North Macadam

TRANSPORTATION SYSTEM DEVELOPMENT CHARGE OVERLAY ADDENDUM

Prepared for

City of Portland

October 2017

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NORTH MACADAM SUMMARY

The purpose of this study is to establish an updated methodology, project list and transportation system development charges (TSDCs) for the North Macadam Overlay. System development charges are one-time fees paid by new development for capital costs of public facilities needed to serve future system users who occupy or use the new development.

The City of Portland updated the citywide TSDC program in 2017 by revising the program's project list, underlying data and how rates are assessed. This addendum to the 2009 North Macadam Transportation System Development Charge (TSDC) Overlay Rate Study matches the new citywide TSDC program methodology. Specific features include:

- Overlay TSDC project list – The North Macadam project list has been modified to include updated project costs for the improvement projects on the list. Completed projects have also been retained to allow reimbursement fees to be collected. TSDC eligibility has also been modified to be consistent with the citywide TSDC methodology.
- Person trip data – This update is the first time that the program is derived from actual person trip data. Moving from vehicular trip data to actual person trip data provides a much more complete picture of how Portland's transportation system is used. The new program also shifts to measure PM peak hour travel rather than daily travel to assess impacts when the system is most in demand.
- Streamlined methodology – the previous program featured a very complex process for measuring project eligibility and resulted in a high proportion of projects being ineligible for TSDCs. This new methodology simplifies the way that TSDC fees are calculated, using the value of Portland's existing transportation system as an upper limit for setting TSDC fees, which are then right-sized to the TSDC project list. This new methodology results in a higher proportion of growth-accommodating projects being eligible for TSDC funding.

This addendum documents the results of applying the updated TSDC methodology to the North Macadam Overlay.

INTRODUCTION

This memorandum serves as an addendum to the North Macadam Transportation System Development Charge (TSDC) Overlay Rate Study dated January 2009 adopted as Exhibit A to Ordinance 182652.

The North Macadam TSDC Overlay area is being updated to conform to the citywide TSDC program as adopted in Ordinance 188619 on September 27, 2017. The TSDC overlay area is being restructured to:

- Define system eligibility based on the existing system value per trip
- Charge fees based on total person trip generation

Concurrent with the methodology development, the overlay area has a revised project list. The list defines the eligible costs and identifies whether projects are completed.

EXISTING SYSTEM VALUE

The existing system value per trip for the North Macadam overlay area is shown in **Table 1**. The system value was estimated based on the number of lane miles in the area as a proportion of total city lane miles. Lane miles consider arterial and collectors in Portland. The existing value per PM peak hour person trip calculation uses existing 2017 PM peak hour person trips.

TABLE 1 - EXISTING SYSTEM VALUE

	Lane Miles	Percent of Total	System Value	Existing 2017 PM Peak Hour Person Trips	Existing Value Per PM Peak Hour Person Trip
North Macadam	16.3	1.07%	$104,752,995	9,710	$10,788
Portland Total	**1,527**	**100%**	**$9,813,363,401**	**501,260**	**$19,577**

The existing system value per person trip for the overlay area is lower than the citywide average, primarily due to relatively higher land use intensities and trip generation within the area.

TSDC PROJECT LIST COST PER TRIP

PM PEAK HOUR PERSON TRIPS

The PM peak hour person trips in North Macadam were calculated for a 10 year period from 2018 to 2028. The 2009 TSDC overlay program was based on a 20-year estimate from 2008-2028. That

overlay TSDC program analyzed daily trips, which were converted into PM peak hour trips for this update[1]. As shown below, the 10-year growth estimates represent 48% of the original 20-year estimates.

2009 Overlay TSDC Person Trip Growth (2008-2028)	8,541 PM trips
Updated estimate of Person Trips (2018-2028)	4,070 PM trips

PROJECT LIST

The North Macadam project list has been modified to include updated project costs for the improvement projects on the list. Completed projects have also been retained to allow reimbursement fees to be collected. TSDC eligibility has also been modified to be consistent with the new citywide TSDC methodology. As shown in **Table 2**, the eligible TSDC Overlay project costs increased from $36 million to $58 million.

[1] The original overlay program was based on daily person trips. They have been converted to PM peak hour person trips based upon daily-to-peak factors (0.09) from the city's travel demand model.

TABLE 2 - NORTH MACADAM PROJECT LIST

	2009 TSDC Overlay			2017 Overlay Update			
Name	Total Cost (millions)	Eligibility %	TSDC Eligibility Cost (millions)	Total Cost (millions)	Eligibility %	Eligibility Cost (millions)	On City-wide list?
Reimbursement Fees							
SW Harbor Dr & River Parkway Intersection Improvements	$5.66	29.9%	$1.69	0	0	0	
South Light Rail	$101.46	12.0%	$12.18	$10	100%	$10	
Improvement Fees							
South Portal - Phase 1	$28	25.6%	$7.18	$8.14	100%	$8.14	✓
Moody/Bond Street Imp: Gibbs to Sheridan Phase 1	$11.79	39.0%	$4.59	$9	100%	$9	
Moody/Bond Street Imp: Gibbs to Sheridan Phase 2				$16	75%	$12	✓
SW Kelly Way and Hood Ave Ramp	$38.27	19.9%	$7.62	$69.35	14%	$10	✓
North Portal: SW Corbett and Sheridan Street Improvements	$9.26	29.5%	$2.73	$9.26	100%	$9.26	
Total	**$194.47**		**$35.98**	**$121.74**		**$58.39**	

RESULTS

Improvement and reimbursement fee rates for the North Macadam overlay area are shown in **Table 3**, including an adjustment to account for projects that are contained in both the Citywide TSDC and Overlay TSDC programs. The adjustment was calculated as follows:

$$\frac{\$30{,}138{,}000}{\$589{,}300{,}000} \times \$4{,}174 = \$213$$

This adjustment ensures that there is no double counting with the citywide TSDC program.

TABLE 3 - NORTH MACADAM IMPROVEMENT AND REIMBURSEMENT FEES

	Eligible TSDC Costs	Cost per PM future person trip (2018 to 2028)
Improvement Fees	$48,394,194	$11,890
Reimbursement Fees	$10,000,000	$2,457
Total	**$58,394,194**	**$14,347**
Citywide TSDC Adjustment		- $213
Final		**$14,134**

The calculated rate of $14,134 per person trip is higher than the existing system value per trip within the North Macadam overlay area, which was calculated to be $10,788. Thus, the $10,788 value would serve as an upper bound for the cost per trip rate within this overlay area.

Another point of comparison is the 2009 overlay cost per trip. This rate was calculated to be approximately $4,210 per PM peak hour person trip. The council adopted a rate of $2,278 per trip[2], a reduction of 46 percent from the maximum eligible amount. Since that time, the rate has been increased for inflation to approximately $2,670 per trip.

RECOMMENDATIONS

It is recommended that the council adopts a rate at $2,670, matching the current TSDC cost per trip rate. The fee schedule for this rate is shown in **Table 4**. Note that while the recommended cost per trip stays the same**,** the updated fee schedule reflects the changes in TSDC methodology contained in the citywide TSDC program. These changes include the following:

- Change to a total person trip rate, rather than rates for each mode of travel.
- Modifications to land use categories: some categories were eliminated, others were consolidated and some new categories added. In particular, a composite shopping/retail category was created to cover most general retail uses within the city.
- Changes in trip generation rates: trip rates were updated to reflect new survey data, including actual person trip counts for some land uses

As a result of these methodology changes, some TSDC rates would go up and some would go down. The overall cost per PM peak hour person trip would remain the same as the current program.

[2] The PM peak hour rate was converted from a daily rate using factors from the city's travel demand model.

TSDC OVERLAY RATE SCHEDULE

The data described above was used in combination with modal percentages and costs per trip to calculate the TSDC rate schedule, as shown in Table 4. The following information is presented in each column:

- Land Use Categories: categories of land use used to assess the TSDC
- Land Use Code: Code assigned by ITE.
- Unit of Measure: the unit that generates the number of trips (i.e., residential development. counts trips per dwelling, most commercial establishments count trips per 1,000 square feet).
- PM Peak Vehicle Trips per Unit: the number of PM peak hour trips reported by ITE for one unit of measure.
- Future Average Vehicle Occupancy (AVO): the estimated average number of persons per vehicle.
- Vehicle Mode Share: the estimated percentage of trips made by vehicle mode.
- PM Peak Person Trips per Unit: the trip rate from observed person trip surveys or the result of multiplying the PM Peak Hour Vehicle Trips per Unit with the Future AVO, and dividing the result by the Vehicle Mode Share.
- New Trip %: the percent of trips that are new (excludes “pass-by” trips).
- PM Peak New Person Trips per Unit: the result of multiplying the PM Total Person Trips per Unit times the New Trip %. These are the number of trips per unit of development for which a new development is charged the TSDC.
- Overlay Rate: The rate per unit of development based on the cost per trip.

TABLE 4 – NORTH MACADAM FEE SCHEDULE

Land Use Categories	Land Use Code (1)	Unit of Measure	PM Peak Vehicle Trips/ Unit	Future AVO	Vehicle Mode Share	PM Peak Total Person Trips/Unit (Est)	New Trip %	PM Peak new person trips/ unit	Overlay Rate
Cost per PM Peak Hour Person Trip									$2,670
Residential									
Single Family (1,200 square feet or more)	210	dwelling	1.0	1.17	0.95	1.23	100%	1.23	$3,288
Single Family (1,199 square feet or less)	50% of 210	dwelling	0.5	1.17	0.95	0.62	100%	0.62	$1,644
Multiple Family	220	dwelling	*	*	*	0.60	100%	0.60	$1,602
Senior Housing/Assisted Living/Nursing Home	251	dwelling/ bed	0.27	1.13	0.95	0.32	100%	0.32	$857
Commercial – Services									
Bank	911	sq ft/GFA	12.13	1.13	1.00	13.71	65%	8.91	$23.79
Day Care	520	sq ft/GFA	1.21	1.13	0.95	1.44	100%	1.44	$3.84
Hotel/Motel	310	room	0.6	1.31	0.95	0.82	100%	0.82	$2,191
Service Station / Gasoline Sales (2)	946	VFP	13.86	1.13	0.95	16.49	44%	7.25	$19,368
Movie Theater/Event Hall	444	sq ft/GFA	3.04	1.13	0.95	3.62	85%	3.07	$8.21
Carwash	947	wash stall	5.54	1.13	0.95	6.59	65%	4.28	$11,436
Health Club / Racquet Club	492	sq ft/GFA	3.53	1.13	0.95	4.20	90%	3.78	$10.09
Commercial – Institutional									
School, K-12	(3)	sq ft/GFA	1.09	1.13	0.95	1.30	85%	1.10	$2.94
University / College/ Jr College	(4)	Student	0.145	1.13	0.95	0.17	90%	0.16	$414
Church	560	sq ft/GFA	0.55	1.13	0.95	0.65	95%	0.62	$1.66
Hospital	610	sq ft/GFA	0.93	1.13	0.95	1.11	85%	0.94	$2.51
Park	411	acre	3.5	1.13	0.95	4.16	85%	3.54	$9,448
Commercial – Restaurant									
Restaurant (Standalone)	931	sq ft/GFA	7.49	1.59	1.00	11.91	56%	6.67	$17.81
Quick Service Restaurant (Drive-Though)	934	sq ft/GFA	32.65	1.29	0.96	43.70	50%	21.85	$58.34
Commercial – Retail									
Shopping/Retail	(5)	sq ft/GFA	3.21	1.20	0.97	3.95	58%	2.29	$6.12
Convenience Market (6)	851	sq ft/GFA	*	*	*	43.90	49%	21.51	$57.43
Free Standing Retail Store/Supermarket	815	sq ft/GFA	4.98	1.32	0.95	6.92	83%	5.74	$15.33
Car Sales - New / Used	841	sq ft/GFA	2.62	1.20	0.95	3.31	80%	2.65	$7.07
Commercial – Office									
Administrative Office	710	sq ft/GFA	*	*	*	1.40	90%	1.26	$3.36
Medical Office / Clinic	720	sq ft/GFA	3.57	1.37	0.95	5.15	75%	3.86	$10.31
Industrial									
Light Industry / Manufacturing	130	sq ft/GFA	0.85	1.37	0.95	1.23	90%	1.10	$2.95
Warehousing / Storage	150	sq ft/GFA	0.32	1.30	0.95	0.44	90%	0.39	$1.05
Self-Storage	151	sq ft/GFA	0.26	1.37	0.95	0.37	95%	0.36	$0.95

* Based on Observed Person Trip Data (Survey sites in Portland, California, and Washington, D.C.)

(1) Land Use Code - Reference 'Trip Generation', 9th Edition, Institute of Transportation Engineers, 2012

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

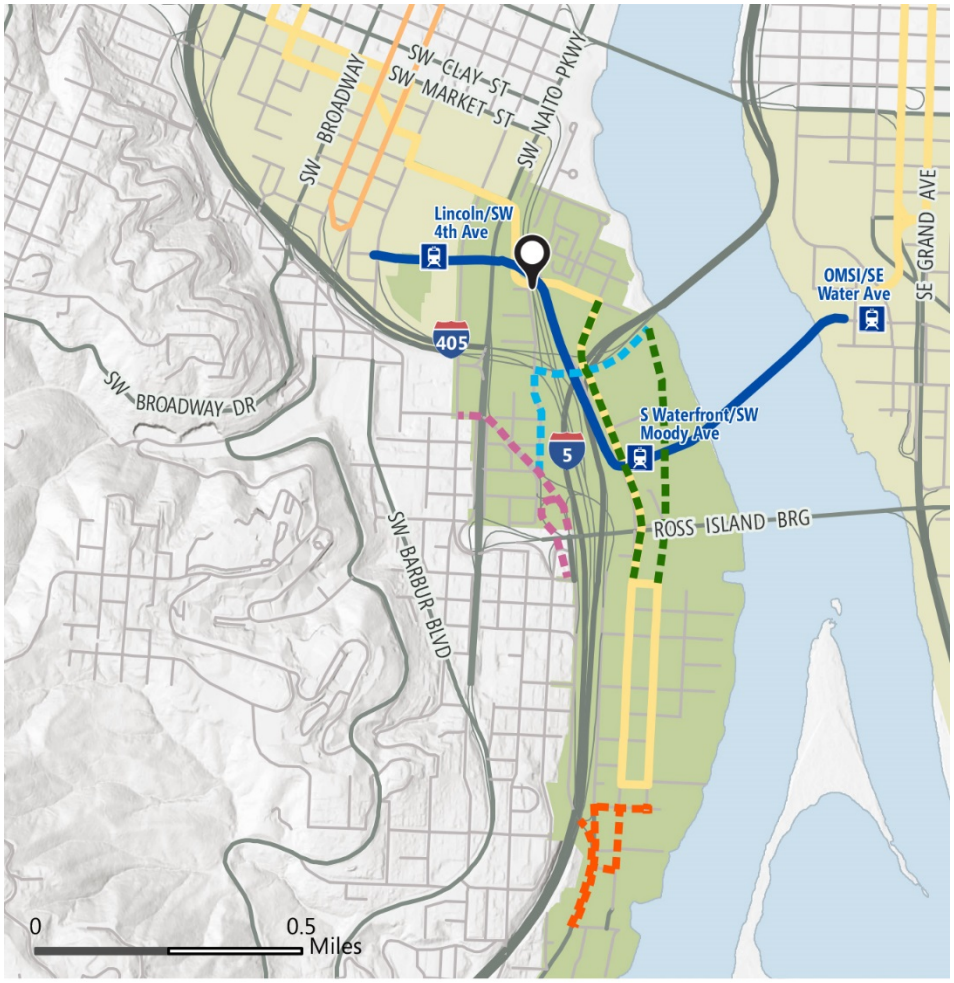
(3) School, K-12: Average of ITE categories 520 and 530

(4) University / College/ Jr College: Average of ITE categories 540 and 550

(5) Shopping/Retail: Blend of ITE Categories 820 and 826

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

APPENDIX



Map Key

- Existing MAX
- Existing Street Car
- Street Car Station
- Innovation Quadrant TSDC Overlay
- North Macadam TSDC Overlay

Completed Projects

- South Light Rail
- SW Harbor Drive & River Parkway Intersection Improvements

Future Projects

- South Portal, Phase I
- Moody Bond St Improvement: Gibbs to Sheridan, Phase I & II
- SW Kelly Way and Hood Ave Ramp
- North Portal: SW Corbett & Sheridan St Improvements