmwater fish caught near the City of Tualatin are primarily large-mouth bass, bluegill, brown bullhead and black crappies. Crayfish are a good indicator of water quality. The crayfish population declined during the late 1950's and early 1960's.
- (3) *Wildlife.* Within the Study Area, there are a variety of habitats that support diverse wildlife fauna. The habitats are composed of a mosaic of forest, grasslands, wetlands, and farm land. The diverse and little-disturbed habitats provide living space for a wide variety of wildlife species. The Technical Memoranda contains a detailed list of species of wildlife in the Study Area from the Oregon Department of Fish and Wildlife. The areas of particular importance to wildlife species are wetlands and riverbank habitats along the Tualatin River and its tributaries.
- (a) *Hedges Creek.* The large wetland directly west of the Tualatin City Center and south of the Southern Pacific Railroad line is one of the most important ecologically significant natural areas. This area has generated considerable interest because of its extensive wildlife and water fowl habitat in close proximity to Portland.
- (b) *Saum Creek.* Saum Creek, located at the eastern end of the Study Area, contains both deciduous and coniferous forest land and is characterized by forests along the Creek.
- (c) *Tualatin River.* The Tualatin River and its flood plain from the western boundary of the Study Area to just past its junction with Fanno Creek has been identified as a wetland and marsh area. The River itself is an important fish migration route. The river and its associated vegetation are important natural habitats.
- (d) *Tualatin River National Wildlife Refuge.* The U.S. Fish and Wildlife Service established the refuge to protect, enhance, and manage an area of high quality and diverse habitats for a variety of migratory birds and resident fish and wildlife. The 3090-acre refuge is located in an area adjacent to the western city limits of Tualatin and includes the Rock Creek drainage and Onion Flats area adjoining SW Cipole Road. One tributary of Rock Creek originates within Tualatin's city limits in an area designated General Manufacturing. The refuge is of particular importance to Tualatin and the metropolitan region as a fish and wildlife habitat and valuable open space.
- (4) *Vegetation.* Vegetation plays a crucial role in the natural processes. It furnishes living space and food for animals, cleanses the environment by acting as a filter for dust and air pollutants, and binds the soil to prevent erosion.
- (a) *Uplands.* Both, conifer forest and mixed conifer/deciduous forest are found on the upland areas. Cleared uplands support pasture or field crops.
- (b) *Lowlands.* Lowlands are characterized by riverbank forests, swamp or marsh.
- (5) *Soils.* Soil types have been mapped from aerial photographs obtained from the Soil Conservation Service. Soils are classified into eight broad groups designated by Roman Numerals I through VIII, indicating progressively greater limitations for crop production. Soil classification expresses the suitability of soils for most kinds of field crops.

- (a) *Fertility.* Over 95 percent of the soils within the Study Area are within Classes I through IV. The Tualatin Valley is a very fertile area with a long history of agricultural use.
- (b) *Suitability.* Most of the soils in the Study Area are not suitable for farming due to the potential for erosion, high water tables, or their shallow, droughty nature.
- (6) *Water Quality.* In the past, the major water quality problem in the City has been pollution of Tualatin River waters. A 1976 report prepared for the Columbia Region Association of Governments by Portland State University states that "the lower Tualatin River appears to be nutrient enriched, eutrophic but not polluted." The report states that the improved water quality is due primarily to summer low-flow augmentation now allowed by the new Scoggins Dam and improved sewage treatment facilities recently constructed along the River. Consequently, the City's major water pollution problem has been solved. The City could have some water quality problems on Tualatin River tributaries due to erosion during construction. These problems are difficult to quantify. However, the City does have some control options over this potential problem.

(Ord. 937-95, §1, 1-9-95)

Natural Hazards.

- (1) *Flooding.* The last three miles of the Tualatin River, about five and one-half miles downstream from the City of Tualatin, consists of a narrow gorge with a vertical drop of nearly 40 feet. Natural reefs occurring upstream limit the River's ability to pass flood flows. The reefs create a natural dam, forcing water to back up and flood into the Tualatin Valley.
 - (a) *Season.* Flooding usually occurs between mid-November and mid-February, due to rainfall and snow melt. Unlike most Oregon streams, the wide, flat flood plains of the Tualatin Valley store large volumes of water that cause the River to peak slowly and remain above flood stage for several days.
 - (b) *Affected Area.* The core area of the City of Tualatin is highly vulnerable to flooding of the Tualatin River. A 100-year frequency flood would cause extensive flooding in the City of Tualatin. It would also flood a large area west and east of the City's downtown and a large area in the northwest portion of the Study Area.
 - (c) *Existing Flood Control.* Present flood control projects on the Willamette River do not appreciably affect flood conditions of the City of Tualatin. Upstream flood control measures on the Tualatin River will provide only limited benefits to the Tualatin Valley, as the key physical constraints occur at the natural reefs downstream.
- (2) *Air Pollution.* The major source of air pollution in Tualatin is motor vehicle traffic. Industrial sources are minor. The Durham sewerage treatment plant is the largest single point source of pollution in the area.

- (a) *Existing Air Quality.* Existing air quality in Tualatin is estimated to be well within allowable limits everywhere except in the immediate vicinity of Nyberg Road and the freeway.
 - (b) *Future Air Quality.* Projections to 1990 suggest that concentrations of all pollutants will meet standards, due to increasingly effective emission controls on new vehicles.
- (3) *Noise Pollution.*
- (a) Noise created by traffic is currently the City's most serious noise problem. New industrial uses will increase industrial noise pollution potential.
 - (b) *Residential.* The control of traffic sounds near residential property needs to be required by ordinance. This can be accomplished through various techniques such as buffering, setbacks and vehicular noise control ordinances.
 - (c) *Industrial.* The City's present industrial noise control ordinance is very restrictive and should be reviewed.
 - (d) *Railroad.* Specific control measures for railroad noise and vibration should be the subject of a study before action is taken on this potential problem.
- (4) *High Groundwater.*
- (a) *Wetlands.* The high groundwater area approximates the Tualatin River flood plain and encompasses all the present wetland area. There are many areas of high groundwater with levels at or near the surface of the ground. This is particularly true during the winter months, when the river level is high and the wetlands are filled with standing water.
 - (b) *Weak soils.* The high groundwater is particularly troublesome in sandy soils, as a "quick" condition may result during excavation for footings and utilities. Organic or plastic clays and peat (all weak soils) may be found almost anywhere throughout the high groundwater area, particularly near present or past wetlands. Since weak soils can result in extraordinary construction requirements and methods, any new construction in the high groundwater area should include a detailed soils investigation and report by a qualified soils engineer or engineering geologist.
 - (c) *Springs.* Springs are prevalent along a line that approximates the southern boundary of the high groundwater area and at other areas identified in the Technical Memoranda. Any construction there requires special treatment to provide for drainage of the springs.

Parks.

- (a) *Developed.* The only developed City park within the corporate City limits is the 23-acre Tualatin Community Park and a new 6.48-acre nature park. The Community Park provides for a broad range of activities for all ages and includes the Tualatin Community Center. Both parks are in the process of being improved.

- (b) *Undeveloped.* There are eight existing City park sites which are currently being developed.
 - (c) *Future.* Conceived as recreational possibilities for neighborhood and broader community use, 14 sites were inventoried. These sites are scattered throughout the urbanized areas of the City. Each site is unique in its own fashion, i.e., setting, topography, views, vegetation, access, or natural wildlife resources.
- (10) *Conservation Management Areas.* These areas comprise some of the City's richest natural and scenic assets and should be maintained in their present rural character. Briefly, these areas are:
- (a) The wetland marsh, bog and ponds.
 - (b) All the flood plain area generally below the 100-year flood line.
 - (c) All creek and drainageways.
 - (d) The Tualatin riverbank areas.
- (12) *School Recreational Facilities.*
- (a) These are areas suitable for play areas for small children and some field activities for older children and adults. These sites would have to be developed via a joint use agreement between the City and the Tigard School District.
 - (b) *Existing.* Tualatin Elementary School.
 - (c) *Future.* New elementary school in south Tualatin and any additional elementary school sites.
- (13) *Other Recreational Facilities.*
- (a) *Private.* The Tualatin Country Club golf course provides a major private recreational facility in the City.
 - (b) *Public.* The City of Tigard maintains Cook Park across the Tualatin River, which is available to residents of Tualatin but has no direct access from Tualatin. The Tigard School District maintains a swim center at Tigard High School that is available for use by Tualatin residents.
- (14) *Views.*
- (a) Unlike the more distinctly contoured geographic sections of other parts of the urban area, Tualatin does not have spectacular views. Views of scenic areas in Tualatin are very subtle.
 - (b) *Features.* The most important views are of the drainages, bogs and wetlands; the Tualatin River; and outstanding groups of trees.
 - (c) *Location.* The most important view areas are the marsh and wetlands running in an east-westerly direction. In the southern portion of the City, there are occasional views through the vegetation to Mt. Hood, Mt. Scott, Kerr Mountain, Bull Mountain and Cooper Mountain. Particularly important views of Mt. Hood occur when looking easterly along Nyberg, Sagert and Avery Streets.

PARKS AND RECREATION

Background.

- (1) Tualatin is fortunate to have significant natural features which provide the City with excellent opportunities for outdoor recreation in attractive settings. The Tualatin River and the area's many small creeks provide opportunities for water-oriented recreation and greenway loops connecting various parts of the City. Several forested and wetland areas remain undeveloped and available for the neighborhood park types of recreation as well as for natural areas. Because of Tualatin's rapid development, the City must aggressively promote the acquisition of park lands before they are developed for other uses.
- (2) It is the basic premise of this Plan that Tualatin should develop the highest-quality park and recreation system to offset the effects of large amounts of industrial and commercial growth that are proposed for the central portions of the City. While the City's commercial and industrial development will be reviewed through the City's Architectural Review process, an atmosphere of intensive development will remain that can be partially offset by large amounts of open space land that are visible and accessible to the public. Additionally, the property values of this new commercial and industrial development should create a favorable financial environment, enabling the City to maintain a reasonable tax rate, while providing a high-quality recreation system.
- (3) The Parks and Recreation Master Plan is adopted by reference as a supporting technical document to the Tualatin Community Plan. The Parks and Recreation Master Plan contains detailed analysis, discussions, and recommendations on community parks, neighborhood parks, greenways, bicycle and pedestrian routes, and recreation programs. The Tualatin Development Code references figures and maps within the Master Plan.

(Ord. 608-83, §1, 9-26-83; Ord. 948-95, §1, 8-14-95; Ord. [1427-19](#), §§ 11, 49, 11-25-19)

Parks and Recreation Master Plan Goals.

More detailed goals and objectives are found in the adopted Tualatin Parks and Recreation Master Plan.

- Goal 1: Expand accessible and inclusive parks and facilities to support community interests and recreation needs.
- Goal 2: Create a walkable, bikeable, and interconnected city by providing a network of regional and local trails.
- Goal 3: Conserve and restore natural areas to support wildlife, promote ecological functions, and connect residents to nature and the outdoors.
- Goal 4: Activate parks and facilities through vibrant programs, events, and recreational opportunities for people of different ages, abilities, cultures, and interests.

- Goal 5: Support the arts through programs, parks, and public spaces that reflect Tualatin’s identity, heritage, history, and expressive character.
- Goal 6: Promote Tualatin’s unique identity, economic vitality, tourism through parks, natural resources, historic preservation, events, programs, and placemaking.
- Goal 7: Manage, administer, and maintain quality parks, facilities, and programs through outstanding customer service, stewardship, and sustainable practices.

Natural Resources: Wetlands and Natural Areas Plan.

- (1) In October 1994, the City initiated preparation of the Wetland and Natural Areas Plan as Periodic Review Work Tasks 3 and 4 of the 1993 City of Tualatin Periodic Review as approved by the Oregon Land Conservation and Development Commission (LCDC). The purpose of the plan is to inventory natural resources in the Tualatin Planning Area, identify Significant Natural Resources and provide a plan that preserves, conserves or allows development of the resources. The natural resources include wetlands, stream and riparian areas, and open spaces which consist of upland forests and meadows, and unique geologic areas and features such as the Tonquin Scablands. The Plan recommends requirements for protecting Significant Natural Resources designated in the Natural Resource Protection Overlay District as Greenways and Natural Areas.
- (2) The Wetlands and Natural Areas Plan consists of:
 - (a) An inventory of natural resources within Tualatin’s Planning Area, The City of Tualatin Natural Resource Inventory and Local Wetlands Inventory (December, 1995).
 - (b) Significant Natural Resource Criteria. (TDC 72.011)
 - (c) Significant Natural Resource List (TDC 72.013) and Map 72-3.
 - (d) Significant Natural Resource management programs such as the TDC Chapter 15.110 Objectives, the Natural Resource Protection Overlay District (NRPO), and shift of density provisions for residential Planning Districts.
 - (e) Wetlands and Natural Areas Plan Designations Map, (Natural Resource Protection Overlay District Map 72-1, TDC).
 - (f) Goal 5 Natural Resource Planning Analysis Conflicting Uses and Economic, Social, Environmental and Energy consequences of a decision to protect or not protect a significant resource. (Winterowd Planning Services Report, 1997).

(Ord. 979-97, 7-14-97; Ord. [1427-19](#) , § 13, 11-25-19)

Goals and Policies

- **Goal 7.1** Identify and protect significant natural resources that promote a healthy environment and natural landscape that improves livability, and to provide recreational and educational opportunities.

- **Policy 7.1.1** Protect significant natural resources that provide fish and wildlife habitat, scenic values, water quality improvements, storm-water management benefits, and flood control.
- **Goal 7.2** Balance natural resource protection and growth and development needs.
 - **Policy 7.2.1** Provide incentives and alternative development standards such as reduced minimum lot sizes and building setbacks for property owners to preserve the natural resource while accommodating growth and development.
 - **Policy 7.2.2** Allow public facilities such as sewer, stormwater, water and public streets and passive recreation facilities to be located in significant natural resource areas provided they are constructed to minimize impacts and with appropriate restoration and mitigation of the resource.
 - **Policy 7.2.3** Except in Wetland Natural Areas, allow public boating facilities, irrigation pumps, water-related and water-dependent uses including the removal of vegetation necessary for the development of water-related and water-dependent uses.
 - **Policy 7.2.4** Except in Wetland Natural Areas, allow the replacement of existing structures with structures in the same location that do not disturb additional riparian surface.

The following are the objectives of the Wetlands and Natural Areas Plan. The objectives are to:

(Ord. 9779-97, §7, 7-14-97; Ord. [1427-19](#), § 14, 11-25-19)

CHAPTER 8 - TRANSPORTATION

Purpose. This chapter reflects the City's current Transportation System Plan as it applies to development activities and city actions. The Transportation System Plan guides transportation planning, policy, and investment for Tualatin.

Public Facilities and Services.

- (1) *Transportation.* The following is a summary of the current condition of the transportation modes serving Tualatin from the 2012 Tualatin Transportation System Plan Update (TSP) Technical Memorandum, December 2012):
 - (a) *Pedestrian:* Pedestrian facility needs include: fill sidewalk gaps on several arterials and collector streets; narrow or obstructed sidewalks; wide or angled crosswalks at intersections; and difficult crossing on major roadways (SW Boones Ferry Road, SW Tualatin-Sherwood Road, and roadways in the downtown core). Most of the pedestrian crashes reported in the 5-year crash study time frame occurred on SW Boones Ferry Road, generally when a vehicle failed to yield for pedestrians. Most crashes occurred when a vehicle was turning.
 - (b) *Bicycle:* Existing bicycle facilities in Tualatin have a few gaps and challenging connections such as: difficult left-turn maneuvers; constrained environment; difficult areas with low bike visibility; bike lanes outside of turn lanes; obstacles within the bike lanes; and gaps in the network. In addition to these needs, there are a number of high-crash locations. Most crashes result in an injury to the bicyclist, and most occur on a dry roadway surface in daylight conditions. High-crash locations include SW Boones Ferry Road and SW Tualatin-Sherwood Road, as well as the SW Nyberg Road interchange ramps at I-5.
 - (c) *Multi-Use Paths:* Additional bicycle and pedestrian connections over the Tualatin River are needed to connect with existing regional paths, as well as to provide alternate routes to the one existing Ki-a-Kuts bridge that is exclusively for bicycles and pedestrians (from Tualatin Community Park to Durham City Park in Durham). Additionally, many of the existing multi-use paths are fragmented and do not connect; signs and other way-finding guides are needed to inform bicyclists or pedestrians how to move among the various pathways, and from the pathways to on-street facilities. The planned multi-use path network is only half constructed; once the system is complete, the multi-use path network will be more comprehensive.
 - (d) *Transit:* TriMet does not provide transit service within all areas of Tualatin or on all major corridors. No transit service is provided on SW Tualatin-Sherwood Road or SW Tualatin Road, and many residents in the western portion of the City live more than a mile from the nearest transit line. Many residents who do live near a bus line are not served by transit at regular intervals during the day. Because of the limitations of service during off-peak hours, non-commuting trips may be more difficult to complete using transit in Tualatin. Community feedback indicated the following specific needs for transit: service connecting the west side of Tualatin

to the downtown core; Park-and-rides in the west and south areas of Tualatin; extended service hours, including weekend service; and more direct connections to places other than downtown Portland.

- (e) *Roadways:* Some of the existing roadways do not meet City, County, or State design standards. Further, a number of major roadways intersect with other roadways at a skew. This creates sight distance limitations and, thus safety concerns.

The two most highly-traveled roadways are SW Tualatin-Sherwood Road and SW Nyberg Road with over 20,000 vehicles per day. SW Tualatin Road and SW Boones Ferry Road corridors have 10,000 vehicles daily at multiple locations. Additionally, SW Tualatin-Sherwood Road carries a large amount of heavy vehicles, around 11.5 percent, with SW Boones Ferry Road carrying 8.4 percent heavy vehicles (compared with the average road in the Portland Metro area, which typically carries 2-4 percent heavy vehicles). Appendix B of the TSP Technical Memorandum (December 2012) provides a full description of existing (2011) roadway conditions, while Appendix C provides a description of future (2035) forecasted roadway conditions.

In the existing conditions analysis only two intersections—SW Martinazzi Avenue and SW Sagert Street, as well as SW Teton Avenue and SW Tualatin Road, were found to have greater congestion than mobility standards allow. In the future (2035) the number of intersections not meeting operations standards grew to twelve.

Key needs identified for the street system include: improved roadway connectivity; improved travel time along congested corridors; intersection improvements; and upgrading roadway geometries. Additionally, safety is a concern for the community, and safety issues were identified at the following intersections: SW Tualatin-Sherwood Road and SW Boones Ferry Road, and SW Nyberg Street and I-5 southbound off ramps.

- (f) *Freight Routes:* The needs of the freight system are consistent with those identified in the Street System Plan. Projects that address needs related to truck routes, either directly or by providing alternate routes that improve traffic operations along truck routes, serve the needs of the freight system.
- (g) *Rail:* Portland and Western Railroad (PNWR) owns and operates two freight rail lines within the City. One track (running north-south) accommodates both freight and the WES commuter rail, and an east-west line runs along the south side of SW Herman Road. As of November 2012 the east-west line carries one train daily in each direction, and the north south has two freight trains daily in addition to the WES trains. PNWR has no current plans to increase freight service through Tualatin. Although the east-west track runs adjacent to manufacturing areas, no rail sidings or other access to businesses are planned.
- (h) *Pipelines and Transmission Systems:* A natural gas transmission pipeline and a gasoline pipeline cross through the City. There is no anticipated need to

increase pipeline capacity or construct new pipelines through the City, and therefore no such improvements are proposed in the TSP.

- (i) *Air*: There are no airports within the City of Tualatin, although several airports are located within 30 miles of the City: the Aurora State Airport, Hillsboro Municipal Airport, and Portland International Airport. These airports meet the commercial, freight, and business aviation needs of Tualatin residents. No plans are proposed to construct airport facilities within the City of Tualatin; existing airports are anticipated to continue serving the citizens of Tualatin adequately.
 - (j) *Water*: The Tualatin River is the only large waterway within the City of Tualatin. The river is used primarily for recreation and is open for canoeing and kayaking. Therefore, the TSP does not include any specific policies, programs or projects for the Tualatin River as part of the transportation network. However, several projects are proposed in other sections of the TSP Technical Memorandum (December 2012) to increase access to the river for recreation purposes.
- (11) *Bikepaths and Footpaths*.
- (a) An existing bike and footpath system has been implemented in some sections of the City.
 - (b) Future extensions of the existing bike and footpath systems were proposed to provide the City with a complete network of trails. This system was mapped in over-lay fashion as part of the Technical Memoranda.

Background.

The Tualatin Transportation System Plan (TSP) establishes a long-range vision for the combination of projects, programs, and policies that will achieve Tualatin's transportation goals. To do this, the TSP looks at the needs of its residents, businesses, employees, and visitors - now (Year 2012), and what is expected for the future (Year 2035). TSPs are required by the state of Oregon for all cities with populations greater than 2,500 people. The current TSP (December 2012) is a major update of the TSP that was adopted in 2001, with analysis completed in 2000. The TSP considers the diverse needs of all users of the City's transportation network, and sets out recommendations that will serve the needs of transit riders, bicyclists, pedestrians, freight traffic, and drivers.

The TSP has been prepared in compliance with state, regional, and local plans and policies, including the Oregon Highway Plan (OHP), the state Transportation Planning Rule (TPR), Metro's Regional Transportation Plan (RTP), Metro's Regional Transportation Functional Plan (RTFP), Washington and Clackamas Counties Transportation System Plans, and Tualatin's Comprehensive Plan. The TSP presents a vision specific to the City's transportation future, while remaining consistent with these state, regional, and local plans. Plan elements will be implemented by the City, private developers, and regional, or state agencies.

The Comprehensive Plan and TSP work together to set the policy framework guiding the growth and operation of the city's transportation system, as well as a refined set of

specific projects identified for implementation to improve particular elements of the overall system. *Regulatory Requirements.* The TPR (OAR 660-012), developed by the state Department of Land Conservation and Development (DLCD) in accordance with state law, and Oregon Revised Statute (ORS) 197.712 guide preparation of the TSP and require that jurisdictions develop the following:

- (a) A road plan for a network of arterial and collector roads;
- (b) A public transit plan;
- (c) A bicycle and pedestrian plan;
- (d) An air, rail, water, and pipeline plan;
- (e) A transportation financing plan;
- (f) Policies and ordinances for implementing the TSP.

The TPR requires that alternate travel modes including cycling, walking, and transit, be given equal consideration with automobile travel and states that reasonable effort must be applied in the development and enhancement of alternate modes in Tualatin's future transportation system. Local jurisdictions must also coordinate their plans with relevant state, regional, and county plans and amend their own ordinances to implement the TSP.

Metro also requires that TSPs meet certain requirements that have been adopted in the RTP and RTFP. Local TSPs must:

- (a) Establish an arterial street network, considering Metro's street design concepts and include a conceptual map of new streets;
- (b) Implement access management standards;
- (c) Include policies, standards, and projects that connect to transit stops;
- (d) Develop a transit plan consistent with the regional transit functional plan;
- (e) Develop pedestrian, bicycle, freight, parking, and transportation system management plans;
- (f) Ensure that regional transportation needs are incorporated into the TSP;
- (g) Include regional transportation goals for mode share and vehicles miles traveled.

Study Area. In December 2002, Metro expanded the Portland Urban Growth Boundary (UGB). This expansion included lands bordering Tualatin's Planning Area boundary that are intended to develop in the future for industrial uses. Following studies of impacts of these expansions, the city's TSP (2001) was amended to incorporate these new lands.

- (a) The City of Tualatin, in conjunction with ODOT, initiated a study of a 23 acre area south of Highway 99W and west of SW Cipole Road in 2004. The Northwest Tualatin Concept plan addressed the impacts of developing this area for industrial uses. A technical analysis was prepared for the Concept Plan, following

requirements of the TPR, that specifically addressed the transportation needs associated with developing the concept plan area at urban densities. Development of the Concept Plan was guided by input from an 11-member Technical Advisory Committee (TAC) that met four times during the planning process. The TAC included representatives from the City of Tualatin, ODOT, Washington County, Bonneville Power Administration (BPA), Metro, U.S. Fish and Wildlife Service (representing the Tualatin River National Wildlife Refuge), Portland General Electric (PGE), Clean Water Services (CWS), and TriMet. Mailing to stakeholders and a public open house were used to obtain community feedback on the draft plan. The TSP (2001) amendments relating to the Northwest Tualatin Concept Plan area were accepted by the City Council on June 13, 2005.

- (b) The City of Tualatin, in conjunction with ODOT, initiated a study of a 431-acre area south of SW Tualatin-Sherwood Road and west of the Portland & Western railroad tracks in 2004. In 2010, the City analyzed this area plus an additional 183-acres south of the Concept Plan area. The Southwest Tualatin Concept Plan addressed the impacts of developing this area for industrial uses, particularly the portion of the area designated as a "regionally significant industrial area." A technical analysis was prepared for the Concept Plan, following the requirements of the TPR that specifically addressed the transportation needs associated with developing the Concept Plan area at urban densities. Development of the Concept Plan was guided by input from a 31-member TAC that met 12 times during the planning process. The TAC included representatives from the Cities of Tualatin, Sherwood, and Wilsonville; Metro; ODOT; DLCD; Washington County; PGE; BPA; CWS; Oregon Department of Geology and Mineral Industries; Coffee Creek Correctional Facility; Tualatin Valley Fire & Rescue (TVF&R); TriMet; Genessee and Wyoming Railroad; and property owners from the Tonquin Industrial Group, the Itel properties area and from Tigard Sand & Gravel. Mailings to stakeholders and four public open houses were used to obtain community feedback on the draft plan. The TSP (2001) amendments relating to the Southwest Tualatin Concept Plan area were accepted by the City Council on October 11, 2010.
- (c) The study area for the current Tualatin TSP (2012) is comprised of the Tualatin Planning Area boundary, with one addition—the Basalt Creek planning area between Tualatin and Wilsonville. This area outside of the Planning Area Boundary, but within the study area, was included because of the transportation impact that it could have on the City's transportation network associated with the potential development of residential and employment areas. The study area is shown on several of the TSP's figures, including Figure 11-1 Functional Classification Plan.

(Ord. 1151-03, 11-10-03; Ord. 1103-02, 3-25-02; Ord. 1191-05, 6-27-05; Ord. 1321-11 §13, 4-25-11; Ord. 1354-13 §36, 02-25-13)

Goals and Objectives.

Goal 8.1: Access and Mobility. Maintain and enhance the transportation system to reduce travel times, provide travel-time reliability, provide a functional and smooth transportation system, and promote access for all users.

Objectives:

- (a) Improve travel time reliability/provide travel information for all modes including freight and transit.
- (b) Provide efficient and quick travel between points A and B.
- (c) Provide connectivity within the City between popular destinations and residential areas.
- (d) Accommodate future traffic, bicycle, pedestrian, and transit demand.
- (e) Reduce trip length and potential travel times for motor vehicles, freight, transit, bicycles, and pedestrians.
- (f) Improve comfort and convenience of travel for all modes including bicycles, pedestrians, and transit users.
- (g) Increase access to key destinations for all modes.

Goal 8.2: Safety. Improve safety for all users, all modes, all ages, and all abilities within the City of Tualatin.

Objectives:

- (a) Address known safety locations, including high-crash locations for motor vehicles, bicycles, and pedestrians.
- (b) Address geometric deficiencies that could affect safety including intersection design, location and existence of facilities, and street design.
- (c) Ensure that emergency vehicles are able to provide services throughout the City to support a safe community.
- (d) Provide a secure transportation system for all modes.

Goal 8.3: Vibrant Community. Allow for a variety of alternative transportation choices for citizens of and visitors to Tualatin to support a high quality of life and community livability.

Objectives:

- (a) Produce a plan that respects and preserves neighborhood values and identity.
- (b) Create a variety of safe options for transportation needs including bicycles, pedestrians, transit, freight, and motor vehicles.
- (c) Provide complete streets that include universal access through pedestrian facilities, bicycle facilities, and transit on some streets.
- (d) Support a livable community with family-friendly neighborhoods.

- (e) Maintain a small-town feel.

Goal 8.4: Equity. Consider the distribution of benefits and impacts from potential transportation options, and work towards fair access to transportation facilities for all users, all ages, and all abilities.

Objectives:

- (a) Promote a fair distribution of benefits to and burdens on different populations within the City (that is, low-income, transit-dependent, minority, age groups) and different neighborhoods and employment areas within the City.
- (b) Consider access to transit for all users.

Goal 8.5: Economy. Support local employment, local businesses, and a prosperous community while recognizing Tualatin's role in the regional economy.

Objectives:

- (a) Support a vibrant city center and community, accessible to all modes of transportation.
- (b) Support employment centers by providing transportation options to major employers.
- (c) Increase access to employment and commercial centers on foot, bike, or transit.
- (d) Consider positive and negative effects of alternatives on adjacent residential and business areas.
- (e) Accommodate freight movement.
- (f) Facilitate efficient access for goods, employees, and customers to and from commercial and industrial lands, including access to the regional transportation network.

Goal 8.6: Health/Environment. Provide active transportation options to improve the health of citizens in Tualatin. Ensure that transportation does not adversely affect public health or the environment.

Objectives:

- (a) Provide active transportation options to area schools to reduce childhood obesity.
- (b) Promote active transportation modes to support a healthy public and children of all ages.
- (c) Provide interconnected networks for bicyclists and pedestrians throughout the City for all age groups.
- (d) Consider air quality effects of potential transportation solutions. Protect park land and create an environmentally sustainable community.
- (e) Consider positive and negative effects of potential solutions on the natural environment (including wetlands and habitat areas).

Goal 8.7: Ability to Be Implemented. Promote potential options that are able to be implemented because they have community and political support and are likely to be funded.

Objectives:

- (a) Promote fiscal responsibility and ensure that potential transportation system options are able to be funded given existing and anticipated future funding sources.
- (b) Evaluate potential options for consistency with existing community, regional, and state goals and policies.
- (c) Strive for broad community and political support.
- (d) Optimize benefits over the life cycle of the potential option.
- (e) Consider transportation options that make the best use of the existing network.
- (f) Conduct the planning process with adequate input and feedback from citizens in each affected neighborhood.

(Ord. 1103-02, 3-25-02; Ord. 1224-06 §2, 11-13-06; Ord. 1354-13 §36, 02-25-13)

Functional Classification Plan.

- (1) A city's functional classification plan defines the intended operations and character of roadways within the overall transportation system including standards for roadway and right-of-way width, access spacing, and pedestrian and bicycle facilities. The City of Tualatin's functional classification system applies to roadways owned by the City, the County, and the State, and includes principal arterials, major arterials, minor arterials, major collectors, minor collectors, connector, and local roads. Figure 11-1 presents the updated functional classification plan for the City of Tualatin.

The arterial roadways carry a high number of vehicles including transit and freight vehicles, and provide mobility with few opportunities for local access. Collectors assemble traffic from a neighborhood or district and deliver it to the closest arterial street. Collectors serve shorter trip lengths than arterials and have more local access opportunities. Both arterials and collectors within Tualatin are owned by a variety of agencies including the City, ODOT, and Clackamas and Washington Counties. The roadway owners are responsible for maintenance and upkeep on the roadways and they make decisions on upgrades to their facilities. TSP Technical Memorandum (December 2012) describes the functional classifications and the purpose they are intended to serve in more detail; Appendix A, Plan and Policy Review, of the TSP Technical Memorandum provides a detailed description of the various policies associated with roadway ownership.

There are a number of existing freight and truck routes through the City designated by the City, the State, and the Federal government. These routes have specific design criteria and mobility standards to ensure that these roadways serve freight traffic.

Policy Area 8.8 Functional Classification Policies. Functional classification policies support the City's transportation goals and objectives. Policies help provide direction for roadways and roadway classifications.

Policy 8.8.1 Major and minor arterials will comprise the main backbone of the freight system, ensuring that freight trucks are able to easily move within, in, and out of the City.

Policy 8.8.2 Continue to construct existing and future roadways to standard when possible for the applicable functional classification to serve transportation needs within the City.

Street Design Standards. Street design standards by functional classification are included in TDC Section 74.425.

The RTP's Regional Street Design System describes typical features of its street design designations. For comparison purposes, Metro's Regional Street Design System map has been recreated in Figure 11-2. The Tualatin TSP's street design standards for roadways shown on the RTP Regional Street Design System map are generally in conformance with the RTP's concepts, particularly in the areas of pedestrian and bicycle lanes, landscape strips, and medians or center turn lanes.

(Ord. 1151-03, 11-10-03; Ord. 1103-02, 3-25-02; Ord. 1191-05; 6-27-05; Ord. 1354-13 §36. 02-25-13)

Street System Modal Plan. The street system modal plan consists of several sections: a listing of street urban upgrades and new streets, other intersection-specific or non-capacity streets projects, access management policies, and traffic operation standards. This modal plan is included in its entirety in the TSP Technical Memorandum (December 2012) and pertinent sections are included in this chapter of the Comprehensive Plan.

- (2) Summary of Limitations and Needs of Street System. Key needs identified for the street system include:
 - (a) Improved Roadway connectivity. New roadway connections should be explored to improve east-west connectivity south of SW Tualatin-Sherwood Road and north-south regional connectivity. Metro RTP policies related to a complete street system identify one-mile spacing between major arterial streets with collector streets or minor arterials spaced a half-mile apart.
 - (b) Improved travel time along congested corridors. Focus on reducing vehicle delay on key corridors.
 - (c) Intersection improvements. Address intersection delay and intersection issues in congested areas.
 - (d) Upgrading roadway geometries. City design standards for roadway width, sidewalks, and bicycle facilities should be followed where specific deficiencies have been identified.

- (e) Additionally, safety is a concern for the community. Safety issues were identified at the following intersections:
- (i) SW Tualatin-Sherwood Road and SW Boones Ferry Road
 - (ii) SW Nyberg Street and I-5 southbound off ramps.

Policy Area 8.9 Roadway Policies. The following establish the City's policies on roadways.

Policy 8.9.1 Implement design standards that provide clarity to developers while maintaining flexibility for environmental constraints.

Policy 8.9.2 Ensure that street designs accommodate all anticipated users including transit, freight, bicyclists and pedestrians, and those with limited mobility.

Policy 8.9.3 Work with Metro and adjacent jurisdictions when extending roads or multi-use paths from Tualatin to a neighboring City.

- (4) *Local Streets Plan.* The RTP calls for cities to identify all contiguous areas of vacant and redevelopable parcels of five or more acres planned or zoned for residential or mixed-use development and to prepare a conceptual new streets plan map. Figure 11-3 presents the City of Tualatin's Local Streets Plan. The intent of this map is to identify the locations of future street connections and desired connections within future development that promote a connected street system. The endpoints of the connections should be considered fixed, unless the Community Development Director or their designee determines that an alternate connection point is preferable due to safety, operations, improved connectivity concerns, or environmental impacts. The routes connecting endpoints may vary, as long as a reasonably direct route between the two points is provided.
- (5) *Access Management.* Access management is important to maintain traffic flow and ensure safety on the City's arterial street network, including SW Tualatin-Sherwood Road, Oregon Highway 99W (OR 99W), and other high-traffic routes. Limiting the number of points where traffic can enter and exit reduces potential conflict points, improves roadway performance, and reduces the need for capacity expansion. The City manages access through Chapter 75 of the TDC; that chapter details where access is permitted on arterial and collector roads within the City. Tualatin must coordinate with Washington and Clackamas Counties and ODOT to manage access on roads the City does not own, including SW Tualatin-Sherwood Road, SW Cipole Road, SW 65th Avenue, SW Borland Road, and sections of SW Boones Ferry Road. Chapter 75 of the TDC, most recently updated in 2012, has specific access standards for each arterial road within Tualatin. It provides recommendations for future changes on specific roads, as well as potential solutions for access issues.

Policy Area 8.10 Access Management Policies. Access management policies are:

Policy 8.10.1 No new driveways or streets on arterial roadways within the City, except where noted in the TDC, Chapter 75, usually when no alternative access is available.

Policy 8.10.2 Where a property abuts an arterial and another roadway, the access for the property shall be located on the other roadway, not the arterial.

Policy 8.10.3 Adhere to intersection spacing included in Chapter 75 of the TDC.

Policy 8.10.4 Limit driveways to right-in, right-out (where appropriate) through raised medians or other barriers to restrict left turns.

Policy 8.10.5 Look for opportunities to create joint accesses for multiple properties, where possible, to reduce the number of driveways on arterials.

Policy 8.10.6 No new single-family home, duplex or triplex driveways on major collector roadways within the City, unless no alternative access is available.

Policy 8.10.7 On collector roadways, residential, commercial and industrial driveways where the frontage is greater or equal to 70 feet are permitted. Minimum spacing at 100 feet. Uses with less than 50 feet of frontage shall use a common (joint) access where available.

- (6) *Traffic Operations Standards.* This section includes a discussion of standards included in the OHP, ODOT's Highway Design Manual (HDM), and the TPR and City documents for local roadways. Based on the preferred system for operational analysis, there are four intersections that do not meet jurisdictional standards after mitigation strategies are included. These intersections that experience operational constraints are in the SW Lower Boones Ferry Road/I-5 interchange area, and are due to the additional motor vehicle trips associated with the widening of SW Boones Ferry Road from SW Martinazzi Avenue to SW Lower Boones Ferry Road.

The first mitigation strategies developed explored transportation system management techniques (maximizing operations at intersections through signal timing adjustments and/or phasing adjustments). If system management techniques did not achieve acceptable jurisdictional operations, localized capacity improvements were explored (for example, a new turn pocket). Generally these improvements allowed for adequate signal operations under a mitigated scenario.

There were some intersections located in the downtown core area that were not able to meet jurisdictional standards without the implementation of significant capacity and/or roadway widening improvements. These types of major infrastructure improvements were deemed to be too impactful to the downtown core and were not included in the final preferred system improvements. The downtown Tualatin area is designated a Town Center by Metro, and using that designation, Town Centers are allowed to not meet jurisdictional standards. Alternate standards for Town Centers in the RTP are based on a two-hour peak hour. The standard volume to capacity ratio (v/c) for the first peak hour is 1.1, and for the second peak hour is 0.99. These intersections meet the RTP standards, and there is no need for additional alternate mobility standards.

(Ord. 1103-02, 3-25-02; Ord. 1354-13 §36, 02-25-13)

Transit Modal Plan.

- (1) Public transit in Tualatin is envisioned to be multi-faceted by including local and express bus service, commuter rail, potential high capacity transit, and local transit shuttle services. In addition, the community's vision for public transit includes improvements in the quality of transit service, as well as land uses that better

complement and encourage use of transit in downtown Tualatin. Figure 11-5 presents the updated transit system for the City of Tualatin.

- (2) *Summary of Limitations and Needs for Transit.* TriMet does not provide transit service within all areas of Tualatin or on all major corridors. No transit service is provided on SW Tualatin-Sherwood Road or SW Tualatin Road, and many residents in the western portion of the City live more than a mile from the nearest transit line. Many residents who do live near a bus line are not served by transit at regular intervals during the day. According to the Conceptual Linking Tualatin Plan (Draft 2012), over 11,000 workers and over 5,000 households (over half of the people living and working in the city) lack regular transit service within a quarter mile of where they live or work. Because of the limitations of service during off-peak hours, non-commuting trips may be more difficult to complete using transit in Tualatin. Community feedback indicated the following specific needs for transit:
- (a) Service connecting the west side of Tualatin to the downtown core;
 - (b) Park-and-rides in the west and south areas of Tualatin;
 - (c) Extended service hours, including weekend service;
 - (d) More direct connections to places other than downtown Portland.

Additional needs for transit stops include direct and safe access to transit stops and bicyclist and pedestrian amenities at stops, especially where transit riders are able to transfer lines or modes.

Policy Area 8.11 Transit Policies. The City of Tualatin's policies on public transit are as follows:

Policy 8.11.1 Partner with TriMet to jointly develop and implement a strategy to improve existing transit service in Tualatin.

Policy 8.11.2 Partner with the Tualatin Chamber of Commerce to support grant requests that would expand the Tualatin Shuttle services.

Policy 8.11.3 Partner with TriMet, Metro, and neighboring communities to plan the development of high-capacity transit in the Southwest Corridor, as adopted in the Metro High Capacity Transit System Plan.

Policy 8.11.4 Partner with TriMet, Metro, and neighboring communities to plan development of high-capacity transit connecting Tualatin and Oregon City, as adopted in the Metro High Capacity Transit System Plan.

Policy 8.11.5 Coordinate with ODOT and neighboring communities on conversations related to Oregon Passenger Rail between Portland and Eugene.

Policy 8.11.6 Develop and improve pedestrian and bicycle connections and access to transit stops.

Policy 8.11.7 Encourage higher-density development near high-capacity transit service.

Policy 8.11.8 Metro in the RTP calls for increased WES service frequency. The City will coordinate with TriMet, Metro, and ODOT to explore service frequency

improvements and the possible inclusion of a second WES station in south Tualatin.

In addition to the transit policies included here, Bicycle and Pedestrian Policies, Policy 8.12.7 and Policy 8.12.8 , are applicable to transit.

(Ord. 1103-02, 3-25-02; Ord. 1354-13 §36, 02-25-13)

Pedestrian, Bicycle, and Multi-Use Path Modal Plan.

- (1) This modal plan describes pedestrian and bicycle improvements to comfortably and safely accommodate bicyclists and pedestrians within the City. These include multi-use paths, specific bicycle and pedestrian improvements, and street upgrades. Figure 11-4 presents the updated bicycle and pedestrian system for the City of Tualatin.
- (2) Summary of Limitations and Needs for Bicycle and Pedestrian Facilities. This section summarizes limitations and needs for bicycle and pedestrian facilities, and multi-use paths. A full description of existing conditions and deficiencies for the bicycle, pedestrian, and pathway system can be found in Appendix B of the TSP Technical Memorandum (December 2012).
 - (a) *Bicycle Facility Needs.* Existing bicycle facilities in Tualatin have a few gaps and challenging connections:
 - (i) Difficult left-turn maneuvers;
 - (ii) Difficult areas with low bike visibility;
 - (iii) Bike lanes outside of turn lanes;
 - (iv) Obstacles within the bike lanes;
 - (v) Gaps in the network; and
 - (vi) In addition to these needs, there are a number of high-crash locations.

Most crashes result in an injury to the bicyclist, and most occur on a dry roadway surface in daylight conditions. High-crash locations include SW Boones Ferry Road and SW Tualatin-Sherwood Road; as well as, the SW Nyberg Road interchange ramps at I-5.

- (b) *Pedestrian Facility Needs.* Pedestrian facility needs include:
 - (i) Fill sidewalk gaps on arterials and collector streets at:
 - (a) Sections of SW Herman Road;
 - (b) Sections of SW Grahams Ferry Road;
 - (c) Sections of SW Boones Ferry Road;
 - (d) SW Blake Street between SW 105th and SW 108th Avenues;
 - (e) SW Sagert Street overpass over I-5; and
 - (f) SW 105th Avenue between SW Paulina Drive and SW Blake Street.
 - (ii) Narrow or obstructed sidewalks.

- (iii) Wide or angled crosswalks at intersections.
 - (iv) Difficult crossing on major roadways (SW Boones Ferry Road, SW Tualatin-Sherwood Road, and roadways in the downtown core).
 - (v) Most of the pedestrian crashes reported in the 5-year crash study timeframe occurred on SW Boones Ferry Road, generally when a vehicle failed to yield for pedestrians. Most crashes occurred when a vehicle was turning.
- (c) *Multi-Use Path Needs.* Additional bicycle and pedestrian connections over the Tualatin River are needed to connect with existing regional paths; as well as, to provide alternate routes to the one existing Ki-a-Kuts bridge that is exclusively for bicycles and pedestrians (from Tualatin Community Park to Durham City Park in Durham). Additionally, many of the existing multi-use paths are fragmented and do not connect. Signs and other way-finding guides are needed to inform bicyclists or pedestrians how to move among the various pathways, and from the pathways to on-street facilities. The planned multi-use path network is only half constructed, once the system is complete, the multi-use path network will be more comprehensive.

Policy Area 8.12 *Bicycle and Pedestrian Policies.* The City of Tualatin's policies on bicycle and pedestrian facilities are as follows:

Policy 8.12.1 Support Safe Routes to Schools (SRTS) for all Tualatin schools.

Policy 8.12.2 Work with partner agencies to support and build trails.

Policy 8.12.3 Allow wider sidewalks downtown for strolling and outdoor cafes.

Policy 8.12.4 Add benches along multi-use paths for pedestrians throughout the City (especially in the downtown core).

Policy 8.12.5 Develop and implement a toolbox, consistent with Washington County, for mid-block pedestrian crossings.

Policy 8.12.6 Implement bicycle and pedestrian projects to help the City achieve the regional non-single-occupancy vehicle modal targets in Table 11-1.

Policy 8.12.7 Implement bicycle and pedestrian projects to provide pedestrian and bicycle access to transit and essential destinations for all mobility levels, including direct, comfortable, and safe pedestrian and bicycle routes.

Policy 8.12.8 Ensure that there are bicycle and pedestrian facilities at transit stations.

Policy 8.12.9 Create on- and off-street bicycle and pedestrian facilities connecting residential, commercial, industrial, and public facilities such as parks, the library, and schools.

Policy 8.12.10 Create obvious and easy to use connections between on- and off-street bicycle and pedestrian facilities, and integrate off-street paths with on-street facilities.

- (4) *Bicycle Boulevards.* Currently, there are no existing bicycle boulevards in Tualatin, though Washington County has bicycle boulevard policies and design standards.

Bicycle boulevards are roadways that use a variety of design treatments to reduce vehicle speeds so that motorists and bicyclists generally travel at the same speed, to create a safer and more comfortable environment for all users. Bicycle boulevards may include a variety of applications ranging from minor street signing enhancements (such as shared lane markings) to larger scale projects (for example, bike-only access at intersections, traffic diverters). Boulevards also incorporate treatments to facilitate safe and convenient crossings where bicyclists must traverse major streets. Traffic controls along a boulevard may assign priority to through cyclists while encouraging through vehicle traffic to use alternate parallel routes.

Bicycle boulevards work best in well-connected street grids, where riders can follow intuitive and reasonably direct routes. Boulevards also work best when higher-order parallel streets exist to serve through vehicle traffic. Bicycle boulevards are generally located on streets with lower traffic volumes and vehicle speeds, such as minor collectors or local streets passing through residential neighborhoods. Typically a bicycle boulevard would be located on a street where vehicles travel less than 30 miles per hour and average daily traffic volume is less than 3,000 vehicles (in both directions).

Proposed bicycle boulevards in Tualatin are shown on Figure 11-4. These are all low volume, low speed streets that connect neighborhoods with roadways and trails where bicycle infrastructure investments have been made. As a short-term action, the City should consider signing these roadways as bicycle routes, and monitor usage on an annual basis. As bicycle usage increases, and bicyclists and drivers become more used to sharing travel lanes, further investments could be considered to enhance safety for bicyclists.

(Ord. 1103-02, 3-25-2002; Ord. 1354-13 §36, 02-25-13; Ord. 1367-14 §1, 02-24-14)

Freight Plan.

- (1) Efficient truck movement plays a critical role in the economic wellbeing and development of Tualatin. Trucks must be able to access commercial, industrial, manufacturing, distribution, and other employment areas both in Tualatin and connecting to the regional system. Future commercial/industrial uses are expected to be located consistent with the land uses identified in the Comprehensive Plan, which matches the current planning district designations, as codified in the TDC.
- (2) The freight network illustrated in Figure 11-6 is largely consistent with the functional classification plan (Figure 11-1), which strives to connect industrial and manufacturing uses to the regional and state transportation network via a series of major and minor arterial roadways. The movement of raw materials and finished products via designated truck routes provides for efficient movement of goods while maintaining neighborhood livability, public safety, and minimizing maintenance costs of the roadway system. Federally and state designated truck routes, part of the National Highway System (NHS), have been identified on I-5 and OR 99W. Metro identifies "road connectors" in the RTP freight network on SW 124th Avenue, SW Tualatin-Sherwood Road, SW Lower Boones Ferry Road, and SW Boones Ferry Road. The City of Tualatin designates additional truck routes on roadway facilities

that connect commercial/industrial districts within the City to major arterials and, ultimately, to OR 99W, I-5, and I-205.

- (3) The needs of the freight system are consistent with those identified in the Street System Plan. Projects that address needs related to truck routes, either directly or by providing alternate routes that improve traffic operations along truck routes, serve the needs of the freight system. All new roadways should be built to current City design standards to meet the operational needs of trucks on designated truck routes.

(Ord. 1103-02, 3-25-02; Ord. 1354-13 §36, 02-25-13)

Rail Plan.

- (1) Portland and Western Railroad (PNWR) owns and operates two freight rail lines within the City. One track (running north-south) accommodates both freight and the WES commuter rail, and an east-west line runs along the south side of SW Herman Road. As of November 2012 the east-west line carries one train daily in each direction, and the north south has two freight trains daily in addition to the WES trains described in the Transit section.

There are 13 gated public railroad crossings in Tualatin and a number of additional driveways or private roads that cross the railroad. The private crossings are stop controlled, but not signalized. Freight trains have the right-of-way at all intersections. The low number of trains does not present a large safety concern in the City, and recent Quiet Zone work done in conjunction with the north-south WES rail line opening added gates at all public crossings.

- (2) PNWR has no current plans to increase freight service through Tualatin. Although the east-west track runs adjacent to manufacturing areas, no rail sidings or other access to businesses are planned.

Policy Area 8.13 Freight Rail Policies. Following are policies for freight rail:

Policy 8.13.1 Continue to coordinate with PNWR and TriMet to ensure that railroad crossings are safe and have few noise impacts on adjacent neighborhoods

Policy 8.13.2 Look for opportunities to shift goods shipments to rail to help reduce the demand for freight on Tualatin's roads.

Policy 8.13.3 Look for opportunities to create multi-modal hubs to take advantage of the freight rail lines.

Passenger Rail Policies. The City of Tualatin's policies on public transit are described in Policy Area 8.11 as part of the Transit Modal Plan. Those policies that may relate to the existing heavy rail lines in Tualatin include Transit Policies 8.11.3, 8.11.4, 8.11.5, and 8.11.8.

(Ord. 1103-02, 3-25-02; Ord. 1354-13 §36, 02-25-13)

Water, Pipeline, and Air Plan.

This section includes the Water, Pipeline and Air Plans.

- (1) *Water Plan.* The Tualatin River is the only large waterway within the City of Tualatin. The river is used primarily for recreation and is open for canoeing and kayaking. Therefore, the TSP does not include any specific policies, programs or projects for the Tualatin River as part of the transportation network. However, several projects are proposed in other sections of the TSP Technical Memorandum (December 2012) to increase access to the river for recreation purposes.
- (2) *Pipeline Plan.* A natural gas transmission pipeline and a gasoline pipeline cross through the City. There is no anticipated need to increase pipeline capacity or construct new pipelines through the City, and therefore no such improvements are proposed in the TSP.
- (3) *Air Plan.* There are no airports within the City of Tualatin, although several airports are located within 30 miles of the City: the Aurora State Airport, Hillsboro Municipal Airport, and Portland International Airport. These airports meet the commercial, freight, and business aviation needs of Tualatin residents. No plans are proposed to construct airport facilities within the City of Tualatin; existing airports are anticipated to continue serving the citizens of Tualatin adequately.

(Ord. 1103-02, 3-25-02; Ord. 1354-13 §36, 02-25-13)

Transportation Demand Management.

- (1) The TPR requires all cities with populations greater than 25,000 people to develop a Transportation Demand Management (TDM) Plan. The RTP also requires that TDM strategies be used to encourage alternative transportation modes and achieve higher vehicle occupancy targets. TDM measures are designed to change travel behavior in order to reduce the need for more road capacity and improve performance of the road system. Typical TDM projects include encouraging use of travel modes other than the auto, ride sharing, and measures to reduce the need for travel—such as telecommuting policies.

TDM policies and projects can be cost-effective ways to reduce congestion by encouraging the use of other modes, reducing the need for travel or reducing the number of vehicle miles driven. The City of Tualatin can implement a range of TDM measures to manage travel demand, in conjunction with partner organizations in many cases. Providing bicycle, pedestrian, and transit infrastructure can be effective means to encourage drivers to switch to other modes. Many of the pedestrian, bicycle, and transit improvements proposed in other sections of the TSP can be considered TDM measures as they encourage use of travel modes other than the auto. In addition to these infrastructure projects, a number of strategies are applicable to Tualatin, as discussed in detail in the TSP Technical Memorandum (December 2012).

Policy Area 8.14 Transportation Demand Management Policies. The following policies support other modal plans in the TSP and help Tualatin meet its mode-share targets, as required by the RTP and presented in Table 11-1:

Policy 8.14.1 Support demand reduction strategies, such as ride sharing, preferential parking, and flex-time programs.

Policy 8.14.2 Partner with the Tualatin Chamber of Commerce, the Westside Transportation Alliance, major employers, and business groups to implement TDM programs

Policy 8.14.3 Explore the use of new TDM strategies to realize more efficient use of the City's transportation system

Policy 8.14.4 Support Washington County's regional TDM programs and policies to reduce the number of single-occupancy vehicle (SOV) trips

Policy 8.14.5 Promote the use and expansion of the Tualatin Shuttle program.

- (3) Metro Modal Targets. Metro in its 2035 RTP established modal targets for how residents in the region will make trips in 2040. These are separated out by regional designations. Tualatin has a number of designations within the City limits, as described in the following sections and shown in Figures 9-4 (Design Type Boundaries) and 11-2 (Metro Regional Street Design System).
- (a) *Town Center*. This designation is consistent with the Town Center Plan study area, centered on the Lake of the Commons and includes land south of the Tualatin River and west of I-5, including the Tualatin Community Park. The western Boundary is SW 95th Avenue south to SW Tualatin-Sherwood Road, and then southern boundary is SW Tualatin-Sherwood Road to approximately SW Boones Ferry Road then continues east near SW Warm Springs Street.
 - (b) *Corridors*. There are a number of corridors in Tualatin: SW Tualatin-Sherwood Road is a regional street, along with 99W, SW 124th Avenue, and SW Tualatin Road. SW Boones Ferry Road is a community street, and SW Tualatin-Sherwood Road/SW Nyberg Street in downtown are community boulevards. Regional arterials include 99W, SW 124th Avenue, SW Boones Ferry Road, SW Tualatin-Sherwood Road, SW Herman Road, SW Nyberg Street, SW Sagert Street, SW Borland Road, and SW 65th Avenue.
 - (c) *Employment Land*. Most of western Tualatin is employment land south of SW Tualatin Road and west of the railroad tracks.
 - (d) *Parks and Natural Areas*. Hedges Creek is designated a park and natural area, along with many of the other greenway areas including Nyberg Creek Greenway, Saum Creek, and other City parks.
 - (e) *Neighborhoods*. Neighborhood areas include southern Tualatin near SW Boones Ferry Road, northern Tualatin north of SW Tualatin Road, and eastern Tualatin excluding the hospital area and the greenways and parks.
 - (f) These designations have modal targets associated with them, as seen in Table 11-1. The non-drive-alone modal target for Tualatin is 45—55 percent in the Town Center and Station Community, and 40—45 percent for the employment land, parks and natural areas, and neighborhoods.

(Ord. 1103-02, 03-25-02; Ord. 1321-11 §15, 4-25-11; Ord. 1354-13 §36, 02-25-13)

Transportation System Management.

- (1) Transportation System Management (TSM) measures are designed to increase the efficiency, safety, capacity, and level of service of the transportation system without physically increasing roadway capacity. Typical TSM projects include traffic light synchronization, traffic calming, travel information systems, access management, and parking management strategies. Many of the projects listed in the modal plans—including the Transit, Pedestrian and Bicycle, and Access Management plans—qualify as TSM measures.

Many TSM tools can be implemented inexpensively to help make the existing system work more efficiently. A wide range of TSM strategies are applicable to Tualatin. These are discussed in detail in the TSP Technical Memorandum (December 2012).

(Ord. 1354-13 §36, 02-25-13)

Parking Plan.

- (1) The City owns several public parking lots in downtown Tualatin to support denser development in the City's core area. A separate taxing district has been created to support ongoing maintenance and operations of these parking lots. The City completed a study in 2011 which identified that the existing parking supply is sufficient to meet the parking demand in downtown Tualatin.
- (2) The RTFP requires parking policies and a parking plan in a TSP or other planning document. The current TDC includes parking minimums and is compliant with this requirement.

(Ord. 1354-13 §36, 02-25-13)

Implementation.

- (1) The project table for each modal plan in the Tualatin TSP Technical Memorandum (December 2012) includes recommendations for applicable funding sources. Additionally, the relative importance of TSP projects are identified in the project tables, based on community goals, the magnitude of the deficiency or issue that the project addresses, and the ability to secure funding, conduct engineering, and build a project. Appendix E of the TSP Technical Memorandum (December 2012) provides a detailed description of transportation funding and improvement costs for all of the TSP's recommendations.
- (2) A variety of established federal, state, regional, and local funding sources are available to fund future transportation projects in the Tualatin TSP Technical Memorandum (December 2012), depending on the eligibility requirements. Implementation of TSP projects will depend on funding and community priorities.
- (3) Prioritization. Prioritization of projects within the TSP Technical Memorandum (December 2012) is separated into three categories: short-term, medium-term, and long-term. Short term projects are expected to be built within zero—five years, while medium-term are five—ten years, and long-term projects are expected to be built in the 10—20 year time frame. Prioritization is determined based on a combination of

the most important projects to implement first, the ease of implementation, and the potential cost—some projects will take a number of years to identify and secure funding. Some projects will also need regional coordination and support, which may take time to secure an agreement. Prioritization is an estimate: long-term projects may be implemented sooner than 10—20 years due to funding becoming available, a high degree of community support or other factors. The suggested priority for projects in the TSP Technical Memorandum (December 2012) is a general guide and not a required timeframe.

The City will need to periodically update the TSP, and will review the need and timing for longer-term improvements at those times. Prioritizing specific near-term projects will occur annually when the City updates its five-year financial plan and prepares its capital improvement plan (CIP) for the following year. Future road improvements or related transportation projects listed or not listed in the TSP Technical Memorandum (December 2012) are not required to be reviewed and approved through a land use process.

The construction of roads, storm drainage, water, sewer, and electrical facilities in conjunction with local development activity should be coordinated if the City of Tualatin is to continue to develop in an orderly and efficient way. Consequently, the plans proposed in the TSP Technical Memorandum (December 2012) should be considered in light of developing infrastructure sequencing plans, and may need to be modified accordingly.

(Ord. 1103-02, 3-25-02; Ord. 1354-13 §36, 02-25-13)

**Table 8-1
Metro Modal Targets**

2040 Regional Designation	Non-drive-alone Modal Target	2040 Regional Designation	Non-drive-alone Modal Target
Regional Centers Town Centers Main Streets Station Communities Corridors Passenger Intermodal Facilities	45—55%	Regional Centers Town Centers Main Streets Station Communities Corridors Passenger Intermodal Facilities	45—55%
Industrial Areas Freight Intermodal Facilities Employment Areas	40—45%	Industrial Areas Freight Intermodal Facilities Employment Areas	40—45%

Inner Neighborhoods Outer Neighborhoods		Inner Neighborhoods Outer Neighborhoods	
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Source: Metro's 2035 RTP

CHAPTER 9 - PUBLIC FACILITIES AND SERVICES

Purpose. The purpose of this chapter is to facilitate the development of citywide public facilities in relationship to other development needs. This chapter includes water, sanitary sewer, and stormwater infrastructure goals and policies.

WATER SERVICES

Water Service Areas. As in the case of sewer service, the Tualatin Study Area was divided into four categories of water service availability. The four categories agreed closely with the four categories of sewer service. In addition to showing the degree of water service complexity and expense, the water service overlay depicts main transmission lines, reservoirs, water supply sources, and the approximate dividing line between the City's upper and lower water service levels.

Introduction.

- (1) In 1979, the City of Tualatin adopted the Tualatin Community Plan. R. A. Wright Engineering Company prepared the water service element. In 1982, the Tualatin Community Plan was reviewed due to the annexation of approximately 900 acres west of the city limits. City staff reviewed the water sewer service element. In 1983 the City Council amended the Plan, including the water service element. The Plan was changed from covering only the city limits to covering the city limits and the area out to the Urban Growth Boundary (UGB)(an "Active Plan").
- (2) In accordance with the Urban Planning Area Agreement between the City and Washington County and an Intergovernmental Agreement between the City and the City of Portland, the City of Tualatin is responsible for providing water service in the City of Tualatin. The City of Tualatin obtains its water from the City of Portland.
- (3) In 1990 and 1999 minor amendments to TDC Chapter 12 were adopted. In 2000 and 2002 the City contracted with CH2M Hill to update the City's water master plan. The 2000 update reflected Tualatin's growth and refined the 1983 plan.
- (4) The 2003 "Report, Tualatin Water Master Plan Update," (the "Master Plan") was the basis for amending the Tualatin Development Code (TDC), Chapter 12, in 2003. The purpose of the 2003 Master Plan was to provide the City with a comprehensive water master plan for future development of the water system. The 2003 Master Plan included a description of the existing water system, the planning criteria, a water system analysis and a capital improvement plan.

The 2003 Master Plan study area was the same as the Tualatin Community Plan, plus it included the Southwest Manufacturing Business Park.

- (5) The July 2013 Water Master Plan report was prepared as an update to the 2003 Master Plan. Its purpose is to be a comprehensive analysis of the City's water system, to identify system deficiencies, determine future water distribution system supply

requirements and recommend water system facility improvements that correct system deficiencies and provide for future system expansion.

- (6) The July 2013 Water Master Plan anticipates demand as residential growth from redevelopment and infill, within the Town Center area, and industrial and employment growth in the Southwest Concept Plan Area.
- (7) The purpose of this section is to provide for:
 - (a) Reinforcement of the existing water system to provide adequate peak and fire-flow capabilities;
 - (b) Expansion of the distribution system as areas inside the Urban Growth Boundary are annexed to the City and are developed;
 - (c) Expansion of supply and storage facilities for present and future needs; and
 - (d) Financing the construction of the foregoing facilities.

(Ord. 592-83, §53, 6-13-83; Ord. 1152-03, 12-8-03; Ord. 1191-05, 6-27-05; Ord. 1321-11 §31 4-25-11; Ord. 1359-13 §1, 9-23-13).

Water Services Goals and Policies

- **Goal 9.1 Water** Plan, construct, and maintain a City water system that protects the public health, provides cost-effective water service, meets the demands of users, addresses regulatory requirements and supports all land uses.
 - **Policy 9.1.1** Require developers to aid in improving the water system by constructing facilities to serve new development and extend lines to adjacent properties. **Policy 9.1.2** Water lines should be looped whenever possible to prevent dead-ends, to maintain high water quality and to increase reliability in the system.
 - **Policy 9.1.3** Improve the water system to provide adequate service during peak demand periods and to provide adequate fire flows during all demand periods.
 - **Policy 9.1.4** Review and update the water system capital improvement program and funding sources as needed or during periodic review.
 - **Policy 9.1.5** Prohibit the extension of City water services outside the City's municipal boundaries, unless the water service is provided to an area inside an adjacent city.

(Ord. 1152-03, 12-8-03; 03; Ord. 1191-05, 6-27-05; Ord. 1321-11 §32, 4-25-11; Ord. 1359-13 §2, 9-23-13).

Design Criteria.

The proposed water supply and distribution system is designed to accommodate the maximum demand that the system is expected to experience. The maximum demand is composed of consumer flows and fire flows.

(Ord. 1152-03, 12-8-03).

Population.

The July 2013 Water Master Plan projected a "build out population" of 29,396 residents; including estimates of 2,288 for redevelopment and infill and 1,048 for Town Center residential growth.

(Ord. 1152-03, 12-8-03; Ord. 1359-13 §3, 9-23-13).

Consumption.

- (1) Population projections, commercial and industrial zoning acreage, and historical water use data formed the basis for the July 2013 Water Master Plan's future water demand projection.
 - (a) The future per capita residential average day demand was assumed to be 90 gallons per capita per day.
 - (b) The relationship between the average day demand and other flow rate demands in the system is called the peaking factor. A peaking factor of 2.2 was used in the July 2013 Water Master Plan's calculation of combined residential, commercial and industrial maximum day demand.
 - (c) Large volume users are typically large multi-family projects and specialized industrial uses. The 2003 Master Plan identified 16 large water uses and they represent about 30% of the total system demand.
 - (d) Unaccounted-for water is the difference between the total amount purchased wholesale from the Portland Water Bureau and the total amount billed to customers. It includes leakage losses, meter discrepancies, hydrant and main flushing, operation and maintenance uses, fire flow uses, unauthorized connections and unmetered miscellaneous uses.
- (2) The July 2013 Master Plan's projected average day demand at buildout beyond 2031 for residential uses was 2.65 million gallons per day. The July 2013 Master Plan's projected average day demand at buildout beyond 2031 for commercial and industrial uses was 3.61 million gallons per day. The total system average day demand and maximum day demand were 6.47 and 14.24 million gallons per day, respectively.

(Ord. 1152-03, 12-8-03; Ord. 1359-13 §4, 9-23-13).

Fire Flows.

- (1) Fire flow is the amount of water required to fight a fire for a specified period. The Insurance Services Office (ISO) Commercial Risk Services, Inc., classifies a city for

insurance rating purposes on the basis of a maximum fire flow requirement of 3,500 gallons per minute (gpm). Fire flow requirements greater than 3,500 gpm are evaluated individually and are not used by the ISO to determine the public protection classification of a municipality. For fire flow analysis the total fire flow requirement is a combination of building fire flow requirements plus system maximum day demand.

- (2) Fire protection for the City's service area is provided by Tualatin Valley Fire & Rescue. The fire district has adopted fire flow requirements as defined in the 2010 State of Oregon Fire Code. A summary of fire flow recommendations based on the state fire code, fire flow criteria adopted by similar communities and fire flow guidelines as developed by the American Water Works Association is presented in Table 4-2 of the 2013 Master Plan.
- (3) Fire protection is not dependent on the water distribution system alone. Fire flows greater than 3,500 gpm can be reduced with individual fire suppression systems such as sprinklers, chemical and alarm systems and fire-resistant construction, onsite supply and other methods. Developments with fire flows greater than 3,500 gpm will need to supplement public water system flows through private systems such as those noted in the prior sentence. The July 2013 Master Plan's recommended minimum criteria for fire suppression flows for single family residential is 1,000 gpm, for multi-family is 2,000 gpm and, commercial, industrial and institutional uses is 3,500 gpm for a 3-hour duration.

(Ord. 1152-03, 12-8-03; Ord. 1359-13 §5, 9-23-13).

Method of Analysis.

The July 2013 Water Master Plan analyzed the water system based on criteria for water supply, source, distribution system piping, service pressures, storage and pumping facilities in conjunction with the water demand forecasts for 2031 and beyond in Section 3 of the Master Plan.

The analysis and recommendations in Section 4 of the Master Plan are based on performance guidelines developed in a review of State of Oregon requirements, American Water Works Association (AWWA) acceptable practice guidelines, Insurance Services Office, Inc. (ISO) guidelines and the operational practices of similar water providers. The distribution system analysis was performed using Innovyze's InfoWater hydraulic network analysis software and an updated system model that relied on geographical information system, updated reservoir and pump station data, and current control valve setting information.

(Ord. 1152-03, 12-08-03; Ord. 1359-13 §5, 9-23-13).

Existing System.

- (1) The City of Tualatin entered into an agreement with the City of Portland in the early 1980's to obtain water from the Bull Run watershed via the Washington County Water Supply Line. In emergencies the City can obtain small quantities through interties with the cities of Tigard, Lake Oswego, Sherwood and Wilsonville. Water from the Willamette River can be used for domestic purposes if Tualatin's voters approve of

its use. Water quality from the Bull Run Reservoir, the Portland Water Bureau Columbia South Shore wellfield and the Tualatin distribution system meets or exceeds all U.S. Environmental Protection Agency water quality requirements.

- (2) The City's water system is composed of three service levels (Levels A, B, and C) supplied by gravity and pumps and storage reservoirs. The system is primarily within public rights-of-way, is looped and is monitored and controlled by a central telemetry system.
- (3) Service Level A is the lowest in elevation and is supplied directly from the Supply Line and by gravity from the 1971 2.2 million gallon enclosed steel tank Avery Reservoir. A new reservoir site was acquired in 2003 southwest of the SW Tualatin-Sherwood Road/SW Cipole Road inter-section. Service Level B is the second lowest in elevation and is supplied by gravity from the 1971 and 1989 2.2 and 2.8 million gallon enclosed steel tank reservoirs on SW Norwood Road. A new reservoir site was acquired in the 1990's southwest of the SW 108th Avenue/SW Cottonwood Street intersection. Service Level C is the highest in elevation and is supplied by gravity from the 1981 0.8 million gallon enclosed steel tank reservoir southeast of the Norwood Road overpass over I-5.
- (4) The City has three pump stations. Stations one and two pump a back-up supply from Level A to Level B. Station three pumps from Level B to the C reservoir.
- (5) The July 2013 Water Master Plan identifies 13.0 million gallons of water storage capacity in five reservoirs. The 2013 Master Plan recommends increased storage capacity in Service Areas A and B in the future.

(Ord. 592-83, §54, 6-13-83; Ord. 1152-03, 12-8-03; Ord. 1359-13 §7; 9-23-13).

Proposed Improvements.

The water distribution and storage system with existing and proposed waterlines and reservoirs is illustrated in Map 12-1. The proposed short-term, medium-term and long-term capital improvements for the system recommended in the July 2013 Water Master Plan are in Master Plan Table 7-1 and shown mapped on Plate-1 in Appendix A of the Master Plan.

(Ord. 592-83, §55, 6-13-83; Ord. 1023-99, §8, 6-28-99; Ord. 1152-03, 12-8-03; Ord. 1359-13 §8, 9-23-13).

Source of Supply.

The City's sole water supply is purchased wholesale from the Portland Water Bureau (PWB) through a 10-year wholesale water supply contract signed in 2006. Under the terms of the agreement, the City is obligated to purchase a minimum annual volume of water equal to 4.4 million gallons per day (mgd).

The City operates a single aquifer storage and recovery (ASR) facility. ASR operations allow the City to store surplus drinking water in a groundwater aquifer during low demand periods (fall through spring) and then recover the water from a groundwater well during high demand periods (summer). The aquifer has an effective recovery

capacity of approximately 90 mg and is connected to Service Area B for both injection and recovery.

As a member of the Willamette River Water Coalition (WRWC), the City has access to surface water supply capacity from the Willamette River under OWRD Permit S-49240. In May 2002, the City Charter was amended to require that before Willamette River water is used for drinking purposes, a vote must approve such use.

(Ord. 592-83, §56, 6-13-83; Ord. 1152-03, 12-08-03; Ord. 1359-13 §9, 9-23-13).

Pressure Levels.

- (1) The City of Tualatin has three service levels designated as A, B, and C on Map 12-1. The Bridgeport Service Area serves commercial customers in the Bridgeport Village shopping center.
- (2) Service Level A includes approximately the northern 50% of the City extending east and west covering elevations from 110 feet to about 200 feet. Service Level B includes approximately the middle 40% of the City extending east and west covering elevations from about 180 feet to 280 feet. Its southern extent is Ibach Street and Ibach Street extended west to the railroad tracks and extended east to I-5. There are isolated areas above 280 feet, but these contain a very limited number of houses. The boundaries of Service Level C are Ibach Street on the north, I-5 on the east, the UGB on the south and the railroad tracks on the west.
- (3) Substantial development has occurred over the years. Future development is expected to occur in Level A on the remaining vacant manufacturing lands, in the Town Center area (redevelopment), in the Durham Quarry area and east of I-5 (Redevelopment of the Trailer Park of Portland). Future development in Level B is expected in the area of Legacy Meridian Park Hospital and the SW Concept Plan Area. Future development in Level C is expected in the SW Grahams Ferry and SW 108th Avenue residential areas.

(Ord. 1152-03, 12-8-03; Ord. 1359-13 §10, 9-23-13).

Service Level A.

- (1) Service Level A has adequate existing storage capacity but will require additional storage in the future. Increased storage volume needs in Service Area A are associated with the Town Center redevelopment and other redevelopment and infill.

(Ord. 592-83, §58, 6-13-83; Ord. 1152-03, 12-8-03; Ord. 1359-13 §11, 9-23-13).

Service Level B.

- (1) Service Level B has adequate existing storage capacity but will require additional storage in the future. Increased storage volume needs in Service Area B are associated with expansion and development in the SW Concept Plan Area which is located largely in Service Area B.

(Ord. 592-83, §59, 6-13-83; Ord. 1152-03, 12-8-03; Ord. 1359-13 §12, 9-23-13).

Service Level C.

- (1) The 2013 Water Master Plan identifies the pending construction of the 1.0 mg C-2 Reservoir to serve Service Area C.

(Ord. 592-83, §60, 6-13-83; Ord. 797-90, §2, 2-26-90; Ord. 1152-03, 12-8-03; Ord. 1359-13 §13, 9-23-13).

Storage.

- (1) The City's Water System consists of five storage reservoirs with a combined storage capacity of 13.0 million gallons. The reservoirs are supplied both directly from the Portland Supply Main and from pump stations.
- (2) Service Areas A and B have adequate existing storage capacity but will require additional storage in the future associated with expansions and development in the Southwest Concept Plan area. Service Area C will be served by a new C-2 Reservoir and with the uncertainty of actual future development characteristics in the Service Area, the 2013 Master Plan does not recommend construction of additional storage within the planning period.

(Ord. 592-83, §61, 6-13-83; Ord. 1152-03, 12-8-03; Ord. 1359-13 §14, 9-23-13).

Editor's note— Ord. No. 1359-13, § 15, adopted September 23, 2013, repealed § 12.130.

Method of Financing.

- (1) The financial plan was based on assumptions related to system revenue and cost growth and the capital improvement plan in the Master Plan. The City should review the funding possibilities for the proposed water system improvements in Table 7-1 of the July 2013 Water Master Plan.

(Ord. 1152-03, 12-8-03; Ord. 1359-13 §16, 9-23-13).

SEWER SERVICE

- 3.080 (2) *Sewer Service Areas.* To assist in determining areas most suited to urban development, a sewer service area overlay was prepared to illustrate the feasibility of providing sewer service throughout the Tualatin Planning Area. The Study Area was divided into four categories of sewer service availability in order of increasing complexity and expense of service. In addition, properties that can be served by existing pumping stations are considered to have gravity-flow service available.

Introduction.

- (1) In 1979, the City of Tualatin adopted the Tualatin Community Plan. R. A. Wright Engineering Company prepared the sanitary sewer service element. In 1982, the Tualatin Community Plan was reviewed due to the annexation of approximately 900

acres west of the city limits. City staff reviewed the sanitary sewer service element. In 1983 the City Council amended the Plan, including the sewer service element.

- (2) In accordance with the Urban Planning Area Agreement between the City and Washington County and an Intergovernmental Agreement between Clean Water Services (CWS) and the City, the City is responsible for collecting the sewage and CWS is responsible for the major conveyance lines and treatment. CWS's Durham Advanced Waste Water Treatment Plant treats most of the sewage generated in the City limits. Waste generated in the City limits north of the Tualatin River and east of I-5 is treated at the City of Portland's Tryon Creek Waste Water Treatment Plant.
- (3) In 2002, the City contracted with CH2M Hill to update the City's sewer master plan ("Report, Tualatin Sewer Master Plan," December 2002). The update accurately reflected Tualatin's growth and refined CWS's recently completed county-wide master plan system evaluation ("2000 Sanitary Sewer System Master Plan Update"). The City's "Report, Tualatin Sewer Master Plan," December 2002 (the "Master Plan") was the basis for amending the Tualatin Development Code (TDC), Chapter 13 in 2003. The purposes of the City's "Master Plan" were to:
 - (a) Further develop the planning done by CWS for the Tualatin area as part of its county-wide planning effort in its 2000 update. Refine the evaluation, focus on Tualatin and address the City's specific planning projections.
 - (b) Evaluate and recommend current and future infrastructure needs to allow the sewer system to keep up with growth and provide planning level costs.
 - (c) Control and eliminate sanitary sewer overflows (SSOs), such as basement flooding, to the extent possible.
 - (d) Protect public health.
 - (e) Protect water quality of neighborhood creeks, ponds and the Tualatin River.
 - (f) Address regulatory requirements.
 - (g) Develop a plan that will result in cost-effective sewer service that meets the demands of residential, commercial and industrial customers.
- (4) The 2002 "Master Plan" study area was the same as the Tualatin Community Plan, plus it included the Southwest Tualatin Concept Plan Area.
- (5) Northwest Tualatin Concept Plan 2005 identifies sewer service needs for the study area. This information is new and updates the 2003 Master Plan.
- (6) In 2019, the City approved an updated Sewer Master Plan. The City also adopted the Basalt Creek Concept Plan; the 2019 Sewer Master Plan includes the Basalt Creek Plan Area.

(Ord. 592-83, §63, 6-13-83; Ord. 1150-03, 10-27-03; Ord. 1321-11 §34, 4-25-11; Ord. [1427-19](#), § 1, 11-25-19)

Sanitary Sewer System Goals and Policies

- **Goal 9.2** Plan, construct, and maintain a City sewer system that protects the public health, protects the water quality of creeks, ponds, wetlands and the Tualatin River, provides cost-effective sewer service, meets the demands of users, addresses regulatory requirements and supports all land uses.
 - **Policy 9.2.1** Provide a City sanitary sewer system in cooperation with Clean Water Services (CWS). The City is responsible for the collection system's smaller lines and the 65th Avenue pump station and CWS is responsible for the larger lines, pump stations and treatment facilities.
 - **Policy 9.2.2** Work with CWS to ensure the provisions of the intergovernmental agreement between the City and CWS are implemented.
 - **Policy 9.2.3** Prohibit the extension of sewer service to areas outside the City limits, unless it is provided to an area inside the city limits of an adjacent city.
 - **Policy 9.2.4** Require developers to aid in improving the sewer system by constructing facilities to serve new development as well as adjacent properties.
 - **Policy 9.2.5** Improve the existing sewer system to provide adequate service during peak demand periods.
 - **Policy 9.2.6** Improve the existing sewer system to control and eliminate sanitary sewer overflows such as basement flooding to the extent possible.
 - **Policy 9.2.7** Review and update the "Tualatin Sewer Master Plan" on a regular basis in coordination with CWS.
 - **Policy 9.2.8** Perform a cost of service rate study and study funding methods to ensure sufficient City funds exist to construct planned improvements.
 - **Policy 9.2.9** Work with CWS to update CWS's and the City's plans and regulations once new sanitary sewer overflow (SSO) and capacity, management, operation and maintenance (CMOM) regulations are published in the Federal Register.

(Ord. 1150-03, 10-27-03; Ord. 1191-05, 6-27-05; Ord. 1321-11 §35, 4-25-11; Ord. 1427-19 , §§ 2, 50, 11-25-19)

Design Criteria.

The design of the sewage collection system was established in 1979 and 1983 when the initial system was planned and updated. Since 1983 the planned system has, essentially, been constructed. The 2019 Sewer Master Plan updates the 2002 Sewer Master Plan for the City of Tualatin. This includes updating the 2012 hydraulic model prepared by CWS, reviewing and updating land use assumptions to match City planning projections, updating existing and future system hydraulic capacity deficiencies, developing a concept plan for service to two expansion areas, and reviewing initial project concepts with the updated hydraulic model to develop an improvement list for future land scenarios. Modeling was conducted for current conditions (2017) and planning years 2025, 2035, and buildout.

(Ord. 1150-03, 10-27-03; Ord. [1427-19](#) , § 3, 11-25-19)

Domestic Flows.

Using parcel (tax lot) based data for land use, residential flow volumes were calculated by totaling the flow volumes for all residential parcels and dividing that total volume by the most recent population estimates for the City. Diurnal flow and infiltration and inflow (I/I) data were also used. This resulted in an estimated residential water use of 91 gallons per capita per day (gpcd). This value was used for all planning years for parcels currently zoned residential and developed. New residential development flows were calculated for 100 gpcd, based on current City development code requirements.

(Ord. 1150-03, 10-27-03; Ord. [1427-19](#) , § 4, 11-25-19)

Nondomestic Flows.

The model addressed non-domestic flows similar to the domestic flows using parcel (tax lot) based data for land use, diurnal flow curves and infiltration and inflow data. Commercial flows were estimated in total gallons per day. The resulting daily flow rate for each parcel was input directly into the hydraulic model.

Certain industrial sites currently produce, or were expected to produce, large quantities of wastewater flow. They may significantly affect the performance of the collection system as a whole, and often do not follow standard diurnal flow patterns. The largest flow producers were identified and their diurnal curve data and daily permitted volume, if available, were used in the modeling.

(Ord. 1150-03, 10-27-03)

Infiltration/Inflow.

The infiltration and inflow (I/I) data for the Sewer Master Plan was estimated based on the methodology used by Clean Water Services during the 2012 Durham model calibration task. A portion of the 5-year, 24-hour storm was routed through the service area and added to the average-day diurnal sanitary flows and base infiltration flows developed from monitoring data.

(Ord. 1150-03, 10-27-03; Ord. 1427-19 , § 5, 11-25-19)

Sanitary Sewer Overflows.

In accordance with its National Pollutant Discharge Elimination System (NPDES) Permit for the Durham Waste Water Treatment Plant, Clean Water Services (CWS) must prohibit sanitary sewer overflows (SSO) for wet weather conditions up to and including the 5-year return interval, 24-hour duration winter storm event when the new SSO regulations become law in late 2003 or in 2004. The "Master Plan" addressed general capacity management issues, and uses the 5-year, 24-hour winter storm as the wastewater flow criteria.

(Ord. 1150-03, 10-27-03; Ord. 1427-19 , § 6, 11-25-19)

Existing System.

- (1) The City of Tualatin's sewage waste is treated at Clean Water Services' Durham Advanced Waste Water Treatment Plant. The waste is collected and piped to the plant via a network of collectors, trunks and interceptors. The main interceptor transporting waste from Tualatin is the Lower Tualatin Interceptor which is primarily fed by gravity sewers. Five areas are served by pressure mains and pump stations. A brief description of the existing system follows and it is shown on Map 13-1.
- (2) Except for the five areas discussed below, the City is served by gravity lines. The main interceptors in this system are the Lower Tualatin Interceptor which conveys sewage from the City to the Durham Advanced Waste Water Treatment Plant, the Nyberg Trunk Line, which runs from the Lower Tualatin Interceptor east under I-5 serving the area east of I-5 and south of the river, the Bluff Cipole Trunk Line and Lateral which extends to the west from the Lower Tualatin Interceptor and the Tualatin-Sherwood Trunk which serves the area west of 99W and north of SW Tualatin Road. The Bluff Cipole Trunk Line is the main interceptor serving the western and southern portions of the Tualatin Planning Area. The five areas currently served by pump stations are as follows:
 - (a) The area east of I-5 and north of the Tualatin River is served by a pump station located at 65th and Childs Road. The pump station discharges into the City of Lake Oswego sanitary sewer system. This area is served by Lake Oswego through a contract agreement with the City of Tualatin.
 - (b) The area along Nyberg Street and Borland Road east of I-5 is served by five pump stations. The pump stations pump sewage to the Nyberg Interceptor and then into the Lower Tualatin Interceptor.
 - (c) The area east of I-5 and south of Sagert Street is served by a pump station at the intersection of 65th and I-205. This pump station discharges into the gravity line on SW 65th at the intersection of 65th and Borland.
 - (d) The south portion of the area west of SW Boones Ferry Road and east of SW Grahams Ferry Road is served by a pump station at the south end of Victoria Woods Subdivision which discharges into the Bluff Cipole Lateral.

- (e) The area east of SW Cipole Road, north of SW Herman Road and south of 99W is served by a pump station at SW Cipole Road and Cummins Creek.

(Ord. 592-83, §64, 6-13-83; Ord. 1150-03, 10-27-03; Ord. [1427-19](#) , § 7, 11-25-19)

Proposed System.

- (1) The proposed sewage collection system is illustrated in Map 13-1.
- (2) The majority of the trunk and interceptor lines were constructed, but some are not of sufficient capacity. The "Master Plan" reviewed the system and recommended improvements. The "Master Plan" focused on sewer system capacity deficiencies. Consistent with CWS's sewer design criteria, it compared peak hydraulic grade lines (HGL's) for each segment of the system with pipe slopes and ground surface elevations. City staff also identified locations requiring maintenance or replacement due to degradation and aging of the system.
- (3) Because the system is essentially built and several trunk and interceptor lines are too small, the "Master Plan's" recommendations primarily were to increase trunk and interceptor line sizes.
- (4) New collection system pipes and at least one pump station will be needed to serve the Southwest Tualatin Concept Plan Area. The actual configuration will depend on individual development plans, land use type and location, site grading and other factors not known in 2010. The Southwest Tualatin Concept Plan and the Basalt Creek Planning areas have conceptual sewer and pump station layouts that will be dependent on development.

(Ord. 592-83, §65, 6-13-83; Ord. 635-84, §7, 6-11-84; Ord. 1150-03, 10-27-03; Ord. 1321-11 §36, 4-25-11; Ord. [1427-19](#) , § 8, 11-25-19)

Project List and Cost Estimates.

Projects and cost estimates, including engineering and administration, for the major improvements in Tualatin's sewage collection system are contained in the Sewer Master Plan. No attempt has been made to adjust prices to a future date. The cost figures include only City costs, not Clean Water Services.

(Ord. 592-83 §66, 6-13-83; Ord. 1150-03; Ord. 1191-05, 6-27-05; Ord. [1427-19](#) , § 9, 11-25-19)

Financing Methods.

- (1) Financing the improvements proposed in the Sewer Master Plan will be provided primarily by local improvement districts, connection charges system development charges and revenue bonds, and private investors for residential, commercial and industrial developments. Construction of interceptors and trunks may involve a combination of costs to developers, contributions from Tualatin's sewer fund, and assessments against properties benefited.

- (2) The City's sewer utility finances were reviewed in the Sewer Master Plan. It was estimated the capital expenditures for the recommended improvement projects will cause shortfalls. To meet the shortfalls the City can explore additional revenue sources such as revenue bonds. The specific requirements will be determined by a cost of service rate study. The City can also review sewer rates and system development charges with CWS to ensure revenues are sufficient to cover operating expenses, future capital projects and outstanding debt service. Ongoing rehabilitation and replacement projects to repair structural deficiencies as they develop should be considered for inclusion in capital budget planning.

(Ord. 592-83, §67, 6-13-84; Ord. 1150-03, 10-27-03; Ord. [1427-19](#) , § 10, 11-25-19)

DRAINAGE PLAN AND SURFACE WATER MANAGEMENT

- 3.080 (4) *Storm Drainage.* The Tualatin Drain-age Plan defines and describes areas of inadequate drainage throughout the Tualatin Study Area. The Plan, which was originally prepared in 1972, will need to be updated as part of the City's planning revision work, but the overall drainage patterns have not changed. The City's core area and the area along Boones Ferry Road, south of the core area, are the most critical from the standpoint of drainage. The former will be dealt with in conjunction with Urban Renewal Area improvements.

Background.

There are ten principal drainage basins for storm water and surface water in the Tualatin Planning Area. Except for a small drainage located in the south part of the City's planning area, the drainages flow to the Tualatin River. Hedges Creek, Nyberg Creek and Saum Creek are tributaries of the Tualatin River and are the larger drainages located within Tualatin's Planning Area.

Drainage, storm water and surface water runoff in the Tualatin Planning Area are addressed in the Tualatin Drainage Plan, the Surface Water Management Ordinance (SWM Ordinance) (Ord. 846-91), the Northwest Tualatin Concept Plan 2005, The Southwest Tualatin Concept Plan 2010 and TDC Chapter 74, Public Improvements.

The 1975 Tualatin Drainage Plan defines and describes the existing and planned drainage in the Tualatin Planning Area. The Tualatin Drainage Plan is periodically updated as drainage studies are prepared by the City or for development projects. In September of 1995, the City adopted the Hedges Creek Subbasin Plan (HCS Plan) and incorporated the drainage improvements and drainage pattern modifications in the Hedges Creek Subbasin into the Tualatin Drainage Plan. The HCS Plan consists of the drainage and storm water management activities and programs recommended in Chapter I of the Hedges Creek Subbasin Strategies (HCSS) Report prepared by the City and Clean Water Services (CWS).

CWS began subbasin planning work for the Hedges Creek Basin in 1990, based on two previous storm water and nonpoint source plans, the Tualatin Basinwide Report and Technical Guidelines and the CWS Surface Water Management Plan. The HCSS report

incorporates the original Hedges Creek Subbasin Management Plan completed in October 1992 and the Hydraulic Study of the Hedges Creek Marsh report completed in October 1994.

The surface water management policies and requirements in the SWM Ordinance were adopted by the City and other jurisdictions in the Tualatin River Basin to implement CWS requirements for control of sedimentation and water quality.

The drainage and surface management development requirements of the Tualatin Drainage Plan and SWM Ordinance are implemented in TDC Chapter 74, Public Improvements.

(Ord. 1191-05, 6-27-05; Ord. 1321-11 §38, 4-25-11)

Drainage Plan.

- (1) The Tualatin Drainage Plan is the City's drainage plan. It was originally prepared by Robert A. Wright, Consulting Engineers in 1972 and adopted in 1975 (Ord. 280-75) and in 1979 as an element of the Tualatin Community Plan (Ord. 491-79). The Tualatin Drainage Plan is referenced in the Technical Memoranda. With the supporting technical material, the Tualatin Drainage Plan provides an overall view of the drainage system, its major problems and their solutions, and is the City's storm water and surface water drainage policy.
- (2) The Tualatin Drainage Plan was updated in the fall of 1995 by the Hedges Creek Subbasin Plan. The HCS Plan is outlined in Chapter 1 of the HCSS Report and implements the recommended drainage and storm water management activities and facilities. The HCS Plan relies on the technical data and analysis documented in the HCSS report. The HCSS Report and the HCS Plan identify the critical importance of the Hedges Creek Marsh to drainage, storm water management and water quality in the subbasin. The HCS Plan provides for drainage improvements, storm water detention requirements and a number of non-structural activities for better management of water quantity and water quality in the Hedges Creek Subbasin.
- (3) Map 14-1 is from Figure I-1 of the HCS Plan. It shows the drainage pattern revisions and drainage system improvements for the Hedges Creek Subbasin. The drainage pattern revisions and drainage system improvements shown in Map 14-1 are incorporated into the Tualatin Drainage Plan.
- (4) The HCSS Report is a comprehensive technical document that provides data and analysis of storm water drainage in the Hedges Creek Subbasin. From an analysis of several alternatives, the report recommended specific management activities and facilities to control water quantity and quality problems associated with urban storm water runoff in the Hedges Creek Subbasin. The HCS Plan incorporates the report's recommended activities and facilities.
- (5) The Northwest Tualatin Concept Plan 2005 identifies storm water drainage options for the area west of Cipole Road and south of Pacific Highway 99W.
- (6) The Southwest Tualatin Concept Plan 2010 identifies storm water drainage options for the area south of SW Tualatin-Sherwood Road and east of SW 124th Avenue.

(Ord. 1191-05, 6-27-05; Ord. 1321-11 §39, 4-25-11)

Surface Water Management.

- (1) The Surface Water Management Ordinance (SWM Ordinance) (Ord. 846-91) establishes regulations for soil erosion control, surface water management and water quality. The purpose of the SWM Ordinance is to implement Oregon Department of Environmental Quality (DEQ) and Clean Water Services (CWS) requirements for surface water management and water quality in the Tualatin River basin by reducing sediment and other pollutants reaching the public storm and surface water system. The SWM Ordinance provides requirements for permits, onsite detention, water quality facilities, floodplain and floodway design standards, protection of sensitive areas and vegetated corridors, specifications for building and side sewers, maintenance and inspection of facilities, permit fees, enforcement of violations and other matters related to surface water management and maintaining water quality.
- (2) HCS Plan requirements for onsite storm water detention for new development in the Hedges Creek Subbasin upstream from the Wetland Protected Area portion of the Hedges Creek marsh are adopted in the SWM Ordinance.

(Ord. 979-97, §3, 7-14-97; Ord. 1321-11 §40, 4-25-11)

Goals and Policies.

- **Goal 9.3** Provide a plan for routing surface drainage through the City, utilizing the natural drainages where possible. Update the plan as needed with drainage studies of problem areas and to respond to changes in the drainage pattern caused by urban development.
 - **Policy 9.3.1** Coordinate the City's Drainage Plan and Storm Water Management regulations with the City's Floodplain District, Wetland Protection District and Natural Resource Protection Overlay District regulations and with the plans of USA and other regional, state, and federal agencies to achieve consistency among the plans.
 - **Policy 9.3.2** Reduce sediment and other pollutants reaching the public storm and surface water system by implementing the Oregon Department of Environmental Quality (DEQ) and USA requirements for surface water management and water quality in the Tualatin River basin. Reduce soil erosion, manage surface water runoff and improve surface water quality.
 - **Policy 9.3.3** Identify and solve existing problems in the drainage system and plan for construction of drainage system improvements that support future development.
 - **Policy 9.3.4** Provide standards for surface water management and water quality by which development will be reviewed and approved. Review and update the standards as needed.
 - **Policy 9.3.5** Clearly indicate responsibilities for maintaining storm water management and water quality facilities.

- **Policy 9.3.6** Enforce drainage and storm water management standards.
- **Policy 9.3.7** Route storm water runoff from the upper Hedges Creek Subbasin through the Wetland Protected Area marsh which as a wetland provides important drainage, storm water management and water quality benefits.
- **Policy 9.3.8** Protect the Wetland Protected Area marsh and its important drainage, storm water management and water quality functions in the Hedges Creek Subbasin.
- **Policy 9.3.9** Require new development to provide onsite pollution reduction facilities when necessary to treat storm water runoff prior to entering Hedges Creek and protect the marsh from urban storm water pollutants.
- **Policy 9.3.10** To reduce sedimentation and erosive storm water flow volumes, require onsite storm water detention facilities for new development in the Hedges Creek Subbasin upstream from the Wetland Protected Area marsh.
- **Policy 9.3.11** Consider opportunities to construct regional pollution reduction facilities to treat storm water runoff prior to entering Hedges Creek and protect the marsh from urban storm water pollutants.
- **Policy 9.3.12** Restrict beaver dam activity in the Wetland Protected Area marsh to retain the drainage flow through the marsh area and to reduce flooding between Teton Avenue and Tualatin Road.
- **Policy 9.3.13** As outlined in the HCS Plan, the City will assist CWS with non-structural activities including public education programs and water quality and management activity monitoring.
- **Policy 9.3.14** Comply with Metro's Urban Growth Management Functional Plan, Title 3.

(Ord. 979-97, §4, 7-14-97; Ord. 1070-01, §1, 4-9-01; Ord. 1321-11 §41, 4-25-1

- (5) *Electrical Service.* The Study Area is well served with major Portland General Electric Co. (PGE) transmission lines. Line extensions to newly developing areas do not appear to be a problem.
- (6) *Gas Service.* The Tualatin area is well served by several large-capacity natural gas lines. The Northwest Natural Gas Co. has main trunk lines in the Bonneville Power Administration (BPA) right-of-way west of the Study Area. The City presently has a high percentage of natural gas use, which should be reviewed in light of probable future supply and cost.
- (7) *Telephone Service.*
- (8) *Schools.*

CHAPTER 10 – LAND USE DESIGNATIONS AND ZONING

Purpose. The purpose of this chapter is to define a distinct range of land use designations that directly correspond with zones applied to lands within the City of Tualatin and its Urban Planning Area. This chapter explains the intention and distinguishing characteristics of each land use designation.

PLAN MAP

Background.

This Plan section includes the Plan Map, (Map 9-1) classification of planning district boundaries, and brief descriptions of the land uses in each Plan area. The Map is based on an analysis of data contained in the background analyses and technical memoranda, Comprehensive Plan goals and policies, and the Statewide Planning Goals of the Land Conservation and Development Commission.

(Ord. 635-84, §4, 6-11-84; Ord. 1191-05, 6-27-05)

Planning District Boundaries.

The boundaries between planning districts, as portrayed on the Plan Map, are intended to follow property lines (or extensions thereof), roadways, or natural features such as creeks. Where such definition was not possible, the Map is drawn to scale and district boundaries can be determined by using this scale. It should be noted that property lines shown on the Plan Map were derived from County Assessor's Maps and are therefore relatively accurate. Consequently, the planning districts shown on the Plan shall be considered zoning districts, as normally termed. This eliminates the need for two sets of maps and simplifies the understanding of what land uses may be allowed on an individual property.

Tualatin Design Type Boundaries.

- (1) Map 9-4, Tualatin Design Type Boundaries reflects the general location of the Design Types in the Urban Growth Management Functional Plan (UGMFP) (Metro Code, Chapter 3.07). The UGMFP, Title 1, says, "For each of the following 2040 Growth Concept design types, city and county comprehensive plans shall be amended to include the boundaries of each area, determined by the city or county consistent with the general locations shown on the 2040 Growth Concept Map: " Map 9-4 shows the location of the applicable Design Types consistent with the general locations shown on the 2040 Growth Concept Map. The boundaries are intended to follow the Planning District Boundaries, property lines, rights-of-way centerlines and water features.
- (2) Rural Reserves and Green Corridors. The City recognizes that green corridors, as described in the 2040 Growth Concept, are critical to interurban connectivity. If the

City, at some future date, annexes an area that includes a green corridor, it will be the City's policy to do the following:

- (a) Allow access, in a controlled manner, to the green corridor to maintain the function, capacity and level of service of the transportation facility and to enhance safety and minimize development pressures on rural reserve areas; and
- (b) Provide appropriate vegetative screening and buffering of adjacent development and limit signage in such a way as to maintain the rural character of the green corridor.

(Ord. 1026-99, §9, 8-9-99)

Planning District Objectives.

This section describes the purpose of each planning district.

Residential Planning Districts:

- (1) *Low Density Residential Planning District (RL)*. To provide areas of the City suitable for single-family dwellings and manufactured homes. Commonwall dwelling units and small lot subdivisions may be allowed by conditional use permit. Except for retirement housing and nursing and convalescent homes which shall not exceed ten dwelling units per net acre and small lot subdivisions and partitions and subdivisions affected by TDC 40.055, which shall not exceed 7.5 dwelling units per net acre, the maximum density of any residential use in this district shall not exceed 6.4 dwelling units per net acre. The raising of agricultural animals and the construction of agricultural structures may be allowed by conditional use permit in those portions of the District designated on the Plan Map.
- (2) *Medium-Low Density Residential Planning District (RML)*. To provide areas of the City suitable for commonwall dwellings such as condominiums, townhouses, duplexes, triplexes, and other multi-family dwellings. Condominiums and small lot subdivisions may be allowed by conditional use permit. Owner occupancy of dwelling units shall be encouraged. Parks for manufactured dwellings shall be allowed in those portions of the district designated on the Plan Map. Except for retirement housing and nursing and convalescent homes which shall not exceed 15 dwelling units per net acre and manufactured dwelling parks with single-wide manufactured dwellings which shall not exceed 12 dwelling units per net acre, the maximum density of any residential use shall not exceed ten dwelling units per net acre. The raising of agricultural animals and the construction of agricultural structures may be allowed by conditional use permit in those portions of the District designated on the Plan Map.
- (3) *Medium-High Density Residential Planning District (RMH)*. To provide areas of the City suitable for townhouses, garden apartments and condominium developments. Except for retirement housing and nursing and convalescent homes, which shall not exceed 22.5 dwelling units per net acre, the maximum density of any residential use shall not exceed 15 dwelling units per net acre. The raising of agricultural animals

and the construction of agricultural structures may be allowed by conditional use permit in those portions of the district designated on the Plan Map.

- (4) *High Density Residential Planning District (RH)*. To provide areas of the City suitable for townhouses, high density garden apartments and condominium developments. Except for retirement housing and nursing and convalescent homes, which shall not exceed 37.5 dwelling units per net acre, the maximum density of any residential use shall not exceed 25 dwelling units per net acre.
- (5) *High Density Residential/High Rise Planning District (RH-HR)*. To provide areas of the City suitable for high density apartment or condominium tower development to provide a maximum amount of preserved open space. Except for retirement housing and nursing and convalescent homes, which shall not exceed 45 dwelling units per net acre, the maximum density of any residential use shall not exceed 30 dwelling units per net acre.

(Ord. 818-91, § 6 & 7, 1-14-91; Ord. 828-91, § 1, 3-25-91; Ord. 868-92, § 2, 5-11-92; Ord. 921-94, § 1, 4-25-94; Ord. 956-96, § 3, 1-8-96; Ord. 956-96, § 3, 2-8-96; Ord. 1026-99, § 4, 8-9-99; Ord. 1272-08 §1, 11-10-08)

Commercial Planning Districts:

- (1) *Office Commercial Planning District (CO)*. To provide areas suitable for professional office uses adjacent to or across from residential areas. Restaurants may be allowed by conditional use permit when designed as an integral part of a major office complex. It is the intent of this district to provide for office development ranging in size from small buildings with one or two tenants to large complexes housing business headquarters offices. In the design of development in this district, care shall be taken to preserve significant natural resources and to provide extensive perimeter landscaping, especially adjacent to residential areas and streets.
- (2) *Neighborhood Commercial Planning District (CN)*. To provide locations for commercial uses within close proximity to residential areas. It is to provide for opportunities to serve the needs of residents for convenience shopping and services. Such uses will be limited to professional offices, services, and retail trade that are oriented to the day-to-day commercial needs of the residential neighborhood. Neighborhood commercial uses are intended to be pedestrian oriented and should serve to reduce automobile trips and energy consumption. The purpose is also to assure that such development is of a scale and design so that it is compatible with the residential environment and is an enhancement to neighborhood areas. It is not the purpose of this district to create large scale commercial facilities that will compete with similar uses, such as large grocery or department stores, located in the downtown area.
- (3) *Recreational Commercial Planning District (CR)*. To recognize the unique and valuable physical, scenic, cultural, and historic character of the Roamer's Rest area located between the Tualatin River and Pacific Highway (99W) north of the highway's

intersection with Tualatin Road. It is intended to preserve that area by allowing and encouraging commercial and related uses that are oriented to the traveler on the highway or that are oriented toward and relate well with the river.

- (4) *Central Commercial Planning District (CC)*. To provide areas for a full range of retail, professional and service uses of the kinds usually found in downtown areas patronized by pedestrians. Civic, social and cultural functions that serve the general community are also appropriate. The Central Commercial Planning District is almost entirely within the downtown portion of the urban renewal area. The Urban Renewal Plan contains extensive development policies and design standards that apply to this district. These policies and standards are intended to help create a village atmosphere in the downtown area. Multiple-family housing is appropriate in certain areas of this district, as specified in the Urban Renewal Plan.
- (5) *General Commercial Planning District (CG)*. To provide areas suitable for a full range of commercial uses, including those uses that are inappropriate for neighborhood, office or central commercial areas. This district is particularly suitable for automobile/service-oriented businesses, excluding automobile, truck and machinery sales and rental, located along the freeway and major arterials. Because of their location, these uses are highly visible to large numbers of passing motorists. Commercial development along the freeway provides perhaps the only lasting impression of Tualatin for many travelers. Therefore, careful attention shall be given to site and structure design for development in this district, including signs, choice of materials, and landscaping, particularly in and around parking areas. This District is suitable for mixed commercial and residential uses through the Mixed Use Commercial Overlay District on the Durham Quarry Site and in the Durham Quarry Area.
- (6) *Mixed-Use Commercial Planning District (MUC)*. To provide areas suitable for a mix of office, retail commercial, and high-density housing. Development standards in this district shall encourage a range of complementary and integrated uses oriented toward pedestrian activity.
- (7) *Mid Rise/Commercial Office Planning District (CO/MR)*. To provide areas suitable for professional Class A Mid Rise offices. The CO/MR District shall be applied to appropriate lands west of Interstate 5 and south of the Tualatin River. Since the potential application of this district extends over most of the City's incorporated area, considerations such as proximity to established residential districts and preservation of significant views and visual corridors shall be encouraged.
- (8) *Medical Center Planning District (MC)*. To provide areas for major medical centers providing medical facilities and health care services for the residents of Tualatin and the surrounding area, and to provide limited supporting retail and service uses for the convenience of patients, patient visitors and staff. The Medical Center District shall be no less than 25 acres and front on an arterial as designated in the City's Transportation System Plan.

(Ord. 592-83, §28, 6-13-83; Ord. 783-89, §1, 10-23-89; Ord. 827-91, §3, 3-25-91; Ord. 1026-99, §5, 8-9-99; Ord. 1062.00, §3, 12-11-00; Ord. 1062-00, 1-3-01

Manufacturing Planning Districts:

(1) *Manufacturing Park Planning District (MP).*

- (a) The purpose of this district is to provide an environment exclusively for and conducive to the development and protection of modern, large-scale specialized manufacturing and related uses and research facilities. Such permitted uses shall not cause objectionable noise, smoke, odor, dust, noxious gases, vibration, glare, heat, fire hazard or other wastes emanating from the property. The district is to provide for an esthetically attractive working environment with park or campus-like grounds, attractive buildings, ample employee parking and other amenities appropriate to an employee oriented activity.
- (b) It also is to protect existing and future sites for such uses by maintaining large lot configurations and limiting uses to those that are of a nature to not conflict with other industrial uses or surrounding residential areas.
- (c) It also is intended to provide for a limited amount of commercial uses designed for the employees of the primary uses and to provide for a limited amount of retail selling of products manufactured, assembled, packaged or wholesaled on the site provided the retail sale area, including the showroom area, is no more than five percent of the gross floor area of the building not to exceed 1,500 square feet.

(2) *Light Manufacturing Planning District (ML).*

- (a) Suitable for warehousing, wholesaling and light manufacturing processes that are not hazardous and that do not create undue amounts of noise, dust, odor, vibration, or smoke. Also suitable, with appropriate restrictions, are the retail sale of products not allowed for sale in General Commercial areas, subject to the Special Commercial Setback from arterial streets and Commercial Services Overlay as generally illustrated in Map 9-5 and specifically set forth in TDC 60.035, and office commercial uses where any portion of a legally created lot is within 60 feet of a CO Planning District boundary. Also suitable is the retail sale of products manufactured, assembled, packaged or wholesaled on the site provided the retail sale area, including the showroom area, is no more than five percent of the gross floor area of the building not to exceed 1,500 square feet. Also suitable for the retail sale of home improvement materials and supplies provided it is not greater than 60,000 square feet of gross floor area per building or business and subject to the Special Commercial Setback from arterial streets as generally illustrated in Map 9-5 and specifically set forth in TDC 60.035. Rail access and screened open storage allowed in these areas will conform to defined architectural, landscape and environmental design standards.
- (b) The following uses within the Light Manufacturing District shall comply with the following size limits established by Metro. Retail sale, retail service and professional service uses shall be no greater than 5,000 square feet of sales or service area per outlet, or not greater than 20,000 square feet of sales or service area for multiple outlets in a single building or in multiple buildings that are part of the same development project, with the following exceptions.

- (i) Application of the Industrial Business Park Overlay District (TDC Chapter 69).
 - (ii) The retail sale of products manufactured, assembled, packaged or wholesaled on the site is allowed provided the retail sale area, including the showroom area, is no more than five percent of the gross floor area of the building not to exceed 1,500 square feet.
 - (iii) Within the Special Commercial Setback from arterial streets (TDC 60.035) the retail sale of home improvement materials and supplies is allowed provided it is not greater than 60,000 square feet of gross floor area per building or business and subject to the Special Commercial Setback from arterial streets as generally illustrated in Map 9-5 and specifically set forth in TDC 60.035. Rail Access and screened open storage allowed in these areas will conform to defined architectural, landscape and environmental design standards.
- (c) The purpose of this district is to provide sites for manufacturing uses that are more compatible with adjacent commercial and residential uses and would serve to buffer heavy manufacturing uses. The purpose is also to allow the retail sale of products manufactured, assembled, packaged or wholesaled on the site provided the retail sale area, including the showroom area, is no more than five percent of the gross floor area of the building not to exceed 1,500 square feet. Certain heavier manufacturing uses may be allowed as conditional uses.
- (d) In accordance with the Industrial Business Park Overlay District, TDC Chapter 69, selected office and retail uses are allowed to provide services to businesses and employees. The purpose is also to allow certain commercial service uses in the Commercial Services Overlay shown in the specific areas illustrated on Map 9-5 and selected commercial uses subject to distance restrictions from residential areas and subject to the Special Commercial Setback from arterial streets as generally illustrated in Map 9-5 and specifically set forth in TDC 60.035.
- (3) *General Manufacturing Planning District (MG).*
- (a) Suitable for light manufacturing uses and also for a wide range of heavier manufacturing and processing activities. Such areas could be expected to be more unsightly and to have more adverse environmental effects. Rail access and screened open storage would be allowed in this area, conforming to defined architectural, landscape and environmental design standards. Also suitable is the retail sale of products manufactured, assembled, packaged or wholesaled on the site provided the retail sale area, including the showroom area, is no more than five percent of the gross floor area of the building not to exceed 1,500 square feet. Also suitable for the retail sale of home improvement materials and supplies provided it is not greater than 60,000 square feet of gross floor area per building or business and subject to the Special Commercial Setback from arterial streets as generally illustrated in Map 9-5 and specifically set forth in TDC 61.035.
 - (b) The following uses within the General Manufacturing District shall comply with the following size limits established by Metro. Retail sale, retail service and

professional service uses shall be no greater than 5,000 square feet of sales or service area per outlet, or not greater than 20,000 square feet of sales or service area for multiple outlets in a single building or in multiple buildings that are part of the same development project, with the following exceptions.

- (i) Application of the Industrial Business Park Overlay District (TDC Chapter 69).
 - (ii) The retail sale of products manufactured, assembled, packaged or wholesaled on the site provided the retail sale area, including the showroom area, shall be no more than five percent of the gross floor area of the building not to exceed 1,500 square feet.
 - (iii) Within the Special Setbacks for Commercial Uses Area (TDC 61.035) the retail sale of home improvement materials and supplies is allowed provided it is not greater than 60,000 square feet of gross floor area per building or business and subject to the Special Commercial Setback from arterial streets as generally illustrated in Map 9-5 and specifically set forth in TDC 61.035.
- (c) In accordance with the Industrial Business Park Overlay District, TDC Chapter 69, selected office and retail uses are allowed to provide services to businesses and employees. The purpose is also to allow certain commercial service uses in the Commercial Services Overlay shown in the specific areas illustrated on Map 9-5 and allow selected commercial uses subject to distance restrictions from residential areas and subject to the Special Commercial Setback from arterial streets as generally illustrated in Map 9-5 and specifically set forth in TDC 61.035.
- (d) The heaviest manufacturing uses that are environmentally adverse or pose a hazard to life and safety will not be allowed.
- (4) *Manufacturing Business Park Planning District (MBP).*
- (a) The purpose of the MBP Planning District is to provide an environment for industrial development consistent with the Southwest Tualatin Concept Plan (accepted by the City in October 2010) and as a Metro-designated Regionally Significant Industrial Area (RSIA) consistent with Metro's Urban Growth Boundary expansion decisions of 2002 and 2004.
 - (b) The MBP Planning District will be a mix of light industrial and high-tech uses in a corporate campus setting, consistent with MBP Planning District development standards. The RSIA-designated area requires at least one 100-acre parcel and one 50-acre parcel for large industrial users. The remainder of the area is likely to include light industrial uses with some limited, local-serving commercial services.
 - (c) The district is intended to provide for an esthetically attractive working environment with campus-like grounds, attractive buildings, ample employee parking and other amenities appropriate to an employee oriented activity. It also is intended to protect existing and future sites for such uses by maintaining large lot configurations, a cohesive planned-development design and limiting uses to those that are of a nature that will not conflict with other industrial uses or nearby residential areas of the City.

(Ord. 592-83 §34, 6-13-83; Ord. 942-95, 3-27-95; Ord. 1003-98, 4-27-98; Ord. 1026-99, 8-9-99; Ord. 1046-00, 2-14-00; Ord. 1133-03, 3-24-03; Ord. 1212-06, 6-26-06; Ord. 1321-11 §7, 4-25-11)

Other Planning Districts:

(1) *Institutional Planning District (IN).*

- (a) The purpose of this district is to provide an environment exclusively for, and conducive to, the development and operation of religious institutions, schools, public parks, and related uses, in a manner that is harmonious with adjacent and nearby residential, commercial, or manufacturing planning districts and uses.
- (b) The district is intended to accommodate large-scale campus-style developments, owned and operated by governmental or nonprofit entities, consisting of multiple structures or facilities, which may serve multiple purposes and provide multiple services to the community.
- (c) Permitted and conditional uses shall be developed and operated in a manner that promotes and protects the health, safety, and general welfare of all adjacent and nearby planning districts and uses. Additionally, conditional uses shall be allowed provided that the use is developed and operated in a manner that is consistent with the intent of the planning district, and that promotes and protects the health, safety, and general welfare of all adjacent and nearby planning districts and uses.
- (d) The district may be applied to land that is able to accommodate large-scale campus-style development and operation of religious institutions, schools, public parks, and related uses, as follows:
 - (a) Contiguous land one and one-half acre in size or greater;
 - (b) Access to a collector or arterial street;
 - (c) Adequate public facilities are available to the property.

(Ord. 1216-06, 7-24-06)