

Methodology Report

Transportation System Development Charges

Prepared For
City of Happy Valley



November 7, 2017



In Association with DKS Associates and Randy Young

EXHIBIT A

Contents

Contents	II
Tables	III
Executive Summary	IV
Background	IV
Summary of Methodology	V
TSDC Project List.....	VII
Proposed TSDC Schedule.....	VIII
Report Contents	IX
Introduction	1
Background	1
Project Objectives.....	1
Stakeholder Involvement	2
Project List	3
Introduction.....	3
Project Prioritization	3
TSDC Capital Project List.....	3
TSDC Methodology	5
Introduction.....	5
System-Wide Cost per Trip.....	5
SDC Assessment	9
Appendix A - TSDC Capital Project List	A-1
Appendix B - Proposed TSDC Rate Schedule	B-1

Tables

ES-1	Comparison of TSDC Methodology Approaches	vi
ES-2	Summary of TSDC Capital Project List	viii
ES-3	System-Wide Cost per Trip	ix
2-1	Summary of TSDC Capital Project List	4
3-1	Model Vehicle Trip Ends Growth (PM Peak Hour)	5
3-2	Existing and Future Bike and Pedestrian Facilities	7
3-3	Population Growth (TSP Service Area).....	7
3-4	Existing and Planned LOS	7
3-5	Existing and Growth Capacity Needs for Bike and Pedestrian Facilities	8
3-6	Existing and Growth Share of TSDC Project List Improvements	8
3-7	System-Wide Cost per Trip	9
3-8	Estimated Compliance Costs	9

Executive Summary

Background

Oregon Revised Statutes 223.297-223.314 authorize local governments to assess System Development Charge (SDCs) for transportation and other capital improvements. The City of Happy Valley (the City) embarked on an effort to update its transportation system development charges (TSDCs) in 2016, in conjunction with Clackamas County (the County). The City and County currently have a Joint Area TSDC, adopted through an intergovernmental agreement (IGA) in 2007.

The purpose of the Transportation SDC Update Project (the Project) was to review the current methodology in the context of current industry practices and statutory requirements and infrastructure funding needs. In addition to the methodology review, a major component of the Project was to update the transportation system capital project lists to reflect recently completed Transportation System Plans (TSP), and to review service area boundaries.

Over the course of the Project, the City and County agreed to terminate the existing Joint Area TSDC Program, and instead pursue development of TSDCs and capital project lists specific to each entity. A new IGA was authorized in August 2017 that outlined the terms of separation for program. The City and County worked collaboratively on the review and development of the new TSDC methodologies and ordinances that will serve as the framework for the individual TSDC programs going forward. This report presents the methodology, project list, and updated TSDCs for the City. While the general framework is consistent between the two entities, the individual TSDC programs also reflect policies and objectives specific to each.

Stakeholder Involvement and Outreach

A Working Group made up of stakeholders and technical staff was convened to provide input to help shape the TSDC methodology update and rates. The group met eight times between December 2015 and August 2017. Members reviewed and provided input on the following topics:

- TSDC methodology
- TSDC project list and selection criteria
- Method used to calculate growth share of projects
- TSDC rate calculation and schedule
- Ordinance for administration of TSDCs, including a review of the language governing credits for qualified improvements

Members represented a wide range of interests and included residential and commercial real estate developers, residential and commercial builders, engineering and planning firms,

and business associations. County and City staff participated in Working Group meetings to provide technical expertise and information. Stakeholder members included representatives from the following groups:

- Home Builders Association
- Gramor Development
- Perkins Coie
- AKS Engineering
- Doug Bean & Associates
- Holt Homes
- North Clackamas Chamber of Commerce

Online Open Houses

The public was invited to learn about the TSDC update and provide their comments on specific elements of the methodology and project list. Comments were primarily gathered through two separate online open houses for the County and the City between April 18 and May 19, 2017. The online open houses included background information about the TSDC update, a geographic interactive map of potential projects, and survey questions. Participants were asked specific questions about the criteria used to select projects for the TSDC project list; approaches to simplifying the rates used to calculate TSDC fees; and options for calculating traffic impacts of new developments.

County and City staff invited the public to participate in the online open houses through more than 1,600 direct emails to interested parties, press releases, website announcements, newsletter articles, and social media (Facebook and Twitter) outreach. In total, about 230 people visited the online open houses, and 45 people submitted completed comment forms.

Feedback collected through these meetings and open houses helped formulate the Project recommendations.

Summary of Methodology

The transportation SDC is based on a system-wide cost per trip, where the costs associated with meeting future growth needs are divided by the projected system-wide growth in trips. Oregon law allows that an SDC may be structured as a reimbursement fee, an improvement fee, or a combination of the two. A reimbursement fee is based on the value of available capacity associated with facilities already constructed or under construction. An improvement fee is designed to recover costs of *planned future* capital improvements needed to add system capacity for future users.

The updated TSDC methodology is structured as an improvement fee only, in order to fund future high priority projects. As such, the cost per trip is calculated by dividing the capacity costs from the TSDC project list by the future growth in trips. In addition to the fee structure, local governments have flexibility in selecting among other methodological approaches, in order to meet local policy objectives. Table 1 provides a comparison of the approaches included in the current methodology with the updated methodology.

Table ES-1
Comparison of TSDC Methodology Approaches

Methodology Component	Current Approach	Updated Approach
Growth Share Basis	Capacity Utilization Only	Combination of Capacity Utilization and Standards Based
Traffic Impact Measure	Average Daily Trips	P.M. Peak Hour Trips
Traffic Impact Adjustments	Pass-by and Trip Length	Pass-by and Diverted Link
Land Use Categories	Individual Categories	Consolidated Categories

A brief summary of approaches is provided below.

Growth Share Basis

The current methodology relies solely on a ‘capacity utilization’ approach, where the growth share for each project is equal to the percent of total future trips that is attributable to new development on a specific roadway segment. The updated methodology uses this approach only for auto-related projects that relate to existing performance issues (e.g. multimodal connection or safety issues.) For other project costs that address future capacity issues through construction of new or expanded facilities, the growth share reflects a “standards-based” allocation approach. Under this approach, growth is charged for the full cost of the capacity expansion if planning/ design standards specific to the facility are currently being met. For roadways and intersections, the relevant standard is generally a “volume-capacity” ratio (v/c ratio). For bike and pedestrian improvements, the standard is generally the planned level of service (miles per capita of facilities).

Traffic Impact Measure

TSDCs are based on the amount of traffic a development is likely to create. The current methodology uses “Average Daily Trips” as the basis for the TSDC assessment. Under this approach, TSDCs reflect the total amount of traffic that a land use generates in a full day. The updated methodology is based on the afternoon “PM Peak” traffic. Traffic is heaviest during weekday afternoon commute times, and road improvements are often needed to accommodate these high traffic flows, so the TSDCs reflect these impacts.

Traffic Impact Adjustments

The transportation SDC for an individual development is based on the number of trips attributable to a particular development, where the number of trips is computed as follows:

$$\text{Number of Development Trips} = \text{Traffic Impact Measure (PM Peak Trips)} \times \text{Adjustment Factor(s)} \times \text{Development Units}$$

The current methodology includes adjustment factors for pass-by trips and trip length; while the updated methodology includes pass-by and diverted link trip adjustments. Each is described below.

Pass-by Trips and Diverted Link Trips

Pass-by trips refer to trips that occur when a motorist is already on the roadway, as in the case of a traveler stopping by a fast-food restaurant on the way home from work. In this case, the motorist making a stop while “passing by” is counted as a trip generated by the restaurant, but it does not represent a new (or primary) trip on the roadway. Pass-by trip adjustments in the updated methodology are based on published data by land use from the Institute of Transportation Engineers (ITE).

The updated methodology also adjusts traffic impact based on “diverted link” trips, which is another type of non-primary trip. In this case, the motorist will divert from a primary route to access a nearby use (e.g., a vehicle may turn off a major roadway onto an intersecting street to access a land use), and then return to the original route to complete the trip. The diverted link trip adjustments included in the updated methodology are based on reported ITE data.

Trip Length

The current methodology adjusts traffic impacts based on assumed differences in trip length. Current trip length factors included in the methodology vary from 0.4 (for some schools and service stations) to 1.5 (for some recreation uses). The trip rates (and associated TSDCs) are reduced for land uses with trip length factors less than 1.0, and are increased for land uses with factors greater than 1.0.

The updated methodology eliminates the trip length adjustment, as available data to reasonably estimate average trip length for a given land use type in comparison to other uses is extremely limited. Furthermore, trip length may be more directly attributable to location within an area and the availability of other similar uses in the area than it is to simply the type of use.

Land Use Categories

The current methodology includes 94 separate rate categories based on development (or land use type). One of the objectives of the Project was to simplify the rate schedule in order to make the assignment of a rate more straight-forward for developers and staff administering the program. Therefore, the updated methodology is based on consolidated land use categories (e.g., different types of schools in a single education category, different types of industrial in another, etc.). Traffic impacts for consolidated categories reflect the average traffic generated by the similar uses within the category based on ITE published rates. The new methodology reduces the number of specific rates and the need to capture fees on a change of use if the proposed use falls within the same use category.

TSDC Project List

In developing the TSDC project list, the City began with the list of projects included in the Transportation System Plan (TSP). A set of baseline criteria were then applied to identify the projects that:

- Increase CONNECTIONS to daily needs and services, and improve vehicle MOVEMENT by reducing congestion at intersections

- Create a direct connection from a highway or other major roadway, or is located in or near a current or future EMPLOYMENT AREA.
- Improve SAFETY on roads.
- Be COST-effective and
- Help implement LOCAL land use or development plans.

The resulting draft TSDC Project List contains 35 projects with a total cost of \$146.7 million. The majority of the projects on the TSDC project list are capacity improvements needed to expand the system to meet the needs of future growth. As shown in Table ES-1, \$141.5 million of project lists costs are TSDC-eligible based on the growth share analysis described above.

The full project list can be found in Appendix A (Table A-1).

Table ES-2
Summary of TSDC Capital Project List

Project Type	Mode			Total	TSDC-Eligible
	Auto	Ped	Bike		
Intersections	\$20,200,000	\$0	\$0	\$20,200,000	\$20,200,000
Road Widening					
Level of performance	\$9,891,304	\$6,217,391	\$3,391,304	\$19,500,000	\$14,334,168
Capacity only	\$12,528,986	\$7,875,362	\$4,295,652	\$24,700,000	\$24,700,000
Road Extensions	\$40,326,087	\$25,347,826	\$13,826,087	\$79,500,000	\$79,500,000
Total	\$82,946,377	\$39,440,580	\$21,513,043	\$143,900,000	\$138,734,168

Proposed TSDC Schedule

Based on the total TSDC-eligible costs, and the projected growth in PM Peak Hour trips (16,9000 from the TSP), the system-wide average cost per trip is equal to \$8,209, as shown in Table ES-2.

In addition to the TSDC project list costs, local governments may expend SDC revenue on costs associated with complying with the SDC law. Compliance activities include costs related to developing and administering the SDC methodology, project list, and credit system, as well as annual accounting costs. The compliance charge per trip is estimated to be 4 percent of the base SDC cost, bringing the total cost per trip to \$8,537.

Table ES-3
System-Wide Cost per Trip

Item	Amount
Total TSDC Eligible Costs (1)	\$138,734,168
Growth Trip Ends (2)	16,900
SDC per Trip End	\$8,209
Cost per Trip End with Compliance Charge (4%)	\$8,537

(1) From Project List (Tables ES-1 and A-1)

(2) PM Peak Hour Trips From TSP

As described previously, the TSDC rates for different development types reflect the system-wide average cost per trip (\$8,537, including the compliance charge), and the adjusted traffic impact (as measured by PM Peak Hour trips) for the particular use category. The updated TSDC rate schedule is shown in Appendix B.

Report Contents

This report is organized as follows:

- **Executive Summary** – Provides a summary of the TSDC methodology and major project findings.
- **Section 1 – Introduction** – Provides background on TSDCs in the City, and summarizes the project objectives and public process.
- **Section 2 – Project List** – Provides information on the project identification and prioritization process, as well as the summary list.
- **Section 3 – TSDC Methodology** – Presents the approaches used to allocate project costs between existing development and growth, and the system-wide unit costs based on the Project List included in Section 2. Also provides the basis for assessing TSDCs to individual developments.

Appendix A – TSDC Capital Project List

Appendix B – TSDC Rate Schedule

SECTION 1

Introduction

Background

Oregon Revised Statutes 223.297-223.314 authorize local governments to assess System Development Charge (SDCs) for transportation and other capital improvements. In addition to specifying the infrastructure systems for which SDCs may be assessed, the SDC legislation provides guidelines on the calculation and modification of SDCs, accounting requirements to track SDC revenues, and the adoption of administrative review procedures.

The City of Happy Valley (the City) last updated in transportation system development charges (TSDCs) in 2007, in conjunction with Clackamas County (the County). The City and County currently have a Joint Area TSDC, adopted through an intergovernmental agreement.

Project Objectives

The purpose of the Transportation SDC Update Project (the Project) was to review the current methodology in the context of current industry practices and statutory requirements and infrastructure funding needs. In addition to the methodology review, a major component of the Project was to update the TSDC Capital Project List to reflect projects and priorities from the updated Transportation System Plan (TSP) completed in 2016.

Specific Project objectives included:

- Development of TSDCs that balance the need to fund transportation improvements while taking into account the impact on overall development costs.
- Identify ways to simplify the TSDC rate structure, making it easier for developers and community members to estimate fees.
- Involve key stakeholders in the process to give feedback on project list selection criteria and the updated methodology and ordinance.
- Review the current service area boundaries.

With respect to the latter issue of service area boundaries, as part of the Project, the City and County agreed to terminate the existing Joint Area TSDC Program, and instead pursue development of TSDCs and capital project lists specific to each entity. A new IGA was authorized in August 2017 that outlined the terms of separation for the program. The City and County worked collaboratively on the review and development of the new TSDC methodologies and ordinances that will serve as the framework for the individual TSDC programs going forward. This report presents the methodology, project list, and updated TSDCs for the City. While the general framework is consistent

between the two entities, the individual TSDC programs also reflect policies and objectives specific to each.

Stakeholder Involvement

A Working Group made up of stakeholders and technical staff was convened to provide input to help shape the TSDC methodology update and rates. The group met eight times between December 2015 and August 2017. Members reviewed and provided input on the following topics:

- TSDC methodology
- TSDC project list and selection criteria
- Method used to calculate growth share of projects
- TSDC rate calculation and schedule
- Ordinance for administration of TSDCs, including a review of the language governing credits for qualified improvements

Members represented a wide range of interests and included residential and commercial real estate developers, residential and commercial builders, engineering and planning firms, and business associations. County and City staff participated in Working Group meetings to provide technical expertise and information. Stakeholder members included representatives from the following groups:

- Home Builders Association
- Gramor Development
- Perkins Coie
- AKS Engineering
- Doug Bean & Associates
- Holt Homes
- North Clackamas Chamber of Commerce

Online Open Houses

The public was invited to learn about the TSDC update and provide their comments on specific elements of the methodology and project list. Comments were primarily gathered through two online open houses for the County and the City between April 18 and May 19, 2017. The online open houses included background information about the TSDC update, a geographic interactive map of potential projects, and survey questions. Participants were asked specific questions about the criteria used to select projects for the TSDC project list; approaches to simplifying the rates used to calculate TSDC fees; and options for calculating traffic impacts of new developments.

County and City staff invited the public to participate in the online open houses through more than 1,600 direct emails to interested parties, press releases, website announcements, newsletter articles, and social media (Facebook and Twitter) outreach. In total, about 230 people visited the online open houses, and 45 people submitted completed comment forms.

Feedback collected through these meetings helped formulate the Project recommendations.

SECTION 2

Project List

Introduction

The source of projects for the Draft TSDC Capital Project List was the Transportation System Plan (TSP) adopted by the City in 2016.

Project Prioritization

In order to balance the need to fund transportation improvements while taking into account the impact on overall development costs, a project prioritization process was developed. The prioritization applied the following set of baseline criteria to the projects contained in the TSP:

- Increase CONNECTIONS to daily needs and services, and improve vehicle MOVEMENT by reducing congestion at intersections
- Create a direct connection from a highway or other major roadway, or is located in or near a current or future EMPLOYMENT AREA.
- Improve SAFETY on roads.
- Be COST-effective and
- Help implement LOCAL land use or development plans.

In addition, the TSDC Capital Project List focuses on projects to be completed in the 2040 time horizon. Projects to be funded by other agencies (e.g., Oregon Department of Transportation) are excluded.

TSDC Capital Project List

The prioritization process resulted in a draft TSDC Capital Project List that contains 35 projects with a total cost of \$143.9 million. As shown in Table 2-1, the largest cost category (\$79.5 million) is for capacity improvements in the form of road extensions needed to meet the needs of future growth. Additional project costs include \$20.2 million for intersections, and \$44.2 million for road widening. Road widening projects include improvements needed to expend vehicular capacity for servicing future development needs, as well as improvements that enhance the level of performance of existing roadways through improved multimodal connectivity and enhanced safety.

The detailed project list is provided in Appendix A.

Table 2-1
Summary of TSDC Capital Project List

Project Type	Mode			Total	TSDC-Eligible
	Auto	Ped	Bike		
Intersections	\$20,200,000	\$0	\$0	\$20,200,000	\$20,200,000
Road Widening					
Level of performance	\$9,891,304	\$6,217,391	\$3,391,304	\$19,500,000	\$14,334,168
Capacity only	\$12,528,986	\$7,875,362	\$4,295,652	\$24,700,000	\$24,700,000
Road Extensions	\$40,326,087	\$25,347,826	\$13,826,087	\$79,500,000	\$79,500,000
Total	\$82,946,377	\$39,440,580	\$21,513,043	\$143,900,000	\$138,734,168

TSDC Methodology

Introduction

The transportation SDC is based on a system-wide cost per trip, where the costs associated with meeting future growth needs are divided by the projected system-wide growth in trips. The TSDC for a particular development is then determined by multiplying the cost per trip by the number of trips associated with the development.

System-Wide Cost per Trip

Oregon law allows that an SDC may be structured as a reimbursement fee, an improvement fee, or a combination of the two. A reimbursement fee is based on the value of available capacity associated with facilities already constructed or under construction. An improvement fee is designed to recover costs of *planned future* capital improvements needed to add system capacity for future users. The updated TSDC methodology is structured as an improvement fee only, in order to fund future high priority projects. As such, the cost per trip is calculated by dividing the growth-related capacity costs from the TSDC Capital Project List by the future growth in trips.

Growth in Trips

Table 3-1 shows the base year and future trips projected for the City from the TSP. Growth trips are projected to be 16,900 on a P.M. Peak Hour basis.

Table 3-1
Model Vehicle Trip Ends Growth (PM Peak Hour)¹

	Base Year Trips	Future Trips	Growth Trips
Trip Ends	12,100	29,000	16,900
¹ Happy Valley Transportation System Plan, Table 4-2			

Growth Share of Project Costs

A key component of the TSDC methodology is determining growth's share of future facility improvement costs from the TSDC Project List. According to statutory requirements:

Improvement fees must be based on a methodology that demonstrates consideration of the projected cost of capital improvements needed to increase system capacity to meet the needs of future users [ORS 223.304]. Furthermore:

“An increase in system capacity may be established if a capital improvement increases the level of performance or service provided by existing facilities or provides new facilities. The portion of the improvements funded by improvement fees must be related to the need for increased capacity to provide service for future users.” [ORS 223.307(2)]

Table 3-1 presented the system-wide capacity requirements of growth. For purposes of determining potential SDC-eligibility, individual projects from the TSDC Capital Project List are analyzed to determine the portion of costs needed for future growth capacity requirements versus costs associated with raising the level of service for existing development. Two general methods are used for project cost allocations:

1. **“Standards –Based” Approach (used for new facilities and expansion of existing facilities for capacity needs only)** – Existing development paid for existing facilities; new development will pay for its share of system capacity thru funding the next increment of expansion, less costs associated with correcting any existing deficiency. Deficiencies are evaluated based on current performance relative to the appropriate planning/ design standard for the particular improvement. For roadways and intersections, the standard is a “volume-capacity ratio (v/c ratio)”¹. For multimodal improvements, the standard is miles per capita of bikeways and pedestrian ways.
2. **“Capacity Utilization” Approach (used for upgrades to existing facilities to improve level of performance)** – Improvements to existing facilities to address safety, modernization, and other performance considerations provide capacity for growth and enhanced performance for existing development, so the costs are allocated in proportion to the utilization of the facilities (as measured by growth’s share of future trips specific to a facility).

Application of the growth share approaches is discussed in more detail below.

Roadway Extensions and New Intersection Facilities; Existing Facility Expansion (Capacity Only)

New roadway expansion and extension driven by future development capacity requirements are allocated 100 percent to growth, since the capacity is needed entirely for new development. Similarly, new facilities at intersections (e.g., turn lanes and signals) that are not needed to meet existing mobility standards, but are needed once the growth trips are added to the intersection, are 100 percent TSDC-eligible, since there is no existing deficiency. Data from the TSP was used to determine if existing facilities were operating with a v/c ratio less than the required standard.

Upgrades to Roadways (Improved Level of Performance)

For upgrade of existing facilities (i.e., widening of existing roadways for modernization, connectivity and safety issues) trip volume data by roadway link (from the regional travel demand model) were used to quantify growth’s utilization of future roadway capacity. Growth capacity utilization is estimated based on the growth in trips over the planning period, as a percentage of total future trips for individual roadway links.

New Multimodal Facilities

Unlike roadway and intersection projects, trip data for bike and pedestrian improvements is not available. Therefore, growth capacity needs for bike and pedestrian facilities are evaluated based on the planned level of service (LOS) basis. The planned LOS is defined as the quantity of future facilities per capita served.

¹ Volume-to-capacity ratio is defined as the ratio between the PM peak hour motor vehicle trips divided by the hourly capacity of the facility to serve those trips.

The following equation shows the calculation of the planned LOS:

$$\frac{\text{Existing}Q + \text{Planned}Q}{\text{FuturePopulationServed}} = \text{PlannedLOS}$$

Where:

Q = quantity (miles of bike or pedestrian facilities), and
Future Population Served = 77,957 (Total TSP Service Area)

The existing and future miles of bike and pedestrian facilities are shown in Table 3-2. As indicated, the total future miles of bike lanes and pedestrian facilities are 86.3 miles and 111 miles, respectively. Existing miles are 50.7 and 75.4, respectively.

Table 3-2
Existing and Future Bike and Pedestrian Facilities (miles)

	Existing	New (TSDC Capital Project List)	Future (Total)
Bicycle Lanes	50.7	35.6	86.3
Pedestrian Facility TOTALS	75.4	35.6	111.0

Population for estimated existing (base year) and future conditions is presented in Table 3-3. Growth during the planning period is estimated to be 33,117, based on TSP service area and assumptions.

Table 3-3
Population Growth (TSP Service Area)

	Estimated Base Year	Future Year	Population Growth
Population	44,840	77,957	33,117

Table 3-4 presents the existing and planned LOS for bike and pedestrian facilities, based on the existing and planned future facilities presented in Table 3-2 divided by the estimated existing and projected population presented in Table 3-3.

Table 3-4
Existing and Planned LOS (miles per capita)

	Existing LOS	Planned LOS
Bike Lanes	1.13	1.11
Pedestrian	1.68	1.42

The capacity requirements, or number of miles, needed for the existing population and for the growth population are estimated by multiplying the planned (future) LOS for each facility type (from Table 3-4) by the estimated population of each group (from Table 3-3). The need for the existing population is equal to the planned LOS multiplied by the estimated base year population (44,840). Existing users' needs are assumed to be met first by

the existing inventory of facilities; any shortfall is assumed to come from planned improvements on the TSDC Capital Project List. The total capacity need required by growth is equal to the product of the planned LOS and the projected increase in population over the planning period (33,117).

Total capacity needs for the estimated existing and growth populations are shown in Table 3-5, based on the LOS and estimated population information shown in Tables 3-3 and 3-4. The additional need for facilities by the estimated existing population is equal to the total inventory needed less the existing inventory (from table 3-2). As Table 3-5 indicates, there is no current deficiency for the estimated base population, as the existing inventory exceeds the existing need. Furthermore, the growth need exceeds the additional capacity added by the improvements (35.6 miles as shown in Table 3-2).

Table 3-5
Existing and Growth Capacity Needs for Bike and Pedestrian Facilities (Miles)

	Existing Population Need	Existing Inventory	Existing Need (From TSDC Project List)	Growth Need
Bike Lanes	49.6	50.7	0	36.7
Pedestrian	63.8	75.4	0	47.2

Table 3-6 shows the existing and growth allocation for the planned improvements by project type. Because existing development needs are met by existing facilities, new development is responsible for 100 percent of the planned expansion.

Table 3-6
Existing and Growth Share of TSDC Project List Improvements

	Total Planned Improvements (TSDC Project List)	Existing Share	Existing %	Growth Share	Growth %
Bike Lanes	35.6	0	0%	35.6	100%
Pedestrian	35.6	0	0%	35.6	100%

System-wide Unit Cost

The total growth costs reflect the calculated growth share of individual projects from the TSDC Capital Project List; detailed information on the SDC project costs and growth share by mode is provided in Table A-1 of Appendix A. The growth share percentages reflect the approaches described above for each project type and mode. As shown in Table 3-7, the total growth-related improvement costs are estimated to be \$138.7 million (about 96 percent of total TSDC Capital Project List costs). Dividing the growth-related project costs by the projected growth in trip ends (from Table 3-1), the system-wide cost per trip end is \$8,209.

Table 3-7
System-Wide Cost per Trip

Item	Amount
Total TSDC Eligible Costs (1)	\$138,734,168
Growth Trip Ends (2)	16,900
TSDC per Trip End	\$8,209
Cost per Trip End with Compliance Charge (4%)	\$8,537

(1) From Project List (Tables 2-1 and A-1)

(2) PM Peak Hour Trips From TSP

Compliance Charge

Local governments are entitled to include in the TSDCs, a charge to recover costs associated with complying with the SDC statutes. Compliance costs include costs related to developing and administering the SDC methodology, project list (including but not limited to TSP and other studies), and credit system; as well as annual accounting and other City administration costs.

Table 3-8 shows the calculation of the compliance charge per trip, which is \$333, or about 4 percent of the base cost per trip.

Table 3-8
Estimated Compliance Costs

Cost	Annual \$
Direct	
SDC Manager	\$50,000
Com. Dev. & Engineering	\$100,000
Contract services	\$75,000
Overhead	\$56,600
Total Cost	\$281,600
Annual trips	845
Compliance \$/trip	\$333

Source: City of Happy Valley

SDC Assessment

The transportation SDC for an individual development is based on the cost per trip and the number of trips attributable to a particular development, where the number of trips is computed as follows:

$$\text{Number of Development Trips} = \text{Traffic Impact Measure} \times \text{Adjustment Factor(s)} \times \text{Development Units}$$

The proposed TSDC Rate Schedule is shown in Table B-1. Each component is discussed in more detail below.

Traffic Impact Measure

TSDCs are based on the amount of traffic a development is likely to create. The current methodology uses “Average Daily Trips” as the basis for the TSDC assessment. Under this approach, TSDCs reflect the total amount of traffic that a land use generates in a full day. The updated methodology is based on the afternoon “PM Peak” traffic. Traffic is heaviest during weekday afternoon commute times, and road improvements are often needed to accommodate these high traffic flows, so the TSDCs reflect these impacts.

Traffic Impact Adjustments

The updated methodology includes pass-by and diverted linked trip adjustments. The current methodology adjustments for trip length are eliminated, as available data to reasonably estimate average trip length for a given land use type in comparison to other uses is extremely limited. Furthermore, trip length may be more directly attributable to location within an area and the availability of other similar uses in the area than it is to simply the type of use.

The updated methodology adjustments are discussed in more detail below.

Pass-by Trips

Pass-by trips refer to trips that occur when a motorist is already on the roadway, as in the case of a traveler stopping by a fast-food restaurant on the way home from work. In this case, the motorist making a stop while “passing by” is counted as a trip generated by the restaurant, but it does not represent a new (or primary) trip on the roadway. Pass-by trip adjustments in the updated methodology are based on published data by land use from the Institute of Transportation Engineers (ITE).

Diverted Link Trips

The updated methodology also adjusts traffic impact based on “diverted link” trips, which is another type of non-primary trip. In this case, the motorist will divert from a primary route to access a nearby use (e.g., a vehicle may turn off a major roadway onto an intersecting street to access a land use), and then return to the original route to complete the trip. As with the pass-by trip adjustments, the diverted link trip adjustments included in the updated methodology are based on reported ITE data.

Land Use Categories

The current methodology includes 94 separate rate categories based on development (or land use type). One of the objectives of the Project was to simplify the rate schedule in order to make the assignment of a rate more straight-forward for developers and staff administering the program. Therefore, the updated methodology is based on consolidated land use categories (e.g., different types of schools in a single education category, different types of industrial in another, etc.). Table B-1 (in Appendix B) includes the updated TSDC rates and traffic impact assumptions for the new categories, but also indicates which land use codes from the ITE Trip Generation Manual have been consolidated into the general

categories. The new methodology reduces the number of specific rates and the need to capture fees on a change of use if the proposed use falls within the same use category.

In determining the traffic impact assumptions for consolidated land use categories, data from the ITE Trip Generation Manual (9th edition) was evaluated. In some cases, a straight average of the individual trip rates for land uses that comprise the new category was the basis for the assumptions shown in Table B-1. However, trip rates based on less than three traffic studies were eliminated from the averages.

For land uses that are not explicitly identified in Table B-1, City staff will make a determination of the appropriate TSDC rate, based on the specific use. The updated TSDC ordinance will also specify parameters for individual traffic studies.

TSDC Discounts

The City and County currently provide a system of TSDC discounts for qualifying mixed-use and transit-oriented developments. Specifically, discounts apply as follows:

- Mixed-use development can receive reductions of 7-18 percent, depending on floor area ratio (FAR) and residential/retail/commercial mixtures on the site.
- Transit-oriented development can receive reductions of 5-20 percent depending on floor area ratio (FAR), proximity to transit, and type of transit system. This discount applies only to permanent transit routes/lines, such as SAM, CAT, SMART, or TriMet.

No changes to the current discounts are proposed under the new methodology.

Annual Inflationary Adjustments

The fees included in the Proposed TSDC Rate Schedule will be adjusted annually based on an inflationary index. The City intends to use the Engineering News Record (ENR) Northwest (Seattle, Washington) Construction Cost index as the basis for adjusting the TSDCs.

Appendix A – TSDC Capital Project List

#	Project	Description	Project		Growth Share							
			Timing (Term)	Total \$	Auto		Pedestrian		Bike		Growth Total	
					%	\$	%	\$	%	\$	\$	%
I1	129th Avenue/Mt. Scott Blvd/King Rd	Install a traffic signal or roundabout, add eastbound right turn lane	Medium	\$1,500,000	100%	\$1,500,000	100%	\$0	100%	\$0	\$1,500,000	100%
I4	172nd Avenue/Rock Creek Boulevard	Add second eastbound left turn lane	Medium	\$200,000	100%	\$200,000	100%	\$0	100%	\$0	\$200,000	100%
I5	172nd Avenue/Scouter Mountain Road	Install a two-lane roundabout	Medium	\$1,500,000	100%	\$1,500,000	100%	\$0	100%	\$0	\$1,500,000	100%
I6	Sunnyside Road/169th Avenue	Install a traffic signal	Near	\$500,000	100%	\$500,000	100%	\$0	100%	\$0	\$500,000	100%
I7	162nd Avenue/Rock Creek Boulevard	Install a traffic signal or roundabout	Medium	\$1,000,000	100%	\$1,000,000	100%	\$0	100%	\$0	\$1,000,000	100%
I9	172nd Avenue/Misty Drive	Install a traffic signal	Medium	\$500,000	100%	\$500,000	100%	\$0	100%	\$0	\$500,000	100%
I10	172nd Avenue/Troge Road	Install a traffic signal, rebuild creek bridges	Medium	\$8,000,000	100%	\$8,000,000	100%	\$0	100%	\$0	\$8,000,000	100%
I11	172nd Avenue/Hemrick Road	Install a two-lane roundabout	Medium	\$1,500,000	100%	\$1,500,000	100%	\$0	100%	\$0	\$1,500,000	100%
I12	172nd Avenue/172nd-190th Connector	Install a two-lane roundabout	Medium	\$1,500,000	100%	\$1,500,000	100%	\$0	100%	\$0	\$1,500,000	100%
I13	172nd Avenue/Sager Road	Install a one-lane roundabout	Medium	\$1,000,000	100%	\$1,000,000	100%	\$0	100%	\$0	\$1,000,000	100%
I14	172nd Avenue/Cheldelin Road	Install a traffic signal	Medium	\$500,000	100%	\$500,000	100%	\$0	100%	\$0	\$500,000	100%
I15	Foster Road/172nd-190th Connector	Install a two-lane roundabout	Medium	\$1,500,000	100%	\$1,500,000	100%	\$0	100%	\$0	\$1,500,000	100%
I16	147th Avenue/Scouters Mountain Road	Install a traffic signal or roundabout	Near	\$1,000,000	100%	\$1,000,000	100%	\$0	100%	\$0	\$1,000,000	100%
W2	172nd Avenue Widening South	Widen to 5-lane facility between Sunnyside Road and 172nd-190th Connector Road	Medium	\$14,200,000	100%	\$7,202,899	100%	\$4,527,536	100%	\$2,469,565	\$14,200,000	100%
W3	172nd Avenue Widening North	Widen to 3-lane facility between 172nd-190th Connector to Cheldelin Road	Medium	\$5,100,000	100%	\$2,586,957	100%	\$1,626,087	100%	\$886,957	\$5,100,000	100%
W4	122nd/129th Avenue Widening	Widen to 3-lane facility between Sunnyside Road and King Road and smooth curves	Medium	\$5,400,000	100%	\$2,739,130	100%	\$1,721,739	100%	\$939,130	\$5,400,000	100%
W5	King Road Widening	Widen to a continuous 3-lane facility cross-section between 129th Avenue and 145th Avenue	Medium	\$3,900,000	45%	\$895,418	100%	\$1,243,478	100%	\$678,261	\$2,817,158	72%
W6	132nd Avenue Widening	Widen to 3-lane facility from Clatsop Street to King Road	Long	\$4,900,000	35%	\$858,277	100%	\$1,562,319	100%	\$852,174	\$3,272,769	67%
W7	145th Avenue Widening	Widen to 3-lane facility from Clatsop Street to Monner Road	Medium	\$8,300,000	48%	\$2,004,752	100%	\$2,646,377	100%	\$1,443,478	\$6,094,607	73%
W9	162nd Avenue Widening	Widen to 3-lane facility from Palermo Avenue to Hagen Road	Medium	\$2,400,000	79%	\$967,026	100%	\$765,217	100%	\$417,391	\$2,149,634	90%

Table A-1 Happy Valley TSDC Project List												
				Growth Share								
		Project		Auto		Pedestrian		Bike		Growth Total		
R1	Clatsop Street Extension East	Construct a new 3-lane facility between 162nd Avenue and 172nd Avenue. May follow a portion of Baxter Road right-of-way	Long	\$2,800,000	100%	\$1,420,290	100%	\$892,754	100%	\$486,957	\$2,800,000	100%
R3	162nd Avenue Extension North	Construct a new 2/3-lane facility between Hagen Road and Clatsop Street	Long	\$7,700,000	100%	\$3,905,797	100%	\$2,455,072	100%	\$1,339,130	\$7,700,000	100%
R4	162nd Avenue Extension South	Construct a new 3-lane facility 157th Avenue to Highway 212	Long	\$19,600,000	100%	\$9,942,029	100%	\$6,249,275	100%	\$3,408,696	\$19,600,000	100%
R5	Sager Road Extension East	Construct a new 3-lane east-west facility from 172nd Avenue to Foster Road	Medium	\$2,000,000	100%	\$1,014,493	100%	\$637,681	100%	\$347,826	\$2,000,000	100%
R6	Sager Road Extension West	Upgrade to a 2-lane east-west facility from 162nd Avenue to 172nd Avenue	Long	\$2,000,000	100%	\$1,014,493	100%	\$637,681	100%	\$347,826	\$2,000,000	100%
R8	Wooden Heights Road	Construct a new 2-lane east-west facility from 162nd Avenue to 177th Avenue	Medium	\$1,100,000	100%	\$557,971	100%	\$350,725	100%	\$191,304	\$1,100,000	100%
R9	Hemrick Road Extension	Construct a new 3-lane east-west facility from 162nd Avenue to 177th Avenue	Medium	\$2,200,000	100%	\$1,115,942	100%	\$701,449	100%	\$382,609	\$2,200,000	100%
R10	Scouters Mountain Road	Construct a new east-west 2/3-lane facility over Scouter's Mountain between 147th Avenue and 177th Avenue	Medium	\$9,500,000	100%	\$4,818,841	100%	\$3,028,986	100%	\$1,652,174	\$9,500,000	100%
R11	Troge Road Extension	162nd Avenue and 177th Avenue, construct new bridge over Rock Creek at 172nd Avenue	Near	\$2,900,000	100%	\$1,471,014	100%	\$924,638	100%	\$504,348	\$2,900,000	100%
R12	169th Avenue Extension	Construct a new 3-lane facility from Misty Drive to 177th Avenue	Near	\$4,300,000	100%	\$2,181,159	100%	\$1,371,014	100%	\$747,826	\$4,300,000	100%
R13	Misty Drive Extension	Construct a new 3-lane east-west facility from 162nd Avenue and 177th Avenue	Medium	\$10,100,000	100%	\$5,123,188	100%	\$3,220,290	100%	\$1,756,522	\$10,100,000	100%
R16	Rock Creek Boulevard West Extension	Construct a new 5-lane east-west facility from 162nd Avenue to the Sunrise Corridor Rock Creek interchange	Medium	\$2,600,000	100%	\$1,318,841	100%	\$828,986	100%	\$452,174	\$2,600,000	100%
R17	Rock Creek Boulevard East	Construct a new 3-lane east-west facility from 172nd Avenue to 177th Avenue	Medium	\$2,800,000	100%	\$1,420,290	100%	\$892,754	100%	\$486,957	\$2,800,000	100%
R19	Parklane Drive North Extension	Construct a new 3-lane north-south facility from 162nd Avenue to Stadium Way	Medium	\$2,300,000	100%	\$1,166,667	100%	\$733,333	100%	\$400,000	\$2,300,000	100%
R23	Sunnyside East Extension	Construct a new alignment to the east to 177th Avenue	Long	\$7,600,000	100%	\$3,855,072	100%	\$2,423,188	100%	\$1,321,739	\$7,600,000	100%
Total				\$143,900,000		\$77,780,545		\$39,440,580		\$21,513,043	\$138,734,168	96%

Appendix B – TSDC Rate Schedule

Table B-1							
TSDC Rate Schedule							
				Adjustments			
Land Use Category	Units	ITE Codes Included	Traffic Impact¹	% Diverted Link Trips	Pass-by %	Adjusted Traffic Impact	Updated TSDC per Unit²
Transit Parking	Parking Space	90, 93	0.62	-	-	0.62	\$5,663.51
Industrial/ Manufacturing/Warehouse	1,000 Gross Square Feet	110, 120, 130,140, 150, 151, 170	0.57	-	-	0.57	\$5,206.62
Single-Family Detached Housing	Dwelling Unit	210	1.00	-	-	1.00	\$9,134.59
Apartment	Dwelling Unit	220	0.62	-	-	0.62	\$5,663.51
Residential Condo/Townhouse	Dwelling Unit	230	0.52	-	-	0.52	\$4,749.73
Mobile Home in Park	Space	240	0.59	-	-	0.59	\$5,389.59
Assisted Living	Beds	254, 620	0.22	-	-	0.22	\$2,009.46
Senior Housing	Dwelling Unit	251, 253, 255	0.22	-	-	0.22	\$1,964.52
Hotel/Motel	Room	310, 320	0.60	-	-	0.60	\$5,480.54
Parks	Acre	411, 412	0.09	-	-	0.09	\$821.76
Campground/RV Park	Site	416	0.27	-	-	0.27	\$2,466.35
Marina	Berths	420	0.19	-	-	0.19	\$1,735.54
Golf Course	Holes	430	2.92	-	-	2.92	\$26,674.03
Golf Driving Range	Tee/ Drive Position	432	1.25	-	-	1.25	\$11,419.04
Recreation Community Center	1,000 Gross Square Feet	435, 495	2.74	-	-	2.74	\$25,029.44
Bowling Alley	Bowling Lanes	437	1.51	-	-	1.51	\$13,793.37
Movie Theater	Movie Screens	443, 444, 445	13.64	-	-	13.64	\$124,601.50
Casino/Video Lottery Establishment	1,000 Gross Square Feet	473	13.43	-	-	13.43	\$122,682.99
Soccer Complex	Field	488	17.70	-	-	17.70	\$161,688.77
Racquet/Tennis Club	Court	491	3.35	-	-	3.35	\$30,602.00
Health/Fitness Club	1,000 Gross Square Feet	492	3.53	-	-	3.53	\$32,246.59
Military Base	Employees	501	0.39	-	-	0.39	\$3,563.10
Education	Student	520, 522, 530, 536, 540, 550	0.15	-	-	0.15	\$1,333.22

Table B-1							
TSDC Rate Schedule							
				Adjustments			
Land Use Category	Units	ITE Codes Included	Traffic Impact¹	% Diverted Link Trips	Pass-by %	Adjusted Traffic Impact	Updated TSDC per Unit²
Church	1,000 Gross Square Feet	560	0.55	-	-	0.55	\$5,024.72
Day Care	Student	565	0.81	56	-	0.36	\$3,256.01
Library	1,000 Gross Square Feet	590	7.30	-	-	7.30	\$66,685.61
Hospital	Beds	610	1.42	-	-	1.42	\$12,971.61
Medical-Dental	1,000 Gross Square Feet	720, 630	3.57	-	-	3.57	\$32,611.46
Office	1,000 Gross Square Feet	710, 714, 715, 730, 750, 760, 770	1.41	-	-	1.41	\$12,864.61
State Motor Vehicles Department	1,000 Gross Square Feet	731	17.09	-	-	17.09	\$156,116.21
Post Office	1,000 Gross Square Feet	732	11.22	-	17	9.31	\$85,070.35
Building & Hardware	1,000 Gross Square Feet	812, 816	4.67	-	37	2.96	\$27,022.85
Free-Standing Discount Store	1,000 Gross Square Feet	813, 815	4.67	35	22	2.02	\$18,468.20
Nursery	1,000 Gross Square Feet	817, 818	6.06	-	27	4.44	\$40,520.90
Factory Outlet Center	1,000 Gross Square Feet	823	2.29	-	34	1.51	\$13,806.21
Automobile Sales	1,000 Gross Square Feet	841	2.62	-	34	1.73	\$15,796.41
Automobile Parts Sales	1,000 Gross Square Feet	843	5.98		43	3.41	\$31,137.00
Tire Stores	1,000 Gross Square Feet	848, 849	3.13		28	2.25	\$20,586.80
Supermarket	1,000 Gross Square Feet	850, 854	9.48	38	36	2.46	\$22,516.01
Convenience Market	1,000 Gross Square Feet	851, 852	43.49	11	51	16.53	\$150,966.30
Shopping/Retail	1,000 Gross Square Feet Leasable Area	820, 826, 862, 863, 867	3.21	15	34	1.64	\$14,947.90
Pharmacy	1,000 Gross Square Feet	880, 881	9.16	14	51	3.27	\$29,861.56
Furniture Store	1,000 Gross Square Feet	890	0.45		53	0.21	\$1,932.42
Bank	1,000 Gross Square Feet	911, 912	24.30	26	35	9.48	\$86,572.63
Restaurants	1,000 Gross Square Feet	925, 931, 932	8.67	27	44	2.61	\$23,867.42
Fast Food	1,000 Gross Square Feet	933, 934	29.40	13	50	10.95	\$99,985.08

Table B-1							
TSDC Rate Schedule							
				Adjustments			
Land Use Category	Units	ITE Codes Included	Traffic Impact¹	% Diverted Link Trips	Pass-by %	Adjusted Traffic Impact	Updated TSDC per Unit²
Coffee/Donut Shop	1,000 Gross Square Feet	936, 937	42.80	-	89	4.71	\$43,007.58
Quick Lubrication Veh. Shop	Service Positions	941	5.19	-	42	3.01	\$27,497.93
Automobile Care Center	1,000 Gross Square Feet	942	3.11	-	42	1.80	\$16,478.00
Service Stations	Fueling Positions	853, 944, 945, 946	13.75	32	51	2.30	\$20,969.86
¹ Based on PM Peak Hour Trips							
² Includes compliance cost							