



Transportation System Plan Update Appendixes



February 2013

CH2M HILL • DKS Angelo Planning Group • JLA Public Involvement

Revised Tualatin Transportation System Plan Update Volume II: Appendixes

Prepared for City of Tualatin

February 2013



Contents

Appendixes

- A Plan and Policy Review
- B Existing Conditions and Deficiencies
- C Future Transportation Conditions
- D Alternatives Analysis
- E Transportation Funding and Improvement Costs
- F TPR and RTFP Compliance
- G Public Involvement Process
- H Bicycle and Pedestrian Plan

Appendix E Transportation Funding and Improvement Costs

This Appendix describes existing transportation funding programs from federal, state and local sources, and well as potential sources that the City of Tualatin could pursue. The second section of this report also contains preliminary cost estimates for recommended alternatives. These cost estimates provide a general understanding of project costs and are intended for planning purposes only.

Established Funding Sources for Future Projects

A variety of established federal, state and local funding sources are available to fund future transportation projects in the Tualatin TSP, depending on the eligibility requirements.

Federal Funding Sources

Federal funding currently accounts for approximately 20 percent of total funding for transportation projects in Oregon. Allocation of federal funds is managed through Metro, Tualatin's Metropolitan Planning Organization (MPO). Metro generally programs federal funding for regional and local projects that affect the state transportation system, though some funds are made available directly for local projects. All projects utilizing federal funds must be programmed through Metro's 20-year Regional Transportation Plan (RTP) and the Metropolitan Transportation Improvement Program (MTIP), as well as the Statewide Transportation Improvement Program (STIP).

Most federal funding is available through the federal surface transportation program, supported by tax revenue to the Highway Trust Fund.

Federal Highway Trust Fund (HTF)

Revenues to the HTF are comprised of motor vehicle fuel taxes, sales taxes on heavy trucks and trailers, tire taxes, and annual heavy truck use fees. The fund is split into two accounts – the highway account and transit account. Funds are appropriated to individual states on an annual basis. The 2005 legislation for the federal surface transportation program (Safe, Accountable, Flexible and Efficient Transportation Equity Act – A Legacy for Users, referred to as SAFETEA-LU) will be replaced with Moving Ahead for Progress in the 21st Century (MAP-21), effective October 1st, 2012. This new 2-year program keeps total federal funding at the SAFETEA-LU rate, consolidates the 90 current programs under SAFETEA-LU into 30, eliminates transportation earmarks, and increases funding for the Transportation Infrastructure Finance and Innovation Program (TIFIA). The TIFIA program provides loans to finance transportation projects of regional or national significance, and seeks to leverage federal transportation dollars with local funds and private investment. Tualatin may be eligible to receive funding under the expanded TIFIA program.

Most federal funds must be matched with state or local funds; the current matching ratio for most projects is 10.27 percent.

Federal Transit Administration grants

The Federal Transit Administration (FTA) manages a number of grants available to transit agencies nationwide. The city of Tualatin could work with TriMet to fund transit projects serving the City.

Transit Expansion and Livable Communities Grants

Approximately \$2.4 billion in funds was appropriated for this program in the current budget year. The goal of this initiative from the Federal Transit Administration is to advocate for and support projects and programs that improve the link between public transit and communities. Several formula and competitive grant programs are available through this initiative. Policy goals include better integrating transportation and land use planning, fostering multimodal systems, providing transportation options and improving access, reducing emissions, and increasing public participation in transportation decision-making. Tualatin and TriMet may be eligible for grant funding under this program.

Transportation for Elderly Persons and Persons with Disabilities (SAFETEA-LU §5310, MAP-21 §20009)

This formula grant program is managed by the state, with funds provided for capital projects that enhance the accessibility of older adults and those with disabilities.

Job Access Reserve Commute (JARC) program (SAFETEA-LU §5316, MAP-21 §20010)

Activities funded by the JARC program (formerly Section 5316 of SAFETEA-LU) have been preserved in MAP-21. The JARC program was established to address the transportation needs of welfare recipients and other lowincome persons seeking to obtain or maintain employment. This program helps provide mobility to those whose work hours may fall outside traditional transit service hours and service areas. Under MAP-21, JARC activities have been integrated into the urban and rural formula grant programs. Financial assistance will be available for capital, planning and operations projects. In addition to local government and transit operators, private nonprofits are eligible to receive funds. In 2012, the Chamber of Commerce received JARC monies that funded the industrial worker shuttle service.

Tri-Met is the current recipient of all JARC funds which are distributed to regional agencies through a competitive application process. Under MAP-21, the competitive application requirement has been removed. Tri-Met is currently developing its new JARC program in response to MAP-21; it is presently unclear how much funding will be available, or how agencies will apply for funding from the program. Approximately \$600,000 has been available regionally under the program in recent funding cycles.

Other Federal Sources

Section 319 Non-Point Source Implementation Grants

Transportation projects that integrate stormwater treatment may be eligible to receive federal funding through Section 319 grants. This program, administered by the Oregon Department of Environmental Quality (DEQ), provides federal funds to address non-point pollution, including stormwater improvement projects. Funding is very competitive, with less than \$500,000 available statewide in the most recent grant cycle. Projects that could be eligible for funding include applications of pervious pavements, stormwater detention and retention, and other low impact stormwater development tactics. Funds can be used for all or a portion of a project, but require a minimum 40 percent match. The Tualatin River and several of its tributaries are on the Clean Water Act 303(d) list for a number of pollutants, and projects within the river basin may be attractive for funding.

State Funding Sources

State funds are distributed via the Oregon Transportation Commission (OTC). The State Highway Fund is the most significant source of funding for the programs described below. To be eligible for funding, projects must be programmed through the Statewide Transportation Improvement Program (STIP).

State Highway Fund

State Highway Fund Revenues are received from a combination of fuel taxes, vehicle registration and title fees, driver's license fees, the truck weight-mile tax and federal monies. Fund revenues may only be used for construction and maintenance of state and local highways, bridges, and roadside rest areas. State law (ORS 366.514) specifies that a reasonable amount of highway funds must be spent on walkways and bikeways, and that in any given fiscal year, a minimum of 1 percent of State Highway Funds must be spent on these projects by funding recipients. However, cities and counties receiving may allocate these funds to a reserve fund, which they must expend within a period not to exceed 10 years. All funds must be expended on projects within road, street, or highway rights-of-way.

State Highway Funds are appropriated by the OTC on an annual basis. Sixty percent of fund revenues are kept at the state level, 24 percent is distributed to counties based on the number of vehicles registered in each county, and 16 percent is distributed to cities based on population.

Statewide Transportation Improvement Program (STIP)

The STIP is the 4-year capital improvement program for the state of Oregon. It provides a schedule and identifies funding for projects throughout the state. Projects included in the STIP are generally "regionally significant" and have been given a high priority through planning efforts and by the relevant area commission on transportation

(ACT) or metropolitan planning organization (MPO). For Tualatin, the relevant MPO is Metro. The current 2010-2013 STIP has six program categories: modernization, safety, preservation, bridge, operations, and special programs. All regionally significant state and local projects, as well as all federally-funded projects and programs, must be included in the STIP. The City of Tualatin does not have any projects in the 2010 – 2013 or 2012 – 2015 STIP.

The 2010-2013 STIP includes projects totaling \$1.25 billion and covers the period from October 2009 to the end of September 2013. The 2012-2015 STIP was recently approved. About 80 percent of projects are expected to use federal funds. Federal funding levels projected for the 2010-2013 and 2012-2015 STIP are assumed to be at the same annual level distributed under SAFETEA-LU from 2005 to 2009.

ODOT has started the planning process for the 2015-2018 STIP. The STIP will be reorganized into two broad categories: "Fix-it" and "Enhance" that encompass the previous funding categories detailed in the 2012-2015 STIP. "Fix-it" projects are those that fix or preserve the current transportation system; "Enhance" projects are those that enhance, expand or improve the transportation system. The main purpose of this reorganization is to allow maximum flexibility to fund projects that reflect community and state values, rather than those that fit best into prescriptive programs. "Fix-it" activities will include:

- Bicycle and pedestrian facilities on state routes only
- Bridges (state owned)
- Culverts
- High Risk Rural Roads
- Illumination, signs and signals
- Landslides and Rockfalls
- Operations (includes ITS)
- Pavement Preservation
- Rail-Highway Crossings
- Safety
- Salmon (Fish Passage)
- Site Mitigation and Repair
- Stormwater Retrofit
- Transportation Demand Management (part of Operations)
- Work zone Safety (Project specific)

"Enhance" activities will include:

- Bicycle and/or Pedestrian facilities on or off the highway right-of-way
- Development STIP (D-STIP) projects (development work for projects that will not
- be ready for construction or implementation within the four years of the STIP)
- Modernization (projects that add capacity to the system, in accordance with ORS
- 366.507)
- Most projects previously eligible for Transportation Enhancement funds
- Projects eligible for Flex Funds (the Flexible Funds program funded Bicycle,
- Pedestrian, Transit and Transportation Demand Management (TDM) projects,
- plans, programs, and services)
- Protective Right-of-Way purchases
- Public Transportation
- (capital projects only, not operations)
- Safe Routes to School (infrastructure projects)
- Scenic Byways (construction projects)
- Transportation Alternatives (new with MAP-21, the federal transportation
- authorization)
- Transportation Demand Management

Under this new STIP organization, there will be one application for all projects eligible under the "Enhance" program. Communities will apply for the "Enhance" projects that best serve their community and ODOT will determine the appropriate funding mechanism. "Fix-it" projects will be selected through a collaborative process between ODOT and Metropolitan Planning Organizations. This new organization is primarily intended to increase funding flexibility and does not represent a fundamental change in the type of projects that will be funded through the STIP. The current "Enhance" application process for the 2015-2018 STIP will close at the end of November, 2012.

Other State Programs

ConnectOregon

*Connect*Oregon funds are lottery-backed bonds distributed to air, marine, rail, transit and other multimodal projects statewide. No less than 10 percent of *Connect*Oregon IV funds must be distributed to each of the five regions of the state, provided that there are qualified projects in the region. The objective is to improve the connections between the highway system and other modes of transportation.

Oregon Transportation Infrastructure Bank (OTIB)

The OTIB is a statewide revolving loan fund available to local governments for many transportation infrastructure improvements, including highway, transit and non-motorized projects. Most funds made available through this program are federal, and roads must be functionally classified as a major collector or higher to be eligible for loan funding.

Oregon Parks and Recreation Department: Recreational Trails Grant

The Oregon Parks and Recreation Department (OPRD) administers this program using Oregon Lottery revenues. These grants can fund recreational trail projects to build new recreation trails, including trail bridges and installing wayfinding signs, restoring existing trails, developing and rehabilititating trailhead facilities, and acquiring land and permanent easements for trails. OPRD has distributed \$4 million annually under this program through a competitive grant process. A match of at least 20 percent is required, and cities are eligible to apply. Recent grants (2011) ranged from \$10,000 to \$130,000.

Oregon Immediate Opportunity Fund

The Oregon immediate opportunity fund supports primary economic development in Oregon through construction and improvements of streets and roads. Funds are discretionary and may only be used when other sources of financial support are unavailable or insufficient. The objectives of the Opportunity Fund are providing street or road improvements to influence the location, relocation, or retention of a firm in Oregon, providing procedures and funds for the OTC to respond quickly to economic development opportunities, and providing criteria and procedures for the Oregon Economic and Community Development Department (OECDD), other agencies, local government and the private sector to work with ODOT in providing road improvements needed to ensure specific job development opportunities for Oregon, or to revitalize business or industrial centers.

Regional Funding Sources

Metro, the elected regional government, coordinates two transportation grant programs relevant to Tualatin.

Flexible Funds

Metro manages the allocation of regional federal flexible funds. These funds come from two federal funding sources: the Surface Transportation program (STP) and the Congestion Mitigation/Air Quality program (CMAQ). These funds can be spent on a wide variety of projects. In the most recent funding round, \$24 million was made available to Metro jurisdictions for various projects, including transit oriented development, high capacity transit, transportation system management, and regional planning projects. Funding is allocated through a competitive process.

Regional Travel Options grants

Metro also manages this federal grant source, distributing over \$500,000 to several projects in the Metro region in the most recent round of funding. Projects are selected through a competitive process. Projects that improve air quality, address community health, reduce auto traffic or create more opportunities for walking and biking are all eligible for funding.

Nature in Neighborhoods Grants

Metro provides funds to communities to add vegetation and natural features in neighborhoods. Funds for Nature in Neighborhoods come from the voter-approved 2007 natural areas bond measure. Projects awarded grants involve the community, foster diverse partnerships and innovate, leading to bigger social and economic benefits, from jobs and economic development to livable neighborhoods and clean air. Metro has awarded \$6.6 million to 23 projects. Up to \$2.25 million is available annually, with \$15 million available through the life of the program.

County Funding Sources

Washington County Gas Tax

Tualatin receives approximately \$90,000 per year currently in county gas tax revenue. These funds can be spent on a wide variety of transportation projects, though are currently only spent on construction and maintenance of City streets.

Washington County Major Streets Transportation Improvement Program (MSTIP)

Washington County's MSTIP program provides funding for major transportation improvements on roads throughout the county. The program is funded through property taxes with approximately \$35 million available each year. MSTIP has funded a wide variety of projects, including expansion of Highway 26, Intelligent Transportation System (ITS) and signal upgrades to Tualatin-Sherwood Road and numerous bicycle and pedestrian improvements. Only roads classified in the Washington County Functional Classification system are eligible for funding from MSTIP. Roads that would be eligible under this program include Tualatin-Sherwood Road, Boones Ferry Road, Nyberg Road, 65th Avenue, Sagert Street, and several others. Tualatin does not have any projects identified for funding in the current 5 year MSTIP program (MSTIP 3d), but several projects just outside the city, including the extension of 124th Avenue south to Tonquin Road, are funded. The city can continue to pursue funding for major improvements on these streets through this dedicated funding source.

Washington County Minor Betterment Program

Washington County administers the Minor Betterment Program (MBP), funded by an allocation from the County Road Fund (County Gas Tax). The Program funds small-scale interim improvements beyond routine maintenance but not large enough to be programmed as capital improvements. MBP projects are site-specific enhancements to the county's transportation system, projects are typically interim and intended to supplement routine maintenance and capital improvements. Eligible projects need to be on a county road, improve or resolve a specific situation, and address safety, capacity, environmental and/or connectivity issues. In fiscal year 2013/14 the County is funding sidewalk completing along SW Grahams Ferry Road with this funding source.

Local Funding Sources

This section describes existing local funding sources for the city of Tualatin. Major local funding sources include general fund revenues, road utility fees, system development charges, and the City's share of State Highway Fund revenue.

Road Utility Fees

This fee is assessed to all residential and non-residential properties in the city of Tualatin to fund upkeep of the City's road system. Approximately \$650,000 in fee revenue was forecast for FY 2011. These revenues are made

available exclusively for road maintenance. These fees represent a significant source of funding for maintenance of existing roads. Per city code (TMC 3-4), these funds may be spent on pavement rehabilitation, sidewalk maintenance, landscaping enhancements, replacing street trees and street lighting.

Transportation Development Taxes (TDT)

Transportation Development Taxes (TDT) are one-time fees on new development that compensate for the increased traffic associated with new development, and are system development charges or impact fees for transportation. The City has authorized the collection of transportation system development charges since 1991. The former county-managed Transportation Impact Fee (TIF) program has been replaced with the Transportation Development Tax (TDT), approved by voters in 2008. TDTs cannot be expended on transportation operations or maintenance projects, and may be used exclusively for capital improvement projects. These taxes are payable to the City when a building or other development permit is issued. The outlook for TDT revenue is very uncertain, given limited development during the current economic downturn.

Potential Other Funding Sources for Future Projects

The following funding sources and strategies may be available to the City in addition to the established programs listed above.

Washington County Major Streets Transportation Improvement Program (MSTIP)

Washington County's MSTIP program provides funding for major transportation improvements on roads throughout the county. The program is funded through property taxes with approximately \$35 million available each year. MSTIP has funded a wide variety of projects, including expansion of Highway 26, Intelligent Transportation System (ITS) and signal upgrades to Tualatin-Sherwood Road and numerous bicycle and pedestrian improvements. Only roads classified in the Washington County Functional Classification system are eligible for funding from MSTIP. Roads that would be eligible under this program include Tualatin-Sherwood Road, Boones Ferry Road, Nyberg Road, 65th Avenue, Sagert Street, and several others. Tualatin does not have any projects identified for funding in the current 5 year MSTIP program (MSTIP 3d), but several projects just outside the city, including the extension of 124th Avenue south to Tonquin Road, are funded. The city can continue to pursue funding for major improvements on these streets through this dedicated funding source.

Department of Energy: Energy Efficiency and Conservation Block Grants (EECBG)

This program was initially funded through the American Recovery and Reinvestment Act of 2009. The current funding authorization expired in April 2012. Future funding for this program is currently uncertain. The program provided formula grants to states and competitive grants for projects that reduce fossil fuel emissions, reduce total energy use of eligible grantees, and improve energy efficiency of transportation and other sectors. Tualatin may be eligible for competitive grants if this program is funded in future federal budgets.

Increased State Highway Fund revenues

Gas tax revenue to the State Highway Fund has not kept pace with inflation or demands of the state's transportation system. ODOT is exploring new revenue models to meet state transportation needs, which may result in increased funds for state transportation programs in coming years. Oregon is actively exploring a vehicle miles travelled (VMT) tax to replace the current gas tax, with full implementation of any VMT program expected to take up to 20 years.

Local Improvement Districts (LID)

LIDs are created by property owners within a district of a city to raise revenues for constructing improvements within the district boundaries. LIDs may be used to assess property owners for improvements that benefit properties and are secured by property liens. Property owners typically enter into LIDs because of the economic or personal advantages of the improvements. The City would work with property owners to acquire financing at lower interest rates than under typical financing methods. The formation of LIDs is governed by state law and local jurisdictional development codes. LID revenues can only be used on capital projects. LID revenues can be combined with other revenue sources to fully fund projects.

Transit Utility Fee

A number of jurisdictions in Oregon have implemented transportation utility fees that fund road system maintenance, transportation improvements, and transit service. The city of Corvallis, Oregon recently enacted a Transit Utility Fee in 2011 to support transit operations. These fees are typically collected on monthly residential and business utility bills and assessed on a per-housing unit basis, with businesses and industry charged rates based on the type of business or number of employees. A modest monthly fee could fund capital improvements and transit operations in Tualatin. Fee revenue can also be used to support or improve existing transit services in Tualatin, like the Chamber of Commerce's employee shuttle service. A transit utility fee would provide dedicated and reliable funding for transit projects identified in the Transit Plan.

Urban Renewal Areas

The City of Tualatin has successfully implemented two urban renewal areas over the past 25 years in the central area and Leveton. Both Urban renewal areas have expired and are no longer collecting revenue. Urban Renewal Areas (URA) remain an option for the City in the future whereby tax increment financing (TIF) can be used for a variety of improvements within the URA. With TIF, the county assessor "freezes" the assessed value of properties within the URA and the property taxes collected above those that were collected when the property values were frozen are used to pay for improvements within the URA. This financing method assumes that property values within the urban renewal area will increase over time. URA designations are primarily used as an economic development tool, but may be useful for targeting areas in the City with serious improvement needs.

Revenue and General Obligation Bonds

Bonding allows municipal and county government to finance construction projects by borrowing money and paying it back over time, with interest. Financing requires smaller regular payments over time compared to paying the full cost at once, but financing increases the total cost of the project by adding interest. General Obligation Bonds are often used to pay for construction of large capital improvements and must be approved by a vote of the public. These bonds add the cost of the improvement to property taxes over a period of time. Tualatin could consider issuing a General Obligation Bond to pay for significant transportation improvement projects identified within the City.

Parking Fees

The City does not currently charge for parking, but does charge an annual fee to business owners in the "core area parking district" that funds parking maintenance in the immediate core area. Income generated by charging parking fees could be used to implement a variety of transportation projects. The collection system would require purchase of parking meter infrastructure, careful study of where to install meters, and analysis of the appropriate fee amount to charge drivers.

This section contains cost estimates for projects included in the Tualatin TSP. Assumptions underlying each project cost estimate are also included.

	TUALATIN TSP	- ORDER O	F MAGNITUD	E ESTIMATE	
PRO.	JECT: Project R1 - Herman Road	Imp. 124th to			
	Cipole		PREPARED BY:		DATE:
DESI	GN LEVEL: Preliminary		Darren H	lippenstiel	9/19/2012
KIND	OF WORK:		LENGTH (MILE):		SHEET:
	Roadway, Earthwork, Drain	age, Lighting	0.	34	1 of 1
NO.	ITEM	UNIT	QUANTITY	UNIT COST	COST
1	Curb, Gutter, Sidewalks & Drainage	Mi.	0.34	\$935,700.00	\$318,138
2	Multi-use Path	Mi.		\$173,700.00	\$0
3	New Roadway	Lane-Mi.	1.4	\$412,500.00	\$561,000
4	Overlay Existing Roadway	Lane-Mi.		\$89,400.00	\$0
5	Reconstruct Existing Roadway	Lane-Mi.		\$438,900.00	\$0
6	Intersection Widening	EA		\$76,500.00	\$0
7	Interconnect Signal	LS		\$35,000.00	\$0
8	New Signal	EA		\$300,000.00	\$0
9	Signal Modifications	EA		\$75,000.00	\$0
10	Earthwork (See Note)	CY	7,500	\$7.50	\$56,250
11	Traffic Calming	5-10%		-	\$0
12	Illumination	Mi.	0.34	\$260,000.00	\$88,400
13	Landscaping	Mi.	0.34	\$235,000.00	\$79,900
14	Bridges	SF		\$150.00	\$0
15	Walls	SF	1,080	\$50.00	\$54,000
			SUBTOTAL		\$1,157,688

ADDITIONAL CONST. COSTS	SUGGESTED	PERCENTAGE		COST
Construction Surveying	1.0-2.5%	2.5%		\$28,900
TP & DT	3.0-8.0%	8.0%		\$92,600
Mobilization	8.0-10.0%	10.0%		\$115,800
Erosion Control	0.5-2.0%	2.0%		\$23,200
Contingency	30-40%	40.0%		\$463,100
Escalation (per year)	0.5-2.0%	0.0%		\$0
Design Year				
Construction Year		2012		
T	\$1,881,288			

ANTICIPATED ADDITIONAL COSTS							
	UNIT	QUANTITY	UNIT C				

	-			
	UNIT	QUANTITY	UNIT COST	COST
Sensitive Area Impact Mitigation	LS	1	\$100,000.00	\$100,000
Railroad Crossing	EA		\$600,000.00	\$0

RIGHT OF WAY COSTS	UNIT	QUANTITY	UNIT COST	COST
New Right of Way Acquisition	SF	24,500	\$5.00	\$122,500
Structure(s)	LS	All		\$0
ENGINEERING COSTS	SUGGESTED	PERCENTAGE		COST
Design Engineering		15.0%		\$282,200
Construction Engineering		10.0%		\$188,100
	\$2,574,000			

Assumptions: See next page

Assumptions:

Project is for 3-L widening (2-12' lanes, 1-12' turn, 2-6' bike, 2-10' sidewalk/planter

Improvements to the intersection of Cipole and Herman Road, including improvements to the P&W rail crossing are included in other projects

Existing ROW varies from 54' to 40' width.

No impacts to the P&W railroad are included

Landscaping and illumination are inlcuded for the length of improvements

Assume 2' average height non-structural (<4' height) modular block retaining wall for property ties over 30% of the improvements length one side

Full roadway reconstruction is assumed

Due to flattness of area and other project experience, \$100K allowance is included for natural resource impact mitigation

	TUALATIN TSP	- ORDER O	F MAGNITUD	E ESTIMATE	
PRO.	JECT: Project R2 - Hazelbrc	ok Road			
	Improvement	s	PREPARED BY:		DATE:
DESI	GN LEVEL: Preliminary		Darren H	lippenstiel	10/11/2012
KIND	OF WORK:		LENGTH (MILE):		SHEET:
	Roadway, Earthwork, Drain	age, Lighting	0.	.85	1 of 1
NO.	ITEM	UNIT	QUANTITY	UNIT COST	COST
1	Curb, Gutter, Sidewalks & Drainage	Mi.	0.43	\$935,700.00	\$402,351
2	Multi-use Path	Mi.		\$173,700.00	\$0
3	New Roadway	Lane-Mi.	1.42	\$412,500.00	\$585,750
4	Overlay Existing Roadway	Lane-Mi.	1.99	\$89,400.00	\$177,906
5	New Signal	EA		\$300,000.00	\$0
6	Signal Modifications	EA		\$75,000.00	\$0
7	Earthwork (See Note)	CY	13,500	\$7.50	\$101,250
8	Illumination	Mi.	0.85	\$260,000.00	\$221,000
9	Landscaping	Mi.	0.43	\$235,000.00	\$101,050
10	Bridges - Long Span	SF		\$250.00	\$0
11	Bridges - Long Span (Multi-use)	SF		\$250.00	\$0
12	Walls	SF		\$75.00	\$0
			SUBTOTAL		\$1,589,307

ADDITIONAL CONST. COSTS	SUGGESTED	PERCENTAGE		COST	
Construction Surveying	1.0-2.5%	2.5%		\$39,700	
TP & DT	3.0-8.0%	8.0%		\$127,100	
Mobilization	8.0-10.0%	10.0%		\$158,900	
Erosion Control	0.5-2.0%	2.0%		\$31,800	
Contingency	30-40%	40.0%		\$635,700	
Escalation (per year)	0.5-2.0%	0.0%		\$0	
Design Year					
Construction Year		2012			
TOTAL CONSTRUCTION COST \$2,5					

ANTICIPATED ADDITIONAL COSTS						
		UNIT	QUANTITY	UNIT COST	COST	
	Sensitive Area Impact Mitigation	LS	0	\$250,000.00	\$0	
	Railroad Crossing	EA	0	\$600,000.00	\$0	
	RIGHT OF WAY COSTS	UNIT	QUANTITY	UNIT COST	COST	
	New Right of Way Acquisition	SF	63,000	\$5.00	\$315,000	
	Structure(s)	LS	All		\$0	
	ENGINEERING COSTS	SUGGESTED	PERCENTAGE		COST	
	Engineering, Environmental					
	Documents, Permitting		15.0%		\$387,400	
	Construction Engineering		10.0%		\$258,300	
		\$3,543,000				

Assumptions: On Reverse Page

Assumptions Continued:

Roadway Section is 3-L section (3-12' lanes, 2-6' bike, 2-10' sidewalk/planter) - 68' total width Existing roadway width is 28' curb to edge of pavement. Existing pavement overlay inlcuded Existing curb and sidewalk on the southside to remain.

Curb & Gutter, Sidewalk and Drainage are halved (northside only)

Average existing ROW width is 60'. Total new width need is 68' plus 6' PUE

No structures impacted by improvements

No bridges, walls, or other structures included

illumination is included for the full length

Landscaping is included at half the improvements length (no landscaping southside)

Easrthwork inlcuded for shoulder widening (fill)

	TUALATIN TSP	- ORDER O	F MAGNITUD	E ESTIMATE	
PRO.	JECT: Project R3 - Herman Rd. I	mprovements			
	Teton to Tualatin	Rd.	PREPARED BY:		DATE:
DESI	GN LEVEL: Preliminary		Darren H	lippenstiel	9/6/2012
KIND	OF WORK:		LENGTH (MILE):		SHEET:
	Roadway, Earthwork, Drain	age, Lighting,	0.	.32	1 of 1
NO.	ITEM	UNIT	QUANTITY	UNIT COST	COST
1	Curb, Gutter, Sidewalks & Drainage	Mi.	0.32	\$935,700.00	\$299,424
2	Multi-use Path	Mi.		\$173,700.00	\$0
3	New Roadway	Lane-Mi.	0.97	\$412,500.00	\$400,125
4	Overlay Existing Roadway	Lane-Mi.		\$89,400.00	\$0
5	Reconstruct Existing Roadway	Lane-Mi.		\$438,900.00	\$0
6	Intersection Widening	EA		\$76,500.00	\$0
7	Interconnect Signal	LS		\$35,000.00	\$0
8	New Signal	EA		\$300,000.00	\$0
9	Signal Modifications	EA		\$75,000.00	\$0
10	Earthwork (See Note)	CY	5,650	\$7.50	\$42,375
11	Traffic Calming	5-10%		-	\$0
12	Illumination	Mi.	0.32	\$260,000.00	\$83,200
13	Landscaping	Mi.	0.32	\$235,000.00	\$75,200
14	Bridges	SF		\$150.00	\$0
15	Walls	SF	940	\$50.00	\$47,000
		,	SUBTOTAL		\$947,324

ADDITIONAL CONST. COSTS	SUGGESTED	PERCENTAGE		COST
Construction Surveying	1.0-2.5%	2.5%		\$23,700
TP & DT	3.0-8.0%	8.0%		\$75,800
Mobilization	8.0-10.0%	10.0%		\$94,700
Erosion Control	0.5-2.0%	2.0%		\$18,900
Contingency	30-40%	40.0%		\$378,900
Escalation (per year)	0.5-2.0%	0.0%		\$0
Design Year				
Construction Year		2012		
T	\$1.539.324			

RIGHT OF WAY COSTS	UNIT	QUANTITY	UNIT COST	COST
New Right of Way Acquisition	SF	33,100	\$5.00	\$165,500
Structure(s)	LS	All	\$300,000.00	\$300,000
ENGINEERING COSTS	SUGGESTED	PERCENTAGE		COST
Design Engineering		15.0%		\$230,900
Construction Engineering		10.0%		\$153,900
	\$2,390,000			

Notes:

Project limits are from the end of the 3-L section east of Teton (~300') to Tualatin Road Proposed width is 2-L section (3-12' lanes, 2-6' bike lanes, 2-10' sidewalk/planter) Landscaping and illumination are included Assume 1' average earthwork depth from Teton to 550' west of Tualatin Road Assume 2' average earthwork depth from 550' west of Tualatin Road to Tualatin Road No impacts to railroad or improvements to existing rail crossings. 3 structure assumed impacted by widening/improvements

	TUALATIN TSP	- ORDER O	F MAGNITUD	E ESTIMATE	
PRO.	JECT: Project R4 - Widen Teton t	o 3-L Herman			
	To T-S Rd		PREPARED BY:		DATE:
DESI	GN LEVEL: Preliminary		Darren H	lippenstiel	9/6/2012
KIND	OF WORK:		LENGTH (MILE):		SHEET:
	Roadway, Earthwork, Drain	age, Lighting	0.	47	1 of 1
NO.	ITEM	UNIT	QUANTITY	UNIT COST	COST
1	Curb, Gutter, Sidewalks & Drainage	Mi.	0.47	\$935,700.00	\$439,779
2	Multi-use Path	Mi.		\$173,700.00	\$0
3	New Roadway	Lane-Mi.	0.47	\$412,500.00	\$193,875
4	Overlay Existing Roadway	Lane-Mi.	1.42	\$89,400.00	\$126,948
5	Reconstruct Existing Roadway	Lane-Mi.		\$438,900.00	\$0
6	Intersection Widening	EA		\$76,500.00	\$0
7	Interconnect Signal	LS		\$35,000.00	\$0
8	New Signal	EA		\$300,000.00	\$0
9	Signal Modifications	EA		\$75,000.00	\$0
10	Earthwork (See Note)	CY	3,000	\$7.50	\$22,500
11	Traffic Calming	5-10%		-	\$0
12	Illumination	Mi.	0.47	\$260,000.00	\$122,200
13	Landscaping	Mi.	0.47	\$235,000.00	\$110,450
14	Bridges	SF		\$150.00	\$0
15	Walls	SF	500	\$50.00	\$25,000
			SUBTOTAL		\$1,040,752

ADDITIONAL CONST. COSTS	SUGGESTED	PERCENTAGE	COST
Construction Surveying	1.0-2.5%	2.5%	\$26,000
TP & DT	3.0-8.0%	8.0%	\$83,300
Mobilization	8.0-10.0%	10.0%	\$104,100
Erosion Control	0.5-2.0%	2.0%	\$20,800
Contingency	30-40%	40.0%	\$416,300
Escalation (per year)	0.5-2.0%	0.0%	\$0
Design Year			
Construction Year		2012	
T	OTAL CONST	RUCTION COST	\$1.691.252

 ANTICIPATED ADDITIONAL COSTS								
UNIT QUANTITY UNIT COST COST								
Sensitive Area Impact Mitigation	LS	1	\$250,000.00	\$250,000				
Railroad Crossing	EA	0	\$600,000.00	\$0				

RIGHT OF WAY COSTS	UNIT	QUANTITY	UNIT COST	COST
New Right of Way Acquisition	SF	20,000	\$5.00	\$100,000
Structure(s)	LS	All		\$0
ENGINEERING COSTS	SUGGESTED	PERCENTAGE		COST
Design Engineering		15.0%		\$253,700
Construction Engineering		10.0%		\$169,100
	\$2,464,000			

Assumptions: On Reverse Page

Assumptions Continued:

Total roadway section is 3-L (3-12' lanes, 2-6' bike lanes, 2-10' sidewalk/planters) The existing roadway with is 36' curb-to-curb and will be rehabilitated with an overlay The existing ROW varies but is estimated to average 60' width from Herman to T-S Road 10% of the total length, one side is estimated for a 2' average height (<4') modular block wall Minor earthwork is assumed at 1' total depth over the width of the widening (lanes and sidewalk/planter) The bridge acreas blodges Grack and wattend will be require widening. The planter will be removed

The bridge across Hedges Creek and wetland will not require widening. The planter will be removed through this area.

Approaches to the bridge will require widening resulting in impacts to natural resources. No impacts to signals at Herman Road or T-S Road

Length of improvements is estimated at 2,500LF beginning south of the P&W Railroad track south to T-S Road. No impacts to the railroad crossing are included.

	TUALATIN TSP - ORDER OF MAGNITUDE ESTIMATE								
PRO.	JECT: Project R6 - Widen SW	Avery to 3-L							
	Teton to T-S R	d.	PREPARED BY:		DATE:				
DESI	GN LEVEL: Preliminary		Darren H	lippenstiel	9/17/2012				
KIND	OF WORK:		LENGTH (MILE):		SHEET:				
	Roadway, Earthwork, Drain	age, Lighting	0.	53	1 of 1				
NO.	ITEM	UNIT	QUANTITY	UNIT COST	COST				
1	Curb, Gutter, Sidewalks & Drainage	Mi.	0.61	\$935,700.00	\$570,777				
2	Multi-use Path	Mi.		\$173,700.00	\$0				
3	New Roadway	Lane-Mi.	0.4	\$412,500.00	\$165,000				
4	Overlay Existing Roadway	Lane-Mi.		\$89,400.00	\$0				
5	Reconstruct Existing Roadway	Lane-Mi.		\$438,900.00	\$0				
6	Intersection Widening	EA		\$76,500.00	\$0				
7	Interconnect Signal	LS		\$35,000.00	\$0				
8	New Signal	EA	1	\$300,000.00	\$300,000				
9	Signal Modifications	EA		\$75,000.00	\$0				
10	Earthwork (See Note)	CY	2,900	\$7.50	\$21,750				
11	Traffic Calming	5-10%		-	\$0				
12	Illumination	Mi.	0.53	\$260,000.00	\$137,800				
13	Landscaping	Mi.	0.53	\$235,000.00	\$124,550				
14	Bridges	SF		\$150.00	\$0				
15	Walls	SF	1,680	\$50.00	\$84,000				
			SUBTOTAL		\$1,403,877				

ADDITIONAL CONST. COSTS	SUGGESTED	PERCENTAGE		COST
Construction Surveying	1.0-2.5%	2.5%		\$35,100
TP & DT	3.0-8.0%	8.0%		\$112,300
Mobilization	8.0-10.0%	10.0%		\$140,400
Erosion Control	0.5-2.0%	2.0%		\$28,100
Contingency	30-40%	40.0%		\$561,600
Escalation (per year)	0.5-2.0%	0.0%		\$0
Design Year				
Construction Year		2012		
T	\$2.281.377			

 ANTICIPATED ADDITIONAL COSTS								
UNIT QUANTITY UNIT COST COST								
Sensitive Area Impact Mitigation	LS	0	\$250,000.00	\$0				
Railroad Crossing	EA	1	\$600,000.00	\$600,000				

RIGHT OF WAY COSTS	UNIT	QUANTITY	UNIT COST	COST
New Right of Way Acquisition	SF	29,700	\$5.00	\$148,500
Structure(s)	LS	All		\$0
ENGINEERING COSTS	SUGGESTED	PERCENTAGE		COST
Design Engineering		15.0%		\$342,200
Construction Engineering		10.0%		\$228,100
	\$3,600,000			

Assumptions: See Reverse

Assumptions:

3-L section is 2-12' lanes, 1-12' median, 2-6' bike and 2-10' planter/sidewalk. Total length - 2,800LF Widening to the westside at T-S Road will not impact Hedges Creek Utilities impacted will be relocated by utility.

Transmission towers near substation at SW 105th will not be impacted

Railroad crossing signals impacted and will need to be widened

Widening area is flat. Assume 1' total depth EW over length of improvements

No structural retaining walls needed. Assume short 2' average height wall for 30% of length

No signal modifications needed at T-S Road (3-L). New signal at SW Avery/Teton

Landscaping and lighting for entire length

	TUALATIN TSP - ORDER OF MAGNITUDE ESTIMATE								
PRO.	JECT: Project R7 - 105th/Blake	e/108th Ave							
	Improvement	S	PREPARED BY:		DATE:				
DESI	GN LEVEL: Preliminary		Darren H	lippenstiel	10/12/2012				
KIND	of work: Roadway, Earthwork, Drain	age, Lighting,	LENGTH (MILE):		SHEET:				
	Walls		0.	.63	1 of 1				
NO.	ITEM	UNIT	QUANTITY	UNIT COST	COST				
1	Curb, Gutter, Sidewalks & Drainage	Mi.	0.46	\$935,700.00	\$430,422				
2	Multi-use Path	Mi.		\$173,700.00	\$0				
3	New Roadway	Lane-Mi.	2.37	\$412,500.00	\$977,625				
4	Guardrail	FT	450.00	\$50.00	\$22,500				
5	New Signal	EA		\$300,000.00	\$0				
6	Signal Modifications	EA		\$75,000.00	\$0				
7	Earthwork (See Note)	CY	15,000	\$7.50	\$112,500				
8	Illumination	Mi.	0.63	\$260,000.00	\$163,800				
9	Landscaping	Mi.	0.46	\$235,000.00	\$108,100				
10	Bridges - Short Span	SF	2,400	\$185.00	\$444,000				
11	Walls (4'<)	SF		\$75.00	\$0				
12	Walls (4'>)	SF	600	\$50.00	\$30,000				
			SUBTOTAL		\$2,288,947				

ADDITIONAL CONST. COSTS	SUGGESTED	PERCENTAGE		COST	
Construction Surveying	1.0-2.5%	2.5%		\$57,200	
TP & DT	3.0-8.0%	8.0%		\$183,100	
Mobilization	8.0-10.0%	10.0%		\$228,900	
Erosion Control	0.5-2.0%	2.0%		\$45,800	
Contingency	30-40%	40.0%		\$915,600	
Escalation (per year)	0.5-2.0%	0.0%		\$0	
Design Year					
Construction Year		2012			
TOTAL CONSTRUCTION COST \$3,7					

ANTICIPATED ADDITIONAL COSTS							
	UNIT	QUANTITY	UNIT COST	COST			
Sensitive Area Impact Mitigation	LS	1	\$100,000.00	\$100,000			
Railroad Crossing	EA	0	\$600,000.00	\$0			
RIGHT OF WAY COSTS	UNIT	QUANTITY	UNIT COST	COST			
New Right of Way Acquisition	SF	42,100	\$8.00	\$336,800			
Structure(s)	LS	All		\$0			
ENGINEERING COSTS	SUGGESTED	PERCENTAGE		COST			
Engineering, Environmental							
Documents, Permitting		15.0%		\$557,900			
Construction Engineering		10.0%		\$372,000			
	\$5,086,000						

Assumptions: On Reverse Page

Assumptions Continued:

Roadway Section is 3-L section (3-12' lanes, 2-6' bike, 2-10' sidewalk/planter) - 68' width from Avery to Blake St

Roadway Section is 2-L section (2-12' lanes, 2-6' bike, 2-12' sidewalk/planter) - 60' width from Blake to 200' north of Willow Ave.

All existing roadway is assumed to be reconstructed.

Existing curb and sidewalk on the eastside of SW 105th and westside of 108th will remain

Assume a 50' length strcuture (culvert or bridge) over Hedges Creek

Average existing ROW width is 50'. Total new width varies from 60'-68"

No structure impacts are assumed

Natural resource impacts and mitigation are assumed through the Hedges Creek corridor

3' average height wall between 108th and Blake Street reconstructed assumed 200' length illumination is included for the full length

Landscaping is included but halved where sidewalks are to remain

450' length of guardrail assumed to replace existing guardrail along outside curve from Blake to 105th

	TUALATIN TSP - ORDER OF MAGNITUDE ESTIMATE								
PRO.	JECT: Project R8 - Boones F	erry Road							
	Improvements	S	PREPARED BY:		DATE:				
DESI	GN LEVEL: Preliminary		Darren H	lippenstiel	10/15/2012				
KIND	OF WORK: Roadway, Earthwork, Drain	age, Lighting,	LENGTH (MILE):		SHEET:				
	Walls		0	.21	1 of 1				
NO.	ITEM	UNIT	QUANTITY	UNIT COST	COST				
1	Curb, Gutter, Sidewalks & Drainage	Mi.	0.12	\$935,700.00	\$112,284				
2	New Roadway	Lane-Mi.	0.21	\$412,500.00	\$86,625				
3	Overlay Existing Roadway	Lane-Mi.		\$89,400.00	\$0				
4	Guardrail	FT		\$50.00	\$0				
5	New Signal	EA		\$300,000.00	\$0				
6	Signal Modifications	EA		\$75,000.00	\$0				
7	Earthwork (See Note)	CY	1,570	\$7.50	\$11,775				
8	Illumination	Mi.	0.12	\$260,000.00	\$31,200				
9	Landscaping	Mi.	0.12	\$235,000.00	\$28,200				
10	Bridges - Short Span	SF		\$185.00	\$0				
11	Walls (4'<)	SF		\$75.00	\$0				
12	Walls (4'>)	SF	200	\$50.00	\$10,000				
			SUBTOTAL		\$280.084				

ADDITIONAL CONST. COSTS	SUGGESTED	PERCENTAGE		COST	
Construction Surveying	1.0-2.5%	2.5%		\$7,000	
TP & DT	3.0-8.0%	8.0%		\$22,400	
Mobilization	8.0-10.0%	10.0%		\$28,000	
Erosion Control	0.5-2.0%	2.0%		\$5,600	
Contingency	30-40%	40.0%		\$112,000	
Escalation (per year)	0.5-2.0%	0.0%		\$0	
Design Year					
Construction Year		2012			
TOTAL CONSTRUCTION COST					

 ANTICIPATED ADDITIONAL COSTS								
	UNIT	QUANTITY	UNIT COST	COST				
Sensitive Area Impact Mitigation	LS	0	\$100,000.00	\$0				
Railroad Crossing	EA	0	\$600,000.00	\$0				
RIGHT OF WAY COSTS	UNIT	QUANTITY	UNIT COST	COST				
New Right of Way Acquisition	SF	11,400	\$8.00	\$91,200				
Structure(s)	LS	All		\$0				
ENGINEERING COSTS	SUGGESTED	PERCENTAGE		COST				
Engineering, Environmental								
Documents, Permitting		15.0%		\$68,300				
Construction Engineering		10.0%		\$45,500				
TOTAL PROJECT COST \$660,000								

Assumptions: On Reverse Page

Improvements are widening BFR to consistent 3-L section between Ibach and Norwood Road Improvement limits are 700' south of Ibach to 500' north of Iowa, and 360' north of Norwood to Norwood No signals, or bridges are included

ROW width varies from 60' near Ibach/Iowa, to 60-75' approaching Norwood

Includes a 2' average height wall for 100' approaching Norwood

Approximate average widening is 12' width

BFR is assumed serviceable and not reconstructed or rehabilitated.

TUALATIN TSP - ORDER OF MAGNITUDE ESTIMATE

PRO.	JECT: Project R9 - Heleniu	is Road		-	
	Improvements	S	PREPARED BY:		DATE:
DESI	GN LEVEL: Preliminary		Darren H	lippenstiel	10/14/2012
KIND	οF work: Roadway, Earthwork, Drain	age, Lighting,	LENGTH (MILE):		SHEET:
	Walls	-	0.	.32	1 of 1
NO.	ITEM	UNIT	QUANTITY	UNIT COST	COST
1	Curb, Gutter, Sidewalks & Drainage	Mi.	0.19	\$935,700.00	\$177,783
2	New Roadway	Lane-Mi.	0.50	\$412,500.00	\$206,250
3	Overlay Existing Roadway	Lane-Mi.		\$89,400.00	\$0
4	Guardrail	FT		\$50.00	\$0
5	New Signal	EA		\$300,000.00	\$0
6	Signal Modifications	EA		\$75,000.00	\$0
7	Earthwork (See Note)	CY	2,700	\$7.50	\$20,250
8	Illumination	Mi.	0.19	\$260,000.00	\$49,400
9	Landscaping	Mi.	0.19	\$235,000.00	\$44,650
10	Bridges - Short Span	SF		\$185.00	\$0
11	Walls (4'<)	SF		\$75.00	\$0
12	Walls (4'>)	SF		\$50.00	\$0
			SUBTOTAL		\$498 333

ADDITIONAL CONST. COSTS	SUGGESTED	PERCENTAGE		COST	
Construction Surveying	1.0-2.5%	2.5%		\$12,500	
TP & DT	3.0-8.0%	8.0%		\$39,900	
Mobilization	8.0-10.0%	10.0%		\$49,800	
Erosion Control	0.5-2.0%	2.0%		\$10,000	
Contingency	30-40%	40.0%		\$199,300	
Escalation (per year)	0.5-2.0%	0.0%		\$0	
Design Year					
Construction Year		2012			
TOTAL CONSTRUCTION COST \$					

 ANTICIPATED ADDITIONAL COSTS								
	UNIT	QUANTITY	UNIT COST	COST				
Sensitive Area Impact Mitigation	LS	0	\$100,000.00	\$0				
Railroad Crossing	EA	0	\$600,000.00	\$0				
RIGHT OF WAY COSTS	UNIT	QUANTITY	UNIT COST	COST				
New Right of Way Acquisition	SF	48,840	\$8.00	\$390,720				
Structure(s)	LS	All		\$0				
ENGINEERING COSTS	SUGGESTED	PERCENTAGE		COST				
Engineering, Environmental								
Documents, Permitting		15.0%		\$121,500				
Construction Engineering		10.0%		\$81,000				
TOTAL PROJECT COST \$1,403,000								

Assumptions: On Reverse Page

Roadway is 2-L section (2-12' lanes, 2-6' bike or 2-6' parking, 2-12' sidewalk/planter) total 60-64' width 60' width Grahams Ferry Road to east of 106th, 64' east of 106th to 108th, 30' 108th to end of project. Existing ROW is 30' GFR to east of 106th, 40' east of 106th to 108th, 30' 108th to end of project No structures, walls or natural resource impacts assumed

Existing pavement width is 24' from east of 106th to end of project.

Full pavement reconstructio from east of 106th to GFR

Grade is flat, assumed 1' total depth earthwork over widening areas

TUALATIN TSP - ORDER OF MAGNITUDE ESTIMATE

PRO.	JECT: Project R10 - Norwo	od Road			ļ
	Improvement	S	PREPARED BY:		DATE:
DESI	GN LEVEL: Preliminary		Darren H	lippenstiel	10/14/2012
KIND	of work: Roadway, Earthwork, Drain	age, Lighting,	LENGTH (MILE):		SHEET:
	Walls		0.	.49	1 of 1
NO.	ITEM	UNIT	QUANTITY	UNIT COST	COST
1	Curb, Gutter, Sidewalks & Drainage	Mi.	0.49	\$935,700.00	\$458,493
2	New Roadway	Lane-Mi.	0.98	\$412,500.00	\$404,250
3	Overlay Existing Roadway	Lane-Mi.	0.98	\$89,400.00	\$87,612
4	Guardrail	FT	·	\$50.00	\$0
5	New Signal	EA		\$300,000.00	\$0
6	Signal Modifications	EA	· · · · · · · · · · · · · · · · · · ·	\$75,000.00	\$0
7	Earthwork (See Note)	CY	5,700	\$7.50	\$42,750
8	Illumination	Mi.	0.49	\$260,000.00	\$127,400
9	Landscaping	Mi.	0.49	\$235,000.00	\$115,150
10	Bridges - Short Span	SF		\$185.00	\$0
11	Walls (4'<)	SF		\$75.00	\$0
12	Walls (4'>)	SF	2,400	\$50.00	\$120,000
			SUBTOTAL		\$1.355.655

ADDITIONAL CONST. COSTS	SUGGESTED	PERCENTAGE		COST	
Construction Surveying	1.0-2.5%	2.5%		\$33,900	
TP & DT	3.0-8.0%	8.0%		\$108,500	
Mobilization	8.0-10.0%	10.0%		\$135,600	
Erosion Control	0.5-2.0%	2.0%		\$27,100	
Contingency	30-40%	40.0%		\$542,300	
Escalation (per year)	0.5-2.0%	0.0%		\$0	
Design Year					
Construction Year		2012			
TOTAL CONSTRUCTION COST \$2					

 ANTICIPATED ADDITIONAL COSTS								
	COST							
Sensitive Area Impact Mitigation	LS	0	\$100,000.00	\$0				
Railroad Crossing	EA	0	\$600,000.00	\$0				
RIGHT OF WAY COSTS	UNIT	QUANTITY	UNIT COST	COST				
New Right of Way Acquisition	SF	8,800	\$8.00	\$70,400				
Structure(s)	LS	All		\$0				
ENGINEERING COSTS	SUGGESTED	PERCENTAGE		COST				
Engineering, Environmental								
Documents, Permitting		15.0%		\$330,500				
Construction Engineering		10.0%		\$220,300				
TOTAL PROJECT COST \$2,824,00								

Assumptions: On Reverse Page

3-L roadway (3-12' lanes, 2-6' bike, 2-12' s/w & planter) total width 72'

Existing pavement width is 24' and is assumed serviceable with an overlay

Existing bridge over I-5 is not impacted by project

ROW width is 71' for all but 200' feet approaching BFR. 40' width for 200' approaching BFR

4' average height at back of walk assumed for 600' between 89th and Vermillion

1' depth earthwork assumed over entire widening (48' width)

Additional 2' average depth earthwork assumed on northside between 89th and Vermillion Illumination and landscaping included

TUALATIN TSP - ORDER OF MAGNITUDE ESTIMATE

PROJ	JECT: Project R11 - Widen Sa	gert Bridge	PREPARED BY:		DATE:			
DESI	GN LEVEL: Preliminary		Darren H	ippenstiel	9/19/2012			
KIND	of work: Roadway, Earthwork, Drain	age, Lighting,	LENGTH (MILE):	· ·	SHEET:			
	Structures		0.	19	1 of 1			
NO.	ITEM	UNIT	QUANTITY	UNIT COST	COST			
1	Curb, Gutter, Sidewalks & Drainage	Mi.	0.19	\$935,700.00	\$177,783			
2	Multi-use Path	Mi.		\$173,700.00	\$0			
3	New Roadway	Lane-Mi.	0.1	\$412,500.00	\$37,125			
4	Overlay Existing Roadway	Lane-Mi.		\$89,400.00	\$0			
5	Reconstruct Existing Roadway	Lane-Mi.		\$438,900.00	\$0			
6	Guardrail	FT	1,430	\$50.00	\$71,500			
7	Guardrail Terminals	EA	4	\$2,500.00	\$10,000			
8	New Signal	EA		\$300,000.00	\$0			
9	Signal Modifications	EA		\$75,000.00	\$0			
10	Earthwork (See Note)	CY	5,250	\$7.50	\$39,375			
11	Traffic Calming	5-10%		-	\$0			
12	Illumination	Mi.		\$260,000.00	\$0			
13	Landscaping	Mi.		\$235,000.00	\$0			
14	Bridges	SF	5,120	\$250.00	\$1,280,000			
15	Walls	SF		\$75.00	\$0			
			SUBTOTAL		\$1 615 783			

ADDITIONAL CONST. COSTS	SUGGESTED	PERCENTAGE		COST
Construction Surveying	1.0-2.5%	2.5%		\$40,400
TP & DT	3.0-8.0%	8.0%		\$129,300
Mobilization	8.0-10.0%	10.0%		\$161,600
Erosion Control	0.5-2.0%	2.0%		\$32,300
Contingency	30-40%	40.0%		\$646,300
Escalation (per year)	0.5-2.0%	0.0%		\$0
Design Year				
Construction Year		2012		
ТС	\$2.625.683			

RIGHT OF WAY COSTS	UNIT	QUANTITY	UNIT COST	COST
New Right of Way Acquisition	SF	0	\$5.00	\$0
Structure(s)	LS	All		\$0
ENGINEERING COSTS	SUGGESTED	PERCENTAGE		COST
Design Engineering		15.0%		\$393,900
Construction Engineering		10.0%		\$262,600
	\$3,282,000			

Assumptions

Project widens I-5 overcrossing structure on Sagert Street, 16' total width, 320' length Roadway widened to include bike lanes and sidewalks 200' west and 800' east of bridge. Guardrail is replaced east and west of structure to accommodate widening Sidewalks are improved to connect with existing sidewalks east and west of the structure Bridge structure is widened symmetrically EW assumed at 8' average depth both sides for sliver fill No natural resource or ROW impacts are assumed

No lighting or landscaping is included.

	TUALATIN TSP - ORDER OF MAGNITUDE ESTIMATE								
PRO.	ROJECT: Project R12 - Sidewalk Gaps on Boones								
	Ferry Road		PREPARED BY:		DATE:				
DESI	GN LEVEL: Preliminary		Darren H	lippenstiel	9/17/2012				
KIND	of work: Roadway, Earthwork, Drain	age, Lighting,	LENGTH (MILE):		SHEET:				
	Structures		0.	.08	1 of 1				
NO.	ITEM	UNIT	QUANTITY	UNIT COST	COST				
1	Curb, Gutter, Sidewalks & Drainage	Mi.	0.06	\$935,700.00	\$56,142				
2	Multi-use Path	Mi.		\$173,700.00	\$0				
3	New Roadway	SF	2,600	\$7.00	\$18,200				
4	Overlay Existing Roadway	Lane-Mi.		\$89,400.00	\$0				
5	Reconstruct Existing Roadway	Lane-Mi.		\$438,900.00	\$0				
6	Intersection Widening	EA		\$76,500.00	\$0				
7	Interconnect Signal	LS		\$35,000.00	\$0				
8	New Signal	EA		\$300,000.00	\$0				
9	Signal Modifications	EA		\$75,000.00	\$0				
10	Earthwork (See Note)	CY	1,350	\$7.50	\$10,125				
11	Traffic Calming	5-10%		-	\$0				
12	Illumination	Mi.	0.06	\$260,000.00	\$15,600				
13	Landscaping	Mi.	0.06	\$235,000.00	\$14,100				
14	Bridges	SF		\$150.00	\$0				
15	Walls	SF	690	\$50.00	\$34,500				
			SUBTOTAL		\$148,667				

ADDITIONAL CONST. COSTS	SUGGESTED	PERCENTAGE		COST
Construction Surveying	1.0-2.5%	2.5%		\$3,700
TP & DT	3.0-8.0%	8.0%		\$11,900
Mobilization	8.0-10.0%	10.0%		\$14,900
Erosion Control	0.5-2.0%	2.0%		\$3,000
Contingency	30-40%	40.0%		\$59,500
Escalation (per year)	0.5-2.0%	0.0%		\$0
Design Year				
Construction Year		2012		
T	\$241,667			

RIGHT OF WAY COSTS	UNIT	QUANTITY	UNIT COST	COST
New Right of Way Acquisition	SF	2,600	\$5.00	\$13,000
Structure(s)	LS	All		\$0
ENGINEERING COSTS	SUGGESTED	PERCENTAGE		COST
Design Engineering		15.0%		\$36,300
Construction Engineering		10.0%		\$24,200
	\$315,000			

Assumptions

BFR sidewalk gaps at the south end of BFR in the City Limits approximately 400' north of Norwood on the west side and approximately 250' north of Norwood on the east side.

Improvements include sidewalk, curb, drainage, and roadway widening (minor)

A 3' average height non-structural wall will be used to retain the slope on the Westside for ~200' Assume 2' average height cut for project widening limits

Landscaping and illumination in planter strip is included.

ROW width existing is 60'. Widened section is 68'. Assume 8' width needed over length of project

	TUALATIN TSP - ORDER OF MAGNITUDE ESTIMATE						
PRO.	JECT: Project R17 - Multiuse Pat	h on Norwood			1		
	Road		PREPARED BY:		DATE:		
DESI	GN LEVEL: Preliminary		Darren H	lippenstiel	9/18/2012		
KIND	OF WORK:		LENGTH (MILE):		SHEET:		
	Multiuse Path, Earthwork		0.	.46	1 of 1		
NO.	ITEM	UNIT	QUANTITY	UNIT COST	COST		
1	Curb, Gutter, Sidewalks & Drainage	Mi.		\$935,700.00	\$0		
2	Multi-use Path	Mi.	0.46	\$173,700.00	\$79,902		
3	New Roadway	Lane-Mi.		\$412,500.00	\$0		
4	Overlay Existing Roadway	Lane-Mi.		\$89,400.00	\$0		
5	Reconstruct Existing Roadway	Lane-Mi.		\$438,900.00	\$0		
6	Intersection Widening	EA		\$76,500.00	\$0		
7	Interconnect Signal	LS		\$35,000.00	\$0		
8	New Signal	EA		\$300,000.00	\$0		
9	Signal Modifications	EA		\$75,000.00	\$0		
10	Earthwork (See Note)	CY	1,070	\$7.50	\$8,025		
11	Traffic Calming	5-10%		-	\$0		
12	Illumination	Mi.		\$260,000.00	\$0		
13	Landscaping	Mi.	0.23	\$235,000.00	\$54,050		
14	Bridges	SF		\$150.00	\$0		
15	Walls	SF		\$75.00	\$0		
			SUBTOTAL		\$141,977		

ADDITIONAL CONST. COSTS	SUGGESTED	PERCENTAGE		COST
Construction Surveying	1.0-2.5%	2.5%		\$3,500
TP & DT	3.0-8.0%	8.0%		\$11,400
Mobilization	8.0-10.0%	10.0%		\$14,200
Erosion Control	0.5-2.0%	2.0%		\$2,800
Contingency	30-40%	40.0%		\$56,800
Escalation (per year)	0.5-2.0%	0.0%		\$0
Design Year				
Construction Year		2012		
TOTAL CONSTRUCTION COST				

RIGHT OF WAY COSTS	UNIT	QUANTITY	UNIT COST	COST
New Right of Way Acquisition	SF	5,600	\$5.00	\$28,000
Structure(s)	LS	All		\$0
ENGINEERING COSTS	SUGGESTED	PERCENTAGE		COST
Design Engineering		10.0%		\$23,100
Construction Engineering		10.0%		\$23,100
	\$305,000			

Assumptions:

Project reconstructs the narrow MUP on Norwood Road to 12' width from the I-5 over crossing to BFR Existing ROW is adequate from 180' east of BFR to Norwood Road.

ROW at BFR is 20' wide from centerline. Assume width needed is 51' to match existing east of BFR Lighting is not included in this estimate

Landscaping is included at 1/2 length since improvements are to one side only.

Walls and other structures are not included in this estimate. The path alignment and existing grade are relatively flat

1' depth of earthwork is assumed for preparation of path grade

PROJ	ECT: Project R18- Cipole Road	Improvements			
			PREPARED BY:		DATE:
DESI	GN LEVEL: Preliminary		Darren H	lippenstiel	11/29/2012
KIND	of work: Roadway, Earthwork, Drain	age, Lighting,	LENGTH (MILE):		SHEET:
	Walls		1.	20	1 of 1
NO.	ITEM	UNIT	QUANTITY	UNIT COST	COST
1	Curb, Gutter, Sidewalks & Drainage	Mi.	0.45	\$935,700.00	\$421,065
2	Multi-use Path	Mi.		\$173,700.00	\$0
3	New Roadway	Lane-Mi.	1.65	\$412,500.00	\$680,625
4	Overlay Existing Roadway	Lane-Mi.	0.22	\$89,400.00	\$19,668
5	Reconstruct Existing Roadway	Lane-Mi.		\$438,900.00	\$0
6	Intersection Widening	EA		\$76,500.00	\$0
7	Interconnect Signal	LS		\$35,000.00	\$0
8	New Signal	EA	1.0	\$300,000.00	\$300,000
9	Signal Modifications	EA		\$75,000.00	\$0
10	Earthwork (See Note)	CY	10,000	\$7.50	\$75,000
11	Traffic Calming	5-10%		-	\$0
12	Illumination	Mi.	0.45	\$260,000.00	\$117,000
13	Landscaping	Mi.	0.45	\$235,000.00	\$105,750
14	Bridges	SF		\$150.00	\$0
15	Walls	SF	500	\$50.00	\$25,000
			SUBTOTAL		\$1,744,108

ADDITIONAL CONST. COSTS	SUGGESTED	PERCENTAGE		COST
Construction Surveying	1.0-2.5%	2.5%		\$43,600
TP & DT	3.0-8.0%	8.0%		\$139,500
Mobilization	8.0-10.0%	10.0%		\$174,400
Erosion Control	0.5-2.0%	2.0%		\$34,900
Contingency	30-40%	40.0%		\$697,600
Escalation (per year)	0.5-2.0%	0.0%		\$0
Design Year				
Construction Year		2012		
TOTAL CONSTRUCTION COST \$				

ANTICIPATED ADDITIONAL COSTS						
	UNIT	QUANTITY	UNIT COST	COST		
Cipole Road Improvements North of						
Herman Road (Factored 2007 RTP)	LS	1	\$ 15,817,000	\$15,817,000		
Railroad Crossing	EA	1	\$600,000.00	\$600,000		

RIGHT OF WAY COSTS	UNIT	QUANTITY	UNIT COST	COST
New Right of Way Acquisition	SF	14,160	\$5.00	\$70,800
Structure(s)	LS	All	\$0.00	\$0
ENGINEERING COSTS	SUGGESTED	PERCENTAGE		COST
Design Engineering		15.0%		\$425,100
Construction Engineering		10.0%		\$283,400
	\$20,030,000			

Assumptions: On Reverse Page

Assumptions Continued:

Improvements are from OR99W to SW T-S Road. Costs for the improvements from OR99W to SW Herman Road are from the 2007 RTP update factored to 2012 dollars. Cost for Improvements south of SW Herman Road are included in this form.

Improvements south of SW Herman Road are for a major collector, 3-L (2-12' lanes, 1-14' turn, 2-6' bike, 2-6' planter, & 2-6' sidewalks)

Existing roadway width north of T-S Road to the end of existing curb is 360LF and will be rehabilitated. Existing roadway width to be rehabbed is 38' curb to curb. New width is 50' curb to curb.

Total length of improvements from T-S Road to Herman Road is 2,360 LF

Improvements will include a rail crossing upgrade at the P&W Rail line

Improvements will include a new signal at SW Herman Road and SW Cipole Road.

A 2' average height wall is included over 10% of the project length

Planter strip landscaping and illumination is included.

	TUALATIN TSP - ORDER OF MAGNITUDE ESTIMATE						
PRO.	JECT: Project R19 - Boones Ferr	ry Road North					
	Improvements	5	PREPARED BY:		DATE:		
DESI	GN LEVEL: Preliminary		Darren H	lippenstiel	8/22/2012		
KIND	of work: Roadway, Earthwork, Drain	age, Lighting,	LENGTH (MILE):		SHEET:		
	Structures		0	.45	1 of 1		
NO.	ITEM	UNIT	QUANTITY	UNIT COST	COST		
1	Curb, Gutter, Sidewalks & Drainage	Mi.	0.39	\$935,700.00	\$364,923		
2	Multi-use Path	Mi.		\$173,700.00	\$0		
3	New Roadway	Lane-Mi.	0.59	\$412,500.00	\$243,375		
4	Overlay Existing Roadway	Lane-Mi.	1.57	\$438,900.00	\$689,073		
5	New Signal	EA	1	\$300,000.00	\$300,000		
6	Signal Modifications	EA	1	\$75,000.00	\$75,000		
7	Earthwork (See Note)	CY	3,700	\$7.50	\$27,750		
8	Illumination	Mi.	0.45	\$260,000.00	\$117,000		
9	Landscaping	Mi.	0.39	\$235,000.00	\$91,650		
10	Bridges - Short Span	SF		\$185.00	\$0		
11	Bridges - Long Span	SF	24,000	\$250.00	\$6,000,000		
12	Walls	SF	3,800	\$75.00	\$285,000		
			SUBTOTAL		\$8,193,771		

ADDITIONAL CONST. COSTS	SUGGESTED	PERCENTAGE		COST
Construction Surveying	1.0-2.5%	2.5%		\$204,800
TP & DT	3.0-8.0%	8.0%		\$655,500
Mobilization	8.0-10.0%	10.0%		\$819,400
Erosion Control	0.5-2.0%	2.0%		\$163,900
Contingency	30-40%	40.0%		\$3,277,500
Escalation (per year)	0.5-2.0%	0.0%		\$0
Design Year				
Construction Year		2012		
T	\$13,314,871			

ANTICIPATED ADDITIONAL COSTS						
	UNIT	QUANTITY	UNIT COST	COST		
Sensitive Area Impact Mitigation	LS	1	\$250,000.00	\$250,000		
Railroad Crossing	EA	1	\$600,000.00	\$600,000		
RIGHT OF WAY COSTS	UNIT	QUANTITY	UNIT COST	COST		
New Right of Way Acquisition	SF	40,600	\$8.00	\$324,800		
Structure(s)	LS	All		\$0		
ENGINEERING COSTS	SUGGESTED	PERCENTAGE		COST		
Engineering, Environmental						
Documents, Permitting		15.0%		\$1,997,200		
Construction Engineering		10.0%		\$1,331,500		
	\$17,818,000					

Assumptions: On Reverse Page
Assumptions Continued:

Roadway section varies from Martinazzi to Upper/Lower BFR Intersection

- Martinazzi to the Tualatin River Bridge is 4-L (4-12' lanes, 2-6' bike, 2-10' S/W & Planter)

- Tualatin River Bridge is 4-L (4-12', 2-6' bike, 2-8' S/W, 2-2' bridge rail)

- Tualatin River Bridge to Upper/Lower BFR is 5-L (5-12' lane, 2-6' bike, 2-10' S/W & Planter)

Bridge height at the same elevation as the existing bridge, minimizing additional earthwork Improvement length is 2,370 LF including improvements along Upper and Lower BFR for tapers Bridge structure over Tualatin River is 300LF long, 80' wide. Piers will be on the bank not in the river. Embankment would have 4:1 slope on both sides

Average roadway cut/fill height is assumed 2' where widening occurs

Retaining walls assumed at the bridge ends and along the widening

- 10' height walls at bridge ends for the entire bridge width (80')

- 6' average height wall on the north side of BFR south of the T. River bridge (150' length)

- 3' average height wall on the south side of BFR south of the T. River bridge (100' length)

- 2' average height wall west side of BFR north of the bridge, south of the tracks (200' length)

- 3' average height wall west side of BFR north of the tracks (200' length)

Landscaping and lighting would be included for the entire length. (no landscaping on the bridge) New traffic signal assumed at the intersection of Upper/Lower BFR

Signal Modification at BFR/Martinazzi

Narrow ROW and Easement (PUE) needed along entire alignment (varying width)

No structures are impacted and no full takes are assumed

	TUALATIN TSP - ORDER OF MAGNITUDE ESTIMATE							
PRO.	JECT: Project R20- Widen T-S	Road from			1			
	Cipole to Teto	'n	PREPARED BY:		DATE:			
DESI	GN LEVEL: Preliminary		Darren H	lippenstiel	9/4/2012			
KIND	of work: Roadway, Earthwork, Drain	age, Lighting,	LENGTH (MILE):		SHEET:			
	Walls		<u> </u>	.55	1 of 1			
NO.	ITEM	UNIT	QUANTITY	UNIT COST	COST			
1	Curb, Gutter, Sidewalks & Drainage	Mi.	1.55	\$935,700.00	\$1,450,335			
2	Multi-use Path	Mi.		\$173,700.00	\$0			
3	New Roadway	Lane-Mi.	3.1	\$412,500.00	\$1,282,875			
4	Overlay Existing Roadway	Lane-Mi.		\$89,400.00	\$0			
5	Reconstruct Existing Roadway	Lane-Mi.		\$438,900.00	\$0			
6	Intersection Widening	EA		\$76,500.00	\$0			
7	Interconnect Signal	LS	1	\$35,000.00	\$35,000			
8	New Signal	EA	3.5	\$300,000.00	\$1,050,000			
9	Signal Modifications	EA	1	\$75,000.00	\$75,000			
10	Earthwork (See Note)	CY	7,300	\$7.50	\$54,750			
11	Traffic Calming	5-10%		-	\$0			
12	Illumination	Mi.	1.55	\$260,000.00	\$403,000			
13	Landscaping	Mi.	1.55	\$235,000.00	\$364,250			
14	Bridges	SF		\$150.00	\$0			
15	Walls	SF	1,230	\$50.00	\$61,500			
			SUBTOTAL		\$4.776.710			

ADDITIONAL CONST. COSTS	SUGGESTED	PERCENTAGE		COST	
Construction Surveying	1.0-2.5%	2.5%		\$119,400	
TP & DT	3.0-8.0%	8.0%		\$382,100	
Mobilization	8.0-10.0%	10.0%		\$477,700	
Erosion Control	0.5-2.0%	2.0%		\$95,500	
Contingency	30-40%	40.0%		\$1,910,700	
Escalation (per year)	0.5-2.0%	0.0%		\$0	
Design Year					
Construction Year		2012			
TOTAL CONSTRUCTION COST \$7					

ANTICIPATED ADDITIONAL COSTS								
UNIT QUANTITY UNIT COST COST								
Sensitive Area Impact Mitigation	LS	1	\$500,000.00	\$500,000				

RIGHT OF WAY COSTS	UNIT	QUANTITY	UNIT COST	COST
New Right of Way Acquisition	SF	36,000	\$5.00	\$180,000
Structure(s)	LS	All	\$500,000.00	\$500,000
ENGINEERING COSTS	SUGGESTED	PERCENTAGE		COST
Design Engineering		15.0%		\$1,164,300
Construction Engineering		10.0%		\$776,200
	\$10,883,000			

Assumptions: On Reverse Page

Assumptions Continued:

Existing roadway is 3-L (3-12' lanes, 2-6' bikes). No reconstruction of existing roadway New roadway is for 2-12' lane widening.

Signal reconstruction assumed at 112th Ave, 115th Ave (1/2 only), 124th Ave & Cipole Signal modification included for 115th Avenue signal.

ROW need assumed from existing widths shown on taxmap subtracted from ROW need (92') Proposed roadway width is 92', 5-lane section (5-12' lanes, 2-6' bike, 2-10' s/w & planter) Earthwork is assumed 1' total depth over entire widening limits

Modular block wall, less than 4' height is assumed over 5% of the total length, one side only Roadway widening will occur adjacent to sensitive areas including over Hedges Creek and two other culvert crossings. Allowance for impact mitigation included at \$500K

Landscaping and lighting will be impacted and require reconstruction over entire project length.

	TUALATIN TSP - ORDER OF MAGNITUDE ESTIMATE							
PROJ	JECT: Project R21 - Borlan	id Road						
	Improvements (5	5-L)	PREPARED BY:		DATE:			
DESI	GN LEVEL: Preliminary		Darren H	lippenstiel	10/12/2012			
KIND	OF WORK: Roadway, Earthwork, Drain	age, Lighting,	LENGTH (MILE):		SHEET:			
	Walls, Signals		0.	.95	1 of 1			
NO.	ITEM	UNIT	QUANTITY	UNIT COST	COST			
1	Curb, Gutter, Sidewalks & Drainage	Mi.	0.62	\$935,700.00	\$580,134			
2	Multi-use Path	Mi.		\$173,700.00	\$0			
3	New Roadway	Lane-Mi.	2.92	\$412,500.00	\$1,204,500			
4	Overlay Existing Roadway	Lane-Mi.		\$89,400.00	\$0			
5	New Signal	EA	2	\$300,000.00	\$600,000			
6	Signal Modifications	EA		\$75,000.00	\$0			
7	Earthwork (See Note)	CY	22,600	\$7.50	\$169,500			
8	Illumination	Mi.	0.85	\$260,000.00	\$221,000			
9	Landscaping	Mi.	0.43	\$235,000.00	\$101,050			
10	Bridges - Short Span	SF	2,400	\$185.00	\$444,000			
11	Walls (4'<)	SF	2,800	\$75.00	\$210,000			
12	Walls (4'>)	SF	1,000	\$50.00	\$50,000			
			SUBTOTAL		\$3,580,184			

ADDITIONAL CONST. COSTS	SUGGESTED	PERCENTAGE		COST	
Construction Surveying	1.0-2.5%	2.5%		\$89,500	
TP & DT	3.0-8.0%	8.0%		\$286,400	
Mobilization	8.0-10.0%	10.0%		\$358,000	
Erosion Control	0.5-2.0%	2.0%		\$71,600	
Contingency	30-40%	40.0%		\$1,432,100	
Escalation (per year)	0.5-2.0%	0.0%		\$0	
Design Year					
Construction Year		2012			
TOTAL CONSTRUCTION COST					

 ANTICIPATED ADDITIONAL COSTS								
	UNIT	QUANTITY	UNIT COST	COST				
Sensitive Area Impact Mitigation	LS	1	\$100,000.00	\$100,000				
Railroad Crossing	EA	0	\$600,000.00	\$0				
RIGHT OF WAY COSTS	UNIT	QUANTITY	UNIT COST	COST				
New Right of Way Acquisition	SF	128,000	\$8.00	\$1,024,000				
Structure(s)	LS	All	\$1,250,000.00	\$1,250,000				
ENGINEERING COSTS	SUGGESTED	PERCENTAGE		COST				
Engineering, Environmental								
Documents, Permitting		15.0%		\$872,700				
Construction Engineering		10.0%		\$581,800				
TOTAL PROJECT COST \$9,646,0								

Assumptions: On Reverse Page

Assumptions Continued:

Roadway Section is 5-L section (4-12' lanes, 1-14' median, 2-6' bike, 2-12' sidewalk/planter) - 98' width Existing roadway width is 40' from 65th to Wilke and 30' from Wilke to Eastern Limits

Curb & Gutter, Sidewalk and Drainage are halved (Southside only)

Average existing ROW width is 60'. Total new width need is 98'

5 structures are assumed impacted by the widening project

4' average height structural wall is assumed for 700' along the northside near Prosperity Park Road

2' average height non-structural wall assumed over 10% of the project length (one side only) illumination is included for the full length

Landscaping is included at half the improvements length (no landscaping northside)

Include short span bridge/culvert structure over Saum Creek

New signals at 65th Avenue and at 56th Terrace

PROJECT: Project R24 - Upper/Lower BF		r BFR Ped. &			
	Bike Imp.		PREPARED BY:		DATE:
DESI	GN LEVEL: Preliminary		Darren H	ippenstiel	9/19/2012
KIND	of work: Roadway, Earthwork, Drain	age, Lighting,	LENGTH (MILE):		SHEET:
	Structures				1 of 1
NO.	ITEM	UNIT	QUANTITY	UNIT COST	COST
1	Concrete Sidewalk	SF	360	\$5.00	\$1,800
2	Concrete Curb	FT	60	\$15.00	\$900
3	New Roadway	SF	120	\$7.00	\$840
4	Bike Lane Colored Marking	SF	1,200	\$2.00	\$2,400
			SUBTOTAL		\$5,940

ADDITIONAL CONST. COSTS	SUGGESTED	PERCENTAGE		COST
Construction Surveying	1.0-2.5%	2.5%		\$100
TP & DT	3.0-8.0%	8.0%		\$500
Mobilization	8.0-10.0%	10.0%		\$600
Erosion Control	0.5-2.0%	2.0%		\$100
Contingency	30-40%	40.0%		\$2,400
Escalation (per year)	0.5-2.0%	0.0%		\$0
Design Year				
Construction Year		2012		
T(\$9,640			

RIGHT OF WAY COSTS	UNIT	QUANTITY	UNIT COST	COST
New Right of Way Acquisition	SF	0	\$5.00	\$0
Structure(s)	LS	All		\$0
ENGINEERING COSTS	SUGGESTED	PERCENTAGE		COST
Design Engineering				\$0
Construction Engineering				\$0
	\$10,000			

Assumptions

Project location is the intersection of Lower and Upper Boones Ferry Road

Sidewalk improvements are to fill gap at the SW quadrant of the intersection and provide an accessible ramp for pedestrians.

Bike lane improvements add colored pavement marking in the bike lane through the right turn lane extension line along the south leg of the intersection

Colored pavement marking in the bike lane is durable MMA or Thermoplastic

	TUALATIN TSP - ORDER OF MAGNITUDE ESTIMATE								
PRO.	JECT: Project R26 - Fill Sidewa	alk Gaps on							
	Borland Road	1	PREPARED BY:		DATE:				
DESI	GN LEVEL: Preliminary		Darren H	lippenstiel	9/19/2012				
KIND	OF WORK: Roadway, Earthwork, Drain	age, Lighting,	LENGTH (MILE):		SHEET:				
	Structures				1 of 1				
NO.	ITEM	UNIT	QUANTITY	UNIT COST	COST				
1	Curb, Gutter, Sidewalks & Drainage	Mi.	0.30	\$935,700.00	\$280,710				
2	Multi-use Path	Mi.		\$173,700.00	\$0				
3	New Roadway	SF	17,700	\$7.00	\$123,900				
4	Overlay Existing Roadway	Lane-Mi.		\$89,400.00	\$0				
5	Reconstruct Existing Roadway	Lane-Mi.		\$438,900.00	\$0				
6	Intersection Widening	EA		\$76,500.00	\$0				
7	Interconnect Signal	LS		\$35,000.00	\$0				
8	New Signal	EA		\$300,000.00	\$0				
9	Signal Modifications	EA		\$75,000.00	\$0				
10	Earthwork (See Note)	CY	6,900	\$7.50	\$51,750				
11	Traffic Calming	5-10%		-	\$0				
12	Illumination	Mi.	0.56	\$260,000.00	\$145,600				
13	Landscaping	Mi.		\$235,000.00	\$0				
14	Walls (Non-Structural)	SF	2,400	\$50.00	\$120,000				
15	Walls (Structural)	SF	7,200	\$75.00	\$540,000				
			SUBTOTAL		\$1,261,960				

ADDITIONAL CONST. COSTS	SUGGESTED	PERCENTAGE		COST
Construction Surveying	1.0-2.5%	2.5%		\$31,500
TP & DT	3.0-8.0%	8.0%		\$101,000
Mobilization	8.0-10.0%	10.0%		\$126,200
Erosion Control	0.5-2.0%	2.0%		\$25,200
Contingency	30-40%	40.0%		\$504,800
Escalation (per year)	0.5-2.0%	0.0%		\$0
Design Year				
Construction Year		2012		
T	\$2.050.660			

RIGHT OF WAY COSTS	UNIT	QUANTITY	UNIT COST	COST
New Right of Way Acquisition	SF	8,000	\$5.00	\$40,000
Structure(s)	LS	All		\$0
ENGINEERING COSTS	SUGGESTED	PERCENTAGE		COST
Design Engineering		15.0%		\$307,600
Construction Engineering		10.0%		\$205,100
	\$2,603,000			

	TUALATIN TSP - ORDER OF MAGNITUDE ESTIMATE							
PRO	JECT: Project R28 - Myslor	ny Street						
	Improvements 115th	to 112th	PREPARED BY:		DATE:			
DESI	GN LEVEL: Preliminary		Darren H	lippenstiel	10/14/2012			
KIND	OF WORK: Roadway, Earthwork, Drain	age, Lighting,	LENGTH (MILE):	•••	SHEET:			
	Structures		0.	.09	1 of 1			
NO.	ITEM	UNIT	QUANTITY	UNIT COST	COST			
1	Curb, Gutter, Sidewalks & Drainage	Mi.	0.09	\$935,700.00	\$84,213			
2	Multi-use Path	Mi.		\$173,700.00	\$0			
3	New Roadway	Lane-Mi.	0.3	\$412,500.00	\$115,500			
4	Overlay Existing Roadway	Lane-Mi.		\$89,400.00	\$C			
5	Reconstruct Existing Roadway	Lane-Mi.		\$438,900.00	\$C			
6	Earthwork (See Note)	CY	2,200	\$7.50	\$16,500			
7	Traffic Calming	5-10%		-	\$C			
8	Illumination	Mi.	0.09	\$260,000.00	\$23,400			
9	Landscaping	Mi.	0.09	\$235,000.00	\$21,150			
10	Bridges	SF	6,400	\$150.00	\$960,000			
11	Walls	SF		\$75.00	\$0			
			SUBTOTAL		\$1,220,763			

ADDITIONAL CONST. COSTS	SUGGESTED	PERCENTAGE		COST	
Construction Surveying	1.0-2.5%	2.5%		\$30,500	
TP & DT	3.0-8.0%	8.0%		\$97,700	
Mobilization	8.0-10.0%	10.0%		\$122,100	
Erosion Control	0.5-2.0%	2.0%		\$24,400	
Contingency	30-40%	40.0%		\$488,300	
Escalation (per year)	0.5-2.0%	0.0%		\$0	
Design Year					
Construction Year		2012			
TOTAL CONSTRUCTION COST \$1,					

ANTICIPATED ADDITIONAL COSTS								
	UNIT	QUANTITY	UNIT COST	COST				
Sensitive Area Impact Mitigation	LS	1	\$100,000.00	\$100,000				
Railroad Crossing	EA	0	\$600,000.00	\$0				
RIGHT OF WAY COSTS	UNIT	QUANTITY	UNIT COST	COST				
New Right of Way Acquisition	SF	2,550	\$5.00	\$12,750				
Structure(s)	LS	All		\$0				
ENGINEERING COSTS	SUGGESTED	PERCENTAGE		COST				
Design Engineering		15.0%		\$297,600				
Construction Engineering		10.0%		\$198,400				
TOTAL PROJECT COST \$2,593,000								

3-L roadway (3-12' lanes, 2-6' bikes, 2-12' sidewalk/planter) total width - 72' All new construction including roadway, curb, gutter, sidewalk, drainage, illumination and landscaping Bridge over Hedges Creek L=100', width is 64' total 60' roadway (minus planter) plus 4' rails 2' EW total over entire project for clearance over Hedges Creek Limits of project are from SW 112th Ave to the existing end of Myslony Street Existing ROW is 46.5' west of Hedges Creek and 74' east of Hedges Creek No walls included \$100k allowance included for impacts to sensitive natural resources

PROJ	JECT: Project R32 - Remove T	rees at SW			
	108th/Tualatir	n	PREPARED BY:		DATE:
DESIGN LEVEL: Preliminary			Darren H	ippenstiel	9/17/2012
KIND OF WORK:			LENGTH (MILE):		SHEET:
	Clearing				1 of 1
NO.	ITEM	UNIT	QUANTITY	UNIT COST	COST
1	Tree Removal	ĒA	5.00	\$1,000.00	\$5,000
			SUBTOTAL		\$5,000

ADDITIONAL CONST. COSTS	SUGGESTED	PERCENTAGE		COST
Construction Surveying	1.0-2.5%	2.5%		\$100
TP & DT	3.0-8.0%	8.0%		\$400
Mobilization	8.0-10.0%	10.0%		\$500
Erosion Control	0.5-2.0%	2.0%		\$100
Contingency	30-40%	40.0%		\$2,000
Escalation (per year)	0.5-2.0%	0.0%		\$0
Design Year				
Construction Year		2012		
TC	\$8,100			

RIGHT OF WAY COSTS	UNIT	QUANTITY	UNIT COST	COST
New Right of Way Acquisition	SF	0	\$5.00	\$0
Structure(s)	LS	All		\$0
ENGINEERING COSTS	SUGGESTED	PERCENTAGE		COST
Design Engineering		0.0%		\$0
Construction Engineering		0.0%		\$0
	\$8,000			

Notes:

5 Trees are assumed to be removed at the SW corner of SW Tualatin Road and SW 108th Avenue

	TUALATIN TSP - ORDER OF MAGNITUDE ESTIMATE							
PRO.	JECT: Project R34 - Round	about at						
	Tualatin/Herman Road I	ntersection	PREPARED BY:		DATE:			
DESI	GN LEVEL: Preliminary		Darren H	lippenstiel	9/4/2012			
KIND	OF WORK:		LENGTH (MILE):		SHEET:			
	Roadway, Earthwork, Drain	age, Lighting			1 of 1			
NO.	ITEM	UNIT	QUANTITY	UNIT COST	COST			
1	Curb, Gutter, Sidewalks & Drainage	Mi.	0.25	\$935,700.00	\$233,925			
2	Multi-use Path	Mi.		\$173,700.00	\$0			
3	New Roadway	SF	47,680	\$7.00	\$333,760			
4	Overlay Existing Roadway	Lane-Mi.		\$89,400.00	\$0			
5	Reconstruct Existing Roadway	Lane-Mi.		\$438,900.00	\$0			
6	Intersection Widening	EA		\$76,500.00	\$0			
7	Interconnect Signal	LS		\$35,000.00	\$0			
8	New Signal	EA		\$300,000.00	\$0			
9	Signal Modifications	EA		\$75,000.00	\$0			
10	Earthwork (See Note)	CY	3,250	\$7.50	\$24,375			
11	Traffic Calming	5-10%		-	\$0			
12	Illumination	Mi.	0.22	\$260,000.00	\$57,200			
13	Landscaping	Mi.	0.22	\$235,000.00	\$51,700			
14	Bridges	SF		\$150.00	\$0			
15	Walls	SF	310	\$75.00	\$23,250			
			SUBTOTAL		\$724.210			

ADDITIONAL CONST. COSTS	SUGGESTED	PERCENTAGE		COST
Construction Surveying	1.0-2.5%	2.5%		\$18,100
TP & DT	3.0-8.0%	8.0%		\$57,900
Mobilization	8.0-10.0%	10.0%		\$72,400
Erosion Control	0.5-2.0%	2.0%		\$14,500
Contingency	30-40%	40.0%		\$289,700
Escalation (per year)	0.5-2.0%	0.0%		\$0
Design Year				
Construction Year		2012		
T(\$1.176.810			

RIGHT OF WAY COSTS	UNIT	QUANTITY	UNIT COST	COST
New Right of Way Acquisition	SF	2,000	\$5.00	\$10,000
Structure(s)	LS	All	\$150,000.00	\$150,000
ENGINEERING COSTS	SUGGESTED	PERCENTAGE		COST
Design Engineering		15.0%		\$176,500
Construction Engineering		10.0%		\$117,700
	\$1,631,000			

Standard 1-L roundabout with assumed 100' diameter. 3-L roadway section on approaches Cheyenne Way becomes right-in/right-out at Tualatin Road

West leg (450'), East leg (400'), North leg (300'); reconstruction

3rd lane on approaches (center lane) is 100' length, 12' width concrete island at roundabout

No impacts to Railroad ROW are assumed

Existing intersection signal will be removed

Project is mostly at grade with little slope. Assume only 1' of excavation over entire project for earthwork A short wall is assumed (2' average height) along the north side of the west leg

Lighting and landscaping on approaches only.

Project R34 structure impact and 10' width ROW take assumed 200' along west leg

	TUALATIN TSP - ORDER OF MAGNITUDE ESTIMATE							
PRO.	JECT: Project R36 - SB Turn Po	cket Teton to						
	Avery		PREPARED BY:		DATE:			
DESI	GN LEVEL: Preliminary		Darren H	lippenstiel	9/4/2012			
KIND	OF WORK:		LENGTH (MILE):		SHEET:			
	Roadway, Earthwork, Drain	age, Walls			1 of 1			
NO.	ITEM	UNIT	QUANTITY	UNIT COST	COST			
1	Curb, Gutter, Sidewalks & Drainage	Mi.	0.03	\$935,700.00	\$28,071			
2	Multi-use Path	Mi.		\$173,700.00	\$0			
3	New Roadway	Lane-Mi.	3,825	\$7.00	\$26,775			
4	Overlay Existing Roadway	Lane-Mi.		\$89,400.00	\$0			
5	Reconstruct Existing Roadway	Lane-Mi.		\$438,900.00	\$0			
6	Intersection Widening	EA		\$76,500.00	\$0			
7	Interconnect Signal	LS		\$35,000.00	\$0			
8	New Signal	EA		\$300,000.00	\$0			
9	Signal Modifications	EA		\$75,000.00	\$0			
10	Earthwork (See Note)	CY	225	\$7.50	\$1,688			
11	Signs	EA	3	\$500.00	\$1,500			
12	Illumination	Mi.		\$260,000.00	\$0			
13	Landscaping	Mi.	0.09	\$235,000.00	\$21,150			
14	Bridges	SF		\$150.00	\$0			
15	Walls	SF	550.0	\$50.00	\$27,500			
			SUBTOTAL		\$106,684			

ADDITIONAL CONST. COSTS	SUGGESTED	PERCENTAGE		COST
Construction Surveying	1.0-2.5%	2.5%		\$2,700
TP & DT	3.0-8.0%	8.0%		\$8,500
Mobilization	8.0-10.0%	10.0%		\$10,700
Erosion Control	0.5-2.0%	2.0%		\$2,100
Contingency	30-40%	40.0%		\$42,700
Escalation (per year)	0.5-2.0%	0.0%		\$0
Design Year				
Construction Year		2012		
T	\$173,384			

RIGHT OF WAY COSTS	UNIT	QUANTITY	UNIT COST	COST
New Right of Way Acquisition	SF	3,825	\$15.00	\$57,375
Structure(s)	LS	All		\$0
ENGINEERING COSTS	SUGGESTED	PERCENTAGE		COST
Design Engineering		15.0%		\$26,000
Construction Engineering		10.0%		\$17,300
	TOTAL PRO	DJECT COST		\$274,000

17' widening for turn pocket includes 12' lane and 5' bike. Pocket is 100' long with 100' taper curb radius is flattened for trucks/busses

Curb and sidewalk reconstruction length is half turn pocket length for half street improvement 2' average height wall included behind sidewalk to minimize slope impacts from widening. ROW and parking impacted at NW intersection quadrant. Assume 17' needed for widening ROW cost increased due to parking impacts

	TUALATIN TSP - ORDER OF MAGNITUDE ESTIMATE								
PRO.	ROJECT: Project R37 - Install Signal at SW Avery								
	and Teton Ave	e	PREPARED BY:		DATE:				
DESI	GN LEVEL: Preliminary		Darren H	lippenstiel	9/6/2012				
KIND	OF WORK:		LENGTH (MILE):		SHEET:				
	Signals				1 of 1				
NO.	ITEM	UNIT	QUANTITY	UNIT COST	COST				
1	Curb, Gutter, Sidewalks & Drainage	Mi.	0.00	\$935,700.00	\$0				
2	Multi-use Path	Mi.		\$173,700.00	\$0				
3	New Roadway	Lane-Mi.		\$412,500.00	\$0				
4	Overlay Existing Roadway	Lane-Mi.	·	\$89,400.00	\$0				
5	Reconstruct Existing Roadway	Lane-Mi.		\$438,900.00	\$0				
6	Intersection Widening	EA		\$76,500.00	\$0				
7	Interconnect Signal	LS		\$35,000.00	\$0				
8	New Signal	EA	1	\$300,000.00	\$300,000				
9	Signal Modifications	EA		\$75,000.00	\$0				
10	Earthwork (See Note)	CY		\$7.50	\$0				
11	Traffic Calming	5-10%		- /	\$0				
12	Illumination	Mi.	0.00	\$260,000.00	\$0				
13	Landscaping	Mi.	0.00	\$235,000.00	\$0				
14	Bridges	SF		\$150.00	\$0				
15	Walls	SF		\$75.00	\$0				
			SUBTOTAL		\$300,000				

ADDITIONAL CONST. COSTS	SUGGESTED	PERCENTAGE	COST
Construction Surveying	1.0-2.5%	2.5%	\$7,500
TP & DT	3.0-8.0%	8.0%	\$24,000
Mobilization	8.0-10.0%	10.0%	\$30,000
Erosion Control	0.5-2.0%	2.0%	\$6,000
Contingency	30-40%	40.0%	\$120,000
Escalation (per year)	0.5-2.0%	0.0%	\$0
Design Year			
Construction Year		2012	
T	JTAL CONSTI	RUCTION COST	\$487,500

RIGHT OF WAY COSTS	UNIT	QUANTITY	UNIT COST	COST
New Right of Way Acquisition	SF	0	\$5.00	\$0
Structure(s)	LS	All		\$0
ENGINEERING COSTS	SUGGESTED	PERCENTAGE		COST
Design Engineering		15.0%		\$73,100
Construction Engineering		10.0%		\$48,800
	TOTAL PRO	DJECT COST		\$609,000

Project installs a signal at SW Avery Street and SW Teton Avenue No ROW is impacted with installation

No roadway improvements are included with installation

PRO.	PROJECT: Project R38 - Local Traffic Signage only						
		on	Tualatin Road		PREPARED BY:		DATE:
DESI	GN LEVEL: Pr	eliminary			Darren H	ippenstiel	9/17/2012
KIND	KIND OF WORK:			LENGTH (MILE):		SHEET:	
	Sig	gning			2.	30	1 of 1
NO.		ITEM		UNIT	QUANTITY	UNIT COST	COST
1	Signs			EA	16.00	\$500.00	\$8,000
					SUBTOTAL		\$8,000

ADDITIONAL CONST. COSTS	SUGGESTED	PERCENTAGE	COST
Construction Surveying	1.0-2.5%	2.5%	\$200
TP & DT	3.0-8.0%	8.0%	\$600
Mobilization	8.0-10.0%	10.0%	\$800
Erosion Control	0.5-2.0%	2.0%	\$200
Contingency	30-40%	40.0%	\$3,200
Escalation (per year)	0.5-2.0%	0.0%	\$0
Design Year			
Construction Year		2012	
T	JTAL CONSTI	RUCTION COST	\$13,000

RIGHT OF WAY COSTS	UNIT	QUANTITY	UNIT COST	COST
New Right of Way Acquisition	SF	0	\$5.00	\$0
Structure(s)	LS	All		\$0
ENGINEERING COSTS	SUGGESTED	PERCENTAGE		COST
Design Engineering		30.0%		\$3,900
Construction Engineering		20.0%		\$2,600
	TOTAL PRO	DJECT COST		\$20,000

Notes:

Project installs signs for no trucks/through movements on SW 105th and SW 108th south of Avery St.

1 sign on SW 124th North of Tualatin Road

1 sign every 2,000 FT on SW Tualatin Road

2 signs on BFR (1 south and 1 east) of Tualatin Road

PROJ	JECT: Project R39 - SW	105th/108th Signing			
	(No	Trucks)	PREPARED BY:		DATE:
DESI	GN LEVEL: Preliminary		Darren H	ippenstiel	9/3/2012
KIND	KIND OF WORK:		LENGTH (MILE):		SHEET:
	Striping				1 of 1
NO.	ITEM	UNIT	QUANTITY	UNIT COST	COST
1	Signs	EA	10.00	\$500.00	\$5,000
			SUBTOTAL		\$5,000

ADDITIONAL CONST. COSTS	SUGGESTED	PERCENTAGE	COST
Construction Surveying	1.0-2.5%	2.5%	\$100
TP & DT	3.0-8.0%	8.0%	\$400
Mobilization	8.0-10.0%	10.0%	\$500
Erosion Control	0.5-2.0%	2.0%	\$100
Contingency	30-40%	40.0%	\$2,000
Escalation (per year)	0.5-2.0%	0.0%	\$0
Design Year			
Construction Year		2012	
T	JTAL CONSTI	RUCTION COST	\$8,100

RIGHT OF WAY COSTS	UNIT	QUANTITY	UNIT COST	COST
New Right of Way Acquisition	SF	0	\$5.00	\$0
Structure(s)	LS	All		\$0
ENGINEERING COSTS	SUGGESTED	PERCENTAGE		COST
Design Engineering		30.0%		\$2,400
Construction Engineering		20.0%		\$1,600
	TOTAL PRO	DJECT COST		\$12,000

Notes:

Project installs signs for no trucks/through movements on SW 105th and SW 108th south of Avery St.

1 sign on Avery east and west of SW 105th (2 total)

1 sign every 2,000 FT on SW 105th, SW Blake Street & SW 108th Ave.

	TUALATIN TSP - ORDER OF MAGNITUDE ESTIMATE								
PRO.	JECT: Project R40 - K-Mart Sit	e Roadway							
	Improvements	3	PREPARED BY:		DATE:				
DESI	GN LEVEL: Preliminary		Darren H	lippenstiel	10/15/2012				
KIND	of work: Roadway, Earthwork, Drain	age, Lighting,	LENGTH (MILE):		SHEET:				
	Walls		0.	.35	1 of 1				
NO.	ITEM	UNIT	QUANTITY	UNIT COST	COST				
1	Curb, Gutter, Sidewalks & Drainage	Mi.	0.35	\$935,700.00	\$327,495				
2	Multi-use Path	Mi.		\$173,700.00	\$0				
3	New Roadway	Lane-Mi.	1.2	\$412,500.00	\$482,625				
4	New Roadway	SF	14,600	\$7.00	\$102,200				
5	Signal	EA		\$300,000.00	\$0				
6	Earthwork (See Note)	CY	4,200	\$7.50	\$31,500				
7	Traffic Calming	5-10%		-	\$0				
8	Illumination	Mi.	0.35	\$260,000.00	\$91,000				
9	Landscaping	Mi.	0.35	\$235,000.00	\$82,250				
10	Bridges	SF		\$150.00	\$0				
11	Walls	SF	370	\$50.00	\$18,500				
			SUBTOTAL		\$1,135,570				

ADDITIONAL CONST. COSTS	SUGGESTED	PERCENTAGE		COST	
Construction Surveying	1.0-2.5%	2.5%		\$28,400	
TP & DT	3.0-8.0%	8.0%		\$90,800	
Mobilization	8.0-10.0%	10.0%		\$113,600	
Erosion Control	0.5-2.0%	2.0%		\$22,700	
Contingency	30-40%	40.0%		\$454,200	
Escalation (per year)	0.5-2.0%	0.0%		\$0	
Design Year					
Construction Year		2012			
TOTAL CONSTRUCTION COST \$1,84					

 ANTICIPATED ADDITIONAL COSTS						
	UNIT	QUANTITY	UNIT COST	COST		
Sensitive Area Impact Mitigation	LS	0	\$100,000.00	\$0		
Railroad Crossing	EA	0	\$600,000.00	\$0		
RIGHT OF WAY COSTS	UNIT	QUANTITY	UNIT COST	COST		
New Right of Way Acquisition	SF		\$5.00	\$0		
Structure(s)	LS	All		\$0		
ENGINEERING COSTS	SUGGESTED	PERCENTAGE		COST		
Design Engineering		15.0%		\$276,800		
Construction Engineering		10.0%		\$184,500		
TOTAL PROJECT COST \$2,307,000						

Alignment 1 is from Boones Ferry Road to T-S Road (L=1,250FT). Alignment 2 is from Martinazzi to Alignment 1 (600FT). Roadway section is 2-L (2-12' lanes, 2-8' parking, 2-10' sidewalk) Alignment 1 widens to 5-L with 2-6' bike lanes for 400' approaching T-S Road

Existing development structures and elements are assumed removed by other projects and not included No ROW acquisition is included.

New signal is assumed at T-S Road

Additional 150' of 12' widening assumed on BFR north of the connection with Alignment 1 Walls are assumed at 2' average height, non-structural, for 10% of the total length on one side.

PROJ	JECT: Project R41 - Bus Pullout	s on Boones.			
	Ferry Road		PREPARED BY:		DATE:
DESI	DESIGN LEVEL: Preliminary		Darren H	ippenstiel	9/17/2012
KIND	KIND OF WORK:		LENGTH (MILE):		SHEET:
	Roadway, Earthwork, Drain	age			1 of 1
NO.	ITEM	UNIT	QUANTITY	UNIT COST	COST
1	Bus Pullout	ĒA	10.00	\$20,000.00	\$200,000
			SUBTOTAL		\$200,000

ADDITIONAL CONST. COSTS	SUGGESTED	PERCENTAGE		COST
Construction Surveying	1.0-2.5%	2.5%		\$5,000
TP & DT	3.0-8.0%	8.0%		\$16,000
Mobilization	8.0-10.0%	10.0%		\$20,000
Erosion Control	0.5-2.0%	2.0%		\$4,000
Contingency	30-40%	40.0%		\$80,000
Escalation (per year)	0.5-2.0%	0.0%		\$0
Design Year				
Construction Year		2012		
TOTAL CONSTRUCTION COST				

RIGHT OF WAY COSTS	UNIT	QUANTITY	UNIT COST	COST
New Right of Way Acquisition	SF	0	\$5.00	\$0
Structure(s)	LS	All		\$0
ENGINEERING COSTS	SUGGESTED	PERCENTAGE		COST
Design Engineering		10.0%		\$32,500
Construction Engineering		10.0%		\$32,500
	\$390,000			

Assumptions:

Project adds 10 bus pullouts at locations along Boones Ferry Road, 5 in each direction

	TUALATIN TSP - ORDER OF MAGNITUDE ESTIMATE							
PRO.	JECT: Project R42 - T-S Rd. Ef	3 Right Turn						
	Pocket to BFF	२	PREPARED BY:		DATE:			
DESI	GN LEVEL: Preliminary		Darren H	lippenstiel	9/19/2012			
KIND	of work: Roadway, Earthwork, Drain	age, Lighting,	LENGTH (MILE):		SHEET:			
	Structures				1 of 1			
NO.	ITEM	UNIT	QUANTITY	UNIT COST	COST			
1	Curb, Gutter, Sidewalks & Drainage	Mi.	0.03	\$935,700.00	\$28,071			
2	Multi-use Path	Mi.		\$173,700.00	\$C			
3	New Roadway	SF	5,100	\$7.00	\$35,700			
4	Intersection Widening	EA		\$76,500.00	\$C			
5	Interconnect Signal	LS		\$35,000.00	\$C			
6	New Signal	EA		\$300,000.00	\$C			
7	Signal Modifications	EA	1	\$75,000.00	\$75,000			
8	Earthwork (See Note)	CY	350	\$7.50	\$2,625			
9	Traffic Calming	5-10%		-	\$C			
10	Illumination	Mi.	0.06	\$260,000.00	\$15,600			
11	Landscaping	Mi.	0.12	\$235,000.00	\$28,200			
12	Bridges	SF		\$150.00	\$C			
13	Walls	SF		\$75.00	\$0			
			SUBTOTAL		\$185 196			

	ADDITIONAL CONST. COSTS	SUGGESTED	PERCENTAGE	COST
	Construction Surveying	1.0-2.5%	2.5%	\$4,600
ľ	TP & DT	3.0-8.0%	8.0%	\$14,800
ľ	Mobilization	8.0-10.0%	10.0%	\$18,500
ľ	Erosion Control	0.5-2.0%	2.0%	\$3,700
	Contingency	30-40%	40.0%	\$74,100
ľ	Escalation (per year)	0.5-2.0%	0.0%	 \$0
	Design Year			
	Construction Year		2012	
	T(OTAL CONSTI	RUCTION COST	 \$300,896

ΔΝΤΙCIPΔ	ΙΔΝΛΙΤΙΠΟ	27200

	UNIT	QUANTITY	UNIT COST	COST			
Water Quality Treatment	LS	1	\$20,000.00	\$20,000			
Railroad Crossing	EA	1	\$300,000.00	\$300,000			

RIGHT OF WAY COSTS	UNIT	QUANTITY	UNIT COST	COST
New Right of Way Acquisition	SF	4,200	\$5.00	\$21,000
Site Impacts	LS	All	\$75,000.00	\$75,000
ENGINEERING COSTS	SUGGESTED	PERCENTAGE		COST
Design Engineering		15.0%		\$45,100
Construction Engineering		10.0%		\$30,100
	\$792,000			

Turn pocket is 350' long measured from BFR west curbline. Widening width is 17' (5' bike, 12' lane) Taper length for turn pocket is 100' long

Existing ROW is assumed at the back of walk ~13' from face of curb

Widening is measured from edge of traveled way, ~2' from face of curb. Total ROW need is 12' Impacts are assumed to the railroad crossing (extended), signal bridge, gate, and traffic signal ped pole No impacts are assumed to the railroad signal controller.

Existing water quality facility south of T-S Road impacted. Allowance included for mechanical treatment Project R42 1 of 1

PRO.	IECT: Project R43 - Restriping BI	FR Between T			
	S Rd and Nyberg	g St	PREPARED BY:		DATE:
DESI	GN LEVEL: Preliminary		Darren H	lippenstiel	9/19/2012
кимо ог work: Roadway, Earthwork, Drainage, Lig		age, Lighting,	LENGTH (MILE):		SHEET:
	Structures				1 of 1
NO.	ITEM	UNIT	QUANTITY	UNIT COST	COST
1	Stripe Removal	FT	1,610	\$0.65	\$1,047
2	Thermoplastic Pavement Striping	FT	1,610	\$1.00	\$1,610
3	Thermoplastic Pavement Arrows	EA	4.0	\$500.00	\$2,000
			SUBTOTAL		\$4,657

ADDITIONAL CONST. COSTS	SUGGESTED	PERCENTAGE		COST	
Construction Surveying	1.0-2.5%	2.5%		\$100	
TP & DT	3.0-8.0%	8.0%		\$400	
Mobilization	8.0-10.0%	10.0%		\$500	
Erosion Control	0.5-2.0%	2.0%		\$100	
Contingency	30-40%	40.0%		\$1,900	
Escalation (per year)	0.5-2.0%	0.0%		\$0	
Design Year					
Construction Year		2012			
TOTAL CONSTRUCTION COST					

RIGHT OF WAY COSTS	UNIT	QUANTITY	UNIT COST	COST
New Right of Way Acquisition	SF	0	\$5.00	\$0
Structure(s)	LS	All		\$0
ENGINEERING COSTS	SUGGESTED	PERCENTAGE		COST
Design Engineering		0.0%		\$0
Construction Engineering		0.0%		\$0
	\$8,000			

Assumptions

Project is to restripe BFR turn lanes between T-S Road and Nyberg Street to provide more storage for left turning traffic to T-S Rd.

4" lines are assumed in unit cost

Length between T-S Rd and Nyberg Street is 400'

Turn pockets are 170' long at Nyberg St and 100' long at T-S Road existing

Project is considered maintenance/operations and therefore no engineering is included.

PRO.	JECT: Project R44 - Sight Dist. Ir	mp. I-5 SB Off-			
	Ramp		PREPARED BY:		DATE:
DESI	GN LEVEL: Preliminary		Darren H	lippenstiel	9/3/2012
KIND OF WORK:			LENGTH (MILE):		SHEET:
	Guardrail, Earthwork				1 of 1
NO.	ITEM	UNIT	QUANTITY	UNIT COST	COST
1	Guardrail	LF	45.00	\$50.00	\$2,250
2	Earthwork (See Note)	CY	300	\$7.50	\$2,250
3	Landscaping	SF	2000.00	\$5.60	\$11,200
			SUBTOTAL		\$15,700

ADDITIONAL CONST. COSTS	SUGGESTED	PERCENTAGE		COST	
Construction Surveying	1.0-2.5%	2.5%		\$400	
TP & DT	3.0-8.0%	8.0%		\$1,300	
Mobilization	8.0-10.0%	10.0%		\$1,600	
Erosion Control	0.5-2.0%	2.0%		\$300	
Contingency	30-40%	40.0%		\$6,300	
Escalation (per year)	0.5-2.0%	0.0%		\$0	
Design Year					
Construction Year		2012			
TOTAL CONSTRUCTION COST \$2					

RIGHT OF WAY COSTS	UNIT	QUANTITY	UNIT COST	COST
New Right of Way Acquisition	SF	0	\$5.00	\$0
Structure(s)	LS	All		\$0
ENGINEERING COSTS	SUGGESTED	PERCENTAGE		COST
Design Engineering		15.0%		\$3,800
Construction Engineering		10.0%		\$2,600
	\$32,000			

Notes:

	TUALATIN TSP - ORDER OF MAGNITUDE ESTIMATE								
PRO.	JECT: Project R45 - Redesign W	B/NB Nyberg							
	Interchange On-R	tamp	PREPARED BY:		DATE:				
DESI	GN LEVEL: Preliminary		Darren H	lippenstiel	9/17/2012				
KIND	of work: Roadway, Earthwork, Drain	age, Lighting,	LENGTH (MILE):		SHEET:				
	Signals				1 of 1				
NO.	ITEM	UNIT	QUANTITY	UNIT COST	COST				
1	Curb, Gutter, Sidewalks & Drainage	Mi.	0.03	\$935,700.00	\$28,071				
2	Multi-use Path	Mi.		\$173,700.00	\$0				
3	New Roadway	SF	12,400	\$7.00	\$86,800				
4	Overlay Existing Roadway	Lane-Mi.		\$89,400.00	\$0				
5	Reconstruct Existing Roadway	Lane-Mi.		\$438,900.00	\$0				
6	Intersection Widening	EA		\$76,500.00	\$0				
7	Interconnect Signal	LS		\$35,000.00	\$0				
8	New Signal	EA	1	\$300,000.00	\$300,000				
9	Signal Modifications	EA		\$75,000.00	\$0				
10	Earthwork (See Note)	CY	500	\$7.50	\$3,750				
11	Traffic Calming	5-10%		-	\$0				
12	Illumination	Mi.	0.03	\$260,000.00	\$7,800				
13	Landscaping	Mi.	0.03	\$235,000.00	\$7,050				
14	Concrete Barrier	LF	400	\$50.00	\$20,000				
15	Walls	SF		\$75.00	\$0				
			SUBTOTAL		\$453,471				

ADDITIONAL CONST. COSTS	SUGGESTED	PERCENTAGE	COST
Construction Surveying	1.0-2.5%	2.5%	\$11,300
TP & DT	3.0-8.0%	8.0%	\$36,300
Mobilization	8.0-10.0%	10.0%	\$45,300
Erosion Control	0.5-2.0%	2.0%	\$9,100
Contingency	30-40%	40.0%	\$181,400
Escalation (per year)	0.5-2.0%	0.0%	\$0
Design Year			
Construction Year		2012	
T	\$736,871		

RIGHT OF WAY COSTS	UNIT	QUANTITY	UNIT COST	COST
New Right of Way Acquisition	SF		\$5.00	\$0
Structure(s)	LS	All	\$150,000.00	\$150,000
ENGINEERING COSTS	SUGGESTED	PERCENTAGE		COST
Design Engineering		15.0%		\$110,500
Construction Engineering		10.0%		\$73,700
	\$1,071,000			

Widening along WB right turn pocket for 2 lanes, assume 10' widening Concrete island is reconstructed smaller than existing Widening/reconstruction of ramp 150' north of island to tie lanes/improvements Signal assumed reconstructed due to pole impact at island No ROW or structures impacted for improvements Lighting and landscaping included for length of turn pocket improvements

PROJ	PROJECT: Project R46 - Signage Improvements				
	WB/NB Or	ı Ramp	PREPARED BY:		DATE:
DESI	GN LEVEL: Preliminary		Darren H	ippenstiel	9/17/2012
KIND	OF WORK:		LENGTH (MILE):		SHEET:
	Signing				1 of 1
NO.	ITEM	UNIT	QUANTITY	UNIT COST	COST
1	Signs	EA	2.00	\$500.00	\$1,000
			SUBTOTAL		\$1,000

	ADDITIONAL CONST. COSTS	SUGGESTED	PERCENTAGE		COST
	Construction Surveying	1.0-2.5%	2.5%		\$0
	TP & DT	3.0-8.0%	8.0%		\$100
	Mobilization	8.0-10.0%	10.0%		\$100
1	Erosion Control	0.5-2.0%	2.0%		\$0
	Contingency	30-40%	40.0%		\$400
	Escalation (per year)	0.5-2.0%	0.0%		\$0
	Design Year				
	Construction Year		2012		
	TC	\$1,600			

RIGHT OF WAY COSTS	UNIT	QUANTITY	UNIT COST	COST
New Right of Way Acquisition	SF	0	\$5.00	\$0
Structure(s)	LS	All		\$0
ENGINEERING COSTS	SUGGESTED	PERCENTAGE		COST
Design Engineering		0.0%		\$0
Construction Engineering		0.0%		\$0
	\$2,000			

Notes:

Project installs signs for "no stopping" at concrete island on NB ramp Assume 1 sign on I-5 NB on-ramp

Assume 1 sign on concrete island north of Nyberg Road

	TUALATIN TSP - ORDER OF MAGNITUDE ESTIMATE								
PRO.	JECT: Project R47 - Crosswalk In	mprovements							
	Nyberg/Fred Me	yer	PREPARED BY:		DATE:				
DESI	GN LEVEL: Preliminary		Darren H	lippenstiel	9/17/2012				
KIND OF WORK:			LENGTH (MILE):		SHEET:				
Concrete, Striping					1 of 1				
NO.	ITEM	UNIT	QUANTITY	UNIT COST	COST				
1	Sidewalk	SF	800	\$5.00	\$4,000				
2	Concrete Island	SF	2,440	\$12.00	\$29,280				
3	New Roadway	SF	1,100	\$7.00	\$7,700				
4	Signal Modification	EA	0.25	\$75,000.00	\$18,750				
5	Signs	EA		\$500.00	\$0				
6	Bike Lane Striping	SF		\$2.00	\$0				
7	Landscaping	SF		\$5.60	\$0				
			SUBTOTAL		\$59,730				

ADDITIONAL CONST. COSTS	SUGGESTED	PERCENTAGE		COST	
Construction Surveying	1.0-2.5%	2.5%		\$1,500	
TP & DT	3.0-8.0%	20.0%		\$11,900	
Mobilization	8.0-10.0%	10.0%		\$6,000	
Erosion Control	0.5-2.0%	2.0%		\$1,200	
Contingency	30-40%	40.0%		\$23,900	
Escalation (per year)	0.5-2.0%	0.0%		\$0	
Design Year					
Construction Year		2012			
TOTAL CONSTRUCTION COST \$10					

RIGHT OF WAY COSTS	UNIT	QUANTITY	UNIT COST	COST
New Right of Way Acquisition	SF	0	\$5.00	\$0
Structure(s)	LS	All		\$0
ENGINEERING COSTS	SUGGESTED	PERCENTAGE		COST
Design Engineering		30.0%		\$31,300
Construction Engineering		20.0%		\$20,800
	\$156,000			

Improvements are to the pedestrian crossing T-S Road at the Fred Meyer/K-Mart intersection Improvements are to the west leg of the intersection only to provide refuge only, not a multi-stage cross Improvements inlcude new ADA ramps and sidewalk at the corners

Traffic Control increased due to volumes on T-S Road and construction times for concrete

Crossing assumed to be reconstructed with concrete

Assume 1/4 typical signal modification since one leg only

	TUALATIN TSP - ORDER OF MAGNITUDE ESTIMATE							
PRO.	JECT: Project R48 - Turn Pock	et Widening						
	Teton/T-S Roa	ad	PREPARED BY:		DATE:			
DESI	GN LEVEL: Preliminary		Darren H	lippenstiel	9/4/2012			
KIND	OF WORK: Roadway, Earthwork, Drain	age, Lighting,	LENGTH (MILE):		SHEET:			
	Signals	-			1 of 1			
NO.	ITEM	UNIT	QUANTITY	UNIT COST	COST			
1	Curb, Gutter, Sidewalks & Drainage	Mi.	0.06	\$935,700.00	\$56,142			
2	Multi-use Path	Mi.		\$173,700.00	\$0			
3	New Roadway	SF	6,000	\$7.00	\$42,000			
4	Overlay Existing Roadway	Lane-Mi.		\$89,400.00	\$0			
5	Reconstruct Existing Roadway	Lane-Mi.		\$438,900.00	\$0			
6	Intersection Widening	EA		\$76,500.00	\$0			
7	Interconnect Signal	LS		\$35,000.00	\$0			
8	New Signal	EA	1.00	\$300,000.00	\$300,000			
9	Signal Modifications	EA		\$75,000.00	\$0			
10	Earthwork (See Note)	CY	370	\$7.50	\$2,775			
11	Traffic Calming	5-10%		-	\$0			
12	Illumination	Mi.	0.00	\$260,000.00	\$0			
13	Landscaping	Mi.	0.00	\$235,000.00	\$0			
14	Fence Reconstruction	LF	250	\$25.00	\$6,250			
15	Walls	SF		\$75.00	\$0			
			SUBTOTAL		\$407,167			

ADDITIONAL CONST. COSTS	SUGGESTED	PERCENTAGE		COST	
Construction Surveying	1.0-2.5%	2.5%		\$10,200	
TP & DT	3.0-8.0%	8.0%		\$32,600	
Mobilization	8.0-10.0%	10.0%		\$40,700	
Erosion Control	0.5-2.0%	2.0%		\$8,100	
Contingency	30-40%	40.0%		\$162,900	
Escalation (per year)	0.5-2.0%	0.0%		\$0	
Design Year					
Construction Year		2012			
TOTAL CONSTRUCTION COST \$66					

	ANTICIPATED ADDITIONAL COSTS						
	UNIT QUANTITY UNIT COST						
F	Private Utility Relocations	LS	1	\$50,000.00	\$50,000		

RIGHT OF WAY COSTS	UNIT	QUANTITY	UNIT COST	COST
New Right of Way Acquisition	SF	2,500	\$5.00	\$12,500
Structure(s)	LS	All		\$0
ENGINEERING COSTS	SUGGESTED	PERCENTAGE		COST
Design Engineering		15.0%		\$99,300
Construction Engineering		10.0%		\$66,200
	\$890,000			

Widening for right turn pocket from Teton NB to T-S Road WB. 17' total widening (12' lane, 5' bike) Turn pocket is 250' long. Taper from 0-17' over 100'

Curb and sidewalk construction from T-S Road to Manhasset (650' total length)

Curb length is divided in half due to half street improvement

Existing signal pole and controller at NW quadrant is impacts. Assume signal reconstruction

Project R48' ROW is needed for sidewalk and utilities at back of walk. 17' exists from curb to ROW line 1 of 1

	TUALATIN TSP - ORDER OF MAGNITUDE ESTIMATE								
PRO.	JECT: Project R49 - Right Turn P	ocket T-S Rd.							
	to SW 124th		PREPARED BY:		DATE:				
DESI/	GN LEVEL: Preliminary		Darren H	lippenstiel	9/19/2012				
KIND	OF WORK:		LENGTH (MILE):		SHEET:				
	Roadway, Earthwork, Drain	iage, Lighting	0.	.06	1 of 1				
NO.	ITEM	UNIT	QUANTITY	UNIT COST	COST				
1	Curb, Gutter, Sidewalks & Drainage	Mi.	0.03	\$935,700.00	\$28,071				
2	Multi-use Path	Mi.		\$173,700.00	\$0				
3	New Roadway	SF	3,300	\$7.00	\$23,100				
4	Overlay Existing Roadway	Lane-Mi.		\$89,400.00	\$0				
5	Reconstruct Existing Roadway	Lane-Mi.		\$438,900.00	\$0				
6	Intersection Widening	EA		\$76,500.00	\$0				
7	Interconnect Signal	LS		\$35,000.00	\$0				
8	New Signal	EA		\$300,000.00	\$0				
9	Signal Modifications	EA	1	\$75,000.00	\$75,000				
10	Earthwork (See Note)	CY	250	\$7.50	\$1,875				
11	Traffic Calming	5-10%		-	\$0				
12	Illumination	Mi.	0.06	\$260,000.00	\$15,600				
13	Landscaping	Mi.	0.06	\$235,000.00	\$14,100				
14	Bridges	SF		\$150.00	\$0				
15	Walls	SF		\$75.00	\$0				
			SUBTOTAL		\$157,746				

ADDITIONAL CONST. COSTS	SUGGESTED	PERCENTAGE		COST
Construction Surveying	1.0-2.5%	2.5%		\$3,900
TP & DT	3.0-8.0%	8.0%		\$12,600
Mobilization	8.0-10.0%	10.0%		\$15,800
Erosion Control	0.5-2.0%	2.0%		\$3,200
Contingency	30-40%	40.0%		\$63,100
Escalation (per year)	0.5-2.0%	0.0%		\$0
Design Year				
Construction Year		2012		
TO	\$256,346			

RIGHT OF WAY COSTS	UNIT	QUANTITY	UNIT COST	COST
New Right of Way Acquisition	SF	0	\$5.00	\$0
Structure(s)	LS	All		\$0
ENGINEERING COSTS	SUGGESTED	PERCENTAGE		COST
Design Engineering		15.0%		\$38,500
Construction Engineering		10.0%		\$25,600
	\$320,000			

Turn pocket width is 12' lane plus 5' bike lane. 10' sidewalk/planter included ROW width is adequate for widening. No ROW acquisition is included No signals impacts are included. Signal modification will be needed for turn pocket light Lighting and landscaping are included

1' average depth earthwork is included for the turn pocket widening.

PRO.	Project R50 - Improve Signing to I-5		PREPARED BY:		DATE:
DESI	GN LEVEL: Preliminary		Darren H	lippenstiel	9/18/2012
KIND OF WORK:			LENGTH (MILE):		SHEET:
	Signing, Structures				1 of 1
NO.	ITEM	UNIT	QUANTITY	UNIT COST	COST
1	Sign Structure - Mast Arm	EA	2.00	\$50,000.00	\$100,000
2	Signing (Type G Panels)	SF	640	\$120.00	\$76,800
			SUBTOTAL		\$176,800

ADDITIONAL CONST. COSTS	SUGGESTED	PERCENTAGE		COST	
Construction Surveying	1.0-2.5%	2.5%		\$4,400	
TP & DT	3.0-8.0%	8.0%		\$14,100	
Mobilization	8.0-10.0%	10.0%		\$17,700	
Erosion Control	0.5-2.0%	2.0%		\$3,500	
Contingency	30-40%	40.0%		\$70,700	
Escalation (per year)	0.5-2.0%	0.0%		\$0	
Design Year					
Construction Year		2012			
TOTAL CONSTRUCTION COST \$28					

RIGHT OF WAY COSTS	UNIT	QUANTITY	UNIT COST	COST
New Right of Way Acquisition	SF	0	\$5.00	\$0
Structure(s)	LS	All		\$0
ENGINEERING COSTS	SUGGESTED	PERCENTAGE		COST
Design Engineering		10.0%		\$28,700
Construction Engineering		10.0%		\$28,700
	\$345,000			

Assumptions

Sign supports will be cantilever mast arm type structures

Two sign panels assumed per support

Signs are estimated to be 6' high X 10' wide

Signs are Type G metal panels

Locations of supports to be determined by design

No other physical impacts or improvements assumed (i.e. curb line, sidewalk, roadway, etc.)

	TUALATIN TSP - ORDER OF MAGNITUDE ESTIMATE								
PRO.	JECT: Project R51 - Install Signa	al at SW 65th							
	Ave and SW Sage	ert <u>St</u>	PREPARED BY:		DATE:				
DESI	GN LEVEL: Preliminary		Darren H	lippenstiel	9/6/2012				
KIND	of work: Roadway, Earthwork, Drain	age, Lighting,	LENGTH (MILE):		SHEET:				
	Structures				1 of 1				
NO.	ITEM	UNIT	QUANTITY	UNIT COST	COST				
1	Curb, Gutter, Sidewalks & Drainage	Mi.	0.00	\$935,700.00	\$0				
2	Multi-use Path	Mi.		\$173,700.00	\$0				
3	New Roadway	Lane-Mi.		\$412,500.00	\$0				
4	Overlay Existing Roadway	Lane-Mi.		\$89,400.00	\$0				
5	Reconstruct Existing Roadway	Lane-Mi.		\$438,900.00	\$0				
6	Intersection Widening	EA		\$76,500.00	\$0				
7	Interconnect Signal	LS	1	\$35,000.00	\$35,000				
8	New Signal	EA	1	\$300,000.00	\$300,000				
9	Signal Modifications	EA		\$75,000.00	\$0				
10	Earthwork (See Note)	CY		\$7.50	\$0				
11	Traffic Calming	5-10%		-	\$0				
12	Illumination	Mi.	0.00	\$260,000.00	\$0				
13	Landscaping	Mi.	0.00	\$235,000.00	\$0				
14	Bridges	SF		\$150.00	\$0				
15	Walls	SF		\$75.00	\$0				
			SUBTOTAL		\$335.000				

ADDITIONAL CONST. COSTS	SUGGESTED	PERCENTAGE		COST	
Construction Surveying	1.0-2.5%	2.5%		\$8,400	
TP & DT	3.0-8.0%	8.0%		\$26,800	
Mobilization	8.0-10.0%	10.0%		\$33,500	
Erosion Control	0.5-2.0%	2.0%		\$6,700	
Contingency	30-40%	40.0%		\$134,000	
Escalation (per year)	0.5-2.0%	0.0%		\$0	
Design Year					
Construction Year		2012			
TOTAL CONSTRUCTION COST					

RIGHT OF WAY COSTS	UNIT	QUANTITY	UNIT COST	COST
New Right of Way Acquisition	SF	0	\$5.00	\$0
Structure(s)	LS	All		\$0
ENGINEERING COSTS	SUGGESTED	PERCENTAGE		COST
Design Engineering		15.0%		\$81,700
Construction Engineering		10.0%		\$54,400
	\$681,000			

Project installs a signal at SW 65th Avenue and SW Sagert Street

No ROW is impacted with installation

No roadway improvements are included with installation

PRO.	JECT: Project BP1 - Safe Rou	utes to School			
	Way finding S	igns	PREPARED BY:		DATE:
DESI	GN LEVEL: Preliminary		Darren H	lippenstiel	9/18/2012
KIND	KIND OF WORK:		LENGTH (MILE):		SHEET:
	Signing				1 of 1
NO.	ITEM	UNIT	QUANTITY	UNIT COST	COST
1	Signs	EA	90	\$500.00	\$45,000
			SUBTOTAL		\$45,000

ADDITIONAL CONST. COSTS	SUGGESTED	PERCENTAGE		COST	
Construction Surveying	1.0-2.5%	2.5%		\$1,100	
TP & DT	3.0-8.0%	8.0%		\$3,600	
Mobilization	8.0-10.0%	10.0%		\$4,500	
Erosion Control	0.5-2.0%	2.0%		\$900	
Contingency	30-40%	40.0%		\$18,000	
Escalation (per year)	0.5-2.0%	0.0%		\$0	
Design Year					
Construction Year		2012			
TOTAL CONSTRUCTION COST					

RIGHT OF WAY COSTS	UNIT	QUANTITY	UNIT COST	COST
New Right of Way Acquisition	SF	0	\$5.00	\$0
Structure(s)	LS	All		\$0
ENGINEERING COSTS	SUGGESTED	PERCENTAGE		COST
Design Engineering		0.0%		\$0
Construction Engineering		0.0%		\$0
	\$73,000			

Assumptions:

Project installs way finding signage along routes to schools

Assume 6 signs per route, 3 routes per school & 5 total schools

PROJ	PROJECT: Project BP2 - Bicycle Improvements At				
	Bridgeport Villa	age	PREPARED BY:		DATE:
DESIGN LEVEL: Preliminary			Darren H	lippenstiel	9/17/2012
KIND OF WORK:			LENGTH (MILE):		SHEET:
	Striping				1 of 1
NO.	ITEM	UNIT	QUANTITY	UNIT COST	COST
1	Colored Pavement Marking	SF	3,240	\$2.00	\$6,480
			SUBTOTAL		\$6,480

ADDITIONAL CONST. COSTS	SUGGESTED	PERCENTAGE		COST	
Construction Surveying	1.0-2.5%	2.5%		\$200	
TP & DT	3.0-8.0%	8.0%		\$500	
Mobilization	8.0-10.0%	10.0%		\$600	
Erosion Control	0.5-2.0%	2.0%		\$100	
Contingency	30-40%	40.0%		\$2,600	
Escalation (per year)	0.5-2.0%	0.0%		\$0	
Design Year					
Construction Year		2012			
TOTAL CONSTRUCTION COST					

RIGHT OF WAY COSTS	UNIT	QUANTITY	UNIT COST	COST
New Right of Way Acquisition	SF	0	\$5.00	\$0
Structure(s)	LS	All		\$0
ENGINEERING COSTS	SUGGESTED	PERCENTAGE		COST
Design Engineering		0.0%		\$0
Construction Engineering		0.0%		\$0
	\$10,000			

Assumptions

No pedestrian improvements included in the improvement plan as sidewalks and crosswalks were constructed by Bridgeport project and are in good condition

Improvements to bicycle facilities are for colored bike lanes extensions through right turn lanes Material is assumed to be durable MMA or Thermoplastic

	TUALATIN TSP - ORDER OF MAGNITUDE ESTIMATE								
PRO.	JECT: Project BP3 - BFR Mid-BI	ock Crossing							
	North of Tualatin I	River	PREPARED BY:		DATE:				
DESI	GN LEVEL: Preliminary		Darren H	lippenstiel	11/29/2012				
KIND	OF WORK:		LENGTH (MILE):		SHEET:				
	Roadway				1 of 1				
NO.	ITEM	UNIT	QUANTITY	UNIT COST	COST				
1	Concrete Sidewalk	SF	340	\$5.00	\$1,700				
2	Concrete Islands	SF	240	\$12.00	\$2,880				
3	Concrete Curb	LF	125	\$15.00	\$1,875				
4	Signing	EA	6	\$500.00	\$3,000				
5	Striping	LF	360	\$1.00	\$360				
6	Crosswalks/Stopbars (Thermo)	SF	248	\$10.00	\$2,480				
	Illumination	EA	2	\$5,000.00	\$10,000				
			SUBTOTAL		\$22,295				

ADDITIONAL CONST. COSTS	SUGGESTED	PERCENTAGE		COST	
Construction Surveying	1.0-2.5%	2.5%		\$600	
TP & DT	3.0-8.0%	8.0%		\$1,800	
Mobilization	8.0-10.0%	10.0%		\$2,200	
Erosion Control	0.5-2.0%	2.0%		\$400	
Contingency	30-40%	40.0%		\$8,900	
Escalation (per year)	0.5-2.0%	0.0%		\$0	
Design Year					
Construction Year		2012			
TOTAL CONSTRUCTION COST \$36					

RIGHT OF WAY COSTS	UNIT	QUANTITY	UNIT COST	COST
New Right of Way Acquisition	SF	0	\$5.00	\$0
Structure(s)	LS	All		\$0
ENGINEERING COSTS	SUGGESTED	PERCENTAGE		COST
Design Engineering		20.0%		\$7,200
Speed Study		LS		\$10,000
Construction Engineering		15.0%		\$5,400
	\$59,000			

Project is for mid-block crossing of Boones Ferry Road north of the Tualatin River at the Tualatin View Apartments

Improvements include concrete islands (30' x 8'), sidewalk ramps, signage and striping

Striping is for ladder style cross walk. 12" width x 10' long markings

Sidewalk ramps assume 10' wings each side and 6' throat, parallel type ramps

illumination poles (non-decorative) assumed both sides of BFR

A speed study was requested by ODOT in 2008 to determine desirability to extend an existing 30MPH spreed zone to encompass the crossing in both traffic directions. Estimate inlcudes costs for data collection, analyzing results, and preparing a technical memorandum with recommendations

PROJ	IECT: Project BP4 - Improve (Crosswalk			
	Visibility at Siletz/	3FR	PREPARED BY:	,	DATE:
DESI	GN LEVEL: Preliminary		Darren H	ippenstiel	9/17/2012
KIND OF WORK:			LENGTH (MILE):		SHEET:
	Signing, Lighting				1 of 1
NO.	ITEM	UNIT	QUANTITY	UNIT COST	COST
1	Signs	EA	4	\$500.00	\$2,000
2	Illumination	EA	2	\$5,000.00	\$10,000
			SUBTOTAL		\$12,000

ADDITIONAL CONST. COSTS	SUGGESTED	PERCENTAGE		COST	
Construction Surveying	1.0-2.5%	2.5%		\$300	
TP & DT	3.0-8.0%	8.0%		\$1,000	
Mobilization	8.0-10.0%	10.0%		\$1,200	
Erosion Control	0.5-2.0%	2.0%		\$200	
Contingency	30-40%	40.0%		\$4,800	
Escalation (per year)	0.5-2.0%	0.0%		\$0	
Design Year					
Construction Year		2012			
TOTAL CONSTRUCTION COST \$1					

RIGHT OF WAY COSTS	UNIT	QUANTITY	UNIT COST	COST
New Right of Way Acquisition	SF	0	\$5.00	\$0
Structure(s)	LS	All		\$0
ENGINEERING COSTS	SUGGESTED	PERCENTAGE		COST
Design Engineering		15.0%		\$2,900
Construction Engineering		10.0%		\$2,000
	\$24,000			

Assumptions:

Project is to improve awareness and visibility at the intersection of SW Siletz Drive and SW BFR 1 pedestrian warning sign approaching the intersection on each leg is assumed

Lighting around the intersection is low (due to distance from nearest lights). Assume 2 lights installed near the intersection to improve lighting

	TUALATIN TSP - ORDER OF MAGNITUDE ESTIMATE								
PRO.	JECT: Project BP5 - Bike Lane T	hrough Avery							
	At BFR	-	PREPARED BY:		DATE:				
DESI	GN LEVEL: Preliminary		Darren H	lippenstiel	9/3/2012				
KIND	OF WORK:		LENGTH (MILE):		SHEET:				
	Roadway, Drainage		0.	.00	1 of 1				
NO.	ITEM	UNIT	QUANTITY	UNIT COST	COST				
1	Curb, Gutter, Sidewalks & Drainage	Mi.	0.04	\$935,700.00	\$37,428				
2	Multi-use Path	Mi.		\$173,700.00	\$0				
3	New Roadway	Lane-Mi.	0.04	\$412,500.00	\$16,500				
4	Overlay Existing Roadway	Lane-Mi.		\$89,400.00	\$0				
5	Reconstruct Existing Roadway	Lane-Mi.		\$438,900.00	\$0				
6	Intersection Widening	EA		\$76,500.00	\$0				
7	Interconnect Signal	LS		\$35,000.00	\$0				
8	New Signal	EA		\$300,000.00	\$0				
9	Signal Modifications	EA		\$75,000.00	\$0				
10	Earthwork (See Note)	CY	100	\$7.50	\$750				
11	Traffic Calming	5-10%		-	\$0				
12	Illumination	Mi.	0.00	\$260,000.00	\$0				
13	Landscaping	Mi.	0.00	\$235,000.00	\$0				
14	Bridges	SF		\$150.00	\$0				
15	Walls	SF		\$75.00	\$0				
			SUBTOTAL		\$54,678				

ADDITIONAL CONST. COSTS	SUGGESTED	PERCENTAGE		COST
Construction Surveying	1.0-2.5%	2.5%		\$1,400
TP & DT	3.0-8.0%	8.0%		\$4,400
Mobilization	8.0-10.0%	10.0%		\$5,500
Erosion Control	0.5-2.0%	2.0%		\$1,100
Contingency	30-40%	40.0%		\$21,900
Escalation (per year)	0.5-2.0%	0.0%		\$0
Design Year				
Construction Year		2012		
T	\$88,978			

RIGHT OF WAY COSTS	UNIT	QUANTITY	UNIT COST	COST
New Right of Way Acquisition	SF	1,200	\$5.00	\$6,000
Structure(s)	LS	All		\$0
ENGINEERING COSTS	SUGGESTED	PERCENTAGE		COST
Design Engineering		15.0%		\$13,300
Construction Engineering		10.0%		\$8,900
	\$117,000			

Minor widening 200' east of the intersection of Avery and Boones Ferry Road All widening is to the northside

Cross section proposed is 3-12' lanes, 2-6' bike lanes, 2-6' sidewalks

0-12' of ROW acquisition is assumed.

PROJECT: Project BP6 - Improve Bridge Behind					
	Hagens		PREPARED BY:		DATE:
DESIGN LEVEL: Preliminary			Darren H	ippenstiel	9/17/2012
KIND	OF WORK:		LENGTH (MILE):		SHEET:
	Surfacing, Lighting				1 of 1
NO.	ITEM	UNIT	QUANTITY	UNIT COST	COST
1	Bridges	SF	2,600	\$19.00	\$49,400
			SUBTOTAL		\$49,400

ADDITIONAL CONST. COSTS	SUGGESTED	PERCENTAGE		COST
Construction Surveying	1.0-2.5%	2.5%		\$1,200
TP & DT	3.0-8.0%	8.0%		\$4,000
Mobilization	8.0-10.0%	10.0%		\$4,900
Erosion Control	0.5-2.0%	2.0%		\$1,000
Contingency	30-40%	40.0%		\$19,800
Escalation (per year)	0.5-2.0%	0.0%		\$0
Design Year				
Construction Year		2012		
TC	\$80,300			

RIGHT OF WAY COSTS	UNIT	QUANTITY	UNIT COST	COST
New Right of Way Acquisition	SF	0	\$5.00	\$0
Structure(s)	LS	All		\$0
ENGINEERING COSTS	SUGGESTED	PERCENTAGE		COST
Design Engineering		15.0%		\$12,000
Construction Engineering		10.0%		\$8,000
	\$100,000			

Assumptions

	TUALATIN TSP - ORDER OF MAGNITUDE ESTIMATE								
PRO.	JECT: Project BP10 - Trail Near	SW105th/SW							
	Blake/SW108t	h	PREPARED BY:		DATE:				
DESI	GN LEVEL: Preliminary		Hippe	enstiel	12/6/2012				
KIND	OF WORK: Roadway, Earthwork, Struc	tures	LENGTH (MILE):		SHEET:				
			0.	32	1 of 1				
NO.	ITEM	UNIT	QUANTITY	UNIT COST	COST				
1	Curb, Gutter, Sidewalks & Drainage	Mi.		\$935,700.00	\$0				
2	Multi-Use Path	Mi.	0.11	\$173,700.00	\$19,107				
3	New Roadway	Lane-Mi.		\$412,500.00	\$0				
4	New Roadway	SF	1,950	\$7.00	\$13,650				
5	Overlay Existing Roadway	Lane-Mi.		\$89,400.00	\$0				
6	Reconstruct Existing Roadway	Lane-Mi.		\$438,900.00	\$0				
7	Intersection Widening	EA		\$76,500.00	\$0				
8	Interconnect Signal	LS		\$35,000.00	\$0				
9	New Signal	EA		\$300,000.00	\$0				
10	Signal Modifications	EA		\$75,000.00	\$0				
11	Earthwork (See Note)	CY	870	\$7.50	\$6,525				
12	Traffic Calming	5-10%		-	\$0				
13	Illumination	Mi.		\$260,000.00	\$0				
14	Landscaping	Mi.		\$235,000.00	\$0				
15	Bridges - MUP (Wooden)	SF	3,500	\$90.00	\$315,000				
16	Walls	SF		\$75.00	\$0				
17	Mitigation (Natural Resources)	LS	1	\$35,000.00	\$35,000				
			SUBTOTAL		\$389,282				

ADDITIONAL CONST. COSTS	SUGGESTED	PERCENTAGE		COST
Construction Surveying	1.0-2.5%	2.0%		\$7,800
TP & DT	3.0-8.0%	8.0%		\$31,100
Mobilization	8.0-10.0%	10.0%		\$38,900
Erosion Control	0.5-2.0%	2.0%		\$7,800
Contingency	30-40%	40.0%		\$155,700
Escalation (per year)	0.5-2.0%	0.0%		\$0
Design Year				
Construction Year		2012		
	\$630,582			

RIGHT OF WAY COSTS	UNIT	QUANTITY	UNIT COST	COST
New Right of Way Acquisition	SF	315	\$5.00	\$1,575
Structure(s)	LS	All		\$0
ENGINEERING COSTS		PERCENTAGE		COST
Design Engineering, Permitting		15.0%		\$94,600
Permitting		2.5%		\$15,800
Construction Engineering		10.0%		\$63,100
	\$810,000			

Alternative includes minor widening of shoulders and off-alignment 10' shared use path

Avg. H=5' cut of inside curve 105th/Blake to improve sight distance ~15' width

Avg. H=3' cut of outside curve behind g-rail for shared use path ~16' width

Avg. H=1' minor fill north side Blake/108th for shoulder improvements

Avg. H=1' minor fill eastside approaching Paulina to connect shared use patht to sidewalk

Wooden bridge type structure for shared use path behind guardrail through sensitive area, eastside

May require utility relocations (assumed by utility) to move poles out of shared use path

Assumes minor ROW acquisition at inside curve 108th/Blake

	TUALATIN TSP - ORDER OF MAGNITUDE ESTIMATE							
PRO.	JECT: Project BP12 - Tong	uin Trail						
	Neighborhood Conn	ections	PREPARED BY:		DATE:			
DESI	GN LEVEL: Preliminary		Darren H	lippenstiel	9/19/2012			
KIND	OF WORK: Multiuse Path, Earthwork, I	Drainage,	LENGTH (MILE):		SHEET:			
	Structures				1 of 1			
NO.	ITEM	UNIT	QUANTITY	UNIT COST	COST			
1	Curb, Gutter, Sidewalks & Drainage	Mi.	0.28	\$935,700.00	\$261,996			
2	Multi-use Path	Mi.	0.18	\$173,700.00	\$31,266			
3	New Roadway	Lane-Mi.		\$412,500.00	\$0			
4	Overlay Existing Roadway	Lane-Mi.		\$89,400.00	\$C			
5	Reconstruct Existing Roadway	Lane-Mi.		\$438,900.00	\$C			
6	Intersection Widening	EA		\$76,500.00	\$0			
7	Interconnect Signal	LS		\$35,000.00	\$0			
8	New Signal	EA		\$300,000.00	\$0			
9	Signal Modifications	EA		\$75,000.00	\$0			
10	Earthwork (See Note)	CY	1,320	\$7.50	\$9,900			
11	Traffic Calming	5-10%		-	\$0			
12	Illumination	Mi.	0.00	\$260,000.00	\$0			
13	Landscaping	Mi.	0.18	\$235,000.00	\$42,300			
14	Bridges	SF	21,000	\$150.00	\$3,150,000			
15	Walls	SF	500	\$75.00	\$37,500			
			SUBTOTAL		\$3,532,962			

ADDITIONAL CONST. COSTS	SUGGESTED	PERCENTAGE		COST	
Construction Surveying	1.0-2.5%	2.5%		\$88,300	
TP & DT	3.0-8.0%	8.0%		\$282,600	
Mobilization	8.0-10.0%	10.0%		\$353,300	
Erosion Control	0.5-2.0%	2.0%		\$70,700	
Contingency	30-40%	40.0%		\$1,413,200	
Escalation (per year)	0.5-2.0%	0.0%		\$0	
Design Year					
Construction Year		2012			
TOTAL CONSTRUCTION COST \$					

ANTICIPATED ADDITIONAL COSTS								
		UNIT	QUANTITY	UNIT COST	COST			
	Sensitive Area Impact Mitigation	LS	1	\$150,000.00	\$150,000			
	Railroad Crossing	EA	1	\$150,000.00	\$150,000			

RIGHT OF WAY COSTS	UNIT	QUANTITY	UNIT COST	COST
New Right of Way Acquisition	SF	30,000	\$5.00	\$150,000
Structure(s)	LS	All		\$0
ENGINEERING COSTS	SUGGESTED	PERCENTAGE		COST
Design Engineering		15.0%		\$861,200
Construction Engineering		10.0%		\$574,100
	\$7,626,000			

Assumptions: Next Page

- Estimate excludes Blake Street connection. That estimate prepared previously from 2009 SW Tualatin Concept Plan Update.
- Clearance over railroad to bottom of structure 23'6". Depth of structure estimated at 5'6"
- Maximum slope for path is 5% and was used in developing path approach lengths to bridge
- 1 access assumed almost entirely on structure due to major sensitive resource impacts and excessive embankment heights
- 1 access improvement area assumed existing at grade rail crossing used for the path. Minor improvements included for the rail crossing

Sidewalk and curb are added to the at grade location to connect to SW 105th

15' ROW is assumed for the MUP approaches on structure and easement for the at grade connection
	TUALATIN TSP - ORDER OF MAGNITUDE ESTIMATE									
PRO.	JECT: Project BP13 - Colored	Bike Lane								
	Through Nyberg Inte	rchange	PREPARED BY:		DATE:					
DESI	GN LEVEL: Preliminary		Darren H	lippenstiel	9/3/2012					
KIND	OF WORK:		LENGTH (MILE):		SHEET:					
	Striping	<u> </u>		<u> </u>	1 of 1					
NO.	ITEM	UNIT	QUANTITY	UNIT COST	COST					
1	Curb, Gutter, Sidewalks & Drainage	Mi.	0.00	\$935,700.00	\$0					
2	Multi-use Path	Mi.		\$173,700.00	\$0 ¹					
3	New Roadway	Lane-Mi.		\$412,500.00	\$0					
4	Overlay Existing Roadway	Lane-Mi.		\$89,400.00	\$0					
5	Reconstruct Existing Roadway	Lane-Mi.		\$438,900.00	\$0					
6	Intersection Widening	EA		\$76,500.00	\$0					
7	Interconnect Signal	LS		\$35,000.00	\$0					
8	New Signal	EA	!	\$300,000.00	\$0					
9	Signal Modifications	EA		\$75,000.00	\$0					
10	Earthwork (See Note)	CY		\$7.50	\$0					
11	Bike Lane Striping	SF	4,920	\$2.00	\$9,840					
12	Illumination	Mi.	0.00	\$260,000.00	\$0					
13	Landscaping	Mi.	0.00	\$235,000.00	\$0					
14	Bridges	SF		\$150.00	\$0					
15	Walls	SF		\$75.00	\$0					
			SUBTOTAL		\$9,840					

ADDITIONAL CONST. COSTS	SUGGESTED	PERCENTAGE		COST
Construction Surveying	1.0-2.5%	2.5%		\$200
TP & DT	3.0-8.0%	8.0%		\$800
Mobilization	8.0-10.0%	10.0%		\$1,000
Erosion Control	0.5-2.0%	2.0%		\$200
Contingency	30-40%	40.0%		\$3,900
Escalation (per year)	0.5-2.0%	0.0%		\$0
Design Year				
Construction Year		2012		
TC	\$15,940			

RIGHT OF WAY COSTS	UNIT	QUANTITY	UNIT COST	COST
New Right of Way Acquisition	SF	0	\$5.00	\$0
Structure(s)	LS	All		\$0
ENGINEERING COSTS	SUGGESTED	PERCENTAGE		COST
Design Engineering		30.0%		\$4,800
Construction Engineering		20.0%		\$3,200
	\$24,000			

Notes:

Project to add roadway striping only. No new pavement or roadway construction is assumed. Pavement marking will be applied between existing bike lane lines. No striping removal will be required. Colored pavement marking will be applied at ramp terminal crossings only. Material is assumed MMA or Thermoplastic

PROJ	PROJECT: Project BP14 - Bike Lane Striping					
	Across I-5 SB	Off-ramp	PREPARED BY:		DATE:	
DESIGN LEVEL: Preliminary			Darren H	ippenstiel	9/3/2012	
KIND	KIND OF WORK:		LENGTH (MILE):		SHEET:	
	Striping				1 of 1	
NO.	ITEM	UNIT	QUANTITY	UNIT COST	COST	
1	Striping	Lane-Mi.	0.06	\$8,700.00	\$5	22
			SUBTOTAL		\$5	22

ADDITIONAL CONST. COSTS	SUGGESTED	PERCENTAGE		COST	
Construction Surveying	1.0-2.5%	2.5%		\$0	
TP & DT	3.0-8.0%	8.0%		\$0	
Mobilization	8.0-10.0%	10.0%		\$100	
Erosion Control	0.5-2.0%	2.0%		\$0	
Contingency	30-40%	40.0%		\$200	
Escalation (per year)	0.5-2.0%	0.0%		\$0	
Design Year					
Construction Year		2012			
TOTAL CONSTRUCTION COST					

RIGHT OF WAY COSTS	UNIT	QUANTITY	UNIT COST	COST
New Right of Way Acquisition	SF	0	\$5.00	\$0
Structure(s)	LS	All		\$0
ENGINEERING COSTS	SUGGESTED	PERCENTAGE		COST
Design Engineering				\$1,000
Construction Engineering		0.0%		\$0
	\$2,000			

Notes:

Existing stripe removal

Two stripes, 150' length each

Striping across ramp is an operations/maintenance activity. DE cost is included to estimate Admin time/costs

	TUALATIN TSP - ORDER OF MAGNITUDE ESTIMATE								
PRO.	JECT: Project BP15 - Bike Lane	e Re-design							
	Nyberg Interchange	East	PREPARED BY:		DATE:				
DESI	GN LEVEL: Preliminary		Darren H	lippenstiel	9/3/2012				
KIND	OF WORK:		LENGTH (MILE):		SHEET:				
	Concrete, Guardrail, Stripin	g			1 of 1				
NO.	ITEM	UNIT	QUANTITY	UNIT COST	COST				
1	Guardrail	LF	160	\$50.00	\$8,000				
2	Concrete Island	SF	480	\$12.00	\$5,760				
3	New Roadway	SF	300	\$7.00	\$2,100				
4	Earthwork (See Note)	CY	300	\$7.50	\$2,250				
5	Signs	EA	2	\$500.00	\$1,000				
6	Bike Lane Striping	SF	300	\$2.00	\$600				
7	Landscaping	SF	1,000	\$5.60	\$5,600				
	SUBTOTAL \$25,310								

ADDITIONAL CONST. COSTS	SUGGESTED	PERCENTAGE		COST	
Construction Surveying	1.0-2.5%	2.5%		\$600	
TP & DT	3.0-8.0%	8.0%		\$2,000	
Mobilization	8.0-10.0%	10.0%		\$2,500	
Erosion Control	0.5-2.0%	2.0%		\$500	
Contingency	30-40%	40.0%		\$10,100	
Escalation (per year)	0.5-2.0%	0.0%		\$0	
Design Year					
Construction Year		2012			
TOTAL CONSTRUCTION COST \$41					

RIGHT OF WAY COSTS	UNIT	QUANTITY	UNIT COST	COST				
New Right of Way Acquisition	SF	0	\$5.00	\$0				
Structure(s)	LS	All		\$0				
ENGINEERING COSTS	SUGGESTED	PERCENTAGE		COST				
Design Engineering		30.0%		\$12,300				
Construction Engineering		20.0%		\$8,200				
	TOTAL PROJECT COST							

Notes:

No lane revisions. New Roadway is for bike lane pavement widening only (assumed 0-6' W X 100' L) Guardrail reconstructed between bridge rail end pieces (Nyberg Bridge to Ramp bridge) Concrete island reconstructed to better align bikes for 90° crossing 20'± up the ramp Sliver fill along bike lane revisions, 100'

Add two warning signs at interchange (standard signs and posts)

Add colored pavement marking in bike lane crossing of I-5 NB loop ramp terminal

PROJECT: Project BP16 - Improve E		3ike/Ped Rail			
	Crossings		PREPARED BY:		DATE:
DESI	GN LEVEL: Preliminary		Darren H	lippenstiel	8/1/2012
KIND OF WORK: Roadway, Earthwork, Drainage, Lightin		age, Lighting,	LENGTH (MILE):		SHEET:
Structures					1 of 1
NO.	ITEM	UNIT	QUANTITY	UNIT COST	COST
1	Sidewalk	SF	3,210	\$5.00	\$16,050
2	Railroad Crossing Panels	FT	335	\$402.00	\$134,670
3	Earthwork (See Note)	CY	260	\$7.50	\$1,950
			SUBTOTAL		\$152,670

ADDITIONAL CONST. COSTS	SUGGESTED	PERCENTAGE		COST	
Construction Surveying	1.0-2.5%	2.5%		\$3,800	
TP & DT	3.0-8.0%	8.0%		\$12,200	
Mobilization	8.0-10.0%	10.0%		\$15,300	
Erosion Control	0.5-2.0%	2.0%		\$3,100	
Contingency	30-40%	40.0%		\$61,100	
Escalation (per year)	0.5-2.0%	0.0%		\$0	
Design Year					
Construction Year		2012			
TOTAL CONSTRUCTION COST \$248,17					

RIGHT OF WAY COSTS	UNIT	QUANTITY	UNIT COST	COST
New Right of Way Acquisition	SF	0	\$5.00	\$0
Structure(s)	LS	All		\$0
ENGINEERING COSTS	SUGGESTED	PERCENTAGE		COST
Design Engineering		15.0%		\$37,200
Construction Engineering		10.0%		\$24,800
	\$310,000			

Assumptions

Estimate includes two project sites. Site 1 is along SW Boones Ferry Road just north of the Tualatin River. Site 2 is along SW Lower Boones Ferry Road at the east city limits.

Site 1 improvements are to the crossing panels only. Crossing signal, gates, and sidewalk exist but the panels are settled and deteriorated.

Site 2 improvements include sidewalks each side of the track and crossing panel improvements.

Sidewalks at site 2 are estimated to run behind existing curb, parallel to existing tracks, and cross at 90° angles to the track.

Panels are improved across travel lanes to provide improved crossing for bicycles.

Assumes panel improvements for bikes would trigger improvements across all lanes

PRO.	JECT: Project T1 - Provide Bus T	ransit Service			
	on SW Herman R	koad	PREPARED BY:		DATE:
DESIGN LEVEL: Preliminary			Darren H	lippenstiel	11/8/2012
KIND OF WORK:			LENGTH (MILE):		SHEET:
	Signing, Bus Shelter		2.	00	1 of 1
NO.	ITEM	UNIT	QUANTITY	UNIT COST	COST
1	Signs	EA	16	\$500.00	\$8,000
2	Bus Shelter	EA	1	\$5,000.00	\$5,000
			SUBTOTAL		\$13,000

ADDITIONAL CONST. COSTS	SUGGESTED	PERCENTAGE		COST		
Construction Surveying	1.0-2.5%	2.5%		\$300		
TP & DT	3.0-8.0%	8.0%		\$1,000		
Mobilization	8.0-10.0%	10.0%		\$1,300		
Erosion Control	0.5-2.0%	2.0%		\$300		
Contingency	30-40%	40.0%		\$5,200		
Escalation (per year)	0.5-2.0%	0.0%		\$0		
Design Year						
Construction Year		2012				
TOTAL CONSTRUCTION COST \$21,10						

ANTICIPATED ITEMS	UNIT	QUANTITY	UNIT COST	COST
Bus	EA	1	\$440,000.00	\$440,000
ENGINEERING COSTS	SUGGESTED	PERCENTAGE		COST
Design Engineering		15.0%		\$3,200
Construction Engineering		10.0%		\$2,100
SU'	\$466,000			

NO.	OPERATING COSTS	UNIT	QUANTITY	UNIT COST	COST				
1	Total Service Hours	HRS	1300	\$128.95	\$167,635				
	SUBTOTAL OPERATING COST \$168,00								
		TOTAL PRO	DJECT COST		\$634,000				

Assumptions:

Bus Stop Frequency = 1 per direction per 0.25 miles

(Matches average existing stop frequency on Boones Ferry Road)

1 sign/post per stop

1 shelter per route

Average Travel Speed = 25 mph

Dwell/Layover Time = 18% of Travel Time

Hours of Service = 6am to 7pm, Monday to Friday only

Service Frequency = 1 bus per 30 minutes

Service Period = 1 year

Operating unit cost per hour (\$128.95/hr) provided by TriMet

PROJ	JECT: Project T2 - Provide Bus T	ransit Service			
	on SW 124th Str	eet	PREPARED BY:		DATE:
DESIGN LEVEL: Preliminary			Darren H	ippenstiel	11/8/2012
KIND OF WORK:			LENGTH (MILE):		SHEET:
	Signing, Bus Shelter		1.	40	1 of 1
NO.	ITEM	UNIT	QUANTITY	UNIT COST	COST
1	Signs	EA	12	\$500.00	\$6,000
2	Bus Shelter	EA	1	\$5,000.00	\$5,000
			SUBTOTAL		\$11,000

ADDITIONAL CONST. COSTS	SUGGESTED	PERCENTAGE		COST	
Construction Surveying	1.0-2.5%	2.5%		\$300	
TP & DT	3.0-8.0%	8.0%		\$900	
Mobilization	8.0-10.0%	10.0%		\$1,100	
Erosion Control	0.5-2.0%	2.0%		\$200	
Contingency	30-40%	40.0%		\$4,400	
Escalation (per year)	0.5-2.0%	0.0%		\$0	
Design Year					
Construction Year		2012			
TOTAL CONSTRUCTION COST \$1					

\square	ANTICIPATED ITEMS	UNIT	QUANTITY	UNIT COST	COST
	Bus	EA	1	\$440,000.00	\$440,000
		!			
	ENGINEERING COSTS	SUGGESTED	PERCENTAGE		COST
	Design Engineering		15.0%		\$2,700
\square	Construction Engineering	<u> </u>	10.0%		\$1,800
	SU'	\$462,000			

NO.	OPERATING COSTS	UNIT	QUANTITY	UNIT COST	COST				
1	Total Service Hours	HRS	884	\$128.95	\$113,992				
	SUBTOTAL OPERATING COST \$114,00								
		TOTAL PRO	DJECT COST		\$576,000				

Assumptions:

Bus Stop Frequency = 1 per direction per 0.25 miles

(Matches average existing stop frequency on Boones Ferry Road)

1 sign/post per stop

1 shelter per route

Average Travel Speed = 25 mph

Dwell/Layover Time = 18% of Travel Time

Hours of Service = 6am to 7pm, Monday to Friday only

Service Frequency = 1 bus per 30 minutes

Service Period = 1 year

Operating unit cost per hour (\$128.95/hr) provided by TriMet

PRO.	JECT: Project T3 - Provide Bus T	ransit Service			
	on SW Avery Str	reet	PREPARED BY:		DATE:
DESIGN LEVEL: Preliminary			Darren H	ippenstiel	11/8/2012
KIND OF WORK:			LENGTH (MILE):		SHEET:
l	Signing, Bus Shelter		1.	10	1 of 1
NO.	ITEM	UNIT	QUANTITY	UNIT COST	COST
1	Signs	ĒA	10	\$500.00	\$5,000
2	Bus Shelter	EA	1	\$5,000.00	\$5,000
			SUBTOTAL		\$10,000

ADDITIONAL CONST. COSTS	SUGGESTED	PERCENTAGE		COST	
Construction Surveying	1.0-2.5%	2.5%		\$300	
TP & DT	3.0-8.0%	8.0%		\$800	
Mobilization	8.0-10.0%	10.0%		\$1,000	
Erosion Control	0.5-2.0%	2.0%		\$200	
Contingency	30-40%	40.0%		\$4,000	
Escalation (per year)	0.5-2.0%	0.0%		\$0	
Design Year					
Construction Year		2012			
TOTAL CONSTRUCTION COST \$					

ANTICIPATED ITEMS	UNIT	QUANTITY	UNIT COST	COST
Bus	EA	1	\$440,000.00	\$440,000
		<u> </u>		
ENGINEERING COSTS	SUGGESTED	PERCENTAGE		COST
Design Engineering		15.0%		\$2,400
Construction Engineering		10.0%		\$1,600
SU'	\$460,000			

NO.	OPERATING COSTS	UNIT	QUANTITY	UNIT COST	COST				
1	Total Service Hours	HRS	754	\$128.95	\$97,228				
	SUBTOTAL OPERATING COST \$97,00								
		TOTAL PRO	DJECT COST		\$557,000				

Assumptions:

Bus Stop Frequency = 1 per direction per 0.25 miles

(Matches average existing stop frequency on Boones Ferry Road)

1 sign/post per stop

1 shelter per route

Average Travel Speed = 25 mph

Dwell/Layover Time = 18% of Travel Time

Hours of Service = 6am to 7pm, Monday to Friday only

Service Frequency = 1 bus per 30 minutes

Service Period = 1 year

Operating unit cost per hour (\$128.95/hr) provided by TriMet

PRO.	IECT: Project T4 - Provide Bus T	ransit Service			
	on SW Tualatin F	Road	PREPARED BY:		DATE:
DESIGN LEVEL: Preliminary			Darren Hippenstiel		11/8/2012
KIND OF WORK:			LENGTH (MILE):		SHEET:
	Signing, Bus Shelter		1.	50	1 of 1
NO.	ITEM	UNIT	QUANTITY	UNIT COST	COST
1	Signs	EA	20	\$500.00	\$10,000
2	Bus Shelter	EA	1	\$5,000.00	\$5,000
			SUBTOTAL		\$15,000

ADDITIONAL CONST. COSTS	SUGGESTED	PERCENTAGE		COST	
Construction Surveying	1.0-2.5%	2.5%		\$400	
TP & DT	3.0-8.0%	8.0%		\$1,200	
Mobilization	8.0-10.0%	10.0%		\$1,500	
Erosion Control	0.5-2.0%	2.0%		\$300	
Contingency	30-40%	40.0%		\$6,000	
Escalation (per year)	0.5-2.0%	0.0%		\$0	
Design Year					
Construction Year		2012			
TOTAL CONSTRUCTION COST \$24,40					

	ANTICIPATED ITEMS	UNIT	QUANTITY	UNIT COST	COST
	Bus	EA	1	\$440,000.00	\$440,000
\Box'					
\Box	ENGINEERING COSTS	SUGGESTED	PERCENTAGE		COST
	Design Engineering		15.0%		\$3,700
<u> </u>	Construction Engineering		10.0%		\$2,400
	SU'	\$471,000			

NO.	OPERATING COSTS	UNIT	QUANTITY	UNIT COST	COST				
1	Total Service Hours	HRS	1430	\$128.95	\$184,399				
	SUBTOTAL OPERATING COST \$184,00								
		TOTAL PRO	DJECT COST		\$655,000				

Assumptions:

Bus Stop Frequency = 1 per direction per 0.25 miles

(Matches average existing stop frequency on Boones Ferry Road)

1 sign/post per stop

1 shelter per route

Average Travel Speed = 25 mph

Dwell/Layover Time = 18% of Travel Time

Hours of Service = 6am to 7pm, Monday to Friday only

Service Frequency = 1 bus per 30 minutes

Service Period = 1 year

Operating unit cost per hour (\$128.95/hr) provided by TriMet

PRO.	JECT: Project T5 - Provide Bus T	ransit Service			
	on SW T-S Roa	ad	PREPARED BY:		DATE:
DESIGN LEVEL: Preliminary			Darren H	ippenstiel	11/28/2012
KIND OF WORK:			LENGTH (MILE):		SHEET:
	Signing, Bus Shelter		2.70		1 of 1
NO.	ITEM	UNIT	QUANTITY	UNIT COST	COST
1	Signs	EA	22	\$500.00	\$11,000
2	Bus Shelter	EA	1	\$5,000.00	\$5,000
			SUBTOTAL		\$16,000

ADDITIONAL CONST. COSTS	SUGGESTED	PERCENTAGE		COST	
Construction Surveying	1.0-2.5%	2.5%		\$400	
TP & DT	3.0-8.0%	8.0%		\$1,300	
Mobilization	8.0-10.0%	10.0%		\$1,600	
Erosion Control	0.5-2.0%	2.0%		\$300	
Contingency	30-40%	40.0%		\$6,400	
Escalation (per year)	0.5-2.0%	0.0%		\$0	
Design Year					
Construction Year		2012			
TOTAL CONSTRUCTION COST \$26,0					

	ANTICIPATED ITEMS	UNIT	QUANTITY	UNIT COST	COST
	Bus	EA	1	\$440,000.00	\$440,000
\Box'			<u> </u>		
\Box	ENGINEERING COSTS	SUGGESTED	PERCENTAGE		COST
	Design Engineering		15.0%		\$3,900
	Construction Engineering		10.0%		\$2,600
	SU'	\$473,000			

NO.	OPERATING COSTS	UNIT	QUANTITY	UNIT COST	COST				
1	Total Service Hours	HRS	1690	\$128.95	\$217,926				
	SUBTOTAL OPERATING COST \$218,00								
		TOTAL PRO	DJECT COST		\$691,000				

Assumptions:

Bus Stop Frequency = 1 per direction per 0.25 miles

(Matches average existing stop frequency on Boones Ferry Road)

1 sign/post per stop

1 shelter per route

Average Travel Speed = 25 mph

Dwell/Layover Time = 18% of Travel Time

Hours of Service = 6am to 7pm, Monday to Friday only

Service Frequency = 1 bus per 30 minutes

Service Period = 1 year

Operating unit cost per hour (\$128.95/hr) provided by TriMet

PRO.	JECT: Project T6 - Extend Bus S	ervice to East			
	Tualatin		PREPARED BY:		DATE:
DESIGN LEVEL: Preliminary			Darren Hippenstiel		11/8/2012
KIND OF WORK:			LENGTH (MILE):		SHEET:
	Signing, Bus Shelter		1.10		1 of 1
NO.	ITEM	UNIT	QUANTITY	UNIT COST	COST
1	Signs	EA	16	\$500.00	\$8,000
2	Bus Shelter	EA	1	\$5,000.00	\$5,000
			SUBTOTAL		\$13,000

ADDITIONAL CONST. COSTS	SUGGESTED	PERCENTAGE		COST	
Construction Surveying	1.0-2.5%	2.5%		\$300	
TP & DT	3.0-8.0%	8.0%		\$1,000	
Mobilization	8.0-10.0%	10.0%		\$1,300	
Erosion Control	0.5-2.0%	2.0%		\$300	
Contingency	30-40%	40.0%		\$5,200	
Escalation (per year)	0.5-2.0%	0.0%		\$0	
Design Year					
Construction Year		2012			
TOTAL CONSTRUCTION COST \$21,1					

ANTICIPATED ITEMS	UNIT	QUANTITY	UNIT COST	COST
Bus	EA	1	\$440,000.00	\$440,000
1	<u> </u>			
ENGINEERING COSTS	SUGGESTED	PERCENTAGE		COST
Design Engineering		15.0%		\$3,200
Construction Engineering	<u> </u>	10.0%		\$2,100
SU'	\$466,000			

NO.	OPERATING COSTS	UNIT	QUANTITY	UNIT COST	COST				
1	Total Service Hours	HRS	754	\$128.95	\$97,228				
	SUBTOTAL OPERATING COST \$97,00								
		TOTAL PRO	DJECT COST		\$563,000				

Assumptions:

Bus Stop Frequency = 1 per direction per 0.25 miles

(Matches average existing stop frequency on Boones Ferry Road)

1 sign/post per stop

1 shelter per route

Average Travel Speed = 25 mph

Dwell/Layover Time = 18% of Travel Time

Hours of Service = 6am to 7pm, Monday to Friday only

Service Frequency = 1 bus per 30 minutes

Service Period = 1 year

Operating unit cost per hour (\$128.95/hr) provided by TriMet

PROJ	JECT: Project T7 - Extend Serv	vice Hours For				
	All Transit	All Transit			DATE:	
DESI	DESIGN LEVEL: Preliminary		Darren H	lippenstiel	11/8/2012	
KIND	KIND OF WORK:		LENGTH (MILE):		SHEET:	
	Bus Service Hours				1 of 1	
NO.	ITEM	UNIT	QUANTITY	UNIT COST	COST	
						\$0
						\$0
			SUBTOTAL			\$0

ADDITIONAL CONST. COSTS	SUGGESTED	PERCENTAGE	COST
Construction Surveying	1.0-2.5%	2.5%	\$0
TP & DT	3.0-8.0%	8.0%	\$0
Mobilization	8.0-10.0%	10.0%	\$0
Erosion Control	0.5-2.0%	2.0%	\$0
Contingency	30-40%	40.0%	\$0
Escalation (per year)	0.5-2.0%	0.0%	\$0
Design Year			
Construction Year		2012	
T	STAL CONSTI	RUCTION COST	\$0

	ANTICIPATED ITEMS	UNIT	QUANTITY	UNIT COST	COST
 '		<u> </u>	<u> </u>	('	
	ENGINEERING COSTS	SUGGESTED	PERCENTAGE		COST
	Design Engineering		15.0%		\$0
	Construction Engineering	<u> </u>	10.0%		\$0
		\$0			

NO.	OPERATING COSTS	UNIT	QUANTITY	UNIT COST	COST
1	Total Service Hours	HRS	8400	\$128.95	\$1,083,180
	SUBTO	TAL OPER	ATING COST		\$1,083,000
		TOTAL PRO	DJECT COST		\$1,083,000

Assumptions: On Reverse Page

Assumptions Continued: Mileage of each bus line only includes portion within study limits. Average Travel Speed = 25 mph All bus lines assumed to be bi-directional. Dwell / Layover Time = 18% of travel time Existing buses will be used for extended lines, so no new buses are needed. Hours of Service / Frequency: Line 12 Weekday and Weekend 5am to 10am, 1 bus per 15 minutes 10am to 3pm, 1 bus per 30 minutes 3pm to 7pm, 1 bus per 15 minutes Hours of Service / Frequency: Lines 36, 37, 38 Weekday 6am to 9am, 1 bus per 15 minutes 9am to 4pm, 1 bus per 30 minutes 4pm to 7pm, 1 bus per 15 minutes Weekend 6am to 7pm, 1 bus per 30 minutes Hours of Service / Frequency: Line 76 Weekday and Weekend 6am to 9am, 1 bus per 15 minutes 9am to 4pm, 1 bus per 30 minutes 4pm to 7pm, 1 bus per 15 minutes 7pm to 9:30 pm, 1 bus per 30 minutes Hours of Service / Frequency: Line 96 Weekday 6am to 9am, 1 bus per 15 minutes 9am to 4pm, 1 bus per 30 minutes 4pm to 7pm, 1 bus per 15 minutes 7pm to 9 pm, 1 bus per 30 minutes Weekend 6am to 7pm, 1 bus per 30 minutes Service Period = 1 year

PRO.	JECT: Project T8 - Provide Shu	uttle between				
	Bridgeport Village and	Bridgeport Village and Tualatin		PREPARED BY:		
DESI	DESIGN LEVEL: Preliminary		Darren H	Darren Hippenstiel		
KIND	KIND OF WORK:		LENGTH (MILE):		SHEET:	
	New Shuttle Service				1 of 1	
NO.	ITEM	UNIT	QUANTITY	UNIT COST	COST	
						\$0
						\$0
			SUBTOTAL			\$0

ADDITIONAL CONST. COSTS	SUGGESTED	PERCENTAGE		COST	
Construction Surveying	1.0-2.5%	2.5%		\$0	
TP & DT	3.0-8.0%	8.0%		\$0	
Mobilization	8.0-10.0%	10.0%		\$0	
Erosion Control	0.5-2.0%	2.0%		\$0	
Contingency	30-40%	40.0%		\$0	
Escalation (per year)	0.5-2.0%	0.0%		\$0	
Design Year					
Construction Year		2012			
TOTAL CONSTRUCTION COST					

ANTICIPATED ITEMS	UNIT	QUANTITY	UNIT COST	COST
Shuttle	EA	1	\$50,000.00	\$50,000
ENGINEERING COSTS	SUGGESTED	PERCENTAGE		COST
Design Engineering		15.0%		\$0
Construction Engineering		10.0%		\$0
SU'	BTOTAL CA	PITAL COST		\$50,000

NO.	OPERATING COSTS	UNIT	QUANTITY	UNIT COST	COST
1	Total Service Hours	HRS	2392	\$128.95	\$308,448
	SUBTO	OTAL OPER	ATING COST		\$308,000
		TOTAL PRO	DJECT COST		\$358,000

Assumptions Continued:

1 new shuttle van operates constantly within hours of service, including 18% dwell / layover time.

Cost of shuttle van assumed at \$50K/ea.

Hours of Service

6 hours on weekdays (Mon-Fri)

8 hours on weekends (Sat-Sun)

Service Period = 1 year

PRO.	JECT: Project T9 - Expand	Shuttle for				
	Industrial/Manufacturir	Industrial/Manufacturing Workers		PREPARED BY:		
DESI	DESIGN LEVEL: Preliminary		Darren H	Darren Hippenstiel		
KIND	KIND OF WORK:		LENGTH (MILE):		SHEET:	
	Shuttle Service Hours				1 of 1	
NO.	ITEM	UNIT	QUANTITY	UNIT COST	COST	
						\$0
						\$0
			SUBTOTAL			\$0

ADDITIONAL CONST. COSTS	SUGGESTED	PERCENTAGE	COST
Construction Surveying	1.0-2.5%	2.5%	\$0
TP & DT	3.0-8.0%	8.0%	\$0
Mobilization	8.0-10.0%	10.0%	\$0
Erosion Control	0.5-2.0%	2.0%	\$0
Contingency	30-40%	40.0%	\$0
Escalation (per year)	0.5-2.0%	0.0%	\$0
Design Year			
Construction Year		2012	
T	STAL CONSTI	RUCTION COST	\$0

	ANTICIPATED ITEMS	UNIT	QUANTITY	UNIT COST	COST	
<u> </u>			<u> </u>	1		
	ENGINEERING COSTS	SUGGESTED	PERCENTAGE		COST	
	Design Engineering		15.0%		\$0	
	Construction Engineering		10.0%		\$0	
	SUBTOTAL CAPITAL COST					

NO.	OPERATING COSTS	UNIT	QUANTITY	UNIT COST	COST		
1	Total Service Hours	HRS	1625	\$35.61	\$57,866		
	SUBTO	OTAL OPER	ATING COST		\$58,000		
	TOTAL PROJECT COST						

Assumptions Continued:

2 existing shuttle vans operate constantly within hours of service, including 18% dwell / layover time. Increase in Hours of Service (weekdays only)

Van 1: 4.25 additional hours (all day from 5:30 am to 6:15pm)

Van 2: 2 additional hours

Service Period = 1 year

Cost per day of operation provided by the Tualatin Chamber of Commerce. Cost per hour is computed by dividing cost per day (\$373.78) by 10.5 hours (current operating hours per day total for both vans)

PRO.	IECT: Project T11 - Park-And-Ri	de Locations			
	In West Tualati	'n	PREPARED BY:		DATE:
DESI	GN LEVEL: Preliminary		Darren H	ippenstiel	11/8/2012
KIND	OF WORK:		LENGTH (MILE):		SHEET:
	Signing, Bus Pullout				1 of 1
NO.	ITEM	UNIT	QUANTITY	UNIT COST	COST
1	Signs	EA	10	\$500.00	\$5,000
2	Bus Pullout	EA	1	\$20,000.00	\$20,000
			SUBTOTAL		\$25,000

ADDITIONAL CONST. COSTS	SUGGESTED	PERCENTAGE		COST			
Construction Surveying	1.0-2.5%	2.5%		\$600			
TP & DT	3.0-8.0%	8.0%		\$2,000			
Mobilization	8.0-10.0%	10.0%		\$2,500			
Erosion Control	0.5-2.0%	2.0%		\$500			
Contingency	30-40%	40.0%		\$10,000			
Escalation (per year)	0.5-2.0%	0.0%		\$0			
Design Year							
Construction Year		2012					
TOTAL CONSTRUCTION COST \$40							

ANTICIPATED ITEMS	UNIT	QUANTITY	UNIT COST	COST
ENGINEERING COSTS	SUGGESTED	PERCENTAGE		COST
Design Engineering		15.0%		\$6,100
Construction Engineering		10.0%		\$4,100
	\$51,000			

Assumptions:

Project utilizes existing parking lots for parking spaces. No paving or striping is included for parking. Bus pull out added for bus stop/parking during service

10 signs/posts per lot

1 bus pullout per lot

PRO.	JECT: Project T12 - Park-And-Ri	de Locations			
	In South Tualat	.in	PREPARED BY:		DATE:
DESI	GN LEVEL: Preliminary		Darren H	ippenstiel	11/8/2012
KIND	OF WORK:		LENGTH (MILE):		SHEET:
	Signing, Bus Pullout				1 of 1
NO.	ITEM	UNIT	QUANTITY	UNIT COST	COST
1	Signs	EA	10	\$500.00	\$5,000
2	Bus Pullout	EA	1	\$20,000.00	\$20,000
			SUBTOTAL		\$25,000

ADDITIONAL CONST. COSTS	SUGGESTED	PERCENTAGE		COST			
Construction Surveying	1.0-2.5%	2.5%		\$600			
TP & DT	3.0-8.0%	8.0%		\$2,000			
Mobilization	8.0-10.0%	10.0%		\$2,500			
Erosion Control	0.5-2.0%	2.0%		\$500			
Contingency	30-40%	40.0%		\$10,000			
Escalation (per year)	0.5-2.0%	0.0%		\$0			
Design Year							
Construction Year		2012					
TOTAL CONSTRUCTION COST \$40							

ANTICIPATED ITEMS	UNIT	QUANTITY	UNIT COST	COST
ENGINEERING COSTS	SUGGESTED	PERCENTAGE		COST
Design Engineering		15.0%		\$6,100
Construction Engineering		10.0%		\$4,100
	\$51,000			

Assumptions:

Project utilizes existing parking lots for parking spaces. No paving or striping is included for parking. Bus pull out added for bus stop/parking during service

10 signs/posts per lot

1 bus pullout per lot

	FACTORED ESTIMATES FOR ROADWAY PROJECTS											
Revised No.	No.	Project Description		Estimated Cost	Source	2012 Costs Adj from 1993 @ 4%/vr	2012 Costs Adj from 2001 @ 4%/vr	2012 Costs Adj from 2007 @ 4%/vr	2012 Costs Adj from 2009 @ 4%/vr	2012 Costs Adj from 2010 @ 4%/vr		
						19	11	5	3	2		
Project R16 -	BP7 (BPU21)	Multiuse Path along 65th Avenue	Multiuse path from Tualatin River to I-205 on the westside of 65th Avenue	\$8,000,000	2007 RTP			\$ 9,734,000.00				
Project R35 -	R1 (I11)	SW Sagert/SW Martinazzi Signal		\$1,700,000	2007 RTP			\$ 2,069,000.00				
Project R18 -	U6 (UU22)	Improve SW Cipole Road	From Tualatin-Sherwood Road to OR99W	\$13,000,000	2007 RTP			\$ 15,817,000.00				
Project R5 ·	U7 (UU29)	Widen SW Myslony Street	From 124th to 112th	\$9,400,000	2007 RTP			\$ 11,437,000.00				
Project R25 -	U9 (BPU18)	Fill Sidewalk Gaps										
	а	SW Grahams Ferry Road		\$797,000	1993 Bike/Ped	\$ 1,680,000.00						
Project R15 -	U14 (BPU20)	Add bicycle facilities to SW 95th Ave.	From T-S Road to SW Avery	\$2,400,000	2007 RTP			\$ 2,920,000.00				
Project R14 -	BP27 (BPU19)	Add Bike Lanes on Martinazzi		\$860,000						\$ 931,000.00		
Project R29 -	U17	SW Tualatin Concept Plan Roadways	excludes Tonquin Road and SW 124th Ave	\$27,955,000					\$ 31,446,000.00			
Project R23 -	U17b	Tonquin Road from Waldo Way to Grahams Ferry Road		\$9,950,000					\$ 11,193,000.00			

	FACTORED ESTIMATES FOR BICYCLE AND PEDESTRIAN PROJECTS											
Revised No.	No.	Project	Description	Estimated Cost	Source	2012 Costs Adj from 1993 @ 4%/yr	2012 Costs Adj from 2001 @ 4%/yr	2012 Costs Adj from 2007 @ 4%/yr	2012 Costs Adj from 2009 @ 4%/yr	2012 Costs Adj from 2010 @ 4%/yr		
						19	11	5	3	2		
Project BP11 -	BP8 (BPU14)	Multiuse Path near Fred Meyer under I- 5	Multiuse crossing under I-5 near Fred Meyer	\$1,600,000	2007 RTP			\$ 1,947,000.00				
Project BP17 -	BP12 (BPU8)	Multiuse path bridges over Tualatin River	At Jurgens Park and north of SW Cipole Road in conjunction with Westside Trail (cost per each bridge)	\$2,000,000	2007 RTP			\$ 2,434,000.00				
Project BP8 -	BP16	Multiuse path as part of the Tualatin Trail	Eastside Trail	\$1,013,000	1993 Bike/Ped	\$ 2,135,000.00						
Project BP7 -	BP17 (BPU10)	Construct the multi-use path projects from the previously adopted Tualatin Pedestrian Plan										
	а	Tualatin River Path (Bike)		\$3,152,000	1993 Bike/Ped	\$ 6,641,000.00						
	b	TRP Connections (Bike)		\$859,000	1993 Bike/Ped	\$ 1,810,000.00						
	С	Nyberg Creek Path (Bike)		\$605,000	1993 Bike/Ped	\$ 1,275,000.00						
	d	NCP Connections (Bike)		\$165,000	1993 Bike/Ped	\$ 348,000.00						
	е	Hedges Creek Path (Bike)		\$418,000	1993 Bike/Ped	\$ 881,000.00						
	f	Tualatin High School Path (Bike)		\$176,000	1993 Bike/Ped	\$ 371,000.00						
	g	I-5 Path (Bike)		\$1,540,000	1993 Bike/Ped	\$ 3,245,000.00						
	h	I-5 Path Connections (Bike)		\$99,000	1993 Bike/Ped	\$ 209,000.00						
	i	Saum Creek Path (Bike)		\$1,013,000	1993 Bike/Ped	\$ 2,135,000.00						
	i	Norwood Expressway Path (Bike)		\$1,783,000	1993 Bike/Ped	\$ 3,757,000.00						
	k	Tualatin River Bridges (Bike)		\$1,500,000	1993 Bike/Ped	\$ 3,161,000.00						
	I	Saum Creek Path Trail (Ped)		\$170,000	1993 Bike/Ped	\$ 359,000.00						
	m	SCOP Ped Connections (Ped)		\$14,000	1993 Bike/Ped	\$ 30,000.00						
	n	Hedges Creek Ped Connections (Ped)		\$94,000	1993 Bike/Ped	\$ 199,000.00						
	0	Nyberg Creek Path (Ped)		\$11,000	1993 Bike/Ped	\$ 24,000.00						
	р	Indian Meadows Path (Ped)		\$9,100	1993 Bike/Ped	\$ 20,000.00						
Project BP9 -		Tualatin River Greenway - east side	Fill in gaps	\$123,000	1993 Bike/Ped	\$ 260,000.00						

Unit Costs (Based on Development Pricing)

ITEM	UNIT	AMOUNT	UNIT COST	TOTAL	COMMENTS				
Concrete Curb and Gutter	LF	10,560	\$15.00	\$158,400.00	For Both Sides of Rdwy				
Concrete Sidewalk	oncrete Sidewalk SF 63,360 \$5.00		\$316,800.00	For Both Sides of Rdwy, 6' Wide					
15 Inch Storm Sewer Pipe, 10' deep	LF 5,280 \$65.00		\$343,200.00	Long. Storm Pipe, Including Trenching/Backfill					
Storm Manhole	Manhole EA 21 \$		\$2,400.00	\$50,400.00	Every 250' (21 in a mile)				
Standard Catch Basin	EA	42	\$1,200.00	\$50,400.00	Every 250' (21 in a mile*2 for both sides= 42)				
			SUBTOTAL	\$919,200.00					
Clearing and Grubbing - 0.6%			\$5,515.20						
Removal of Structures - 1.2%				\$11,030.40					
		то	\$935,700.00						

Curb, Gutter, Sidewalks, & Enclosed Drainage (Unit: Mile)

Multi-use Path (Unit: Mile)

ITEM	UNIT	NIT AMOUNT UNIT COST TOTAL		TOTAL	COMMENTS
Asphalt	TN 802 \$95.00		\$76,168.89	12' Lane, 5280' long, depth=2 IN, density=2.050 TN/CY	
Aggregate Base	TN	3,618	\$20.00	\$72,355.56	10' Lane, 5280' long, depth=12 IN, density=1.850 TN/CY
12 Inch Storm Sewer Pipe, 5' deep	2 Inch Storm Sewer Pipe, 5' deep LF 260 \$85.0		\$85.00	\$22,100.00	Lateral Culverts: 20' long, every 400 LF (13/mile)
			SUBTOTAL	\$170,624.44	
Clearing and Grubbing - 0.6%				\$1,023.75	
Removal of Structures - 1.2%				\$2,047.49	
		то	\$173,700.00		

New Roadway (Unit: Lane-Mile)									
ITEM	UNIT	AMOUNT	UNIT COST	TOTAL	COMMENTS				
Asphalt	TN	3,207	\$95.00	\$304,675.56	12' Lanes, 5280' long, depth=8 IN, density=2.050 TN/CY				
Aggregate Base	TN	4,341	\$20.00	\$86,826.67	12' Lanes, 5280' long, depth=12 IN, density=1.850 TN/CY				
15 Inch Storm Sewer Pipe, 10' deep	LF	130	\$65.00	\$8,450.00	Lateral Culverts: 13' per lane, every 250 LF (21/mile)				
Excavation	CY	-	\$7.50	\$0.00					
Embankment	CY	-	\$7.50	\$0.00	See Below For Earthwork				
Thermoplastic Pavement Striping	LF	5,280	\$1.00	\$5,280.00	1 solid stripe per lane				
			SUBTOTAL	\$405,232.22					
Clearing and Grubbing - 0.6%				\$2,431.39					
Removal of Structures - 1.2%				\$4,862.79					
		то	\$412,500.00						

New Roadway (Unit: SF)

ITEM	UNIT	AMOUNT	UNIT COST	TOTAL	COMMENTS				
New Roadway/SF per Lane Mile	SF	1	\$6.51	\$6.51	See New Roadway (Unit: Lane-Mile) for Breakdown				
		то	TAL UNIT COST	\$7.00					
Overlay Existing Roadway (Unit: Lane-Mile)									
ITEM	UNIT	AMOUNT	UNIT COST	TOTAL	COMMENTS				
Asphalt	TN	802	\$95.00	\$76,168.89	12' Lanes, 5280' long, depth=2 IN, density=2.050 TN/CY				
Cold Plane Pavement Removal	SF	15,840	\$0.50	\$7,920.00	12' Lanes, 5280' long, 25% of extg. rdwy.				
Thermoplastic Pavement Striping	LF	5,280	\$1.00	\$5,280.00	1 solid stripe per lane				
	-	то	\$89,400.00						

Reconstruct Existing Roadway (Unit: Lane-Mile)

ITEM	UNIT	AMOUNT	UNIT COST	TOTAL	COMMENTS					
Excavation	CY	3,520	\$7.50	\$26,400.00	Removal of 4in. AC and 14in Aggregate Base					
New Roadway	-	-	-	\$412,500.00	See 'New Roadway' Sheet for Cost Breakdown					
		то	\$438,900.00							

Intersection Widening (Unit: Each)

ITEM	UNIT	AMOUNT	UNIT COST	TOTAL	COMMENTS
Aanhalt	TN	206	\$05.00	\$28 130 56	26' of widening per approach, 2 approaches, 150'
Aspilait	IIN	290	\$95.00	φz0,130.30	long, depth=6 IN, density=2.050 TN/CY
Aggregate Race	ты	624	\$20.00	¢10 470 27	26' of widening per approach, 2 approaches, 150'
Aggregate base	IIN	024	φ20.00	\$12,470.37	long, depth=14 IN, density=1.850 TN/CY
Concrete Curb and Gutter	LF	600	\$15.00	\$9,000.00	300' per approach, 2 approaches
Sidewalk	SF	4,200	\$5.00	\$21,000.00	300' per approach, 2 approaches, 7' Wide
Demolition of Exta, Curb/Sidewalk	CY	200	\$15.00	\$3,000,00	300' per approach 2 approaches 9' Wide 1' Deen
Demonition of Extg. Curb/Sidewalk	01	200	φ15.00	\$5,000.00	Soo per approach, z approaches, s white, i Deep
Thermoplastic Pavement Striping	LF	1,200	\$1.00	\$1,200.00	2 solid stripes per lane, 4 new lanes, 150' long
	-		SUBTOTAL	\$74,800.93	
Clearing and Grubbing - 0.6%				\$448.81	
Removal of Structures - 1.2%				\$897.61	
Landscaping - 0.5%				\$374.00	
		то	\$76,500.00		

Large Roundabouts (Unit: Each)

ITEM	UNIT	AMOUNT	UNIT COST	TOTAL	COMMENTS
Asphalt	TN		\$95.00	\$0.00	26' of widening per approach, 2 approaches, 150'
Aggregate Base	TN		\$20.00	\$0.00	26' of widening per approach, 2 approaches, 150'
			\$15.00	\$0.00	long, depth=14 IN, density=1.850 TN/CY
Concrete Curb and Gutter	LF		\$15.00	\$0.00	300° per approach, 2 approaches
Concrete Sidewalk	SF		\$5.00	\$0.00	300' per approach, 2 approaches, 7' Wide
Concrete Islands	SF		\$12.00		
Demolition of Extg. Curb/Sidewalk	CY		\$15.00	\$0.00	300' per approach, 4 approaches, 9' Wide, 1' Deep
Thermoplastic Pavement Striping	LF		\$1.00	\$0.00	2 solid stripes per lane, 4 new lanes, 150' long
			SUBTOTAL	\$0.00	
Clearing and Grubbing - 0.6%				\$0.00	
Removal of Structures - 1.2%				\$0.00	
Landscaping - 0.5%				\$0.00	
Roundabout OLD	EA	1	\$1,100,000.00	\$1,100,000.00	Includes all costs associated with the construction of a One Lane Roundabout where an existing intersection is located. Cost per Rick Kuehn.
		то	TAL UNIT COST	\$1,100,000.00	

Small Roundabouts (Unit: Each)

ITEM	UNIT	AMOUNT	UNIT COST	TOTAL	COMMENTS
Asphalt	TN		\$95.00	\$0.00	26' of widening per approach, 2 approaches, 150' long, depth=6 IN, density=2.050 TN/CY
Aggregate Base	TN		\$20.00	\$0.00	26' of widening per approach, 2 approaches, 150' long, depth=14 IN, density=1.850 TN/CY
Concrete Curb and Gutter	LF		\$15.00	\$0.00	300' per approach, 2 approaches
Concrete Sidewalk	SF		\$5.00	\$0.00	300' per approach, 2 approaches, 7' Wide
Concrete Islands	SF		\$12.00		
Demolition of Extg. Curb/Sidewalk	CY		\$15.00	\$0.00	300' per approach, 4 approaches, 9' Wide, 1' Deep
Thermoplastic Pavement Striping	LF		\$1.00	\$0.00	2 solid stripes per lane, 4 new lanes, 150' long
			SUBTOTAL	\$0.00	
Clearing and Grubbing - 0.6%				\$0.00	
Removal of Structures - 1.2%				\$0.00	
Landscaping - 0.5%				\$0.00	
Roundabout OLD	EA	1	\$1,100,000.00	\$400,000.00	Includes all costs associated with the construction of a One Lane Roundabout in virgin ground. Cost per Rick Kuehn.
		ТС	TAL UNIT COST	\$400.000.00	

Restriping Existing Roadway (Unit: Lane-Mile)

ITEM	UNIT	AMOUNT	UNIT COST	TOTAL	COMMENTS
Stripe Removal	LF	5,280	\$0.65	\$3,432.00	1 solid stripe removed per lane
Thermoplastic Pavement Striping	LF	5,280	\$1.00	\$5,280.00	1 solid stripe per lane
		то	\$8,700.00		

Bike Lane Colored Marking (Unit: Square Foot)

ITEM	UNIT	AMOUNT	UNIT COST	TOTAL	COMMENTS				
Bike Lane Colored Marking	SF	1	\$2.00	\$2.00	Durable marking (MMA or Thermoplastic)				
		то	\$2.00						

Interconnnect Signal (Unit: Lump Sum)

ITEM	UNIT	AMOUNT	UNIT COST	TOTAL	COMMENTS
Interconnect Signal System	LS	1	\$35,000.00	\$35,000.00	Includes all costs to interconnect
		то	TAL UNIT COST	\$35,000.00	

New Signal (Unit: Each)

ITEM	UNIT	AMOUNT	UNIT COST	TOTAL	COMMENTS
New Signal	LS	1	\$300,000.00	\$300,000.00	Includes signal system and all appurtenances (pole, wiring, detectiion devices, etc.) for 1 intersection
		то	\$300,000.00		

Signal Modifications (Unit: Each)

ITEM	UNIT	AMOUNT	UNIT COST	TOTAL	COMMENTS
Modify Signal	LS	1	\$75,000.00	\$75,000.00	Includes all evaluations and modifications to the signal at one intersection
		то	\$75.000.00		

Earthwork (Unit: CY)

ITEM	UNIT	AMOUNT	UNIT COST	TOTAL	COMMENTS
Excavation	CY	2,933	\$7.50	\$22,000.00	Length=5280/2=2640LF, Max depth = 5'
Embankment	CY	2,347	\$7.50	\$17,600.00	Length=5280/2=2640LF, Max depth = 4'
		то	\$39,600.00		

Earthowrk Estimated (Unit: CY)

ITEM	UNIT	AMOUNT	UNIT COST	TOTAL	COMMENTS
Earthwork (Cut/Fill)	CY	1	\$7.50	\$7.50	Unit Cost
		то	\$7.50		

Illumination (Unit: Mile)

ITEM	UNIT	AMOUNT	l	UNIT COST	TOTAL	COMMENTS
Luminaire and appurtenances	EA	52	\$	5,000.00	\$260,000.00	Luminaire, pole, wiring, etc (1 pole on each side every 200'=52 poles)
		TC	\$260,000.00			

Illumination (Unit: EA)

ITEM	UNIT	AMOUNT	l	UNIT COST	TOTAL	COMMENTS
Luminaire and appurtenances	EA	1	\$	5,000.00	\$5,000.00	Per Each Luminaire Estimated Cost
		то	TA	L UNIT COST	\$5.000.00	

Landscaping (Unit: Mile)

ITEM	UNIT	AMOUNT	UNIT COST	TOTAL	COMMENTS
Landscaping	LS	1	\$ 235,000.00	\$235,000.00	Plantings, Trees, Topsoil, and Irrigation sums up to aproximately \$235,000 per mile (for both sides of roadway)
		то	\$235,000.00		

Landscaping (Unit: Square Foot)

ITEM	UNIT	AMOUNT	UN	IT COST	TOTAL	COMMENTS
Landscaping	SF	1	\$	5.56	\$5.56	Per mile landscaping cost divided by 2-4' planter widths at 5,280 LF
		то	\$5.60			

Bridges - Short Span (Unit: Square Foot)

ITEM	UNIT	AMOUNT	UNIT COST	TOTAL	COMMENTS
	SF	1	\$185.00	\$185.00	The cost of this item is project dependent; see note 3 of the directions tab for more information
		то	\$185.00		

Bridges - Long Span (Unit: Square Foot)

ITEM	UNIT	AMOUNT	UNIT COST	TOTAL	COMMENTS
	SF	1	\$250.00	\$250.00	The cost of this item is project dependent; see note 3 of the directions tab for more information
		то	TAL UNIT COST	\$250.00	

Bridges - MUP (Wooden) (Unit: Square Foot)

ITEM	UNIT	AMOUNT	UNIT COST	TOTAL	COMMENTS
	SF	1	\$19.00	\$19.00	The cost of this item is project dependent; see note 3 of the directions tab for more information
		то	\$19.00		

Walls (Unit: Square Foot)

ITEM	UNIT	AMOUNT	UNIT COST	TOTAL	COMMENTS
Retaining Wall (H>=4')	LS	1	\$75.00	\$75.00	
		то	\$75.00		

Walls (Unit: Square Foot)

ITEM	UNIT	AMOUNT	UNIT COST	TOTAL	COMMENTS
Retaining Wall (H<4')	LS	1	\$50.00	\$50.00	
		ТО	TAL UNIT COST	\$50.00	

Right-of-Way - Undeveloped (Unit: Square Foot)

ITEM	UNIT	AMOUNT	UNIT COST	TOTAL	COMMENTS
Right-of-Way Acquisition	LS	1	\$5.00	\$5.00	ROW acquisition cost is approx. \$5/SF
		то	TAL UNIT COST	\$5.00	

Right-of-Way - Developed (Unit: Square Foot)

ITEM	UNIT	AMOUNT	UNIT COST	TOTAL	COMMENTS
Right-of-Way Acquisition	LS	1	\$8.00	\$8.00	ROW acquisition cost is approx. \$5/SF
		то	\$8.00		

Fence Reconstruction (Unit: LF)

ITEM	UNIT	AMOUNT	UNIT COST	TOTAL	COMMENTS
Fence Construction	LF	1	\$25.00	\$25.00	Includes Removal
		то	TAL UNIT COST	\$25.00	

New Signs - Small (Unit: EA)

ITEM	UNIT	AMOUNT	UNIT COST	TOTAL	COMMENTS
Signs	EA	1	\$500.00	\$500.00	Includes Post, In place complete
		то	TAL UNIT COST	\$500.00	

New Signs - Large (Unit: SF)

ITEM	UNIT	AMOUNT	UNIT COST	TOTAL	COMMENTS
Signs	SF	1	\$120.00	\$120.00	Assumes Type G1 Panels, Sign only
		то	\$120.00		

New Signs Supports (Unit: EA)

ITEM	UNIT	AMOUNT	UNIT COST	TOTAL	COMMENTS
Sign Supports	EA	1	\$50,000.00	\$50,000.00	Mast Arm Type Structure
		то	TAL UNIT COST	\$50,000.00	

Guardrail (Unit: LF)

ITEM	UNIT	AMOUNT	UNIT COST	TOTAL	COMMENTS
Guardrail	LF	1	\$50.00	\$50.00	
		то	\$50.00		

Tree Removal (Unit: EA)

ITEM	UNIT	AMOUNT	UNIT COST	TOTAL	COMMENTS
Tree Removal	EA	1	\$1,000.00	\$1,000.00	
		то	\$1,000.00		

Concrete Barrier (Unit: LF)

ITEM	UNIT	AMOUNT	UNIT COST	TOTAL	COMMENTS
Concrete Barrier	LF	1	\$50.00	\$50.00	
		то	\$50.00		

Bus Pullouts (Unit: EA) UNIT AMOUNT UNIT COST TOTAL COMMENTS Bus Pullouts EA 1 \$20,000.00 \$20,000.00 \$20,000.00 TOTAL UNIT COST \$20,000.00

Bus Shelter (Unit: EA)

ITEM	UNIT	AMOUNT	UNIT COST	TOTAL	COMMENTS
Bus Shelter	EA	1	\$5,000.00	\$5,000.00	Bus shelter only, no pullout (see previous)
		то	\$5,000.00		

Bus (Unit: EA)

ITEM	UNIT	AMOUNT	UNIT COST	TOTAL	COMMENTS
Bus	EA	1	\$440,000.00	\$440,000.00	New bus (per TriMet)
		то	\$440,000.00		

Shuttle (Unit: EA)

ITEM	UNIT	AMOUNT	UNIT COST	TOTAL	COMMENTS
Shuttle	EA	1	\$50,000.00	\$50,000.00	New Shuttle (large van)
		то	\$50,000.00		