

Innovation Quadrant Transportation System Development Charge Overlay Project Report



Prepared for:



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Teamed With:

FEHR  PEERS
and
Parametrix

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EXECUTIVE SUMMARY

System development charges are one-time fees paid by new development to pay for capital costs of public facilities needed to serve new development and the people who occupy or use the new development. The purpose of this study is to establish rates for transportation system development charges (TSDCs) in the Innovation Quadrant (IQ), an area covering the south downtown/south central eastside of the City of Portland, Oregon.

The City of Portland first adopted Citywide TSDCs in 1997, and updated the TSDCs in 2007. In 2009, the City adopted an overlay TSDC for the North Macadam urban renewal area that is in addition to the Citywide TSDC rates. The IQ TSDC Overlay uses the same methodology as the North Macadam TSDC Program.

TSDCs are calculated by dividing the eligible cost of transportation capital improvements by the number of additional trips that will be generated by development. The result is the cost per trip that will be charged to new development. The following sections summarize the steps in calculating the IQ TSDC.

Selection of Projects

First, stakeholders identified over 30 projects as candidates to be funded by the TSDC Overlay. To be eligible for TSDC Overlay funding, projects need to be part of the Transportation System Plan, add capacity to the transportation system, be located on a public street or regional transit facility, and serve additional population and or employment over the next 20 years. The City worked with community stakeholders to select six multi-modal transportation improvement projects for TSDC Overlay funding.

Cost Allocation

Next, each project was analyzed to determine the portion of its cost that was attributable to the three modes of travel: motorized, transit, and non-motorized based on the number of persons served by each mode and the cost of the improvements for each mode.

Some project costs are not eligible for the IQ TSDC. The following adjustments were made to identify the costs that are eligible:

- 1) Exclude existing deficiencies because they were not caused by development.
- 2) Exclude “through” trips that do not start or stop in the Innovation Quadrant because they have no connection to development in the IQ.
- 3) Reduce costs by the amount of revenues already budgeted to the TSDC projects.

The total cost of the TSDC Overlay projects is approximately \$90.4 million. This includes Portland’s \$55 million share of the \$1.5 billion Portland-Milwaukie Light Rail Project. The TSDC Overlay projects, total costs and eligible TSDC costs are listed in **Table 1**.

TABLE 1: ELIGIBLE TSDC COSTS		
Project Name	Total Cost (\$)	Total TSDC Cost (\$)
Portland-Milwaukie Light Rail	\$55,000,000	\$5,000,000
Close the Loop	\$22,518,465	\$5,425,243
SE Water Avenue Relocation	\$4,633,839	\$1,565,478
SW 4th Avenue Streetscape	\$2,402,138	\$1,301,088
Broadway Cycle Track and Streetscape	\$1,244,573	\$674,107
Clinton to the River Multi-Use Path	\$4,625,597	\$600,000
Total	\$90,424,612	\$14,565,916

To avoid any duplicate charges from projects on both the Citywide TSDC Project List and the IQ Project List, the eligible costs were reduced by \$362,848 to equal \$14,203,068.

Growth in the Overlay area

New trips on the transportation network are primarily caused by growth in population and employment. The Portland Metro travel demand model forecasts 9,792 new employees and 1,776 new households in the Overlay area by the year 2030. Based on this 20-year land use growth, the model forecasts 77,525 new daily person trip ends¹ in the TSDC Overlay area.

TSDC Rates

TSDC rates for each land use depend on two factors: (1) cost per trip, and (2) the type of development and number of trips it generates. The cost per trip end for each mode is calculated by dividing the costs that are eligible for TSDCs by the number of trip ends for each mode of travel, as shown in **Table 2**.

The Portland-Milwaukie Light Rail Project is part of the Citywide TSDC. The reduction for the Citywide TSDC removes any potential for double-charging for the light rail project.

TABLE 2. TSDC OVERLAY RATES BY MODE					
Mode	Cost Eligible for TSDC (\$)	20-Year Growth in Daily Person Trip Ends	TSDC per Daily Person Trip End (\$)	Reduction for Citywide TSDC	TSDC per Daily Person Trip End (\$)
Motorized	\$1,017,634	35,870	\$28	N/A	\$28
Transit	\$10,648,524	22,678	\$470	\$(16)	\$454
Non-Motorized	\$2,899,759	18,977	\$153	N/A	\$153

TSDC rates vary according to the impact on the transportation network caused by each type of development. The impacts are measured as daily person trip ends. **Table 4-9**, at the end of this study, presents the dollar amount per unit of development for a variety of land use categories.

¹ A trip travels between an origin and a destination. Each trip has two trip ends, one each at the origin and destination. Trip ends are used in the calculation of TSDC rates.

CHAPTER 1 INTRODUCTION

The purpose of this study is to establish rates for an overlay district for transportation system development charges (TSDCs) for transportation facilities in the Innovation Quadrant, an area covering the south downtown/south central eastside of the City of Portland, Oregon. System development charges are one-time fees paid by new development to pay for capital costs of public facilities needed to serve new development and the people who occupy or use the new development.

The City of Portland adopted Citywide TSDCs that became effective October 18, 1997, and updated the TSDCs in October 2007. In 2009, the City adopted an overlay TSDC for the North Macadam urban renewal area that is in addition to the Citywide TSDC rates. The Innovation Quadrant TSDC Overlay (TSDC Overlay) uses the same methodology as the North Macadam TSDC Program.

This rate study includes:

- Chapter 1.** Introduction
- Chapter 2.** Summary of legal requirements and issues that affect the calculation of TSDC rates in Oregon
- Chapter 3.** TSDC Overlay project list
- Chapter 4.** Rate schedule of TSDCs for various types of development in the TSDC Overlay
- Chapter 5.** Public participation process for the development of the TSDC Overlay

DATA SOURCES

The data in this study were provided by the City of Portland, Metro, and TriMet as cited in the report.

DATA ROUNDING

The data in this study were prepared using computer spreadsheet software. In some tables there will be very small variations from results that would be obtained using a calculator to compute the same data. The reason for these slight differences is that the spreadsheet software was allowed to calculate results to more places after the decimal than is reported in the tables of these reports.

Local governments charge SDCs for several reasons:

- To obtain revenue to pay for some of the cost of new public facilities.
- To implement a public policy requiring new development to pay a portion of the cost of facilities that it requires, and ensuring existing development does not pay all of the cost of such facilities.
- To assure that public facilities will be constructed in a timely manner to achieve and maintain local standards for new development without decreasing the level of service for existing residents and businesses.
- To provide predictability to developers and builders about the type, timing, and amount of exactions required by local governments.

CHAPTER 2 LEGAL REQUIREMENTS AND ISSUES AFFECTING SDC CALCULATIONS

OREGON SYSTEMS DEVELOPMENT ACT

In 1989, the State of Oregon adopted the Oregon Systems Development Act (ORS 223.297 - 223.314) to “provide a uniform framework for the imposition of system development charges by local governments.” The statutes outline the types of charges that are considered to be System Development Charges (SDCs) and impose a variety of requirements on governments that impose SDCs. ORS provisions that directly affect calculation of SDC rates require the City of Portland to:

- 1) Adopt a capital improvement plan (to designate capital improvements that can be funded with SDCs).
- 2) Set forth a methodology for the SDC.
- 3) Calculate the SDC as a “reimbursement” fee, or an “improvement” fee, or a combination of both:
 - a. “Reimbursement fee” means a fee associated with capital improvements already constructed or under construction when the fee is established, for which the local government determines that capacity exists.
 - b. “Improvement fee” means a fee for costs associated with capital improvements to be constructed.
- 4) Limit SDCs to five types of capital improvements: transportation, water, sewer, drainage, parks, and recreation.

SDCs AND IMPACTS OF DEVELOPMENT

When determining SDCs, cities generally take the following impacts into account:

1. Demand (Impacts)

Demands placed on public facilities vary among different types of development. The TSDC Overlay is based on the number of trips generated on the transportation system by each type of development. Each type of development generates a different number of trips per unit of development.

Local government SDC rate studies are based on a “standard” impact on public facilities created by “typical” development of different types. The TSDC Overlay is based on trip generation rates reported nationally by the Institute of Transportation Engineers (ITE) and mode of travel data from the Portland area. Portland’s City Code 17.15.070 allows developers to submit data and analysis to demonstrate that the impacts of their proposed development are less than the impacts used in this rate study. In order for the City to accept alternative (reduced) impacts, they must be permanent and enforceable (i.e., through land use restrictions, deed restrictions, lease terms, etc.).

2. Benefit Criteria

Benefit criteria include personal use and use by others in the family or business enterprise of the fee-paying property (direct benefit), and use by persons or organizations who provide goods or services to the fee-paying property (indirect benefit).

As noted, the TSDC Overlay is based on the number of trips generated on the transportation system by each type of development, which includes some direct benefit trips and some indirect benefit trips. Each

trip, regardless of benefit type, constitutes a unit of demand (impact) on the system, thus each development's total trip count quantifies the impact of that development. By basing the TSDC on the number of trips, the TSDC is related to the impacts generated and benefits received by the development.

3. Levels of Service

The City of Portland determines its needs for transportation facilities by reviewing a variety of factors, including the volume of traffic and levels of congestion on major roads. Chapter 3 of this study presents the criteria used to identify transportation projects that are eligible for the TSDC Overlay program.

4. Size of Development

SDCs are typically charged on the basis of the size of the development (e.g., number of dwelling units or number of square feet of development). The IQ TSDC Overlay rate schedule lists the TSDC amount per unit of development. The size of each proposed development is multiplied times the TSDC rate per unit.

SDC ADJUSTMENTS

SDCs cannot "double dip" (i.e., they need to take into account the payment by new development of other fees, taxes, etcetera that the government uses to pay for the capital cost of the same public facilities). These other revenues are accounted for by subtracting them from the cost of capital improvement projects that are attributable to SDCs. The adjustment includes only the other revenues that are earmarked for or pro-ratable to the same capital improvements that are the basis for the SDC.

Portland uses General Transportation Revenue (GTR), grants, and funding from other local, state and federal sources to pay for portions of its transportation improvement projects. The TSDC Overlay takes into account the future use of GTR, grants and other funding by subtracting City budgeted commitments for those revenues from the cost of projects in the TSDC Capital Improvement Program (see **Table 4-5**). The TSDC Overlay program also makes an adjustment for Citywide TSDCs paid by development in the TSDC Overlay area (see **Table 4-7**).

In addition to the adjustment described above, a developer may reduce the amount of SDC due by contributing land, improvements or other assets to receive a "credit" for Qualified Public Improvements.

Portland's City Code 17.15.050 allows an exemption from payment of the TSDC for affordable housing. In 2007, the Citywide TSDC Citizens Advisory Committee recommended phasing out the TSDC discount for Transit Oriented Developments (TODs) and this change was adopted in 2007. Consistent with the current City policy, the Innovative Quadrant TSDC Overlay does not include a TOD exemption.

TIMING OF TSDC PAYMENTS

Portland's City Code 17.15.040 authorizes imposition of the TSDC at the time of application for a building permit. The TSDC is due upon issuance of the building permit.

USES OF TSDC REVENUE

SDC revenue can be used for the capital cost of public facilities. SDCs cannot be used for operating or maintenance expenses. The cost of capital facilities that can be paid for by TSDCs are specified in Portland's City Code 17.15.100.

RECEIPT AND EXPENDITURE OF TSDCS

Portland's City Code 17.15.100 requires TSDC revenues to be deposited into separate accounts of the City of Portland.

Portland's City Code 17.15.090 requires refunding of TSDC payments that are not expended within 10 years from receipt (on the premise that if they cannot be expended in a reasonable time, they were probably not "needed" nor did they contribute to achieving and maintaining an adequate transportation system for new development).

CHAPTER 3 TSDC OVERLAY PROJECT LIST

Oregon's System Development Act requires that SDCs be based on an adopted capital improvement program (CIP). This chapter presents the City's TSDC capital improvement program for the Innovative Quadrant TSDC Overlay, termed the TSDC Overlay Project List. Adoption of this rate study by the City of Portland, and adoption of the TSDC ordinance that incorporates this rate study by reference, constitute adoption of the TSDC Overlay project list by the City for the purpose of calculating TSDCs.

MODES OF TRAVEL

In the City of Portland, TSDCs are designed to support the principal modes of travel in a multi-modal system. For the purpose of organizing and analyzing data that supports the TSDCs, the City identified three categories to encompass different modes of travel:

- 1) Motorized: travel by automobiles, trucks and motorcycles, but not buses or railcars
- 2) Transit: travel by rail and bus
- 3) Non-motorized: pedestrian and bicycle travel

IDENTIFICATION OF PROJECTS TO BE ELIGIBLE FOR TSDCs

During the first phase of the TSDC Overlay project, stakeholders identified over 30 projects as candidates to be funded by the TSDC Overlay. The City used a set of criteria to identify transportation capital improvement projects that are eligible for TSDCs. The criteria were developed to meet legal requirements (see Chapter 2) and the multi-modal transportation needs of the overlay area. The following minimum qualifications were required for projects to be considered:

- Project includes a component that adds capacity to the transportation system;
- Project is in the Transportation System Plan;
- Project is on a public street, or a regional transit facility;
- Project is not a maintenance project; and,
- Project is designed to serve additional population and or employment over the next 20 years.

Projects that met these qualifications and add new multi-modal capacity to the transportation system were considered potentially eligible for TSDC Overlay funding. The City, working with community stakeholders, selected the six highest priority projects.

TSDC OVERLAY PROJECT LIST

Six multi-modal capacity improvement projects were selected for TSDC Overlay funding. The TSDC projects are listed in **Table 3-1** and depicted in **Figure 3-1**. For each project, the list shows:

- Project name
- Total cost: estimated total cost of project
- Allocation of total costs among the three modes: motorized, transit and non-motorized

The project list covers improvements needed during the next 20 years. The table shows the percentage and resulting cost of each project allocated to each mode.

PROJECT COSTS

The overall project cost for the Portland-Milwaukie Light Rail Project is approximately \$1.5 billion. The City of Portland's funding responsibility for the light rail project is \$55 million. For the other projects, cost estimates were prepared using typical costs of the components of each project. City engineering staff obtained unit costs from recent bid tabs and applied common contingency costs to establish a consistent set of current year project costs.² Cost estimates were developed using a common set of unit costs. To reflect the base year 2010 cost, any planned future inflation for labor and materials was removed.

The total cost of the TSDC Overlay projects is approximately \$90.4 million. These costs are reflected in the totals shown in **Table 3-1**.

TABLE 3-1: TSDC OVERLAY PROJECT LIST							
Project Name*	Total Cost (\$)	Motorized %	Transit %	Non-Motorized %	Motorized Cost (\$)	Transit Cost (\$)	Non-Motorized Cost (\$)
Portland-Milwaukie Light Rail	\$55,000,000**	0%	100%	0%	\$-	\$55,000,000**	\$-
Close the Loop	\$22,518,465	0%	100%	0%	\$-	\$22,518,465	\$-
SE Water Avenue Relocation	\$4,633,839	60%	20%	20%	\$2,780,303	\$926,768	\$926,768
SW 4th Avenue Streetscape	\$2,402,138	0%	0%	100%	\$-	\$-	\$2,402,138
Broadway Cycle Track and Streetscape Improvements	\$1,244,573	0%	0%	100%	\$-	\$-	\$1,244,573
Clinton to the River Multi-Use Path	\$4,625,597	0%	0%	100%	\$-	\$-	\$4,625,597
Total	\$90,424,612				\$2,780,303	\$78,445,233	\$9,199,076

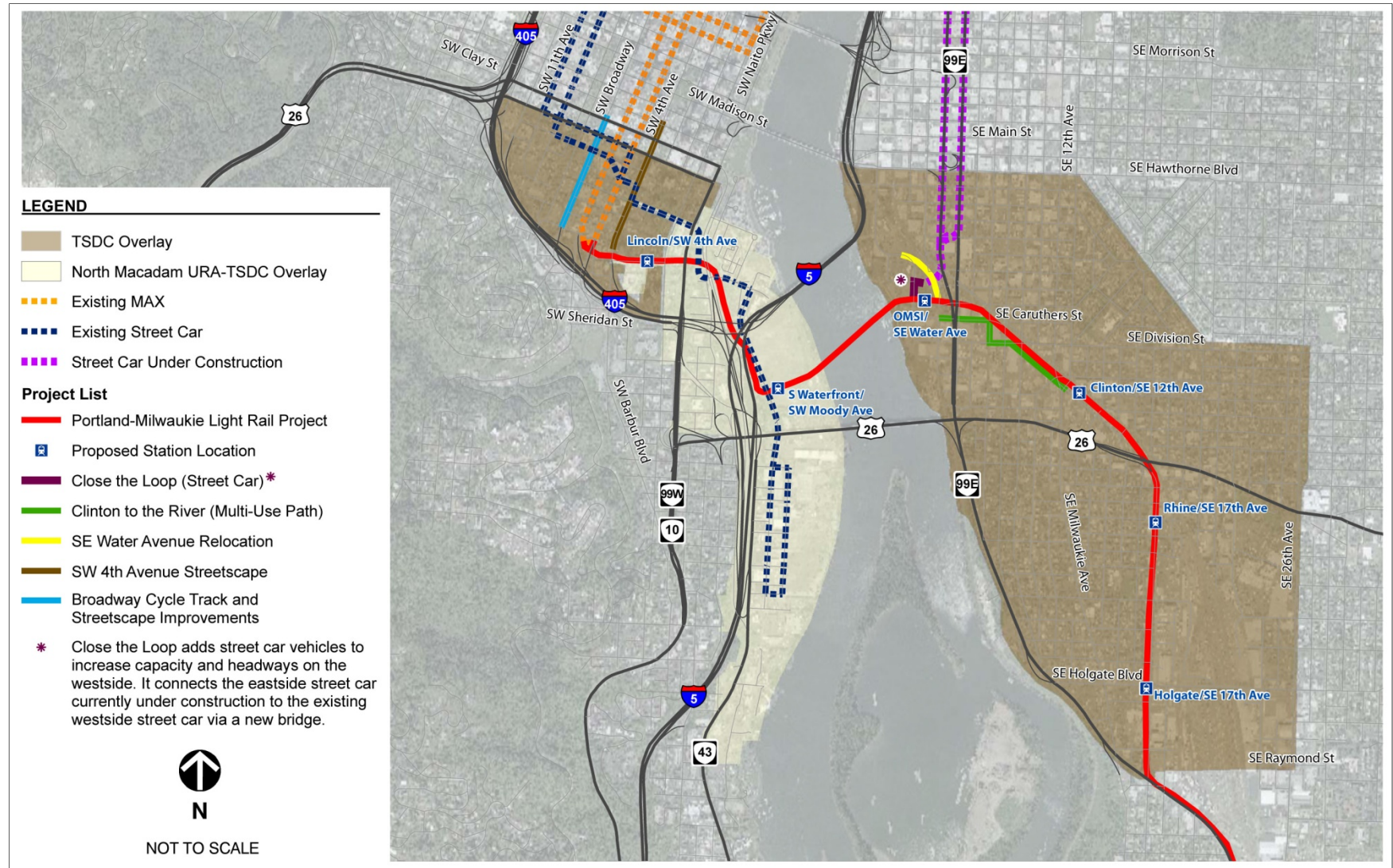
**The cost represents the City of Portland's funding responsibility for the project.

* Project Descriptions	
Portland-Milwaukie Light Rail	Provides high capacity transit service along the Portland-Milwaukie Corridor, including five stations in the Overlay area and a multimodal bridge across the Willamette River.
Close the Loop	Connects the Eastside Streetcar Project currently under construction to existing service in South Waterfront with ramps to the new multimodal bridge, and switches and technology to share the rail connection on the bridge. Project includes additional streetcar vehicles.

² The cost estimates for the SW 4th Avenue Streetscape and Broadway Cycle Track and Streetscape Improvement Projects were prepared by Kurahashi and Associates.

* Project Descriptions	
SE Water Avenue Relocation	Includes realignment of Water Avenue and construction of 1,300 feet of roadway, with two auto travel lanes, bike lanes, and sidewalks. The project will support the new Portland-Milwaukie Light Rail and streetcar connections to the multimodal bridge, providing access between the east and west sides of the river.
SW 4th Avenue Streetscape	Improves the street environment on SW 4th Avenue adjacent to Portland State University by adding bicycle facilities, curb bulb-outs, signalized pedestrian crossings, green street features, and marked crosswalks.
Broadway Cycle Track and Streetscape Improvements	Enhances the existing cycle track and sidewalks on SW Broadway adjacent to Portland State University. Includes the construction of a raised cycle track, sidewalk amenities, green street features, ADA improvements, pedestrian islands, and curb bulb-outs.
Clinton to the River Multi-Use Path	Improves the non-motorized connection between the new multimodal Willamette River bridge and the regional trail network by constructing a multi-use path along the Portland-Milwaukie Light Rail alignment.

Figure 3-1 Map of TSDC Overlay Projects and Overlay Area



CHAPTER 4 RATE SCHEDULE CALCULATIONS

This chapter contains the formulas, variables and data used to calculate the TSDC Overlay rates for the City of Portland. The TSDC Overlay area is a subset of the whole City and the calculations shown in this chapter are aimed at just the cost attributable to the TSDC Overlay area. The chapter begins with an overview of how the TSDC rates were calculated. The balance of the chapter presents the formulas, variables, data, and rate schedule for the TSDC Overlay.

OVERVIEW OF TSDC CALCULATIONS

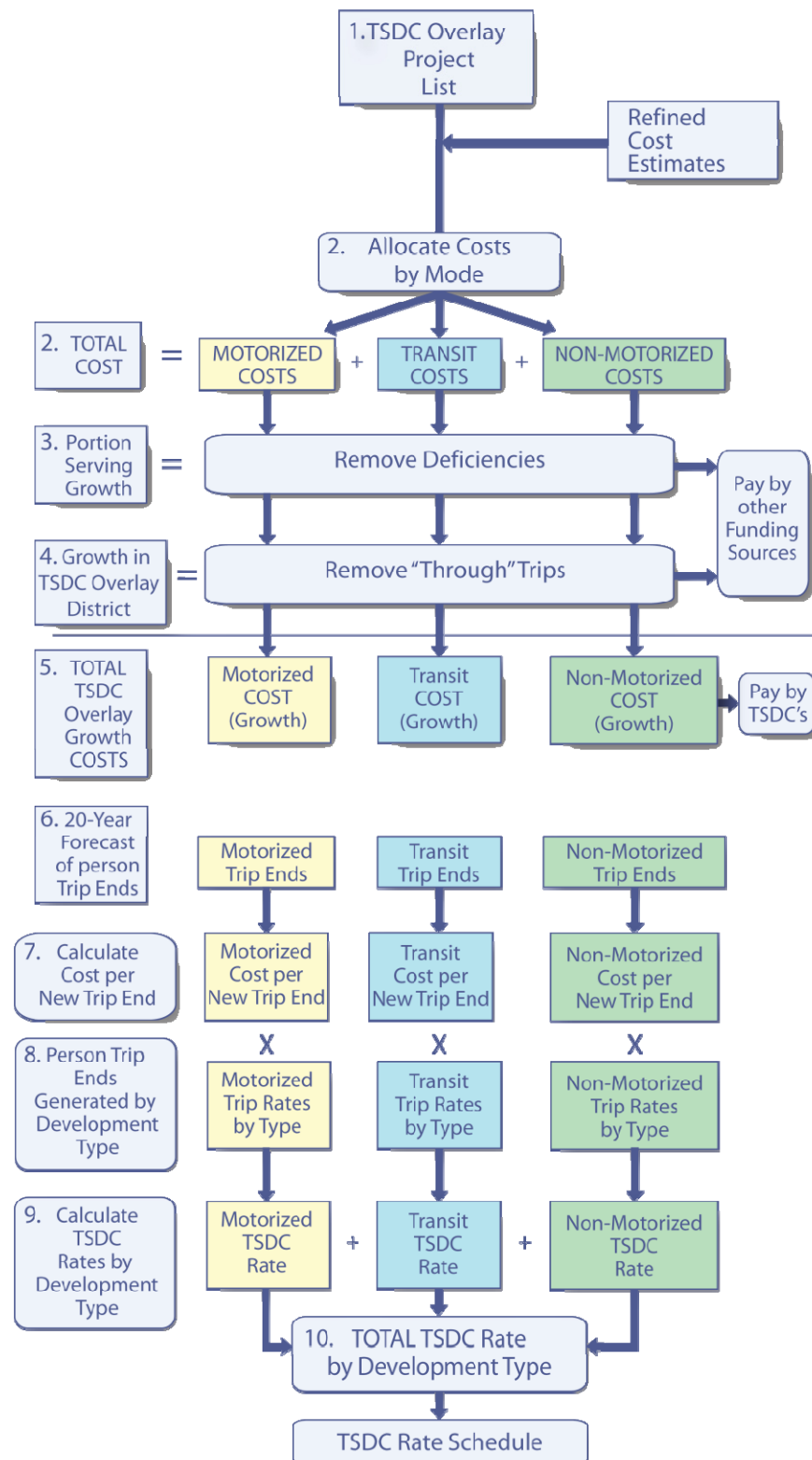
The TSDCs for the overlay area were calculated using the following steps. These are diagrammed in **Figure 4-1**.

- 1) Identify transportation projects that are needed to serve new development.
- 2) Analyze each project to determine what portion of its cost should be allocated to the modes of travel: motorized, transit, and non-motorized (pedestrian and bicycle).
- 3) Determine the portion of the project costs that serves growth and the portion that addresses existing deficiencies. The growth portion becomes the basis of the TSDCs. The deficiency portion is excluded from TSDCs, and must be paid by other sources of revenue.
- 4) Identify the portion of the growth travel that begins and/or ends within the TSDC Overlay area versus the “through” trips that do not start or stop in that area. Trips that pass through the Overlay area without stopping are excluded from TSDC Overlay calculations and must be paid by other sources of revenue.
- 5) Calculate the amount of the project cost that can be attributable to growth within the Overlay area. This calculation removes the deficiencies (step 3), “through” trips (step 4), and any adjustment for other revenues.
- 6) Estimate the growth in trip ends³ (over 20 years) that will be generated for each mode of travel in the TSDC Overlay area.
- 7) Calculate the cost per new trip end (for each mode) by dividing the costs that are eligible for TSDCs (from steps 1 to 5 above) by the number of new trip ends (from Step 6).
- 8) Calculate the number of new trip ends that are generated by various types of development. These trip ends are estimated for each modal type using the percentage of usage by each mode.
- 9) Calculate the TSDC rate for each type of development and for each mode. The trip rates per development type (Step 8) are multiplied times the cost per trip end (Step 7) to produce TSDC rates. The TSDC rates are expressed in terms of costs per unit of development (e.g., housing units, square feet).
- 10) Combine the TSDC rates for each mode to determine the total TSDC for each type of development. The result is the composite TSDC that can be published as the TSDC rate schedule for the Overlay.

The remainder of this chapter describes these steps in greater detail.

³ A trip travels between an origin and a destination. Each trip has two trip ends, one each at the origin and destination. Trip ends are used in the calculation of TSDC rates.

Figure 4-1. How TSDC Rates were Developed



PREPARE TSDC OVERLAY PROJECT LIST (STEP 1)

Chapter 3 describes the City's process for identifying the transportation projects needed to serve new development in the TSDC Overlay area. The projects are listed in **Table 3-1** and mapped in **Figure 3-1**.

ALLOCATE MODE COSTS FOR EACH PROJECT (STEP 2)

Each project was analyzed to determine the portion of its cost that was attributable to the three modes of travel:

- Motorized: automobile, truck, and motorcycle
- Transit: rail and bus
- Non-motorized: pedestrian and bicycle

Allocation of project costs among the modes was estimated based on the number of persons served by each mode, cost of the improvements for each mode, and factoring that the relocation of SE Water Avenue will enable the streetcar to connect to the new multi-modal bridge across the Willamette River.

Table 3-1 (Chapter 3) shows modal percentages for each TSDC project.

DETERMINE GROWTH PORTION OF PROJECT COSTS (STEP 3)

The growth portion of a project serves new development, contrasted to the deficiency portion that serves existing development. The growth portion is the basis of TSDCs. The deficiency portion is excluded from TSDCs and must be paid by other sources of revenue. Each project on the TSDC list was analyzed to estimate the percentage needed to eliminate existing deficiencies. The remainder of each project was available to serve new growth, and included in the TSDC rate calculation.

The following general equations were used to determine the percent of the project available for growth:

$$\text{Percent of project for growth} = (100) \text{ minus } (\text{Percent for deficiency})$$

The calculation was performed separately for each mode (motorized, transit, and non-motorized). The calculations used are consistent with the methodologies used for the citywide TSDC program adopted in 2007.

Motorized Deficiency Values

For motorized projects, the amount of the project intended to address existing deficiencies was initially calculated using the following formula developed for the citywide TSDC program:

$$\text{Motorized Deficiency} = \frac{(\text{Existing Traffic Volume}) \text{ minus } (\text{Existing Capacity})}{(\text{Future Capacity}) \text{ minus } (\text{Existing Capacity})}$$

If current traffic volume exceeds existing capacity, the amount of this excess volume is the deficient amount. The remainder of future capacity not being used by existing volumes can be allocated to growth.

SE Water Avenue Relocation is the only TSDC project that will serve the motorized mode. Using the above methodology, the SE Water Avenue Relocation project showed zero percent motorized deficiencies.

Transit Deficiency Values

For TSDC projects with a transit element, the deficiency was evaluated using the average maximum load factor for TriMet bus routes serving the project. This analysis was conducted in the PM peak hour for the peak direction of transit service. The maximum load factor indicates the degree of passenger loading that occurs on the route and run and equals the ratio of passengers to seats on the bus for that run. For projects that have multiple bus routes, the load factor was calculated as the average of the bus routes.

$$\text{Transit Deficiency} = (100) \text{ minus } (\text{average maximum load factor for route(s)})$$

The Portland-Milwaukie Light Rail Project will replace TriMet Bus Routes 31, 32, 33 and 99X. The average maximum load factor for the peak direction, peak hour transit service for these four routes showed a 5 percent existing deficiency. The Close the Loop and SE Water Avenue Relocation Projects did not show an existing transit deficiency.

Non-Motorized Deficiency Values

For the TSDC Overlay, the non-motorized deficiency values were calculated by Portland Transportation System Plan (TSP) district, using both a pedestrian deficiency value and a bicycle deficiency value. The selected non-motorized deficiency value was the higher of the two deficiencies.

The pedestrian deficiency for each district is the percent of arterials without sidewalks. This is based on the latest census of sidewalks on arterials throughout Portland. The bicycle deficiency for each district represents the degree to which each district is served by bicycle facilities (existing plus currently funded). Within each district, the mileage of bicycle facilities was divided by the number of households to compute a value of bike lane-miles per 1,000 households. This value was then compared to a citywide average of bicycle lane-miles per 1,000 households. If the district value was less than the citywide average, the percentage difference is considered to be the bicycle deficiency. If the district value was higher than the citywide average, the bicycle deficiency calculation was set at zero (0).

The portion of the TSDC Overlay area west of the Willamette River is within the Central City District, which has zero non-motorized deficiencies. Therefore, no deficiency is assumed for the SW 4th Avenue Streetscape and Broadway Cycle Track and Streetscape Improvement Projects.

For the portion of the TSDC Overlay area east of the Willamette River, the study team decided to apply a conservative deficiency value of 46 percent to the non-motorized project elements. This value reflects the highest non-motorized deficiency percentage for districts within the City. The 46 percent was removed from the non-motorized costs of the Clinton to the River and SE Water Avenue Relocation Projects.

DETERMINE TSDC OVERLAY PORTION OF COST OF EACH PROJECT (STEP 4)

Trips on a transportation network have a beginning (origin) and end (destination). In the jargon of transportation planning, both are called "trip ends." Many trips that use the TSDC Overlay transportation system have one or both "ends" within the Overlay area. Some trips, however, begin and end outside the Overlay area and are known as "through" trips. The through trips are excluded from the TSDC

calculation. The cost of the through-trip portion of projects must be absorbed by others because the City cannot collect TSDCs from development occurring outside the Overlay area.⁴

Each mode of travel was analyzed separately to determine the “through” trips for each project on the TSDC Overlay project list. For motorized travel a “select-link” trip analysis was used. The select-link technique uses the City’s travel demand model to identify the origins and destinations of traffic using a specific roadway segment. The resulting trip data were used to calculate the percentage of the traffic that started or ended within the Overlay area.

For transit and non-motorized modes, the travel model was used to create trip matrices showing the trip origins and destinations of each trip. “Overlay” trips for these two modes were defined as trips that started or ended within the Overlay area. Conversely, the trips that had a beginning and end outside the district were treated as “through” trips.

The percent of “Overlay” trips were calculated as follows:

$$\text{Percent of "Overlay" trips} = (100) \text{ minus } (\text{Percent "through" trips})$$

The resulting “Overlay” trip percents were used in **Tables 4-1** through **Table 4-3** to calculate the portion of each project’s growth that relates to the Overlay district.

CALCULATE OVERLAY GROWTH COSTS (STEP 5)

The project costs allocated to growth in the Overlay are calculated and shown in **Table 4-1** (motorized), **Table 4-2** (transit), and **Table 4-3** (non-motorized). Each project from the TSDC Overlay project list includes its name and total project cost. The next three columns contain (1) the percentage of the project that is attributed to the mode (from **Table 3-1**); (2) the percentage of the project that is attributed to new growth (as opposed to existing deficiencies); and, (3) the percentage of the project that is attributed to Overlay (“non-through”) traffic.

The equation for the cost allocation process multiplies the project cost times each of the three factors to determine the portion of project costs that is eligible for TSDC Overlay funding.

The last column contains the results of this calculation, which is the portion of the cost of the project that is attributable to growth in the Overlay area on that mode of travel.

$$(\text{Project cost attributable to TSDC})_m = (\text{Project cost}) \times (\text{Mode } \%)_m \times (\text{Growth } \%)_m \times (\text{"Overlay"}\%)_m$$

$$\text{Where } m = \text{mode (motorized, transit, non-motorized)}$$

⁴ Note that the adopted Citywide TSDC includes some contribution of Citywide TSDC funds to the Portland-Milwaukie Light Rail Project. This adjustment is calculated in Step 5.

TABLE 4-1: PROJECT COSTS ATTRIBUTABLE TO MOTORIZED TRAVEL

Project Name	Total Cost (\$)	Percent for Motorized Mode	Percent Serving Growth	Overlay Portion of Growth	Costs Attributable to Motorized TSDC (\$)
Portland-Milwaukie Light Rail	\$55,000,000	0%	N/A	N/A	N/A
Close the Loop	\$22,518,465	0%	N/A	N/A	N/A
SE Water Avenue Relocation	\$4,633,839	60%	100%	37%	\$1,017,634
SW 4th Avenue Streetscape	\$2,402,138	0%	N/A	N/A	N/A
Broadway Cycle Track and Streetscape Improvements	\$1,244,573	0%	N/A	N/A	N/A
Clinton to the River Multi-Use Path	\$4,625,597	0%	N/A	N/A	N/A
Total	\$90,424,612				\$1,017,634

TABLE 4-2: PROJECT COSTS ATTRIBUTABLE TO TRANSIT TRAVEL

Project Name	Total Cost (\$)	Percent for Transit Mode	Percent Serving Growth	Overlay Portion of Growth	Costs Attributable to Transit TSDC (\$)
Portland-Milwaukie Light Rail	\$55,000,000	100%	95%	16%	\$8,099,820
Close the Loop	\$22,518,465	100%	100%	24%	\$5,425,243
SE Water Avenue Relocation	\$4,633,839	20%	100%	24%	\$223,281
SW 4th Avenue Streetscape	\$2,402,138	N/A	N/A	N/A	N/A
Broadway Cycle Track and Streetscape Improvements	\$1,244,573	N/A	N/A	N/A	N/A
Clinton to the River Multi-Use Path	\$4,625,597	N/A	N/A	N/A	N/A
Total	\$90,424,612				\$13,748,344

TABLE 4-3: PROJECT COSTS ATTRIBUTABLE TO NON-MOTORIZED TRAVEL

Project Name	Total Cost (\$)	Percent for Non-Motorized Mode	Percent Serving Growth	Overlay Portion of Growth	Costs Attributable to Non-Motorized TSDC (\$)
Portland-Milwaukie Light Rail	\$55,000,000	N/A	N/A	N/A	N/A
Close the Loop	\$22,518,465	N/A	N/A	N/A	N/A
SE Water Avenue Relocation	\$4,633,839	20%	54%	65%	\$324,564
SW 4th Avenue Streetscape	\$2,402,138	100%	100%	54%	\$1,301,088
Broadway Cycle Track and Streetscape Improvements	\$1,244,573	100%	100%	54%	\$674,107
Clinton to the River Multi-Use Path	\$4,625,597	100%	54%	65%	\$1,619,931
Total	\$90,424,612				\$3,919,690

Adjustment for Other Revenue

As stated previously, SDCs must take into account payment of other fees and taxes by new development for the capital cost of the same public facilities. Portland uses General Transportation Revenue (GTR), grants, and funding by partner agencies to pay for a portion of its transportation improvement projects. Consequently, Portland's SDCs take into account future use of GTR, grants and partner funding by subtracting estimated non-TSDC revenues from the cost of projects in the TSDC Capital Improvement Program.

Table 4-4 presents the amounts of non-TSDC revenues that have been estimated for specific projects that are eligible for TSDC Overlay, and calculates the remaining funds needed. If the cost that is unfunded (column A in **Table 4-4**) is greater than the eligible cost (column B), the eligible cost was used in the TSDC calculation. For the Overlay area, this situation occurred for four of the six projects. For the Portland-Milwaukie Light Rail and the Clinton to the River projects, the eligible costs are greater than the unfunded costs. Therefore, the TSDC cost was adjusted to match the unfunded costs (column A).

TABLE 4-4: ELIGIBLE TSDC COSTS

Project Name	Total Cost (\$)	Estimated Non-TSDC Funds for TSDC Projects (\$)	Remaining Funds Needed (A)	Eligible TSDC Cost (\$) (B)	TSDC Adjustment Needed? (compare A to B)	Final TSDC Cost (\$)
Portland-Milwaukie Light Rail	\$55,000,000	\$50,000,000	\$5,000,000	\$8,099,820	Yes	\$5,000,000
Close the Loop	\$22,518,465	\$-	\$22,518,465	\$5,425,243	No	\$5,425,243
SE Water Avenue Relocation	\$4,633,839	\$3,029,840	\$1,603,999	\$1,565,478	No	\$1,565,478
SW 4th Avenue Streetscape	\$2,402,138	\$-	\$2,402,138	\$1,301,088	No	\$1,301,088
Broadway Cycle Track and Streetscape Improvements	\$1,244,573	\$-	\$1,244,573	\$674,107	No	\$674,107
Clinton to the River Multi-Use Path	\$4,625,597	\$4,025,597	\$600,000	\$1,619,931	Yes	\$600,000
Total	\$90,424,612	\$57,055,437	\$33,369,175	\$18,685,667		\$14,565,916

FORECAST NEW TRIPS GENERATED BY EACH MODE (STEP 6)

New trips on the transportation network are primarily caused by growth in population and employment. **Table 4-5** displays the demographic growth used in the Portland Metro travel demand model for the Overlay area. The years selected for the TSDC analysis were 2010 and 2030.

TABLE 4-5. GROWTH IN EMPLOYMENT AND HOUSEHOLDS			
TSDC Overlay Area			
Land Use	2010	2030	20-Year Growth
Employees	32,138	41,930	9,792
Households	6,176	7,952	1,776
Source: Portland Metro travel demand model			

The City's travel demand model uses employees and households to predict the number of trips that will be generated on the transportation network. The model is able to generate total person trips and trips for each mode (motorized, transit, and non-motorized). **Table 4-6** shows the forecast of trip ends for 2010 and 2030. Trip "ends" represent the beginning and end of each trip. These data show that transit and non-motorized trips will increase at a faster rate than motorized trips during the next 20 years. The mode share of the 77,525 growth trips is shown in the last column of **Table 4-6**, and these percentages are used in the Step 8 calculations.

TABLE 4-6. GROWTH IN DAILY PERSON TRIP ENDS					
TSDC Overlay Area					
Trip Type	2010	2030	20 Year Growth	Growth Percent	Growth Mode Share
Motorized	228,551	264,421	35,870	16%	46%
Transit	39,723	62,401	22,678	57%	29%
Non-Motorized	38,304	57,281	18,977	50%	25%
Total Daily Person Trip Ends	306,578	384,103	77,525	25%	100%
Note: Data shown are trip 'ends'. Each trip has two ends.					
Source: Portland Metro travel demand model					

CALCULATED COST PER TRIP END (STEP 7)

TSDC rates for each land use depend on two factors: (1) cost per trip, and (2) number of trips generated by the new development. The cost per trip end for each mode is calculated by dividing the costs that are eligible for TSDCs (from **Table 4-4**) by the number of trip ends (from **Table 4-6**). The following formula is used:

$$\text{Cost per person trip end} = \frac{(\text{Total cost attributable to TSDC})}{m}$$

(20-year growth in daily person trip ends) m

Where m = mode (motorized, transit, non-motorized)

The calculations of cost per trip end are shown in **Table 4-7**. The results vary by mode, depending on the modal allocation of the costs and the magnitude of growth occurring in the TSDC Overlay area.

Table 4-7 shows that a “Citywide TSDC Reduction” was made to the rates. Of the six TSDC Overlay projects, only the Portland-Milwaukie Light Rail Project is part of Citywide TSDC Project List. All City developments pay for a portion of the light rail project. The reduction equals the amount of the Citywide TSDC paid by development in the Overlay area that would be allocated to the light rail project. The reduction removes any potential for double-charging of TSDC fees. The Citywide TSDC reduction for the light rail project equals \$362,848 (\$16 per transit trip end multiplied by 22,678 new daily transit trip ends projected in the next 20 years).

As a result of the reduction for Citywide TSDC, the gross TSDC eligible cost would be reduced to a net cost of \$14,203,068.

TABLE 4-7. TSDC OVERLAY RATES BY MODE					
Mode	Cost Eligible for TSDC (\$)	20-Year Growth in Daily Person Trip Ends	TSDC per Daily Person Trip End (\$)	Reduction for Citywide TSDC	TSDC per Daily Person Trip End (\$)
Motorized	\$1,017,634	35,870	\$28	N/A	\$28
Transit	\$10,648,524	22,678	\$470	\$(16)	\$454
Non-Motorized	\$2,899,759	18,977	\$153	N/A	\$153

GENERATE PERSON TRIPS FOR VARIOUS TYPES OF DEVELOPMENT (STEP 8)

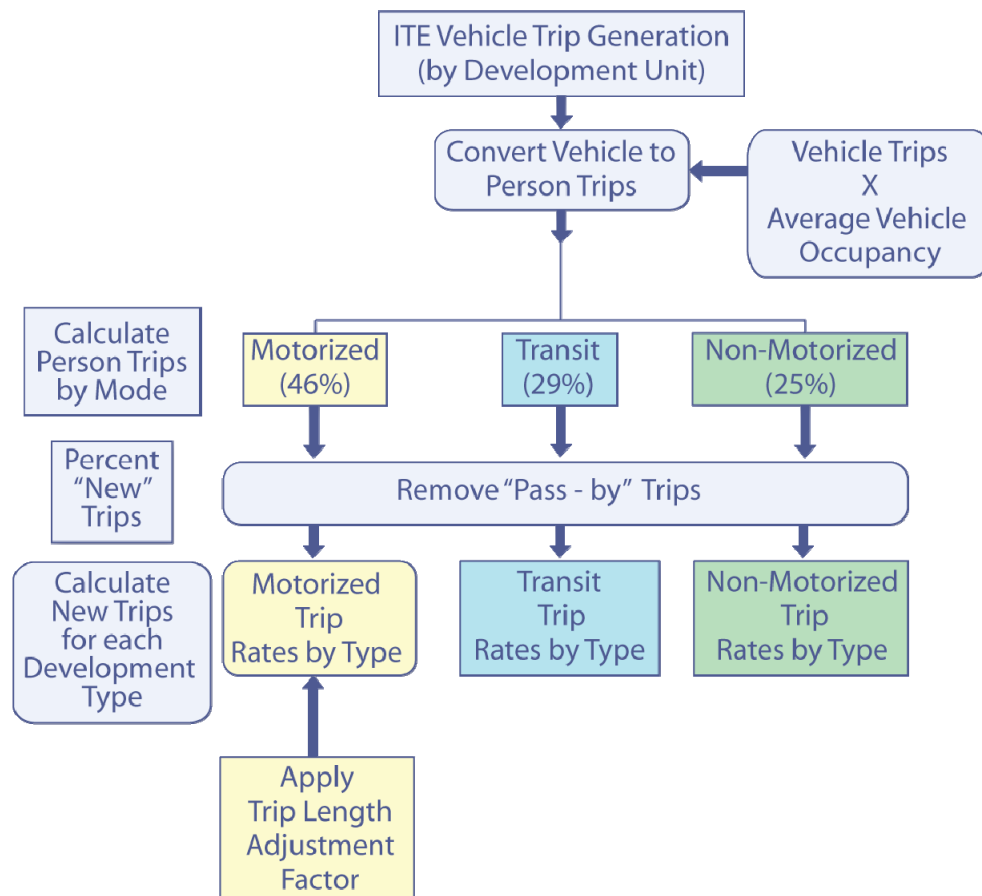
TSDC rates vary according to the impact on the transportation network caused by each type of development. Impacts are measured in “trip ends.” Trip generation rates for each development type were derived from the Institute of Transportation’s (ITE) report, *Trip Generation* (8th Edition, 2008). The ITE rates are expressed as daily vehicle trip ends entering and leaving a property.

The ITE rates were adjusted to match the needs of the TSDC program. There were three primary adjustments:

- 1) Conversion of vehicle trips to person trips
- 2) Removal of the “pass-by” trips
- 3) Separation into trips by mode (i.e., motorized, transit, non-motorized)

A further adjustment for trip lengths was made for the motorized trip component. **Figure 4-2** shows the flow of steps used to develop the trip rates.

Figure 4-2 Generation of Trips by Development Type



Derive Person Trips

The daily vehicle trip rates were converted to person trips per unit as follows:

$$\text{Daily Total Person Trips/unit} = \frac{(\text{Daily vehicle trips/unit}) \times (\text{Average Vehicle Occupancy})}{(\text{Motorized mode \%})}$$

The daily vehicle trips per unit were taken from the ITE *Trip Generation* report, 8th Edition (2008). These rates represent national averages for land uses surveyed primarily in urban fringe and suburban areas. The conversion units for person trips were chosen to match these geographic conditions. Average vehicle occupancy of 1.13 was selected based on review of region-wide traffic count data for Portland and other national sources. A motorized mode share of 90 percent was used to represent the geographical locations typical of the ITE trip generation surveys. Combining these factors resulted in a factor of 1.26 used to multiply vehicle trip rates to create person trip rates.

Separate “New” Trips versus “Pass-by” Trips

The trip generation rates represent total traffic entering and leaving a property at driveway points. For some land uses (e.g., retail), a substantial amount of this traffic is already passing-by the property and merely interrupts a trip between two other locations. These pass-by trips do not add to the impact on the surrounding street system. As a result, pass-by trips are subtracted from the total trips generated by each type of land use. The remaining trips are considered “new” to the street system and are therefore subject to TSDC calculation. Pass-by trip percentages are derived primarily from ITE data and from available surveys conducted around the country. This adjustment was applied in **Table 4-8** by multiplying the daily person trips per unit by the corresponding “new” trip percentage for each land use type.

Separate Into Trips by Mode

“New” person trips were split into the three modal categories by applying forecasted modal shares for the TSDC Overlay for 2030. These mode shares, shown in the last column of **Table 4-6**, are as follows:

Motorized mode share = 46%

Transit mode share = 29%

Non-motorized mode share = 25%

Each mode share is multiplied by total new person trips to produce trips by mode. The results are displayed in **Table 4-8** for the land uses included in the TSDC calculations.

PRODUCE TSDC RATE SCHEDULE (STEPS 9 AND 10)

The TSDC rate schedule is a table where rates are represented as dollars per unit of development for a variety of land use categories (as defined in ITE's *Trip Generation*). **Table 4-9** shows the calculations used to derive these rates for each mode, which are then combined into a total TSDC rate. For each mode, the TSDC rate equals the person trip rate (from **Table 4-8**) times the cost per person trip end (from **Table 4-7**). The equation for the TSDC for each mode is:

$$\begin{aligned} (\text{Motorized TSDC}) \text{ lu} = & \quad (\text{daily new motorized person trips/unit}) \text{ lu} \times \\ & (\text{trip length adjustment factor}) \text{ lu} \times \\ & (\text{cost per motorized trip end}) \end{aligned}$$

$$\begin{aligned} (\text{Transit TSDC}) \text{ lu} = & \quad (\text{daily new transit person trips/unit}) \text{ lu} \times \\ & (\text{cost per transit trip end}) \end{aligned}$$

$$\begin{aligned} (\text{Non-Motorized TSDC}) \text{ lu} = & \quad (\text{daily new non-motorized person trips/unit}) \text{ lu} \times \\ & (\text{cost per non motorized trip end}) \end{aligned}$$

Where *lu* = land use category

Trip Length Adjustment for Motorized Trips

A variable that affects motorized traffic impacts is the length of trips generated by each type of land use. ITE trip rates represent an "average" trip without regard to the length of each trip. If a given trip is shorter than the average, then its relative traffic impact on the street system will be less. Conversely, longer trips will impact a larger portion of the transportation network.

To reflect these differences, an adjustment factor is used, which is calculated as the ratio between the trip length for a particular land use type and the "average" trip length for Portland. Trip length data were estimated using limited national survey results. The adjustment uses a ratio of each land use's trip length to the average of all trip lengths.

Table 4-9 shows the trip length adjustment factor for each land use type and its application to the motorized TSDC rate per unit. These adjustment factors are consistent with the factors applied in the Citywide TSDC program.

TABLE 4-8: TSDC TRIP GENERATION BY MODE

	LUC ¹	Unit of Measure*	Daily Vehicle Trips/Unit	Daily Person Trips/Unit ²	Percent "New" Trips	"New" Person Trips/Unit			
						Total	Motorized	Transit	Non-Motorized
Future Mode Split							46%	29%	25%
Residential									
Single Family	210	dwelling	9.57	12.02	100%	12.02	5.56	3.51	2.94
Multiple Family	220	dwelling	6.65	8.35	100%	8.35	3.86	2.44	2.04
Senior Housing, detached	251	dwelling	3.71	4.66	100%	4.66	2.16	1.36	1.14
Accessory Dwelling Unit	1/2 of 210	dwelling	4.79	6.01	100%	6.01	2.78	1.76	1.47
Rowhouse / Townhouse / Condo	230	dwelling	5.81	7.29	100%	7.29	3.38	2.13	1.79
Nursing Home	620	bed	2.37	2.98	95%	2.83	1.31	0.83	0.69
Congregate Care/Asst Living	253	dwelling	2.02	2.54	95%	2.41	1.11	0.70	0.59
Commercial - Services									
Bank	912	sq ft/GFA	148.15	186.01	80%	148.81	68.85	43.53	36.43
Day Care	520	student	1.29	1.62	85%	1.38	0.64	0.40	0.34
Library	590	sq ft/GFA	56.24	70.61	75%	52.96	24.50	15.49	12.96
Post Office	732	sq ft/GFA	108.19	135.84	75%	101.88	47.14	29.80	24.94
Hotel/Motel	310	room	8.17	10.26	100%	10.26	4.75	3.00	2.51
Service Station/Gasoline Sales ³	944	VFP	168.56	211.64	40%	84.65	39.17	24.76	20.72
Movie Theater	444	Screen	153.33	192.51	85%	163.64	75.71	47.87	40.06
Carwash	947	Wash Stall	108	135.60	65%	88.14	40.78	25.78	21.58
Health Club	492	sq ft/GFA	32.93	41.35	90%	37.21	17.22	10.88	9.11
Marina	420	berth	2.96	3.72	90%	3.34	1.55	0.98	0.82
Commercial - Institutional									
School, K-12	520, 530 avg	student	1.5	1.88	85%	1.60	0.74	0.47	0.39
University/College	550	student	2.38	2.99	90%	2.69	1.24	0.79	0.66
Church	560	sq ft/GFA	9.11	11.44	95%	10.87	5.03	3.18	2.66
Hospital	610	sq ft/GFA	16.5	20.72	85%	17.61	8.15	5.15	4.31
Park	411	acre	1.59	2.00	85%	1.70	0.79	0.50	0.42
Commercial - Restaurant									
Restaurant	931	sq ft/GFA	89.95	112.94	75%	84.70	39.19	24.78	20.73
Quick Service Restaurant (Drive-through)	934	sq ft/GFA	496.12	622.91	40%	249.16	115.28	72.89	60.99
Commercial - Retail									
Miscellaneous Retail	814	sq ft/GLA	44.32	55.65	50%	27.82	12.87	8.14	6.81
Shopping Center	820	sq ft/GLA	42.94	53.91	65%	35.04	16.21	10.25	8.58
Supermarket	850	sq ft/GFA	102.24	128.37	60%	77.02	35.64	22.53	18.85
Convenience Market ⁴	851	sq ft/GFA	737.99	926.59	35%	324.31	150.05	94.87	79.39
Free Standing Discount Store	815	sq ft/GFA	57.24	71.87	70%	50.31	23.28	14.72	12.31
Car Sales - New/Used	841	sq ft/GFA	33.34	41.86	80%	33.49	15.49	9.80	8.20
Commercial Office									
Administrative Office	710	sq ft/GFA	11.01	13.82	90%	12.44	5.76	3.64	3.05
Medical Office/Clinic	720	sq ft/GFA	36.13	45.36	75%	34.02	15.74	9.95	8.33
Industrial									
Light Industrial / Manufacturing	130	sq ft/GFA	6.96	8.74	90%	7.86	3.64	2.30	1.93
Warehousing/Storage	150	sq ft/GFA	3.56	4.47	90%	4.02	1.86	1.18	0.98
Self Storage	151	sq ft/GFA	2.5	3.14	95%	2.98	1.38	0.87	0.73
Truck Terminal	30	acre	81.9	102.83	100%	102.83	47.58	30.08	25.17

* For uses with Unit of Measure in sq ft, trip rate is given as trips per 1000 sq ft and the TSDC rate is per sq ft

GFA = Gross Floor Area

GLA = Gross Leasable Area

VFP = Vehicle Fueling Positions (Maximum number of vehicles that can be fueled simultaneously)

1) Land Use Code - Reference TRIP GENERATION, 8th Edition, Institute of Transportation Engineers, 2008

2) Daily Person Trips/Unit = Daily Vehicle Trips/Unit multiplied by 1.26

3) With or Without Minimart (not to exceed 1,500 SF) and/or Carwash (Fuel is Primary Use)

4) If gasoline sales included on-site, use Service Station/Gasoline Sales SDC rate.

These results are shown in adjacent columns of **Table 4-9** for each mode. The TSDC for motorized travel also includes an adjustment for trip lengths, as described in the text box.

The total TSDC rate is the sum of the rates for each mode and is shown in the final column of the table. This is the rate that would be required to fully fund all of the TSDC Overlay eligible costs of identified projects.

The total TSDC rate per unit in **Table 4-9** is used to calculate the total TSDC that is to be paid by each new development. The type of development is identified in the first column of **Table 4-9**, the number of units is identified from the application for development, and the number of units is multiplied times the TSDC rate per unit in **Table 4-9**. The result is the total TSDC for the proposed development. Because the final step in calculating TSDCs depends on the number of units of development in each proposed development, a separate calculation is made for each development using this study and the developer's application.

TABLE 4-9: INNOVATIVE QUADRANT TSDC OVERLAY RATES

	LUC ¹	Unit of Measure*	Motorized				Transit		Non-Motorized		Total
			Person Trips/Unit	Trip Length (Miles)	Trip Length Adjustment Factor	TSDC/Unit (\$)	Person Trips/Unit	TSDC/Unit (\$)	Person Trips/Unit	TSDC/Unit (\$)	TSDC/Unit (\$)
Cost per Trip End						28		454		153	
Average Trip Length (Miles)					4.00						
Residential											
Single Family	210	dwelling	5.56	3.5	0.88	138	3.51	1,594	2.94	449	2,181
Multiple Family	220	dwelling	3.86	3.7	0.93	101	2.44	1,108	2.04	312	1,521
Senior Housing, detached	251	dwelling	2.16	2.8	0.70	43	1.36	618	1.14	174	835
Accessory Dwelling Unit	1/2 of 210	dwelling	2.78	3.5	0.88	69	1.76	798	1.47	225	1,092
Rowhouse / Townhouse / Condo	230	dwelling	3.38	3.7	0.93	89	2.13	968	1.79	273	1,330
Nursing Home	620	bed	1.31	2.8	0.70	26	0.83	375	0.69	106	507
Congregate Care/Asst Living	253	dwelling	1.11	2.8	0.70	22	0.70	320	0.59	90	432
Commercial - Services											
Bank	912	sq ft/GFA	68.85	1.5	0.38	0.73	43.53	19.74	36.43	5.57	26.04
Day Care	520	student	0.64	2.0	0.50	9	0.40	183	0.34	51	243
Library	590	sq ft/GFA	24.50	1.7	0.43	0.30	15.49	7.03	12.96	1.98	9.31
Post Office	732	sq ft/GFA	47.14	1.7	0.43	0.57	29.80	13.52	24.94	3.81	17.90
Hotel/Motel	310	room	4.75	4.0	1.00	135	3	1,361	3	384	1,880
Service Station/Gasoline Sales ²	944	VFP	39.17	1.7	0.43	472	25	11,232	21	3,166	14,870
Movie Theater	444	Screen	75.71	2.3	0.58	1,235	48	21,711	40	6,121	29,067
Carwash	947	Wash Stall	40.78	1.6	0.40	463	26	11,694	22	3,297	15,454
Health Club	492	sq ft/GFA	17.22	3.1	0.78	0.38	10.88	4.94	9.11	1.39	6.71
Marina	420	berth	1.55	3.1	0.78	34	1	444	1	125	603
Commercial - Institutional											
School, K-12	520, 530 avg	student	0.74	2.0	0.50	11	0.47	212	0.39	60	283
University/College	550	student	1.24	3.0	0.75	26	0.79	357	0.66	101	484
Church	560	sq ft/GFA	5.03	3.7	0.93	0.13	3.18	1.44	2.66	0.41	1.98
Hospital	610	sq ft/GFA	8.15	5.0	1.25	0.29	5.15	2.34	4.31	0.66	3.29
Park	411	acre	0.79	5.0	1.25	28	0.50	225	0.42	63	316
Commercial - Restaurant											
Restaurant	931	sq ft/GFA	39.19	3.4	0.85	0.95	24.78	11.24	20.73	3.17	15.36
Quick Service Restaurant (Drive-through)	934	sq ft/GFA	115.28	2.0	0.50	1.64	72.89	33.06	60.99	9.32	44.02
Commercial - Retail											
Miscellaneous Retail	814	sq ft/GLA	12.87	1.7	0.43	0.16	8.14	3.69	6.81	1.04	4.89
Shopping Center	820	sq ft/GLA	16.21	1.7	0.43	0.20	10.25	4.65	8.58	1.31	6.16
Supermarket	850	sq ft/GFA	35.64	2.1	0.53	0.53	22.53	10.22	18.85	2.88	13.63
Convenience Market ³	851	sq ft/GFA	150.05	1.3	0.33	1.38	94.87	43.03	79.39	12.13	56.54
Free Standing Discount Store	815	sq ft/GFA	23.28	2.1	0.53	0.35	14.72	6.67	12.31	1.88	8.90
Car Sales - New/Used	841	sq ft/GFA	15.49	4.6	1.15	0.51	9.80	4.44	8.20	1.25	6.20
Commercial Office											
Administrative Office	710	sq ft/GFA	5.76	5.1	1.28	0.21	3.64	1.65	3.05	0.47	2.33
Medical Office/Clinic	720	sq ft/GFA	15.74	4.8	1.20	0.54	9.95	4.51	8.33	1.27	6.32
Industrial											
Light Industrial / Manufacturing	130	sq ft/GFA	3.64	5.1	1.28	0.13	2.30	1.04	1.93	0.29	1.46
Warehousing/Storage	150	sq ft/GFA	1.86	5.1	1.28	0.07	1.18	0.53	0.98	0.15	0.75
Self Storage	151	sq ft/GFA	1.38	5.1	1.28	0.05	0.87	0.40	0.73	0.11	0.56
Truck Terminal	30	acre	47.58	5.1	1.28	1,721	30.08	13,643	25.17	3,846	19,210

* For uses with Unit of Measure in sq ft, trip rate is given as trips per 1000 sq ft and the TSDC rate is per sq ft

GFA = Gross Floor Area

GLA = Gross Leasable Area

VFP = Vehicle Fueling Positions (Maximum number of vehicles that can be fueled simultaneously)

1) Land Use Code - Reference TRIP GENERATION, 8th Edition, Institute of Transportation Engineers, 2008

2) With or Without Minimart (not to exceed 1,500 SF) and/or Carwash (Fuel is Primary Use)

3) If gasoline sales included on-site, use Service Station/Gasoline Sales SDC rate.

CHAPTER 5 PUBLIC PARTICIPATION PROCESS FOR THE DEVELOPMENT OF THE TSDC OVERLAY

The TSDC Overlay District described in this rate study was developed with substantial involvement by area residents, businesses, and property owners. Specifically, the project team used a three-tiered Public Engagement and Communications (PE&C) process to develop the recommended Overlay District. The first tier of the PE&C effort was a Project Advisory Committee (PAC) representing neighborhood and business associations from the affected area, as well as property owners and developers who would likely be assessed TSDC Overlay District fees. The PAC met five times from October 2010 through March 2011. With technical assistance from the project team and Portland Bureau of Transportation (PBOT) staff, the PAC discussed in depth the various components of a TSDC Overlay, including rates, boundaries and a project list.

Members of the PAC included:

- Jean Baker, Division/Clinton Business Association
- Bernie Bottomly, Portland Business Alliance
- Paul Carlson, Oregon Museum of Science and Industry
- Dick Cooley, Portland Streetcar, Inc.
- William Danneman, South Portland Neighborhood Association
- Brian Dunn, Central Eastside Industrial Council
- Jennifer Geske, Portland Downtown Neighborhood Association
- Chris Eykamp, Hosford-Abernethy Neighborhood Development
- Brad Malsin, Beam Development
- Mike O'Conner, Brooklyn Action Corps
- Valeria Ramirez, Portland Opera
- David Weislogel, Greater Brooklyn Business Association
- Les Youngbar, NW Natural
- Dan Zalkow, Portland State University

Because the Overlay District is of interest to many who live, work, and own property in inner Southeast and Southwest Portland, the second communications tier included outreach to a variety of key stakeholders. This effort included a series of stakeholder interviews conducted in the summer of 2010 to help identify key issues and potential PAC members. The stakeholders interviewed shared a vested interest in the transportation system needs along the light rail alignment and included property owners and developers, neighborhood and business associations, and government agencies that represent the diverse geographical area. The stakeholder interviews included associations representing downtown, the Central Eastside Industrial District, and the Hosford-Abernethy and Brooklyn neighborhoods.

Stakeholder outreach continued over the life of the project, and was both proactive and in response to requests from interested individuals and organizations. Stakeholder outreach included presentations to the Portland Business Alliance Development Committee, Central Eastside Industrial Council, CEIC's Land Use Committee, the Bicycle Advisory Committee, Pedestrian Advisory Committee, Greater Brooklyn Action Corps, Portland Streetcar, Inc. and HAND (Hosford-Abernethy Neighborhood Development), as well as one-on-one conversations with representatives of other interests, including the South Portland Neighborhood Association.

The third tier of the PE&C effort focused on the general public. The project team used an array of communications tools to ensure this broader audience was informed of project progress and was provided a significant opportunity to engage in the process. Communications tools to reach the general public primarily consisted of 1) written information, 2) a project Web page, and 3) project open houses. Written information included a Fact Sheet intended for PBOT distribution to interested parties and for PAC member distribution to those they represented. Written materials were also posted on the project Web site hosted by PBOT (<http://www.portlandonline.com/transportation/index.cfm?c=53625>) so that interested parties could stay up to date on the status of the project. Posted documents included PAC meeting agendas, summaries, and copies of all PAC meeting presentations and handouts.

Two public open houses were held to engage the broader public and further engage PAC members and key stakeholders. The two open houses were held on Jan. 20, 2011 – a morning session in Downtown and a late afternoon/evening session in Southeast Portland. The primary purpose of the open houses was to present PBOT-proposed TSDC Overlay District rates, boundaries, and projects and receive public feedback.

Notices of both open houses were emailed to the project mailing list of interested parties and to TriMet's mailing list of those interested in the Portland-Milwaukie Light Rail Project. To increase participation in the public open houses, invitations were sent to neighborhood and business associations, adjacent property owners, the Portland Business Alliance (PBA) Central City Committee, and the "Portland Milwaukie Light Rail" Interest Group list. Ads were placed in the SE Examiner newspaper and information was posted on City, neighborhood, PBA, and the Central Eastside Industrial Council websites. After the open houses, a "virtual" open house was posted on the project Web site to provide Web users an opportunity to review open house materials and provide feedback.