North Macadam

TRANSPORTATION SYSTEM DEVELOPMENT CHARGE OVERLAY RATE STUDY

Prepared for

City of Portland

January 2009

Prepared by

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with

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Mirai

and

Parametrix

North Macadam
Transportation System Development Charge
Overlay Rate Study

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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 North Macadam urban renewal area of the City of Portland, Oregon.[1] 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.

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.

The City of Portland adopted TSDCs that became effective October 18, 1997, and updated the TSDCs in October 2007. In November 2007, the City launched two concurrent planning projects for the North Macadam area: a Transportation Development Strategy, and a proposed TSDC Overlay. The "Strategy" project is focused on needs, priorities and overall funding strategies for transportation improvements in North Macadam. The "TSDC Overlay" project focused on developing a project list and TSDC rates for an overlay district that will charge special TSDC rates to development in North Macadam to be spent on high priority transportation improvements in North Macadam area. The TSDC Overlay rates are in addition to the Citywide TSDC rates.

The North Macadam TSDC Overlay (TSDC Overlay) uses the same methodology as the Citywide TSDC Program. The main difference is that the TSDC Overlay has its own list of transportation projects that are the basis for the TSDC rates. The Overlay is only looking at trips to and from the North Macadam district. 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 North Macadam area

Chapter 5. Public participation process for the development of the North Macadam TSDC Overlay

[1] The North Macadam TSDC Overlay has the same boundary as the North Macadam urban renewal area.

Data Sources

The data in this study were provided by the City of Portland unless a different source is specifically cited.

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.

January 2009 Rate Study

This rate study is a revision of the October 2008 study to include capital costs for the South Light Rail Project beyond the cost of future city-owned facilities.

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 North Macadam 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 (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 (i.e., number of dwelling units or number of square feet of development).

The North Macadam TSDC Overlay rate schedule lists the TSDC amount per unit of development (i.e., dwelling unit or square foot). The size of each proposed development is multiplied times the TSDC rate per unit.

SDC Reductions

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 taxes, fees, etcetera 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 North Macadam development (see Table 4-8).

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

Portland's City Code 17.15.050 allows an exemption from payment of the TSDC for affordable housing. The Citywide TSDC program also includes an exemption for transit-oriented development (TOD). In 2007, the Citywide TSDC Citizens Advisory Committee recommended phasing out the TSDC discount for TODs and this change was adopted in 2007. The North Macadam TSDC Overlay will not include a TOD exemption.

Timing of Payment of TSDCs

Portland's City Code 17.15.040 authorizes imposition of the TSDC at the time of application for a building permit, which 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

NORTH MACADAM 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 North Macadam urban renewal area, termed the North Macadam 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 North Macadam 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

Criteria for Projects to be Eligible for TSDCs

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 North Macadam area. The criteria shown in **Table 3-1** include both Minimum Qualifications as well as the Evaluating Criteria.

Eleven projects from the Transportation System Plan met the Minimum Qualifications. These projects were considered potentially eligible for the TSDC Overlay funding because they add new multi-modal capacity to the transportation system. Using the evaluation criteria in Table 3-1, the City, working with community stakeholders narrowed the list to six highest priority projects.

Table 3-1. Project Evaluation Criteria

Minimum Qualifications
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, or a regional transit facility.
4. Project is designed to serve additional population and or employment over the next twenty years.
5. Project is not a maintenance project.
6. Project is not for purchase of equipment or rolling stock, but may be for facilities supporting rolling stock/equipment.

Evaluating Criteria	
Criteria	Sub-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 safety
2. Improve movement of freight and goods	► Reduces conflicts between freight and non-freight uses ► Improves safety
3. Reduce congestion, improve access and/or circulation	► Benefits to community/economic development ► Improves safety ► Supports emergency services
5. Strong potential leverage	► Amount and likelihood of potential funding from other sources

North Macadam Overlay TSDC Project List

Six multi-modal capacity improvement projects were identified as eligible for North Macadam TSDC Overlay funding. The total cost of these projects is approximately $194 million. The project list covers improvements needed during the next 20 years.

The capital improvement projects are listed in **Table 3-2** 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 methodology for identifying the cost of each mode is described. Many of the projects are multi-modal in nature, although a few are unique to only one or two modes of travel. Light Rail project costs considered for the North Macadam Overlay TSDC calculations included all the costs of the project that are the City's responsibility within the North Macadam URA, such as utility relocation, street construction and road crossings, signals, structures and stations. The table shows the percentage and resulting cost of each project allocated to each mode.

Project Costs

For each project, cost estimates were prepared using a typical cost buildup. 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 2007 cost, any planned future inflation for labor and materials was removed. These costs are reflected in the totals shown in Table 3-2.

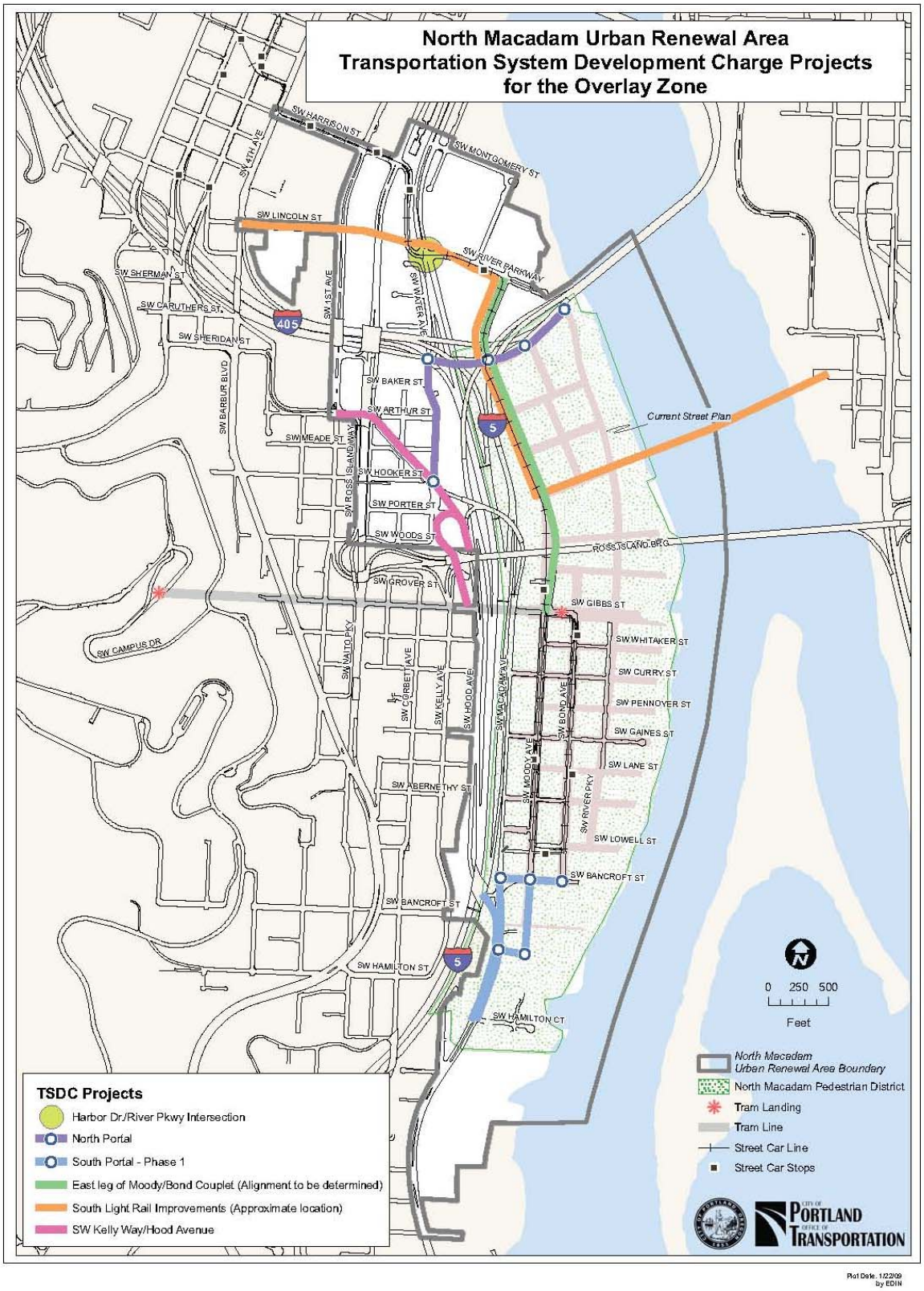
Table 3-2. TSDC Overlay Project List

Project Name*	Total Cost ($)	Motorized %	Transit %	Non-Motorized %	Motorized Cost ($)	Transit Cost ($)	Non-Motorized Cost ($)
SW Harbor Drive & River Parkway Intersection Improvements	$ 5,662,258	89.6%	0.0%	10.4%	$ 5,072,594	$ -	$ 589,664
South Portal: Phase 1	$ 28,053,358	68.0%	8.8%	23.2%	$ 19,083,414	$ 2,455,535	$ 6,514,409
Moody Bond Street Improvement: East Leg Gibbs to Sheridan	$ 11,759,693	64.7%	8.8%	26.5%	$ 7,609,473	$ 1,035,789	$ 3,114,431
South Light Rail	$ 101,463,030	0.0%	100.0%	0.0%	$ -	$ 101,463,030	$ -
SW Kelly Way and Hood Avenue Ramp	$ 38,272,128	69.7%	19.2%	11.1%	$ 26,656,624	$ 7,353,549	$ 4,261,956
North Portal: SW Corbett and Sheridan Street Improvements	$ 9,256,116	66.8%	5.1%	28.1%	$ 6,181,679	$ 470,001	$ 2,604,436
	$ 194,466,583				$ 64,603,783	$ 112,777,903	$ 17,084,897

* Project Descriptions	
SW Harbor Drive & River Parkway Intersection improvements	The purpose of this project is to provide improved access for northbound I-5 vehicles into the North Macadam area and to provide improved access for vehicles traveling from Downtown into the North Macadam area.
South Portal – Phase 1 *(Does not include Phase 2)*	The purpose of this project is to improve access into and out of the district by creating a street grid with signalized intersections at SW Macadam, Bancroft, Moody and Hamilton St. This project greatly enhances the southbound movement from the district.
Moody-Bond Street Improvement: Gibbs to Sheridan *(East leg of couplet)*	The purpose of this project is to construct a new SW Bond Street east of SW Moody Avenue and develop a central one-way couplet through the South Waterfront area.
South Light Rail	The purpose of this project is to provide high capacity transit service along the Portland to Milwaukie Corridor, including two stations in the North Macadam area.
SW Kelly Way/ Hood Avenue Ramp Improvement *(South Portland Circulation)*	The purpose of this project is to improve SW Kelly Way, to remove regional traffic from local streets, improve bike and pedestrian connections, and improve the access point to the Ross Island Bridge.
North Portal: SW Corbett and Sheridan Street Improvements	The purpose of this project is to improve access into the northern end of the district by improving SW Corbett and SW Sheridan Street, including their connections with SW Kelly Way, SW Harbor Drive and SW River Parkway.

[2] The cost for the South Portal Phase 1 project was taken from the cost estimate prepared for the Citywide TSDC Program (2007).

Figure 3-1. Map of TSDC Overlay Capital Improvement Projects



CHAPTER 4

RATE SCHEDULE CALCULATIONS

This chapter contains the formulas, variables and data used to calculate the North Macadam 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 North Macadam 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 North Macadam TSDC Overlay.

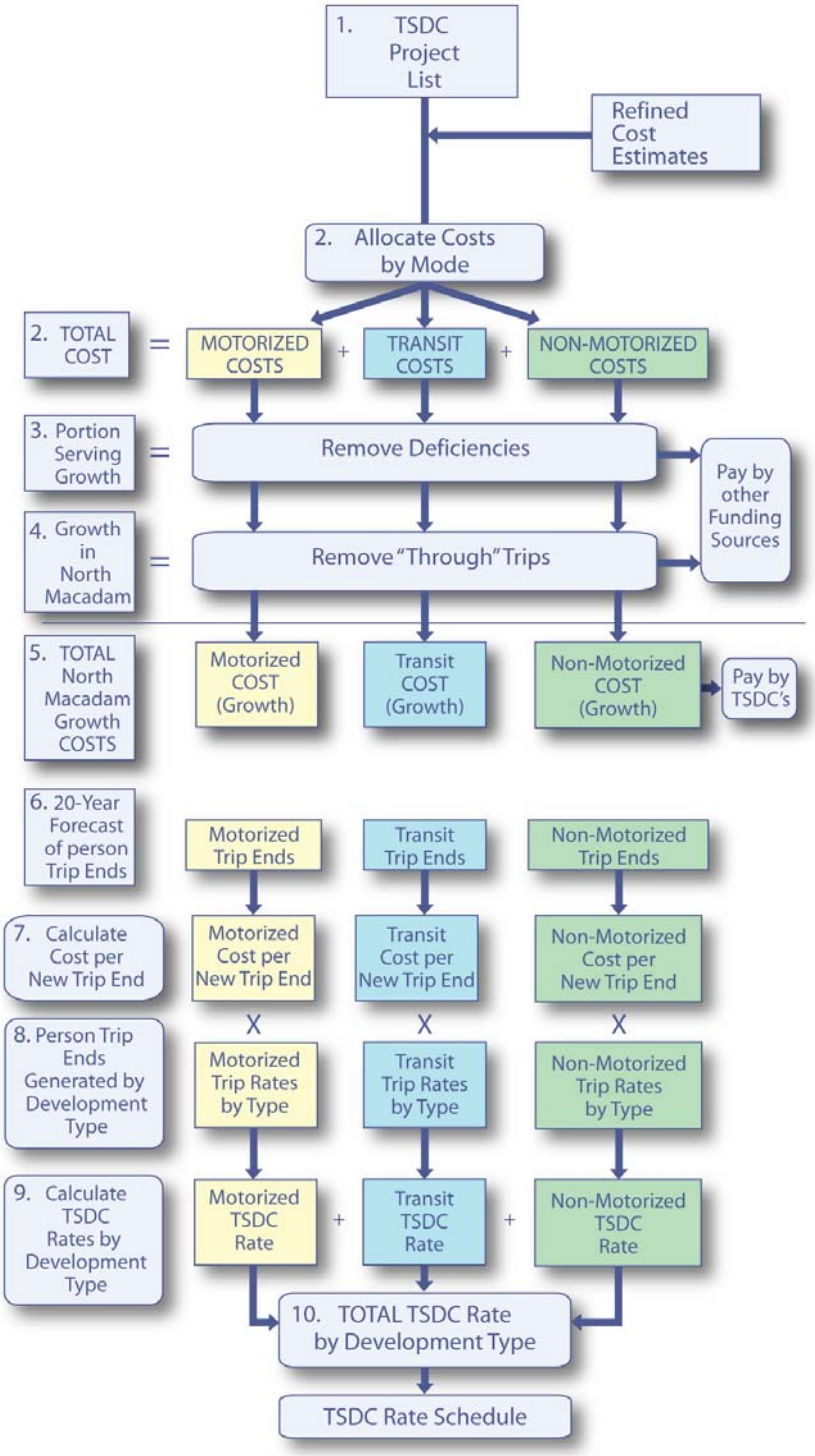
Overview of TSDC Calculations

The TSDCs for the North Macadam 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 North Macadam urban renewal area versus the "through" trips that do not start or stop in that area. Trips that pass through the North Macadam 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 North Macadam overlay area. This calculation removes the deficiencies (step 3) and "through" trips (step 4).
6. Estimate the growth in trip ends[3] (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.

[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. See page 20 for additional discussion.

Figure 4-1. How TSDC Rates were Developed



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 North Macadam Overlay.

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

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 North Macadam area. The projects are listed in **Table 3-2** 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 considered both **direct** and **common** costs. Direct costs were those that could be identified specific to a particular mode. Conversely, common costs were those that were "common" to all modes of travel. For example, costs of mobilization, right-of-way, etc., were considered to be common to all modes of travel, whereas, costs of sidewalk improvements were considered "direct" non-motorized costs.

Once the common costs were identified, they were put aside for later analysis. The remaining direct costs were then allocated to each mode. First, the direct costs of non-motorized facilities (bicycle and pedestrian) were identified. These direct costs typically included the cost of sidewalks and bicycle facilities.

Next, the remaining direct costs were allocated between transit and motorized modes. The transit portion of the direct costs was determined by comparing the transit passengers along the project route to the total of all persons (passengers) moving on the same route in all motor vehicles using the following equation:

$$\textit{Percent of direct cost for transit} = \frac{\textit{(Peak hour directional transit passengers along the project segment)}}{\textit{(Peak hour total directional person trips along the project segment)}}$$

The motorized portion of direct cost was the remainder (after subtracting the non-motorized costs) using the following equation:

Percent of direct cost for motorized =(100) minus (Percent of direct cost for transit)

The direct cost of each mode was then divided by the total direct cost of all three modes to identify the relative distribution of project costs among modes. Finally, the resulting percentage for each mode's direct cost was used to allocate the common costs among the three modes.

Table 3-2 (Chapter 3) shows modal percentages for each North Macadam 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:

Percent of project for growth = (100) minus (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:

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

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. Using this methodology, the calculations for North Macadam showed zero percent motorized deficiencies. This result was compared to the findings of the *North Macadam Transportation Development Strategy- Existing Transportation Conditions* (January 2008) and observations made by professional traffic engineers and area residents. The Development Strategy report concluded that, while individual intersections operate satisfactorily, that many of the streets experience congestion and vehicle queuing due to traffic constraints outside of the district. Observed congestion is particularly evident in the northern portion of the district. Given these observed traffic conditions, the study team

decided to assign a conservative deficiency value of 20 percent to all of the motorized project elements within the North Macadam Overlay area.

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.

For the North Macadam Overlay area, the average maximum load factor for the peak direction, peak hour transit service is less than 1.0 for all current transit service. Therefore the transit deficiency calculation was set at zero (0) for the projects.

Transit Deficiency = (100) minus (average maximum load factor for route(s))

Non-Motorized Deficiency Values

For the Citywide TSDC, the non-motorized deficiency values were calculated by district, using both a pedestrian deficiency value and a bicycle deficiency value. **Table 4-1** presents the non-motorized mode deficiencies by Portland Transportation System Plan (TSP) district. The selected non-motorized deficiency value is the higher of the two deficiencies; this value provides a conservative non-motorized deficiency estimate by district.

Table 4-1. Non-Motorized Deficiency Values by District

	Bike					Pedestrian			Selected
Portland TSP District	Households (2007)*	Existing plus Funded Bike Facilities (Miles)	Miles of Bike Facilities/ 1000 Households		Bicycle Deficiency (amount below Citywide Average)	Arterial Miles	Arterial Miles without Sidewalks	Pedestrian Deficiency	Non-Motorized Deficiency, Higher of Pedestrian or Bicycle Deficiency
Central City	18,480	32.5	1.8		**0%**	57	0	**0%**	**0%**
N Portland	19,132	46.1	2.4		**0%**	47	0.9	**2%**	**2%**
NE Portland	48,697	40.8	0.8		**24%**	97	6.8	**7%**	**24%**
Far NE Portland	21,313	60.5	1.2	**	**0%**	41	3.3	**8%**	**8%**
NW Portland	13,762	23.4	1.7		**0%**	51	15.2	**30%**	**30%**
SE Portland	67,773	47.5	0.7		**37%**	100	3.0	**3%**	**37%**
Far SE Portland	30,869		1.2	**	**0%**	52	10.4	**20%**	**20%**
SW Portland	33,992	29.5	0.9		**21%**	72	33.2	**46%**	**46%**
Citywide	255,880	280.4	**1.1**						

* Estimated 2007 households per district based on straight line growth, between 2000 and 2025.

** Bicycle mileage data were provided for combined Far NE and SE Portland districts. The miles per household were assumed to be equal for Far NE and Far SE Portland.

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 1000 households. This value was then compared to a citywide average of bicycle lane-miles per 1000 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).

North Macadam is technically within the Central City District, showing zero non-motorized deficiencies. However, field observations indicate that the North Macadam area is different than the rest of the central city, with a more limited range of complete sidewalks and bicycle routes. While separate pedestrian and bicycle analyses were not conducted in North Macadam for the TSDC calculations, the study team decided to apply a conservative deficiency value of 46 percent to all non-motorized project elements within the North Macadam District. This value is derived from the adjacent SW Portland District (see Table 4-1) and reflects the highest non-motorized deficiency percentage within the City.

Determine North Macadam 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 North Macadam's transportation system have one or both "ends" within the urban renewal area. Some trips, however, begin and end outside the North Macadam area and are known as "through" trips. The through trips are excluded from the North Macadam TSDC calculation. The cost of the through-trip portion of projects must be absorbed by others because the City cannot collect Overlay TSDCs from development occurring outside the North Macadam area.[4]

Each mode of travel was analyzed separately to determine the "through" trips for each project on the North Macadam 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 North Macadam 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. "North Macadam" trips for these two modes were defined as trips that started or ended within the North Macadam Overlay area. Conversely, the trips that had a beginning and end outside the district were treated as "through" trips.

The percent of "North Macadam" trips were calculated as follows:

Percent of "North Macadam" trips =(100) minus (Percent "through" trips)

The resulting "North Macadam" 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 North Macadam district.

Calculate North Macadam Growth Costs (Step 5)

The project costs allocated to growth in the North Macadam Overlay are calculated and shown in **Table 4-2** (motorized), **Table 4-3** (transit), and **Table 4-4** (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 North Macadam 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.

[4] Note that the adopted Citywide TSDC includes some contribution of citywide TSDC funds to 3 of the North Macadam projects.

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 North Macadam area on that mode of travel.

(Project cost attributable to TSDC)m = (Project cost) X (Mode %)m X (Growth %)m X ("Macadam"%)m

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

The following values represent the TSDC Overlay eligible costs for each mode and the total costs:

Motorized	$ 11,220,146
Transit	$ 18,016,950
Non-motorized	$ 6,742,867
Total TSDC Eligible Cost	$ 35,979,963

TSDC eligible costs represent 19 percent of the total costs for the projects identified for the North Macadam TSDC Overlay.

Table 4-2. Project Costs Attributable to Motorized Travel

Project Name	Project Cost ($)	Percent for Motorized Mode	Percent Serving Growth	North Macadam Portion	Cost Attributable to Motorized TSDC ($)
SW Harbor Drive & River Parkway Intersection Improvements	$ 5,662,258	89.6%	80%	36%	$ 1,460,907
South Portal: Phase 1	$ 28,053,358	68.0%	80%	22%	$ 3,338,703
Moody Bond Street Improvement: East Leg Gibbs to Sheridan	$ 11,759,693	64.7%	80%	46%	$ 2,822,526
South Light Rail	$ 101,463,030	0.0%	N/A	N/A	N/A
SW Kelly Way and Hood Avenue Ramp	$ 38,272,128	69.7%	80%	10%	$ 2,139,109
North Portal: SW Corbett and Sheridan Street Improvements	$ 9,256,116	66.8%	80%	30%	$ 1,458,901
Total	$ 194,466,583				$ 11,220,146

Table 4-3. Project Costs Attributable to Transit Travel

Project Name	Project Cost ($)	Percent for Transit Mode	Percent Serving Growth	North Macadam Portion	Cost Attributable to Transit TSDC ($)
SW Harbor Drive & River Parkway Intersection Improvements	$ 5,662,258	0.0%	N/A	N/A	N/A
South Portal: Phase 1	$ 28,053,358	8.8%	100%	52%	$ 1,267,688
Moody Bond Street Improvement: East Leg Gibbs to Sheridan	$ 11,759,693	8.8%	100%	52%	$ 534,734
South Light Rail	$ 101,463,030	100.0%	100%	12%	$ 12,175,564
SW Kelly Way and Hood Avenue Ramp	$ 38,272,128	19.2%	100%	52%	$ 3,796,324
North Portal: SW Corbett and Sheridan Street Improvements	$ 9,256,116	5.1%	100%	52%	$ 242,641
Total	$ 194,466,583				$ 18,016,950

Table 4-4. Project Costs Attributable to Non-Motorized Travel

Project Name	Project Cost ($)	Percent for Non-Motorized Mode	Percent Serving Growth	North Macadam Portion	Cost Attributable to Non-Motorized TSDC ($)
SW Harbor Drive & River Parkway Intersection Improvements	$ 5,662,258	10.4%	54%	73%	$ 232,722
South Portal: Phase 1	$ 28,053,358	23.2%	54%	73%	$ 2,571,031
Moody Bond Street Improvement: East Leg Gibbs to Sheridan	$ 11,759,693	26.5%	54%	73%	$ 1,229,167
South Light Rail	$ 101,463,030	0.0%	N/A	N/A	N/A
SW Kelly Way and Hood Avenue Ramp	$ 38,272,128	11.1%	54%	73%	$ 1,682,059
North Portal: SW Corbett and Sheridan Street Improvements	$ 9,256,116	28.1%	54%	73%	$ 1,027,888
Total	$ 194,466,583				$ 6,742,867

N/A = not applicable

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 City budgeted commitments for those revenues from the cost of projects in the TSDC Capital Improvement Program.

Table 4-5 presents the amounts of other revenues that have been budgeted 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 4-5) is greater than the eligible cost (column B), the total eligible cost was used in the TSDC calculation. For the North Macadam area, this situation occurred for all of the projects. Therefore, no TSDC cost adjustment was required.

Table 4-5. Eligible North Macadam TSDC Costs Adjusted for Budgeted Funds

Project Name	Total Cost ($)	Budgeted Funds for TSDC Projects ($)	Remaining Funds Needed ($) (A)	Total Eligible TSDC Cost* ($) (B)	TSDC Adjustment Needed? (compare A to B)
SW Harbor Drive & River Parkway Intersection Improvements	$ 5,662,258	$ -	$ 5,662,258	$ 1,693,629	No
South Portal: Phase 1	$ 28,053,358	$ -	$ 28,053,358	$ 7,177,421	No
Moody Bond Street Improvement: East Leg Gibbs to Sheridan	$ 11,759,693	$ -	$ 11,759,693	$ 4,586,427	No
South Light Rail	$ 101,463,030	$ -	$ 101,463,030	$ 12,175,564	No
SW Kelly Way and Hood Avenue Ramp	$ 38,272,128	$ -	$ 38,272,128	$ 7,617,492	No
North Portal: SW Corbett and Sheridan Street Improvements	$ 9,256,116	$ -	$ 9,256,116	$ 2,729,431	No

* Eligible TSDC cost equals total cost minus deficiency costs minus cost of through travel.
TSCD Adjustment: If (A) is less than (B), then an adjustment is needed.

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 4-6** displays the demographic growth used in the Portland Metro travel demand model for the North Macadam Overlay area. The years selected for the TSDC analysis were 2008 and 2028.

Table 4-6. Growth in Employment and Households

North Macadam TSDC Overlay Area				
Land Use	2008	2028	20-Year Growth	Growth Percent
Employees	7,620	16,012	8,392	110.1%
Households	1,014	6,002	4,988	491.8%

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 4-7** shows the forecast of trip ends for 2008 and 2028. 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.

Table 4-7. Growth in Daily Person Trip Ends

North Macadam TSDC Overlay Area					
Trip Type	2008	2028	20 Year Growth	Growth Percent	2028 Mode Share
Motorized	46,834	118,040	71,206	152.0%	75%
Transit	2,684	14,308	11,624	433.1%	12%
Non-Motorized	2,847	14,917	12,071	424.0%	13%
Total Daily Person Trip Ends	**52,365**	**147,265**	**94,901**	**181.2%**	**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 **Tables 4-2, 4-3** and **4-4**) by the number of trip ends (from **Table 4-7**). The following formula is used:

$$\text{Cost per person trip end} = \frac{(\text{Total cost attributable to TSDC})_m}{(\text{20-year growth in daily person trip ends})_m}$$

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

The calculations of cost per trip end are shown in **Table 4-8**. The results vary by mode, depending on the modal allocation of the costs and the magnitude of growth occurring in the North Macadam TSDC Overlay area.

Table 4-8 shows that a "Citywide TSDC Adjustment" was made to the rates. All City developments pay for a portion of the transportation projects located within the North Macadam area. The adjustment equals the amount of the Citywide TSDC paid by North Macadam development that would be allocated to North Macadam projects. The adjustment removes any potential for double-charging of TSDC fees.

The Citywide TSDC Adjustment equals approximately $ 3 million in revenue, as follows:

- Motorized adjustment ($25/trip end) = $1,780,150
- Transit adjustment ($25/trip end) = $ 290,598
- Non-Motorized adjustment ($79/trip end) = $ 953,588

TOTAL Adjustment = $3,024,336

As a result of this adjustment, the gross TSDC eligible cost would be reduced to a net cost of $32,955,627. The calculation is shown in the last row of Table 4-8. This means that the North Macadam TSDC Overlay could generate revenues of $33 million, plus up to $3 million allocated from the Citywide TSDC program.

Table 4-8. TSDC Overlay Rates by Mode

Mode	Cost Eligible for TSDC ($)	20-Year Growth in Daily Person Trip Ends	TSDC per Daily Person Trip End ($)	Citywide TSDC Adjustment	Adjusted TSDC per Daily Person Trip End ($)
Motorized	$ 11,220,146	71,206	$ 158	$ (25)	133
Transit	$ 18,016,950	11,624	$ 1,550	$ (25)	1,525
Non-Motorized	$ 6,742,867	12,071	$ 559	$ (79)	480
TSDC Eligible Cost	$ 35,979,963 Gross TSDC Eligible Cost			($3,024,331) Citywide Adjustment	$32,955,627 Net TSDC Eligible Cost

Generate Person Trips for Various Types of Development (Step 8)

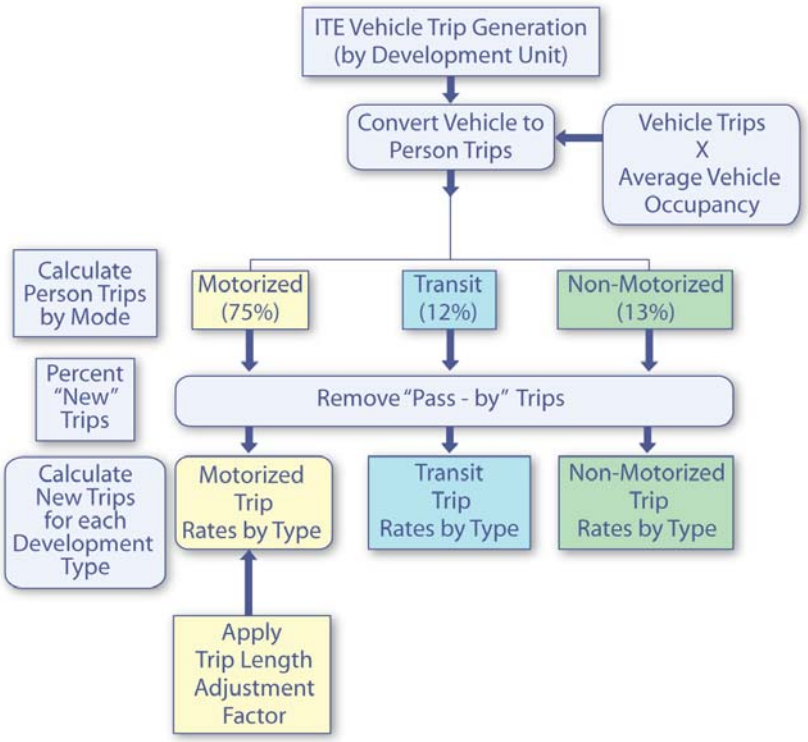
TSDC rates vary according to the impact on the transportation network caused by each type of development. Impacts are measured in "trip ends." Trip generation rates for each development type were derived from the Institute of Transportation's (ITE) report, *Trip Generation* (8th Edition, 2008). The ITE 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:

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

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 4-9** 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 North Macadam TSDC Overlay for 2028. These mode shares, shown in the last column of **Table 4-7**, are as follows:

Motorized mode share = 75%
Transit mode share = 12%
Non-motorized mode share = 13%

Each mode share is multiplied by total new person trips to produce trips by mode. The results are displayed in **Table 4-9** 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 4-10** shows the calculations used to derive these rates. The table provides calculations of TSDC 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 4-9) times the cost per person trip end (from Table 4-8). The equation for the TSDC for each mode is:

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

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

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

Where lu = land use category

Table 4-9. TSDC Trip Generation by Mode

	LUC [1]	Unit of Measure*	Daily Vehicle Trips/Unit	Daily Person Trips/Unit	Percent "New" Trips	"New" Person Trips/Unit			
						Total	Motorized	Transit	Non-Motorized
Future Mode Split							**75%**	**12%**	**13%**
Residential									
Single Family	210	dwelling	9.57	12.02	100%	12.02	9.02	1.47	1.53
Multiple Family	220	dwelling	6.65	8.35	100%	8.35	6.26	1.02	1.06
Senior Housing, detached	251	dwelling	3.71	4.66	100%	4.66	3.50	0.57	0.59
Accessory Dwelling Unit	1/2 of 210	dwelling	4.79	6.01	100%	6.01	4.51	0.74	0.76
Rowhouse / Townhouse / Condo	230	dwelling	5.81	7.29	100%	7.29	5.47	0.89	0.93
Nursing Home	620	bed	2.37	2.98	95%	2.83	2.12	0.35	0.36
Congregate Care/Asst Living	253	dwelling	2.02	2.54	95%	2.41	1.81	0.30	0.31
Commercial - Services									
Bank	912	sq ft/GFA	148.15	186.01	80%	148.81	111.65	18.23	18.93
Day Care	520	student	1.29	1.62	85%	1.38	1.03	0.17	0.18
Library	590	sq ft/GFA	56.24	70.61	75%	52.96	39.74	6.49	6.74
Post Office	732	sq ft/GFA	108.19	135.84	75%	101.88	76.44	12.48	12.96
Hotel/Motel	310	room	8.17	10.26	100%	10.26	7.70	1.26	1.30
Service Station/Gasoline Sales[2]	944	VFP	168.56	211.64	40%	84.65	63.52	10.37	10.77
Movie Theater	444	Screen	153.33	192.51	85%	163.64	122.78	20.04	20.81
Carwash	947	Wash Stall	108	135.60	65%	88.14	66.13	10.80	11.21
Health Club	492	sq ft/GFA	32.93	41.35	90%	37.21	27.92	4.56	4.73
Marina	420	berth	2.96	3.72	90%	3.34	2.51	0.41	0.43
Commercial - Institutional									
School, K-12	520, 530 avg	student	1.5	1.88	85%	1.60	1.20	0.20	0.20
University/College	550	student	2.38	2.99	90%	2.69	2.02	0.33	0.34
Church	560	sq ft/GFA	9.11	11.44	95%	10.87	8.15	1.33	1.38
Hospital	610	sq ft/GFA	16.5	20.72	85%	17.61	13.21	2.16	2.24
Park	411	acre	1.59	2.00	85%	1.70	1.27	0.21	0.22
Commercial -Restaurant									
Restaurant	931	sq ft/GFA	89.95	112.94	75%	84.70	63.55	10.37	10.77
Quick Service Restaurant (Drive-through)	934	sq ft/GFA	496.12	622.91	40%	249.16	186.95	30.52	31.69
Commercial - Retail									
Miscellaneous Retail	814	sq ft/GLA	44.32	55.65	50%	27.82	20.88	3.41	3.54
Shopping Center	820	sq ft/GLA	42.94	53.91	65%	35.04	26.29	4.29	4.46
Supermarket	850	sq ft/GFA	102.24	128.37	60%	77.02	57.79	9.43	9.80
Convenience Market [3]	851	sq ft/GFA	737.99	926.59	35%	324.31	243.33	39.72	41.25
Free Standing Discount Store	815	sq ft/GFA	57.24	71.87	70%	50.31	37.75	6.16	6.40
Car Sales - New/Used	841	sq ft/GFA	33.34	41.86	80%	33.49	25.13	4.10	4.26
Commercial Office									
Administrative Office	710	sq ft/GFA	11.01	13.82	90%	12.44	9.33	1.52	1.58
Medical Office/Clinic	720	sq ft/GFA	36.13	45.36	75%	34.02	25.53	4.17	4.33
Industrial									
Light Industrial / Manufacturing	130	sq ft/GFA	6.96	8.74	90%	7.86	5.90	0.96	1.00
Warehousing/Storage	150	sq ft/GFA	3.56	4.47	90%	4.02	3.02	0.49	0.51
Self Storage	151	sq ft/GFA	2.5	3.14	95%	2.98	2.24	0.37	0.38
Truck Terminal	30	acre	81.9	102.83	100%	102.83	77.16	12.60	13.08

*** 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.

These results are shown in adjacent columns of **Table 4-10** 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.

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 impacts on the street system will be less. Conversely, longer trips will impact a larger proportion 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 average trip length estimated for Portland is four (4.0) miles, based on the current and expected mix in land use types within the City.

The North Macadam area is more physically confined, with shorter overall trips affecting the transportation system. However, since the adjustment uses a ratio, the relative trip lengths are more important than the actual trip length in miles. For this reason, the trip length adjustment was retained for use in the North Macadam area.

Table 4-10 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 4-10. North Macadam 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						**133**		**1,525**		**480**	
Average Trip Length (Miles)					**4.00**						
Residential											
Single Family	210	dwelling	9.02	3.5	0.88	1,046	1.47	2,244	1.53	733	4,023
Multiple Family	220	dwelling	6.26	3.7	0.93	768	1.02	1,560	1.06	509	2,837
Senior Housing, detached	251	dwelling	3.50	2.8	0.70	324	0.57	870	0.59	284	1,478
Accessory Dwelling Unit	1/2 of 210	dwelling	4.51	3.5	0.88	523	0.74	1,123	0.76	367	2,013
Rowhouse / Townhouse / Condo	230	dwelling	5.47	3.7	0.93	671	0.89	1,363	0.93	445	2,479
Nursing Home	620	bed	2.12	2.8	0.70	197	0.35	528	0.36	172	897
Congregate Care/Asst Living	253	dwelling	1.81	2.8	0.70	168	0.30	450	0.31	147	765
Commercial - Services											
Bank	912	sq ft/GFA	111.65	1.5	0.38	5.55	18.23	27.80	18.93	9.08	42.43
Day Care	520	student	1.03	2	0.50	68	0.17	257	0.18	84	409
Library	590	sq ft/GFA	39.74	1.7	0.43	2.24	6.49	9.89	6.74	3.23	15.36
Post Office	732	sq ft/GFA	76.44	1.7	0.43	4.31	12.48	19.03	12.96	6.21	29.55
Hotel/Motel	310	room	7.70	4	1.00	1,020	1	1,916	1	626	3,562
Service Station/Gasoline Sales[2]	944	VFP	63.52	1.7	0.43	3,579	10	15,813	11	5,164	24,556
Movie Theater	444	Screen	122.78	2.3	0.58	9,359	20	30,566	21	9,982	49,907
Carwash	947	Wash Stall	66.13	1.6	0.40	3,507	11	16,464	11	5,377	25,348
Health Club	492	sq ft/GFA	27.92	3.1	0.78	2.87	4.56	6.95	4.73	2.27	12.09
Marina	420	berth	2.51	3.1	0.78	258	0	625	0	204	1,087
Commercial - Institutional			0								
School, K-12	520, 530 avg	student	1.20	2	0.50	80	0.20	299	0.20	98	477
University/College	550	student	2.02	3	0.75	201	0.33	502	0.34	164	867
Church	560	sq ft/GFA	8.15	3.7	0.93	1.00	1.33	2.03	1.38	0.66	3.69
Hospital	610	sq ft/GFA	13.21	5	1.25	2.19	2.16	3.29	2.24	1.07	6.55
Park	411	acre	1.27	5	1.25	211	0.21	317	0.22	104	632
Commercial -Restaurant											
Restaurant	931	sq ft/GFA	63.55	3.4	0.85	7.16	10.37	15.82	10.77	5.17	28.15
Quick Service Restaurant (Drive-through)	934	sq ft/GFA	186.95	2	0.50	12.39	30.52	46.54	31.69	15.20	74.13
Commercial - Retail											
Miscellaneous Retail	814	sq ft/GLA	20.88	1.7	0.43	1.18	3.41	5.20	3.54	1.70	8.08
Shopping Center	820	sq ft/GLA	26.29	1.7	0.43	1.48	4.29	6.55	4.46	2.14	10.17
Supermarket	850	sq ft/GFA	57.79	2.1	0.53	4.02	9.43	14.39	9.80	4.70	23.11
Convenience Market [3]	851	sq ft/GFA	243.33	1.3	0.33	10.48	39.72	60.58	41.25	19.78	90.84
Free Standing Discount Store	815	sq ft/GFA	37.75	2.1	0.53	2.63	6.16	9.40	6.40	3.07	15.10
Car Sales - New/Used	841	sq ft/GFA	25.13	4.6	1.15	3.83	4.10	6.26	4.26	2.04	12.13
Commercial Office											
Administrative Office	710	sq ft/GFA	9.33	5.1	1.28	1.58	1.52	2.32	1.58	0.76	4.66
Medical Office/Clinic	720	sq ft/GFA	25.53	4.8	1.20	4.06	4.17	6.35	4.33	2.08	12.49
Industrial											
Light Industrial / Manufacturing	130	sq ft/GFA	5.90	5.1	1.28	1.00	0.96	1.47	1.00	0.48	2.95
Warehousing/Storage	150	sq ft/GFA	3.02	5.1	1.28	0.51	0.49	0.75	0.51	0.25	1.51
Self Storage	151	sq ft/GFA	2.24	5.1	1.28	0.38	0.37	0.56	0.38	0.18	1.12
Truck Terminal	30	acre	77.16	5.1	1.28	13,042	12.60	19,207	13.08	6,273	38,522

*** 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

COMMUNITY INVOLVEMENT IN DEVELOPING THE NORTH MACADAM TSDC OVERLAY

Overview

The Portland Bureau of Transportation (PDOT) developed the North Macadam TSDC Overlay rate and project recommendations with substantial involvement by North Macadam property owners, residents, and businesses. Because the TSDC Overlay fees are generated and spent within the North Macadam Urban Renewal Area, the focus of the public involvement was with area stakeholders, particularly with stakeholders who would be required to pay TSDC Overlay fees. PDOT engaged these stakeholders by conducting stakeholder interviews, meeting regularly with a stakeholder advisory committee, conducting small group meetings with property owners, and hosting two public open houses. The following is a description of the four elements of the public involvement effort.

Stakeholder Interviews

The project team interviewed 17 area stakeholders from November 2007 to January 2008 to learn more about their opinions about an Overlay and other funding mechanisms, project priorities, North Macadam's competitiveness with other areas in Portland, and potential TSDC Overlay rates. The stakeholders included property owners, developers, residents, representatives of existing businesses and educational institutions, elected officials, and North Macadam Urban Renewal Area Committee members. The project team had interviewed many of the same stakeholders in the Spring 2007 as part of the Transportation Development Strategy Scoping project. The project team used the information from the interviews to begin prioritizing the project list, develop a list of potential and preferred funding mechanisms, assess the feasibility of a TSDC Overlay, and begin development of an acceptable TSDC Overlay rate range.

Several themes emerged from the interviews, including:

- Interviewees generally supported a TSDC Overlay, but raised several questions about equity, such as who pays the fee and who benefits. Many people expressed the concern that existing development would be exempt from the TSDC Overlay and new development would have an inequitable burden for funding future transportation projects.
- Interviewees generally supported other funding strategies. Many people supported an LID because it is tied to a specific project and, in contrast to a TSDC Overlay, most people viewed the LID as more equitable because all property owners who benefit from a project contribute funds.
- Property owners, developers, and residential representatives are willing to financially contribute to transportation improvements, but need to know the specific project benefit to them before they could commit to a rate a TSDC Overlay rate or LID assessment amount.

- North Macadam developers are sensitive to total City fees. The residential and commercial development markets are slowing down, and other fees have been proposed, including an increase to the parks SDC and a construction tax for schools. *(Both fees were subsequently adopted.)* Consequently, if a TSDC Overlay is approved, some interviewees suggested that the City should anticipate collecting only a moderate amount of funding through an overlay. With the slow down, the amount raised by a TSDC Overlay is clearly seen as only one part of the total capital improvement funding package.
- Access into and out of the North Macadam area was the highest priority for the majority of the interviewees. As a result, the North and South Portals projects received the most support.
- Interviewees raised the notion of timing by stating that some projects should not move forward until key property owners, such as Zidell, OHSU, and PSU solidify their plans. Two specific projects that these interviewees mentioned are the Streetcar and Moody/Bond Street Improvements.
- The majority of people said that TSDC Overlay funds should not be used for projects with a substantial regional benefit, such as the I-5 ramp, Streetcar, and Light Rail, and noted that these have other funding sources.

Stakeholder Advisory Committee

At project milestones, PDOT solicited input from a Stakeholder Advisory Committee (SAC). PDOT convened the SAC as a joint effort between the North Macadam Transportation Strategy and the TSDC Overlay project. The SAC membership included both committee members and ex-officio members, which are listed separately below. Committee members included representatives from neighborhood associations, educational institutions, residents, businesses, property owners, and developers.

Committee Members

Don Baack, Southwest Neighborhoods, Inc.

Ron Balash, RiverPlace Planned Community Association

Glenn Bridger, Southwest Neighborhoods, Inc.

William Danneman, South Portland Neighborhood Association

Lindsay Desrochers, Portland State University

Bob Durgan, Anderson Construction/ZRZ

Susan Hartnett, Oregon Health and Sciences University

Larry Hoyez, PGE Development

Mike Livingston, PGE Development

Ken Love, South Portland Neighborhood Association

Bob Martin, Old Spaghetti Factory

Dave Murray, RiverPlace Planned Community Association

Tom Noguchi, Resident/North Macadam Urban Renewal Advisory Committee

Keith North, National College of Natural Medicine

Vic Rhodes, Rhodes Consulting/WDD

Rick Saito, North Macadam Urban Renewal Advisory Committee

Mark Williams, Oregon Health and Sciences University

Sue Yirku, National College of Natural Medicine

Dan Zalkow, Portland State University

Ex-Officio Members

Troy Doss, Bureau of Planning

Greg Jones, Development & Capital Manager, Portland Transportation

Todd Juhasz, Portland Development Commission

Geraldene Moyle, Portland Development Commission

Phil Selinger, TriMet

Rick Williams, Rick Williams Consulting (TMA)

Rian Windsheimer, ODOT Region 1

Table 5-1 provides a summary of the SAC meetings, the purpose and objective of each meeting, and SAC feedback as related to the TSDC Overlay project.

Table 5-1. Summary of Stakeholder Advisory Committee Meetings

Public Outreach Activity	Date/Location	Meeting Purpose/ Objective (as related to the TSDC Overlay project)	SAC Feedback (as related to the TSDC Overlay project)
Stakeholder Advisory Committee Meeting # 1	November 7, 2007 Portland Building	Review project purpose, proposed schedule, and solicit input on priority projects.	Initial informational meeting.
Stakeholder Advisory Committee Meeting # 2	January 9, 2008 Portland Building	Present general findings of stakeholder interviews, review funding options, and present and solicit input on priority projects.	Question raised about why Lake Oswego Streetcar was removed from the priority list. *(It is currently in plan development and is not a project in the City's Transportation System Plan.)* Suggestion to include statement that it is the City's intent to use both the citywide and overlay TSDC funding sources when applicable.
Stakeholder Advisory Committee Meeting # 3	March 5, 2008 Portland Building	Present summary of stakeholder interviews and review rate calculation methodology.	Question was raised about why existing deficiencies were not considered in the rate calculation methodology. *(Project team follow-up included deficiency calculations.)*
Stakeholder Advisory Committee Meeting # 4	May 7, 2008 Portland Building	Report on March Open House, provide update on small group interviews, and discuss TSDC Overlay rates.	Request for PDOT to sort projects by level of importance. *(Through the subsequent small group meeting input the list of 11 eligible projects was reduced to 6.)*
Stakeholder Advisory Committee Meeting # 5	June 4, 2008 Portland Building	Provide update on additional small group meeting and present staff recommendation for the Overlay project list and proposed rates.	There was general support for the shortened project list. If the Overlay is not approved by Council, most SAC members suggested using a parking tax for additional funding. Request for clarification on what happens to Overlay funds if a project does not receive funding to match the TSDC dollars. *(Being on the TSDC Overlay project list does not guarantee funding. TSDC funds will be expended on project(s) that obtain matching funds.)* Question about whether an independent advisory council could review the TSDC Overlay budget and PDOT programming decisions. Comment that it is desirable that Overlay funding is reflected as the property owners' contribution to project funding rather than the City's contribution.

Public Outreach Activity	Date/Location	Meeting Purpose/ Objective (as related to the TSDC Overlay project)	SAC Feedback (as related to the TSDC Overlay project)
Stakeholder Advisory Committee Meeting # 6	August 27, 2008 Portland Building	Asked SAC members if the Strategy research and project prioritization for transit, bike and pedestrian projects would suggest changes to the proposed TSDC Overlay project list.	No changes to project list suggested.
Stakeholder Advisory Committee Meeting # 7	September 17, 2008 Portland Building	Ask SAC members if the Strategy research and prioritization of vehicular projects suggests the need for changes to the proposed TSDC Overlay project list. Discuss TSDC Overlay rate proposal(s) for recommendation to Commissioner Adams.	No changes to project list suggested.
Stakeholder Advisory Committee Meeting # 8	October 22, 2008 Portland City Hall	Describe content of Draft TSDC Overlay Rate Study submitted to City Council. Provide input on how the re-scoped I-5 Macadam Ramp project will impact the distribution of TSDC Overlay funds. Solicit input in writing from SAC members about the draft Rate Study.	No changes to the recommended rate or project list suggested.
Stakeholder Advisory Committee #9	November 21, 2008 Portland Building	Commissioner Sam Adams presented a proposal to use $10 million of the TSDC Overlay funds to help fund a portion of the local match for the Milwaukie light rail. Solicit feedback from the SAC on the Commissioner's proposal.	The question was posed to the SAC whether they were in agreement with Commissioner Adam's proposal, and no responses pro or con were provided. Following the meeting, Commissioner Adams directed staff to move forward with a fee schedule that would collect $22 million over 20 years and allocate $10 million of the TSDC Overly funds to the Portland Milwaukie Light Rail.

Public Outreach Activity	Date/Location	Meeting Purpose/ Objective (as related to the TSDC Overlay project)	SAC Feedback (as related to the TSDC Overlay project)
Stakeholder Advisory Committee #10	January 14, 2009 Portland Building	Discuss distribution of funding sources for Transportation Strategy project list and TSDC Overlay project list. Discuss appropriate district share of transportation projects.	No feedback on distribution of TSDC Overlay funds.

Small Group Meetings

On April 28, 2008, and May 7, 2008, the project team held three small group meetings with property owners and institutions who would most likely be responsible for paying the TSDC Overlay fees. The purpose of the meetings was as follows:

- Provide a brief update of the project and schedule.
- Present sample rate scenarios illustrating how much could be raised based on particular rates.
- Obtain feedback regarding whether participants would be more likely to support a TSDC Overlay if the project list was shorter or if the TSDC only paid for a portion of the TSDC-eligible cost.
- Obtain feedback about how much the residential and commercial markets in North Macadam would bear in additional fees that are ultimately passed on to buyers and tenants.
- Obtain feedback about how to address the issue that not everyone who benefits from the TSDC Overlay pays TSDC fees.
- Obtain feedback on project priorities.

In general, participants commented that they would support a shorter project list and a mid-range TSDC Overlay rate that only paid for a portion of the TSDC-eligible cost. The project team did not receive any feedback from participants on how much the market would bear in additional fees or how to address the issue that not everyone who benefits from the TSDC Overlay pays TSDC fees. The list below shows how many times participants supported each project. Note that participants could support more than one project.

- Gaines Street Pedestrian Bridge (0)
- Hamilton Street Pedestrian Bridge (0)
- I-5 Macadam Ramp (4)
- North Portal: SW Corbett and Sheridan Street Improvements (6)
- Moody/Bond Street Improvement: Gibbs to Sheridan (7)

- South Light Rail (7)
- South Portal, Phase 1 (5)
- South Portal Phase 2 (2)
- South Portland Circulation: Kelly Way/Hood Avenue Ramp (2)
- Streetcar: Gibbs to RiverPlace (double track) (5, tied to performance of the streetcar)**
- Traffic Signal Installations (1)

** Staff subsequently determined that the double track project would not necessarily result in the shorter headways desired by stakeholders – that could be achieved with additional streetcar operating funds.

The project team presented the results of these meetings to the Stakeholder Advisory Committee and used the results to formulate the recommended TSDC Overlay rate.

Public Open Houses

PDOT held the first public open house on March 19, 2008, to jointly present and discuss the status of the North Macadam Transportation Strategy and TSDC Overlay projects. The goal of the TSDC Overlay portion was to present potential TSDC Overlay rate scenarios and get public feedback on the priority project list and gauge interest in any additional funding mechanisms. Attendees were asked to complete a comment form with specific questions about the TSDC Overlay. Approximately 61 percent of attendees completed a comment form. Most of the respondents recommended setting the TSDC Overlay rate in the mid-range of rate scenarios. Additionally, respondents noted that the following projects should be prioritized:

- Gaines Street pedestrian bridge **
- I-5 Macadam ramp
- South light rail
- South Portland
- South Portal Phase I

** The support shown for the Gaines Street pedestrian bridge was in contrast to the lack of priority identified in the small group meetings. One theory is that Open House attendees may have been expressing support for the "Gibbs" Street Pedestrian Bridge Project. This much anticipated project is fully funded and already in the design phase.

PDOT held the second joint public open house on October 7, 2008. The primary goal of the open house was to solicit feedback on the high, medium, and low priority projects identified as part of the Transportation Strategy. PDOT staff was available to discuss the recommended TSDC Overlay rate and project list.