

TRI-MET'S TANGLED WEB

**A Critical Review of
Transit Ridership and Transit Costs
In Portland, Oregon Since 1971**

Executive Summary

**by
Robert W. Behnke
December 1998**

Preface

This report was prepared in response to many misleading and false statements about Portland's public transit system that appeared in newspapers, magazines and Tri-Met publications and on radio and TV programs during the past few years. Tri-Met is the largest transit agency in Oregon. It provides a variety of taxpayer-subsidized transportation services in Portland and its Tri-County suburbs. Tri-Met's Board of Directors is appointed by Oregon's Governor, who is the elected official directly responsible to the public for the transit agency's performance.

The purpose of this report is to provide business, government, community and media leaders, and other interested persons, with more complete and more accurate information, than that available from conventional sources, about both the ridership and the costs of Tri-Met's fixed-route bus and light rail services. This information includes:

1. Tri-Met's base-fare and no-fare equivalent ridership and its annualized capital and operating costs for each year since 1971.
2. The reason why transit has been losing market share to the automobile while taxpayer subsidies for new light rail lines and expanded bus services have been soaring.
3. The potential of privately-operated taxis, shuttles and jitneys and new communications technologies to reduce taxpayer subsidies and increase transit ridership in urban, suburban and rural areas throughout Oregon.

Unless otherwise indicated, all financial data in this report are provided in constant 1998 dollars. This eliminates the effects of inflation in comparing financial data for different years and in identifying important trends.

This report is dedicated to Governor Ben Cayetano (Hawaii), former-Governor George Ariyoshi (Hawaii), former-Mayor Bob Lanier (Houston), the League of Women Voters of Honolulu, and to the Cascade Policy Institute, Thoreau Institute and Oregon Transportation Institute of Portland, for their conscientious efforts to present to the public the cons as well as the pros for building new rail transit lines.

This report is also dedicated to Fred Hansen, Tri-Met's new General Manager. May the Force be with him in his dealings with the Dark Side.

Executive Summary

Despite what you may have heard about Portland's "love affair" with MAX — Tri-Met's light rail system — peak hour ridership on the 12-year old Banfield or Eastside line is only one-third (34%) of what Tri-Met had projected for it in two reports in 1981. This is shown in the following table, prepared by consultant Myles Cunneen from the reports:

Table ES-1: Eastside MAX Ridership - Forecast Versus Actual

	1995 Forecast	1995 Actual	Percent of Forecast
Peak Hour	9,300	3,200	34%
Daily	57,500	26,000	45%

In fact, Eastside MAX has not reached the 7,400 passengers per peak hour and 42,500 passengers per day that Tri-Met forecast for 1990. Nevertheless, a Tri-Met representative told a transportation committee of the Oregon Legislature in 1997 that MAX light rail has always exceeded the ridership projected for it. Unfortunately, many of the legislators believed him.

Although there were 97,000 (20%) more workers in the Tri-County Area in 1990 (i.e., after MAX) than in 1980 (i.e., before MAX), 10,000 (22%) fewer workers used Tri-Met for commuting. This is shown in the Table ES-2, which was prepared by Melvin Zucker from U.S. Census Bureau data. Myles Cunneen did a similar analysis for the Eastside MAX travel corridor and found the same pattern of declining transit usage as the rest of the Portland area.

**Table ES-2: Changes in Means of Transportation to Work: 1980 to 1990
In the Tri-County (Multnomah, Clackamas and Washington) Area**

	Workers in 1989		Workers in 1990		Change	
	Thousands	Percent	Thousands	Percent	Thousands	Percent
Drive Alone	313	63.9%	427	72.7%	+114	38.4%
Rideshare	88	17.9%	72	12.4%	-16	-17.4%
Transit	47	9.6%	37	6.3%	-10	-21.9%
Other	42	8.6%	51	8.6%	+9	21.0%
Total	490	100.0%	587	100.0%	97	19.8%

Professor Ken Dueker of Portland State University recently completed a study of light rail impacts in the Banfield Corridor. This study found that the ridership in the peak three-hour period has been flat in recent years and stated, "This does not bode well for congestion relief or air quality improvements". It also stated, most Transit Oriented Development (TOD) planning efforts (especially new light rail lines) "target areas of new growth, thereby continuing to neglect the serious and complex problems of the inner city, where the most transit-using and transit-dependent people reside. The emphasis becomes misplaced, chasing the elusive choice rider while underserving the captive rider".

Table ES-2 also shows that there were 114,000 (36.4%) more Single-Occupant Vehicles (SOVs) used for commuting in 1990 than in 1980. This greatly increased traffic congestion levels in the Portland area.

In fact, the U.S. Department of Transportation (USDOT) data show that traffic congestion has been growing faster in Portland than in any other West Coast urban area since 1986, the year MAX started operating. This is shown in the following table derived from the latest traffic congestion report by the Texas Transportation Institute (TTI):

Table ES-3: Annual Person-Hours of Delay per Eligible Driver, 1986-1996

Urban Area	Annual Delay Per Eligible Driver			
	1986	1996	Increase	Percent
Los Angeles	59	76	17	29%
Portland-Vancouver	18	48	30	166%
San Diego	19	38	19	100%
San Francisco-Oakland	60	66	6	10%
Seattle-Everett	41	71	30	73%

It is clear, therefore, that MAX has not increased transit ridership as much as Tri-Met management had projected and MAX has not reduced traffic congestion in the Portland area at all.

In addition, according to Oregon's Department of Motor Vehicles (DMV), there were 325,895 more passenger vehicles registered in the Tri-County Area in 1997 than in 1986. Any claim, therefore, that light rail reduced traffic congestion or gasoline consumption or air pollution in the Portland area is ludicrous.

Despite what you may have heard about the economies of light rail (e.g., "One MAX driver can handle as many passengers as 3-4 bus drivers."), Eastside MAX costs taxpayers 62

percent more than buses (i.e., 94 cents versus 58 cents) per passenger mile. This is shown in Table ES-4, which was derived from Tri-Met data for FY 1998 (i.e., ending June 30, 1998).

Table ES-4: Eastside MAX and Bus Costs Per Passenger Mile (FY 1998)

	MAX	Percent	Bus	Percent
Operations (Systems) Costs	\$.35	33%	\$.55	77%
Annualized Capital Costs	.70	67%	.16	23%
Total Costs	\$1.05	100%	\$.71	100%
Passenger Fares	.11	10%	.13	18%
Subsidy	\$.94	90%	\$.58	82%

Because MAX trips also tend to be longer than bus trips (i.e., 5.47 miles versus 3.79), MAX costs taxpayers 134 percent more than buses (i.e., \$5.14 versus \$2.20) per passenger trip. This is shown in the following table which was also derived from Tri-Met data.

Table ES-5: Eastside MAX and Bus Costs Per Passenger Trip (FY 1998)

	MAX	Percent	Bus	Percent
Operations (Systems) Costs	\$1.91	33%	\$2.08	77%
Annualized Capital Costs	3.83	67%	.61*	23%
Total Costs	\$5.74	100%	\$2.69	100%
Passenger Fares	.60	10%	.49	18%
Subsidy**	\$5.14	90%	\$2.20	82%

Moreover, Tables ES-4 and ES-5 compare MAX with the average bus in Tri-Met's system, which includes high-subsidy services in low-density suburban and rural areas and high-subsidy services to feed light rail stations. If one compared Eastside MAX with the bus

* Since Tri-Met does not provide annualized capital costs for its bus system, which includes maintenance facilities and equipment as well as vehicles, this value was obtained from other sources.

** Includes a small amount from advertisers.

lines it replaced in the heavily-traveled Gresham to downtown Portland corridor, MAX would be found to be even less attractive financially. Professor Jose Gomez-Ibanez of Harvard University has pointed out that this corridor approach, using total costs rather than operating costs, is the fairest way to compare the cost-effectiveness of bus and light rail systems.

In addition, it should be noted that the subsidies per passenger mile and per passenger trip for both the new Westside MAX line and the proposed South-North MAX line will be much higher than the subsidies shown for the Eastside MAX line. The reason is the lower ridership and higher construction costs (e.g., a tunnel through the West Hills on one line and a bridge over the Willamette River on the other) per line mile on the Westside and the proposed South-North lines.

It should also be noted that Tri-Met management projected the cost per passenger trip on the Eastside MAX line would be only \$2.48 (in 1998 dollars). This is less than half (i.e., 43%) of the actual \$5.74 cost per passenger trip shown in Table ES-5 for FY 1998. It is clear, therefore, that the cost of light rail in Portland is much higher than the cost of buses per passenger trip or per passenger mile, and much higher than Tri-Met management had projected. Any claim that MAX, Portland or Tri-Met has proven that light rail requires lower taxpayer subsidies than buses is also ludicrous.

Despite what you may have heard about the great success of MAX in stimulating economic development in downtown Portland, employment levels in the Central Business District (CBD) are virtually the same as they were 25 years ago. Furthermore, the percentage of those who work in Portland's CBD and who commute by transit has declined dramatically from the 40 percent level of 1980. As in most other U.S. urban areas, almost all of the new job growth in the Tri-County area has been in the suburbs, which are poorly served by Tri-Met. In fact, only 2% of those who work in Portland's suburbs use transit for commuting.

Although it is true that hundreds of millions of dollars of new construction projects started in the Portland-Vancouver, Seattle-Tacoma and Minneapolis-St. Paul metropolitan areas after Tri-Met's Eastside light rail line opened in 1986, it is difficult to establish a causal relationship between these construction projects and MAX. The "post hoc" reasoning* that some are using to credit MAX with extensive economic development in Portland-Vancouver could be used to claim a crowing rooster caused the sunrise.

It should be noted that those touting MAX as a powerful economic development tool do not provide a list of projects that would not have been built somewhere in the Portland area

* Post hoc, ergo propter hoc = "after this, therefore, on account of it" - a fallacy in arguing, Webster's New Collegiate Dictionary

without MAX. It would be too easy to disprove their claims. It should also be noted that special tax incentives were created in Portland to get developers to build housing near the light rail line. The tax incentives were instituted because the number of new housing units near the Eastside MAX line was growing much slower than anticipated. The need for such tax incentives are not characteristic of a powerful economic development tool. Most of the claims about MAX being the catalyst for hundreds of millions or billions of dollars of new development in the Portland area, therefore, are also ludicrous.

In the early 1980s, the U.S. Department of Transportation (USDOT) warned state and local government leaders that it was a mistake to build new light rail lines far out into the suburbs for commuters. The reason is commuter travel tends to be highly peaked and highly directional. Although light rail trains may be full coming into the city during morning commuting hours, they are almost empty leaving the city. The reverse is true in the afternoon. Furthermore, during non-commuting hours, there tend to be more vacant seats than riders. As a result, average passenger loads tend to be low, and costs and subsidies per passenger trip tend to be high.

To illustrate this point, consider Tri-Met's estimates of the subsidies that will be required per new transit passenger trip for the Beaverton-Hillsboro segment of the new Westside MAX line. Tri-Met's Final Environment Impact Study (FEIS) report shows that the taxpayer subsidies for each new transit passenger trip in the Westside LRT corridor will be approximately \$95 (in 1998 dollars). This means that every new commuter that this suburban light rail segment is expected to attract Tri-Met's ridership will cost federal, state and local taxpayers \$190 per workday. It also means that this suburban light rail segment will cost taxpayers \$135,000 per year for each additional car it takes off the roads, since the average car in Portland provides 1, 423 one-way passenger trips per year (i.e., 3.9 per day).

In the early 1980s, USDOT urged metropolitan areas to make greater use of buses, vanpools and carpools, rather than build suburban rail lines, to handle commuters to downtown in a cost-effective manner. Tri-Met ignored this advice. USDOT also urged metropolitan areas to make greater use of privately-owned and privately-operated taxis, shuttles, jitneys, vanpools and carpools to handle travel within low-density suburban and rural areas, where most Americans now live and work. Tri-Met also ignored this advice. Its recent suburban mobility initiative, called Transit Choices for Liveability (TCL), features more smoke (and mirrors) than substance.

The AARP recently reported that two-thirds of all senior citizens now live and work in low-density suburban and rural areas. Tri-Met's suburban mobility initiative, Transit Choices for Liveability, seems to be trying to reinvent the flat tire. The approach it is using—fixed-route minibus routes and dial-a-ride van or minibus services—will have very high costs per passenger trip. The Transit Choices for Liveability program will raise taxpayer subsidy

levels significantly or it will do little to reduce traffic congestion, parking and mobility problems.

Tri-Met has been the "poster child" for Politically-Correct Transit Planning (PCTP) in the United States. This report was prepared to show how poorly PCTP is working using Tri-Met's own data. Hopefully, this report will provide government, business, community and media leaders, and other interested citizens, with information they can use to ask Tri-Met's management tough questions and change Tri-Met's high-subsidy, low-payoff PCTP philosophy. Hopefully, it will also suggest ways to use new technologies to reduce traffic congestion, gasoline consumption, air pollution and mobility problems in a much more cost-effective manner in urban, suburban and rural areas throughout the United States.

The available data strongly suggest that Tri-Met is heading in the wrong direction with its preoccupation with fixed-route bus and rail transit services. These conventional transit modes cannot transport people economically within low-density suburban and rural areas, where most residents of the Tri-County area and other U.S. metropolitan areas now live and work.

Although Tri-Met management has not been known for its willingness to take advice from outsiders, it may now wish to consider the following words of Joel Garreau, author of Edge Cities:

"Plan A" for the future of America is to pave the planet to accommodate cars. Everybody knows that's stupid. But the only alternative usually offered, "Plan B" is to return to 19th -Century rail. This involves forcing people to give up their individualism, and to live in apartments that are convenient to a form of (public) transportation that requires thousands of people to want to go from the same point X to the same point Y at the same time, like in Manhattan.

This (i.e. Plan B) is in defiance of almost a century's worth of practice that shows that if Americans thought Manhattan was such a wonderful idea, they would have built more places like it and they have not — Don't be satisfied with "Plan B" or "Plan A", especially when neither is wonderful ---- Instead consider "Plan C" which would include little pager-like devices (or palmtop computers or smart phones) to create instantaneous car pools or "smart jitneys" that are both user-friendly and taxpayer-friendly).

Garreau added that transit can shape urban areas of the future, but to do this it must drastically change the way it operates. Tri-Met's data seems to support his views.

Mel Webber, Peter Calthorpe and other planners have also suggested using computers and telecommunication to make public transportation systems more cost-effective by matching would-be riders with the inventory of empty seats in private vehicles that are

constantly moving around on our road network. According to Gordon Linton, CEO of the Federal Transit Administration, a market research study found that 42 percent of drive-alone commuters would consider using the “instant ridesharing” or “smart jitney” services made possible by such a system.

A USDOT study estimated that a 20 percent smart jitney usage rate would reduce traffic congestion delays by two-thirds (67%) and a 10 percent smart jitney usage rate would reduce traffic congestion by half (49%), without any expansion of either the road network or conventional public transportation services. USDOT also refers to the instantaneous carpool or smart jitney concept as “personalized public transportation (PPT)” or “transportation brokerage”, as in the following excerpt from a USDOT Report to Congress shows:

Affordable personal micro-computers could facilitate matching the increasingly individualized mobility demand of urban residents with a diverse range of specialized mass transit services and private ridesharing arrangements. Such matching services - known as transportation brokerage - could stimulate greater use of transit services and could increase the independence of persons with transportation handicaps through faster, more convenient and more sensitive match-ups between individuals and a variety of prescheduled or on-demand services. Eventually these computers could coordinate and manage a region-wide network of individual decentralized services offered by a variety of different (public and private) providers.

In an article in Technology and the New Transportation, Secretary of Transportation Frederico Pena noted the close relationship between the IVHS/ITS program and the National Information Infrastructure (NII) or “information highway” program as follows:

Imagine what life in America will be like when the journey toward deployment of Intelligent Vehicle-Highway Systems (IVHS) is complete. What will emerge is a society infused with information systems that are not only connect all modes of transportation into one cohesive system, but also link transportation to the information superhighway of which vice president gore eloquently speaks.

This seamless system of information and transportation will serve a world in which a suburban commuter can wake up in the morning, flip on a computer or television (or smart phone) and obtain accurate travel data to help him decide how to get to work that day. This seamless system of information and transportation will encourage the use of transit systems, not simply put more single-occupant vehicles on our highways. It will also incorporate a broader information system that eliminates many routine trips . . .

The IVHS industry in America is projected to grow to as much as \$200 BILLION by early the next century. In sheer economic terms, if we even approach that sort of projected growth for IVHS, the federal investment in this program will be one of the most productive investments that our government has ever made.

Tri-Met's new General Manager, Tri-Met's Board of Directors, or Oregon's Governor (who appoints Tri-Met's Board) should insist that the transit agency consider new approaches that can reduce both automobile use and taxpayer subsidy levels, not only in Portland but in urban, suburban and rural areas throughout the state.

Appendix A

ANNUAL RIDERSHIP AND FINANCIAL DATA ABOUT TRI-MET

Comments About Appendix A

The information contained in Appendix A was derived from tables provided by Tri-Met, most of which are contained in Appendix B - "Tri-Met Supplied Financial and Ridership Data About Its Integrated Bus-Rail Transit System". Annualized capital costs for light rail lines were obtained directly or indirectly from Environmental Impact Statement (EIS) reports. All financial information is presented in constant 1998 dollars to eliminate the effects of inflation. Annualized capital cost estimates for the bus subsystem, including storage and maintenance facilities were obtained by multiplying the number of buses by \$53,625. A similar procedure was used in an FTA-approved transit plan. The "Source" entry at the bottom of each column in Appendix A shows the origin of the data.

For all-bus transit agencies, as Tri-Met was before FY 1987, annual operations costs (i.e., wages, fringe benefits, utilities, fuel) tend to be two to three times as large as annualized capital costs. As a result, one can get a good understanding about the financial performance of an all-bus transit agency by only looking at operating costs. This is not the case with a bus-rail transit agency, because annualized rail capital costs can vary a great deal and can be as large or larger than annual rail operating costs.

To illustrate, Table A5 shows that Tri-Met's annualized capital costs jumped from \$33 million FY 86 to \$70 million in FY 87 (when Eastside MAX opened) and from \$75 million in FY 98 to \$145 million in FY 99 (when Westside MAX opened). Between FY 86 and FY 99, Tri-Met's annualized capital costs increased by 340 percent, while annual operations costs increased by only 44 percent. As a result, Tri-Met's annualized capital costs in FY 99 will be almost as large as annual operating costs.

Table A2, column F (i.e., A2F) shows that Annual Taxpayer Subsidies Per Capita for Tri-Met will be 620% higher in FY 99 (\$180) than they were in FY 71 (\$29). Table A2, column D (i.e., A2D) shows that the average Tax Subsidies Per Passenger Trip, excluding transfers, will be 240% higher in FY 99 (\$4.50) than they were in FY 71 (\$1.87). The Subsidies Per Passenger Trip or Per Ride include trips within Tri-Met's Fareless Square.

It should also be noted, that building the proposed South-North MAX line would add approximately \$83 million in 1998 dollars to the annualized capital costs of Tri-Met's bus-rail transit system. Based on past experience, this would reduce the percentage of Tri-Met's annual costs that fares cover to under 10 percent. The remaining 90%-plus would be paid by federal, state and local taxpayers.

Table A1 - TRI-MET FIXED-ROUTE BUS & RAIL TRANSIT SYSTEM
Annual Costs, Revenues & Taxpayer Subsidies
(All Dollar Values in Millions of Constant 1998 Dollars)

	A1A	A1B	A1C	A1D	A1E
FISCAL YEAR 7/1-6/30	ANNUALIZED CAPITAL COSTS	OPERATIONS OR SYSTEMS COSTS (d)	TOTAL COSTS	OPERATING REVENUES INCLUDING FARES	TAX- PAYER SUBSIDIES
71	\$16.677	\$33.923	\$50.600	\$24.171	\$26.429
72	16.034	37.482	53.516	24.503	29.013
73	16.034	40.976	57.010	24.182	32.828
74	18.340	46.003	64.343	24.980	39.363
75	22.630	58.536	81.166	23.489	57.677
76	23.112	74.875	97.987	24.623	73.364
77	28.422	84.432	112.854	26.796	86.058
78	28.422	90.761	119.183	27.189	91.994
79	29.762	94.324	124.086	28.826	95.260
80	29.869	100.721	130.590	31.794	98.796
81	30.352	104.294	134.646	35.814	98.832
82	34.857	107.853	142.710	32.410	110.300
83	35.607	115.098	150.705	31.946	118.759
84	35.286	118.371	153.657	30.359	123.298
85	34.535	111.086	145.621	30.969	114.652
86	33.087	103.553	136.640	30.246	106.394
87(a)	70.011	104.770	174.781	33.199	141.582
88	68.134	109.375	177.509	34.839	142.670
89	70.172	112.516	182.688	33.274	149.414
90	70.065	115.200	185.265	33.262	152.003
91	69.153	113.566	182.719	35.260	147.459
92	69.636	117.810	187.446	34.399	153.047
93	69.796	126.188	195.984	33.875	162.109
94	70.869	131.619	202.488	33.765	168.723
95	71.834	141.895	213.729	35.538	178.191
96	73.014	141.301	214.315	36.675	177.640
97	73.389	144.706	218.095	47.418	170.677
98(b)	74.676	147.120	221.796	39.600	182.196
99(c)	145.586	148.850	294.436	43.466	250.970
Source:	A5E	Tri-Met B6B	A1A + A1B	Tri-Met B5D	A1C - A1D

Notes:

- (a) Eastside MAX Light Rail Line opened in September 1986 (FY87).
- (b) Preliminary data, from Tri-Met Monthly Reports for FY98.
- (c) Westside MAX Light Rail Line opens in September 1998 (FY99); Pro-Forma FY 99 data, based on Tri-Met growth rates between FY86 and FY87, when Eastside MAX Light Rail Line opened.
- (d) What the U.S. transit industry calls Operating Costs, Tri-Met calls Systems Costs. It includes labor, fringe benefits, fuel and utilities. It excludes capital costs, such as the cost of rail cars, buses, tracks, bus maintenance facilities, stations, etc.

**Table A2 - TRI-MET FIXED-ROUTE BUS AND RAIL TRANSIT SYSTEM
Annual Ridership, Fares & Subsidies Per Ride, & Taxpayer Subsidies Per Capita
(All Dollar Values in Constant 1998 Dollars)**

	A2A	A2B	A2C	A2D	A2E	A2F
FISCAL YEAR 7/1-6/30	ANNUAL PASSENGER RIDES (e) (in millions)	AVERAGE FARE PER RIDE	FARE PERCENT OF TOTAL COSTS	AVERAGE SUBSIDIES PER RIDE	TRI-COUNTY POPULATION (in millions)	TAX PAYER SUBSIDIES PER CAPITA
71	14.156	\$1.36	38.0%	\$1.87	.904	\$29.236
72	17.608	1.60	52.6	1.65	.917	31.369
73	17.258	1.36	41.2	1.90	.924	35.528
74	20.550	1.16	37.0	1.92	.931	42.280
75	22.690	1.01	28.2	2.54	.942	61.228
76	28.170	0.85	24.4	2.60	.955	76.821
77	30.460	0.85	22.9	2.85	.968	88.903
78	32.630	0.79	21.6	2.82	1.013	90.813
79	33.160	0.84	22.4	2.87	1.034	92.128
80	39.760	0.76	23.1	2.48	1.053	93.823
81	37.740	0.90	25.2	2.62	1.062	93.062
82	36.960	0.84	21.8	2.98	1.069	103.181
83	36.520	0.84	20.4	3.25	1.058	112.249
84	36.720	0.79	18.9	3.36	1.069	115.340
85	35.640	0.80	19.6	3.22	1.078	106.356
86	33.720	0.83	20.5	3.16	1.088	97.789
87(a)	35.400	0.84	17.0	4.00	1.097	129.063
88	35.520	0.88	17.6	4.02	1.120	127.384
89	37.440	0.81	16.6	3.39	1.142	130.835
90	39.661	0.76	16.3	3.83	1.183	128.489
91	42.311	0.77	17.8	3.49	1.217	121.166
92	43.996	0.73	17.1	3.48	1.240	123.425
93	44.022	0.73	16.4	3.68	1.268	127.846
94	45.612	0.69	15.5	3.70	1.285	131.302
95	47.184	0.70	15.5	3.78	1.305	136.545
96	49.248	0.69	15.9	3.61	1.326	133.967
97	51.432	0.69	16.3	3.32	1.347	126.709
98(b)	53.100	0.67	16.0	3.43	1.368	133.184
99(c)	55.750	0.68	12.9	4.50	1.390	180.554
Source:	Tri-Met B1E	Tri-Met B5A	A2B ÷ (A1C÷A2A)	A1E ÷ A2A	Tri-Met B7B	A1E ÷ A2E

Notes:

- (e) All ridership data in these tables are for one-way passenger trips, excluding transfers. Tri-Met calls these Originating Rides.

Table A3 - TRI-MET FIXED-ROUTE BUS AND RAIL TRANSIT SYSTEM
Transit Employee Productivity
(All Dollar Values In Constant 1998 Dollars)

	A3A	A3B	A3C	A3D	A3E	A3F
FISCAL YEAR	AVERAGE WEEKDAY RIDES (e)	FTE TRI-MET EMPLOYEES	AVERAGE WEEKDAY RIDES PER FTE EMPLOYEE	ANNUAL FARE REVENUES PER FTE EMPLOYEE	FTE BUS & MAX DRIVERS	DRIVER PERCENT OF TOTAL EMPLOYEES
7/1-6/30						
71	50,200	654	76.8	\$29,339	476	72.8%
72	51,800	671	77.2	34,930	493	73.5
73	61,200	723	84.6	32,427	530	73.3
74	73,100	905	80.8	26,275	645	71.3
75	79,200	1,088	72.8	20,994	760	69.9
76	96,200	1,198	80.3	19,948	850	71.0
77	104,500	1,283	81.4	20,277	881	68.7
78	113,000	1,349	83.8	19,036	938	69.5
79	116,600	1,352	86.2	20,542	963	71.2
80	137,300	1,478	92.9	20,419	964	65.2
81	130,567	1,597	81.8	21,262	988	61.9
82	127,892	1,709	74.8	18,149	1,042	61.0
83	124,158	1,775	69.9	17,310	1,074	60.5
84	125,467	1,722	72.9	16,920	1,011	58.7
85	123,108	1,535	80.2	18,599	887	57.8
86	115,600	1,566	73.8	17,903	882	56.3
87(a)	120,300	1,559	77.2	19,099	858	55.0
88	121,000	1,605	75.4	19,521	871	54.3
89	128,900	1,630	79.1	18,639	868	53.3
90	136,400	1,666	81.9	18,086	885	53.1
91	145,800	1,708	85.4	19,029	899	52.6
92	149,800	1,764	84.9	18,115	912	51.7
93	149,500	1,853	80.7	17,299	938	50.6
94	152,900	2,007	76.2	15,765	980	48.8
95	158,200	2,020	78.3	16,455	1,012	50.1
96	164,500	2,105	78.1	16,159	1,072	50.9
97	171,500	2,161	79.4	16,528	1,075	49.7
98 (b)	177,400	2,282	77.7	15,670	1,153	50.5
99 (c)	184,600	2,272	81.3	16,717	1,122	49.4
Source:	Tri-Met BIG	Tri-Met B4E	A3A ÷ A3B	A4B ÷ A3B	Tri-Met B4A	A3E ÷ A3B

Table A4 - TRI-MET FIXED-ROUTE BUS AND RAIL TRANSIT SYSTEM
No-Fare & Base-Fare Equivalent Riders
(All Dollar Values in Constant 1998 Dollars)

	A4A	A4B	A4C	A4D	A4E	A4F
FISCAL YEAR	BASE FARE	ANNUAL FARE REVENUES (in millions)	ANNUAL BASE-FARE EQUIVALENT RIDES (in millions)	ANNUAL BASE-FARE EQUIVALENT RIDES PER CAPITA	ANNUAL NO-FARE EQUIVALENT RIDES (in millions)	ANNUAL NO-FARE EQUIVALENT RIDES PER CAPITA
7/1-6/30						
71	\$1.43	\$19.188	13.418	14.8	.734	0.8
72	1.39	23.438	16.862	18.4	.746	0.8
73	1.37(f)	23.445	17.113	18.5	.145	0.2
74	1.21	23.779	19.652	21.1	.898	1.0
75	1.10	22.841	20.765	22.0	1.925	2.0
76	1.02	23.898	23.429	24.5	4.741	5.0
77	1.09	26.015	23.867	24.7	6.593	6.8
78	1.12	25.679	22.928	22.6	9.702	9.6
79	1.00	27.773	27.773	26.9	5.387	5.2
80	1.07	30.179	28.205	26.8	11.555	11.0
81	1.16	33.956	29.272	27.6	8.468	8.0
82	1.08	31.017	28.719	26.9	8.241	7.7
83	1.23	30.725	24.980	23.6	11.540	10.9
84	1.21	29.137	24.080	22.5	12.640	11.8
85	1.18	28.549	24.194	22.4	11.446	10.6
86	1.30	28.036	21.566	19.8	12.154	11.2
87(a)	1.30	29.776	22.905	20.9	12.495	11.4
88	1.25	31.331	25.065	22.4	10.455	9.3
89	1.21	30.382	25.109	22.0	12.331	10.8
90	1.15	30.132	26.202	22.1	13.459	11.4
91	1.14	32.502	28.511	23.4	13.800	11.3
92	1.09	31.955	29.317	23.6	14.679	11.8
93	1.11	32.055	28.878	22.8	15.144	11.9
94	1.08	31.641	29.297	22.8	16.315	12.7
95	1.10	33.239	30.217	23.2	16.967	13.0
96	1.07	34.015	31.790	24.0	17.458	13.2
97	1.08	35.718	33.072	24.6	18.360	13.6
98(b)	1.08	35.760	33.111	24.2	19.989'	14.6
99(c)	1.10	37.980	34.527	24.8	21.223	15.3
Source:	Tri-Met B5B	Tri-Met B5C	A4B ÷ A4A	A4C ÷ A2E	A2A - A4C	A4E ÷ A2E

Notes:

(f) Interpolated this value between FY 72 and FY 74 because of inconsistencies in Tri-Met's data.

Table A5 - TRI-MET FIXED-ROUTE BUS AND RAIL TRANSIT SYSTEM
Annualized Capital Costs
(All Dollar Values in Millions of Constant 1998 Dollars)

	A5A	A5B	A5C	A5D	A5E
FISCAL YEAR 7/1 - 6/30	NUMBER OF BUSES	BUS COSTS INCLUDING FACILITIES (g)	EASTSIDE LRT LINE COSTS	WESTSIDE LRT LINE COSTS	ANNUALIZED CAPITAL COSTS
71	311	\$16.677			\$16.677
72	299	16.034			16.034
73	299	16.034			16.034
74	342	18.340			18.340
75	422	22.630			22.630
76	431	23.112			23.112
77	530	28.421			28.422
78	530	28.421			28.422
79	555	29.762			29.762
80	557	29.869			29.869
81	566	30.352			30.352
82	650	34.856			34.857
83	664	35.607			35.607
84	658	35.285			35.286
85	644	34.535			34.535
86	617	33.087			33.087
87(a)	563	30.191	\$39.820		70.011
88	528	28.314	39.820		68.134
89	566	30.352	39.820		70.172
90	564	30.245	39.820		70.065
91	547	29.333	39.820		69.153
92	556	29.816	39.820		69.636
93	559	29.976	39.820		69.796
94	579	31.049	39.820		70.869
95	597	32.014	39.820		73.834
96	619	33.194	39.820		73.014
97	626	34.569	39.820		74.389
98(b)	650	34.856	39.820		74.676
99(c)	593	31.800	39.820	\$73.966	145.586
Source:	Tri-Met B3E	A5A X \$53,625	Pickrell (h)	FEIS (i)	A5B + A5C + A5D

Notes:

- (g) The Annualized Capital Costs (in 1998 dollars) of Buses and Bus Support Facilities is taken as \$53,625 Per Bus This was based on an FTA-approved transit plan.
- (h) Pickrell Report - Reference (002)
- (i) Final Environmental Impact Statement (FEIS) Westside LRT Line - Reference (003) Since this project had some overruns, this \$73,466 number may be 5% - 6% too low.