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System Development Charge Update

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Nehalem Bay Wastewater Agency
35755 Seventh Street
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List of Acronyms

%	Percent
ADF	Average daily flow
CCI	Construction Cost Index
CIP	Capital Improvement Plan
District	Nehalem Bay Wastewater Agency
EDU	Equivalent Dwelling Unit
ENR	Engineering News Record
gpm	Gallons per minute
H ₂ S	hydrogen sulfide
I&I	Infiltration and inflow
M	Million
MGD	Million gallons per day
ORS	Oregon Revised Statute
PDF	Peak Day Flow
PIF	Peak Instantaneous Flow
RV	Recreational vehicle
SDC	system development charges
WWFP	Wastewater Facilities Plan
WWTP	Wastewater treatment plant

Section 1: Introduction and Purpose

Oregon legislation establishes guidelines for the calculation of system development charges (SDCs). Within these guidelines, local governments have some latitude in selecting technical approaches and establishing policies related to the development and administration of SDCs. A discussion of this legislation follows, along with the recommended methodology for calculating updated wastewater SDCs for Nehalem Bay Wastewater Agency (District), in accordance with state law and the District's Wastewater Facilities Plan (Kennedy/Jenks 2014).

1.1 SDC Legislation in Oregon

In the 1989 Oregon state legislative session, a bill was passed that created a uniform framework for the imposition of SDCs statewide. This legislation (Oregon Revised Statute [ORS] 223.297-223.314), which became effective on 1 July 1991, (with subsequent amendments), authorizes local governments to assess SDCs for the following types of capital improvements:

- Drainage and flood control
- Water supply, treatment, and distribution
- Wastewater collection, transmission, treatment, and disposal
- Transportation
- Parks and recreation

The legislation provides guidelines on the calculation and modification of SDCs, accounting requirements to track SDC revenues, and the adoption of administrative review procedures.

1.1.1 SDC Structure

SDCs can be developed around two concepts: (1) a reimbursement fee, and (2) an improvement fee, or a combination of the two. The reimbursement fee is based on the costs of capital improvements *already constructed or under construction*. The legislation requires the reimbursement fee to be established or modified by an ordinance or resolution setting forth the methodology used to calculate the charge. This methodology must consider the cost of existing facilities, prior contributions by existing users, gifts or grants from federal or state government or private persons, the value of unused capacity available for future system users, rate-making principles employed to finance the capital improvements, and other relevant factors. The objective of the methodology must be that future system users contribute no more than an equitable share of the capital costs of *existing* facilities. Reimbursement fee revenues are restricted only to capital expenditures for the specific system for which they are assessed, including debt service.

The methodology for establishing or modifying an improvement fee must be specified in an ordinance or resolution that demonstrates consideration of the *projected costs of capital improvements identified in an adopted plan and list*, that are needed to increase capacity in the system to meet the demands of new development. Revenues generated through improvement fees are 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.

In many systems, growth needs will be met through a combination of existing available capacity and future capacity-enhancing improvements. Therefore, the law provides for a combined fee (reimbursement plus improvement component). However, when such a fee is developed, the methodology must demonstrate that the charge is not based on providing the same system capacity. Additionally, the law allows for recovery of administration of the SDC program based on annual costs.

1.1.2 Credits

The legislation requires that a credit be provided against the improvement fee for the construction of “qualified public improvements.” Qualified public improvements are improvements that are required as a condition of development approval, identified in the system’s capital improvement program, and 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.

1.1.3 Update and Review

The methodology for establishing or modifying improvement or reimbursement fees shall be available for public inspection. The local government must maintain a list of persons who have made a written request for notification prior to the adoption or amendment of such fees. The legislation includes provisions regarding notification of hearings and filing for reviews.

Amendments to the original statutes clarified that “periodic application of an adopted specific cost index or... modification to any of the factors related to rate that are incorporated in the established methodology” are not considered “modifications” to the SDC. As such, the local government is not required to adhere to the notification provisions. The criteria for making adjustments to the SDC rate, which do not constitute a change in the methodology, are as follows:

- “Factors related to the rate” are limited to changes to costs in materials, labor, or real property as applied to projects in the required project list.
- The cost index must consider average change in costs in materials, labor, or real property and must be an index published for purposes other than SDC rate setting.

The notification requirements for changes to the fees that *do* represent a modification to the methodology are 90-day written notice prior to first public hearing, with the SDC methodology available for review 60 days prior to public hearing.

1.1.4 Other Provisions

Other provisions of the legislation require:

- Preparation of a capital improvement program or comparable plan (prior to the establishment of a SDC), that includes a list of the improvements that the jurisdiction intends to fund with improvement fee revenues and the estimated timing, cost, and eligible portion of each improvement.
- Deposit of SDC revenues into dedicated accounts and annual accounting of revenues and expenditures, including a list of the amount spent on each project funded, in whole or in part, by SDC revenues.
- Creation of an administrative appeals procedure, in accordance with the legislation, whereby a citizen or other interested party may challenge an expenditure of SDC revenues.

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.

1.2 Methodology Overview

The general methodology used to calculate wastewater SDCs is illustrated in Figure 1. It begins with an analysis of system planning and design criteria to determine growth's capacity needs, and how they will be met through existing system available capacity and capacity expansion. Then, the capacity to serve growth is valued to determine the "cost basis" for the SDCs, which is then spread over the total growth capacity units to determine the system wide unit costs of capacity. The cost basis is divided by the total growth units to be served by both available and new capacity, to establish a weighted average cost of capacity. The final step is to determine the SDC schedule, which identifies how different developments will be charged, based on their estimated capacity requirements.

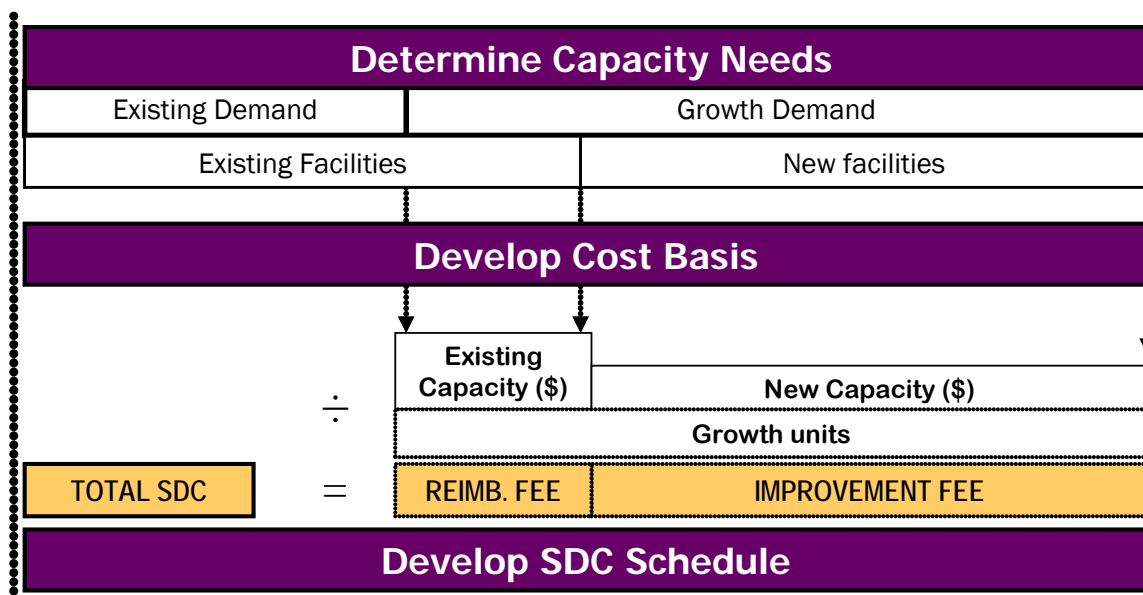


Figure 1: Overview of SDC Methodology

1.3 District SDC History

1.3.1 SDC-Related Sewer Use Ordinances

The District passed resolutions and adopted a sewer use ordinance summarized in Table 1.

Table 1: Summary of SDC-Related Resolutions and Ordinances

Resolution/ Ordinance	Title
91-3/12-3	Establishing System Development Charge
94-10	Establishing the System Development Charge Fund in the District Budget
95-2	Establishing the Methodology for Calculating Reimbursement and Improvement Fees Associated with the System Development Charge
97-9	Establishing New Connection and System Development Charges and an Assessment Method
2000-08	System Development Charge Classification Addition
2002-01	Nehalem Bay Wastewater Agency Ordinance (June 2002)

1.3.2 Prior SDC Methodology

The existing SDC methodology was established in 1994 in Nehalem Bay Wastewater Agency Rate Study (Handforth Larson & Barret, Inc.) at \$1,850 per Equivalent Dwelling Unit (EDU). Subsequently, a methodology for escalation of the SDC in the 1995 report Financial Plan & Strategy Report (Moore Breithaupt & Chastain Inc.). The methodology provided a decreasing reimbursement fee based on the anticipated growth of the district over 19 years. The Improvement fee increased based on anticipated inflation of replacement values. Table 2 summarizes historic SDC charges from 1996 through 2014.

Table 2: Historic SDC Charge

Year	Reimbursement Fee (\$)	Improvement Fee (\$)	Total SDC (\$)
1995-1996	853	997	1,850
1996-1997	806	1,047	1,853
1997-1998	759	1,099	1,858
1998-1999	712	1,154	1,866
1999-2000	665	1,212	1,877
2000-2001	618	1,272	1,890
2001-2002	571	1,336	1,907
2002-2003	524	1,403	1,927
2003-2004	477	1,473	1,950
2004-2005	430	1,547	1,977
2005-2006	383	1,624	2,007
2006-2007	336	1,705	2,041
2007-2008	289	1,790	2,079
2008-2009	242	1,880	2,122
2009-2010	195	1,974	2,169
2010-2011	148	2,073	2,221
2011-2012	101	2,176	2,277
2012-2013	54	2,285	2,339
2013-2014	7	2,399	2,406

Section 2: Wastewater SDC Methodology

This section presents the updated wastewater SDC analysis, based on the general rules described in Section 1, and the District's recently completed Wastewater Facilities Plan (WWFP).

2.1 Capital Improvement Plan

The relevant items from the Capital Improvement Plan (CIP) from the WWFP are summarized in Table 3.

Table 3: Capital Improvement Plan

Year	Capital Improvement Project	Capacity Increase?	Total Estimated Project Costs
0-4	Fire Station Pump Station Upgrade	Yes	\$ 210,000
	Administration Building Pump Station Upgrade	Yes	\$ 260,000
	H ₂ S Mitigation for 3 Pump Stations	No	\$ 35,000
5-9	Deans Point Pump Station Upgrade	Yes	\$ 290,000
	Wheeler North Pump Station Upgrade	Yes	\$ 560,000
	Building Pump Station Improvements & Spare Parts	No	\$ 135,000
	Neah-Kah-Nie Pump Station Upgrade	Yes	\$ 220,000
	Administration Building Roof Replacement	No	\$ 100,000
	H ₂ S Mitigation for 2 Pump Stations	No	\$ 25,000
10-14	Fork Island Pump Station Upgrade	No	\$ 280,000
	Liars Lair Inflow Mitigation	No	\$ 30,000
	Anglers Acres Inflow Mitigation	No	\$ 30,000
	Nehalem Rd. I&I Mitigation	No	\$ 11,000
	Building Pump Station Improvements	No	\$ 150,000
	Lagoon Flow Transfer Improvements	No	\$ 20,000
	H ₂ S Mitigation for 2 Pump Stations	No	\$ 35,000
	RV Dump Station Improvements	No	\$ 5,000
15-20	Effluent Irrigation Pumping	No	\$ 160,000
	Neptune Way Pump Station Decommission	No	\$ 25,000
	Effluent Disinfection Improvements	No	\$ 350,000
	Wheeler South Pump Station Rehabilitation	No	\$ 240,000

Abbreviations:

H₂S hydrogen sulfide
 I&I infiltration and inflow
 RV recreational vehicle

Some of the items in the CIP increase capacity and others provide no capacity increase. The non-capacity increase improvements are required to ensure continued operation, replace aging equipment or facilities, or comply with regulatory requirements, but do not provide additional collection or treatment capacity.

2.2 Capacity Assessments

A capacity assessment was prepared for each asset and compared to capacity needs. Capacity needs are based on planning assumptions for projected growth within the District. The Capacity needs for wastewater treatment plant (WWTP) and collection system pump stations were evaluated in the WWFP. Capacities of collection system gravity piping were determined for this study. Capacity and replacement value assessments are included in Appendix A.

2.2.1 Projected Growth

The 2014 Wastewater Facility Plan indicates the system currently has approximately 3,673 connections and is projected to near build-out at 4,329 connections in the planning window, or an increase of 656 connections by 2037. The potential for commercial and industrial growth within the district is small, so it was assumed all the 656 connections will be single-family residential, thus equivalent to 656 EDUs. This increase in number of EDUs of 15 percent (%) provides the high-level basis of planning.

2.2.2 Determine Capacity Needs

The wastewater collection system is comprised of 19 pump station basins. Several pump stations feed into other basins, creating a cumulative capacity need closer to the WWTP. Each pump station capacity was evaluated, as well as the projected increase in flow rate through the end of the design window when the 656 EDUs will be added. Some basins receive little or no new connections.

Each pump station basin was evaluated for gravity collection system capacity based on the number of existing connections and buildable lots. The peak flow rates in each gravity line were estimated to determine surplus capacity.

The WWTP capacity assessment was based on the projected increase in average daily flow to the WWTP. The WWTP has adequate biological treatment capacity for the projected growth; however, there are mechanical capacity-limiting items, such as headworks and effluent pumping. These elements were evaluated to determine capacity limitations.

Details of capacity estimates are provided in Appendix A.

2.2.3 Develop Cost Basis

The capacities needed to serve new development will be provided through recent and planned future improvements. Future growth will also be served by the District's existing collection system. Therefore, for purposes of recovering the full growth-related wastewater system capacity costs, reimbursement and improvement SDCs are calculated.

The system planning assumptions related to the capacity assessment in Appendix A, and summarized in subsequent sections are used to develop allocation percentages for the costs of existing and future system facilities, for purposes of developing the SDC cost basis.

2.2.3.1 Reimbursement Fee

2.2.3.1.1 Gravity Collection System Piping

Piping in the gravity portions of the collection system were broken down by pump station basin. Table 4 summarizes the respective capacity allocations for each pump station, as well as system capacities, projected capacity needs, and estimated reimbursement values of the gravity piping surplus capacities.

Table 4: Gravity Collection System Capacities and Reimbursement Summary

Basin	Current Peak (gpm)	Surplus Capacity (gpm)	Surplus Capacity Value^(a) (\$)	Projected Increase (gpm)	Portion of Surplus Projected (%)	Reimbursement Value (\$)
Admin Building Pump Station	810	4,146	734,000	46	1%	8,200
Bayside North	357	1,987	570,000	26	1%	7,500
Bayside South	289	4,982	132,000	37	1%	1,000
City Park	176	2,880	349,000	36	1%	4,400
Dean's Point	858	2,183	508,000	53	2%	12,300
Fire Station	371	5,158	570,000	51	1%	5,700
James Road	84	1,142	49,000	70	6%	3,100
Neah-Kah-Nie	77	362	304,000	103	28%	86,200
Necarney City	73	257	136,000	73	29%	38,900
Wheeler North	481	1,464	241,000	61	4%	10,100
TOTAL GRAVITY SEWER REIMBURSEMENT VALUE						\$ 180,000

Notes/Abbreviations:

(a) Surplus capacity is based on capacity of existing sewer main piping in each basin in excess of estimated peak flow rate. Methodology is described in Appendix A. Only mains with the possibility of receiving wastewater from new connections were considered in this evaluation.

gpm = gallons per minute

2.2.3.1.2 Pump Stations

A summary of collection system pump station capacities, projected capacity needs, and estimated values of the pump station surplus capacities for reimbursement are provided in Table 5.

Table 5: Pump Station Capacities Reimbursement Summary

Capital Improvement	Current Capacity (gpm)	Projected Increase in Flow to Station (gpm)	Increase	Replacement Value (\$)	Reimbursement Value (\$)
City Park	550	24	4%	579,000	30,000
Necarney City	80	49	61%	438,000	270,000
River Road	135	1	1%	227,000	10,000
Wheeler South	100	17	17%	516,000	90,000
TOTAL PUMP STATION REIMBURSEMENT COST BASIS				\$1,780,000	\$400,000

2.2.3.1.3 Wastewater Treatment Plant

The WWTP has an average daily flow (ADF) capacity of 2.1 million gallons per day (MGD) based on biological treatment capacity. The peak instantaneous capacity of the headworks is 4 MGD. The storage capacity of the WWTP enables the plant to handle greater than 2.1 MGD for several days without needing to discharge, thus disinfection and discharge are not limitations for the treatment plant capacity. For the purpose of this capacity determination, 2.1 MGD is the limiting influent flow rate. The current ADF is 0.5 MGD, thus 1.6 MGD capacity is available for future connections.

The estimated capacity need for wastewater treatment from the projected new connections is 0.10 MGD, or 5% of the WWTP capacity and well under the WWTP available capacity. The WWTP value and reimbursement cost is summarized in Table 6.

Table 6: WWTP Capacity Reimbursement Summary

Area	Replacement Value
Headworks	760,000
Lagoons/Aerator	6,770,000
Disinfection	160,000
Outfall/Effluent Pumping	130,000
WWTP Property	1,050,000
Irrigation System	2,730,000
SCADA	210,000
Structures	1,200,000
Sitework	140,000
Headworks	760,000
TOTAL	\$ 13,500,000
Projected Surplus Capacity Portion	5%
WWTP REIMBURSEMENT COST BASIS	\$ 600,000

2.2.3.1.4 Reimbursement Fee Cost Basis

The total reimbursement cost basis, including collection system piping, pump stations, and treatment plant is summarized in Table 7.

Table 7: Reimbursement Cost Basis Summary

Asset Group	Reimbursement Value
Collection System Piping	180,000
Pump Stations	400,000
Wastewater Treatment Plant	600,000
TOTAL REIMBURSEMENT COST BASIS	\$ 1,180,000

2.2.3.2 Improvement Fee Cost Basis

The District will need to construct additional improvements in the collection and treatment system to further expand collection and treatment capacity to meet the needs of growth through the planning period (2037). The planned improvements are discussed in this section.

2.2.3.2.1 Gravity System Collection Piping

Through the evaluation of the collection system for capacity, we found no apparent gravity piping capacity deficiencies, and no capacity improvements were recommended in the WWFP. Thus, no improvements to collection system piping are considered in this evaluation and the improvement cost basis for gravity collection system piping.

2.2.3.2.2 Pump Stations

Five pump stations were identified for improvements to meet projected capacity needs. Table 8 summarizes the capacity increases and eligible improvement cost basis.

Table 8: Pump Station Improvement Basis Summary

Pump Station Capacity Improvement	Current Peak Flow (gpm)	Projected Peak Flow (gpm)	Capacity Increase (gpm)	Percent Capacity Increase	Capital Improvement Value (\$)
Admin. Building PS	975	1,945	970	50%	260,000
Deans Point PS	772	1,000	228	23%	290,000
Fire Station PS	550	730	180	25%	210,000
Neah-Kah-Nie PS	270	360	90	25%	220,000
Wheeler North PS	250	282	32	11%	560,000
TOTAL					\$ 1,540,000

2.2.3.2.3 Wastewater Treatment Plant

Our evaluation identified no capacity-limited elements of the WWTP. Thus, no capacity-oriented improvements are included in the CIP, and no SDC-eligible improvements and the Improvement Cost basis is \$0 for WWTP improvements.

2.2.3.2.4 Improvement Fee Cost Basis

The total improvement cost basis, including collection system piping, pump stations, and treatment plant is summarized in Table 9.

Table 9: Improvement Cost Basis Summary

Asset Group	Improvement Value
Collection System Piping	0
Pump Stations	1,540,000
Wastewater Treatment Plant	0
TOTAL REIMBURSEMENT COST BASIS	\$ 1,540,000

2.3 Develop SDC Charge

System-wide unit costs of capacity are determined by dividing the reimbursement fee and improvement fee cost bases by the aggregate growth-related capacity requirements presented in Section 2.2.1. The EDU schedule (included in Appendix B) provides an EDU schedule based on estimated wastewater generation volumes, which will then be applied to determine the SDC charge for each proposed development.

2.3.1 Reimbursement Fee

The reimbursement fee calculation is shown in Table 7. The reimbursement cost basis of \$1,180,000 is distributed over projected EDUs through 2037 to determine the unit costs. For the 656 EDUs projected over this period, the resulting reimbursement SDC per EDU is \$1,799.

2.3.2 Improvement Fee

The improvement fee calculation is shown in Table 9. As with the reimbursement fee, the improvement cost basis of \$1,540,000 is distributed over projected EDUs through 2037 to determine the unit costs. For the 656 EDUs projected over this period, the resulting improvement SDC per EDU is \$2,348.

2.3.3 Compliance Charge

Local governments are entitled to a charge to recover costs associated with complying with the SDC law. Compliance costs include costs related to developing the SDC methodology and

project list (i.e., a portion of master planning costs), and annual accounting costs. Table 10 shows the calculation of the compliance charge per EDU, which is estimated to be \$111.

Table 10: Compliance Fee Estimate

Component^(a)	Years	Total	Growth	Annualized
SDC Study	20	\$25,000 ^(b)	100%	\$1,250
Master Planning	20	\$105,000 ^(c)	15%	\$790
Auditing/Accounting	1	\$1,500 ^(d)	100%	\$1,500
Total Annual Costs				\$3,540
Estimated Annual EDUs				32
Charge/EDU				\$111

Notes:

- (a) Allowed costs under ORS 223.307
- (b) Engineering/Economist Fee for this study
- (c) Engineering Fee for Facility Plan Report
- (d) Estimated costs for 60 hours of SDC administration

2.3.4 Total SDC

Table 11 presents the total SDC per EDU, including reimbursement fee, improvement fee, and compliance charge. The SDC per single family residential dwelling unit is \$4,258.

Table 11: SDC Charge Summary

Component	SDC Charge/EDU
Reimbursement Fee	\$ 1,799
Improvement Fee	\$ 2,348
Compliance Fee	\$ 111
Total SDC Charge	\$ 4,258

2.3.5 Inflationary Adjustments

In accordance with Oregon SDC law, the SDCs will be adjusted annually based on a standard inflationary index. Specifically, the District plans to use the Engineering News Record (ENR) 20 City Average Construction Cost Index (CCI) as the basis for adjusting the SDCs in the future. For reference, at the date of this report, the most recent available ENR CCI is July 2017 and the CCI is 10,789.41

References

Wastewater Facility Plan Update, Kennedy/Jenks Consultants, June 2014.

Nehalem Bay Wastewater Agency Rate Study Report, Handforth Larson Barrett, Inc.,
December 1994.

Financial Plan and Strategy Report, Moore Breithaupt & Chastain, Inc. March 1995.

Appendix A

Capacity Assessment

Appendix A: Capacity Assessment

This section summarizes the assumptions made in preparing estimates of replacement values for collection system and wastewater treatment plant assets.

A.1 Capacity Needs Criteria

The relevant design criteria for the wastewater SDC analysis include the following which were used to determine the needed capacity of various WWTP facilities:

- **Average Day Flow (ADF):** the average volume of wastewater flowing into the plant over a 24-hour period. ADF is used to determine biological treatment plant capacity. The WWFP indicates the ADF is 0.41 MGD; however, 2013 through 2016 ADF has been 0.5 MGD. For the purpose of this evaluation, we use 0.5 MGD for ADF.
- **Peak Day Flow (PDF):** the maximum flow over a 24-hour period in any element of the collection system or WWTP. Peak day flow is the sizing criteria for gravity piping in the collection system.
- **Peak Instantaneous Flow (PIF):** the maximum flow over one hour anticipated at the WWTP. Peak instantaneous flow is used to determine needed capacity for the collection system, pump station, and WWTP headworks capacities. The WWFP indicates the current PIF at the WWTP is 2.75 MGD.

A.2 Existing Assets

The District owns collection system gravity piping, wastewater pump stations, and a wastewater treatment plant. As development has occurred, the wastewater collection and pumping assets constructed by developers were deeded to the District. Reimbursement fee calculations only included District-funded assets; developer-built assets are not considered for this fee. Improvement fees include all District-funded improvements. The value of current assets and projected improvements are summarized in this section.

A.2.1 Collection System Piping

A.2.1.1 Reimbursement Value

The gravity main capacities, current use, projected use, and capacities are summarized in collection system piping is summarized by basin in Table A.1. The process to determine surplus capacity is summarized in the following steps:

1. Identify sewer mains where additional development may take place, indicated by vacant lots that may be developed.
2. Calculate the PDF of the connections to each sewer main line.
3. Calculate the capacity of each sewer main, assuming velocities of 2 feet per second, flowing full.

4. Calculate surplus capacity of each sewer main, expressed as a percentage of total capacity.
5. Calculate replacement value of each sewer main.
6. Calculate the capacity requirements of new connections as a fraction of total pipe capacity.
7. Verify capacity requirements of new connections does not exceed available capacity (determined in step 4).
8. Determine value of capacity requirements (determine in step 6) by multiplying surplus capacity (percentage) by the replacement value of each main).

The surplus value of gravity collection system piping exceeded the available lots for development in all basins. For collection system piping, only the available (developable) lots were used to estimate SDC-eligible capacity. Table A.2 summarizes the gravity collection system reimbursement cost basis.

A.2.1.2 Improvement Value

No Capital Improvements are proposed for existing gravity piping to increase capacity; therefore, no improvement value is anticipated for these assets.

A.2.2 Pump Stations

Table A.3 summarizes the pump station replacement value estimates, surplus capacities, projected improvements and associate improvement costs.

A.2.2.1 Reimbursement Value

Table A.3 summarizes the pump station replacement value estimates, surplus capacities, projected improvements and associate improvement costs. Pump Station capacities were evaluated in the WWFP. Table A.4 shows the calculation of the SDC-eligible portions of the capacity.

A.2.2.2 Improvement Value

The Capital Improvements to Pump Stations described in the WWFP and the SDC-eligible portions of those capital improvements are summarized in Table A.5. Table A.6 shows the calculation of the improvement basis for pump stations.

A.2.3 Wastewater Treatment Plant

A.2.3.1 Reimbursement Value

The WWTP replacement value is estimated to be \$13.2 million (M). The capacity of the WWTP is 2.1 MGD, and the current ADF rate is currently 0.5 MGD. The addition of another 656 connections will increase annual average flowrate by 0.21 MGD. This increase represents approximately 9% of the WWTP capacity. This percentage increase represents approximately

\$1.2M of reimbursement for the capacity available in the WWTP. A summary of WWTP costs are provided in Table A.7.

A.2.3.2 Improvement Value

The WWTP capacity is sufficient to treat wastewater through the planning window, thus no improvement value is available for the WWTP.

TABLE A.1: GRAVITY SEWER SURPLUS CAPACITY AND REIMBURSEMENT VALUE CALCULATION

Street	Diameter (in)	Area [ft^2]	Length	# Connections per Run	Avg Flow [gpd]	Peak Flow [gpd]	Peak Flow [gpm]	Full Carrying Capacity Calculated Q [gpm] = V*A	Surplus Capacity [gpm] = 100% Capacity - Flowrate	Surplus Percentage Full	Pipeline Replacement Value [\$]	Surplus Pipeline Replacement Value	Future Connections Projected (empty lots)	Future Connections Ave Flowrate (gpm)	Future Connections Peak Flowrate (gpm)	% of Pipe Capacity by Future Connections	Value of Governing Capacity
BAYSIDE NORTH PUMP STATION BASIN																	
Tohl Rd	15	1.23	707	608	121,600	486,400	338	2,271			-	127,276					
Tohl Rd	15	1.23	438	444	88,800	355,200	247	2,344			-	78,872					
Tohl Rd	15	1.23	155	642	128,400	513,600	357	2,344	1,987	82%	27,892	22,886	31	6.46	26	1.3%	\$7,409
Tohl Rd	15	1.23	304	636	127,200	508,800	353	2,344			-	54,678					
Tohl Rd	18	1.77	1,125	459	91,800	367,200	255	3,786			-	243,093					
US 101	12	0.79	873	319	63,800	255,200	177	775			-	125,784					
US 101	12	0.79	858	21	4,200	16,800	562	1,137			-	123,556					
BAYSIDE SOUTH PUMP STATION BASIN																	
Ocean Way	8	0.35	605	210	42,000	168,000	117	360			-	58,043					
Ocean Way	8	0.35	350	182	36,400	145,600	101	636			-	33,559					
Ocean Way / A - 4 -1	8	0.35	787	65	13,000	52,000	156	360			-	75,540					
Ocean Way / A - 4 -1	8	0.35	358	83	16,600	66,400	46	360			-	34,407					
Bayside Garden Road/ A-5-1	15	1.23	297	521	104,200	416,800	289	5,271	4,982	94%	53,513	50,404	44	9.17	37	1%	\$965
Bayside Garden Road	15	1.23	448	254	50,800	203,200	141	2,486			-	80,720					
MANZITA MEADOWS PUMP STATION BASIN (includes Neptune Place PS)																	
Seamont Way/A-4	8	0.35	843	289	57,800	231,200	161	575	414	61%	80,952	49,566	32	6.67	27	6%	\$3,192
FIRE STATION PUMP STATION BASIN																	
Ocean Way /A	12	0.79	978	319	63,800	255,200	177	1,918			-	140,856					
Ocean Way /A	12	0.79	289	646	129,200	516,800	359	3,867			-	41,644					
Ocean Way /A	12	0.79	1,043	360	72,000	288,000	200	1,895			-	150,158					
Ocean Way /A	10	0.55	497	309	61,800	247,200	172	943			-	59,666					
Ocean Way /A	12	0.79	588	460	92,000	368,000	256	2,028			-	84,629					
Ocean Way /A	15	1.23	411	443	88,600	354,400	246	3,789			-	74,055					
Lots between Dorcas Lane and Ocean Way/A2	15	1.23	475	182	36,400	145,600	371	5,529	5,158	93%	85,431	79,284	61	12.71	51	1%	\$8,771
Dorcas Lane/A2	10	0.55	1,557	417	83,400	333,600	232	1,546			-	186,844					
Dorcas Lane/K	15	1.23	405	294	58,800	235,200	713	6,529			-	72,918					
4TH ST/ FORCE MAIN K1	8	0.35	431	229	45,800	183,200	127	812			-	41,337					
4TH ST/M	8	0.35	239	344	68,800	275,200	191	1,134			-	22,987					
4TH ST/M-4	8	0.35	909	52	10,400	41,600	29	472			-	87,257					
CITY PARK STATION BASIN																	
Pacific Lane	15	1.23	613	100	20,000	80,000	176	3,055	2,880	94%	110,387	103,657	43	8.96	36	1%	\$4,339
Pacific Lane	15	1.23	239		-	-	-	6,315			-	43,017					
Beach Street/K	12	0.79	893	100	20,000	80,000	136	1,256			-	128,592					
Beach Street/K	12	0.79	202	100	20,000	80,000	56	4,069			-	29,099					
Beach Street/K	12	0.79	199	100	20,000	80,000	56	1,181			-	28,670					
Beach Street/K	12	0.79	109	100	20,000	80,000	56	3,915			-	15,645					
NECARNEY CITY BASIN																	
Necarney Blvd/Q	8	0.35	258	71	14,200	56,800	39	641			-	24,801					
Necarney Blvd/Q	8	0.35	261	84	16,800	67,200	47	457			-	25,039					
Sitka Lane/Q	8	0.35	489	132	26,400	105,600	73	330	257	71%	46,924	33,527	88	18.33	73	29%	\$38,546
Lungomare/P	8	0.35	538	92	18,400	73,600	141	297			-	51,641					

TABLE A.1: GRAVITY SEWER SURPLUS CAPACITY AND REIMBURSEMENT VALUE CALCULATION

Street	Diameter (in)	Area [ft^2]	Length	# Connections per Run	Avg Flow [gpd]	Peak Flow [gpd]	Peak Flow [gpm]	Full Carrying Capacity Calculated Q [gpm] = V*A	Surplus Capacity [gpm] = 100% Capacity - Flowrate	Surplus Percentage Full	Pipeline Replacement Value [\$]	Surplus Pipeline Replacement Value	Future Connections Projected (empty lots)	Future Connections Ave Flowrate (gpm)	Future Connections Peak Flowrate (gpm)	% of Pipe Capacity by Future Connections	Value of Governing Capacity	
DEANS POINT BASIN								10,656										
Access Road @ NW of Bayloop Road/Nahelem	12	0.79	455	209	41,800	167,200	116	1,808			-	65,462						
Access Road @ NW of Bayloop Road/Nahelem	12	0.79	807	213	42,600	170,400	118	1,717			-	116,260						
Access road E of Tohl Road	12	0.79	580	331	66,200	264,800	184	1,047			-	83,502						
Access road E of Tohl Road	18	1.77	1,019	555	111,000	444,000	858	3,042	2,183	61%	220,095	133,571	63	13.13	53	2%	\$12,199	
Access road E of Tohl Road	18	1.77	503	131	26,200	104,800	443	3,042				108,550						
ADMINISTRATION BLDG BASIN								9,914										
Riverside Drive/Cameron PS/A-1	12	0.79	349	77	15,400	61,600	43	720				50,233						
Riverside Drive/Sunderstorm/A	15	1.23	1,867	68	13,600	54,400	810	4,955	4,146	80%	336,098	270,446	55	11.46	46	1%	\$8,114	
7th Street/B	12	0.79	423	73	14,600	58,400	41	795				60,893						
7th Street/North of B	12	0.79	323	128	25,600	102,400	71	896				46,577						
7th Street/B	10	0.55	725	137	27,400	109,600	76	307				87,044						
7th Street/B	10	0.55	364	186	37,200	148,800	103	762				43,718						
D Street/B	12	0.79	326	83	16,600	66,400	46	720				46,903						
Northfork Road/B	12	0.79	890	188	37,600	150,400	104	758				128,106						
NEAH-KAH-NIE BASIN								5,067										
Ocean Road/K (N or Laneda)	12	0.79	1,216	139	27,800	111,200	77	439	362	79%	175,168	137,787	123	25.63	103	28%	\$129,869	
Ocean Road/K	10	0.55	551	119	23,800	95,200	66	1,108				66,119						
Ocean Road/K	10	0.55	321	58	11,600	46,400	32	575				38,550						
Nehalem Road/T (West of Ocean Coast Hwy)	8	0.35	1,119	146	29,200	116,800	81	524				107,407						
Nehalem Road/T	8	0.35	905	88	17,600	70,400	49	330				86,916						
Nehalem Road/T (SE of Pacific Blvd)	8	0.35	313	145	29,000	116,000	81	360				30,053						
Pacific Blvd/T	8	0.35	508	81	16,200	64,800	45	360				48,805						
Pacific Blvd/K (W of Neah-Kah-Nie PS)	10	0.55	510	34	6,800	27,200	155	648				61,193						
Neah-Kah-Nie Rd/V	8	0.35	1,017	130	26,000	104,000	72	360				97,666						
Reed Road/K (N of Pacific Blvd)	8	0.35	392	48	9,600	38,400	27	360				37,669						
JAMES ROAD BASIN								2,208										
Reed Road/K (N OF Neah-Kah-Nie Basin)	8	0.35	1,151	114	22,800	91,200	63	286				110,468						
Reed Road/K	8	0.35	1,152	81	16,200	64,800	45	449				110,580						
Reed Road/K-16 (north of fork in road)	8	0.35	149	69	13,800	55,200	38	248				14,318						
From Circle Dr to Reed Road/X-1	8	0.35	543	152	30,400	121,600	84	1,226	1,142	93%	52,119	48,264	84	17.50	70	6%	\$2,959	
NORTH WHEELER PUMP STATION								11,001										
Old Wheeler-Mohler Road/B-7 (NW of N Wheelk	10	0.55	391	866	173,200	692,800	481	1,945	1,464	67%	46,924	31,503	73	15.21	61	4%	\$26,690	
B-1 (Between Old Wheeler-Mohler Rd & Oregon	10	0.55	347	211	42,200	168,800	117	792				41,637						
B (W OF Oregon Coast Hwy)	10	0.55	133	107	21,400	85,600	59	3,161				15,956						
Ocean Coast Hwy RR / B	10	0.55	650	158	31,600	126,400	88	955				78,003						
West of Ocean Coast thru residential	10	0.55	468	223	44,600	178,400	124	1,714				56,216						
B (W OF Oregon Coast Hwy)	10	0.55	312	212	42,400	169,600	118	955				37,393						
B (W OF Oregon Coast Hwy)	8	0.35	181	20	4,000	16,000	121	1,479				17,410						

Shaded Cells indicate values not included in reimbursement calculation because there are not additional connections that can be made to this line.

Table A.2: Gravity Collection System Capacities and Reimbursement Summary (Table 2.2)

Basin	Current Peak (gpm)	Surplus Capacity (gpm)	Reimbursable Surplus Value	Projected Increase (gpm)	Portion of Surplus Projected (%)	Reimbursable Value
Bayside North	357	1987	\$ 570,000	26	1%	\$ 7,500
Bayside South	289	4982	\$ 132,000	37	1%	\$ 1,000
Fire Station	371	5158	\$ 570,000	51	1%	\$ 5,700
City Park	176	2880	\$ 349,000	36	1%	\$ 4,400
Necarney City	73	257	\$ 136,000	73	29%	\$ 38,900
Dean's Point	858	2,183	\$ 508,000	53	2%	\$ 12,300
Admin Building Pump Station	810	4146	\$ 734,000	46	1%	\$ 8,200
Neah-Kah-Nie	77	362	\$ 304,000	103	28%	\$ 86,200
James Road	84	1142	\$ 49,000	70	6%	\$ 3,100
Wheeler North	481	1464	\$ 241,000	61	4%	\$ 10,100
TOTAL REIMBURSABLE VALUE						\$ 180,000

TABLE A.3: PUMP STATION REPLACEMENT VALUE CALCULATION
Nehalem Bay Wastewater Agency

Name	Installation Date	# Pumps	Motor Size [HP]	2017 ENR Value or Total Estimated Value	Future Connections	Reimbursement Eligible Surplus Value	Improvement Estimated Cost from Fac Plan	Improvement Year	Replacement Value of Improved PS
Admin Building Pump Station	1974/2017	3	15	\$ 3,758,000	55	\$ -	\$ -	2018	\$ 3,758,000
Fire Station	2009	2	10	\$ 555,000	61	\$ 136,849	\$ 210,000	2019	\$ 765,000
Wheeler North	1977	2	15	\$ 969,000	32	\$ 109,957	\$ 560,000	2021	\$ 1,529,000
Neah-Kah-Nie	1995	2	5	\$ 395,000	85	\$ 98,750	\$ 220,000	2023	\$ 615,000
Dean's Point	2009	2	10	\$ 555,000	63	\$ 126,540	\$ 290,000	2025	\$ 845,000
Liars Lair	1994	2	4	\$ 105,000		\$ -	\$ 30,000	2026	\$ 135,000
Anglers Acres	1994	2	4	\$ 105,000		\$ -	\$ 30,000	2027	\$ 135,000
Neptune Place	1994	2	2.4	\$ 109,000		\$ -	\$ 25,000	2029	\$ 134,000
Necarney City	2008	2	5	\$ 438,000	88		\$ -	--	\$ 438,000
Manzanita Meadows	2008	2	5	\$ 116,000	32		\$ -	--	\$ 116,000
James Road	2009	2	10	\$ 324,000	84		\$ -	--	\$ 324,000
City Park	2009	2	20	\$ 579,000	43		\$ -	--	\$ 579,000
Bayside North	2001	2	2.5	\$ 259,000	31		\$ -	--	\$ 259,000
Bayside South	1998	2	3.4	\$ 176,000	44		\$ -	--	\$ 176,000
Southeast Manzanita	1994	2	4	\$ 219,000	0		\$ -	--	\$ 219,000
River Road	1990's	2	7.5	\$ 227,000	2		\$ -	--	\$ 227,000
State Park	1974	2	5	\$ 438,000	0		\$ -	--	\$ 438,000
Wheeler South	1976	2	5	\$ 516,000	31	\$ -	\$ 240,000	2031	\$ 756,000
Fork Island Pump Station	1985	2	3	\$ 98,000	2	\$ -	\$ 30,000	2032	\$ 128,000
				\$ 9,941,000	653		\$ 1,635,000		\$ 11,576,000

TABLE A.4: PUMP STATION REIMBURSEMENT VALUE SUMMARY (TABLE 2.3)

Name	Year Last Improved	Current Capacity (gpm)	Future Connections	Surplus Capacity (gpm)	Percent Increase	Estimated Replacement Value	Reimbursement Value
Necarney City	2008	80	88	49	61%	\$ 438,000	\$ 270,000
City Park	2009	550	43	24	4%	\$ 579,000	\$ 30,000
River Road	1990's	135	2	1	1%	\$ 227,000	\$ 10,000
Wheeler South	1976	100	31	17	17%	\$ 756,000	\$ 90,000
TOTAL REIMBURSABLE VALUE SUMMARY						\$ 400,000	

TABLE A.5: Pump Station Improvement Value Calculation (Table 2.6)

Name	Current Firm Capacity (gpm)	Improved Future Capacity (gpm)	Capacity Increase Improvements [gpm]	Replacement Value	Capacity Increase	SDC Eligible Surplus Value	Estimated Replacement Value	Improvement Cost from Fac Plan	Replacement Value of Improved PS
Admin Building Pump Station	975	1945	970	\$ 3,758,000	50%		\$ 3,758,000	\$ 260,000	\$ 4,018,000
Fire Station	550	730	180	\$ 555,000	25%	\$ 136,849	\$ 555,000	\$ 210,000	\$ 765,000
Wheeler North	250	282	32	\$ 969,000	11%	\$ 109,957	\$ 969,000	\$ 560,000	\$ 1,529,000
Neah-Kah-Nie	270	360	90	\$ 395,000	25%	\$ 98,750	\$ 395,000	\$ 220,000	\$ 615,000
Dean's Point	772	1000	228	\$ 555,000	23%	\$ 126,540	\$ 555,000	\$ 290,000	\$ 845,000
Liars Lair	336	336	0	\$ 105,000			\$ 105,000		\$ 105,000
Anglers Acres	319	319	0	\$ 105,000			\$ 105,000		\$ 105,000
Neptune Place	100	0	0	\$ 109,000			\$ 109,000		\$ 109,000
Necarney City	80	80	0	\$ 438,000			\$ 438,000		\$ 438,000
Manzanita Meadow	80	80	0	\$ 116,000			\$ 116,000		\$ 116,000
James Road	136	136	0	\$ 324,000			\$ 324,000		\$ 324,000
City Park	550	550	0	\$ 579,000			\$ 579,000		\$ 579,000
Bayside North	24	24	0	\$ 259,000			\$ 259,000		\$ 259,000
Bayside South	370	370	0	\$ 176,000			\$ 176,000		\$ 176,000
Southeast Manzanita	120	120	0	\$ 219,000			\$ 219,000		\$ 219,000
River Road	135	135	0	\$ 227,000			\$ 227,000		\$ 227,000
State Park	90	90	0	\$ 438,000			\$ 438,000		\$ 438,000
Wheeler South	110	110	0	\$ 516,000			\$ 516,000		\$ 516,000
Fork Island Pump Station	550	550	0	\$ 98,000			\$ 98,000		\$ 98,000
						\$ 472,096.76	\$ 9,941,000	\$ 1,540,000	\$ 11,481,000

TABLE A.6: Pump Station Improvement Basis Summary - (TABLE 2.6)

Name	Current Firm Capacity (gpm)	Improved Future Capacity (gpm)	Capacity Increase Improvements [gpm]	Capacity Increase	SDC Eligible Improvement Value	Improvement Year
Admin Building Pump Station	975	1,945	970	50%	\$ 260,000	2018
Fire Station	550	730	180	25%	\$ 210,000	2019
Wheeler North	250	282	32	11%	\$ 560,000	2021
Neah-Kah-Nie	270	360	90	25%	\$ 220,000	2025
Dean's Point	772	1,000	228	23%	\$ 290,000	2020

TOTAL PUMP STATION IMPROVEMENT VALUES

\$ 1,540,000

TABLE A.7: WASTEWATER TREATMENT PLANT VALUE ESTIMATE

KENNEDY/JENKS CONSULTANTS

Project: Nehalem Bay Wastewater Agency

Prepared By: RSP

Building, Area: Wastewater Treatment Plant - Value

Date Prepared: 16-May-17

K/J Proj. No. 1576024*00

Estimate Type:

- Conceptual
 Preliminary (w/o plans)
 Design Development @ _____ % Complete
 Construction
 Change Order

Spec. No.	Item No.	Description	Qty	Units	Materials		Total	
					\$/Unit	Total		
		Headworks	1	EA	731,300	731,300	731,300	
		Parshall Flume	1	EA	12,603	12,603	12,603	
		Splitter	1	EA	10,000	10,000	10,000	
		Cell A	435,600	SF	5	1,968,912	1,968,912	
		Cell A Aerators	1	EA	210,000	210,000	210,000	
		Cell B	435,600	EA	5	1,968,912	1,968,912	
		Cell C	435,600	EA	5	1,968,912	1,968,912	
		Cell C Pump Station	1	EA	365,000	365,000	365,000	
		Chlorine Contact Basin	1	EA	151,000	151,000	151,000	
		Effluent Pumping System	1	EA	44,000	44,000	44,000	
		Outfall	1	EA	79,000	79,000	79,000	
		Operations Building	3,800	sq ft	200	760,000	760,000	
		Crew Quarters	1	LS	125,129	125,129	125,129	
		Warehouse	2,400	sq ft	100	240,000	240,000	
		Lagoon Building	1	LS	49,097	49,097	49,097	
		Generator	1	LS	22,770	22,770	22,770	
		Pavement	1	LS	86,715	86,715	86,715	
		Fencing/Gate	1	LS	14,643	14,643	14,643	
		RV Dump Pump Station	1	EA	31,000	31,000	31,000	
		Aerator	1	EA	286,000	286,000	286,000	
		SCADA	1	EA	205,144	205,144	205,144	
		Irrigation System Piping	1	EA	52,043	52,043	52,043	
		Irrigation Original Construction	1	EA	64,004	64,004	64,004	
		WWTP Property	35	AC	30,000	1,050,000	1,050,000	
		Irrigation Property	87	AC	30,000	2,610,000	2,610,000	
TOTAL							13,106,184	13,200,000

New Connections				656	EDU
WWTP Capacity				2.10	MGD
Current Use	Annual Average @ 2037			0.50	MGD
Surplus Capacity				1.60	MGD
Current Connections	3,673	ADF =	136	gal/conn/day	
Expected Demand (future)	656	Connections	136	gal/conn/day	0.10 MGD
Surplus Capacity of WWTP Required by New Connections					5%
Reimbursement Value of WWTP					\$ 600,000

Appendix B

SDC Resolutions

Appendix B: EDU Schedule

CLASSIFICATION	EDUs
1. Private Residence, Mobile Homes, Apartments, Duplexes, Triplexes, Multiplexes, each dwelling unit	1
2. Mobile Home Park Office and Each Mobile Home Space	1
3. Motel and Bed and Breakfast each sleeping room with kitchen	1
Motel and Bed and Breakfast each sleeping room without kitchens	½
4. RV Park Office	1
RV Parking Spaces, each space	½
RV Dump Site for RV Park users only	1
RV Dump site open to all users	5
5. Camp Grounds, each space, without hookups	¼
Full Hookup Camping Spaces, each space	½
Shower/restroom associated with a camp ground/RV park	1
Maintenance building with restroom facilities, 9 or less employees.	1
Camp Host Space and/or Managers Homesite, with full hookup	1
RV Dump Site for Campground users only	1
6. Business with one bathroom	1
Each additional bathroom	1
Business that shares a bathroom	½
7. Laundries, first washing machine	1
Each additional Washing Machine	½
8. Lodges or Churches	1½
9. Restaurant/Food Service or Tavern/Bar	2
Restaurant with a Tavern/Bar	3
10. Delicatessen	1
Deli associated with another business	½
11. Light Industry/Manufacturing with no industrial wastewater flows - each 9 employees I SDC	1
12. Maintenance Building with a restroom associated with a Business - each 9 employees, rounded up	1
13. Schools	
Kindergarten, preschool and elementary schools, each 20 students	1
Jr/Sr High Schools, each 15 students	1
College, each 15 full-time equivalent students	1
Kitchen, food service	2
14. Swimming Pool	1
Dressing Room/Shower Room, Each	1
15. Athletic Spa/Fitness Center/Health Clubs, per each restroom	1
16. Car Wash, for every two washing stations	1
17. Hospital/Nursing Home, each two beds	1
Kitchen/Food Service	2
18. Adult Foster Homes/Group Homes, each two beds	1
Kitchen/Food Service added with 11 or more beds (one bed does not require additional charges)	2

Source: Resolution 97-9 Establishing New Connection and System Development Charges and an Assessment Method.
Resolution 2000-8 Establishing a New Classification for Adult Foster Homes/Group Homes