City of Adair Village

BENTON COUNTY, OREGON

System Development Charges

Methodology

May 2019

Civil West
Engineering Services, Inc.

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City of Adair Village

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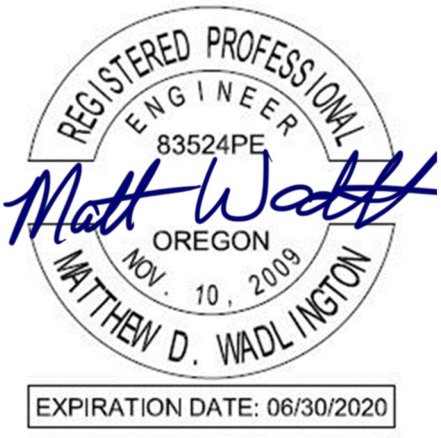

Civil West Engineering Services, Inc.

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1 EXECUTIVE SUMMARY

1.1 Background

In 2018, the Adair Village City Council authorized the City Engineer to update the City's system development charge (SDC) program for the various public infrastructure components in the City. The City's existing methodology was previously updated in 2008, and since that time, conditions have led the City to anticipate significant growth. Providing new infrastructure capacity is necessary to accommodate the anticipated growth and revisions to the City's SDC program are critical for ensuring that new users of City infrastructure pay for an equitable portion.

Recent planning documents for the City's wastewater and transportation infrastructure were available for use during the development of this methodology. For the water, storm drainage, and parks systems, existing planning documents served as the basis of planning and were supplemented with additional projects identified with input from City staff. For each infrastructure system, technical memorandum providing a comprehensive Capital Improvement Project (CIP) List were prepared. These technical memoranda were used to establish the projects and costs used for the SDC calculations contained in this methodology and are included in Appendix A.

This methodology was prepared to present and summarize the methods and systems that have been used to establish public infrastructure SDC's for the City of Adair Village. The SDC methodologies and calculations presented herein are consistent with the framework set forth by the Oregon SDC legislation contained within Oregon Revised Statutes (ORS) 223.297 to ORS 223.314.

1.2 Overview of SDC Methodology

Each of the five infrastructure sectors was analyzed in this methodology and recommendations were prepared for an appropriate and defendable SDC for each. A summary of that effort is provided below.

1.2.1 Water System SDC

The methodology used to establish the Water System SDC is based on the 2001 Water Master Plan, 2006 Master Plan Update, 2008 Technical Memorandum, and 2019 Water System Capital Improvement Project List Memo. Based on an analysis of anticipated project costs and the percentage of the project that accommodated growth, a total SDC eligible project cost has been established.

Population estimates and the City's projected growth rates were used to determine the future number of EDU's that will require additional capacity in the system. The Water System SDC was established by dividing the SDC eligible project costs by the total projected growth in the system. Credits were also calculated to eliminate the potential for double charges that could result from a new user paying both increased user fees in support of a loan to construct new facilities in addition to paying SDC fees for the same facility.

A summary of the SDC methodology for the water system is provided in Table 1.1. The Water System SDC methodology is discussed in detail in Section 3.

TABLE 1.1: WATER SYSTEM SDC SUMMARY

SDC Component	SDC Amount
Improvement Fee (per EDU)	$6,913
Reimbursement Fee (per EDU)	$943
Subtotal of Water System SDC Fees (per EDU)	**$7,855**

SDC Credit Summary	
Upper Range Credit (100% Financing)	$20,348
Mid Range Credit (75% Financing Credit)	$15,261
Mid Range Credit (50% Financing Credit)	$10,174
Low Range Credit (25% Financing Credit)	$5,087

1.2.2 Wastewater System SDC

The methodology used to establish the Wastewater System SDC relies on capital improvement projects identified in the City's 2019 Wastewater Facilities Plan Update (Civil West Engineering Services, Inc., 2019). The projects in the Wastewater System CIP List have been analyzed to

determine the percentage of the project that is dedicated to providing capacity for growth. Based on the analysis, a total SDC eligible project cost was established.

Population estimates and projected growth rates were used to establish the projected or future EDU's that will require additional capacity in the system. The SDC was then calculated by dividing the eligible project costs by the estimated growth potential for the City's wastewater system. Credits were calculated to eliminate the potential for double charges that could result from a new user paying both increased user fees in support of a loan to construct new facilities in addition to paying SDC fees for the same facility.

A summary of the Wastewater System SDC is provided in Table 1.2. Detailed information on the Wastewater System SDC for Adair Village is provided in Section 4 of this methodology.

TABLE 1.2: WASTEWATER SYSTEM SDC SUMMARY

SDC Component	SDC Amount
Improvement Fee (per EDU)	$3,435
Reimbursement Fee (per EDU)	$0
Subtotal of Wastewater System SDC Fees (per EDU)	**$3,435**
SDC Credit Summary	
Upper Range Credit (100% Financing)	$8,898
Mid Range Credit (75% Financing Credit)	$6,673
Mid Range Credit (50% Financing Credit)	$4,449
Low Range Credit (25% Financing Credit)	$2,224

1.2.3 Storm Drainage System SDC

This plan includes a methodology for the Storm Drainage System SDC for the City of Adair Village. At the time this methodology was prepared, the City did not have a Storm Drainage System Master Plan. Projects identified in the previous SDC documentation and information provided by City staff was used to develop the CIP List included in this methodology.

Growth potential in the storm drainage sector was based upon impervious surface methodology. Based on the City's existing Storm Drainage System SDC methodology, it was recommended that the City use a standard of impervious surface as the assessment method for determining

the impact to the storm drainage system by new development. The City currently uses 2,500 square feet of impervious surface as an EDU. Projected growth rates were used to establish the growth potential for the storm drainage system during the planning period. The SDC charge for the storm drainage system was calculated by dividing the SDC eligible project costs by the growth potential within the system.

A summary of the Storm Drainage System SDC is provided below in Table 1.3. A detailed analysis of the Storm Drainage System SDC methodology is provided within Section 5 of this methodology.

TABLE 1.3: STORM DRAINAGE SYSTEM SDC SUMMARY

SDC Component	SDC Amount
Improvement Fee (per EDU)	$305
Reimbursement Fee (per EDU)	$0
Subtotal of Storm Drainage System SDC Fees (per EDU)	**$305**
SDC Credit Summary	
Upper Range Credit (100% Financing)	$790
Mid Range Credit (75% Financing Credit)	$593
Mid Range Credit (50% Financing Credit)	$395
Low Range Credit (25% Financing Credit)	$198

1.2.4 Transportation System SDC

This document includes a methodology for the determination of a Transportation System SDC for the City of Adair Village. A City Transportation System Plan was completed in 2018, and most of the projects and original project costs included on the CIP List were originally identified through that planning document.

An analysis of growth potential was developed within this methodology using the other infrastructure sectors' growth potential for internal trip generation growth and an estimate of external trip generation growth. Furthermore, the Institute of Transportation Engineer's (ITE) trip generation table was used to normalize trip generation for many different land use types to a typical residential dwelling. This allowed for the use of common EDU methodology to calculate growth potential within the system.

The Transportation System SDC was calculated by dividing the SDC eligible project costs by the growth potential in the system. A summary of the Transportation System SDC is provided below in Table 1.4. A detailed analysis of the Transportation System SDC methodology is provided within Section 6 of this methodology.

TABLE 1.4: TRANSPORTATION SYSTEM SDC SUMMARY

SDC Component	SDC Amount
Improvement Fee (per EDU)	$5,765
Reimbursement Fee (per EDU)	$0
Subtotal of Transportation System SDC Fees (per EDU)	**$5,765**

1.2.5 Parks System SDC

This plan includes a methodology for the establishment of an SDC for the City of Adair Village Parks System. The City does not have a Parks System Master Plan; therefore, this methodology was prepared using information provided in previous SDC documentation and with input from City staff. This planning provides the City with a Parks System CIP List and the planning information necessary to determine an updated Parks System SDC.

The growth potential in the parks system was determined to be equivalent to growth in the residential and commercial sectors. The Parks System SDC was calculated by dividing the SDC eligible project cost by the growth potential of the parks system.

Table 1.5 summarizes the Parks System SDC as developed within this methodology. A detailed analysis of the Parks System SDC for the City of Adair Village is provided in Section 7 of this document.

TABLE 1.5: PARKS SYSTEM SDC SUMMARY

SDC Component	SDC Amount
Improvement Fee (per EDU)	$992
Reimbursement Fee (per EDU)	$0
Subtotal of Parks System SDC Fees (per EDU)	**$992**

1.2.6 Compliance Costs

Oregon law allows a utility service provider to use SDC revenues to pay for costs associated with complying with and administering SDC programs. While this is not a separate category, it is acceptable to assess a "compliance charge" when collecting SDC fees.

Acceptable compliance cost activities include accounting and auditing costs, SDC methodology updates and plans, master planning costs, CIP administration costs, and other costs that are determined to be necessary to support and properly manage an SDC program.

It was estimated that the City will face an annual compliance cost of $36,100 related to administration of the SDC programs and maintaining updated infrastructure planning documents. A summary of the estimated SDC compliance expenses is provided below in Table 1.6.

TABLE 1.6: SDC COMPLIANCE EXPENSE SUMMARY

Compliance Activity	Estimated Cost	SDC Eligibility	Frequency (Years)	Annual Cost
General Accounting/Administrative Costs				
Auditing/Accounting	$5,000	100%	1	$5,000
SDC Methodology Administration & Annual Adjustments	$10,000	100%	1	$10,000
SDC Methodology Update	$54,000	100%	10	$5,400
Wastewater System Compliance Costs				
Wastewater Facilities Planning	$80,000	50%	10	$4,000
Water System Compliance Costs				
Water Master Planning	$60,000	50%	10	$3,000
Water Conservation and Management Planning	$25,000	50%	20	$625
Storm Drainage System Compliance Costs				
Storm Drainage Master Planning	$85,000	50%	20	$2,125
Parks System Compliance Costs				
Park System Master Planning	$70,000	50%	20	$1,750
Transportation System Compliance Costs				
Transportation System Master Plan	$84,000	50%	10	$4,200
Subtotal Annual Compliance Costs	**$473,000**			**$36,100**

Collection of funds to pay for these annual SDC compliance costs should be in the form of a percentage surcharge on all SDC's collected. Therefore, an estimate must be made of the revenue that the City is projecting to collect over the planning period. Using the average growth

rate over the planning period, Table 1.7 summarizes the anticipated revenues that are expected for all SDC sectors.

TABLE 1.7: SDC REVENUE ESTIMATE SUMMARY

Estimates of SDC Revenues	Added EDU's EDU's/yr	SDC Charge per EDU	Annual Revenue
Estimated Annual Water SDC Revenues	46.91	$7,855	$368,497
Estimated Annual Wastewater SDC Revenues	46.91	$3,435	$161,133
Estimated Annual Storm Drainage SDC Revenues	46.91	$305	$14,315
Estimated Annual Transportation SDC Revenues	46.91	$5,765	$270,465
Estimated Annual Parks SDC Revenues	46.91	$992	$46,530
Total Estimated SDC Revenues			**$860,941**
Compliance Cost Charge (Annual Cost/Annual Revenue)			**4.19%**

Based on this analysis, an SDC Compliance Charge of 4.19% should be placed on all SDC's to collect adequate funds to properly administer the SDC program for the City of Adair Village.

Section 8 of this methodology includes information and details on the establishment of SDC compliance costs.

1.2.7 SDC Summary for all Infrastructure Sectors

Table 1.8 summarizes the maximum defendable SDC for each infrastructure element as developed within this methodology.

TABLE 1.8: SUMMARY OF SDC'S BY INFRASTRUCTURE SECTOR

Infrastructure Sector	Reimbursement SDC per EDU	Improvement SDC per EDU	Total SDC per EDU
Water System	$942.72	$6,912.52	$7,855.24
Wastewater System	$0.00	$3,434.87	$3,434.87
Storm Drainage System	$0.00	$305.15	$305.15
Transportation System	$0.00	$5,765.50	$5,765.50
Parks System	$0.00	$991.88	$991.88
Total	**$942.72**	**$17,409.92**	**$18,352.64**
		Compliance Charge (4.19%)	$769.54
		Total SDC Charge per EDU	**$19,122.18**

The sum of all separate SDC charges is $18,352.64 per EDU. With the addition of the 4.19% Compliance Charge, the total SDC charge increases to $19,122.18 per EDU. This charge does not include SDC credits which may be appropriate.

1.2.8 Sample SDC Assessment

Residential Customers

A simple example of SDC assessment would be for a new single-family dwelling. The assessment for this new customer would be as follows:

TABLE 1.9: SAMPLE RESIDENTIAL SDC ASSESSMENT

SDC Sector	SDC Charge per EDU
Water System SDC	$7,855
Wastewater System SDC	$3,435
Storm Drainage System SDC	$305
Transportation System SDC	$5,765
Parks System SDC	$992
Subtotal	$18,353
Compliance	$770
Total Residential SDC	**$19,122**

Therefore, a total SDC for an average new residential dwelling would be $19,122. This does not include any potential reductions for SDC credits that may be appropriate, depending on how the City undertakes the various CIP projects in the future.

Non-Residential Customers

Non-residential development requires a case-by-case assessment process. Each section within this methodology includes a discussion of the methods that are to be used to assess new residential and non-residential customers.

Appendix B is a spreadsheet listing various potential land uses in the community, including commercial and residential properties. It shows the SDC charges that may be imposed on the different land uses based on this methodology. Appendix B is intended to provide examples only and potential charges only and should not be used as the definitive SDC charges for any one type of land use.

The City may also allow some new nonresidential customers to appeal their assessment and allow the customer to pay some of the assessment while a study is completed of their actual impact to the system. An example of a potential appeal process is provided in Section 3.11 of this methodology. The burden of paying for and making the case for an appeal should rest on the new customer making the appeal.

1.2.9 SDC Ordinance and Methodologies

The SDC program in Adair Village is established through the municipal ordinance process. The ordinance provides the legal force necessary to govern the administration and operation of the program. A new resolution will be established to set the charge and other details for each SDC infrastructure sector. This approach will allow the City to easily update SDC charges on a regular basis by simply passing a new resolution for the SDC program they wish to adjust. There will be no need to adjust the SDC ordinance in the future. Information on updating and adjusting SDC's is provided in Section 2 of this methodology.

2 INTRODUCTION

2.1 Background and Need

The City of Adair Village owns and maintains a public infrastructure system that includes the following:

- A potable water system with a raw water intake, treatment plant, storage reservoirs, and distribution system to deliver water to users.
- A wastewater system that includes a collection system, pumping stations, a treatment plant, and a river outfall for treated effluent along with the capability to reuse treated water for irrigation.
- A storm drainage system with piping and ditching to convey rainwater runoff from high ground to appropriate outfall locations.
- A transportation system made up of major and minor roads, sidewalks, and other facilities for the purposes of providing transportation throughout the community.
- A parks system with open space and other facilities for recreational purposes.

The City of Adair Village has long had an SDC program in place. In the early 90's, with the passage of new SDC legislation, an SDC methodology was prepared to set up the framework and structure for an ongoing SDC program in Adair Village (by KPFF Consultants). A methodology update also occurred in 2008 (HBH Consulting Engineers).

2.1.1 Summary of SDC Charge Structure in Adair Village

The method currently used by the City was established in 2008. The SDC rates were last adjusted in 2013 (Resolution 2013- #6) to account for changes in costs that had occurred since the adoption of the previous rates in 2008. Under the 2013 Resolution, the City assessed the following SDC's:

1. Wastewater System SDC: The Wastewater System SDC was approximately $3,135.30 per EDU.
2. Water System SDC: The Water System SDC was approximately $6,052.89 per EDU.

3. Storm Drainage System SDC: The 2008 SDC Methodology established a separate Storm Drainage System SDC of approximately $308.61 per EDU plus $0.13 per SF impervious surface.
4. Transportation System SDC: The 2008 SDC Methodology established a separate Transportation System SDC of approximately $1,096.36 per EDU.
5. Parks System SDC: The 2008 SDC Methodology established a Parks System SDC of $316.85 per EDU.

Based on the current method, CIP List, and annual adjustments to cost estimates used to calculated infrastructure system SDCs, the total SDC for a typical residence is approximately $11,235. This information is provided so that the City may compare the final recommendations in this methodology to typical charges prior to the SDC update.

2.2 Oregon SDC Law

The State of Oregon has established statutory law for the development, assessment, and administration of SDC's for local governments, utility districts, and similar agencies. Oregon Revised Statutes (ORS) 223.297 - 223.314 authorizes local governments and service districts to assess SDC's for various infrastructure sectors including sewer, water, storm drainage, streets, and others.

In addition to specifying the infrastructure systems for which SDC's may be assessed, the SDC legislation provides guidelines on the calculation and modification of SDC's, accounting requirements to track SDC revenues, and the adoption of administrative review procedures. A summary of the statutory SDC provisions is provided below:

2.2.1 SDC Structure

SDC's are typically developed around two separate modes or philosophies of SDC logic. They are:

1. Reimbursement SDC
2. Improvement SDC

SDC's can also be assessed based on a combination of reimbursement and improvement charges. In addition to these charges, the statute allows agencies to recover administrative

costs that are necessary to establish, comply with, and administer SDC programs. This methodology refers to these costs as compliance costs.

Reimbursement SDC. A reimbursement SDC is designed to recover capital costs for projects that have already been undertaken. These capital projects must have remaining capacity. Current legislation requires that the reimbursement SDC be established by an ordinance or resolution that sets forth the methodology used to calculate and assess the charge. The methodology must consider several factors when determining an appropriate SDC cost including:

1. The cost of existing facilities when they were constructed or implemented,
2. Remaining capacity available for growth or development use,
3. Prior contributions from existing users,
4. The value of unused capacity,
5. Ratemaking principles employed to finance the capital improvements,
6. Grants or other funding sources that must be subtracted from the eligible costs, and
7. Other relevant factors.

The objective of a reimbursement SDC is that future system users contribute an equitable portion of the capital costs of developing new or recently completed facilities with excess capacity.

An example of how a reimbursement SDC could be utilized is with a recently upgraded or constructed sanitary sewer pump station. Sanitary sewer pump stations are required to be designed and constructed to handle a future (20 or 25 year) projected capacity. The additional cost required for the construction of a new pump station that can not only handle existing flows but future projected flows becomes the SDC eligible portion of the project cost. For example, if a pump station was built five years ago, but has additional capacity available for future growth, the value of the remaining unused capacity of the station can be calculated and assessed as a reimbursement SDC eligible project cost to all new customers who wish to utilize some of the remaining capacity during the remainder of the design period.

Improvement SDC. The improvement fee is designed to recover costs of planned capital improvements as they appear on an adopted capital improvement list or capital improvement plan (CIP). The improvement fee must also be specified in an ordinance or resolution and is subject to the following conditions:

1. The costs of projected capital improvements will increase the capacity of the system.
2. Projects must appear on an approved and adopted CIP list or be added to the list through development review and approval.
3. Projects must serve more than the development for which the SDC is being charged. Specifically, to be considered a "qualified public improvement":
    a. the project is not located on or contiguous to property that is being developed, or
    b. the project is 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 development project to which the improvement fee is related.

Revenues generated from improvement fees must be dedicated to capacity increasing capital improvements or the repayment of debt on such improvements. An increase in capacity is established if an improvement increases the level of service provided by existing facilities or provides new facilities. The portion of such improvements funded by improvement fees must be related to current or projected development.

Combined SDC. In most cases, growth needs due to development will be met through a combination of existing available capacity (Reimbursement SDC) and future capacity enhancing improvements (Improvement SDC). The sum of reimbursement and improvement SDC's is commonly referred to as a combined SDC; however, when utilizing a combined SDC, the methodology must demonstrate that the charge is not based on providing the same capacity-increasing result due to both SDC's. In short, an agency cannot "double-dip" when using a combined SDC. This is usually accomplished by structuring the fee to reflect the weighted average cost of existing and new facilities.

Compliance Costs. Oregon law allows SDC revenue to be used by the assessing agency for costs incurred to comply, administer, study, and update an SDC program. Compliance costs include, but are not necessarily limited to:

1. Auditing and accounting costs
2. Master/Facilities Planning Costs and Planning Updates
3. SDC Methodology Development Costs and Updating of SDC Plans
4. Maintenance of a Capital Improvement Plan (CIP) list

Compliance costs are typically assessed based on a percentage of the overall or maximum anticipated or projected annual SDC revenue. These revenues must be used to maintain or administer an active SDC program. Compliance costs are discussed in Section 8.

2.2.2 SDC Credits

Oregon law requires that an SDC credit be provided against any assessed improvement fee for the construction of "qualified public improvements." Qualified improvements, as discussed above, are improvements that are required as a condition of development approval, are included on the CIP list, and are either:

1. not located on or contiguous to the property being developed, or
2. 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 development project to which the improvement fee is related.

For example, if a new wastewater lift station appears on a CIP list and is required for a specific development to be undertaken, the owner of the development can construct the new lift station and receive an SDC credit for the SDC-eligible portion of the project costs, assuming that the new lift station is needed to serve more customers than are represented by the development alone.

An additional credit must be included in the methodology for the present worth of financing payments that may occur in the future for an undertaken improvement. In short, new users cannot be required to pay SDC's for specific improvements as well as pay increased user rates to pay back loans that were required to construct the improvements. This form of "double-dipping" is overcome by establishing a credit based on the present worth of a potential increase in monthly user rates over a specified period.

2.2.3 Update and Review Requirements

SDC methodology is public information and must be made available for public review.

The SDC ordinance must include procedures and practices for not only the establishment but the modifying and updating of SDC fees. Public agencies must maintain a list of persons and organizations who have made a written request for notification prior to the adoption or amendment of any new or updated SDC fees; however, changes to the SDC rates resulting from:

1. changes to costs in materials, labor, or real property as applied to projects in the required project list, or
2. application of a cost index that considers average change in costs of materials, labor, or real property and is published for purposes other than SDC rate setting (i.e. ENR Construction Cost Index)

are not considered "modifications" to the SDC. As such, the local agency is not required to adhere to the notification provisions.

If changes to the SDC methodology or assessment amounts do represent a modification, the notification provisions in the Oregon law require a 90-day written notice period prior to the first public hearing, with the new SDC methodology available for review at least 60 days prior to the public meeting.

2.2.4 Other SDC Statutory Provisions

Other provisions of the Oregon legislation require:

1. Development of a capital improvement program/plan (CIP) or comparable planning effort that lists the improvements that may be funded with improvement fee revenues and the estimated timing and cost of each improvement. This is usually accomplished through a master planning effort.
2. Deposit of SDC revenues into dedicated and individual accounts and the annual accounting of revenues and expenditures. The annual accounting effort must include a list detailing the amount spent on each project funded, in whole or in part, by SDC revenues, including costs attributed to complying with the SDC legislation.
3. Creation of an administrative appeals procedure, in accordance with the legislation, whereby a citizen or other interested party may challenge any expenditure of SDC revenues.
4. Preclusion against challenging the SDC methodology after 60 days from the enactment of or revision to the SDC ordinance or resolution.

The provisions of the legislation are invalidated if they are construed to impair the local government's bond obligations or the ability of the local government to issue new bonds or other financing. Furthermore, the establishment or modification of an SDC or a project list is not a land use decision issue.

2.3 Capacity Replacement Protocol

It is common to have a system in place that allows a new land use or development to replace an existing land use and provide an adjustment to SDC's.

For example, if someone buys an older house, tears it down, and constructs a new residential home in its place, no new flows or demands are added to the system, and no new capacity is required to service the new residence. Therefore, it would be appropriate to waive SDC fees in this instance.

If someone tears down several old homes to build a new apartment complex, the project must be carefully considered, and an adjustment made, depending on how many new units there will be, how much more impervious surface, etc. compared to the previous land use.

Capacity replacement issues must be handled on a case by case basis and a process developed to allow a fair adjustment when existing capacity use is replaced with a similar land use.

2.4 Public Education and Input to Methodology

A successful SDC methodology update must incorporate a public education and public input component that effectively conveys information to interested and affected groups in the community and allows them a forum to ask questions, voice concerns, and seek resolutions.

2.4.1 SDC Meetings and Public Education

Two public meetings were planned as part of the SDC methodology update process.

1. The first discussion of the SDC methodology update occurred at the May 7, 2019, City Council meeting. The City Engineering team discussed the contents of the Capital Improvement Project Lists for each infrastructure sector.
2. The second discussion of the SDC methodology is tentatively scheduled to occur at the September 3, 2019, City Council meeting. At this meeting the City Engineering team will present the final methodology with updated CIP Lists for the City Council's review and approval. This meeting will only be held after the written SDC methodology has been available for review by the public for at least 60 days.

2.5 Report Organization

The following sections comprise this City of Adair Village SDC Methodology as presently constituted:

- **Section 1 – Executive Summary**. This section provides a brief overview and summary of the SDC Plan and is intended to provide the reader with the important facts and finding contained in the plan.
- **Section 2 – Introduction**. This section provides information on the background of SDC's in Adair Village, related efforts for other infrastructure areas, and the legal and statutory background for the establishment of SDC's within the State of Oregon.
- **Section 3 – Water System SDC Methodology.** This section provides a detailed accounting of the Water System SDC methodology.
- **Section 4 – Wastewater System SDC Methodology.** This section provides a detailed accounting of the Wastewater System SDC methodology.

- **Section 5 – Storm Drainage System SDC Methodology.** This section provides a detailed accounting of the Storm Drainage System SDC methodology.
- **Section 6 – Transportation System SDC Methodology.** This section provides a detailed accounting of the Transportation System SDC methodology.
- **Section 7 – Parks System SDC Methodology.** This section provides a detailed accounting of the Parks System SDC methodology.
- **Section 8 – Compliance Costs.** This section provides a detailed accounting and methodology for the establishment of a compliance cost for the maintenance of SDC programs for all the SDC methodologies.
- **Appendix**. The Appendix includes information that is referenced in this study but is not included in the referenced planning documents.

3 WATER SYSTEM SDC METHODOLOGY

3.1 Introduction

This section describes in detail, the methodology and SDC calculation for the potable water system for the City of Adair Village, Oregon. This section describes the existing and future demand requirements of the system, the projects and project costs developed to address deficiencies and satisfy future demand needs, existing and future equivalent dwelling units for the assessment of the SDC's, and a calculation of the maximum defendable SDC's per EDU.

3.2 Water System Overview

The City's Water System Master Plan (December 2001 & November 2006 Update, HBH Consulting Engineers, Inc) has been used in part to establish present and future water demand, system capacity, improvement project development, project costs, and other information that will be used in this methodology.

Between 2006 and 2008, several changes in the water system took place that required the review of some of the analysis and recommendations in the 2006 Master Plan Update. Changes included the loss of the supply relationship with the Dumbeck Water District, the cancellation of planned projects located outside the UGB (Daystar, etc.) and other planning changes. To account for these changes, a technical memorandum (HBH Consulting Engineers, Inc.) was prepared to review and adjust the population and EDU projections in the 2006 update and update the project costs that are affected by a change in the population projections.

Growth of the City has continued since the completion of that 2008 technical memorandum and additional planning projects have been identified to help address deficiencies in the potable water system. In May 2019, a technical memorandum was prepared (Civil West Engineering Services, Inc.) that summarized all the recommended water system improvements and codified a formal Capital Improvement Project List for the water system. The CIP List forms the basis for the establishment of the SDC described herein.

This section summarizes information about the potable water system at the time this methodology was prepared.

3.2.1 Overall Water System Description

The water treatment and distribution system in Adair Village includes a number of separate elements to obtain, treat, and distribute water to individual customers for domestic consumption. A brief overview of the different system elements is provided below.

Source. The Willamette River is the sole source of raw water for the City. A large intake is located within Hyak Park that includes screening, pumping, and control facilities. The raw water intake and screen were modified in 2017 in coordination with the Oregon Department of Fish and Wildlife (ODFW). Water is pumped from the intake to the water treatment facility site located on the north side of OR 20 opposite Hyak Park.

The City currently holds water rights on the Willamette River in the following forms:

1. 3.0 cfs certificated right (priority date November 7, 1941)
2. 82 cfs permitted right

This significant water right has been the topic of much discussion in recent years regarding the potential for the City to provide raw and/or treated water to a more regional area.

Treatment. The existing water treatment facility was constructed in 1942. The original capacity of the plant is reported to be around 8 MGD, though the plant is rarely operated over 1 MGD. The plant uses chemical coagulation, flocculation, multi-media filtration, and disinfection for the treatment of raw water.

While the treatment facility is oversized for its current population and the loading on the facilities is relatively low, the plant is antiquated which reduces the advantage of the low loading conditions. This results in a facility that is difficult for staff to operate and maintain.

Distribution. Water is pumped from the treatment plant clearwell through nearly 11,000 feet of waterline to storage tanks located on Voss Hill. Water then flows by gravity into the distribution piping. More than 14 miles of piping are used to deliver water to system customers. From Voss Hill, the distribution system consists of two principle branches. One branch exits Voss Hill to the northwest and conveys water to the City. A second branch exits Voss Hill to the north and conveys water to a few customers located outside of the City's Urban Growth Boundary (UGB) and to Camp Adair Road. The principal water customer on this line is Republic Services which draws water for operations at its Coffin Butte Landfill and Pacific Region Compost Facility, both located just north of Adair Village.

Leakage and unaccounted water have historically been significant in the system. Many large leaks have been repaired in recent years, reducing the lost water percentages. System flow meters were installed during a recent water system improvement project that can be used to help the City compare meter flows to water sales and facilitate the identification of water loss locations. All services are metered, and billing is performed on a monthly basis.

Storage. The City operates three treated water storage tanks within the distribution system, totaling ~2.5 million gallons (MG). A summary of each tank is provided below:

Voss Hill Reservoirs - The Voss Hill reservoirs consist of two glass-fused-to-steel reservoirs that were constructed in 2016/2017. Each reservoir provides slightly more than 1 MG of potable water storage capacity. These reservoirs replaced an existing in-ground concrete reservoir that had an approximate capacity of 1 MG and was believed to be a large contributor to the City's water loss issues.

Hospital Hill Reservoir – The Hospital Hill reservoir is an underground concrete tank constructed in the early 1940's with an approximate capacity of 0.5 MG. A new roof structure was added in 2004, and a liner was installed in the structure in 2016/2017 to reduce water loss.

Operational problems persist with the Hospital Hill Reservoir water elevation sitting slightly lower in the tank than the design high-water capacity when the Voss Hill Reservoirs are at full

capacity. This decreases the amount of usable storage capacity from the design storage capacity for the facility.

3.2.2 Population and Population Projections

The water consuming population in Adair Village includes primarily residential customers with a few institutional and commercial accounts. The City currently provides water to facilities inside of the Urban Growth Boundary (UGB) and outside of the UGB.

Population growth projections were completed using information from multiple sources. According to the 2017 Portland State University Population Research Center (PSU PRC) Coordinated Population Forecast for Benton County, the County is projected to experience an annual average growth rate of 1.0% per year until 2035 followed by a reduction of the growth rate to 0.4% until 2067. The PSU PRC Coordinated Population Forecast also provides projected average annual growth rates for the Adair Village UGB. For 2017 through 2035, the City is projected to experience an average annual growth rate of 4.4% followed by a decrease in the growth rate to 0.3% through the remainder of the forecast period.

The 2010 population for the City of Adair Village was 840 persons according to the 2010 Census data. Prior to the economic recession, the City worked to expand the UGB in anticipation of a planned development which would include 18 acres north of the City and 146 acres south of the City. While the recession halted progress on the original development, new development is currently planned or in construction. Per Section 9.800 of the City of Adair Village Comprehensive Plan (adopted April 7, 2015), a 2026 forecasted population of 2,814 was adopted for the City. For the population living within the Adair Village UGB, this document assumes that the 2026 population will be 2,814 persons. It was assumed that the population growth rate would increase at a constant annual average growth rate from 2019 through 2026. After achieving the anticipated 2026 population adopted in the Adair Village Comprehensive Plan, this document assumes that population growth within the Adair Village will occur at the same rate as is anticipated for growth of the Benton County population. The growth rate was then decreased to 0.4% for 2036 through 2039 to match the projected Benton County growth rate during that time period. Historic population data and annual population projections for the Adair Village UGB are presented in Table 3.1.

TABLE 3.1: HISTORIC AND PROJECTED POPULATION INFORMATION FOR THE CITY OF ADAIR VILLAGE

	Year	Population	Growth from Previous Year (%)	Basis of Determination
Certified Pop. Estimates	2010	840		PSU PRC- 2010 Estimates Revised (Pop.)
	2011	840	0.00	PSU PRC- 2011 Estimates (Pop.)
	2012	845	0.60	PSU PRC- 2012 Estimates (Pop.)
	2013	845	0.00	PSU PRC- 2013 Estimates (Pop.)
	2014	845	0.00	PSU PRC- 2014 Estimates (Pop.)
	2015	845	0.00	PSU PRC- 2015 Estimates (Pop.)
	2016	845	0.00	PSU PRC- 2016 Estimates (Pop.)
	2017	850	0.59	PSU PRC- 2017 Estimates (Pop.)
	2018	860	1.18	PSU PRC- 2018 Estimates (Pop.)
Projected Pop.	2019	997	15.97	AAGR calculated from 2018 and 2026 Populations
	2020	1,157	15.97	AAGR calculated from 2018 and 2026 Populations
	2021	1,341	15.97	AAGR calculated from 2018 and 2026 Populations
	2022	1,556	15.97	AAGR calculated from 2018 and 2026 Populations
	2023	1,804	15.97	AAGR calculated from 2018 and 2026 Populations
	2024	2,092	15.97	AAGR calculated from 2018 and 2026 Populations
	2025	2,426	15.97	AAGR calculated from 2018 and 2026 Populations
	2026	2,814	15.97	Adair Village Comprehensive Plan Section 9.800 (Pop.)
	2027	2,842	1.00	2017 PSU PRC Coord. Pop. Forecast- Benton Co. (AAGR)
	2028	2,871	1.00	2017 PSU PRC Coord. Pop. Forecast- Benton Co. (AAGR)
	2029	2,899	1.00	2017 PSU PRC Coord. Pop. Forecast- Benton Co. (AAGR)
	2030	2,928	1.00	2017 PSU PRC Coord. Pop. Forecast- Benton Co. (AAGR)
	2031	2,958	1.00	2017 PSU PRC Coord. Pop. Forecast- Benton Co. (AAGR)
	2032	2,987	1.00	2017 PSU PRC Coord. Pop. Forecast- Benton Co. (AAGR)
	2033	3,017	1.00	2017 PSU PRC Coord. Pop. Forecast- Benton Co. (AAGR)
	2034	3,047	1.00	2017 PSU PRC Coord. Pop. Forecast- Benton Co. (AAGR)
	2035	3,078	1.00	2017 PSU PRC Coord. Pop. Forecast- Benton Co. (AAGR)
	2036	3,090	0.40	2017 PSU PRC Coord. Pop. Forecast- Benton Co. (AAGR)
	2037	3,102	0.40	2017 PSU PRC Coord. Pop. Forecast- Benton Co. (AAGR)
	2038	3,115	0.40	2017 PSU PRC Coord. Pop. Forecast- Benton Co. (AAGR)

Unlike other infrastructure systems, the City's potable water system also serves connections outside of the City's UGB. Growth occurring in the area served by the City's water system but not inside of the UGB was assumed to occur at the same rate as the projected growth rates for areas of Benton County outside of UGBs. Those growth rates and the associated time periods are listed in Table 3.2.

TABLE 3.2: FORECASTED POPULATION GROWTH RATES FOR BENTON COUNTY NON-UGB AREAS

Forecasted Growth Rates		
	2017-2035	2035-2067
Benton Co. AAGR (Outside UGBs)	0.1%	-0.3%
Source: PSU PRC Coordinated Population Forecast		

It was assumed that growth in residential and non-residential water usage in the area outside of the UGB would occur at the same rates.

3.3 EDU Methodology and Projected Growth

Local water system capacity is commonly defined using a system that seeks to reduce or convert all customer categories, including residential and non-residential categories, to a common denominator referred to as an equivalent dwelling unit or EDU. An equivalent dwelling unit represents the demand or quantity of water required daily by an average residential connection within the system. The cumulative demand or impact on the system generated by all the users can therefore be expressed in terms of a multiple of EDU's.

An example of using the EDU method to describe non-residential water use follows:

> A restaurant is a non-residential water customer that uses more water than a typical household. A review of the water records for a particular restaurant may show that, over a period of time (a typical yearly operation) that the restaurant used as much water as 14 average residential customers in the community. Therefore, it can be said that the restaurant's water use or water demands are equivalent to 14 residential dwellings. More simply, the restaurant is equal to 14 EDU's. This value can be used to calculate and compare the regular water use at the restaurant, or any non-residential customer, to the water use in the residential sector of the system.

To project growth in the number of EDU's it is assumed that the EDU growth rate will equal the population growth rate. This logic assumes that all sectors in the community will grow at a rate equal to that of the residential population. Under this assumption, it is anticipated that, for example, commercial enterprises will expand in response to population growth and job creation to service a growing population.

To calculate the amount of growth EDU's, the number of existing water system EDU's was established. This was accomplished using water system records for the City in 2018.

According to an analysis of utility account billing codes, it was estimated that 311 residential water connections are located inside of the City's Urban Growth Boundary. In 2018, these

connections purchased a combined 19,505,126 gallons of potable water. This equates to an annual usage of 62,717 gallons per residential connection and an average monthly usage of 5,226 gallons.

$$EDU\ (Annual\ Basis) = \frac{19{,}505{,}126\ \frac{gallons}{year}}{311\ Residential\ Connections} = 62{,}717\ \frac{gallons}{year\ \times residential\ connection}$$

$$EDU\ (Monthly\ Basis) = \frac{62{,}717\ \frac{gallons}{year\ \times residential\ connection}}{12\ \frac{months}{year}}$$

$$= 5{,}226\ \frac{gallons}{month\ \times residential\ connection}$$

Water sales records indicate that 45,376,899 gallons of potable water was sold system-wide in 2018. This is the equivalent of 723.51 EDUs.

Projecting increases in EDUs was accomplished by separately projecting the growth in EDUs inside and outside of the Adair Village UGB using an average annual growth rate established from the growth rates presented in Table 3.1 and Table 3.2. Given the low growth rates for areas outside of the UGB, a growth rate of 0.00% was selected. While this projects no growth to occur, it does not preclude the City from adding water system connections outside of the UGB if presented the opportunity.

Based on this analysis approach, it is projected that an additional 938.22 EDU's will be added to the water system over the planning period. The complete calculations of the water system EDU growth projections are presented in Appendix C.

3.4 Capital Improvement Project List and Project Costs

An integral component in this Water System SDC methodology is the establishment of a Water System Capital Improvement Project (CIP) list. The CIP List includes past and future projects along with their actual or estimated project costs. Projects on the CIP List that have been completed form the basis for reimbursement SDC's as defined in Section 2. Projects that remain to be completed will form the basis for improvement SDC's.

Several water system projects were developed and presented in the City's 2001 Water Master Plan (WMP) and 2006 WMP Update. Some project costs and recommendations were revisited within the May 2008 Technical Memorandum. These documents were used to develop the CIP List for this methodology. Additional bridge planning was completed in the spring of 2019 to identify additional water system projects that the City should undertake.

The City of Adair Village Water System CIP List was taken from the Technical Memorandum provided in Appendix A and is provided below in Table 3.3. The Water System Master CIP List should be updated regularly as new needs arise or additional planning work is completed. Similarly, projects that are no longer needed should be removed from the CIP list.

TABLE 3.3: WATER SYSTEM CAPITAL IMPROVEMENT PROJECT LIST

Project No.	Project Description	Project Cost Estimate	Project Cost Date	ENR CCI of Estimate	Current ENR CCI	Adjusted Cost Estimate
W1	Raw Water Intake Pump Station Improvements	$214,755	Nov-06	7910.81	11227.88	$304,804
W2	Raw Water Intake Pump Station Building Improvements	$56,860	Nov-06	7910.81	11227.88	$80,702
W3	Raw Water Transmission Pipe Replacement	$193,530	Nov-06	7910.81	11227.88	$274,679
W4	Water Treatment Facility	$4,314,960	May-08	8140.61	11227.88	$5,951,379
W5	Service Pump Replacement	$172,360	Nov-06	7910.81	11227.88	$244,632
W6	Transmission Line Replacement, WTP to Voss Hill Reservoirs	$1,791,710	Nov-06	7910.81	11227.88	$2,542,989
W7	Transmission Line Replacement, Voss Hill Reservoirs to City	$1,134,590	Nov-06	7910.81	11227.88	$1,610,333
W8	Vandenberg Avenue Loop Piping	$66,720	Nov-06	7910.81	11227.88	$94,696
W9	Hospital Hill Booster Pump Station	$122,009	Mar-19	11227.88	11227.88	$122,009
W10	Valve Installation Near SAGE and Santiam Christian School	$60,000	Mar-19	11227.88	11227.88	$60,000
Total						**$11,286,223**

The CIP List indicates the date when the original project cost estimate was prepared. Another column is provided indicating the corresponding Engineering News Record Construction Cost Index (ENR Index) for the original cost estimate. The ENR Index value is updated monthly to adjust for inflation, material and labor costs, changes in the industry, and other factors that affect the cost of engineering and construction efforts.

As significant increases in material and construction costs have occurred since the original estimate was prepared, costs have been increased based on the current ENR Index value. In the future, costs on the CIP can be updated using current ENR Index values.

3.5 Project SDC Eligibility

The SDC methodology must include a discussion of the percentage of each project's cost that can be attributed as necessary for growth and is SDC eligible. SDC's must be based on a

project's costs or the portion of a project's cost that is necessary to add system capacity in response to or in anticipation of growth.

When determining what percentage of a project should be considered SDC eligible, the existing capacity needs must be compared to the anticipated future capacity needs. For example, if a project is developed to provide a 50% increase in capacity to an element of the water treatment or distribution system, 50% of the project costs would be considered SDC eligible. If a project is developed to provide service to a new area not currently served by municipal water and where development is expected to occur, the project could be 100% SDC eligible.

Using this approach, all the projects presented in Section 3.4 were reviewed to determine SDC eligibility. For projects already completed, the actual project costs were used to determine eligible SDC reimbursement costs. For projects that have not been completed, costs have been increased from the estimated dollar amount presented in the original planning document to current (2019) dollars using the ENR Construction Cost Index. The SDC eligibility determination for each project included on the Water System CIP List is included below.

Project W1- Raw Water Intake Pump Station Improvements

Recommended SDC Eligibility for Project W1: 72%

The 2006 Water System Master Plan Update recommends replacing the existing raw water intake pumps with larger capacity pumps. Given that all residents will benefit equally from the improved infrastructure, it was determined that the SDC eligibility for the project should be based on the increase from the present population (Year 2018: 860 people) to the planning year population (Year 2038: 3,115 people).

$$Project\ W1\ SDC\ Eligibility = \frac{3115\ people - 860\ people}{3115\ people} = 0.72\ \rightarrow 72\%\ Eligible$$

Project W2- Raw Water Intake Pump Station Building Improvements

Recommended SDC Eligibility for Project W2: 0%

This project is intended to improve the building where the raw water intake pumps are located. Work associated with this project is intended to be maintenance oriented and will not result in capacity increases. Therefore, this project does not qualify for SDC funding.

Project W3- Raw Water Transmission Pipe Replacement

Recommended SDC Eligibility for Project W3: 72%

This project increases the size of the transmission line between the raw water intake pumps and the water treatment plant to limit flow velocities through the pipe once larger capacity pumps are installed. Like Project W1, all residents will benefit equally from the improved infrastructure and increased capacity; therefore, it was determined that the SDC eligibility for the project should be based on the increase from the present population (Year 2018: 860 people) to the planning year population (Year 2038: 3,115 people).

$$Project\ W3\ SDC\ Eligibility = \frac{3115\ people - 860\ people}{3115\ people} = 0.72\ \rightarrow 72\%\ Eligible$$

Project W4- Water Treatment Facility

Recommended SDC Eligibility for Project W4: 72%

This project is intended to improve the operational capacity of the existing water treatment facility. Given that all residents will benefit equally from the improved infrastructure, it was determined that the SDC eligibility for the project should be based on the increase from the present population (Year 2018: 860 people) to the planning year population (Year 2038: 3,115 people).

$$Project\ W4\ SDC\ Eligibility = \frac{3115\ people - 860\ people}{3115\ people} = 0.72\ \rightarrow 72\%\ Eligible$$

Project W5- Service Pump Replacement

Recommended SDC Eligibility for Project W5: 72%

This project would replace the service pumps with larger capacity pumps to convey potable water from the water treatment plant to the Voss Hill Reservoirs. Given that all residents will benefit equally from the improved infrastructure, it was determined that the SDC eligibility for the

project should be based on the increase from the present population (Year 2018: 860 people) to the planning year population (Year 2038: 3,115 people).

$$Project\ W5\ SDC\ Eligibility = \frac{3115\ people - 860\ people}{3115\ people} = 0.72\ \rightarrow 72\%\ Eligible$$

Project W6- Transmission Line Replacement, WTP to Voss Hill Reservoirs

Recommended SDC Eligibility for Project W6: 61%

The 2006 Water System Master Plan recommends increasing the size of the transmission line between the water treatment plant and the Voss Hill Reservoirs from a 10" diameter pipe to a 16" diameter pipe. The percentage of the project eligible for SDC funding was determined to be equivalent to the increased area in the pipe available for flow as calculated below.

$$Project\ W6\ SDC\ Eligibility = \frac{\frac{\pi}{4}(16")^2 - \frac{\pi}{4}(10")^2}{\frac{\pi}{4}(16")^2} = 0.61\ \rightarrow 61\%\ Eligible$$

Project W7- Transmission Line Replacement, Voss Hill Reservoirs to City

Recommended SDC Eligibility for Project W7: 0%

According to the 2006 Water System Master Plan Update, the size of this section of pipe does not need to be increased if additional primary water storage improvements are completed. The new Voss Hill Reservoirs (Project W12) were completed in 2017. Therefore, replacing of this section of piping should be completed due to the age of the pipe (~60 years) and not due to inadequate capacity. For this reason, the project SDC eligibility is 0%.

Project W8- Vandenberg Avenue Loop Piping

Recommended SDC Eligibility for Project W8: 20%

This project replaces existing piping and eliminates dead-end pipes on Vandenberg Avenue. This project will help facilitate the development planned for the area south of Santiam Christian School. Therefore, SDC eligibility for this project was estimated at 20%.

Project W9- Hospital Hill Booster Pump Station

Recommended SDC Eligibility for Project W9: 0%

This project replaces an existing booster pump station that was previously used to fill the Hospital Hill Reservoir. This project was estimated to be 0% SDC eligible because the project replaces existing pumping capacity rather expanding pumping capacity.

Project W10- Valve Installation near SAGE and Santiam Christian School

Recommended SDC Eligibility for Project W10: 20%

The installation of valving on water lines near SAGE and Santiam Christian School will improve operating conditions of the water system near that area of town and facilitate growth near the Santiam Christian School property that is slated for development. Therefore, SDC eligibility for this project was estimated at 20%.

Project W11- Primary Water Storage Improvements

Recommended SDC Eligibility for Project W11: 52%

This project was constructed in Fall 2016 through Spring 2017. The existing ~1,000,000-gallon concrete Voss Hill Reservoir was replaced with 2- 1,040,574-gallon glass-fused to-steel reservoirs. This project provides 1,081,148 gallons of potable water storage in excess of what was previously available at Voss Hill. The cost associated with constructing that excess volume is the cost eligible for reimbursement SDC funding. The total project cost was $2,066,372. Funding for the project was part of a $2.84 million funding package that included $500,000 in grant funding. Grant funding accounted for ~17.6% of the total funding package; therefore, it was assumed that grant funding provided 17.6% to the costs of this project. The revised total project cost considering grant funding was reduced to $1,702,574. The percentage of the project capacity available to accommodate growth was determined as follows.

$$Project\ W11\ SDC\ Eligibility = \frac{2{,}081{,}148\ gal - 1{,}000{,}000\ gal}{2{,}081{,}148\ gal} = 0.52\ \rightarrow 52\%\ Eligible$$

Project W12- Secondary Water Storage Improvements

Recommended SDC Eligibility for Project W12: 0%

This project only maintained existing capacity (0.5 MG of potable water storage) and did not further expand capacity to accommodate growth. Therefore, 0% of this project is eligible for SDC funding.

Table 3.4 below summarizes all the projects on the CIP List and lists the SDC eligibility and percentages for each project.

TABLE 3.4: WATER SYSTEM PROJECT SDC ELIGIBILITY SUMMARY

Project No	Project Description	Adjusted Cost Estimate	Reimbursement SDC Eligible (Y/N)	Improvement SDC Eligible (Y/N)	% SDC Eligible	SDC Eligible Cost
W1	Raw Water Intake Pump Station Improvements	$304,804	N	Y	72%	$220,652
W2	Raw Water Intake Pump Station Building Improvements	$80,702	N	N	0%	$0
W3	Raw Water Transmission Pipe Replacement	$274,679	N	Y	72%	$198,845
W4	Water Treatment Facility	$5,951,379	N	Y	72%	$4,308,301
W5	Service Pump Replacement	$244,632	N	Y	72%	$177,093
W6	Transmission Line Replacement, WTP to Voss Hill Reservoirs	$2,542,989	N	Y	61%	$1,549,634
W7	Transmission Line Replacement, Voss Hill Reservoirs to City	$1,610,333	N	N	0%	$0
W8	Vandenberg Avenue Loop Piping	$94,696	N	Y	20%	$18,939
W9	Hospital Hill Booster Pump Station	$122,009	N	N	0%	$0
W10	Valve Installation Near SAGE and Santiam Christian School	$60,000	N	Y	20%	$12,000
W11	Primary Water Storage Improvements (Voss Hill Standpipes)	$1,702,574	Y	N	52%	$884,481
W12	Secondary Water Storage Improvements	$133,380	N	N	0%	$0
Total						**$7,369,945**

3.6 Water System Reimbursement SDC

Oregon Law includes provisions for a reimbursement SDC to be developed for projects that have been completed and that have remaining capacity available to service growth. This section will establish the methodology and the charge for water system reimbursement SDC's in Adair Village.

A summary of the recommended reimbursement SDC for existing water system improvements is provided below:

TABLE 3.5: WATER SYSTEM REIMBURSEMENT SDC SUMMARY

Project No.	Project Description	SDC Eligible Cost
W11	Primary Water Storage Improvements (Voss Hill Standpipes)	$884,481
	Total Reimbursement Eligible Costs	$884,481
	Total Water System Growth EDUs	938.22
	Maximum Water System Reimbursement SDC	**$943**

Therefore, based on this methodology, the reimbursement SDC component for the water system should not exceed approximately $943.

3.7 Water System Improvement SDC

Calculation of the improvement SDC is based upon the methodology and the establishment of the SDC eligible project costs as outlined in Section 3.5. The following table provides a summary of the total cost of SDC eligible projects on the CIP that have not yet been constructed.

Table 3.6 presents the calculation used to establish the improvement SDC for the Adair Village water system.

TABLE 3.6: WATER SYSTEM IMPROVEMENT SDC SUMMARY

Project No.	Project Description	SDC Eligible Cost
W1	Raw Water Intake Pump Station Improvements	$220,652
W3	Raw Water Transmission Pipe Replacement	$198,845
W4	Water Treatment Facility	$4,308,301
W5	Service Pump Replacement	$177,093
W6	Transmission Line Replacement, WTP to Voss Hill Reservoirs	$1,549,634
W8	Vandenberg Avenue Loop Piping	$18,939
W10	Valve Installation Near SAGE and Santiam Christian School	$12,000
	Total Improvement Eligible Costs	$6,485,465
	Total Water System Growth EDUs	938.22
	Maximum Water System Improvement SDC	**$6,913**

Therefore, based on this methodology, the improvement components of the Adair Village water system SDC should not exceed approximately $6,913.

The combined SDC including improvement and reimbursement eligible projects totals $7,855 not including adjustments for SDC credits or compliance costs.

3.8 Water System SDC Credits

An analysis of potential SDC credits is included as part of this SDC methodology. Credits may be appropriate to offset financing costs that will be paid by all system customers including new customers. Credits are also appropriate for developers who construct or otherwise provide improvements to the system that are part of the current CIP List. A brief description of a few potential SDC credit scenarios is provided below.

3.8.1 Improvement Offset Credit

In the case of a developer completing some or all of a CIP List project, the credit provided should be equal to the value of the improvement made, though the credit cannot exceed the SDC amount that the developer would have been required to pay.

For example: Assume that a developer undertakes a subdivision that would require him to pay $200,000 in SDC fees for the water system. This same developer elects to construct a new waterline to service his development. As the waterline is part of the City's Water System CIP List, the developer's efforts make him eligible to receive an SDC credit for the improvements that he completed. If we assume the actual project cost to install the waterline is around $300,000, the developer is only eligible to receive SDC credits up to the $200,000 that he would have paid into SDC's.

It should be noted that determination of improvements offset credits can require some judgment as development situations can vary. The City should maintain an open policy when working with developers to identify a fair and reasonable offset credit when it applies. It should also be reiterated that offset credits are not available for improvements undertaken by the developer that do not appear on the City's CIP List and are not part of the SDC methodology.

3.8.2 Financing Credit

Financing credits should be applied to SDC's so that new users who are assessed an SDC do not end up paying twice due to new debt loads incurred by the City to undertake improvements or portions of improvements intended to increase system capacity. As growth-related debt service may be repaid with SDC revenue, it is critical that the users who have paid SDC's receive an appropriate credit for the present value of rate increases that will likely be imposed for the purposes of paying back debt.

Establishing a precise financing credit for Adair Village is difficult as it is not currently known to what level the City will elect to undertake projects, how those projects will be funded, or what percentage of the project funding will require a rate increase.

It would be appropriate to provide a credit to new customers to offset the "double-dip" effects of paying an increased rate to payback a loan supporting the SDC-eligible portion of a project in addition to paying the SDC itself. For example:

Assume the City undertakes a $1,000,000 project to construct a new facility. It is determined that the project is 50% SDC eligible and the other half of the project will be paid through a loan. The terms of the loan are as follows:

Term: 20 years (240 months)

Rate: 5%

Principal: $1,000,000 with $500,000 being SDC eligible

Number of EDU's setting rate of payback: Existing customer base or 640 EDU's

Assuming the City obtains the $1,000,000 loan, a monthly rate increase of around $10.31 per EDU would be required. Approximately $5.15 of that increase would be to cover the SDC eligible portion of the project. New customers would be charged an SDC to pay for their share of the SDC eligible portion of the project.

To avoid charging a rate increase in addition to an SDC, a present worth analysis of the $5.15 portion of the rate increase should be completed and a credit established. The amount of the credit will vary depending on the period of time in the planning period that the new customer joins the system and begins paying the higher rates. A range of potential credits for this example scenario is discussed below:

1. *A new customer joins the system early in the planning period and has nearly 20 years of increased rate payments in front of them. In this case, the present worth of a $5.15 per month rate increase over 20 years (at 5% interest) is around $780.*
2. *A new customer joins the system in the middle of the planning period with only 10 years of increased payments in front of them. Under this scenario, the present worth of a $5.15 rate increase over 10 years (at 5% interest) is around $486.*
3. *A new customer joins the system toward the end of the planning period with only 5 years remaining in the 20-year planning cycle. Under this scenario, the present worth of a $5.15 rate increase over the remaining 5 years (at 5% interest) is around $273.*

The amount of the credit that would be appropriate to offset the "double-dip" effect of a rate increase and an SDC varies with the following:

1. *The amount of the loan and the resulting rate increase required to pay it back*
2. *The percentage of SDC eligibility for a specific project*
3. *The number of years remaining within the planning period or the remaining term left on the loan payback*

Should the City elect to offer an SDC credit to offset a "double-dip" effect, a credit schedule should be established once a project is undertaken, a loan obtained, and a rate increase set to pay back the loan. A simple schedule can be established that varies based on years or months of time into the loan terms. When a new customer joins the system, the City can simply review the credit schedule for each affected project and total up each credit depending on the month that the new customer joins the system.

3.9 Water System SDC Summary

Section 3 has been developed to provide the City of Adair Village with the methodology needed to establish the maximum allowable SDC's for the water treatment and distribution system. The following table provides a summary of the information used to complete this analysis. The SDC credit summary calculations were completed assuming a 3% annual interest rate.

TABLE 3.7: WATER SYSTEM SDC SUMMARY PER EDU (BEFORE COMPLIANCE COSTS)

SDC Component	SDC Amount
Improvement Fee (per EDU)	$6,913
Reimbursement Fee (per EDU)	$943
Subtotal of Water System SDC Fees (per EDU)	**$7,855**

SDC Credit Summary	
Upper Range Credit (100% Financing)	$20,348
Mid Range Credit (75% Financing Credit)	$15,261
Mid Range Credit (50% Financing Credit)	$10,174
Low Range Credit (25% Financing Credit)	$5,087

The maximum defendable SDC for the water treatment and distribution system is $7,855 per EDU without the application of an SDC credit or SDC compliance costs. It should be reiterated that this calculation only represents the maximum SDC's that can be assessed and defended

with proper methodology. The City has the autonomy to charge less than this amount if desired; however, if adequate SDC's are not collected and projects must be undertaken to satisfy growth requirements, funds will have to be obtained from sources such as user rate increases.

3.10 Water System SDC Assessment Schedule

The Water System SDC recommended in Section 3.9 is based on a cost per EDU or cost per single residential dwelling. For most non-residential developments, a plan review must be performed to determine the equivalent number of EDU's the development will require.

The following tables should be used to assess Water System SDC's for both residential and non-residential customers who wish to connect to the Adair Village water system.

TABLE 3.8: ASSESSMENT SCHEDULE FOR WATER AND WASTEWATER SYSTEM SDC'S

Enterprise	Number of EDU's	Units
Apartments	0.75	per dwelling unit (EDU)
Apparel Store	0.2	per 1,000 ft²
Athletic Club	0.3	per 1,000 ft²
Auto Care	0.1	per service bay
Auto Parts Sales	0.2	per 1,000 ft²
Auto Sales	0.2	per 1,000 ft²
Bank, Drive-in	0.3	per 1,000 ft²
Bank, Walk-in	0.3	per 1,000 ft²
Building Material and Lumber Store	0.2	per 1,000 ft²
Cab Company	0.2	per 1,000 ft²
Car Wash, Automated	na	See meter sizing assessment in Table 3.9
Car Wash, Self Service	0.7	per stall
Cemetery	0.2	per 1,000 ft²
Church	0.2	per 1,000 ft²
Community/Junior College	1	Per 250 gross square ft²
Convenience Market (Open 24 Hours)	0.2	per 1,000 ft²
Convenience Market (Open 15-16 Hours)	0.2	per 1,000 ft²
Convenience Market with Gasoline Pumps	0.2	per 1,000 ft²
	0.1	per pump
Day Care	0.2	per student
Drinking Establishment	0.7	per 1,000 ft²
Furniture Store	0.2	per 1,000 ft²
Hardware/Paint	0.2	per 1,000 ft²
Health/Fitness Club	0.3	per 1,000 ft²
Hospital	1	See meter sizing assessment in Table 3.9
Industrial	1	See meter sizing assessment in Table 3.9
Library	0.2	per 1,000 ft²
Lodge/Fraternal	0.3	per 1,000 ft²
Manufacturing	0.2	per 1,000 ft²
Medical/Dental Office	0.4	per 1,000 ft²
Mini-warehouse Storage and warehouses	0.1	per 1,000 ft²
Mobil Home Park	0.75	Per dwelling unit
Motel (not including laundry facilities or pools)	0.3	per room
Nursery Garden Center	0.2	per 1,000 ft²
Nursing Home	0.3	per bed
Office Building	0.2	per 1,000 ft²
Retail establishment, shopping center, grocery, etc.	0.2	per 1,000 ft²
Post Office	0.2	per 1,000 ft²
Quick Lubrication Vehicle Stop	0.1	per bay
Recreational Facility, Multipurpose	0.3	per 1,000 ft²
Restaurant, any type	4	per 1,000 ft²
Schools	1.4	Per 250 gross square ft²
Service Station	0.1	per bay
Service Station w/Convenience Market	0.1	per pump
	0.2	per 1,000 ft²
Townhouse/Condo/Duplex	1	per unit
Single Family Detached Housing	1	per house
Pools and aquatic facilities	na	See meter sizing assessment in Table 3.9
Brewery	na	See meter sizing assessment in Table 3.9
Movie Theatre	0.3	per 100 seats
Commercial/Coin-Op Laundry	1	Per washing machine

TABLE 3.9: EQUIVALENCY TABLE TO CONVERT WATER METER SIZE TO EDU'S

Meter Size	Hydraulic Capacity Factor	No. of EDU's
3/4"	1	1
1"	1.67	1.7
1-1/2"	3.33	3.3
2"	5.33	5.3
3"	10.67	10.7
4"	16.67	16.7
6"	33.33	33.3
8"	53.33	53.3
10"	76.67	76.7

When a specific land use is not included in Table 3.8 or if the table does not fit the application well, Table 3.9 can be used to convert the meter size of a new customer into an equivalent EDU amount. Staff should review the new customer's land use plans carefully to ensure that the proper meter size is being utilized by the new property.

3.11 Appeal Process for EDU Assessment Calculation

While Table 3.8 and Table 3.9 include a wide assortment of residential and non-residential customer types and meter size estimates with corresponding estimates of the number of EDU's that should be associated with a new customer, it's difficult to address all potential customers through simple tables. Furthermore, the assessment system may not fairly represent a new customer's actual impact on the water system. This is often the case in the commercial or industrial developments where water use varies greatly from one business to another. In these cases, the City may choose to allow for an appeal process so that new customers are assessed at a fair and reasonable rate.

The following discussion provides a sample appeal process which may be used in Adair Village when it is deemed appropriate by the City:

> A single EDU in Adair Village is assumed to be a water demand of around 5,226 gallons per month on average. If a new customer disagrees with the assessment that is calculated using Table 3.8, they may be allowed to appeal the assessment and request a trial period to track water use and compare their own water consumption (and

therefore their equivalent water demand) to the average City water usage per EDU. If time allows, a full year should be used to develop an average for the new customer. The average monthly water consumption of the new customer should be compared against the City's typical average. If this results in a lower EDU rating, an adjustment to the assessment could be made.

The City may wish to hold an SDC deposit during the appeal period. The amount of the deposit should be established by the City. A reasonable deposit amount equal to one-half (1/2) the amount estimated using Table 3.8 may be appropriate. Depending on the results of the water use study, the new user may either receive a refund of some of the SDC payment or be required to pay additional SDC costs.

A specific example of the above appeal process follows:

A new restaurant wishes to open in Adair Village. Through a plan review, it is determined that the restaurant has 2,000 square feet of floor space. Based on Table 3.8 the assessment to the restaurant would be for 8 EDU's.

The restaurant owner protests and appeals this calculation. They are assessed for 4 EDU's as a deposit and can track the water use during their first year in operation. At the end of this period, they produce water bills showing that they used an average of 30,000 gallons per month. This equates to around 5.74 EDU's of water use. The restaurant is charged for an additional 1.74 EDU's worth of water system SDC's. Through the appeal process, the restaurant reduced the SDC assessment for water by 2.26 EDU's.

The inclusion of an appeal process will necessitate additional administration of individual customer SDC issues and may increase the costs associated with SDC compliance and administration. Appeals should only be considered for non-residential customers; however, as most of the growth in Adair Village will be in the residential sector, the potential for appeals from the non-residential sector is limited.

For the residential sector, it is recommended that the City keep the assessment method as simple as possible. Each new home should be assessed on a single EDU basis with no adjustments to be made for square footage, fixture counts, or other more complex methods.

4 WASTEWATER SYSTEM SDC METHODOLOGY

4.1 Introduction

This section describes in detail the background information, calculations, and methodology used to develop the maximum defendable SDC for the City of Adair Village Wastewater System. The wastewater system consists of both the collection system and the treatment system. The wastewater collection system conveys raw sewage from the point of generation to the wastewater treatment plant where the treatment system breaks down and disinfects waste in compliance with regulatory permits. This section describes the existing and future capacity requirements of the system, identifies projects required to address system deficiencies and future capacity requirements, and estimates costs associated with those projects.

Existing and future equivalent dwelling units for assessment of the SDC's, as described in Section 3.10 for the water system, will also be used in this Section for the wastewater system. A calculation of the maximum defendable SDC per EDU for the wastewater system is developed herein.

4.2 Wastewater System Overview

The following planning documents were used as the basis for developing Wastewater System SDC fees.

- 2019 City of Adair Village Wastewater Facilities Plan Update; Prepared by Civil West Engineering Services
- 2007 City of Adair Village Wastewater Facilities Plan; Prepared by Tetra Tech/KCM

Both plans include a CIP list, and SDC eligibility has been included for all projects incorporated into this document.

4.2.1 Wastewater System Description and Background

The City of Adair Village owns and maintains a wastewater system for the collection, conveyance, and treatment of municipal wastewater. The system is composed of gravity sewer

piping and manholes, three wastewater lift stations and their associated forcemains, a wastewater treatment facility, and an outfall for discharging treated effluent into the Willamette River from November through April. The effluent is stored in a holding pond adjacent to the wastewater treatment plant during dry weather months.

The original wastewater treatment facility was built in 1958 to serve the Adair Air Force Station. The plant was upgraded in 1991 and has provided relatively good and reliable service to the City throughout its life. Recent and anticipated development pressures, along with high levels of inflow and infiltration in the existing collection system, have necessitated planning for upgrades to the wastewater treatment facilities in the coming planning period.

4.2.2 Service Population

As the City has historically provided water to many customers located outside of the City Limits, the service population for the sewer system is significantly smaller than that of the water system. Therefore, a separate service population and EDU methodology was developed for this SDC methodology. Section 4.3 outlines the EDU methodology for the wastewater system.

4.3 EDU Methodology and Projected Growth

A summary of the SDC methodology for the wastewater system is provided below:

- Existing Wastewater EDU's: 362.19
- Projected EDU's (20-yr): 1,300.41
- Growth Potential (EDU's): 938.22

These numbers suggest an annual average increase of 46.91 EDU per year for the duration of the planning period; however, the population growth projections presented in Table 3.1 suggest higher rates of EDU increase until 2026 followed by a decrease in the EDU growth rate.

4.4 Capital Improvement Project List and Project Costs

The City's 2019 Wastewater Facilities Plan Update includes detailed planning and project costs for many capital improvements in the wastewater system. These range from piping

improvements to treatment plant upgrades. The following sections provide information on the projects that appear on the City's current Wastewater System CIP List.

Table 4.1 below summarizes the capital improvement projects developed, the original project cost estimates, and the updated project cost estimates based on increases in the ENR Construction Cost Index. The projects are discussed in the Wastewater System Capital Improvement Project List Technical Memorandum included in Appendix A.

TABLE 4.1: WASTEWATER SYSTEM CAPITAL IMPROVEMENT PROJECT LIST

Project No.	Project Description	Project Cost Estimate	Project Cost Date	ENR CCI of Estimate	Current ENR CCI	Adjusted Cost Estimate
WW1	Annual Pipe Replacement Program	$65,450	2019	NA	NA	$65,450
WW2	Lift Station No. 1 Emergency Power	$73,950	2019	NA	NA	$73,950
WW3	Lift Station No. 1 Telemetry	$9,750	2019	NA	NA	$9,750
WW4	Lift Station No. 1 Replacement	$207,296	2019	NA	NA	$207,296
WW5	Lift Station No. 2 Replacement	$283,744	2019	NA	NA	$283,744
WW6	Lift Station No. 2 Emergency Power	$74,628	2019	NA	NA	$74,628
WW7	Lift Station No. 2 Forcemain Replacement	$216,648	2019	NA	NA	$216,648
WW8	WWTP Influent Pipe Replacement	$364,225	2019	NA	NA	$364,225
WW9	WWTP Headworks	$736,048	2019	NA	NA	$736,048
WW10	TFAS Secondary Treatment Upgrades	$3,096,023	2019	NA	NA	$3,096,023
WW11	WWTP UV Disinfection System	$520,636	2019	NA	NA	$520,636
WW12	Effluent Land Application System Improvements	$246,676	2019	NA	NA	$246,676
WW13	WWTP Sludge Drying Bed Modifications	$79,682	2019	NA	NA	$79,682
WW14	WWTP SCADA	$189,000	2019	NA	NA	$189,000
WW15	WWTP Emergency Power Loss Preparedness	$142,800	2019	NA	NA	$142,800
WW16	WWTP Laboratory and Control Building	$765,100	2019	NA	NA	$765,100
Total						**$7,071,656**

The CIP list above includes the date when the original project cost estimates were prepared. Another column is provided indicating the corresponding ENR Construction Cost Index for the original cost estimate.

4.5 Project SDC Eligibility

Some projects included on the City's Wastewater System CIP List are maintenance and operations projects or capacity-replacing projects that have limited-to-no additional capacity. Each project on the Wastewater System CIP List was evaluated to determine the percentage of the project cost that can accommodate future growth to the system. The following describes the eligibility determination process used for each project on the Wastewater System CIP List.

Project WW1- Annual Pipe Replacement Program

Recommended SDC Eligibility for Project WW1: 0%

This project replaces existing sections of the collection system and is a maintenance project that does not expand capacity. Therefore, 0% of the project costs are SDC eligible.

Project WW2- Lift Station No. 1 Emergency Power

Recommended SDC Eligibility for Project WW2: 0%

The installation of an emergency generator at Lift Station No. 1 is not planned to provide excess capacity. Therefore, this project is 0% SDC eligible.

Project WW3- Lift Station No. 1 Telemetry

Recommended SDC Eligibility for Project WW3: 0%

The installation of telemetry at Lift Station No. 1 is intended to improve facility operations but will not provide excess capacity beyond what is already provided. Therefore, this project is 0% SDC eligible.

Project WW4- Lift Station No. 1 Replacement

Recommended SDC Eligibility for Project WW4: 0%

The existing Lift Station No. 1 has adequate capacity and is recommended for replacement because of maintenance and operations issues. Therefore, this project is 0% SDC eligible.

Project WW5- Lift Station No. 2 Replacement

Recommended SDC Eligibility for Project WW5: 16%

The replacement of Lift Station No. 2 will expand capacity and accommodate growth in the northern portion of the City's sewer system and handle wastewater flows from Basins D, E, and F. Basin D serves Adair County Park and is anticipated to be a minor contributor to the wastewater flow enter Lift Station No. 2. Therefore, assume that all the wastewater flow entering Lift Station No. 2 is from Basins E and F.

In Basins E and F, the area inside the UGB but outside the City Limits is approximately 856,009 SF. This represents the area that could potentially be included in the wastewater system. The total land area in Basins E and F is approximately 5,268,207 SF. The potential increase in service by Lift Station No. 2 is assumed to be represented by the percentage of land in Basins E and F that is currently outside of the City Limits but inside the UGB and could be connected to the wastewater system in the future.

$$Project\ WW5\ SDC\ Eligibility = \frac{856{,}009\ SF}{5{,}268{,}207\ SF} = 0.16\ \rightarrow 16\%$$

Project WW6- Lift Station No. 2 Emergency Power

Recommended SDC Eligibility for Project WW6: 16%

The emergency generator installed for the Lift Station No. 2 will be sized to accommodate changes in pump electricity demand resulting from the larger capacity pumps installed as part of Project WW5. Therefore, the same eligibility used for Project WW5 was applied for this project.

Project WW7- Lift Station No. 2 Forcemain Replacement

Recommended SDC Eligibility for Project WW7: 16%

The replacement of the Lift Station No. 2 forcemain will be completed to accommodate changes resulting from Project WW5. Therefore, the same eligibility used for Project WW5 was applied for this project.

Project WW8- WWTP Influent Pipe Replacement

Recommended SDC Eligibility for Project WW8: 30%

The WWTP influent pipe is required to convey the peak instantaneous flow from the collection system to the WWTP headworks. Therefore, the SDC eligibility was determined based on the increase in the Peak Instantaneous Flow (PIF) from current conditions to design year conditions.

$$Project\ WW8\ SDC\ Eligibility = \frac{2{,}249{,}942\ GPD - 1{,}585{,}000\ GPD}{2{,}249{,}942\ GPD} = 0.30\ \rightarrow 30\%\ Eligible$$

Project WW9- WWTP Headworks

Recommended SDC Eligibility for Project WW9: 30%

The WWTP headworks is required to convey and screen the peak instantaneous flow entering the WWTP. Therefore, the SDC eligibility was determined based on the increase in the Peak Instantaneous Flow (PIF) from current conditions to design year conditions.

$$Project\ WW9\ SDC\ Eligibility = \frac{2{,}249{,}942\ GPD - 1{,}585{,}000\ GPD}{2{,}249{,}942\ GPD} = 0.30\ \rightarrow 30\%\ Eligible$$

Project WW10- TFAS Secondary Treatment Upgrades

Recommended SDC Eligibility for Project WW10: 60%

The WWTP secondary treatment system upgrades include multiple components. Project costs associated with maintenance and modifications to the trickling filter were assumed to be maintenance related costs that are not eligible for SDC funds. The remainder of the project's costs were assumed to be driven by service population growth. Therefore, the eligibility of the remaining project costs was allocated based on the projected increase in population.

$$Population\ Growth\ SDC\ Eligibility = \frac{3115\ people - 860\ people}{3115\ people} = 0.72\ \rightarrow 72\%\ Eligible$$

$$Project\ W10\ SDC\ Eligibility = \frac{(\$505{,}742)(0\%\ Eligible) + (\$2{,}590{,}281)(72\%\ Eligible)}{(\$3{,}096{,}023)} = 0.60$$

$$\rightarrow 60\%\ Eligible$$

Project WW11- WWTP UV Disinfection System

Recommended SDC Eligibility for Project WW11: 30%

The WWTP UV Disinfection System must pass the peak instantaneous flow from the WWTP. Therefore, the SDC eligibility was determined based on the increase in the Peak Instantaneous Flow (PIF) from current conditions to design year conditions.

$$Project\ WW11\ SDC\ Eligibility = \frac{2{,}249{,}942\ GPD - 1{,}585{,}000\ GPD}{2{,}249{,}942\ GPD} = 0.30\ \rightarrow 30\%\ Eligible$$

Project WW12- Effluent Land Application System Improvements

Recommended SDC Eligibility for Project WW12: 59%

The effluent land application is sized to accommodate changes in flow rates over the course of a year. Therefore, the SDC eligibility was determined based on the increase in the Average Annual Flow (AAF) from current conditions to design year conditions due to population growth.

$$Project\ WW12\ SDC\ Eligibility = \frac{207{,}702\ GPD - 86{,}099\ GPD}{207{,}702\ GPD} = 0.59\ \rightarrow 59\%\ Eligible$$

Project WW13- WWTP Sludge Drying Bed Modifications

Recommended SDC Eligibility for Project WW13: 0%

Modifications to the sludge drying bed piping system are intended to improve the reliability of the treatment process and are not expected to provide any additional capacity to the treatment process. Therefore, this project does not provide any excess capacity and 0% of the cost is SDC eligible.

Project WW14- WWTP SCADA

Recommended SDC Eligibility for Project WW14: 59%

The WWTP SCADA system is intended to improve day-to-day operations at the facility. Therefore, the SDC eligibility was determined based on the increase in the Average Annual Flow (AAF) from current conditions to design year conditions due to population growth.

$$Project\ WW14\ SDC\ Eligibility = \frac{207{,}702\ GPD - 86{,}099\ GPD}{207{,}702\ GPD} = 0.59\ \rightarrow 59\%\ Eligible$$

Project WW15- WWTP Emergency Power Loss Preparedness

Recommended SDC Eligibility for Project WW15: 59%

The WWTP Emergency Power Loss Preparedness project is intended to provide reliable backup power for critical plant operations throughout the year. Therefore, the SDC eligibility was

determined based on the increase in the Average Annual Flow (AAF) from current conditions to design year conditions due to population growth.

$$Project\ WW15\ SDC\ Eligibility = \frac{207{,}702\ GPD - 86{,}099\ GPD}{207{,}702\ GPD} = 0.59\ \rightarrow 59\%\ Eligible$$

Project WW16- WWTP Laboratory and Control Building

Recommended SDC Eligibility for Project WW16: 59%

The WWTP laboratory and control building will improve day-to-day operations at the facility. Therefore, the SDC eligibility was determined based on the increase in the Average Annual Flow (AAF) from current conditions to design year conditions due to population growth.

$$Project\ WW16\ SDC\ Eligibility = \frac{207{,}702\ GPD - 86{,}099\ GPD}{207{,}702\ GPD} = 0.59\ \rightarrow 59\%\ Eligible$$

Descriptions of all projects included in the Wastewater System CIP List are provided in the Wastewater System Capital Improvement List Technical Memorandum included in Appendix A. Table 4.2 provides a summary of the Wastewater System CIP List and the SDC eligibility that should be considered for each project based on the analysis presented above.

TABLE 4.2: WASTEWATER SYSTEM PROJECT SDC ELIGIBILITY SUMMARY

Project No.	Project Description	Adjusted Cost Estimate	Reimbursement SDC Eligible (Y/N)	Improvement SDC Eligible (Y/N)	% SDC Eligible	SDC Eligible Cost
WW1	Annual Pipe Replacement Program	$65,450	N	N	0%	$0
WW2	Lift Station No. 1 Emergency Power	$73,950	N	N	0%	$0
WW3	Lift Station No. 1 Telemetry	$9,750	N	N	0%	$0
WW4	Lift Station No. 1 Replacement	$207,296	N	N	0%	$0
WW5	Lift Station No. 2 Replacement	$283,744	N	Y	16%	$45,399
WW6	Lift Station No. 2 Emergency Power	$74,628	N	Y	16%	$11,940
WW7	Lift Station No. 2 Forcemain Replacement	$216,648	N	Y	16%	$34,664
WW8	WWTP Influent Pipe Replacement	$364,225	N	Y	30%	$107,642
WW9	WWTP Headworks	$736,048	N	Y	30%	$217,530
WW10	TFAS Secondary Treatment Upgrades	$3,096,023	N	Y	60%	$1,865,002
WW11	WWTP UV Disinfection System	$520,636	N	Y	30%	$153,867
WW12	Effluent Land Application System Improvements	$246,676	N	Y	59%	$144,421
WW13	WWTP Sludge Drying Bed Modifications	$79,682	N	N	0%	$0
WW14	WWTP SCADA	$189,000	N	Y	59%	$110,654
WW15	WWTP Emergency Power Loss Preparedness	$142,800	N	Y	59%	$83,605
WW16	WWTP Laboratory and Control Building	$765,100	N	Y	59%	$447,942
Total						**$3,222,666**

4.6 Wastewater System Reimbursement SDC

The Oregon Revised Statutes include provisions for a reimbursement SDC to be developed for projects that have been completed and that have remaining capacity available to service

growth. This section establishes the methodology and the charge for Wastewater System Reimbursement SDC's.

A summary of the recommended reimbursement SDC for the Wastewater System is provided below:

TABLE 4.3: WASTEWATER SYSTEM REIMBURSEMENT SDC SUMMARY

Project No.	Project Description	SDC Eligible Cost
	None	$0
	Total Reimbursement Eligible Costs	$0
	Total Wastewater System Growth EDUs	938.22
	Maximum Wastewater System Reimbursement SDC	**$0**

Based on this analysis, there should be no reimbursement SDC for the wastewater system.

4.7 Wastewater System Improvement SDC

Calculation of the improvement SDC is based on the methodology and the establishment of the SDC eligible project costs as outlined earlier in this section. The following table summarizes the total cost of SDC eligible projects recommended in the referenced Wastewater Facilities Planning documents that have not yet been constructed.

TABLE 4.4: WASTEWATER SYSTEM IMPROVEMENT SDC SUMMARY

Project No.	Project Description	SDC Eligible Cost
WW5	Lift Station No. 2 Replacement	$45,399
WW6	Lift Station No. 2 Emergency Power	$11,940
WW7	Lift Station No. 2 Forcemain Replacement	$34,664
WW8	WWTP Influent Pipe Replacement	$107,642
WW9	WWTP Headworks	$217,530
WW10	TFAS Secondary Treatment Upgrades	$1,865,002
WW11	WWTP UV Disinfection System	$153,867
WW12	Effluent Land Application System Improvements	$144,421
WW14	WWTP SCADA	$110,654
WW15	WWTP Emergency Power Loss Preparedness	$83,605
WW16	WWTP Laboratory and Control Building	$447,942
	Total Improvement Eligible Costs	$3,222,666
	Total Wastewater System Growth EDUs	938.22
	Maximum Wastewater System Improvement SDC	**$3,435**

Based on this methodology, a Wastewater System Improvement SDC should not exceed $3,435 per EDU.

This SDC recommendation does not account for SDC credits or compliance costs.

4.8 Wastewater System SDC Credits

An analysis of potential SDC credits should be included as part of an SDC methodology. Credits may be appropriate to offset financing costs that will be paid by all system customers including new customers. Credits are also appropriate for developers that construct or otherwise provide improvements to the system that are part of the current CIP project list. A brief description of potential SDC credit scenarios is provided below:

4.8.1 Improvement Offset Credit

In the case of a developer completing some or all of a CIP List project, the credit provided should be equal to the value of the improvement made. The credit cannot exceed the amount of SDC that the developer would have been required to pay.

For example: Assume that a developer undertakes a subdivision that would require him to pay $200,000 in Wastewater System SDC fees. This same developer elects to construct a sewer lift station to service the development and other potential growth areas. As the lift station is part of the City's Wastewater System CIP, the developer is eligible to receive an SDC credit for a portion of the improvements that were completed. If the actual construction cost of the lift station is $500,000, the developer is only eligible to receive SDC credits up to the $200,000.

It should be noted that determination of improvements offset credits can require some judgment as development situations can vary. The City should maintain an open policy when working with developers to identify fair and reasonable offset credit when they apply. It should also be reiterated that offset credits are not available for improvements undertaken by the developer that do not appear on the City's CIP List and are not part of the City's SDC methodology.

4.8.2 Financing Credit

It may also be appropriate to provide a credit to offset the "double-dip" effect that could result from a new customer paying an SDC as well as increased rates for the same improvement project.

Section 3.8.2 of this methodology includes a discussion of how a financing credit may be applied. Once the City undertakes a project and raises rates to pay for the project, it may consider developing an SDC credit schedule for each project undertaken. The amount of the credit will vary.

4.9 Wastewater System SDC Summary

Section 4 has been developed to provide the City with the methodology needed to establish the maximum defendable Wastewater System SDC. The following table summarizes the information used to complete this analysis:

TABLE 4.5: WASTEWATER SYSTEM SDC SUMMARY PER EDU (BEFORE COMPLIANCE COSTS)

SDC Component	SDC Amount
Improvement Fee (per EDU)	$3,435
Reimbursement Fee (per EDU)	$0
Subtotal of Wastewater System SDC Fees (per EDU)	**$3,435**

SDC Credit Summary	
Upper Range Credit (100% Financing)	$8,898
Mid Range Credit (75% Financing Credit)	$6,673
Mid Range Credit (50% Financing Credit)	$4,449
Low Range Credit (25% Financing Credit)	$2,224

The maximum defendable Wastewater System SDC is $3,435 per EDU without the application of an SDC credit or compliance costs. This calculation represents the maximum SDC that can be assessed and defended with proper methodology. While the City has the autonomy to adjust this charge, if adequate SDC fees are not collected other funding sources will be required to undertake projects necessary to accommodate growth.

4.10 Wastewater System SDC Assessment Schedule

The wastewater system SDC established in Section 4.9 above is based on a cost per EDU or cost per single residential dwelling. For non-residential developments, a plan review must be performed to determine the equivalent number of EDU's of the development. Table 3.8 and Table 3.9, in the Water System SDC methodology should be used to assess wastewater system SDC's for both residential and non-residential customers.

As discussed in Section 3.10, the water/sewer values indicated in Table 3.8 represent a wide assortment of residential and non-residential customer types along with estimates of the number of EDU's that should be associated with each. The table does not address all potential customers; therefore, the assessment system may not fairly represent a new customer's actual impact on the water and wastewater systems. In these cases, it is recommended that the City allow for an appeal process as described in Section 3.11. The appeal process includes the assessment of at least a partial SDC based on the calculated development EDU's and collection of additional fees later following review of the facility's actual water usage.

5 STORM DRAINAGE SDC METHODOLOGY

5.1 Introduction

This section provides background information, calculations, and the methodology used to identify the maximum defendable Storm Drainage System SDC for the City of Adair Village. This section identifies the existing and future capacity requirements of the storm drainage system and summarizes the City's Storm Drainage System CIP.

This section also develops a method for determining the system population or input based on an impervious surface methodology. It projects future capacity requirements based on an assumed increase in impervious surface area.

5.2 Storm Drainage System Overview

As of April 2019, the City of Adair Village did not have a Storm Drainage Master Plan or other stormwater planning effort available for incorporation in this methodology. Instead, this methodology was developed using bridge planning and includes funding for the development of a Storm Drainage Master Plan during the planning cycle. Once more comprehensive planning information is available, this methodology should be updated to reflect the recommendations of that planning effort.

5.2.1 Overall System Description

The City's storm drainage system consists of a network of ditches, piping, manholes, catch basins, swales, and outfalls. Piping ranges from small 8-inch laterals to large culverts. In general, the storm drainage system has evolved in response to needs and drainage problems that have arisen.

The City funds maintenance and development of the storm drainage system through a variety of sources. The City currently charges a storm drainage fee of $2.50 per month as part of the regular utility charges for its customers.

5.2.2 Service Population

The impact of growth on the storm drainage system is based on an impervious surface methodology. In general, this methodology will determine how much impervious surface a typical EDU will add to the system. The impervious surface planned for new development can be compared against this typical value to calculate how many EDU's are being added to the storm drainage system.

5.3 EDU Methodology and Projected Growth

This section describes the method used to establish the growth component of the Storm Drainage System SDC.

Impervious surface areas include such categories as:

- Roof areas
- Driveways
- Sidewalks
- Patios and impervious decks
- Out buildings
- Any other improvement which will result in water running off the property

Impervious surface area per typical residential dwelling is approximately 2,500 square feet. While this area may underestimate the typical impervious surface for many residential dwellings, without specific data for Adair Village on impervious surface, it is recommended to potentially underestimate the impervious surface area per EDU and revise the surface area criteria when additional data is available.

Section 4 presents the growth potential of the wastewater system. Accordingly, it is estimated that 938.22 EDU's will be added to the sewer system during the planning period. It is reasonable to assume that each EDU added will have a typical amount of impervious surface that will also be added to the system and will also impact the storm drainage system. Therefore:

$$938.22\ New\ EDUs\ \times 2{,}500\ \frac{Impervious\ SF}{EDU} = 2{,}345{,}551\ SF\ New\ Impervious\ Surface$$

Therefore, the growth potential for Storm Drainage System SDC methodology is summarized as:

- 2,500 square feet per new EDU
- Approximately 938.22 EDU's added to the system
- Approximately 2,345,551 square feet of impervious surface added to the system
- Approximately 53.85 acres of impervious surface added to the system

5.4 Capital Improvement Project List and Project Costs

In the absence of a comprehensive storm drainage system planning document, bridge planning was completed to establish an interim methodology. The projects and recommendations that comprise this bridge planning effort are described in the Storm Drainage System Capital Improvement Project List Technical Memorandum provided in Appendix A.

Table 5.1 summarizes the projects included on the Storm Drainage System CIP List and provides estimated costs for those projects.

TABLE 5.1: STORM DRAINAGE SYSTEM CAPITAL IMPROVEMENT PROJECT LIST

Project No.	Project Description	Project Cost Estimate	Project Cost Date	ENR CCI of Estimate	Current ENR CCI	Adjusted Cost Estimate
S1	Ebony Lane Drainage Improvements	$100,000	Feb-08	8094.28	11227.88	$138,714
S2	Santiam Christian School and Downstream Drainage Improvements	$200,000	Feb-08	8094.28	11227.88	$277,428
S3	Laurel Drive Drainage Improvements	$150,000	Feb-08	8094.28	11227.88	$208,071
S4	William R Carr Drainage Improvements	$65,000	Apr-10	8676.68	11227.88	$84,112
S5	Barberry Drainage Improvements	$20,000	This Study	11227.88	11227.88	$20,000
Total						**$728,324**

5.5 Project SDC Eligibility

The SDC methodology must indicate the percentage of each project's cost that can be attributed as necessary for growth and is SDC eligible. SDC's must be based on a project's cost or the portion of a project's cost that is necessary to add system capacity in response to or in anticipation of growth. Appendix A describes each project listed on the Storm Drainage System CIP List and the method for determining SDC eligibility is provided below.

Project S1- Ebony Lane Drainage Improvements

Recommended SDC Eligibility for Project S1: 25%

This project eligibility was determined in the 2008 SDC Methodology (HBH Consulting Engineers) and carried over to this CIP List.

Project S2- Santiam Christian School and Downstream Drainage Improvements

Recommended SDC Eligibility for Project S2: 50%

This project eligibility was determined in the 2008 SDC Methodology (HBH Consulting Engineers) and carried over to this CIP List.

Project S3- Laurel Drive Drainage Improvements

Recommended SDC Eligibility for Project S3: 25%

This project eligibility was determined in the 2008 SDC Methodology (HBH Consulting Engineers) and carried over to this CIP List.

Project S4- William R Carr Drainage Improvements

Recommended SDC Eligibility for Project S4: 72%

These drainage improvements are planned in an area that will facilitate access to City Hall and the proposed Downtown Park. Therefore, it was determined that all City residents would equally benefit from this project and SDC eligibility should be determined based on population increase.

$$Project\ S4\ SDC\ Eligibility = \frac{3115\ people - 860\ people}{3115\ people} = 0.72\ \rightarrow 72\%\ Eligible$$

Project S5- Barberry Drainage Improvements

Recommended SDC Eligibility for Project S5: 0%

This project is intended to resolve an existing drainage issue in an area of the City that has already been developed. Therefore, this project is not SDC eligible.

A summary of the SDC eligibilities for all projects on the Storm Drainage System CIP List is provided in Table 5.2.

TABLE 5.2: STORM DRAINAGE SYSTEM SDC ELIGIBILITY SUMMARY

Project No	Project Description	Adjusted Cost Estimate	Reimbursement SDC Eligible (Y/N)	Improvement SDC Eligible (Y/N)	% SDC Eligible	SDC Eligible Cost
S1	Ebony Lane Drainage Improvements	$138,714	N	Y	25%	$34,678
S2	Santiam Christian School and Downstream Drainage Improvements	$277,428	N	Y	50%	$138,714
S3	Laurel Drive Drainage Improvements	$208,071	N	Y	25%	$52,018
S4	William R Carr Drainage Improvements	$84,112	N	Y	72%	$60,890
S5	Barberry Drainage Improvements	$20,000	N	N	0%	$0
Total						**$286,300**

5.6 Storm Drainage Reimbursement SDC

None of the projects in the Storm Drainage System CIP List are eligible for a reimbursement SDC.

TABLE 5.3: STORM DRAINAGE SYSTEM REIMBURSEMENT SDC SUMMARY

Project No.	Project Description	SDC Eligible Cost
	None	$0
	Total Reimbursement Eligible Costs	$0
	Total Storm Drainage System Growth EDUs	938.22
	Maximum Storm Drainage System Reimbursement SDC	**$0**

Therefore, the recommended Storm Drainage System Reimbursement SDC is $0.

5.7 Storm Drainage Improvement SDC

Calculation of the Storm Drainage System Improvement SDC is based on the methodology and the establishment of the SDC eligible project costs as previously described. Table 5.4 summarizes the total cost of SDC eligible projects discussed in this methodology that have not been constructed. The ENR Construction Cost Index was used to adjust historically estimated costs to current (2019) dollars.

TABLE 5.4: STORM DRAINAGE SYSTEM IMPROVEMENT SDC SUMMARY

Project No.	Project Description	SDC Eligible Cost
S1	Ebony Lane Drainage Improvements	$34,678
S2	Santiam Christian School and Downstream Drainage Improvements	$138,714
S3	Laurel Drive Drainage Improvements	$52,018
S4	William R Carr Drainage Improvements	$60,890
	Total Improvement Eligible Costs	$286,300
	Total Storm Drainage System Growth EDUs	938.22
	Maximum Storm Drainage System Improvement SDC	**$305**

Based on this analysis, a typical EDU in Adair Village will pay $305 for the Storm Drainage System Improvement SDC based on an average impervious surface area of 2,500 square feet per EDU. This equates to a unit charge of $0.122 per square foot of impervious surface area.

5.8 Storm Drainage System SDC Credits

An analysis of potential SDC credits should be included as part of any SDC methodology. Credits may be appropriate to offset financing costs that will be paid by all system customers including new customers. Credits are also appropriate for developers that construct or otherwise provide improvements to the storm drainage system that are part of the current CIP list. Brief descriptions of potential SDC credit scenarios are provided in the following sections.

5.8.1 Improvement Offset Credit

In the case of a developer constructing some or all of a CIP List project, the credit provided should be equal to the value of the improvement made. The credit cannot exceed the amount of SDC that the developer would have been required to pay.

For example: Assume that a developer undertakes a subdivision that would require him to pay $50,000 in SDC fees for the storm drainage system. If the same developer undertakes all or a portion of a stormwater improvement project that appears on the CIP list, the developer should be eligible for some level of SDC credit for the value of the completed project. If the storm drainage project costs the developer more than $50,000 to complete, the developer is only eligible for a Storm Drainage Improvement SDC offset credit of $50,000.

It should be noted that determination of improvement offset credits can require professional judgment as development situations vary widely. The City should maintain an open policy when working with developers to identify fair and reasonable improvement offset credits when they apply. It should also be reiterated that offset credits are not available for improvements undertaken by the developer that do not appear on the City's CIP list and are not part of the City's SDC methodology.

5.8.2 Financing Credit

The City currently charges a Stormwater fee to operate and maintain the City's storm drainage infrastructure. The City may decide to provide a credit to offset the "double-dip" effect that could result from a new customer paying an SDC and increased rates for the same improvement project if the project has been paid for with funds collected from the stormwater fee.

Section 3.8.2 of this methodology includes a detailed discussion of how a financing credit may be applied. Once the City undertakes a project and raises rates to pay for the project, it may consider developing an SDC credit schedule for each project undertaken. The amount of the credit will vary.

5.8.3 Impervious Surface Reduction Credit

In some cases, credits may be appropriate for development that incorporates improvements that are designed to reduce the impact of increased drainage on the storm drainage system. These measures may include construction of cisterns, detention facilities, pervious surface technology, and other efforts designed to reduce runoff from a developed property.

In each case, the City would be required to review proposed mitigation measures and determine an appropriate SDC credit for impervious surface reduction. In no case should the credit exceed the value of the calculated SDC charge prior to consideration of SDC credits.

The City is not required to provide credits for these types of mitigating practices. In the case of typical residential development, the cost of the impervious surface reducing efforts will likely be far greater than the stormwater SDC charge; however, in some commercial applications, there may be an advantage for a developer to incorporate these types of improvements.

5.9 Storm Drainage System SDC Summary

Section 5 has been developed to provide the City of Adair Village with the methodology needed to establish the maximum defendable SDC for the storm drainage system. Table 5.5 summarizes the information used to complete this analysis.

TABLE 5.5: STORM DRAINAGE SYSTEM SDC SUMMARY PER EDU

SDC Component	SDC Amount
Improvement Fee (per EDU)	$305
Reimbursement Fee (per EDU)	$0
Subtotal of Storm Drainage System SDC Fees (per EDU)	**$305**

SDC Credit Summary	
Upper Range Credit (100% Financing)	$790
Mid Range Credit (75% Financing Credit)	$593
Mid Range Credit (50% Financing Credit)	$395
Low Range Credit (25% Financing Credit)	$198

The maximum defendable Storm Drainage System SDC is $305 per EDU or $0.122 per square foot of impervious surface without the application of an SDC credit or compliance costs. It should be reiterated that this calculation represents the maximum SDC that can be assessed and defended with proper methodology. The City has the autonomy to adjust this charge in any way they feel is appropriate; however, if adequate SDC fees are not collected funds will have to be obtained from other sources to undertake growth-related projects.

5.10 Storm Drainage System SDC Assessment Schedule

Assessment of the Storm Drainage System SDC varies based on the type of development occurring. The calculation methods for residential and non-residential development SDC's are outlined below.

5.10.1 Residential SDC

Assessment of a Storm Drainage System SDC on a residential customer is a simple process. Under the EDU method, a typical residential customer is assumed to be one EDU. This method is the easier to administer as it does not require the City to review plans and calculate impervious surface areas. This method assumes all residential development is equal with regards to storm drainage system impacts.

This method is valid for all residential units constructed on lots less than 8,000 square feet in area. Residential units constructed on lots equal to or greater than 8,000 square feet in area shall be assessed using the methodology for non-residential development.

5.10.2 Non-Residential SDC

For all non-residential development or residential development occurring on lots exceeding 8,000 square feet in area, the City will perform site plan reviews, measure and calculate impervious surface area, and charge each new development based on the impervious surface area that is being added to the system. For this method, the unit price of $0.122 per square foot should be used. Accommodations for efforts to mitigate runoff impacts can be considered on a case-by-case basis. These mitigation efforts may include, but are not limited to, detention systems and pervious surface materials.

6 TRANSPORTATION SYSTEM SDC METHODOLOGY

6.1 Introduction

This section describes in detail the background information, calculations, and methodology used to determine the maximum defendable Transportation System SDC for the City of Adair Village. This section identifies the existing and future requirements of the transportation system and summarizes the City's Transportation System CIP List.

This section defines the user base of the transportation system using a trip generation method and using commonly accepted trip tables for the assessment of a Transportation System SDC for both residential and nonresidential development.

6.2 Transportation System Overview

The City of Adair Village owns and maintains a network of roadways and sidewalks that are used by the public to navigate through the City. The City shares some transportation facilities with Benton County and the Oregon Department of Transportation. A draft Transportation System Plan for the City was prepared in 2018 in coordination with Benton County. This plan provides a CIP list that serves as the primary source of projects included in this SDC methodology. Notably, the 2018 Transportation System Plan contains projects that will require the involvement of multiple government entities including the Oregon Department of Transportation and Benton County. Some projects that may benefit the City are the responsibility of another governing body due to the ownership of the facilities being impacted by the work. As a result, projects that are not anticipated to require a financial contribution from the City have been omitted from the Transportation System CIP List included in this document.

6.2.1 Overall System Description

The transportation system in Adair Village is composed of vehicle and pedestrian facilities. A brief summary of each major system component is included below:

State Facilities: State Highway 99W borders Adair Village on the west. This highway travels north and south parallel to Interstate 5. It is a relatively busy highway conveying traffic from as far south as Corvallis, Junction City, and Eugene to McMinnville, Salem, and Portland to the north.

County Roads: Many of the roads in and around Adair Village fall under Benton County jurisdiction for maintenance and operation. These roads provide transit from Adair Village to North Albany and Interstate 5 to the east.

Local Roads: Smaller neighborhood roads are considered local roads. These roads primarily provide access to neighborhoods and residential areas.

Pedestrian: The City owns and maintains sidewalks, pathways, and other pedestrian facilities.

6.2.2 Service Population and Growth Component

The growth component for the Transportation System SDC is based on a trip count method. Under this methodology, users that generate more trips and make greater use of the system should pay a larger share of the project costs for developing additional capacity.

The Institute of Transportation Engineers (ITE) publishes tables that summarize the peak traffic impacts due to various types of land use. The 10th Edition of the ITE Trip Generation Manual should be used when evaluating traffic impacts for a given land use.

A community may seek to normalize trip counts to a typical residential dwelling where the trip counts associated with a typical dwelling unit are equated to 1 EDU. Therefore, if a typical residential dwelling generates 10 trip counts under peak conditions, the entire trip count list can be divided by 10 to normalize the trip generations to a Transportation System EDU.

6.3 EDU Methodology and Projected Growth

This section establishes an EDU methodology for the Transportation System SDC and determines the growth potential for the sector. Given the City's status as a "bedroom

community" it was assumed that the increase in transportation system usage will increase at the same pace as the increase in City population. Therefore, the increase in transportation system EDUs should be equal to the wastewater and storm drainage EDUs.

6.4 Capital Improvement Project List and Project Costs

The City's Transportation System CIP List was primarily derived from the Adair Village 2018 Transportation System Plan. Many of the projects on the CIP List are related to the UGB expansion and the associated transportation facilities that will be required within and related to the new development.

Table 6.1 summarizes the projects on the City's Transportation System CIP List. The Transportation System CIP List includes projects with a current estimated project cost of more than $7 million.

TABLE 6.1: TRANSPORTATION SYSTEM CAPITAL IMPROVEMENT PROJECT LIST

Project No.	Project Description	Project Cost Estimate	Project Cost Date	ENR CCI of Estimate	Current ENR CCI	Adjusted Cost Estimate
T1	Arnold Avenue- Adair County Park Shared-Use Path	$1,150,000	2018	11061.85	11227.88	$1,167,261
T2	Marcus Harris Extension Pedestrian Crossing	$45,000	2018	11061.85	11227.88	$45,675
T3	Arnold Avenue Pedestrian Crossing	$50,000	2018	11061.85	11227.88	$50,750
T4	William R Carr Avenue Modernization	$950,000	2018	11061.85	11227.88	$964,259
T5	Vandenberg Avenue Modernization (OR 99W to ODFW)	$150,000	2018	11061.85	11227.88	$152,251
T6	Arnold Avenue Modernization	$500,000	2018	11061.85	11227.88	$507,505
T7	Purple Vetch Modernization	$400,000	2018	11061.85	11227.88	$406,004
T8	Vandenberg Avenue Modernization (William R Carr Avenue to Marcus Harris Avenue)	$700,000	2018	11061.85	11227.88	$710,506
T9	William R Carr Avenue- Main Street Project	$400,000	2018	11061.85	11227.88	$406,004
T10	5th Street Extension	$2,050,000	2018	11061.85	11227.88	$2,080,769
T11	5th Street and Ryals Avenue Intersection Improvements	$500,000	2018	11061.85	11227.88	$507,505
T12	Pavement Preservation Plan	$40,000	This Study	11227.88	11227.88	$40,000
Total						**$7,038,489**

6.5 Project SDC Eligibility

Transportation project SDC eligibility was determined by evaluating the likely beneficiaries of the improvements. If improvements were concentrated in a region of the City that is undeveloped, costs associated with that project were typically determined to have a high SDC eligibility. Projects facilitating access to community-used facilities (City Hall, Parks, etc.) were evaluated based the projected population increase to be served by the transportation infrastructure. Projects targeting areas of the community that are primarily existing residential had relatively low SDC eligibilities. The SDC eligibility determination for each project on the Transportation System CIP List is provided below.

Project T1- Arnold Avenue- Adair County Park Shared- Use Path

Recommended SDC Eligibility for Project T1: 72%

The shared-use path along Arnold Avenue will facilitate access from OR 99 to the Adair County Park. This improved access will benefit all City residents. Therefore, SDC eligibility should be based on the planning year population attributable to growth.

$$Project\ T1\ SDC\ Eligibility = \frac{3115\ people - 860\ people}{3115\ people} = 0.72\ \rightarrow 72\%\ Eligible$$

Project T2- Marcus Harris Extension Pedestrian Crossing

Recommended SDC Eligibility for Project T2: 100%

This project extends Marcus Harris south to facilitate access to a minimally developed area of the City's UGB. Given that this project is fully intended to facilitate development within the southern portion of the UGB, it was determined to be 100% SDC eligible.

Project T3- Arnold Avenue Pedestrian Crossing

Recommended SDC Eligibility for Project T3: 100%

This project is intended to improve pedestrian access to Brian Unwin Field and Adair County Park by residents of the southern UGB area where future development is expected to occur. Therefore, this project was determined to be 100% SDC eligible.

Project T4- William R Carr Avenue Modernization

Recommended SDC Eligibility for Project T4: 34%

This project modernizes William R Carr Avenue between Barberry Drive and Vandenberg Avenue. Determination of the SDC eligibility was determined as the weighted average of two distinct sections of the project. The northern ~2,110 feet of the project will occur in residential areas that have been heavily developed. This portion will primarily serve the same residents served by wastewater Lift Station No. 2; therefore, the same SDC eligibility determined for capacity increasing projects associated with Lift Station No. 2 (16%) was assumed for this section of Project T4.

The southern 994 feet of the project will improve accessibility to City Hall and the proposed downtown park. This section of roadway will benefit all residents equally and the SDC eligibility (72%) of this portion of the project was determined as follows:

$$Project\ T4\ (South)\ SDC\ Eligibility = \frac{3115\ people - 860\ people}{3115\ people} = 0.72\ \rightarrow 72\%\ Eligible$$

The SDC eligibility for Project T4 was calculated as the weighted average of these two project sections.

$$Project\ T4\ SDC\ Eligibility = \frac{(2{,}110\ ft)(0.16) + (994\ ft)(0.72)}{(2{,}110\ ft + 994\ ft)} = 0.34\ \rightarrow 34\%\ Eligible$$

Project T5- Vandenberg Avenue Modernization (OR 99W to ODFW)

Recommended SDC Eligibility for Project T5: 72%

This project improves access to Adair Village from OR 99W. As a result, the entire community will benefit from the project and the SDC eligibility should be established based on the percentage of the plan year population due to development.

$$Project\ T5\ SDC\ Eligibility = \frac{3115\ people - 860\ people}{3115\ people} = 0.72\ \rightarrow 72\%\ Eligible$$

Project T6- Arnold Avenue Modernization

Recommended SDC Eligibility for Project T6: 72%

This project is intended to improve access to the Adair County Park and will benefit both future and existing residents. Therefore, the SDC eligibility should be established based on the percentage of the plan year population due to development.

$$Project\ T6\ SDC\ Eligibility = \frac{3115\ people - 860\ people}{3115\ people} = 0.72\ \rightarrow 72\%\ Eligible$$

Project T7- Purple Vetch Modernization

Recommended SDC Eligibility for Project T7: 100%

This project will modernize Purple Vetch and facilitate access to currently undeveloped/ minimally developed areas of the UGB. Therefore, it was determined that this project is only necessary to facilitate growth in the area and should be 100% SDC eligible.

Project T8- Vandenberg Avenue Modernization (William R Carr Avenue to Marcus Harris Avenue)

Recommended SDC Eligibility for Project T8: 72%

This project will modernize Vandenberg Avenue from William R Carr Avenue to Marcus Harris Avenue. This improved roadway will benefit both the existing City residents (primarily located to the north of this road) and the future residents who build in the City (primarily in developing areas located to the south of this road). Therefore, the SDC eligibility should be established based on the percentage of the plan year population due to development.

$$Project\ T8\ SDC\ Eligibility = \frac{3115\ people - 860\ people}{3115\ people} = 0.72\ \rightarrow 72\%\ Eligible$$

Project T9- William R Carr Avenue- Main Street Project

Recommended SDC Eligibility for Project T9: 72%

The William R Carr Avenue Main Street Project will enhance the downtown area of the City, particularly those areas near City Hall and the planned downtown park. As a result, the entire community will benefit equally from the project and the SDC eligibility should be established based on the percentage of the plan year population due to development.

$$Project\ T5\ SDC\ Eligibility = \frac{3115\ people - 860\ people}{3115\ people} = 0.72\ \rightarrow 72\%\ Eligible$$

Project T10- 5th Street Extension

Recommended SDC Eligibility for Project T10: 100%

This project extends 5th Street south from Vandenberg Avenue and improves access to the far southern portion of the UGB that is currently undeveloped. Therefore, this project is entirely necessary to facilitate growth in that portion of the UGB and should be 100% SDC eligible.

Project T11- 5th Street and Ryals Avenue Intersection Improvements

Recommended SDC Eligibility for Project T11: 72%

The construction of a roundabout or traffic signal to improve traffic flow through this intersection will benefit existing residents and future residents in the southern portion of the UGB where this project site is located. Therefore, the SDC eligibility should be established based on the percentage of the plan year population due to development.

$$Project\ T5\ SDC\ Eligibility = \frac{3115\ people - 860\ people}{3115\ people} = 0.72\ \rightarrow 72\%\ Eligible$$

Project T12- Pavement Preservation Plan

Recommended SDC Eligibility for Project T12: 0%

This project is intended to help maintain the conditions of the existing roadways and will not provide any additional capacity for development. Therefore, this project is not SDC eligible.

Table 6.2 below summarizes the SDC eligibility for each project on the Adair Village Transportation System CIP List.

TABLE 6.2: TRANSPORTATION SYSTEM SDC ELIGIBILITY SUMMARY

Project No.	Project Description	Adjusted Cost Estimate	Reimbursement SDC Eligible (Y/N)	Improvement SDC Eligible (Y/N)	% SDC Eligible	SDC Eligible Cost
T1	Arnold Avenue- Adair County Park Shared-Use Path	$1,167,261	N	Y	72%	$844,999
T2	Marcus Harris Extension Pedestrian Crossing	$45,675	N	Y	100%	$45,675
T3	Arnold Avenue Pedestrian Crossing	$50,750	N	Y	100%	$50,750
T4	William R Carr Avenue Modernization	$964,259	N	Y	34%	$327,848
T5	Vandenberg Avenue Modernization (OR 99W to ODFW)	$152,251	N	Y	72%	$110,217
T6	Arnold Avenue Modernization	$507,505	N	Y	72%	$367,391
T7	Purple Vetch Modernization	$406,004	N	Y	100%	$406,004
T8	Vandenberg Avenue Modernization (William R Carr Avenue to Marcus Harris Avenue)	$710,506	N	Y	72%	$514,347
T9	William R Carr Avenue- Main Street Project	$406,004	N	Y	72%	$293,913
T10	5th Street Extension	$2,080,769	N	Y	100%	$2,080,769
T11	5th Street and Ryals Avenue Intersection Improvements	$507,505	N	Y	72%	$367,391
T12	Pavement Preservation Plan	$40,000	N	N	0%	$0
Total		**$7,038,489**				**$5,409,305**

Of the projects on the Transportation CIP List, approximately 77% of the project costs are to be considered as SDC eligible.

6.6 Transportation System Reimbursement SDC

Oregon Law includes provisions for a reimbursement SDC to be developed for projects that have been completed and have remaining capacity to service growth. This section establishes

the methodology and the charge for Transportation System Reimbursement SDC's in Adair Village.

TABLE 6.3: TRANSPORTATION SYSTEM REIMBURSEMENT SDC SUMMARY

Project No.	Project Description	SDC Eligible Cost
	None	$0
	Total Reimbursement Eligible Costs	$0
	Total Transportation System Growth EDUs	938.22
	Maximum Transportation System Reimbursement SDC	**$0**

As none of the projects on the CIP have yet to be undertaken, no reimbursement SDC is currently recommended.

6.7 Transportation System Improvement SDC

The calculation of the Transportation System Improvement SDC is accomplished by considering the total value of the Improvement SDC eligible projects divided by the growth potential in the transportation system.

A summary of the Transportation System Improvement SDC calculation is provided below in Table 6.4.

TABLE 6.4: TRANSPORTATION SYSTEM IMPROVEMENT SDC SUMMARY

Project No.	Project Description	SDC Eligible Cost
T1	Arnold Avenue- Adair County Park Shared-Use Path	$844,999
T2	Marcus Harris Extension Pedestrian Crossing	$45,675
T3	Arnold Avenue Pedestrian Crossing	$50,750
T4	William R Carr Avenue Modernization	$327,848
T5	Vandenberg Avenue Modernization (OR 99W to ODFW)	$110,217
T6	Arnold Avenue Modernization	$367,391
T7	Purple Vetch Modernization	$406,004
T8	Vandenberg Avenue Modernization (William R Carr Avenue to	$514,347
T9	William R Carr Avenue- Main Street Project	$293,913
T10	5th Street Extension	$2,080,769
T11	5th Street and Ryals Avenue Intersection Improvements	$367,391
	Total Improvement Eligible Costs	$5,409,305
	Total Transportation System Growth EDUs	938.22
	Maximum Transportation System Improvement SDC	**$5,765**

Based on the above methodology, a Transportation System Improvement SDC of $5,765 would is recommended.

6.8 SDC Credits

An analysis of potential SDC credits is included as part of the SDC methodology. Credits may be appropriate to offset financing costs that will be paid by all system customers including new customers. Credits are also appropriate for developers who construct or otherwise provide improvements to the system that are part of the current Transportation System CIP List. A brief description of potential SDC credit scenarios is included in the following sections.

6.8.1 Improvement Offset Credit

If a developer completes some or all of a project listed on the City's Transportation CIP List, the credit provided should be equal to the value of the improvement made. The credit cannot exceed the amount of the Transportation System SDC that the developer would have been required to pay.

For example, if a developer constructs a section of roadway to provide service to their development and the improvement was included on the City's Transportation System CIP List, a credit should be negotiated for the improvement provided by the developer.

It should be noted that determination of improvement offset credits can require some judgment as development situations vary widely. The City should maintain an open policy when working with developers to identify fair and reasonable improvement offset credits when they apply. It should also be reiterated that offset credits are not available for improvements undertaken by the developer that do not appear on the City's CIP List and are not part of the City's SDC methodology.

6.8.2 Financing Credit - Project Costs and Potential Loan Amounts

As the City does not currently have a rate structure or user fee for the transportation system, it is not possible to develop a financing credit. It may be possible for the City to fund a major transportation project through a bond or property tax-related funding mechanism. Should this occur, the City should, as part of the funding for the project, develop an appropriate Transportation System SDC credit to offset the value of the increased property tax so that new development is not charged for higher property taxes in addition to SDC's.

A potential financing credit will not be developed at this time for the transportation system.

6.9 Transportation System SDC Summary

The purpose of this section is to establish a methodology for a fair and reasonable Transportation System SDC for the City of Adair Village. Table 6.5 below summarizes the Transportation System SDC developed in this methodology.

TABLE 6.5: TRANSPORTATION SYSTEM SDC SUMMARY PER EDU

SDC Component	SDC Amount
Improvement Fee (per EDU)	$5,765
Reimbursement Fee (per EDU)	$0
Subtotal of Transportation System SDC Fees (per EDU)	**$5,765**

6.10 Transportation System SDC Assessment Schedule

Assessment of a Transportation System SDC should be based on the use of a standard trip generation table. The 10th Edition of the ITE *Trip Generation Manual* should be used to establish the assessment of the Transportation System SDC among different land use development types. A summary of the recommended assessment methods is provided in the following section.

Like other SDC calculation methods, a typical single-family detached home should be considered as a standard EDU resulting in the base trip count. Trip counts for other land uses should be based on the counts listed in the 10th Edition of the ITE *Trip Generation Manual*.

It is common for an agency to provide a bypass factor or pass by reduction factor for some land uses. The factor applies to land uses that are incidental to trip generation. For example, a convenience store is not generally the reason a trip is generated but is simply a stop on the way to somewhere else. An agency cannot count a trip for a convenience store and a shopping center as two trips if the convenience store is just a stop en route to the ultimate destination.

The ITE Manual provides various land use categories and provides suggested pass-by factors. When considering the SDC assessment for nonresidential land uses, the City should select a pass-by factor, if applicable, and reduce the EDU or trip count by the recommended pass-by percentage.

Some flexibility may be required when assessing Transportation System SDC's as the ITE table does not provide information for all possible land uses. The City will review and approve a proposed appropriate bypass factor for the land use at the time of application and plan review. Some flexibility and judgment will be required to evaluate land uses.

7 PARKS SYSTEM SDC METHODOLOGY

7.1 Introduction

This section describes the background information, calculations, and methodology used to determine the maximum defendable Parks System SDC for the City of Adair Village. This section identifies the existing and future needs of the parks system and summarizes the City's Parks System CIP List.

7.2 Parks System Overview

The City of Adair Village does not have a Parks and Recreation Department. All parks related activities are operated through the city administrative and public works departments. Current City park facilities include:

- The skateboard park – Located adjacent to City Hall, this stretch of undeveloped property is identified as a park and has some basic skateboard equipment and structures. The utility of the park is very poor with no parking, restroom facilities, spectator seating, or other facilities typical to public parks.
- The "kiddy park" – Located in the middle of the original residential areas in Adair Village, the "kiddy park" includes several amenities including a basketball court, playground equipment, some seating and covered eating areas, and pedestrian access. While the park has some amenities, the utility of the park is reduced due to the lack of public parking, restrooms, spectation, and the number of facilities that can be used by residents.
- Adair County Park is a large park located on the east side of the City. The park is owned and maintained by Benton County; therefore, no improvement recommendations for the Adair County Park are considered in this document.

7.2.1 Service Population

Determining the service population using parks facilities in Adair Village is difficult as parks are potentially used by full-time residents, part-time residents, local business employees, tourists, and other visitors to the community. For this methodology, it was determined that the Parks System SDC should be assessed against all new development.

7.3 EDU Methodology and Projected Growth

This methodology assumes that the Parks System SDC will be assessed against all new development. This methodology uses the same growth potential developed for the Wastewater System SDC. This assumes that new growth within the City Limits and UGB will impact the use of parks facilities. Therefore, it was determined that the same number of EDUs served by the sewer system would also be served with park system amenities. The recommended growth potential for the Parks System is equal to 938.22 EDU's.

7.4 Capital Improvement Project List and Project Costs

The City does not have a Parks System Master Plan. Bridge planning was completed using previous SDC documentation and discussions with City staff to provide the information required to develop a Parks System CIP List for the establishment of a Parks System SDC. Project descriptions are included in the Parks System Capital Improvement Project List Technical Memorandum included in Appendix A. The Parks System CIP List projects are summarized in Table 7.1.

TABLE 7.1: PARKS SYSTEM CAPITAL IMPROVEMENT PROJECT LIST

Project No.	Project Description	Project Cost Estimate	Project Cost Date	ENR CCI of Estimate	Current ENR CCI	Adjusted Cost Estimate
P1	Kiddy Park Improvements	$200,000	Feb-08	8109	11227.88	$276,924
P2	Downtown Park	$1,008,592	This Study	11227.88	11227.88	$1,008,592
Total						**$1,285,516**

7.5 Project SDC Eligibility

The SDC methodology indicates the percentage of each project's cost that can be attributed as necessary for growth, and therefore, be considered SDC eligible. As discussed previously, SDC's must be based on a project's cost or the portion of a project's cost that is necessary to add system capacity in response to or in anticipation of growth. The percentage of each project eligible for SDC funding is discussed below.

Project P1- Kiddy Park Improvements

Recommended SDC Eligibility for Project P1: 72%

Improvement to Kiddy Park will benefit all residents of Adair Village. Therefore, the percentage of the Project P1 costs eligible for SDC funds should be equal to the percentage of the population that will be new residents between 2018 and 2038.

$$Project\ P1\ SDC\ Eligibility = \frac{3115\ people - 860\ people}{3115\ people} = 0.72\ \rightarrow 72\%\ Eligible$$

Project P2- Downtown Park

Recommended SDC Eligibility for Project P2: 72%

Project P2 constructs a new downtown park on the site of the existing skatepark that will link City Hall with the Adair Village Barracks. This new park will benefit all residents equally and SDC eligibility was determined based on the increase in population due to future development.

$$Project\ P2\ SDC\ Eligibility = \frac{3115\ people - 860\ people}{3115\ people} = 0.72\ \rightarrow 72\%\ Eligible$$

The SDC eligibility for projects included in the Parks System CIP List is summarized in Table 7.2.

TABLE 7.2: PARKS SYSTEM PROJECT SDC ELIGIBILITY SUMMARY

Project No	Project Description	Adjusted Cost Estimate	Reimbursement SDC Eligible (Y/N)	Improvement SDC Eligible (Y/N)	% SDC Eligible	SDC Eligible Cost
P1	Kiddy Park Improvements	$276,924	N	Y	72%	$200,470
P2	Downtown Park	$1,008,592	N	Y	72%	$730,136
Total						**$930,606**

This methodology identifies nearly $1.3 million dollars in projects with approximately 72% of the aggregate project costs being SDC eligible.

7.6 Parks System Reimbursement SDC

No parks system projects were identified in the Parks System CIP list as being reimbursement SDC eligible. Therefore, no Parks System Reimbursement SDC is recommended at this time.

TABLE 7.3: PARKS SYSTEM REIMBURSEMENT SDC SUMMARY

Project No.	Project Description	SDC Eligible Cost
	None	$0
	Total Reimbursement Eligible Costs	$0
	Total Parks System Growth EDUs	938.22
	Maximum Parks System Reimbursement SDC	**$0**

7.7 Parks System Improvement SDC

Calculation of the Parks System Improvement SDC was based on the methodology and the determination of the SDC eligible project costs described earlier in this section. The following table summarizes the total cost of SDC eligible projects on the Parks System CIP List that have not yet been constructed. To account for construction cost increases since the time of the original estimates, costs have been prorated using the ENR Construction Cost Index.

Based on this analysis, a Parks System Improvement SDC of $992 is recommended. Table 7.4 summarizes the calculation of the Parks System Improvement SDC.

TABLE 7.4: PARKS SYSTEM IMPROVEMENT SDC SUMMARY

Project No.	Project Description	SDC Eligible Cost
P1	Kiddy Park Improvements	$200,470
P2	Downtown Park	$730,136
	Total Improvement Eligible Costs	$930,606
	Total Parks System Growth EDUs	938.22
	Maximum Parks System Improvement SDC	**$992**

7.8 Parks System SDC Credits

An analysis of potential SDC credits is included as part of this SDC methodology. Credits may be appropriate to offset financing costs that will be paid by all system customers including new customers. Credits are also appropriate for developers who construct or otherwise provide improvements to the system that are part of the current Parks System CIP List. A brief description of potential SDC credit scenarios is discussed in the following sections.

7.8.1 Improvement Offset Credit

An improvement offset credit for the Parks System SDC program is difficult as a specific development may have no relationship with or proximity to a park improvement that appears on the Parks System CIP List. This does not eliminate the potential for a developer to offset a Parks System SDC with an equivalent improvement or partial improvement of a Parks System CIP List project.

For example, the City may wish to provide a Parks System CIP offset credit to a developer who chooses to install a public restroom facility on one of the planned parks projects. If the value of

the restroom improvement is $65,000, a credit could be provided to the development for up to that amount, but not more than the development would be required to pay for a Parks System SDC.

As with the other SDC programs, a parks system improvement offset credit must be considered on a case-by-case basis.

7.8.2 Financing Credit

The City does not have a rate structure or user fee for the parks system; therefore, it is not possible to develop a financing credit. As it is unlikely that a user fee will be established to support parks activities in Adair Village, no recommendations are provided at this time to provide a credit to offset a potential parks user fee.

It is possible that property taxes could be increased through bonds, levies, or other property tax related funding mechanisms to pay for improvements to the parks system. As is the case with user rates, a property cannot be charged an SDC and an increased property tax for the same SDC eligible project. Therefore, if Parks System CIP List projects are funded through an increase in the property taxes in Adair Village, an appropriate financing credit should be established to eliminate the potential for "double-dipping" to pay for growth-required parks projects.

7.9 Parks System SDC Summary

Section 7 provides the City of Adair Village with the methodology to establish the maximum defendable SDC for the Parks System. Table 7.5 summarizes the information used in this analysis.

TABLE 7.5: PARKS SYSTEM SDC SUMMARY PER EDU (BEFORE COMPLIANCE COSTS)

SDC Component	SDC Amount
Improvement Fee (per EDU)	$992
Reimbursement Fee (per EDU)	$0
Subtotal of Parks System SDC Fees (per EDU)	**$992**

The maximum defendable Parks System SDC is $992 per EDU without the application of an SDC credit or compliance costs. This calculation represents the maximum SDC that can be

assessed and defended with proper methodology; however, the City has the autonomy to adjust this charge as it deems appropriate. Failure to collect adequate SDC fees could result in the need for other funding sources should projects be undertaken to satisfy growth requirements.

7.10 Parks System SDC Assessment Schedule

As with other SDC programs, the parks program should include an assessment schedule that considers both residential and non-residential development. The assessment schedule should be easy to administer and equitable to the development parties.

It is recommended that the Parks System SDC be assessed on a per EDU method. While some communities will adjust the residential Parks System SDC assessment based on the number of bedrooms in a home or on the size of a home, it is recommended that one residential development be considered equal to one EDU.

Multi-family housing such as duplexes and apartments should be considered similarly to the assessment method discussed in Section 3 of this methodology. Specifically:

- Apartments should be assessed at a rate of 0.75 EDU per unit.
- Duplexes and townhouses should be assessed at a rate of 1 EDU per separate dwelling or 2 EDU's per duplex.

Nonresidential Parks System SDC's should be assessed assuming the same number of EDUs determined for the wastewater system.

8 COMPLIANCE COSTS

8.1 Introduction

Oregon law includes provisions that allow SDC revenues to be used to offset costs incurred by local governments in complying with the provisions of SDC law, including expenses associated with developing SDC methodologies, master planning, administration and updating of CIP lists, and other compliance related costs. Amendments to the law require annual accounting of SDC expenditures including revenue collected and attributed to the costs of compliance. The expenses of this annual accounting process are also considered to be related to the costs of compliance and can be paid for with SDC revenues.

8.2 Compliance Costs

Unlike reimbursement and improvement SDC's, compliance costs do not represent another category of system development charge. For the City of Adair Village, it is recommended that compliance costs be established as a percentage of the total SDC's that are likely to be assessed each year. The additional surcharge that is to be added to all SDC's will provide the funds necessary to administer each of the SDC programs and comply with current SDC laws and requirements.

The following sections provide a brief description of the components that comprise the compliance cost methodology.

8.2.1 Auditing/Accounting Costs

The City is required to complete annual accounting and auditing of all of the SDC programs that are implemented. The City must account for all revenues collected through SDC assessments, all expenses and project costs that are fully or partially paid for with SDC funds, and all other debits or credits from the SDC funds.

For the purposes of this document, it will be assumed that auditing and accounting expenses will not exceed $5,000 per year.

8.2.2 SDC Methodology and Administration

The City will need to perform regular updates to their SDC methodology to account for increases in project costs (inflation), additions to the capital improvement project list, adjustments for project financing specifics as projects develop (i.e. interest rates, grants, etc.), population or growth rate changes, and other issues that may change the SDC charge for one or more of the individual SDC programs. These updates may be required, to a greater or lesser extent, on an annual basis.

It is also assumed that a full SDC methodology update will be required at least once each decade as planning efforts are updated. This major SDC methodology update may be required once every ten years and would ensure that the City's SDC methodology meets all current legal requirements and is coordinated with updated planning efforts and CIP's.

While the cost of administering and updating the City's SDC methodology may vary, it is recommended that the City budget $10,000 per year for this purpose. This will include costs for consulting assistance and administrative costs of city staff as they address SDC issues, determine assessments, track funds, and perform other SDC administrative tasks.

8.2.3 Infrastructure Planning Efforts

Most master planning and facilities planning efforts cover a planning period of 20 years. Changes in community needs, development pressures, regulatory changes, or other issues often prompt these planning documents to be updated or repeated on a more frequent basis than the planning period suggests.

For the purpose of establishing compliance costs, it is recommended that water and wastewater system planning be repeated on a schedule of at least once every 10 years. It may be that a major planning effort is required in year 1 and a less involved planning effort or update is appropriate for year 10. In any event, the City should be collecting revenues through the planning process that will allow them to update their planning documents as required.

It can be argued that 100 percent of the costs associated with planning should be considered SDC eligible; however, some of the effort involved with infrastructure planning includes assessing existing facilities, their capacities and condition, and the capabilities of the existing systems to provide service to existing and future customers. The planning effort also includes determining the infrastructure needs associated with growth and development. Therefore, the compliance cost associated with infrastructure planning should be borne in part by the SDC programs and in part by the existing system users.

For the purposes of this analysis, it is recommended that 50% of the recurring planning costs be considered attributable to growth. These costs are SDC eligible. The individual costs of these planning efforts are estimated in Table 8.1.

8.2.4 Total Estimated SDC Revenue

As it is recommended that compliance costs should be charged as a percentage surcharge of SDC revenues, the amount of SDC revenue that is anticipated to be collected must be estimated.

For this calculation, it was assumed that the City will charge the maximum defendable SDC for each system. This calculation will require adjustment should the City opt to charge less than the maximum defendable SDC for each system. The annual compliance costs and annual expected revenue were than used to calculate the recommended percentage surcharge necessary to pay for associated SDC compliance costs.

The growth component for each SDC program was reviewed individually and an annual average growth unit established. For example, it was determined that the Water System SDC program will add 938.22 EDU's over 20 years; therefore, it should be assumed that the system will add an average of 46.91 EDU's each year to the system. The compliance costs associated with the Water System SDC program should be paid as a percentage of the SDC revenues collected from the 46.91 new EDU's added to the system in any given year.

This analysis was repeated for each of the SDC programs. A summary of this analysis is provided below in Table 8.2.

8.2.5 Calculation of Compliance Expenses

Table 8.1 summarizes the estimated compliance costs associated with the proper administration of an SDC program for the City of Adair Village. These expenses include annual costs for accounting and administration as well as long term costs for planning efforts.

TABLE 8.1: SDC COMPLIANCE EXPENSES

Compliance Activity	Estimated Cost	SDC Eligibility	Frequency (Years)	Annual Cost
General Accounting/Administrative Costs				
Auditing/Accounting	$5,000	100%	1	$5,000
SDC Methodology Administration & Annual Adjustments	$10,000	100%	1	$10,000
SDC Methodology Update	$54,000	100%	10	$5,400
Wastewater System Compliance Costs				
Wastewater Facilities Planning	$80,000	50%	10	$4,000
Water System Compliance Costs				
Water Master Planning	$60,000	50%	10	$3,000
Water Conservation and Management Planning	$25,000	50%	20	$625
Storm Drainage System Compliance Costs				
Storm Drainage Master Planning	$85,000	50%	20	$2,125
Parks System Compliance Costs				
Park System Master Planning	$70,000	50%	20	$1,750
Transportation System Compliance Costs				
Transportation System Master Plan	$84,000	50%	10	$4,200
Subtotal Annual Compliance Costs	**$473,000**			**$36,100**

Based on this analysis, it is estimated that $36,100 per year will be needed to properly administer the City's SDC programs. This includes costs for planning and general administration.

8.2.6 Summary of SDC Revenue and Calculation of Compliance Charge

Each section of this methodology describes the growth potential, over a 20-year planning period, for each infrastructure sector. To calculate the average annual SDC revenue, it was assumed that a constant growth rate would occur for each sector for the duration of the planning period. It is important to note that this assumption has been made to simplify the calculation and

administration of the SDC Compliance Charge and that growth is not necessarily projected to occur at a constant growth rate as shown in Table 3.1.

The SDC per EDU was multiplied by the annual anticipated growth in EDUs to estimate the annual SDC revenue for each infrastructure sector. Table 8.2 below summarizes the estimated revenue expected within each sector.

TABLE 8.2: ANTICIPATED SDC REVENUE BY SYSTEM

Estimates of SDC Revenues	Added EDU's EDU's/yr	SDC Charge per EDU	Annual Revenue
Estimated Annual Water SDC Revenues	46.91	$7,855	$368,497
Estimated Annual Wastewater SDC Revenues	46.91	$3,435	$161,133
Estimated Annual Storm Drainage SDC Revenues	46.91	$305	$14,315
Estimated Annual Transportation SDC Revenues	46.91	$5,765	$270,465
Estimated Annual Parks SDC Revenues	46.91	$992	$46,530
Total Estimated SDC Revenues			**$860,941**
Compliance Cost Charge (Annual Cost/Annual Revenue)			**4.19%**

An appropriate SDC compliance charge was determined by dividing the annual anticipated compliance costs estimated in Table 8.1 by the total estimated annual revenue in Table 8.2.

Based on this analysis, a compliance charge of approximately 4.19% of the SDC revenue be collected for each of the individual SDC programs. On average, this charge should produce enough revenue annually to assist the City with the compliance and administration of all the SDC programs.

Compliance costs should be shared among all infrastructure sectors. When SDC's are collected, the City must deposit an appropriate amount into each SDC account, taking care to separate the individual SDC charges as well as an appropriate portion of the compliance costs into each separate account.

9 SDC COMPARISON

This section compares the SDCs proposed in this methodology to those of other municipalities in the region. It is important to note that comparing SDCs from other cities to those proposed here should not be used as a benchmark of “reasonableness” given the variation in infrastructure needs from city to city and differences in costs for goods and services.

SDC’s from the following cities were included in this comparison due to their proximity to the City of Adair Village:

- Corvallis
- Albany
- Turner
- Monmouth
- Salem

Each city has flexibility in the method used to calculate SDCs assessed on new development. The comparison presented here was determined for a detached single-family residence. In cases where the method used by the comparative municipality differed from the method proposed for Adair Village, the following criteria were used as defining characteristics of a detached single-family home:

- Number of Bedrooms: 3
- Number of Bathrooms: 2.5
- House Square Footage: 1,600 SF
- Impervious Cover on Lot: 2,500 SF
- Water and Sewer Fixtures (Qty): Lavatory (3), Toilet (3), Shower or Tub (2), Sink (1), Dishwasher (1), Clotheswasher (1), Hose Bibb (2)
- Water Meter Size: ¾”

TABLE 9.1: COMPARISON OF SYSTEM DEVELOPMENT CHARGES

Municipality	Water	Wastewater	Storm Drainage	Transportation	Parks	Compliance/ Admin Fee	Total
Adair Village (current)	$6,053	$3,135	$634	$1,096	$317	$875	$12,110
Adair Village (proposed)	$7,855	$3,435	$305	$5,765	$992	$762	$19,114
Corvallis[1]	$2,502	$6,840	$253	$3,000	$6,607	Unknown	$19,202
Albany[2]	$2,857	$3,553	None	$3,941	$1,549	$7	$11,907
Turner[3]	$3,395	$3,094	None	$1,932	$1,736	$203	$10,360
Monmouth[4]	$1,689	$3,289	$230	$3,732	$1,989	Unknown	$10,929
Salem[5]	$4,797	$3,832	$609	$2,847	$4,404	$340	$16,829

[1]City of Corvallis SDC information obtained from https://www.corvallisoregon.gov/ds/page/system-development-charges-sdcs
[2]City of Albany SDC information obtained from https://www.cityofalbany.net/departments/public-works/engineering/system-development-charges
[3]City of Turner SDC information obtained from http://www.turnerbusiness.org/
[4]City of Monmouth SDC information obtained from https://www.ci.monmouth.or.us/pView.aspx?id=4796&catid=552
[5]City of Salem SDC information obtained from 2019 SDC Methodology Report available at https://www.cityofsalem.net/Pages/system-development-charges.aspx

Appendix A

May 2019

Civil West
Engineering Services, Inc.
213 Water Ave. NW, Ste. 100
Albany, OR 97321
p 541.223.5130

City of Adair Village
6030 NE William R Carr Avenue
Adair Village, OR 97330

RE: Water System CIP List Update

This technical memorandum has been prepared to provide the City of Adair Village with an updated Capital Improvement Project (CIP) list related to the potable water system. The City has not completed a comprehensive water system planning effort since the completion of the most recent Water System Master Plan Update in 2006. This technical memorandum was prepared by reviewing this most recent planning document, identifying projects that are still uncompleted and relevant to the City's potable water system, and updating costs. Additional projects have been added to the list based on recently identified needs. This CIP List can serve as the basis for revising the City's System Development Charge (SDC) methodology to ensure that adequate funds are collected to undertake growth-related water system infrastructure projects.

Recommended Water System Improvements

The City's 2006 Water System Master Plan identified several projects that the City should plan to undertake. While some projects from the CIP list have been completed since the plan was developed, several remain uncompleted and are necessary to sustain the potable water system.

Project W1 - Raw Water Intake Pump Station Improvements

The Water Master Plan Update indicates that the projected water demand will exceed the capacity of the existing raw water intake pumps. This project would replace the raw water intake pumps at the pump station located in Hyak Park.

Project W1 Cost Estimate Update	
Referenced Cost Estimate	$214,755
Date of Referenced Cost Estimate	Nov 2006
Reference ENR CCI	7910.81
Current ENR CCI (March 2019)	11227.88
Updated Cost Estimate (March 2019 $)	$304,804

Estimated Project Cost: $304,804

Project W2 - Raw Water Intake Pump Station Building Improvements
The existing building needs general maintenance work or replacement to prevent further decay and damage.

Project W2 Cost Estimate Update	
Referenced Cost Estimate	$56,860
Date of Referenced Cost Estimate	Nov 2006
Reference ENR CCI	7910.81
Current ENR CCI (March 2019)	11227.88
Updated Cost Estimate (March 2019 $)	$80,702

Estimated Project Cost: $80,702

Project W3 - Raw Water Transmission Pipe Replacement
The Water Master Plan Update states that the existing 10" waterline between the raw water intake pump station and the water treatment plant may create headlosses that require the installation of larger capacity raw water intake pumps (Project W1).

Project W3 Cost Estimate Update	
Referenced Cost Estimate	$193,530
Date of Referenced Cost Estimate	Nov 2006
Reference ENR CCI	7910.81
Current ENR CCI (March 2019)	11227.88
Updated Cost Estimate (March 2019 $)	$274,679

Estimated Project Cost: $274,679

Project W4 - Water Treatment Facility
The Water System Master Plan Update notes that anticipated demand will exceed the operating capacity of the existing water treatment plant. While the plan recommends the construction of a submerged membrane water treatment plant, the actual treatment plant improvements should be re-evaluated during the preliminary design phase of the project.

Project W4 Cost Estimate Update	
Referenced Cost Estimate	$4,314,960
Date of Referenced Cost Estimate	May 2008
Reference ENR CCI	8140.61
Current ENR CCI (March 2019)	11227.88
Updated Cost Estimate (March 2019 $)	$5,951,379

Estimated Project Cost: $5,951,379

Project W5 – Service Pump Replacement
The Water System Master Plan recommends installing two new service pumps to meet projected demands. These service pumps would convey water from the treatment plant to the new Voss Hill Reservoirs.

Project W5 Cost Estimate Update	
Referenced Cost Estimate	$172,360
Date of Referenced Cost Estimate	Nov 2006
Reference ENR CCI	7910.81
Current ENR CCI (March 2019)	11227.88
Updated Cost Estimate (March 2019 $)	$244,632

Estimated Project Cost: $244,632

Project W6 – Transmission Line Replacement, WTP to Voss Hill Reservoirs
Replacement of the waterline between the water treatment facility and the Voss Hill Reservoirs is necessary to convey adequate flow from an upgraded treatment plant.

Project W6 Cost Estimate Update	
Referenced Cost Estimate	$1,791,710
Date of Referenced Cost Estimate	Nov 2006
Reference ENR CCI	7910.81
Current ENR CCI (March 2019)	11227.88
Updated Cost Estimate (March 2019 $)	$2,542,989

Estimated Project Cost: $2,542,989

Project W7 – Transmission Line Replacement, Voss Hill Reservoirs to City
This project replaces the existing asbestos concrete transmission pipe conveying water from the Voss Hill Reservoirs to the City. Replacement is to be undertaken due to age of the existing pipe.

Project W7 Cost Estimate Update	
Referenced Cost Estimate	$1,134,590
Date of Referenced Cost Estimate	Nov 2006
Reference ENR CCI	7910.81
Current ENR CCI (March 2019)	11227.88
Updated Cost Estimate (March 2019 $)	$1,610,333

Estimated Project Cost: $1,610,333

Project W8 – Vandenberg Avenue Loop Piping
This project constructs new waterline to achieve system looping and improved fire flows along Vandenberg Avenue.

Project W8 Cost Estimate Update	
Referenced Cost Estimate	$66,720
Date of Referenced Cost Estimate	Nov 2006
Reference ENR CCI	7910.81
Current ENR CCI (March 2019)	11227.88
Updated Cost Estimate (March 2019 $)	$94,696

Estimated Project Cost: $94,696

The following projects have been identified as recommended improvements to the City's potable water system and were not discussed in the City's Water Master Plan Update. These projects are to be added to the Water System CIP list.

Project W9 – Hospital Hill Booster Pump Station
This project would install a small packaged booster station to allow for complete filling of the Hospital Hill Reservoir.

Estimated Project Cost: $122,009

Project W10 – Valve Installation Near SAGE and Santiam Christian School
The project would install four new valves to allow for improved isolation capabilities of sections of waterline located near downtown.

Estimated Project Cost: $60,000

The estimated total capital cost for all projects included on the Water System CIP list is $11,286,223.

Completed Water System Improvements
The following projects were listed on the 2006 Water System Master Plan Update and have since been completed. Excess capacity from these projects should be considered when determining Water System Reimbursement SDCs.

Project W11 – Primary Water Storage Improvements
The Water Master Plan Recommended the construction of additional treated water storage facilities. In 2016-2017, the City constructed two new glass-fused-to-steel reservoirs at Voss Hill to replace the existing in-ground concrete reservoir and provide additional storage capacity.

The existing Voss Hill Reservoir had an estimated capacity of 1 MG gallons according to 2001 City of Adair Village Water System Master Plan. The combined capacity of the two new Voss Hill Reservoirs is approximately 2,081,148 gallons based on information provided by the tank manufacturer (Permastore Tanks & Silos). Therefore, this project provided 1,081,148 gallons of new treated water storage capacity that would qualify for Reimbursement SDC's.

Project W12 – Secondary Water Storage Improvements
Hospital Hill Reservoir is used to provide additional treated water storage for the City. In 2016-2017, the City installed a liner to reduce leakage from the reservoir. This project performed a maintenance task and did not provide any additional storage capacity; therefore, this project is not a Reimbursement SDC-eligible project.

Additional information, including preliminary design recommendations, can be found in the 2006 Water System Master Plan. We recommend that the City complete a detailed preliminary design process when undertaking any of the projects on this CIP List to verify the recommended design parameters.

Recommended Compliance Costs

In addition to the projects previously discussed, the City has not recently updated its Water System Master Plan. The existing Water System Master Plan is 18 years old and the most recent Water System Master Plan Update is 13 years old. Maintaining master plans that reflect the current status of the City and accurately project its growth and needs is vital for ensuring that the potable water system has the capacity to continue serving the City. Budgeting for a new Water System Master Plan should be included in the Compliance Cost list for any updates made to the City's SDC methodology.

Estimated Project Cost: $60,000

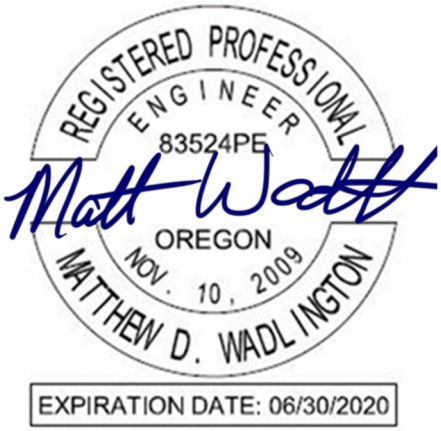
The City is also required to maintain a Water Management and Conservation Plan (WMCP), and its existing WMCP was prepared in 2015. Maintaining a WMCP that reflects the current status of the City is important for ensuring adequate water supplies for City water system customers. Budgeting for a new WMCP should be included in the Compliance Cost list for any updates made to the City's SDC methodology.

Estimated Project Cost: $25,000

If you have any questions about projects included on this Water System CIP List, please do not hesitate to contact me at mwadlington@civilwest.net or 541.223.5130.

Sincerely,

Matt Wadlington, PE
Civil West Engineering Services, Inc.



May 2019

Civil West
Engineering Services, Inc.
213 Water Ave. NW, Ste. 100
Albany, OR 97321
p 541.223.5130

City of Adair Village
6030 NE William R Carr Avenue
Adair Village, OR 97330

RE: Wastewater System CIP List

This technical memorandum has been prepared to provide the City of Adair Village with an updated Capital Improvement Project (CIP) list related to the wastewater collection and treatment system. This memorandum was prepared based on information developed during the 2019 Wastewater Facilities Plan Update process that is in the process of being finalized. This CIP List can serve as the basis for revising the City's System Development Charge (SDC) methodology to ensure that adequate funds are collected to undertake growth-related wastewater system infrastructure projects.

Recommended Wastewater System Improvements
The City's 2019 Wastewater Facilities Plan Update identified several projects that the City should plan to undertake.

Project WW1 – Annual Pipe Replacement Program
This project is an annual budget allocation to replace the equivalent of approximately 300 LF of sewer piping each year. Replacing sewer pipe at this pace will result in the wastewater collection system being replaced at a rate of once every 100 years.

Estimated Project Cost: $65,450 (Annually)

Project WW2 – Lift Station No. 1 Emergency Power
This project installs a permanent diesel generator and automatic transfer switch at Lift Station No. 1 (near ODFW) so that the lift station will continue operating in the event of a power outage.

Estimated Project Cost: $73,950

Project WW3 – Lift Station No. 1 Telemetry
This project installs telemetry at Lift Station No. 1 to allow for the remote monitoring of lift station functions.

Estimated Project Cost: $9,750

Project WW4 – Lift Station No. 1 Replacement
This project replaces the aging and leaky Lift Station No. 1 wet well and lift station with a new wet well and packaged lift station.

Estimated Project Cost: $207,296

Project WW5 – Lift Station No. 2 Replacement
This project replaces the existing wet well and Lift Station No. 2 infrastructure with a new wet well and packaged lift station. Larger capacity pumps will be installed to address capacity issues.

Estimated Project Cost: $283,744

Project WW6 – Lift Station No. 2 Emergency Power
This project installs a permanent diesel generator and automatic transfer switch at Lift Station No. 2 (inside Adair County Park) so that the lift station will continue operating in the event of a power outage.

Estimated Project Cost: $74,628

Project WW7 – Forcemain Replacement
This project replaces the existing asbestos concrete forcemain serving Lift Station No. 2 with an HDPE forcemain.

Estimated Project Cost: $216,648

Project WW8 – WWTP Influent Pipe Replacement
This project constructs a larger diameter pipe conveying influent from Manhole D-3 to the WWTP headworks structure.

Estimated Project Cost: $364,225

Project WW9 – WWTP Headworks
This project replaces the existing WWTP headworks with a larger capacity headworks that contains a mechanically-cleaned fine screen to provide better removal of solids compared to the existing headworks.

Estimated Project Cost: $736,048

Project WW10 – Trickling Filter Activated Sludge (TFAS) WWTP Upgrades

This project would convert the City's existing trickling filter WWTP to a trickling filter activated sludge treatment facility.

Estimated Project Cost: $3,096,023

Project WW11 – WWTP UV Disinfection System
This project replaces the existing chlorine gas disinfection system with an ultraviolet light disinfection system.

Estimated Project Cost: $520,636

Project WW12 – WWTP Treated Effluent Land Application System Improvements
This project constructs a new treated effluent land application system to provide disinfection of treated effluent to meet Class C reuse water requirements and constructs a standpipe for the connection of irrigation system piping by adjacent landowners.

Estimated Project Cost: $246,676

Project WW13 – WWTP Sludge Drying Beds Piping Modifications
This project modifies the existing sludge drying bed underdrain system to convey filtrate from the drying beds back to the front of the wastewater treatment plant so that it can be treated prior to discharge.

Estimated Project Cost: $79,682

Project WW14 – WWTP SCADA
This project would install a supervisory control and data acquisition (SCADA) system at the WWTP to allow provide remote monitoring and operation control capabilities for key process equipment.

Estimated Project Cost: $189,000

Project WW15 – WWTP Emergency Power Loss Preparedness
This project would install an emergency generator and automatic transfer switch to power critical equipment at the WWTP in the event of an interruption to the facility's electrical service.

Estimated Project Cost: $142,800

Project WW16 – WWTP Operations and Control Building

This project would construct a new operations and control building at the WWTP that provides laboratory, office, and storage space for wastewater treatment plant staff.

Estimated Project Cost: $765,100

The estimated total capital cost for all projects included on the Wastewater System CIP list is $7,006,206. This total does not include the annual cost for the pipe replacement project (WW1).

Recommended Compliance Costs

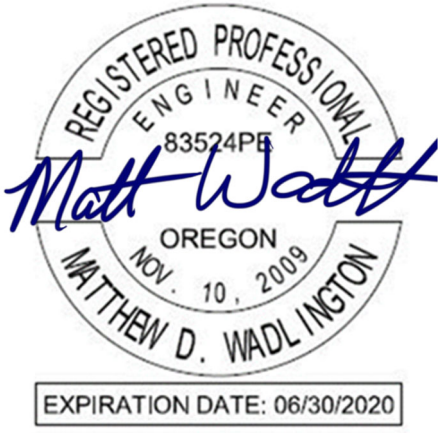
In addition to the projects previously discussed, the City should continue to maintain an updated Wastewater Facilities Plan. Maintaining a facilities plan that reflects the current status of the City and accurately projects its growth and needs is vital for ensuring that the wastewater system has the capacity to continue serving the City. Budgeting for a new Wastewater Facilities Plan should be included in the Compliance Cost list for any updates made to the City's SDC methodology.

Estimated Project Cost: $80,000

If you have any questions about projects included on this Wastewater System CIP List, please do not hesitate to contact me at mwadlington@civilwest.net or 541.223.5130.

Sincerely,

Matt Wadlington, PE
Civil West Engineering Services, Inc.



May 2019

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City of Adair Village
6030 NE William R Carr Avenue
Adair Village, OR 97330

RE: Storm Drainage System CIP List Update

This technical memorandum has been prepared to provide the City of Adair Village with a Capital Improvement Project (CIP) list related to the storm drainage system. The City has not completed a comprehensive storm drainage system planning effort, so this technical memorandum was prepared by reviewing previously-identified projects and discussing additional needs with City staff. This CIP list can serve as the basis for revising the City's System Development Charge (SDC) methodology to ensure that adequate funds are collected to undertake growth-related storm drainage system infrastructure projects.

Recommended Water System Improvements

The City's 2010 System Development Charge Methodology identified several storm drainage projects that the City planned to undertake. The following projects identified in that document have not been completed.

Project SD1 – Ebony Lane Drainage Improvements

Ebony Lane is a two-lane roadway providing access to Santiam Christian School and other property, and flooding and ponding has been reported after large storm events. Additional catch basins, piping, manholes, and a new outlet structure should be constructed to minimize flooding. The project budget does not include costs for resurfacing as it was assumed that this project would be completed in coordination with a resurfacing project.

Project SD1 Cost Estimate Update	
Referenced Cost Estimate	$100,000
Date of Referenced Cost Estimate	Feb. 2008
Reference ENR CCI	8094.28
Current ENR CCI (March 2019)	11227.88
Updated Cost Estimate (March 2019 $)	$138,714

Estimated Project Cost: $138,714

Project SD2 – Santiam Christian School & Downstream Drainage Improvements

Storm drainage infrastructure adjacent to the Santiam Christian School campus collects and conveys storm water away from the facility. This system appears to lack adequate capacity and larger pipe, catch basin replacement/rehabilitation, and an improved outfall are needed.

Project SD2 Cost Estimate Update	
Referenced Cost Estimate	$200,000
Date of Referenced Cost Estimate	Feb. 2008
Reference ENR CCI	8094.28
Current ENR CCI (March 2019)	11227.88
Updated Cost Estimate (March 2019 $)	$277,428

Estimated Project Cost: $277,428

Project SD3 – Laurel Drive Drainage Improvements

Existing drainage infrastructure near Laurel Drive consists of ditches, piping, and catch basins. Some portions of the drainage system include overland drainage. This project would construct a piped stormwater collection system to eliminate overland flow components of the existing drainage system. Stormwater would be discharged to the west side of Adair County Park.

Project SD3 Cost Estimate Update	
Referenced Cost Estimate	$150,000
Date of Referenced Cost Estimate	Feb. 2008
Reference ENR CCI	8094.28
Current ENR CCI (March 2019)	11227.88
Updated Cost Estimate (March 2019 $)	$208,071

Estimated Project Cost: $208,071

The following projects have been identified as recommended improvements to the City's storm drainage system and were not included in the 2010 SDC Methodology. These projects have been developed based on needs identified in discussions with City staff and should be added to the Storm Drainage System CIP list.

Project SD4 – William R Carr Drainage Improvements
This project will install storm drainage infrastructure along William R Carr Avenue between Vandenberg Avenue and Arnold Avenue. This project should be planned in coordination with the streetscape improvements described in the Transportation System CIP List Update.

Project SD4 Cost Estimate Update	
Referenced Cost Estimate	$65,000
Date of Referenced Cost Estimate	Apr. 2010
Reference ENR CCI	8676.68
Current ENR CCI (March 2019)	11227.88
Updated Cost Estimate (March 2019 $)	$84,112

Estimated Project Cost: $84,112

Project SD5 – Barberry Drainage Improvements
Barberry Drive is adjacent to a wetland. During storm events, the water surface elevation exceeds the elevation of the adjacent roadway and water from the wetland floods into the roadway. This project would install a new catch basin and storm drainage piping to provide a storm water inlet that promotes efficient draining of the area during storms.

Estimated Project Cost: $20,000

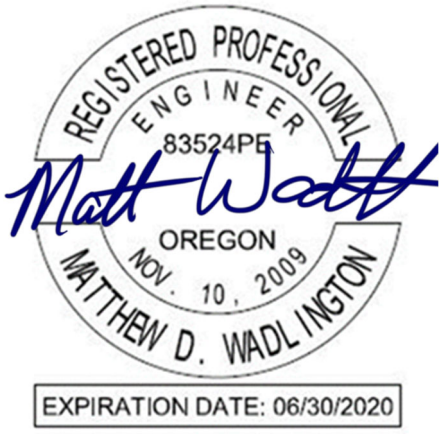
The estimated total capital cost for all projects included on the Storm Drainage CIP list is $728,324.

Recommended Compliance Costs
In addition to the projects previously discussed, the City has not developed a Storm Drainage System Master Plan. The development of a master plan would provide the City with a more comprehensive examination of the unique needs and costs associated with providing an effective storm drainage system for the City. Budgeting for a Storm Drainage System Master Plan should be included in the Compliance Cost list for any updates made to the City's SDC methodology.

Estimated Project Cost: $85,000

If you have any questions about projects included on this Storm Drainage System CIP List, please do not hesitate to contact me at mwadlington@civilwest.net or 541.223.5130.

Sincerely,



Matt Wadlington, PE
Civil West Engineering Services, Inc.

May 2019

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City of Adair Village
6030 NE William R Carr Avenue
Adair Village, OR 97330

RE: Transportation System CIP List Update

This technical memorandum has been prepared to provide the City of Adair Village with an updated Capital Improvement Project (CIP) list related to the City's transportation system. Benton County completed a Transportation System Plan (TSP) in 2018 on behalf of the City that outlines several regional transportation system projects that may impact the residents of Adair Village. The TSP CIP list includes multiple projects that fall outside the responsibility and jurisdiction of the City. This technical memorandum identifies the projects from that TSP CIP list that the City should plan to undertake as well as additional projects not included on the TSP CIP list. This CIP List can serve as the basis for revising the City's System Development Charge (SDC) methodology to ensure that adequate funds are collected to undertake growth-related transportation system infrastructure projects.

Recommended Transportation System Improvements

The City's 2018 Transportation System Plan identified several projects that will impact the City. While some projects from the CIP list will be the responsibility of the Oregon Department of Transportation (ODOT) or Benton County to complete, several will rely on the City to undertake, manage, and fund the bulk of the project.

Project T1 – Arnold Avenue- Adair County Park Shared-Use Path

This project constructs a shared-use path between OR99W and Adair County Park.

Project T1 Cost Estimate Update	
Referenced Cost Estimate	$1,150,000
Date of Referenced Cost Estimate	2018 (average)
Reference ENR CCI	11061.85
Current ENR CCI (March 2019)	11227.88
Updated Cost Estimate (March 2019 $)	$1,167,261

Estimated Project Cost: $1,167,261

Project T2 – Marcus Harris Extension Pedestrian Crossing

This project constructs an enhanced pedestrian crossing on Marcus Harris Extension.

Project T2 Cost Estimate Update	
Referenced Cost Estimate	$45,000
Date of Referenced Cost Estimate	2018 (average)
Reference ENR CCI	11061.85
Current ENR CCI (March 2019)	11227.88
Updated Cost Estimate (March 2019 $)	$45,675

Estimated Project Cost: $45,675

Project T3 – Arnold Avenue Pedestrian Crossing
This project would construct an enhanced pedestrian connection across Arnold Avenue between 5th Street and Ryals Avenue. The crossing would connect future development in the southeast portion of the UGB to Brian Unwin Field and Adair County Park.

Project T3 Cost Estimate Update	
Referenced Cost Estimate	$50,000
Date of Referenced Cost Estimate	2018 (average)
Reference ENR CCI	11061.85
Current ENR CCI (March 2019)	11227.88
Updated Cost Estimate (March 2019 $)	$50,750

Estimated Project Cost: $50,750

Project T4 – William R Carr Avenue Modernization
This project would upgrade William R Carr Avenue between Vandenberg Avenue and Barberry Drive to comply with current roadway cross-section standards including sidewalks adjacent to both sides of the roadway.

Project T4 Cost Estimate Update	
Referenced Cost Estimate	$950,000
Date of Referenced Cost Estimate	2018 (average)
Reference ENR CCI	11061.85
Current ENR CCI (March 2019)	11227.88
Updated Cost Estimate (March 2019 $)	$964,259

Estimated Project Cost: $964,259

Project T5 – Vandenberg Avenue Modernization (OR 99W to ODFW)
This project would upgrade Vandenberg Avenue between OR 99W and the Oregon Department of Fish and Wildlife office to comply with current roadway cross-section standards.

Project T5 Cost Estimate Update	
Referenced Cost Estimate	$150,000
Date of Referenced Cost Estimate	2018 (average)
Reference ENR CCI	11061.85
Current ENR CCI (March 2019)	11227.88
Updated Cost Estimate (March 2019 $)	$152,251

Estimated Project Cost: $152,251

Project T6 – Arnold Avenue Modernization

This project would upgrade Arnold Avenue between Adair County Park and Ryals Avenue to comply with current roadway cross-section standards including sidewalks and bike lanes.

Project T6 Cost Estimate Update	
Referenced Cost Estimate	$500,000
Date of Referenced Cost Estimate	2018 (average)
Reference ENR CCI	11061.85
Current ENR CCI (March 2019)	11227.88
Updated Cost Estimate (March 2019 $)	$507,505

Estimated Project Cost: $507,505

Project T7 – Purple Vetch Modernization

This project would upgrade Purple Vetch Lane between Vandenberg Avenue and Marcus Harris Extension to comply with current roadway cross-section standards. This project may require a State Planning Goal exception because it is located outside of the City's UGB. The cost of the project is anticipated to be split equally between the City and the Oregon Department of Fish and Wildlife.

Project T7 Cost Estimate Update	
Referenced Cost Estimate	$400,000
Date of Referenced Cost Estimate	2018 (average)
Reference ENR CCI	11061.85
Current ENR CCI (March 2019)	11227.88
Updated Cost Estimate (March 2019 $)	$406,004

Estimated Project Cost: $406,004

Project T8 – Vandenberg Avenue Modernization (William R Carr Avenue to Marcus Harris Avenue)
This project would improve Vandenberg Avenue between William R Carr Avenue and Marcus Harris Avenue to current roadway cross-section standards. The project will require a State Planning Goal exception due to its location outside of the City's Urban Growth Boundary.

Project T8 Cost Estimate Update	
Referenced Cost Estimate	$700,000
Date of Referenced Cost Estimate	2018 (average)
Reference ENR CCI	11061.85
Current ENR CCI (March 2019)	11227.88
Updated Cost Estimate (March 2019 $)	$710,506

Estimated Project Cost: $710,506

Project T9 – William R Carr- Main Street Project
This project would construct streetscape improvements along William R Carr Avenue between Vandenberg Avenue and Arnold Avenue.

Project T9 Cost Estimate Update	
Referenced Cost Estimate	$400,000
Date of Referenced Cost Estimate	2018 (average)
Reference ENR CCI	11061.85
Current ENR CCI (March 2019)	11227.88
Updated Cost Estimate (March 2019 $)	$406,004

Estimated Project Cost: $406,004

Project T10 – 5th Street Extension
This project would extend 5th Street south to the southern boundary of the Urban Growth Boundary.

Project T10 Cost Estimate Update	
Referenced Cost Estimate	$2,050,000
Date of Referenced Cost Estimate	2018 (average)
Reference ENR CCI	11061.85
Current ENR CCI (March 2019)	11227.88
Updated Cost Estimate (March 2019 $)	$2,080,769

Estimated Project Cost: $2,080,769

Project T11 – 5th Street and Ryals Avenue Intersection Improvements
This project would construct a roundabout or traffic signal at the intersection of 5th Street and Ryals Avenue. The project may also include an enhanced pedestrian crossing.

Project T11 Cost Estimate Update	
Referenced Cost Estimate	$500,000
Date of Referenced Cost Estimate	2018 (average)
Reference ENR CCI	11061.85
Current ENR CCI (March 2019)	11227.88
Updated Cost Estimate (March 2019 $)	$507,505

Estimated Project Cost: $ 507,505

The following projects have been identified as recommended improvements to the City's transportation system. These projects are to be added to the Transportation System CIP list.

Project T12 – Pavement Preservation Plan
The City currently owns and maintains a network of roadways. These roadways vary in age, design standards, and current condition. Developing a Pavement Preservation Plan will help the City prioritize limited maintenance funds to address deficiencies in existing roadways.

Estimated Project Cost: $40,000

Additional information can be found in the 2018 Adair Village Transportation System Plan. We recommend that the City complete a detailed preliminary design process when undertaking any of the projects on this CIP List to verify any design parameters recommended in that document.

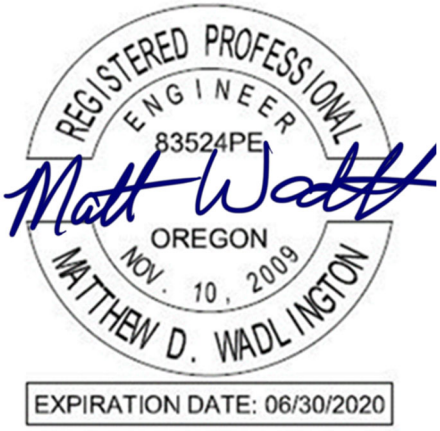
The estimated total capital cost for all projects included on the Transportation System CIP list is $7,038,489.

Recommended Compliance Costs
In addition to the projects previously discussed, the City should budget for future revisions to its Transportation System Plan. The current Transportation System Plan was completed in 2018 and reflects most current conditions. Maintaining master plans that reflect the current status of the City and accurately projects growth and needs is vital for ensuring that the transportation system has the capacity to continue serving the City. Budgeting for a new Transportation System Plan should be included in the Compliance Cost list for any updates made to the City's SDC methodology.

Estimated Project Cost: $84,000

If you have any questions about projects included on this Transportation System CIP List, please do not hesitate to contact me at mwadlington@civilwest.net or 541.223.5130.

Sincerely,



Matt Wadlington, PE
Civil West Engineering Services, Inc.

May 2019

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213 Water Ave. NW, Ste. 100
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City of Adair Village
6030 NE William R Carr Avenue
Adair Village, OR 97330

RE: Parks System CIP List Update

This technical memorandum has been prepared to provide the City of Adair Village with an updated Capital Improvement Project (CIP) list related to the parks system. Projects included on this CIP list were identified from previous planning work and through discussions with City staff. This CIP list can serve as the basis for revising the City's System Development Charge (SDC) methodology to ensure that adequate funds are collected to undertake growth-related parks system projects.

Recommended Parks System Improvements

The City's existing SDC methodology identified several projects that the City intended to undertake. The following projects identified in that document should remain on the Parks System CIP list.

Project P1 – Kiddy Park Improvements

Kiddy Park is in the original residential section of Adair Village and includes a basketball court, playground equipment, and seating. This project would improve the utility of the park by providing additional parking, constructing restrooms, and adding additional seating and playground equipment.

Project P1 Cost Estimate Update	
Referenced Cost Estimate	$200,000
Date of Referenced Cost Estimate	Feb. 2008
Reference ENR CCI	8109
Current ENR CCI (March 2019)	11227.88
Updated Cost Estimate (March 2019 $)	$276,924

Estimated Project Cost: $276,924

The following projects have been identified as recommended improvements to the City's park system. These projects are to be added to the Park System CIP list.

Project P2 – Downtown Park

This project would construct a park on City-owned property located in the east side of William R Carr Avenue between Arnold Avenue and Vandenberg Avenue. The park would provide a connection between City Hall to the south and the preserved barracks to the north. The park would include restrooms, covered seating/eating, water play area, and obstacle course/activity structure.

Estimated Project Cost: $1,008,592

The estimated total capital cost for all projects included on the Parks System CIP list is $1,285,516.

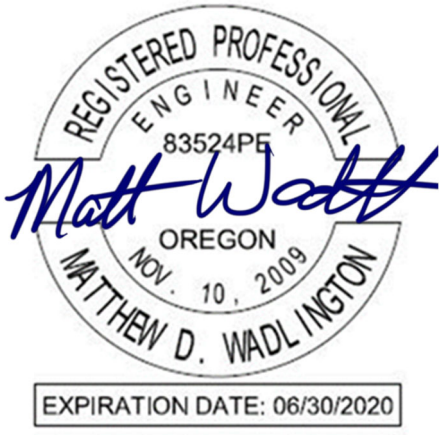
Recommended Compliance Costs

In addition to the projects previously discussed, the City has not undertaken a comprehensive parks system master planning effort. The development of a master plan would provide the City with a more comprehensive examination of the unique needs and costs associated with providing a vibrant park system for the City. Budgeting for a Parks System Master Plan should be included in the Compliance Cost list for any updates made to the City's SDC methodology.

Estimated Project Cost: $70,000

If you have any questions about projects included on this Parks System CIP List, please do not hesitate to contact me at mwadlington@civilwest.net or 541.223.5130.

Sincerely,



Matt Wadlington, PE
Civil West Engineering Services, Inc.

Appendix B

Insert commercial land use sample SDC calculation table when method is finalized.

Appendix C

Water EDU Worksheet

(A)	Total residential connections in UGB	311
(B)	Total water sold to residential connections within UGB	19,505,126
(C)	Water use per EDU per year (B/A) in gal per year per EDU	62,717
(D)	System-wide water sales (inside and outside UGB) in gal	45,376,899
(E)	System wide EDU count (D/C)	723.51
(F)	Persons per household per Census inside UGB	3
(G)	Persons per household outside UGB	2.3
(H)	Estimated population within UGB	860
(I)	Average growth rate within the UGB for residential and nonresidential sectors	6.60%
(J)	Projected population within the UGB for 2038	3115
(K)	Average growth rate outside the UGB	0.00%
(L)	Water used by residential accounts outside the UGB (gal)	6,100,206
(M)	Residential EDU's outside UGB (L/C)	97.26
(N)	Total water used inside the UGB (gal)	22,715,623
(O)	Total nonresidential EDU's inside UGB ((N-B)/C)	51.19
(P)	Total EDU's inside UGB (O+A)	362.19
(Q)	Total nonresidential EDU's outside UGB (E-A-M-O)	264.06
(R)	Total EDU's outside UGB (M+Q)	361.32
(S)	Projected EDU's inside UGB	1,300.41
(T)	Projected EDU's outside UGB	361.32
(U)	Total future EDU's (S+T)	1,661.73
(V)	Total growth EDU's (U-E)	938.22