Washington State

Amtrak *Cascades* Capital Cost Estimates 2004 Technical Report

VOLUME 2





Prepared by the Freight Systems Division Washington State Department of Transportation

February 2006

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Prepared for the

Washington State Department of Transportation

Ву

HDR Engineering, Inc.

in association with

Transit Safety Management, Inc. The Resource Group Consultants, Inc.

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Chapter One: Introduction

This technical white paper presents the capital cost estimates for each of the proposed infrastructure improvements associated with increased service of the Amtrak *Cascades* program over the next twenty years. Detailed information about each of these projects can be found in the *Amtrak Cascades Technical Report: Operating and Capital Plan, June 2003.*

How were capital costs developed?

The following steps were taken in creating the cost estimates for each project identified in the Amtrak *Cascades* Operating and Infrastructure Plan:

- 1. In order to identify costs associated with each project in the estimate each project site was visited and a rail inspection car ride was taken of the entire corridor. Existing rail studies/maps/previous estimates and other existing information regarding the project sites were gathered and incorporated into the cost estimate. Existing track charts were used to estimate existing structures, road crossings, drainage culverts and other existing conditions.
- 2. Estimated quantities were derived from project information provided in the twenty year plan and information gathered regarding existing conditions.
- 3. The unit cost data was developed based on engineering judgment and historical cost data from railroads and passenger rail operators. The first task in developing the cost data was to develop a list of work items that are typical in the scope of work of the proposed projects. The costs of these work items were then reviewed using various cost references and historical cost data. All costs include contractors' direct cost for the work, general expenses, overhead and profit.
- 4. The costs also include items such as engineering, construction management, tax, environmental mitigation costs and allowances for contingencies that were included as percentage add-ons. The engineering and construction management add-ons include the cost of preliminary engineering, final design, construction management and inspection services, and administration services. The environmental mitigation addon covers environmental studies and actions taken to minimize the environmental impact of the projects. A design contingency was included to account for unseen items or quantity fluctuations and variances in unit costs. The design contingency of thirty percent reflects the planning level

of engineering data that was available and the preliminary design completion.

- 5. A final independent review and quality control check was performed on each estimate and the unit cost data.
- 6. Unit costs included in this report are in year 2003 dollars.

Exhibit 1-1 at the end of this chapter shows the base unit costs that were used.

What assumptions were made?

The development of these capital cost estimates were based on a number of assumptions:

- Embankment and excavation was based on a minimum depth of four foot fill sections or four foot cut sections, with a crest of thirty feet and a two to one slope.
- Major drainage structures include: concrete arch, box, and pipes greater than eight feet in height or diameter.
- Turnout and crossover type, number and quantities are assumed and subject to Burlington Northern and Santa Fe Railway Company's review and approval.
- Railroad signal (Centralized Traffic Control (CTC) control point) to be installed at every turnout and crossover.
- Grade separation bridge deck widths are equal to thirty-six feet for twolane roadways and 120-foot span for two tracks.
- Right-of-way cost estimates include land acquisition and house/building demolition. Right-of-way estimates were only used for projects where sufficient planning has been performed to allow for an order-of-magnitude estimate of such costs.
- Depending upon jurisdiction, sales tax varies. For consistency, a sales tax of 8.2 percent was used for all projects (including those in British Columbia). Sales tax was not applied to those items which are based on a percentage of total costs (environmental mitigation, engineering/ administration, and construction management).
- All costs are in 2003 U.S. dollars.

Are there any risks associated with these cost estimates?

The estimates in this document are conceptual. Cost estimates can be conceptual, preliminary, or final (or someplace in between each of these steps, depending upon the level of project design). For conceptual cost estimates, known information is compiled, and then industry-wide, standard, "unit costs" are used to estimate how much a particular element would cost. For example, in order to estimate the cost of rail for a 10,000 foot siding, that length would be multiplied by the current, industry standard cost for the particular rail that would be used. However, if through further project design, it is discovered that an environmentally critical area is located along the route, the route may have to be shifted, may have to bypass the critical area, or it may have to mitigate for that impact. These additional, refined costs are not considered in the conceptual cost estimate. Furthermore, soil conditions and underground utilities are often unclear or only generally defined during conceptual design and may significantly affect final design costs. During the conceptual design phase, these potential costs are generally included in the "contingency" costs described below.

Other cost estimates included in this type of conceptual cost include the amount of track construction and existing track rehabilitation, the amount of signalization, the number and type of grade crossings and the number of bridges and culverts by type and length. This information is accurate and generally does not change throughout the design process. However, as mentioned above, the specific circumstances for the construction of each item are unknown.

The specifics of any installation or construction are not available during the conceptual stage of engineering. The unknown site-specific information will cause the cost of the individual items to vary. Some may cost less at completion and some more. Experience indicates that for the level of detail of the available information, a contingency¹ of thirty percent is sufficient for the cost-increasing details to be found during engineering in the corridor and the cost of environmental mitigation will generally be twenty percent of the construction total.

The estimates can also be affected by time. There can be significant unpredictable factors in addition to the normally predictable effect of

¹Contingency is an amount intended to mitigate the unknown. As the level of detail in project plans increases, the contingency in the estimate is reduced because there is less that is unknown. The contingency in the final engineered estimate is small because the estimate includes all information that it is possible to know without beginning construction. There are almost always surprises, but their effect is generally small enough to fall within the contingency amount. Occasionally, a surprise such as the discovery of historical artifacts or underground water can have an impact that exceeds the amount estimated for contingency.

inflation. In recent years, the costs of building materials, notably steel and concrete, and fuel have been volatile. As development spreads, property values for vacant land may increase considerably or land that was vacant at the time of the estimate may have been developed.

Exhibit 1-1 Unit Costs Sheet (year 2003 dollars)

		UNITS	UNIT COST
I. EARTH	WORK		
	1. Embankment	CY	\$20
	2. Excavation	CY	\$10
	3. Rock Excavation	CY	\$50
II. TRACH	<		
	1. Track Construction		
	a. New Track	TF	\$135
	b. Rehab Track	TF	\$60
	2. Turnouts		
	a. #9's	Each	\$100,000
	b. #11's	Each	\$110,000
	c. #15's	Each	\$135,000
	d. #20's	Each	\$160,000
	d. #24's	Each	\$170,000
	e. #33's	Each	\$360,000
	f. #48's	Each	\$500,000
	3. Crossovers		
	a. #9's	Each	\$200,000
	b. #11's	Each	\$220,000
	c. #15's	Each	\$270,000
	d. #20's	Each	\$320,000
	e. #24's	Each	\$340,000
	f. #33's	Each	\$720,000
	4. Bridges (Each track of a multi-track bridge counted separately)	TF	varies
	5. Culvert Crossings		
	a. Major Culverts (>36" Diameter)	LF	\$600
	b. Minor Culverts (<36" Diameter)	LF	\$100
	6. Other Drainage	LS	Varies
	7. Retaining Walls	SF	\$45
II. ROAD	WAY		
	1. Roadway Construction	SY	\$60
	2. At-Grade Crossing		
	1. Track Crossing	TF	\$500
	2. Crossing Approaches	SY	\$75
	3. Grade-Separation Crossing		
	a. Bridge	SF	\$100
	b. Roadway (earthwork & paving)	SY	\$50
	c. Misc. (non-typical per project)	LS	\$1
	4. Crossing Signals		÷ •
	a. Upgrade Signal - Barrier Gates	Fach	\$200.000
	h New Signal	Each	\$250,000
	D. NEW SIYIIAI	Latii	φ200,000

		Units	UNIT COST	
IV. RAILRO	ad Signals			
	a. Per Power Turnout *	Each	\$250,000	
	b. Per Mile	Mile	\$750,000	
V. UTILITY I	Relocation/Adjustment			
	1. Transmission Lines	LS	Varies	
	2. Fiber Optic Lines	LF	\$95	
	3. Miscellaneous	LS	Varies	
VI. CONTIN	GENCIES (30%)			
		LS		
VII. ENVIRC	NMENTAL MITIGATION (20%)			
		LS		
VIII. ENGINI	EERING/ADMINISTRATION (7%)			
IX. CONSTR	UCTION MANAGEMENT (6%)			
		LS		
X. RIGHT-0	F-WAY			
		ACRE	\$250,000	
XI. TAX (8.2%)				

Legend:	CY = cubic yards	TF = track feet	LF = linear foot
	SF = square feet	SY = square yards	LS = lump sum

* Note: #33 and #48 turnouts priced at 1.5 units each to reflect higher cost of additional switch machines

Using the methodology discussed in Chapter One, capital costs for each infrastructure project were developed. These costs were estimated using current year dollars (2003). **Appendix A** presents detailed cost sheets for each of these projects. Total project costs have been estimated to be approximately \$4.6 to \$5.1 billion depending upon the location of the Vancouver, BC terminus.

Exhibits 2-1 and **2-2** present a summary of capital costs for each project. Based upon the proposed implementation phasing (timetable) of each project, **Exhibits 2-3** through **2-8** indicate the general location of each project. These exhibits also reference the page number for each proposed improvement's detailed conceptual cost estimate.

Appendix B lists the frequent abbreviations used in these cost sheets. In addition, for the purposes of long term decision-making, costs were also inflation-adjusted to reflect potential costs when the project was actually built. **Appendix C** presents these inflation-adjusted costs.

Exhibit 2-1 Summary of Capital Costs: Seattle to Vancouver, BC

PROJECT NAME	CONSTRUCTION COST (in millions)
	(2003 dollars)
TIMETABLE A	
Mount Vernon Siding	\$8.0
TIMETABLE B	
Swift Customs Facility	\$12.0
Stanwood Siding	\$9.8
PA Junction/Delta Junction Improvements	\$30.4
Bellingham GP Improvements	\$2.0
Colebrook Siding	\$11.3
TIMETABLE C, D and E	
Sound Transit	\$180.0
Bow to Samish Siding Extension	\$15.4
Bellingham Siding Extension	\$28.3
Ballard Bridge Speed Increase	\$10.0
Scott Road Station	\$75.0
Still Creek to CN Junction	\$12.9
Vancouver Terminal Control System	\$6.7
Sperling to Willingdon Junction	\$10.4
Brunette to Piper Siding	\$25.5
Willingdon Junction	\$14.7
CN Junction	\$3.6
Frasier River Bridge	\$500.0
TIMETABLE F	
Marysville to Mount Vernon High Speed Track	\$277.2
Burlington to Bellingham High Speed Track	\$217.9
Bellingham to Blaine High Speed Track	\$123.8
Everett Junction to Everett Second Main Track	\$9.9
Advanced Signal System (Seattle to Blaine)	\$138.0
Advanced Signal System (Blaine to Brownsville)	\$60.0
White Rock Bypass	\$307.4
Colebrook to Brownsville High Speed Tracks	\$79.9

Exhibit 2-2 Summary of Capital Costs: Seattle to Portland, OR

PROJECT NAME	CONSTRUCTION COST (in millions) (2003 dollars)
TIMETABLE A	
Felida Crossover	\$2.2
Woodland Crossover	\$2.8
Titlow Crossover	\$4.0
Ruston Crossover	\$3.5
Sound Transit Phase 1 and 2	\$264.0
TIMETABLE B	
Vancouver Rail Project	\$76.8
Kelso to Martin's Bluff Rail Project	\$394.9
Leary Crossover (Centennial Crossover)	\$1.7
Pattison Crossover (Centennial Crossover)	\$1.7
Winlock Crossover	\$3.4
Ketron Crossover	\$3.4
Tenino Crossover	\$3.4
North Portland Junction to Kenton	\$51.0
IIMETABLE C	¢010 (
Pollin Dendrice Bypass	۵.UI د ۴۲۲ ۲
Reservation to Stewart Third Wall	۵.00 ۲۱۷ ۷
Vendland Siding	\$10.0 \$14.2
Nowuakum Siding	\$10.3 ¢2.4
King Street Station Track Improvements	ֆՅ.4 \$ԶՈ Ո
Seattle Maintenance Facility	\$00.0 \$95.0
China Creek Crossover	\$75.0 \$1.7
Sound Transit Phase 3	\$139.0
Auburn South Third Main	\$41.8
TIMETABLED	φ Π.O
Winlock to Chehalis Third Main Track	\$95.1
Chehalis Siding	\$8.9
Chehalis Junction Crossover	\$3.4
East St. Johns Siding and Main Track Relocation	\$51.1
Lake Yard North Leads	\$18.4
Portland Union Station	\$6.1
Advanced Signal System	\$268.0
TIMETABLE E	
Chehalis to Hannaford Third Main Track	\$67.0
Ostrander to Winlock Third and Fourth Main Track	\$191.6
TIMETABLE F	
Felida to MP 114 Third Main Track	\$104.1
Hannaford to Nisqually Third Main Track	\$354.4
Columbia River Bridge (joint Washington/Oregon project)	\$500.0

Exhibit 2-3 Timetable A: Location of Project Improvements



Exhibit 2-4 Timetable B: Location of Project Improvements



Exhibit 2-5 Timetable C: Location of Project Improvements



Exhibit 2-6 Timetable D: Location of Project Improvements



Exhibit 2-7 Timetable E: Location of Project Improvements





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Appendices

UNITS UNIT COST QUANTITY TOTAL I. EARTHWORK 1. Embankment CY \$20 0 \$0 \$0 2. Excavation CY \$10 0 3. Rock Excavation \$50 \$0 CY 0 43190 4. General* CY \$15 \$647,850 II. TRACK 1. Track Construction a. New Track 6170 \$832,950 \$135 ΤF b. Rehab Track TF \$60 10560 \$633,600 2. Turnouts a. #9's Each \$100,000 0 \$0 \$110,000 \$440,000 b. #11's 4 Each c. #15's \$135,000 0 \$0 Each \$0 d. #20's \$160,000 0 Each \$360,000 \$0 f. #33's Each 0 3. Crossovers 4. Bridges TF \$8,000 0 \$0 a. 5. Culvert Crossings a. Major Culverts (>36" Diameter) LF \$600 0 \$0 b. Minor Culverts (<36" Diameter) LF \$100 120 \$12,000 6. Other Drainage LS \$0 0 \$0 III. ROADWAY 1. Roadway Construction SY \$60 0 \$0 2. At-Grade Crossing a. MP 67.12 Public Grade Crossing 1. Concrete Crossing Panels Installec \$500 120 \$60,000 TF 2. Crossing Approaches SY \$75 700 \$52,500 4. Crossing Signals a. Upgrade Signal - Barrier Gates \$200,000 \$200,000 Each 1 b. New Signal Each \$250,000 0 \$0 IV. RR SIGNALS a. Per P.O. T.O. Each \$250,000 0 \$0 \$1,500,000 Mile \$750,000 2 b. Per Mile V. UTILITY RELOCATION/ADJUSTMENT 1. Transmission Lines LS 0 \$0 \$1 2. Fiber Optic Lines LF \$95 \$0 0 \$0 3. Miscellaneous LS \$1,000,000 0 VI. CONTINGENCIES (30%) LS 0 \$1,313,670 CONSTRUCTION TOTAL \$5,692,570 VII. ENVIRONMENTAL MITIGATION (20%) IS 0 \$1,138,514 **CONSTRUCTION & MITIGATION SUBTOTAL** \$6,831,084 VIII. ENGINEERING/ADMINISTRATION (7%) \$398,480 LS 0 IX. CONSTRUCTION MANAGEMENT (6%) LS 0 \$341,554 X. RIGHT OF WAY ACRE 250,000 0 \$ \$0 XI. TAX (8.2%) 0 \$466,791 TOTAL \$8,037,909 Assumptions: Track Miles 2 Rehab Exist Siding from MP 65.5 to 67.5 \$ 4,018,954 / mile

Mt. Vernon Siding

*General Excavation Includes a fill section of 5' x 25' for 75% of the time and a cut section of 10' x 25' for 25% of the time

2

Construct New storage track with 6,170' if capacity.

Swift Customs Facility

	UNITS	UNIT COST	QUANTITY	TOTAL
The configuration of this facility is currently known only in general terms. The final configuration must meet the requirements of US and Canada customs.	LS	\$12,000,000	1	\$12,000,000
Exchange the alignments of the current main track and siding Extend the existing siding to allow all customs-related switching to occur clear of the ina track Construct a second siding Construct additional tracks and other facilities to satisfy the requirements of US and Canada customs.				

Stanwood Siding

		UNITS	UNIT COST	QUANTITY	TOTAL
I.	EARTHWORK				
	1. Embankment	CY	\$20	0	\$0
	2. Excavation	CY	\$10	0	\$0
	3. Rock Excavation	CY	\$50	0	\$0
	4. General*	CY	\$15	51744	\$776,160
Ш.	TRACK				
	1. Track Construction				
	a. New Track	TF	\$135	7392	\$997,920
	b. Rehab Track	TF	\$60	7128	\$427,680
	2. Turnouts				
	a. #9's	Each	\$100,000	0	\$0
	b. #11's	Each	\$110,000	0	\$0
	c. #15's	Each	\$135,000	0	\$0
	d. #20's	Each	\$160,000	1	\$160,000
	e. #24's	Each	\$170,000	0	\$0
	f. #33's	Each	\$360,000	0	\$0
	3. Crossovers				
	4. Bridges				
	а.	TF	\$8,000	0	\$0
	5. Culvert Crossings				
	a. Major Culverts (>36" Diameter)	LF	\$600	0	\$0
	b. Minor Culverts (<36" Diameter)	LF	\$100	330	\$33,000
	6. Other Drainage	LS	\$0	0	\$0
III.	ROADWAY				
	1. Roadway Construction	SY	\$60	0	\$0
	2. At-Grade Crossing				
	o. MP 56.92 Logan Road Grade Crossing				
	1. Concrete Crossing Panels Installed	TF	\$500	120	\$60,000
	2. Crossing Approaches	SY	\$75	700	\$52,500
	p. MP 57.42 Detting Road Grade Crossing				
	1. Concrete Crossing Panels Installed	TF	\$500	120	\$60,000
	2. Crossing Approaches	SY	\$75	700	\$52,500
	4. Crossing Signals				
	a. Upgrade Signal - Barrier Gates	Each	\$200,000	2	\$400,000
	b. New Signal	Each	\$250,000	0	\$0
IV.	RR SIGNALS		+070.000	-	+ 0 5 0 0 0 0
	a. Per P.O. I.O.	Each	\$250,000	1	\$250,000
	b. Per Mile	Mile	\$750,000	2.75	\$2,062,500
۷.			\$1	0	* 0
	1. Transmission Lines	LS	\$I #0F	0	\$0
	2. Fiber Optic Lines	LF	\$95	0	\$0
14		LS	\$1,000,000	0	\$U
VI.		LS		0	\$ 1,399,078
			CONS	STRUCTION TOTAL	\$6,931,938
VII.	ENVIRONMENTAL MITIGATION (20%)	LS		0	\$ 1,386,388
		CONSTR	RUCTION & MITIGA	TION SUBTOTAL	\$8,318,326
VIII.	ENGINEERING/ADMINISTRATION (7%)			0	\$ 485,236
IX	CONSTRUCTION MANAGEMENT (6%)	LS		0	\$ 415,916
X	RIGHT OF WAY	ACRF	\$ 250,000	0	\$ -
XL	TAX (8.2%)	E	200,000	0	\$ 568.419
				ΤΟΤΑΙ	\$ 9 787 896
					<i>• • • • • • • • • • • • • • • • • • • </i>
	Assumptions:	Track Miles			
	Rehab Exist Siding from MP 55.18 to 56.53	1.35		\$ 3,559,235 /	mile
	Extend Siding from MP 56.53 to MP 57.93	1.4			
		2.75			

*General Excavation Includes a fill section of 5' x 25' for 75% of the time and a cut section of 10' x 25' for 25% of the time

	UNITS	UNIT COST	QUANTITY	TOTAL
I. EARTHWORK				
1. Embankment	CY	\$20	5200	\$104,000
2. Excavation	CY	\$10	5200	\$52,000
3. Rock Excavation	CY	\$50	0	\$0
4. General*	CY	\$15	53134.4	\$797,016
II. TRACK				
1. Track Construction				
a. New Track	TF	\$135	24552	\$3,314,520
b. Rehab Track	TF	\$60	8818	\$529,080
2. Turnouts				
aa.Remove Turnout	EA	\$10,000	8	\$80,000
a. #9's	Each	\$100,000	0	\$0
b. #11's	Each	\$110,000	10	\$1,100,000
c. #15's	Each	\$135,000	2	\$270,000
d. #20's	Each	\$160,000	1	\$160,000
f. #33's	Each	\$360,000	0	\$0
3. Crossovers				
b. #11's	Each	\$220,000	1	\$220,000
c. #15's	Each	\$270,000	1	\$270,000
d. #20's	Each	\$320,000	0	\$0
f. #33's	Each	\$720,000	0	\$0
4. Bridges				
a. MP 10.65 Remove Existing Bridge	LS	\$2,000,000	1	\$2,000,000
5. Culvert Crossings				
6. Other Drainage	LS	\$0	0	\$0
III. ROADWAY		1		
1. Roadway Construction	SY	\$60	0	\$0
2. At-Grade Crossing				
a. MP 7.89 Private Road Crossing				
1. Concrete Crossing Panels Installed	-	\$500	30	\$15,000
2. Crossing Approaches	SY	\$75	1/5	\$13,125
b. MP 8.06 Private Road Crossing				
1. Concrete Crossing Panels Installed	IF	\$500	30	\$15,000
2. Crossing Approaches	SY	\$75	1/5	\$13,125
D. MP 8. 16 Public Grade Crossing	+-	*500	<i>(</i>)	****
I. Concrete Crossing Panels Installed	IF	\$500	60	\$30,000
2. Crossing Approaches	SY	\$/5	150	\$11,250
4. Crossing Signals	C h	\$200.000	1	\$200,000
a. Upgrade Signal - Barrier Gales	Each	\$200,000	1	\$200,000
D. New Signal	Each	\$250,000	2	\$200,000
	Each	\$250,000	0	\$2,000,000
a. Fei F.U. 1.U.	Eduli	\$250,000	0 E 74	\$2,000,000
	Iville	\$730,000	0.74	\$4,303,000
	15		0	\$1 700 725
	LJ	CONS		\$4,799,730 \$20,700,051
				¢4,150,750
VII. ENVIRONMENTAL MITIGATION (20%)	LS			\$4,159,770
	CONST	RUCTION & MITIGA	TION SUBIDIAL	\$24,958,621
VIII. ENGINEERING/ADMINISTRATION (7%)	LS		0	\$1,455,920
IX. CONSTRUCTION MANAGEMENT (6%)	LS		0	\$1,247,931
X. RIGHT OF WAY	ACRE	\$250,000	4	\$1,000,000
XI. TAX (8.2%)			0	\$1,705,506
			TOTAL	\$30,367,977

PA Junction/Delta Junction Improvements

Assumptions:	Track Miles
New track from MP 10.9 To 10.46	0.44
Rehab Track from MP 10.46 To 9.76	0.7
2 New tracks from MP 9.76 To MP 90	1.52
Rehab track from MP 9.0 To MP 8.03	0.97
New Track from MP 8.03 To MP 7.80	0.23
New yard track 13000 feet	2.46
Realign Curve COA-C, MP 0.5 TO MP 0.75	0.25
Realign Curve 80-A, MP 8.0 TO MP 8.20	0.2
Realign Curve 1783	0.3
	7.07

\$ 4,295,329 / mile

CTC PA Jct. - Delta Jct.

*General Excavation Includes a fill section of 5' x 25' for 75% of the time and a cut section of 10' x 25' for 25% of the time

Bellingham GP Curve

	UNITS	UNIT COST	QUANTITY		TOTAL
I. EARTHWORK					
1. Embankment	CY	\$20	0		\$0
2. Excavation	CY	\$10	0		\$0
3. Rock Excavation	CY	\$50	0		\$0
4. General*	CY	\$15	0		\$0
II. TRACK					
1. Track Construction					
a. New Track	TF	\$135	1350		\$182,250
b. Rehab Track	TF	\$60	1600		\$96,000
2. Turnouts					
aa. Remove Turnouts	Each	\$10,000	3		\$30,000
a. #9's	Each	\$100,000	0		\$0
b. #11's	Each	\$110,000	1		\$110,000
c. #15's	Each	\$135,000	0		\$0
d. #20's	Each	\$160,000	0		\$0
f. #33's	Each	\$360,000	0		\$0
3. Crossovers					
4. Bridges			-		
a.	TF	\$8,000	0		\$0
5. Culvert Crossings					
a. Major Culverts (>36" Diameter)	LF	\$600	0		\$0
b. Minor Culverts (<36" Diameter)	LF	\$100	0		\$0
6. Other Drainage	LS	\$0	0		\$0
/. Demolition	LS	\$650,000	1		\$650,000
	01/	*/0	<u>^</u>	1	**
1. Roadway Construction	SY	\$60	U		\$0
2. At-Grade Crossing					
4. Crossing Signals	Γ	¢200.000	0		۴۰
a. Upgrade Signal - Barrier Gates	Each	\$200,000	0		\$0
D. INEW SIGNALS	Each	\$250,000	U		\$0
	Faab	¢250.000	0	-	¢0
a. Per P.U. I.U.	Each	\$250,000	U		\$U #0
	IVIIIe	\$750,000	U		\$0
V. UTILITY KELUCATION/ADJUSTMENT	10	ሱ1	0		¢Λ
1. ITAIISIIIISSIUII LINUS	LS	¢0E	0		\$U
2. FIDEL OPTIC LITIES		CY¢	U 1		04
	LS	\$20,000	1		\$20,000 ¢204 475
	LS		0		¢320,475
		CONST	RUCTION TOTAL	<i>.</i>	\$1,414,725
VII. ENVIRONMENTAL MITIGATION (20%)	LS		0	\$	282,945
	CONST	RUCTION & MITIGA	TION SUBTOTAL		\$1,697,670
VIII. ENGINEERING/ADMINISTRATION (7%)	LS		0		\$99,031
IX. CONSTRUCTION MANAGEMENT (6%)	LS		0		\$84,884
X. RIGHT OF WAY	ACRE	\$ 250,000	0		\$0
XI. TAX (8.2%)			0		\$116,007
			TOTAL	\$	1,997,592
Assumptions:	Track Miles				

Realign Curve and Rehab Siding Remove 3 Existing Turnouts

#REF! / mile

*General Excavation Includes a fill section of 5' x 25' for 75% of the time and a cut section of 10' x 25' for 25% of the time

-

Colebrook Siding

	UNITS	UNIT COST	QUANTITY	TOTAL
I. EARTHWORK				
1. Embankment	CY	\$20	0	\$0
2. Excavation	CY	\$10	0	\$0
3. Rock Excavation	CY	\$50	0	\$0
4. General*	CY	\$15	70700	\$1,060,500
II. TRACK				
1. Track Construction				
a. New Track	TF	\$135	10100	\$1,363,500
b. Rehab Track	TF	\$60	0	\$0
2. Turnouts				
a. #9's	Each	\$100,000	0	\$0
b. #11's	Each	\$110,000	0	\$0
c. #15's	Each	\$135,000	0	\$0
d. #20's	Each	\$160,000	2	\$320,000
f. #33's	Each	\$360,000	0	\$0
3. Crossovers				
b. #11's	Each	\$220,000	0	\$0
c. #15's	Each	\$270,000	0	\$0
d. #20's	Each	\$320,000	0	\$0
f. #33's	Each	\$720,000	0	\$0
4. Bridges				
5. Culvert Crossings				
a. Major Culverts (>36" Diameter)	LF	\$600	60	\$36,000
 b. Minor Culverts (<36" Diameter) 	LF	\$100	90	\$9,000
6. Other Drainage	LS	\$0	0	\$0
III. ROADWAY				
1. Roadway Construction	SY	\$60	0	\$0
2. At-Grade Crossing				
3. Grade-Separation Crossing				
a. Bridge	SF	\$100	0	\$0
 b. Roadway (earthwork & paving) 	SY	\$50	0	\$0
c. New 2 Lane Roadway and Grade Seperation	r LS	\$8,000,000	0	\$0
4. Crossing Signals				
a. Upgrade Signal - Barrier Gates	Each	\$200,000	0	\$0
b. New Signal	Each	\$250,000	0	\$0
IV. RR SIGNALS		•		
a. Per P.O. T.O.	Each	\$250,000	2	\$500,000
b. Per Mile	Mile	\$750,000	3.8	\$2,850,000
V. UTILITY RELOCATION/ADJUSTMENT				
VI. CONTINGENCIES (30%)	LS		0	\$1,841,700
		CONS	STRUCTION TOTAL	\$7,980,700
VII. ENVIRONMENTAL MITIGATION (20%)	LS		0	\$1,596,140
	CONSTR	RUCTION & MITIGAT	TION SUBTOTAL	\$9,576,840
VIII. ENGINEERING/ADMINISTRATION (7%)	15		0	\$558 649
IX. CONSTRUCTION MANAGEMENT (6%)			0	\$478 842
X. RIGHT OF WAY	ACRE	\$ 250,000	0	\$0
XI, TAX (8.2%)	AUTE	+ 200,000	0	\$654 417
			ΤΟΤΑΙ	\$11 268 7/18
				φ11, 200,740
Assumptions	Track Miles			
1 100 mil month.	LIUCK MINCS			

New Siding Track

\$ 5,930,920 / mile

*General Excavation Includes a fill section of 5' x 25' for 75% of the time and a cut section of 10' x 25' for 25% of the time

<u>1.9</u> <u>1.9</u>

Sound Transit (Seattle - Everett)

	UNITS	UNIT COST	QUANTITY	TOTAL
Estimate and description furnished by BNSF includes the following components:	LS	\$180,000,000	1	\$180,000,000
CTC between Seattle and MP 8 Second Main Track between Galer Street and MP 5.4 Second Main Track between MP 7 and MP 8 Second Main track between MP 16 and MP 18 Second Main Track between MP 27 and MP 28 Lowell Siding extension west from PA Jct to East Portal of Everett Tunnel. Commuter train platform track at Everett passenger station and commuter equipment layover tracks				

Bow to Samish Siding Extension

	UNITS	UNIT COST	QUANTITY	TOTAL
I. EARTHWORK				
1. Embankment	СҮ	\$20	0	\$0
2. Excavation	СҮ	\$10	0	\$0
3. Rock Excavation	СҮ	\$50	0	\$0
4. General*	СҮ	\$15	69484.8	\$1,042,272
II. TRACK				
1. Track Construction				
a. New Track	TF	\$135	9926.4	\$1,340,064
b. Rehab Track	TF	\$60	4065.6	\$243,936
2. Turnouts				
a. #9's	Each	\$100,000	0	\$0
b. #11's	Each	\$110,000	0	\$0
c. #15's	Each	\$135,000	0	\$0
d. #20's	Each	\$160,000	2	\$320,000
f. #33's	Each	\$360,000	0	\$0
3. Crossovers			-	
b. #11's	Each	\$220,000	0	\$0
c. #15's	Each	\$270.000	0	\$0
d #20's	Each	\$320,000	1	\$320,000
f #33's	Each	\$720,000	0	\$020,000
4 Bridges	Eddin	\$720,000	Ŭ	4 0
a MP 82 14 168' CTG Bridge	TF	\$8,000	168	\$1 344 000
5 Culvert Crossings		\$0,000	100	\$1,011,000
a Major Culverts (>36" Diameter)	LE	\$600	0	\$0
h Minor Culverts (>36" Diameter)	LF	\$000	150	\$15,000
6 Other Drainage		02 0	0	0,000 ¢
	1.5	ψυ	0	ψυ
1 Roadway Construction	SV	\$60	0	02
2 At-Grade Crossing	51	400	Ū	ψ0
i MP 81 21 S Blanchard Rd Grade Crossing				
1 Concrete Crossing Panels Installed	TE	\$500	60	\$30,000
2. Crossing Approaches	11 SV	\$300	350	\$30,000
k MD 81 /1 S Legg Poad Grade Crossing	51	\$15	550	\$20,230
1. Concrete Crossing Panels Installed	TE	\$500	60	\$30,000
2. Crossing Approaches	11 SV	\$300	350	\$30,000
L MD 81 31 N Lear Road Grade Crossing	51	\$15	550	\$20,230
1. Concrete Cressing Danels Installed	тс	\$500	60	\$20,000
2. Crossing Approaches	IF CV	\$300 ¢75	250	\$30,000
2. Crode Separation Crossing	51	\$70	300	\$20,230
J. Graut-Separation Crossing		+		
a Upgrade Signal - Parrier Cates	Fach	\$200,000	3	000 0042
a. Upyraue Signal - Daliter Gales	Each	\$200,000 \$250,000		\$000,000
	Edui	¢∠30,000	U	\$U
	Feeb	¢250.000		¢1 000 000
d. PELP.U. L.U.	EdCII	\$∠30,000 \$750,000	4 2.4F	\$1,000,000 \$1,007 E00
	Iville	\$750,000	2.00	\$1,987,500
			0	¢0 F14 4F7
	LS	0010		\$2,514,457
		CONS		\$10,895,979
VII. ENVIRONMENTAL MITIGATION (20%)	LS		0	\$2,179,196
	CONSTR	UCTION & MITIGAT	ION SUBTOTAL	\$13,075,174
VIII. ENGINEERING/ADMINISTRATION (7%)	LS		0	\$762,719
IX. CONSTRUCTION MANAGEMENT (6%)	15		0	\$653,759
X. RIGHT OF WAY	ACRE	\$250,000	0	\$0
XI. TAX (8.2%)	TORE	<i>\</i> 200,000	0	\$893 470
			ΤΟΤΑΙ	\$15 385 122
				φ10,000,122

 Assumptions:
 Track Miles

 Rehab Exist Siding from MP 83.53 to 82.76
 0.77
 \$ 5,805,706 / mile

 Extend Siding from MP 82.76 to MP 80.88
 1.88
 2.65

*General Excavation Includes a fill section of 5' x 25' for 75% of the time and a cut section of 10' x 25' for 25% of the time

Bellingham Siding Extension

		UNITS	UNIT COST	QUANTITY	TOTAL
Ι.	EARTHWORK				
	1. Embankment	СҮ	\$20	0	\$0
	2. Excavation	СҮ	\$10	0	\$0
	3. Rock Excavation	CY	\$50	0	\$0
	4. General*	СҮ	\$15	101270.4	\$1,519,056
II.	TRACK			-	
	1. Track Construction				
	a. New Track	TF	\$135	14467.2	\$1,953,072
	b. Rehab Track	TF	\$60	10190.4	\$611,424
	2. Turnouts				
	a. #9's	Each	\$100,000	0	\$0
	b. #11's	Each	\$110,000	1	\$110,000
	c. #15's	Each	\$135,000	0	\$0
	d. #20's	Each	\$160,000	2	\$320,000
	f. #33's	Each	\$360,000	0	\$0
	3. Crossovers				
	b. #11's	Each	\$220,000	1	\$220,000
	c. #15's	Each	\$270,000	0	\$0
	d. #20's	Each	\$320,000	0	\$0
	f. #33's	Each	\$720,000	0	\$0
	4. Bridges				
	a. MP 93.57 190' Wood Pile Trestle Bridge	TF	\$8,000	190	\$1,520,000
	5. Culvert Crossings				
	a. Major Culverts (>36" Diameter)	LF	\$600	0	\$0
	b. Minor Culverts (<36" Diameter)	LF	\$100	180	\$18,000
	6. Other Drainage	LS	\$0	0	\$0
III.	ROADWAY			•	
	1. Roadway Construction	SY	\$60	0	\$0
	2. At-Grade Crossing				
	a. MP 93.60 Private Road Crossing				
	1. Concrete Crossing Panels Installec	TF	\$500	30	\$15,000
	2. Crossing Approaches	SY	\$75	175	\$13,125
	b. MP 94.24 Private Road Crossing				
	1. Concrete Crossing Panels Installec	TF	\$500	0	\$0
	2. Crossing Approaches	SY	\$75	0	\$0
	c. MP 96.24 Pine Street Grade Crossing			-	4.5
	1. Concrete Crossing Panels Installec		\$500	0	\$0
	2. Crossing Approaches	SY	\$75	0	\$0
	d. MP 96.33 Public Grade Crossing		4500		
	1. Concrete Crossing Panels Installec		\$500	0	\$0
	2. Crossing Approaches	SY	\$75	0	\$0
	e. MP 96.65 Public Grade Crossing		4500	100	± / 0.000
	1. Concrete Crossing Panels Installec		\$500	120	\$60,000
	2. Crossing Approaches	SY	\$75	350	\$26,250
	3. Grade-Separation Crossing	05		10000	
	a. Bridge	SF	\$100	18000	\$1,800,000
	b. Roadway (earthwork & paving)	SY	\$50	666.667	\$33,333
	c. Misc. (non-typical per project)	LS	\$1	U	\$0
	4. Crossing Signals		*000.000	1	* 000 000
	a. Upgrade Signal - Barrier Gates	Each	\$200,000	1	\$200,000
	D. New Signal	Each	\$250,000	1	\$250,000
IV.	RK SIGNALS		4050.000		AF60.005
	a. Per P.O. I.O.	Each	\$250,000	2	\$500,000
	D. Per Mile	Mile	\$750,000	/.8	\$5,850,000
V.	UTILITY RELOCATION/ADJUSTMENT				
	1. Transmission Lines	LS	\$1	0	\$0

2. Fiber Optic Lines	LF	\$95	0	\$0	
3. Miscellaneous	LS	\$1,000,000	0	\$0	
VI. CONTINGENCIES (30%)	LS		0	\$4,505,778	
		CONS	TRUCTION TOTAL	\$19,525,038	
VII. ENVIRONMENTAL MITIGATION (20%)	LS		0	\$3,905,008	
	CONSTR	JCTION & MITIGAT	ION SUBTOTAL	\$23,430,046	
VIII. ENGINEERING/ADMINISTRATION (7%)	LS		0	\$1,366,753	
IX. CONSTRUCTION MANAGEMENT (6%)	LS		0	\$1,171,502	
X. RIGHT OF WAY	ACRE	\$250,000	3	\$750,000	
XI. TAX (8.2%)			0	\$1,601,053	
			TOTAL	\$28,319,354	
Assumptions:	Track Miles				
Rehab Exist Siding from MP 92.20 to 93.56	1.36		\$ 6,064,102 / mile		
New Siding from MP 93.56 to MP 96.70	2.14				
New Mainline from MP 96.10 to MP 96.70	0.6				
Rehab Existing Siding from MP 94.81to 96.20	0.39				
Rehab Siding from MP 96.70 to MP 96.88	0.18				
	4.67				

*General Excavation Includes a fill section of 5' x 25' for 75% of the time and a cut section of 10' x 25' for 25% of the time

Ballard Bridge Speed Increase

	UNITS	UNIT COST	QUANTITY	TOTAL
Modify existing bridge				
for increased speed	LS	\$10,000,000	1	\$10,000,000

The nature of the bridge improvements required for the speed increase must be determined by an engineering assessment. In addition to new mitre rails and locks, structural changes may be required including changes related to curved track on the bridge. The lump sum is an estimate based on improvements of similar magnitude to other bridges.
Willington Junction

	UNITS	UNIT COST	QUANTITY	TOTAL
I. EARTHWORK				
1. Embankment	CY	\$20	0	\$0
2. Excavation	CY	\$10	0	\$0
3. Rock Excavation	CY	\$50	0	\$0
4. General*	CY	\$15	0	\$0
II. TRACK				
1. Track Construction				
a. New Track	TF	\$135	0	\$0
b. Rehab Track	TF	\$60	0	\$0
2. Turnouts				
a. #9's	Each	\$100,000	0	\$0
b. #11's	Each	\$110,000	0	\$0
c. #15's	Each	\$135,000	0	\$0
d. #20's	Each	\$160,000	0	\$0
f. #33's	Each	\$360,000	0	\$0
3. Crossovers				
b. #11's	Each	\$220,000	0	\$0
c. #15's	Each	\$270,000	0	\$0
d. #20's	Each	\$320,000	0	\$0
f. #33's	Each	\$720,000	0	\$0
4. Bridges				
5. Culvert Crossings				
a. Major Culverts (>36" Diameter)	LF	\$600	0	\$0
b. Minor Culverts (<36" Diameter)	LF	\$100	0	\$0
6. Other Drainage	LS	\$0	0	\$0
III. ROADWAY	•			
1. Roadway Construction	SY	\$60	0	\$0
2. At-Grade Crossing				
3. Grade-Separation Crossing				
a. Bridge	SF	\$100	0	\$0
b. Roadway (earthwork & paving)	SY	\$50	0	\$0
c. Douglas Road Grade Seperation	LS	\$8,000,000	1	\$8,000,000
4. Crossing Signals				
a. Upgrade Signal - Barrier Gates	Each	\$200,000	0	\$0
b. New Signal	Each	\$250,000	0	\$0
IV. RR SIGNALS	•			
a. Per P.O. T.O.	Each	\$250,000	0	\$0
b. Per Mile	Mile	\$750,000	0	\$0
V. UTILITY RELOCATION/ADJUSTMENT	<u> </u>			
VI. CONTINGENCIES (30%)	LS		0	\$2,400,000
			NSTRUCTION TOTAL	\$10,400.000
	21		0	\$2 0.00 0.00
		STRUCTION & MITIC		\$12 /80 000
	CON		ATION SUBTURAL	φ12,400,000
VIII. ENGINEERING/ADMINISTRATION (7%)	LS		0	\$728,000
IX. CONSTRUCTION MANAGEMENT (6%)	LS		0	\$624,000
X. RIGHT OF WAY	ACRE	\$ 250,000	0	\$0
XI. TAX (8.2%)			0	\$852,800
			ΤΟΤΑΙ	\$14 684 800

Assumptions:

Track Miles

/ mile

Close Douglas Rd Crossing and Grade Separate Holdon Rd.

CN Junction

	UNITS	UNIT COST	QUANTITY	TOTAL
I. EARTHWORK				
1. Embankment	CY	\$20	0	\$0
2. Excavation	СҮ	\$10	0	\$0
3. Rock Excavation	СҮ	\$50	0	\$0
4. General*	СҮ	\$15	26950	\$404,250
II. TRACK		•		
1. Track Construction				
a. New Track	TF	\$135	3850	\$519,750
b. Rehab Track	TF	\$60	0	\$0
2. Turnouts				
a. #9's	Each	\$100,000	0	\$0
b. #11's	Each	\$110,000	2	\$220,000
c. #15's	Each	\$135,000	0	\$0
d. #20's	Each	\$160,000	0	\$0
f. #33's	Each	\$360,000	0	\$0
3. Crossovers				
b. #11's	Each	\$220,000	0	\$0
c. #15's	Each	\$270,000	0	\$0
d. #20's	Each	\$320,000	0	\$0
f. #33's	Each	\$720,000	0	\$0
4. Bridges				
5. Culvert Crossings				
a. Major Culverts (>36" Diameter)	LF	\$600	0	\$0
b. Minor Culverts (<36" Diameter)	LF	\$100	0	\$0
6. Other Drainage	LS	\$0	0	\$0
III. ROADWAY		•		
1. Roadway Construction	SY	\$60	0	\$0
2. At-Grade Crossing				
3. Grade-Separation Crossing				
a. Bridge	SF	\$100	0	\$0
b. Roadway (earthwork & paving)	SY	\$50	0	\$0
c. New 2 Lane Roadway and Grade Seperation	LS	\$8,000,000	0	\$0
4. Crossing Signals				
a. Upgrade Signal - Barrier Gates	Each	\$200,000	0	\$0
b. New Signal	Each	\$250,000	0	\$0
IV. RR SIGNALS	-			
a. Per P.O. T.O.	Each	\$250,000	1	\$250,000
b. Per Mile	Mile	\$750,000	0.73	\$547,500
V. UTILITY RELOCATION/ADJUSTMENT	-			
VI. CONTINGENCIES (30%)	LS		0	\$582,450
		CONS	TRUCTION TOTAL	\$2,523,950
VII. ENVIRONMENTAL MITIGATION (20%)	LS		0	\$504,790
(,	CONSTR	UCTION & MITIGAT	ION SUBTOTAL	\$3.028.740
		T	0	¢0,020,710
		1	0	\$170,070 ¢151.427
		\$ 250,000	0	φ101,437 ΦΦ
	AUKE	φ 200,000	0	↓¢۵0 ۲0 ¢
ΛΙ. ΤΑΛ (0.270)			TOTAL	¢2 Ε/-2 01-7
			TOTAL	\$3,563,817
Assumptions:	Track Miles			
4			\$ 4,881,942 / 1	nile
1 New Track from MP 154.55 to MP 155.28	0.73			
-	0.73			

Still Creek to CN Junction

	UNITS	UNIT COST	QUANTITY	TOTAL
I. EARTHWORK				
1. Embankment	CY	\$20	0	\$0
2. Excavation	CY	\$10	0	\$0
3. Rock Excavation	CY	\$50	0	\$0
4. General*	CY	\$15	34559	\$518,385
II. TRACK				
1. Track Construction				
a. New Track	TF	\$135	4937	\$666,495
b. Rehab Track	TF	\$60	0	\$0
2. Turnouts				
a. #9's	Each	\$100,000	0	\$0
b. #11's	Each	\$110,000	0	\$0
c. #15's	Each	\$135,000	0	\$0
d. #20's	Each	\$160,000	1	\$160,000
f. #33's	Each	\$360,000	0	\$0
g. #48's	Each	\$500,000	0	\$0
3. Crossovers				
b. #11's	Each	\$220,000	0	\$0
c. #15's	Each	\$270,000	0	\$0
d. #20's	Each	\$320,000	2	\$640,000
f. #33's	Each	\$720,000	0	\$0
4. Bridges				
a.	TF	\$8,000	0	\$0
5. Culvert Crossings				
a. Major Culverts (>36" Diameter)	LF	\$600	0	\$0
b. Minor Culverts (<36" Diameter)	LF	\$100	60	\$6,000
6. Other Drainage	LS	\$0	0	\$0
III. ROADWAY				
1. Roadway Construction	SY	\$60	0	\$0
2. At-Grade Crossing				
a. MP 153.94 Grandview St. Grade Crossing				
1. Concrete Crossing Panels Installed	TF	\$500	30	\$15,000
2. Crossing Approaches	SY	\$75	175	\$13,125
3. Grade-Separation Crossing				
4. Crossing Signals				
a. Upgrade Signal - Barrier Gates	Each	\$200,000	1	\$200,000
b. New Signal	Each	\$250,000	0	\$0
IV. RR SIGNALS				
a. Per P.O. T.O.	Each	\$250,000	9	\$2,250,000
b. Per Mile	Mile	\$750,000	3.4	\$2,550,000
V. UTILITY RELOCATION/ADJUSTMENT			-	
VI. CONTINGENCIES (40%)	LS		0	\$2,105,702
		CONS	STRUCTION TOTAL	\$9,124,707
VII. ENVIRONMENTAL MITIGATION (20%)	LS		0	\$1.824.941
	CON	STRUCTION & MITIG	ATION SUBTOTAL	\$10,949,648
			0	¢420,720
	LS		0	\$038,729 \$547,400
		\$250,000	0	\$047,46Z
	AUKE	\$Z30,000	0	\$U \$740.004
ΛΙ. ΤΑΛ (0.2 /0)				¢12 004 004
			TOTAL	\$12,884,086
Assumptions	Treal Mil.			
Assumptions:	I FACK MILLES		¢ 12,770,212 (•7
	0.04		\$ 13,779,212 /	mile
1 New Track from MP 153.8 to MP 155.5	0.94			
but only build 4937' of new	0.94			

Vancouver	Terminal	Control	System
vancouver	I CI IIIIIai	CONTROL	System

		UNITS	UNIT COST	QUANTITY	TOTAL
I. EAR	RTHWORK				
1. E	mbankment	CY	\$20	0	\$0
2. E	ixcavation	CY	\$10	0	\$0
3. R	ock Excavation	CY	\$50	0	\$0
4. G	Ceneral*	CY	\$15	0	\$0
II. TRA	СК				
1. T.	rack Construction				
а.	New Track	TF	\$135	0	\$0
b.	Rehab Track	TF	\$60	0	\$0
2. T	urnouts				
а.	#9's	Each	\$100,000	0	\$0
b.	#11's	Each	\$110,000	0	\$0
C.	#15's	Each	\$135,000	0	\$0
d.	#20's	Each	\$160,000	0	\$0
f. i	#33's	Each	\$360,000	0	\$0
g. i	#48's	Each	\$500,000	0	\$0
3. C	rossovers				
4. B	ridges				
а.		TF	\$8,000	0	\$0
5. C	ulvert Crossings				
а.	Major Culverts (>36" Diameter)	LF	\$600	0	\$0
b.	Minor Culverts (<36" Diameter)	LF	\$100	0	\$0
<i>6. 0</i>	ther Drainage	LS	\$0	0	\$0
III. ROA	ADWAY				
1. R	oadway Construction	SY	\$60	0	\$0
2. A	t-Grade Crossing				
3. G	rade-Separation Crossing				
а.	Bridge	SF	\$100	0	\$0
b.	Roadway (earthwork & paving)	SY	\$50	0	\$0
C.	Misc. (non-typical per project)	LS	\$1	0	\$0
4. C	rossing Signals				
а.	Upgrade Signal - Barrier Gates	Each	\$200,000	0	\$0
b.	New Signal	Each	\$250,000	0	\$0
IV. RR	SIGNALS		-		
а.	Per P.O. T.O.	Each	\$250,000	10	\$2,500,000
b.	Per Mile	Mile	\$750,000	1.2	\$900,000
V. UTII	LITY RELOCATION/ADJUSTMENT		-		
VI. CON	NTINGENCIES (40%)	LS		0	\$1,360,000
			CONSTR	RUCTION TOTAL	\$4,760,000
VII. ENV	IRONMENTAL MITIGATION (20%)	LS		0	\$952,000
	· ·	CONSTR	UCTION & MITIGAT	ION SUBTOTAL	\$5,712,000
				0	¢222.200
VIII. ENG		LS		0	\$333,200
			¢250.000	0	\$285,000
A. KIG		ACRE	\$250,000	0	\$0
XI. TAX	. (0.2 /0)			U	\$3 3 0,320
				TOTAL	\$6,721,120
4		T. 1 1 2'1			
Ass	umpnons:	I rack Miles		¢ 2 (20 7 (2)	•1
		1.04		\$ 3,429,143 /	mile
I No	ew 1rack from MP 149.8 to MP 151.76	1.96			
		1.96			

Sperling to Willington Junction

		UNITS	UNIT COST	QUANTITY	TOTAL
Ι.	EARTHWORK				
	1. Embankment	CY	\$20	0	\$0
	2. Excavation	CY	\$10	0	\$0
	3. Rock Excavation	CY	\$50	0	\$0
	4. General*	СҮ	\$15	72441.6	\$1,086,624
II.	TRACK			•	
-	1. Track Construction				
	a. New Track	TF	\$135	10348.8	\$1,397,088
	b. Rehab Track	TF	\$60	0	\$0
	2. Turnouts				
	a. #9's	Each	\$100,000	0	\$0
	b. #11's	Each	\$110,000	0	\$0
	c. #15's	Each	\$135,000	0	\$0
	d. #20's	Each	\$160,000	3	\$480,000
	f. #33's	Each	\$360,000	0	\$0
	g. #48's	Each	\$500,000	0	\$0
	3. Crossovers				
	4. Bridges				
	a.	TF	\$8,000	0	\$0
	5. Culvert Crossings				
	a. Major Culverts (>36" Diameter)	LF	\$600	60	\$36,000
	b. Minor Culverts (<36" Diameter)	LF	\$100	180	\$18,000
	6. Other Drainage	LS	\$0	0	\$0
- III.	ROADWAY				
	1. Roadway Construction	SY	\$60	0	\$0
	2. At-Grade Crossing				
	3. Grade-Separation Crossing				
	a. Bridge	SF	\$100	0	\$0
	b. Roadway (earthwork & paving)	SY	\$50	0	\$0
	c. Misc. (non-typical per project)	LS	\$1	0	\$0
	4. Crossing Signals				
	a. Upgrade Signal - Barrier Gates	Each	\$200,000	0	\$0
	b. New Signal	Each	\$250,000	0	\$0
IV.	RR SIGNALS			•	
	a. Per P.O. T.O.	Each	\$250,000	3	\$750,000
	b. Per Mile	Mile	\$750,000	1.96	\$1,470,000
V.	UTILITY RELOCATION/ADJUSTMENT			•	
VI.	CONTINGENCIES (40%)	LS		0	\$2,095,085
			CONSTR	UCTION TOTAL	\$7,332,797
VII.	ENVIRONMENTAL MITIGATION (20%)	LS		0	\$1,466,559
		CONSTR	UCTION & MITIGAT	ION SUBTOTAL	\$8,799,356
VIII.	ENGINEERING/ADMINISTRATION (7%)	LS		0	\$513,296
IX.	CONSTRUCTION MANAGEMENT (6%)	LS		0	\$439,968
Χ.	RIGHT OF WAY	ACRE	\$250,000	0	\$0
XI.	. TAX (8.2%)			0	\$601,289
				TOTAL	\$10,353,909
	Assumptions:	Track Miles			
				\$ 5.282.607 /	mile

1 New Track from MP 149.8 to MP 151.76

*General Excavation Includes a fill section of 5' x 25' for 75% of the time and a cut section of 10' x 25' for 25% of the time

<u>1.96</u> <u>1.96</u>

Brunette to Piper Siding

	UNITS	UNIT COST	QUANTITY	TOTAL
I. EARTHWORK			_	
1. Embankment	CY	\$20	0	\$0
2. Excavation	CY	\$10	0	\$0
3. Rock Excavation	CY	\$50	0	\$0
4. General*	CY	\$15	99792	\$1,496,880
II. TRACK			-	
1. Track Construction				
a. New Track	TF	\$135	14256	\$1,924,560
b. Rehab Track	TF	\$60	2000	\$120,000
2. Turnouts				
a. #9's	Each	\$100,000	0	\$0
b. #11's	Each	\$110,000	4	\$440,000
c. #15's	Each	\$135,000	1	\$135,000
d. #20's	Each	\$160,000	1	\$160,000
f. #33's	Each	\$360,000	0	\$0
g. #48's	Each	\$500,000	0	\$0
3. Crossovers				
b. #11's	Each	\$220,000	2	\$440,000
c. #15's	Each	\$270,000	0	\$0
d. #20's	Each	\$320,000	2	\$640,000
f. #33's	Each	\$720,000	0	\$0
4. Bridges				
a. MP 145.33 Brunette River 209' CBG	TF	\$8,000	209	\$1,672,000
5. Culvert Crossings				
a. Major Culverts (>36" Diameter)	LF	\$600	180	\$108,000
 b. Minor Culverts (<36" Diameter) 	LF	\$100	210	\$21,000
6. Other Drainage	LS	\$0	0	\$0
III. ROADWAY				
1. Roadway Construction	SY	\$60	0	\$0
2. At-Grade Crossing				
a. MP 147.22 Caribou Road Grade Crossing				
1. Concrete Crossing Panels Installed	TF	\$500	30	\$15,000
2. Crossing Approaches	SY	\$75	175	\$13,125
3. Grade-Separation Crossing				
4. Crossing Signals				
a. Upgrade Signal - Barrier Gates	Each	\$200,000	1	\$200,000
b. New Signal	Each	\$250,000	0	\$0
IV. RR SIGNALS				
a. Per P.O. T.O.	Each	\$250,000	14	\$3,500,000
b. Per Mile	Mile	\$750,000	2.7	\$2,025,000
V. UTILITY RELOCATION/ADJUSTMENT				
VI. CONTINGENCIES (40%)	LS		0	\$5,164,226
		CONST	RUCTION TOTAL	\$18,074,791
VII. ENVIRONMENTAL MITIGATION (20%)	LS		0	\$3,614,958
	CONST	RUCTION & MITIGA	TION SUBTOTAL	\$21,689,749
VIII. ENGINEERING/ADMINISTRATION (7%)	LS		0	\$1,265,235
IX. CONSTRUCTION MANAGEMENT (6%)	LS		0	\$1,084,487
X. RIGHT OF WAY	ACRE	\$250,000	0	\$0
XI. TAX (8.2%)			0	\$1,482,133
			TOTAL	\$25,521,605
Assumptions:	Track Miles		* • • • • • • • • • • • • • • • • • • •	

1 New Track from MP 145.5 to MP 148.2

2.7

\$ 9,452,446 / mile

Fraser River Bridge

	UNITS	UNIT COST	QUANTITY	TOTAL
The information needed to make a more detailed conceptual estimate requires extensive engineering. No design work has been conducted. The estimate is based on the expected magnitude compared to other similar projects. Expected components of the project include	LS	\$500,000,000	1	\$500,000,000
New north and south approaches on BNSF route to allow higher speed				
<i>Replace swing span of existing bridge</i> <i>with vertical lift span</i>				
Second main track between north end of				
Fraser River Bridge and current end of second main track at Spruce				
Close or grade separate grade crossings				
between Fraser River Bridge and Braid				

Scott Road Station

	UNITS	UNIT COST	QUANTITY	TOTAL
No design work has been conducted. Estimate based on anticipated cost of similar magnitude projects.	LS	\$75,000,000	1	\$75,000,000

Marysville to Mount Vernon High Speed Track

]	UNITS	UNIT COST	QUANTITY	TOTAL
Ι.	EARTHWORK			•	•
-	1. Embankment	СҮ	\$20	0	\$0
	2. Excavation	СҮ	\$10	0	\$0
	3. Rock Excavation	СҮ	\$50	0	\$0
	4. General*	СҮ	\$15	1271793.6	\$19,076,904
١١.	TRACK				
-	1. Track Construction				
	a. New Track	TF	\$135	181684.8	\$24,527,448
	b. Rehab Track	TF	\$60	0	\$0
	2. Turnouts				
	a. #9's	Each	\$100,000	0	\$0
	b. #11's	Each	\$110,000	3	\$330,000
	c. #15's	Each	\$135,000	0	\$0
	d. #20's	Each	\$160,000	0	\$0
	e. #24's	Each	\$170,000	2	\$340,000
	f. #33's	Each	\$360,000	1	\$360,000
	g. #48's	Each	\$500,000	1	\$500,000
	3. Crossovers				
	b. #11's	Each	\$220,000	3	\$660,000
	c. #15's	Each	\$270,000	0	\$0
	d. #20's	Each	\$320,000	0	\$0
	f. #33's	Each	\$720,000	1	\$720,000
	4. Bridges				
	a. MP 37.7 Modify existing bridge for increased speed	LS	\$5,000,000	1	\$5,000,000
	b. MP 38.3 Modify existing bridge for increased speed	LS	\$5,000,000	1	\$5,000,000
	c. MP 40.94 8' Concrete Arch	TF	\$8,000	8	\$64,000
	d. MP 47.32 8' Concrete Arch (2 tracks)	TF	\$8,000	16	\$128,000
	e. MP 49.20 323' Thru Riveted Truss Bridge (2				
	tracks)	TF	\$8,000	646	\$5,168,000
	f. MP 49.52 762' Thru Plate Girder Bridge (2				
	tracks)	TF	\$8,000	1524	\$12,192,000
	g. MP 50.10 633' Wood Pile Trestle Bridg∈	TF	\$8,000	633	\$5,064,000
	h. MP 50.51 1,472 Thru Riveted Truss Bridg€	TF	\$8,000	1472	\$11,776,000
	i. MP 50.76 57' Wood Pile Trestle Bridg∈	TF	\$8,000	57	\$456,000
	j. MP 51.32 399' BDPT Bridge	TF	\$8,000	399	\$3,192,000
	k. MP 51.57 151' Wood Pile Trestle Bridg∈	TF	\$8,000	151	\$1,208,000
	I. MP 51.76 202' Wod Pile Trestle Bridge	TF	\$8,000	202	\$1,616,000
	m. MP 52.83 180' Wood Pile Trestle Bridge	TF	\$8,000	180	\$1,440,000
	n. MP 53.30 53' Wood Pile Trestle Bridge	TF	\$8,000	53	\$424,000
	o. MP 53.50 204' Wood Pile Trestle Bridge	TF	\$8,000	204	\$1,632,000
	p. MP 54.10 500' Wood Pile Trestle Bridge	TF	\$8,000	500	\$4,000,000
	q. MP 56.32 43' Wood Pile Trestle Bridge	TF	\$8,000	43	\$344,000
	r. MP 60.04 82' BDPT Bridge	TF	\$8,000	82	\$656,000
	s. MP 61.34 119' Wood Pile Trestle Bridge	TF	\$8,000	119	\$952,000
	t. MP 62.65 107' Wood Pile Trestle Bridge	TF	\$8,000	107	\$856,000
	a. Major Culverts (>36" Diameter)	LF	\$600	150	\$90,000
	b. Minor Culverts (<36" Diameter)	LF	\$100	1470	\$147,000
	6. Other Drainage	LS	\$0	0	\$0
III.	ROADWAY		· ·	-	
	1. Roadway Construction	SY	\$60	0	\$0
	2. At-Grade Crossing				
	a. MP 39.32 Grove Street Grade Crossing				
	1. Concrete Crossing Panels Installec	<u>TF</u>	\$500	60	\$30,000
	2. Crossing Approaches	SY	\$75	350	\$26,250

b. MP 39.83 80th Street N.E. Grade Crossing				
1. Concrete Crossing Panels Installec	TF	\$500	60	\$30,000
2. Crossing Approaches	SY	\$75	350	\$26,250
c. MP 40.02 Private Road Crossing				
1 Concrete Crossing Panels Installer	TF	\$500	30	\$15,000
2 Crossing Approaches	SY	\$75	175	\$13,125
d MP 40 11 Private Poad Crossing	51	ψ15	175	ψ10,120
1. Concrete Crossing Danols Installer	тс	\$500	20	¢15.000
2. Crossing Approaches		\$000 ¢75	30	\$10,000 ¢10,100
2. Clossing Apploacties	51	\$75	175	\$13,1Z3
e. MP 40.00 8801 Street N.E. Grade Crossing	тг	¢500	(0	¢20.000
1. Concrete Crossing Panels Installec		\$500	60	\$30,000
2. Crossing Approaches	SY	\$/5	350	\$26,250
f. MP 40.80 Private Road Crossing				
1. Concrete Crossing Panels Installec	TF	\$500	30	\$15,000
2. Crossing Approaches	SY	\$75	175	\$13,125
g. MP 41.34 104th St. N.E. Grade Crossing				
1. Concrete Crossing Panels Installec	TF	\$500	60	\$30,000
2. Crossing Approaches	SY	\$75	350	\$26,250
h. MP 42.04 116th St. N.E. Grade Crossing				
1. Concrete Crossing Panels Installec	TF	\$500	60	\$30,000
2. Crossing Approaches	SY	\$75	350	\$26,250
i. MP 42.45 Public Grade Crossing				
1. Concrete Crossing Panels Installed	TF	\$500	60	\$30,000
2 Crossing Approaches	SY	\$75	350	\$26,250
i MP 42 55 Private Road Crossing	01	<i><i></i></i>	000	\$20,200
1 Concrete Crossing Panels Installer	TF	\$500	30	\$15,000
2 Crossing Approaches	SV	\$300 \$75	175	\$13,000
k MD 42.91 Drivato Doad Crossing	51	\$70	175	φ13,123
K. IVIP 42.01 FITVale Road Crossing	тг	¢500	20	¢1E 000
		000¢	30	\$10,000 ¢10,100
2. Crossing Approaches	Sĭ	\$75	175	\$13,123
1. MP 43. 10 Private Road Crossing		#F00	20	¢15.000
1. Concrete Crossing Panels Installec		\$500	30	\$15,000
2. Crossing Approaches	SY	\$75	1/5	\$13,125
m. MP 43.33 Public Grade Crossing				
1. Concrete Crossing Panels Installec	TF	\$500	60	\$30,000
2. Crossing Approaches	SY	\$75	350	\$26,250
o. MP 45.50 Private Road Crossing				
1. Concrete Crossing Panels Installec	TF	\$500	60	\$30,000
2. Crossing Approaches	SY	\$75	350	\$26,250
p. MP 45.90 172nd St N.E. Grade Crossing				
1. Concrete Crossing Panels Installec	TF	\$500	120	\$60,000
2. Crossing Approaches	SY	\$75	350	\$26,250
g. MP 47.99 Private Road Crossing				
1. Concrete Crossing Panels Installer	TF	\$500	60	\$30,000
2 Crossing Approaches	SY	\$75	350	\$26,250
r MP 48 37 Sill Road Grade Crossing	51	ψ15	330	ψ20,230
1. Concrete Crossing Panels Installer	ТЕ	\$500	120	000 032
2. Crossing Approaches	CV	\$300 ¢75	250	\$00,000 \$26,250
c MD 49 91 212th NW Crode Crossing	51	\$70	330	φ20,230
5. IVIP 40.01 21201 INW Grade Crossing	тг	¢500	100	¢(0,000
1. Concrete Crossing Pariers Installed		\$000 ¢75	120	\$00,000
2. Crossing Approaches	٥Y	\$/5	350	\$26,250
I. IVIP 49.95 14IN AVENUE INE Grade Crossing		*===	10	**** ***
I. Concrete Crossing Panels Installec		\$500	60	\$30,000
2. Crossing Approaches	SY	\$75	350	\$26,250
u. MP 50.17 227th St. NW Grade Crossing				
1. Concrete Crossing Panels Installec	TF	\$500	60	\$30,000
2. Crossing Approaches	SY	\$75	350	\$26,250
v. MP 51.01 28th Ave. NW Grade Crossing				
1. Concrete Crossing Panels Installec	TF	\$500	60	\$30,000

2. Crossing Approaches	SY	\$75	350	\$26,250
w. MP 51.87 Private Road Crossing				
1. Concrete Crossing Panels Installec	TF	\$500	30	\$15,000
2. Crossing Approaches	SY	\$75	175	\$13,125
x. MP 52.39 Valde Road Grade Crossing				
1. Concrete Crossing Panels Installec	TF	\$500	60	\$30,000
2 Crossing Approaches	SY	\$75	350	\$26,250
v MP 53 35 Miller Road Grade Crossing	01	¢70	000	\$20,200
1 Concrete Crossing Panels Installer	TF	\$500	60	\$30,000
2 Crossing Approaches	11 V2	\$300 \$75	350	\$30,000
z. MD 55 40 271st Stroot Grado Crossing	51	ψ 1 υ	330	\$20,230
Concrete Crossing Danels Installer	тс	\$500	60	\$20,000
2. Crossing Approaches		\$300 ¢75	250	\$30,000 \$34,2E0
2. Crossing Approaches	31	\$75	300	\$Z0,Z3U
aa. MP 56.20 Private Road Crossing	те	¢500	20	¢15.000
1. Concrete Crossing Panels Installec	IF	\$500	30	\$15,000
2. Crossing Approaches	SY	\$75	1/5	\$13,125
ab. MP 56.92 Logan Road Grade Crossing				
1. Concrete Crossing Panels Installec	TF	\$500	60	\$30,000
2. Crossing Approaches	SY	\$75	350	\$26,250
ac. MP 57.42 Detting Road Grade Crossing				
1. Concrete Crossing Panels Installec	TF	\$500	60	\$30,000
2. Crossing Approaches	SY	\$75	350	\$26,250
ad. MP 57.94 Old Pacific Highway Grade Crossing				
1. Concrete Crossing Panels Installec	TF	\$500	60	\$30,000
2. Crossing Approaches	SY	\$75	350	\$26,250
ae. MP 58.15 Private Road Crossing				
1. Concrete Crossing Panels Installec	TF	\$500	30	\$15,000
2. Crossing Approaches	SY	\$75	175	\$13,125
af MP 58 26 Private Road Crossing	0.	ψ <i>ι</i> σ		+.0/.20
1 Concrete Crossing Panels Installer	TF	\$500	30	\$15,000
2 Crossing Approaches	N2	\$75	175	\$13,000
ag MP 58 33 Private Road Crossing	51	ψ15	175	ψ13,123
1 Concrete Crossing Panels Installer	TE	\$500	30	\$15,000
2. Crossing Approaches	SV	\$300 \$75	175	\$13,000
2. Clossing Apploaches	31	\$10	175	\$13,1Z3
1. Concrete Crossing Danols Installer	тг	¢500	20	¢1E 000
1. Concrete Crossing Panels Installed		۵00¢ معر	30	\$10,000
2. Crossing Approaches	SY	\$75	1/5	\$13,125
al. MP 58.82 Private Road Crossing		#F00	20	¢15.000
1. Concrete Crossing Panels Installec	IF	\$500	30	\$15,000
2. Crossing Approaches	SY	\$75	1/5	\$13,125
aj. MP 58.86 Private Road Crossing				
1. Concrete Crossing Panels Installec	TF	\$500	30	\$15,000
2. Crossing Approaches	SY	\$75	175	\$13,125
ak. MP 59.38 Private Road Crossing				
1. Concrete Crossing Panels Installec	TF	\$500	30	\$15,000
2. Crossing Approaches	SY	\$75	175	\$13,125
al. MP 59.65 Private Road Crossing				
1. Concrete Crossing Panels Installec	TF	\$500	30	\$15,000
2. Crossing Approaches	SY	\$75	175	\$13,125
am. MP 59.84 Private Road Crossing				
1. Concrete Crossing Panels Installec	TF	\$500	30	\$15,000
2. Crossing Approaches	SY	\$75	175	\$13,125
an. MP 60.28 Private Road Crossing				
1. Concrete Crossing Panels Installed	TF	\$500	30	\$15.000
2. Crossing Approaches	SY	\$75	175	\$13 125
ao MP 61 20 Private Road Crossing	0.	Ψ, σ	170	¢10,120
1 Concrete Crossing Panels Installer	TF	\$500	30	\$15 000
2 Crossing Approaches	V2	\$300 \$75	175	\$12,000
an MD 61 55 Drivate Road Crossing	JI	φ70 -	175	φ13,123
ap. ME 01.00 FIIVALE RUAU CIUSSIIIY				

	1. Concrete Crossing Panels Installec	TF	\$500	30	\$15,000
	2. Crossing Approaches	SY	\$75	175	\$13,125
	aq. MP 61.88 Private Road Crossing				
	1. Concrete Crossing Panels Installec	TF	\$500	30	\$15,000
	2. Crossing Approaches	SY	\$75	175	\$13,125
	ar. MP 62.06 Private Road Crossing				
	1. Concrete Crossing Panels Installec	TF	\$500	30	\$15,000
	2. Crossing Approaches	SY	\$75	175	\$13,125
	as, MP 62.50 Spruce Street Grade Crossing				+ • • • • • • •
	1 Concrete Crossing Panels Installer	TF	\$500	60	\$30,000
	2 Crossing Approaches	SY	\$75	350	\$26,250
	at MP 62 56 Spruce Street Grade Crossing	01	<i><i></i></i>	000	\$20,200
	1 Concrete Crossing Panels Installer	TF	\$500	60	\$30,000
	2 Crossing Approaches	V2	\$75	350	\$26,250
	au MP 62 58 Johnson Road Grade Crossing	51	ψ15	330	ψ20,230
	1 Concrete Crossing Panels Installer	ТС	\$500	60	\$20,000
	2 Crossing Approaches	SV	\$JUU \$75	350	\$30,000
	2. Clossing Apploacies	51	\$70 	300	\$20,230
	1 Concrete Crossing Danels Installer	тс	\$500	60	¢20,000
	2. Crossing Approaches	IF CV	\$300 ¢75	250	\$30,000 \$34,2E0
	2. CIOSSING Apploaches	51	\$70	300	\$20,230
	1 Concrete Creasing Danala Installer	тг	¢EOO	40	¢20.000
			\$000 ¢75	00	\$30,000
	2. Crossing Approaches	SY	\$75	350	\$20,250
	ax. MP 66.06 Private Road Crossing		¢500	20	¢15.000
	Concrete Crossing Panels Installec		\$500	30	\$15,000
	2. Crossing Approaches	SY	\$/5	175	\$13,125
	ay. MP 67.12 Public Grade Crossing		*500	(0)	* 00.000
	1. Concrete Crossing Panels Installec		\$500	60	\$30,000
	2. Crossing Approaches	SY	\$75	350	\$26,250
	c. Misc. (non-typical per project)	LS	\$1	0	\$0
	4. Crossing Signals				
	a. Upgrade Signal - Barrier Gates	Each	\$200,000	25	\$5,000,000
	b. New Signal	Each	\$250,000	25	\$6,250,000
IV.	RR SIGNALS				-
	a. Per P.O. T.O.	Each	\$250,000	11.5	\$2,875,000
	b. Per Mile	Mile	\$750,000	34.41	\$25,807,500
V.	UTILITY RELOCATION/ADJUSTMENT				-
	1. Transmission Lines	LS	\$1	0	\$0
	2. Fiber Optic Lines	LF	\$95	0	\$0
	3. Miscellaneous	LS	\$1,000,000	0	\$0
VI.	CONTINGENCIES (30%)	LS		0	\$45,032,243
			CONSTR	UCTION TOTAL	\$195,139,720
VII	ENVIRONMENTAL MITIGATION (20%)	15		0	\$39 027 944
V 11.		CONSTR	UCTION & MITIGATI	ON SUBTOTAL	\$234 167 664
		001011			φ20 i, i07,004
VIII.	ENGINEERING/ADMINISTRATION (7%)	LS		0	\$13,659,780
IX.	CONSTRUCTION MANAGEMENT (6%)	LS		0	\$11,708,383
Х.	RIGHT OF WAY	ACRE	\$250,000	7	\$1,625,000
XI.	TAX (8.2%)			0	\$16,001,457
				τοται	\$277 162 285

Assumptions:

1 New Tracks from MP 39.19 to MP 43.8 2 New Tracks from MP 43.8 to MP 49.9 1 New Track from MP 49.9 to MP 67.5

Track Miles

4.61 12.2 17.6 34.41

\$ 8,054,702 / mile

*Private Crossings are to be closed or equiped with auto gates.

	UNITS	UNIT COST	QUANTITY	TOTAL
I. EARTHWORK				
1. Embankment	СҮ	\$20	0	\$0
2. Excavation	СҮ	\$10	0	\$0
3. Rock Excavation	СҮ	\$50	0	\$0
4. General*	СҮ	\$15	528528	\$7,927,920
II. TRACK	•		•	
1. Track Construction				
a. New Track	TF	\$135	75504	\$10,193,040
b. Rehab Track	TF	\$60	0	\$0
2. Turnouts				
a. #9's	Each	\$100,000	0	\$0
b. #11's	Each	\$110,000	0	\$0
c. #15's	Each	\$135,000	0	\$0
d. #20's	Each	\$160,000	0	\$0
e. #24's	Each	\$170,000	1	\$170,000
f. #33's	Each	\$360,000	1	\$360,000
3. Crossovers				
b. #11's	Each	\$220,000	0	\$0
c. #15's	Each	\$270,000	0	\$0
d. #20's	Each	\$320,000	0	\$0
f. #33's	Each	\$720,000	0	\$0
4. Bridges				
a. ~MP 73.00 4,500 New Flyover	TF	\$8,000	4500	\$36,000,000
a. ~MP 73.30 New 40' Bridge	TF	\$8,000	40	\$320,000
c. MP 75.38 65' Wood Pile Trestle Bridg€	TF	\$8,000	65	\$520,000
d. MP 75.63 80' Thru Plate Girder Bridge	TF	\$8,000	80	\$640,000
e. MP 77.00 70' Wood Pile Trestle Bridge	TF	\$8,000	70	\$560,000
f. MP 78.85 37' Wood Pile Trestle Bridg€	TF	\$8,000	37	\$296,000
h. MP 82.14 New 15,100' Bridge	TF	\$3,000	15100	\$45,300,000
5. Culvert Crossings				
a. Major Culverts (>36" Diameter)	LF	\$600	0	\$0
 b. Minor Culverts (<36" Diameter) 	LF	\$100	840	\$84,000
6. Other Drainage	LS	\$0	0	\$0
III. ROADWAY		-		-
1. Roadway Construction	SY	\$60	0	\$0
2. At-Grade Crossing				
a. MP 72.24 Avon Street Grade Crossing				
1. Concrete Crossing Panels Installec	TF	\$500	60	\$30,000
2. Crossing Approaches	SY	\$75	350	\$26,250
b. MP 72.81 Private Road Crossing				
1. Concrete Crossing Panels Installec	TF	\$500	30	\$15,000
2. Crossing Approaches	SY	\$75	175	\$13,125
c. MP 73.30 Gear Road Grade Crossing				
1. Concrete Crossing Panels Installec	TF	\$500	60	\$30,000
2. Crossing Approaches	SY	\$75	350	\$26,250
d. MP 74.33 Cook Road Grade Crossing				
1. Concrete Crossing Panels Installec	TF	\$500	60	\$30,000
2. Crossing Approaches	SY	\$75	350	\$26,250
e. MP 74.82 Private Road Crossing		+500		+ 15 000
1. Concrete Crossing Panels Installec	TF	\$500	30	\$15,000
2. Crossing Approaches	SY	\$75	1/5	\$13,125
t. MP //.10 Woreline Road Grade Crossing		1=00		
1. Concrete Crossing Panels Installec		\$500	60	\$30,000
2. Crossing Approaches	SY	\$75	350	\$26,250
g. MP 77.32 Ersnig Road Grade Crossing		+F00	10	* 00.000
I. Concrete Crossing Panels Installec		\$500	60	\$30,000

Burlington to Bellingham High Speed Track

Г	2. Crossing Approaches	SY	\$75	350	\$26,250
Г	h. MP 79.02 Bowhill Road Grade Crossing				
Г	1. Concrete Crossing Panels Installec	TF	\$500	60	\$30,000
Г	2. Crossing Approaches	SY	\$75	350	\$26,250
Г	i. MP 80.94 Colony Road Grade Crossing				
Г	1. Concrete Crossing Panels Installec	TF	\$500	60	\$30,000
	2. Crossing Approaches	SY	\$75	350	\$26,250
Г	j. MP 81.21 S. Blanchard Rd. Grade Crossing				
Г	1. Concrete Crossing Panels Installec	TF	\$500	60	\$30,000
Г	2. Crossing Approaches	SY	\$75	350	\$26,250
Г	k. MP 81.41 S. Legg Road Grade Crossing				
Г	1. Concrete Crossing Panels Installec	TF	\$500	60	\$30,000
Г	2. Crossing Approaches	SY	\$75	350	\$26,250
Г	I. MP 81.31 N. Legg Road Grade Crossing				
Г	1. Concrete Crossing Panels Installec	TF	\$500	60	\$30,000
Г	2. Crossing Approaches	SY	\$75	350	\$26,250
	3. Grade-Separation Crossing				
Г	a. Bridge	SF	\$100	0	\$0
Г	b. Roadway (earthwork & paving)	SY	\$50	0	\$0
Г	c. Misc. (non-typical per project)	LS	\$1	0	\$0
4	4. Crossing Signals				
Г	a. Upgrade Signal - Barrier Gates	Each	\$200,000	10	\$2,000,000
Г	b. New Signal	Each	\$250,000	1	\$250,000
IV. F	RR SIGNALS				
	a. Per P.O. T.O.	Each	\$250,000	2.5	\$625,000
	b. Per Mile	Mile	\$750,000	14.3	\$10,725,000
V. l	JTILITY RELOCATION/ADJUSTMENT				
Ĩ	1. Transmission Lines	LS	\$1	0	\$0
4	2. Fiber Optic Lines	LF	\$95	0	\$0
	3. Miscellaneous	LS	\$1,000,000	0	\$0
VI. C	CONTINGENCIES (30%)	LS		0	\$34,976,913
			CONSTR	RUCTION TOTAL	\$151,566,623
	ENVIRONMENTAL MITIGATION (20%)	IS		0	\$30 313 325
		CONST	RUCTION & MITIGAT		\$181 879 948
					¢101,077,710
	LINGINEERING/ADIVIIINISTRATION (7%)	LS		0	\$10,009,004
		LS	¢2E0.000	0	\$9,093,997
		ACRE	\$200,000	15	\$3,840,000
XI. I	ΙΑΛ (ö.2%)			U	\$12,428,463
				TOTAL	\$217,852,072

Assumptions:

Track Miles

\$ 15,234,411 / mile

1 New Track from MP 72.2 to MP 86.5 New Alignments from MP 80.95 To 82.16 & MP 73.00 To MP 74.30 14.3 14.3

*Private Crossings are to be closed or equiped with auto gates.

Bellingham to Blaine High Speed Track

	UNITS	UNIT COST	QUANTITY	TOTAL
I. EARTHWORK				
1. Embankment	CY	\$20	0	\$0
2. Excavation	CY	\$10	0	\$0
3. Rock Excavation	CY	\$50	0	\$0
4. General*	СҮ	\$15	575836.8	\$8,637,552
II. TRACK	-			
1. Track Construction				
a. New Track	TF	\$135	82262.4	\$11,105,424
b. Rehab Track	TF	\$60	0	\$0
2. Turnouts				
a. #9's	Each	\$100,000	0	\$0
b. #11's	Each	\$110,000	0	\$0
c. #15's	Each	\$135,000	0	\$0
d. #20's	Each	\$160,000	0	\$0
f. #33's	Each	\$360,000	1	\$360,000
3. Crossovers				
b. #11's	Each	\$220,000	0	\$0
c. #15's	Each	\$270,000	0	\$0
d. #20's	Each	\$320,000	0	\$0
f. #33's	Each	\$720,000	0	\$0
4. Bridges				
a. ~MP 102.4 2500' New Flyover Bridge	TF	\$8,000	2500	\$20,000,000
b. MP 105.70 121' Thru Plate Girder Bridge	TF	\$8,000	121	\$968,000
c. MP 105.84 486' TRT	TF	\$8,000	486	\$3,888,000
d. MP 117.08 330' Deck Plate Girder Bridge	TF	\$8,000	330	\$2,640,000
5. Culvert Crossinas				
a. Major Culverts (>36" Diameter)	LF	\$600	60	\$36.000
b. Minor Culverts (<36" Diameter)	LF	\$100	630	\$63,000
6. Other Drainage	LS	\$0	0	\$0
III. ROADWAY				
1. Roadway Construction	SY	\$60	14000	\$840,000
2. At-Grade Crossing				
a1. MP 101.63 Country Lane				
1. Concrete Crossing Panels Installec	TF	\$500	60	\$30,000
2. Crossing Approaches	SY	\$75	350	\$26,250
a2. MP 103.62 Slater Road				+==+===
1. Concrete Crossing Panels Installer	TF	\$500	60	\$30,000
2. Crossing Approaches	SY	\$75	350	\$26,250
a MP 105 06 Hovander Road Grade Crossing		÷		+20/200
1 Concrete Crossing Panels Installer	TF	\$500	60	\$30,000
2 Crossing Approaches	SY	\$75	350	\$26,250
h MP 106 01 2nd Street Grade Crossing		\$70		\$20,200
1 Concrete Crossing Panels Installer	TF	\$500	60	\$30,000
2 Crossing Approaches	SV	\$75	350	\$26,250
c MP 106 21 Washington Street Grade Crossing		φ 1 5	550	ψ20,230
1 Concrete Crossing Panels Installer	TF	\$500	60	¢30 000
2 Crossing Approaches	SV	\$300	350	\$30,000
d MP 107 07 Thorston Road Grade Crossing	51	φ13	330	ψ20,230
1 Concrete Crossing Panels Installer	TF	\$500	60	¢30 000
2 Crossing Approaches	۱۱ ۷۷	\$300 \$75	250	\$30,000
A MD 108 60 Brown Doad Grado Crossing	51	¢/ن	300	φ20,200
Concrete Crossing Dapole Installer	ТГ	¢500	60	¢20.000
2 Crossing Approaches		۵000 ¢7۶	250	300,000 \$36,000
f MD 100 06 Drivata Doad Crossing	31	\$7J	300	\$Z0,230
1. Concrete Crossing Dapole Installer	тс	¢500	20	¢15 000
I. CUNCIELE CLUSSING FAILEIS INSTAILER	11	0004	30	φ10,000

2. Crossing Approaches	SY	\$75	175	\$13,125
g. MP 109.32 Grandview Road Grade Crossing				
1. Concrete Crossing Panels Installec	TF	\$500	60	\$30,000
2. Crossing Approaches	SY	\$75	350	\$26,250
h. MP 110.90 Private Road Crossing				
1. Concrete Crossing Panels Installec	TF	\$500	30	\$15,000
2. Crossing Approaches	SY	\$75	175	\$13,125
i. MP 111.77 Main Street Grade Crossing				
1. Concrete Crossing Panels Installec	TF	\$500	60	\$30,000
2. Crossing Approaches	SY	\$75	350	\$26,250
j. MP 112.29 Private Road Crossing				
1. Concrete Crossing Panels Installec	TF	\$500	30	\$15,000
2. Crossing Approaches	SY	\$75	175	\$13,125
k. MP 113.08 Valley View Road Grade Crossing				
1. Concrete Crossing Panels Installec	TF	\$500	60	\$30,000
2. Crossing Approaches	SY	\$75	350	\$26,250
I. MP 113.60 Birch Bay Road Grade Crossing				
1. Concrete Crossing Panels Installec	TF	\$500	60	\$30,000
2. Crossing Approaches	SY	\$75	350	\$26,250
m. MP 115.03 Loomis Trail Road Grade Crossing				
1. Concrete Crossing Panels Installec	TF	\$500	60	\$30,000
2. Crossing Approaches	SY	\$75	350	\$26,250
n. MP 116.42 Private Road Crossing				
1. Concrete Crossing Panels Installec	TF	\$500	30	\$15,000
2. Crossing Approaches	SY	\$75	175	\$13,125
3. Grade-Separation Crossing				
a. Bridge	SF	\$100	0	\$0
b. Roadway (earthwork & paving)	SY	\$50	0	\$0
c. Misc. (non-typical per project)	LS	\$1	0	\$0
4. Crossing Signals				
a. Upgrade Signal - Barrier Gates	Each	\$200,000	12	\$2,400,000
b. New Signal	Each	\$250,000	4	\$1,000,000
IV. RR SIGNALS		L +050.000		+075 000
a. Per P.O. I.O.	Each	\$250,000	1.5	\$375,000
b. Per Mile	Mile	\$750,000	15.58	\$11,685,000
V. UTILITY RELOCATION/ADJUSTMENT	1.0		2	*0
1. Transmission Lines	LS	\$I	0	\$0
2. FIDER UPTIC LINES	LF	\$95	0	\$0
	LS	\$1,000,000	0	\$0
VI. CONTINGENCIES (30%)	LS	CONCTR		\$19,435,643
		CONSTR	UCTION TOTAL	\$84,221,119
VII. ENVIRONMENTAL MITIGATION (20%)	LS		0	\$16,844,224
	CONSTR	UCTION & MITIGAT	ION SUBTOTAL	\$101,065,343
VIII. ENGINEERING/ADMINISTRATION (7%)	LS		0	\$5,895,478
IX. CONSTRUCTION MANAGEMENT (6%)	LS		0	\$5,053,267
X. RIGHT OF WAY	ACRE	\$250,000	20	\$4,877,500
XI. TAX (8.2%)			0	\$6,906,132
			TOTAL	\$123,797,720

Assumptions:

Track Miles

\$ 7,945,938 / mile

1 New Track from MP 101.5 to MP 117.08

15.58 15.58

*Private Crossings are to be closed or equiped with auto gates.

		UNITS	UNIT COST	QUANTITY	TOTAL
l.	EARTHWORK				
	1. Embankment	СҮ	\$20	0	\$0
	2. Excavation	СҮ	\$10	0	\$0
	3. Rock Excavation	СҮ	\$50	0	\$0
	4. General*	СҮ	\$15	36960	\$554,400
II .	TRACK	•	•	•	
	1. Track Construction				
	a. New Track	TF	\$135	5280	\$712,800
	b. Rehab Track	TF	\$60	3600	\$216,000
	2. Turnouts				
	a. #9's	Each	\$100,000	0	\$0
	b. #11's	Each	\$110,000	0	\$0
	c. #15's	Each	\$135.000	0	\$0
	d. #20's	Each	\$160.000	1	\$160,000
	f. #33's	Each	\$360.000	0	\$0
	3. Crossovers		, , , , , , , , , , , , , , , , , , , ,	-	ΨŨ
	b. #11's	Each	\$220.000	0	\$0
	c. #15's	Each	\$270.000	0	\$0 \$0
	d. #20's	Fach	\$320,000	2	\$640.000
	f. #33's	Fach	\$720,000	0	\$0,000
	4 Bridges	Luon	<i><i><i></i></i></i>	, , , , , , , , , , , , , , , , , , ,	ψυ
	a MP 1784 0 48' DPG Rond Street	TF	000 82	48	\$384.000
	5 Culvert Crossings		\$0,000	13	\$001,000
	a Major Culverts (>36" Diameter)	IF	\$600	0	<u></u>
	h Minor Culverts (<36" Diameter)		\$100	900	000 002
	6 Other Drainage	19	01 0	0	0,00,07 02
	7 Retaining Walls	SE SE	φ0 \$ <i>1</i> 5	14400	000 SV95
	ROADWAY		ψτυ	007771	φ040,000
	1 Roadway Construction	V2	0.62	0	02
	2 At-Grade Crossing	51	ψυυ	U U	ψŪ
	a		+		
	1 Concrete Crossing Panels Installer	ТГ	\$500	0	<u>۵</u> ۵
	2 Crossing Approaches	۱۱ ۷۷	\$000 \$75	0	۵۵ ۵۵
	1 Crossing Signals	51	φ/J	U	¢0
	a Ungrade Signal - Rarrier Catos	Fach	\$200,000	0	¢۵
	h New Signal	Each	\$250,000 \$250,000	0	ፍሀ ትበ
IV.		Eduli	φ200,000	0	\$0
IV.		Each	\$250,000	5	\$1.250.000
	a. FELF.U. I.U. b. Dar Mila		\$∠30,000 \$750,000) 1	\$1,230,000 ¢7⊑0,000
V		IVIIIe	\$750,000		\$750,000
V.		10		0	¢1 / 01 ⊑/0
VI.		LS	CONCT		\$1,621,560
			CONSTR		\$7,020,760
VII.	ENVIRONMENTAL MITIGATION (20%)	LS		0	\$1,405,352
		CONSTR	RUCTION & MITIGAT	TON SUBTOTAL	\$8,432,112
VIII.	ENGINEERING/ADMINISTRATION (7%)	LS		0	\$491,873
IX.	CONSTRUCTION MANAGEMENT (6%)	LS		0	\$421,606
X.	RIGHT OF WAY	ACRE	\$250.000	0	\$0
XL	TAX (8.2%)			0	\$576.194
	\/			ΤΟΤΑΙ	\$0 021 725
				TOTAL	۹۶, ۶21,703

Everett Junction to Everett Second Main Track

Assumptions:

Track Miles

\$ 9,921,785 / mile

New Track from MP 1783.6 To 1784.6 1

1

White Rock Bypass

I. Enthankment CY S20 0 \$90 J. Enthankment CY \$50 0 \$90 J. Good Exevation CY \$50 0 \$90 J. Good Exevation CY \$50 0 \$90 J. General CY \$50 0 \$90 J. Enthank CY \$15 632385.6 \$9,485,784 S. Tunnel Mile \$100,000,000 0.5 \$50,000,000 R. Rekit Track TF \$335 90340.8 \$12,196,008 D. Rehab Track TF \$500 0 \$90 2. Turnouts - - - - a. #9's Each \$10,000 0 \$90 c. #15's Each \$135,000 0 \$90 d. #20's Each \$10,000 0 \$90 d. #20's Each \$10,000 0 \$90 d. #20's Each \$270,000 0 \$90 d. #11		UNITS	UNIT COST	QUANTITY	TOTAL
J. Embankment CY \$20 0 90 2. Excavation CY \$10 0 90 3. Rock Excavation CY \$10 0 90 3. Rock Excavation CY \$15 632385.6 \$9,485,86 5. Turnel Mile \$100,000,000 0.5 \$850,000,000 1. Track Construction 1 \$76,400,000 0 \$50,850,000,000 1. Track Construction 1 \$76,400,000 0 \$50,000,000 2. Turnouts 0 \$50,000 0 \$50,000 a #9's Each \$100,000 0 \$50,000 0 \$50,000 0 \$50,000 0 \$50,000 0 \$50,000 0 \$50,000 0 \$50,000 0 \$50,000,00 0 \$50,000 0 \$50,000 0 \$50,000,00 0 \$50,000,00 \$50,000,00 0 \$50,000,00 0 \$50,000,00 \$50,000	I. EARTHWORK				
Z. Excavailion CY \$10 0 930 J. Rock Excavation CY \$50 0 930 J. General* CY \$15 632385.6 \$9,488,784 S. Tunnet Mile \$100,000,000 0.5 \$50,000,000 I. TRACK TF \$135 90340.8 \$12,196,008 D. Rehab Track TF \$50 0 \$50 Z. Turnotts - - - \$50 Z. Arronotts - - \$50 50 Z. Arronotts - <td< td=""><td>1. Embankment</td><td>CY</td><td>\$20</td><td>0</td><td>\$0</td></td<>	1. Embankment	CY	\$20	0	\$0
2. Rock Excavation CY \$50 0 90 4. General* CY \$15 632385.6 \$9,485,764 5. Turnel Mile \$100,000,000 0.5 \$50,000,000 1. Track Construction	2. Excavation	СҮ	\$10	0	\$0
I. General CY \$15 6.32385.6 \$9.485.764 I. Track Mile \$100,000,000 0.5 \$\$50,000,000 I. New Track TF \$135 90340.8 \$\$12,196,008 D. Rotab Track TF \$60 0 \$\$0 Z. Turnuls	3. Rock Excavation	СҮ	\$50	0	\$0
5 Tunnel Mile \$100,000,000 0.5 \$50,000,000 II. TRACK ITRACK TF \$135 90340.8 \$12,196,008 I. Track Construction TF \$50 0 \$50 J. Reh Track TF \$50 0 \$50 J. Reh Track TF \$50 0 \$50 J. Arack Construction TF \$500 0 \$50 J. Arack Construction TF \$500 0 \$50 J. Arack Construction TF \$500 0 \$50 J. Arack Construction Each \$100,000 0 \$50 J. Arack Aras Each \$100,000 0 \$50 J. Aras Each \$220,000 0	4. General*	CY	\$15	632385.6	\$9,485,784
II. TRACK Descention Descention I. Track Construction TF \$135 90340.8 \$12,196,008 b. Rohab Track TF \$60 0 \$50 2. Turnouts Personants Personants Personants a. #95 Each \$100,000 0 \$50 b. #11's Each \$110,000 0 \$50 c. #15's Each \$100,000 0 \$50 c. #15's Each \$100,000 0 \$50 g. #48's Each \$220,000 0 \$50 g. #48's Each \$220,000 0 \$50 g. #48's Each \$220,000 0 \$50 d. #70's Each \$220,000 0 \$50 f. #33's Each \$220,000 0 \$50 f.#33's Each \$220,000 0 \$50 d. Bridges TF \$8,000 2600 \$20,000,000 c. #15's Each <td>5 Tunnel</td> <td>Mile</td> <td>\$100,000,000</td> <td>0.5</td> <td>\$50,000,000</td>	5 Tunnel	Mile	\$100,000,000	0.5	\$50,000,000
In Works In Track Construction Image State a. New Track TF \$135 90340.8 \$12,196,008 b. Rehab Track TF \$60 0 \$50 2. Turnouts -		Willo	\$100,000,000	0.5	\$30,000,000
n. Nak Construction TF \$136 90340.8 \$12,196,008 b. Rehab Track TF \$60 0 \$00 2. Turnouts	1 Track Construction			1	
a. Hew Hark TF \$60 \$12,19,000 \$12,19,000 b. Rehab Track TF \$60 0 \$10,000 0 \$10,000 0 \$10,000 0 \$10,000 0 \$10,000 0 \$10,000 0 \$10,000 0 \$10,000 0 \$10,000 0 \$10,000 0 \$10,000 0 \$10,000 0 \$10,000 0 \$10,000 0 \$10,000 0 \$10,000 0 \$10,000 \$11,300,000 \$10,000 \$10,000 \$10,000 \$10,000 \$10,000 \$10,000 \$10,000 \$10,000 \$10,000 \$10,000 \$10,000 \$10,000 \$10,000 \$10,000 \$10,000 \$10,000 \$10,000 \$11,200,000 <td< td=""><td>a Now Track</td><td>ТЕ</td><td>¢125</td><td>00340.8</td><td>\$12,106,008</td></td<>	a Now Track	ТЕ	¢125	00340.8	\$12,106,008
D. Retial Index IP 360 0 30 2. Turnouts	a. New Hack		\$135 ¢40	90340.0	\$12,190,000 ¢0
2. / Unitodis Each \$100,000 0 \$00 b. #11's Each \$110,000 0 \$00 c. #15's Each \$1135,000 0 \$00 d.#20's Each \$140,000 0 \$00 f.#33's Each \$360,000 0 \$00 g.#48's Each \$500,000 1 \$500,000 J. Crossovers - - - - b.#11's Each \$220,000 0 \$50 d.#20's Each \$320,000 0 \$50 d.#33's Each \$320,000 0 \$50 d.#33's Each \$320,000 0 \$50 d.#33's Each \$320,000 0 \$50 d.b.Mic Cambeil River Bridge TF \$8,000 2640 \$21,120,000 d. 6.05 Seprentine River Bridge TF \$8,000 400 \$3,200,000 d. 4.00' Seprentine River Bridge TF \$8,000 400	D. Reliab Hack	IF	900	0	پ ۵
a. PYS Each \$100,000 0 S0 c. #15's Each \$313,000 0 \$00 d. #20's Each \$313,000 0 \$00 g. #48's Each \$350,000 0 \$00 g. #48's Each \$220,000 0 \$00 g. #48's Each \$220,000 0 \$00 c. #15's Each \$220,000 0 \$00 d. #20's Each \$220,000 0 \$00 d. #33's Each \$220,000 0 \$00 d. #16'ge's		Гаар	¢100.000	0	¢0
b. PT1's Each \$110,000 0 \$30 d. #20's Each \$3155,000 0 \$50 f.#33's Each \$360,000 0 \$50 g.#48's Each \$360,000 0 \$50 g.#48's Each \$360,000 1 \$500,000 g.#48's Each \$220,000 0 \$50 g.#11's Each \$220,000 0 \$50 g.#33's Each \$320,000 \$50 \$50,000 \$50 g.#33's Each \$320,000 \$50 \$50,000 \$50,000 \$50,000 \$50,000 \$50,000 \$50,000 \$50,000 \$50,000 \$50,000 \$50,000 \$50,000 \$50,000 \$50,000 <td></td> <td>Eduli</td> <td>\$100,000</td> <td>0</td> <td>\$U ¢0</td>		Eduli	\$100,000	0	\$U ¢0
C. #15 Each \$13,000 0 \$30 d. #20's Each \$160,000 0 \$50 f. #33's Each \$360,000 0 \$50 g. #48's Each \$500,000 1 \$500,000 3. Crossovers	D. #115	Each	\$110,000	0	\$0
d. #20's Each \$160,000 0 S0 g.#48's Each \$500,000 1 \$500,000 J. Crossovers - - - - b. #11's Each \$20,000 0 \$50 c.#15's Each \$270,000 0 \$50 d.#20's Each \$270,000 0 \$50 d.#20's Each \$320,000 0 \$50 d.#33's Each \$320,000 0 \$50 d.#20's Each \$320,000 0 \$50 a.1-5 Ramp and Freeway 2500' Flyover Bridge TF \$8,000 2640 \$21,120,000 c. 700 NicomedR River Bridge (2 tracks) TF \$8,000 400 \$3,200,000 d. 400' Sepentine River Bridge (2 tracks) TF \$8,000 400 \$3,200,000 f. 400' Colebrock Bridge (2 tracks) TF \$8,000 400 \$3,200,000 f. 400' Colebrock Bridge (2 tracks) TF \$8,000 60 \$3,200,000 f. 400' Colebrock Bridge (2 tracks) TF \$8,000 \$0 \$0 <td>C. # 15 S</td> <td>Each</td> <td>\$135,000</td> <td>0</td> <td>\$0</td>	C. # 15 S	Each	\$135,000	0	\$0
1. #33 (1. #34 (2. #35	d. #20'S	Each	\$160,000	0	\$0
g. #48's Each \$500,000 1 \$500,000 3. Grossovers	t. #33's	Each	\$360,000	0	\$0
3. Crossovers Each \$220,000 0 \$50 b. #11's Each \$220,000 0 \$0 d. #20's Each \$320,000 0 \$0 d. #20's Each \$320,000 0 \$0 d. #Didges - - - - a. 1-5 Ramp and Freeway 2500' Flyover Bridge TF \$8,000 2500 \$20,000,000 b. 0. 5. Mile Cambel River Bridge (2 tracks)' TF \$8,000 2640 \$21,120,000 c. 700' Nicomeki River Bridge (2 tracks)' TF \$8,000 1400 \$11,200,000 c. 700' Nicomeki River Bridge (2 tracks)' TF \$8,000 400 \$3,270,000 d. 400' Colebrook Bridge (2 tracks)' TF \$8,000 400 \$3,280,000 f. 400' Colebrook Bridge (2 tracks)' TF \$8,000 160 \$1,280,000 f. 400' Colebrook Bridge (2 tracks)' TF \$8,000 160 \$1,280,000 d. Minor Culverts (<36' Diameter)	g. #48's	Each	\$500,000	1	\$500,000
b. #11's Each \$220,000 0 \$0 c. #15's Each \$270,000 0 \$0 d. #20's Each \$320,000 0 \$0 f. #33's Each \$720,000 0 \$0 d. B.Ta Ramp and Freeway 2500' Flyover Bridge TF \$8,000 2500 \$220,000,000 b. 0.5 Mile Cambell River Bridge (2 tracks) TF \$8,000 2640 \$21,120,000 c. 700' Nicomekl River Bridge (2 tracks) TF \$8,000 1400 \$11,200,000 e. BC Rail Flyover (2 tracks) TF \$8,000 400 \$3,200,000 e. BC Rail Flyover (2 tracks) TF \$8,000 400 \$3,200,000 f. 400' Colebrook Bridge (2 tracks) TF \$8,000 400 \$3,200,000 f. 400' Colebrook Bridge (2 tracks) TF \$8,000 400 \$3,200,000 f. 400' Colebrook Bridge (2 tracks) TF \$8,000 400 \$3,200,000 f. 400' Colebrook Bridge (2 tracks) TF \$8,000 0 \$0 g. Inder Curverts (236' Diameter) LF \$600 \$0 \$0	3. Crossovers				
c. #15's Each \$270,000 0 \$0 d. #20's Each \$320,000 0 \$0 f. #33's Each \$720,000 0 \$0 a. 1-5 Ramp and Freeway 2500' Flyover Bridge TF \$8,000 2640 \$21,120,000 b. 0.5 Mile Cambell River Bridge TF \$8,000 2640 \$21,120,000 c. 700' Nicomekl River Bridge (2 tracks', TF \$8,000 1400 \$11,200,000 d. 400' Septentine River Bridge (2 tracks', TF \$8,000 400 \$3,200,000 d. 400' Colebrook Bridge (2 tracks) TF \$8,000 160 \$1,280,000 f. Advert Corssing - - - - - a. Major Culverts (>36' Diameter) LF \$100 0 \$00 b. Minor Culverts (>36' Diameter) LF \$100 0 \$0 J. Roadway Construction SY \$60 0 \$0 1. Roadway Construction SY \$10 - - 1. Concrete Crossing SY <td>b. #11's</td> <td>Each</td> <td>\$220,000</td> <td>0</td> <td>\$0</td>	b. #11's	Each	\$220,000	0	\$0
d.#20's Each \$320,000 0 \$0 f.#33's Each \$720,000 0 \$0 a. 1-5 Ramp and Freeway 250° Flyover Bridge TF \$8,000 2500 \$22,000,000 b. 0.5 Mile Cambell River Bridge (2 tracks) TF \$8,000 2640 \$21,120,000 c. 700 Nicomekl River Bridge (2 tracks) TF \$8,000 1400 \$311,200,000 d. 400' Serpentine River Bridge (2 tracks) TF \$8,000 800 \$6,400,000 e. BC Rail Flyover (2 tracks) TF \$8,000 400 \$32,00,000 f. 400' Colebrook Bridge (2 tracks) TF \$8,000 160 \$11,200,000 f. 00' Colebrook Bridge (2 tracks) TF \$8,000 400 \$32,00,000 f. 00' Colebrook Bridge (2 tracks) TF \$8,000 160 \$11,200,000 f. Major Culverts (-36' Diameter) LF \$600 \$0 \$0 b. Minor Culverts (-36' Diameter) LF \$100 0 \$0 a. Najor Culverts (-36' Diameter) LF \$100 0 <t< td=""><td>c. #15's</td><td>Each</td><td>\$270,000</td><td>0</td><td>\$0</td></t<>	c. #15's	Each	\$270,000	0	\$0
f.#33's Each \$720,000 0 \$80 4. Bridges -	d. #20's	Each	\$320,000	0	\$0
4. Bridges a. 1-5 Ramp and Freeway 2500° Flyover Bridge TF \$8,000 2500 \$20,000,000 b. 0.5 Mile Cambell River Bridge TF \$8,000 2640 \$21,120,000 c. 700° Nicomekl River Bridge (2 tracks) TF \$8,000 1400 \$11,200,000 d. 400° Serpentine River Bridge (2 tracks) TF \$8,000 400 \$33,200,000 e. BC Rail Flyover (2 tracks) TF \$8,000 400 \$33,200,000 f. 400° Colebrook Bridge (2 tracks) TF \$8,000 160 \$1,280,000 f. Adjor Culverts (-36° Diameter) LF \$100 0 \$00 b. Minor Culverts (-36° Diameter) LF \$100 0 \$00 1. Roadway Construction SY \$60 0 \$20,000 2. At Grade Crossing	f. #33's	Each	\$720,000	0	\$0
a. 1-5 Ramp and Freeway 2500' Flyover Bridge TF \$8,000 2500 \$20,000,000 b. 0.5 Mile Cambell River Bridge (2 tracks) TF \$8,000 1400 \$11,20,000 c. 700' Nicomekl River Bridge (2 tracks) TF \$8,000 800 \$6,400,000 e. BC Rail Flyover (2 tracks) TF \$8,000 400 \$3,200,000 f. 400' Colebrok Bridge (2 tracks) TF \$8,000 460 \$3,200,000 f. 400' Colebrok Bridge (2 tracks) TF \$8,000 460 \$3,200,000 f. 400' Colebrok Bridge (2 tracks) TF \$8,000 160 \$1,280,000 f. Augr Culverts (>36' Diameter) LF \$100 0 \$0 b. Minor Culverts (<36' Diameter)	4. Bridges				
b. 0.5 Mile Cambell River Bridge TF \$8,000 2640 \$21,120,000 c. 700' Nicomekl River Bridge (2 tracks) TF \$8,000 1400 \$11,200,000 d. 400' Serpentine River Bridge (2 tracks) TF \$8,000 400 \$3,200,000 e. BC Rail Flyover (2 tracks) TF \$8,000 160 \$1,280,000 f. 400' Colebrook Bridge (2 tracks)' TF \$8,000 160 \$1,280,000 5. Culvert Crossings	a. I-5 Ramp and Freeway 2500' Flyover Bridge	TF	\$8,000	2500	\$20,000,000
c. 700' Nicomekl River Bridge (2 tracks) TF \$8,000 1400 \$11,200,000 d. 400' Serpentine River Bridge (2 tracks) TF \$8,000 800 \$6,400,000 e. BC Rail Flyover (2 tracks) TF \$8,000 400 \$3,200,000 f. 400' Colebrook Bridge (2 tracks) TF \$8,000 160 \$1,280,000 5. Culvert Crossings	b. 0.5 Mile Cambell River Bridge	TF	\$8,000	2640	\$21,120,000
d. 400' Serpentine River Bridge (2 tracks) TF \$8,000 800 \$6,400,000 e. BC Rail Flyover (2 tracks) TF \$8,000 400 \$3,200,000 f. 400' Colebrook Bridge (2 tracks) TF \$8,000 160 \$1,280,000 <i>S. Culvert Crossings</i> a. Major Culverts (>36" Diameter) LF \$600 0 \$0 b. Minor Culverts (<36" Diameter)	c. 700' Nicomekl River Bridge (2 tracks)	TF	\$8,000	1400	\$11,200,000
e. BC Ral Flyover (2 tracks) TF \$8,000 400 \$3,200,000 f. 400' Colebrook Bridge (2 tracks) TF \$8,000 160 \$1,280,000 a. Major Culverts (>36' Diameter) LF \$600 0 \$00 b. Minor Culverts (>36' Diameter) LF \$100 0 \$00 b. Minor Culverts (<36' Diameter)	d. 400' Serpentine River Bridge (2 tracks)	TF	\$8,000	800	\$6,400,000
F. 400 Colebrook Bridge (2 tracks) TF \$8,000 160 \$1,280,000 5. Culvert Crossings	e. BC Rail Flyover (2 tracks)	TF	\$8,000	400	\$3,200,000
For our answer of the second	f. 400' Colebrook Bridge (2 tracks)	TF	\$8,000	160	\$1,280,000
a. Major Culverts (<36° Diameter) LF \$600 0 \$0 b. Minor Culverts (<36° Diameter)	5 Culvert Crossings		<i><i><i></i></i></i>		+ 1/200/000
Image Serverse Image Serverse <thimage serverse<="" th=""> Image Se</thimage>	a Major Culverts (>36" Diameter)	IF	\$600	0	\$0
L. Minor Carlot (Sob Diametry) Li \$100 0 300 6. Other Drainage LS \$00 0 \$00	h Minor Culverts (<36" Diameter)	IF	\$100	0	0¢ \$0
DescriptionDescriptio	6 Other Drainage	15	02	0	0¢ 02
I. Roadway ConstructionSY\$600\$02. At-Grade Crossing		LJ	ψŪ	0	ψΟ
I. Rotating ConstructionS13000302. At-Grade Crossing	1 Boodway Construction	CV.	\$40	0	02
2. Ar-Gabe Crossinga. Pipeline Road Grade Crossing1. Concrete Crossing Panels InstallecTF\$500602. Crossing ApproachesSY\$75350b. Boblett Grade Crossing1. Concrete Crossing Panels InstallecTF\$500602. Crossing ApproachesSY\$753502. Crossing ApproachesSY5. Street Road Grade Crossing	1: Roadway Construction		<u>۵</u> 00	0	φU
a. Pipeline Road Grade CrossingTF\$50060\$30,0002. Crossing ApproachesSY\$75350\$26,250b. Boblett Grade Crossing </td <td>2. Al-Glade Clossing</td> <td></td> <td></td> <td></td> <td></td>	2. Al-Glade Clossing				
1. Concrete Crossing Panels Installec1.F\$50060\$30,0002. Crossing ApproachesSY\$75350\$26,250b. Boblett Grade Crossing Panels InstallecTF\$50060\$30,0002. Crossing ApproachesSY\$75350\$26,250c. Street Road Grade Crossing	a. Pipelille Rodu Grade Crossilly	тг	¢E00	40	¢20.000
2. Crossing ApproachesSY\$75330\$26,250b. Boblett Grade CrossingImage: Construct of the state of	1. Concrete Crossing Pariers Installet		00C¢	00	\$30,000
b. Boblett Grade CrossingTF\$50060\$30,0002. Crossing ApproachesSY\$75350\$26,250c. Street Road Grade Crossing </td <td>2. Clossify Approaches</td> <td>51</td> <td>\$75</td> <td>300</td> <td>\$20,230</td>	2. Clossify Approaches	51	\$75	300	\$20,230
1. Concrete Crossing Panels Installec1F\$50060\$30,0002. Crossing ApproachesSY\$75350\$26,250c. Street Road Grade Crossing </td <td>b. Boblett Grade Crossing</td> <td></td> <td>¢500</td> <td>(0</td> <td>\$20,000</td>	b. Boblett Grade Crossing		¢500	(0	\$20,000
2. Crossing ApproachesSY\$75350\$26,250c. Street Road Grade CrossingImage: Construction of the state of the st	1. Concrete Crossing Panels Installec		\$500	60	\$30,000
c. Street Road Grade CrossingTF\$50060\$30,0001. Concrete Crossing Panels InstallecTF\$50060\$30,0002. Crossing ApproachesSY\$75350\$26,250d. Tellie Road Grade CrossingTF\$50060\$30,0002. Crossing ApproachesSY\$75350\$26,250e. Highway 15 Grade CrossingTF\$50060\$30,0001. Concrete Crossing Panels InstallecTF\$50060\$30,0002. Crossing ApproachesSY\$75350\$26,250f. Highway 99A Grade CrossingTF\$50060\$30,0002. Crossing ApproachesSY\$75350\$26,250f. Highway 99A Grade CrossingTF\$50060\$30,0001. Concrete Crossing Panels InstallecTF\$50060\$30,0002. Crossing ApproachesSY\$75350\$26,250f. Highway 99A Grade CrossingTF\$50060\$30,0002. Crossing ApproachesSY\$75350\$26,250f. Highway Grade CrossingTF\$50060\$30,0002. Crossing ApproachesSY\$75350\$26,250g. 10 Unnamed Road CrossingsSY\$75350\$26,250	2. Crossing Approaches	SY	\$75	350	\$26,250
1. Concrete Crossing Panels InstallecTF\$50060\$30,0002. Crossing ApproachesSY\$75350\$26,250d. Tellie Road Grade CrossingImage: Concrete Crossing Panels InstallecTF\$50060\$30,0002. Crossing ApproachesSY\$75350\$26,250e. Highway 15 Grade CrossingImage: Concrete Crossing Panels InstallecTF\$50060\$30,0001. Concrete Crossing Panels InstallecTF\$50060\$30,0002. Crossing ApproachesSY\$75350\$26,250f. Highway 99A Grade CrossingImage: Concrete Crossing Panels InstallecTF\$50060\$30,0002. Crossing ApproachesSY\$75350\$26,250f. Highway 99A Grade CrossingImage: Concrete Crossing Panels InstallecTF\$50060\$30,0002. Crossing ApproachesSY\$75350\$26,250f. Highway Grade CrossingImage: Concrete Crossing Panels InstallecTF\$50060\$30,0002. Crossing ApproachesSY\$75350\$26,250\$26,250g. 10 Unnamed Road CrossingsImage: Concrete Crossing PanelsSY\$75350\$26,250	c. Street Road Grade Crossing				
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d. Tellie Road Grade CrossingTF\$50060\$30,0001. Concrete Crossing Panels InstallecTF\$50060\$30,0002. Crossing ApproachesSY\$75350\$26,250e. Highway 15 Grade Crossing	2. Crossing Approaches	SY	\$75	350	\$26,250
1. Concrete Crossing Panels InstallecTF\$50060\$30,0002. Crossing ApproachesSY\$75350\$26,250e. Highway 15 Grade Crossing	d. Tellie Road Grade Crossing				
2. Crossing ApproachesSY\$75350\$26,250e. Highway 15 Grade Crossing </td <td>1. Concrete Crossing Panels Installec</td> <td>TF</td> <td>\$500</td> <td>60</td> <td>\$30,000</td>	1. Concrete Crossing Panels Installec	TF	\$500	60	\$30,000
e. Highway 15 Grade CrossingTF\$50060\$30,0001. Concrete Crossing Panels InstallecTF\$50060\$30,0002. Crossing ApproachesSY\$75350\$26,250f. Highway 99A Grade CrossingImage: Concrete Crossing Panels InstallecTF\$50060\$30,0002. Crossing ApproachesSY\$75350\$26,250g. 10 Unnamed Road CrossingsImage: Concrete Crossing State S	2. Crossing Approaches	SY	\$75	350	\$26,250
1. Concrete Crossing Panels InstallecTF\$50060\$30,0002. Crossing ApproachesSY\$75350\$26,250f. Highway 99A Grade Crossing </td <td>e. Highway 15 Grade Crossing</td> <td></td> <td></td> <td></td> <td></td>	e. Highway 15 Grade Crossing				
2. Crossing ApproachesSY\$75350\$26,250f. Highway 99A Grade Crossing </td <td>1. Concrete Crossing Panels Installec</td> <td>TF</td> <td>\$500</td> <td>60</td> <td>\$30,000</td>	1. Concrete Crossing Panels Installec	TF	\$500	60	\$30,000
f. Highway 99A Grade CrossingImage: Constraint of the second	2. Crossing Approaches	SY	\$75	350	\$26,250
1. Concrete Crossing Panels InstallecTF\$50060\$30,0002. Crossing ApproachesSY\$75350\$26,250g. 10 Unnamed Road Crossings	f. Highway 99A Grade Crossing	Ī			
2. Crossing Approaches SY \$75 350 \$26,250 g. 10 Unnamed Road Crossings Image: Construction of the second seco	1. Concrete Crossing Panels Installec	TF	\$500	60	\$30,000
g. 10 Unnamed Road Crossings	2. Crossing Approaches	SY	\$75	350	\$26,250
g	g. 10 Unnamed Road Crossings				

1. Concrete Crossing Panels Installec	TF	\$500	600	\$300,000
2. Crossing Approaches	SY	\$75	3500	\$262,500
3. Grade-Separation Crossing				
a. Bridge	SF	\$100	0	\$0
 b. Roadway (earthwork & paving) 	SY	\$50	0	\$0
c. Misc. (non-typical per project)	LS	\$1	0	\$0
4. Crossing Signals				
a. Upgrade Signal - Barrier Gates	Each	\$200,000	0	\$0
b. New Signal	Each	\$250,000	16	\$4,000,000
IV. RR SIGNALS				
a. Per P.O. T.O.	Each	\$250,000	1	\$250,000
b. Per Mile	Mile	\$750,000	17.11	\$12,832,500
V. UTILITY RELOCATION/ADJUSTMENT				
1. Transmission Lines	LS	\$1	0	\$0
2. Fiber Optic Lines	LF	\$95	0	\$0
3. Miscellaneous	LS	\$1,000,000	0	\$0
VI. CONTINGENCIES (30%)	LS		0	\$46,009,288
		CONST	RUCTION TOTAL	\$199,373,580
VII. ENVIRONMENTAL MITIGATION (20%)	LS		0	\$39,874,716
	CONST	RUCTION & MITIGA	TION SUBTOTAL	\$239,248,296
VIII. ENGINEERING/ADMINISTRATION (7%)	LS		0	\$13,956,151
IX. CONSTRUCTION MANAGEMENT (6%)	LS		0	\$11,962,415
X. RIGHT OF WAY	ACRE	\$250,000	104	\$25,924,242
XI. TAX (8.2%)			0	\$16,348,634
			TOTAL	\$307,439,737
Assumptions	Track Miles			

Assumptions:

Track Miles

9.91

\$ 17,968,424 / mile

1 New Track from MP 117.08 to MP 130.75 along a new alignment 2nd Track from MP 123.3 to MP 130.5

7.2 17.11

Colebrook to Brownsville High Speed Track

	UNITS	UNIT COST	QUANTITY	TOTAL
I. EARTHWORK				
1. Embankment	CY	\$20	104450.08	\$2,089,002
2. Excavation	CY	\$10	141250.56	\$1,412,506
3. Rock Excavation	CY	\$50	0	\$0
4. General*	СҮ	\$15	650496	\$9,757,440
II. TRACK				+
1 Track Construction				1
a New Track	TF	\$135	92928	\$12 545 280
h Rehah Track	TF	067 860	0	\$0
2 Turnouts			0	ψŬ
	Fach	\$100.000	0	02
h #11's	Each	\$100,000	0	0
c. #15's	Each	\$135,000	0	0\$
d #20's	Each	\$150,000	0	\$0 \$0
u. #203	Each	\$100,000	1	ېر 170 مم
C. #245	Each	\$170,000	1	000,011¢
1. #335	Eduli	\$300,000	0	¢٤٥٥.000
9. #48 S	Each	\$200,000		\$200,000
3. Crossovers	E h	¢220.000	0	¢0
D. #11S	Each	\$220,000	0	\$0
C. #15'S	Each	\$270,000	0	\$0
d. #20's	Each	\$320,000	0	\$0
f. #33's	Each	\$720,000	0	\$0
4. Bridges				
a. MP 135.10 Couger Creek, 48' RCT	TF	\$8,000	48	\$384,000
b. MP 135.3 24' RCT	TF	\$8,000	24	\$192,000
c. MP 137.41 42' PT	TF	\$8,000	42	\$336,000
d. MP 138.23 90' CTG	TF	\$8,000	90	\$720,000
e. MP 140.31 39' BDPT	TF	\$8,000	39	\$312,000
5. Culvert Crossings				
a. Major Culverts (>36" Diameter)	LF	\$600	60	\$36,000
b. Minor Culverts (<36" Diameter)	LF	\$100	630	\$63,000
6. Other Drainage	LS	\$0	0	\$0
III. ROADWAY		•		
1. Roadway Construction	SY	\$60	0	\$0
2. At-Grade Crossing				
a. MP 131.37 Private Road Crossing				
1. Concrete Crossing Panels Installed	TF	\$500	30	\$15.000
2. Crossing Approaches	SY	\$75	175	\$13,125
h MP 134 95 Private Road Crossing	0.	<i><i>q</i>, <i>o</i></i>		÷:01:20
1 Concrete Crossing Panels Installer	TF	\$500	30	\$15,000
2 Crossing Approaches	SY	\$75	175	\$13,000
C MP 137 03 River Road Grade Crossing	01	φ <i>1</i> σ	170	¢10,120
1 Concrete Crossing Panels Installer	TF	\$500	60	\$30,000
2 Crossing Approaches	SV	\$300	250	\$30,000
d MD 122 04 Dublic Crade Crossing	51	\$75	300	\$20,250
1. Congrete Crossing Danals Installer	тг	¢500	40	¢20.000
Concrete Crossing Parlets Installet	IF	00C¢	00	\$30,000
2. CLOSSING APPLOACHES	5ĭ	\$/5	300	\$26,250
e. IVIP 140.48 Tammery Koad Grade Crossing	те	¢500	(0	#00.000
Concrete Crossing Panels Installec		\$500	6U 250	\$30,000
2. Crossing Approaches	SY	\$/5	350	\$26,250
3. Grade-Separation Crossing			<u> </u>	
a. Bridge	SF	\$100	0	\$0
b. Roadway (earthwork & paving)	SY	\$50	0	\$0
c. Misc. (non-typical per project)	LS	\$1	0	\$0
4. Crossing Signals			ļ	
a. Upgrade Signal - Barrier Gates	Each	\$200,000	3	\$600,000

b. New Signal	Each	\$250,000	2	\$500,000
IV. RR SIGNALS				
a. Per P.O. T.O.	Each	\$250,000	2	\$500,000
b. Per Mile	Mile	\$750,000	17.6	\$13,200,000
V. UTILITY RELOCATION/ADJUSTMENT				
1. Transmission Lines	LS	\$1	0	\$0
2. Fiber Optic Lines	LF	\$95	0	\$0
3. Miscellaneous	LS	\$1,000,000	0	\$0
VI. CONTINGENCIES (30%)	LS		0	\$13,062,668
		CONSTR	UCTION TOTAL	\$56,604,895
VII. ENVIRONMENTAL MITIGATION (20%)	LS		0	\$11,320,979
	CONSTRU	JCTION & MITIGAT	ION SUBTOTAL	\$67,925,874
VIII. ENGINEERING/ADMINISTRATION (7%)	LS		0	\$3,962,343
IX. CONSTRUCTION MANAGEMENT (6%)	LS		0	\$3,396,294
X. RIGHT OF WAY	ACRE	\$250,000	0	\$0
XI. TAX (8.2%)			0	\$4,641,601
			TOTAL	\$79,926,112
Assumptions:	Track Miles		\$ 4,541,256 /	mile
2 New Track from MP 130.75 to MP 139	16.5			
1 New Track from MP 139.0 to MP 140.1	1.1			
	17.6			

Advanced Signal System (Seattle - Blaine)

	UNITS	UNIT COST	QUANTITY	TOTAL
Advanced signal system for high speed track between Seattle and Blaine	LS	\$138,000,000	1	\$138,000,000

An Advanced Signal System that provides at least cab signal indications, and as much as enforcement of compliance with cab signal indications is required by federal regulation for a speed of more than seventynine mph. Several systems are being developed that include elements of positive train separation or positive train control systems, which not only provide cab signal indications but also will control a train to prevent overrunning speed restrictions or movement authority. None of the systems being developed are ready for evaluation for use on the PNWRC.

Advanced Signal System (Blaine - Brownsville)

	UNITS	UNIT COST	QUANTITY	TOTAL
Advanced signal system for high speed track between Blaine - Brownsville	LS	\$60,000,000	1	\$60,000,000

An Advanced Signal System that provides at least cab signal indications, and as much as enforcement of compliance with cab signal indications is required by federal regulation for a speed of more than seventy-nine mph. Several systems are being developed that include elements of positive train separation or positive train control systems, which not only provide cab signal indications but also will control a train to prevent overrunning speed restrictions or movement authority. None of the systems being developed are ready for evaluation for use on the PNWRC.

Felida Crossover

	UNITS	UNIT COST	QUANTITY	TOTAL
2 No. 24 Power				
Crossovers (completed) Final cost	LS	\$2,196,934	1	\$2,196,934

Woodland Crossover

	UNITS	UNIT COST	QUANTITY	TOTAL
2 No. 24 Power Crossovers				
(completed) Final cost	LS	\$2,769,092	1	\$2,769,092

Titlow Crossover

	UNITS	UNIT COST	QUANTITY	TOTAL
2 No. 24 Power Crossovers Preliminary Engineering Estimate furnished by BNSF	LS	\$3,970,000	1	\$3,970,000

Ruston Crossover

	UNITS	UNIT COST	QUANTITY	TOTAL
2 No. 24 Power Crossovers Preliminary Engineering Estimate furnished by BNSF	LS	\$3,500,000	1	\$3,500,000

Sound Transit Phase 1 and 2

	UNITS	UNIT COST	QUANTITY	TOTAL
Estimate and description furnished by BNSF includes the following components:	LS	\$264,000,000	1	\$264,000,000
CTC Tacoma - Seattle Third main track at Tacoma MP 1.6 - Reservation Alignment change and speed increase at Tacoma MP 40 - MP 39.5 Connection to Tacoma Rail at Reservation No. 24 crossover River Road MP 37.8 No. 24 crossover MP 37 No. 24 crossover MP 29.7 No. 24 crossover MP 24 Controlled siding adjacent to Auburn Yard, No 24 switch access to both ends of Auburn Yard-No 20 turnouts No. 24 crossover MP 21 No. 24 crossover MP 17 Controlled siding MP 15.8 - MP 11.4 Crossover between Main 2 and siding MP 13.2 Third Main Track Tukwila - Seattle including extensive rearrangement of main tracks and yard tracks to separate freight car storage and switching from through operation. Changes to Tukwila, Black River, and Argo interlockings to allow higher speed No. 24 crossover MP 2.2 Alignment change between MP 1.2 and MP 0.3 King Street Station: rehab all tracks, construct one new track, changes in turnout arrangement at both ends of station to facilitate passenger train movements, power switches both ends of station				

Vancouver Rail Project

		UNITS	U	NIT COST	QUANTITY		TOTAL
Ι.	EARTHWORK						
	1. Embankment	CY	\$	20	25,000	\$	500,000
	2. Excavation	CY	\$	10	786,000	\$	7,860,000
	3. Rock Excavation	CY	\$	50	0	\$	-
II.	TRACK						
	1. Track Construction						
	a. New Track	TF	\$	135	41,420	\$	5,591,700
	b. Rehab Track	TF	\$	60	6,375	\$	382,500
	c. Yard Track	TF	\$	83	2,465	\$	204.595
	2. Track and Turnout Removal/Relocation						
	a. Relocate turnout	EA	\$	17,325	1	\$	17,325
	b. Remove track	TF	\$	8	5.445	\$	43,560
	c. Remove turnout	FA	\$	11.025	17	\$	187,425
	3. Turnouts		Ť				,
	a. #9's	FA	\$	100.000	1	\$	100.000
	b #11's	FA	\$	110,000	12	\$	1,320,000
	c #15's	FA	\$	135 000	2	\$	270,000
	d #20's	FA	\$	160,000	0	\$	-
	e #24's	FA	\$	170,000	3	\$	510 000
	4 Crossovers	En	Ŷ	170,000		Ŷ	010,000
	a #0's	FΔ	\$	200.000	0	\$	
	h #11's	FΔ	\$	200,000	5	\$	1 100 000
	D. #115	EA	\$	220,000	J 4	¢ 2	1,100,000
	d #20'c	EA	¢	270,000	4	¢ \$	1,060,000
	0. #20S	EA	\$	320,000	2	¢ \$	1 240 000
	e. #24S	EA	\$	340,000	4	\$	1,360,000
	5. Bridges		_				
	a. New Bridge		_				
	6. CUIVER Crossings	1.5	¢	(00	0	¢	
	a. Major Culverts	LF	\$	600	0	\$	-
	b. Minor Culverts	LF	\$	100	0	\$	-
	7. Other Drainage	LS			01.1.15		0 / 54 505
	8. Retaining Walls	SF	\$	45	81,145	\$	3,651,525
III.	ROADWAY				1	T	
	1. Roadway Construction	SY	\$	60	0	\$	-
	2. At-Grade Crossing				-		
	a. Track Crossing	١F	\$	500	0	\$	-
	b. Crossing Approaches	SY	\$	75	0	\$	-
	3. Grade-Separation Crossing						
	a. Bridge	SF	\$	120	28,800	\$	3,456,000
	b. Roadway (earthwork & paving)	SY	\$	50	6,570	\$	328,500
	c. MSE wall	SF	\$	20	22,600	\$	452,000
	d. Embankment (fill)	CY	\$	20	19,500	\$	390,000
	4. Crossing Signals						
	a. Upgrade Signal - Barrier Gates	EA	\$	200,000	0	\$	-
	b. New Signal	EA	\$	250,000	0	\$	-
IV.	RR SIGNALS						
	a. Per P.O. T.O.	EA	\$	250,000	25	\$	6,250,000
	b. Per Mile	MI	\$	750,000	10	\$	7,500,000
V.	UTILITY RELOCATION/ADJUSTMENT	•	•			•	
	1. Transmission Lines	LS	\$	1	0	\$	-
	2. Fiber Optic Lines	LF	\$	95	0	\$	-
	3. Miscellaneous	LS	\$	1	0	\$	500 000
VI	CONTINGENCIES (30%)	1 19	*		5	\$	13 108 520
VI.		LJ				φ	13,100,339
				CONSTR	JCTION TOTAL	\$	56,803,669
VII.	ENVIRONMENTAL MITIGATION (10%)	LS				\$	5,680,367
		CONSTR			ON SURTOTAL	\$	62 484 034
VIII	ENGINEERING/ADMINISTRATION (7%)		1		SH SOBIOTAL	\$	3 076 257
		19				\$	3,770,237
IA. V		L3 ACDE	¢	50.000	24	\$	1 200 000
×.		AURE	¢	50,000	24	\$	5 720 210
۸I.	TAA (0.270)				TOTAL	Ŷ	3,729,218
					TOTAL	\$	/6.797.731

Note: This information was developed in the preliminary engineering process. Unit costs and quantity count method shown may vary from those in the conceptual estimates for other projects.

Kelso to Martin's Bluff Rail Project

	UNITS	υ	NIT COST	QUANTITY		TOTAL
I. SITE WORK				L		
1. Embankment	CY	\$	20	1,301,736	\$	26,034,720
2. Common Excavation	CY	\$	10	971,969	\$	9,719,690
3. Rock Excavation	CY	\$	50	232,439	\$	11,621,950
4. Clear & Grub	AC	\$	4,000	228	\$	912,000
5. Seeding	AC	\$	2,000	114	\$	228,000
6. Place Topsoil	CY	\$	10	60,693	\$	606,930
7. Subballast	CY	\$	25	282,962	\$	7,074,050
8. Erosion Controls	LS	\$	1,000,000	1	\$	1,000,000
II. TRACK		-				
1. Track Construction						
a. New Track	TF	\$	135	120,647	\$	16,287,345
b. Rehab Track	TF	\$	60	2,047	\$	122,820
c. Yard Track	TF	\$	83	119,412	\$	9,911,196
d. Lineover Track	TF	\$	15	87,336	\$	1,310,033
2. Track and T.O. Removal/Relocation						
a. Remove turnout	EA	\$	11,025	37	\$	407,925
b. Remove track	TF	\$	8	4,312	\$	34,496
3. Turnouts						
a. #9's	EA	\$	100,000	22	\$	2,200,000
b. #11's	EA	\$	110,000	48	\$	5,280,000
c. #15's	EA	\$	135,000	9	\$	1,215,000
d. #20's	EA	\$	160,000	41	\$	6,560,000
e. #24's	EA	\$	170,000	13	\$	2,210,000
5. Bridges	F A		0.005.000		^	0.005.000
a. Coweeman River Bridge	EA	\$	2,305,000	1	\$	2,305,000
D. MP 101.63	EA	\$	288,000	1	\$	288,000
C. UWI Creek Bridge	EA	\$	840,000	1	\$	840,000
D. Kalama River Bridge	EA	\$	9,504,000		\$	9,504,000
6. Cuiven Crossings	1.5	¢	400	247	¢	140 200
a. Major Culverts		¢ \$	100	247	¢	148,200
D. Millior Cuiverts	LF	¢ \$	F 000 000	091	¢	5 000 000
7. Outer Drainage 8. Dotaining Walls CID	LS SE	\$	3,000,000	221.075	ф Ф	1/ 202 252
0. Relating Walls CIF 0. Soldior Dilo Dotaining Walls	SE	\$	40	127 /50	ф Ф	12 202 250
	JI	φ	105	127,430	φ	13,302,230
1. Roadway Construction	SV	2	60	10 784	\$	647.040
2 At-Grade Crossing	51	Ψ	00	10,704	Ψ	047,040
a Track Crossing	TF	\$	500	390	\$	195 000
b. Crossing Approaches	SY	\$	75	225	\$	16,875
3 Crossing Signals	01	*			*	10,070
a. Upgrade Signal - Barrier Gates	EA	\$	200.000	4	\$	800.000
4. Overhead Bridges						
a. Kalama River Road	LS	\$	5,000,000	1	\$	5,000,000
b. Oak Street Bridge	LS	\$	5,000,000	1	\$	5,000,000
c. Pedestrian Bridge	LS	\$	2,500,000	1	\$	2,500,000
IV. RR SIGNALS				L		
a. Control Points	LS	\$	16,115,605	1	\$	16,115,605
b. Per Mile	MI	\$	250,000	28	\$	7,070,000
V. UTILITY RELOCATION/ADJUSTMENT						
1. Miscellaneous Relocations	LS	\$	10,918,445	1	\$	10,918,445
VI. CONTINGENCIES (30%)	LS			•	\$	59,236,207
			CONSTRUCT	TION SUBTOTAL	\$	256,690,229
VII. ENVIRONMENTAL MITIGATION (20%)	LS				\$	51,338,046
WETLAND COMPENSATION	AC	\$	55,000	317	\$	17,460,300
	CONST	RUC	FION & MITIGAT	TION SUBTOTAL	\$	325,488,574
VIII. ENGINEERING/ADMINISTRATION (7%)	LS				\$	17,968,316
XI. CONSTRUCTION MANAGEMENT (6%)	LS				\$	15,401,414
VII. RIGHT OR WAY ACQUISITION	AC	\$	250,000	60	\$	15,000,000
XII. TAX (8.2%)	LS				\$	21,048,599
				TOTAL	\$	394.906.903

Leary Crossover

L. EARTHWORK 1. Embankment CY \$20 252.000 \$52.000 2. Excavation CY \$10 2600 \$52.000 3. Rock Excavation CY \$10 2600 \$52.000 3. Rock Excavation CY \$10 2600 \$52.000 1. Track Construction I I Incomposition \$10 \$10 \$100 \$10 \$10 \$10 \$100 \$10 \$100 \$11 \$10 \$10		UNITS	UNIT COST	QUANTITY	TOTAL
1. Embankment CY \$20 2600 \$52,000 2. Excavation CY \$10 2600 \$52,000 3. Rock Excavation CY \$50 0 \$50 1. Track Construction	I. EARTHWORK				
2. Excavation CY \$10 2600 \$26,000 3. Rock Excavation CY \$50 0 \$00 1. Track Construction Image: CY \$50 0 \$00 a. New Track TF \$135 0 \$00 a. New Track TF \$100,000 0 \$00 a. New Track TF \$60 0 \$00 a. New Track TF \$60 0 \$00 a. New Track TF \$100,000 0 \$00 c. ATTROUG Each \$100,000 0 \$00 c. #15's Each \$150,000 0 \$00 d. #20's Each \$220,000 0 \$00 c. #15's Each \$220,000 0 \$30 c. #15's Each \$320,000 1 \$340,000 d. #20's Each \$320,000 1 \$340,000 d. #20's Each \$320,000 1 \$340,000	1. Embankment	CY	\$20	2600	\$52,000
3. Rock Excavation CY \$50 0 \$50 II. TRACK TF \$135 0 \$50 I. Track Construction TF \$135 0 \$50 D. Rehab Track TF \$560 0 \$50 D. Rehab Track TF \$50 0 \$50 D. Rehab Track TF \$50 0 \$50 D. Rehab Track TF \$50 0 \$50 D. #11's Each \$110,000 0 \$50 c. #15's Each \$160,000 0 \$50 d. #20's Each \$120,000 0 \$50 J. #11's Each \$220,000 0 \$50 d. #11's <the< td=""><td>2. Excavation</td><td>CY</td><td>\$10</td><td>2600</td><td>\$26,000</td></the<>	2. Excavation	CY	\$10	2600	\$26,000
II. TRACK I. Track Construction I. Track TF \$133 0 \$00 a. New Track TF \$133 0 \$00 2. Turnouts	3. Rock Excavation	CY	\$50	0	\$0
1. Track Construction TF \$135 0 \$50 a. New Track TF \$135 0 \$50 b. Rehab Track TF \$60 0 \$50 a. #9'S Each \$100,000 0 \$50 b. #11'S Each \$110,000 0 \$50 c. #15'S Each \$135,000 0 \$50 d. #20'S Each \$136,000 0 \$50 d. #20'S Each \$360,000 0 \$50 d. #20'S Each \$220,000 0 \$50 d. #11'S Each \$220,000 0 \$50 d. #20'S Each \$220,000 0 \$50 d. #20'S Each \$320,000 0 \$50 d. #20'S Each \$320,000 0 \$50 d. #24'S Each \$340,000 1 \$340,000 a. Bit Main Street Grade Crossing	II. TRACK				
a. New Track TF \$135 0 \$00 b. Rehab Track TF \$60 0 \$00 2. Turnouts	1. Track Construction				
b. Rehab Track TF \$60 0 \$0 2. Turnouts	a. New Track	TF	\$135	0	\$0
2. Turnouts a.#9's Each \$100,000 0 \$00 b.#11's Each \$110,000 0 \$00 c.#15's Each \$1135,000 0 \$00 d.#20's Each \$140,000 0 \$50 f.#33's Each \$160,000 0 \$50 f.#33's Each \$360,000 0 \$50 c.#15's Each \$220,000 0 \$50 c.#15's Each \$220,000 0 \$50 c.#15's Each \$220,000 0 \$50 c.#15's Each \$320,000 0 \$50 c.#15's Each \$320,000 0 \$50 c.#15's Each \$340,000 1 \$340,000 d.#Bridges	b. Rehab Track	TF	\$60	0	\$0
a. #9's Each \$100,000 0 \$0 b. #11's Each \$110,000 0 \$0 c. #15's Each \$135,000 0 \$0 d. #20's Each \$135,000 0 \$0 f. #33's Each \$136,000 0 \$0 g. Crossovers	2. Turnouts				
b. #11's Each \$110,000 0 \$30 c. #15'S Each \$135,000 0 \$30 d. #20'S Each \$360,000 0 \$50 f. #33'S Each \$360,000 0 \$50 g. Crossovers - - - - b. #11'S Each \$220,000 0 \$50 c. #15'S Each \$220,000 0 \$50 d. #20'S Each \$320,000 0 \$50 d. #20'S Each \$320,000 0 \$340,000 d. Bridges - - - - a. TF \$8,000 0 \$30 b. fulles - - - - a. TF \$8,000 0 \$30 d. Other Drainage LS \$0 0 \$0 z. ALGrade Crossing - - - - a. MP 58.01 Main Street Grade Crossing - <	a. #9's	Each	\$100,000	0	\$0
c. #15s Each \$135,000 0 \$30 d. #20's Each \$160,000 0 \$30 f. #3s's Each \$360,000 0 \$30 g. Crossovers	b. #11's	Each	\$110,000	0	\$0
d. #20's Each \$160,000 0 \$30 f. #33's Each \$360,000 0 \$50 g. Crossovers	c. #15's	Each	\$135,000	0	\$0
f. #33's Each \$360,000 0 \$0 3. Crossovers	d. #20's	Each	\$160,000	0	\$0
3. Crossovers	f. #33's	Each	\$360,000	0	\$0
b. #11's Each \$220,000 0 \$0 c. #15's Each \$270,000 0 \$0 d. #20's Each \$320,000 0 \$0 e. #24's Each \$320,000 0 \$0 4. Bridges	3. Crossovers				
c. #15's Each \$270,000 0 \$0 d. #20's Each \$320,000 0 \$0 e. #24's Each \$340,000 1 \$\$340,000 4. Bridges - - - a. TF \$8,000 0 \$00 5. Culvert Crossings - - - - 6. Other Drainage LS \$0 0 \$00 1. Roadway Construction SY \$60 0 \$00 2. At-Grade Crossing - - - - 1. Concrete Crossing Panels Installed TF \$500 0 \$00 2. Crossing Approaches SY \$75 0 \$00 2. Crossing Signals - - - - 1V. RR SIGNALS - - - - a. Per P.O. T.O. Each \$250,000 2 \$500,000 b. Per Mile Mile \$750,000 0 \$00 VI. CONTINGENCI	b. #11's	Each	\$220,000	0	\$0
d. #20's Each \$320,000 0 \$0 e. #24's Each \$340,000 1 \$340,000 4. Bridges - - - - a. TF \$8,000 0 \$0 5. Culvert Crossings - - - - 6. Other Drainage LS \$0 0 \$0 7. Roadway Construction SY \$60 0 \$0 2. At-Grade Crossing - - - - 1. Roadway Construction SY \$60 0 \$0 2. At-Grade Crossing - - - - 1. Concrete Crossing Panels Installed TF \$500 0 \$0 2. Crossing Signals - - - - - a. Per P.O. T.O. Each \$250,000 2 \$500,000 b. Per Mile Mile \$750,000 0 \$0 VI. CONTINGENCIES (30%) LS 30% \$275,400	c. #15's	Each	\$270,000	0	\$0
e. #24's Each \$340,000 1 \$340,000 4. Bridges TF \$8,000 0 \$50 a. TF \$8,000 0 \$50 5. Culvert Crossings 6. Other Drainage LS \$0 0 \$00 11. ROADWAY 1. Roadway Construction SY \$60 0 \$00 \$00 2. At-Grade Crossing 1. Concrete Crossing Panels Installed TF \$500 0 \$00 \$00 2. Crossing Approaches SY \$75 0 \$0	d. #20's	Each	\$320,000	0	\$0
4. Bridges TF \$8,000 0 \$00 a. TF \$8,000 0 \$00 5. Culvert Crossings LS \$00 0 \$00 6. Other Drainage LS \$00 0 \$00 1. Roadway Construction SY \$60 0 \$00 2. At-Grade Crossing	e. #24's	Each	\$340,000	1	\$340,000
a. TF \$8,000 0 \$0 <i>5. Culvert Crossings</i> LS \$0 0 \$0 <i>6. Other Drainage</i> LS \$0 0 \$0 <i>I. Roadway Construction</i> SY \$60 0 \$0 <i>1. Roadway Construction</i> SY \$60 0 \$0 <i>a. MP 58.01 Main Street Grade Crossing</i>	4. Bridges				
5. Culvert Crossings LS \$0 0 \$0 6. Other Drainage LS \$0 0 \$0 1. ROADWAY	а.	TF	\$8,000	0	\$0
6. Other Drainage LS \$0 0 \$0 III. ROADWAY	5. Culvert Crossings				
III. ROADWAY 1. Roadway Construction SY \$60 0 \$00 2. At-Grade Crossing	6. Other Drainage	LS	\$0	0	\$0
1. Roadway Construction SY \$60 0 \$0 2. At-Grade Crossing	III. ROADWAY				
2. At-Grade Crossing	1. Roadway Construction	SY	\$60	0	\$0
a. MP 58.01 Main Street Grade Crossing TF \$500 0 \$00 1. Concrete Crossing Panels Installed TF \$500 0 \$00 2. Crossing Approaches SY \$75 0 \$00 4. Crossing Signals	2. At-Grade Crossing				
1. Concrete Crossing Panels Installed TF \$500 0 \$0 2. Crossing Approaches SY \$75 0 \$0 4. Crossing Signals	a. MP 58.01 Main Street Grade Crossing				
2. Crossing Approaches SY \$75 0 \$0 4. Crossing Signals	1. Concrete Crossing Panels Installed	TF	\$500	0	\$0
4. Crossing Signals Image: Construction of the system of the	2. Crossing Approaches	SY	\$75	0	\$0
IV. RR SIGNALS a. Per P.O. T.O. Each \$250,000 2 \$500,000 b. Per Mile Mile \$750,000 0 \$0 V. UTILITY RELOCATION/ADJUSTMENT CONSTRUCTION TOTAL \$1,193,400 VI. CONTINGENCIES (30%) LS 30% \$275,400 VI. CONTINGENCIES (30%) LS 30% \$275,400 VII. ENVIRONMENTAL MITIGATION (20%) LS 20% \$238,680 CONSTRUCTION & MITIGATION SUBTOTAL \$1,432,080 VIII. ENGINEERING/ADMINISTRATION (7%) LS 7% \$83,538 IX. CONSTRUCTION MANAGEMENT (6%) LS 6% \$71,604 X. RIGHT OF WAY ACRE \$250,000 0 \$0 XI. TAX (8.2%) ACRE \$250,000 0 \$0	4. Crossing Signals				
a. Per P.O. T.O. Each \$250,000 2 \$500,000 b. Per Mile Mile \$750,000 0 \$00 V. UTILITY RELOCATION/ADJUSTMENT VI. CONTINGENCIES (30%) LS 30% \$275,400 VI. CONTINGENCIES (30%) LS 30% \$275,400 \$1,193,400 VII. ENVIRONMENTAL MITIGATION (20%) LS 20% \$238,680 VIII. ENVIRONMENTAL MITIGATION (20%) LS 20% \$238,680 VIII. ENVIRONMENTAL MITIGATION (20%) LS 20% \$238,680 VIII. ENGINEERING/ADMINISTRATION (7%) LS 7% \$83,538 IX. CONSTRUCTION MANAGEMENT (6%) LS 6% \$71,604 X. RIGHT OF WAY ACRE \$250,000 0 \$0 XI. TAX (8.2%) 82.2% \$97,859	IV. RR SIGNALS				
b. Per Mile Mile \$750,000 0 \$0 V. UTILITY RELOCATION/ADJUSTMENT 30% \$275,400 VI. CONTINGENCIES (30%) LS 30% \$275,400 VII. ENVIRONMENTAL MITIGATION (20%) LS 20% \$238,680 VII. ENVIRONMENTAL MITIGATION (20%) LS 20% \$238,680 VIII. ENVIRONMENTAL MITIGATION (20%) LS 20% \$238,680 VIII. ENGINEERING/ADMINISTRATION (7%) LS 7% \$833,538 IX. CONSTRUCTION MANAGEMENT (6%) LS 6% \$71,604 X. RIGHT OF WAY ACRE \$250,000 0 \$0 XI. TAX (8.2%) 8.2% \$97,859 \$14,405,001	a. Per P.O. T.O.	Each	\$250,000	2	\$500,000
V. UTILITY RELOCATION/ADJUSTMENT VI. CONTINGENCIES (30%) LS 30% \$275,400 CONSTRUCTION TOTAL \$1,193,400 VII. ENVIRONMENTAL MITIGATION (20%) LS 20% \$238,680 VII. ENVIRONMENTAL MITIGATION (20%) LS 20% \$238,680 VIII. ENVIRONMENTAL MITIGATION (20%) LS 20% \$82,860 VIII. ENVIRONMENTAL MITIGATION (70%) LS 7% \$83,538 VIII. ENGINEERING/ADMINISTRATION (7%) LS 7% \$83,538 IX. CONSTRUCTION MANAGEMENT (6%) LS 6% \$71,604 X. RIGHT OF WAY ACRE \$250,000 0 \$0 XI. TAX (8.2%) 8.2% \$97,859	b. Per Mile	Mile	\$750,000	0	\$0
VI. CONTINGENCIES (30%) LS 30% \$275,400 CONSTRUCTION TOTAL \$1,193,400 \$1,193,400 \$1,193,400 \$1,193,400 \$1,20% \$238,680 \$238,680 \$1,432,080	V. UTILITY RELOCATION/ADJUSTMENT				
CONSTRUCTION TOTAL \$1,193,400 VII. ENVIRONMENTAL MITIGATION (20%) LS 20% \$238,680 CONSTRUCTION & MITIGATION SUBTOTAL \$1,432,080 VIII. ENGINEERING/ADMINISTRATION (7%) LS 7% \$83,538 IX. CONSTRUCTION MANAGEMENT (6%) LS 6% \$71,604 X. RIGHT OF WAY ACRE \$250,000 0 \$0 XI. TAX (8.2%) TOTAL \$1,495,091 \$14,05,091	VI. CONTINGENCIES (30%)	LS		30%	\$275,400
VII. ENVIRONMENTAL MITIGATION (20%) LS 20% \$238,680 CONSTRUCTION & MITIGATION SUBTOTAL \$1,432,080 VIII. ENGINEERING/ADMINISTRATION (7%) LS 7% \$83,538 IX. CONSTRUCTION MANAGEMENT (6%) LS 6% \$71,604 X. RIGHT OF WAY ACRE \$250,000 0 \$0 XI. TAX (8.2%) TOTAL \$14,495,091 \$14,495,091			CONSTR	UCTION TOTAL	\$1,193,400
CONSTRUCTION & MITIGATION SUBTOTAL \$1,432,080 VIII. ENGINEERING/ADMINISTRATION (7%) LS 7% \$83,538 IX. CONSTRUCTION MANAGEMENT (6%) LS 6% \$71,604 X. RIGHT OF WAY ACRE \$250,000 0 \$0 XI. TAX (8.2%) TOTAL \$14,495,091	VII. ENVIRONMENTAL MITIGATION (20%)	LS		20%	\$238,680
VIII. ENGINEERING/ADMINISTRATION (7%) LS 7% \$83,538 IX. CONSTRUCTION MANAGEMENT (6%) LS 6% \$71,604 X. RIGHT OF WAY ACRE \$250,000 0 \$0 XI. TAX (8.2%) TOTAL \$14,605,001 \$14,605,001		CONSTR	UCTION & MITIGAT	ON SUBTOTAL	\$1 432 080
IX. CONSTRUCTION MANAGEMENT (6%) LS 6% \$71,604 X. RIGHT OF WAY ACRE \$250,000 0 \$0 XI. TAX (8.2%) Example \$14,05,001 \$14,05,001 \$14,05,001	VIII ENGINEERING/ADMINISTRATION (7%)	15		7%	\$83 538
X. RIGHT OF WAY ACRE \$250,000 0 \$00 XI. TAX (8.2%) TOTAL \$14,050,000 1	IX CONSTRUCTION MANAGEMENT (6%)	15		6%	\$71.604
XI. TAX (8.2%) 8.2% \$97,859 TOTAL \$1,405,001 \$1,405,001	X RIGHT OF WAY	ACRE	\$250,000	0,0	0\$
	XI, TAX (8.2%)	HORE	\$200,000	8.2%	\$97 859
				ΤΟΤΛΙ	¢1 695 001

Pattison Crossover

		UNITS	UNIT COST	QUANTITY	TOTAL		
I. EARTHWOR	К		-	-	-		
1. Embankme	ent	CY	\$20	2600	\$52,000		
2. Excavation		CY	\$10	2600	\$26,000		
3. Rock Exca	vation	СҮ	\$50	0	\$0		
II. TRACK							
1. Track Cons	struction						
a. New Trac	ck	TF	\$135	0	\$0		
b. Rehab T	rack	TF	\$60	0	\$0		
2. Turnouts							
a. #9's		Each	\$100,000	0	\$0		
b. #11's		Each	\$110,000	0	\$0		
c. #15's		Each	\$135,000	0	\$0		
d. #20's		Each	\$160,000	0	\$0		
f. #33's		Each	\$360,000	0	\$0		
3. Crossovers	3						
b. #11's		Each	\$220,000	0	\$0		
c. #15's		Each	\$270,000	0	\$0		
d. #20's		Each	\$320,000	0	\$0		
e. #24's		Each	\$340,000	1	\$340,000		
4. Bridges							
а.		TF	\$8,000	0	\$0		
5. Culvert Cro	ossings						
6. Other Drain	nage	LS	\$0	0	\$0		
III. ROADWAY							
1. Roadway	Construction	SY	\$60	0	\$0		
2. At-Grade	Crossing						
a. MP 58.01	I Main Street Grade Crossing						
1. Concre	te Crossing Panels Installed	TF	\$500	0	\$0		
2. Crossir	ng Approaches	SY	\$75	0	\$0		
4. Crossing	Signals						
IV. RR SIGNALS					_		
a. Per P.O.	Т.О.	Each	\$250,000	2	\$500,000		
b. Per Mile		Mile	\$750,000	0	\$0		
V. UTILITY REL	OCATION/ADJUSTMENT		-				
VI. CONTINGEN	CIES (30%)	LS		30%	\$275,400		
VII. ENVIRONME	NTAL MITIGATION (20%)	LS		20%	\$238.680		
		CONSTR			\$1 /32 080		
				70/	φ1,432,000 ¢Q2 ⊑20		
				60/	\$03,550		
			\$250,000	0 /0	\$71,004 \$0		
		AURL	φ230,000	8.2%	ΦU \$07.850		
AI. TAA (0.2 %)					\$77,007 \$1.605,001		
				TUTAL	31,000,000		

Winlock Crossover

_		UNITS	UNIT COST	QUANTITY	TOTAL
Ι.	EARTHWORK				
	1. Embankment	CY	\$20	5200	\$104,000
	2. Excavation	CY	\$10	5200	\$52,000
	3. Rock Excavation	CY	\$50	0	\$0
II.	TRACK				
	1. Track Construction				
	a. New Track	TF	\$135	0	\$0
	b. Rehab Track	TF	\$60	0	\$0
	2. Turnouts				
	a. #9's	Each	\$100,000	0	\$0
	b. #11's	Each	\$110,000	0	\$0
	c. #15's	Each	\$135,000	0	\$0
	d. #20's	Each	\$160,000	0	\$0
	f. #33's	Each	\$360,000	0	\$0
	3. Crossovers				
	b. #11's	Each	\$220,000	0	\$0
	c. #15's	Each	\$270,000	0	\$0
	d. #20's	Each	\$320,000	0	\$0
	e. #24's	Each	\$340,000	2	\$680,000
	4. Bridges				
	a.	TF	\$8,000	0	\$0
	5. Culvert Crossings				
	6. Other Drainage	LS	\$0	0	\$0
III.	ROADWAY				
	1. Roadway Construction	SY	\$60	0	\$0
	2. At-Grade Crossing				
	a. MP 58.01 Main Street Grade Crossing				
	1. Concrete Crossing Panels Installed	TF	\$500	0	\$0
	2. Crossing Approaches	SY	\$75	0	\$0
	4. Crossing Signals				
IV.	RR SIGNALS				
	a. Per P.O. T.O.	Each	\$250,000	4	\$1,000,000
	b. Per Mile	Mile	\$750,000	0	\$0
V.	UTILITY RELOCATION/ADJUSTMENT				
VI.	CONTINGENCIES (30%)	LS		30%	\$550,800
			CONSTR	UCTION TOTAL	\$2,386,800
VII.	ENVIRONMENTAL MITIGATION (20%)	LS		20%	\$477,360
		CONSTR			\$2,864,160
VIII	ENGINEERING/ADMINISTRATION (7%)			7%	\$167,076
IX				6%	\$1/12 202
іЛ. У		ACRE	\$250,000	0	¢143,200 ¢0
X. VI		AUIL	φ230,000	8.2%	پ0 \$105 71Ω
ΛI.					φ190,/10 ¢2.270.1/2
				TOTAL	\$3,370,162

Tenino Crossover

I. EARTHWORK I. Embankment CY \$20 \$200 \$104,000 2. Excavation CY \$10 \$200 \$52,000 3. Rock Excavation CY \$50 0 \$50 1. Track Construction CY \$50 0 \$50 a. New Track TF \$135 0 \$50 b. Rehab Track TF \$136 0 \$50 a. RPS Each \$100,000 0 \$50 c. #15s Each \$135,000 0 \$50 d. #20's Each \$135,000 0 \$50 d. #20's Each \$136,000 0 \$50 d. #20's Each \$140,000 0 \$50 d. #20's Each \$140,000 0 \$50 d. #20's Each \$120,000 0 \$50 d. #20's Each \$220,000 \$50 \$60,000 d. #20's Each \$340,000 \$50			UNITS	UNIT COST	QUANTITY	TOTAL
1. Embankment CY \$20 \$200 \$140,000 2. Excavation CY \$10 \$500 \$\$2,000 3. Rock Excavation CY \$50 0 \$\$0 1. Track Construction	I.	EARTHWORK				-
2 Excavation CY \$10 5200 \$52,000 3. Rack Excavation CY \$50 0 \$50 1. TRack Construction		1. Embankment	CY	\$20	5200	\$104,000
3. Rock Excavation CY \$50 0 \$50 II. TRACK ITRACK ITRACK ITF \$135 0 \$50 I. Track Construction ITF \$135 0 \$50 \$50 I. Rehab Track ITF \$100,000 0 \$50 2. Turnouts Iterack ITF \$60 0 \$50 a. #9's Each \$1100,000 0 \$50 b. #11's Each \$110,000 0 \$50 c. #15's Each \$160,000 0 \$50 d. #20's Each \$360,000 0 \$50 d. #33's Each \$270,000 0 \$50 d. #20's Each \$320,000 0 \$50 d. #20's Each \$320,000 2 \$680,000 d. #20's Each \$340,000 2 \$680,000 d. #20's Each \$340,000 \$0 \$0 d. Part Crossings Iterach		2. Excavation	CY	\$10	5200	\$52,000
II. TRACK 1. Track Construction IF \$135 0 \$50 b. Rehab Track TF \$60 0 \$50 2. Turnouts IF \$60 0 \$50 a. #9'S Each \$100,000 0 \$50 b. #11'S Each \$110,000 0 \$50 c. #15'S Each \$135,000 0 \$50 d. #20'S Each \$135,000 0 \$50 d. #20'S Each \$360,000 0 \$50 d. #20'S Each \$220,000 0 \$50 c. #15'S Each \$220,000 0 \$50 c. #15'S Each \$220,000 0 \$50 c. #15'S Each \$220,000 0 \$50 d. #20'S Each \$320,000 0 \$50 e. #24'S Each \$340,000 2 \$660,000 d. #16ges - - - -		3. Rock Excavation	CY	\$50	0	\$0
1. Track Construction IF \$135 0 \$0 a. New Track TF \$135 0 \$0 2. Turmouts F \$60 0 \$0 a. #9's Each \$100,000 0 \$0 c. #15's Each \$110,000 0 \$0 c. #15's Each \$135,000 0 \$0 d. #20's Each \$160,000 0 \$0 d. #20's Each \$220,000 0 \$0 d. #3's Each \$220,000 0 \$0 d. #20's Each \$220,000 0 \$0 d. #20's Each \$220,000 0 \$0 e. #24's Each \$220,000 0 \$0 d. #20's Each \$340,000 2 \$680,000 d. #24's Each \$340,000 \$0 \$0 f. Other Drainage LS \$0 0 \$0 f. Roadway Construction	II .	TRACK				
a. New Track TF \$135 0 \$00 b. Rehab Track TF \$60 0 \$00 2. Turnouts		1. Track Construction				
b. Rehab Track TF \$60 0 \$0 2. Turnouts		a. New Track	TF	\$135	0	\$0
2. Turnouts Each \$100,000 0 \$00 a. #9's Each \$110,000 0 \$00 b. #11's Each \$113,000 0 \$00 c. #15's Each \$135,000 0 \$00 d. #20's Each \$136,000 0 \$00 d. #20's Each \$360,000 0 \$00 d. #20's Each \$220,000 0 \$00 c. #15's Each \$220,000 0 \$00 d. #20's Each \$220,000 0 \$00 d. #24's Each \$220,000 0 \$00 f. Bridges - - - - a. TF \$8,000 0 \$00 f. Orber Drainage LS		b. Rehab Track	TF	\$60	0	\$0
a. #9's Each \$100,000 0 \$00 b. #11's Each \$110,000 0 \$00 c. #15's Each \$135,000 0 \$00 d. #20's Each \$160,000 0 \$00 f. #33's Each \$360,000 0 \$00 g. #73's Each \$220,000 0 \$00 g. #24's Each \$220,000 0 \$00 g. #24's Each \$220,000 0 \$00 g. #24's Each \$320,000 0 \$00 g. #24's Each \$320,000 0 \$00 g. #24's Each \$320,000 0 \$00 g. Cutvert Crossings - - - - g. Each \$340,000 2 \$660,000 g. Weights Each \$340,000 \$00 \$00 g. Cutvert Crossings - - - - g. Construction		2. Turnouts				
b. #11's Each \$110,000 0 \$00 c. #15's Each \$135,000 0 \$00 d. #20's Each \$140,000 0 \$00 f. #33's Each \$360,000 0 \$00 g. #33's Each \$360,000 0 \$00 g. #33's Each \$320,000 0 \$00 g. #11's Each \$220,000 0 \$00 g. #15's Each \$320,000 0 \$00 g. #24's Each \$320,000 0 \$00 g. #24's Each \$320,000 0 \$00 g. #1dges - - - - a. TF \$8,000 0 \$00 g. Culvert Crossings - - - - g. Other Drainage LS \$0 0 \$00 g. Art-Grade Crossing - - - - g. a. MP 58.01 Main Street Grade Crossing		a. #9's	Each	\$100,000	0	\$0
C. #15's Each \$135,000 0 \$00 d. #20's Each \$160,000 0 \$00 f. #33's Each \$360,000 0 \$00 3. Crossovers		b. #11's	Each	\$110,000	0	\$0
d. #20's Each \$160,000 0 \$00 f. #33's Each \$3000 0 \$00 g. Crossovers		c. #15's	Each	\$135,000	0	\$0
f. #33's Each \$360,000 0 \$0 J. Crossovers		d. #20's	Each	\$160,000	0	\$0
3. Crossovers Each \$220,000 0 \$\$0 b. #11's Each \$220,000 0 \$\$0 c. #15's Each \$220,000 0 \$\$0 c. #15's Each \$220,000 0 \$\$0 d. #20's Each \$320,000 0 \$\$0 e. #24's Each \$340,000 2 \$\$680,000 d. Bridges - - - - a. TF \$\$8,000 0 \$\$0 a. IF \$\$8,000 0 \$\$0 a. Other Drainage LS \$\$0 0 \$\$0 I. Roadway Construction SY \$\$60 0 \$\$0 2. At-Grade Crossing - - - - a. MP 58.01 Main Street Grade Crossing - - - - 1. Concrete Crossing Panels Installed TF \$\$500 0 \$\$0 2. Crossing Approaches SY \$\$75 0 \$\$0 \$\$0		f. #33's	Each	\$360,000	0	\$0
b. #11's Each \$220,000 0 \$00 c. #15's Each \$270,000 0 \$00 d. #20's Each \$320,000 0 \$00 e. #24's Each \$320,000 0 \$00 4. Bridges - - - - a. TF \$8,000 0 \$00 5. Culvert Crossings - - - - 6. Other Drainage LS \$0 0 \$00 1. Roadway Construction SY \$60 0 \$00 2. Al-Grade Crossing - - - - 1. Concrete Crossing Panels Installed TF \$500 0 \$00 2. Crossing Approaches SY \$75 0 \$00 4. Per P.O. T.O. Each \$250,000 4 \$1,000,000 b. Per Mile Mile \$750,000 0 \$00 VI. CONTINGENCIES (30%) LS 30% \$550,800 <		3. Crossovers				
c. #15's Each \$270,000 0 \$0 d. #20's Each \$320,000 0 \$0 e. #24's Each \$320,000 2 \$680,000 d. #20's Each \$320,000 2 \$680,000 d. #24's Each \$320,000 2 \$680,000 d. #26's = = = = a. TF \$8,000 0 \$0 f. Other Drainage LS \$0 0 \$0 I. Roadway Construction SY \$60 0 \$0 2. At-Grade Crossing = = = = 1. Concrete Grade Crossing = = = = 2. Crossing Approaches SY \$75 0 \$0 2. Crossing Approaches SY \$75,000 \$0 \$0 V. R SIGNALS = = = = a. Per P.O. T.O. Each \$250,000 4 \$1,000,000 b		b. #11's	Each	\$220,000	0	\$0
d. #20's Each \$320,000 0 \$0 e. #24's Each \$340,000 2 \$680,000 4. Bridges		c. #15's	Each	\$270,000	0	\$0
e. #24's Each \$340,000 2 \$600,000 4. Bridges TF \$8,000 0 \$0 a. TF \$8,000 0 \$0 5. Culvert Crossings		d. #20's	Each	\$320,000	0	\$0
4. Bridges TF \$8,000 0 \$0 a. TF \$8,000 0 \$0 5. Culvert Crossings LS \$0 0 \$0 6. Other Drainage LS \$0 0 \$0 1. Roadway Construction SY \$60 0 \$0 2. At-Grade Crossing - - - - a. MP 58.01 Main Street Grade Crossing - - - - 1. Concrete Crossing Panels Installed TF \$500 0 \$0 2. Crossing Approaches SY \$75 0 \$0 4. Crossing Signals - - - - IV. RR SIGNALS - - - - - a. Per P.O. T.O. Each \$250,000 4 \$1,000,000 b. 90 \$0 V. CONTINGENCIES (30%) LS 30% \$550,800 - - - - - - - - - - - - - - - - - - -		e. #24's	Each	\$340,000	2	\$680,000
a. TF \$8,000 0 \$0 5. Culvert Crossings LS \$0 0 \$0 6. Other Drainage LS \$0 0 \$0 II. ROADWAY		4. Bridges				
5. Culvert Crossings LS \$0 0 \$0 6. Other Drainage LS \$0 0 \$0 11. ROADWAY		а.	TF	\$8,000	0	\$0
6. Other Drainage LS \$0 0 \$0 III. ROADWAY		5. Culvert Crossings				
III. ROADWAY 1. Roadway Construction SY \$60 0 \$0 2. At-Grade Crossing		6. Other Drainage	LS	\$0	0	\$0
1. Roadway Construction SY \$60 0 \$0 2. At-Grade Crossing	III.	ROADWAY				
2. At-Grade Crossing		1. Roadway Construction	SY	\$60	0	\$0
a. MP 58.01 Main Street Grade Crossing TF \$500 0 \$0 1. Concrete Crossing Panels Installed TF \$500 0 \$0 2. Crossing Approaches SY \$75 0 \$0 4. Crossing Signals Image: Signals Image: Signals Image: Signals Image: Signals IV. RR SIGNALS Image: Sign		2. At-Grade Crossing				
1. Concrete Crossing Panels Installed TF \$500 0 \$0 2. Crossing Approaches SY \$75 0 \$0 4. Crossing Signals Image: Signals		a. MP 58.01 Main Street Grade Crossing				
2. Crossing Approaches SY \$75 0 \$0 4. Crossing Signals Image: Signals <thimage: signals<="" th=""> Image: Signals</thimage:>		1. Concrete Crossing Panels Installed	TF	\$500	0	\$0
4. Crossing Signals Image: Construction of the system		2. Crossing Approaches	SY	\$75	0	\$0
IV. RR SIGNALS a. Per P.O. T.O. Each \$250,000 4 \$1,000,000 b. Per Mile Mile \$750,000 0 \$0 V. UTILITY RELOCATION/ADJUSTMENT VI. CONTINGENCIES (30%) LS 30% \$550,800 VI. CONTINGENCIES (30%) LS 30% \$550,800 VII. ENVIRONMENTAL MITIGATION (20%) LS 20% \$477,360 VII. ENVIRONMENTAL MITIGATION (20%) LS 20% \$477,360 VIII. ENGINEERING/ADMINISTRATION (7%) LS 7% \$167,076 IX. CONSTRUCTION MANAGEMENT (6%) LS 6% \$143,208 X. RIGHT OF WAY ACRE \$250,000 0 \$0 XI. TAX (8.2%) TOTAL 8.2% \$195,718		4. Crossing Signals				
a. Per P.O. T.O. Each \$250,000 4 \$1,000,000 b. Per Mile Mile \$750,000 0 \$0 V. UTILITY RELOCATION/ADJUSTMENT Image: Construction of the state of the	IV.	RR SIGNALS				
b. Per Mile Mile \$750,000 0 \$0 V. UTILITY RELOCATION/ADJUSTMENT		a. Per P.O. T.O.	Each	\$250,000	4	\$1,000,000
V. UTILITY RELOCATION/ADJUSTMENT VI. CONTINGENCIES (30%) LS 30% \$550,800 VI. CONTINGENCIES (30%) LS 30% \$550,800 VII. ENVIRONMENTAL MITIGATION (20%) LS 20% \$477,360 VII. ENVIRONMENTAL MITIGATION (20%) LS 20% \$477,360 VII. ENVIRONMENTAL MITIGATION (20%) LS 20% \$477,360 VIII. ENGINEERING/ADMINISTRATION (7%) LS 7% \$167,076 IX. CONSTRUCTION MANAGEMENT (6%) LS 6% \$143,208 X. RIGHT OF WAY ACRE \$250,000 0 \$0 XI. TAX (8.2%) TOT AL \$270,440		b. Per Mile	Mile	\$750,000	0	\$0
VI. CONTINGENCIES (30%) LS 30% \$550,800 VI. CONTINGENCIES (30%) LS 30% \$550,800 CONSTRUCTION TOTAL \$2,386,800 \$2,386,800 VII. ENVIRONMENTAL MITIGATION (20%) LS 20% \$477,360 CONSTRUCTION & MITIGATION SUBTOTAL \$2,864,160 \$2,864,160 VIII. ENGINEERING/ADMINISTRATION (7%) LS 7% \$167,076 IX. CONSTRUCTION MANAGEMENT (6%) LS 6% \$143,208 X. RIGHT OF WAY ACRE \$250,000 0 \$0 XI. TAX (8.2%) TOTAL \$2,70,472	V.	UTILITY RELOCATION/ADJUSTMENT				
VI. CONTINGENCIES (30%) LS 30% \$550,800 CONSTRUCTION TOTAL \$2,386,800 \$2,864,160 \$2,864,160 \$2,864,160 \$2,864,160 \$167,076 \$167,076 \$167,076 \$167,076 \$167,076 \$143,208 </td <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>						
CONSTRUCTION TOTAL \$2,386,800 VII. ENVIRONMENTAL MITIGATION (20%) LS 20% \$477,360 CONSTRUCTION & MITIGATION SUBTOTAL \$2,864,160 \$2,864,160 VIII. ENGINEERING/ADMINISTRATION (7%) LS 7% \$167,076 IX. CONSTRUCTION MANAGEMENT (6%) LS 6% \$143,208 X. RIGHT OF WAY ACRE \$250,000 0 \$0 XI. TAX (8.2%) TOTAL \$2,70,442	VI.	CONTINGENCIES (30%)	LS		30%	\$550,800
VII. ENVIRONMENTAL MITIGATION (20%) LS 20% \$477,360 CONSTRUCTION & MITIGATION SUBTOTAL \$2,864,160 VIII. ENGINEERING/ADMINISTRATION (7%) LS 7% \$167,076 IX. CONSTRUCTION MANAGEMENT (6%) LS 6% \$143,208 X. RIGHT OF WAY ACRE \$250,000 0 \$0 XI. TAX (8.2%) TOT AL \$270,412				CONSTR	NUCTION TOTAL	\$2,386,800
CONSTRUCTION & MITIGATION SUBTOTAL \$2,864,160 VIII. ENGINEERING/ADMINISTRATION (7%) LS 7% \$167,076 IX. CONSTRUCTION MANAGEMENT (6%) LS 6% \$143,208 X. RIGHT OF WAY ACRE \$250,000 0 \$0 XI. TAX (8.2%) TOTAL \$270,440	VII.	ENVIRONMENTAL MITIGATION (20%)	IS		20%	\$477.360
VIII. ENGINEERING/ADMINISTRATION (7%) LS 7% \$167,076 IX. CONSTRUCTION MANAGEMENT (6%) LS 6% \$143,208 X. RIGHT OF WAY ACRE \$250,000 0 \$0 XI. TAX (8.2%) TOTAL \$2270,440			CONSTR	UCTION & MITICAT		\$2,864,160
Vinit Encontention (7.6) L3 7.6 \$107,076 IX. CONSTRUCTION MANAGEMENT (6%) LS 6% \$143,208 X. RIGHT OF WAY ACRE \$250,000 0 \$0 XI. TAX (8.2%) 8.2% \$195,718 \$107,076	\/IU				7%	φ ∠,004,100 \$167.076
X. RIGHT OF WAY ACRE \$250,000 0 \$143,208 XI. TAX (8.2%) ACRE \$250,000 0 \$0					60/	\$107,070 \$172,200
XI. TAX (8.2%) ACKL \$250,000 0 \$0 XI. TAX (8.2%) 8.2% \$195,718	IA. V			\$250,000	0/0	\$143,200 ¢0
	XI		AUNL	φ230,000	8 2%	۵۵ \$105 710
	ΛΙ.	יתה (0,2,0)				φ190,/10 ¢0.070.1/0

Ketron Crossover

	UNITS	UNIT COST	QUANTITY	TOTAL
I. EARTHWORK				
1. Embankment	CY	\$20	5200	\$104,000
2. Excavation	CY	\$10	5200	\$52,000
3. Rock Excavation	CY	\$50	0	\$0
II. TRACK				
1. Track Construction				
a. New Track	TF	\$135	0	\$0
b. Rehab Track	TF	\$60	0	\$0
2. Turnouts				
a. #9's	Each	\$100,000	0	\$0
b. #11's	Each	\$110,000	0	\$0
c. #15's	Each	\$135,000	0	\$0
d. #20's	Each	\$160,000	0	\$0
f. #33's	Each	\$360,000	0	\$0
3. Crossovers				
b. #11's	Each	\$220,000	0	\$0
c. #15's	Each	\$270,000	0	\$0
d. #20's	Each	\$320,000	0	\$0
e. #24's	Each	\$340,000	2	\$680,000
4. Bridges				
а.	TF	\$8,000	0	\$0
5. Culvert Crossings				
6. Other Drainage	LS	\$0	0	\$0
III. ROADWAY				
1. Roadway Construction	SY	\$60	0	\$0
2. At-Grade Crossing				
4. Crossing Signals				
IV. RR SIGNALS				
a. Per P.O. T.O.	Each	\$250,000	4	\$1,000,000
b. Per Mile	Mile	\$750,000	0	\$0
V. UTILITY RELOCATION/ADJUSTMENT				
VI. CONTINGENCIES (30%)	LS		30%	\$550,800
		CONSTR	UCTION TOTAL	\$2,386,800
VII. ENVIRONMENTAL MITIGATION (20%)	LS		20%	\$477,360
	CONSTR	UCTION & MITIGAT	ON SUBTOTAL	\$2,864,160
VIII. ENGINEERING/ADMINISTRATION (7%)	LS		7%	\$167,076
IX. CONSTRUCTION MANAGEMENT (6%)	LS		6%	\$143,208
X. RIGHT OF WAY	ACRE	\$250,000	0	\$0
XI. TAX (8.2%)			8.2%	\$195,718
			TOTAL	\$3,370,162
North Portland Junction to Kenton

	UNITS	UNIT COST	QUANTITY	TOTAL
I. EARTHWORK				
1. Embankment	CY	\$20	0	\$0
2. Excavation	CY	\$10	0	\$0
3. Rock Excavation	СҮ	\$50	0	\$0
4. General*	СҮ	\$15	155232	\$2,328,480
II. TRACK		. · ·		
1. Track Construction				
a. New Track	TF	\$135	22176	\$2,993,760
b. Rehab Track	TF	\$60	10560	\$633,600
2 Turnouts		+00	10000	+000/000
a #9's	Fach	\$100.000	0	\$0
h #11's	Each	\$110,000	5	\$550,000
c #15's	Each	\$135,000	0	000,000
d #20's	Each	\$160,000	4	\$640,000
f #22's	Each	\$260,000	4	000,040¢
1. π33 3 2 Crossovors	Lacii	\$300,000	0	\$0
5. CI03501015	Fach	¢220.000	0	02
D. #115	Eduli	\$220,000	0	\$U \$0
L. # 15 S	Each	\$270,000	0	\$U
0. #20 S	Each	\$320,000	8	\$2,560,000
e. #24 S	Each	\$340,000	2	\$680,000
T. #33'S	Each	\$720,000	0	\$0
4. Bridges		<u>+0.000</u>	1.10	¢1 100 000
a. MP 6.03 10-1STOD, 140'		\$8,000	140	\$1,120,000
b. MP 6.03 DPGOD 70'	TF	\$8,000	70	\$560,000
c. MP 6.03 38-TSTOD, 441'	TF	\$8,000	441	\$3,528,000
5. Culvert Crossings				
a. Major Culverts (>36" Diameter)	LF	\$600	0	\$0
b. Minor Culverts (<36" Diameter)	LF	\$100	0	\$0
6. Other Drainage	LS	\$0	0	\$0
III. ROADWAY				
1. Roadway Construction	SY	\$60	0	\$0
2. At-Grade Crossing				
a. MP 7.26 Private Road Crossing				
1. Concrete Crossing Panels Installed	TF	\$500	30	\$15,000
2. Crossing Approaches	SY	\$75		\$0
b. MP 7.42 N. Columbia Blvd. Grade Crossing				
1. Concrete Crossing Panels Installed	TF	\$500	60	\$30,000
2. Crossing Approaches	SY	\$75	350	\$26,250
3. Grade-Separation Crossing				
4. Crossing Signals				
a. Upgrade Signal - Barrier Gates	Fach	\$200,000	1	\$200.000
h New Signal	Each	\$250,000		\$0
IV RR SIGNALS	Eddin	\$200,000		ψu
	Each	\$250,000	29	\$7 250 000
h Per Mile	Mile	\$750,000	62	\$1,650,000
	IVIIIC	\$750,000	0.2	\$4,030,000
1. Transmission Lines	15	¢1	0	02
2 Elber Ontic Lines	10	۹۱ ۵۵۶	0	\$0
2. Piber Optic Lines		¢1 000 000	0	\$0 \$0
3. MISCEllaneous	LS	\$1,000,000	0	\$0
	10		200/	¢0 000 507
VI. CUNTINGENCIES (30%)	LS	00407		\$8,329,527
	10	CONST		\$30,U94,017
VII. ENVIRUNMENTAL MITIGATION (20%)				\$1,218,923 \$12 540
				\$43,313,34U
	LS		170	\$2,520,023
	LS	¢250.000	0%	¢2,105,0//
	ACRE	\$250,000	U 0.00/	\$U
λι. ΙΑλ (δ.2%)			ŏ.2%	\$2,959,759
			TOTAL	\$50,965,599
Assumptions:	Track Miles			

Assumptions: General Layout shown on track charts (MP 5.62 To MP 10.0)

4.38

\$ 11,635,982 / mile

Point Defiance Bypass -- River Road to Nisqually

	UNITS	UNIT COST	QUANTITY	TOTAL
I. Earthwork/Retaining Walls				
a. Earthwork	CY	\$10	311190	\$3,111,900
b. Retaining Walls	LF	\$1,000	10250	\$10,250,000
II. TRACK		I	I	
1. Track Construction		\$40F	10/000	\$11.007.000
a. New Track		\$135	106200	\$14,337,000
D. Renad Track		\$60	55440	\$3,326,400
d. Domovo Trock		\$29 ¢0	12000	\$435,000
2 Turnouts	11	φQ	12000	\$90,000
a #9's	Each	\$100.000	0	\$0
b. #11's	Each	\$110.000	2	\$220,000
c. #15's	Each	\$135,000	1	\$135,000
d. #20's	Each	\$160,000	3	\$480,000
e. #24's	Each	\$170,000	1	\$170,000
f. #33's	Each	\$360,000	0	\$0
g. Relocate Turnout	Each	\$17,325	7	\$121,275
h. Remove Turnout	Each	\$11,025	14	\$154,350
3. Crossovers				
b. #11's	Each	\$220,000	1	\$220,000
c. #15's	Each	\$270,000	7	\$1,890,000
d. #20's	Each	\$320,000	2	\$640,000
e. #24's	Each	\$340,000	5	\$1,700,000
t. #33's	Each	\$720,000	1	\$720,000
4. Bridges	тг	¢1.000	1700	¢1 700 000
A. Relifive bildge at Sta 55+00 (Fit mouse Square, single flack, lilliber flestie)		\$1,000	1700	\$1,700,000
c. Construct New Bridge at Sta 16+00 (Utility clossing, single track, 120)		\$3,000	120	\$000,000
Construct New Dridge at Sta 53+00 (Folland Ave, single track, 130)	ТГ	\$0,000 ¢E 000	150	\$1,200,000
d. Construct New Bridge at Sta 382+00 (Pit House Square, double track, 1700)		\$5,000	3400 50	\$17,000,000
e. Construct New Bridge at Sta 535±00 (Biob Speed Elvover, single inter	TF	\$10,000	4800	000,000
f Construct New Bridge at Sta 583+00 (Fright Speed Flyover, single track, 4000)	TE	000,01¢	2200	\$40,000,000
a. Rehuild Old Pacific Highway Overpass	11	\$5,000	1	\$5,000,000
5. Culvert Crossings	LJ	\$3,000,000	I	\$3,000,000
a Major Culverts (>36" Diameter)	I F	\$600	0	\$0
b Minor Culverts (<36" Diameter)	IF	\$100	0	\$0
6. Other Drainage	Per Mile	\$50.000	8.5	\$425,000
7. Station Platform (25x800', grade separate pedestrian crossing)	LS	\$1,500,000	3	\$4,500,000
III. ROADWAY	÷	•	•	•
1. Roadway Construction	SY	\$60	0	\$0
2. At-Grade Crossing				
d. Pacific Ave.				
1. Track Crossing	TF	\$500	200	\$100,000
2. Crossing Approaches	SY	\$75	0	\$0
e. S. Wilkeson St.				
1. Track Crossing	TF	\$500	72	\$36,000
2. Crossing Approaches	SY	\$75	0	\$0
t. S. 68th St.	тс	¢5.00	()	¢22.000
1. Track Crossing		\$500	64	\$32,000
2. Crossing Approaches	SY	\$/5	0	\$0
y. Stelldcoolli Bivu. Sw.	тс	\$500	60	\$20,000
2 Crossing Approaches	SV	\$300	0	\$30,000
h 108th St SW	51	\$15	0	φU
1 Track Crossing	TF	\$500	60	\$30,000
2. Crossing Approaches	SY	\$75	0	\$0
i. Bridgeport Way SW.			-	
1. Track Crossing	TF	\$500	80	\$40,000
2. Crossing Approaches	SY	\$75	0	\$0
j. Chicago Ave. SW.		1		
1. Track Crossing	TF	\$500	30	\$15,000
2. Crossing Approaches	SY	\$75	0	\$0
k. North Thorne Lane SW.				
1. Track Crossing	TF	\$500	50	\$25,000
2. Crossing Approaches	SY	\$75	0	\$0
I. Berkeley St. SW.				
1. Track Crossing	TF	\$500	60	\$30,000

2. Crossing Approaches	SY	\$75	0	\$0
m. 41st Division Dr.				
1. Track Crossing	TF	\$500	90	\$45,000
2. Crossing Approaches	SY	\$75	0	\$0
n. Barksdale Ave.				
1. Track Crossing	TF	\$500	140	\$70,000
2. Crossing Approaches	SY	\$75	0	\$0
o. Old Pacific Hwy.				
1. Track Crossing	TF	\$500	100	\$50,000
2. Crossing Approaches	SY	\$75	0	\$0
3. Grade-Separation Crossing				
a. Bridge	SF	\$100	0	\$0
b. Roadway (earthwork & paving)	SY	\$50	0	\$0
c. Misc. (non-typical per project)	LS	\$1	0	\$0
4. Crossing Signals				
a. Upgrade Signal - Barrier Gates	Each	\$200,000	9	\$1,800,000
b. New Signal	Each	\$250,000	3	\$750,000
IV. RR SIGNALS			-	
a. Per P.O. T.O.	Each	\$250,000	35	\$8,750,000
b. Per Mile	Mile	\$750,000	24.80	\$18,600,000
c. Electric Locks	Each	\$25,000	7	\$175,000
V. UTILITY RELOCATION/ADJUSTMENT			-	
1. Transmission Lines (Next to Highway)	LS	\$1,000,000	1	\$1,000,000
2. Fiber Optic Lines	LF	\$95	0	\$0
3. Miscellaneous	LS	\$1,000,000	1	\$1,000,000
VI. CONTINGENCIES (30%)	LS		30%	\$50,102,978
		CONSTR	UCTION TOTAL	\$217,112,903
VII. ENVIRONMENTAL MITIGATION (20%)	LS		20%	\$43,422,581
	CONSTRU	CTION & MITIGATI	ON SUBTOTAL	\$260,535,483
VIII. ENGINEERING/ADMINISTRATION (7%)	LS		0.07	\$15,197,903
IX. CONSTRUCTION MANAGEMENT (6%)	LS		0.06	\$13,026,774
X. RIGHT OF WAY	ACRE	\$250,000	16	\$4,000,000
XI. TAX (8.2%)			8.2%	\$17,803,258
			TOTAL	\$310,563,418

Assumptions:

This estimate includes River Road (MP 37.9) to Nisqually

Reservation 3rd Main - Stewart Avenue to River Road

	UNITS	UNIT COST	QUANTITY	TOTAL
I. EARTHWORK	-			-
1. Embankment	CY	\$20	0	\$0
2. Excavation	CY	\$10	0	\$0
3. Rock Excavation	CY	\$50	0	\$0
4. General*	CY	\$15	/9280	\$1,189,200
II. TRACK				
a New Track	TF	\$135	10820	\$2,675,700
h Rehah Track	TF	\$60	2200	\$132,000
2 Turnouts		\$00	2200	\$132,000
a. #9's	Each	\$100.000	0	\$0
b. #11's	Each	\$110,000	0	\$0
c. #15's	Each	\$135,000	1	\$135,000
d. #20's	Each	\$160,000	0	\$0
e. #24's	Each	\$170,000	1	\$170,000
f. #33's	Each	\$360,000	0	\$0
3. Crossovers				
b. #11's	Each	\$220,000	0	\$0
c. #15's	Each	\$270,000	3	\$810,000
d. #20's	Each	\$320,000	0	\$0
e. #24's	Each	\$340,000	1	\$340,000
t. #33'S	Each	\$720,000	0	\$0
4. Bridges	тс	000.93	4	000.913
d. IVIP 57.57 0 CUTICIELE ATCT	IF	\$0,000	0	\$40,000 \$5,000,000
c. Pohuild Diver Poad Overpass	LJ	\$5,000,000	1	\$5,000,000
5. Culvert Crossings	LJ	\$5,000,000	1	\$5,000,000
a Major Culverts (>36" Diameter)	IF	\$600	90	\$54,000
 b. Minor Culverts (<36" Diameter) 	IF	\$100	270	\$27,000
6. Other Drainage	LS	\$0	0	\$0
7. Retaining Walls	LF	\$1,000	3750	\$3,750,000
III. ROADWAY				
1. Roadway Construction	SY	\$60	0	\$0
2. At-Grade Crossing				
a. MP 36.08 Private Road Crossing				
1. Concrete Crossing Panels Installed	TF	\$500	30	\$15,000
2. Crossing Approaches	SY	\$75	1/5	\$13,125
b. MP 35.21 52nd Ave. Grade Crossing	тг	¢EQQ	(0	¢00.00\$
Concrete Crossing Panels Installed Crossing Approaches	IF	\$500	60 250	\$30,000
c MD 34 87 Private Poad Crossing	51	\$70	300	\$20,230
1 Concrete Crossing Panels Installed	TF	\$500	30	\$15,000
2 Crossing Approaches	SY	\$75	175	\$13,000
3. Grade-Separation Crossing	0.	<i><i></i></i>		+10/120
4. Crossing Signals				
a. Upgrade Signal - Barrier Gates	Each	\$200,000	1	\$200,000
b. New Signal	Each	\$250,000	2	\$500,000
IV. RR SIGNALS				
a. Per P.O. T.O.	Each	\$250,000	10	\$2,500,000
b. Per Mile	Mile	\$750,000	3.75	\$2,815,341
V. UTILITY RELOCATION/ADJUSTMENT		1	1	
			200/	¢7 ()7 ())
VI. CONTINGENCIES (30%)	LS		30%	\$7,037,022
		CONSTR	UCTION TOTAL	\$33,096,363
VII. ENVIRONMENTAL MITIGATION (20%)	LS		20%	\$6,619,273
	CONSTR	UCTION & MITIGATI	ON SUBTOTAL	\$39,715,636
VIII. ENGINEERING/ADMINISTRATION (7%)	LS		7%	\$2,316,745
IX. CONSTRUCTION MANAGEMENT (6%)	LS	#050.000	6%	\$1,985,782
	ACRE	\$250,000	88	\$22,000,000
λί. ΤΑΧ (δ.2%)			8.2%	\$542,780
			TOTAL	\$66,560,943
Assumptions:	Track Miles			

1 New Track from Stewart Avenue to River Road 3.75

\$ 17,731,674 / mile

		UNITS	UNIT COST	QUANTITY	TOTAL
Ι.	EARTHWORK				
	1. Embankment	CY	\$20	0	\$0
	2. Excavation	CY	\$10	0	\$0
	3. Rock Excavation	CY	\$50	0	\$0
	4. General*	CY	\$15	59136	\$887,040
II .	TRACK				
	1. Track Construction				
	a. New Track	TF	\$135	8448	\$1,140,480
	b. Rehab Track	TF	\$60	16896	\$1,013,760
	2. Turnouts				
	a. #9's	Each	\$100,000	0	\$0
	b. #11's	Each	\$110,000	1	\$110,000
	c. #15's	Each	\$135,000	0	\$0
	d. #20's	Each	\$160,000	2	\$320,000
	e. #24's	Each	\$170,000	1	\$170,000
	f. #33's	Each	\$360,000	0	\$0
	3. Crossovers				
	b. #11's	Each	\$220,000	1	\$220,000
	c. #15's	Each	\$270,000	0	\$0
	d. #20's	Each	\$320,000	0	\$0
	e. #24's	Each	\$340,000	0	\$0
	4. Bridges				
	a. MP 53.87 ~100' Bridge	TF	\$8,000	100	\$800,000
	5. Culvert Crossings				
	a. Major Culverts (>36" Diameter)	LF	\$600	60	\$36,000
	b. Minor Culverts (<36" Diameter)	LF	\$100	60	\$6,000
	6. Other Drainage	LS	\$0	0	\$0
III.	ROADWAY				
	1. Roadway Construction	SY	\$60	0	\$0
	2. At-Grade Crossing				
	3. Grade-Separation Crossing				
	4. Crossing Signals				
	a. Upgrade Signal - Barrier Gates	Each	\$200,000	0	\$0
	b. New Signal	Each	\$250,000	0	\$0
IV.	RR SIGNALS				
	a. Per P.O. T.O.	Each	\$250,000	3	\$750,000
	b. Per Mile	Mile	\$750,000	4.8	\$3,600,000
۷.	UTILITY RELOCATION/ADJUSTMENT			-	
VI.	CONTINGENCIES (30%)	LS		30%	\$2,715,984
			CONSTR	RUCTION TOTAL	\$11,769,264
VII.	ENVIRONMENTAL MITIGATION (20%)	LS		20%	\$2,353,853
-		CONST			\$1/ 122 117
VIII				7%	\$272.240
IV				6%	\$706 156
іл. У			\$250,000	0 /0	\$700,130 \$
л. УI		AUNL	φ200,000	8.2%	04 090 7302
	1111 (0.2.10)				¢14 410 201

Centralia Steam Plant Coal Track and Power Switches

Assumptions:

Centralia Steam Plant Coal Track MP 54.1 To MP 52.5 (#15 T.O.'s)

Steam Plant Line Power Switch

Power Crossover at North End of Centralia Yard (#11)

Woodland Siding

	UNITS	UNIT COST	QUANTITY	TOTAL
I. EARTHWORK				
1. Embankment	CY	\$20	0	\$0
2. Excavation	CY	\$10	0	\$0
3. Rock Excavation	CY	\$50	0	\$0
4. General*	CY	\$15	55440	\$831,600
II. TRACK				
1. Track Construction				
a. New Track	TF	\$135	7920	\$1,069,200
b. Rehab Track	TF	\$60	0	\$0
2. Turnouts				
a1. Split Point Derail	Each	\$15,000	2	\$30,000
a. #9's	Each	\$100,000	0	\$0
b. #11's	Each	\$110,000	0	\$0
c. #15's	Each	\$135,000	2	\$270,000
d. #24's	Each	\$170,000	0	\$0
f. #33's	Each	\$360,000	0	\$0
3. Crossovers				
4. Bridges				
a. MP 53.87 ~100' Bridge	TF	\$8,000	100	\$800,000
5. Culvert Crossings				
a. Major Culverts (>36" Diameter)	LF	\$600	0	\$0
b. Minor Culverts (<36" Diameter)	LF	\$100	0	\$0
6. Other Drainage	LS	\$0	0	\$0
III. ROADWAY				
1. Roadway Construction	SY	\$60	0	\$0
2. At-Grade Crossing				
a. MP 115.76 Scott Ave. Grade Crossing				
1. Concrete Crossing Panels Installec	TF	\$500	60	\$30,000
2. Crossing Approaches	SY	\$75	350	\$26,250
3. Grade-Separation Crossing				
a. Bridge at MP 116.63	LF	\$16,000	80	\$1,280,000
b. Roadway (earthwork & paving)	SY	\$50	4450	\$222,500
c. Misc. (non-typical per project)	LS	\$2,000,000	1	\$2,000,000
4. Crossing Signals				
a. Upgrade Signal - Barrier Gates	Each	\$200,000	1	\$200,000
b. New Signal	Each	\$250,000	0	\$0
IV. RR SIGNALS		1050.000	· ·	
a. Per P.O. T.O.	Each	\$250,000	4	\$1,000,000
b. Per Mile	Mile	\$750,000	1.5	\$1,125,000
V. UTILITY RELOCATION/ADJUSTMENT				
VI. CONTINGENCIES (30%)	LS		30%	\$2,665,365
		CONST	RUCTION TOTAL	\$11,549,915
VII. ENVIRONMENTAL MITIGATION (20%)	LS		20%	\$2,309,983
	CONSTR	UCTION & MITIGA	TION SUBTOTAL	\$13,859,898
VIII. ENGINEERING/ADMINISTRATION (7%)	LS		7%	\$808,494
IX. CONSTRUCTION MANAGEMENT (6%)	LS		6%	\$692,995
X. RIGHT OF WAY	ACRE	\$250.000	0	\$0
XI. TAX (8.2%)			8.2%	\$947,093
			TOTAL	\$16,308,480

Assumptions:

Woodland Siding (Leaving room for 2nd Mainline) MP 117.0 To 115.5

Grade Seperation at MP 116.63

Newaukum Crossover

		UNITS	UNIT COST	QUANTITY	TOTAL
I. E	ARTHWORK				
1.	. Embankment	СҮ	\$20	5200	\$104,000
2	P. Excavation	CY	\$10	5200	\$52,000
3	R. Rock Excavation	CY	\$50	0	\$0
II. T	RACK				
1.	. Track Construction				
	a. New Track	TF	\$135	0	\$0
	b. Rehab Track	TF	\$60	0	\$0
2	P. Turnouts				
	a. #9's	Each	\$100,000	0	\$0
	b. #11's	Each	\$110,000	0	\$0
	c. #15's	Each	\$135,000	0	\$0
	d. #20's	Each	\$160,000	0	\$0
	f. #33's	Each	\$360,000	0	\$0
3	P. Crossovers				
	b. #11's	Each	\$220,000	0	\$0
	c. #15's	Each	\$270,000	0	\$0
	d. #20's	Each	\$320,000	0	\$0
	e. #24's	Each	\$340,000	2	\$680,000
4	. Bridges				
	a.	TF	\$8,000	0	\$0
5	5. Culvert Crossings				
6	6. Other Drainage	LS	\$0	0	\$0
III. R	ROADWAY		i i		
1.	. Roadway Construction	SY	\$60	0	\$0
2	P. At-Grade Crossing				
	a. MP 58.01 Main Street Grade Crossing				
	1. Concrete Crossing Panels Installed	TF	\$500	0	\$0
	2. Crossing Approaches	SY	\$75	0	\$0
4	. Crossing Signals				
IV. R	RSIGNALS				
	a. Per P.O. T.O.	Each	\$250,000	4	\$1,000,000
	b. Per Mile	Mile	\$750,000	0	\$0
V. U	ITILITY RELOCATION/ADJUSTMENT				
VI. C	CONTINGENCIES (30%)	LS		30%	\$550,800
			CONSTR	UCTION TOTAL	\$2 386 800
VILE	NVIRONMENTAL MITIGATION (20%)	15	0011011	20%	\$477 360
		001075			¢477,500
		CONSTR	UCTION & MITIGAT		\$2,864,160
VIII. E	NGINEERING/ADMINISTRATION (7%)	LS		1%	\$167,076
IX. C	CONSTRUCTION MANAGEMENT (6%)	LS	4070.000	6%	\$143,208
X. R	RIGHT OF WAY	ACRE	\$250,000	0	\$0
XI. T.	AX (8.2%)			8.2%	\$195,718
				TOTAL	\$3,370,162

King Street Station

	UNITS	UNIT COST	QUANTITY	TOTAL
Conceptual development continuing; most effective alternative not established. Estimate based on approximation of likely cost of the alternatives. Increase the number of through station tracks from three to a minimum of five including associated power switches at both ends of the station.	LS	\$80,000,000	\$1	\$80,000,000

Seattle Maintenance Facility

	UNITS	UNIT COST	QUANTITY	TOTAL
The Seattle Maintenance Faility is a joint WSDOT / Amtrak project. Design is partially complete; however, the timing of the requested closure of the Holgate Street crossing in the middle of the proposed facility may have a significant effect on the specific arrangement of the failcity and the final cost.	LS	\$95,000,000	1	\$95,000,000
New storage tracks, train washer, inspection building for arriving trains, locomotive and car maintenance shop and administrative office.				

China Creek Crossover

_		UNITS	UNIT COST	QUANTITY	TOTAL
Ι.	EARTHWORK				
	1. Embankment	CY	\$20	2600	\$52,000
	2. Excavation	CY	\$10	2600	\$26,000
	3. Rock Excavation	CY	\$50	0	\$0
.	TRACK				
	1. Track Construction				
	a. New Track	TF	\$135	0	\$0
	b. Rehab Track	TF	\$60	0	\$0
	2. Turnouts				
	a. #9's	Each	\$100,000	0	\$0
	b. #11's	Each	\$110,000	0	\$0
	c. #15's	Each	\$135,000	0	\$0
	d. #20's	Each	\$160,000	0	\$0
	f. #33's	Each	\$360,000	0	\$0
	3. Crossovers				
	b. #11's	Each	\$220,000	0	\$0
	c. #15's	Each	\$270,000	0	\$0
	d. #20's	Each	\$320,000	0	\$0
	e. #24's	Each	\$340,000	1	\$340,000
	4. Bridges				
	а.	TF	\$8,000	0	\$0
	5. Culvert Crossings				
	6. Other Drainage	LS	\$0	0	\$0
III.	ROADWAY				
	1. Roadway Construction	SY	\$60	0	\$0
	2. At-Grade Crossing				
	a. MP 58.01 Main Street Grade Crossing				
	1. Concrete Crossing Panels Installed	TF	\$500	0	\$0
	2. Crossing Approaches	SY	\$75	0	\$0
	4. Crossing Signals				
IV.	RR SIGNALS				
	a. Per P.O. T.O.	Each	\$250,000	2	\$500,000
	b. Per Mile	Mile	\$750,000	0	\$0
V.	UTILITY RELOCATION/ADJUSTMENT				
VI.	CONTINGENCIES (30%)	LS		30%	\$275,400
			CONSTR	UCTION TOTAL	\$1,193,400
VII.	ENVIRONMENTAL MITIGATION (20%)	LS		20%	\$238,680
		CONSTR			\$1 /22 000
VIII					\$1,432,000 ¢02,520
				60/	\$03,038 \$71,604
1A. V			¢250,000	0%	¢0 ¢0
Λ. VI		AUKE	φ230,000	Q0/	\$U ¢07.0E0
ΛΙ.	IAA (0.270)				\$77,009
				TOTAL	\$1,685,081

Auburn South Third Main Track

	UNITS	UNIT COST	QUANTITY	TOTAL
I. EARTHWORK				
1. Embankment	CY	\$20	0	\$0
2. Excavation	CY	\$10	0	\$0
3. Rock Excavation	CY	\$50	0	\$0
4. General*	CY	\$15	299376	\$4,490,640
II. TRACK				
1. Track Construction				
a. New Track	TF	\$135	42768	\$5,773,680
b. Rehab Track	TF	\$60	0	\$0
2. Turnouts				
a. #9's	Each	\$100,000	0	\$0
b. #11's	Each	\$110,000	0	\$0
c. #15's	Each	\$135,000	0	\$0
d. #20's	Each	\$160,000	0	\$0
e. #24's	Each	\$170,000	1	\$170,000
f. #33's	Each	\$360,000	6	\$2,160,000
3. Crossovers				
b. #11's	Each	\$220,000	0	\$0
c. #15's	Each	\$270,000	0	\$0
d. #20's	Each	\$320,000	0	\$0
e. #24's	Each	\$340,000	1	\$340,000
f. #33's	Each	\$720,000	0	\$0
4. Bridges				
5. Culvert Crossings				
a. Major Culverts (>36" Diameter)	LF	\$600	0	\$0
b. Minor Culverts (<36" Diameter)	LF	\$100	0	\$0
6. Other Drainage	LS	\$0	0	\$0
III. ROADWAY				
1. Roadway Construction	SY	\$60	0	\$0
2. At-Grade Crossing				
3. Grade-Separation Crossing				
4. Crossing Signals				
a. Upgrade Signal - Barrier Gates	Each	\$200,000	5	\$1,000,000
b. New Signal	Each	\$250,000	0	\$0
IV. RR SIGNALS				
a. Per P.O. T.O.	Each	\$250,000	11	\$2,750,000
b. Per Mile	Mile	\$750,000	8.1	\$6,075,000
V. UTILITY RELOCATION/ADJUSTMENT				
VI. CONTINGENCIES (30%)	LS		30%	\$6,827,796
		CONST	RUCTION TOTAL	\$29 587 116
VII. ENVIRONMENTAL MITIGATION (20%)	IS	00113	20%	\$5 917 423
				¢25,511,120
	CONST	KUCTION & MITIGA		\$35,504,539
			1%	\$2,071,098
IA. CUNSTRUCTION MANAGEMENT (6%)	LS	¢250.000	0%	\$1,775,227
	AURE	\$250,000	0.00/	\$0
λι. ΙΑλ (δ.2%)			8.2%	\$2,426,144
			TOTAL	\$41,777,008
Assumptions:	Track Miles			
1 New Track from MP 20.0 to MP 24.2	2 2 2		\$ 12 650 600 /	mila
New Yard Tracks	5.5 1 &		φ 12,037,077 /	mue
	0 1			
	ð.1			

Sound Transit Phase 3

	UNITS	UNIT COST	QUANTITY	TOTAL
Estimate and description furnished by BNSF includes the following components:	LS	\$139,000,000	\$1	\$139,000,000
Relocate main tra cks east of all freight trackage. Changes to Tukwila, Black River, and Argo interlockings for through movement via BNSF route on all main tracks.				
Third main track between MP 21 and MP 18.6.				

Winlock to Chehalis Third Main Track

	UNITS	UNIT COST	QUANTITY	TOTAL
I. EARTHWORK				
1. Embankment	CY	\$20	0	\$0
2. Excavation	CY	\$10	0	\$0
3. Rock Excavation	CY	\$50	20000	\$1,000,000
4. General*	CY	\$15	462369.6	\$6,935,544
II. TRACK				
1. Track Construction				
a. New Track	TF	\$135	66052.8	\$8,917,128
b. Rehab Track	TF	\$60	0	\$0
2. Turnouts				
a. #9's	Each	\$100,000	0	\$0
b. #11's	Each	\$110,000	0	\$0
c. #15's	Each	\$135,000	0	\$0
d. #20's	Each	\$160,000	0	\$0
f. #33's	Each	\$360,000	2	\$720,000
3. Crossovers				
b. #11's	Each	\$220,000	0	\$0
c. #15's	Each	\$270,000	0	\$0
d. #20's	Each	\$320,000	0	\$0
f. #33's	Each	\$720,000	0	\$0
4. Bridges				
a. MP 70.45 182' Deck Plate Girder	TF	\$8,000	182	\$1,456,000
b. 1500' Flyover	TF	\$8,000	1500	\$12,000,000
c. 10' Concrete Arch	TF	\$8,000	10	\$80,000
d. 10' Concrete Arch	TF	\$8,000	10	\$80,000
e. 10' Concrete Arch	TF	\$8,000	10	\$80,000
5. Culvert Crossings				
a. Major Culverts (>36" Diameter)	LF	\$600	60	\$36,000
b. Minor Culverts (<36" Diameter)	LF	\$100	2000	\$200,000
6. Other Drainage	LS	\$0	0	\$0
III. ROADWAY				
1. Roadway Construction	SY	\$60	0	\$0
2. At-Grade Crossing				
a. MP 71.44 Walnut Street Grade Crossing				
1. Concrete Crossing Panels Installed	TF	\$500	60	\$30,000
2. Crossing Approaches	SY	\$75	350	\$26,250
b. MP 71.29 Fir Street Grade Crossing				
1. Concrete Crossing Panels Installed	TF	\$500	60	\$30,000
2. Crossing Approaches	SY	\$75	350	\$26,250
c. MP 70.45 STP GR Road Grade Crossing				
1. Concrete Crossing Panels Installed	TF	\$500	60	\$30,000
2. Crossing Approaches	SY	\$75	350	\$26,250
d. MP 69.74 Hawkins Road Grade Crossing				
1. Concrete Crossing Panels Installed	TF	\$500	60	\$30,000
2. Crossing Approaches	SY	\$75	350	\$26,250
e. MP 69.24 Private Road Crossing				
Close Crossing	LS	\$5,000	1	\$5,000
f. MP 68.80 Private Road Crossing				
1. Concrete Crossing Panels Installed	TF	\$500	30	\$15,000
2. Crossing Approaches	SY	\$75	175	\$13,125
g. MP 68.19 Amtrim Road Grade Crossing				
1. Concrete Crossing Panels Installed	TF	\$500	60	\$30,000
2. Crossing Approaches	SY	\$75	350	\$26,250

h. Private Road Crossing				
1. Concrete Crossing Panels Installed	TF	\$500	30	\$15,000
2. Crossing Approaches	SY	\$75	175	\$13,125
i. Jordan Road Crossing				
1. Concrete Crossing Panels Installed	TF	\$500	60	\$30,000
2. Crossing Approaches	SY	\$75	350	\$26,250
j. Koontz Road Crossing				
1. Concrete Crossing Panels Installed	TF	\$500	60	\$30,000
2. Crossing Approaches	SY	\$75	350	\$26,250
k. Harmon Road Crossing				
1. Concrete Crossing Panels Installed	TF	\$500	60	\$30,000
2. Crossing Approaches	SY	\$75	350	\$26,250
I. Rogers Road Crossing				
1. Concrete Crossing Panels Installed	TF	\$500	60	\$30,000
2. Crossing Approaches	SY	\$75	350	\$26,250
3. Grade-Separation Crossing				
a. Bridge	SF	\$100	0	\$0
b. Roadway (earthwork & paving)	SY	\$50	0	\$0
c. Misc. (non-typical per project)	LS	\$1	0	\$0
4. Crossing Signals				
a. Upgrade Signal - Barrier Gates	Each	\$200,000	7	\$1,400,000
b. New Signal	Each	\$250,000	5	\$1,250,000
IV. RR SIGNALS				
a. Per P.O. T.O.	Each	\$250,000	3	\$750,000
b. Per Mile	Mile	\$750,000	12.51	\$9,382,500
V. UTILITY RELOCATION/ADJUSTMENT				
1. Transmission Lines	LS	\$1	0	\$0
2. Fiber Optic Lines	LF	\$95	0	\$0
3. Miscellaneous	LS	\$1,000,000	0	\$0
VI. CONTINGENCIES (30%)	LS		30%	\$13,456,402
		CONS	RUCTION TOTAL	\$58,311,074
VII. ENVIRONMENTAL MITIGATION (20%)	LS		20%	\$11,662,215
	CONSTR	RUCTION & MITIGA	TION SUBTOTAL	\$69,973,288
(III. ENGINEERING/ADMINISTRATION (7%)	LS		7%	\$4,081,775
IX. CONSTRUCTION MANAGEMENT (6%)	LS		6%	\$3,498,664
X. RIGHT OF WAY	ACRE	\$250,000	51.12	\$12,780,000
XI. TAX (8.2%)			8.2%	\$4,781,508
			TOTAL	\$95,1 <u>15,236</u>

Assumptions:	Track Miles	
1 New Track from MP 72.00 to 59.49	12.51	\$ 7,603,136 / mile

*Private Crossings are to be closed or equiped with auto gates.

Chehalis Siding

	UNITS	UNIT COST	QUANTITY	TOTAL
I. EARTHWORK				
1. Embankment	CY	\$20	0	\$0
2. Excavation	CY	\$10	0	\$0
3. Rock Excavation	CY	\$50	0	\$0
4. General*	CY	\$15	55440	\$831,600
II. TRACK				
1. Track Construction				
a. New Track	TF	\$135	7920	\$1,069,200
b. Rehab Track	TF	\$60	0	\$0
2. Turnouts				
b. #11's	Each	\$110,000	0	\$0
c. #15's	Each	\$135,000	2	\$270,000
d. #20's	Each	\$160,000	0	\$0
f. #33's	Each	\$360,000	0	\$0
3. Crossovers				
4. Bridges				
5. Culvert Crossings				
a. Major Culverts (>36" Diameter)	LF	\$600	0	\$0
b. Minor Culverts (<36" Diameter)	LF	\$100	30	\$3,000
6. Other Drainage	LS	\$0	0	\$0
III. ROADWAY				•
1. Roadway Construction	SY	\$60	0	\$0
2. At-Grade Crossing				
a. MP 58.01 Main Street Grade Crossing				
1. Concrete Crossing Panels Installed	TF	\$500	60	\$30,000
2. Crossing Approaches	SY	\$75	350	\$26,250
b. MP 57.93 Center Street Grade Crossing				
1. Concrete Crossing Panels Installed	TF	\$500	60	\$30,000
2. Crossing Approaches	SY	\$75	350	\$26,250
c. MP 57.88 Prindle Street Grade Crossing				
1. Concrete Crossing Panels Installed	TF	\$500	60	\$30,000
2. Crossing Approaches	SY	\$75	350	\$26,250
d. MP 57.65 West Street Grade Crossing				
1. Concrete Crossing Panels Installed	TF	\$500	60	\$30,000
2. Crossing Approaches	SY	\$75	350	\$26,250
4. Crossing Signals				
a. Upgrade Signal - Barrier Gates	Each	\$200,000	4	\$800,000
b. New Signal	Each	\$250,000	0	\$0
IV. RR SIGNALS				
a. Per P.O. T.O.	Each	\$250,000	2	\$500,000
b. Per Mile	Mile	\$750,000	1.5	\$1,125,000
V. UTILITY RELOCATION/ADJUSTMENT	1	*****		+ . / /
VI. CONTINGENCIES (30%)	LS		30%	\$1,447,140
		CONST		\$6 270 940
VIL ENVIRONMENTAL MITIGATION (20%)	21	001131	20%	\$1.257.188
	LJ		2070	\$1,234,100
	CONST	RUCTION & MITIGA	TION SUBTOTAL	\$7,525,128
VIII. ENGINEERING/ADMINISTRATION (7%)	LS		7%	\$438,966
IX. CONSTRUCTION MANAGEMENT (6%)	LS		6%	\$376,256
X. RIGHT OF WAY	ACRE	\$250,000	0%	\$0
XI. TAX (8.2%)			8%	\$514,217
			TOTAL	\$8,854,567
Assumptions:	Track Miles			
Chehalis Siding MP 57-58.3	1.5		\$ 5,903,045 /	mile

Chehalis Crossovers

		UNITS	UNIT COST	QUANTITY	TOTAL
Ι.	EARTHWORK			-	
	1. Embankment	CY	\$20	5200	\$104,000
	2. Excavation	CY	\$10	5200	\$52,000
	3. Rock Excavation	CY	\$50	0	\$0
II .	TRACK				
	1. Track Construction				
	a. New Track	TF	\$135	0	\$0
	b. Rehab Track	TF	\$60	0	\$0
	2. Turnouts				
	aa. Remove turnout	EA	\$10,000	4	\$40,000
	a. #9's	Each	\$100,000	0	\$0
	b. #11's	Each	\$110,000	0	\$0
	c. #15's	Each	\$135,000	0	\$0
	d. #20's	Each	\$160,000	0	\$0
	f. #33's	Each	\$360,000	0	\$0
	3. Crossovers				
	b. #11's	Each	\$220,000	0	\$0
	c. #15's	Each	\$270,000	0	\$0
	d. #20's	Each	\$320,000	0	\$0
	e. #24's	Each	\$340,000	2	\$680,000
	4. Bridges				
	а.	TF	\$8,000	0	\$0
	5. Culvert Crossings				
_	6. Other Drainage	LS	\$0	0	\$0
III.	ROADWAY	-		-	
	1. Roadway Construction	SY	\$60	0	\$0
	2. At-Grade Crossing				
	a. MP 58.01 Main Street Grade Crossing				
	1. Concrete Crossing Panels Installed	TF	\$500	0	\$0
	2. Crossing Approaches	SY	\$75	0	\$0
	4. Crossing Signals				
IV.	RR SIGNALS				
	a. Per P.O. T.O.	Each	\$250,000	4	\$1,000,000
	b. Per Mile	Mile	\$750,000	0	\$0
V.	UTILITY RELOCATION/ADJUSTMENT				-
-					
VI.	CONTINGENCIES (30%)	LS		30%	\$562,800
			CONSTR	UCTION TOTAL	\$2,438,800
VII.	ENVIRONMENTAL MITIGATION (20%)	LS		20%	\$487,760
		CONSTR			\$2,024,540
\/III				7%	\$170,716
				60/	\$170,710 \$176,220
IX. V			¢250.000	0%	¢0,328
л. УI		AURL	φ200,000	070 8%	پ0 ¢100 002
∧I.					φ177,70Z
				TUTAL	\$3,443,586

	UNITS	UNIT COST	QUANTITY	TOTAL
I. EARTHWORK				
1. Embankment	CY	\$20	0	\$0
2. Excavation	CY	\$10	0	\$0
3. Rock Excavation	CY	\$50	0	\$0
4. General*	CY	\$15	96096	\$1,441,440
II. TRACK				
1. Track Construction				
a. New Track	TF	\$135	13728	\$1,853,280
b. Rehab Track	TF	\$60	10032	\$601,920
2. Turnouts				
a. #9's	Each	\$100,000	0	\$0
b. #11's	Each	\$110,000	4	\$440,000
c. #15's	Each	\$135,000	0	\$0
d. #20's	Each	\$160,000	1	\$160,000
f. #33's	Each	\$360,000	0	\$0
3. Crossovers				
b. #11's	Each	\$220,000	3	\$660,000
c. #15's	Each	\$270,000	0	\$0
d. #20's	Each	\$320,000	1	\$320,000
e. #24's	Each	\$340,000	2	\$680,000
f. #33's	Each	\$720,000	0	\$0
4. Bridges				
a. MP 5.74 113' Deck Plate Girder	TF	\$8,000	226	\$1,808,000
b. MP 5.80 337' Steel Bridge	TF	\$8,000	674	\$5,392,000
c. MP 6.12 337' Steel Bridge	TF	\$8,000	674	\$5,392,000
d. MP 6.69 157' Steel Bridge	TF	\$8,000	157	\$1,256,000
e. MP 7.43 306' Thru Pin Connected Truss	TF	\$8,000	306	\$2,448,000
5. Culvert Crossings				
a. Major Culverts (>36" Diameter)	LF	\$600	0	\$0
b. Minor Culverts (<36" Diameter)	LF	\$100	0	\$0
6. Other Drainage	LS	\$0	0	\$0
III. ROADWAY				
1. Roadway Construction	SY	\$60	0	\$0
2. At-Grade Crossing				
3. Grade-Separation Crossing				
4. Crossing Signals				
a. Upgrade Signal - Barrier Gates	Each	\$200,000	0	\$0
b. New Signal	Each	\$250,000	0	\$0
IV. RR SIGNALS				
a. Per P.O. T.O.	Each	\$250,000	8	\$2,000,000
b. Per Mile	Mile	\$750,000	4.5	\$3,375,000
V. UTILITY RELOCATION/ADJUSTMENT				
VI. CONTINGENCIES (30%)	LS		0.3	\$8,348,292
		CO	NSTRUCTION TOTAL	\$36,175,932
VII. ENVIRONMENTAL MITIGATION (20%)	LS		0.2	\$7,235,186
	CO	VISTRUCTION & MIT	TIGATION SUBTOTAL	\$43 411 118
VIII ENGINEERING/ADMINISTRATION (7%)			0.07	\$2 522 215
IX CONSTRUCTION MANAGEMENT (6%)	15		0.06	\$2,552,515
X RIGHT OF WAY	ACRE	\$250,000	0.00	φ2,170,330 \$0
XI TAX (8 2%)	NORL	φ200,000	0.082	\$2 966 426
				\$51 090 416
			TOTAL	əJ1,000,410
	7			
Assumptions:	Irack Miles			
	4.5		\$ 11,351,204 /	mile

East St. Johns Siding and Main Track Relocation

4.5 \$ 11,351,204 / mile East St. Johns: 2.6 Miles of New Track, 1.9 Miles of Upgraded Track, 8 New No. 20 T.O's, 4 New No. 20 X-Overs

Lake Yard North Leads

	UNITS	UNIT COST	QUANTITY	TOTAL
I. EARTHWORK				
1. Embankment	CY	\$20	0	\$0
2. Excavation	CY	\$10	0	\$0
3. Rock Excavation	CY	\$50	0	\$0
4. General*	CY	\$15	85008	\$1,275,120
II. TRACK				•
1. Track Construction				
a. New Track	TF	\$135	12144	\$1,639,440
b. Rehab Track	TF	\$60	0	\$0
2. Turnouts				
a. #9's	Each	\$100,000	0	\$0
b. #11's	Each	\$110,000	4	\$440,000
c. #15's	Each	\$135,000	0	\$0
d. #20's	Each	\$160,000	1	\$160,000
e. #24's	Each	\$170,000	1	\$170,000
f. #33's	Each	\$360,000	0	\$0
g. Remove Turnout	Each	\$11,025	15	\$165,375
3. Crossovers				
b. #11's	Each	\$220,000	4	\$880,000
c. #15's	Each	\$270,000	0	\$0
d. #20's	Each	\$320,000	2	\$640,000
e. #24's	Each	\$340,000	0	\$0
f. #33's	Each	\$720,000	0	\$0
4. Bridges				
a. MP 5.74 113' Deck Plate Girder	TF	\$8,000	0	\$0
b. MP 5.80 337' Steel Bridge	TF	\$8,000	0	\$0
c. MP 6.12 337' Steel Bridge	TF	\$8,000	0	\$0
d. MP 6.69 157' Steel Bridge	TF	\$8,000	0	\$0
e. MP 7.43 306' Thru Pin Connected Truss	TF	\$8,000	0	\$0
5. Culvert Crossings				to
a. Major Culverts (>36" Diameter)	LF	\$600	0	\$0
b. Minor Culverts (<36" Diameter)	LF	\$100	0	\$0
6. Other Drainage	LS	\$0	0	\$0
	<u> </u>	* (0		*0
1. Roadway Construction	SY	\$60	0	\$0
2. At-Grade Crossing				
3. Grade-Separation Crossing				
4. Crossing Signais		#000.000		#000.000
a. Upgrade Signal - Barrier Gates	Each	\$200,000		\$200,000
D. New Signal	Each	\$250,000		\$0
IV. RK SIGNALS	E h	¢250.000	11	¢0.750.000
a. Per P.U. T.U.	Each	\$250,000	<u> </u>	\$2,750,000
	Mile	\$750,000	2.3	\$1,725,000
V. UTILITY RELOCATION/ADJUSTMENT	-	-		
VI. CONTINGENCIES (30%)	LS		0.3	\$3,013,481
		CONST	RUCTION TOTAL	\$13,058,416
VII. ENVIRONMENTAL MITIGATION (20%)	LS		0.2	\$2,611.683
	CONST			\$15,470,000
				\$13,070,099 \$017,090
			0.07	\$714,009 \$702 EDE
		\$250,000	0.00	¢00,601¢
	AUNL	φ230,000	0 082	\$0 \$1 070 700
				¢1,070,790
			IUTAL	\$18,438,483
Assumptions:	Track Miles			

2.3

\$ 8,016,732 / mile

Lake Yard to Willbridge: 2.3 Miles of New Track, 5 #20 T.O's and Balboa Grade Crossing

Portland Union Station

	UNITS	UNIT COST	QUANTITY	TOTAL
I. EARTHWORK				
1. Embankment	CY	\$20	0	\$0
2. Excavation	CY	\$10	0	\$0
3. Rock Excavation	CY	\$50	0	\$0
4. General*	CY	\$15	19467	\$292,005
II. TRACK				
1. Track Construction				
a. New Track	TF	\$135	2781	\$375,435
b. Rehab Track	TF	\$60	0	\$0
2. Turnouts				
a. #9's	Each	\$100,000	0	\$0
b. #11's	Each	\$110,000	2	\$220,000
c. #15's	Each	\$120,000	0	\$0
d. #20's	Each	\$160,000	0	\$0
f. #33's	Each	\$360,000	0	\$0
3. Crossovers				
b. #11's	Each	\$220,000	1	\$220,000
c. #15's	Each	\$270,000	0	\$0
d. #20's	Each	\$320,000	0	\$0
e. #24's	Each	\$340.000	0	\$0
f. #33's	Each	\$720.000	0	\$0
4. Bridges				+ -
a. MP 5.74 113' Deck Plate Girder	TF	\$8,000	0	\$0
b. MP 5.80 337' Steel Bridge	TF	\$8,000	0	\$0
c MP 6 12 337' Steel Bridge	TF	\$8,000	0	\$0 \$0
d MP 6.69 157' Steel Bridge	TF	\$8,000	0	\$0 \$0
e MP 7 43 306' Thru Pin Connected Truss	TF	\$8,000	0	\$0 \$0
5 Culvert Crossings		\$0,000	Ŭ	
a Major Culverts (>36" Diameter)	l F	\$600		\$0
h Minor Culverts (<36" Diameter)	L.	\$100	0	\$0 \$0
6 Other Drainage		0\$	0	0 \$0
	23	ψŬ	0	ΨΟ
1 Roadway Construction	SY	062	0	02
2 At-Grade Crossing	51	\$00	0	ψυ
a MP 4 20 Balboa Grade Crossing				
1 Concrete Crossing Panels Installer	TF	\$500	0	02
2 Crossing Approaches	N2	\$500 \$75	0	0¢ 02
2. Crossing Approaches	51	ψ15		ψΟ
J. Crossing Signals				
a Ungrado Signal Barrior Catos	Each	¢200.000	0	02
a. Opyrade Signal	Each	\$200,000	0	\$0 \$0
	Lacii	\$200,000		φU
a Dor D.O. T.O.	Each	¢250.000	4	¢1,000,000
d. PELP.U. T.U.	Eduli	\$200,000	4	\$1,000,000
	Iville	\$750,000	1.0	\$1,200,000
	1			
VI. CONTINGENCIES (30%)	LS		0.3	\$992,232
		CONST	RUCTION TOTAL	\$4,299,672
VII. ENVIRONMENTAL MITIGATION (20%)	LS		0.2	\$859,934
	CONST	RUCTION & MITIGA	TION SUBTOTAL	\$5,159,606
VIII. ENGINEERING/ADMINISTRATION (7%)	LS		0.07	\$300,977
IX. CONSTRUCTION MANAGEMENT (6%)	LS		0.06	\$257,980
X. RIGHT OF WAY	ACRE	\$250,000	0	\$0
XI. TAX (8.2%)			0.082	\$352,573
			ΤΟΤΑΙ	\$6 071 137
				\$0,071,137

Advanced Signal System (Portland - Seattle)

	UNITS	UNIT COST	QUANTITY	TOTAL
Advanced signal system for high speed track between Portland and Seattle	LS	\$268,000,000	1	\$268,000,000

An Advanced Signal System that provides at least cab signal indications, and as much as enforcement of compliance with cab signal indications is required by federal regulation for a speed of more than seventy-nine mph. Several systems are being developed that include elements of positive train separation or positive train control systems, which not only provide cab signal indications but also will control a train to prevent overrunning speed restrictions or movement authority. None of the systems being developed are ready for evaluation for use on the PNWRC.

Chehalis to Hannaford Third Main Track

	UNITS	UNIT COST	QUANTITY	TOTAL
I. EARTHWORK				
1. Embankment	CY	\$20	0	\$0
2. Excavation	CY	\$10	0	\$0
3. Rock Excavation	CY	\$50	0	\$0
4. General*	CY	\$15	299376	\$4,490,640
II. TRACK		-		-
1. Track Construction				
a. New Track	TF	\$135	42768	\$5,773,680
b. Rehab Track	TF	\$60	0	\$0
2. Turnouts				
a. #9's	Each	\$100,000	0	\$0
b. #11's	Each	\$110,000	0	\$0
c. #15's	Each	\$135,000	0	\$0
d. #20's	Each	\$160,000	0	\$0
e. #24's	Each	\$170,000	1	\$170,000
f. #33's	Each	\$360,000	1	\$360,000
6. Remove Turnout	Each	\$11,025	4	\$44,100
3. Crossovers				
b. #11's	Each	\$220,000	0	\$0
c. #15's	Each	\$270,000	2	\$540,000
d. #20's	Each	\$320,000	1	\$320,000
e. #24's	Each	\$340,000	6	\$2,040,000
f. #33's	Each	\$720,000	0	\$0
4. Bridges				
a. MP 59.49 206' Thru Deck Girder Bridge	TF	\$8,000	206	\$1,648,000
b. MP 58.65 222' Wood Pile Trestle Bridge	TF	\$8,000	222	\$1,776,000
c. MP 55.86 121' Wide Flange Beam Span	TF	\$8,000	121	\$968,000
d. MP 53.87 Bridge	TF	\$8,000	0	\$0
d. MP 51.87 204' Wide Flange Beam Span Bridge	TF	\$8,000	204	\$1,632,000
5. Culvert Crossings				
a. Major Culverts (>36" Diameter)	LF	\$600	2	\$1,200
b. Minor Culverts (<36" Diameter)	LF	\$100	360	\$36,000
6. Other Drainage	LS	\$0	0	\$0
7. Station Platform (25x1000', grade separate		· ·		
pedestrian crossing)	LS	\$2,000,000	1	\$2,000,000
III. ROADWAY				
1. Roadway Construction	SY	\$60	0	\$0
2. At-Grade Crossing				
a. MP 58.01 Main Street Grade Crossing				
1. Concrete Crossing Panels Installed	TF	\$500	60	\$30,000
2. Crossing Approaches	SY	\$75	350	\$26,250
b. MP 57.93 Center Street Grade Crossing				
1. Concrete Crossing Panels Installed	TF	\$500	60	\$30,000
2. Crossing Approaches	SY	\$75	350	\$26,250
c. MP 57.88 Prindle Street Grade Crossing				
1. Concrete Crossing Panels Installed	TF	\$500	60	\$30,000
2. Crossing Approaches	SY	\$75	350	\$26,250
d. MP 57.65 West Street Grade Crossing				
1. Concrete Crossing Panels Installed	TF	\$500	60	\$30,000
2. Crossing Approaches	SY	\$75	350	\$26,250
e. MP 55.18 Floral Avenue Grade Crossing				
1. Concrete Crossing Panels Installed	TF	\$500	60	\$30,000
2. Crossing Approaches	SY	\$75	350	\$26,250
f. MP 54.82 W. Summa Street Grade Crossing				

1. Concrete Crossing Panels Installed	TF	\$500	60	\$30,000
2. Crossing Approaches	SY	\$75	350	\$26,250
g. MP 54.54 Chestnut Street Grade Crossing				,
1. Concrete Crossing Panels Installed	TF	\$500	60	\$30,000
2. Crossing Approaches	SY	\$75	350	\$26,250
h. MP 54.37 Plum Street Grade Crossing				+
1. Concrete Crossing Panels Installed	TF	\$500	60	\$30,000
2 Crossing Approaches	SY	\$75	350	\$26,250
i MP 54 17 Locust Street Grade Crossing	01	<i><i></i></i>		+20,200
1 Concrete Crossing Panels Installed	TF	\$500	60	\$30,000
2 Crossing Approaches	SY	\$75	350	\$26,000
i MP 54 10 Main Street Grade Crossing	51	ψ/3	550	ψ20,200
1 Concrete Crossing Panels Installed	TF	\$500	60	\$30,000
2 Crossing Approaches	V2	\$75	350	\$26,000
k MP 53 00 Manla Street Grade Crossing	51	ψ15	550	φ20,230
1 Concrete Crossing Panels Installed	TE	\$500	60	\$30,000
2. Crossing Approaches	II SV	\$300 \$75	350	\$30,000
L MD 52 44 2rd Street Dedestrian Crossing	51	\$7J	330	\$20,230
1. Concrete Crossing Danels Installed	тс	\$500	10	¢5.000
2. Crossing Approaches		\$000 ¢75	10	000,C¢
2. Crossing Apploaches	51	\$70	0	۵ ۵
3. Grade-Separation Crossing	CL.	¢100	0	¢O
a. Billuye	SF	\$100 ¢E0	0	\$U ¢0
D. Roadway (earthwork & paving)	SY	\$50	0	\$0
c. Misc. (non-typical per project)	LS	\$1	0	\$0
4. Crossing Signais		\$000.000	44 F	* 0.000.000
a. Upgrade Signal - Barrier Gates	Each	\$200,000	11.5	\$2,300,000
D. New Signal	Each	\$250,000	0	\$0
IV. RR SIGNALS		* 050.000	00.5	AF (05 000
a. Per P.O. T.O.	Each	\$250,000	22.5	\$5,625,000
b. Per Mile	Mile	\$750,000	8.1	\$6,075,000
V. UTILITY RELOCATION/ADJUSTMENT			-	
1. Transmission Lines	LS	\$1	0	\$0
2. Fiber Optic Lines	LF	\$95	0	\$0
3. Miscellaneous	LS	\$1,000,000	0	\$0
VI. CONTINGENCIES (30%)	LS		0.3	\$10,927,011
		CON	STRUCTION TOTAL	\$47,350,381
VII. ENVIRONMENTAL MITIGATION (20%)	LS		0.2	\$9,470,076
	CONS		SATION SUBTOTAL	\$56 820 457
VIII ENGINEERING/ADMINISTRATION (7%)			0.07	\$3 31/ 527
			0.07	\$2.8/1.022
X RIGHT OF WAY	ACRE	\$250,000	0.00	\$152 500
XI ΤΔΧ (8 2%)	AUNE	Ψ230,000	0.01	\$3,882,721
				¢47,002,731
			TOTAL	\$67,011,238
Assumptions:	Track Miles			
1 New Track from MP 50 40 to 51 30	21 x 1		\$ 8 272 002 /	mile
1 1VEW 11UCK JIOIN 1811 37.47 10 31.37	0.1		$\psi 0, 272, 772 /$	muc
	0.10			
	8.10			

Ostrander to Winlock Third and Fourth Main Track

ſ	UNITS	UNIT COST	QUANTITY	TOTAL
EARTHWORK				
1. Embankment	СҮ	\$20	0	\$0
2. Excavation	СҮ	\$10	0	\$0
3. Rock Excavation	СҮ	\$50	0	\$0
4. General*	СҮ	\$15	1272533	\$19,087,992
TRACK				
1. Track Construction				
a. New Track	TF	\$135	181790	\$24,541,704
b. Rehab Track	TF	\$60	0	\$0
2. Turnouts				
a. #9's	Each	\$100,000	0	\$0
b. #11's	Each	\$110,000	0	\$0
c. #15's	Each	\$135,000	0	\$0
d. #20's	Each	\$160,000	0	\$0
e. #24's	Each	\$170,000	0	\$0
f. #33's	Each	\$360,000	3	\$1,080,000
g. #48's	Each	\$500,000	1	\$500,000
3. Crossovers				
b. #11's	Each	\$220,000	0	\$0
c. #15's	Each	\$270,000	0	\$0
d. #20's	Each	\$320,000	0	\$0
e. #24's	Each	\$340,000	1	\$340,000
f. #33's	Each	\$720,000	2	\$1,440,000
4. Bridges				
a. MP 93.98 4' Concrete Arch	TF	\$8,000	4	\$32,000
b. MP 93.62 Girder Span Bridge	TF	\$8,000	0	\$0
c. MP 93.49 Concrete Box Girder	TF	\$8,000	0	\$0
d. MP 93.24 /0 Ballast Deck Pile Wd Trestle (2				
tracks)	IF	\$8,000	140	\$1,120,000
e. MP 93.05 42' Ballast Deck Pile Wd Trestle (2		40.000		+ / = 0 0 0
tracks)	TF	\$8,000	84	\$672,000
T. MP 91.75 43 Wide Flange Beam Span (2	TE	* 0.000	<u>.</u>	¢ (00, 000
tracks)		\$8,000	86	\$688,000
g. MP 90.00 5' Concrete Arch (2 tracks)		\$8,000	10	\$80,000
h. MP 89.08 56' Wood Pile Trestle (2 tracks)		\$8,000	112	\$896,000
I. IVIP 89.06 TU CONCRETE Arch (2 tracks)		\$8,000	20	\$160,000
J. MP 88.42 10 Concrete Arch (2 tracks)		\$8,000	20	\$160,000
k. MP 88.06 10 Concrete Arch (2 tracks)		\$8,000	20	\$160,000
I. MP 86.64 / CONCRETE AFCN (2 Tracks)		\$8,000	14	\$112,000
III. IVIP 80.35 07 WILLE FIALLYE BEALLI SPALL (2	те	¢0.000	104	¢1 070 000
(Tacks)		\$8,000	134	\$1,072,000
n. MP 84.88 346 Inru Plate Girder (2 tracks)		\$8,000	692	\$5,536,000
0. MP 83.48 / Concrete Arch (2 tracks)		\$8,000	14	\$112,000
p. MP 83.04 / COncrete Arch (2 tracks)		\$8,000	14	\$112,000 ¢F 207 000
q. MP 81.50 662 Deck Plate Girder		\$8,000	662	\$5,296,000
r. MP 80.75 5 Concrete Arch		\$8,000	5	\$40,000
5. WE /0./00 CUILLEE ALCH t MD 70 20 227' Dock Disto Cirdor		\$8,000 ¢0.000	0 רכר	\$48,000 \$1.004.000
I. IVIE 70.37237 DEUK Mäle GIIUEI		\$8,000 ¢0.000	<u>کا ا</u>	\$1,890,000 \$1,890,000
u. IVIP 70.AA / CUTICIELE AICT		\$8,000	<i>I</i>	\$20,000
v. IVIP 73.92 0 CUTICIELE AICH	١٢	\$8,UUU	Ŏ	۵04,000
a. Major Culverte (* 24" Diamator)		¢7.00	100	¢100.000
a. ividjul Culverts (>30 Diameter)		\$6UU ¢100		
b. Willion Curvents (<30 Diameter)		\$100 \$100	219U	¢۵ م
U. UHEI DI AIHAYE	LS	ΦŪ	U	φU

III. ROADWAY				
1. Roadway Construction	SY	\$60	0	\$0
2. At-Grade Crossing				
a. MP 92.29 Private Road Crossing				
1. Concrete Crossing Panels Installed	TF	\$500	30	\$15,000
2. Crossing Approaches	SY	\$75	175	\$13,125
c. MP 90.23 Private Road Crossing				
1. Concrete Crossing Panels Installed	TF	\$500	30	\$15,000
2. Crossing Approaches	SY	\$75	175	\$13,125
d. MP 87.43 Cowlitz Ave. Grade Crossing				
1. Concrete Crossing Panels Installed	TF	\$500	120	\$60,000
2. Crossing Approaches	SY	\$75	700	\$52,500
e. MP 83.80 Road Crossing				
1. Concrete Crossing Panels Installed	TF	\$500	60	\$30,000
2. Crossing Approaches	SY	\$75	350	\$26,250
f. MP 82.85 Private Road Crossing				,
1. Concrete Crossing Panels Installed	TF	\$500	30	\$15,000
2. Crossing Approaches	SY	\$75	175	\$13,125
g. MP 82.72 Private Road Crossing				+
1. Concrete Crossing Panels Installed	TF	\$500	30	\$15.000
2. Crossing Approaches	SY	\$75	175	\$13,125
h. MP 81.29 Private Road Crossing				+
1. Concrete Crossing Panels Installed	TF	\$500	30	\$15.000
2. Crossing Approaches	SY	\$75	175	\$13,125
i. MP 80.45 Agren Road Grade Crossing	01	<i></i>		+ 10/120
1. Concrete Crossing Panels Installed	TF	\$500	60	\$30.000
2. Crossing Approaches	SY	\$75	350	\$26,250
i. MP 77.83 7th St./SR 506 Grade Crossing	01	<i></i>		+201200
1. Concrete Crossing Panels Installed	TF	\$500	80	\$40.000
2. Crossing Approaches	SY	\$75	400	\$30,000
k. MP 76.95 Private Road Crossing				
1. Concrete Crossing Panels Installed	TF	\$500	30	\$15.000
2. Crossing Approaches	SY	\$75	175	\$13,125
I. MP 74.66 Ferrier St. Grade Crossing				+
1. Concrete Crossing Panels Installed	TF	\$500	60	\$30,000
2. Crossing Approaches	SY	\$75	350	\$26,250
m. MP 74.01 Private Road Crossing				,
1. Concrete Crossing Panels Installed	TF	\$500	60	\$30,000
2. Crossing Approaches	SY	\$75	350	\$26,250
n. MP 73.48 Private Road Crossing				
1. Concrete Crossing Panels Installed	TF	\$500	60	\$30,000
2. Crossing Approaches	SY	\$75	350	\$26,250
o. MP 72.10 Campbell St. Grade Crossing				
1. Concrete Crossing Panels Installed	TF	\$500	60	\$30,000
2. Crossing Approaches	SY	\$75	350	\$26,250
p. MP 71.44 Walnut St./SR 603 Grade X-ing				
1. Concrete Crossing Panels Installed	TF	\$500	80	\$40,000
2. Crossing Approaches	SY	\$75	400	\$30,000
3. Grade-Separation Crossing				
a. Bridge	SF	\$100	0	\$0
b. Roadway (earthwork & paving)	SY	\$50	0	\$0
c. Misc. (non-typical per project)	LS	\$1	0	\$0
4. Crossing Signals				
a. Upgrade Signal - Barrier Gates	Each	\$200.000	10	\$2,000.000
b. New Signal	Each	\$250,000	12	\$3,000,000
IV. RR SIGNALS	•			
a. Per P.O. T.O.	Each	\$250,000	13	\$3,250,000

	b. Per Mile	Mile	\$750,000	34.43	\$25,822 <u>,</u> 500
V.	UTILITY RELOCATION/ADJUSTMENT				
	1. Transmission Lines	LS	\$1	0	\$0
	2. Fiber Optic Lines	LF	\$95	0	\$0
	3. Miscellaneous	LS	\$1,000,000	0	\$0
VI.	CONTINGENCIES (30%)	LS		0.3	\$30,155,984
			CONST	RUCTION TOTAL	\$130,675,930
VII.	ENVIRONMENTAL MITIGATION (20%)	LS		0.2	\$26,135,186
		CONSTR	UCTION & MITIGA	TION SUBTOTAL	\$156,811,116
VIII.	ENGINEERING/ADMINISTRATION (7%)	LS		0.07	\$9,147,315
IX.	CONSTRUCTION MANAGEMENT (6%)	LS		0.06	\$7,840,556
Χ.	RIGHT OF WAY	ACRE	\$250,000	28.36	\$7,090,000
XI.	TAX (8.2%)			0.082	\$10,715,426
				TOTAL	\$191,604,413
	Assumptions:	Track Miles			
	1 New Track from MP 95.03 to 93.4	1.63			

2 New Tracks from MP 93.4 to 82	22.8		
1 New Track from MP 82 to 72	10		
	34.43	\$5,565,042	/ Mile

*Private Crossings are to be closed or equiped with auto gates.

		UNITS	UNIT COST	QUANTITY	TOTAL
I.	EARTHWORK				
	1. Embankment	CY	\$20	0	\$0
Ī	2. Excavation	CY	\$10	0	\$0
Ī	3. Rock Excavation	CY	\$50	0	\$0
Ī	4. General*	CY	\$15	674520	\$10,117,800
II.	TRACK				
	1. Track Construction				
Ī	a. New Track	TF	\$135	96360	\$13,008,600
Ī	b. Rehab Track	TF	\$60	0	\$0
Ī	2. Turnouts				
Ī	a. #9's	Each	\$100,000	0	\$0
Ī	b. #11's	Each	\$110,000	0	\$0
Ī	c. #15's	Each	\$135,000	0	\$0
ŀ	d #20's	Each	\$160,000	0	\$0
ŀ	Δ. #203	Each	\$170,000	1	\$170.000
-	f #22's	Each	\$360,000	1	\$170,000
-	2 Crossovers	Lacii	\$300,000	I	\$300,000
ŀ	b. #11'c	Each	000 0002	0	02
ŀ	D. #115	Each	\$220,000	0	\$0 \$0
-	L. # 13 S	Eduli	\$270,000	0	U¢ (10,000
-	0. #2US	Each	\$320,000	2	\$640,000
-	e. #24's	Each	\$340,000	0	\$0
Ļ	f. #33's	Each	\$720,000	1	\$720,000
ļ	4. Bridges				
	a. MP 128.6 135' Deck Plate Girder	TF	\$8,000	135	\$1,080,000
	b. MP 128.38 Concrete Arch 12'	TF	\$8,000	12	\$96,000
	c. MP 127.09 Concrete Arch 8'	TF	\$8,000	8	\$64,000
F	d. MP 125.88 48' Reinforced Conc. Trestle	TF	\$8,000	48	\$384,000
Ī	e. MP 124.46 124' Deck Plate Girder	TF	\$8,000	124	\$992,000
Ī	f. MP 121.66 Concrete Arch 10'	TF	\$8,000	10	\$80,000
ľ	g. MP 119.17 808' Thru Riveted Truss	TF	\$8,000	808	\$6,464,000
Ī	h. MP 114.88 52' Deck Plate Girder	TF	\$8,000	52	\$416,000
Ī	i. MP 114.81 51' Deck Plate Girder	TF	\$8,000	51	\$408.000
Ē	i. MP 114.41 Concrete Arch 8'	TF	\$8,000	8	\$64,000
ŀ	5 Culvert Crossings		\$0,000	0	\$01,000
F	a Major Culverts (>36" Diameter)	I F	\$600	60	\$36,000
ŀ	h Minor Culverts (<36" Diameter)	LI LF	\$100	3420	\$342,000
	6 Other Drainage	LI	01¢	0	\$342,000 ¢0
		LJ	φU	0	<u>۵</u> ۵
II.	1 Deadway Construction	cV	040	0	0.2
	1. ROduway Constituction	51	\$0U	0	\$0
ŀ	2. Al-Grade Crossing				
ŀ	a. IVIP 130.45 12210 Street Grade Crossing		*= 0.0	(0	#00.000
ļ	1. Concrete Crossing Panels Installed		\$500	60	\$30,000
ļ	2. Crossing Approaches	SY	\$/5	350	\$26,250
ļ	b. MP 129.70 Private Road Crossing				
L	1. Concrete Crossing Panels Installed	TF	\$500	30	\$15,000
l	2. Crossing Approaches	SY	\$75	175	\$13,125
	c. MP 128.18 Private Road Crossing				
ſ	1. Concrete Crossing Panels Installed	TF	\$500	30	\$15,000
Ī	2. Crossing Approaches	SY	\$75	175	\$13,125
ĺ	d. MP 125.50 Private Road Crossing				
ļ	1. Concrete Crossing Panels Installed	TF	\$500	30	\$15,000
ļ	2. Crossing Approaches	SY	\$75	175	\$13.125
ţ	e. MP 123.32 Wildlife Refuge Rd. Crossing		÷.5		÷.0,120
ŀ	1 Concrete Crossing Panels Installed	TF	\$500	60	\$ 20 000
ŀ	2 Crossing Annroaches	۱۱ ۷۷	\$300 \$75	350	\$30,000 \$26,250
ŀ	f MD 122 53 Mill Street Crade Crossing	51	\$10 	330	φ20,230
ŀ	1. WIT 122.00 WIIII OLLEEL GLAUE CLOSSING	тг	¢EOO	40	¢ ว∩ ∩ ∩ ∩
ŀ	Concrete Crossing Panels Installed		00C¢	00	\$30,000
ŀ	Z. Crossing Approaches	٥Y	\$/5	350	\$26,250
	U. IVIP 122.39 DIVISION ST. GRADE CROSSING				

Felida to MP 114 Third Main Track

1. Concrete Crossing Panels Installed	TF	\$500	60	\$30,000
2. Crossing Approaches	SY	\$75	350	\$26,250
h. MP 121.47 Private Road Crossing				
1. Concrete Crossing Panels Installed	TF	\$500	30	\$15,000
2. Crossing Approaches	SY	\$75	175	\$13,125
i. MP 119.38 Private Road Crossing				
1. Concrete Crossing Panels Installed	TF	\$500	30	\$15,000
2. Crossing Approaches	SY	\$75	175	\$13,125
j. MP 117.50 Whalen Road Grade Crossing				·
1. Concrete Crossing Panels Installed	TF	\$500	60	\$30,000
2. Crossing Approaches	SY	\$75	350	\$26,250
k. MP 116.63 Davidson Ave. Grade Crossing				·
1. Concrete Crossing Panels Installed	TF	\$500	60	\$30,000
2. Crossing Approaches	SY	\$75	350	\$26,250
I. MP 115.76 Scott Avenue Grade Crossing				·
1. Concrete Crossing Panels Installed	TF	\$500	60	\$30,000
2. Crossing Approaches	SY	\$75	350	\$26,250
3. Grade-Separation Crossing				
a. Bridge	SF	\$100	0	\$0
b. Roadway (earthwork & paving)	SY	\$50	0	\$0
c. Misc. (non-typical per project)	LS	\$1	0	\$0
4. Crossing Signals				
a. Upgrade Signal - Barrier Gates	Each	\$200,000	7	\$1,400,000
b. New Signal	Each	\$250,000	5	\$1,250,000
IV. RR SIGNALS		·		
a. Per P.O. T.O.	Each	\$250,000	9.5	\$2,375,000
b. Per Mile	Mile	\$750,000	18.25	\$13,687,500
V. UTILITY RELOCATION/ADJUSTMENT		·		
1. Transmission Lines	LS	\$1	0	\$0
2. Fiber Optic Lines	LF	\$95	0	\$0
3. Miscellaneous	LS	\$1,000,000	0	\$0
VI. CONTINGENCIES (30%)	LS		0.3	\$16,406,783
		CONS	TRUCTION TOTAL	\$71.096.058
VII. ENVIRONMENTAL MITIGATION (20%)	LS		0.2	\$14,219,212
				¢0F 21F 2/0
	CONST			\$85,315,269
	LS		0.07	\$4,970,724
IX. CONSTRUCTION MANAGEMENT (0%)	LS	¢250.000	0.06	\$4,205,703
	ACKE	\$250,000	14.9	\$3,725,000 \$5,000,077
ΛΙ. ΙΑΛ (δ.2%)				\$5,829,877
			TOTAL	\$104,112,633
Assumptions:	Track Miles			

1 New Track from MP 130.45 to 112.20

18.25

\$ 5,704,802 / mile

*General Excavation Includes a fill section of 5' x 25' for 75% of the time and a cut section of 10' x 25' for 25% of the time *Private Crossings are to be closed or equiped with auto gates.

Hannaford to Nisqually Third and Fourth Main Track

		UNITS	UNIT COST	QUANTITY	TOTAL
Ι.	EARTHWORK				
	1. Embankment	CY	\$20	0	\$0
	2. Excavation	CY	\$10	0	\$0
	3. Rock Excavation	CY	\$50	0	\$0
	4. General*	CY	\$15	1683898	\$25,258,464
.	TRACK				
	1. Track Construction				
	a. New Track	TF	\$135	240557	\$32,475,168
	b. Rehab Track	TF	\$60	0	\$0
	2. Turnouts				
	a. #9's	Each	\$100,000	0	\$0
	b. #11's	Each	\$110,000	0	\$0
	c. #15's	Each	\$135,000	0	\$0
	d. #20's	Each	\$160,000	0	\$0
	e. #24's	Each	\$170,000	3	\$510,000
	f. #33's	Each	\$360,000	1	\$360,000
	g. #48's	Each	\$500,000	1	\$500,000
	3. Crossovers				
	b. #11's	Each	\$220,000	0	\$0
	c. #15's	Each	\$270,000	0	\$0
	d. #20's	Each	\$320,000	0	\$0
	e. #24's	Each	\$340,000	2	\$680,000
	f. #33's	Each	\$720,000	1	\$720,000
	4. Bridges				
	a. MP 47.38 144' Deck Truss Span (2 tracks)	TF	\$8,000	288	\$2,304,000
	b. MP 45.63 48' Reinforced Concrete Trestle (2				
	tracks)	TF	\$8,000	96	\$768,000
	c. MP 43.09 130' Deck Plate Girder (2 tracks)	TF	\$8,000	260	\$2,080,000
	d. MP 42.77 130' Deck Plate Girder (2 tracks)	TF	\$8,000	260	\$2,080,000
	e. MP 42.65 10' Concrete Arch (2 tracks)	TF	\$8,000	20	\$160,000
	f. MP 40.27 8' Concrete Arch (2 tracks)	TF	\$8,000	16	\$128,000
	g. MP 40.17 105' Wood Pile Trestle (2 tracks)	TF	\$8,000	210	\$1,680,000
	h. MP 39.57 42' Girder Beam Span (2 tracks)	TF	\$8,000	84	\$672,000
	h. MP 39.14 71' Reinforced Concrete Trestle (2				
	tracks)	TF	\$8,000	142	\$1,136,000
	i. MP 37.99 145' Concrete Bridge (2 tracks)	TF	\$8,000	290	\$2,320,000
	j. MP 36.15 220' Deck Riveted Truss	TF	\$8,000	220	\$1,760,000
	k. MP 33.56 74' Wood BDPT	TF	\$8,000	74	\$592,000
	I. MP 31.60 112' Concrete Box Girder	TF	\$8,000	112	\$896,000
	m. MP 30.75 248' Wide Flange Beam Spar	TF	\$8,000	248	\$1,984,000
	n. MP 26.84 305' Concrete	TF	\$8,000	305	\$2,440,000
	 Remove Existing Bridge Sta 1340 (Existing 				
	Nisqually River Bridge double track)	TF	\$3,000	700	\$2 100 000
	n Construct New Bridge at Sta 635+00 (Nisqually		\$3,000	700	φ2,100,000
	River 300' Truss Triple Track)	TF	\$15,000	900	\$13 500 000
	a Construct New Bridge at Sta 635+00 (Nisg River	11	φ10,000	700	φ13,300,000
	1800' Deck Plate Cirder Triple Track)	TE	000 82	5400	\$43,200,000
	5 Culvert Crossings	11	φ0,000	5400	ψτυ,200,000
	a Major Culverts (<36" Diameter)	١F	0032	90	\$54 000
	h Minor Culverts (<36" Diameter)		\$000 \$100	1860	\$186 000
	6 Other Drainage	19	001¢ 02	1000 N	000,000 ¢ ۵
	7 Retaining Walls		₽0 \$1 ∩∩∩	1000	₽0 000 000 \$1
111	ROADWAY	LI	φ1,000	1000	φ1,000,000
	1 Roadway Construction	SV	0.62	0	02
	2 At-Grade Crossing	01	φ00	0	ΨŪ
	2.7.1. C.1440 01055119				1

a. MP 51.39 Hanaford Road Grade Crossing				
1. Concrete Crossing Panels Installec	TF	\$500	120	\$60,000
2. Crossing Approaches	SY	\$75	700	\$52,500
b. MP 49.17 Connor Road Grade Crossinc				· · · · ·
1. Concrete Crossing Panels Installec	TF	\$500	120	\$60,000
2. Crossing Approaches	SY	\$75	700	\$52,500
c MP 48 47 Private Road Crossing	0.	÷, c		+02/000
1 Concrete Crossing Panels Installer	TF	\$500	60	\$30,000
2 Crossing Approaches	11 V2	\$300 \$75	350	\$26,000
d MD 46.92 7th St. Dod Crossing	51	ψ/ 5	550	ψ20,230
1. Concrete Crossing Papels Installer	TE	\$500	20	\$10,000
2. Crossing Approaches	1F CV	\$300 ¢75	20	000,01¢
2. Crossing Approaches	51	\$10	0	\$U
e. MP 45.30 18411 St. S.E. Grade Crossing	тг	¢EOO	100	¢(0,000
1. Concrete Crossing Panels Installec		\$500	120	\$60,000
2. Crossing Approaches	SY	\$/5	700	\$52,500
f. MP 42.43 Private Road Crossing				
1. Concrete Crossing Panels Installec	TF	\$500	60	\$30,000
2. Crossing Approaches	SY	\$75	350	\$26,250
g. MP 41.10 McDuff Road Grade Crossing	1 1			
1. Concrete Crossing Panels Installec	TF	\$500	120	\$60,000
2. Crossing Approaches	SY	\$75	700	\$52,500
h. MP 37.02 Private Road Crossing				
1. Concrete Crossing Panels Installec	TF	\$500	60	\$30,000
2. Crossing Approaches	SY	\$75	350	\$26,250
i. MP 36.55 South Rich Road Grade Crossing				
1. Concrete Crossing Panels Installec	TF	\$500	120	\$60,000
2. Crossing Approaches	SY	\$75	700	\$52,500
i, MP 36.01 Private Road Crossing	-			
1. Concrete Crossing Panels Installec	TF	\$500	30	\$15,000
2 Crossing Approaches	SY	\$75	175	\$13 125
k MP 34 84 North Rich Road Grade Crossing				+ · • • • • • •
1 Concrete Crossing Panels Installer	TF	\$500	60	\$30,000
2 Crossing Approaches	SY	\$75	350	\$26,250
L MD 31 /2 Atchison Road Grade Crossing	51	ψ/ Ο	550	ψ20,230
1. Concrete Crossing Papels Installer	TE	\$500	60	\$30,000
2. Crossing Approaches	II CV	\$300 ¢75	250	\$30,000
2. Clossing Apploacties	31	\$70	500	\$20,230
1. Concerto Croosing Danda Installas	тг	¢EQQ	(0	¢20.000
Concrete Crossing Panels Installec		\$500	6U 250	\$30,000
2. Crossing Approaches	SY	\$/5	350	\$26,250
n. MP 27.65 Private Road Crossing		+===		+ + = = = = =
1. Concrete Crossing Panels Installec	11-	\$500	30	\$15,000
2. Crossing Approaches	SY	\$75	175	\$13,125
3. Grade-Separation Crossing	ļļ			
a. Bridge	SF	\$100	0	\$0
 b. Roadway (earthwork & paving) 	SY	\$50	0	\$0
 c. Misc. (non-typical per project) 	LS	\$1	0	\$0
4. Crossing Signals				
a. Upgrade Signal - Barrier Gates	Each	\$200,000	14	\$2,800,000
b. New Signal	Each	\$250,000	8	\$2,000,000
IV. RR SIGNALS				
a. Per P.O. T.O.	Each	\$250,000	12	\$3,000,000
b. Per Mile	Mile	\$750,000	45.56	\$34,170,000
V. UTILITY RELOCATION/ADJUSTMENT	• • • •			
1. Transmission Lines	LS	\$1	0	\$0
2. Fiber Optic Lines		\$95	0	<u>\$</u>
3. Miscellaneous	IS I	\$1 000 000	0	\$0 \$0
VL CONTINGENCIES (30%)	15	\$1,000,000	30%	\$55 343 965
				\$00,0-10,700
		CON	STRUCTION TOTAL	\$239,823,847
VII. ENVIRONMENTAL MITIGATION (20%)	LS		0.2	\$47,964,769

	CONSTRUCTION & MITIGATION SUBTOTAL \$28			\$287,788,616
VIII. ENGINEERING/ADMINISTRATION (7%)	LS		0.07	\$16,787,669
IX. CONSTRUCTION MANAGEMENT (6%)	LS		0.06	\$14,389,431
X. RIGHT OF WAY				
a. Undeveloped	ACRE	\$250,000	12.42	\$3,105,000
b. Residential	ACRE	\$350,000	25	\$8,750,000
XI. TAX (8.2%)			8.2%	\$23,598,667
			TOTAL	\$354,419,382
Assumptions:	Track Miles			
2 New Tracks from MP 51.39 to 36.15	30.48		\$ 11,627,932 /	mile
1 New Track from MP 36.15 to MP 26.16	9.99			
2 New Track from MP 26.16 to MP 25.04 3 New Track from MP 25.04 to MP 24.09	2.24			
(Nisqually)	2.85			
	45.56			

*Private Crossings are to be closed or equiped with auto gates.

Columbia River Bridge

	UNITS	UNIT COST	QUANTITY	TOTAL
The information needed to make a more detailed conceptual estimate requires extensive engineering. No design work has been conducted. The estimate is based on the expected magnitude compared to other similar projects. Expected components of the project include:	LS	\$500,000,000	1	\$500,000,000
New single track bridge including vertical lift span, approximately 2,800 feet				
Replace swing span of existing bridge with vertical lift span				
Turnout and crossovers at the north end of the Oregon Slough Bridge new arrangement of turnouts at the north end of the Columbia River Bridge				

Appendix B: List of Common Cost Estimate Abbreviations and Acronyms

BDPT	Ballast Deck Pile Trestle - Wood
BNSF	BNSF Railway Company
CBG	Concrete Box Girder
CIP	Cast Iron Pipe
CTC	Centralized Traffic Control
CTG	Concrete "T" Girder
CY	Cubic Yards
DPG	Deck Plate Girder
DPGOD	Deck Plate Girder – Open Deck
EA	Each
LF	Linear Foot
LS	Lump Sum
MI	Miles
MP	Mile Post (Rail)
No.	Number
P.O.T.O.	Power Operated Turnout
PT	Pile Trestle - Wood
RBM	Rail Bound Manganese Frog Turnout
RCT	Reinforced Concrete Trestle
RR	Railroad
SF	Square Feet
SPR	Spring Frog Turnout
Sta	Station
SY	Square Yards
TF	Track Feet
T.O.	Turnout
TRT	Thru Riveted Truss
TSTOD	Thru Steel Truss – Open Deck

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Appendix C: Inflation-Adjusted Costs Based on Proposed Construction Year

Seattle to Portland, OR

Project/Land	Base Year \$	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
2005 (Timetable A)											
Felida Crossover	\$2,200,000	2266000 \$	2,333,980.00								
Woodland Crossover	\$2,800,000	2884000 \$	2,970,520.00								
Titlow Crossover	\$4,000,000	4120000 \$	4,243,600.00								
Ruston Crossover	\$3,500,000	3605000 \$	3,713,150.00								
Sound Transit	\$264,000,000	271920000 \$	280,077,600.00								
2007 (Timetable B)											
Vancouver Rail Project	\$76,797,731	\$ 79,101,662.85 \$	81,474,712.74	\$ 83,918,954.12	\$ 86,436,522.74						
Kelso-Martin's Bluff Rail Project	\$394,906,903	\$ 406,754,110.09 \$	418,956,733.39	\$ 431,525,435.39	\$ 444,471,198.46						
Centennial Crossovers	\$3,443,586	\$ 3,546,893.58 \$	3,653,300.39	\$ 3,762,899.40	\$ 3,875,786.38						
Winlock Crossover	\$3,370,162	\$ 3,471,266.86 \$	3,575,404.87	\$ 3,682,667.01	\$ 3,793,147.02						
Ketron Crossover	\$3,370,162	\$ 3,471,266.86 \$	3,575,404.87	\$ 3,682,667.01	\$ 3,793,147.02						
Tenino Crossover	\$3,370,162	\$ 3,471,266.86 \$	3,575,404.87	\$ 3,682,667.01	\$ 3,793,147.02						
North Portland Junction to Kenton	\$50,965,599	\$ 52,494,566.97 \$	54,069,403.98	\$ 55,691,486.10	\$ 57,362,230.68						
2009 (Timetable C)	1										
Pt. Defiance Bypass	\$310,563,418	\$ 319,880,320.54 \$	329,476,730.16	\$ 339,361,032.06	\$ 349,541,863.02	\$ 360,028,118.91	\$ 370,828,962.48				
Reservation Third Main	\$66,560,943	\$ 68,557,771.29 \$	70,614,504.43	\$ 72,732,939.56	\$ 74,914,927.75	\$ 77,162,375.58	\$ 79,477,246.85				
Centralia Steam Plant	\$16,618,201	\$ 17,116,747.03 \$	17,630,249.44	\$ 18,159,156.92	\$ 18,703,931.63	\$ 19,265,049.58	\$ 19,843,001.07				
Woodland Siding	\$16,308,480	\$ 16,797,734.40 \$	17,301,666.43	\$ 17,820,716.42	\$ 18,355,337.92	\$ 18,905,998.06	\$ 19,473,178.00				
Newaukum Crossover	\$3,370,162	\$ 3,471,266.45 \$	3,575,404.44	\$ 3,682,666.57	\$ 3,793,146.57	\$ 3,906,940.97	\$ 4,024,149.20				
Seattle Maintenance Facility	\$95,000,000	\$ 97,850,000.00 \$	100,785,500.00	\$ 103,809,065.00	\$ 106,923,336.95	\$ 110,131,037.06	\$ 113,434,968.17				
Chehalis Jct. Crossover	\$3,443,586	\$ 3,546,893.17 \$	3,653,299.96	\$ 3,762,898.96	\$ 3,875,785.93	\$ 3,992,059.51	\$ 4,111,821.29				
China Creek Crossover	\$1,685,081	\$ 1,735,633.43 \$	1,787,702.43	\$ 1,841,333.51	\$ 1,896,573.51	\$ 1,953,470.72	\$ 2,012,074.84				
King Street Station	\$80,000,000	\$ 82,400,000.00 \$	84,872,000.00	\$ 87,418,160.00	\$ 90,040,704.80	\$ 92,741,925.94	\$ 95,524,183.72				
Sound Transit	\$139,000,000	\$ 143,170,000.00 \$	147,465,100.00	\$ 151,889,053.00	\$ 156,445,724.59	\$ 161,139,096.33	\$ 165,973,269.22				
Auburn South Third Main	\$41,777,008	\$ 43,030,318.24 \$	44,321,227.79	\$ 45,650,864.62	\$ 47,020,390.56	\$ 48,431,002.28	\$ 49,883,932.34				
2015 (Timetable D)											
Winlock to Chehalis Third Main	\$95,115,236	\$ 97,968,693.08 \$	100,907,753.87	\$ 103,934,986.49	\$ 107,053,036.08	\$ 110,264,627.17	\$ 113,572,565.98	\$ 116,979,742.96 \$	120,489,135.25 \$	124,103,809.31	\$ 127,826,923.59
Chehalis Siding	\$8,854,567	\$ 9,120,204.01 \$	9,393,810.13	\$ 9,675,624.43	\$ 9,965,893.17	\$ 10,264,869.96	\$ 10,572,816.06	\$ 10,890,000.54 \$	11,216,700.56 \$	11,553,201.58	\$ 11,899,797.62
East St. Johns Siding/Main Track	\$51,080,416	\$ 52,612,828.48 \$	54,191,213.33	\$ 55,816,949.73	\$ 57,491,458.23	\$ 59,216,201.97	\$ 60,992,688.03	\$ 62,822,468.67 \$	64,707,142.73 \$	66,648,357.02	\$ 68,647,807.73
Lake Yard North Leads	\$18,438,483	\$ 18,991,637.49 \$	19,561,386.61	\$ 20,148,228.21	\$ 20,752,675.06	\$ 21,375,255.31	\$ 22,016,512.97	\$ 22,677,008.36 \$	23,357,318.61 \$	24,058,038.17	\$ 24,779,779.31
Portland Union Station	\$6,071,137	\$ 6,253,271.11 \$	6,440,869.24	\$ 6,634,095.32	\$ 6,833,118.18	\$ 7,038,111.73	\$ 7,249,255.08	\$ 7,466,732.73 \$	7,690,734.71 \$	7,921,456.75	\$ 8,159,100.46
Advanced Signal System	\$268,000,000	\$ 276,040,000.00 \$	284,321,200.00	\$ 292,850,836.00	\$ 301,636,361.08	\$ 310,685,451.91	\$ 320,006,015.47	\$ 329,606,195.93 \$	339,494,381.81 \$	349,679,213.27	\$ 360,169,589.66
2017 (Timetable E)											
Chehalis to Hannaford Third Main	\$67,011,238	\$ 69,021,575.14 \$	71,092,222.39	\$ 73,224,989.07	\$ 75,421,738.74	\$ 77,684,390.90	\$ 80,014,922.63	\$ 82,415,370.31 \$	84,887,831.42 \$	87,434,466.36	\$ 90,057,500.35
Ostrander to Winlock 3rd/4th Main	\$191,604,413	\$ 197,352,545.39 \$	203,273,121.75	\$ 209,371,315.40	\$ 215,652,454.87	\$ 222,122,028.51	\$ 228,785,689.37	\$ 235,649,260.05 \$	242,718,737.85 \$	250,000,299.99	\$ 257,500,308.99
2023 (Timetable F)											
Felida to MP 114 Third Main	\$104,112,633	\$ 107,236,011.99 \$	110,453,092.35	\$ 113,766,685.12	\$ 117,179,685.67	\$ 120,695,076.24	\$ 124,315,928.53	\$ 128,045,406.39 \$	131,886,768.58 \$	135,843,371.64	\$ 139,918,672.79
Hannaford to Nisqually Third Main	\$354,419,382	\$ 365,051,963.46 \$	376,003,522.36	\$ 387,283,628.03	\$ 398,902,136.88	\$ 410,869,200.98	\$ 423,195,277.01	\$ 435,891,135.32 \$	448,967,869.38 \$	462,436,905.46	\$ 476,310,012.63
Columbia River Bridge	\$500,000,000	\$ 515,000,000.00 \$	530,450,000.00	\$ 546,363,500.00	\$ 562,754,405.00	\$ 579,637,037.15	\$ 597,026,148.26	\$ 614,936,932.71 \$	633,385,040.69 \$	652,386,591.91	\$ 671,958,189.67
	NOTES:										

Shaded boxes indicate projects done by other jurisdiction or agency

Some projects did not have a ROW component and therefore was not included in calculations

Improvements were inflated by 3% compounded annually. This is based on WSDOT standard inflation numbers.

Seattle to Portland, OR

Project/Land	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
2005 (Timetable A)										
Felida Crossover										
Woodland Crossover										
Titlow Crossover										
Ruston Crossover										
Sound Transit										
2007 (Timetable B)										
Vancouver Rail Project										
Kelso-Martin's Bluff Rail Project										
Centennial Crossovers										
Winlock Crossover										
Ketron Crossover										
Tenino Crossover										
North Portland Junction to Kenton										
2009 (Timetable C)										
Pt Defiance Bypass										
Reservation Third Main										
Centralia Steam Plant										
Woodland Siding										
Newaukum Crossover										
Seattle Maintenance Facility										
Chebalis Ict Crossover										
China Creek Crossover										
King Street Station										
Sound Transit										
Auburn South Third Main										
2015 (Timetable D)										
Winlock to Chebalis Third Main	\$ 131 661 731 29 \$	135 611 583 23								
Chehalis Siding	\$ 12 256 791 55 \$	12 624 495 30								
East St. Johns Siding/Main Track	\$ 70.707.241.96 \$	72,828,459,22								
Lake Yard North Leads	\$ 25.523.172.69 \$	26,288,867,87								
Portland Union Station	\$ 8.403.873.47 \$	8,655,989,67								
Advanced Signal System	\$ 370.974.677.35 \$	382,103,917,67								
	• • • • • • • • •									
2017 (Timetable E)										
Chehalis to Hannaford Third Main	\$ 92,759.225.36 \$	95,542,002.12 \$	98,408,262,18 \$ 101.36	0.510.05						
Ostrander to Winlock 3rd/4th Main	\$ 265,225,318.25 \$	273,182,077.80 \$	281,377,540.14 \$ 289.81	8,866.34						
		· · ·								
2023 (Timetable F)										
Felida to MP 114 Third Main	\$ 144.116.232.97 \$	148.439.719.96 \$	152.892.911.56 \$ 157.47	9.698.90 \$ 162.3	204.089.87 \$ 16	67.070.212.57 \$	172.082.318.94 \$	177.244.788.51 \$	182.562.132.17	188.038.996.13
Hannaford to Nisgually Third Main	\$ 490,599.313.01 \$	505.317.292.40 \$	520.476.811.17 \$ 536.09	1.115.50 \$ 552	173.848.97 \$ 56	68.739.064.44 \$	585.801.236.37 \$	603.375.273.46 \$	621,476,531.66	640,120,827,61
Columbia River Bridge	\$ 692,116,935.36 \$	712,880,443.42 \$	734,266,856.73 \$ 756.29	4,862.43 \$ 778.	983,708.30 \$ 80	02,353,219.55 \$	826,423,816.14 \$	851,216,530.62 \$	876,753,026.54 \$	903,055,617.33
	NC	DTES:				,	, .,- · · ·	· ·/····	,, -	

Shaded boxes indicate projects done by other jurisdiction or agency

Some projects did not have a ROW component and therefore was not included in calculations

Improvements were inflated by 3% compounded annually. This is based on WSDOT standard inflation numbers.

Seattle to Vancouver, BC

Project/Land	Base Year \$	2004		2005		2006	2007	2008	2009	2010	2011
2005 (Timetable A and B)					1						
PA lot / Delta lot	\$30 367 977	\$ 31 279 016 31	\$	32 217 386 80							
Stanwood Siding	\$9 787 896	\$ 10.081.532.88	¢	10 383 978 87							
Bellingham GP Curve	\$1 997 592	\$ 2,057,519,76	¢ ¢	2 119 245 35							
Mt Vernon Siding	\$8.037.909	\$ 8 279 046 27	φ ¢	8 527 417 66							
SwiftCustoms Facility	\$12,000,000	\$ 12,360,000,00	\$	12 730 800 00							
Colebrook Siding	\$11,268,748	\$ 11 606 810 44	\$	11 955 014 75							
	¢,200,0	•	Ŷ	11,000,01110							
2009 (Timetable C, D, and E)											
Sound Transit	\$180,000,000	\$ 185,400,000.00	\$	190,962,000.00	\$	196,690,860.00	\$ 202,591,585.80	\$ 208,669,333.37	\$ 214,929,413.38		
Bow to Samish Siding Extension	\$15,385,122	\$ 15,846,675.66	\$	16,322,075.93	\$	16,811,738.21	\$ 17,316,090.35	\$ 17,835,573.06	\$ 18,370,640.26		
Bellingham Siding Extension	\$28,319,354	\$ 29,168,934.62	\$	30,044,002.66	\$	30,945,322.74	\$ 31,873,682.42	\$ 32,829,892.89	\$ 33,814,789.68		
Ballard Bridge Speed	\$10,000,000	\$ 10,300,000.00	\$	10,609,000.00	\$	10,927,270.00	\$ 11,255,088.10	\$ 11,592,740.74	\$ 11,940,522.97		
Vancouver BC											
Alternative 1:											
Willingdon Junction	\$14,684,800	\$ 15,125,344.00	\$	15,579,104.32	\$	16,046,477.45	\$ 16,527,871.77	\$ 17,023,707.93	\$ 17,534,419.16		
CN Junction	\$3,563,817	\$ 3,670,731.51	\$	3,780,853.46	\$	3,894,279.06	\$ 4,011,107.43	\$ 4,131,440.65	\$ 4,255,383.87		
Still Creek to CN Junction	\$12,884,086	\$ 13,270,608.58	\$	13,668,726.84	\$	14,078,788.64	\$ 14,501,152.30	\$ 14,936,186.87	\$ 15,384,272.48		
Vancouver Terminal Control	\$6,721,120	\$ 6,922,753.60	\$	7,130,436.21	\$	7,344,349.29	\$ 7,564,679.77	\$ 7,791,620.17	\$ 8,025,368.77		
Sperling to Willington Junction	\$10,353,909	\$ 10,664,526.27	\$	10,984,462.06	\$	11,313,995.92	\$ 11,653,415.80	\$ 12,003,018.27	\$ 12,363,108.82		
Brunette to Piper Siding	\$25,521,605	\$ 26,287,253.15	\$	27,075,870.74	\$	27,888,146.87	\$ 28,724,791.27	\$ 29,586,535.01	\$ 30,474,131.06		
Fraser River Bridge	\$500,000,000	\$ 515,000,000.00	\$	530,450,000.00	\$	546,363,500.00	\$ 562,754,405.00	\$ 579,637,037.15	\$ 597,026,148.26		
Alterantive 2:											
Scott Road Station	\$75,000,000	\$ 77,250,000.00	\$	79,567,500.00	\$	81,954,525.00	\$ 84,413,160.75	\$ 86,945,555.57	\$ 89,553,922.24		
2023 (Timetable F)											
Marvsville to Mt. Vernon	\$277.162.285	\$ 285.477.153.55	\$	294.041.468.16	\$	302.862.712.20	\$ 311,948,593,57	\$ 321.307.051.37	\$ 330.946.262.92	\$ 340.874.650.80	\$ 351,100,890,33
Burlington to Bellingham	\$217.852.072	\$ 224.387.634.16	\$	231,119,263,18	\$	238.052.841.08	\$ 245,194,426,31	\$ 252,550,259,10	\$ 260.126.766.88	\$ 267.930.569.88	\$ 275.968.486.98
Bellingham to Blaine	\$123.797.720	\$ 127.511.651.60	\$	131.337.001.15	\$	135.277.111.18	\$ 139.335.424.52	\$ 143.515.487.25	\$ 147.820.951.87	\$ 152.255.580.43	\$ 156.823.247.84
Everett Junction	\$9.921.785	\$ 10.219.438.55	\$	10.526.021.71	\$	10.841.802.36	\$ 11.167.056.43	\$ 11.502.068.12	\$ 11.847.130.16	\$ 12.202.544.07	\$ 12.568.620.39
Advanced Signal (US)	\$138,000,000	\$ 142,140,000.00	\$	146,404,200.00	\$	150,796,326.00	\$ 155,320,215.78	\$ 159,979,822.25	\$ 164,779,216.92	\$ 169,722,593.43	\$ 174,814,271.23
Advanced Signal (BC)	\$60,000,000	\$ 61,800,000.00	\$	63,654,000.00	\$	65,563,620.00	\$ 67,530,528.60	\$ 69,556,444.46	\$ 71,643,137.79	\$ 73,792,431.93	\$ 76,006,204.88
White Rock Bypass	\$307,439,737	\$ 316,662,929.11	\$	326,162,816.98	\$	335,947,701.49	\$ 346,026,132.54	\$ 356,406,916.51	\$ 367,099,124.01	\$ 378,112,097.73	\$ 389,455,460.66
Colebrook to Brownsville	\$79,926,112	\$ 82,323,895.36	\$	84,793,612.22	\$	87,337,420.59	\$ 89,957,543.21	\$ 92,656,269.50	\$ 95,435,957.59	\$ 98,299,036.31	\$ 101,248,007.40

NOTES:

Shaded boxes indicate projects done by other jurisdiction or agency

Some projects did not have a ROW component and therefore was not included in calculations

Improvements were inflated by 3% compounded annually. This is based on WSDOT standard inflation numbers.

Seattle to Vancouver, BC

Project/Land		2012		2013		2014		2015		2016		2017		2018	2019		2020
2005 (Timetable A and B) PA Jct. / Delta Jct. Stanwood Siding Bellingham GP Curve Mt. Vernon Siding SwiftCustoms Facility Colebrook Siding 2009 (Timetable C, D, and E) Sound Transit Bow to Samish Siding Extension Bellingham Siding Extension Bellingham Siding Extension Ballard Bridge Speed Vancouver BC Alternative 1: Willingdon Junction CN Junction Still Creek to CN Junction Still Creek to CN Junction Still Creek to CN Junction Sperling to Willington Junction Brunette to Piper Siding Fraser River Bridge Alterantive 2: Scott Road Station																	
2023 (Timetable F) Marysville to Mt. Vernon Burlington to Bellingham Bellingham to Blaine Everett Junction Advanced Signal (US) Advanced Signal (BC)	\$	361,633,917.04 284,247,541.59 161,527,945.28 12,945,679.00 180,058,699.37 78,286,391.03	\$ \$ \$ \$ \$ \$ \$	372,482,934.55 292,774,967.83 166,373,783.63 13,334,049.37 185,460,460.35 80,634,982.76	\$ \$ \$ \$ \$ \$ \$	383,657,422.58 301,558,216.87 171,364,997.14 13,734,070.86 191,024,274.16 83,054,032.24	\$\$\$\$\$\$	395,167,145.26 310,604,963.38 176,505,947.06 14,146,092.98 196,755,002.38 85,545,653.21	\$ \$ \$ \$ \$ \$	407,022,159.62 319,923,112.28 181,801,125.47 14,570,475.77 202,657,652.46 88,112,022.81	\$ \$ \$ \$ \$ \$ \$ \$	419,232,824.41 329,520,805.65 187,255,159.23 15,007,590.04 208,737,382.03 90,755,383.49	\$ \$ \$ \$ \$ \$ \$ \$	431,809,809.14 339,406,429.81 192,872,814.01 15,457,817.74 214,999,503.49 93,478,045.00	 \$ 444,764,103.41 \$ 349,588,622.71 \$ 198,658,998.43 \$ 15,921,552.28 \$ 221,449,488.60 \$ 96,282,386.35 	\$ \$ \$ \$ \$ \$	458,107,026.52 360,076,281.39 204,618,768.38 16,399,198.85 228,092,973.25 99,170,857.94
White Rock Bypass Colebrook to Brownsville	\$ \$	401,139,124.48 104,285,447.63	\$ \$	413,173,298.22 107,414,011.05	\$ \$	425,568,497.16 110,636,431.39	\$ \$	438,335,552.08 113,955,524.33	\$ \$	451,485,618.64 117,374,190.06	\$ \$	465,030,187.20 120,895,415.76	\$ \$	478,981,092.81 124,522,278.23	\$ 493,350,525.60 \$ 128,257,946.58	\$ \$	508,151,041.37 132,105,684.98

NOTES:

Shaded boxes indicate projects done by other jurisdiction or agency Some projects did not have a ROW component and therefore was not included in calculations Improvements were inflated by 3% compounded annually. This is based on WSDOT standard inflation numbers.

Costs based on Proposed Year of Construction

Seattle to Vancouver, BC

Project/Land	1	2021		2022		2023
Project/Land 2005 (Timetable A and B) PA Jct. / Delta Jct. Stanwood Siding Bellingham GP Curve Mt. Vernon Siding SwiftCustoms Facility Colebrook Siding 2009 (Timetable C, D, and E) Sound Transit Bow to Samish Siding Extension Bellingham Siding Extension Ballard Bridge Speed Vancouver BC Alternative 1: Willingdon Junction		2021		2022		2023
CN Junction CN Junction Still Creek to CN Junction Vancouver Terminal Control Sperling to Willington Junction Brunette to Piper Siding Fraser River Bridge Alterantive 2: Scott Road Station						
2023 (Timetable F) Marysville to Mt. Vernon Burlington to Bellingham Bellingham to Blaine Everett Junction Advanced Signal (US) Advanced Signal (BC) White Rock Bypass	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	471,850,237.31 370,878,669.83 210,757,331.43 16,891,174.81 234,935,762.45 102,145,983.67 523 395 572 61	\$ \$ \$ \$ \$ \$ \$	486,005,744.43 382,004,926.93 217,080,051.38 17,397,910.05 241,983,835.32 105,210,363.18 539,097,439,79	\$ \$ \$ \$ \$ \$ \$	500,585,916.77 393,465,074.74 223,592,452.92 17,919,847.36 249,243,350.38 108,366,674.08 555,270,362,98
White Rock Bypass Colebrook to Brownsville	\$ \$	523,395,572.61 136,068,855.53	\$ \$	539,097,439.79 140,150,921.19	\$ \$	555,270,362.98 144,355,448.83

NOTES:

Shaded boxes indicate projects done by other jurisdiction or agency Some projects did not have a ROW component and therefore was not included in calculations Improvements were inflated by 3% compounded annually. This is based on WSDOT standard inflation numbers.