Promoting vibrant communities with

System Development Charges

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METRO

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Metro's New Look at Regional Choices work program is re-examining the way we carry out the region's long-range plan, the 2040 Growth Concept. A portion of the New Look work program focuses on promoting opportunities for efficient land use and stimulating investment in 2040 centers, corridors, and employment and industrial areas. A key component of this work is to identify various new and existing tools that finance planning and infrastructure, promote job creation and economic vitality, and encourage desired developments in centers and along corridors.

System development charges (SDCs)[1] are a principal source of funding for the region's planning and infrastructure costs related to growth, and also provide a tool for promoting sustainable development patterns. As the relative cost of serving developments within the targeted 2040 centers and corridors is often less than serving development outside these areas – due to reduced system impacts, and often lower infrastructure costs per unit -- assessing differential SDCs can promote greater financial equity and at the same time promote the region's 2040 Growth Concept by reducing the up-front costs of targeted developments. SDCs are only one – sometimes relatively small – part of overall development costs; however, reducing SDCs in the targeted areas may help level out the "playing field" across the region, supporting efforts to attract development to urban centers where developers may face additional costs.

Some local jurisdictions within the Metro area do not levy sufficient funds through SDCs to pay for the total cost of needed infrastructure development to serve growth. In addition, most cities and counties in the Metro area charge a uniform SDC for development within their jurisdiction regardless of whether the costs of servicing different developments vary due to factors such as location and density.

Through identification of model approaches to SDCs from around the region and country that are designed to both fully recover the costs of needed planning and infrastructure, and by recognizing the varying costs of providing services to developments of different types and locations, Metro can support local communities as envisioned by the region's long range plan. Local jurisdictions in the Metro area can review the model approaches contained in the full report and select approaches that best integrate SDC development and assessment with the community's broader development policy objectives.

For purposes of this study, the scope did not include an evaluation of the impact of SDC programs on development choices, but instead focused on the methodologies applicable to this region for achieving impact-based SDCs and cost recovery through SDCs. In addition, recovering the full costs of development could incorporate recommendations for establishing SDCs for public facilities such as schools, fire, safety, and libraries. However, this study provided recommendations within

[1] SDCs are one-time charges to new development – usually assessed at the time a building permit is issued – designed to recover the costs of infrastructure capacity needed to serve that development. Since 1989, Oregon law (ORS 223.297 to 223.314) has authorized the imposition of SDCs for water, wastewater, storm drain, transportation and park systems.

the framework of current Oregon legislation in order to offer local jurisdictions approaches they can apply immediately. Next steps should include additional research in these areas for application in the region.

Findings and Recommendations

Jurisdictions may choose among a number of different technical and policy options when crafting an SDC methodology. The selection of specific methodological approaches is generally a function of technical, financial, political and legal considerations. As infrastructure system design and community development characteristics vary across jurisdictions, approaches that are valid in one jurisdiction may not be applicable to another. The full report: *Promoting Vibrant Communities through SDCs* provides information on an array of methodological options available to local jurisdictions, including examples of how these options have been applied by other communities to meet local conditions and objectives. Below is a summary of the key findings and recommendations from this study.

Full Cost Recovery

Based on Oregon law, SDCs may consist of a **reimbursement fee** (to recover existing facility capacity available for growth), an **improvement fee** (to recover planned capacity improvements for growth), or both. In many cases, both components are needed to fully recover capacity costs needed to serve growth. Beyond the cost of the improvements themselves, SDCs may also recover costs associated with compliance with the SDC statutes and with placement of the facilities in service (including the planning and financing of improvements.)

The recommended model SDC approaches related to full cost recovery include the following:

- **Long-term project cost recovery**: The SDC methodology is based on a recently adopted capital improvement or facility plan that projects needed improvements for a minimum of 10 years to serve existing and future growth as defined by the comprehensive plan. These comprehensive and facility plans also need to be updated to incorporate the facility types needed to serve development consistent with the 2040 Growth Concept Plan, to the extent such facilities may be related to provision of capacity for growth.
- **Existing system cost recovery**: To the extent that existing system facilities will be used to meet the service delivery needs of new development, the fee structure reflects a reimbursement component designed to recover available capacity costs from growth.
- **Recovery of other costs**: Beyond the direct facility costs themselves, the methodology allows for recovery of costs associated with the placement of facilities in service (e.g., planning and financing costs), and the recovery of costs related to compliance with SDC statutes (e.g., SDC fund accounting and development of the methodology).
- **Inflationary adjustments**: the methodology includes a mechanism for adjusting the fees annually for changes in cost factors, including land and materials.

As capital funding sources are limited and face continued pressure from the need to address infrastructure rehabilitation and replacement, in addition to expanding capacity, the extent that SDCs can more fully fund the infrastructure needed for growth, will allow for addressing more of the region's capital needs. Furthermore, as more and more jurisdictions across the region adopt real cost recovery SDCs, political concerns related to relative fee levels may be mitigated.

Impact-Based SDCs

A goal of this study is to develop SDCs that reflect the real costs associated with serving different developments. A new development's impact on public infrastructure may relate to its specific type (e.g., single family residential vs. multifamily residential), size, density, location, or configuration. The relevancy of different development characteristics to system design and capacity requirements varies across infrastructure systems. Therefore, development of impact-based SDCs should consider the relevant system service units as follows:

- **Parks:** Service units are generally measured as people and, therefore, are most significantly impacted by development size and type, although location may also be a factor to the extent that household demographics vary across the service area.
- **Transportation:** Service units are trips and vehicle miles traveled (VMT), so cost of service is influenced by household and building type and size, as well as location, density and configuration. Development type and size are potential indicators of motor vehicle trip generation rates. Density influences the choice of transportation modes used to reach particular destinations and the distance traveled to reach those destinations. Location, to the extent that it relates to proximity to public transit may also be a significant factor related to system impact. Development configuration is also a factor in system impact for transportation systems. When services that support living, working and shopping activities are all nearby, fewer car trips are needed and the distance traveled is reduced.
- **Water, Sewer, and Stormwater:** Service units are typically volume (and in some cases, quality) of use or discharge, which most significantly relates to development type and size. Higher density development generates smaller lot sizes, which generally correlate to reduced water demand per unit. If the amount of impervious area attributable to each lot is also lower, stormwater fees based on impervious area may also favor (through reduced fees) higher density development. Area density may also impact certain cost components (distribution and conveyance networks, for example), with more dense areas requiring less reduced pipe length per unit. Location may also be a factor in determining relative cost of utility service if unique facilities are required to provide service, or demand differences may be established.

With respect to 2040 Growth Concept, development consideration of density, location and configuration are the most relevant characteristics, though to the extent that higher density development is characterized by smaller structures and lot sizes, SDCs that, at a minimum, favor (through lower fees) smaller structures and lots may promote higher density goals. The use of approaches based on density, configuration and location are recommended for consideration, particularly for transportation systems, by jurisdictions facing significant growth and the need to address varying development patterns and locations.

Recognition of Cost Variations by Location

Historically, SDCs have been assessed uniformly across service areas based on system-wide average costs. However, as discussed above, location can be an important indicator of relative cost of serving development, and use of location-based SDCs can also promote 2040 Growth Concept development. In addition to being a potential indicator of system impact (as discussed above), location can impact the cost of providing services due to variations in cost factors (e.g. land prices) and levels of service (e.g., a portion of the service area desires significantly more park acreage per capita).

Consideration of location-based SDCs is recommended for jurisdictions with diverse areas, where cost differences may be significant and consistent. This approach is particularly relevant for areas that anticipate growth in new, currently unserved areas vs. existing served areas, and for communities that want to direct growth into particular areas, like Regional and Town Centers.

Green Design

Historically, consideration of "green" design characteristics have had limited application in the assessment of SDCs. However, recent examples within the region highlight potential use of these design characteristics in the future, particularly for stormwater systems. For example, adoption of green design standards applicable to all development has lead to reduced SDCs in some communities, through reduced need for public infrastructure investment. Communities have also adopted SDC schedules that include discounts for implementation of certain building and site design features that are designed to reduce system impact. Local governments are encouraged to further consider green design impacts on infrastructure systems and incorporate such features in SDC schedules.

Technical vs. Policy-Based Solutions

The development of SDC schedules may reflect technical or policy-based considerations. Technical approaches allow for development of impact-based SDCs that reflect costs of providing service to developments of different characteristics. The vision of the 2040 Growth Concept promotes redevelopment and infill growth patterns. To the extent that these types of development may be less costly to serve due to reduced infrastructure impact related to density, location, configuration, or other considerations, the SDC fees for these developments should reflect the lower costs. Thus, technically-based SDC methodologies can encourage 2040 development patterns and at the same time fully recover infrastructure costs, as costs may be allocated among developments in proportion to impact. This can result in lower fees for development types and locations that are less costly to serve and higher fees for more costly developments. Developing a technical basis for SDC differentials will likely require additional planning and analysis by local jurisdictions, as well as additional stakeholder education. The additional resources required to develop and implement such approaches should be considered in the context of the jurisdiction's community development and infrastructure cost recovery goals.

In contrast, policy-based approaches tend to offer a less rigorous approach to reducing SDCs to targeted developments. Such discounts are generally supported conceptually by cost relationships from national data sources, and may reflect qualitative rather than quantitative analyses. Policy-based adjustments may also include exempting targeted developments from certain costs (like existing capacity costs), and are generally not offset by increases in fees to other developments, but instead may be funded through other revenue sources (e.g., general fund support). As such, policy-based approaches, aligned with community development goals need to be weighed against infrastructure cost recovery goals.

Conclusion

This report shows the role of SDCs in providing necessary revenue to fund infrastructure generally, as well as playing an important role in helping communities achieve broader policy objectives related to community and economic development. Local jurisdictions can choose among a number of technical and policy-based approaches to tailor SDCs to meet the physical and financial requirements of the systems and promote infrastructure and development as envisioned in local comprehensive and system plans. Jurisdictions in the Metro region do not have to look far for examples of approaches to achieving real cost recovery through SDCs; there are a number of local communities that have implemented innovative approaches to SDC development and assessment in recent years, and more are likely to follow as the region's infrastructure funding needs continue to grow. Metro can work in partnership with local jurisdictions, the development community and other stakeholders to raise awareness related to regional infrastructure needs and development impacts, as well as support the implementation of SDC approaches that will encourage 2040 development patterns and further strengthen the region's local communities.

Section 1

Introduction

Background

Metro's New Look at Regional Choices work program is re-examining the way we carry out the region's long-range plan, the 2040 Growth Concept. A portion of the New Look work program focuses on promoting opportunities for efficient land use and stimulating investment in 2040 centers, corridors and employment and industrial areas. A key component of this work is to identify various new and existing tools that finance planning and infrastructure, promote job creation and economic vitality, and encourage desired developments in centers and along corridors.

During the past decade, communities across the country have turned to system development charges (SDCs) [2] as a principal source of revenue for funding infrastructure system facilities. This trend is due, in part, to the fact that state and federal assistance for system construction has become more limited. As much of the capital cost burden has shifted to the local level, SDCs have taken on even greater importance, as communities look for ways to address the significant costs for ongoing infrastructure rehabilitation and replacement, as well as meeting additional capacity needs.

Some local jurisdictions within the Metro area do not levy sufficient funds through SDCs to pay for the total cost of infrastructure development and improvements. In addition, most jurisdictions in the Metro area charge one standard SDC fee for development within their jurisdiction regardless of whether the costs of servicing different developments vary due to factors such as location and density. In January 2007, Metro initiated a project to identify model approaches to development and assessment of SDCs for parks, transportation, water, wastewater, and stormwater that can help local governments implement the region's 2040 Growth Concept, as described in local visions and comprehensive plans. The products from this work effort will be integrated with additional research efforts evaluating other financial, regulatory, and informational tools into a "Toolkit" for focusing investment in centers, corridors, and employment lands. Local jurisdictions will be able to use the work products to revise their SDC methods and fee schedules to incorporate the model SDC approaches identified through this effort.

Promoting 2040 Growth Concept Development

In addition to their role in providing necessary revenue to fund infrastructure generally, SDCs can also play an important role in helping communities achieve broader policy objectives related to community and economic development, including promoting 2040 growth patterns. As the relative cost of serving developments within the targeted 2040 centers and corridors is often less than serving development outside these areas – due to reduced system impacts and often lower infrastructure costs per unit -- assessing differential SDCs can promote greater financial equity, and

[2] SDCs are a one-time charge to new development – usually assessed at the time a building permit is issued – designed to recover the costs of infrastructure capacity needed to serve that development. Oregon state law (ORS 223.297 to 223.314) has authorized the imposition of SDCs for water, wastewater, storm drain, transportation and park systems, since 1989.

at the same time promote the region's 2040 Growth Concept by reducing the up-front costs of targeted developments. SDCs are only one – sometimes relatively small – part of overall development costs. However, reducing SDCs in the targeted areas may help level out the 'playing field' across the region, supporting efforts to attract development to urban centers where developers may face additional costs.

This report presents examples from communities across the country and in Canada that have adopted SDC schedules reflecting various development characteristics, including location, configuration, and density. As will be demonstrated in subsequent sections of this report, these fee systems often result in lower SDCs for developments located in high density, mixed use areas, often with direct access to public transportation. The development of such programs is generally reflective of a desire to increase the equity of the fee system (costs are assessed in proportion to system impact), and in many cases to encourage certain types of development (e.g., high density or redevelopment) or locations (e.g., areas with proximity to existing public services or transit networks).

Project Authorization and Scope

Galardi Consulting, LLC was authorized by Metro in January 2007 to perform a review of SDC approaches used by jurisdictions throughout North America to promote real cost recovery of infrastructure and sustainable development patterns. For purposes of this study, 'real' cost recovery is intended to reflect both full cost recovery (costs related to both the array of facility and cost types needed to provide capacity for growth generally and specifically related to implementing the 2040 vision are included), as well as recognition of potential cost variations among developments, with respect to specific development characteristics, like density, location, and configuration.

The project scope included the following tasks:

1. Research examples from jurisdictions, both inside and outside the Portland metropolitan area (Metro area) that set SDC fee schedules which acquire the real costs of infrastructure development and promote development in urbanized areas before building in undeveloped, non-serviced areas.
2. Evaluate the applicability and potential use of the different model SDC fee systems to the Metro area.
3. Identify the potential issues local jurisdictions in the Metro area may face while adopting the model SDC approaches and recommend steps for implementation.
4. Prepare a comprehensive report that summarizes the complete findings and recommendations.

The scope of this study does not include an evaluation of the impact of SDC programs on development choices, but instead is intended to provide examples from other communities of:

- Technical approaches for evaluating system impacts by development type/location
- Designing SDCs to reflect system impacts
- Implementing policy-based adjustments to provide certain development incentives.

In this way, jurisdictions in the Metro area can evaluate potential approaches that support the implementation of 2040.

Report Organization

The following sections of this report are:

Section 2: **Legal and Methodological Framework** -- includes a brief discussion of the legal framework and SDC methodological concepts.

Section 3: Cost Recovery of 2040 Infrastructure – describes approaches to recovering the costs of 2040 infrastructure through SDCs, applicability of approaches to jurisdictions in the Metro region, and recommended steps to implementation.

Section 4: Assessment of Impact-Based SDCs – describes approaches for varying SDCs for different developments based on characteristics like location, configuration, and design. Applicability of the approaches to jurisdictions in the Metro region, and steps to implementation, are also discussed.

Section 5: Summary of Recommendations – The recommendations are summarized.

The following **Appendices** are provided to supplement the information provided in the core sections of this report:

A. Oregon Statutory Requirements

B. SDC Methodological Considerations and Components

C. Examples of Model Approaches to Real Cost Recovery

D. Examples of Model Approaches to Assessment of Impact-Based SDCs

Section 2

Legal and Methodological Framework

Legal Authorization

Oregon state law has authorized the imposition of SDCs since 1989. The statutes, at Oregon Revised Statutes (ORS) 223.297 to 223.314, as they have been amended over the past 18 years, authorize cities, counties and special districts to assess SDCs on new development to fund identified public facility needs. In broad overview, the statutes address:

- Which public facilities may be funded in whole or in part with SDCs;
- How the amount of SDCs must be determined;
- How revenue generated from SDCs must be expended; and
- How a new or modified SDC may be judicially reviewed.

As defined by the statutes, SDCs may consist of a **reimbursement fee**, an **improvement fee**, or both. Improvement fees are fees associated with capital improvements to be constructed; reimbursement fees are designed to recover the costs associated with capital improvements already constructed or under construction. In combination, for example, a reimbursement component may be developed to recover a portion of the cost of existing facilities for which there is excess capacity to serve new development (such as water and wastewater treatment plants having more capacity available to serve new development than is needed to serve existing development), and an improvement component may help fund improvements under construction or planned to extend service to new development.

Appendix A includes a more detailed summary of Oregon SDC law, along with the actual text from the statutes.

SDC Methodological Concepts

In order to understand how SDCs may potentially be used to help jurisdictions achieve infrastructure and development objectives, it is first necessary to have an understanding of the basic SDC methodological components.

SDC methodologies generally include the following basic components:

1. **Unit Cost:** The capital cost of constructing capacity to serve new development is determined on a per service unit[3] basis after subtracting any non-local funding sources, such as state and federal funds, and local contributions.

[3] Service units will vary by infrastructure system. For example, water and wastewater service units are typically measured by volume of water consumed or wastewater discharged; park units are generally people; drainage units may be square feet of impervious area or other land measure, and transportation units are generally trips generated or vehicle miles traveled.

2. **Revenue credits**. New development generates revenue that may be used to help finance facilities also financed by SDCs. For example, a bond issue to expand park and recreation facilities paid from property taxes means that new development paying such taxes will help retire the bond. Such "revenue credits" are generally subtracted from the total capital cost per unit to assure that new development is not paying twice for the same facilities. The result is "*net capital cost.*"

3. **Demand Schedule**: Units required to service different development types are estimated. Such schedules may differentiate demand by land use type, size, location, or other factors.

The SDC for a specific development is the product of the net capital cost and the total service units attributable to the development.

For individual development projects, the SDC may be reduced to reflect contributions of facilities offered by a development, such as a new public park that was shown as needed in the capital improvement plan (CIP) to accommodate new development. For example, if the park and recreation SDC would be $1 million and the park value is $500,000, the impact fees are reduced to $500,000. These "construction credits" (also known as credits for "qualified public improvements" under Oregon SDC law) are determined on a case-by-case basis.

Within each of these basic methodological components, jurisdictions may choose among a number of different options when crafting an SDC methodology. The selection of specific methodological approaches is generally a function of technical, political and legal considerations.

A more detailed discussion of SDC methodological components is provided in Appendix B.

Technical Terms and Abbreviations

2040 Growth Concept – the Portland metropolitan region's strategy for managing growth that was adopted in December 1995 through the Region 2040 planning and public involvement process

Asset Valuation—the costs attributed to existing system facilities, for purposes of developing the reimbursement fee unit cost

CAC—Citizen Advisory Committee

CBD—Central Business District

CIP—Capital Improvement Plan

DCC—Development Cost Charge

DU—Dwelling Unit

ERU – Equivalent Residential Unit

GIS—Geographical Information System

Greenfield Development—new development on a parcel or parcels of more than one contiguous acre

IGA—Intergovernmental Agreement

Improvement Fee—the portion of the SDC charged to cover an equitable share of the capital improvements required to increase capacity of the system to accommodate new development

Infill Development—new development on a parcel or parcels of less than one contiguous acre located within the UGB

ITE—Institute of Transportation Engineers

LOS—Level of Service -- the measure of the relationship between service capacity and service demand for public facilities in terms of demand-to-capacity ratios

Metro—The Regional Government of the Portland metropolitan area

MGD—Million Gallons per Day

Mixed Use Development –includes areas of a mix of at least two of the following land uses and includes multiple tenants or ownerships: residential, retail, and office

OCP—Official Community Plan

ORS—Oregon Revised Statutes

Redevelopment—development that replaces or significantly alters an existing structure or structures

Reimbursement Fee—the portion of the system-specific SDC charged to recoup the community's past or current investment in extra capacity in anticipation of future growth

Revenue Credits—adjustments to the SDC unit cost to recognize past or future contributions by new development to system improvements

System Improvements —capital improvements that are public facilities and are designed to provide service for the community at large, as opposed to specific developments

SDC—System Development Charge, means a reimbursement fee, an improvement fee or a combination thereof assessed or collected at the time of increased usage of a capital improvement or issuance of a development permit, building permit or connection to the capital improvement (ORS 223.299)

SDC Unit Cost —costs associated with serving future development, stated in terms of a cost per unit of system capacity

SDC Demand Schedule —the capacity requirements attributable to different development types or locations for purposes of assessing SDCs

SFE—Single Family Equivalent

TDM—Transportation Demand Management

TGSF—Thousand Gross Square Feet

UDB—Urban Development Boundary

UGB—Urban Growth Boundary

VMT—Vehicle Miles Traveled

Section 3

Cost Recovery of 2040 Infrastructure

Introduction

An objective of this study is to develop model SDC approaches that recover costs of infrastructure needed to support 2040 Growth Concept development. This objective is primarily addressed in the SDC methodology through calculation of the SDC unit cost. Issues related to revenue credits are also discussed. The fundamental question to be addressed is whether the SDCs accurately capture the range of costs needed to deliver service to new development under the 2040 Growth Concept model.

From a methodological framework, development of the unit cost and revenue credits requires the following steps:

1. Definition of system improvement costs to be recovered through the SDCs.
2. Selection of a unit cost structure and valuation approach.
3. Updating to keep SDCs current with inflation and system planning assumptions.
4. Adjustment for past or future payments by new development for capital improvements.

Appendix B provides a detailed description of the methodological issues and approaches related to development of the SDC unit cost and revenue credits. This section focuses on those approaches that are considered most consistent with the objective of real cost recovery and Oregon SDC law (discussed generally in Section 2 and in more detail in Appendix A). Recommended steps to implementation of these approaches are also identified in this section.

Model Approaches to Cost Recovery of 2040 Infrastructure

Table 3-1 summarizes the model approaches for cost recovery of 2040 infrastructure. The model approaches are identified for each element of the SDC methodology related to the development of the unit cost and revenue credits.

Definition of System Improvement Costs

Project List Sources and Planning Horizon

Real cost recovery SDCs are supported by planning documents beginning with the comprehensive plan that defines the service delivery standards for each infrastructure system. The service standards and development projections contained in the comprehensive plan form the basis for development of specific infrastructure system plans that identify capital improvements needed over the planning period to deliver service to existing and future development.

Table 3-1. Model Approaches to Cost Recovery of 2040 Infrastructure

Methodology Component	Model Approaches	Rationale	Appendix C Example(s)
Determination of System Improvements			
Project List Source(s)	Infrastructure system plan(s).	Required by Oregon law; ensures consistency with planning documents and 2040 Growth Concept.	All
Planning Horizon	Long-term (10 or more years).	Unless the system has ample existing excess capacity throughout, a long-term planning horizon is generally needed to fully capture all of the facility types/costs needed for growth as envisioned by local comprehensive plans.	All
Project Cost Allocation	A structured process is established by which individual capital improvement projects are evaluated for their role in providing capacity to growth, including projects needed specifically to support 2040 growth concept development.	Oregon law requires demonstration that projects or portions of projects to be recovered through SDCs are: • Needed to provide capacity for future growth at a level of service consistent with existing system users. • Not being funded by other sources.	Metropolitan Wastewater Management Commission of Eugene/Springfield (MWMC) Sewer SDCs City of Wilsonville Sewer SDCs City of Portland Transportation SDCs
Other costs	Consider costs associated with placing the facilities in service, including planning and financing costs and SDC law compliance costs.	Oregon law allows for SDCs to be used to pay debt service and for compliance with SDC statutes.	City of Wilsonville Sewer SDCs City of Kelowna, BC (Appendix D)
Unit Cost Structure			
Basic approach	Improvements-based	Required by Oregon law	All
Fee structure	▪ Buy-In ▪ Capacity Expansion ▪ Marginal Cost ▪ Average Cost, and ▪ Total Cost-Attribution (Combined Improvement and Reimbursement")	Oregon law allows for recovery of both existing and future facility costs. Selection of specific approach will depend on level of service analysis which will show how capacity needs for growth will be met – through existing facilities, future facilities, or a combination.	*Total Cost Attribution*: MWMC Sewer SDC and City of Wilsonville Sewer SDC *Capacity Expansion:* City of Portland Transportation SDC, City of Gresham Parks SDC, City of Albuquerque Parks SDC
Existing System Valuation Basis	▪ Book value ▪ Original cost ▪ Replacement cost ▪ Replacement cost less depreciation	The selection of a valuation approach is a local policy decision.	*Replacement Cost*: MWMC Sewer SDC *Original Cost*: City of Wilsonville Sewer SDC

Table 3-1. Model Approaches to Cost Recovery of 2040 Infrastructure

Methodology Component	Model Approaches	Rationale	Appendix C Example(s)
Differential Unit Costs	Vary unit costs within the service area	To the extent that capital improvement costs or service standards vary significantly and consistently by area, differential unit costs and SDCs may promote real cost recovery.	City of Albuquerque Parks SDC City of Scottsdale Water SDC City of Gresham Parks SDC Sacramento Regional County Sanitation District Sewer SDC
Updating			
Inflation	Annually adjust fees based on a construction or land index, or a combination of the two.	Oregon law allows for periodic adjustment of fees based on a specific cost index or data source published by a recognized organization, separate from the SDC methodology.	City of Gresham Parks SDC
Methodology	The methodology is reviewed regularly (3-5 years), to ensure consistency with projected facility needs and costs, and planning assumptions.	Regular updating needed to reflect accurate mix/cost of projects and level of service.	MWMC Sewer SDC
Revenue Credits			
Past Payments	Determine present value of past estimated payments by undeveloped property for infrastructure.	Prevent growth from being charged twice for system improvements.	MWMC Sewer SDC
Future Payments	Determine present value of future estimated payments for existing system deficiencies.	Prevent growth from being charged twice for system improvements.	MWMC Sewer SDC and City of Wilsonville Sewer SDC

Oregon law requires that improvement SDCs be based on "a capital improvement plan, public facilities plan, master plan or comparable plan that includes a list of the capital improvements that may be funded with improvement fee revenues and the estimated cost and timing for each improvement."[4] Basing the SDC unit cost development on a long-term infrastructure plan will allow for cost recovery consistent with adopted service standards and development patterns. It is important that system plans be kept current with comprehensive plans, so that the SDCs may recover the specific facility types and costs needed to service the particular development that is anticipated.

Project Cost Allocation

Further, to comply with Oregon law, the SDC methodology must include an evaluation of each capital improvement on the capital project list, and its role in providing capacity for growth. Specifically, ORS 223.304(2) describes that the improvements included in the SDC must be "needed to increase the capacity of the systems to which the fee is related" and that cost recovery is limited to that amount that can be demonstrated to provide capacity for future users.

A structured process for evaluation of capital improvement projects includes:

- Identification of relevant facility design criteria and level of service (LOS) standards.[5]
- Estimation of total capacity to be provided by each improvement, and that portion of capacity related to meeting the needs of future growth vs. remedying existing service deficiencies.
- Any necessary adjustments in SDC-related cost for external funding sources (e.g. grants or developer contributions).

Example Allocation

To illustrate the required analysis to support project cost allocation, consider the following park SDC examples. The relevant design criteria are generally the type of park or facility (e.g., neighborhood or community parks). Assume a neighborhood park, where the jurisdiction has adopted a LOS of 5 acres of park land per 1,000 residents. Further, assume a project improvement that will add 5 acres of park land, and that the community is expected to grow by 1,000 people over the planning horizon, such that the capacity needed to serve the new population is 5 acres. If the community has 1,000 people now and 5 acres of neighborhood parks, then new development will need 5 new acres of park land, and the total costs of the project improvement may be allocated to growth, assuming that the jurisdiction does not anticipate a grant or other external funding for that improvement.

Alternatively, if the community has only 4 acres of park currently, then based on its adopted LOS, it is deficient by 1 acre with respect to meeting current resident needs. In this case, assuming an expanded project improvement of 6 acres (in order to address both the 1 acre existing deficiency and 5 acre future development need), approximately 16 percent (1 divided by 6 acres) of the acquisition cost and capacity is needed for existing residents; therefore, in determining the SDC unit cost only about 84 percent of the project costs are growth-related.

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[4] ORS 223.309(1).

[5] Level of service is a *measure of the relationship between service capacity and service demand for public facilities in terms of demand-to-capacity ratios.*

2040 Growth Concept Projects

The 2040 Growth Concept, as relevant here, encourages development in urban centers at higher densities; therefore improvements that support higher density development and urban centers, such as parking structures and upgrades to existing infrastructure capacity should be considered for inclusion in the SDC methodology. The primary legal consideration applicable in this context is again that the improvements must be "needed to increase the capacity of the systems to which the fee is related" and that cost recovery is limited to that amount that can be demonstrated to provide capacity for future users.

As communities further identify the infrastructure investments needed to implement 2040, it is important that system plans be updated to include such projects, and that the SDC methodologies reflect the portion of those costs associated with meeting the capacity needs of future development. Appendix C includes a case study from the City of Portland that demonstrates consideration of 2040-related infrastructure in its SDC project list. Among projects included in the city's existing SDC methodology are street car and regional center improvements.

Other Costs

Oregon statutory provisions related to expenditure of SDCs provide guidance on what does and does not constitute an SDC eligible cost; specifically, ORS 223.307:

- States that both reimbursement and improvement SDCs may be used for expenditures relating to repayment of debt.
- Excludes "costs associated with the construction of administrative office facilities that are more than an incidental part of other capital improvements."
- Allows for expenditure of SDC revenue on "costs of complying with the provisions of ORS 223.297 to 223.314, including the costs of developing system development charge methodologies and providing an annual accounting of system development charge expenditures."

The fact that SDCs may be used to fund debt service suggests that beyond facility improvement costs, the SDCs may also recover costs of debt financing (e.g., interest costs). In addition, the methodology may also allow for recovery of compliance costs, which generally include the costs of developing the SDC methodology, conducting annual SDC fund accounting, and planning costs associated with the development of the SDC project list. All of these cost components are 'real costs' associated with providing capacity needs for growth, and therefore should be considered in the SDC methodology.

In its *20 Year Servicing Plan and Financing Strategy 2020*, the City of Kelowna, BC recognizes the additional costs associated with financing wastewater treatment capacity by including an interest component in the development charges. Additional aspects of Kelowna's development charge methodologies are presented in Appendix D.

Unit Cost Structure

Basic Approach

The requirement that the improvement fee be based on a specific list of capital improvements, limits the SDC methodology to an 'improvements-based' approach. This basic approach is compared and contrasted to the 'consumption-based' approach in Appendix B. Examples of both approaches may be found across the country; however, model approaches for jurisdictions in

Oregon are limited to the improvements-based approach, as required by law. Furthermore, to the extent that the capital project list is kept current and linked to comprehensive plans, the use of the improvements approach may allow for more accurate estimation and recovery of real costs of development.

Fee Structure

Great flexibility is provided within the statutory requirements with respect to selection of a unit cost fee structure and valuation approach, given that SDCs may include a reimbursement fee, an improvement fee, or a combination of the two. The key methodological requirement is demonstration that the SDC results in recovery of costs related to capacity which will serve the needs of growth – either through existing system available capacity, future capacity expansion, or a combination.

Of critical importance to determination of costs needed to serve new development – and establishment of a unit cost structure that will effectively recover those costs -- is the relationship between the adopted LOS and the actual LOS existing at the time the SDCs are developed. For example, if a community has adopted a higher LOS than it is currently providing, then the system is deficient in capacity to meet the needs of even existing development. In this case, the SDC structure would be limited to an improvement fee, as there is no existing available capacity for new development to utilize. Similarly, if the system is just meeting the adopted LOS, then there is sufficient capacity for existing development, but again there is no excess capacity available for growth. Only in cases were the existing system has excess capacity (as is the case when the existing LOS is higher than the adopted standard) may a reimbursement component be considered. An example is a water system with a storage standard of 2.0 times the average day water demand (to meet peak and emergency demands). If the system currently has capacity to provide storage of 2.5 times average day demand (i.e., the actual LOS exceeds the standard), then there is available capacity in the system to help meet the needs of future growth.

Because LOS and capacity requirements and conditions vary across communities, what is deemed to be the optimal SDC approach in one community may differ from that of another community. The important consideration is not whether jurisdictions prescribe to a single unit cost approach, but whether the local jurisdiction has conducted the necessary planning to identify the needs of growth, and whether the selected methodology accurately reflects the conditions specific to that jurisdiction.

As described in Appendix B and listed in Table 3-1, there are various methodological approaches to development of reimbursement (also referred to as "buy-in") and improvement fee unit cost structures; the selection of which depends on a number of factors including cost recovery goals (related to existing system valuation discussed below) and financial and engineering data availability.

Existing System Valuation

To the extent that existing system facilities will be used to meet the capacity needs of growth, an approach to valuing that capacity must be selected. In Oregon, reimbursement fees must be calculated consistent with the elements of ORS 223.304, which requires in essence that the fees be based on the "value of unused capacity available to future system users." Selection of a valuation approach is a policy decision, and various methods are used across the state and country, perhaps the most common approaches being original cost and replacement cost (sometimes adjusted for accumulated depreciation). Appendix B further discusses the valuation approaches and provides numerical examples.

Differential Unit Costs

The most common approach to establishing SDC unit costs (and assessment of fees) historically has been to develop system-wide average unit costs, without differentiation within the service area. However, to the extent that real costs of infrastructure vary significantly and consistently across the service area due to differences in land values, area-specific improvements, or other factors, development of differential unit costs (and assessment schedules) may further promote real cost recovery. Appendix C includes examples of jurisdictions that have adopted differential unit costs based on the following approaches:

1. **Variations due to cost factors**: The City of Albuquerque, NM adopted SDCs for parks that vary across planning areas within the city. The differences in SDCs reflect in part, different assumptions about the value of land in each of the service areas. Similarly, the City of Scottsdale assesses water SDCs for two different areas within the city. Fees are reduced in one area, reflecting the fact that additional water rights are not required, whereas the other area requires procurement of future supplies. Similarly Kelowna, BC allocates planned capital improvement projects among different service areas and develops specific fees for each area, reflecting the estimated cost of service.

2. **Variations due to levels of service**: The City of Gresham implemented parks SDCs for separate areas within the overall parks planning area, based on the specific LOS to be provided in each area. Because newly developing areas have a higher LOS for parks than other areas of the city, the fees are higher.

3. **Variations due to cost allocations**: The Sacramento Regional County Sanitation District adopted an alternative SDC designed to encourage infill development by offering reduced fees in specified infill areas, compared with "new growth" areas. The fee differences reflect an alternative cost allocation process, whereby new growth areas are allocated the higher initial costs of conveyance system improvements, while infill areas are allocated the lower incremental costs of upsizing the facilities for full build-out needs. Redevelopment areas are also eligible for lower treatment fees made available through an Economic Development Treatment Bank which purchased low-cost capacity from industries that left the service area.

4. **Variations due to policy-based decisions**: The City of Albuquerque's parks SDC schedule reflects a decision to not charge for historical system investment that will provide capacity to growth. As the degree of reliance on existing system facilities varies across the service area, this contributes to differential SDCs.

Updating

Oregon SDC law allows for regular updating of SDCs to reflect changes in "the cost of materials, labor or real property applied to projects or project capacity" upon which the fees are based, presuming that the update is based on "the application of one or more specific cost indexes or other periodic data sources…published by a recognized organization or agency that produces the index or data source for reasons that are independent of the system development charge methodology." Such adjustments are required to be "incorporated as part of the established methodology or identified and adopted in a separate ordinance, resolution or order."[6]

[6] ORS 223.304(8)

Beyond regular inflationary adjustments, comprehensive review and update of the methodology should be conducted regularly as system planning documents are revised and new long-term capital improvement plans are adopted. Likewise, these facility plans should be updated as comprehensive community plans get revised.

Revenue Credits

While not explicitly required by Oregon law, it is standard practice around the country to include a mechanism in the SDC methodology to adjust fees for past or future non-SDC revenues paid by new development that fund capital projects for existing system users, including the costs to remedy existing deficiencies. As the SDCs are designed to recover from new development, full costs up-front for capacity needs, past or future contributions to capacity improvements may be construed as over collecting with respect to real cost recovery. The model approach to calculating revenue credits is to estimate the present value of past and future contributions, and adjust the SDC unit cost accordingly.

Recommended Steps to Implementation of Model Approaches to Cost Recovery of 2040 Infrastructure

Steps to implementation of the model approaches discussed above are provided in Table 3-2.

Financial/Technical

Implementation of SDCs reflecting real cost recovery requires current planning and cost data to support the SDC methodology. Figure 3-1 illustrates how the SDC methodology is informed by various planning processes, including the comprehensive plan, facility and master planning, and financial planning to ensure that the SDCs reflect the needed infrastructure to meet anticipated growth needs, and are consistent with development and financial policies.

Figure 3-1. Model Approaches: Recommended SDC Development Process

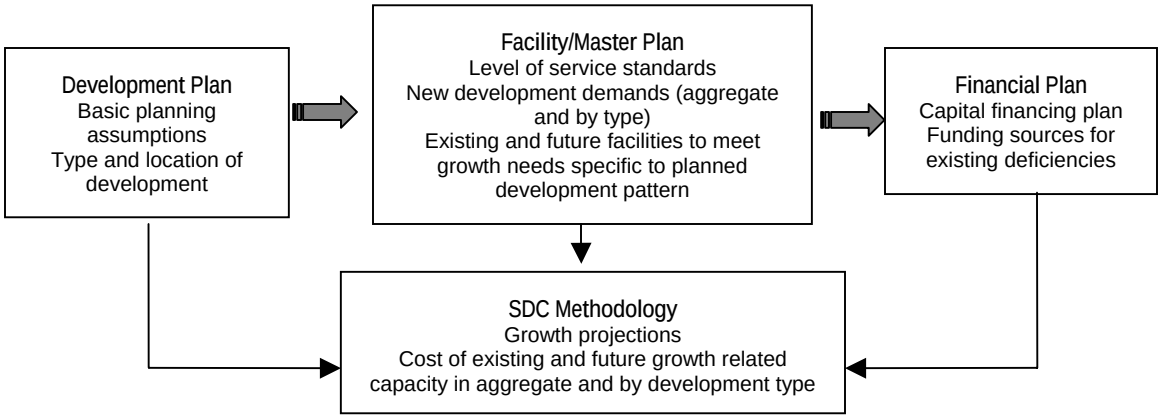

Table 3-2. Steps to Implementation of Model Approaches to Cost Recovery of 2040 Infrastructure

Consideration	Specific Issue(s)	Recommended Action(s)	Ownership
Financial/Technical			
Data to clearly identify real costs to serve growth.	System plans and SDC project list is not current with respect to development plan. Project list does not address long-term development needs. SDC methodology does not include costs associated with placing assets in service.	Keep system plans and SDC project lists current with development plans. Tie SDC updates to completion of master or facility plans. Base SDCs on long-term (e.g. 20-year or build-out) projected needs, as defined by system plans. Coordinate development of SDC methodology with update of capital financing plan to estimate financing costs and revenue credits. Include planning costs in SDCs to allow for more frequent updating of system plans and SDC methodology.	Local jurisdictions: Coordination among finance, planning, and public works departments. Metro: Help identify infrastructure related to 2040 development through completion of regional infrastructure analysis.
Political/Governance			
Political support to implement real cost recovery SDCs.	Not all potentially eligible projects get funded.	Develop structured process for project selection that is linked to other policies and objectives (e.g., prioritize projects that help implement 2040 growth concept). Provide references to studies that show SDCs not a barrier to economic development.	Local jurisdictions: Demonstrate linkages between development plans, infrastructure, and SDCs. Engage stakeholders to balance community objectives. Metro: Increase public education about the importance and use of SDCs as funding mechanism (e.g., tool kit).
Legal/Regulatory			
Costs specifically related to growth capacity needs.	Certain types of projects the local jurisdiction would like to fund may not be SDC eligible.	Develop structured process for evaluation of each project in the capital plan and how it relates to meeting growth capacity needs, including 2040-related improvements.	Local jurisdictions

A key recommendation is that local jurisdictions use a coordinated process for development and updating of SDCs to reflect current development, facility, and financial plans. Infrastructure system plans should be updated regularly to keep current with development projections and patterns. Update of system plans should trigger review and update of both the system capital financing plan and the SDC methodology. The SDC methodology will determine what portion of capital costs may legally be funded through SDCs; the capital financing plan will identify how existing deficiencies will be funded, as well as how SDCs will be used – either to cash fund facilities, or to repay debt service over time. To the extent that debt will be used to finance the costs of facility expansion, the SDC methodology may consider the additional costs associated with long-term financing (e.g., interest and issuance costs).

Inclusion of planning costs in the SDC methodology[7] can help to offset costs of developing and updating the capital project lists.

Metro can help promote real cost recovery by initiating studies to identify regional infrastructure needs and financing specifically related to 2040 Growth Concept development.[8]

Political/Governance

Political support is needed to implement real cost recovery SDCs. Building support may require overcoming the perception that SDCs will limit growth in general and economic development specifically. While the number of studies on the impact of SDCs on economic development is still limited, recent reports suggest that SDCs can in fact promote economic development, through provision of necessary infrastructure.[9]

Local governments can help strengthen political and public support for SDCs by demonstrating how SDCs will fund high priority projects, in a manner that is consistent with the community's development goals. By coordinating development of the SDC methodology with development of system plans, linkages can be made between SDCs and delivery of service at *required* standards (in the case of regulated systems like water, sewer, and in some cases stormwater) and locally and regionally *desired* standards (in the case of parks and transportation). Coordination of the SDC methodology with development of the capital financing plan can help illustrate funding gaps associated with general revenue supported infrastructure, as well as the impacts on other revenue sources (like utility rates) of implementation of SDCs at levels below real cost recovery.

Many communities use a citizen advisory committee process (CAC) to develop SDC recommendations. This can be an effective way to balance local objectives related to infrastructure funding and development. This can be a particularly effective process when the CAC has also been involved in the development of the system plans, so that there is greater understanding of the need for the capital improvements themselves.

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[7] Master planning costs may be prorated between growth and existing development based on population, future capacity needs, overall allocation of capital improvement costs, or other relevant basis

[8] Metro is embarking on a study in June 2007 to analyze regional infrastructure needs and financing mechanisms. Results from this process are expected to be available in early 2008.

[9] See for example: *Paying for Prosperity: Impact Fees and Job Growth* (2003). The Brookings Institution Center on Urban and Metropolitan Policy.

The City of Albuquerque, NM adopted SDCs in 2004 (some of which are described in Appendix C and D), which resulted from a large-scale, community-driven visioning approach to address issues of urban form, land use and facility efficiencies, equity, long-range capital facility financing, and related "big picture" issues. That process led to the Planned Growth Strategies plan which was adopted in 2004. This plan served as the policy framework from which the city's SDCs were developed.

Legal/Regulatory

Oregon SDC law limits costs that may be included in the SDC methodology to capacity-related capital improvement needed for growth. Local governments should conduct a detailed evaluation of each project (using processes described previously in this section and examples presented in Appendix C) on the capital improvement plan to determine potential SDC eligibility within the allowable infrastructure systems. Certain improvements – such as safety improvements, improved pedestrian and bicycle access, and similar improvements – will require careful articulation of the specific ways in which they contribute to additional capacity. Generally, an increase in capacity can be demonstrated by:

- **Adding additional facilities** – this can mean adding more of the same type of facilities already existing in the system (e.g., additional neighborhood parks or wastewater clarifiers), and adding new facility types (e.g., skate parks or a new treatment process). In the latter case it is important to recognize that existing development will also benefit from the new facility types, so growth cannot be required to pay for the entire improvement costs.
- **Increasing the level of performance provided by existing facilities** (e.g., building a parking structure to remove existing on-street parking).
- **Upsizing existing facilities**, to the extent that any replacement capacity cost benefiting existing development is not allocated to growth.

Summary of Model Approach Recommendations

SDC methodologies from communities within the Metro region and around the country were reviewed to identify approaches that would support the objective of real cost recovery. For purposes of this report, 'real' cost recovery is intended to reflect both full cost recovery (the full array of facility and cost types needed to provide capacity for growth generally and specifically related to 2040 growth concept development are included), as well as recognition of potential cost variations across the service area. The model approaches are provided in Table 3-1, along with references to examples of these approaches as applied in specific communities and described in Appendix C. Below is a summary of the recommendations related to full cost recovery and cost variation.

Full Cost Recovery

Key attributes of the recommended model SDC approaches related to full cost recovery include the following, as illustrated in Figure 3-2:

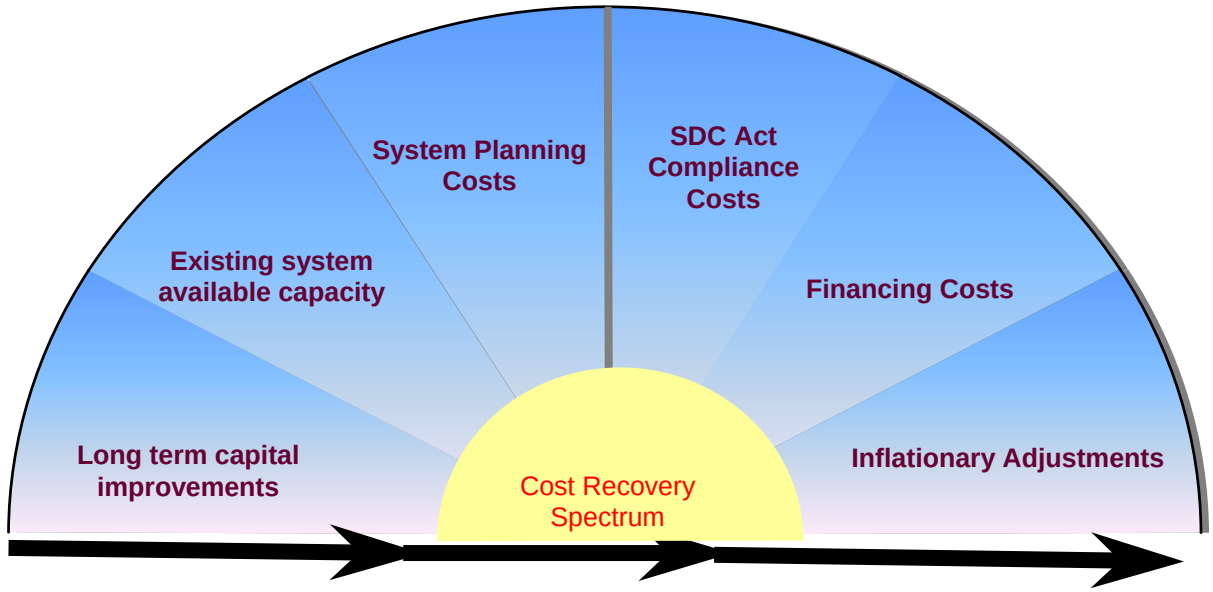
- **Long-term project cost recovery**: The SDC methodology is based on a recently adopted capital improvement or facility plan that projects needed improvements for a minimum of 10 years to serve existing and future growth as defined by an up-to-date comprehensive plan. As such, the project list includes facilities needed to build-out the system according to

local and regional growth objectives, including costs oriented to urban center facilities, to the extent that these projects relate to provision of capacity for growth.

- **Existing system cost recovery**: To the extent that existing system facilities will be used to meet the service delivery needs of new development, the fee structure reflects a buy-in component designed to recover available capacity costs from growth.
- **Recovery of other costs**: Beyond the direct facility costs themselves, the methodology allows for recovery of costs associated with placing facilities in service (e.g., planning and financing costs), and recovery of SDC act compliance costs (e.g., SDC fund accounting and development of the methodology).
- **Inflationary adjustments**: the methodology includes a mechanism for adjusting the fees annually for changes in cost factors, including land and materials inflation.

FIGURE 3-2

Spectrum of Full Cost Recovery



Recognition of Cost Variations

Historically, SDCs have been assessed uniformly across service areas based on system-wide average unit costs of capacity. The review of model approaches yielded examples both within the Metro region and elsewhere around the country, where cost variations within service areas have been developed in order to promote equity and development objectives. Specifically, four types of model approaches were identified with variations based on:

1. Cost factors
2. Levels of service
3. Cost allocations
4. Policy-based decisions

The first three approaches are designed to achieve full cost recovery with respect to costs of serving growth. The fourth approach, as applied in the Albuquerque example, resulted from a large scale community visioning process. Among the outcomes of this process was establishment of service tiers across the city: "fully served," "partially served," and "unserved." The purpose of the tiers was to recognize that some areas of the city already had most or all the infrastructure needed to serve new development but other areas did not. Also, "fully served" areas were more likely than "partially served" ones to have infill and redevelopment opportunities. From the city's perspective, it would be a more efficient use of existing resources to encourage development in fully served areas – where facilities already exist – and also encourage more efficient development patterns in partially served areas through a pricing structure in part based on SDCs.

Section 4

Assessment of Impact-Based SDCs

Introduction

An objective of this study is to develop model SDC approaches to assessment of SDCs based on system impact. As discussed previously, assessment of impact-based SDCs is one tool local jurisdictions can use to promote 2040 Growth Concept development, as the relative cost of serving developments within targeted high-density nodes and transit corridors is often less than serving development outside these areas, due to reduced system impacts. This objective is primarily addressed in the SDC methodology through development of the demand schedule, which defines how capacity requirements will be measured overall, and with respect to particular development characteristics.

The fundamental question to be addressed is whether the SDCs reflect the *impact* of new development on facilities. Variations in system impact related to the following development characteristics are considered:

- Land use type
- Development Size
- Density
- Location
- Configuration

This section presents the model approaches considered most consistent with the objective of assessment of impact-based SDCs. Recommended steps to implementation of these approaches are also identified in this section.

Model Approaches to Impact-Based SDC Assessment

Table 4-1 summarizes the model approaches to impact-based SDC assessment. As development characteristics vary in impact on different infrastructure systems, the table is organized by infrastructure system and development characteristic. Examples of some of these approaches may be found in Appendix D (with some references to the examples in Appendix C).

A discussion of system impacts by development characteristic follows.

Table 4-1. Model Approaches to Assessment of Impact-Based SDCs

System/Development Characteristic	Model Approaches	Rationale	Appendix D Example(s)
Transportation			
Land Use Type	Vary fees by dwelling and nonresidential land use type.	Data from Institute of Transportation Engineer (ITE) manuals provide data on trip characteristics by numerous land use categories.	City of Tucson City of Albuquerque
Development Size	Vary residential fees by house size.	Nonresidential SDCs are commonly assessed based on development size, based on data from ITE manuals. Recent examples of residential SDC assessment relate trip generation to number of occupants and house size.	City of Tucson City of Albuquerque
Density	Vary residential fees based on number of units per lot.	Higher density development has less impact on roadway system and is less costly to serve per unit due to reduced linear feet of roadway.	City of Kelowna City of Prince George
Location and Configuration	Reductions in SDCs for downtown core and mixed use areas. Reductions in SDCs for development along transit/bus corridors.	Compact nature of area leads to reduced trip generation and shorter trips. Proximity to nonmotorized modes and mixed use leads to reduced trip generation and shorter trips.	City of Tucson City of Olympia City of Atlanta
Green Design	SDC discounts for transportation demand management measures and site design features.	Certain site design features (e.g., bike parking) may reduce vehicle trip generation.	City of Olympia
Water			
Land Use Type	Vary fees based on average number of occupants/employees per unit.	The average number of occupants per unit varies by dwelling type (single family vs. multifamily) and land use type (nonresidential employment density). The number of occupants/employees is an indicator of potential water demand.	City of Prince George
Development Size	Vary residential fees by lot size.	Systems are sized for peak demands which often relate to summer irrigation and lot size. Offers greater variation in fees than standard scaling measures like meter size.	City of Santa Fe City of Scottsdale (single family)

Table 4-1. Model Approaches to Assessment of Impact-Based SDCs

System/Development Characteristic	Model Approaches	Rationale	Appendix D Example(s)
Density	Vary residential fees by density of lot.	The number of units per lot is an indicator of both house and lot size, and thus an indicator of potential water demand. Higher density/reduced lot width per unit requires reduced linear feet of water main.	City of Scottsdale (multifamily) City of Kelowna, BC City of Prince George, BC
Location	Vary fees by area.	Projected demand per unit varies by area.	City of Scottsdale
Green Design	Discount SDCs for certain building or site design features.	Building and site design may be a factor in reducing water use per unit.	None identified.
Storm Water			
Land Use Type	Vary fees based on estimated runoff equivalencies.	Potential runoff is generally a function of the amount of impervious area which relates to the dwelling density for residential, site coverage for nonresidential, and average percent impervious coverage by land use type.	City of Prince George
Development Size	Vary fees by impervious area of specific development.	The amount of impervious area is an indicator of potential runoff which may be measured for each individual development.	City of Albuquerque (Appendix C)
Density	Vary fees by number of residential units per acre.	Higher density/reduced lot width per unit requires reduced linear feet of stormwater mains.	City of Prince George
Location	Vary fees by area.	Projected capital investment needs vary by area.	City of Prince George
Green Design	Discounts for on-site detention above development standards; Reduced fees overall as a result of required design standards (e.g., green streets).	On-site improvements may be effective at controlling runoff beyond standards. Requiring all developments to control runoff can reduce need for system capacity overall.	City of Eugene City of Prince George City of Gresham
Sewer			
Land Use Type	Vary fees based on average number of occupants or employees per unit.	The average number of occupants per unit varies by dwelling (single family vs. multifamily) and land use type (nonresidential employment density). The number of occupants/employees is an indicator of potential water demand and resulting wastewater volume.	City of Prince George City of Scottsdale

Table 4-1. Model Approaches to Assessment of Impact-Based SDCs

System/Development Characteristic	Model Approaches	Rationale	Appendix D Example(s)
Development Size	Vary residential fees by house size.	House size relates to number of occupants, which relates to winter average water use (typically used to estimate sewage flow).	City of Eugene
Density	Vary residential fees by density of lot.	The number of units per lot is an indicator of house size, and thus an indicator of potential wastewater volume. Higher density/reduced lot width per unit requires reduced linear feet of sewer mains.	City of Scottsdale (multifamily) City of Kelowna, BC City of Prince George, BC
Location	Vary fees by area.	Projected system flow contribution per unit varies by area. Projected capital investment needs vary by area.	City of Scottsdale City of Prince George
Green Design	Discount SDCs for certain building design features.	Building design may be a factor in reducing wastewater flow volume.	None identified
Parks			
Land Use Type	Vary fees by dwelling and nonresidential land use type.	Dwelling type is an indicator of number of occupants. Nonresidential depends on nexus, but generally related to number of employees per unit.	City of Prince George
Development Size	Vary fees by house size.	House size is an indicator of number of occupants.	City of Albuquerque (Appendix C)
Density/Location	Vary fees by location/density.	Number of occupants per unit varies by location/density.	City of Albuquerque (Appendix C) City of Olympia
Configuration, Green Design	None identified.	None identified.	None identified

Land Use Type

Land use is a factor in SDC assessment especially for parks and transportation systems, which at a minimum, reflect land use type and most often, include differentiations by dwelling type to recognize variations in average number of occupants per unit. For stormwater, water, and wastewater systems, SDCs are often assessed based on a scaling measure that is uniformly applied to all land use types. For example, impervious area is most often used for assessment of stormwater[10] SDCs for all land use types. Similarly, SDC programs for water and sewer are often based on plumbing fixture units or meter size and assessed uniformly for all development types.

In some cases, certain land uses may be exempt from SDCs altogether. Historically, this has been most often the case for nonresidential land uses and park SDCs. Assessment of SDCs requires demonstration of a rational nexus between the development and need for system capacity. Recently, more and more jurisdictions have adopted park SDCs for nonresidential development, including the cities of Beaverton, Gresham, Hillsboro, Lake Oswego, Oregon City, Sherwood, Tigard, Washington Co., and Wilsonville. The nexus for nonresidential development and park demand is typically established through park surveys, hours of opportunity (where potential park use is estimated for work vs. home-based time), or other models.

Development Size

Most fee schedules for all infrastructure systems include some basis for assessing differential SDCs to nonresidential development based on development size. Scaling measures are common in the assessment of SDCs for nonresidential development, due to the wide variation in developments (see Appendix B for common scaling measures). Variation in SDCs based on size of development has been less common practice for assessing residential development, though that is changing. As with dwelling type, dwelling size is a potential indicator of the number of occupants, and therefore an important factor in park and other system SDC assessments.

Table 4-2 shows the relationship between house size, persons per unit, and lot size based on national data; specifically, as house size increases so does persons per unit and lot size.

Table 4-2. Relationship between House Size, Persons per Unit, and Lot Size

House Size	Persons	Lot Size
Less than 500 square feet	2.21	0.22
500 to 999 square feet	2.27	0.25
1,000 to 1,499 square feet	2.51	0.33
1,500 to 1,999 square feet	2.69	0.37
2,000 to 2,499 square feet	2.89	0.43
2,500+ square feet	3.02	0.52

Source: Adapted from American Housing Survey 2001.

[10] The use of land use categories is sometimes used to estimate impervious area based on standard coverage ratios. Also, as runoff water quality issues become more important and costly to address, development of differential fees based on the quality of runoff by land use type may become more common practice.

The relationships illustrated in Table 4-2 may vary locally, particularly for lot size, when there is a high incidence of large homes on small lots. Appendix D provides examples (City of Tucson and City of Eugene) of how house size has been correlated to system impacts for transportation and utilities based on local census and other data.[11]

Density

Density of the geographic area within which development occurs (as opposed to density of the development itself) is an important characteristic for certain infrastructure systems, namely transportation and utilities.

Transportation

As indicated by Table 4-3, for transportation systems, density has a strong influence on mode choice to destinations and distance to destinations. Higher-density areas may lend themselves to more walking and bicycling to some destinations than lower-density areas, and higher-density areas may have public transit options that lower-density areas do not. Also, higher-density areas may make the trips between destinations shorter.

Table 4-3. Trip Distribution by Density, 2001

Housing Units Per Square Mile	Private Motor Vehicle	Bus	Rail	Bicycle	Walk	All Other Modes
26 – 750	97.0%	0.5%	0.3%	0.1%	1.7%	0.5%
751 - 2,000	95.4%	1.1%	1.2%	0.3%	1.4%	0.6%
2,001 - 4,000	92.4%	2.8%	1.6%	0.4%	2.4%	0.4%
4,001 - 6,000	82.4%	7.4%	3.2%	1.4%	5.0%	0.7%
6,000+	56.6%	13.7%	18.7%	1.4%	8.6%	0.9%
All (average)	90.9%	2.90	2.5%	0.5%	2.8%	0.5%

Source: Adapted from *Nationwide Household Transportation Study 2001*, calculated based on mode journey to work by workers using only complete responses and grouping detailed mode categories into the ones reported here.

As shown in Table 4-3, although the private motorized vehicle mode (car, van, sport utility vehicle, pick-up truck, large truck) dominates in all categories, use of this mode falls considerably between the 4,000-6,000 and over 6,000 unit-per-square-mile categories (essentially cluster home to townhouse density). The data show that trips via bus nearly double between the same density categories, while rail trips increase nearly six-fold. Walking to work increases at about the same rate between the three most-dense categories.

Regional data from Metro's 1994 Travel Behavior Survey also show that area density and proximity to transit reduce vehicle miles per capita, as reliance on auto use decreases in favor of transit and other modes (walking and bike).

[11] For a more complete discussion of using house size as a variable in impact fee assessment, see "Impact Fees and Housing Affordability: A Guidebook for Practitioners" (U.S. Department of Housing and Urban Development, Washington DC, April 2007)

As indicated in Table 4-1, Appendix D provides examples of impact-based SDC assessment, where reduced fees are assessed in the high-density urban core area, relative to other parts of the city.

Utilities

Studies have also shown that area density is a substantial influencing factor in extending water, wastewater and stormwater systems. Burchell's synthesis of literature suggests that areas with higher-density development (more than 6 units per acre) are about 20 percent to 30 percent less costly to serve with utility services than lower density.[12] Two separate issues are considered. First, as density decreases the cost of providing the network of mains and other improvements outside subdivisions increases. Second, the costs of central water and wastewater facilities are roughly constant for average daily personal use, but increases in water demand in certain months occurs as density declines reflecting greater outdoor use for irrigation, swimming pools, and car washing.

For the network cost, consider a very simplistic set of assumptions: a) the same size of water and wastewater main can serve the same number of people whether they are concentrated in one square mile of development or 10 (that is, as land area increases density decreases proportionately); b) the main traverses through the center of a square mile and residential developments tap onto it and internalize costs of extending the network within them (that is, each connecting development serves an area a half mile wide); c) the terrain is unproblematic; and d) the cost to install a mile of water and wastewater mains is $250,000 each or $500,000 together. These simplistic assumptions allow for calculation of the variation in water and wastewater network costs by density which is shown in Table 4-4.

Table 4-4. Water and Wastewater Network Costs per Unit by Density

Residential Units Per Square Mile, Range	Residential Units Per Square Mile, Average	Cost Per Unit*
26 – 700	500	$1,000
701 - 2,000	1,200	$417
2,001 – 4,000	3,000	$167
4,001 – 6,000	5,000	$100
>6,000	7,000	$71

*Based on $250,000 per mile for water and wastewater mains

While the example in Table 4-4 indicates that costs of providing the network of mains may decrease in higher density areas, the simplifying assumptions may not hold true in all cases and tends to limit use of density as a factor in SDC assessment. Specifically, for high density areas where infill and redevelopment requires upsizing existing mains, installation costs per unit may actually be higher than lower density areas due to construction complexities (e.g., the need to dig up existing infrastructure beyond just the water mains to replace the existing facilities).

An example of assessing SDCs based on area density was discussed in Section 3 (Sacramento Regional County Sanitation District Sewer SDC). In this case, the SDC schedule for higher density infill areas was lower than the fees in other areas, reflecting a reduced allocation of conveyance

12 Robert Burchell, et al., *The Costs of Sprawl Revisited*, National Academy of Sciences (2000).

system costs that stemmed from the district's policy objective to encourage development in infill areas. Appendix D provides an example from the City of Prince George, BC, where higher density developments are assessed lower fees based on the reduced lot width, which is assumed to correlate to reduced linear feet of required water, sewer, and stormwater mains.

As discussed above, area density may be an indicator of peak water demands that impact sizing of capacity in central facilities. Peak water use is driven largely by outdoor water uses, and in particular lawn irrigation and in some areas swimming pools, both which tend to increase with larger lots. However, lot size is the more common approach to assessing SDCs. As indicated in Table 4-1, the City of Scottsdale assesses SDCs based on the density of the lot (number of units per acre) which is an indicator of individual unit lot sizes which the city has further correlated to variations in water use per unit. Similarly, the City of Kelowna, BC, has determined relative water and sewer capacity demands per unit for four levels of residential density.

Location

Location in this section focuses on distance from service and demand variations by area, as a potential indicator of system impact. Section 3 addressed location variations attributable to cost factors like land prices and LOS considerations.

Proximity to service as a factor in SDC assessment has been most commonly applied in transportation SDC development, related specifically to proximity to public transit. National studies have shown that dwelling units within one-half mile of transit stations have about 60 percent fewer automobiles than their metropolitan area averages. Such data led the City of Atlanta to offer discounts on SDCs to developments located near transit. In addition, studies have shown that rail transit ridership ranges from 25 to 50 percent of workers living within ¼ mile of stations and half that between ¼ and ½ mile. Bus transit ranges from 15 to 30 percent for workers living within ¼ mile of the bus line and about half that between ¼ and ½ mile. Local data to conduct such analyses is available from the Census Transportation Planning Package for metropolitan areas.

Research for this project did not reveal any examples of location variation with respect to distance from service for other infrastructure systems (i.e., utilities and parks). The integrated nature of utility systems tends to limit the use of distance from service as an indicator of system impact. As Table 4-1 indicates, the City of Scottsdale does assess differential water SDCs to two service areas within the city reflecting both differences in water supply costs by area (as discussed in Section 3), and area-specific water demand patterns per unit.

Parks system impact is predominantly measured by people, which generally relates more to density, unit size or type, than location. Though, as indicated in Table 4-1, the City of Albuquerque has developed a park SDC that varies by location, reflecting area-specific average occupants per unit. The City of Olympia also charges a lower SDC to multifamily developments locating in the downtown area, compared to other parts of the City, reflecting analysis of downtown demographics indicating a reduction in demand for parks.

Configuration

Development configuration as a factor in system impact and SDC assessment, like proximity to service, is generally limited to transportation systems. Mixed uses and, greater still, master-planned mixed-use developments, have been found to reduce automobile use substantially. When living-working-shopping-services are all nearby, fewer car trips are needed and the distance traveled is reduced. For example, in a typical single-use office/business park, walking trips may

account for 3 to 8 percent of all mid-day trips. That figure rises to 20 to 30 percent when other uses are accessible such as shopping, and personal and financial services.

Even greater gains are made when new community design combines compact development, mixed uses, connectivity, and networks of pedestrian and bicycle pathways - even in the suburbs. Modern neo-traditional or new urbanism designs reduce trip lengths and induce non-vehicular use for short trips, especially if also served by mass transit. Studies in California have shown that when compared to conventional suburban subdivisions with single or few uses, curvilinear streets, and cul-de-sacs, modern new community design can reduce vehicle miles traveled (VMT) by 50 percent. These adjustments would need to be made on a case-by-case basis.

On this point, it is useful to note that most road SDC ordinances allow a developer to prepare an "individual fee calculation study" to demonstrate that their project will have less impact on the road system than indicated by the fee schedule. The developer of a mixed-use project could use this option to quantify the reduction in external trips that should be expected due to the nature of the project. For example, the current edition of ITE's *Trip Generation* shows an across-the-board reduction of about 10 percent in trips generated within planned unit developments.

Green Design

Though historically, consideration of 'green' design characteristics have had limited application in the assessment of SDCs, recent examples within the region highlight potential use in the future, particularly for stormwater systems. For example, adoption of green design standards applicable to all development have led to reduced SDCs in some communities, through reduced need for public infrastructure investment. Communities have also adopted SDC schedules that include discounts for implementation of certain building and site design features that are designed to reduce system impact. For example, the City of Olympia provides reductions in SDCs for implementation of transportation demand management measures, including installation of bicycle parking structures, and other features to encourage reduced motor vehicle use.

Recommendations to Implementation of Model Approaches to Impact-Based SDC Assessment

Recommended actions related to the implementation of impact-based SDCs are provided in Table 4-5.

Table 4-5. Steps to Implementation of Model Approaches to Impact-Based SDC Assessment

Considerations	Specific Issue(s)	Recommended Action(s)	Ownership
Financial/Technical			
Information to substantiate cost differences by development characteristic.	Cost factors vary by jurisdiction. Need to quantify development characteristic/system impact relationships. Impacts of green design features less established and require mechanism for long-term enforcement.	Utilize all available local data sources (e.g., system models, water use records, U.S. Census data, and engineering studies). Supplement local data with regional and national data, and developer-provided information. Disaggregate SDC cost components to allow for discount of particular component costs (e.g., water treatment vs. distribution). Consider policy-based adjustments to encourage particular development design features (e.g., bike parking or green streets). Consider municipal code revisions to allow for enforcement (e.g., long-term maintenance of drainage systems or other features).	Local jurisdictions: data analysis and development; policy based adjustments Metro: Regional source of data for transportation system information. Continue to share information on other infrastructure systems as regional infrastructure analysis continues.
Perceived need to create benefit districts.	Limiting revenue to a particular district will limit flexibility and feasibility of funding projects.	Establish assessment districts except in limited circumstances when specialized facilities are required for specific areas.	Local jurisdictions
Political/Governance			
Political support to implement differential SDCs.	Public understanding of relative impacts. Concern about increased administrative burden. Intergovernmental coordination may be required.	Outreach/involve stakeholders in the SDC development process. Focus on the equity of linking different fees to different system impacts. Use SDC revenue to pay for initial methodology development cost. Track costs over time. Pursue intergovernmental agreements for joint planning areas.	Local jurisdictions
Legal/Regulatory			
Statutory requirements do not limit consideration of development characteristics.	Challenges require demonstration that SDC decisions are based on substantial evidence.	Document methodological decisions.	Local jurisdictions

Financial/Technical

Establishing Development Characteristic/System Impact Relationships

One of the primary considerations related to implementation of model approaches that differentiate SDCs is establishing the cost of service differences of specific development characteristics.

As discussed above, our research found a number of development characteristic and system impact relationships fairly well documented and accepted,[13] including:

- Lower roadway system impact associated with higher density (particularly central city/urban core) and mixed use development areas and areas with proximity to alternative transportation modes.
- Reduced water and sewer demand for smaller house sizes and lots.
- Increased park system and other system impacts associated with larger house sizes and dwelling unit types with greater number of occupants per unit.[14]

In addition, the notion that it is less expensive to add capacity than length (i.e., higher density development can be served at a lower cost per unit) is generally accepted when it comes to developing new areas (as illustrated in Table 4-4 for example). However, if additional capacity is required in already developed areas (particularly urbanized areas), then construction costs may be impacted by the need to navigate existing infrastructure, traffic, etc., which may potentially mitigate some of this cost savings of serving higher density development in urban areas, relative to greenfield areas, at least in the short run. However, the fact that existing developed areas tend to have some amount of available capacity already, may make the average costs of accommodating higher density infill and redevelopment relatively lower than unserved areas.

As illustrated by the examples in Appendix D, local jurisdictions can use both technical and policy-based approaches to establish differential SDCs reflective of development characteristics. Specifically, as indicated in Table 4-5, local jurisdictions can take the following steps to build a basis for assessing impact-based SDCs:

- Explore local sources of data to evaluate development demand characteristics related to location (primarily transit corridors and centers vs. other areas), density, and house size. Data sources may include transportation models, water use records, and census data.
- Supplement local data with regional or national data on demand characteristics including: alternative transportation modes, trip lengths, water/wastewater demand by house/lot size, and persons per household.
- Allow developers to submit impact studies based on defined parameters (as discussed previously in this section under "Configuration").

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[13] See Appendices C and D for sample analyses conducted at a local level; other studies include, *The Costs of Sprawl Revisited*, National Academy of Sciences (2000). And "Do Development Cost Charges Encourage Smart Growth and High Performance Design? An Evaluation of Development Cost Charge Practices in British Columbia", Coriolis Consulting Corp for West Coast Environmental Law (September 2003)

[14] See "Impact Fees and Housing Affordability: A Guidebook for Practitioners" (U.S. Department of Housing and Urban Development, Washington DC, April 2007)

- Consider existing local data (e.g., planning and engineering studies, recent capital improvement project experience) available to support development of cost differences by location and density.

Green Design Issues

As discussed previously in this section, incorporation of building design and site feature impacts in SDC assessment is still limited, but examples of green design application are growing, particularly in the Metro area.

Recommended steps related to continued development of green design SDC applications include:

- 'Unbundling' the SDCs – computing separate cost elements for each system component – to allow for a technical basis for discounting specific SDC components. For example, water SDCs may comprise multiple components including: supply/treatment, distribution, and storage components. To the extent that green building features are expected to delay need for additional water supply, then the portion of the SDC related to that cost element could be discounted.
- Use of policy- based reductions for implementation of best management practices (BMPs). For example, the City of Eugene provides nominal reductions in SDCs to encourage implementation of BMPs.
- Incorporation of green design features in development codes, as a means of reducing capacity needs system-wide and therefore reducing SDCs for all development, as has been done in Gresham.
- Exploring grant funding from state and federal agencies for pilot projects to evaluate the impacts of different design concepts. Grant funds from the Environmental Protection Agency are currently being used to explore stormwater design impacts in the Metro area through a project administered by Portland State University, with participation from the City of Wilsonville and Costa Development Communities in the Villebois community.
- Municipal code revisions to provide an ongoing enforcement mechanism of green design features. This is sometimes done for affordable housing SDC waivers, where code provisions require that the land use be maintained for a certain number of years in order to be eligible for the SDC reduction; otherwise, there is a mechanism to recover the fees should development change.

Assessment vs. Benefit Districts

Finally, a consideration specific to implementation of location-based SDCs is whether the money collected in the specific area, also needs to be spent in the specific area, potentially limiting the flexibility and the feasibility of funding capital projects throughout the service area. There are two approaches to location-based SDCs: 1) assessment districts, and 2) benefit districts. In both cases, differential SDCs are assessed by district. The difference between the two types of districts is how the revenue collected is *spent* within the service area. In the case of assessment districts (as used for example by the City of Olympia for transportation and parks SDCs), the revenue may be applied *system-wide* (it is not limited to expenditure within the district); however, in the case of benefit districts (as used for example by the City of Scottsdale for water SDCs), the revenue *remains in the specific area collected*.

The following recommendations are provided with respect to districts:

- Clearly identify the basis for SDC differences; charge differentials based on demand characteristics (e.g., in Olympia, trip generation rates and average household occupancy) alone would not lend themselves to establishment of benefit districts, as the unit cost for the SDCs (the costs and facilities upon which the SDC is based) is the same system-wide.
- Consider benefit districts in limited cases where SDC differential is based on cost, for example, when specialized investments are needed to serve an area (for example, the City of Scottsdale, where additional water resource investments were needed to serve a particular area), or where multiple jurisdictions are servicing an area (as in the case of the City of Santa Fe's transportation SDC) such that there is an expectation that the differential fees will result in investments unique to the area.

Political/Governance

Since most jurisdictions currently charge uniform SDCs, implementation of SDCs that differentiate by location or other development characteristic may require additional education to explain the rationale for the changes. However, once stakeholders understand how the revised approaches help achieve greater equity, public and political support will likely follow. An additional consideration for location-based SDCs is the need to develop intergovernmental agreements with neighboring jurisdictions for joint planning and assessment of charges (this was done for example in Clackamas County where an agreement was established for development and collection of transportation SDCs for new development in Happy Valley).

Recommendations related to political/governance considerations include:

- Enhance public education support through outreach/involvement of stakeholders in the SDC development process. To the extent that stakeholders understand the basis for potential cost differences, there is likely to be greater support.
- Initial development of these model approach SDCs may in fact require added time and expense up-front to develop the methodology. However, SDC statutes allow for recovery of costs associated with development of the methodology through the SDCs. As local and regional systems are put in place and data is developed to support these model approaches, the cost of updating/maintaining these models should be reduced. Frequent updates to these documents can also lead to long-term cost effectiveness as jurisdictions make only relevant changes regularly rather than overhauling facility plans and SDC assessments when completing an update.
- Consider development of intergovernmental agreements (IGA) where necessary to allow for joint planning and assessment of SDCs in areas where more than one jurisdiction has a financial interest. While development of an IGA may require additional efforts up-front, such an agreement is necessary to ensure that roles and responsibilities of each jurisdiction with respect to development, assessment, and accounting of the SDC have been clearly defined, in order to reduce problems later.

Legal/Regulatory

Oregon SDC law does not specifically address assessment of differential SDCs based on development characteristics, nor does the law address service areas specifically. Therefore, there are no legal limitations to the establishment of the model approaches related to impact-based assessment. Should a local jurisdiction have its methodology challenged, the local government must demonstrate the decision is based on substantial evidence. Therefore, as with any

methodological issue, it is important that the methodology be well-documented and based on the best available data.

Summary of Model Approach Recommendations

SDC methodologies from communities within the region and around the country were reviewed to identify approaches that would support the objectives of impact-based SDC assessment. For purposes of this report, impact-based SDCs are intended to reflect the costs of serving growth with respect to specific development characteristics, including development characteristics relevant to promotion of the 2040 Growth Concept (in particular, density, location, and configuration). The recommended approaches are provided in Table 4-1, along with references to examples of these approaches as applied in specific communities and described in Appendix D.

Development Characteristic Impacts by System

As described in this section, some development characteristics are more relevant to determining SDCs for different infrastructure systems as follows:

- **Parks:** Service units are generally measured as people, and therefore, are most significantly impacted by development size and type, although location may also be a factor to the extent that household demographics vary across the service area.
- **Transportation:** Service units are number of trips or VMT, so cost of service is influenced by household and building type and size, as well as location, density and configuration. Development type and size are potential indicators of motor vehicle trip generation rates. Density has a strong influence on mode choice to destinations and distance to destinations. Location, to the extent that it relates to proximity to public transit may also be significant factor related to system impact. Development configuration is also a factor in system impact for transportation systems; when living-working-shopping-services are all nearby, fewer car trips are needed and the distance traveled is reduced.
- **Water, Sewer, and Stormwater:** Service units are typically volume (and in some cases, quality) of use or discharge, which relates to development type and size. Higher density development generates smaller lot sizes, which generally correlate to reduced water demand per unit. If the amount of impervious area on each lot is also lower, stormwater fees based on impervious area may also favor (through reduced fees) higher density development. Area density may also impact certain cost components (distribution and conveyance networks, for example), with more dense areas requiring reduced pipe length per unit. Location may also be a factor in determining relative cost of utility service if unique facilities are required to provide service, or demand differences may be established.

To the extent that these characteristics are not included in SDC methodologies, development that is less costly to serve may pay proportionately more than its impact, while development that is more costly pays less. The issue of proportionality is one of the keys to sustainability. If SDCs are charged based on the real cost of serving development with higher cost development paying more than lower cost development, development will likely be resorted to become less costly on average. More compact development would occur, as would infill and redevelopment.[15]

[15] Residential development is the focus of this discussion, as it is the single largest consumer of land and arguably the most sensitive to costs as a location factor.

Applicability of Approaches to Specific 2040 Growth Goals

In order to develop model SDC fee systems that are relevant to cities and counties throughout the Metro area with respect to 2040 Growth Concept development objectives, Table 4-6 provides a summary of the recommended model approaches related to specific objectives and infrastructure systems. The following objectives are considered:

- **Encourage higher density development**: With higher density development, come smaller lot sizes, which generally correlate to reduced water demand per unit. To the extent that structures are also smaller and potentially have fewer occupants *per unit*, a correlation may be established between higher density development and reduced sewer, park, and transportation impact per unit. If the amount of impervious area attributable to each lot is also lower, stormwater fees based on impervious area may also favor (through reduced fees) higher density development.

- **Direct growth into infill areas**: The fact that infill areas are already served by infrastructure, provides an opportunity for recognizing potential cost to serve differences between areas served by existing excess capacity vs. planned improvements, at least for system components that serve localized areas (e.g., local water, sewer, storm water mains) as opposed to centralized facilities (e.g., water supply and treatment facilities). Relative LOS for infill and other areas (to the extent that infill areas have a lower LOS) may be another technical basis for reducing fees in these areas. Fee differentials based on relative costs of service will at the same time, support real cost recovery, in contrast to a policy based approach that attempts to direct development to already served areas by not charging for existing available capacity. Local jurisdictions need to weigh cost recovery and development objectives when considering policy-based adjustments.

- **Direct growth into Regional and Town Centers**: To the extent that Regional and Town Centers are already served to some extent by existing infrastructure or exhibit reduced LOS standards, the strategies discussed under infill development may also apply. Furthermore, for transportation systems, Regional and Town Centers – through greater access to public transportation and mixed use development patterns – provide an opportunity for reducing SDCs for developments in these areas based on system impact. Policy-based adjustments, most often in the form of discounts for transit oriented development may also be used to encourage development along transit corridors. As discussed previously, the impact of policy-based adjustments on cost recovery should also be considered.

- **Assign Real Costs to Greenfield Development**: As Greenfield areas require building infrastructure "from the ground up", larger investment in new facilities may be required relative to already served areas. To the extent that these new areas may also desire a higher LOS, higher SDCs for Greenfield development may promote real cost recovery objectives. Consideration should also be given to relative demand characteristics in Greenfield vs. other areas, particularly for transportation systems.

Table 4-6. Model Approaches to Fee Assessment by Infrastructure System and 2040 Growth Objectives

	2040 Objectives			
Infrastructure System	**Encourage Higher Density Development**	**Direct Growth into Infill Areas (mixed densities)**	**Direct Growth into Regional or Town Centers (mixed use/access to services)**	**Assign "Real Costs" to Greenfield Areas (mixed densities/less access to services)**
Water	Scale fees based on lot size (Santa Fe), density of lot (Scottsdale) or house/building size.	Incremental cost allocation of pipe size to infill areas (Sacramento County).	Establish assessment districts that recognize cost differentials related to availability of existing capacity and specific planned improvements.	Geographically differentiated fees based on improvement cost allocation. (Kelowna)
Sewer	Scale fees based on density of lot (Kelowna) or house/building size (Eugene).	Incremental allocation of pipe size to infill areas (Sacramento County).	Establish assessment districts that recognize cost differentials related to availability of existing capacity and specific planned improvements.	Geographically differentiated fees based on improvement cost allocation. (Kelowna)
Stormwater	Scale fees based on impervious area (Eugene) or density of lot (Kelowna).	Incremental allocation of pipe size to infill areas (Sacramento County).	Establish assessment districts that recognize cost differentials related to availability of existing capacity and specific planned improvements.	Geographically differentiated fees based on improvement cost allocation. (Kelowna and Albuquerque)
Parks	Scale fees based on dwelling type or house/building size (Albuquerque).	Reduced or no charge if total growth need to be met by existing facilities only *(Albuquerque).*	Establish assessment districts based on area-specific LOS and demographics (Gresham and Olympia).	Geographically differentiated fees based on improvement cost allocation. (Gresham and Albuquerque)
Transportation	Scale residential fees based on house size (Albuquerque) or density of lot (Prince George).	Reduced or no charge if total growth need to be met by existing facilities only (Albuquerque).	Assessment districts based on area-specific trip rates and trip lengths (Olympia and Tucson). Discounts for TOD (Atlanta).	Geographically differentiated fees based on improvement cost allocation. (Kelowna)

Section 5

Summary of Recommendations

SDC methodologies from communities within the Metro area and around the country were reviewed to identify approaches that would support the objectives of: 1) real cost recovery, and 2) impact-based SDC assessment. For purposes of this report, 'real' cost recovery is intended to reflect both full cost recovery (the full array of facility and cost types needed to provide capacity for growth generally and specifically related to 2040 Growth Concept development are included), as well as recognition of potential cost variations across the service area. Impact-based SDCs are intended to reflect the costs of serving growth with respect to specific development characteristics, including development characteristics relevant to promotion of the 2040 Growth Concept (in particular, density, location, and configuration).

The recommended approaches are provided in Tables 3-1 and 4-1, along with references to examples of these approaches as applied in specific communities described in Appendices C and D. A summary of the key attributes of the recommended approaches are summarized below, including considerations for local jurisdictions.

Full Cost Recovery

The recommended model SDC approaches related to full cost recovery include the following:

- **Long-term project cost recovery**: The SDC methodology is based on a recently adopted capital improvement or facility plan that projects needed improvements for a minimum of 10 years to serve existing and future growth as defined by the comprehensive plan.
- **Existing system cost recovery**: To the extent that existing system facilities will be used to meet the service delivery needs of new development, the fee structure reflects a buy-in component designed to recover available capacity costs from growth.
- **Recovery of other costs**: Beyond the direct facility costs themselves, the methodology allows for recovery of costs associated with placing facilities in service (e.g., planning and financing costs), and recovery of SDC act compliance costs (e.g., SDC fund accounting and development of the methodology).
- **Inflationary adjustments**: the methodology includes a mechanism for adjusting the fees annually for changes in cost factors, including land and materials.

Long-term system plans are required for water, wastewater, and transportation systems, from which SDC methodologies may be developed. Some smaller communities may not have access to park and stormwater system plans, so may need to rely on shorter term capital improvement plans for purposes of SDC development. The optimal frequency of updating the system plans and associated SDC methodologies will vary by jurisdiction based on size, development plans, and other factors. Regardless of how often comprehensive updates to SDC project lists and methodologies occur, local jurisdictions are encouraged to apply annual inflationary adjustments to SDCs to keep current with rising construction and land costs. Recovery of other types of costs should at least include recovery of SDC act compliance costs, which are generally straightforward to estimate based on professional service fees. For some jurisdictions, inclusion of debt financing

costs may be technically and politically difficult to implement, without a corresponding capital financing plan.

It is recommended that to the extent possible, SDCs reflect the full array of facility types and capacity costs needed to serve new development including costs associated with development of 2040 centers and corridors (like parking garages), to the extent such facilities may be related to provision of capacity for growth. As capital funding sources are limited and face continued pressure from the need to address infrastructure rehabilitation and replacement, in addition to expanding capacity, the extent that SDCs can more fully fund the needed infrastructure for growth, will allow for addressing all of the region's capital needs. Furthermore, as more and more jurisdictions across the region adopt real cost recovery SDCs, political concerns related to relative fee levels may be mitigated.

Impact-Based SDCs

Recommendations for impact-based SDCs include development of fee schedules that reflect development characteristics, including land use type, size, density, location and configuration. Some development characteristics are more relevant when determining impact-based SDCs for the different infrastructure systems, as follows:

- **Parks:** Service units are people, so most significantly impacted by development size and type, although location may also be a factor to the extent that household demographics vary across the service area.
- **Transportation:** Service units are trips and VMT, so cost of service is influenced by household and building type and size, as well as location, density and configuration. Density has a strong influence on mode choice to destinations and distance to destinations. Location, to the extent that it relates to proximity to public transit may also be significant factor related to system impact. Development configuration is also a factor in system impact for transportation systems. Mixed uses and, greater still, master-planned mixed-use developments, have been found to reduce automobile use substantially. When living-working-shopping-services are all nearby, fewer car trips are needed and certainly the distance traveled is reduced.
- **Water, Sewer, and Stormwater:** Service units are typically volume (and in some cases, quality) of use/discharge, which relates to development type and size. With higher density development, come smaller lot sizes, which generally correlate to reduced water demand per unit. If the amount of impervious area attributable to each lot is also lower, stormwater fees based on impervious area may also favor (through reduced fees) higher density development. Area density may also impact certain cost components (distribution and conveyance networks, for example), with more dense areas requiring less reduced pipe length per unit. Location may also be a factor in determining relative cost of utility service if unique facilities are required to provide service, or demand differences may be established.

With respect to 2040 Growth Concept development consideration of density, location and configuration are the most relevant characteristics, though to the extent that higher density development is characterized by smaller structures and lot sizes, SDCs that at a minimum, favor (through lower fees) smaller structures and lots, may promote higher density goals. The use of

approaches based on density, configuration and location are recommended for consideration, particularly for transportation systems, by jurisdictions facing significant growth generally, and the need to address varying growth types and locations.

Recognition of Cost Variations by Location

Historically, SDCs have been assessed uniformly across service areas based on system-wide average costs. However, location can be an important indicator of relative cost of serving development, and use of location-based SDCs can also promote 2040 Growth Concept development. In addition to being a potential indicator of system impact (as discussed above), location can impact the cost of providing services due to variations in cost factors (e.g. land prices) and levels of service (e.g., a portion of the service area desires significantly more park acreage per capita).

Consideration of location-based SDCs is recommended for jurisdictions with diverse areas, where cost differences may be significant and consistent. This approach is particularly relevant for areas that anticipate growth in new, currently unserved areas vs. existing served areas, and for communities that want to direct growth into particular areas, like Regional and Town Centers.

Technical vs. Policy-Based Solutions

The development of SDC schedules may reflect technical or policy-based considerations. Technical approaches allow for development of impact-based SDCs that reflect costs of providing service to developments of different characteristics. The 2040 vision promotes redevelopment and infill growth patterns, and to the extent that these types of development may be less costly to serve due to reduced infrastructure impact related to density, location, configuration, or other considerations, the SDC fees for these developments should reflect the lower costs. Thus, technically-based SDC methodologies can be a tool to encourage 2040 development patterns, and at the same time fully recover infrastructure costs, as costs may be allocated among developments in proportion to impact – resulting in lower fees for development types and locations that are less costly to serve and higher fees for more costly developments. Developing a technical basis for SDC differentials will likely require additional planning and analysis by local jurisdictions, as well as additional stakeholder education. The additional resources required to develop and implement such approaches should be considered in the context of the jurisdiction's community development and infrastructure cost recovery goals.

In contrast, policy-based approaches tend to offer a less rigorous approach to reducing SDCs to targeted developments. Such discounts are generally supported conceptually by cost relationships from national data sources, and may reflect qualitative rather than quantitative analyses. Policy-based adjustments may also include exempting targeted developments from certain costs (like existing capacity costs), and are generally not offset by increases in fees to other developments, but instead may be funded through other revenue sources (e.g., general system revenue). As such, policy-based approaches, aligned with community development goals need to be weighed against infrastructure cost recovery goals.

Appendix A: Oregon SDC Statutory Requirements

Summary of Oregon SDC Law

Public Facilities Eligible for Funding

The purpose of Oregon's SDC law is "**to provide equitable funding for orderly growth and development in Oregon's communities.**[16]" The statutes allow SDCs to be assessed, collected and spent for capital improvements for the following identified public facilities:

- Water supply, treatment and distribution;
- Waste water collection, transmission, treatment and disposal;
- Drainage and flood control;
- Transportation; and/or
- Parks and recreation.

Notably, the law does not authorize the imposition of SDCs for schools, police or fire services; previous attempts to amend the law by broadening it to include these categories of improvements have to date been unsuccessful.[17]

SDC Calculation

SDCs may consist of a **reimbursement fee**, an **improvement fee**, or both. Improvement fees are fees associated with capital improvements to be constructed; reimbursement fees are designed to recover the costs associated with capital improvements already constructed or under construction. In combination, for example, a reimbursement component may be developed to recover a portion of the cost of existing facilities for which there is excess capacity to serve new development (such as water and wastewater treatment plants having more capacity available to serve new development than is needed to serve existing development), and an improvement component may help fund improvements under construction or planned to extend service to new development. The statute requires that where a combination SDC is charged, the methodology must demonstrate that "the charge is not based on providing the same system capacity.[18]"

16 ORS 223.297.

17 Two bills currently pending before the 2007 Oregon Legislature would amend the SDC law to add eligible facilities. HB 2581 would add law enforcement, fire protection, libraries and K-12 public schools to ORS 223.299. SB 45 would amend the SDC statutes to authorize system development charges to fund capital improvements for schools that are made available for public recreation uses, while limiting the amount of system development charges that local government may collect for parks and recreation and schools.

18 ORS 223.304(3).

Reimbursement fees must be calculated consistent with the elements of ORS 223.304, which requires in essence that the fees be based on the "value of unused capacity available to future system users" and a list of other factors. The goal, as stated in the statute, is that future system users should be asked to contribute "no more than an equitable share" to the cost of previously constructed facilities that will benefit those users. This standard, being subject to interpretation, is frequently the basis of challenges to SDC methodologies. Since a reviewing court will defer to the local government's determinations of factual matters, careful attention to this aspect of the legal requirements is warranted in the development of a reimbursement component of a new or modified SDC.

The other potential component of a SDC, the improvement fee, is a capital charge for needed future capacity that the local government must build to meet future demands. The statute requires that the improvement fee be based on "a capital improvement plan, public facilities plan, master plan or comparable plan that includes a list of the capital improvements that may be funded with improvement fee revenues and the estimated cost and timing for each improvement."[19] In rough terms, the improvement fee equals the expected cost of the capital improvements needed to meet the future demands of the growing community divided by the increase in capacity in the relevant unit of measurement (for example, new automobile trips generated by growth in a transportation improvement fee). For the same reasons discussed above relative to the reimbursement fee, the allocation of needed improvements as a cost to new development must be carefully articulated in the adopted SDC methodology. [20]

The requirement that the methodology capture only the capital improvements identified in the applicable project list means that local government is limited to funding capital improvements, as contrasted with the cost of operating and maintaining those improvements, with SDC revenues.[21] Other revenue sources must be considered in the methodology, so that the total revenue collected pursuant to an adopted SDC does not exceed the total cost of the needed or reimbursable improvements.[22]

In addition to recovery of the cost of the improvements themselves, **the SDC methodology may be designed to recover certain other identified costs**. For example, where debt is incurred as in the issuance of bonds, both the improvement fee and the reimbursement fee may include the cost of debt financing. The local government can also recover the cost of compliance with the statutes in its methodology.

Credits for Qualified Public Improvements

A final component that must be considered in the development of the SDC methodology is that a **credit policy** is required for the improvement fee portion of the SDC. In essence, the credit policy is intended to fairly compensate developers who are required as a condition of development approval

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[19] ORS 223.309(1).

[20] See, for example, *Home Builders Association of Lane County, et al v. Cities of Eugene and Springfield*, Lane County Circuit Court Case Nos. 16-04-15534 and 15996, decided June 17, 2005.

[21] ORS 223.299(1)(b) excludes operation and maintenance from the definition of "capital improvement."

[22] ORS 223.304(1)(a)(C) *specifically* requires that the methodology consider "gifts or grants from federal or state government or private persons." The combination of other requirements in the statutes, though, results in the requirement that additional factors that would reduce the total cost of the needed improvements be considered, as discussed herein.

to make improvements to one or more of the identified public facilities in the capital improvement plan that forms the basis for the SDC. The credit is required to be available where those improvements are either not on the development site or are required to be constructed at a greater capacity than is actually needed to serve the development itself.[23]

Authorized Expenditures

Expenditures of funds generated by the imposition of SDCs are limited by statute to payment for the identified capital improvements in the capital improvement plan, plus certain limited additional purposes.[24] These additional purposes include the cost of issuing debt to fund the improvements, and the cost of complying with the statutes (i.e., development of a legally sound methodology). The revenues generated to build a particular category of improvements may only be spent on those same improvements (water SDC revenues may not be spent on roads, for example) and there is a special limitation at ORS 223.307(3) prohibiting the use of SDC revenues for all but a very limited category of "administrative office facilities."

Legal challenges to SDCs

The state law establishes a limited window and limited judicial review for challenging a new or modified SDC methodology. Such challenges are to be filed within 60 days of the local government decision adopting or modifying a methodology. The challenges are filed as writ of review proceedings pursuant to a separate statutory scheme at ORS Chapter 34,[25] and are not land use decisions.[26]

The writ of review statutes provide for a limited scope of review of local government action, but a careful local record must be generated since the court will base its decision on the local government record. The local government decision must be demonstrated to be based on substantial evidence, and as such the reviewing court's inquiry is very fact-specific. Writs of review, being creatures of statute, are also subject to arcane and complex legal precedent governing who has standing to seek a writ, the scope of the court's authority to grant relief, and what actions the local government may take following conclusion of the litigation. This is an evolving area of the law in Oregon at present, making careful documentation at the local level even more critical.

Recent amendments to the SDC laws also impose additional procedural requirements that must be adhered to in the adoption or modification of a methodology. A public hearing is required, and 90 days' advance notice to persons who have requested such notice must be provided.[27]

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[23] ORS 223.304(4) and (5).

[24] ORS 223.302 (administrative provision) and 223.307 (spending limitations).

[25] ORS 223.309(2)(d).

[26] ORS 223.314.

[27] ORS 223.304(7). Prior to adoption of any new or modified SDC methodology, the local government should update the list as allowed by ORS 223.304(7)(a) so that the recipients of notice are clearly identified.

Oregon Revised Statutes (ORS) 223.297 to 223.314, "System Development Charges"

SYSTEM DEVELOPMENT CHARGES

223.297 Policy. The purpose of ORS 223.297 to 223.314 is to provide a uniform framework for the imposition of system development charges by local governments, to provide equitable funding for orderly growth and development in Oregon's communities and to establish that the charges may be used only for capital improvements. [1989 c.449 §1; 1991 c.902 §25; 2003 c.765 §1; 2003 c.802 §17]

Note: 223.297 to 223.314 were added to and made a part of 223.205 to 223.295 by legislative action, but were not added to and made a part of the Bancroft Bonding Act. See section 10, chapter 449, Oregon Laws 1989.

223.299 Definitions for ORS 223.297 to 223.314. As used in ORS 223.297 to 223.314:

(1)(a) "Capital improvement" means facilities or assets used for the following:

(A) Water supply, treatment and distribution;

(B) Waste water collection, transmission, treatment and disposal;

(C) Drainage and flood control;

(D) Transportation; or

(E) Parks and recreation.

(b) "Capital improvement" does not include costs of the operation or routine maintenance of capital improvements.

(2) "Improvement fee" means a fee for costs associated with capital improvements to be constructed.

(3) "Reimbursement fee" means a fee for costs associated with capital improvements already constructed, or under construction when the fee is established, for which the local government determines that capacity exists.

(4)(a) "System development charge" means a reimbursement fee, an improvement fee or a combination thereof assessed or collected at the time of increased usage of a capital improvement or issuance of a development permit, building permit or connection to the capital improvement. "System development charge" includes that portion of a sewer or water system connection charge that is greater than the amount necessary to reimburse the local government for its average cost of inspecting and installing connections with water and sewer facilities.

(b) "System development charge" does not include any fees assessed or collected as part of a local improvement district or a charge in lieu of a local improvement district assessment, or the cost of complying with requirements or conditions imposed upon a land use decision, expedited land division or limited land use decision. [1989 c.449 §2; 1991 c.817 §29; 1991 c.902 §26; 1995 c.595 §28; 2003 c.765 §2a; 2003 c.802 §18]

Note: See note under 223.297.

223.300 [Repealed by 1975 c.642 §26]

223.301 Certain system development charges and methodologies prohibited. (1) As used in this section, "employer" means any person who contracts to pay remuneration for, and secures the right to direct and control the services of, any person.

(2) A local government may not establish or impose a system development charge that requires an employer to pay a reimbursement fee or an improvement fee based on:

(a) The number of individuals hired by the employer after a specified date; or

(b) A methodology that assumes that costs are necessarily incurred for capital improvements when an employer hires an additional employee.

(3) A methodology set forth in an ordinance or resolution that establishes an improvement fee or a reimbursement fee shall not include or incorporate any method or system under which the payment of the fee or the amount of the fee is determined by the number of employees of an employer without regard to new construction, new development or new use of an existing structure by the employer. [1999 c.1098 §2; 2003 c.802 §19]

Note: See note under 223.297.

223.302 System development charges; use of revenues; review procedures. (1) Local governments are authorized to establish system development charges, but the revenues produced therefrom must be expended only in accordance with ORS 223.297 to 223.314. If a local government expends revenues from system development charges in violation of the limitations described in ORS 223.307, the local government shall replace the misspent amount with moneys derived from sources other than system development charges. Replacement moneys must be deposited in a fund designated for the system development charge revenues not later than one year following a determination that the funds were misspent.

(2) Local governments shall adopt administrative review procedures by which any citizen or other interested person may challenge an expenditure of system development charge revenues. Such procedures shall provide that such a challenge must be filed within two years of the expenditure of the system development charge revenues. The decision of the local government shall be judicially reviewed only as provided in ORS 34.010 to 34.100.

(3)(a) A local government must advise a person who makes a written objection to the calculation of a system development charge of the right to petition for review pursuant to ORS 34.010 to 34.100.

(b) If a local government has adopted an administrative review procedure for objections to the calculation of a system development charge, the local government shall provide adequate notice regarding the procedure for review to a person who makes a written objection to the calculation of a system development charge. [1989 c.449 §3; 1991 c.902 §27; 2001 c.662 §2; 2003 c.765 §3; 2003 c.802 §20]

Note: See note under 223.297.

223.304 Determination of amount of system development charges; methodology; credit allowed against charge; limitation of action contesting methodology for imposing charge; notification request. (1)(a) Reimbursement fees must be established or modified by ordinance or

resolution setting forth a methodology that is, when applicable, based on:

(A) Ratemaking principles employed to finance publicly owned capital improvements;

(B) Prior contributions by existing users;

(C) Gifts or grants from federal or state government or private persons;

(D) The value of unused capacity available to future system users or the cost of the existing facilities; and

(E) Other relevant factors identified by the local government imposing the fee.

(b) The methodology for establishing or modifying a reimbursement fee must:

(A) Promote the objective of future system users contributing no more than an equitable share to the cost of existing facilities.

(B) Be available for public inspection.

(2) Improvement fees must:

(a) Be established or modified by ordinance or resolution setting forth a methodology that is available for public inspection and demonstrates consideration of:

(A) The projected cost of the capital improvements identified in the plan and list adopted pursuant to ORS 223.309 that are needed to increase the capacity of the systems to which the fee is related; and

(B) The need for increased capacity in the system to which the fee is related that will be required to serve the demands placed on the system by future users.

(b) Be calculated to obtain the cost of capital improvements for the projected need for available system capacity for future users.

(3) A local government may establish and impose a system development charge that is a combination of a reimbursement fee and an improvement fee, if the methodology demonstrates that the charge is not based on providing the same system capacity.

(4) The ordinance or resolution that establishes or modifies an improvement fee shall also provide for a credit against such fee for the construction of a qualified public improvement. A "qualified public improvement" means a capital improvement that is required as a condition of development approval, identified in the plan and list adopted pursuant to ORS 223.309 and either:

(a) Not located on or contiguous to property that is the subject of development approval; or

(b) 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.

(5)(a) The credit provided for in subsection (4) of this section is only for the improvement fee charged for the type of improvement being constructed, and credit for qualified public improvements under subsection (4)(b) of this section may be granted only for the cost of that portion of such improvement that exceeds the local government's minimum standard facility size or capacity needed to serve the particular development project or property. The applicant shall have the burden of demonstrating that a particular improvement qualifies for credit under

subsection (4)(b) of this section.

(b) A local government may deny the credit provided for in subsection (4) of this section if the local government demonstrates:

(A) That the application does not meet the requirements of subsection (4) of this section; or

(B) By reference to the list adopted pursuant to ORS 223.309, that the improvement for which credit is sought was not included in the plan and list adopted pursuant to ORS 223.309.

(c) When the construction of a qualified public improvement gives rise to a credit amount greater than the improvement fee that would otherwise be levied against the project receiving development approval, the excess credit may be applied against improvement fees that accrue in subsequent phases of the original development project. This subsection does not prohibit a local government from providing a greater credit, or from establishing a system providing for the transferability of credits, or from providing a credit for a capital improvement not identified in the plan and list adopted pursuant to ORS 223.309, or from providing a share of the cost of such improvement by other means, if a local government so chooses.

(d) Credits must be used in the time specified in the ordinance but not later than 10 years from the date the credit is given.

(6) Any local government that proposes to establish or modify a system development charge shall maintain a list of persons who have made a written request for notification prior to adoption or amendment of a methodology for any system development charge.

(7)(a) Written notice must be mailed to persons on the list at least 90 days prior to the first hearing to establish or modify a system development charge, and the methodology supporting the system development charge must be available at least 60 days prior to the first hearing. The failure of a person on the list to receive a notice that was mailed does not invalidate the action of the local government. The local government may periodically delete names from the list, but at least 30 days prior to removing a name from the list shall notify the person whose name is to be deleted that a new written request for notification is required if the person wishes to remain on the notification list.

(b) Legal action intended to contest the methodology used for calculating a system development charge may not be filed after 60 days following adoption or modification of the system development charge ordinance or resolution by the local government. A person shall request judicial review of the methodology used for calculating a system development charge only as provided in ORS 34.010 to 34.100.

(8) A change in the amount of a reimbursement fee or an improvement fee is not a modification of the system development charge methodology if the change in amount is based on:

(a) A change in the cost of materials, labor or real property applied to projects or project capacity as set forth on the list adopted pursuant to ORS 223.309; or

(b) The periodic application of one or more specific cost indexes or other periodic data sources. A specific cost index or periodic data source must be:

(A) A relevant measurement of the average change in prices or costs over an identified time period for materials, labor, real property or a combination of the three;

(B) Published by a recognized organization or agency that produces the index or data source for

reasons that are independent of the system development charge methodology; and

(C) Incorporated as part of the established methodology or identified and adopted in a separate ordinance, resolution or order. [1989 c.449 §4; 1991 c.902 §28; 1993 c.804 §20; 2001 c.662 §3; 2003 c.765 §§4a,5a; 2003 c.802 §21]

Note: See note under 223.297.

223.305 [Repealed by 1971 c.325 §1]

223.307 Authorized expenditure of system development charges. (1) Reimbursement fees may be spent only on capital improvements associated with the systems for which the fees are assessed including expenditures relating to repayment of indebtedness.

(2) Improvement fees may be spent only on capacity increasing capital improvements, including expenditures relating to repayment of debt for such improvements. An increase in system capacity may be established if a capital improvement increases the level of performance or service provided by existing facilities or provides new facilities. The portion of the improvements funded by improvement fees must be related to the need for increased capacity to provide service for future users.

(3) System development charges may not be expended for costs associated with the construction of administrative office facilities that are more than an incidental part of other capital improvements or for the expenses of the operation or maintenance of the facilities constructed with system development charge revenues.

(4) Any capital improvement being funded wholly or in part with system development charge revenues must be included in the plan and list adopted by a local government pursuant to ORS 223.309.

(5) Notwithstanding subsections (1) and (2) of this section, system development charge revenues may be expended on the costs of complying with the provisions of ORS 223.297 to 223.314, including the costs of developing system development charge methodologies and providing an annual accounting of system development charge expenditures. [1989 c.449 §5; 1991 c.902 §29; 2003 c.765 §6; 2003 c.802 §22]

Note: See note under 223.297.

223.309 Preparation of plan for capital improvements financed by system development charges; modification. (1) Prior to the establishment of a system development charge by ordinance or resolution, a local government shall prepare a capital improvement plan, public facilities plan, master plan or comparable plan that includes a list of the capital improvements that the local government intends to fund, in whole or in part, with revenues from an improvement fee and the estimated cost, timing and percentage of costs eligible to be funded with revenues from the improvement fee for each improvement.

(2) A local government that has prepared a plan and the list described in subsection (1) of this section may modify the plan and list at any time. If a system development charge will be increased by a proposed modification of the list to include a capacity increasing capital improvement, as described in ORS 223.307 (2):

(a) The local government shall provide, at least 30 days prior to the adoption of the modification, notice of the proposed modification to the persons who have requested written notice

under ORS 223.304 (6).

(b) The local government shall hold a public hearing if the local government receives a written request for a hearing on the proposed modification within seven days of the date the proposed modification is scheduled for adoption.

(c) Notwithstanding ORS 294.160, a public hearing is not required if the local government does not receive a written request for a hearing.

(d) The decision of a local government to increase the system development charge by modifying the list may be judicially reviewed only as provided in ORS 34.010 to 34.100. [1989 c.449 §6; 1991 c.902 §30; 2001 c.662 §4; 2003 c.765 §7a; 2003 c.802 §23]

Note: See note under 223.297.

223.310 [Amended by 1957 c.397 §3; repealed by 1971 c.325 §1]

223.311 Deposit of system development charge revenues; annual accounting. (1) System development charge revenues must be deposited in accounts designated for such moneys. The local government shall provide an annual accounting, to be completed by January 1 of each year, for system development charges showing the total amount of system development charge revenues collected for each system and the projects that were funded in the previous fiscal year.

(2) The local government shall include in the annual accounting:

(a) A list of the amount spent on each project funded, in whole or in part, with system development charge revenues; and

(b) The amount of revenue collected by the local government from system development charges and attributed to the costs of complying with the provisions of ORS 223.297 to 223.314, as described in ORS 223.307. [1989 c.449 §7; 1991 c.902 §31; 2001 c.662 §5; 2003 c.765 §8a; 2003 c.802 §24]

Note: See note under 223.297.

223.312 [1957 c.95 §4; repealed by 1971 c.325 §1]

223.313 Application of ORS 223.297 to 223.314. (1) ORS 223.297 to 223.314 shall apply only to system development charges in effect on or after July 1, 1991.

(2) The provisions of ORS 223.297 to 223.314 shall not be applicable if they are construed to impair bond obligations for which system development charges have been pledged or to impair the ability of local governments to issue new bonds or other financing as provided by law for improvements allowed under ORS 223.297 to 223.314. [1989 c.449 §8; 1991 c.902 §32; 2003 c.802 §25]

Note: See note under 223.297.

223.314 Establishment or modification of system development charge not a land use decision. The establishment, modification or implementation of a system development charge, or a plan or list adopted pursuant to ORS 223.309, or any modification of a plan or list, is not a land use decision pursuant to ORS chapters 195 and 197. [1989 c.449 §9; 2001 c.662 §6; 2003 c.765 §9]

Appendix B: SDC Methodological Considerations and Components

Component #1: SDC Unit Cost

Determining the capital cost per service unit involves the following considerations:

- Definition of system improvement costs
- Selection of unit cost structure

Each is discussed below.

Definition of System Improvements

An important step in the SDC fee methodology is establishing the criteria that distinguish "system improvements" from "project-level improvements." The former are funded through SDCs while the latter are addressed through development agreements for individual projects. *System improvements* may be considered capital improvements that are public facilities and are designed to provide service for the community at large, in contrast to project improvements. If an improvement or facility provides or will provide more than incidental service or facilities capacity to persons other than users or occupants of a particular project, or, if a project is included in a plan for public facilities approved by the governing body of a municipality or county, it should be considered a system improvement. Finally, system improvements must create additional service capacity to serve new growth and development.

Legal Environment

Certain impact fee statutes are explicit in defining what constitutes an eligible capital improvement. For example, the Colorado statute states: "Capital expenditure means any expenditure for an improvement, facility, or piece of equipment necessitated by land development, which is directly related to a local government service, has an estimated useful life of 5 years or longer…."[28] Georgia law requires a capital improvement to have a useful life of 10 years. The Georgia law limits the types of public facilities eligible for expenditure, and has a lengthy description of what constitutes system improvement costs:

> *'System improvement costs' means costs incurred to provide additional public facilities capacity needed to serve new growth and development for planning, design and construction, land acquisition, land improvement, design and engineering related thereto, including the cost of constructing or reconstructing system improvements or facility expansions, including but not limited to the construction contract prices, surveying and engineering fees, related land acquisition costs (including land purchases, court awards and costs, attorneys' fees, and expert witness fees), and*

[28] Colorado Impact Fee Act, 29-1-802.

> *expenses incurred for qualified staff or any qualified engineer, planner, architect, landscape architect, or financial consultant for preparing or updating the capital improvement element, and administrative costs, provided that such administrative costs shall not exceed 3 percent of the total amount of the costs. Projected interest charges and other finance costs may be included if the impact fees are to be used for the payment of principal and interest on bonds, notes, or other financial obligations issued by or on behalf of the municipality or county to finance the capital improvements element but such costs do not include routine and periodic maintenance expenditures, personnel training, and other operating costs.*[29]

Oregon law simply states the types of public facilities considered "capital improvements," which include: water supply, treatment and distribution; waste water collection, transmission, treatment and disposal; drainage and flood control; transportation; or parks and recreation. The law further states that "capital improvement does not include costs of the operation or routine maintenance of capital improvements."[30] Oregon statutory provisions related to expenditure of SDCs do provide some additional guidance on what does and does not constitute an SDC eligible cost; specifically, ORS 223.307:

- Excludes "costs associated with the construction of administrative office facilities that are more than an incidental part of other capital improvements," and
- Requires that capital improvements being funded with SDC revenues be included in an adopted capital plan or list, and
- Allows for expenditure of SDC revenue on "costs of complying with the provisions of ORS 223.297 to 223.314, including the costs of developing system development charge methodologies and providing an annual accounting of system development charge expenditures."

Selection of Unit Cost Structure

There are essentially two approaches to designing unit costs for SDC purposes – *improvements-based* and *consumption-based*. The consumption-based approach involves calculating the cost per service unit needed to accommodate growth based on current cost figures and adopted levels of service. Under this approach, revenue collected is not tied to a specific set of improvement projects; instead recent project experience is used to estimate the cost of capacity per service unit. Conversely, development of the SDC unit cost under the improvements-based approach is tied to a specific set of improvements, as identified in a capital or facility plan. Use of this approach is required in some states (like Oregon), as it creates a direct link between the design of the SDC and the local jurisdiction's capital improvements programming process, which when also linked to the comprehensive plan promotes real cost recovery and development according to the community's goals.

Within these two broad unit cost structures, there are a number of specific approaches to unit cost valuation that may be employed to meet local policy objectives:

- Buy-In or Reimbursement (in the form of "Recoupment" or "Replacement Cost")

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[29] Georgia Development Impact Fee Act, 36-71-2.

[30] Oregon Revised Statutes (ORS) 223.299.

- Capacity Expansion
- Marginal Cost
- Average Cost, and
- Total Cost-Attribution (also known as "Combined Improvement and Reimbursement")

The buy-in or reimbursement methods that rely exclusively on existing system facilities for valuation tend to have the lowest fees, and those methods that exclusively use recent or planned expansion costs (capacity expansion and marginal cost approaches) have the highest fees. The average and total cost attribution methods utilize a combination of existing and planned facilities, and the results tend to fall in-between the other approaches. For these latter approaches, the fee level is influenced by the selection of valuation basis for existing system facilities (book value, original cost, replacement cost, etc), and how the existing system available capacity is determined (on an average or incremental basis). In the case of the average cost approach, all costs – existing and planned – are shared proportionately by all users, while the total cost attribution method may weight existing and new facility costs differently, based on how each will contribute to servicing growth needs. Each approach is described in more detail below, along with numerical examples that provide a sample SDC per Equivalent Residential Unit (ERU).

Buy-In Methods

The recoupment value method (see Table B-1) uses the existing system fixed asset value (original cost less accumulated depreciation) and capacity to value the cost per service unit. The recoupment method is based on the total fixed asset value of the existing system; it does not distinguish between improvements made mostly for the benefit of new development, nor does it consider the cost of expanding system capacity to accommodate new development.

TABLE B-1

Buy-In Method: RECOUPMENT VALUE

CALCULATION CONSIDERATION	RESULT
Total Existing System Asset Value	$150,000,000
Existing System Capacity (gallons)	32,000,000
Recoupment Value ($/gallon)	$4.69
ERU Demand (gallons)	250
SDC Per ERU	$1,172

The replacement cost method (see Table B-2) is conceptually similar to the recoupment value method with the difference being it is based on the cost of replacing the entire system presently in place.[31] The result is higher impact fees than calculated under the recoupment value method.

[31] The recoupment and replacement valuation approaches represent the upper and lower ends of a range of valuation methods used to value existing system assets for the purposes of establishing SDCs under a "Buy-In" type approach. Other approaches include original cost and appreciated cost (original costs adjusted for inflation) valuation. The recoupment and replacement approaches are presented here, as they illustrate the potential range of options.

TABLE B-2

Buy-In Method: REPLACEMENT COST

CALCULATION CONSIDERATION	RESULT
Total Existing System Replacement Cost	$325,000,000
Existing System Capacity (gallons)	32,000,000
Replacement Value ($/gallon)	$10.16
ERU Demand (gallons)	250
SDC Per ERU	$2,539

Capacity Expansion Method

The capacity expansion method (see Table B-3) uses the planned capacity increment in the CIP to value the cost per service unit. No consideration is given to existing system facilities, or to system functions that may not be covered by the current CIP.

TABLE B-3

Capacity Expansion Method

CALCULATION CONSIDERATIONS	RESULT
CIP Capacity Improvements, 10-year CIP	$85,000,000
Planned Expansion (gallons)	5,000,000
Capacity Expansion ($/gallon)	$17.00
ERU Demand (gallons)	250
SDC Per ERU	$4,250

Marginal Cost Method

Marginal cost is defined here as composed of two parts resulting in *growth-related* marginal costs. The first part is the cost of the prior expansion; these are facilities that have been installed in the past to serve future development. The second part is the cost of installing CIP capacity-related improvements (also required for future development). As shown in Table B-4, these two figures are summed and then divided by the combined capacity increment of the two expansions. It is important to note, that the previous expansion cost, unadjusted for depreciation is used for this calculation, as marginal cost analysis is concerned with the costs of serving the *next* unit of demand. Moreover, well-designed capital improvement programs provide continuous replacement and upgrading of facilities to maintain their value to the system.

TABLE B-4

MARGINAL COST METHOD

CALCULATION CONSIDERATION	AMOUNT
Previous Expansion Cost	$75,000,000
CIP Growth-Related Improvements, 10-year CIP	$85,000,000
Total Growth-Related Marginal Cost	$160,000,000
Recent & Planned Expansions Combined (gallons)	10,000,000
Growth-Related Marginal Cost ($/gallon)	$16.00
ERU Demand (gallons)	250
SDC Per ERU	$4,000

Average Cost Method

Under the average cost method (see Table B-5), the costs of replacing and expanding the entire system are considered in relation to the total capacity of the system to accommodate all development, both existing and new. As in the case of marginal cost analysis, average cost analysis is based on replacement or expansion costs, not asset values that include depreciation.

TABLE B-5

AVERAGE COST METHOD

CALCULATION CONSIDERATION	AMOUNT
Total Existing System Replacement Cost	$325,000,000
Total CIP Expenditures, 10-year CIP	$85,000,000
Total (Combined) Costs	$410,000,000
Total Future Capacity (gallons)	38,000,000
Average Cost ($/gallon)	$10.79
ERU Demand (gallons)	250
SDC Per ERU	$2,697

Total Cost Attribution Method

Like the average cost method, the total cost attribution method (see Table B-6)) considers both the contribution of existing system and CIP facilities to the accommodation of new development. However, unlike the average cost method, that allocates all costs to existing and future users proportionate to total capacity needs, this method explicitly allocates existing and CIP improvements to growth based on the relative role each will play in providing service. In the

example provided in Table B-6, growth's total needs are 9.5 mgd; 7.0 mgd of which is provided through the existing system, and 2.5 mgd is provided through CIP facilities. Since growth needs represent 50 percent of the planned 5.0 mgd expansion, growth is allocated 50 percent of the expansion costs. Under the average cost method, growth would only be allocated 25 percent of the expansion costs, since all costs are shared proportionate to total future capacity needs, and growth within the current planning window represents 25 percent of total future capacity (9.5 mgd/38.0 mgd.) Since the cost per unit of future facility expansion is more costly than existing capacity (on a per unit basis), this approach results in a higher SDC per unit than the average cost method (assuming replacement cost is used for existing system valuation in both cases).

Table B-6 presents two forms of the total cost attribution approach: 1) based on current asset value (original cost less depreciation), and 2) based on replacement cost of existing assets (not adjusted for depreciation).[32]

TABLE B-6
Total Cost Attribution Approaches

	Asset Value	Replacement Cost
Growth-Related Asset Value/Cost	$32,810,000	$71,090,000
Growth-Related CIP Cost	$42,500,000	$42,500,000
Total Growth Cost	$75,310,000	$113,590,000
Growth Demand Units	9,500,000	9,500,000
Total Cost/Gallon	$7.93	$11.96
ERU Factor, Gallons	250	250
Total Cost Attribution Based Impact Fee Per ERU	$1,982	$2,989

Component#2: Revenue Credits

As mentioned previously, new development generates revenue that may help finance facilities also financed by SDCs. Two types of revenue credits are generally considered in an SDC methodology:

1. Past payment credits
2. Future payment credits

Past Payment Credits

The extent to which new development has paid for existing facilities can be determined. Such payments would be credited to new development, in order to avoid assessing new development for both improvements it demands and facilities currently used by existing development. Take for example a local government with a five-year park plan financed solely from property taxes to

[32] As with the "Buy-In" type approaches discussed previously, further modifications of this method consider alternative approaches to valuing existing system assets including original cost, and appreciated cost (with and without depreciation).

construct a park system serving only existing development. Vacant, developable land has been assessed property taxes to help pay for the parks. In this case, the SDC methodology can include a credit equal to the present value of past property tax payments that went to finance the new parks.

Future Payment Credits

Likewise, the extent to which new development will pay for existing facilities in the future can also be estimated. For example, property taxes assessed on new development to retire bonds used to construct facilities for existing development may be credited. Another example is where current deficiencies will be remedied by property taxes assessed on all property in the future; new development can be credited for its future contributions to remedy current deficiencies.

Some local governments account for future payments a development may make toward roads financed by SDCs. If motor fuel taxes are used to construct system improvements, the SDC methodology may provide a credit based on the present value of motor fuel taxes that new households will pay in the future. Perhaps the road SDC without future motor fuel tax payments is $2,785 per new single-family unit. The average new household occupying a single family unit will contribute $77 per year in motor fuel taxes used by local government to build the very roads financed in part by road SDCs. Thus, over 25 years, the present value of those future contributions, discounted at 6 percent, is $990. The SDC in this case would be $1,795 per unit ($2,785 minus $990).

A primary purpose of past and future payment credits is to avoid double charging for capacity. New developments that pay for a facility or service through both an SDC and by its stream of taxes over time may be double charged. The common solution to double charging is to conduct fiscal and economic analyses to define the nature and distribution of revenues. Local government can appropriately discount each type of fee until the combination of SDCs and other revenues does not exceed 100 percent of the total facility expansion. Accurate documentation of the SDC system will help avoid double charging.

Component#3: Demand Schedule

The unit cost structure is the mechanism for determining the costs to be recovered from new development as a whole. Of equal concern to local governments and the development community alike, is how the fees are then assessed to specific developments. The demand schedule defines the applicable service units associated with each system and development type. At the very least, the demand schedule will usually address different requirements by land use type (e.g., residential -- in some cases by dwelling type, and nonresidential). For nonresidential, some scaling measure is generally identified since impact may vary by size of development. Table B-7 shows typical demand units and scaling measures by infrastructure system.

TABLE B-7
Typical Demand Units and Scaling Measures by Infrastructure System

System	Demand Units	Scaling Measure
Transportation	Trips or Miles	Square feet, dwelling units, rooms, beds, acres
Parks	Persons	Square feet, dwelling units
Drainage	Square footage	Square feet, dwelling units, acres
Water	Gallons	Meter size, plumbing fixture units, dwelling units, square feet (house or lot size)
Wastewater	Gallons	Meter size, plumbing fixture units, equivalent residential units, dwelling units, square feet (house size)

Residential fee schedules have historically reflected little variation by dwelling size, density, and configuration. However, more sophisticated methodologies are being implemented to reflect these differences and their impacts to different infrastructure systems.

The demand schedule will also define the service area(s) to be used for assessment. In many cases, fees may be assessed uniformly throughout the public facility service area; in other cases, multiple service areas may be developed for SDC assessment, reflecting differences in the cost to construct facilities or in the demand generated by new development. With respect to the latter, service area differentials may reflect differences in density of the geographic area, as well as proximity to service, or other system usage characteristics (e.g. water use or sewage flow per unit).

Appendix C: Examples of Model Approaches to Real Cost Recovery

Portland, Oregon (Transportation SDCs)

The City of Portland is undertaking a project to update its transportation SDCs. In developing the SDC project list for purposes of calculating the improvement fee, capital improvements must meet the following minimum criteria:

1. Project includes a component that adds capacity to the transportation system.
2. Project is in the Transportation System Plan.
3. Project is on a public street classified above local service, except for city bikeways and city walkways, exclusive of regional traffic and regional transit ways.
4. Project is designed to serve additional population and/or employment over the next 10 years.
5. Project is not a maintenance project.
6. Project is not for purchase of rolling stock, but may be for facilities supporting rolling stock/equipment.

Projects that meet these minimum criteria are then prioritized according to the criteria shown in Table C-1.

The city is currently working with a citizen advisory committee to evaluate projects for inclusion in the SDC methodology. While the current methodology has yet to be adopted, it is presented here as a potential model approach of a structured process for development of the SDC project list to meet community, including 2040 growth objectives. The list of criteria (shown above and in Table C-1) is very similar to the criteria used by the city previously to develop the current SDC project list, which includes the following types of urban center projects (in addition to street extensions and general roadway and intersection upgrades):[33]

- Light rail improvements
- Central city street car improvements
- Transit communication system initiatives
- Regional center improvements
- Pedestrian improvements (bridges, sidewalks, and signals)
- Parking improvements

[33] Transportation System Development Charges Rate Study for Portland, Oregon, Henderson, Young & Company, Final Report, June 11, 1997.

TABLE C-1
CITY OF PORTLAND
Transportation SDC Update
Preliminary Project Evaluation Criteria

Criteria	Sub-Criteria
Level A Criteria	
1. Support bicycle, pedestrian and/or transit modes (i.e., add capacity, improve access, improve connections, remove bottlenecks, fill in missing links)	▪ Accommodates increased density ▪ Supports mixed use development ▪ Supports 2040 Growth Concept land-use components ▪ Improves connections and access from neighborhoods to employment and industrial areas ▪ Fills a gap ▪ Improves safety
2. Improve movement of freight and goods	▪ Reduce conflicts between freight and non-freight uses ▪ Provide access to inter-modal terminals and related distribution facilities ▪ Fills a gap ▪ Improves safety ▪ Support emergency services
3. Reduce congestion, improve access and/or circulation	▪ Among business districts ▪ To and within activity centers ▪ Fills a gap ▪ Improves safety ▪ Support emergency services
Level B Criteria (only applies if project also meets one or more of Level A criteria)	
4. Community and business priority	▪ Priority expressed by neighborhood and business interests ▪ Addresses equitable geographic distribution of projects
5. Strong potential leverage	▪ Amount and likelihood of potential funding from other sources

Albuquerque, New Mexico (Parks and Stormwater SDCs)

A capital improvement plan is required by New Mexico law to be the basis of impact fee programs, and it is to be applied to each service area based on adopted LOS standards. For parks and recreation, seven areas were created. To account for topographical features creating unique drainage sheds, five drainage facility service areas were created. Where revenue was known to be available to help finance needed facilities, costs were reduced to a "net" impact cost. For parks, recreation facilities, trails and open space the LOS was based on residents, and for drainage, LOS was based on impervious surface. Tables C-2 and C-3 provide the impact fee calculations for each system for residential structures.

TABLE C-2

City of ALBUQUERQUE

Parks, Recreation Facility, Trail and Open Space Level of Service, Net Impact Cost, and Impact Fees by Service Area{ TC "Table 5-4. Albuquerque Parks, Recreation Facility, Train and Open Space Level of Service, Net Impact Cost, and Impact Fees by Service Area" \f T \l "1" }

SERVICE AREA	Academy/ NE	Central/ University	Foothills/ SE	North Albuquerque	North Valley/I-25	SW Mesa	NW Mesa/ Volcano
Local Parks (Neighborhood & Community)							
Level of Service per 1,000 People	2.600	2.600	2.600	2.600	2.600	2.600	2.600
Needed Additional Acres	2.13	0.00	8.88	20.07	16.71	71.29	110.44
Acres Available in Inventory	26.49	12.74	47.61	59.00	3.95	81.53	109.02
Acres to be Acquired	0.00	0.00	0.00	0.00	12.76	0.00	0.00
Acquisition Cost per Acre	$125,000	$110,000	$105,000	$125,000	$122,500	$72,000	$120,000
Acquisition Cost	$0	$0	$0	$0	$1,562,708	$0	0.00
Acres to be Developed	2.13	0.00	8.88	20.07	16.71	71.29	110.44
Existing Surplus	0.00	78.17	7.11	0.00	0.00	0.00	22.90
Net Acres to be Developed	2.13	0.00	1.77	20.07	16.71	71.29	87.54
Development Cost per Acre	$175,000	$175,000	$175,000	$175,000	$175,000	$175,000	$175,000
Development Cost	$373,555	$0	$309,225	$3,511,690	$2,923,830	$12,475,645	$15,319,465
Facilities Cost per Acre	$226,007	$226,007	$226,007	$226,007	$226,007	$226,007	$226,007
Facilities Cost	$482,434	$0	$399,354	$4,535,228	$3,776,027	$16,111,871	$19,784,567
Total Cost Local Parks	$855,989	$0	$708,579	$8,046,918	$8,262,565	$28,587,516	$35,274,864
Cost per Capita	$1,042.62	$0	$207.49	$1,042.62	$1,285.80	$1,042.62	$830.45
Less Grants	($70.41)	$0	($14.01)	($70.41)	($86.84)	($70.41)	($56.08)
Less Bond Credit	($208.52)	$0	($41.50)	($208.52)	($257.16)	($208.52)	($166.09)
Net Local Park Cost	*$763.69*	*$0*	*$151.98*	*$763.69*	*$941.80*	*$763.69*	*$608.28*
Cost per Capita	$21.88	$21.88	$21.88	$21.88	$21.88	$21.88	$21.88
Less Grants	($1.48)	($1.48)	($1.48)	($1.48)	($1.48)	($1.48)	($1.48)
Less Bond Credit	($4.38)	($4.38)	($4.38)	($4.38)	($4.38)	($4.38)	($4.38)
Net Trails Cost	*$16.03*	*$16.03*	*$16.03*	*$16.03*	*$16.03*	*$16.03*	*$16.03*

TABLE C-3.

ALBUQUERQUE NET IMPACT COSTS, PROJECTED IMPERVIOUS ACRES, AND DRAINAGE IMPACT FEE PER ACRE BY SERVICE AREA

Service Area	Net Impact Costs	Total Area (Acres)	Projected Impervious Acres, 2000-2025	Cost Per Impervious Acre
NW	$ 55,015,528	15,490	3,915	$ 14,052
SW	$ 35,393,166	9,021	2,757	$ 12,836
Fully Served	$ 0	40,250	2,009	$ 0
Tijeras	$ 2,933,604	2,611	221	$ 13,290
Far NE	$ 15,044,434	11,753	1,474	$ 10,208

The adopted SDC program is unique for a number of reasons, including its attention to differences in facility costs between different areas of the city. As shown in Table C-2, neighborhood and community park acquisition costs vary among the seven park service areas (from $72,000 per acre to $125,000 per acre) reflecting differences in land values. Open space and trail costs are calculated on a citywide basis. The methodology determines additional acres needed for growth both in terms of acquisition and development by service area (for neighborhood and community parks), based on a citywide adopted LOS.

While the establishment of multiple service areas helps the city more accurately establish 'real' costs of serving development across the city, as reflected by different land values, it is interesting to note that in areas ("Central/University" in Table C-2) where the existing inventory is more than adequate to meet projected future needs (i.e., no improvements are needed to meet service standards), no fee is charged for existing neighborhood and community park capacity (indicated by a Net Local Park Charge of $0 in Table C-2). Similarly, development in the "Fully Served" storm drainage service area is not charged an SDC. Not charging development in areas fully served by existing facilities may be an effective policy-based approach to encourage development within these areas, by keeping impact fees lower than in other areas; however, if 'real' costs are to include historical investments in capacity, the methodology is not fully capturing these costs.

Metropolitan Wastewater Management Commission of Eugene/Springfield, Oregon (Wastewater SDCs)

The Metropolitan Wastewater Management Commission of Eugene/Springfield (MWMC) recently updated its wastewater SDC methodology following adoption of a wastewater system facilities plan. The unit cost structure is generally based on the total cost attribution (combined improvement/reimbursement) approach, as growth needs will be met by a combination of existing facility excess capacity and planned capacity expansion. Existing system valuation is based on replacement cost (as estimated by applying a historical inflationary index to the original asset cost), but has been adjusted to recognize historical grant contributions.

Like many wastewater systems, MWMC faces a range of conditions with respect to the adopted versus existing level of service. Therefore, the methodology includes a rigorous project cost allocation process, whereby each project on the 20-year capital project list is evaluated and allocated between existing and new development based on the type of project, and growth's relative need for the improvement, as shown in Table C-4 below.

TABLE C-4
METROPOLITAN WASTEWATER MANAGEMENT COMMISSION

Wastewater SDC Methodology
Summary of Project Type Allocation Criteria

Project Type	Potential Criteria	Growth Allocation Basis
Capacity	Adds new facilities/expands existing facilities Provides new capacity beyond existing system design standard or beyond the current permitted capacity	In proportion to growth's share of capacity need: *(Growth capacity need – Existing Deficiency) / Planned capacity increment*
Performance	Adds new facilities/improves existing facilities Provides capacity/enhanced capability sized for total future capacity needs Driven by new regulatory requirement	In proportion to total future system capacity: *Total growth capacity / Total system capacity*
Rehabilitation	Replaces existing facility or portion of facility Does not serve growth either through existing available or new capacity Preserves existing facility performance/capacity	No growth component

Source: MWMC Wastewater SDC Methodology (April 2004, CH2M HILL and Galardi Consulting)

The MWMC methodology also includes an adjustment to the unit cost for potential financing costs, and a credit for future rate payments to be made by new development to support capital improvement costs related to existing system deficiencies.

City of Wilsonville (Wastewater SDCs)

The City of Wilsonville recently updated its wastewater SDC methodology following adoption of a wastewater system facilities plan. The unit cost development follows a process similar to the MWMC process described above. Notably, the methodology includes costs associated with estimated project financing, and a revenue credit is provided for future sewer rate payments needed to remedy existing deficiencies. The city also developed a compliance charge that recovers facility planning and separate SDC fund accounting costs, both types of which are incurred to comply with state statutes.

City of Gresham (Parks SDCs)

The City of Gresham recently developed an SDC methodology for the parks system. The methodology is notable because it develops separate unit costs for neighborhood parks and open space for three (3) separate service areas based on individual community plans. The fee areas are: 1) the current city limits with the exception of the Pleasant Valley and Springwater Plan Districts as they existed on January 1, 2006, 2) the Pleasant Valley Plan District, and 3) the Springwater Plan District. Community park and trail costs are recovered on a system-wide basis. The result of this

approach is an SDC schedule where fees are significantly higher in the new districts, compared to the current city limits.

The SDC methodology includes the costs associated with all park types, including acquiring and developing urban and pocket parks in the downtown area.

A property tax credit is included in the methodology to recognize the potential contribution of new growth to the costs needed to remedy existing deficiencies. The city also charges a compliance fee that includes the costs of master planning, annual SDC-CIP management, accounting, and reporting costs, and the costs associated with development of the SDC methodology. Finally, the methodology includes a basis for adjusting the fees annually for construction and land inflation.

Sacramento Regional County Sanitation District (Sewer SDCs)

Sacramento Regional County Sanitation District adopted an alternative impact fee on April 1, 2002, designed to encourage infill development by offering reduced fees in specified infill areas. Rather than applying a uniform rate throughout the region, the District developed differential conveyance fees between "infill" and "new growth" areas. Infill areas are defined as those greater than 70% developed, that is, the percentage of connected equivalent single-family dwellings (ESDs) or percentage of connected acreage is at least 70%. The District justified lower fees for infill areas based on the argument that growth in new areas requires the majority of initial infrastructure costs, while infill development requires limited incremental expansion costs, since the District plans capacity through build-out. The adopted fees reflect the District's revenue needs to fund its capital improvements program, and lower fees in infill areas are accompanied by higher fees in new growth areas. The resulting fees are $4,300 higher in new growth areas per single or equivalent connection.

Current rates[134] for residential and commercial users are:

- $2,700 per ESD for infill communities;
- $7,000 per ESD for new communities.

It is important to note that while this methodology encourages infill with varying fees depending on location, there is no relationship between that variation and distance from the Sacramento Regional Wastewater Treatment Plant.

In addition to the two-tiered fee system, the District formed the Economic Development Treatment Capacity Bank to provide reduced sewer impact fees for local jurisdictions. SRCSD purchased $12.3 million of unused industrial wastewater capacity (the equivalent of 16,606 ESDs) and uses this capacity, or "Bank," to encourage economic development for industrial, commercial, residential (such as septic tank conversions or low/moderate-income housing), and transit-oriented projects. Qualifying jurisdictions can purchase the credits for only $923 per ESD regardless of the charge per ESD mandated by the current SRCSD fee schedule.

[34] *Source*: Sacramento Regional County Sanitation District website (www.srcsd.com).

Appendix D: Examples of Model Approaches to Assessment of Impact-Based SDCs

City of Atlanta, Georgia, (Transportation SDCs)

The City of Atlanta recognizes the reduced impact on roads because of close proximity to public rail transit. The city reduces impact fees by 50 percent for all developments within 1,000 feet of a rail transit station. Georgia law requires that revenues not collected from impact fees must be offset from sources of revenue other than impact fees. This requirement to collect from other sources does not apply to the rail transit reduction, because studies show that traffic impact is reduced roughly proportionate to this relationship.[35]

Tucson, Arizona (Transportation SDCs)

The City of Tucson, Arizona, recently adopted an impact fee methodology for roads that uses both location and dwelling unit size in assessing impact fees. Both elements of the methodology are discussed below.

Variation in Location

The methodology includes reduced residential road impact fees in the downtown core area of the city. The 2000 Census data on average travel time to work for workers over sixteen years of age using other modes than public transportation, is summarized in Table D-1. The data revealed a modest difference between the central core area (19.1 minutes) and the rest of the city (21.6 minutes). Additional analysis revealed little differences between other sections of the city. Not only do central core residents travel somewhat quicker (and presumably shorter) routes to work when they use automobiles and other private forms of transportation, they are also more likely to use alternative modes of travel. Only 78.8 percent of central core residents take private motor vehicles to work compared to 90.8 percent of other city residents. Taking into account both the reduced tendency to use private motor vehicles and shorter trip lengths, residential development in the central core can be expected to generate only about 77 percent of the vehicular travel demand generated by residential development in other parts of the city, as shown in Table D-1.

[35] "Impact Fees and Housing Affordability: A Guidebook for Practitioners" (U.S. Department of Housing and Urban Development, Washington DC, April 2007)

Table D-1. Road Reduction Factor for Core Residential Development

	Central Core	Rest of City	Ratio
Percent Driving Private Motor Vehicle to Work	78.8%	90.8%	0.87
Travel Time, Non-Public Transportation (minutes)	19.1	21.6	0.88
Reduction in Road Impact for Residential in Central Core			0.77

Source: Duncan Associates, Road and Park Impact Fee Study for the City of Tucson, June 2004, based on 2000 U.S. Census, SF-3 sample data (1 in 6 sample) of workers 16 years or older; Central Core area approximated by Pima County census tracts 1-19, 22, 24-25.01, 26-29.01, 38.01, 45.04-45.05.

Variation by Size

As shown in Table D-2, the average number of vehicle trips generated per day is almost directly proportional to the number of people living in the dwelling unit which is strongly related to the size of the dwelling unit. In order to then develop trip rates by the size of the unit in square feet, it is necessary to first find the relationship between average household size and size characteristics reported by the Census Bureau.

Table D-2. Vehicle Trips by Household Size

Household Size	Daily Trips	PM Peak Hr Trips	
		Single-Family	Multi-Family
One Person	3.5	0.369	0.323
Two Persons	6.7	0.707	0.618
Three Persons	8.8	0.928	0.812
Four Persons	10.6	1.118	0.978
Five Persons or More	12.5	1.319	1.154

Source: Daily trips from Transportation Research Board, NCHRP Report 365, "Travel Estimation Techniques for Urban Planning," Washington, D.C.: National Academy Press, Table 9 (for urban areas with populations of 500,000 to 1 million), 1998; PM peak hour trips based on 10.55% of daily trips in PM peak hour for single-family and 9.23% of daily trips in PM peak hour for apartment units from ITE, Trip Generation, 7th edition, 2003.

The most recent and reliable data on average household size by number of bedrooms or rooms are the five percent sample data from 2000 U.S. Census. The five percent sample data for the City of Tucson are combined with sample data for some other cities and unincorporated portions of Pima County. The City of Tucson makes up 73 percent of the total population sampled; therefore, the results obtained should be representative. The average household size for all single-family units from the two samples is identical, and for multi-family is almost identical. Because of the nature of the data sources for unit size in square feet, the average household size was varied by rooms for single-family units and by bedrooms for multi-family, as shown in Table D-3.

Table D-3. Average Household Size by Rooms and Bedrooms

Housing Type	Sample Households	Weighted Population	Weighted Households	Avg. HH Size
Single-Family, 4 Rooms or Fewer	1,245	58,662	24,141	2.43
Single-Family, 5 Rooms	1,744	91,937	34,494	2.67
Single-Family, 6 Rooms	1,674	93,632	33,617	2.79
Single-Family, 7 Rooms	1,010	60,023	20,513	2.93
Single-Family, 8 Rooms or More	657	44,646	13,585	3.29
All Single-Family Detached Units	**6,330**	**348,900**	**126,350**	**2.76**
Multi-Family, Efficiency	433	15,132	10,140	1.49
Multi-Family, One Bedroom	1,409	53,483	32,345	1.65
Multi-Family, Two Bedrooms	1,533	78,925	34,582	2.28
Multi-Family, Three Bedrooms	353	23,902	7,885	3.03
Multi-Family, Four Bedrooms or More	72	6,014	1,533	3.92
All Multi-Family Units	**3,800**	**177,456**	**86,485**	**2.05**

Source: U.S. Census Bureau, 2000 Public Use Microdata Sample (PUMS), 5 percent weighted sample data for portions of Pima County including the City of Tucson (PUMAs 201, 202, 204, 206 and 207) for households occupying single-family detached and multi-family units.

The above information on household size by room/bedrooms is combined with the trip rate data by household size presented earlier (Table D-2) to derive peak hour trip rates by the size of the unit, represented by rooms and bedrooms, as shown in Table D-4.

Table D-4 Peak Hour Trips by Rooms and Bedrooms

Housing Type	Avg. HH Size	Peak Hr Trips
Single-Family, 4 Rooms or Fewer	2.43	0.806
Single-Family, 5 Rooms	2.67	0.860
Single-Family, 6 Rooms	2.79	0.884
Single-Family, 7 Rooms	2.93	0.917
Single-Family, 8 Rooms or More	3.29	0.983
All Single-Family Detached Units	**2.76**	**0.872**
Multi-Family, Efficiency	1.49	0.488
Multi-Family, One Bedroom	1.65	0.546
Multi-Family, Two Bedrooms	2.28	0.683
Multi-Family, Three Bedrooms	3.03	0.822
Multi-Family, Four Bedrooms or More	3.92	0.983
All Multi-Family Units	**2.04**	**0.628**

Source: Average household sizes from Table 22; peak hour trips derived from Table 21 using linear interpolation.

To determine a relationship between the unit square footage and peak hour trip rates, a data set was compiled with information on the square footage of dwelling units from single-family detached and multi-family units derived from two different data sources. For single-family detached units, the Pima County Tax Assessor data for the 2004 tax year was analyzed. Tax Assessor data give total living space in square feet and the total number of rooms for the majority of single-family homes in the City of Tucson.

Data from the Arizona Multi-Family Housing Association provides information on all apartment complexes in the City of Tucson consisting of 20 or more units. This information includes the number of dwelling units by floor plan, and the floor plan information includes number of bedrooms and square footage. From these two data sources, a stratified random sample was taken that was distributed in the same proportion by housing type and size (rooms for single-family and bedrooms for multi-family) as households from the 2000 Census.

The combined data base consisted of information on 10,000 single-family detached and multi-family dwelling units. To this data base, a variable for peak hour trips was added, based on housing type and number of bedrooms or rooms shown in the preceding table. Regression analysis was then performed to determine the relationship between unit size in square feet and persons residing in the unit. Housing type turned out to be significant, with single-family and multi-family units displaying much different relationships.

Both linear and logarithmic regressions were performed for single-family detached and multi-family data sets. In both cases, logarithmic equations were determined to provide the best explanation of the data.[36] The curves described by the equations are shown in Figure D-1.

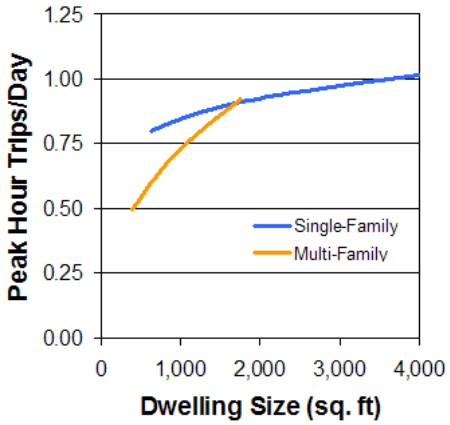

Figure D-1. Relationship of Trips to Dwelling Size

36 THE EQUATION FOR SINGLE-FAMILY DETACHED UNITS IS LN(Y) = 0.1271 * LN(X) - 1.0433, WHERE Y IS PEAK HOUR TRIPS PER DAY AND X IS THE FLOOR AREA OF THE UNIT IN SQUARE FEET; THE R2 IS 0.600 AND THE T-STATISTICS ARE 94 FOR THE X-COEFFICIENT AND -108 FOR THE Y-INTERCEPT. THE EQUATION FOR MULTI-FAMILY UNITS IS LN(Y) = 0.4182 * LN(X) - 3.2062; THE R2 IS 0.763 AND THE T-STATISTICS ARE 114 FOR THE X-COEFFICIENT AND -135 FOR THE Y-INTERCEPT.

While the equations for single-family detached and apartment units are very different, there is actually relatively little overlap and at 1,125 square feet, the midpoint of the 1,000 to 1,250 square feet category, the two equations produce the identical result. Only 2.2 percent of the apartment units in the sample are larger than 1,250 square feet, and while 21.6 percent of the single-family units in the sample are less than 1,000 square feet, it is unlikely that very many homes that size are being built in Tucson today. Consequently, the progressive residential rates were based on the multi-family equation for up to 1,000 square feet, and on the single-family equation for the larger size categories.

Using the regression equations, peak hour trip rates were derived for 12 square footage size categories. The two curves intersect in the 1,250 to 1,500 square foot range. Since the multi-family equation yields the lower trip rate estimates, and since relatively few single-family units are being built in the lower size range, the multi-family equation is used for unit sizes less than 1,500 square feet, and the single-family equation for larger units. The results are shown in Table D-5.

Table D-5. Residential Road Impact Fees by Size Category

Housing Type/Size Category	Midpoint	Peak Hour Trips	Road Fee
Less than 500 sq. ft.	375	0.48	$2,186
500 - 749 sq. ft.	625	0.60	$2,743
750 - 999 sq. ft.	875	0.69	$3,198
1,000 - 1,249 sq. ft.	1,125	0.76	$3,462
1,250 - 1,499 sq. ft.	1,375	0.83	$3,829
1,500 - 1,999 sq. ft.	1,750	0.91	$4,196
2,000 - 2,999 sq. ft.	2,500	0.95	$4,386
3,000 - 3,999 sq. ft.	3,500	0.99	$4,562
4,000 sq. ft. or more	4,500	1.03	$4,738

Source: Duncan Associates and James C. Nicholas, *Road and Park Impact Fee Study for the City of Tucson*, June 2004

Olympia, WA (Transportation and Park SDCs)

The City of Olympia collects impact fees for various facilities including parks and transportation. The City has reduced the transportation impact fees for downtown commercial uses to reflect the fact that the downtown is compact and alternative modes of transportation are accessible. Consequently, the theory is that each business generates less traffic. Table D-6[37] shows the transportation SDC schedule for selected land uses in the downtown and other city areas.

Reduced fees for the downtown area reflect the following characteristics:

- Reduced trip lengths based on an analysis of data from the regional planning agency's household travel survey and travel model, and the ITE Trip Generation Manual.
- Lower percent of new trips (or more "pass-by" trips) for certain land uses (walk-in bank and supermarket) based on ITE data and other national studies.
- Reduced trip lengths for both home based work trips and total trips, based on data from the regional transportation model showed reduced average trip lengths to/from the Olympia Central Business District (CBD).

[37] City of Olympia Transportation Impact Fee Program Update, April 2006 (Mirai Associates)

Table D-6
Transportation Impact Rate Schedule
City of Olympia
Effective January 1, 2007

Land Uses	Unit of Measure	Impact Fee	
		Other Areas	Downtown
Multi Family Residential -Townhouse, Duplex	dwelling	$1,091	$504
Senior Housing/Accessory Dwelling	dwelling	$413	$209
Asst. Living/Nursing Home, Group Home	bed	$330	$224
Daycare	Sq ft/GFA	$10.60	$2.88
Health Club	Sq ft/GFA	$5.05	$2.88
Bank	Sq ft/GFA	$18.40	$7.89
Hotel/Motel	Room	$1,266	$939
Movie Theater	seat	$73	$61
Marina	berth	$284	$174
Restaurant	Sq ft/GFA	$10.93	$2.88
Fast Food Restaurant	Sq ft/GFA	$18.58	$10.65
Retail			
Up to 49,999 sq ft	Sq ft/GFA	$3.48	$1.65
50,000 - 99,999 sq ft	Sq ft/GFA	$3.05	$1.65
100,000 - 199,999 sq ft	Sq ft/GFA	$2.98	$1.65
200,000 - 299,999 sq ft	Sq ft/GFA	$2.71	$1.65
300,000 - 399,999 sq ft	Sq ft/GFA	$3.22	$1.65
over 400,000 sq ft	Sq ft/GFA	$3.62	$1.65
Supermarket > 5,000 sq ft	Sq ft/GFA	$8.83	$4.93
Convenience Market < 5,000 sq ft	Sq ft/GFA	$16.44	$8.09
Video Rental	Sq ft/GFA	$5.58	$4.32

Source: Mirai Associates, Transportation Impact Fee Program Update for the City of Olympia, April 2006

The transportation impact fee may be reduced through Transportation Demand Management (TDM) credits, which provide alternate modes of commuting, reducing peak-hour traffic, and thus reducing the need to build some transportation improvements. Eligible projects may reduce transportation impact fee assessments by providing specific TDM and Commute Trip Reduction measures including operational improvements such as installation of parking spaces that are designated as paid parking and/or physical improvements such as construction of a direct walkway connection to the nearest arterial.

Furthermore, the City has reduced the residential rates for parks and schools because of the demographic of the downtown resident (fewer people per household). Park impact fees, which apply to residential development only, are assessed per dwelling unit and include a reduced fee for multifamily development in the downtown area as indicated in Table D-7.

TABLE D-7
City of Olympia Park Impact Fee (Per Dwelling Unit -- Applies to residential development only)

*Effective April 24, 2002**

HOUSING TYPE	IMPACT FEE
Single Family (including manufactured homes on individual lots)	**$1,843**
Duplex (per unit)	**$1,385**
Multifamily (including Townhouses)	**$1,223**
Downtown Multifamily per unit (including Townhouses)	**$ 840**
Mobile Home in Mobile Home Parks	**$1,236**
Accessory Dwelling Units (only separate structures)	**$ 707**
Single-room Occupancy	**$ 718**

*Source: City of Olympia, Community Planning & Development, *2007 Impact Fee Fact Sheet*

Albuquerque, New Mexico (Transportation SDCs)

As shown in Table D-8, the Albuquerque model for transportation SDCs recognizes differences in trip rates and lengths by dwelling type and differences in trip rates by sizes for single-family dwellings. The SDCs by house size were developed using a similar analysis described previously for the City of Tucson. The City's program is notable for a couple of other features, including:

- Impact fees for affordable housing for projects located within certain centers and corridors identified in the comprehensive plan are waived completely.
- To attract nonresidential development into areas currently devoid of employment and service opportunities, the city discounts impact fees for nonresidential development from 30 percent for retail to 70 percent for industrial development.

TABLE D-8.

ALBUQUERQUE LEVEL OF SERVICE, NET IMPACT COST, ROAD IMPACT FEES BY SERVICE AREA

Land Use	Trip Rate (PM Peak)	Trip Rate (Daily)	Assessable Trip Length	Total Trip Length	% New Trips	Total Impact Cost	Annual Gas Tax Proxy	Gas Tax Proxy Offset	Net Impact Cost	Downtown	NE Heights	Near North Valley	Far NE Heights	I-25 Corridor	NW Mesa	SW Mesa	Fee
Single Family Detached																	
Less than 1,500 sf	0.68	6.35	6.28	6.78	100%	$3,617	$17	$233	$3,384	$0	$0	$0	$1,069	R2,113	$2,626	$2,702	N/D
1,500 sf to 2,499 sf	1.02	9.57	6.28	6.78	100%	$5,425	$25	$351	$5,075	$0	$0	$0	$1,585	$3,160	$3,933	$4,046	$3,068
2,500 sf or Larger	1.14	10.74	6.28	6.78	100%	$6,063	$28	$394	$5,670	$0	$0	$0	$1,754	$3,521	$4,388	$4,516	N/D
Multi-Family	0.67	6.72	4.19	4.69	100%	$2,376	$12	$170	$2,206	$0	$0	$0	$512	$1,276	$1,651	$1,706	$1,902
Condominium/Townhouse	0.52	5.86	4.19	4.69	100%	$1,844	$11	$148	$1,695	$0	$0	$0	$218	$885	$1,212	$1,260	$1,657
Mobile Home Park	0.60	4.99	4.29	4.79	100%	$2,178	$9	$129	$2,049	$0	$0	$0	$765	$1,344	$1,629	$1,671	$1,687
Retirement Home	0.35	3.71	2.39	2.89	100%	$709	$4	$58	$651	$0	$0	$0	$74	$335	$462	$481	$828
Congregate Care Facility	0.20	2.02	3.09	3.59	71.6%	$375	$2	$28	$347	$0	$0	$0	$67	$193	$255	$264	N/D

Eugene, OR (Wastewater and Stormwater SDCs)

The City of Eugene, Oregon adopted a wastewater SDC methodology based on residential house size. The residential fee schedule is based on a nominal base fee per dwelling, and a charge per square foot of house size, as shown in the table below.

Table D-9
City of Eugene Wastewater SDC Schedule

Residential Dwelling Unit (RDU)	Base Fee	Rate per square foot of living area
Single-family home, single-family accessory unit, each space of a mobile home park, each unit of a duplex or each unit of an apartment complex	$331.91	$0.0805
Additions to residential units that increase the living area		$0.062

Source: City of Eugene SDC methodologies, April 2006

The city's rates advisory committee selected area of living space as the variable on which to establish the new residential local wastewater rate. In addition to showing a correlation to actual wastewater flow (as shown in the table below), this approach has the added advantage of being based on information already being gathered in the building permit review process.

Table D-10
City of Eugene Wastewater SDC Methodology
Average residential monthly winter water usage (1)

Square Feet of Living Area sans garage area

Number of Square Feet	1000 or less	1000 to 1400	1401 to 1800	1801 to 2200	2201 to 2600	2601 to 3000	3001 or more	Total Average (2)
1,000 gals/month	4.6	5.2	5.4	5.9	6.3	6.5	7.4	5.5
% of average	84	95	98	107	115	118	135	100
% deviation from average	-16	-5	-2	7	15	18	35	0
% of sample	12	32	25	15	8	4	4	100

(1) Source: Lane Council of Governments; based on billing records from the Eugene Water and Electric Board (EWEB)
(2)This figure reflects the average water use of all residential 1997 EWEB users and is to be used to compare with the averages in each category.

The pattern of flows between homes of different size correlate at the 98 percent level for all size of homes, except for the smallest homes. The greater than 1,000 square foot homes show more difference from all other sizes, but correlations are still relatively high.

Eugene stormwater SDCs are based on a formula related to the cost of future capacity enhancing projects (improvement component) and the cost to buy in to existing excess system capacity or replacement (reimbursement component). The SDC impact measurement for the stormwater system is based on square footage of impervious surface area within the urban

growth boundary. Stormwater SDCs are calculated by taking the SDC eligible costs, and dividing them by the by the additional impervious surface area. This results in a per unit SDC fee which is then applied to the number of square feet of impervious surface area dependent on development type.

TABLE D-11
City of Eugene
Stormwater System Development Charge Schedule

Small Residential (building footprint =< 1,000 sq. ft.)	$297.00
Medium Residential (building footprint > 1,000 sq.ft. and < 3,000 sq. ft.)	$478.50
Small Duplex (unit building footprints =< 1,000 sq. ft.)	$594.00
Medium Duplex (unit building footprints >I ,000 sq. ft. and < 3,000 sq. ft.)	$957.00
Manufactured Home Park	
Per space (assumes 1,684 sq. ft. per space)	$277.86
Plus	
Per sq. ft. actual impervious surface area, additional common areas	$0.17
All Other Development	
Per sq.ft. actual impervious surface area equivalent	$0.17

Source: City of Eugene, Systems Development Charge Methodologies, Appendix F, May 2007

The City of Eugene offers two forms of credits that can potentially reduce the overall SDC charge: stormwater destination and quantity reduction as well as stormwater pollution reduction.

1. Mitigation of stormwater which otherwise would be discharged into the public stormwater system may result in a corresponding reduction of stormwater SDCs collected at the time of building and development permit issuance. For the most part, reduction of the charge is in proportion to the reduction of runoff entering the public system from the fully developed site. However, qualifying for an SDC credit is dependent on development type. Because stormwater SDCs for single-family and duplex development are based on estimated average amounts of impervious surface areas, these buildings can only qualify for one of two impact reduction rates: 100 percent SDC reduction for complete containment and management of runoff or 50 percent SDC reduction for partial reduction and management of runoff, regardless of the amount of reduction. For manufactured home parks, multi-family, and nonresidential development stormwater SDCs are reduced proportional to the reduction in total stormwater runoff entering the system.

2. Reduction of stormwater pollution through water quality treatment techniques may also result in a reduction of stormwater SDCs. A single-level water quality SDC credit of 10% of the total stormwater SDC is applied to three categories of development, depending on whether they are subject to Eugene standards for stormwater treatment. In general, the rule of thumb requires that the development mitigate 20 percent of the impervious surface area runoff impact through treatment or removal in order to qualify for a credit.

City of Scottsdale (Water SDCs)

The City of Scottsdale charges development fees for water development (water lines, pump stations, etc.), water resource development (Central Arizona Project water leases and recharge/reuse), and sewer development (sewer lines, lift stations, and treatment facilities). Fees vary across two geographic locations: Zone A, which includes the downtown area, and Zone B-E, which includes less developed areas north of downtown. Table D-12 provides a snapshot of single-family and multi-family development fees based on square footage. For efficiency purposes, we have included 5 of the 13 single family categories and 7 of the 11 multi-family categories. The City also charges development fees for non-residential development based on average daily gallons used per day.

TABLE D-12
City of Scottsdale
Development Fee Table 2006-07

Single - Family Zone A

Net Lot Size*

Minimum Sq. Ft.	Maximum Sq.Ft.	Water Develop.	Admin 0.46%	Water Resources	Admin 0.46%	Sewer Develop.	Admin 0.46%
2,500	3,999	479.96	2.21	365.49	1.68	445.9	2.05
4,000	5,499	738.51	3.4	562.38	2.59	445.9	2.05
5,500	6,999	824.55	3.79	627.9	2.89	534.1	2.46
7,000	8,499	910.59	4.19	693.42	3.19	534.1	2.46
8,500	11,799	996.63	4.58	758.94	3.49	534.1	2.46
			Single - Family Zone B-E				
2,500	3,999	1651.40	7.60	421.79	1.94	2523.43	11.61
4,000	5,499	2541.00	11.69	649.00	2.99	2523.43	11.61
5,500	6,999	2818.20	12.96	719.80	3.31	3022.57	13.90
7,000	8,499	3095.40	14.24	790.60	3.64	3022.57	13.90
8,500	11,799	3372.60	15.51	861.40	3.96	3022.57	13.90
			Multi - Family Zone A				
815	1,569	500.31	2.30	380.99	1.75	445.90	2.05
1,570	2,339	518.63	2.39	394.94	1.82	445.90	2.05
2,340	3,109	555.28	2.55	422.85	1.95	445.90	2.05
3,110	3,869	582.76	2.68	443.78	2.04	445.90	2.05
3,870	4,639	610.25	2.81	464.71	2.14	445.90	2.05
4,640	5,399	646.89	2.98	492.61	2.27	445.90	2.05
5,400	6,169	683.54	3.14	520.52	2.39	534.10	2.46
			Multi - Family Zone B-E				
815	1,569	1934.24	8.90	494.03	2.27	2523.43	11.61
1,570	2,339	2005.08	9.22	512.12	2.36	2523.43	11.61
2,340	3,109	2149.07	9.89	548.90	2.52	2523.43	11.61
3,110	3,869	2239.93	10.30	572.10	2.63	2523.43	11.61
3,870	4,639	2293.06	10.55	585.67	2.69	2523.43	11.61
4,640	5,399	2363.90	10.87	603.77	2.78	2523.43	11.61
5,400	6,169	2434.74	11.20	621.86	2.86	3022.57	13.90

* Net lot size and fees may be reduced by dedicating Natural Area Open Space to the City.

Source: http://www.scottsdaleaz.gov/bldgresources/Fees/2006/06-07_WaterDevelopmentFeeTable.pdf

As indicated in Table D-12, the water fees (both development and resources) increase for each lot category; whereas, sewer fees have fewer thresholds, presumably because wastewater flows are less sensitive to lot size, as irrigation does not represent a return flow to the sewer system.

City of Santa Fe, New Mexico (Water SDCs)

Santa Fe, New Mexico, recently adopted water impact fees that vary by lot size, based on a study of water use records that found water usage is strongly related to lot size, as shown in Table D-13.

TABLE D-13
City of Santa Fe Water Impact Fee Methodology
Residential Equivalency Factors

Housing Type	Consumption/ Unit (gpd)	SFEs/Unit	Net Cost per Unit or Meter
Single-Family Detached (average)	223	1.00	$2,156
Lot Size Less than 6,000 sq.ft.	179	0.80	$1,725
Lot Size 6,000 - 10,890 sq.ft.	223	1.00	$2,156
Lot Size Larger than 10,890 sq.ft.	286	1.28	$2,760
Multi-Family	187	0.84	$1,811
Mobile Home	179	0.80	$1,725

Source: Duncan Associates, Impact Fees Capital Improvements Plan for the City of Santa Fe, August 2003, based on estimated consumption per unit from the City of Santa Fe Planning& Land Use Department, Water Use in Santa Fe, February 2001; SFEs per unit is ratio of consumption to single-family consumption.

In addition to water impact fees, the City of Santa Fe has developed variable SDCs by dwelling unit size for a broad array of facilities, including wastewater, roads, and parks.

City of Kelowna, British Columbia (Various SDCs)

Development Cost Charges (DCCs) are those levies, adopted by bylaw, which are required to be paid by new development to assist with the financing of major off-site services required to accommodate new growth. Development Cost Charges are currently limited to arterial/collector roads, water and sewer systems, parks acquisition and development, and storm drainage facilities. The City updated its DCCs in April 2007.[38] The framework of the DCC methodology includes:

- Using a sector approach to assessment of DCCs – where projected improvement costs are attributed to specific geographic areas – to recognize that costs of servicing outlying areas may be greater on a per unit basis than the inner urban areas.

[38] City of Kelowna 20 Year Servicing Plan and Financing Strategy 2020 (April 1, 2007)

- Assessing DCCs in proportion to estimated impacts of different land uses. As a result, fees for higher density residential development units are generally lower than single family units.

Updated DCCs for water and wastewater systems are shown in Table D-14.

Table D-14
City of Kelowna
Development Cost Charges Applicable to Development Within the Municipality

Development Type	Sector A All City	Sector A Inner City	Sector B South Mission	Sector D Glenmore/ Clifton
Water				
Residential 1		$1,646	$1,292	$2,943
Residential 2		$1,103	$866	$1,972
Residential 3		$790	$620	$1,413
Residential 4		$560	$439	$1,001
Commercial - Per 1,000 sq ft		$633	$497	$1,132
Industrial/Campground Per Acre		$4,609	$3,618	$8,240
Current Residential 1 Rate		$1,507	$1,176	$2,670
Wastewater Trunk Mains				
Residential 1		$1,143	$1,533	
Residential 2		$949	$1,273	
Residential 3		$640	$859	
Residential 4		$617	$828	
Commercial - Per 1,000 sq ft		$440	$590	
Industrial/Campground Per Acre		$3,200	$4,293	
Current Residential 1 Rate		$972	$1,422	
Wastewater Treatment				
Residential 1	$2,542			
Residential 2	$2,110			
Residential 3	$1,423			
Residential 4	$1,373			
Commercial - Per 1,000 sq ft	$978			
Industrial/Campground Per Acre	$7,117			
Current Residential 1 Rate	$1,689			

Source: City of Kelowna, *20 Year Servicing Plan and Financing Strategy*, April 2007

Residential Growth Assumptions – Density Gradient

The 2020 - 20 Year Servicing Plan & Financing Strategy has four categories of residential density and is based on the density of development rather than on the type of dwelling unit. Density gradient based residential DCC's are established based on the relative impact of the dwelling unit on municipal services. The four categories were developed based on engineering data and planning analysis to reflect local considerations.

The four categories, including a typical building form, are:

- **Residential 1 –** developments with a density of not more than 15 units per net hectare (single family, secondary suite, duplex)
- **Residential 2 –** developments with a density greater than 15 and less than or equal 35 units per net hectare (small lot single family, row housing)
- **Residential 3** - developments with a density greater than 35 and less than or equal to 85 units per net hectare (row housing and up to four story apartment buildings)
- **Residential 4** - developments with a density greater than 85 units per net hectare (apartments greater than four levels)

Unit Equivalent Considerations

The purpose of a DCC is to recover some of the investment the City is forced to make in extending and upgrading a service to accommodate population growth and the development which accompanies it. There is a relatively direct correlation between population growth and the impacts to water, sanitary sewer, roads and parks services.

Since it is not feasible to charge a DCC directly on population, the City has adopted a system based on equivalent units. Equivalent units are an indirect but effective way of representing population. To facilitate DCC calculations, the planning staff projects population growth in terms of both residential and non-residential development. Since the unit of development for each land use category differs (houses for single family residential, apartments for multi-family residential and floor area for commercial and institutional), each Development Unit is converted to a common reference unit called an Equivalent Unit. Currently, the impact of one (1) Equivalent Unit on a service is defined to be equivalent to the impact of one (1) single family residence. That is:

One (1) Equivalent Unit = 1 S.F. Residential Unit

Development Units for land use categories other than Single Family Residential are converted to Equivalent Units according to the overall average impact of each different type of Development Unit.

Equivalency factors are established to reflect the relative impact on infrastructure for each service. The land use category, residential 1, serves as the baseline for the assessment of impacts on infrastructure of the other three residential land uses.

TABLE D-15
City of Kelowna DCC Methodology
Residential Equivalency Factors by Infrastructure System

	Roads	Water	Sewer
Residential 1	100%	100%	100%
Residential 2	80%	67%	83%
Residential 3	55%	48%	56%
Residential 4	52%	34%	54%

The impact for parkland requirements is considered to be the same for each residential category. Although there could be an argument to use a different parkland rate for the different

residential categories based on density, it is also true that parkland requirements in multi-family areas is more expensive than in single family areas.

Growth by Development Area - By Service Type

The number of growth units, when converted to single family residential equivalents, differs for different services for the following reasons:

- Not all of the growth units as projected by the Planning Department will be serviced by sanitary sewer services. Sanitary sewer services are based on the assumption that growth in the South East Kelowna sector will be serviced by septic disposal or by a batch treatment plant (Gallaghers Canyon) with field disposal of effluent.
- Not all growth units will be serviced by the City's water system. This plan assumes that Irrigation Districts will service all growth units within their service boundaries. Irrigation Districts which will provide water service to support the growth plan are South East Kelowna Irrigation District, Black Mountain Irrigation District, Rutland Water Works and the Glenmore-Ellison Irrigation District.
- As previously detailed, the demand on services as equated to a single family residential unit is different for each service. This will result in a different number of equivalent residential units for purposes of cost-sharing of program costs for each service.

Common facilities (roadways within the inner city area) are distributed pro-rata to all sectors; some sectors (outlying newly developed sectors) also include specific growth related costs to be paid only by that sector (net of "assist factor"), which is paid by general taxation dollars to reflect benefits to existing development.

City of Prince George, British Columbia (Various SDCs)

The City of Prince George has DCCs established for growth related transportation, storm drainage, water, sanitary sewer and park development. In 2001, the City adopted a new Official Community Plan (OCP) which outlines a Growth Management Plan within the Urban Development Boundary (UDB). The OCP sets out to implement Smart Growth Principles by phasing future development to ensure that it occurs in a sequential manner based on available services. The theory behind phasing is to expand servicing infrastructure efficiently such that its use is maximized by the development area it serves and to consider the life cycle cost to operate, maintain, repair, upgrade and, eventually, replace the servicing infrastructure. The City has also developed infrastructure system plans to identify needed improvements to accommodate future growth and replace aging infrastructure.

The DCC rates are designed to encourage Smart Growth Principles by:

- Encouraging infill development in established areas where sufficient infrastructure already exists by reducing DCCs in those areas;
- Increasing the use of development density (e.g. units per hectare) as a factor in setting residential DCC rates for single family and multi-family projects; and,
- Crediting projects that place lower demands on municipal infrastructure (e.g. where a development is able to incorporate on-site stormwater ground recharge systems and

contain all the additional storm runoff and/or where the development is predicted to have a lower than average impact on traffic).

Variation by Location

Prior to adoption of new fees in 2007, most DCC charges in the city were assessed uniformly across each infrastructure service area. As part of its 2006 DCC update study,[39] the City established four geographic areas to reflect the policy direction of the OCP, to consider mature areas of the City where growth can be accommodated with fewer infrastructure improvements. Implementation of geographically differentiated fees was recommended to reflect the true costs of serving different growth and promote efficient expansion of services.

The OCP Urban Phasing Map outlines the four urban development phasing areas within the UDB:

- Area A – Phase 1 and part of Phase 2 of the Urban Phasing Map. These areas are located close to downtown and throughout existing developments.
- Area B – The balance of Phase 2, Phase 3 and Phase 4 of the Urban Phasing Map. These areas are located farther from the downtown area and extend out to the UDB.
- Area C – Airport lands
- Area D – Downtown area

The City's growth-related capital improvement costs projected for a 10-year period (adjusted for other funding sources) are allocated among the four areas. Some improvements are assumed to provide city-wide benefits (e.g., water line looping and city-wide trail system), while other projects serve specific areas. The costs are spread over the aggregate equivalent population projected for each area over the planning period to determine the unit cost of capacity by area. DCCs for individual developments reflect the cost per unit multiplied by the equivalency factor per unit by land use category and the number of units for the particular development. Equivalency factors have been calculated in these areas for the following land use categories:

- Residential (single and two family)
- Residential – Higher Density (single and two family)
- Manufactured Home Park
- Residential – Multiple Family (medium and high density)
- Commercial
- Industrial
- Institutional.

Equivalency factors relate to equivalent population for water, sewer, and park systems. For streets, equivalency factors relate to trip generation, and stormwater fees reflect estimated

[39] Development Cost Charge Review prepared for City of Prince George, McElhanney Consulting Services, Ltd., March 16, 2006

impervious area per unit. The equivalency factors are uniform city-wide; however, the DCCs vary by area, as shown in Table D-16, due to the allocation of improvement costs by area.

TABLE D-16

City of Prince George

Development Cost Charge Schedule

DEVELOPMENT COST CHARGE RATES ($) – Area A

Type of Development	Park Land	Highway Facilities	Drainage Facilities	Sewage Facilities	Water Facilities	TOTAL
Residential (single and two family)	222	1,257	417	846	1,089	3,831
Residential Higher Density	222	1,100	365	740	953	3,380
Manufactured Home Park	222	1,257	417	846	1,089	3,831
Residential - Multiple Family (medium and high density)	148	852	204	564	726	2,494
Commercial	1.11	19.75	3.44	4.23	5.44	34
Industrial	3,326	13,164	12,420	12,693	16,332	57,935
Institutional	0.74	15.8	2.48	2.82	3.63	25
DEVELOPMENT COST CHARGE RATES ($) – Area B						
Residential (single and two family)	529	3,036	720	850	2,602	7,737
Residential Higher Density	529	2,657	630	744	2,277	6,837
Manufactured Home Park	529	3,036	720	850	2,602	7,737
Residential - Multiple Family (medium and high density)	352	2,057	352	567	1,735	5,063
Commercial	2.64	47.69	5.94	4.25	13.01	74
Industrial	7,930	31,795	21,452	12,747	39,034	112,958
Institutional	1.76	38.15	4.29	2.83	8.67	56
DEVELOPMENT COST CHARGE RATES ($) – Area C						
Residential (single and two family)	222	1,257	417	846	1,089	3,831
Residential Higher Density	222	1,100	365	740	953	3,380
Manufactured Home Park	222	1,257	417	846	1,089	3,831
Residential - Multiple Family (medium and high density)	148	852	204	564	726	2,494
Commercial	1.21	21.01	2.59	3.66	3.29	32
Industrial	3,635	14,006	9,370	10,969	9,855	47,835
Institutional	0.81	16.81	1.87	2.44	2.19	24

TABLE D-16 (CONTINUED)

City of Prince George
Development Cost Charge Schedule

DEVELOPMENT COST CHARGE RATES ($) – Area D

Type of Development	Park Land	Highway Facilities[2]	Drainage Facilities[2]	Sewage Facilities[2]	Water Facilities[2]	TOTAL
Residential (single and two family)	222	1,257	417	846	1,089	3,831
Residential Higher Density	222	1,100	365	740	953	3,380
Manufactured Home Park	222	1,257	417	846	1,089	3,831
Residential - Multiple Family (medium and high density)	110	124	53	15	48	350
Commercial	0.82	2.87	0.89	0.11	0.36	5
Industrial	2,475	1,912	3,213	340	1,069	9,009
Institutional	0.55	2.29	0.64	0.08	0.24	4

Source: City of Prince George, Bylaw No. 7825

Variation by Residential Density

Fees for higher density (more than 20 units per hectare) reflect the fact that such developments reflect shorter length of linear infrastructure such as roads, and utility mains. Specifically, the city analyzed the width of lots in subdivisions of standard vs. high density developments, and found that the average lot width is 12.5 percent less per unit in high density developments. DCCs for roads, water, sewer, and storm drain systems are therefore reduced by 12.5 percent for high density residential development projects.

Reduction for Site Design

Nonresidential developments may be exempt from stormwater DCCs if through development of onsite recharge systems, the development contains run-off at pre-development rates. To be eligible for the exemption, the development must meet a number of criteria established in municipal bylaws related to construction and inspection of facilities.

Municipal Assist Factor

In order to determine what percentage of project costs can be funded from DCCs, the City implements a municipal assist factor. In 1997, the Council adopted a municipal assist factor of 50 percent to reduce impact on the development industry as the City introduced DCCs; however, the Council recently adjusted the municipal assist factor to 10 percent. This means that when a project proceeds to construction that has no benefit to existing users, that is, it is only required because of growth, 90 percent of the project costs can be funded from DCC reserves.

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About Metro

Clean air and clean water do not stop at city limits or county lines. Neither does the need for jobs, a thriving economy and good transportation choices for people and businesses in our region. Voters have asked Metro to help with the challenges that cross those lines and affect the 25 cities and three counties in the Portland metropolitan area.

A regional approach simply makes sense when it comes to protecting open space, caring for parks, planning for the best use of land, managing garbage disposal and increasing recycling. Metro oversees world-class facilities such as the Oregon Zoo, which contributes to conservation and education, and the Oregon Convention Center, which benefits the region's economy.

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