

City of Portland Bureau of Environmental Services
Sanitary System Development Charge Methodology
May 6, 2008

Purpose

This document sets forth and discusses the methodology for calculating the Sanitary System Development Charge (“Sanitary SDC”) and the Stormwater System Development Charge (“Stormwater SDC”). The calculation of both charges is intended to reflect the use of existing system facilities by development, and the recovery of an equitable share of the costs of these facilities from new development.

Consideration of ORS 223.304 Factors

The Sanitary and Stormwater SDCs are reimbursement fees as defined in ORS 223.299 (3):

... a fee for costs associated with capital improvements already constructed or under construction.

For purposes of this document, “capital improvements” and “facilities” will be used interchangeably. Sanitary sewer and stormwater facilities are defined as capital improvements necessary for the collection, conveyance, treatment, and disposal of sanitary sewage and stormwater runoff.

The intent of the Sanitary and Storm SDCs is to recover an equitable share of facilities costs from new development. The calculation methodology takes the costs of existing facilities and several additional factors into consideration in arriving at a cost basis for reimbursement. Factors considered in developing the calculation methodology include:

1. *The cost of existing facilities.* For purposes of the Sanitary and Stormwater SDCs, facilities costs are replacement costs. The replacement cost calculations employ the Engineering News Record Construction Cost Index to bring original facilities costs up to their present value.
2. *Rate making principles employed to finance publicly owned capital improvements.* Only the portion of facilities costs paid by current and past ratepayers is included in facilities costs eligible for SDC recovery (reimbursable facilities costs). For facilities funded by revenue bonds (essentially all facilities since 1985), replacement costs are prorated over the term of the bonds (either 20 or 25 years depending on the issue) to approximate the cumulative debt service paid on the bonds.
3. *Gifts or grants from federal or state government or private persons.* The portion of facilities costs paid for from these revenue sources are not included in the cost basis for Sanitary or Stormwater SDCs.
4. *Prior contributions by existing ratepayers.* A return on equity for the portion of facilities constructed with ratepayer funds is included in the calculation as a carrying

cost for current and past ratepayers. The return on equity portion calculates simple interest foregone on each year's original project cost using each year's annual average 6-month Treasury Bill secondary market rate.

5. *The value of unused capacity available for future system users.* The methodology used here values each unit of capacity equally. New development "buys into" the existing system on the same basis as current ratepayers.

To compute reimbursable facilities costs for the Sanitary SDC then, the original costs of sanitary sewer system facilities are adjusted by an index of construction costs to develop a present value replacement cost for those facilities. These costs are also adjusted to reflect a return on equity for existing ratepayers, who incurred the investment cost of constructing them. However, only that portion of facilities costs actually paid by ratepayers is included in the reimbursable cost total. For example, if a particular facility built five years ago was financed with 20-year revenue bonds, only one fourth of that facility's adjusted costs is included in as a reimbursable cost for purposes of the Sanitary SDC.

The calculation of reimbursable facilities costs is the same for the Storm SDC.

Sanitary SDC Calculations

Applying the above methodology to sanitary sewer facilities yield the following numbers:

Present Value Replacement Cost	\$1,008,920,011
Return on Equity	<u>193,857,126</u>
Total Cost	\$1,202,777,137

These costs specifically exclude Local Improvement District development projects, developer permit projects, and grant-funded facilities.

For each customer, the Sanitary SDC is calculated as an average cost per equivalent dwelling unit ("EDU") times the number of dwelling units. For purposes of the Sanitary SDC, one EDU corresponds to the sanitary flow from a single-family dwelling. The total system treatment capacity is 341,686 EDUs. Dividing the above total cost by this amount yields an average cost of \$3,520 per EDU. The customer's charge is therefore:

$$\text{Sanitary SDC} = \$3,520 \times \text{EDU}$$

EDU Calculations

Single-family dwellings are assigned an EDU value of one. Multi-family dwellings are assigned 0.8 EDU per unit. EDU equivalencies for non-residential customers are based on plumbing fixture units ("PFUs") and business type. For some developments, the Bureau of Environmental Services may use estimates of future sanitary flows to calculate EDUs, if the Bureau deems such estimates as more accurate predictors of sanitary flow than the plumbing fixture approach. There is a two-step process for calculating EDUs using plumbing fixture units:

Step 1: The number of PFUs for a particular development is calculated using the plumbing fixture equivalency factors in Table 7-3 of the Oregon Plumbing Specialty Code in effect at the time of permit application. [Table 1](#) shows some common fixture types and their plumbing fixture equivalencies.

Step 2: The PFUs from Step 1 are converted to EDUs using a conversion ratio specified for that business type. Conversion ratios are set by the Bureau of Environmental Services and reflect the Bureau’s assessment of sanitary water usage per PFU, by business type. Conversion ratios are shown in [Table 2](#). The Bureau may update conversion ratios from time to time. The most current conversion ratios will be shown in the Administrative Rules for Sanitary System Development Charges.

The number of EDUs for non-residential customers is therefore calculated as:

$$\text{EDUs} = \frac{\text{PFUs}}{\text{Number of PFUs per EDU}}$$

For instances where BES uses measured flow to calculate EDUs, the calculation is:

$$\text{EDUs} = \frac{\text{Projected Sanitary Flow (in ccf)}}{6 \text{ ccf}}$$

Table 1. Fixture types and equivalency factors.

Fixture Type	Equivalency Factor
Bathtub or combination bath/shower	2.0
Dental unit or cuspidor	1.0
Clothes washer, commercial	6.0
Drinking fountain or water cooler (per head)	0.5
Dishwasher, commercial	2.0
Floor drain, emergency	0.0
Floor drain	2.0
Shower, single head	2.0
Multi-head, each additional head	1.0
Sink, commercial	2.0
Urinal	2.0
Wash basin, single	1.0
Wash basin in sets of two or three	2.0
Water closet, public	6.0
Water closet, private	4.0

Table 2. Dwelling unit equivalencies, by business type.

OCCUPANCY	NUMBER OF PFUs PER EQUIVALENT DWELLING UNIT
Fire Station	} 16.0
Automotive Retailers	
Repair Services	
Education/Cultural	
Churches/Clubs/Organizations	
Rental/Storage Services	
Construction Trade Services	
Retail Sales & Business without food service or public use facilities	} 12.0
Food Service	
Beauty and Barber Salons	
Clothing & Dry Goods Stores	
Warehouses used for storage	
Industry	} 7.0
All other occupancies	
Other Structures/Uses, Based on Measured Flow	600 Cubic Feet Per Month

Review

When a new occupancy involves industrial wastewater flows (if the occupancy requires an industrial wastewater discharge permit), the Bureau may measure actual flows within two years of occupancy. EDUs will be calculated based on observed flows for a six-month interval. If EDUs based on observed average flows exceed EDUs initially purchased by more than twenty percent, then the additional EDUs must be purchased at the rate in effect at the time.