MEMORANDUM

CITY OF TUALATIN

TO: Honorable Mayor and Members of the City Council

FROM: Sherilyn Lombos, City Manager

DATE: September 10, 2018

SUBJECT: Work Session for September 10, 2018

5:00 p.m. (30 min) – Region-wide Housing Bond. In June, the Metro Council referred a $652.8 million general obligation bond to Portland-area voters for consideration on the November 2018 ballot. The measure would fund the construction, acquisition, and renovation of affordable housing for approximately 7,500 to 12,000 people in the region. The measure defines affordable housing as land and improvements for residential units occupied by low-income households making 80% or less of area median income. If approved, the bond will cost 24 cents per $1,000 of assessed property value. The Washington County Housing Authority will administer the program in Washington County. Mr. Komi Kalevor, Housing Authority Director will share information with the Council tonight about the program and what Tualatin could expect if the measure passes.

5:30 p.m. (30 min) – Standards for Small Cell Facilities in the Right-of-Way. Network providers are increasingly interested in establishing small cell facilities within the City. To ensure residents and businesses have access to quality cellular service and the most recent technologies staff is seeking Council input on standards developed to allow the installation of small cell facilities within the City. The intent of this work session is to discuss the draft version of small cell facility standards with Council and collect Council questions or comments concerning this technology and related network provider facilities.

6:00 p.m. (50 min) – Parks System Development Charges. Council will discuss the methodology and appropriate rate for parks SDCs.

6:50 p.m. (10 min) – Council Meeting Agenda Review, Communications & Roundtable. Council will review the agenda for the September 10th City Council meeting and brief the Council on issues of mutual interest.

MEMORANDUM
CITY OF TUALATIN

TO: Honorable Mayor and Members of the City Council

THROUGH: Sherilyn Lombos, City Manager

FROM: Nic Westendorf, Management Analyst II
Casey Fergeson, Project Engineer

DATE: 09/10/2018

SUBJECT: Discuss Facility Standards for Small Cellular and Distributed-Antenna Systems (DAS) in the Right-of-Way.

ISSUE BEFORE THE COUNCIL:
Discuss proposed standards for small cellular and Distributed-Antenna System (DAS) facilities in the Right-of-Way.

EXECUTIVE SUMMARY:
Staff has prepared a draft version of a proposed update to the Public Works Construction Code that adds standards for small cellular equipment in the right-of-way. The proposed update establishes design and construction standards for small cellular and DAS faculties in the right-of-way. The standards are intended to preserve the public's best interest and create a conducive environment for cellular service providers to bring small cellular and Distributed-Antenna Systems (DAS) technology to Tualatin. The standards will be included in an October 2018 update to the Public Works Construction Code.

Network providers are increasingly interested in establishing small cellular/DAS facilities within the city. To ensure residents and businesses have access to quality cellular service and the most recent technologies staff is seeking Council input on standards developed to allow the installation of small cellular/DAS facilities within the City. The intent of this work session is to discuss the draft version of small cellular/DAS facility standards with Council and collect Council questions or comments concerning this technology and related network provider facilities.

BACKGROUND:

Small cellular refers to low-powered radio access nodes that help provide cellular service. Small cellular and DAS are shorter range systems designed to complement the macro (existing) network. These nodes typically have a service range between 10 meters and a few kilometers. These attachments are smaller than traditional cell sites and are deployed to provide increased capacity and coverage of existing networks in high traffic areas and hard-to-reach areas, usually due to topography or difficulty installing macro sites.

The growth of small cell antennas is a direct response to increasing global data traffic. These technologies will be utilized to provide enhanced cell phone coverage as well as future 5G cellular coverage. Establishing reasonable and responsible standards will promote the appropriate development of this technology within the City.

Due to the short-range nature of small cells, a greater number of facilities are required to provide coverage than with the macro systems. This poses some challenges as pole space becomes increasingly congested and network providers seek to provide coverage in the same service area(s).

Verizon approached the City in early 2018 about obtaining a license to install small cellular equipment within the right of way. At the time, the City did not have standards for installing such equipment within the right of way. Verizon agreed to work with City staff to develop standards that can be applied to all potential providers.

DISCUSSION:

Staff is asking Council to provide questions or concerns pertaining to small cellular and/or Distributed-Antenna System facilities and the proposed standards at this time. A representative from Verizon will attend the September 24 th Council meeting to address your concerns and answer your questions related to small cellular/ DAS technologies. Staff will provide Council's comments and questions to Verizon prior to the meeting.

TIMELINE:

9/24/18 – City Council Meeting; a representative from Verizon will attend and provide more detailed information on the technology, industry perspective, and address any questions or concerns from Council.

10/8/18 (Tentative) – City Council Meeting; tentative meeting date staff anticipates bringing a final version of Section 331 of the Public Works Construction Code - Pole Attachments, Small Cell, and Distributed Antenna Systems (DAS) - to Council for consideration.

Attachments: Section 331 PWCC Proposed Update
PowerPoint

331 POLE ATTACHMENTS, SMALL CELL, AND DISTRIBUTED ANTENNA SYSTEMS (DAS)

331.1.00 General

331.1.01 Scope

This section covers the work necessary for installing small cell facilities or DAS on City of Tualatin street lights and utility poles, third-party street lights and utility poles, and new poles within public rights-of-way within public rights-of-way. Network Providers shall adhere to the requirements of City of Tualatin Municipal Code 03-06, “Utility Facilities in the Rights-of-Way.” The items listed below are not an exhaustive list, and are intended to supplement the National Electrical Safety Code (NESC) or other applicable engineering standards required by the wireless installation agreement.

331.1.02 Tree Protection

Network Provider, its contractors, and agents shall obtain written permission from the City Engineer before trimming trees in the vicinity of the installation. When directed by the City Engineer, Network Provider shall trim under the supervision and direction of the Parks Division Manager. The City shall not be liable for any damages, injuries, or claims arising from Network Provider’s actions under this section.

331.1.03 Signage

Signage and labeling on equipment should be limited to only what is required by FCC and OSHA. In addition, Network Provider shall post its name, location identifying information, and emergency contact information. The required signage shall not exceed 4” x 6”, unless required by law. All signage shall be made of weather, corrosion, and ultra-violet (UV) resistant materials

331.1.04 Record Drawings

Upon installation completion, Network Providers shall provide City of Tualatin copies of all plans and elevation schematics for purposes of maintaining an accurate inventory of wireless facilities.

331.1.05 Locations

The Network Provider will not be permitted to attach wireless facilities to traffic signals, nor any utility or street light pole within 100 feet of a signalized intersection.

331.2.00 Materials

331.2.01 Antenna

Antenna shall be either flush-mounted panel or omni-directional type (cylindrical enclosure on top of the pole) in order to minimize visual impacts. Panel antennas cannot exceed 2 feet in height (vertical length), 14 inches in width, or eight inches 8 inches in depth. Omni-directional antennas cannot exceed 5 feet in height (vertical length) and no wider than the diameter of the utility pole. A maximum of two panel antennas per pole *OR* one omni-directional type per pole will be allowed, unless approved by the City Engineer. Omni-directional antennas shall extend no more than ten (10) feet above the pole it is mounted on. Antenna shall be painted with or constructed of material with non-reflective neutral color that matches or is similar in color to that of the pole.

331.2.02 Strand Mounting

Small cell facilities/DAS mounted on cables strung between existing utility poles shall conform to the following standards:

a. Each strand mounted facility shall not exceed (3) cubic feet in volume;

b. Only one strand mounted facility is permitted per cable between any two existing poles;

c. The strand mounted devices shall be placed as close as possible to the nearest utility pole, in no event more than six (6) feet from the pole unless a greater distance is technically necessary or required by the pole owner for safety clearance;

d. No strand mounted device shall be located in or above the portion of the roadway open to vehicular traffic;

e. Ground mounted equipment to accommodate such strand mounted facilities is not permitted, except when placed in pre-existing equipment cabinets;

f. Pole mounted equipment for strand mounted facilities shall comply with the requirements for pole mounted small cell equipment, and

g. Such strand mounted devices must be installed to cause the least visual impact and with the minimum exterior cabling or wires (other than the original strand) necessary to meet the technological needs of the facility.

331.2.03 Cable

Cables are used to connect antennas, antenna accessory equipment, and power lines to wireless equipment components. All cables shall be in conduit with top

side weatherheads. Power cables transporting AC power shall be in separate conduit from DC power or telecommunications cable. Cables can be coaxial, fiber optic, solid or stranded metallic conductor. Hybrid cables, cable with two or more cable types enclose in one sheath, are permitted. No exposed riser cables will be allowed.

The Network Provider shall install and maintain any and all of its wireless facilities in a neat and workmanlike manner consistent with the maintenance of the overall appearance of the pole as determined by City of Tualatin in its sole discretion. All cables connecting to the pole where new telecommunications or utility lines are planned as part of a project shall be buried below ground.

331.2.04 Conduit

All conduit shall be schedule 40 finished galvanized rigid steel conduit or painted to match pole. All metallic conduit shall be bonded and grounded at the antenna ground point and at the wireless equipment ground point. The maximum number of conduits allowed for each antenna installation shall be four (4) conduits total, one (1) for service power and three (3) for the coaxial cables and fiber. The maximum conduit size allowed shall be 4 inches in diameter. The minimum space between the pole and the closest part of the conduit shall be 4-1/2 inches (for climbing).

331.2.05 Equipment Cabinet

The total size of the equipment cabinet or cabinets on any one pole shall be no larger than a total combined 21 cubic feet in volume with no one side/dimension being greater than 4.25 feet. Equipment cabinets include but are not limited to remote radio heads/units (RRHs or RRUs), fiber interface boxes (e.g. SAR-O), and battery backup. The cabinet shall be painted with or constructed of material with non-reflective neutral color that matches or is similar in color to that of the pole.

All associated ground-mounted equipment cabinets located in the rights-of-way are subject to the applicable standards of Washington County, ODOT, and City of Tualatin.

Strand-mounted equipment must meet Subsection 331.2.02.

331.2.06 Replacement and New Poles

All small cell facilities or DAS must be attached to existing utility poles or street lights. Omni-poles (slim line poles) will not be permitted.

Existing street lights and utility poles may be replaced when installing a small cell facility or DAS; provided that, the new pole is not more than ten (10) feet taller than the pole to be replaced, or the minimum additional height necessary to meet required vertical clearance for safety purposes, whichever is greater. Street lights shall be designed and installed in accordance with PGE (Option B) standards per City of

Tualatin Public Works Construction Code Section 203.2.28 Street Lights.

331.2.07 Grounding and Bonding

All conductive parts of the antenna installation on the pole shall be bonded together and grounded to the pole ground or system neutral. A copper ground wire, #4 AWG minimum size, shall be installed from the base of the antenna bracket to a ground rod(s) at the base of the pole. The ground wire shall be permanently connected to the ground rod. If no ground rod exists, two shall be installed, with one rod near the base of the pole and the second rod 8 feet away.

331.3.00 Workmanship

331.3.01 General

All installations shall meet or exceed all applicable structural and clearance requirements of the latest revision of the National Electrical Safety Code (NESC). All electrical service to provide power to the small cell facility and DAS shall meet all applicable National Electrical Code (NEC).

All of the Network Provider's construction shall be performed at the Provider's sole cost and expense, shall be installed in a neat and workmanlike manner, and must not adversely affect the structural integrity of the City's service poles, streetlight poles, or communication facilities of other attaching entities attached thereto. All such wireless infrastructure installations are subject to inspection and/or observation by City of Tualatin or its designee.

The Network Provider is responsible for field verifying utility pole or street light ownership and notifying City of Tualatin of any discrepancies between City maps/records and the actual utility poles or street lights in the field.

The City of Tualatin Public Works may allow equipment boxes, antennas and other small cell related facilities or attachments that exceed these size or quantity limitations on a case-by-case basis.

City of Tualatin

Small Cellular

City Council Work Session

September 10, 2018

CITY OF TUALATIN OREGON

Overview

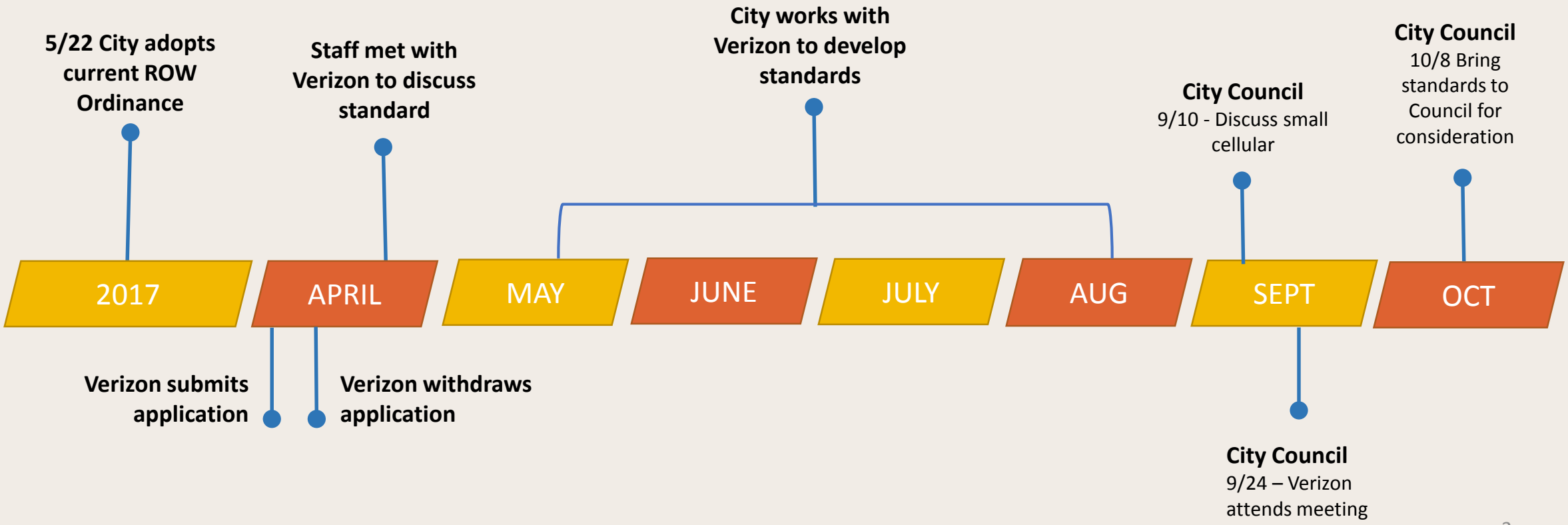
How we got here

Small Cellular

Proposed standards

Collect feedback for the September 24 City Council Meeting

Timeline


5/22 City adopts current ROW Ordinance
Staff met with Verizon to discuss standard
City works with Verizon to develop standards
City Council
9/10 - Discuss small cellular
City Council
10/8 Bring standards to Council for consideration
2017
APRIL
MAY
JUNE
JULY
AUG
SEPT
OCT
Verizon submits application
Verizon withdraws application
City Council
9/24 – Verizon attends meeting

Process

9/10 – Council discussion on small cellular

9/24/18 – Representatives from Verizon will attend Council meeting

10/8/18 (Tentative) - Final version of standards for Council consideration.

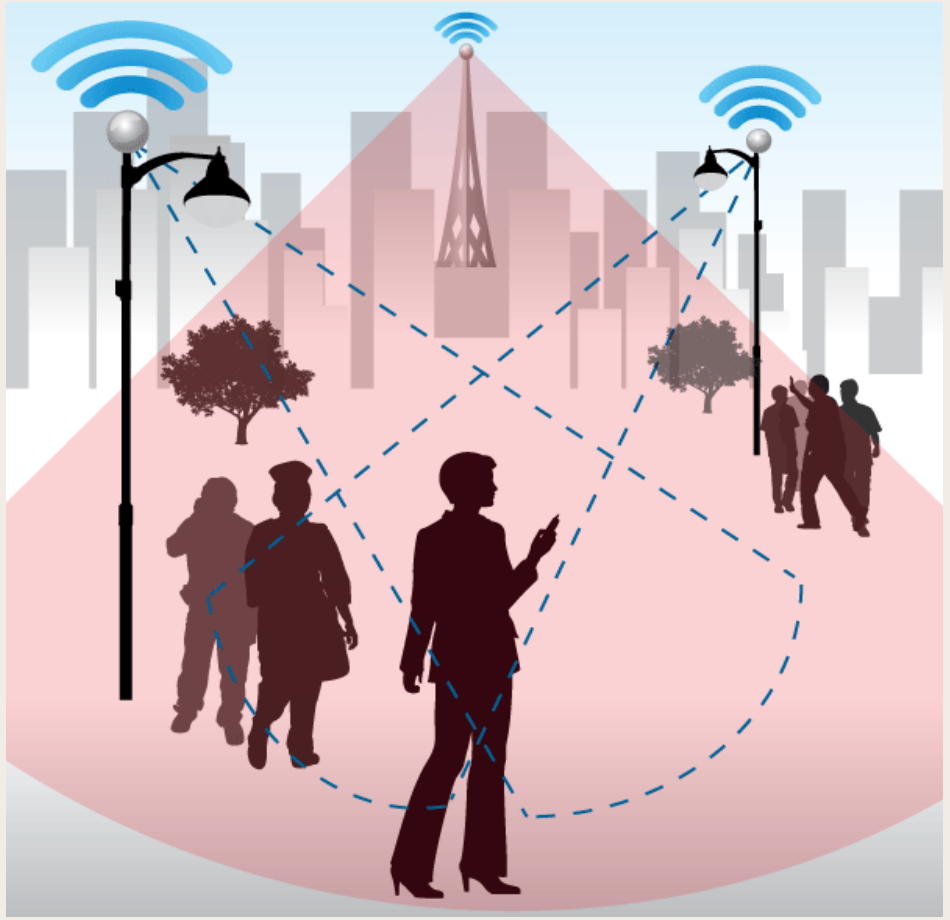
What is Small Cellular

Increase coverage capacity in targeted high traffic areas

Extend coverage in hard-to-reach locations

Shorter range systems

Compliment macro network



Why Do We Need It?

Resident/ business access to current technology

Eliminate “dead zones”

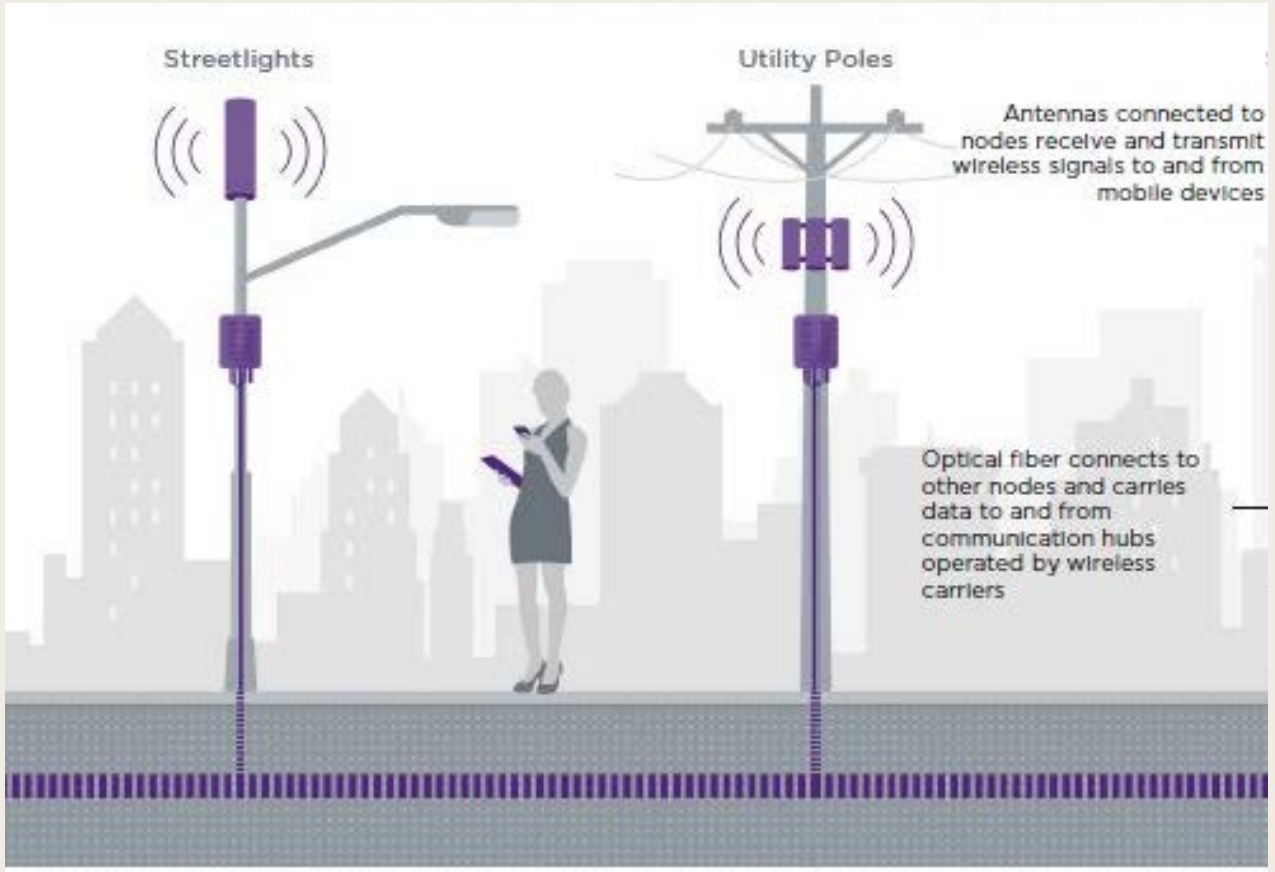
Current 4G Technology / Future 5G Technology

Small Cellular Facilities

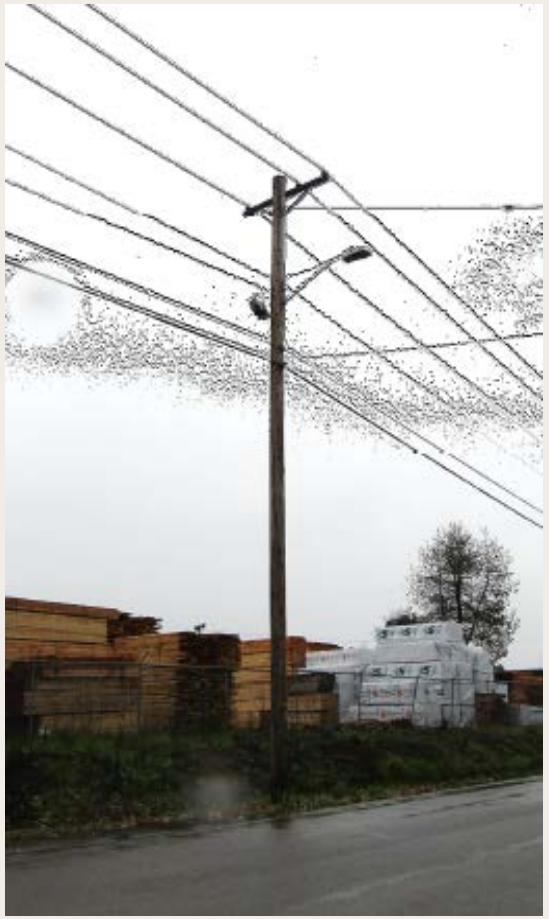
Most common – street light & utility pole mounted facilities

Smaller than traditional sites

Multiple configurations

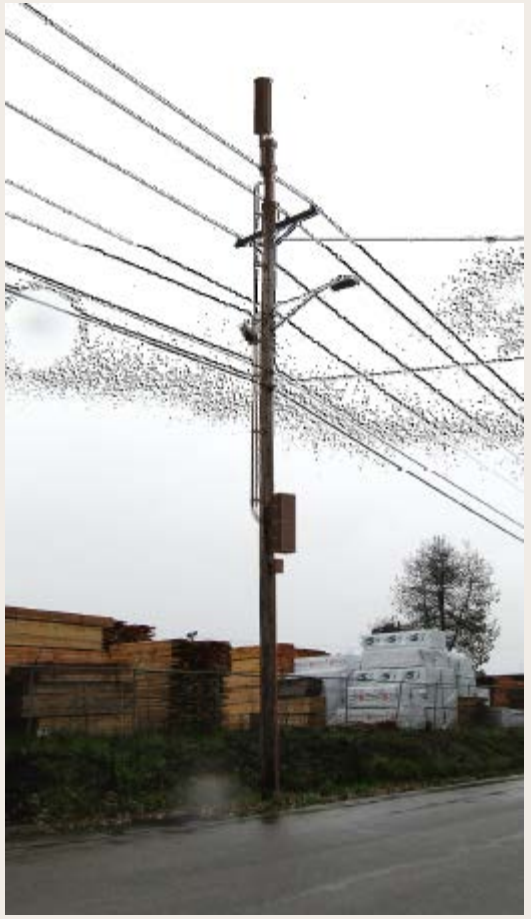


Small Cellular Examples



Existing utility pole

Mounted on Utility pole



Utility pole with antenna

Small Cellular Examples

Existing street light

Mounted on Street light

Street light with antenna

Small Cellular Examples

Mounted on wire (strand)

Small Cellular Examples

Renderings of potential antenna designs

Proposed Standards

The goal: develop standards that work for City and industry

Staff worked with various stakeholders to develop standards including industry professionals & neighboring cities

Proposed Standards – Aesthetics

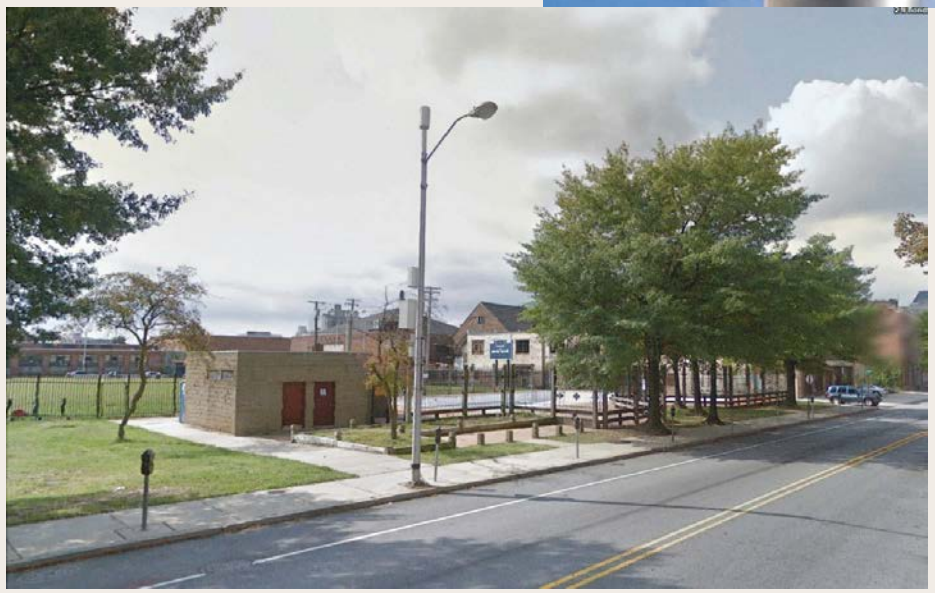
Non-reflective, neutral color that matches existing pole

Panel Antenna (top right photo) – 24”x14”x8”

Omni Antenna (bottom right photo) – 5 feet high, no wider than pole, no more than 10 feet above pole

Strand Antenna – no larger 3 cubic feet

Equipment Cabinet - no larger than 21 cubic feet



Proposed Standards – Location

Intersections

- Avoid interference with signal equipment

- No closer than 100 feet from signalized intersections

Mounted street light/utility pole locations

- Existing locations

Mounted on wire (strand)

- one per cable/ between two poles, no more than 6 feet from pole, not allowed above roadway

Proposed Standards – Community Character

Replacement poles no more than 10 feet taller than original pole – match current standards

Standards apply to both City and PGE owned street lights

Tree preservation – must receive written permission to trim/remove trees

Discussion

MEMORANDUM
CITY OF TUALATIN

TO: Honorable Mayor and Members of the City Council

THROUGH: Sherilyn Lombos, City Manager

FROM: Tanya Williams, Assistant to the City Manager
Ross Hoover, Parks & Recreation Director

DATE: 09/10/2018

SUBJECT: ***6:00 p.m. (50 min) – Parks System Development Charges.*** Council will discuss the methodology and appropriate rate for parks SDCs.

ISSUE BEFORE THE COUNCIL:

At the work session on August 13, the City Council requested additional information from staff and the project consultants to discuss and provide direction regarding System Development Charges.

EXECUTIVE SUMMARY:

Staff and project consultants will provide a presentation and information regarding Parks System Development Charges (SDC) for Council discussion and direction on SDC Methodology.

NEXT STEPS:
The next steps consist of public, advisory committee, and Council review and comments on the Draft Plan starting September 4. Plan Adoption is scheduled to be considered on November 13.

Attachments: Powerpoint presentation
Draft Park System Development Charge Methodology
Table D-1: Proposed Projects Cost Summary and SDC Eligibility

TUALATIN
Accessible, Inclusive & Vibrant
Parks and Recreation

SYSTEM DEVELOPMENT CHARGES

CITY COUNCIL WORK SESSION

Monday, September 10, 2018

MIG cai community attributes inc

Agenda

I. Purpose, Process & SDC Timeline
II. Data Information
III. SDC Process
IV. SDC Policy Direction

TUALATIN
Accessible, Inclusive & Vibrant
Parks and Recreation

Purpose of Meeting

- Provide information requested at 8/13 meeting
- Clarify SDC timeline & decision points
- Receive policy direction needed to finalize and post the Revised Draft SDC Methodology for public review

TUALATIN
Accessible, Inclusive & Vibrant
Parks and Recreation


TUALATIN
Accessible, Inclusive & Vibrant
Parks and Recreation

SDC PROCESS

SDC Adoption Process

- Step 1: Adopt SDC methodology through ordinance
  - Methodology presents the **MAXIMUM ALLOWABLE** SDC rate
- Step 2: Approve new SDC rates by resolution
  - Council can set rates **LESS THAN** the maximum allowable
  - Council can change rates without updating the SDC Methodology (if still consistent with what is allowable)

SDC Timeline/Process

SDC Process:

- 8/3 Public notification (90 days before adoption)
- 8/13 Council first review of draft methodology
- **9/10 Council review of draft methodology**
- 9/12 Public draft review (60 days before adoption)
- Review of public comments and Final Methodology
- Council review of Final Methodology
- 11/13 Council methodology adoption
- 11/13 Council rate approval

DATA INFORMATION

Information Requested from Council

- Population and employment growth estimates
- Vacant land to be developed
- Past SDC funded projects ($ amount)
- Project costs and SDC applicability

TUALATIN
Accessible, Inclusive & Vibrant
Parks and Recreation

Data Clarification

- Population and employment data sources:
  - Numbers provided by City Planning, based on data from:
    - Metro
    - Tualatin concept plans
    - Oregon Employment Department
    - Portland State
    - U.S. Census Bureau

TUALATIN
Accessible, Inclusive & Vibrant
Parks and Recreation

Data Clarification

- Tualatin units/acres to be developed:
  - Residential – approximately 1,200 units
    - Mostly Basalt Creek
  - Employment – approximate total of 440 acres
    - Vacant & Redeveloped

TUALATIN
Accessible, Inclusive & Vibrant
Parks and Recreation

Data Clarification

- Master Plan capital project costs vs. projects in SDC Methodology
  - Master Plan total CIP costs = $215.9 million
  - Total costs of capacity enhancement projects = $144.7 million
  - Cost of projects included in methodology = $74.0 million

Not all potential qualifying projects are included in the methodology.

TUALATIN
Accessible, Inclusive & Vibrant
Parks and Recreation

SDC POLICY DIRECTION NEEDED

Methodology Refinements

Maximum Allowable Park System Development Charge per Unit of Development (Ex 1, p. 1)

Type of Development	SDC per Unit of Development	
Residential	$13,888	dwelling unit
Nonresidential	$2.67	square foot

TUALATIN
Accessible, Inclusive & Vibrant
Parks and Recreation

SDC Policy Direction Needed

What types of development should pay SDCs to cover the park impacts they create?

- Recommended approach: residential and nonresidential development
- Alternative: Residential development only
- Advisory Committee Recommendation to apply SDC charges to nonresidential development
  - 7/31 Project Advisory Committee
  - 8/14 Tualatin Parks Advisory

SDC Policy Direction Needed

Should rates be divided for different uses?

- Recommended approach: One rate for residential development and one rate for nonresidential development
- Alternative: Separate rates for single-family and multi-family residential development, along with one rate for nonresidential development
- Alternative: Multiple rates for non-residential development will require recalculation of methodology and create administrative complexity

DISCUSSION & DIRECTION

Park System Development Charge Methodology

City of Tualatin

DISCUSSION DRAFT

August 29, 2018

Prepared by:

cai community attributes inc

Prepared for:

City of Tualatin

Community Attributes Inc. tells data-rich stories about communities that are important to decision makers.

President & CEO
Chris Mefford

Analysts
Michaela Jellicoe, Project Manager
Kristina Gallant
Mark Goodman

Community Attributes Inc.
500 Union Street, Suite 200
Seattle, Washington 98101

www.communityattributes.com

CONTENTS

This page was intentionally left blank.

1. INTRODUCTION

The purpose of this methodology is to establish the rates for system development charges (SDCs) in the City of Tualatin, Oregon for parks, open space and recreation facilities as authorized by ORS 223.297 to 223.314.[1] Throughout this methodology the term "parks" is used as a short name referring to parks, open space and recreation facilities, including land and developments.

Summary of System Development Charges

System development charges are one-time fees charged to new development to help pay a portion of the costs required to build capital facilities needed to serve new development.

Parks SDCs are paid by all types of new development. SDC rates for new development are based on and vary according to the type of development. The following table summarizes the maximum allowable SDC rates for each type of development.

Exhibit 1. City of Tualatin Maximum Allowable System Development Charge Rates

Type of Development	SDC per Unit of Development	
Residential	$13,888	dwelling unit
Nonresidential	$2.67	square foot

System Development Charges vs. Other Developer Contributions

System Development Charges are charges paid by new development to reimburse local governments for the capital cost of public facilities that are needed to serve new development and the people who occupy or use the new development. Throughout the methodology, the term "developer" is used as a shorthand expression to describe anyone who is obligated to pay SDCs, including builders, owners or developers.

Local governments charge SDCs for several reasons: 1) to obtain revenue to pay for some of the cost of new public facilities; 2) to implement a public policy that new development should pay a portion of the cost of facilities that it requires, and that existing development should not pay the entire cost of such facilities; and 3) to ensure that adequate public facilities will be constructed to serve new development.

[1] Oregon Revised Statute (ORS) is the state law of the State of Oregon.

The SDCs that are described in this study do not include any other forms of developer contributions or exactions for parks facilities to serve growth.

Organization of the Methodology

This SDC Methodology contains four chapters:

- **Introduction:** provides a summary of the maximum allowable SDC rates for development categories and other introductory materials.
- **Statutory Basis and Methodology:** summarizes the statutory requirements for development of SDCs and describes the compliance with each requirement.
- **Growth Estimates:** presents estimates of population and employment in Tualatin because SDCs are paid by growth to offset the cost of parks, open space and recreation facilities that will be needed to serve new development.
- **Park System Development Charges:** presents the maximum allowable SDCs for parks in the City of Tualatin. The chapter includes the methodology that is used to develop the maximum allowable charges, the formulas, variables and data that are the basis for the charges, and the calculation of the maximum allowable charges. The methodology is designed to comply with the requirements of Oregon state law.

2. Statutory Basis and Methodology

The source of authority for the adoption of SDCs is found both in state statute and the City's own plenary authority to adopt this type of fee. This chapter summarizes the statutory requirements for SDCs in the State of Oregon and describes how the City of Tualatin's SDCs comply with the statutory requirements.

Statutory Requirements for System Development Charges

The Oregon Systems Development Act, passed in 1989, authorizes local governments in Oregon to charge SDCs. ORS 223.297 to 223.314 contain the provisions that authorize and describe the requirements for SDCs.

The following synopsis of the most significant requirements of the law include citations to Oregon Revised Statutes as an aid to readers who wish to review the exact language of the statutes.

Types of Capital Improvements

SDCs may only be used for capital improvements. Five types of capital improvements can be the subject of SDCs: 1) water supply, treatment and distribution; 2) waste water collection, transmission, treatment and disposal; 3) drainage and flood control; 4) transportation; and 5) parks and recreation. Capital improvements do not include the costs of the operation or routine maintenance of the improvements. Any capital improvements funded with SDCs must be included in the capital improvement plan adopted by the local government. *ORS 223.297, ORS 223.299 and ORS 223.307 (4)*

Types of System Development Charges

SDCs can include reimbursement fees, improvement fees or a combination of the two. An improvement fee may only be spent on capacity-increasing capital improvements identified in the Capital Improvement Plan. A reimbursement fee may be charged for the costs of existing capacity if there is "excess capacity" identified in the methodology. *ORS 223.299*

Improvement Fee Methodology Requirements
There are several requirements for an improvement fee methodology, as established in ORS 223.304. In order to establish or modify an improvement fee, an ordinance or resolution must be passed with a methodology that is publicly available and considers both the projected cost of capital improvements included in the plan related to the fee and the need for increased capacity to serve future users.

Reimbursement Fee Methodology Requirements
There are several requirements for a reimbursement fee methodology, also established in ORS 223.304. The methodology establishing or modifying a reimbursement fee must be passed by ordinance or resolution. The methodology must consider ratemaking principles, prior contributions by existing users, gifts or grants received and the value of unused capacity available to future users.

Prohibited Methodologies

Local governments may not base SDC charges to employers on the number of individuals hired by the employer after a specified date. In addition, the methodology cannot assume that costs for capital improvements are necessarily incurred when an employer hires an additional employee. Fee amounts cannot be determined based on the number of employees without regard to new construction, new development or new use of an existing structure by the employer. *ORS 223.301*

Authorized Expenditures

Authorized uses for SDC revenues depend on whether the revenues were collected as reimbursement fees or improvement fees. Reimbursement fees may only be used for capital improvements associated with the systems for which the fees are assessed, including repaying associated debts. Improvement fees may only be used for capacity increasing capital improvements associated with the systems for which the fees are assessed, including repaying associated debts. Regardless of the type of fee, SDC revenue may be used to cover the costs of complying with SDC regulations, including the cost of developing SDC methodologies and annual accounting of expenditures. *ORS 223.307 (1), (2), (3) and (5)*

SDCs may not be used to build administrative facilities that are "more than an incidental part" of allowed capital improvements, or for any facility operation or maintenance costs. *ORS 223.307 (2)*

Benefit to Development

The share of capital improvements funded by improvement fees must be related to the need for increased capacity to serve future users. Improvement fees must be based on the need for increased capacity to serve growth and must be calculated to collect the cost of capital improvements needed to serve growth. *ORS 223.307 (2) and ORS 223.304 (2).*

Reductions of System Development Charge Amounts

The impact fee ordinance or resolution must allow for a credit for constructing qualified public improvements. Qualified public improvements

are capital improvements that are required as a condition of development approval and also identified in the plan, which are either "not located on or contiguous to property that is the subject of development approval" or "located in whole or in part on or contiguous to property that is the subject of development approval and required to be built larger or with greater capacity than is necessary for the particular project to which the improvement fee is related." Additionally, ORS 223.304 (5) indicates that the burden of proving that the improvement exceeds the minimum standard capacity need set by the local government and that the particular improvement qualifies for a credit is the developers responsibility. *ORS 223.304 (4)*

Local governments also have the option to provide greater credits, establish a system providing for the transferability of credits, provide a credit for a capital improvement not identified in the CIP, or provide a share of the cost of the improvement by other means. Credits provided must be used in the same time frame specified in the local government's ordinance but may not be used later than ten years from the date the credit is provided. *ORS 223.304 (5)(c) and ORS 223.304 (5)(d)*

Developer Options

Local governments must establish procedures for any citizen or interested person to challenge an expenditure of SDC revenue. If anyone submits a written objection to an SDC calculation, the local government must advise them of the process to challenge the SDC calculation. *ORS 223.302 (2) and (3)*

Capital Improvement Plans

All projects funded with SDC revenue must be included in the local government's capital improvement plan before any charges can be imposed. The plan may be called a capital improvement plan, public facilities plan, master plan or other comparable plan that includes a list of capital improvements that the government intends to fund in any part with SDC revenue. The plan must include the projects' estimated costs, timing and percentage of costs to be funded with improvement fees. The plan may be modified at any time, but if an amendment to the plan will result in increased SDCs, there are additional notification and public hearing requirements. *ORS 223.309*

Accounting Requirements

All SDC revenue must be deposited in dedicated accounts. Local governments must provide annual reports on how much SDC revenue was collected and which projects received SDC funding. This must include how much was spent on each project as well as the amounts that were collected and dedicated to covering the costs of compliance with state laws. *ORS 223.311*

Annual Inflation Index

Local governments may change the amount of an improvement or reimbursement SDC without making a modification of the methodology under specific circumstances. A change in the amount of the SDC is not considered a modification of the methodology if the change is based upon a change in the cost of "materials, labor or real property" applied to the projects in the CIP list. Additionally, a change in the amount of the SDC is not considered a modification of the methodology if the change is based on a periodic "specific cost index or other periodic data source." The periodic data sources must be:

- A relevant measure of the change in prices over a specified time period for "materials, labor, real property or a combination of the three;"
- Published by a recognized organization or agency that is independent of the system development charge methodology;
- Included in the methodology or adopted by ordinance, resolution or order. *ORS 223.304 (8)*

Compliance with Statutory Requirements for System Development Charges

Many of the statutory requirements listed above are fulfilled in the calculation of the parks system development charge in the fourth chapter of this methodology. Some of the statutory requirements are fulfilled in other ways, as described below.

Types of Capital Improvements

This methodology includes SDCs for parks capital improvements, which are one of the five types of capital improvements legally eligible for SDCs. The SDCs in this methodology are based on capital improvements that increase capacity in the parks system and the portion of capacity-increasing projects eligible for parks SDCs included and identified in the City of Tualatin's capital improvement plan.

Types of System Development Charges

SDCs can include reimbursement fees, improvement fees or a combination of the two. This methodology only includes improvement fees. The capital improvements identified in the City of Tualatin's Capital Improvement Plan to be funded with improvement fees are capacity-increasing capital improvements.

The City of Tualatin's parks SDCs are based on maintaining its existing levels of service as growth occurs. New development will receive the same level of service or acres per equivalent person in order to maintain the same ratio as existed before the new development, and the total of those acres per

person are the requirements to serve growth. By definition, the existing ratio is "used up" by the current population, so there is no unused reserve capacity that can be used to serve future population growth through reimbursement SDCs. Additionally, the City of Tualatin has determined that there is no excess capacity within the existing parks system. Therefore, the City of Tualatin has elected to only charge improvement fees, and thus this methodology will only address improvement fees.

Improvement Fee Methodology Requirements
The fees calculated with this methodology consider both the projected cost of planned capital improvements and the need for increased capacity to serve future users. To address future users, a calculation was made to determine the facilities required per new residential unit and per new nonresidential square foot to maintain the current level of service. The City of Tualatin will pass an ordinance or resolution to adopt this parks improvement fee methodology.

Prohibited Methodologies

SDC charges cannot be based on the number of employees without regard to new development. The City of Tualatin's nonresidential SDC calculation is based on new nonresidential square footage rather than number of employees.

Authorized Expenditures

SDC revenue can only be used for the capital cost of public facilities. SDCs cannot be used for operation or routine maintenance expenses. Improvement SDCs may only be used for capacity increasing capital improvements. They may not be used to build administrative facilities that are more than "an incidental part" of allowed capital improvements and they may not be used for any operations or maintenance costs. *ORS 223.307 (1), (2), (3) and (5)*

This methodology is based upon projects identified in the Capital Improvements Plan that increase capacity of the parks system, as identified in the fourth chapter of this methodology. The methodology does not include any administrative facilities or operations or maintenance costs.

Benefit to Development

The share of capital improvements funded by improvement fees must be related to the need for increased capacity to serve future users. *ORS 223.307 (2).* Improvement fees must be based on the need for increased capacity to serve growth and must be calculated to collect the cost of capital improvements needed to serve growth. *ORS 223.304 (2)*

The City of Tualatin's SDCs are based on the additional improvements required to serve future growth and maintain the current level of service for parks, as demonstrated in the fourth chapter of this methodology and identified in the parks CIP analysis in Appendix C.

Reductions of System Development Charge Amounts

The City of Tualatin's municipal code provides for a credit for the cost of qualified public improvements associated with new development as required in ORS 223.304, as well as the provision for other credits as allowed by ORS 223.304.

Developer Options

The City's municipal code establishes a process for individuals to appeal either SDC decisions or expenditures to the City Council by filing a written request with the City Manager's office.

Capital Improvement Plans

The City's capital improvement plan required by State law is incorporated into this parks SDC methodology, as shown in the fourth chapter of this methodology.

Accounting Requirements

The City's code stipulates that SDC revenues must be budgeted and expended in consistency with state law. Accounting requirements are met with the City's Comprehensive Annual Financial Report.

Annual Inflation Index

ORS 223.304 (8) allows local governments to adjust the SDC rate without modifying the methodology under specified circumstances. The City of Tualatin adopted an annual inflation index in their municipal code in 2004 and will continue to use this inflation index.

The inflation index used by the City of Tualatin for parks SDCs is calculated by combining the "change in average market value of undeveloped residential land in the City's planning area according to the records of the Washington County Tax Assessor and the Clackamas County Tax Assessor for the prior tax year, and the change in the construction costs according to the Engineering News Record Construction Cost Index for Seattle, Washington for the prior calendar year."

Data Sources

The data in this SDC methodology was provided by the City of Tualatin, unless a different source is specifically cited.

3. GROWTH ESTIMATES

System Development Charges are meant to have "growth pay for growth," the first step in developing an SDC is to quantify future growth in the City of Tualatin. Growth estimates for the City of Tualatin's population and employment for the planning period of 2016 to 2035 have been developed.

Exhibit 2 lists Tualatin's residential population and growth rates from 2000 to 2016 and projections to the year 2035.

Exhibit 2. Population

Year	Population	CAGR (1)	CAGR Years
2000	22,791		
2010	26,054	1.3%	2000-2010
2016	26,840	0.5%	2010-2016
2035	29,950	0.6%	2016-2035

(1) CAGR: Compound Annual Growth Rate

(2) Population Sources:

- *2000 - 2016: City of Tualatin from Portland State University College of Urban and Public Affairs, Population Research Center, 2016.*
- *2035: 2035 Forecast of Population by City and County provided by the City of Tualatin. Population forecasts include population for the Basalt Creek and Southwest Tualatin Plan Areas provided by the City of Tualatin.*

In addition to residential population growth, Tualatin expects businesses to grow. Business development is included in this methodology because Tualatin's parks and recreation system serves both its residential population and employees. City parks provide places for employees to take breaks from work, including restful breaks and/or active exercise to promote healthy living.

Exhibit 3 shows employment in Tualatin for 2010 and 2016, and projected growth for the year 2035.

Exhibit 3. Employment

Year	Employment
2010	22,972
2016	29,506
2035	40,668

(1) Employment Sources:

- *2010 and 2035 Employment data provided by City of Tualatin, 2035 TAZ Forecast Distribution by Jurisdiction MetroScope "Gamma" Employment Forecast.*
- *2016 Employment data provided by City of Tualatin staff from the State of Oregon Employment Department.*
- *2035 Employment data provided by City of Tualatin staff. Estimates include employment for the Basalt Creek and Southwest Tualatin Plan Areas.*

Population is expected to increase from 26,840 in 2016 to 29,950 in 2035. Employment is expected to increase from 29,506 in 2016 to 40,668 in 2035. It is clear from Exhibits 2 and 3 that Tualatin expects growth of both population and employment in the future, so there is a rational basis for park SDCs that would have future growth pay for the parks, open space and recreation facilities needed to maintain appropriate levels of service for new development.

Population and employment are both expected to grow, but they should not be counted equally because employees spend less time in Tualatin than residents, therefore they have less benefit from Tualatin's parks. As Tualatin's nonresidential population is assumed to have a lower demand for parks than its residential population, growth in employment is adjusted with an equivalent population coefficient. Appendix A to this study describes equivalency and explains how the "equivalent population coefficients" were developed for this methodology. The result allows nonresidential development to pay its proportionate share of parks for growth based on the "equivalent population" that nonresidential development generates.

Exhibit 4 multiplies the equivalent population coefficients (from Appendix A) by the actual population and employment data from Exhibits 2 and 3 to calculate the "equivalent" population for the base year (2016) and the horizon year (2035) and the growth between 2016 and 2035. Based on the calculations provided in Appendix A, one employee or one member of the nonresidential population is equivalent to 0.34 members of the residential population in terms of demand for parks facilities.

Exhibit 4. Growth of Equivalent Population and Employment

	Equivalent Population Coefficient (1)	2016 Base Year Full Population (2)	2016 Base Year Equivalent Population (3)	2035 Horizon Year Full Population (2)	2035 Horizon Year Equivalent Population (3)	2016-2035 Growth Full Population (4)	2016-2035 Growth Equivalent Population (5)
Residential Population	1.00	26,840	26,840	29,950	29,950	3,110	3,110
Nonresidential Population	0.34	29,506	10,130	40,668	13,962	11,162	3,832
Total	**N/A**	**N/A**	**36,970**	**N/A**	**43,912**	**N/A**	**6,942**

(1) From Appendix A Equivalent Population Coefficients.
(2) Sources: Exhibits 2 and 3.
(3) Equivalent Population = Equivalent Population Coefficient x Full Population.
(4) 2016-2035 Growth Full Population = 2035 Full Population – 2016 Full Population.
(5) 2016-2035 Growth Equivalent Population = 2035 Equivalent Population – 2016 Equivalent Population.

The totals in Exhibit 4 provide the equivalent population for the purpose of development of park SDCs for Tualatin. The total equivalent population for the base year (2016) is 36,970 and the horizon year (2035) is 43,912, therefore equivalent population growth between 2016 and 2035 is 6,942.

4. Park System Development Charges

Overview

System development charges for Tualatin's parks, recreation facilities and open space use an inventory of the City's existing parks acreage and current equivalent population to determine the current level of service ratio for parks. The current level of service ratio is multiplied by the projected equivalent population growth to estimate the acres of parks needed to serve growth at the current level of service and is compared to the number of acres to be acquired in the Capital Improvements Plan (CIP) to ensure sufficient projects are planned to serve growth. The cost of park acquisition and development is divided by the number of acres to be acquired or improved to establish the cost per acre for parks. Multiplying the park cost per equivalent population by the current level of service ratio results in the cost per equivalent population that can be charged as SDCs. The amount of the cost per equivalent population is adjusted by the value of the remaining park SDC fund balance, estimated compliance costs and any other sources of available funding to arrive at the net cost per equivalent population. The amount of the maximum allowable SDC is determined by multiplying the net cost per equivalent population by the equivalent population per unit for each type of development.

These steps are described below in the formulas, descriptions of variables, exhibits and explanation of calculations of parks system development charges. Throughout the chapter the term "person" is used as the short name that means equivalent population or equivalent person.

Formula 1: Parks Level of Service Ratio

The current level of service ratio is calculated by dividing Tualatin's existing parks acreage by its total current equivalent population.

$$(1)\quad \underset{of\ Parks}{Existing\ Acres} \div \underset{Population}{Current\ Equivalent} = \underset{Service\ Ratio}{Current\ Level\ of}$$

Equivalent population was described in the third chapter of this methodology and explained in the Appendix. There is one new variable that requires explanation: (A) Existing Acres of Parks.

Variable (A): Existing Acres of Parks

The acreage of each of Tualatin's parks is listed in Appendix B. The total existing parks acreage includes all existing facilities in the following categories: Parks, Greenways, Natural Parks & Areas, School Joint-Use Facilities and Shared Use Paths. Appendix B additionally includes a total of the acreage for each park and the subtotal by category.

The total existing inventory of parks in the City of Tualatin is 316.14 acres of parks and recreation facilities (from Exhibit B1). Exhibit 5 lists the total existing inventory of parks and divides it by the current equivalent population of 36,970 (from Exhibit 4, divided by 1,000) to calculate the current level of service ratio of 8.55 acres of parks per 1,000 equivalent population.

Exhibit 5. Level of Service Ratio

Inventory		Current Equivalent Pop		Level of Service Ratio	
316.14	acres ÷	36,970	=	8.55	acres per 1,000 pop

Formula 2: Park Needs for Growth

The park needs for growth is calculated to ensure that Tualatin plans to acquire enough land to provide new growth with the same level of service ratio that benefits the current population. The acres of parks needed for growth are calculated by multiplying the level of service ratio by the equivalent population growth from 2016 to 2035 (divided by 1,000).

$$(2)\ \begin{matrix}\textit{Current Level of}\\ \textit{Service Ratio}\end{matrix} \times \begin{matrix}\textit{Equivalent}\\ \textit{Population Growth}\end{matrix} = \begin{matrix}\textit{Park Acres}\\ \textit{Needed for Growth}\end{matrix}$$

There are no new variables used in Formula 2. Both variables were developed in previous formulas and exhibits.

Exhibit 6 shows the calculation of the acres of parks needed for growth. The current level of service ratio is calculated in Exhibit 5. The growth in equivalent population is calculated in Exhibit 4. The result is that Tualatin needs to add 59.36 acres of parks in order to serve the growth of 6,942 additional people who are expected to be added to the City's existing equivalent population.

The number of acres in the Capital Improvements Plan must equal or exceed the number of acres needed for growth in order to provide at least the amount for which growth is being asked to pay SDCs. If the CIP amounts are greater than the amount needed for growth, the City pays for the additional amounts, and growth pays only for the amount that it needs.

Exhibit 6. Park Land Needs for Growth

Level of Service Ratio		2016-2035 Growth		Additional Acres Needed for Growth	Additional Acres in CIP
8.55	acres per 1,000 pop x	6,942	=	59.36	64.73

Formula 3: SDC Eligible Park Cost per Acre

The SDC eligible cost per acre of park land and improvements is the cost basis for the SDC. The cost per acre of park land and development is calculated by dividing the cost of eligible proposed park acquisitions and improvements by the number of acres to be acquired and developed in the Capital Improvements Plan.

$$(3)\ \begin{matrix}\textit{Cost of Park Acquisition}\\ \textit{and Development}\end{matrix} \div \begin{matrix}\textit{Acres to be Acquired}\\ \textit{and Improved}\end{matrix} = \begin{matrix}\textit{Park Cost}\\ \textit{per Acre}\end{matrix}$$

There are two new variables used in Formula 3 that require explanation: (B) Cost of Park Acquisition and Development and (C) Acres to be Acquired and Improved.

Variable B: Cost of Park Acquisition and Development

The park SDCs are based on the costs from the City's plans for future parks listed in Appendix C. Exhibit 7 details the total SDC eligible planned cost of park acquisition in the Parks Capital Improvement Plan, as well as the total SDC eligible cost of planned park improvements.

Variable C: Acres to be Acquired and Improved

The SDC eligible acres to be acquired and improved are from the same SDC eligible projects listed in Appendix C. Exhibit 7 details the total SDC eligible planned park acres to be acquired and the total SDC eligible planned park acres to be improved.

Exhibit 7 shows the calculation for the SDC eligible cost per acre of park land and improvements. The total SDC eligible cost of land acquisition and improvements (from Exhibit C1) is divided by the number of SDC eligible acres to be acquired or improved (from Exhibit C1) resulting in the park cost per acre. The result is that the City plans to invest a weighted average of $649,003 per acre in SDC eligible parks acquisition and development.

Exhibit 7. Park SDC Eligible Cost per Acre

Type	Eligible Cost		Acres		Cost per Acre
Land Acquisition	$16,012,500	÷	64.73	=	$247,374
Improvements	$58,029,748	÷	144.49	=	$401,629
Total	**$74,042,248**				**$649,003**

Formula 4: SDC Eligible Park Cost per Person

The SDC eligible cost of parks per person is needed for calculating the SDC rate. The cost per person of future park acquisition and development is calculated by multiplying the park cost per acre by the current level of service ratio.

$$(4)\ \begin{matrix}Park\ Cost\\ per\ Acre\end{matrix} \times \begin{matrix}Current\ Level\ of\\ Service\ Ratio\end{matrix} = \begin{matrix}Park\ Cost\ per\\ Person\end{matrix}$$

There are no new variables in Formula 4.

Exhibit 8 shows the calculation of the park cost per person. The park cost per acre (from Exhibit 7) is multiplied by the current level of service ratio (from Exhibit 5). The result is the cost per 1,000 population, which is divided by 1,000 to establish the cost per person. With growth maintaining the current level of service ratio of 8.55 acres per 1,000 equivalent population, multiplied by the SDC eligible cost per acre of $649,003, the cost basis for the park SDC is $5,550 per equivalent person.

Exhibit 8. Park Cost per Equivalent Person

Cost per Acre		Level of Service		Cost per 1,000 Population	Cost per Equivalent Population
$649,003	x	8.55	=	$5,549,855	$5,550

Formula 5: Adjustment per Person

The adjustment per person is needed to calculate the net cost per person in Formula 6, and is required to account for compliance costs, the current SDC fund balance and other sources of funding. The adjustment per equivalent population is calculated by adding the compliance costs, fund balance and adjustment for other revenue together to arrive at a total adjustment divided by equivalent population growth.

$$(5)\ \left(\begin{matrix}Compliance\\ Costs\end{matrix} + \begin{matrix}Fund\\ Balance\end{matrix} + \begin{matrix}Other\\ Revenue\end{matrix}\right) \div \begin{matrix}Equivalent\ Population\\ Growth\end{matrix} = \begin{matrix}Adjustment\\ per\ Person\end{matrix}$$

There are three new variables in Formula 5 that require explanation: (D) Compliance Cost, (E) Fund Balance, (F) Other Revenue.

Variable D: Compliance Cost

The City of Tualatin is authorized under ORS 223.307 (5) to recoup a portion of the costs incurred for the development and administration of the SDCs. The SDC methodology developed by the City of Tualatin in 1991 estimated compliance costs at 1.2% of total SDC eligible costs. Using this same 1.2% for compliance costs, compliance costs for the 2035 time horizon are estimated at $462,322. Compliance costs are estimated by multiplying the cost per person from Exhibit 8 by the equivalent population growth from Exhibit 4.

Variable E: Fund Balance

Additionally, the City of Tualatin has a remaining fund balance in the existing SDC account which will be used to pay for the park capital facilities needed to serve new development. This fund balance as reported by the City of Tualatin is $270,000.

Variable F: Other Revenue

The adjustment per person also must include any other sources of revenue that will be used for parks capital facilities needed to serve new growth. The City of Tualatin has no identified sources of secured funding for parks capital facilities projects to serve growth in the Capital Improvement Plan.

Exhibit 9 shows the calculation for the adjustment per person. Compliance costs, the existing SDC fund balance and other sources of revenue are summed together to arrive at a total adjustment of $192,322. This total adjustment is divided by the equivalent population growth (from Exhibit 4) of 6,942. The resulting adjustment per person is $28.

Exhibit 9. Adjustment per Equivalent Person

	Adjustment		2016-2035 Growth		Adjustment per Equivalent Population
Compliance costs (1)	$462,322				
Fund Balance (2)	($270,000)				
Other Revenue (3)	$0				
Total	$192,322	÷	6,942	=	$28

(1) Compliance costs are calculated using a 1.2% compliance costs to total eligible cost to serve growth (cost per person x 2016-2035 growth).
(2) Fund balance for the fiscal year 2018/19 provided by the City of Tualatin.
(3) Other revenue is secured funding from the 2018-2035 CIP, for which $0 has been identified.

Formula 6: Net Park Cost per Person

The net cost per equivalent person is calculated by adding the adjustment per equivalent person to the cost per equivalent person.

$$(6)\ \begin{matrix}\textit{Park Cost per}\\ \textit{Person}\end{matrix} + \begin{matrix}\textit{Adjustment}\\ \textit{per Person}\end{matrix} = \begin{matrix}\textit{Net Park Cost}\\ \textit{per Person}\end{matrix}$$

There are no new variables in Formula 6.

Exhibit 10 shows the calculation of the net park cost per person to be paid by growth. The park cost per person (from Exhibit 8) is added to the adjustment per person (from Exhibit 9), and the result shows the cost for parks to be paid by growth is $5,578 per person.

Exhibit 10. Net Cost per Equivalent Person

	Cost per Equivalent Population
Total Cost per Person	$5,550
Total Adjustment	$28
Net Cost per Person	**$5,578**

Formula 7: Maximum Allowable System Development Charge per Unit of Development

The amount to be paid by each new development unit depends on the equivalent population per unit of development. The park system development charge per unit of development is calculated by multiplying the net park cost per person by the equivalent population per unit for each type of development.

$$(7)\ \begin{matrix}Net\ Park\ Cost\\ per\ Person\end{matrix} \times \begin{matrix}Equivalent\ Population\\ per\ Unit\end{matrix} = \begin{matrix}SDC\ per\ Unit\\ of\ Development\end{matrix}$$

There is one new variable that requires explanation: (G) Equivalent Population per Unit.

Variable G: Equivalent Population per Unit

The equivalent population per unit is calculated by multiplying the equivalent population coefficient by the number of persons per unit of development, as shown in Appendix A. For residential development this is the number of persons per dwelling unit from the U.S. Census American Community Survey 5-Year Estimates for the City of Tualatin. For nonresidential development, a weighted average number of employees per square foot was calculated from the Observed Building Densities from Table 4 in the Metro 1999 Employment Density Study, as shown in Appendix D.

Exhibit 11 shows the calculation of the maximum allowable parks SDC per unit of development. The net cost per equivalent person of $5,578 from Exhibit 10 is multiplied by the equivalent population per unit (from Exhibit A6) to calculate the SDC per unit of development for parks.

Exhibit 11. Maximum Allowable Park System Development Charge per Unit of Development

Type	Net Cost per Equivalent Person		Equivalent Population per Unit	Unit of Development		SDC Per Unit of Development
Residential	$5,578	x	2.49	dwelling unit	=	$13,888
Nonresidential	$5,578	x	0.0005	square foot	=	$2.67

APPENDIX A. EQUIVALENT POPULATION COEFFICIENTS

What is "Equivalency"

When governments analyze things that are different from each other, but which have something in common, they sometimes use "equivalency" as the basis for their analysis.

For example, many water and sewer utilities calculate fees based on an average residential unit, then they calculated fees for business users on the basis of how many residential units would be equivalent to the water or sewer service used by the business. This well-established and widely practiced method uses "equivalent residential unit" (ERUs) as the multiplier that uses the rate for one residence to calculate rates for businesses. If a business needs a water connection that is double the size of an average house, that business is 2.0 ERUs, and would pay fees that are 2.0 times the fee for an average residential unit.

Another use of "equivalency" that is used in public sector organizations is "full time equivalent" (FTE) employees. One employee who works full-time is 1.0 FTE. A half-time employee is 0.5 FTE. By adding up the FTE coefficients of all part-time employees, the total is the FTE (full-time equivalent) of all the full and part-time employees.

Equivalency and Park System Development Charges

The use of equivalency can be used to develop park SDCs that apply to new nonresidential development as well as residential development. When charging SDCs to new nonresidential development as well as new residential development the proportionate benefits parks provide for each type of development must be considered. Different types of development and the population using that development receive different benefits from Tualatin's parks system, based on the amount of time the parks system is available during their use of each type of development.

Equivalent population coefficients use the same principles as ERUs or FTEs to measure differences among residential population and nonresidential businesses in their availability to benefit from Tualatin's parks. This method documents the nexus between parks and development by quantifying the differences among different categories of park users.

Parks are not available for the same amount of time for occupants of nonresidential development as for occupants of residential development. In order to equitably apportion the need for parks between the residential and nonresidential development an equivalent population coefficient was

developed based on the potential time parks facilities are available for use and the distribution of Tualatin's residential and nonresidential population.

The equivalent population coefficient is used in two ways. First, the residential equivalent from Exhibit A5 is multiplied by the number of employees in Tualatin to count employees as "equivalent population" in Tualatin. This provides a total population of residents and employees that will be used to calculate the parks cost per equivalent person. Second, the population coefficient is multiplied by a measure of population per unit to arrive at an equivalent population per unit, which is multiplied by the net park cost per equivalent person to determine the maximum allowable park SDC per unit of development.

Calculation of Equivalent Population Coefficient for Park System Development Charges

Exhibit A1 shows the current population and employment within the City of Tualatin by place of work and place of residence. Each segment of Tualatin's population and employment have differences in the availability of parks.

Exhibit A1. City of Tualatin Current Population and Employment by Place of Residence and Place of Work

	Live in Tualatin	Live Elsewhere	Total
Work in Tualatin	1,973	27,533	**29,506**
Work Elsewhere	11,796		
All Others	13,071		
Total	**26,840**		

(1) Estimates of Population Living and Working in Tualatin, Living Elsewhere and Working in Tualatin, and Living in Tualatin and Working Elsewhere based on percentages from 2015 data from U.S. Census OnTheMap and 2015 total resident population from the Portland State University, College of Urban and Public Affairs, Population Research Center, controlled to population and employment totals for 2016 from Exhibits 2 and 3.

(2) Estimates of All Others is the difference of the working population living in the City of Tualatin and the total resident population in the City of Tualatin

Exhibit A2 details the weighted average hours per day of park facility availability for each population segment. The number of hours per day differs depending on weekday vs weekend and depending on the season. Additionally, the hours differ depending on the segment of the population.

Weighted average hours per day are calculated with the following formula.

$$\left(\begin{matrix}Summer\ Hrs\\ per\ Day\end{matrix} \times 25\%\right) + \left(\begin{matrix}Spring\ \&\ Fall\\ Hrs\ per\ Day\end{matrix} \times 50\%\right) + \left(\begin{matrix}Winter\ Hrs\\ per\ Day\end{matrix} \times 25\%\right) = \begin{matrix}Wtd\ Avg\\ Hrs\ per\ Day\end{matrix}$$

Exhibit A2. Weighted Hours per Day of Park Availability by Population Segment

	All others	Live and Work in Tualatin (home hrs)	Live and Work in Tualatin (work hrs)	Live in Tualatin Work Elsewhere	Live Elsewhere Work in Tualatin
Summer (June-Sept)					
Weekday	10.55	2.00	4.00	2.00	4.00
Weekend	10.55	12.00	0.00	12.00	0.00
Hours per Day	10.55	4.86	2.86	4.86	2.86
Spring/Fall (April-May, Oct-Nov)					
Weekday	6.24	2.00	2.50	2.00	2.50
Weekend	8.79	10.00	0.00	10.00	0.00
Hours per Day	6.97	4.29	1.79	4.29	1.79
Winter (Dec-March)					
Weekday	4.48	1.00	2.00	1.00	2.00
Weekend	7.03	8.00	0.00	8.00	0.00
Hours per Day	5.21	3.00	1.43	3.00	1.43
Wtd Avg. Hours per Day	**7.42**	**4.11**	**1.96**	**4.11**	**1.96**

(1) Average daily hours sourced from prior park system development charge methodologies by Don Ganer & Associates for Oregon cities.

Annual weighted hours per day by segment from Exhibit A2 were multiplied by seven days per week to arrive at the hours of park availability per week by population and employment segment, as outlined in Exhibit A3. For example, individuals that live in Tualatin and work in Tualatin have 28.75 average hours of park availability during the time where they are occupying residential development and 13.75 average hours of park availability while they are occupying nonresidential development. Individuals that work in Tualatin but live elsewhere only have 13.75 hours of park availability while they are occupying nonresidential development in the City of Tualatin and residents that are not employed (all others) have 51.96 average hours of park availability per week while they are occupying residential development.

Exhibit A3. Park Availability in Hours per Week by Place of Residence and Place of Work

	Residential Hours		Work Hours	
	Live in Tualatin	Live Elsewhere	Live in Tualatin	Live Elsewhere
Work in Tualatin	28.75	0.00	13.75	13.75
Work Elsewhere	28.75		0.00	
All Others	51.96		0.00	

The annual weighted hours of park availability per week are applied to current population and employment by segment to determine the total

annual weighted average hours per week of park availability for each category. In total there are nearly 1.5 million hours of park availability per week for the City of Tualatin.

Exhibit A4. Total Hours per Week of Park Demand

	Resident Hours (1)	Employee Hours (2)	Total
Work in Tualatin	56,714	405,708	462,421
Work Elsewhere	339,131		339,131
All Others	679,147		679,147
Total	**1,074,992**	**405,708**	**1,480,700**

(1) Resident hours are equal to the population living in Tualatin by place of work from Exhibit A1 multiplied by hours per week of park availability by place of residence and location of work.

(2) Employee hours are equal to the employee population in Tualatin by place of work from Exhibit A1 multiplied by hours per week of park availability by place of residence and location of work.

Exhibit A5 calculates the average hours per resident by dividing total resident hours from Exhibit A4 by total residential population of 26,840 from Exhibit A1. Hours per employee are calculated by dividing total employee hours from Exhibit A4 by the total number of employees in Tualatin from Exhibit A1. The residential equivalent is calculated by dividing hours per employee by hours per resident. The result of the calculation in Exhibit A5 is that one employee is equal to 0.34 residents. The resulting coefficient for residential development is 1.0.

Exhibit A5. Residential Equivalent Coefficient

	Hours
Hours per Resident	40.05
Hours per Employee	13.75
Residental Equivalent	**0.34**

Calculation of Equivalent Population per Unit

In order to convert the net cost per equivalent person to the maximum allowable SDC rate per unit of development, it is necessary to calculate a measure of equivalent population per unit of development. Exhibit A6 shows the calculation of the equivalent population per unit. The equivalent population coefficient from Exhibit A5 is multiplied by a measure of population per unit. The measure of population per unit is the number of persons per dwelling unit for residential development, from the 2012-2016 American Community Survey 5-Year Estimates for Tualatin, Oregon. The measure of population per unit for nonresidential development is the weighted average square feet per employee based on the Observed Building Density table from Metro's 1999 Employment Density Study, in Appendix D,

weighted by current employment by industry provided by the City of Tualatin.

Exhibit A6. Equivalent Population per Unit

Type of Development	Equivalent Population Coefficient	Population per Unit	Unit	Equivalent Population per Unit
Residential	1.00	2.49	dwelling unit	2.49
Nonresidential	0.34	0.0014	square foot	0.0005

As noted previously, the equivalent population coefficient is multiplied by the number of employees in Tualatin and the residential population to calculate the total equivalent population in Tualatin. The equivalent population per unit is multiplied by the net park cost per equivalent population to calculate the SDC rate for residential and nonresidential development.

Appendix B. Inventory of Existing Parks

Tualatin's updated Parks and Recreation Master Plan provides a detailed inventory of existing facilities and acres within the Tualatin parks system as of 2018. The parks system in Tualatin currently consists of 316.14 acres of parks in total. Tualatin has 83.75 acres of parks, 125.32 acres of greenways and shared use paths, 107.07 acres of natural areas and parks, and 0 acres of school joint-use facilities.

Exhibit B1. Tualatin Parks Inventory, 2018

Park/Facility Type	Inventory	Unit
Parks		
Atfalati Park	13.27	acres
Ibach Park	20.08	acres
Jurgens Park	15.59	acres
Lafky Park	2	acres
Stoneridge Park	0.23	acres
Tualatin Commons	4.83	acres
Tualatin Commons Park	0.64	acres
Tualatin Community Park	27.11	acres
Total Parks	**83.75**	**acres**
Greenways & Shared Use Paths		
Chieftain/Dakota Greenway	6.14	acres
Hedges Creek Greenway	11.66	acres
Helenius Greenway	0.43	acres
Hi-West Estates Greenway	1.59	acres
Indian Meadows Greenway	3.82	acres
Nyberg Creek Greenway	5.78	acres
Nyberg Creek (South) Greenway	2.3	acres
Saum Creek Greenway	54.22	acres
Shaniko Greenway	3.3	acres
Tualatin River Greenway	30.39	acres
65th Avenue Shared Use Path	0.47	acres
Boones Ferry Road Shared Use Path (Byrom Elementary to Arapaho Road)	0.41	acres
Byrom Elementary Shared Use Path (Martinazzi Ave. to Boones Ferry Rd.)	0.8	acres
Cherokee Street Shared Use Path (108th Ave to Rail Road ROW)	0.09	acres
I-5 Shared Use Path (Warm Springs St. to Sagert St.)	1.54	acres
Ice Age Tonquin Trail	2.38	acres
Total Greenways & Shared Use Paths	**125.32**	**acres**
Natural Parks & Areas		
Brown's Ferry Park	43.21	acres
Hedges Creek Wetlands Protection District	29.06	acres
Hervin Grove Natural Area	0.29	acres
Johnnie and William Koller Wetland Park	15.32	acres
Little Woodrose Nature Park	6.55	acres
Saarinen Wayside Park	0.06	acres
Sequoia Ridge Natural Area	0.65	acres
Sweek Ponds Natural Area	4.68	acres
Sweek Woods Natural Area	5.03	acres
Victoria Woods Natural Area	2.22	acres
Total Natural Parks & Areas	**107.07**	**acres**
School Joint-Use Facilities		
TuHS Leonard Pohl Field	0	acres
TuHS-Byrom Elementary Cross Country Running Trail	0	acres
Total School Joint-Use Facilities	**0**	**acres**
Total Park Inventory	**316.14**	**acres**

APPENDIX C. CAPITAL IMPROVEMENTS PLAN AND PROJECTS THAT ADD CAPACITY, 2018-2035

The Capital Improvements Plan (CIP) for 2018-2035 contains 53 projects, among these 21 are prioritized SDC eligible projects included in the SDC methodology, which include improvements to existing parks as well as acquisition and development of new parks. Project numbers and names are listed in column one of Exhibit C1. The total capital cost of each project is listed in column two, totaling $215.9 million. The third column lists the total acres by project, totaling 409.6 acres. The fourth column lists the SDC eligible acres to be acquired totaling 64.73 acres. The fifth column lists the percentage of acres to be improved for each CIP project. The sixth column calculates the SDC eligible acres to be improved, equal to acres multiplied by the percent to be improved, totaling 144.5 acres to be improved. The seventh column lists the cost of SDC eligible park land acquisition, totaling $16 million. The eighth column lists the total cost of improvements, equal to $178.4 million. The ninth column lists the percentage of improvements that are SDC eligible for each project. The tenth column lists eligible improvement costs, totaling $58 million. The final column lists the total SDC eligible project costs, equal to $74 million.

City of Tualatin staff have identified no secured funding for the park projects listed in the 2018-2035 Capital Improvements Plan. Specific totals derived from the analysis of CIP projects are used in Formulas 2 and 5 in the Park System Development Charge chapter of this methodology. Projects highlighted grey in Exhibit C1 are those projects that are not priority SDC projects and are not included in the SDC methodology.

City of Tualatin staff and the 2018 Tualatin Parks and Recreation Master Plan have identified aspirational projects included in the CIP that are SDC eligible, but at this time are not considered likely to be developed within the time horizon of this methodology and so are excluded from the analysis.

- CIP # E28: Shaniko Greenway

Exhibit C1. Capital Improvements Plan for Parks, 2018 – 2035

CIP #	Project	CIP Budget	Total Acres	SDC Eligible Acquired Acres	% Acres to be Improved	SDC Eligible Improved Acres	SDC Land Cost	Improvement Cost	% Improvement SDC Eligible	Eligible Improvement Cost	Total Eligible Cost
Parks (Existing)											
E1	Atfalati Park	$6,181,432	13.27	0.00	25%	3.32	$0	$6,181,432	25%	$1,545,358	$1,545,358
E2	Ibach Park	$9,041,788	20.08	0.00	25%	5.02	$0	$9,041,788	25%	$2,260,447	$2,260,447
E3	Jurgens Park	$7,328,675	15.59	0.00	40%	6.24	$0	$7,328,675	40%	$2,931,470	$2,931,470
E4	Lafky Park	$277,818	2.00	0.00	0%	0.00	$0	$277,818	0%	$0	$0
E5	Stoneridge Park	$113,870	0.23	0.00	0%	0.00	$0	$113,870	0%	$0	$0
E6	Tualatin Commons	$1,088,198	4.83	0.00	0%	0.00	$0	$1,088,198	0%	$0	$0
E7	Tualatin Commons Park	$61,187	0.64	0.00	0%	0.00	$0	$61,187	0%	$0	$0
E8	Tualatin Community Park	$19,529,596	27.11	0.00	0%	0.00	$0	$19,529,596	0%	$0	$0
E9	Tualatin Library	$6,107,222	0.00	0.00	0%	0.00	$0	$6,107,222	0%	$0	$0
	Subtotal	*$49,729,787*	*83.75*	*0.00*	*17%*	*14.57*	*$0*	*$49,729,787*	*14%*	*$6,737,275*	*$6,737,275*
Natural Parks & Areas (Existing)											
E10	Brown's Ferry Park	$28,539,479	43.21	0.00	25%	10.80	$0	$13,539,479	25%	$3,384,870	$3,384,870
E11	Hedges Creek Wetlands Protection District	$1,213,220	29.06	0.00	0%	0.00	$0	$1,213,220	0%	$0	$0
E12	Hervin Grove Natural Area	$20,000	0.29	0.00	0%	0.00	$0	$20,000	0%	$0	$0
E13	Johnnie and William Koller Wetland Park	$2,506,200	15.32	0.00	40%	6.13	$0	$2,506,200	50%	$1,253,100	$1,253,100
E14	Little Woodrose Nature Park	$1,375,619	6.55	0.00	0%	0.00	$0	$1,375,619	0%	$0	$0
E15	Saarinen Wayside Park	$20,000	0.06	0.00	0%	0.00	$0	$20,000	0%	$0	$0
E16	Sequoia Ridge Natural Area	$46,000	0.65	0.00	0%	0.00	$0	$46,000	0%	$0	$0
E17	Sweek Ponds Natural Area	$1,261,784	4.68	0.00	0%	0.00	$0	$1,261,784	0%	$0	$0
E18	Sweek Woods Natural Area	$20,000	5.03	0.00	0%	0.00	$0	$20,000	0%	$0	$0
E19	Victoria Woods Natural Area	$228,550	2.22	0.00	0%	0.00	$0	$228,550	0%	$0	$0
	Subtotal	*$35,230,852*	*107.07*	*0.00*	*16%*	*16.93*	*$0*	*$20,230,852*	*23%*	*$4,637,970*	*$4,637,970*

Exhibit C1 cont. Capital Improvements Plan for Parks, 2018 – 2035

CIP #	Project	CIP Budget	Total Acres	SDC Eligible Acquired Acres	% Acres to be Improved	SDC Eligible Improved Acres	SDC Land Cost	Improvement Cost	% Improvement SDC Eligible	Eligible Improvement Cost	Total Eligible Cost
Greenways (Existing)											
E20	Chieftain/Dakota Greenway	$1,520,978	6.14	0.00	50%	3.07	$0	$1,520,978	50%	$760,489	$760,489
E21	Hedges Creek Greenway	$1,798,218	11.66	0.00	50%	5.83	$0	$1,798,218	75%	$1,348,664	$1,348,664
E22	Helenius Greenway	$149,000	0.43	0.00	100%	0.43	$0	$149,000	100%	$149,000	$149,000
E23	Hi-West Estates Greenway	$190,338	1.59	0.00	0%	0.00	$0	$190,338	0%	$0	$0
E24	Indian Meadows Greenway	$545,049	3.82	0.00	10%	0.38	$0	$545,049	10%	$54,505	$54,505
E25	Nyberg Creek Greenway	$1,381,656	5.78	0.00	75%	4.34	$0	$1,381,656	75%	$1,036,242	$1,036,242
E26	Nyberg Creek (South) Greenway	$710,000	2.30	0.00	100%	2.30	$0	$710,000	100%	$710,000	$710,000
E27	Saum Creek Greenway	$4,376,436	54.22	0.00	25%	13.56	$0	$4,376,436	50%	$2,188,218	$2,188,218
E28	Shaniko Greenway	$48,732	3.30	0.00	0%	0.00	$0	$48,732	0%	$0	$0
E29	Tualatin River Greenway	$5,483,771	30.39	0.00	50%	15.20	$0	$5,483,771	50%	$2,741,885	$2,741,885
	Subtotal	*$16,204,180*	*119.63*	*0.00*	*38%*	*45.10*	*$0*	*$16,204,180*	*55%*	*$8,989,004*	*$8,989,004*
School Joint-Use Facilities (Existing)											
E30	TuHS Leonard Pohl Field 2	$563,024	0.00	0.00	0%	0.00	$0	$563,024	0%	$0	$0
E31	TuHS-Byrom Elementary Cross Country Running Trail	$42,865	0.00	0.00	0%	0.00	$0	$42,865	0%	$0	$0
	Subtotal	*$605,889*	*0.00*	*0.00*	*0%*	*0.00*	*$0*	*$605,889*	*0%*	*$0*	*$0*
Shared Use Paths (Existing)											
E32	65th Avenue Shared Use Path	$0	0.47	0.00	0%	0.00	$0	$0	0%	$0	$0
E33	Boones Ferry Road Shared Use	$0	0.41	0.00	0%	0.00	$0	$0	0%	$0	$0
E34	Byrom Elementary Shared Use Path (Martinazzi Ave. to Boones Ferry Rd.)	$0	0.80	0.00	0%	0.00	$0	$0	0%	$0	$0
E35	Cherokee Street Shared Use Path (108th Ave to Rail Road ROW)	$0	0.09	0.00	0%	0.00	$0	$0	0%	$0	$0
E36	I-5 Shared Use Path (Warm Springs St. to Sagert St.)	$462,000	1.54	0.00	100%	1.54	$0	$462,000	100%	$462,000	$462,000
E37	Ice Age Tonquin Trail	$723,500	3.06	0.68	75%	2.30	$0	$723,500	100%	$723,500	$723,500
	Subtotal	*$1,185,500*	*6.37*	*0.68*	*60%*	*3.84*	*$0*	*$1,185,500*	*100%*	*$1,185,500*	*$1,185,500*

Exhibit C1 cont. Capital Improvements Plan for Parks, 2018 – 2035

CIP #	Project	CIP Budget	Total Acres	SDC Eligible Acquired Acres	% Acres to be Improved	SDC Eligible Improved Acres	SDC Land Cost	Improvement Cost	% Improvement SDC Eligible	Eligible Improvement Cost	Total Eligible Cost
Parks (Proposed)											
P1	Jurgens Park addition	$3,947,500	5.15	5.15	100%	5.15	$1,287,500	$2,660,000	100%	$2,660,000	$3,947,500
P2	Tualatin Community Park addition	$2,335,000	3.00	3.00	100%	3.00	$750,000	$1,585,000	100%	$1,585,000	$2,335,000
P3	Basalt Creek park	$17,110,000	20.00	20.00	100%	20.00	$5,000,000	$12,110,000	100%	$12,110,000	$17,110,000
P4	East Tualatin / Bridgeport Elementary partnership	$200,000	0.00	0.00	0%	0.00	$0	$200,000	0%	$0	$0
P5	Pony Ridge/ Heritage Pines partnership	$210,000	0.00	0.00	0%	0.00	$0	$210,000	0%	$0	$0
P6	Central Tualatin sports park	$6,835,000	9.00	9.00	100%	9.00	$2,250,000	$4,585,000	100%	$4,585,000	$6,835,000
P7	Community recreation center	$33,835,000	5.00	0.00	0%	0.00	$0	$32,585,000	0%	$0	$0
P8	Additional park opportunities	$8,925,000	11.80	11.80	100%	11.80	$2,950,000	$5,975,000	100%	$5,975,000	$8,925,000
P9	Tournament sports complex	$12,585,000	10.00	0.00	0%	0.00	$0	$10,085,000	0%	$0	$0
	Subtotal	*$85,982,500*	*63.95*	*48.95*	*77%*	*48.95*	*$12,237,500*	*$69,995,000*	*38%*	*$26,915,000*	*$39,152,500*
Natural Parks & Areas (Proposed)											
P10	New natural park and areas	$7,655,000	12.70	0.00	0%	0.00	$0	$5,115,000	0%	$0	$0
	Subtotal	*$7,655,000*	*12.70*	*0.00*	*0%*	*0.00*	*$0*	*$5,115,000*	*0%*	*$0*	*$0*
Greenways & Shared Use Paths (Proposed)											
P11	New greenways and shared use paths	$13,340,000	15.10	15.10	100%	15.10	$3,775,000	$9,565,000	100%	$9,565,000	$13,340,000
P12	Westside Trail bridge	$5,575,000	1.00	0.00	0%	0.00	$0	$5,325,000	0%	$0	$0
	Subtotal	*$18,915,000*	*16.10*	*15.10*	*94%*	*15.10*	*$3,775,000*	*$14,890,000*	*64%*	*$9,565,000*	*$13,340,000*
Additionally Planning (Proposed)											
P13	Community (Urban) Forestry Plan	$100,000	0.00	0.00	0%	0.00	$0	$100,000	0%	$0	$0
P14	Comprehensive Fee Analysis and Plan	$100,000	0.00	0.00	0%	0.00	$0	$100,000	0%	$0	$0
P15	Resource Management Plan	$100,000	0.00	0.00	0%	0.00	$0	$100,000	0%	$0	$0
P16	Marketing and Outreach Plan	$100,000	0.00	0.00	0%	0.00	$0	$100,000	0%	$0	$0
	Subtotal	*$400,000*	*0.00*	*0.00*	*0%*	*0.00*	*$0*	*$400,000*	*0%*	*$0*	*$0*
Total		**$215,908,708**	**409.57**	**64.73**	**35%**	**144.49**	**$16,012,500**	**$178,356,208**	**33%**	**$58,029,748**	**$74,042,248**

APPENDIX D. OBSERVED BUILDING DENSITIES

ORS 223.301 prohibits local governments from determining the SDC for a specific development based on the number of employees hired, and fee amounts cannot be determined based on the number of employees without regard to new construction or new development. In order to ensure that the park SDCs are not charged based on the number of employees it is necessary to develop a ratio between the number of employees and the square feet of new development required to accommodate employees. Metro's 1999 Employment Density Study has a detailed list of square feet per employee by industry, which was used to calculate a weighted average number of square feet per employee.

Exhibit D1. Observed Building Densities

Industry Grouping (SIC)	Description	Weighted Square Feet per Employee
1-19	Ag., Fish & Forest Services; Constr; Mining	590
20	Food & Kindred Products	630
21	Tobacco (industry does not exist in Oregon)	0
22, 23	Textile & Apparel	930
24	Lumber & Wood	640
25, 32, 39	Furniture; Clay, Stone & Glass; Misc.	760
26	Paper & Allied	1,600
27	Printing, Publishing & Allied	450
28-31	Chemicals, Petroleum, Rubber, Leather	720
33, 34	Primary & Fabricated Metals	420
35	Machinery Equipment	300
36, 38	Electrical Machinery, Equipment	400
37	Transportation Equipment	700
40-42, 44, 45, 47	TCPU - Transportation and Warehousing	3,290
43, 46, 48, 49	TCPU - Communications and Public Utilities	460
50, 51	Wholesale Trade	1,390
52-59	Retail Trade	470
60-68	Finance, Insurance & Real Estate	370
70-79	Non-Health Services	770
80	Health Services	350
81-89	Educational, Social, Membership Services	740
90-99	Government	530

Table D-1 : Proposed Projects Cost Summary and SDC Eligibility

Project Identication #	Site Name	Acreage	Percentage of Site to Be Developed [1]	Type	Build				Enhance							Steward			Costs			Replace	Costs	Maintain			Costs	SDC Eligible
					Master Plan/Feasibility Study	Parkland Acquisition or Easements	Site Development	Major Facility Construction	Added Recreational Element (s)	Added Trail	Added Art	Minor Renovation	Major Renovation	Special Use Building Renovation	Enhancement Through Partnership	Natural Resource Restoration	Deferred Maintenance	Accessibility Improvements (See ADA Transition Plan)	Subtotal: Parkland Acquisition or Easements	Subtotal: Improvement Costs	Total Capital Cost	Capital Reinvestment and Replacement	Total Capital Reinvestment and Replacement	Standard Maintenance	Enhanced Maintenance	Natural Resource Maintenance	Total Maintenance Cost	Capacity Enhancement
Existing Parks and Facilities																												
E1	Atfalati Park	13.27	25%	LNP			●				●		●			●	●	●	$ -	$ 6,181,432	$ 6,181,432	●	$ 82,938		●	●	$ 112,795	✓
E2	Ibach Park	20.08	25%	LNP			●				●		●			●	●	●	$ -	$ 9,041,788	$ 9,041,788	●	$ 125,500		●	●	$ 170,680	✓
E3	Jurgens Park	15.59	40%	LNP	●		●			●	●		●			●		●	$ -	$ 7,328,675	$ 7,328,675	●	$ 97,438		●	●	$ 132,515	✓
E4	Lafky Park	2.00	-	SNP								●						●	$ -	$ 277,818	$ 277,818	●	$ 10,000	●			$ 12,000	✓
E5	Stoneridge Park	0.23	-	SNP									●		●		●	●	$ -	$ 113,870	$ 113,870	●	$ 1,150	●			$ 1,380	✓
E6	Tualatin Commons	4.83	-	SU							●	●				●	●	●	$ -	$ 1,088,198	$ 1,088,198	●	$ 30,188		●		$ 36,225	
E7	Tualatin Commons Park	0.64	-	SU							●						●	●	$ -	$ 61,187	$ 61,187	●	$ 4,000	●			$ 3,840	
E8	Tualatin Community Park	27.11	-	CP	●				●				●	●		●		●	$ -	$ 19,529,596	$ 19,529,596	●	$ 203,325		●	●	$ 230,435	✓
E9	Tualatin Library		-	SU	●									●	●			●	$ -	$ 6,107,222	$ 6,107,222						$ -	✓
	Subtotal Existing Parks and Facilities	**83.75**			**3**	**0**	**3**	**0**	**1**	**1**	**5**	**2**	**5**	**2**	**2**	**5**	**5**	**9**	**$ -**	**$ 49,729,787**	**$ 49,729,787**	**8**	**$ 554,538**	**3**	**5**	**4**	**$ 699,870**	
Existing Natural Parks & Areas																												
E10	Brown's Ferry Park	43.21	25%	NP	●				●		●		●	●		●	●	●	$ -	$ 28,539,479	$ 28,539,479	●	$ 270,063		●	●	$ 172,840	✓
E11	Hedges Creek Wetlands Protection District	29.06	-	NA							●					●	●	●	$ -	$ 1,213,220	$ 1,213,220	●	$ 145,300	●		●	$ 72,650	
E12	Hervin Grove Natural Area	0.29		NA						●						●			$ -	$ 20,000	$ 20,000					●	$ 290	
E13	Johnnie and William Koller Wetland Park	15.32	40%	NA	●		●			●	●					●			$ -	$ 2,506,200	$ 2,506,200			●		●	$ 38,300	✓
E14	Little Woodrose Nature Park	6.55	-	NP								●				●	●	●	$ -	$ 1,375,619	$ 1,375,619	●	$ 40,938	●		●	$ 19,650	✓
E15	Saarinen Wayside Park	0.06	-	NP												●		●	$ -	$ 20,000	$ 20,000			●		●	$ 180	
E16	Sequoia Ridge Natural Area	0.65	-	NA												●	●		$ -	$ 46,000	$ 46,000			●		●	$ 1,625	
E17	Sweek Ponds Natural Area	4.68	-	NA							●	●		●		●	●	●	$ -	$ 1,261,784	$ 1,261,784				●	●	$ 16,380	✓
E18	Sweek Woods Natural Area	5.03	-	NA												●			$ -	$ 20,000	$ 20,000			●		●	$ 12,575	
E19	Victoria Woods Natural Area	2.22	-	NA												●	●	●	$ -	$ 228,550	$ 228,550			●		●	$ 5,550	
	Subtotal Existing Natural Parks & Natural Areas	**107.07**			**2**	**0**	**1**	**0**	**1**	**2**	**4**	**2**	**1**	**2**	**0**	**10**	**6**	**6**	**$ -**	**$ 35,230,852**	**$ 35,230,852**	**3**	**$ 456,300**	**7**	**2**	**10**	**$ 340,040**	
Existing Greenways																												
E20	Chieftain/Dakota Greenway	6.14	50%	G			●					●				●		●	$ -	$ 1,520,978	$ 1,520,978	●	$ 23,025	●		●	$ 24,560	✓
E21	Hedges Creek Greenway	11.66	50%	G			●									●		●	$ -	$ 1,798,218	$ 1,798,218	●	$ 43,725	●		●	$ 46,640	✓
E22	Helenius Greenway	0.43	100%	G			●									●			$ -	$ 149,000	$ 149,000	●	$ 1,613	●		●	$ 1,720	✓

Project Identication #	Site Name	Acreage	Percentage of Site to Be Developed [1]	Type	Build				Enhance							Steward			Costs			Replace	Costs	Maintain			Costs	SDC Eligible
					Master Plan/Feasibility Study	Parkland Acquisition or Easements	Site Development	Major Facility Construction	Added Recreational Element (s)	Added Trail	Added Art	Minor Renovation	Major Renovation	Special Use Building Renovation	Enhancement Through Partnership	Natural Resource Restoration	Deferred Maintenance	Accessibility Improvements (See ADA Transition Plan)	Subtotal: Parkland Acquisition or Easements	Subtotal: Improvement Costs	Total Capital Cost	Capital Reinvestment and Replacement	Total Capital Reinvestment and Replacement	Standard Maintenance	Enhanced Maintenance	Natural Resource Maintenance	Total Maintenance Cost	Capacity Enhancement
E23	Hi-West Estates Greenway	1.59		G								●				●		●	$ -	$ 190,338	$ 190,338	●	$ 5,963	●		●	$ 6,360	
E24	Indian Meadows Greenway	3.82	10%	G			●					●				●		●	$ -	$ 545,049	$ 545,049	●	$ 14,325	●		●	$ 15,280	✓
E25	Nyberg Creek Greenway	5.78	75%	G			●			●	●					●		●	$ -	$ 1,381,656	$ 1,381,656	●	$ 21,675	●		●	$ 23,120	✓
E26	Nyberg Creek (South) Greenway	2.30	100%	G			●			●						●			$ -	$ 710,000	$ 710,000	●	$ 8,625	●		●	$ 9,200	✓
E27	Saum Creek Greenway	54.22	25%	G			●			●	●					●		●	$ -	$ 4,376,436	$ 4,376,436	●	$ 203,325	●		●	$ 216,880	✓
E28	Shaniko Greenway	3.30		G												●		●	$ -	$ 48,732	$ 48,732	●	$ 12,375	●		●	$ 13,200	
E29	Tualatin River Greenway	30.39	50%	G			●		●	●	●					●		●	$ -	$ 5,483,771	$ 5,483,771	●	$ 113,963	●		●	$ 121,560	✓
	Subtotal Existing Greenways	**119.63**			**0**	**0**	**8**	**0**	**1**	**4**	**3**	**3**	**0**	**0**	**0**	**10**	**0**	**8**	**$ -**	**$ 16,204,180**	**$ 16,204,180**	**10**	**$ 448,613**	**10**	**0**	**10**	**$ 478,520**	
Existing School Joint-Use Facilities																												
E30	TuHS Leonard Pohl Field [2]		-	JU											●				$ -	$ 563,024	$ 563,024				●		$ 13,700	
E31	TuHS-Byrom Elementary Cross Country Running Trail		-	JU															$ -	$ 42,865	$ 42,865				●		$ -	
	Subtotal Existing Joint-Use Facilties				**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**$ -**	**$ 605,889**	**$ 605,889**	**0**	**$ -**	**0**	**2**	**0**	**$ 13,700**	
Existing Shared Use Paths																												
E32	65th Avenue Shared Use Path	0.47	-	SUP															$ -	$ -	$ -	●	$ 1,763	●			$ 1,410	
E33	Boones Ferry Road Shared Use Path (Byrom Elementary to Arapaho Road)	0.41	-	SUP														●	$ -	$ -	$ -	●	$ 1,538	●			$ 1,230	
E34	Byrom Elementary Shared Use Path (Martinazzi Ave. to Boones Ferry Rd.)	0.80	-	SUP															$ -	$ -	$ -	●	$ 3,000	●			$ 2,400	
E35	Cherokee Street Shared Use Path (108th Ave to Rail Road ROW)	0.09	-	SUP															$ -	$ -	$ -	●	$ 338	●			$ 270	
E36	I-5 Shared Use Path (Warm Springs St. to Sagert St.)	1.54	100%	SUP			●			●									$ -	$ 462,000	$ 462,000			●			$ 4,620	✓
E37	Ice Age Tonquin Trail	3.06	75%	SUP	●		●			●	●							●	$ -	$ 723,500	$ 723,500	●	$ 11,475	●			$ 9,180	✓
	Subtotal Existing Shared Use Paths	**6.37**			**1**	**0**	**2**	**0**	**0**	**2**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**$ -**	**$ 1,185,500**	**$ 1,185,500**	**5**	**$ 18,113**	**6**	**0**	**0**	**$ 19,110**	
	TOTAL EXISTING PARKLAND	**316.82**			**6**	**0**	**14**	**0**	**3**	**9**	**13**	**7**	**6**	**4**	**2**	**25**	**11**	**25**	**$ -**	**$102,350,319**	**$102,350,319**	**26**	**$ 1,477,563**	**26**	**7**	**24**	**$1,537,540**	
Proposed Parks and Facilities																												
P1	Jurgens Park addition	5.15	100%	LNP	●	●	●			●	●								$ 1,287,500	$ 2,660,000	$ 3,947,500	●	$ 32,188		●		$ 38,625	✓
P2	Tualatin Community Park addition	3.0	100%	LNP	●	●	●			●	●								$ 750,000	$ 1,585,000	$ 2,335,000	●	$ 18,750		●		$ 22,500	✓
P3	Basalt Creek park	20.0	100%	CP	●	●	●			●	●								$ 5,000,000	$ 12,110,000	$ 17,110,000	●	$ 150,000		●		$ 150,000	✓
P4	East Tualatin / Bridgeport Elementary partnership		100%	JU											●				$ -	$ 200,000	$ 200,000			●			$ 5,000	✓

Project Identication #	Site Name	Acreage	Percentage of Site to Be Developed [1]	Type	Build				Enhance							Steward			Costs			Replace	Costs	Maintain			Costs	SDC Eligible
					Master Plan/Feasibility Study	Parkland Acquisition or Easements	Site Development	Major Facility Construction	Added Recreational Element (s)	Added Trail	Added Art	Minor Renovation	Major Renovation	Special Use Building Renovation	Enhancement Through Partnership	Natural Resource Restoration	Deferred Maintenance	Accessibility Improvements (See ADA Transition Plan)	Subtotal: Parkland Acquisition or Easements	Subtotal: Improvement Costs	Total Capital Cost	Capital Reinvestment and Replacement	Total Capital Reinvestment and Replacement	Standard Maintenance	Enhanced Maintenance	Natural Resource Maintenance	Total Maintenance Cost	Capacity Enhancement
P5	Pony Ridge/ Heritage Pines partnership		100%	JU						●	●				●				$ -	$ 210,000	$ 210,000						$ 5,000	✓
P6	Central Tualatin sports park	9.0	100%	SU	●	●	●			●	●								$ 2,250,000	$ 4,585,000	$ 6,835,000	●	$ 56,250		●		$ 67,500	✓
P7	Community recreation center	5.0	100%	SU	●	●	●	●		●	●								$ 1,250,000	$ 32,585,000	$ 33,835,000	●	$ 31,250		●		$ 37,500	✓
P8	Additional park opportunities	11.8	100%	SU	●	●	●	●											$ 2,950,000	$ 5,975,000	$ 8,925,000	●	$ 73,750	●			$ 70,800	✓
P9	Tournament sports complex	10.0	100%	SU	●	●	●	●			●								$ 2,500,000	$ 10,085,000	$ 12,585,000	●	$ 62,500		●		$ 75,000	✓
	Subtotal Proposed Parks and Facilities	**63.95**			**7**	**7**	**7**	**3**	**0**	**6**	**7**	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**$ 15,987,500**	**$ 69,995,000**	**$ 85,982,500**	**7**	**$ 424,688**	**2**	**6**	**0**	**$ 471,925**	
Proposed Natural Parks & Areas																												
P10	New natural park and areas	12.7	100%	NA	●	●	●			●	●								$ 2,540,000	$ 5,115,000	$ 7,655,000	●	$ 63,500		●		$ 31,750	✓
	Subtotal Proposed Natural Parks & Areas	**12.70**			**1**	**1**	**1**	**0**	**0**	**1**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**$ 2,540,000**	**$ 5,115,000**	**$ 7,655,000**	**1**	**$ 63,500**	**0**	**1**	**0**	**$ 31,750**	
Proposed Greenways and Shared Use Paths																												
P11	New greenways and shared use paths	15.1	100%	G	●	●	●	●		●	●								$ 3,775,000	$ 9,565,000	$ 13,340,000	●	$ 56,625	●		●	$ 60,400	✓
P12	Westside Trail bridge	1.0	100%	G	●	●	●			●					●				$ 250,000	$ 5,325,000	$ 5,575,000	●	$ 3,750	●			$ 3,000	✓
	Subtotal Proposed Greenways and Shared Use Paths	**16.10**			**2**	**2**	**2**	**1**	**0**	**2**	**1**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**$ 4,025,000**	**$ 14,890,000**	**$ 18,915,000**	**2**	**$ 60,375**	**2**	**0**	**1**	**$ 63,400**	
	TOTAL PROPOSED PARKLAND	**92.75**			**10**	**10**	**10**	**4**	**0**	**9**	**9**	**0**	**0**	**0**	**3**	**0**	**0**	**0**	**$ 22,552,500**	**$ 90,000,000**	**$ 112,552,500**	**10**	**$ 548,563**	**4**	**7**	**1**	**$ 567,075**	
Proposed Additional Planning																												
P13	Community (Urban) Forestry Plan				●														$ -	$ 100,000	$ 100,000						$ -	
P14	Comprehensive Fee Analysis and Plan				●														$ -	$ 100,000	$ 100,000						$ -	
P15	Resource Management Plan				●														$ -	$ 100,000	$ 100,000						$ -	
P16	Marketing and Outreach Plan				●														$ -	$ 100,000	$ 100,000						$ -	
	TOTAL ADDITIONAL PLANNING				**4**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**$ -**	**$ 400,000**	**$ 400,000**	**0**	**$ -**	**0**	**0**	**0**	**$ -**	
	TOTAL EXISTING PARKLAND, PROPOSED PARKLAND & ADDITIONAL PLANNING	**409.6**			**20**	**10**	**24**	**4**	**3**	**18**	**22**	**7**	**6**	**4**	**5**	**25**	**11**	**25**	**$ 22,552,500**	**$ 193,356,208**	**$ 215,908,708**	**36**	**$ 2,026,125**	**30**	**14**	**25**	**$ 2,118,315**	

Notes:
All costs reflect general planning-level cost estimates based on 2018 dollars, not accounting for inflation. See the Cost Matrix Overview and Assumptions for definitions of each cost category.

1. This number reflects the percentage of the site that will be developed when development projects proceed. For new sites, it is assumed that 100% of the site will be developed. For existing sites, the percentage reflects a portion of the site that is currently undeveloped and will be developed in the next phase of construction.
2. The ADA cost for Leonard Pohl Field also includes part of the cost estimate for ADA improvements to the TuHS portion of the cross-country trail. For details, see the ADA Barrier Analysis cost estimates.
Key:
Project Identification Number: E = Existing Site; P = Proposed Site
Park Type: CP- Community Park, LNP- Large Neighborhood Park, SNP- Small Neighborhood Park, SU- Special Use, SUP- Shared Use Path, NP- Natural Park, JU- Joint Use, G- Greenway, NA-Natural Area