

# City of North Plains



## SYSTEM DEVELOPMENT CHARGE ANALYSIS

DRAFT Methodology Report

October 20, 2021

**Washington**  
425.867.1802

**Oregon**  
503.841.6543

**Colorado**  
719.284.9168

[www.fcsgroup.com](http://www.fcsgroup.com)

This entire report is made of readily recyclable materials, including the bronze wire binding and the front and back cover, which are made from post-consumer recycled plastic bottles.



 **FCS GROUP**  
Solutions-Oriented Consulting

# TABLE OF CONTENTS

---

Table of Contents.....	ii
Section I. Introduction .....	1
I.A. Project Purpose .....	1
I.B. Policy .....	1
I.C. SDC Background .....	2
Section II. Water SDC .....	3
II.A. Growth .....	3
II.B. Improvement Fee.....	4
II.C. SDC Reimbursement Fee.....	5
II.D. Calculated SDC .....	6
Section III. Transportation SDC .....	8
III.A. Growth .....	8
III.B. Improvement Fee.....	9
III.C. Calculated SDC .....	11
Section IV. Parks SDC .....	13
IV.A. Growth .....	13
IV.B. Improvement Fee.....	13
Section V. Implementation.....	18
V.A. Indexing .....	18
V.B. Comparisons.....	18
V.C. SDCs by Home Size .....	19
Appendix	
Appendix A. Public Facility Costs .....	22
Appendix B. Transportation SDCs by Land Use .....	23
Appendix C. Water Demand Factors .....	25

# Section I. INTRODUCTION

---

This section describes the project scope and policy context upon which the body of this report is based.

## I.A. PROJECT PURPOSE

The City of North Plains (City) provides a variety of public improvements to address demand from new growth in housing and business services. Like most cities within the greater Portland region, the City imposes system development charges (SDCs) to recover eligible infrastructure costs for water, parks and transportation. SDCs provide partial funding for the capital needs of these different systems. In general, SDCs are charged within the City's boundaries on new development that places additional demand on public facilities. For a new single-family home, the current local (City) SDCs are \$6,788 for water, \$731 for transportation, and \$6,659 for parks.

In 2021, the City engaged FCS GROUP to update the methodology for calculating local water, transportation and parks SDCs. This report summarizes findings and initial policy recommendations.

## I.B. POLICY

SDCs are enabled by state statute, authorized by local ordinance, and constrained by the United States Constitution.

### I.B.1. State Statute

Oregon Revised Statutes (ORS) 223.297 to 223.314 enable local governments to establish SDCs, which are one-time fees on development that are paid at the time of development or redevelopment that creates additional demand for public facilities. SDCs are intended to recover a fair share of the cost of existing and planned facilities that provide capacity to serve future users (i.e., growth).

ORS 223.299 defines two types of SDC:

- **A reimbursement fee** that is designed to recover “costs associated with capital improvements already constructed, or under construction when the fee is established, for which the local government determines that capacity exists”
- **An improvement fee** that is designed to recover “costs associated with capital improvements to be constructed”

ORS 223.304(1) states, in part, that a reimbursement fee must be based on “the value of unused capacity available to future system users or the cost of existing facilities” and must account for prior contributions by existing users and any gifted or grant-funded facilities. The calculation must “promote the objective of future system users contributing no more than an equitable share to the cost of existing facilities.” A reimbursement fee may be spent on any capital improvement related to the system for which it is being charged (whether cash-financed or debt-financed).

ORS 223.304(2) states, in part, that an improvement fee must be calculated to include only the cost of projected capital improvements needed to increase system capacity for future users. In other words, the cost of planned projects that correct existing deficiencies or that do not otherwise increase capacity for future users may not be included in the improvement fee calculation. An improvement fee may be spent only on capital improvements (or portions thereof) that increase the capacity of the system for which it is being charged (whether cash-financed or debt-financed).

In addition to the reimbursement and improvement fees, ORS 223.307(5) states, in part, that “system development charge revenues may be expended on the costs of complying” with state statutes concerning SDCs, including “the costs of developing system development charge methodologies and providing an annual accounting of system development charge expenditures.”

### I.B.2. Local Ordinance

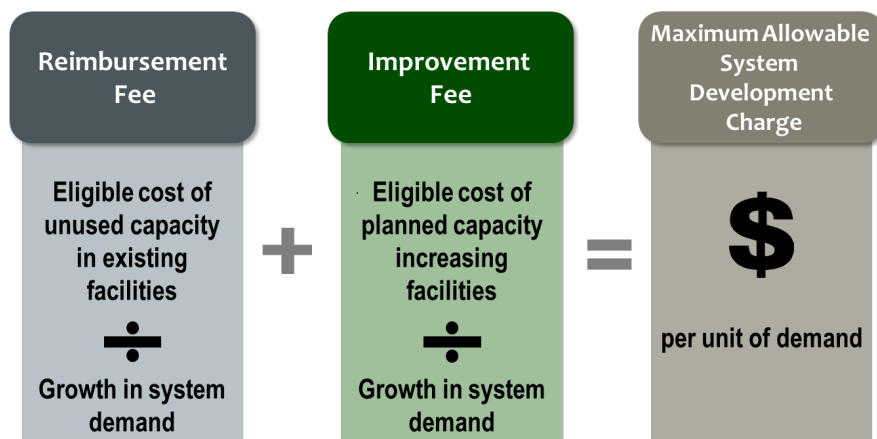
Plains Municipal Code, Chapter 2.15 authorizes the city to charge SDCs. This code authorizes and governs the imposition and expenditure of SDCs in the City, and specific resolutions have been adopted by the City over time with respect to each public facility type in accordance with state statutes.

### I.B.3. United States Constitution

The United States Supreme Court has determined that SDCs, impact fees, or other exactions that comply with state and/or local law may still violate the United States Constitution if they are not proportionate to the impact of the development. The SDCs calculated in this report are designed to meet all constitutional and statutory requirements.

## I.C. SDC BACKGROUND

In general, SDCs are calculated by adding a reimbursement fee component (if applicable) and an improvement fee component. Each component is calculated by dividing the eligible cost by growth in units of demand. The unit of demand becomes the basis of the charge. Below is an illustration of this calculation:



The methods for calculating each component of an SDC differ slightly depending on the specific public improvement. The calculations for all three SDCs (water, parks and transportation) are detailed in the following sections.

## Section II. WATER SDC

This section provides the detailed calculations of the maximum allowable water SDC.

### II.A. GROWTH

The calculation of projected growth begins with defining the units by which current and future demand will be measured. Then, using the best available data, we quantify the current level of demand (sometimes referred to as level of service) and forecast a future level of demand. The difference between the current level and the future level is the growth in demand that will serve as the denominator in the SDC calculations.

#### II.A.1. Unit of Measurement

A good unit of measurement allows an agency to quantify the incremental demand of development or redevelopment that creates additional demand for water facilities. A great unit of measurement allows an agency to distinguish different levels of demand added by different kinds of development or redevelopment.

For water SDCs, the meter size necessary for a development is broadly used as a measure of its potential water demand. In order to compare meters and calculate the total demand of the system, meters are often compared by their flow rates and measured by their meter capacity equivalents (MCEs). In this system, the smallest meter employed by the City has one MCE, and every larger meter has a larger number of MCEs based on their relative flow rates (see following table).

Currently, the City charges its water SDC using the MCE method. Flow rates are based on the American Water Works Association's (AWWA) flow rates assuming a 3/4" meter base. This method is also used for this water SDC calculation.

#### Existing Water MCEs in North Plains by Meter Size

Meter Size	# of Meters	Meter Flow	MCEs
3/4"	1,354	1.00	1,354
1"	30	1.67	50
1 1/2"	14	3.33	47
2"	15	5.33	80
3"	1	10.00	10
4"	-	16.67	-
6"	-	33.33	-
8"	-	53.33	-
10"	-	76.67	-
<b>Total</b>	<b>1,414</b>		<b>1,541</b>

Source: City staff, and American Water Works flow conversions.

MCE = water meter conversion equivalents.

## II.A.2. Growth in Demand

The City had 1,541 MCEs as of July 30, 2021. According to the City’s estimates, the population within the City’s Water Service Area as of January 1, 2021 was 3,600 and is projected to increase to 5,311 by 2027. If MCEs grow at the same rate as population, there will be 2,130 MCEs in 2027, which means there will be a growth of 590 MCEs. The growth share, or the percentage of MCEs by year 2027 is calculated to be 27.68 percent (590 MCEs ÷ 2,130 MCEs).

These calculations are summarized in **Exhibit 1** below. The growth of 590 MCEs will be the denominator for the SDC calculation, and the growth share of 27.68 percent will be useful when calculating the eligibility of selected projects on the project list.

**Exhibit 1: Projected Growth in North Plains Water MCEs**

			Avg. Growth	2022-2027	
	2022	2027	Rate	Growth	Growth Share
Population	3,841	5,311	6.70%	1,470	27.68%
MCEs	1,541	2,130	6.70%	590	27.68%

*Source: City staff. Previous tables. MCE = water meter conversion equivalents*

## II.B. IMPROVEMENT FEE

An improvement fee is the eligible cost of planned projects per unit of growth that such projects will serve. Since we have already calculated growth (denominator) above, we will focus here on the improvement fee cost basis (numerator).

### II.B.1. Eligibility

A project’s eligible cost is the product of its total cost and its eligibility percentage. The eligibility percentage represents the portion of the project that creates capacity for future users. Where possible, specific details about a project can provide an eligibility percentage. However, when this is not possible, projects can still be sorted into three broad categories.

The first category is for projects that do not provide capacity for future users. Such projects may be purely replacement projects, or they may be solving a deficiency in the water system. Projects in this category are zero percent eligible. The second category is for projects that are purely for future users, such as when new pipe is laid to provide for a new development. These projects are 100 percent eligible. Finally, projects that provide capacity that will be roughly equally shared between current and future users are eligible at the growth share percentage discussed in **Section II.A**, or 27.68 percent.

Projects for consideration in the improvement fee cost basis were all sorted into these three categories.

### II.B.2. Improvement Fee Cost Basis

Projects in the improvement fee cost basis were taken from the City’s 2022 – 2027 Capital Improvement Program. Each project was sorted into one of the three categories discussed above based on the descriptions provided in the master plan and discussions with staff.

**Exhibit 2** below shows all the projects in the water system improvement fee cost basis. Based on input from City staff, all projects in the water CIP create capacity for future users and are eligible to be included in the SDC cost basis. The SDC Cost Basis column shows the full amount of the improvement fee cost basis is \$2,859,653.

**Exhibit 2: Water SDC Improvement Fee Cost Basis, CIP (2022-2027)**

Project	Capital Cost	SDC Eligibility	SDC Cost Basis
8" Waterline Upgrade on Main (Commercial to Cottage)	\$200,000	27.68%	\$55,356
8" Waterline Upgrade on 309th (North to Alley)	\$160,000	27.68%	\$44,284
8" Waterline Upgrade on 311th (Wascoe to Hillcrest)	\$110,000	27.68%	\$30,446
8" Waterline Upgrade on Cottage (Main to 311 & 309 to Glencoe)	\$630,000	27.68%	\$174,370
8" Waterline Upgrade on 313th (North to Hillcrest)	\$355,000	27.68%	\$98,256
8" Waterline Upgrade on Kaybern (311th to 318th)	\$700,000	27.68%	\$193,744
Potable Pillow Tanks	\$25,000	27.68%	\$6,919
Aquifer Storage and Recovery Feasibility Study	\$100,000	27.68%	\$27,678
UE2A - New 10" Waterline on NW Hillcrest (319th to Main)	\$300,000	100%	\$300,000
UE2B - New 12" Waterline on NW Hillcrest W. of 319th	\$325,000	100%	\$325,000
<b>Subtotal</b>	<b>\$2,905,000</b>		<b>\$1,256,053</b>
Public Works Facility, Water Portion*	\$1,603,600	100%	\$1,603,600
<b>Grand Total</b>	<b>\$4,508,600</b>		<b>\$2,859,653</b>

**Source:** City of North Plains 2022-2027 Capital Improvement Program. Project costs in 2021 dollars.

\* Assumptions derived from Appendix A.

Per ORS 223.309, qualified public improvements must include a list of capital improvements that the local government intends to fund, in whole or in part, with revenues from an improvement fee and the estimated cost, timing and percentage of costs eligible to be funded for each project. Since a new public works facility will be needed during the forecast period. The City's CIP includes costs related to a new public works facility, totaling \$7.2 million. Based on the estimated share of this facility that will be utilized for water service, a portion of this facility cost (22.3%) is deemed to be SDC eligible and attributable to the City's growth in its water system cost basis (supporting calculation provided in Appendix A).

## II.C. SDC REIMBURSEMENT FEE

The City's current CIP includes a new 2 million gallon reservoir that is expected to be completed approximately 6 months prior to the adoption of this new SDC methodology. Hence, the SDC reimbursement fee includes the portion of this new facility that can accommodate planned growth that is expected to occur between June 2022 and 2027. This results in a slightly lower growth share (26.2%) than mentioned above because there will be some capacity utilized during the first half of 2022. **Exhibit 3** indicates that the resulting SDC reimbursement fee cost basis is \$1,551,194 (\$5,920,000 x 26.2%).

**Exhibit 3: Water SDC Reimbursement Fee Cost Basis, CIP (June 2022-2027)**

Project	Completion Date	Total Capital Cost	Non-SDC Funding	Adjusted Cap Cost	SDC Eligibility **	SDC Cost Basis
New Reservoir (2 MG) & PS	11/01/21	\$7,400,000	\$1,480,000	\$5,920,000	26.20%	\$1,551,194

\* **Source:** based on City staff and Stantec (engineers) estimate provided to FCS on 9/13/2021

\*\* Capacity estimate for June 2022-2027 time frame based on growth forecast provided previously

## II.D. CALCULATED SDC

The remainder of this section applies some adjustments to the improvement fee and reimbursement fee cost basis, and then divides that by the expected growth. The result is a total SDC per MCE, which can then be applied to each meter size using the City’s flow factors.

### II.D.1. Adjustments

The water SDC cost basis includes adjustments for SDC administration/compliance costs and any SDC fund balance that has been committed to the CIP projects.

After accounting for a 4% estimated compliance cost and fund balance commitments, the adjusted total SDC eligible cost basis for water SDC equates to \$4,587,281, as shown in **Exhibit 4**.

### II.D.2. Calculated SDC

**Exhibit 4** summarizes the calculation of the water SDC. As shown, the maximum allowable SDC is \$7,780 per MCE, which represents a slight increase over the existing water SDC of \$6,788.

**Exhibit 4: Water SDC per Meter Capacity Equivalent (MCE)**

	Improvement SDC	Reimbursement SDC	Total SDC
Total Cost Basis	\$ 2,859,653	\$ 1,551,194	
Compliance Costs (@4%)	114,386	62,048	
Less existing SDC Funds	-	-	
<b>Adjusted Cost Basis</b>	<b>\$ 2,974,039</b>	<b>\$ 1,613,242</b>	<b>\$ 4,587,281</b>
MCE Growth	590	590	590
<b>SDC per MCE</b>	<b>\$ 5,044</b>	<b>\$ 2,736</b>	<b>\$ 7,780</b>
<i>Current Fee per ERU</i>	<i>\$ 6,788</i>	<i>\$ -</i>	<i>\$ 6,788</i>

Source: previous tables.

**Exhibit 5** reflects the revised North Plains water SDC schedule by meter size. It should be noted that the City is also considering varying the SDC charges for single family homes based on the floor area of a dwelling unit. That option is further discussed in Section V of this report.



**Exhibit 5: North Plains Water SDC Fee Schedule, 2022-23**

Meter Size	MCEs by Meter Flow	Improvement SDC	Reimbursement SDC	Total SDC
3/4"	1.00	\$5,044	\$2,736	<b>\$7,780</b>
1"	1.67	\$8,424	\$4,569	<b>\$12,993</b>
1 1/2"	3.33	\$16,797	\$9,111	<b>\$25,908</b>
2"	5.33	\$26,885	\$14,583	<b>\$41,468</b>
3"	10.00	\$50,440	\$27,361	<b>\$77,801</b>
4"	16.67	\$84,084	\$45,611	<b>\$129,695</b>
6"	33.33	\$168,118	\$91,194	<b>\$259,312</b>
8"	53.33	\$268,998	\$145,916	<b>\$414,914</b>
10"	76.67	\$386,726	\$209,776	<b>\$596,502</b>

**Source:** Prior tables using American Water Works flow conversions. MCE = water meter conversion

DRAFT

## Section III. TRANSPORTATION SDC

---

This section provides the detailed calculations of the maximum allowable transportation SDC.

### III.A. GROWTH

The calculation of projected growth begins with defining the units by which current and future demand will be measured. Then, using the best available data, we quantify the current level of demand and estimate a future level of demand. The difference between the current level and the future level is the growth in demand that will serve as the denominator in the SDC calculations.

#### III.A.1. Unit of Measurement

Currently, the City charges its transportation SDC using the PM peak hour vehicle trip end method. A PM peak hour vehicle trip end represents one vehicle departing or arriving at a particular property during the peak travel time of the afternoon.

The number of PM peak hour vehicle trip ends by land use type are estimated based on the Institute of Transportation Engineers *Trip Generation*, manual. This method is also used for this transportation SDC calculation.

#### III.A.2. Growth in Demand

The transportation project list is based on the City's 2022-2027 Capital Improvements Plan. Growth is measured from 2021, the current year of the analysis. In order to measure growth between 2022 and 2027, we must first estimate the total number of PM peak hour vehicle trip ends (trip-ends) in 2021 and then forecast trip growth to year 2027.

Based on U.S. Census Bureau data and input from City staff, the number of total households and total employment by land use types has been estimated for 2021 and projected for year 2027. By applying trip generation factors from ITE *Trip Generation* manual, FCS calculated the total number of trips to be 1,857 in 2021. This analysis assumes that residential based trips will increase by 6.69 % annually and employment trip growth will average 3.66 % between 2021 and 2027. Growth assumptions are based on growth rates consistent with the City's population forecasts (for housing) and historical Census Bureau data (for employment).

Transportation demand growth share assumptions are summarized in **Exhibit 6**. This analysis results in a growth forecast of 740 PM peak hour vehicle trip ends by year 2027, which will serve as the denominator in the SDC calculation. As indicated in **Exhibit 6**, this amount of growth results in a transportation SDC growth share of 28.48 percent, which is used for calculating the eligibility of selected projects on the project list.

**Exhibit 6: Growth in PM Peak Hour Vehicle Trip Ends**

Land Use Type	ITE Code	PM Peak Hour Vehicle Trips	Current Trips (2021)	Future Trips (2027)	2021 - 2027 Trip Growth	Growth Share
Industrial	110	0.68	384	477		
Retail	820	1.89	132	164		
Office	710	0.45	180	223		
<b>Total Employment</b>			<b>697</b>	<b>864</b>	<b>168</b>	<b>19.42%</b>
Single Family	210	1.00	1,131	1,703		
Multi-Family	221	0.41	30	30		
<b>Total Housing</b>			<b>1,161</b>	<b>1,732</b>	<b>572</b>	<b>33.00%</b>
<b>Grand Total</b>			<b>1,857</b>	<b>2,597</b>	<b>740</b>	<b>28.48%</b>

Source: ITE Trip Generation Manual, 10th Edition. FCS GROUP analysis.

## III.B. IMPROVEMENT FEE

An improvement fee is the eligible cost of planned capital improvements per unit of growth that such projects will serve. Since we have already calculated growth (SDC denominator), the following discussion focuses on the improvement fee cost basis (SDC numerator).

### III.B.1. Eligibility

A project's eligible cost is the product of its total cost and its eligibility percentage. The eligibility percentage represents the portion of the project that creates capacity for future users. Where possible, specific details about a project can provide an eligibility percentage. However, when this is not possible, projects can still be sorted into three broad categories.

The first category is for projects that do not provide capacity for future users. Such projects may be purely replacement projects, or they may be solving a deficiency in the transportation system. Projects in this category are zero percent eligible. The second category is for projects that are purely for future users, such as when new road is required to serve new development. These projects are 100 percent eligible. Finally, projects that provide capacity that will be roughly equally shared between current and future users are eligible at the growth share percentage discussed in **Section III.A** or 28.48 percent.

Projects for consideration in the improvement fee cost basis were all sorted into these three categories.

### III.B.2. Improvement Fee Cost Basis

Projects in the improvement fee cost basis were derived from the City's current Capital Improvement Program.

**Exhibit 7** reflects all the projects in the transportation system improvement fee cost basis. The eligibility for each project is shown in the SDC Eligibility column, and the SDC Eligible Costs column shows that full amount of the improvement fee cost basis is just over \$8.0 million.

**Exhibit 7: Transportation SDC Improvement Fee Cost Basis**

Project	Capital Cost	SDC Eligibility	SDC Cost Basis
Main Street - Pedestrian Improvements*	\$710,000	28.48%	\$202,193
Main Street at Commercial Street - Crossing Improvements*	\$10,000	28.48%	\$2,848
Glencoe Road at Commercial Street - Crossing Improvements	\$10,000	28.48%	\$2,848
Commercial Street at 311th Avenue - Crossing Improvements*	\$10,000	28.48%	\$2,848
Main Street - Bike Lane Improvements*	\$16,000	28.48%	\$4,556
West Union Pedestrian Improvements *	\$1,287,000	28.48%	\$366,511
Glencoe Road & West Union Intersection Improvements	\$100,000	28.48%	\$28,478
Glencoe Sidewalk Improvements and Railroad Crossing*	\$255,000	28.48%	\$72,619
East Cottage Street Overlay	\$250,000	28.48%	\$71,195
Ghost Creek Trail Boardwalk Improvement	\$615,000	28.48%	\$175,139
Pacific Street - Pedestrian Improvements*	\$650,000	28.48%	\$185,107
311th Ave Sidewalk Improvement and Railroad Crossing	\$135,000	28.48%	\$38,445
309th Ave Sidewalk Improvement	\$200,000	28.48%	\$56,956
Jessie Mays Park Perimeter Sidewalk Improvement	\$515,000	28.48%	\$146,661
East Hillcrest Street Overlay	\$280,000	28.48%	\$79,738
Pedestrian Improvements on Commercial Street*	\$270,000	28.48%	\$76,890
NW Cottage Street Improvement	\$390,000	28.48%	\$111,064
313th Avenue - Pedestrian Improvements (Pacific to Highland)	\$315,000	28.48%	\$89,706
North Avenue*	\$1,260,000	100.00%	\$1,260,000
Yorkshire Street - Traffic Calming	\$100,000	0.00%	\$0
North @ Main Street - Raised Intersection*	\$975,000	100.00%	\$975,000
Pavement Overlay/Repair	\$600,000	0.00%	\$0
313th Avenue - Pedestrian Improvements	\$200,000	28.48%	\$56,956
Main Street at Lenox Street - Crossing Improvements	\$10,000	28.48%	\$2,848
Pacific Street at 313th Avenue - Crossing Improvements*	\$10,000	28.48%	\$2,848
311th Avenue - Pedestrian Improvements	\$390,000	28.48%	\$111,064
Glencoe Road at Pacific Street - Signal *	\$650,000	100.00%	\$650,000
Kaybern Street - Pedestrian Infill Improvements	\$525,000	28.48%	\$149,509
Glencoe Road at Commercial Street - Roundabout*	\$1,420,000	100.00%	\$1,420,000
Glencoe Road at Highland Court - Restrict movements	\$280,000	100.00%	\$280,000
Wascoe Street - Street Connection east of Main	\$75,000	100.00%	\$75,000
<b>Subtotal</b>	<b>\$12,513,000</b>		<b>\$6,697,028</b>
Public Works Facility, Transportation Portion**	\$1,322,995	100.00%	\$1,322,995
<b>Grand Total</b>	<b>\$13,835,995</b>		<b>\$8,020,023</b>

**Source :** City of North Plains 2022-2027 Capital Improvement Program. Washington County TDT Project List.

\* Denotes potentially credit-eligible TDT projects.

\*\* Derived from calculations shown in Appendix A.

The City’s CIP also includes costs related to a new public works facility, totaling \$7.2 million. Based on calculations provided in **Appendix A**, \$1.3 million of the new facility’s total costs (18.4%) are attributable to the City’s transportation program and are included in the transportation SDC cost basis.

### III.C. CALCULATED SDC

The City has assigned no value to the remaining growth capacity within the City's current system of collectors and arterial streets. In the absence of reimbursable capacity, the improvement fee cost basis is the only basis needed for finishing the transportation SDC calculation.

The remainder of this section applies adjustments to the improvement fee cost basis, and then divides that by the expected growth. The result is a total SDC per PM peak hour vehicle trip end, which can then be applied to each land use using *Trip Generation*, 10<sup>th</sup> edition, published by the Institute of Transportation Engineers.

#### III.C.1. Adjustments

The transportation SDC cost basis includes adjustments which account for: existing transportation bond principal to be used for CIP projects; existing transportation SDC and TDT fund balance commitments to CIP projects; and admin/compliance costs.

City staff estimates that \$6,012,001 in bond principal will be reserved for CIP project costs and noted that there are no commitments of existing SDC/TDT fund balances at this time.

ORS 223.307(5) authorizes the expenditure of SDCs on "the costs of complying with the provisions of ORS 223.297 to 223.314, including the costs of developing system development charge methodologies and providing an annual accounting of system development charge expenditures." To avoid spending monies for compliance that might otherwise have been spent on growth-related projects, this report includes an estimate of compliance costs in the SDC cost basis.

Hence, it is estimated that \$170,321 should be added to the cost basis to account for compliance costs allowed by statute (this reflects the cost of TSP and TSDC updates and related City in-kind administrative costs).

The adjusted eligible cost basis of \$2,178,343 for the improvement fee is shown below in **Exhibit 8**.

#### III.C.2. Calculated SDC

**Exhibit 8** summarizes the calculation of the transportation SDC. As shown, the maximum transportation SDC is \$2,946 per PM peak hour vehicle trip end, which is comparatively higher than the prior SDC that was initially calculated in 2005.

**Exhibit 8: Calculated Transportation SDC per Trip (PM Peak Hour Trips)**

Transportation CIP, Growth Related Costs	\$8,020,023
Less Transportation Bond Principal	(\$6,012,001)
Total SDC Improvement Fee Cost Basis	\$2,008,022
Plus Compliance Costs*	\$170,321
Less existing SDC/TDT Funds	-
Total Adjusted Cost Basis	<b>\$2,178,343</b>
Proj. Trip Growth	740
SDC per Trip	<b>\$2,946</b>
Current Fee per Trip	\$731

\* SDC admin costs = 4% of cost basis plus \$90,000 for TSP/SDC update.

**Appendix B** provides a schedule of the transportation SDC schedule by land use. It should be noted that the City is also considering varying the SDC charges for single family homes based on the floor area of a dwelling unit. That option is further discussed in Section V of this report.

## Section IV. PARKS SDC

This section provides the detailed calculations of the maximum allowable parks SDC.

### IV.A.GROWTH

The calculation of projected growth begins with defining the units by which current and future demand will be measured. Then, using the best available data, we quantify the current level of demand and estimate a future level of demand. The difference between the current level and the future level is the growth in demand that will serve as the denominator in the SDC calculations.

#### IV.A.1. Unit of Measurement

Currently, the City charges its parks SDC based on population. Because City parks and trails are primarily utilized by local residents (rather than employees or visitors), the incremental population added by a new housing development provides a good basis for charging a parks SDC.

To distinguish the levels of demand imposed by different housing types, this methodology considers current U. S. Census Bureau data to estimate the number of residents for different kinds of dwelling units.

#### IV.A.2. Growth in Demand

City staff estimate that there were 3,600 full time residents within the City in 2021, and forecasts that there will be 5,311 residents by 2027 and 6,046 residents by 2029. As shown in the following table, this implies a growth of 2,205 residents between 2022 and 2029, which will serve as the denominator in the SDC calculations.

**Population Growth Forecast, North Plains, 2021-2029**

						2022-2027	2027-29	2022-29	2022-29
	2021	2022	2027	2029	AGR	Growth	Growth	Growth	Growth Share
	3,600	3,841	5,311	6,046	6.70%	1,470	735	2,205	36.47%

Source: City staff estimates and forecasts..

### IV.B.IMPROVEMENT FEE

An improvement fee is the eligible cost of planned projects per unit of growth that such projects will serve. Since we have already calculated growth (denominator) above, we will focus here on the improvement fee cost basis (numerator).

#### IV.B.1. Eligibility

A project's eligible SDC cost is the product of its total cost and its eligibility percentage. The eligibility percentage represents the portion of the project that creates capacity for future users.

For parks SDCs, eligibility is determined by a level-of-service (LOS) analysis that quantifies the park facilities that are needed for growth (and are therefore eligible to be included in an improvement fee cost basis). Park facilities can be measured by sorting them into categories such as neighborhood, community, or natural areas, or by considering their respective units of measurement (e.g., acres per capita and linear feet of trails per capita). In either approach, the current or future parks LOS may be targeted.

#### IV.B.1.a Current Level of Service (By Category and Unit of Measurement)

Determining SDC eligibility for parks projects using the current level of service requires determining the quantity of parks facilities needed to maintain the current level of service. Any project that adds facilities in excess of that quantity is ineligible.

The City has six relevant parks and four trails that are used for determining its level of service by category. These are shown in the upper panel of the first column in **Exhibit 9**. Parks and Trail categories each receive its own level of service. The City’s adopted level of service for parks is 6.25 acres per 1,000 residents. The parks project list, derived from the North Plains Parks Master Plan includes 14 acres of parks to be added by year 2029. Based on the 2029 population and the current level of service nearly 37.8 acres of parks will be needed. Hence, all of the improvement costs associated with the 14 acres of planned park facilities are 100% SDC eligible.

The same line of reasoning is used to develop the eligibility percentages for trails. The eligibility percentage for trails is based on the current LOS of 2.2 miles per capita. Based on the forecasted change in population, North Plains can justify up to 13.2 miles of additional trails to maintain its current LOS. Since the Parks Master Plan includes 2.0 miles of new trails by 2029, all of the trail improvement costs are SDC eligible (see **Exhibit 9**).

**Exhibit 9: Parks/Trails SDC Eligibility under the Current Level of Service**

Park Type	Classification	Units (acres or miles)	Estimated Pop (2022)	Adopted LOS per 1,000 pop	Proj. pop (2029)	Future Need	Planned Parks and Trails*	SDC Eligible Cost Share
<b>Parks</b>								
Jessie Mays Park	Neighborhood	1.84						
Frank Wing Park	Mini Park	0.20						
Pacific Purple Park	Mini Park	0.90						
Vern Galaway Park	Neighborhood	3.00						
Louie Wence Memorial Park	Mini Park	0.20						
LaMordden Park	Mini Park	0.10						
<b>Total Parks</b>		6.2 acres	3,841	6.25 acres	6,046	37.8 acres	14.0 acres	100%
<b>Trails</b>								
Red Trail	Trail	1.50						
Orange Trail	Trail	1.54						
Green Trail	Trail	4.00						
West Union Pathway	Trail	0.75						
McKay Trail trailhead	Trail	0.60						
<b>Total Trails</b>		8.4 miles	3,841	2.2 miles	6,046	13.2 miles	2.0 miles	100%

Source: North Plains Parks Master Plan, 2018; and estimates and forecasts provided in prior tables.

#### IV.B.2. Expansion Projects

The list of park expansion projects for North Plains includes projects that have been identified in the current 2022-2027 CIP as well as projects included in the Parks Master Plan that are slated for



construction between now and 2029. Parks and trail improvement projects which expand capacity of the parks system are identified in **Exhibit 10**. The eligibility of the project list varies depending on the method used. At minimum, under the current level of service, the eligible SDC cost of the expansion list is \$9,713,509.

**Exhibit 10: Park and Trail Expansion Projects, 2021-2029**

Project	2021 - 2029 CIP	2021 - 2029 CIP	Grant		SDC	SDC Cost
	Cost	Cost*	funding	Local Share	Eligibility	Basis
Jessie Mays Community Park	\$700,000	\$700,000	\$600,000	\$100,000	100%	\$100,000
Jessie Mays Community Park - Integrate access pathways	\$35,000	\$37,398	\$0	\$37,398	100%	\$37,398
Vern Galaway Park - Habitat restoration	\$15,000	\$16,028	\$0	\$16,028	100%	\$16,028
Vern Galaway Park - Conduct site master plan	\$65,000	\$69,454	\$0	\$69,454	100%	\$69,454
Vern Galaway Park - small picnic shelter	\$45,000	\$48,083	\$0	\$48,083	100%	\$48,083
Vern Galaway Park - Install nature area	\$10,000	\$10,685	\$0	\$10,685	100%	\$10,685
Purple Pacific Park - Upgrades	\$100,000	\$106,852	\$0	\$106,852	100%	\$106,852
Frank Wing Park - Integrate access pathways	\$15,000	\$16,028	\$0	\$16,028	100%	\$16,028
Future Community Park - Acquire 10-25 acres	\$6,000,000	\$6,411,133	\$0	\$6,411,133	100%	\$6,411,133
Future Neighborhood Park - Acquire 2-4 acres	\$450,000	\$480,835	\$0	\$480,835	100%	\$480,835
Future Neighborhood Park - Acquire 2-4 acres	\$500,000	\$534,261	\$0	\$534,261	100%	\$534,261
McKay Creek Trail Development, Phase 1	\$1,450,000	\$1,450,000	\$0	\$1,450,000	100%	\$1,450,000
Trail Corridor Development - Easements (McKay Creek Phase 2)	\$150,000	\$160,278	\$0	\$160,278	100%	\$160,278
Trail Corridor Development - Easements (McKay Creek Phase 3)	\$80,000	\$85,482	\$0	\$85,482	100%	\$85,482
Trail Corridor Development - Easements (Ghost Creek)	\$40,000	\$42,741	\$0	\$42,741	100%	\$42,741
Trail Corridor Development - Improve road crossing	\$100,000	\$106,852	\$0	\$106,852	100%	\$106,852
Trail Corridor Development - Develop / Install gravel	\$35,000	\$37,398	\$0	\$37,398	100%	\$37,398
<b>TOTAL</b>	<b>\$9,790,000</b>	<b>\$10,313,509</b>	<b>\$600,000</b>	<b>\$9,713,509</b>		<b>\$9,713,509</b>

Source : City of North Plains 2022-2027 Capital Improvement Program; and 2018 Parks Master Plan. \* Project costs expressed in 2022 dollars.

\*\* Derived from calculations shown in Appendix A.

### IV.B.3. Infill/System Projects

The second type of eligible SDC projects include improvements that will not expand the inventory of the parks or trails system by adding acres/miles but will nevertheless add capacity for future users of the City’s parks and trail system.

For projects that result in facility infill/system improvements, it is assumed that such facilities will be shared equally between current and future users. Thus, the eligibility percentage is the proportion of total future demand (2,205 residents) that will arrive between 2022 and 2029 divided by the future 2029 population (6,046 residents); which as discussed previously equates to a 36.5 percent growth share.

The total cost for parks related projects in this improvement category is \$1.3 million. Applying the eligibility percentage to all costs associated with new amenities gives an eligible cost of \$928,918. These calculations are shown in **Exhibit 11**.

**Exhibit 11: Parks Infill and System Improvement Projects**

Project	2021 - 2029 CIP	Grant	Local Share	SDC	SDC Cost	
	Cost*	funding		Eligibility	Basis	Eligibility Category
Pacific Purple Park	\$200,000	\$0	\$200,000	36.5%	\$72,939	Infill/Upgrade
Park renovations, Phase 1	\$40,000	\$0	\$40,000	36.5%	\$14,588	Infill/Upgrade
Park ADA Compliance Upgrades, Phase 1	\$30,000	\$0	\$30,000	36.5%	\$10,941	Infill/Upgrade
Jessie Mays Community Park - Rehabilitation	\$106,852	\$0	\$106,852	36.5%	\$38,969	Infill/Upgrade
Jessie Mays Community Park - Renovate Community Building	\$160,278	\$0	\$160,278	36.5%	\$58,453	Infill/Upgrade
Park Renovations Phase 2	\$48,083	\$0	\$48,083	36.5%	\$17,536	Infill/Upgrade
ADA Compliance Upgrades Phase 2	\$42,741	\$0	\$42,741	36.5%	\$15,587	Infill/Upgrade
Public Works Facility (parks related portion)**	\$699,904	\$0	\$699,904		\$699,904	Proportional share
<b>TOTAL</b>	<b>\$1,327,859</b>	<b>\$0</b>	<b>\$1,327,859</b>		<b>\$928,918</b>	

Source : City of North Plains 2022-2027 Capital Improvement Program; and 2018 Parks Master Plan. \* Project costs expressed in 2022 dollars.

\*\* Derived from calculations shown in Appendix A.

#### IV.B.4. Calculated Improvement Fee Cost Basis

After determining the eligible cost of each list (expansion and infill/system), a full improvement fee cost basis can be calculated. This section combines the eligible costs from the two project lists and applies adjustments for fund balance and compliance costs. The result is a total Parks SDC per resident. We then use census data to estimate the number of residents per dwelling unit and calculate SDCs for residential dwelling units.

#### IV.B.5. Adjustments

The Parks SDC cost basis includes adjustments for SDC administration/compliance costs and any current SDC fund balance that have been committed to the CIP projects.

After accounting for a 4% estimated compliance cost and fund balance commitments, the adjusted total SDC eligible cost basis for the parks SDC equates to \$10,642,427, as shown in **Exhibit 12**.

#### IV.B.6. Calculated SDC

**Exhibit 12** summarizes the calculation of the full SDC based on the current level of service and provides a basis for charging the parks SDC based on average number of people added per dwelling unit. As shown, the new parks SDC results in a charge of up to \$5,020 per new resident, or \$15,023 per new dwelling unit.

**Exhibit 12: Calculated Parks SDCs**

<b>Parks SDC Cost Basis</b>	
Expansion Projects	\$9,713,509
Infill/Upgrade/System Projects	\$928,918
<b>Total SDC Cost Basis</b>	<b>\$10,642,427</b>
Plus Compliance Costs (@4% of total)	\$425,697
Less Existing SDC Funds	\$0
<b>Total Adjusted Cost Basis</b>	<b>\$11,068,124</b>
Pop Growth	2,205
SDC per Pop.	\$5,020
Avg. People per Dwelling Unit (DU)	2.99
Avg. Parks SDC per DU	<b>\$15,023</b>
Current Fee Per DU	\$6,659

Average household size statistics for North Plains can be used to calculate applicable fees by dwelling unit type, as shown in **Exhibit 13**. The resulting parks SDCs range from \$5,837 per multifamily dwelling to \$15,023 per single family detached dwelling. SDCs for attached housing units (such as duplexes and townhomes) would be \$7,443, and SDCs for mobile homes would be \$12,099 per unit.

**Exhibit 13: North Plains Parks SDCs by Dwelling Type**

Housing Type	Dwellings Per Structure	Residents per DU	Parks SDC per DU
Single Family Detached	1-unit	2.99	\$15,023
Attached	2 to 4 units	1.48	\$7,443
Multifamily	5 or more units	1.16	\$5,837
Mobile home	Mobile home	2.41	\$12,099

*Source: 2015-2019 ACS 5-Year Estimates for North Plains attached, multifamily and mobile homes (residents per DU); other estimates by City staff and FCS. DU = dwelling unit.*

It should be noted that the City has the option of varying the SDC charges for single family homes based on the floor area of a dwelling unit. That option is further discussed in Section V of this report.

## Section V. IMPLEMENTATION

This section addresses practical aspects of implementing SDCs and provides a comparison with relevant jurisdictions.

### V.A. INDEXING

ORS 223.304 allows for the periodic indexing of SDCs for inflation, as long as the index used is:

- (A) A relevant measurement of the average change in prices or costs over an identified time period for materials, labor, real property or a combination of the three;
- (B) Published by a recognized organization or agency that produces the index or data source for reasons that are independent of the system development charge methodology; and
- (C) Incorporated as part of the established methodology or identified and adopted in a separate ordinance, resolution or order.

In accordance with Oregon statutes, we recommend that the City use the *Engineering News-Record* (ENR) Construction Cost Index (CCI) Seattle Region Average as the basis for adjusting SDCs annually. This is the region that is nearest to North Plains.

### V.B. COMPARISONS

This section provides comparisons for the City's current and proposed SDCs against those of comparable jurisdictions. As shown in **Exhibit 14**, if all SDCs are implemented as proposed, North Plains will still have a much lower overall SDC & TDT cost burden than many surrounding areas within Washington County. An important note to Exhibit 14 is that not all SDCs shown are set by the relevant city; some are set by overlapping jurisdictions.

**Exhibit 14: SDC and TDT Fees Per Single Family Detached Dwelling**

SDCs per New Single Family Detached Dwelling*									
Jurisdiction	Parks SDC	Storm-water SDC	Sewer SDC	Water SDC	Trans- portation TDT	Trans- portation SDC	Other Unique Fees	Total	
Forest Grove	\$ 6,190	\$ 585	\$ 6,085	\$ 6,257	\$ 9,623	\$ -	\$ -	\$ 28,741	
Cornelius	\$ 4,471	\$ 1,081	\$ 6,317	\$ 10,337	\$ 9,623	\$ -	\$ -	\$ 31,829	
North Plains (current)	<b>\$ 6,659</b>	<b>\$ 585</b>	<b>\$ 6,085</b>	<b>\$ 10,623</b>	<b>\$ 9,623</b>	<b>\$ 731</b>	\$ -	<b>\$ 34,306</b>	
Hillsboro	\$ 6,392	\$ 585	\$ 6,085	\$ 16,553	\$ 9,623	\$ -	\$ -	\$ 39,238	
Lake Oswego	\$ 14,479	\$ 167	\$ 3,046	\$ 8,366	\$ -	\$ 15,720	\$ -	\$ 41,777	
Beaverton	\$ 12,252	\$ 1,290	\$ 6,085	\$ 13,161	\$ 9,623	\$ -	\$ -	\$ 42,410	
Wilsonville	\$ 6,282	\$ 1,903	\$ 5,668	\$ 15,207	\$ -	\$ 13,758	\$ -	\$ 42,818	
North Plains (new max)	<b>\$ 15,009</b>	<b>\$ 585</b>	<b>\$ 6,085</b>	<b>\$ 11,615</b>	<b>\$ 9,623</b>	<b>\$ 2,946</b>	\$ -	<b>\$ 45,863</b>	
Beaverton - South Cooper Mountain	\$ 14,322	\$ 1,290	\$ 6,085	\$ 13,161	\$ 9,623	\$ 8,795	\$ -	\$ 53,276	
Tigard - River Terrace	\$ 10,871	\$ 585	\$ 6,085	\$ 13,484	\$ 9,623	\$ 10,996	\$ -	\$ 51,643	
North Bethany	\$ 17,311	\$ 585	\$ 5,800	\$ 12,032	\$ 9,623	\$ 7,194	\$ -	\$ 52,545	
Hillsboro - South Hillsboro (Area 2)	\$ 9,334	\$ 585	\$ 6,085	\$ 16,553	\$ 9,623	\$ 13,120	\$ -	\$ 55,300	
Wilsonville - Frog Pond West	\$ 6,282	\$ 1,903	\$ 5,668	\$ 15,207	\$ -	\$ 13,758	\$ 19,637	\$ 62,455	

Source: Survey conducted by FCS GROUP updated Sept. 2021. Analysis assumes 2,000 SF home with 3/4" meter.

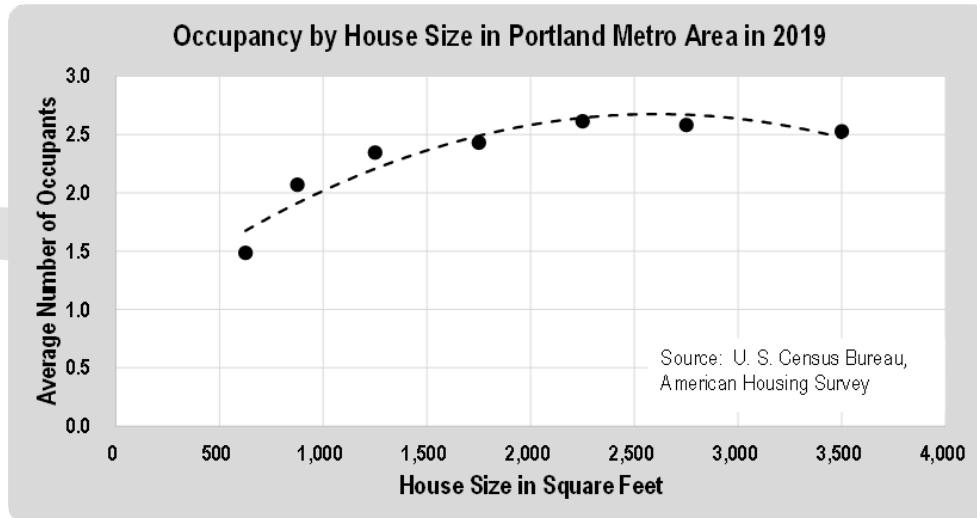
\*Assumes 3/4 inch water meter.

Other cities SDCs are assumed to increase by 3% for FYE 2022 estimates.

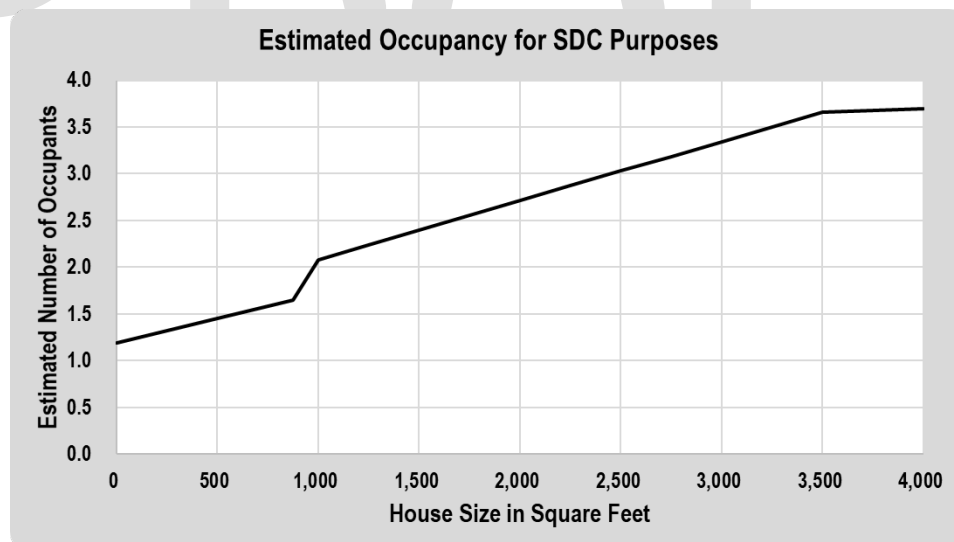
## V.C. SDCS BY HOME SIZE

The City of North Plains has the option of further varying SDCs based on the relative impact each new development is anticipated to have on the utility systems that are owned or maintained by the City. Many jurisdictions in Oregon and nationally have gravitated to methodologies that consider the size and type of development when determining their impacts.

Data from the U. S. Census Bureau for the Portland Metro Area indicate that, up to a point, the number of occupants in a single-family dwelling unit is positively correlated with that dwelling unit's size as measured in square feet as shown in the chart below:



To simplify this relationship for the purpose of charging SDCs, we have adjusted the regional averages to account for local occupancy levels in North Plains and translated the curvilinear function shown above to the linear (and capped) function shown below:



Houses that are 4,000 square feet or larger are subject to the cap and have an estimated occupancy of 3.7 demand-adjusted users. Houses that are smaller than 4,000 square feet have an estimated occupancy that varies based on finished (heated) floor area as shown in **Exhibit 15**. The table below also indicates the relative change in PM peak hour vehicle trip generation and water demand by dwelling unit size. These factors can be used to calculate a variable SDC for single family dwellings as shown below.

**Exhibit 15: Relative Variation in Single Family Home Size, Occupancy, Trip Generation and Water Use**

Impact Fee Assumptions	Average	Tiny/ADU	Small	Mid	Medium	Large	Estate
House size in square feet*	2,100	500	1,000	1,500	2,000	3,000	4,000 +
Implied average local occupancy*	2.99	1.50	2.08	2.40	2.71	3.34	3.70
Implied PM peak hour vehicle trip ends**	1.00	1.00	1.00	1.00	1.00	1.12	1.24
<b>Parks SDC</b>	<b>\$15,023</b>	<b>\$7,529</b>	<b>\$10,457</b>	<b>\$12,038</b>	<b>\$13,620</b>	<b>\$16,783</b>	<b>\$18,559</b>
<b>Transportation SDC</b>	<b>\$2,946</b>	<b>\$2,946</b>	<b>\$2,946</b>	<b>\$2,946</b>	<b>\$2,946</b>	<b>\$3,293</b>	<b>\$3,640</b>
<b>Water SDC</b>	<b>\$7,780</b>	<b>****</b>	<b>\$6,051</b>	<b>\$7,780</b>	<b>\$7,780</b>	<b>\$9,509</b>	<b>\$11,238</b>
Water system demand factor***	1.00	0.56	0.78	1.00	1.00	1.22	1.44
<b>Total North Plains SDCs</b>	<b>\$25,749</b>	<b>\$10,475</b>	<b>\$19,454</b>	<b>\$22,764</b>	<b>\$24,346</b>	<b>\$29,585</b>	<b>\$33,438</b>

\* Based on national and local averages from U.S. Census, 2019 American Housing Survey.

\*\* Trip data based on the Institute of Transportation Engineers, Trip Generation Manual, 10th edition.

\*\*\* Derived from factors shown in Appendix C.

\*\*\*\* No water SDC is expected if dwelling is connected to primary water meter.

This type of approach would also enable the City to charge SDCs based on changes in floor area, which with charges per square foot (SF) declining inversely with the size of the housing unit given economies of scale and other demand factors discussed above, as shown in the table below.

The City may group single family units into three (or more categories), with local SDCs that would range depending upon home size or type of development. Such an approach would simplify the administrative process and still result in lower SDCs for smaller homes, as indicated in **Exhibit 16**.

**Exhibit 16: Proposed North Plains SDCs for Single Family Homes (FY 2022)**

North Plains SDCs	Accessory Dwelling (less than 900 SF)	Small or Mfg. Home (900 to 1,500 SF)	Standard Home (1,501 to 2,500 SF)	Large Home (over 2,500 SF)
Parks SDC	\$15.06	\$11.18	\$6.81	\$5.68
Transportation SDC	\$5.89	\$3.60	\$1.51	\$1.16
Water SDC	**	\$6.05	\$4.08	\$3.29
<b>Total</b>	<b>\$20.95</b>	<b>\$20.83</b>	<b>\$12.40</b>	<b>\$10.13</b>
<i>Example, House Size</i>	750 SF	1,000 SF	2,200 SF	3,500 SF
<b>North Plains SDCs</b>	<b>\$15,713</b>	<b>\$20,832</b>	<b>\$27,288</b>	<b>\$35,460</b>

Source: calculated based on prior tables.

\* Includes housing units with 1-3 dwellings per structure. Square feet = heated floor area, excludes unfinished attics, garages, decks).

\*\* No water SDC is expected if accessory dwelling is connected to primary water meter.

## APPENDIX

---

DRAFT

## APPENDIX A. PUBLIC FACILITY COSTS

### Public Facility Cost Allocation Assumption

	Biennial Op. Budget	SDC Capacity Share*	SDC Eligible Cost	% Dist.	Cost Allocation (\$M)
Transportation	\$ 893,492	18.4%	\$ 1,322,995	20%	\$ 1.3
Water	\$ 1,083,000	22.3%	\$ 1,603,600	73%	\$ 1.6
Parks	\$ 472,684	9.7%	\$ 699,904	7%	\$ 0.7
<b>Total</b>	<b>\$ 2,449,176</b>	<b>50.4%</b>	<b>\$ 3,626,499</b>	<b>100%</b>	<b>\$ 3.6</b>

\* Capacity requirement based on FY 2021/22 budget for operation-related expenditures for these departments compared with overall city expenditures.

Source : City of North Plains Adopted Biennial Budget 2021 - 2023.

DRAFT



## APPENDIX B. TRANSPORTATION SDCS BY LAND USE

DRAFT

North Plains Transportation SDC by ITE Land Use Code: FY 2022-23

TSDC per PHVT \$ 2,945.67

ITE Code	Land Use	Unit	PM Peak Hour Vehicle Trips	Pass			Net PM Peak Hour Vehicle Trips	Local TSDC
				Primary	By	Total		
110	General Light Industrial	Employee	0.68	100%	0%	100%	0.68	\$ 2,003
130	Industrial Park	1,000 SFGFA	0.40	100%	0%	100%	0.40	\$ 1,178
140	Manufacturing	1,000 SFGFA	0.79	100%	0%	100%	0.79	\$ 2,327
150	Warehousing	1,000 SFGFA	0.24	100%	0%	100%	0.24	\$ 707
151	Mini-Warehouse	1,000 SFGFA	0.20	100%	0%	100%	0.20	\$ 589
154	High-Cube Transload and Short-Term Storage Warehouse	1,000 SFGFA	0.16	100%	0%	100%	0.16	\$ 471
210	Single-Family Detached Housing	Average per Standard DU	1.00	100%	0%	100%	1.00	\$ 2,946
220	Multifamily Housing (Low-Rise)	Dwelling Units	0.67	100%	0%	100%	0.67	\$ 1,974
221	Multifamily Housing (Mid-Rise) / Duplex, Triplex, Quadplex	Dwelling Units	0.41	100%	0%	100%	0.41	\$ 1,208
222	Multifamily Housing (High-Rise)	Dwelling Units	0.39	100%	0%	100%	0.39	\$ 1,149
240	Mobile Home Park	Dwelling Units	0.49	100%	0%	100%	0.49	\$ 1,443
251	Senior Adult Housing - Detached	Dwelling Units	0.39	100%	0%	100%	0.39	\$ 1,149
252	Senior Adult Housing - Attached	Dwelling Units	0.31	100%	0%	100%	0.31	\$ 913
	Accessory Dwelling Unit	Dwelling Units	0.34	100%	0%	100%	0.34	\$ 1,002
254	Assisted Living	Beds	0.34	100%	0%	100%	0.34	\$ 1,002
255	Continuing Care Retirement Community	Units	0.25	100%	0%	100%	0.25	\$ 736
265	Timeshare	Dwelling Units	0.43	100%	0%	100%	0.43	\$ 1,267
310	Hotel	Rooms	0.61	100%	0%	100%	0.61	\$ 1,797
420	Marina	Berths	0.20	100%	0%	100%	0.20	\$ 589
430	Golf Course	Holes	3.68	100%	0%	100%	3.68	\$ 10,840
444	Movie Theater	1,000 SFGFA	14.06	100%	0%	100%	14.06	\$ 41,416
488	Soccer Complex	Fields	16.90	100%	0%	100%	16.90	\$ 49,782
495	Recreational Community Center	1,000 SFGFA	2.30	100%	0%	100%	2.30	\$ 6,775
520	Elementary School	1,000 SFGFA	3.16	59%	41%	100%	1.86	\$ 5,492
522	Middle School/Junior High School	1,000 SFGFA	3.33	59%	41%	100%	1.96	\$ 5,787
530	High School	1,000 SFGFA	2.15	59%	41%	100%	1.27	\$ 3,737
540	Junior/Community College	1,000 SFGFA	2.27	100%	0%	100%	2.27	\$ 6,687
560	Church / House of Worship	1,000 SFGFA	0.80	100%	0%	100%	0.80	\$ 2,357
565	Day Care Center	1,000 SFGFA	11.82	100%	0%	100%	11.82	\$ 34,818
566	Cemetery	Acres	1.26	100%	0%	100%	1.26	\$ 3,712
590	Library	1,000 SFGFA	8.53	100%	0%	100%	8.53	\$ 25,127
610	Hospital	1,000 SFGFA	0.97	100%	0%	100%	0.97	\$ 2,857
620	Nursing Home	Beds	0.37	100%	0%	100%	0.37	\$ 1,090
710	General Office Building	Employee	0.45	100%	0%	100%	0.45	\$ 1,326
750	Office Park	1,000 SFGFA	1.33	100%	0%	100%	1.33	\$ 3,918
770	Business Park	1,000 SFGFA	1.26	100%	0%	100%	1.26	\$ 3,712
813	Free-Standing Discount Superstore	1,000 SFGFA	4.40	71%	29%	100%	3.12	\$ 9,202
816	Hardware/Paint Store	1,000 SFGFA	1.13	74%	26%	100%	0.84	\$ 2,463
817	Nursery (Garden Center)	1,000 SFGFA	8.37	100%	0%	100%	8.37	\$ 24,655
820	Shopping Center	Employee	1.89	100%	0%	100%	1.89	\$ 5,567
840	Automobile Sales (New)	1,000 SFGFA	2.65	100%	0%	100%	2.65	\$ 7,806
849	Tire Superstore	1,000 SFGFA	2.58	100%	0%	100%	2.58	\$ 7,600
850	Supermarket	Employee	2.35	64%	36%	100%	1.50	\$ 4,430
851	Convenience Market	1,000 SFGFA	53.51	49%	51%	100%	26.22	\$ 77,235
857	Discount Club	1,000 SFGFA	4.61	63%	37%	100%	2.90	\$ 8,555
861	Sporting Goods Superstore	1,000 SFGFA	3.04	100%	0%	100%	3.04	\$ 8,955
862	Home Improvement Superstore	1,000 SFGFA	3.29	58%	42%	100%	1.91	\$ 5,621
863	Electronic Superstore	1,000 SFGFA	4.44	60%	40%	100%	2.66	\$ 7,847
875	Department Store	1,000 SFGFA	2.81	100%	0%	100%	2.81	\$ 8,277

**Appendix B (continued)**

**DRAFT**

North Plains Transportation SDC by ITE Land Use Code: FY 2022-23

TSDC per PHVT \$ **2,945.67**

ITE Code	Land Use	Unit	PM Peak Hour Vehicle Trips	Primary	Pass		Net PM Peak Hour Vehicle Trips	Local TSDC
					By	Total		
881	Pharmacy/Drugstore with Drive-Through Window	1,000 SFGFA	11.32	51%	49%	100%	5.77	\$ 17,006
882	Marijuana Dispensary	1,000 SFGFA	29.93	100%	0%	100%	29.93	\$ 88,164
890	Furniture Store	1,000 SFGFA	0.70	47%	53%	100%	0.33	\$ 969
912	Drive-in Bank	1,000 SFGFA	20.06	65%	35%	100%	13.04	\$ 38,409
930	Fast Casual Restaurant	1,000 SFGFA	43.79	100%	0%	100%	43.79	\$ 128,991
931	Quality Restaurant	1,000 SFGFA	8.28	56%	44%	100%	4.64	\$ 13,658
932	High-Turnover (Sit-Down) Restaurant	1,000 SFGFA	17.41	57%	43%	100%	9.92	\$ 29,232
933	Fast-Food Restaurant without Drive-Through Window	1,000 SFGFA	48.70	50%	50%	100%	24.35	\$ 71,727
934	Fast-Food Restaurant with Drive-Through Window	1,000 SFGFA	51.36	50%	50%	100%	25.68	\$ 75,645
936	Coffee/Donut Shop without Drive-Through Window	1,000 SFGFA	28.23	100%	0%	100%	28.23	\$ 83,156
937	Coffee/Donut Shop with Drive-Through Window	1,000 SFGFA	37.43	100%	0%	100%	37.43	\$ 110,256
944	Gasoline/Service Station	Vehicle Fueling Positions	14.41	58%	42%	100%	8.36	\$ 24,619
960	Super Convenience Market/Gas Station	Vehicle Fueling Positions	20.25	100%	0%	100%	20.25	\$ 59,650

Abbreviations

- CFD commercial flights per day
- ODU occupied dwelling unit
- SFGFA square feet of gross floor area
- SFGLA square feet of gross leasable area
- VFP vehicle fueling position

## APPENDIX C. WATER DEMAND FACTORS

### Water SDC Adjustment Factors for Single Family Dwelling Units

Home Size Category	Dwelling Unit Size Range (living area sq.ft.)	Avg. Home Size (SF)	Avg. People Per Dwelling (Adjusted for Local Conditions)	Primary Fixtures*	Water SDC Adjustment Factor
Small	under 1,499 SF	1,250	2.08	5	<b>0.56</b>
Standard	1,500 to 2,999 SF	2,500	2.71	9	<b>1.00</b>
Large	over 3,000 SF	4,200	3.34	13	<b>1.44</b>
<b>Total/Average</b>		<b>2,650</b>	<b>2.99</b>	<b>9</b>	

\* **primary fixture unit assumptions:**

Home Size	Water Closets	Lavatory	Tub or Shower	Total
1,250 SF	2	2	1	<b>5</b>
2,000 SF	3	4	2	<b>9</b>
3,000 SF	4	6	3	<b>13</b>

Source: IBC Building Code Calculator; complies with IBC/IPC/CPC requirements.