

## Section 7 TSP Funding Analysis

### TSP Funding Memo and Attachments

There are seven basic sources have been used to fund transportation programs and projects in unincorporated Clackamas County:

- Federal revenue
- County Road Fund (which receives funds from the Oregon State Highway Trust Fund)
- Special state revenue programs
- Local governments and other agencies
- Other Revenue Sources - County conditioned, Developer financed improvements
- Transportation System Development Charges (TSDC)
- Urban Renewal (Tax Increment Financing [TIF])

It is estimated that these funding source will produce total funding of \$444 million for transportation projects and programs in Clackamas County between 2012 and 2015.

### Project Costing Estimates

This table is the basis for the cost estimates used in the capital project prioritization process.

### Alternate Funding Approaches

This memo discusses some of the general pros and cons of the traditional approach to development related income and the alternate approach to development related income.

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## FUNDING FORECAST

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**Date:** October 22, 2012 **Project #:** 11732  
**To:** Public Advisory Committee  
**From:** Project Management Team  
**Project:** Clackamas County Transportation System Plan Update  
**Subject:** Funding Forecast

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This memorandum outlines the anticipated funding that will be available for transportation projects in unincorporated Clackamas County between now and 2035. The projections take existing funding sources, historic trends and estimated revenue forecasts into consideration. The focus is on funding sources for unincorporated Clackamas County. However, it should be noted that some of the geographically specific revenue sources are expended in areas that include both unincorporated and incorporated areas.

Since 2001, more than \$321 million has been spent on transportation projects located primarily in unincorporated Clackamas County, as outlined in Attachment A: 2000-2011 Transportation Capital Projects (Completed | In Process) & Funding Sources. This total expenditure includes capital projects that are completed, currently underway or have funds programmed for completion and larger road paving projects. This total does not include general transportation system maintenance activities, such as vegetation control, traffic operations, road shoulder work, roadway treatments, and surface water management; however, the table does outline developer contributions to the capital projects.

Seven basic sources have been used to fund transportation programs and projects in unincorporated Clackamas County:

- Federal revenue
- County Road Fund (which receives funds from the Oregon State Highway Trust Fund)
- Special state revenue programs
- Local governments and other agencies
- Other Revenue Sources - County conditioned, Developer financed improvements
- Transportation System Development Charges (TSDC)
- Urban Renewal (Tax Increment Financing [TIF])

A more complete description of the seven basic funding sources follows on pages 3-12. Some funding sources are restricted to particular areas or types of projects. The estimated levels of funding available through 2035 for transportation system project and programs is lower, on an annual basis, than the funding that was available during the last 12 years because past revenue streams from special state programs, such as OTIA, may not be as readily available in the future.

**The estimated total funds available, through 2035, for transportation projects and programs in Clackamas County is approximately \$444 million (See Table 1).**

## 2035 Transportation Funding Forecast Summary

Table 1 summarizes anticipated near- and longer-term transportation funding through year 2035.

Table 1– Near- and Longer-Term Forecast Transportation Funding Estimates

Transportation System Operations & Maintenance Funding Estimates	2035 Forecasts			
	0-5 Years	5-15 Years	16-23 Years	Total 23-Year Forecast
County Road Fund (Oregon State Highway Trust Fund)	\$ 112,645,000	\$ 225,290,000	\$ 202,761,000	\$ 540,696,000
Program   Engineering (Contracts, Fees, etc.)	\$ 3,675,000	\$ 7,350,000	\$ 6,615,000	\$ 17,640,000
Program   Maintenance (Contracts, Grants, etc.)	\$ 5,860,000	\$ 11,720,000	\$ 10,548,000	\$ 28,128,000
Roadway Operations & Maintenance Programs	\$ (122,180,000)	\$ (244,360,000)	\$ (219,924,000)	\$ (586,464,000)
<b>Program Revenue Less Estimated Operating Expenses*</b> (County Road Fund Remaining for Programs   Projects)	<b>\$0.00</b>	<b>\$0.00</b>	<b>\$0.00</b>	<b>\$0.00</b>

\* The majority of the County Road Fund will be needed to preserve the existing transportation network over the next 25-years.

Transportation System Program & Project Funding Estimate	2035 Forecasts			
	0-5 Years	5-15 Years	16-23 Years	Total 23-Year Forecast
<b>Countywide Revenue</b>				
Federal Revenue	\$ 26,749,115	\$ 53,498,230	\$ 53,498,230	\$ 133,745,575
Special State Revenue Programs	\$ 25,778,073	\$ 51,556,145	\$ 46,400,531	\$ 123,734,748
Local Government and Other Agencies	\$ 1,705,380	\$ 3,410,760	\$ 3,410,760	\$ 8,526,900
Other Revenue   Developer Constructed Improvements	\$ 3,561,845	\$ 7,123,690	\$ 7,123,690	\$ 17,809,225
<b>Total Countywide Revenue, Estimated</b>	<b>\$ 57,794,413</b>	<b>\$ 115,588,825</b>	<b>\$ 110,433,211</b>	<b>\$ 283,816,448</b>
<b>Special District Revenue</b>				
Countywide Area - System Development Charge	\$ 8,431,639	\$ 35,188,463	\$ 57,690,174	\$ 101,310,276
Happy Valley Joint Area - System Development Charge	\$ 314,416	\$ 8,039,774	\$ 15,795,434	\$ 24,149,624
Clackamas Regional Center - Urban Renewal	\$ 17,000,000	\$ 3,000,000	\$ -	\$ 20,000,000
N Clackamas Revitalization Area - Urban Renewal	\$ 2,000,000	\$ 10,000,000	\$ 3,000,000	\$ 15,000,000
<b>Total Special District Revenue, Estimated</b>	<b>\$ 27,746,055</b>	<b>\$ 56,228,237</b>	<b>\$ 76,485,608</b>	<b>\$ 160,459,900</b>
<b>Estimated Total Transportation Project &amp; Program Revenue Available*</b> <i>All Sources</i>	<b>\$ 85,540,467</b>	<b>\$ 171,817,062</b>	<b>\$ 186,918,819</b>	<b>\$ 444,276,348</b>
*Gross Revenue minus Operations & Maintenance				

Attachment A contains detailed information about planned transportation projects completed or in-process with committed funding from 2000 to 2011 and provides the specific funding sources and amounts for each project.

## Federal Revenue

There are several forms of federal revenue that have emerged and then diminished over the years. The key programs are described below.

The **Federal Surface Transportation Program (STP)** annually invests more than half a billion dollars in Oregon highway and transit projects. In Clackamas County, Federal STP revenue accounted for 16.7% of the funding for Clackamas County transportation projects since 2001. Examples of this type of federal funding include: grants received through the Metropolitan Transportation Improvement Program (MTIP), Transportation Enhancement Program (TE) the Highway Bridge Program (HBP), and the Hazard Elimination Program (HEP).

Since 2001, the **Secure Rural Schools Act** has provided money to rural communities in national forest areas to compensate for revenue lost because of restrictions on timber harvesting. This has been an important factor in funding transportation improvements. Clackamas County includes these funds in the County Road Fund, and uses them for both capital and maintenance activities. This program was set to terminate in 2012, but Congress passed the Moving Ahead for Progress in the 21<sup>st</sup> Century Act (MAP 21), a National Transportation Bill, that included a one-time extension. When this act sunsets in FY2015, the program will revert back to the payments from the National Forest Service – based on 25% of the gross receipts generated from the National Forest in Clackamas County, substantially minimizing any future revenues.

**Federal gas tax revenue** is distributed to local agencies through the State, through Oregon State Highway Fund revenues. Clackamas County includes this revenue in the County Road Fund, and the funds are used for both capital and maintenance. The Federal gas tax of 18.4¢ per gallon of gasoline (24.4¢ per gallon of diesel) has not increased since 1993.

Federal funding has been a significant source for rural and urban transportation projects in the County. Federal funding accounted for 23.1% of the monies spent on transportation projects in the urban portion of Clackamas County since 2001. These funds helped complete projects like the Sunrise Corridor Environmental Impact Statement, sidewalks and bike lanes along Fuller Road, and weather stations that provide information for the Intelligent Transportation System programs. In the rural area 14.8% of the funding for transportation projects came from federal sources. Many bridge and culvert projects were funded through the Federal Highway Bridge Program or Hazard Elimination Program.

**Estimated Federal revenue for programs and projects over the next 23 years: \$133.7 million.**

## **COUNTY ROAD FUND (OREGON STATE HIGHWAY TRUST FUND)**

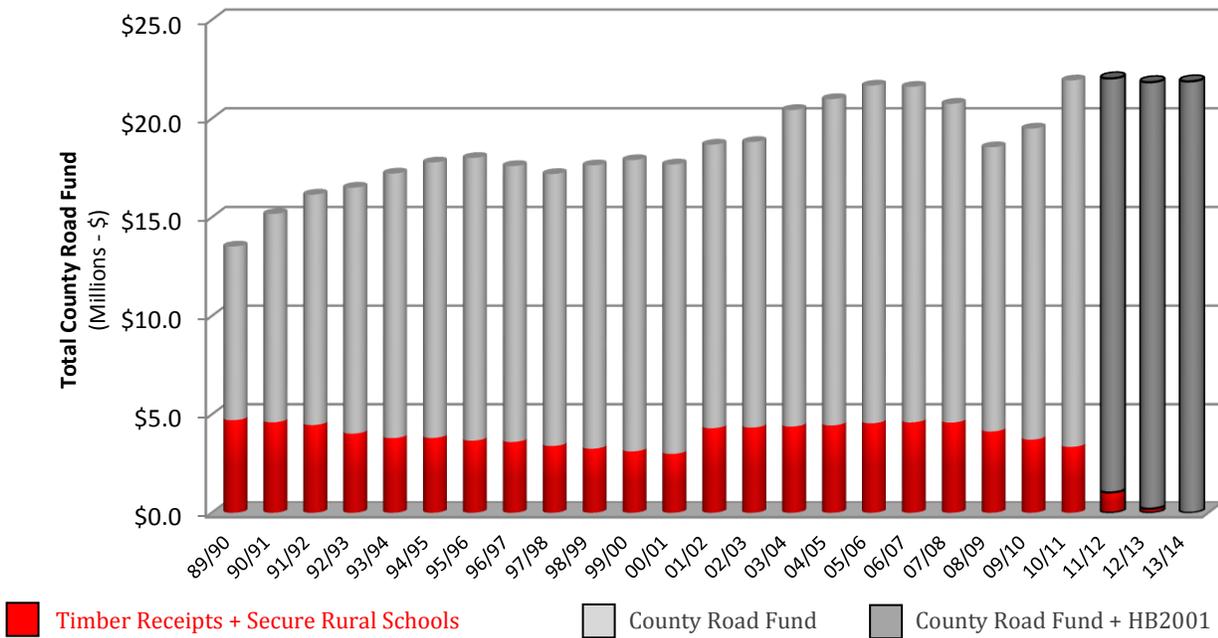
The County Road Fund is made up of funds received through the Oregon State Highway Trust Fund from state and federal gas taxes, weight-mile tax, vehicle registration fees (VRF) and vehicle titling fees. The Oregon Constitution and Oregon Revised Statutes (ORS) require that the Oregon State Highway Trust Fund revenue be used "... for the construction, reconstruction, improvement, repair, maintenance, operation and use of public highways, roads, streets..." (including the mandatory minimum 1% annual expenditure on bicycle and pedestrian facilities).

The County Road Fund also includes money received from the Secure Rural Schools program. Since 2001, approximately 17.6% of funding for transportation projects in the rural area and 3.4% of funding for transportation projects in the urban areas came from the Road Fund. Road Fund money is often used as the local contribution (match) for projects funded by federal, state and other local funding programs.

The 2009 State Legislature adopted House Bill 2001, which increased state gas and weight-mile taxes for the first time since 1993. The Road Fund has stabilized due to these increases, but the cost of maintaining and building roadways is also increasing. This means that the purchasing power of the Road Fund will not provide the same level of maintenance or fund as many capital projects in the future. The effectiveness of the Road Fund is further reduced when combined with an increase in fuel efficiency and rising construction costs, without a reduction in the vehicles on the roadway through changing travel behavior (e.g., less driving and increasing use of other travel modes).

Figure 1 illustrates the fluctuations in Road Fund revenues and demonstrates how the projected increase in revenue from House Bill 2001 fills the gap created from the elimination of the Secure Rural Schools program. The majority of the County Road Fund will be needed to preserve the existing transportation network over the next 25-years.

**Figure 1 – County Road Fund (Oregon State Highway Trust Fund) Historic Funding and Near-Term Forecast**  
*Note: The increases from HB2001 partially replace the loss of federal timber receipts*



**No County Road Funds are estimated to be available for transportation programs and projects over next 23 years (these funds will be used exclusively for maintenance activities).**

### SPECIAL STATE REVENUE PROGRAMS

Special state revenue programs have been a significant funding source for county projects, including bridges, pedestrian ways and bikeways and significant improvements to Sunnyside Road.

These programs, which provide funds for specific projects for limited periods of time, include the Oregon Transportation Investment Act (OTIA) and the Oregon Jobs and Transportation Act (JTA) from ODOT’s State Highway Fund allocation. The American Recovery and Reinvestment Act (ARRA) provided stimulus funding and the ConnectOR program invested in air, rail, marine, and transit infrastructure.

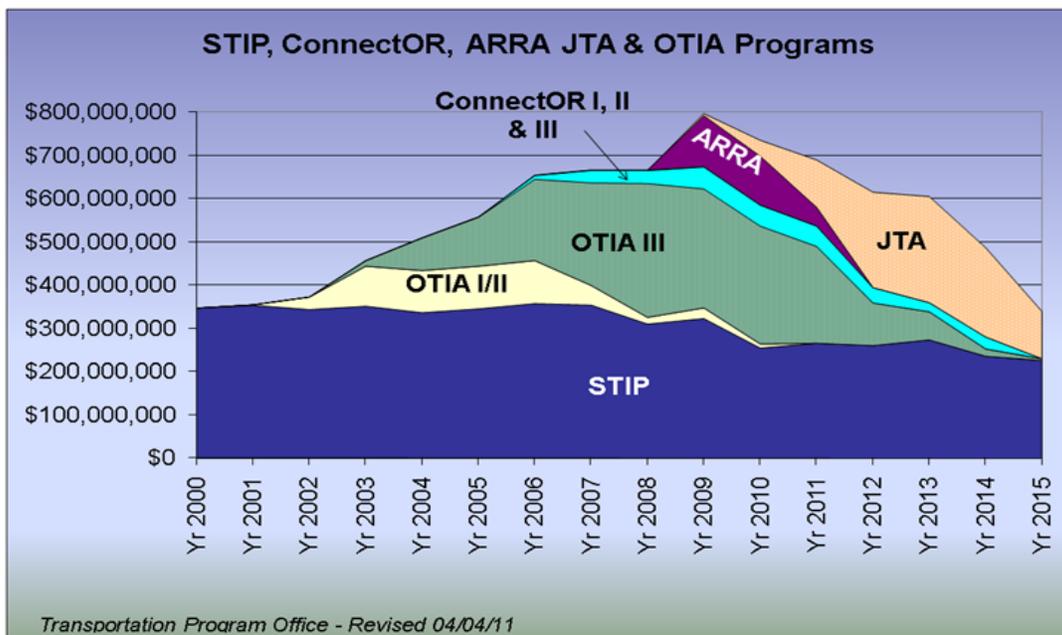
The first **OTIA** legislation focused on improving state, county and city roads and bridges. OTIA II focused on replacing and repairing bridges, and modernizing and preserving local roadways. OTIA III was dedicated to modernization programs. Many bridge projects in Clackamas County benefitted from this program, such as the Mulino Road Bridge, the Stafford Road Bridge, and the Feyrer Park Road Bridge. While there are no active OTIA programs at this time, there is one remaining project

under construction in Clackamas County with OTIA revenue programmed- the Clackamas River Bridge at Carver.

The 2009 State Legislature adopted the **Oregon Jobs and Transportation Act** (House Bill 2001 [JTA]). JTA implements revenue in steps and focuses on three primary elements:

- (1) Accountability, innovation and environmental stewardship;
- (2) Highway, road and street funding, and
- (3) Multi-modal funding.

Much of the revenue from the JTA is dedicated to specific projects and programs. The first phase of improvements in the Sunrise Corridor, currently under design, will be funded by JTA. The funding amounts shown below are statewide transportation funds and only a portion is spent in Clackamas County. Overall state revenues are decreasing because each of the current special state revenue programs are phasing out over the next several years. This means that future state special revenue programs may be minimal because ODOT’s State Highway Fund allocation is committed to debt service for OTIA and JTA bonds, and for highway maintenance. As a result, there is limited state funding for new capital projects through the Statewide Transportation Improvement Program (STIP) which is funded through the Oregon State Highway Trust Fund.



**Estimated Special State program and project revenue over the next 23 years: \$123.7 million**

## **LOCAL GOVERNMENTS AND OTHER AGENCIES**

Typically, local governments and other agencies (e.g., sanitary districts, incorporated cities) will share in the costs of specific projects or studies that provide transportation benefits to both the County and the other agency (e.g., Holcomb Blvd., Trolley Trail, storm culvert replacement). These revenue sources vary significantly over time because they are based on specific projects and geographic areas. Revenue forecasts are based on the average annual historical funds used for capital transportation projects from 2001 to present (see Attachment A for details).

**Estimated program and project revenue over the next 25 years: \$8.5 million**

## **OTHER REVENUE SOURCES - DEVELOPER COUNTY CONDITIONED / DEVELOPER FINANCED IMPROVEMENTS**

The final source of transportation funding is related specifically to development projects and associated off-site transportation improvements. This revenue source is tied to two County ordinances:

- Zoning and Development Ordinance (ZDO), which requires frontage improvements; and
- Concurrency Ordinance, which requires private developers to construct transportation capacity and/or safety improvements for the surrounding transportation facilities to function at or above the identified performance standard.
- Developers build more than \$700,000 in transportation improvements each year in Clackamas County;

**It is estimated that developers will contribute \$17.8 million in improvements to the transportation system over the next 25-years.**

## **TRANSPORTATION SYSTEM DEVELOPMENT CHARGES (TSDC)**

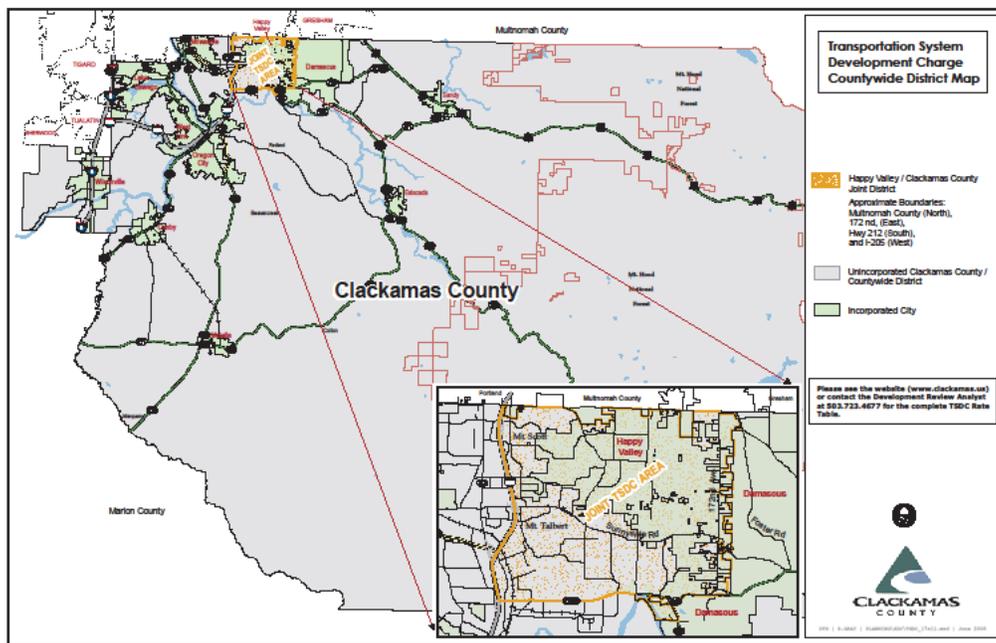
TSDCs are one-time assessments on new development based on the number of vehicle trips the developments are forecast to generate. This equitably spreads the cost of increased capacity road projects to new development because new and expanding existing developments rely on improvements to the road network provided through the County's capital improvement program. These funds are dedicated to projects that increase capacity, may not be used for maintenance, and are restricted to projects on an adopted list within a geographic area.

TSDC money is used to fund capacity improvements, which can include operational efficiencies (e.g., signalization) that increase the number of vehicles accommodated by the system or added lane miles. Currently, TSDC revenue may not be used for multi-modal improvements.

The County has two TSDC districts, one with the City of Happy Valley (Joint Area TSDC) and the other for unincorporated areas of the county (Countywide TSDC). Because the majority of the revenue in both districts is dedicated to debt service in the near-term, the available revenue for future projects is limited. This debt service is in the form of Oregon Transportation Infrastructure Bank (OTIB) loans, which enabled the construction of SE Sunnyside Road (from SE 92<sup>nd</sup> east to SE 172<sup>nd</sup>) and SE 172<sup>nd</sup> Avenue (from Highway 212 north to Sunnyside Road).

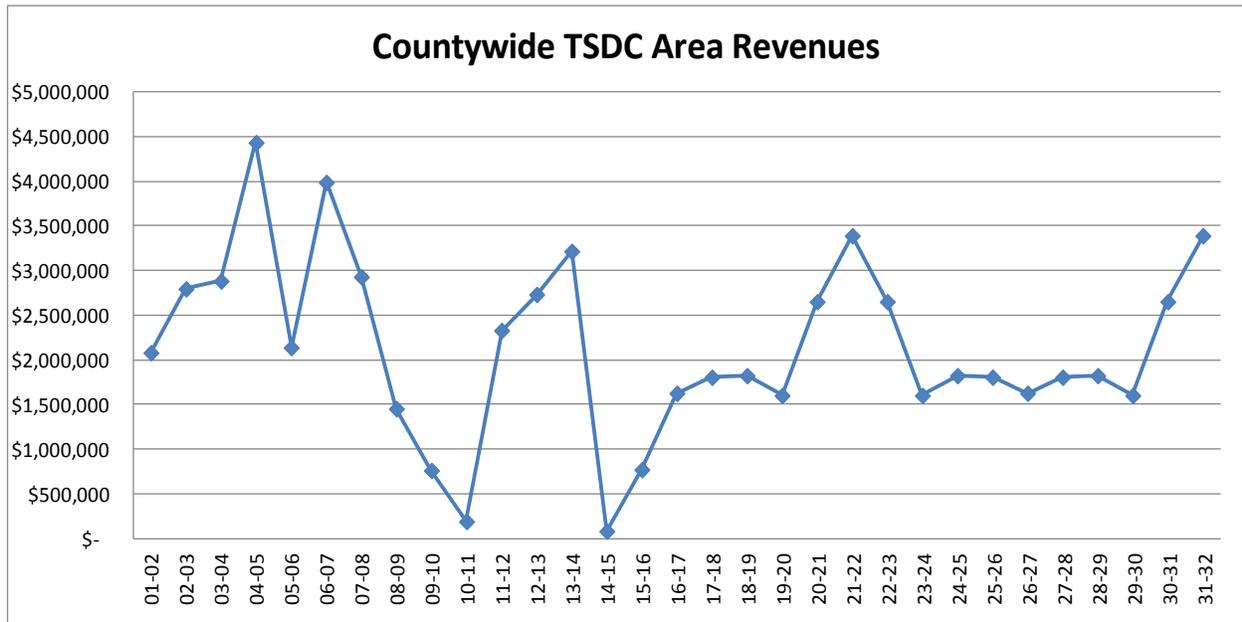
The primary challenge currently facing this funding source is the dramatically slowed rate of development recently. TSDC revenues generally reflect the rate of development and the additional demand placed on the transportation system by new facilities; however, TSDCs are currently estimated to cover an average of only 30% of total capacity-related improvements on the County road network. This can be attributed to the fact that not all added demand comes from new development and the fact that TSDC revenue focuses on funding projects that provide the largest benefit for the revenue, so not every capacity-increasing project makes the eligibility list. Exhibit 1A shows a TSDC Area map showing where the revenues can be spent.

**Exhibit 1A – Transportation SDC Area Map (Countywide and Joint Area Locations)**



Exhibits 1B and 1C summarize the historical collections and revenue forecasts for TSDC funds, set the baseline for the debt service, and demonstrate revenue that may be available in each fund area.

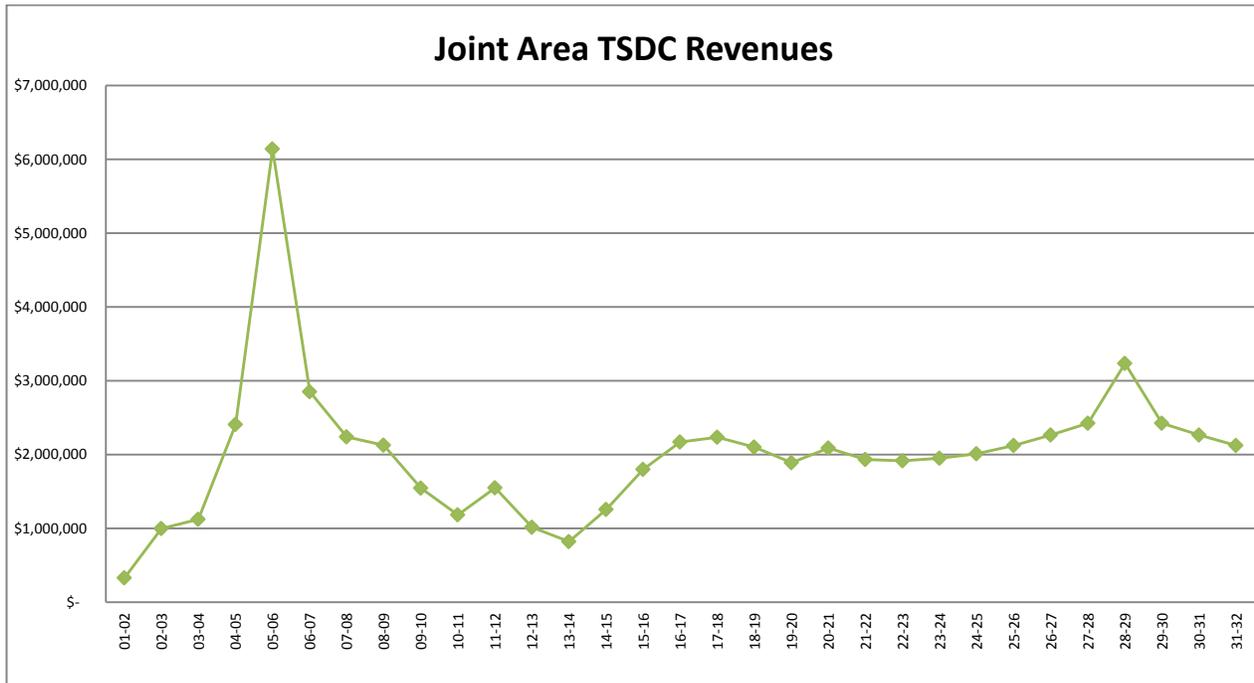
**Exhibit 1B – Countywide Transportation SDC Forecast through Fiscal Year 2031-2032**



Attachment A shows that the average amount of Countywide Area TSDC revenue used to fund projects within the County from 2000 to 2011 was \$7.2 million, which is significantly higher than the annual collections reflected on Exhibit 1B during this same period. This is because the County was able to identify matching sources for existing TSDC reserves for a variety of Federal, State and local revenue sources (e.g., urban renewal) to support new development. These estimates reflect the amount of revenue needed for debt service as well as the forecast decreasing rate of development.

**Estimated \$101.3 million in Countywide SDC funding available for additional road capacity over the next 23 years in the SDC area.**

**Exhibit 1C– Joint Area Transportation SDC Forecast through Fiscal Year 2031-2032**



**Estimated \$24.1 million in Joint County / Happy Valley Area SDC funding available for additional road capacity over the next 23 years within the SDC area.**

The TSDC methodology will need to be updated to reflect the revised TSP policies, strategies and projects. The County may want to explore policies and strategies that will:

- Encourage and facilitate balanced development;
- Help fund transportation projects and generate jobs, and
- Increase the revenue available for transportation improvements.

***TSDC Funds are only available for capacity increasing projects in the individual collection areas.***

**URBAN RENEWAL (TAX INCREMENT FINANCING [TIF])**

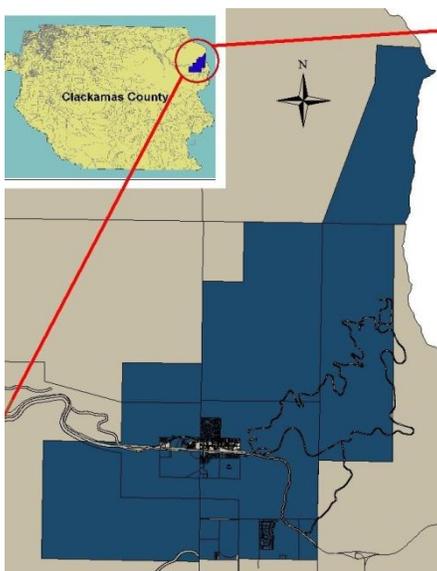
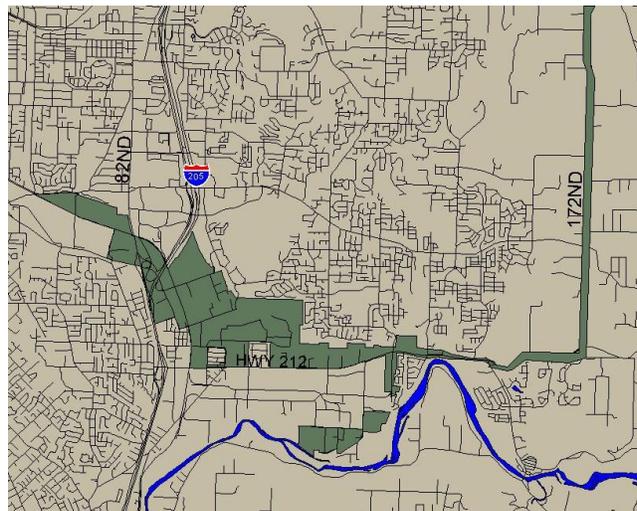
Urban renewal raises money for public improvements through Tax Increment Financing (TIF) in blighted areas. Local investments focus on creating jobs, helping businesses, improving communities and increasing the tax base to result in long-term financial stability for local service providers and property owners. Funding from urban renewal districts is customized to meet the needs of the urban renewal area.

Expenditures are restricted to making improvements within the geographic limits of the district and focus on funding infrastructure consistent with the adopted urban renewal plan. Urban renewal frequently provides matching funds for money from federal, state, regional and local sources.

There are four Clackamas County urban renewal districts; only two are forecasted to invest further revenue in transportation projects over the next 20-years. Levies in two of the districts have already terminated and a third levy is scheduled to terminate in 2013. Once a levy is terminated, no more money is collected in the district and any remaining funds are used for planned projects within the district. Maps and a brief description of the four districts are shown below.

**Clackamas Industrial Area:**

- Levy terminated in 2006
- Predominantly industrial (e.g., manufacturing, warehousing and distribution)
- Approximately \$25 million in property dedications will be transferred to ODOT in next 20-years for the Sunrise System JTA
- ***No funds remaining***

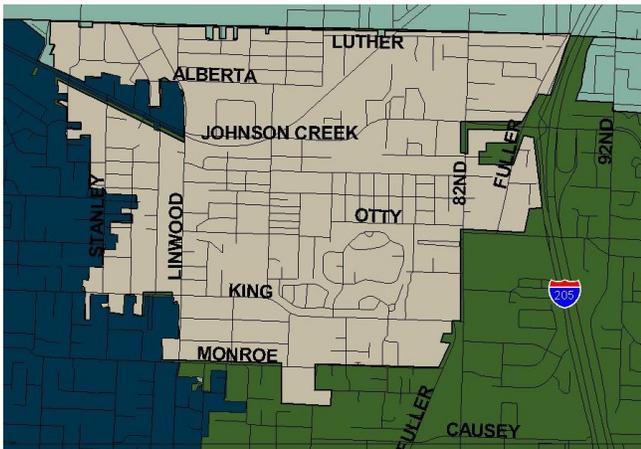
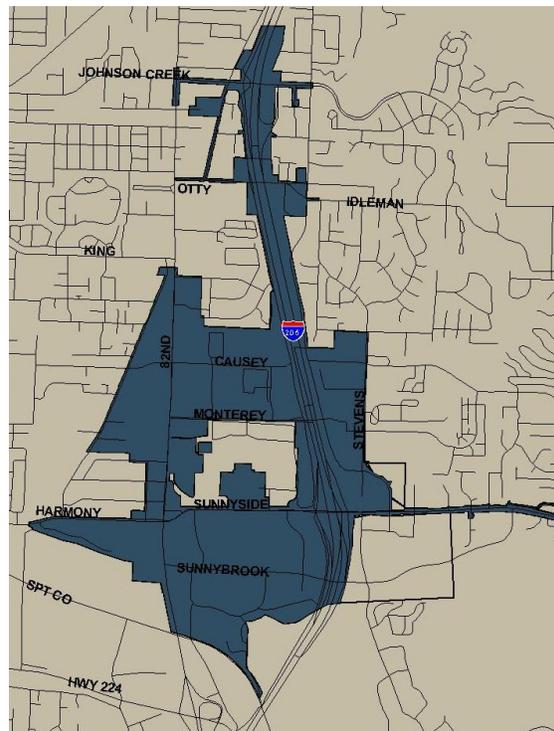


**Government Camp Village Revitalization Area:**

- Levy terminated in 2009
- Generally recreation and residential with some commercial uses
- ***No funds remaining***

**Clackamas Town Center Area:**

- Levy scheduled to terminate in June 2013
- Predominantly commercial with office and multifamily residential
- *Estimated \$20 million remaining will be spent on transportation, community and development improvements over the next 20 years*



**North Clackamas Revitalization Area:**

- Formed in 2006 with 15 to 20 years of funds collection remaining
- Primarily affordable residential neighborhoods bounded by industrial and commercial uses
- *An estimated \$15 million will be directed to transportation improvements over the next 20-years*

As noted, and depicted on the maps above, urban renewal funds must be used within the respective district. Each district has a plan that outlines projects, programs, funding sources, timelines and district boundaries. County Ballot Measure 3-386, approved by voters in November 2011, requires countywide voter approval to create an urban renewal district or make a "substantial change" to a current urban renewal district.

**Estimated Urban Renewal program and project revenue over the next 23 years: \$35 million**  
***These Funds are only available for projects in the individual Urban Renewal Areas.***

## **ATTACHMENTS**

Attachment A: 2000-2011 Transportation Capital Projects (Completed | In-Process) & Funding Sources

CLACKAMAS COUNTY MOTOR VEHICLE FUND									
Received to: 215-2410-332540-00000									
A. History									
Fiscal Year	Budgeted Revenues	Actual Revenues	Actual % Growth	\$ Variance From Budget	% Variance From Budget	Actual Total Statewide County Collections	Actual Clackamas County %	% Change	
91-92	12,090,000	11,684,179	9.8%	-405,821	-4.08%				
92-93	12,684,842	12,476,201	6.8%	-208,641	-1.64%	124,382,508	10.03%		
93-94	14,183,000	13,414,823	7.5%	-768,177	-5.42%	132,829,732	10.10%	0.07%	
94-95	13,700,000	13,969,267	4.1%	269,267	1.97%	138,339,405	10.10%	0.00%	
95-96	13,900,000	14,338,299	2.6%	438,299	3.15%	138,533,146	10.35%	0.25%	
96-97	14,000,000	13,994,300	-2.4%	-5,700	-0.04%	140,610,989	9.95%	-0.40%	
97-98	14,600,000	13,791,864	-1.4%	-808,136	-5.54%	140,585,683	9.81%	-0.14%	
98-99	14,271,000	14,369,547	4.2%	98,547	0.69%	147,079,032	9.77%	-0.04%	
99-00	14,600,000	14,772,148	2.8%	172,148	1.18%	152,150,031	9.71%	-0.06%	
00-01	14,110,000	14,679,844	-0.6%	569,844	4.04%	152,217,713	9.64%	-0.06%	
01-02	14,135,000	14,378,661	-2.1%	243,661	1.72%	149,211,636	9.64%	-0.01%	
02-03	13,911,000	14,479,767	0.7%	568,767	4.09%	149,660,543	9.68%	0.04%	
03-04	13,447,000	16,047,009	10.8%	2,600,009	19.34%	165,528,872	9.69%	0.02%	
04-05	17,346,000	16,541,018	3.1%	-804,982	-4.64%	167,757,233	9.86%	0.17%	
05-06	16,999,000	17,118,691	3.5%	119,691	0.70%	173,223,498	9.88%	0.02%	
06-07	16,778,000	17,012,818	-0.6%	234,818	1.40%	175,497,873	9.69%	-0.19%	
07-08	17,092,000	16,159,704	-5.0%	-932,296	-5.45%	163,196,600	9.90%	0.21%	
08-09	17,259,000	14,411,770	-10.8%	-2,847,230	-16.50%	146,200,103	9.86%	-0.04%	
09-10	16,140,590	15,775,161	9.5%	-365,429	-2.26%	158,371,627	9.96%	0.10%	
10/11	17,315,000	18,580,286	17.8%	1,265,286	7.31%	184,680,303	10.06%	0.10%	
11/12	20,002,000								
1 The Oregon Highway Trust Fund revenues consist of a 24 cent per gallon gas tax, 36% of Fund Weight Mile assessments, and \$15 per year for Motor Vehicle Registrations.									
2 Oregon State Gas Tax History: 1919-1 cent; 1921-2 cents; 1923-3 cents; 1929-4 cents; 1933-5 cents; 1949-6 cents; 1967-7 cents; 1982-8 cents; 1984-9 cents; 1985-10 cents; 1986-11 cents; 1987-12 cents; 1988-14 cents; 1989-16 cents; 1990-18 cents; 1991-20 cents; 1992-22 cents; 1993-24 (5 cent ethanol ended 8/31/93); 1994-24 cents.									
3 This revenue is constitutionally restricted to road use.									
4 1995-96 collections include a one-time payment of \$401,624 for a correction in allocation for the 1993-1995 biennium.									
5 1997-98 collections were less than expected due to the State taking additional draw-downs on highway trust funds prior to distributions to the County.									
6 2003-04 collections include a full year impact of HB2041 and OTIA distributions and bonding costs.									
7 2010-11 Increased due to Weight mile increase 10/1/10 and gas tax increase (24 to 30cents) 1/1/11									
B. Assumptions									
1 To determine the funds the County receives from the State Highway Trust Fund:									
a. Estimate the County's percentage of its vehicle registrations of the total vehicle registrations in the State.									
b. Multiply the percentage from a. times the County's share of the total receipts in the State Highway Trust Fund.									

Attachment A

Calendar Year	Actuals	County	State	Change in	Actual				
Published Apr	Vehicle	Vehicle	County	County	% of				
Of Next Yr	Registrations	Registrations	%	%	Collections				
12/31/1993	319,817	3,159,027	10.12%						
12/31/1994	327,903	3,259,417	10.06%	-0.06%	10.11%				
12/31/1995	330,252	3,303,898	10.00%	-0.06%	10.04%				
12/31/1996	336,568	3,427,314	9.82%	-0.18%	9.95%				
12/31/1997	340,065	3,474,474	9.79%	-0.03%	9.81%				
12/31/1998	345,161	3,547,283	9.73%	-0.06%	9.77%				
12/31/1999	357,491	3,700,725	9.66%	-0.07%	9.71%				
12/31/2000	354,035	3,678,467	9.62%	-0.04%	9.65%				
12/31/2001	371,623	3,841,702	9.67%	0.05%	9.64%				
12/31/2002	376,744	3,892,507	9.68%	0.01%	9.67%				
12/31/2003	390,349	3,962,347	9.85%	0.17%	9.72%				
12/31/2004	394,087	3,985,785	9.89%	0.04%	9.86%				
12/31/2005	399,787	4,048,470	9.88%	-0.01%	9.88%				
12/31/2006	409,971	4,108,009	9.98%	0.10%	9.90%				
12/31/2007	412,341	4,199,273	9.82%	-0.16%	9.94%				
12/31/2008	414,357	4,176,286	9.92%	0.10%	9.84%				
12/31/2009	412,650	4,120,919	10.01%	0.09%	9.94%				
12/31/2010	413,508	4,102,371	10.08%	0.07%	10.03%				
*12/31/2011	413,294	4,107,008	10.06%	-0.02%	10.08%	For 11-12 use 9 mo of 12/31/10 % and 3 mo of est. 12/31/11 %			
	*								
* Vehicle registrations per county published in March used for April and the remaining year plus the subsequent year allocation through March.									
	County-Share								
	Highway								
	Trust Fund	%							
	Receipts	Growth	Check						
FY 93 A	124,382,508								
FY 94 A	132,829,732	6.8%							
FY 95 A	138,339,405	4.1%	138,200,459						
FY 96 A	138,533,146	0.1%	142,753,631						
FY 97 A	140,610,989	1.5%	140,619,184						
FY 98 A	140,585,683	0.0%	140,561,090						
FY 99 A	147,079,032	4.6%	147,029,864						
FY 00 A	152,150,031	3.4%	152,090,654						
FY 01 A	152,217,713	0.0%	152,104,594						
FY 02 A	149,211,636	-2.0%	149,206,647						
FY 03 A	149,660,543	0.3%	149,665,994						
FY 04 A	165,528,872	10.6%	165,060,619						
FY 05 A	167,757,233	1.3%	167,751,614						
FY 06 A	173,223,498	3.3%	173,191,815						
FY 07 A	175,497,873	1.3%	171,825,644						
FY 08 A	163,196,600	-7.0%	162,577,646						
FY 09 A	146,200,103	-10.4%	146,387,844						
FY 10 A	158,371,627	8.3%	158,629,903	165,100,000					
FY 11 A	184,680,303	16.6%	185,245,449	204,000,000					
FY 12 E	214,700,000	16.3%	Adjusted	229,700,000					
FY 13 E	217,200,000	1.2%	Adjusted	235,200,000					
FY 14 E	221,700,000	2.1%	Adjusted	239,700,000					
FY 15 E	229,900,000	2.0%	Adjusted	249,900,000					
FY 16 E	234,498,000	2.0%	Estimated growth						
FY 17 E	239,187,960	2.0%	Estimated growth						
FY 18 E	243,971,719	2.0%	Estimated growth						
FY 19 E	248,851,154	2.0%	Estimated growth						
FY 20 E	253,828,177	2.0%	Estimated growth						
FY 21 E	258,904,740	2.0%	Estimated growth						
FY 22 E	264,082,835	2.0%	Estimated growth						
FY 23 E	269,364,492	2.0%	Estimated growth						
FY 24 E	274,751,782	2.0%	Estimated growth						
FY 25 E	280,246,817	2.0%	Estimated growth						
FY 26 E	285,851,753	2.0%	Estimated growth						
FY 27 E	291,568,789	2.0%	Estimated growth						
FY 28 E	297,400,164	2.0%	Estimated growth						
FY 29 E	303,348,168	2.0%	Estimated growth						
FY 30 E	309,415,131	2.0%	Estimated growth						
FY 31 E	315,603,434	2.0%	Estimated growth						
FY 32 E	321,915,502	2.0%	Estimated growth						
FY 33 E	328,353,812	2.0%	Estimated growth						
FY 34 E	334,920,889	2.0%	Estimated growth						
FY 35 E	341,619,306	2.0%	Estimated growth						

2 The Association of Oregon Counties (AOC) provides estimates of the total receipts in December of each year. Our current contact person is Jon Oshel, (503) 585-8351.												
<b>C. Year-End Estimate</b>												
				5 Yr	Average	Plus or	FY 10	Actual	Average	\$	Based on	
	FY 09	%	Avg	Deviation	Minus	Deviation	Cumm	Cumm	Variance	Avg Cumm		
A	July	1,822,972	8.48%	7.87%	2.37%	43,000	0.61%	8.48%	7.87%	131,502	23,175,000	
A	August	1,577,345	7.34%	7.14%	2.38%	38,000	0.19%	15.81%	15.01%	41,427	22,656,000	
A	September	1,717,028	7.98%	8.32%	2.47%	42,000	-0.34%	23.80%	23.33%	-72,799	21,933,000	
A	October	2,161,918	10.05%	9.51%	2.78%	60,000	0.54%	33.85%	32.85%	116,317	22,162,000	
A	November	1,892,571	8.80%	8.91%	3.25%	61,000	-0.11%	42.65%	41.76%	-23,467	21,966,000	
A	December	1,845,229	8.58%	8.54%	2.53%	47,000	0.04%	51.23%	50.29%	9,634	21,906,000	
A	January	1,772,203	8.24%	8.83%	3.41%	60,000	-0.59%	59.48%	59.12%	-126,575	21,632,000	
A	February	2,101,720	9.77%	8.70%	4.30%	90,000	1.07%	69.25%	67.82%	230,296	21,955,000	
A	March	1,278,292	5.94%	6.67%	2.14%	27,000	-0.73%	75.19%	74.50%	-156,286	21,705,000	
A	April	1,693,741	7.88%	8.51%	4.29%	73,000	-0.63%	83.07%	83.00%	-135,982	21,520,000	
A	May	1,776,819	8.26%	8.96%	4.17%	74,000	-0.70%	91.33%	91.97%	-150,333	21,355,000	
A	June	1,863,631	8.67%	8.03%	3.40%	63,000	0.63%	100.00%	100.00%	136,265	21,503,000	
*		<b>21,503,468</b>	100.00%	100.00%		678,000				0		
*	A=Actual, E=Estimate			20,002,000	Budget	21,503,468	YE Estimate					
	The year-end estimate could vary + or - .01% for the entire year.							21,503,468				
	Adjustment----includes effect of new legislation							0				
								21,503,468				
								0				
	<b>Actual Year-End Estimate</b>							<b>21,503,468</b>				
<b>D. Calculations</b>												
1 For current year used the year end estimate of County receipts as calculated in Section C above.												
2 The current year total County-share of the State Highway Trust Fund Receipts was estimated using the County's year end estimate less the average deviation divided by the normal County percentage.												
	21,503,468	divided by	10.08%	equals	213,421,615							
3 For the outyears total State Highway Trust Fund Receipts used the estimate calculated in Section B above.												
4 Assumed that the County's percentage of registrations vs States will remain flat in the outyears.												
	County-Share			Estimated								
	Highway			County								
	Trust Fund	%	County	Motor Vehicle								
	Receipts	Growth	%	Receipts								
FY 93 A	124,382,508		10.03%	12,476,201								
FY 94 A	132,829,732	6.8%	10.10%	13,414,823								
FY 95 A	138,339,405	4.1%	10.10%	13,969,267								
FY 96 A	138,533,146	0.1%	10.35%	14,338,299								
FY 97 A	140,610,989	1.5%	9.95%	13,994,300								
FY 98 A	140,585,683	0.0%	9.81%	13,791,864								
FY 99 A	147,079,032	4.6%	9.77%	14,369,547								
FY 00 A	152,150,031	3.4%	9.71%	14,772,148								
FY 01 A	152,217,713	0.0%	9.64%	14,679,844								
FY 02 A	149,211,636	-2.0%	9.64%	14,378,661								
FY 03 A	149,660,543	0.3%	9.68%	14,479,767								
FY 04 A	165,528,872	10.6%	9.69%	16,047,009								
FY 05 A	167,757,233	1.3%	9.86%	16,541,018								
FY 06 A	173,223,498	3.3%	9.88%	17,118,691								
FY 07 A	175,497,873	1.3%	9.69%	17,012,818								
FY 08 A	163,196,600	-7.0%	9.90%	16,159,704								
FY 09 A	146,200,103	-10.4%	9.86%	14,411,770								
FY 10 A	158,371,627	8.3%	9.96%	15,775,161								
FY 11 A	184,680,303	16.6%	10.06%	18,580,286								
FY 12	213,421,615	34.8%	10.08%	21,503,000	Budgeted 20,002,000							
FY 13	214,700,000	0.6%	10.08%	21,632,000								
FY 14	217,200,000	1.2%	10.08%	21,884,000								
FY 15	221,700,000	2.1%	10.08%	22,338,000								
FY 16	229,900,000	3.7%	10.08%	23,164,000								
FY 17	234,498,000	2.0%	10.08%	23,627,000								
FY 18	239,187,960	2.0%	10.08%	24,100,000								
FY 19	243,971,719	2.0%	10.08%	24,582,000								

Attachment A

FY 20	248,851,154	2.0%	10.08%	25,073,000					
FY 21	253,828,177	2.0%	10.08%	25,575,000					
FY 22	258,904,740	2.0%	10.08%	26,086,000					
FY 23	264,082,835	2.0%	10.08%	26,608,000					
FY 24	269,364,492	2.0%	10.08%	27,140,000					
FY 25	274,751,782	2.0%	10.08%	27,683,000					
FY 26	280,246,817	2.0%	10.08%	28,236,000					
FY 27	285,851,753	2.0%	10.08%	28,801,000					
FY 28	291,568,789	2.0%	10.08%	29,377,000					
FY 29	297,400,164	2.0%	10.08%	29,965,000					
FY 30	303,348,168	2.0%	10.08%	30,564,000					
FY 31	309,415,131	2.0%	10.08%	31,175,000					
FY 32	315,603,434	2.0%	10.08%	31,799,000					
FY 33	321,915,502	2.0%	10.08%	32,435,000					
FY 34	328,353,812	2.0%	10.08%	33,084,000					
FY 35	334,920,889	2.0%	10.08%	33,745,000					

2000 to 2011 - TSP Projects Completed or In Process (Jan 18, 2012 version)													* when project years is highlighted in yellow, it is a project currently underway and the cost is an estimated cost.	
Urban / Rural	2000 TSP MAP #	PROJECT	SECTION	DESCRIPTION	Completed	Cost	FEDERAL REVENUE	STATE REVENUE	OTHER REVENUE SOURCES	LOCAL GOVT & OTHER AGENCIES	ROAD FUND	SYSTEM DEVELOPMENT CHARGES	TAX INCREMENT FINANCING	
<b>Bike / Pedestrian Projects</b>														
Rural	N/A	13th Avenue (Canby)	Teakwood to Molalla Forest Road	Bike lanes	2007	\$ 318,575	\$ -	\$ -	\$ -	\$ -	\$ 318,575	\$ -	\$ -	
Rural	N/A	Leroy Avenue	Leroy Avenue	Sidewalk construction	2007	\$ 670,115	\$ 445,112	\$ -	\$ -	\$ -	\$ 225,002	\$ -	\$ -	
Urban	96	Roots Road/McKinley Road	I-205 to Webster Road	Reconstruct and widen	2003	\$ 543,836	\$ -	\$ 50,000	\$ -	\$ 100,000	\$ 393,836	\$ -	\$ -	
Urban	26	Fuller Road	King Road to Harmony Road	Add bike lanes and sidewalks	2006	\$ 850,823	\$ 611,326	\$ -	\$ -	\$ 3,050	\$ 236,447	\$ -	\$ -	
Urban	N/A	92nd Avenue	Johnson Creek Blvd to County Line	Bike lanes	2007	\$ 586,693	\$ -	\$ -	\$ -	\$ 103,814	\$ 482,879	\$ -	\$ -	
Urban	N/A	Mather Road	Cranberry Lp to Lawnfield	Complete sidewalk on north side	2005	\$ 63,719	\$ -	\$ -	\$ -	\$ 20,500	\$ 43,219	\$ -	\$ -	
Urban	N/A	Johnson Creek Boulevard	JCB/Bell Avenue Intersection	Bike crossing signal	2012	\$ 84,062	\$ -	\$ -	\$ -	\$ -	\$ 84,062	\$ -	\$ -	
Urban	71, 71	SE 122nd Avenue; SE 132nd Avenue	Sunnyside Road to Hubbard Road	Reconstruct and widen, add turn lanes ;Upgrade to standards, add sidewalks	2013	\$ 837,000	\$ -	\$ 819,000	\$ -	\$ -	\$ 18,000	\$ -	\$ -	
Urban	143	Holcomb Blvd.	Abernethy Road to Bradley Road	Reconstruct and widen	2010	\$ 780,976	\$ -	\$ -	\$ -	\$ 346,453	\$ 307,630	\$ 126,893	\$ -	
Urban	N/A	Holcomb Blvd.	Redland Rd to Front Ave	Construct 6' pedestrian and bike paths	2008	\$ 111,493	\$ -	\$ -	\$ -	\$ -	\$ 111,493	\$ -	\$ -	
<b>Bike / Pedestrian Project Subtotal</b>					<b>1.5%</b>	<b>\$ 4,847,292</b>	<b>\$ 1,056,439</b>	<b>\$ 869,000</b>	<b>\$ -</b>	<b>\$ 573,817</b>	<b>\$ 2,221,143</b>	<b>\$ 126,893</b>	<b>\$ -</b>	
<b>Bridge / Culvert Replacement Projects</b>														
Rural	N/A	Lolo Pass Road	Bridge (Zigzag River)		2007	\$ 2,836,196	\$ 2,253,907	\$ 473	\$ -	\$ -	\$ 581,817	\$ -	\$ -	
Rural	281	Graves Road (6562)	Bridge	Reconstruct and widen to 32 feet	2005	\$ 927,374	\$ -	\$ 897,374	\$ -	\$ 30,000	\$ -	\$ -	\$ -	
Rural	N/A	Dickey Prairie Road (6554)	Bridge (N Fork Molalla River)	Bridge replacement	2012	\$ 2,900,310	\$ -	\$ 2,895,134	\$ -	\$ -	\$ 5,176	\$ -	\$ -	
Rural	N/A	Eagle Creek Road	Bridge (Eagle Creek)	Emergency bridge repair	2003	\$ 215,870	\$ -	\$ -	\$ -	\$ -	\$ 215,870	\$ -	\$ -	
Rural	N/A	Lolo Pass Road	Bridge (Bear Creek)	Replace 2 failing culverts with single span bridge	2004	\$ 1,295,610	\$ 892,500	\$ -	\$ -	\$ -	\$ 403,110	\$ -	\$ -	
Rural	N/A	Beavercreek Road	Culvert (Buckner Creek)	Replace 2 failing culverts with bridge	2006	\$ 713,121	\$ -	\$ -	\$ -	\$ -	\$ 713,121	\$ -	\$ -	
Rural	N/A	Advance Road	Culvert (Newland Creek)	Replace culvert	2011	\$ 228,335	\$ -	\$ -	\$ -	\$ -	\$ 228,335	\$ -	\$ -	
Rural	225	Arrah Wanna (6572)	Bridge	Reconstruct and widen to 32 feet	2012	\$ 2,449,251	\$ 2,084,930	\$ -	\$ -	\$ -	\$ 364,322	\$ -	\$ -	
Rural	304	Dhooghe Road (6541)	Bridge	Reconstruct and widen to 32 feet	2007	\$ 1,034,575	\$ -	\$ 1,034,575	\$ -	\$ -	\$ -	\$ -	\$ -	
Rural	N/A	Mulino Road (6511)	Bridge (Milk Creek)	Reconstruct and widen	2007	\$ 1,958,153	\$ -	\$ 1,958,153	\$ -	\$ -	\$ -	\$ -	\$ -	
Rural	N/A	Feyrer Park Road (605)	Bridge (Molalla River)	Reconstruct and widen	2008	\$ 3,250,625	\$ -	\$ 3,250,625	\$ -	\$ -	\$ -	\$ -	\$ -	
Rural	221	Ten Eyck Bridge (6570)	Bridge	Reconstruct and widen to 32 feet	2010	\$ 4,357,056	\$ -	\$ 4,357,056	\$ -	\$ -	\$ -	\$ -	\$ -	
Rural	119	Stafford Road (2567)	Bridge	Reconstruct and widen to 50 feet	2012	\$ 10,095,510	\$ -	\$ 7,179,138	\$ 3,717	\$ -	\$ 41,749	\$ 2,870,906	\$ -	
Rural	N/A	Borland Road (6507)	Bridge (Tualatin River)	Bridge replacement	2012	\$ 6,245,594	\$ -	\$ 6,245,594	\$ -	\$ -	\$ -	\$ -	\$ -	
Rural	N/A	Cramer Road	Culvert (Creamery Creek)	Replace culvert	2007	\$ 79,712	\$ -	\$ -	\$ -	\$ -	\$ 79,712	\$ -	\$ -	
Rural	N/A	Thomas Road	Bridge (Rock Creek Trib)	Bridge replacement	2007	\$ 5,122	\$ -	\$ -	\$ -	\$ -	\$ 5,122	\$ -	\$ -	
Rural	N/A	Welches Road	Culvert (Wee Burn Creek)	Replace culvert	2005	\$ 235,283	\$ 85,000	\$ -	\$ -	\$ -	\$ 150,283	\$ -	\$ -	
Rural	226	Elk Park Road (6574)	Bridge	Reconstruct and widen to 32 feet	2015	\$ 2,863,819	\$ 2,337,070	\$ -	\$ -	\$ -	\$ 526,749	\$ -	\$ -	
Rural	N/A	Marmot Road	Culvert (West Creek)	Replace culvert	2007	\$ 254,585	\$ 83,545	\$ -	\$ -	\$ -	\$ 171,040	\$ -	\$ -	
Rural	N/A	Mattoon Road	Bridge (Spring Creek)	Replace culvert with 30' bridge	2011	\$ 660,368	\$ -	\$ -	\$ 250	\$ 158,221	\$ 501,896	\$ -	\$ -	
Rural	N/A	Schneider Road	Culvert (MP 1.69)	Replace culvert	2009	\$ 247,752	\$ -	\$ 209,636	\$ -	\$ -	\$ 38,116	\$ -	\$ -	
Rural	N/A	Elisha Road	Culvert (Dove Creek MP 2.74)	Design and acquire right of way for the replacement of culvert.	2012	\$ 304,024	\$ -	\$ -	\$ -	\$ -	\$ 304,024	\$ -	\$ -	
Rural	N/A	Kleinsmith Road	Culvert (Bear Creek)	Replace culvert	2011	\$ 355,710	\$ 94,000	\$ 145,330	\$ -	\$ -	\$ 116,380	\$ -	\$ -	
Rural	N/A	Bull Run Road	Bridge (Bull Run River)	Bridge rehabilitation	2008	\$ 386,285	\$ -	\$ 175,864	\$ -	\$ -	\$ 210,421	\$ -	\$ -	
Rural	N/A	Porter Road	Culvert (Delph Creek)	Replace culvert	2012	\$ 465,643	\$ 142,156	\$ 61,860	\$ -	\$ -	\$ 261,627	\$ -	\$ -	
Rural	N/A	Ten Eyck Road	Bridge (Cedar Creek MP 2.58)	Replace bridge	2012	\$ 1,572,617	\$ 1,416,473	\$ 150,510	\$ -	\$ -	\$ 5,634	\$ -	\$ -	
Rural	N/A	Zimmerman Road	Culvert (Gut Creek)	Replace culvert	2011	\$ 252,894	\$ -	\$ 250,499	\$ -	\$ -	\$ 2,395	\$ -	\$ -	
Rural	290	Whiskey Hill Road (1559)	Bridge	Reconstruct and widen to 32 feet	2014	\$ 1,000,000	\$ 897,301	\$ -	\$ -	\$ -	\$ 102,700	\$ -	\$ -	

2000 to 2011 - TSP Projects Completed or In Process (Jan 18, 2012 version)					* when project years is highlighted in yellow, it is a project currently underway and the cost is an estimated cost.								
Urban / Rural	2000 TSP MAP #	PROJECT	SECTION	DESCRIPTION	Completed	Cost	FEDERAL REVENUE	STATE REVENUE	OTHER REVENUE SOURCES	LOCAL GOVT & OTHER AGENCIES	ROAD FUND	SYSTEM DEVELOPMENT CHARGES	TAX INCREMENT FINANCING
Rural		Wilhoit Road	Bridge (Rock Creek)	Bridge replacement	2011	\$ 800,000	\$ -	\$ -	\$ -	\$ -	\$ 800,000	\$ -	\$ -
Rural	293	Barlow Road	Bridge (Rock Creek)	Scour protection and streambank stabilization	2011	\$ 825,000	\$ -	\$ -	\$ -	\$ -	\$ 825,000	\$ -	\$ -
Rural	229	Multorpor Overpass	Loop Rd to Frontage Rd	Overpass replacement	2008	\$ 6,151,094	\$ 2,169,500	\$ -	\$ -	\$ -	\$ -	\$ 1,600,000	\$ 2,381,595
Rural	N/A	Anglesley Road	Bridge (Clear Creek)	Emergency bridge repair	2007	\$ 105,344	\$ -	\$ -	\$ -	\$ -	\$ 105,344	\$ -	\$ -
Urban	135	Springwater Road (1446)	Bridge	Reconstruct and widen bridge to (5) lanes (74 feet)	2013	\$ 13,927,077	\$ -	\$ 10,678,123	\$ 342,333	\$ 50,543	\$ -	\$ 2,856,077	\$ -
Urban	3	Johnson Creek Bridge (6135)	Bridge (6135)	Reconstruct and widen bridge to (5) lanes (74 ft)	2009	\$ 3,184,566	\$ -	\$ 3,158,805	\$ -	\$ 25,762	\$ -	\$ -	\$ -
<b>Bridge / Culvert Replacement Project Subtotal</b>					<b>22.5%</b>	<b>\$ 72,184,474</b>	<b>\$ 12,456,381</b>	<b>\$ 42,648,748</b>	<b>\$ 346,300</b>	<b>\$ 264,526</b>	<b>\$ 6,759,942</b>	<b>\$ 7,326,983</b>	<b>\$ 2,381,595</b>
<b>Inersection Projects</b>													
Rural	127	Stafford Road	Stafford/Mountain intersection	Install traffic signal and southbound left-turn lane	2011	\$ 1,564,689	\$ 1,221,164	\$ -	\$ -	\$ -	\$ 199,218	\$ 144,308	\$ -
Urban	86	Oatfield Road	Oatfield Road/Roethe Road intersection	Install signal and left-turn lanes, improve approach grade on Roethe Road	2004	\$ 1,020,286	\$ -	\$ -	\$ -	\$ -	\$ 480,286	\$ 540,000	\$ -
<b>Intersection Project Subtotal</b>					<b>0.8%</b>	<b>\$ 2,584,975</b>	<b>\$ 1,221,164</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ 679,503</b>	<b>\$ 684,308</b>	<b>\$ -</b>
<b>ITS Projects</b>													
Urban	N/A	CCTV Camera Project	Johnson Creek Blvd	Install CCTV Cameras	2006	\$ 64,219	\$ -	\$ -	\$ -	\$ -	\$ 64,219	\$ -	\$ -
Urban	N/A	ITS - Weather Stations	Johnson Creek Blvd, Idleman, Wally Rd	Install weather stations	2007	\$ 195,399	\$ -	\$ -	\$ -	\$ -	\$ 195,399	\$ -	\$ -
Urban	35	Harmony Road	Linwood Avenue to 82nd Avenue	ITS and pedestrian improvements	2013	\$ 1,685,408	\$ 1,500,000	\$ -	\$ -	\$ -	\$ 32,666	\$ -	\$ 152,742
Urban	N/A	DSB Fiber Connection	DSB & TOC Design	Fiber connection to DSB	2009	\$ 502,637	\$ -	\$ -	\$ -	\$ 385,225	\$ 117,412	\$ -	\$ -
Urban	N/A	Intelligent Transportation System	ITS Implementation	CCTV, Fiber Optic connections, weather stations	2009	\$ 1,696,383	\$ 1,192,992	\$ -	\$ -	\$ -	\$ 503,391	\$ -	\$ -
<b>ITS Project Subtotal</b>					<b>1.3%</b>	<b>\$ 4,144,045</b>	<b>\$ 2,692,992</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ 385,225</b>	<b>\$ 913,086</b>	<b>\$ -</b>	<b>\$ 152,742</b>
<b>Light Rail Project Match</b>													
Urban	N/A	South Corridor Transit ways	Gateway to Clackamas Town Center	Light Rail Local Match	2009	\$ 36,477,895	\$ -	\$ -	\$ -	\$ 299,286	\$ -	\$ -	\$ 36,178,610
<b>Light Rail Project Match Subtotal</b>					<b>11.4%</b>	<b>\$ 36,477,895</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ 299,286</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ 36,178,610</b>
<b>Other Projects</b>													
Urban	N/A	Holly Lane	Bridge	Bridge painting	2011	\$ 319,945	\$ -	\$ -	\$ -	\$ -	\$ 319,945	\$ -	\$ -
Urban	N/A	King Road	King Rd/Bell Ave Intersection	Signal repair	2012	\$ 155,806	\$ -	\$ -	\$ -	\$ -	\$ 155,806	\$ -	\$ -
Urban	N/A	Springwater Road	Springwater Rd/Hwy 224 Intersection	Temporary signal	2012	\$ 396,468	\$ -	\$ 396,468	\$ -	\$ -	\$ -	\$ -	\$ -
Urban	N/A	Clackamette Cove	Clackamette Cove	Clackamette Cove Dredging	2009	\$ 63,295	\$ -	\$ -	\$ -	\$ 56,135	\$ 7,160	\$ -	\$ -
Rural	257	Wilsonville Road	Wilsonville/Ladd Hill Road intersection	Construct new railroad crossing	2011	\$ 101,366	\$ -	\$ -	\$ -	\$ -	\$ 74,366	\$ 27,000	\$ -
Rural	N/A	Bakers Ferry Road	Bridge (Clackamas River)	Bridge painting	2009	\$ 492,812	\$ -	\$ 492,812	\$ -	\$ -	\$ -	\$ -	\$ -
Rural	N/A	Firwood Road	Curve Improvement	Widen and add guardrail	2009	\$ 123,274	\$ -	\$ 123,274	\$ -	\$ -	\$ -	\$ -	\$ -
Rural	N/A	Cherryville Road	Cherryville Rd & Brightwood Loop	Guardrail replacement	2005	\$ 90,929	\$ -	\$ -	\$ -	\$ -	\$ 90,929	\$ -	\$ -
Rural	N/A	Petes Mountain Road	Willamette Falls Road to Schaeffer Road	Guardrail installation	2010	\$ 41,288	\$ -	\$ -	\$ -	\$ -	\$ 41,288	\$ -	\$ -
<b>Other Project Subtotal</b>					<b>0.6%</b>	<b>\$ 1,785,182</b>	<b>\$ -</b>	<b>\$ 1,012,553</b>	<b>\$ -</b>	<b>\$ 56,135</b>	<b>\$ 689,494</b>	<b>\$ 27,000</b>	<b>\$ -</b>
<b>Project Design</b>													
Rural	N/A	Henrici Road	500' W of Athens Drive	Stormwater redesign	2012	\$ 440,932	\$ 397,695	\$ -	\$ -	\$ -	\$ 43,237	\$ -	\$ -
Rural	267	Arndt Road	Knights Bridge to 99E	New (5) lane road	2006	\$ 124,173	\$ -	\$ 87,189	\$ -	\$ -	\$ -	\$ 36,984	\$ -
Urban	101	Industrial Way	Lawnfield Road to Mather Road	New (3) lane collector	2012	\$ 382,992	\$ -	\$ 370,000	\$ -	\$ -	\$ 12,992	\$ -	\$ -
Urban	N/A	Tolbert Road	Tolbert Rd/Industrial Way Intersection	Overpass and connection of Tolbert/82nd Drive	2014	\$ 2,000,000	\$ -	\$ 2,000,000	\$ -	\$ -	\$ -	\$ -	\$ -
Urban	N/A	Lawnfield Rd	98th Ct to 97th Ave	Design roadway improvements	2012	\$ 900,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 900,000
<b>Project Design Subtotal</b>					<b>1.2%</b>	<b>\$ 3,848,096</b>	<b>\$ 397,695</b>	<b>\$ 2,457,189</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ 56,228</b>	<b>\$ 36,984</b>	<b>\$ 900,000</b>
<b>Project Planning</b>													
Rural	N/A	Wright Road	Bridge (Woodcock Creek)	Flood study	2008	\$ 37,845	\$ -	\$ -	\$ -	\$ -	\$ 37,845	\$ -	\$ -
Urban	15	West Collector (79th)	Johnson Creek Blvd. to King Road	Construct new collector	2008	\$ 17,170	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 17,170
Urban	N/A	Sunrise Corridor EIS &	Sunrise Corridor in Clackamas	Environmental Impact Statement and	2011	\$ 7,624,604	\$ 5,852,778	\$ 909,000	\$ -	\$ -	\$ -	\$ -	\$ 862,825

2000 to 2011 - TSP Projects Completed or In Process (Jan 18, 2012 version)					* when project years is highlighted in yellow, it is a project currently underway and the cost is an estimated cost.								
Urban / Rural	2000 TSP MAP #	PROJECT	SECTION	DESCRIPTION	Completed	Cost	FEDERAL REVENUE	STATE REVENUE	OTHER REVENUE SOURCES	LOCAL GOVT & OTHER AGENCIES	ROAD FUND	SYSTEM DEVELOPMENT CHARGES	TAX INCREMENT FINANCING
Urban	65	SE 172nd Avenue	Sunnyside Road to Multnomah County Line	Four lane widening with left-turn lanes, ext. of 172nd Ave to Hwy 214	2012	\$ 1,808,645	\$ 1,563,186	\$ -	\$ 15,978	\$ -	\$ -	\$ 229,481	\$ -
Urban	35	Harmony Road	82nd Avenue - Highway 224	Widen to (5) lanes	2009	\$ 1,823,376	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 1,823,376	\$ -
Urban	28	Causey Avenue	Extend Causey over I-205 to Frontage Road	Construct (3) lane overpass to Frontage Road	2007	\$ 35,755	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 35,755	\$ -
<b>Project Planning Subtotal</b>					<b>3.5%</b>	<b>\$ 11,347,395</b>	<b>\$ 7,415,964</b>	<b>\$ 909,000</b>	<b>\$ 15,978</b>	<b>\$ -</b>	<b>\$ 37,845</b>	<b>\$ 2,088,612</b>	<b>\$ 879,995</b>
<b>Reconstruction Projects</b>													
Rural	298	Toliver Road	Between Highway 213 and Molalla Avenue	Install traffic signal, curb and sidewalk, widen and pave	2002	\$ 191,872	\$ 162,897	\$ -	\$ -	\$ -	\$ 28,975	\$ -	\$ -
Rural	N/A	242nd Avenue	at Borges Road	Widen and modify curve	2006	\$ 717,835	\$ -	\$ -	\$ -	\$ -	\$ 717,835	\$ -	\$ -
Rural	209	SE 282nd Avenue	282nd/Stone intersection	Add turn lanes	2008	\$ 242,445	\$ -	\$ -	\$ -	\$ -	\$ 242,445	\$ -	\$ -
Rural	N/A	McCabe/Music Camp Paving	Sandy area		2007	\$ 1,567,215	\$ 438,462	\$ -	\$ -	\$ -	\$ 1,128,753	\$ -	\$ -
Rural	N/A	Barlow Road	Barlow Road/Zimmerman Rd Intersection	Remove or decrease horizontal curves, widen lanes and shoulders to County standards	2013	\$ 1,358,842	\$ 1,217,628	\$ -	\$ -	\$ -	\$ 141,214	\$ -	\$ -
Rural	N/A	Stafford Road	Advance Rd to Rosemont Rd	Paving overlay	2011	\$ 1,180,094	\$ -	\$ -	\$ -	\$ -	\$ 1,180,094	\$ -	\$ -
Rural	N/A	Childs Road	Stafford Rd to Lake Oswego limits	Paving overlay	2011	\$ 527,004	\$ -	\$ -	\$ -	\$ -	\$ 527,004	\$ -	\$ -
Rural	265	Arndt Road	Barlow Road to Knights Bridge Road	Remove or decrease horizontal curves, widen lanes and shoulders to County standards	2003	\$ 681,388	\$ -	\$ 498,518	\$ -	\$ -	\$ -	\$ 182,870	\$ -
Rural	N/A	Clackamas River Drive	Clackamas River Drive	Slide repair	2006	\$ 504,090	\$ -	\$ -	\$ -	\$ -	\$ 504,090	\$ -	\$ -
Rural	N/A	Gronlund Road	Gronlund Road	Slide repair	2006	\$ 94,367	\$ -	\$ -	\$ -	\$ -	\$ 94,367	\$ -	\$ -
Urban	N/A	Addie Street	Hull Ave to Jennings Ave	Street & drainage improvements	2003	\$ 359,468	\$ 250,000	\$ -	\$ -	\$ -	\$ 109,468	\$ -	\$ -
Urban	N/A	Schroeder Avenue	Courtney Ave to end	Street & drainage improvements	2004	\$ 258,636	\$ 250,000	\$ -	\$ -	\$ -	\$ 8,636	\$ -	\$ -
Urban	N/A	Chestnut Street	Woodland Way to Linden Lane	Street & drainage improvements	2003	\$ 381,458	\$ 248,000	\$ -	\$ -	\$ -	\$ 133,458	\$ -	\$ -
Urban	N/A	Amherst Street	98th to 102nd (N of OR212)	Pave shoulder, add curbs, adjust storm drainage	2006	\$ 613,911	\$ 122,000	\$ -	\$ -	\$ 104,649	\$ 387,262	\$ -	\$ -
Urban	N/A	Park Avenue	River Road to Hwy 99E	Pave road and add drainage improvements	2006	\$ 1,220,549	\$ 340,000	\$ -	\$ -	\$ 184,265	\$ 696,284	\$ -	\$ -
Urban	N/A	Evelyn Street	Evelyn St/Jennifer St Intersection	Intersection realignment	2013	\$ 938,447	\$ -	\$ -	\$ -	\$ -	\$ 140,660	\$ 797,787	\$ -
Urban	N/A	Kellogg Drive	Kellogg Drive and Rusk Road	Intersection improvement - sight distance	2006	\$ 299,465	\$ -	\$ -	\$ -	\$ 17,012	\$ 282,453	\$ -	\$ -
Urban	N/A	Harmony Road/Lake Road Paving	SE Milwaukie	Overlay paving Harmony Rd/Lake Rd/Pheasant Ct/Frontage Rd/Rusk Rd	2006	\$ 559,445	\$ -	\$ -	\$ -	\$ -	\$ 559,445	\$ -	\$ -
Urban	N/A	Stevens Road	Hillcrest Road to Monterey Avenue	Overlay paving and 36" stormline replacement	2006	\$ 265,395	\$ -	\$ -	\$ -	\$ 108,255	\$ 157,139	\$ -	\$ -
Urban	N/A	Linwood Avenue	Linwood/King intersection	Replace unstable traffic pole/mast arm	2008	\$ 217,496	\$ -	\$ -	\$ -	\$ -	\$ 217,496	\$ -	\$ -
Urban	N/A	Monterey Avenue	Causey/William Otty to Stevens	Reconstruction and final paving	2009	\$ 338,048	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 338,048	\$ -
Urban	N/A	Sunnyside Road	82nd Avenue to I-205	Paving and video detection upgrade	2011	\$ 1,388,841	\$ 1,200,468	\$ -	\$ -	\$ -	\$ 188,372	\$ -	\$ -
Urban	N/A	King Road	82nd Avenue to Wichita	Paving	2011	\$ 665,831	\$ 571,967	\$ -	\$ -	\$ -	\$ 93,864	\$ -	\$ -
Urban	N/A	Beavercreek Road	Marjorie Road to Henrici Road	Paving overlay	2011	\$ 1,603,290	\$ -	\$ 693,913	\$ -	\$ -	\$ 909,377	\$ -	\$ -
Urban	N/A	82nd Drive	Hwy 212 to Lawnfield	Paving overlay	2011	\$ 448,919	\$ -	\$ -	\$ -	\$ -	\$ 448,919	\$ -	\$ -
Urban	N/A	King Road	Wichita Ave to Hollywood Ave	Paving overlay	2011	\$ 73,522	\$ -	\$ -	\$ -	\$ -	\$ 73,522	\$ -	\$ -
Urban	76	SE 152nd Avenue Phase 1	Right angle curves	Realign curves to collector standards	2004	\$ 640,712	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 640,712	\$ -
Urban	166	Eckert Lane	Extend Eckert Lane to Andregg Parkway	New two lane collector	2005	\$ 247,963	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 247,963	\$ -
<b>Reconstruction Project Subtotal</b>					<b>5.5%</b>	<b>\$ 17,586,549</b>	<b>\$ 4,801,423</b>	<b>\$ 1,192,431</b>	<b>\$ -</b>	<b>\$ 414,181</b>	<b>\$ 8,971,134</b>	<b>\$ 2,207,380</b>	<b>\$ -</b>
<b>Road Capacity Projects</b>													
Rural	114	Stafford Road	Stafford/Rosemont Road intersection	Install traffic signal, southbound turn lane and northbound turn lane	2005	\$ 1,486,842	\$ 450,270	\$ -	\$ -	\$ 246,790	\$ 459,691	\$ 330,091	\$ -
Rural	120	Stafford Road	Stafford/Borland intersection	Install traffic signal and left-turn lanes on all approaches	2010	\$ 5,002,322	\$ -	\$ -	\$ 1,543,571	\$ -	\$ -	\$ 3,458,751	\$ -
Urban	58	Sunnybrook extension east	97th Avenue to Sunnyside at 108th Avenue	New (5) lane arterial	2005	\$ 16,900,000	\$ 13,000,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 3,900,000

2000 to 2011 - TSP Projects Completed or In Process (Jan 18, 2012 version)					* when project years is highlighted in yellow, it is a project currently uinderway and the cost is an estimated cost.								
Urban / Rural	2000 TSP MAP #	PROJECT	SECTION	DESCRIPTION	Completed	Cost	FEDERAL REVENUE	STATE REVENUE	OTHER REVENUE SOURCES	LOCAL GOVT & OTHER AGENCIES	ROAD FUND	SYSTEM DEVELOPMENT CHARGES	TAX INCREMENT FINANCING
Urban	59	Sunnyside Road Phase 1	Stevens to 122nd Avenue	Widen to (5) lanes, with bridge	2004	\$ 26,183,728	\$ 5,611,252	\$ -	\$ -	\$ -	\$ -	\$ 5,536,252	\$ 15,036,224
Urban	106	Jennifer/135th	130th-135th and Jennifer-Highway 212	Two lane extension and reconstruction of 135th	2004	\$ 3,000,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 3,000,000
Urban	N/A	139th Avenue	S of Sunnyside Avenue	Park access	2007	\$ 515,279	\$ -	\$ -	\$ -	\$ -	\$ 515,279	\$ -	\$ -
Urban	31	Monterey Avenue	82nd Avenue to 92nd Avenue	Widen to (3) lanes with parking to main street standards	2009	\$ 4,557,860	\$ -	\$ -	\$ 294,981	\$ 27,070	\$ -	\$ -	\$ 4,235,810
Urban	36	Sunnybrook Rd extension (W)	82nd Avenue to Harmony Road	Extend as a minor arterial		\$ 10,557,643	\$ -	\$ -	\$ 193,415	\$ -	\$ -	\$ -	\$ 10,364,229
Urban	102, 105	SE 98th Avenue , 102nd industrial access improv.	Lawnfield Road to Mather Road	Widen to (3) lanes; Upgrade to collector standards	2012	\$ 8,782,075	\$ -	\$ 1,000,000	\$ 59,250	\$ -	\$ -	\$ -	\$ 7,722,825
Urban	74	Summers Lane Ext. Phase 3	132nd Avenue to 142nd Avenue	New (2) lane extension	2003	\$ 41,521	\$ -	\$ -	\$ -	\$ -	\$ 41,521	\$ -	\$ -
Urban	64	SE 147th Avenue	Sunnyside Road to Monner Road	Realign road to improve grade	2005	\$ 7,908,622	\$ 1,259,996	\$ -	\$ -	\$ -	\$ -	\$ 6,648,625	\$ -
Urban	60, 61	Sunnyside Road Phase 2 , 3	122nd Avenue to 132nd Avenue	Widen to (5) lanes	2006	\$ 23,266,050	\$ 1,877,354	\$ 9,727,993	\$ 303,017	\$ 144,982	\$ -	\$ 11,212,704	\$ -
Urban	62, 63	Sunnyside Road Phase 4	152nd Avenue to 172nd Avenue	Widen to (5) lanes, with bridge , Install traffic signal and left-turn lanes	2011	\$ 29,559,396	\$ 1,248,240	\$ 9,272,006	\$ 3,581,635	\$ 567,796	\$ -	\$ 14,889,719	\$ -
Urban	65	SE 172nd Avenue	Sunnyside Road to Highway 212	Four lane widening with left-turn lanes, ext. of 172nd Ave to Hwy 212	2016	\$ 28,480,014	\$ 9,063	\$ 3,089,684	\$ 785,543	\$ 430,961	\$ -	\$ 17,788,746	\$ 6,376,017
<b>Road Capacity Project Subtotal</b>					<b>51.8%</b>	<b>\$ 166,241,352</b>	<b>\$ 23,456,175</b>	<b>\$ 23,089,682</b>	<b>\$ 6,761,412</b>	<b>\$ 1,417,599</b>	<b>\$ 1,016,491</b>	<b>\$ 59,864,888</b>	<b>\$ 50,635,104</b>
<b>OVERALL TOTAL</b>						<b>\$ 321,047,255</b>	<b>\$ 53,498,232</b>	<b>\$ 72,178,603</b>	<b>\$ 7,123,690</b>	<b>\$ 3,410,769</b>	<b>\$ 21,344,867</b>	<b>\$ 72,363,049</b>	<b>\$ 91,128,046</b>

# Technical Memorandum



17355 Boones Ferry Road  
Lake Oswego, OR 97035  
Phone (503)635-3618  
Fax (503) 635-5395

**To:** Susan Wright  
KAI

**From:** Gary Alfson

**Date:** 1/2/2013

**Subject:** Cost Estimate Assumptions

**Project No.:** Clackamas County TSP

In preparation of the cost estimates for the list of projects identified by KAI for the Clackamas County TSP we have made to following assumptions

- The unit costs for each roadway classification was computed per lineal foot based on the classification provided in the Functional Classification and Urban or Rural columns in the KAI master spreadsheet and the attached table (Roadway Cost Estimates.xlsx) prepared by Otak.
- The total project costs have been estimated based on the length and roadway classification data provided in the KAI spreadsheet.
- Roadway costs were computed assuming reconstruction of the existing roadway when upgrading to full standards.
- Intersection improvement costs have been estimated using 500 feet per leg of the side street using the Rural Arterial classification section. This length was doubled for state highway intersections.
- Added turn lane costs have been estimated using 500 feet of a left turn lane of Rural Arterial classification, widening only one side of the existing roadway for right turn lanes and both sides for left turn lanes. This length was doubled for state highway intersections.
- Turn lanes at major intersections include left turns at all side streets of arterial and collector classifications, including the beginning and ending intersections.
- Driveways and private drives have not been included.
- Projects listed as bikeways have been estimated using the “Bike lane widening, urban” classification, unless otherwise noted. The cost for this item also includes the construction of landscape strips and sidewalks.
- Projects listed as pedways have been estimated using the “Sidewalk widening, urban” classification, unless otherwise noted.
- Projects that listed the percentage of bikeway and pedways already completed have be a percentage assigned to the overall length of improvements as follows:
  - 1-25% complete: improve 87.5% of project length
  - 26-50% complete: improve 62.5% of project length

- 51-75% complete: improve 37.5% of project length
- Not specified : improve 100% of project length.
- Safety audit costs have been input at \$30,000 per mile.
- Road closure costs have been input at \$30,000 each.
- The costs for vertical realignment have not been included.
- The cost for horizontal realignment has not been included beyond the length of the roadway improvements or the 500 foot long leg of intersection improvements.
- The costs for right-of-way have not been included.
- Water quality or detention facilities are not included.
- Wetland impacts or sensitive area mitigation not included.
- The estimated project costs have been taken from the “cost estimate from existing plans” or have not been provided when there is a lack of adequate information to estimate the project.
- Estimates do not include traffic signal retrofit work, irrigation, culvert crossings, retaining walls, or sound walls.
- Bridge locations and lengths were estimated from Google Earth images when no other resource was available.
- The undercrossing projects have been estimated using the bridge unit cost.
- Costs for public or franchise utilities are not included (water, sanitary sewer, power, natural gas, cable, telephone).
- Striping assumes thermoplastic materials.
- Signing frequency set at 200' o.c. in urban areas, 400' o.c. in rural areas.
- Earthwork based on 1.25' excavation/embankment across entire ROW. No rock excavation. Assumes 12" stripping (haul-off)
- Pavement section is assumed and may vary based on geotechnical recommendations and traffic volumes.

**Cost Estimate Assumptions**  
**Clackamas County Roadways**  
01/15/13

This preliminary estimate was prepared using the following assumptions:

1. Preliminary cost estimate based on roadway classification parameters specified below.
2. Earthwork based on 1.25' excavation/embankment across entire ROW. No rock excavation. Assumes 12" strippings (haul-off)
3. Pavement section is assumed and may vary based on geotechnical recommendations and traffic volumes.
4. Cost estimate is based on lineal foot of roadway for street and storm improvements.
5. Quantities and costs are preliminary and subject to change upon completion of detailed construction plans and geotechnical report.
6. Striping assumes thermoplastic material.
7. Signing frequency set at 200' o.c. in urban areas, 400' o.c. in rural areas.
8. Estimates **do not** include traffic signal work, irrigation, bridges or culvert crossings, retaining walls, or sound walls.
9. New franchise utility costs not included (underground power, natural gas, cable, telephone).
10. Aerial utility relocation cost not included.
11. Utility service connections/reconnections not included.
12. No impacts or structural section changes for roadways that cross high-pressure utility lines.
13. Water quality or detention facilities are not included.
14. Right of way acquisition is included.
15. Wetland impacts or sensitive area mitigation not included.

Roadway Classification	Clack Co Dwg	ROW Width	Paved Width	Number of Travel Lanes	Travel Lane Width (ft)	Number of Turn Lanes	Turn Lane Width (ft)	Bike Lane Width (ft)	Shoulder Width (ft)	Sidewalk Width (ft)	Landscape Strip Width (ft)	Pavement Section	Roadway \$/LF
Expressway/State Highway, full	N/A	134	78	4	12	1	14	8	8	0	40	8" AC/17" rock	\$2,166
State Highway	N/A	52	36	2	12	0	0	6	8	0	0	8" AC/17" rock	\$956
Expressway/State Highway, add lane	N/A	28	20	1	12	0	0	8	4	0	0	8" AC/17" rock	\$497
Expressway/State Highway, add ramp	N/A	28	20	1	12	0	0	4	4	0	0	8" AC/17" rock	\$515
Major Arterial Urban	C140	134	98	6	12	1	14	6	0	8	5	7.5" AC/14" rock	\$6,306
Arterial, Urban 2 (unassigned)	C140	110	74	4	12	1	14	6	0	8	5	7.5" AC/14" rock	\$5,091
Minor Arterial Urban	C141	90	60	4	12	0	14	6	0	8	5	7.5" AC/14" rock	\$4,190
Arterial, Urban 4 (unassigned)	C142	80	50	2	12	1	14	6	0	8	5	7.5" AC/14" rock	\$3,685
Arterial, Urban 5 (unassigned)	C143	60	36	2	12	0	14	6	0	8	5	7.5" AC/14" rock	\$2,784
Major Arterial Rural	C144	70	50	2	12	1	14	6	6	0	0	7.5" AC/14" rock	\$2,625
Minor Arterial Rural	C140	60	36	2	12	0	14	6	6	0	0	7.5" AC/14" rock	\$2,099
Collector Urban	C130	70	49	2	12	1	13	6	0	7	5	7.5" AC/14" rock	\$3,234
Collector, Rural Center (unassigned)	C130	60	36	2	12	0	0	6	0	7	5	7.5" AC/14" rock	\$1,589
Collector Rural	C130	60	49	2	12	1	13	6	6	0	0	6" AC/14" rock	\$1,215
Collector, Rural 2 (unassigned)	C130	60	36	2	12	0	0	6	6	0	0	6" AC/14" rock	\$1,074
Connector Urban	C120	55	34	2	17	0	0	0	0	6	5	4" AC/9" rock	\$2,632
Connector Rural	C120	55	24	2	12	0	0	0	6	0	0	4" AC/9" rock	\$871
Connector, Commercial/Multi-Family (unassigned)	C120	60	34	2	17	0	0	0	0	7	5	7.5" AC/14" rock	\$2,562
Connector, Industrial (unassigned)	C120	60	42	2	21	0	0	0	0	5	5	7.5" AC/14" rock	\$2,608
Local Urban	C110	50	28	2	14	0	0	0	0	6	5	4" AC/9" rock	\$2,760
Local Rural	C110	48	24	2	12	0	0	0	6	0	0	4" AC/9" rock	\$947
Local, Commercial/Multi-Family (unassigned)	C110	60	32	2	16	0	0	0	0	7	5	7.5" AC/14" rock	\$2,971
Un Assigned Local, Industrial	C110	60	42	2	21	0	0	0	0	5	5	7.5" AC/14" rock	\$3,062
Bike Lane widening (BL, LS, SW), Urban	N/A	31	16	0	0	0	0	6	0	8	5	7.5" AC/14" rock	\$2,138
Sidewalks (LS, SW), Urban	N/A	17	4	0	0	0	0	0	0	8	5	N/A	\$1,563
Shoulders (SHLDR), Rural	N/A	5	0	0	0	0	0	0	6	0	0	6" rock	\$366
Shoulders, paved-gravel, Rural	N/A	23	16	0	0	0	0	6	6	0	0	6" AC/14" rock	\$850
Add travel lane	N/A	24	18	1	12	0	0	6	6	0	0	7.5" AC/14" rock	\$511
Add turn lane	N/A	26	20	0	0	1	14	6	6	0	0	7.5" AC/14" rock	\$285,000
Multi-use path	N/A	16	12	0	0	0	0	0	2	0	0	4" AC/9" rock	\$236

EA



## TECHNICAL MEMORANDUM

### Clackamas County TSP Update

Alternative to Traditional Development Review and Transportation Funding

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Date: July 6, 2012 Project #:11732  
To: Karen Buehrig, Clackamas County  
From: Susan Wright, P.E., Erin Ferguson, P.E., and Marc Butorac, P.E., PTOE  
cc: Larry Conrad, Clackamas County

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This memorandum presents an alternative approach to the traditional process used to identify and fund transportation projects through the land use development process. This approach could be applied to specific areas of the County such as the Clackamas Regional Center and Industrial Area or to other areas where the County's current concurrency policies are prohibiting economic development and growth. This approach could work in conjunction with the potential designation of these areas as Mixed-Use Multi-Modal Areas (MMAs) as recently provided for within the Transportation Planning Rule (OAR 660-012). An MMA is an area designated by a local jurisdiction that is a "mixed-use, pedestrian-friendly center or neighborhood" (such as a Regional Center) that is exempt from congestion standards. It should also allow for a range of uses, have multi-modal friendly design standards, and have lower parking requirements than other areas.

The current practice for development review is inherently uncertain and thus financially risky for developers and provides limited control to the County in terms of where privately funded transportations projects are constructed. The traditional or current approach based on vehicular level-of-service (LOS) (or volume-to-capacity ratios on State owned facilities) also tends to result in wider roadways to accommodate automobiles, which potentially negatively impacts the environment for pedestrian and bicyclists, and improvements being developed in proximity of the subject land use development. An alternative to the traditional or current vehicular LOS-based practice of identifying and funding transportation projects is critical given Clackamas County's interest in creating a transportation system that serves the pedestrian, bicycle, transit, and automobile modes equally well. The sections below discuss the traditional approach in more detail and presents an alternative approach more conducive to funding multimodal transportation projects systematically.

## TRADITIONAL APPROACH

This section outlines the traditional and current approach in Clackamas County and discusses its associated strengths and limitations. The traditional approach includes the following general steps:

- 1) The developer is required to perform a transportation impact analysis (TIA) or transportation impact study (TIS) to determine the degree to which the development's estimated vehicle trips reduce the remaining vehicle capacity of the surrounding transportation system.
- 2) The developer is required to pay for mitigations to intersections that are forecasted to exceed level of service standards (i.e., experience too much vehicle delay in the evening peak period than deemed acceptable by the governing agency's LOS or v/c standard) as a result of the development's vehicle trip generation.
- 3) The County assesses a Transportation System Development Charge (SDC) to developers based on the number of vehicle trips their proposed development is estimated to generate.

Mitigations noted in the second bullet above can include adding one or multiple turn lanes to an intersection, installing a traffic signal, constructing a roundabout, and other similar types of modifications that add vehicle capacity to intersections. These intersections are typically in the development's vicinity, based on the past practices of identifying study areas for the required transportation impact analyses, and may not represent the highest capacity and/or safety needs across the transportation system.

## Strengths

The strengths of the traditional approach are outlined below.

**Minimize Vehicular Delay at a Low Cost to the County** — The traditional approach is structured to minimize delay at heavily traveled intersections on the system by using capacity-enhancing projects funded by developers. Therefore, large intersection capacity enhancements are often funded by developers rather than the County. These projects minimize delay for vehicles at the intersections serving the highest traffic volumes.

**Vehicular Capacity Improvements Made Concurrently With Development** — The traditional approach ensures that capacity improvements are made as they become necessary based on LOS standards and on the findings of the privately funded transportation impact analyses.

**Good Approach for Undeveloped Areas** — The traditional approach works well in undeveloped areas where infrastructure can be constructed as needed by developers. Assuming current roadway design standards have provisions for pedestrians and bicycles, a multi-modal system can be developed simultaneously with development.

## Limitations

The limitations of the traditional approach are outlined below.

**Inherently Auto-Focused** — Using the vehicular LOS performance standard described above (or a similar type of standard) has the potential to create a cycle of constructing wider roadways, which accommodate more automobiles while degrading the environment for pedestrians and bicyclists.

**Uncertainty and Risk for Developers** — The traditional approach is a risky and uncertain process for developers. At a minimum a developer invests \$5,000 to \$30,000 to prepare a trip generation letter and to conduct a TIA (possibly more depending on the size of the study) to determine their potential transportation system costs. If developers need to mitigate intersections, the costs increase quickly. The cost of installing a single turn lane can be \$100,000 and the cost of signalization can be \$250,000 or more; these costs can be higher depending on the physical conditions at the intersection. The process of preparing a TIA and identifying mitigations can also be time-consuming given the amount and complexity of the analysis that needs to take place and the corresponding agency review of the analysis. There is also a question of fairness of the approach to developers, because the approach penalizes the last developers to an area, whose traffic pushes an intersection over its LOS standard.

**Equity to Large and Small Development** – Large developments tend to pay for a majority of capacity improvements under the traditional approach, while smaller developments are not always required to pay for their incremental impact on the transportation system. In other words, a development that generates 1,000 daily trips is more likely to pay for capacity improvements than 10 developments that generate 100 daily trips. On the other hand, a large development could consume all of the available capacity on a given facility without triggering the need for an improvement and then when a smaller development comes along it may be required to pay for the improvement.

**Potential to Discourage Density** — The traditional approach rewards and encourages development in lower-density areas where intersections have relatively low traffic volumes. This has the potential to encourage sprawl as development and transportation investments occur around the perimeter of the urban area.

**Does Not Actively Incorporate Safety-Related Elements** — The traditional approach does not include a mechanism for funding safety elements unless an intersection that happens to have higher crash rates is also identified as being in need of additional vehicle capacity. In that case, mitigations to reduce crashes could be incorporated into the intersection project, but it is not required.

**Poor Approach for Highly Developed Areas** — The traditional approach limits a jurisdiction's ability to require pedestrian and bicycle improvements from developers beyond their site frontage even if there are critical missing links in the pedestrian and bicycle network between the development and other activity centers or residential areas.

**Limits Ability to Reach Community Goals** — The traditional approach results in transportation projects constructed in a piecemeal fashion that are potentially isolated. Projects occur where development occurs, which is not always where transportation projects are needed. This piecemeal, unsystematic approach to implementing transportation projects makes it challenging for a county and community to reach system-wide goals. For example, the TSP vision goals agreed upon by the Board of County Commissioners are provided below.

VISION - Building on the foundation of our existing assets, we envision a well-maintained and designed transportation system that provides safety, flexibility, mobility, accessibility and connectivity for people, goods and services; is tailored to our diverse geographies; and supports future needs and land use plans.
<b>Goal 1: Sustainable</b>
Provide a transportation system that optimizes benefits to the environment, the economy and the community.
<b>Goal 2: Local Businesses and Jobs</b>
Plan the transportation system to create a prosperous and adaptable economy and further the economic well-being of businesses and residents of the county.
<b>Goal 3: Livable and Local</b>
Tailor transportation solutions to suit the diversity of local communities.
<b>Goal 4: Safety and Health</b>
Promote a transportation system that maintains or improves our safety, health, and security.
<b>Goal 5: Equity</b>
Provide an equitable transportation system.
<b>Goal 6: Fiscally Responsible</b>
Promote a fiscally responsible approach to protect and improve the existing transportation system and implement a cost-effective system to meet future needs.

These are all system-wide goals, many of which are inherently multimodal. To meet these goals, the County and community need funding tools that provide a higher level of control and flexibility so funds can be focused on transportation projects that improve the system for multiple modes—as opposed to an approach resulting in spot improvements that benefit a single mode.

## Summary

The traditional LOS performance standard approach is structured to add vehicle capacity to the transportation system at locations where trips generated by new development create unacceptable levels of vehicle delay. The primary strength of this approach is it provides a means to fund vehicle capacity projects with funds from developers. However, it does not provide the flexibility and control useful when working to systematically develop a sustainable, safe, and livable multimodal transportation network.

A funding mechanism that provides more flexibility in where and how funds are spent while increasing certainty to developers would give the County more systematic and consistent approach to meet its

transportation system plan goals. Transportation projects could be planned and constructed systematically to work towards mitigation packages that serve multiple modes safely and equitably, while supporting economic prosperity and accommodating growth. A funding mechanism that provides flexibility, certainty, and the ability to strategically pursue system-wide goals is discussed in the following section.

## ALTERNATIVE APPROACH

This section outlines the alternative approach and presents the associated strengths and limitations. The alternative approach discussed here is based on Washington County's recently adopted approach, but expanded to specifically address the goals and objectives of Clackamas County. The general steps include:

- 1) Developers are required to prepare transportation assessments as opposed to transportation impact studies. The assessments focus on:
  - a) On-site vehicular, pedestrian, truck delivery, and emergency service circulation and safety;
  - b) Safety of the proposed site access(es) to the transportation system;
  - c) Multimodal LOS along the adjacent collector and/or arterial corridors; and
  - d) Person trips generated by the development, including those person trips expected to travel through any of the County's previously identified SPIS sites, safety focus intersections, and/or road safety audit corridors.
- 2) The developer mitigates safety issues on-site and at their access(es) points to the transportation system.
- 3) The developer contributes financially to a safety program established and run by the County to study, identify improvements and implement for the County's SPIS sites, safety focus intersections, and road safety audit corridors. The amount developers would pay would be based on the number of person trips expected to travel through the County's SPIS sites, safety focus intersections, and road safety audit corridors.
- 4) The County transitions to a Multimodal SDC in the subject area, whereby developers are assessed based on the number of person trips the proposed development is estimated to generate. This allows the system revenues to be used to fund capacity related improvements to the vehicular, pedestrian, bicycle, and transit systems.

The County SPIS sites, safety focus intersections, and road safety audit corridors noted above are predetermined by the County through the transportation system plan update. As noted in Step 3, the County could have developers pay into an established County program that funds the study of and implementation of improvements at the safety locations. Improvements to the safety locations would consider the full range of potential engineering, education and/or enforcement solutions and strategies. This would enable the County to address safety systematically, holistically, and in a more proactive manner.

## Strengths

The strengths of the alternative approach are discussed below.

**Inherently Multimodal** — Developers are required to calculate the number of person-trips their proposed development would generate, which helps create the awareness of multiple modes and the need to serve them. The funds collected based on person-trips are then used to fund multimodal projects that add capacity and facilities for pedestrians, bicyclists, transit, freight, and automobiles.

**Certainty and Lower Risk for Developers** — The alternative approach results in more certainty for the developer and lower financial risk. Hiring a transportation consultant to prepare a transportation assessment letter or memorandum to the County would cost between \$1,000 to \$5,000. After this minimal investment, the developer would know their Multimodal SDC charges and their contribution to the safety program within 2-3 weeks. This process for the developer would also be less time-intensive because the County has already identified its safety-related focus locations (e.g., County SPIS sites, safety focus intersections, and road safety audit corridors) through the TSP. The County may choose to update their list of safety-related focus locations on an annual basis or every two years. In contrast, the traditional approach can often be time-intensive due to the length and complications of collecting traffic count data, identifying study intersections, conducting analysis, reviewing analysis, and so forth.

**Actively Incorporates Safety** — Developers are required to ensure their on-site circulation and accesses to the transportation system will operate at an acceptable level of safety. They are also required to contribute to mitigations to reduce crashes at County's SPIS sites, safety focus intersections, and road safety audit corridors. This creates a source of funding for local safety improvement projects that currently does not exist.

**Equitability Amongst Developer Contributions** — Like the traditional approach, the alternative approach could also allow SDC credits to be provided when developers construct facilities that exceed their calculated SDC contribution level.

**Flexibility and Control to Reach Community Goals** — A key result of applying this alternative approach is more flexibility and control for the County in terms of deciding when, where, and how transportation funds are spent. The County and Community would be able to systematically fund projects such as:

- Expanding the pedestrian sidewalk or trail network;
- Expanding the width and amenities of existing sidewalks;
- Expanding the multiuse trail system;
- Enhancing the bicycle network; and
- Other multimodal, capacity-enhancing projects.

The projects listed above as well as the other strengths outlined above are complementary to and provide opportunities for the County to meet the TSP goals.

**Enhanced and Versatile Transportation Funding** – The alternative approach increases SDC revenue for multimodal capacity improvements, such as sidewalks, bicycle lanes, and transit facilities that can be applied systematically throughout the County. Revenue from SDCs does not have to be spent in the area of the development, and can be spent on any improvement that is included on the list of eligible projects (which can be amended at any time). The alternative approach can also increase SDC revenues by allowing special SDC overlay districts to be established for locations that new urbanizing locations that have extraordinary facility requirements.

## Limitations

The limitations of the alternative approach are outlined below.

**Risk for Increased Auto Delay** — Developers would no longer be required to pay for large vehicle capacity enhancement projects. However, if or when a need arose for a large vehicle capacity enhancement due to a development, it would be up to the County to either (1) use the multimodal SDC funds to fund it or (2) to decide not to fund it and tolerate any increased vehicle delay on the system.

**Evolving Data on Person-Trip Generation** — Vehicular trip generation has been well-studied for many years, but the trip generation of alternative modes has only recently begun to receive attention. Alternative-mode trip generation depends not only on the size and type of development, but also on the quality of the pedestrian and bicycle facilities and transit services provided. The County could expect to have to refine its person-trip generation data over time (e.g., through site surveys) to reflect local conditions.

**Multimodal Improvement Priority System and Revenue Sharing** – The alternative approach requires the County to have a prioritized list of improvement projects that includes all travel modes in all areas of the County where this approach would be applied. The list would need to be updated and re-evaluated on a regular basis to ensure that the priorities continue to represent the needs of the County.

**Revenue Sharing** – Several roadways and other facilities throughout the County are controlled by agencies other than the County, such as ODOT or a city such as Happy Valley. The County will have to enter into an agreement, such as an Urban Services Agreement (UGA) with these other agencies on how SDCs collected on these facilities are shared.