

South/North Corridor Project Draft Environmental Impact Statement Errata Sheet - April 9, 1998

A. Introduction

The purpose of this document is to provide technical corrections to the South/North Corridor Project Draft Environmental Impact Statement (DEIS) (Metro: February 1998). The full paragraph of text where a change is to be made is included in this errata sheet and the corrections are illustrated in a *redline/strikeout* format. That is, text that is to be deleted is shown in *strikeout* (~~example text~~) and text that is to be inserted is shown in *redline* or double-underlined text (example text). Within tables, generally only the rows that would change are included within this errata sheet.

A primary correction made to the DEIS addresses an error in the light rail travel time used to calculate the projected weekday light rail rides for the Caruthers Crossing Alternative within the South Willamette River Crossing Segment compared to the Ross Island Crossing Alternative. The difference in year 2015 weekday light rail ridership between the two crossing alternatives, also considering different design options for each alternative, is summarized in the following paragraph that is included in both the Executive Summary and Chapter 7 of the DEIS, as corrected:

1. Pages S-32 and 7-45

Sections S.6.5.5 and 7.2.5.5: Trade-Offs Between Alignment Alternatives in the South Willamette River Crossing Segment

The major trade-offs between the Ross Island Crossing and the Caruthers Crossing alternatives include: The **Ross Island Crossing Alternative** would have \$0.4 to \$0.5 million lower year 2015 operating cost, 44 to 61 more acres of developable land served by light rail, less risk of hazardous materials impacts and 16 to 17 fewer business displacements than the Caruthers Crossing Alternative. Capital costs for the Ross Island Crossing would range from \$4.3 million less to \$1.2 million more than the Caruthers Crossing Alternative, depending upon design options. The **Caruthers Crossing Alternative** would have ~~1,435 to 2,085~~ 865 to 1,515 more daily light rail rides, nine to 26 fewer residential displacements, less potential impact to vegetation, wildlife, wildlife habitat and fisheries, and would provide better light rail access to east Portland neighborhoods and activity centers than the Ross Island Crossing Alternative.

Other sections of the DEIS compare the Caruthers Crossing Alignment Alternative and the Ross Island Crossing Alignment Alternative by length alternative using a representative alignment for each alternative. These comparisons are included in the following sections of the Executive Summary, Chapter 4 and Chapter 7 of the DEIS, as corrected:

2. Page S-10

South Willamette River Crossing Segment. The Caruthers Crossing Alternative would have two more stations in southeast Portland and would serve more trips at southeast Portland stations than the Ross Island Crossing Alternative. The Ross Island Crossing Alternative would include two more North Macadam stations and would serve more light rail rides at those North Macadam stations than the

Caruthers Crossing Alternative. As a result of the difference in service patterns and markets, the Caruthers Crossing Alternative would carry from ~~1,280 to 1,435~~ 710 to 865 more daily light rail rides than the Ross Island Crossing Alternative.

3. Page S-25

Notable differences in the average weekday (2015) light rail ridership with the alignment alternatives and terminus options include Clackamas Regional Center Segment where the longer terminus options (105th Avenue and 93rd Avenue Terminus Options) would attract approximately 1,175 to 1,450 more rides than the shorter (CTC Transit Center) terminus options, respectively. In the South Willamette River Crossing Segment, the Caruthers Crossing Alternative would attract ~~1,280 to 1,435~~ 710 to 865 more daily light rail rides, depending on the length alternative, than the Ross Island Crossing Alternative....

4. Page 4-22

**Table 4.1-14
Adjustments to Light Rail Length Alternative Ridership, by Alignment Alternative and Design Option: Average Weekday – Year 2015**

By Length Alternative ¹		Notes: The ridership adjustment figures below indicate how a length alternative's ridership would change as a result of different alignment alternatives and options. "0" indicates that that alternative and/or option was used to calculate the ridership for the associated length alternative.				
Full-Length	68,030					
MOS 1 (Bi-State)	56,220					
MOS 2 (Rose Quarter)	27,655					
MOS 5 (Lombard)	40,210					
Segment	Alignment Alternative	Terminus Option	Full-Length	MOS 1 (Bi-State)	MOS 2 (Rose Quarter)	MOS 5 (Lombard)
South Willamette	Ross Island ³		0	0	0	0
	Caruthers ⁴		+1,435 <u>+865</u>	+1,385 <u>+815</u>	+1,280 <u>+710</u>	+1,335 <u>+765</u>

Source: Metro, 1997.

Note: CTC = Clackamas Town Center; TC = transit center; N/A = not applicable; P&R = park-and-ride lot; MOS = minimum operable segment.

¹ Length alternatives are based upon a common set of alignment alternatives and terminus and design options, see Section 2.3.2.1.1.

³ Based on the East of McLoughlin Boulevard Design Option. With the West of McLoughlin Boulevard Design Option, ridership would decrease by approximately 500 rides for all length alternatives.

⁴ Based on the Moody Avenue Design Option. With the South Marquam Design Option, the ridership associated with the Caruthers Crossing Alternative would increase by approximately 150 rides.

5. Page 4-23

South Willamette River Crossing Segment

There are two alignment alternatives in the South Willamette River Crossing Segment, the Caruthers Crossing Alignment Alternative and the Ross Island Crossing Alignment Alternative. With the Caruthers Crossing Alternative, there are two design options, the Moody Avenue Design Option and the South Marquam Design Option. With the Ross Island Crossing Alternative, there are two design options, the East of McLoughlin Boulevard Design Option and the West of McLoughlin Boulevard Design Option.

The Caruthers Crossing Alternative would have two more stations in southeast Portland and would serve more trips at southeast Portland stations than the Ross Island Crossing Alternative. The Ross Island

Crossing Alternative would include two more North Macadam stations and would serve more LRT riders at those North Macadam stations than the Caruthers Crossing Alternative. The ridership estimates are based upon forecasts of significant growth in population and employment within the North Macadam district and moderate growth in southeast Portland. As a result of the difference in service patterns and markets, the Caruthers Crossing Alignment Alternative is forecast to carry ~~4,435~~ 865 more daily light rail trips than the Ross Island Crossing Alignment Alternative. The ridership differential between these alignments would not differ significantly by length alternative.

6. Page 7-23

South Willamette River Crossing Segment. The Caruthers Crossing Alternative would attract ~~1,280 to 1,435~~ 710 to 865 more daily light rail riders, depending on the length alternative, than the Ross Island Crossing Alternative. While this is a notable difference for all length alternatives, it represents a relatively large percentage difference for MOS 2 (a ~~4.6~~ 3.2 percent increase over the Ross Island Crossing Alternative) and MOS 5 (a ~~3.3~~ 2.0 percent increase over the Ross Island Crossing Alternative).

The following sections of this errata sheet illustrate, by chapter and appendix, other corrections that should be made to the South/North DEIS:

B. Executive Summary

1. Page S-31

The major trade-offs between **MOS 1 and MOS 5:** MOS 1 would have 1.4 additional miles of exclusive transit right-of-way, 1,100 more park-and-ride spaces, 12,400 more daily corridor transit rides, 16,100 more light rail rides, 47,500 fewer daily regional vehicle miles of travel, 72 fewer residential displacements, fewer ecosystem impacts east of the Milwaukie Regional Center Segment, a lower (better) FTA index and \$0.20 lower operating subsidy per ride. MOS 5 would have a \$206 million lower capital cost, \$0.7 million lower year 2015 operating cost, six fewer business displacements, ~~47,500 fewer daily regional vehicle miles of travel~~, eight fewer congested lane-miles of traffic, 93 more acres of developable land served by light rail, and fewer ecosystem impacts north of N Lombard Street.

2. Page S-32

S.6.5.3 Trade-Offs Between Alignment Alternatives and Terminus Options in the Clackamas Regional Center Segment

The major trade-offs between the CTC Transit Center Terminus Options and the longer southern terminus options include: The **CTC Transit Center Terminus** would have \$31.7 to \$55.0 million lower capital cost, \$0.6 to \$2.1 million lower year 2015 operating cost, 15 to 18 fewer residential displacements than the longer southern terminus options. The longer **105th Avenue and 93rd Avenue Terminus Options** would have light rail access to 250 to 2,120 more residents and 3,420 to 9,420 more jobs, 1,175 to 1,450 more daily light rail rides, and 14 to 33 more developable acres served by light rail than the CTC Transit Center Terminus options. ~~The major trade-offs between the South of CTC and North of CTC Alignment Alternatives include: the South of CTC Alternative would have \$1.9 to \$21.1 million lower capital cost, \$0.6 to \$2.0 million lower year 2015 operating cost, 760 to 2,640 more residents served by light rail and up to 17 fewer residential displacements than the North of CTC Alternative. The North of CTC Alternative would have 2,380 to 8,380 more jobs served by light rail, 85 to 190 more daily light rail rides and better light rail access to higher density residential areas than the South of CTC~~

Alternative.

The major trade-offs between the South of CTC and North of CTC Alignment Alternatives with the longer terminus options include: the **South of CTC Alternative** would have \$16.1 to \$21.1 million lower capital cost, \$1.9 to \$2.0 million lower year 2015 operating cost and up to 17 fewer displacements than the North of CTC Alternative. The **North of CTC Alternative** would have 8,380 more jobs and 2,640 more residents served by light rail, 175 to 190 more daily light rail rides and better light rail access to higher-density residential areas than the South of CTC Alternative.

The major trade-offs between the South of CTC and North of CTC Alignment Alternatives with the shorter terminus options include: the **South of CTC Alternative** would have \$558,000 to \$607,000 lower year 2015 operating cost and 85 more daily light rail rides than the North of CTC Alternative. The **North of CTC Alternative** would have \$1.9 to \$7.2 million lower capital cost, 2,380 more jobs and 760 more residents served by light rail and better light rail access to higher-density residential areas than the South of CTC Alternative.

3. Page S-33

S.6.5.7 Trade-Offs Between Alignment Alternatives in the Eliot Segment

The major trade-offs between the East I-5/Kerby and the Wheeler/Russell alternatives include: The **East I-5/Kerby Alternative** would have \$6.6 to \$10.5 million lower capital cost, ~~12 to 13 fewer displacements~~, and 910 more corridor light rail trips than the Wheeler/Russell Alternative. The **Wheeler/Russell Alternative** would have 12 to 13 fewer displacements, better neighborhood access to light rail than the East I-5 Kerby Alternative, and when compared to the Grade Separated Design Option at NE Broadway and NE Weidler Street would have fewer visual impacts.

C. Chapter 2 Alternatives Considered

1. Page 2-47

**Table 2.5-1
Summary of Annual Corridor Operating and Maintenance Costs¹ for
Tri-Met and C-TRAN by No-Build and Light Rail Length Alternatives²**

		No-Build	Full-Length	MOS 1 (Bi-State)	MOS 2 (Rose Quarter)	MOS 5 (Lombard)
Bus Transportation	Tri-Met	\$36,475,000	\$33,979,000	\$33,721,000	\$34,569,000	\$34,827,000
	C-TRAN	\$6,565,000	\$6,233,000	\$6,330,000	\$6,617,000	\$6,639,000
Bus Maintenance	Tri-Met	\$16,957,000	\$16,012,000	\$15,892,000	\$16,428,000	\$16,416,000
	C-TRAN	\$4,334,000	\$4,308,000	\$4,365,000	\$4,318,000	\$4,375,000
Rail Administration	Tri-Met	\$0	\$3,400,000	\$2,734,000	\$1,995,000	\$2,280,000
Rail Transportation	Tri-Met	\$0	\$6,676,000	\$5,419,000	\$3,967,000	\$4,557,000
Rail Maintenance	Tri-Met	\$0	\$10,457,000	\$8,379,000	\$6,099,000	\$7,153,000
General and Administrative	Tri-Met	\$14,917,000	\$18,877,000	\$17,864,000	\$17,127,000	\$17,698,000
	C-TRAN	\$2,255,000	\$2,191,000	\$2,191,000	\$2,255,000	\$2,255,000
Total		\$81,503,000	\$102,133,000	\$96,895,000	\$93,376,000	\$96,200,000 \$96,184,000

Source: *Operations and Maintenance Costs Results Report* (Metro: February 1998).

¹ At 2015 service costs levels in 1994 dollars (totals may not sum due to rounding).

² See Section 2.3.2.1.1 of this DEIS for definition of length alternatives. See Table 2.4-1 for cost adjustments due to different alignment alternatives and design and terminus options. MOS 3 and MOS 4 were eliminated from further study as a result of the Cost-Cutting process.

2. Page 2-48

**Table 2.5-2
Summary of Annual Corridor Operating and Maintenance Costs (1994\$ in thousands)**

Length Alternative	Corridor O&M Cost	NOTES:			
Full-Length	\$102,133	The cost adjustment figures below indicate how a length alternative's costs would change as a result of different alignment alternatives and options. "\$0" indicates that that alternative and/or option was used to calculate the cost of the associated length alternatives(s). MOS 3 and MOS 4 were eliminated from further study as a result of Cost-Cutting. All costs are in thousands.			
MOS 1 (Bi-State)	\$96,895				
MOS 2 (Rose Quarter)	\$93,376				
MOS 5 (Lombard)	\$96,211 <u>\$96,184</u>				
Segment	Length Alternative	Alignment Alternative	Design Option	Terminus Option	Cost Adjustment
Downtown Portland ^a	Full-Length, MOS 1, MOS 2, MOS 5	Full Transit Mall	Glisan Street		\$0
			Irving Street		+\$177
	MOS 2, MOS 5	Half Transit Mall			-\$119
					<u>-\$199</u>

Source: Tri-Met, 1997.

D. Chapter 3 Affected Environment

1. Page 3-7

Table 3.1-4

1994 Population, Households and Employment in Station Areas¹ by Alignment Alternative

Segment/Alignment Alternative	# of Stations	Population	Households	Employment
South Willamette River Crossing Segment				
Ross Island Crossing with:				
East of McLoughlin Blvd Design Option	5	3,590	2,080	11,740
West of McLoughlin Blvd. Design Option	4	2,700	1,680	11,130
Caruthers Crossing with:				
Moody Design Option	5	2,500 <u>2,970</u>	1,200 <u>1,540</u>	12,610 <u>15,590</u>
South Marquam Design Option	5	2,420 <u>2,890</u>	1,140 <u>1,480</u>	11,520 <u>14,500</u>

Source: County Assessor Data, Metro Data Resource Center; *Land Use and Economic Impacts Results Report* (Metro: February 1998).

¹ Station area is defined as a ¼-mile radius circle around the stations associated with a specific alignment or option. Design options not shown would not affect the numbers in this table.

2. Page 3-10

B. Caruthers Crossing Alignment Alternative. Industrial uses occupy about 26 percent of the land within the proposed station areas for the Caruthers Crossing Alignment Alternative, the highest industrial ratio of all alignment alternatives. The Willamette River, undeveloped land, residential uses, commercial uses and parks (including OMSI and Brooklyn School Park) characterize the remaining land uses. In 1994, there were an estimated ~~11,520 to 12,610~~ 14,500 to 15,590 jobs (fourth highest percent of jobs of all alignment alternatives) within the proposed station areas of this alignment alternative.

E. Chapter 4 Transportation Impacts

1. Page 4-31

A. Congestion. Table 4.2-5 summarizes the volume-to-capacity ratios and level of service at 25 intersections in the East Milwaukie Segment. Compared to the No-Build Alternative, all light rail alignment alternatives would result in a deterioration in level of service from LOS D to LOS E at the intersection of SE Harmony Road with SE Lake/International Way. With the Railroad Avenue/Through Traffic Alternative, the intersection at SE Railroad Avenue and SE 37th Avenue would deteriorate from LOS C to LOS F, due to new trips that would travel to and from the ~~Linwood~~ 37th Avenue Park-and-Ride Lot.

Several intersections that would operate at LOS F with the No-Build would experience an increase in their volume-to-capacity ratios with one or more of the alignment alternatives. Locations that would be affected include: the intersections of Highway 224 with SE Rusk Road; Highway 224 at the westbound ramps at SE Lake Road; Highway 224 at SE Oak Street; Highway 224 at SE Harrison Street (Railroad Avenue/Through Traffic and Railroad Avenue/Local Access alternatives only); the intersection of Highway 224 westbound ramps at SE Lake Road (all alternatives); at the intersections of Highway 224 at

SE Rusk Road and at SE Oak Street (with the Highway 224 Alternative only); and the intersections of SE Monroe Street at SE Linwood Avenue, SE 37th Avenue and SE 42nd Avenue (Railroad Avenue/Local Access Alternative only).

2. Page 4-31 to 4-33

D. Mitigation. With the Railroad Avenue/Through Traffic Alignment Alternative, ~~six~~ four intersections would meet the criteria for consideration of mitigation strategies: SE Harmony Road at SE Lake Road/SE International Way; ~~Highway 224 at SE Rusk Road;~~ Highway 224 westbound ramps at SE Lake Road; ~~Highway 224 at SE Oak Street;~~ SE Railroad Avenue at SE 37th Avenue; and ~~Highway 224 at SE Harrison Street~~ SE Monroe Street at SE 37th Avenue. Mitigation strategies at these locations could include the addition of turn lanes and the addition or modification of traffic signals to increase the vehicle capacity of these intersections.

With the Railroad Avenue/Local Access Alignment Alternative, ~~eight~~ five intersections would meet the criteria for consideration of mitigation strategies: SE Harmony Road at SE Lake Road/SE International Way; ~~Highway 224 at SE Rusk Road;~~ and Highway 224 westbound ramps at SE Lake Road; ~~Highway 224 at SE Oak Street;~~ ~~and Highway 224 at SE Harrison Street~~. In addition, through-traffic diverted from SE Railroad Avenue would increase vehicle volumes and LOS at the intersections at SE Monroe Street at SE Linwood Avenue, SE Monroe Street at SE 42nd Avenue and SE Monroe Street at SE 37th Avenue. Mitigation strategies at these locations could include the addition of turn lanes and the addition or modification of traffic signals to increase the vehicle capacity of these intersections.

With the Highway 224 Alignment Alternative, ~~five~~ four intersections would meet the criteria for consideration of mitigation strategies: SE Harmony Road at SE Lake Road/SE International Way; Highway 224 at SE Rusk Road; Highway 224 westbound ramps at SE Lake Road; and Highway 224 at SE Oak Street ~~and Highway 224 at SE Harrison Street~~. Mitigation strategies at these locations could include the addition of turn lanes and the addition or modification of traffic signals to increase the vehicle capacity of these intersections.

F. Chapter 5 Environmental Impacts

1. Page 5-10

**Table 5.1-4
2015 Projected¹ Population, Households and Employment in Proposed Station Areas², by
Corridor Segment, Alignment Alternative and Design Option³**

Segment/Alignment Alternative	Number of Stations	2015 Population	2015 Households	2015 Employment
South Willamette River Crossing Segment				
Ross Island Crossing with:				
East of McLoughlin Blvd. Design Option	5	6,890	4,160	24,030
West of McLoughlin Blvd. Design Option	4	5,860	3,690	23,210
Caruthers Crossing with:				
Moody Design Option	5	4,130	2,170	19,200
		<u>4,990</u>	<u>2,820</u>	<u>23,400</u>
South Marquam Design Option	5	4,020	1,990	18,210
		<u>4,880</u>	<u>2,640</u>	<u>22,410</u>

Source: Metro Data Resource Center; *Land Use and Economics Impacts Results Report* (Metro: February 1998).

Note: CTC= Clackamas Town Center

¹ Projections are derived from regionally adopted forecasts (Metro, December 1995).

² Station areas are defined as a one-quarter mile radius circle around the stations that would be associated with a specific alignment or option.

³ Where design options would have the same impacts they are not shown separately.

2. Page 5-12

**Table 5.1-6
Vacant¹ and Redevelopable² Lands in Proposed Station Areas³,
by Corridor Segment, Alignment Alternative and Design Option**

Segment/Alignment Alternative	Number of Stations	Acres of Vacant Lands ¹	Redevelopable Lands ^{2,4} (acres)		Total
			Large Parcels	Small Parcels	
South Willamette River Crossing Segment					
Ross Island Crossing					
East of McLoughlin Design Option	5	59	63	20	141
West of McLoughlin Design Option	4	54	59	16	130
Caruthers Crossing with:					
Moody Avenue Design Option	5	33	<u>22</u>	<u>25</u>	<u>80</u>
			<u>25</u>	<u>29</u>	<u>87</u>
South Marquam Design Option	5	32	<u>29</u>	<u>25</u>	<u>86</u>
			<u>32</u>	<u>29</u>	<u>93</u>

Source: Metro Data Resource Center; *Land Use and Economics Impacts Results Report* (Metro: February 1998).

Note: CTC=Clackamas Town Center. Totals may not sum due to rounding.

¹ Vacant land has been determined using the 2040 method, and represents undeveloped land without development limitations such as excessive slope or floodplain.

² Redevelopable land has been determined using the 2040 method and includes land where the land value exceeds the improvement value, and takes into account the surrounding land and building values.

³ Station areas are defined as a one-quarter mile radius circle around the stations associated with a specific alignment or option.

⁴ Large parcels are redevelopable lands, as described in footnote 2 above, that are greater than 1 acre in size and may include multiple parcels under common ownership. Small parcels are one acre or smaller.

3. Page 5-14

~~The station areas associated with the Ross Island Crossing Alternative would serve more projected employment than the station areas associated with the Caruthers Crossing Alternative.~~ The station areas associated with the Caruthers Crossing Alternative would serve more land designated for industrial use (40 percent compared to 6 percent to 8 percent), and the station areas associated with the Ross Island Crossing would serve more land designated for commercial use than the stations associated with Caruthers Crossing (46 percent to 57 percent compared to 20 percent). The amount of land designated for residential use would be similar for both alternatives. There is more vacant and redevelopable land in the proposed station areas associated with the Ross Island Crossing alternative than with the Caruthers Crossing Alternative (130 to 141 acres, compared to ~~80 to 86~~ 87 to 93 acres). The Ross Island Crossing would serve more vacant land in the North Macadam area. The East of McLoughlin Design Option would include a station in the vicinity of SE Center Street that would serve the adjacent residential area, and the West of McLoughlin Design Option would not include a station in this area.

4. Page 5-27

Access to Community Facilities and Services

A. East I-5/Kerby Alignment Alternative. Residential neighborhoods in this segment would have increased transit access to employment and retail centers with the East I-5/Kerby Alignment. The East I-5/Kerby Alignment would also provide better regional transit accessibility to regional entertainment centers, regional employment centers and community facilities (including the Harriet Tubman Middle School) located within this segment than under the No-Build Alternative, including the Oregon Convention Center, the Rose Garden Arena, the Memorial Coliseum and medical facilities. Neighborhoods in this segment that would benefit from increased transit accessibility have a higher proportion of mobility-impaired and poverty-level households than the corridor or regional average. ~~N Flint Avenue would be converted to a one-way street (southbound) between N Russell and Tillamook Streets, which could effect bus and automobile access to the Tubman Middle School.~~

B. Wheeler/Russell Alignment Alternative. The Wheeler/Russell Alignment would also provide better transit accessibility for local residents and would provide for improved regional access to entertainment centers, regional employment centers and community facilities located within this segment than under the No-Build Alternative. Neighborhoods in this segment that would benefit from increased transit accessibility have a higher proportion of mobility-impaired and poverty-level households than the corridor or regional average. N Flint Avenue would be converted to a one-way street (southbound) between N Russell and Tillamook Streets, which could effect bus and automobile access to the Tubman Middle School.

G. Chapter 7 Financial Analysis and Evaluation

1. Page 7-19

**Table 7.2-3
Coverage: Population¹ and Employment¹ within ¼-mile of a Light
Rail Station by Alignment Alternative and Terminus Option**

Segment Alignment Alternative/Terminus Option	Population	Employment
Willamette River Crossing²		
Ross Island	5,860 - 6,890	23,210 - 24,030
Caruthers	4,020 - 4,130 <u>4,880 - 4,990</u>	18,210 - 19,200 <u>22,410 - 23,440</u>

Source: Metro, January 1998.

¹ For the year 2015.

² Ranges result from design options within each alignment alternative.

South Willamette River Crossing. The Ross Island Crossing Alternative would provide one-quarter mile walk access to a light rail station to ~~1,840 to 2,760 (46 to 67 percent)~~ 870 to 2,010 (17 to 41 percent) more residents and ~~4,830 to 5,000 up to 1,620 (25 to 27 up to 7 percent)~~ more jobs than the Caruthers Crossing Alternative.

2. Page 7-30

South Willamette River Crossing. Almost entirely due to the ~~44 to 61~~ 37 to 54 additional acres of vacant and redevelopable land it would serve, the Ross Island Crossing Alternative would support ~~50 to 78~~ 40 to 62 percent more total developable land than the Caruthers Crossing Alternative.

3. Page 7-44

The major trade-offs between **MOS 1 and MOS 5:** MOS 1 would have 1.4 additional miles of exclusive transit right-of-way, 1,100 more park-and-ride spaces, 12,400 more daily corridor transit rides, 16,100 more light rail rides, 47,500 fewer daily regional vehicle miles of travel, 72 fewer residential displacements, fewer ecosystem impacts east of the Milwaukie Regional Center Segment, a lower (better) FTA index and \$0.20 lower operating subsidy per ride. MOS 5 would have a \$206 million lower capital cost, \$0.7 million lower year 2015 operating cost, six fewer business displacements, ~~47,500 fewer daily regional vehicle miles of travel~~, eight fewer congested lane-miles of traffic, 93 more acres of developable land served by light rail, and fewer ecosystem impacts north of N Lombard Street.

4. Page 7-44

7.2.5.3 Trade-Offs Between Alignment Alternatives and Terminus Options in the Clackamas Regional Center Segment

The major trade-offs between the CTC Transit Center Terminus Options and the longer southern terminus options include: The **CTC Transit Center Terminus** would have \$31.7 to \$55.0 million lower capital cost, \$0.6 to \$2.1 million lower year 2015 operating cost, 15 to 18 fewer residential displacements than the longer southern terminus options. The longer **105th Avenue and 93rd Avenue Terminus**

Options would have light rail access to 250 to 2,120 more residents and 3,420 to 9,420 more jobs, 1,175 to 1,450 more daily light rail rides, and 14 to 33 more developable acres served by light rail than the CTC Transit Center Terminus options. ~~The major trade-offs between the South of CTC and North of CTC Alignment Alternatives include: the **South of CTC Alternative** would have \$1.9 to \$21.1 million lower capital cost, \$0.6 to \$2.0 million lower year 2015 operating cost, 760 to 2,640 more residents served by light rail and up to 17 fewer residential displacements than the North of CTC Alternative. The **North of CTC Alternative** would have 2,380 to 8,380 more jobs served by light rail, 85 to 190 more daily light rail rides and better light rail access to higher density residential areas than the South of CTC Alternative.~~

The major trade-offs between the South of CTC and North of CTC Alignment Alternatives with the longer terminus options include: the **South of CTC Alternative** would have \$16.1 to \$21.1 million lower capital cost, \$1.9 to \$2.0 million lower year 2015 operating cost and up to 17 fewer displacements than the North of CTC Alternative. The **North of CTC Alternative** would have 8,380 more jobs and 2,640 more residents served by light rail, 175 to 190 more daily light rail rides and better light rail access to higher-density residential areas than the South of CTC Alternative.

The major trade-offs between the South of CTC and North of CTC Alignment Alternatives with the shorter terminus options include: the **South of CTC Alternative** would have \$558,000 to \$607,000 lower year 2015 operating cost and 85 more daily light rail rides than the North of CTC Alternative. The **North of CTC Alternative** would have \$1.9 to \$7.2 million lower capital cost, 2,380 more jobs and 760 more residents served by light rail and better light rail access to higher-density residential areas than the South of CTC Alternative.

7. Page 7-45

7.2.5.7 Trade-Offs Between Alignment Alternatives in the Eliot Segment

The major trade-offs between the East I-5/Kerby and the Wheeler/Russell alternatives include: The **East I-5/Kerby Alternative** would have \$6.6 to \$10.5 million lower capital cost, ~~12 to 13 fewer displacements~~, and 910 more corridor light rail trips than the Wheeler/Russell Alternative. The **Wheeler/Russell Alternative** would have 12 to 13 fewer displacements, better neighborhood access to light rail than the East I-5 Kerby Alternative, and when compared to the Grade Separated Design Option at NE Broadway and NE Weidler Street would have fewer visual impacts.

H. Appendix G Operations and Maintenance Facility Analysis

1. Page G-10

Table G.2-4
Capital Cost¹ Comparisons for South/North O&M Facility Sites

O&M Facility	Alignment Alternative	Capital Cost
Brooklyn Yard	Caruthers Alignment	\$76.4 \$72.9 ²
	Ross Island Alignment	\$70.8 <u>\$74.3</u>
South of Ochoco	Main Street/Tillamook Branch Line	\$74.5
Hanna-Harvester	Main Street/Tillamook Branch Line	\$74.3

Source: *South/North Operations and Maintenance Facility and North Milwaukie Park-and-Ride Lot Results Report* (Metro: February 1998).

¹ Costs are in 1994 dollars, in millions.

² Note that the cost of a Brooklyn Yard O&M facility with the Caruthers Crossing Alignment Alternative would include an additional \$2.1 million for LRV costs associated with increased light rail travel time differences.

I. Appendix K Station Activities by Alignment Alternative

1. Page K-9

**Table K-4
MOS 5 LRT Station Usage (Ons and Offs) by Ross Island and Caruthers Crossing
Alternative, Average Weekday – Year 2015**

Ross Island			Caruthers		
Station ¹	on/off	%	Station ¹	on/off	%
South CTC TC	3,160	4.1%	South CTC TC	3,190 <u>3,180</u>	4.0% <u>4.1%</u>
OIT/Aquatic Center	2,910	3.8%	OIT/Aquatic Center	2,920	3.7%
Linwood/Harmony Avenue	4,190	5.5%	Linwood/Harmony Avenue	4,190	5.3% <u>5.4%</u>
Wood Avenue	700	0.9%	Wood Avenue	700	0.9%
Milwaukie Marketplace	3,020	3.9%	Milwaukie Marketplace	3,040	3.8% <u>3.9%</u>
Milwaukie TC	4,960	6.5%	Milwaukie TC	5,080 <u>5,050</u>	6.5%
Tacoma Street	3,430	4.5%	Tacoma Street	3,550 <u>3,530</u>	4.5%
Bybee	980	1.3%	Bybee	1,170 <u>1,150</u>	1.5%
Schiller Street	1,470	1.9%	Holgate	1,490 <u>1,500</u>	1.9%
Center Street	970	1.3%	Lafayette Street	1,880 <u>1,690</u>	2.4% <u>2.2%</u>
Gaines Street	1,980	2.6%	Clinton	1,810 <u>1,760</u>	2.3%
Porter Street	1,220	1.6%	OMSI	1,100	1.4%
RiverPlace	1,490	1.9%	North Marquam	2,250 <u>2,220</u>	2.8%
Portland CBD ²	27,520	35.9%	Portland CBD ²	27,880 <u>27,300</u>	35.1% <u>34.9%</u>
Rose Quarter TC	5,650	7.4%	Rose Quarter TC	6,020 <u>5,920</u>	7.6%
Broadway	2,050	2.7%	Broadway	2,070 <u>2,050</u>	2.6%
Kerby Avenue	2,080	2.7%	Kerby Avenue	2,100 <u>2,040</u>	2.6%
Kaiser/I-5	1,210	1.6%	Kaiser/I-5	1,220	1.5% <u>1.6%</u>
Skidmore	1,620	2.1%	Skidmore	1,620 <u>1,610</u>	2.0% <u>2.1%</u>
Killingsworth	2,170	2.8%	Killingsworth	2,170 <u>2,160</u>	2.8%
Portland Blvd.	1,290	1.7%	Portland Blvd.	1,290 <u>1,280</u>	1.6%
Lombard	2,580	3.4%	Lombard	2,580 <u>2,550</u>	3.3%
Total S/N Ons and Offs	76,650	100%	Total S/N Ons and Offs	79,320<u>78,180</u>	100%
Total S/N LRT Ridership	38,325		Total S/N LRT Ridership	39,660<u>39,090</u>	

Source: Metro, 1997.

Note: Shaded area indicates the segment where differences between the alignment alternatives would result in different station locations. CTC=Clackamas Town Center; OIT=Oregon Institute of Technology; CBD=Central Business District; TC=Transit Center; S/N=South/North; LRT=Light Rail Transit; VA=Veterans Administration. Totals may not sum due to rounding.

¹ Bold station indicates park-and-ride lot.

² Based on Half Transit Mall Alternative and includes the following stations: PSU, Jefferson/City Hall, Pioneer Place, 3rd Avenue/Yamhill District, Oak Street, Skidmore Fountain and Old Town/Chinatown.

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