



DATE: August 31, 2007  
TO: TPAC and Interested Parties  
FROM: Kim Ellis, Principal Transportation Planner  
SUBJECT: 2035 RTP System Analysis – Round 1 Preliminary Results

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### **Purpose**

The purpose of this memo is to describe Round 1 RTP system analysis data available for TPAC consideration. TPAC will be asked to discuss the preliminary results during the September 17 TPAC workshop. The workshop will be held from 1:30-4:30 p.m. at Metro in the Council Chambers. Additional workshops may be scheduled as needed.

### **System Analysis Data Available to Date**

The following data is available for TPAC review prior to the September 17 workshop:

- ✓ System performance measures for Total Region Trips and Intra-UGB Trips (Attachments 1 and 2 to this memo)
- ✓ Volume/capacity plots of EMME/2 model auto network volumes (region-wide and subareas) for the following time periods:
  - 2005 PM 2-hour peak period (*updated*)
  - 2005 Mid-day period (*updated*)
  - 2035 No Build PM 2-hour peak period (*updated*)
  - 2035 No Build Mid-day period (*updated*)
  - 2035 Round 1 Illustrative PM 2-hour peak period (*new*)
  - 2035 Round 1 Illustrative Mid-day period (*new*)
- ✓ Environmental Considerations Maps
  - Goal 5 inventory and Conservation Opportunity Areas (in hatched pattern) and RTP projects by mode
  - Wildlife Hotspots, problematic culverts and RTP projects
  - Watersheds, Floodplains, wetlands and RTP projects

Additional data and summary materials will be prepared for the workshop. The volume/capacity plots and maps are posted on Metro's ftp site to download in \*.pdf format. You can zoom into

the volume/capacity plots and other maps in Adobe Acrobat Reader to view on a computer screen or they can be printed poster size.

To access the files go to:

<ftp://ftp.metro-region.org>

Click on pub

Click on tran

Click on 2035RTP

Click on System Analysis (the files are located inside)

Please contact me by phone at (503) 797-1617 or email at [ellisk@metro.dst.or.us](mailto:ellisk@metro.dst.or.us) with any questions about the 2035 RTP update or accessing this information.



2035 Regional Transportation Plan (RTP) Update

**System Performance Measures for Total Region Trips** (includes Clark, Clackamas, Multnomah and Washington counties)

August 30, 2007 preliminary draft

(Numbers subject to change due to model refinement)

	2005	2035 No Build	Round 1 2035 Illustrative	2035 Financially Constrained	Round 2 2035 Illustrative	Round 3 2035 Illustrative
<b>Demographic Data</b>						
1 Population	1,899,407	3,034,596	3,034,595			
2 Households	767,020	1,208,686	1,208,686			
3 Employment	1,032,246	1,799,244	1,799,244			
<b>Network Data</b>						
1 a Total Miles in Network	6,828	6,913	7,076			
1 b Freeway Miles	497	510	514			
1 c Arterial Miles	6,331	6,403	6,562			
2 a Total Lane Miles	9,607	9,806	10,380			
2 b Freeway Lane Miles	1,192	1,247	1,291			
2 c Arterial Lane Miles	8,415	8,558	9,089			
3 a Total Roadway Capacity-Miles	8,808,609	9,096,272	9,622,036			
3 b Freeway Capacity Miles	2,085,913	2,219,419	2,280,577			
3 c Arterial Capacity Miles	6,722,697	6,876,854	7,341,459			
4 Total Lane Miles Added (from 2005)		199	773			
<b>Financial Data</b>						
1 Total System Cost (\$2007) in billions	n/a	n/a	\$21.40			
<b>Motor Vehicle Data - Average Weekday (AWD)</b>						
1 a AWD Total Auto Person Trips	7,048,654	11,457,519	11,416,726			
b AWD Total SOV Trips	3,672,218	5,946,941	5,909,417			
c AWD Total Vehicle Trips	5,146,167	8,365,198	8,325,554			
d AWD Total Person Trips	8,170,426	13,479,726	13,479,726			
2 AWD Total VMT	32,611,297	49,024,168	49,947,531			
AWD Total VMT % change from 2005	-	50%	53%			
3 AWD VMT/Capita	17.17	16.16	16.46			
VMT/Capita % change from 2005	-	-6%	-4%			
4 AWD VMT/Employee	31.59	27.25	27.76			
VMT/Employee % change from 2005	-	-14%	-12%			
5 Single Occupant Vehicle (SOV) Percent of Person Trips	44.95%	44.12%	43.84%			
6 Non-SOV Percent of Person Trips (shared ride, walk, bike, transit)	55.05%	55.88%	56.16%			
7 AWD Motor Vehicle Average Trip Length (miles)	6.05	5.57	5.71			
8 Home-Based-Work Average Trip Length (miles)	9.09	8.56	8.69			
9 Auto Occupancy	1.37	1.37	1.37			
<b>Motor Vehicle Data - PM 2 Hour Peak</b>						
1 PM 2-HR Motor Vehicle Average Travel Time (minutes)	14.77	16.82	16.26			
2 PM 2-HR Average Motor Vehicle Travel Speed (miles per hour)	28.46	24.61	24.46			
3 a PM 2-HR Total Congested miles (v/c > 0.9) (percentage of total miles in network)	210(3.08%)	857(12.39%)	664(9.39%)			
3 b PM 2-HR Freeway Congested miles (percentage of freeway miles in network)	64(12.89%)	128(25.05%)	111(21.68%)			
3 c PM 2-HR Arterial Congested miles (percentage of arterial miles in network)	146(2.31%)	729(11.38%)	553(8.43%)			
4 PM 2-HR Motor Vehicle Hours	216,980	406,782	391,868			
5 a PM 2-HR Motor Vehicle Hours of Delay (percentage of total PM 2 Motor Vehicle Hours)	8,540(3.94%)	52,464(12.90%)	36,539(9.32%)			
5 b PM 2-HR Freeway VHD (percentage of total PM 2 Motor Vehicle Hours)	4,965(2.29%)	23,096(5.68%)	15,552(3.97%)			
5 c PM 2-HR Arterial VHD (percentage of total PM 2 Motor Vehicle Hours)	3,575(1.65%)	29,367(7.22%)	20,987(5.36%)			

	2005	2035 No Build	Round 1 2035 Illustrative	2035 Financially Constrained	Round 2 2035 Illustrative	Round 3 2035 Illustrative
<b>Motor Vehicle Data - Midday 1 Hour</b>						
1 MD 1-HR Motor Vehicle Average Travel Time (minutes)	12.61	13.07	12.78			
2 MD 1-HR Average Motor Vehicle Travel Speed (miles per hour)	31.95	30.48	29.69			
3 a MD 1-HR Total Congested miles (v/c > 0.9) (percentage of total miles in network)	47(0.69%)	261(3.78%)	160(2.26%)			
3 b MD 1-HR Freeway Congested miles (percentage of freeway miles in network)	20(4.02%)	90(17.65%)	57(11.15%)			
3 c MD 1-HR Arterial Congested miles (percentage of arterial miles in network)	27(0.43%)	171(2.67%)	102(1.56%)			
4 MD 1-HR Motor Vehicle Hours	71,973	121,969	118,613			
5 a MD 1-HR Motor Vehicle Hours of Delay (percentage of total MD 1 Motor Vehicle Hours)	497(0.69%)	4364(3.58%)	2171(1.83%)			
5 b MD 1-HR Freeway VHD (percentage of total MD 1 Motor Vehicle Hours)	361(0.50%)	2718(2.23%)	1486(1.25%)			
5 c MD 1-HR Arterial VHD (percentage of total MD 1 Motor Vehicle Hours)	136(0.19%)	1647(1.35%)	685(0.58%)			
<b>Freight Data - Average Weekday (AWD)</b>						
1 AWD Total Truck Trips	128,441	212,479	212,479			
2 AWD Truck Average Trip Length (miles)	24.37	29.03	24.68			
4 Freight Network Miles	1,040	1,041	1,060			
Freight Network Miles added from 2005	-	1	20			
3 Freight Network Lane Miles	2,252	2,274	2,398			
Freight Network Lane Miles added from 2005	-	23	146			
<b>Freight Data - PM 2 Hour Peak</b>						
1 PM 2-HR Truck Average Travel Time (minutes)	40.35	52.38	48.13			
2 PM 2-HR Truck Hours	4,542	9,755	5,418			
3 PM 2-HR Truck Vehicle Hours of Delay (time accrued above v/c > 0.9)	246	1,825	637			
4 PM 2-HR Congested Freight Network Miles	111	298	240			
<b>Freight Data - Midday 1 Hour</b>						
1 MD 1-HR Truck Average Travel Time (minutes)	36.65	44.11	40.82			
2 MD 1-HR Truck Hours	2,997	6,038	3,338			
3 MD 1-HR Truck Vehicle Hours of Delay (time accrued above v/c > 0.9)	28	424	110			
4 MD 1-HR Congested Freight Network Miles	26	148	87			
<b>Transit Data</b>						
1. AWD Total Transit Trips (originating riders)	268,522	532,857	570,405			
2. AWD Transit Revenue Hours						
3. Transit Percent of Person Trips	3.29%	3.95%	4.23%			
4. AWD Originating Riders Per Revenue Hour *						
5. Percent Covered Households (w/in 1/4 mile)	61%	54%	55%			
6. Percent Covered Employment (w/in 1/4 mile)	81%	75%	76%			
<b>Pedestrian Data</b>						
1. Total Walk Trips (does not include walk trips to transit)	528,113	944,397	955,189			
2. Walk Percent of Person Trips	6.46%	7.01%	7.09%			
<b>Bicycle Data</b>						
1. Total Bike Trips	82,496	151,566	148,772			
2. Bike Percent of Person Trips	1.01%	1.12%	1.10%			
<b>Environmental Data</b>						
1 Total Number of Projects within Habitat Conservation Area (HCA)	n/a	n/a	573			
1 a. Total Number of Projects within High HCA	n/a	n/a				
<b>Equity Data</b>						

\* AWD Transit Revenue Hours were calculated using existing daily peak and off-peak expansion factors.

\*\* Walk trips are consistently understated between systems because they represent only trips 6 blocks or longer in length and improvement in the pedestrian environment is not accounted for.

\*\*\* Bike trips are consistently understated between systems due to the broad area of coverage and sample size of the 1994 Metro Travel Behavior Survey.



2035 Regional Transportation Plan (RTP) Update  
**System Performance Measures for Intra-UGB Trips** (within Metro UGB, excludes Clark County, Washington)  
 August 30, 2007 preliminary draft

(Numbers subject to change due to model refinement)

Attachment 2

	2005	2035 No Build	Round 1 2035 Illustrative	2035 Financially Constrained	Round 2 2035 Illustrative	Round 3 2035 Illustrative
<b>Demographic Data</b>						
1 Population	1,365,564	2,001,128	2,001,128			
2 Households	565,988	830,066	830,066			
3 Employment	869,582	1,434,165	1,434,165			
<b>Network Data</b>						
1 a Total Miles in Network	3,210	3,226	3,384			
1 b Freeway Miles	201	201	204			
1 c Arterial Miles	3,009	3,025	3,180			
2 a Total Lane Miles	4,832	4,888	5,427			
2 b Freeway Lane Miles	539	550	580			
2 c Arterial Lane Miles	4,293	4,339	4,847			
3 a Total Roadway Capacity-Miles	4,410,187	4,465,562	4,966,707			
3 b Freeway Capacity Miles	1,058,214	1,082,115	1,137,376			
3 c Arterial Capacity Miles	3,351,974	3,383,448	3,829,331			
4 Total Lane Miles Added (from 2005)		56	595			
<b>Financial Data</b>						
1 Total System Cost (\$2007) in billions	n/a	n/a	\$21.40			
<b>Motor Vehicle Data - Average Weekday (AWD)</b>						
1 a AWD Total Auto Person Trips	5,110,453	7,571,365	7,524,583			
b AWD Total SOV Trips	2,660,070	3,909,298	3,872,441			
c AWD Total Vehicle Trips	3,729,208	5,518,623	5,476,830			
d AWD Total Person Trips	5,979,609	9,073,999	9,059,468			
2 AWD Total VMT	20,045,811	27,204,791	27,854,528			
AWD Total VMT % change from 2005	-	36%	39%			
3 AWD VMT/Capita	14.68	13.59	13.92			
VMT/Capita % change from 2005	-	-7%	-5%			
4 AWD VMT/Employee	23.05	18.97	19.42			
VMT/Employee % change from 2005	-	-18%	-16%			
5 Single Occupant Vehicle (SOV) Percent of Person Trips	44.49%	43.08%	42.74%			
6 Non-SOV Percent of Person Trips (shared ride, walk, bike, transit)	55.51%	56.92%	57.26%			
7 AWD Motor Vehicle Average Trip Length (miles)	5.16	4.72	4.88			
8 Home-Based-Work Average Trip Length (miles)	7.54	7.06	7.24			
9 Auto Occupancy	1.37	1.37	1.37			
<b>Motor Vehicle Data - PM 2 Hour Peak</b>						
1 PM 2-HR Motor Vehicle Average Travel Time (minutes)	13.15	15.18	14.67			
2 PM 2-HR Average Motor Vehicle Travel Speed (miles per hour)	24.80	19.90	21.23			
3 a PM 2-HR Total Congested miles (v/c > 0.9) (percentage of total miles in network)	180(5.60%)	665(20.60%)	501(14.82%)			
3 b PM 2-HR Freeway Congested miles (percentage of freeway miles in network)	58(28.79%)	105(52.18%)	91(44.51%)			
3 c PM 2-HR Arterial Congested miles (percentage of arterial miles in network)	122(4.05%)	560(18.50%)	411(12.91%)			
4 PM 2-HR Motor Vehicle Hours	135,004	231,721	222,447			
5 a PM 2-HR Motor Vehicle Hours of Delay (percentage of total PM 2 Motor Vehicle Hours)	7,751(5.74%)	44,163(19.06%)	31,104(13.98%)			
5 b PM 2-HR Freeway VHD (percentage of total PM 2 Motor Vehicle Hours)	4,506(3.34%)	18,591(8.02%)	13,253(5.96%)			
5 c PM 2-HR Arterial VHD (percentage of total PM 2 Motor Vehicle Hours)	3,245(2.40%)	25,572(11.04%)	17,851(8.02%)			

	2005	2035 No Build	Round 1 2035 Illustrative	2035 Financially Constrained	Round 2 2035 Illustrative	Round 3 2035 Illustrative
<b>Motor Vehicle Data - Midday 1 Hour</b>						
1	MD 1-HR Motor Vehicle Average Travel Time (minutes)	11.00	11.57	11.28		
2	MD 1-HR Average Motor Vehicle Travel Speed (miles per hour)	27.98	24.42	25.81		
3 a	MD 1-HR Total Congested miles (v/c >0.9) (percentage of total miles in network)	42(1.31%)	218(6.77%)	139(4.10%)		
3 b	MD 1-HR Freeway Congested miles (percentage of freeway miles in network)	20(9.95%)	79(39.38%)	57(28.03%)		
3 c	MD 1-HR Arterial Congested miles (percentage of arterial miles in network)	22(0.73%)	139(4.60%)	81(2.56%)		
4	MD 1-HR Motor Vehicle Hours	44,922	70,859	68,433		
5 a	MD 1-HR Motor Vehicle Hours of Delay (percentage of total MD 1 Motor Vehicle Hours)	478(1.06%)	3924(5.54%)	2020(2.95%)		
5 b	MD 1-HR Freeway VHD (percentage of total MD 1 Motor Vehicle Hours)	361(0.80%)	2510(3.54%)	1486(2.17%)		
5 c	MD 1-HR Arterial VHD (percentage of total MD 1 Motor Vehicle Hours)	117(0.26%)	1414(2.00%)	535(0.78%)		
<b>Freight Data - Average Weekday (AWD)</b>						
1	AWD Total Truck Trips	53,249	77,808	77,808		
2	AWD Truck Average Trip Length (miles)	13.12	13.52	13.48		
4	Freight Network Miles	631	634	652		
	Freight Network Miles added from 2005	-	2	21		
3	Freight Network Lane Miles	1,416	1,432	1,541		
	Freight Network Lane Miles added from 2005	-	16	125		
<b>Freight Data - PM 2 Hour Peak</b>						
1	PM 2-HR Truck Average Travel Time (minutes)	28.28	35.29	32.49		
2	PM 2-HR Truck Hours	1,528	2,422	1,526		
3	PM 2-HR Truck Vehicle Hours of Delay (time accrued above v/c > 0.9)	219	1,492	549		
4	PM 2-HR Congested Freight Network Miles	102	260	204		
<b>Freight Data - Midday 1 Hour</b>						
1	MD 1-HR Truck Average Travel Time (minutes)	24.84	29.76	27.19		
2	MD 1-HR Truck Hours	801	1,416	877		
3	MD 1-HR Truck Vehicle Hours of Delay (time accrued above v/c > 0.9)	27	375	107		
4	MD 1-HR Congested Freight Network Miles	25	133	84		
<b>Transit Data</b>						
1.	AWD Total Transit Trips (originating riders)	243,216	494,950	517,007		
2.	AWD Transit Revenue Hours *					
3.	Transit Percent of Person Trips	4.07%	5.45%	5.71%		
4.	AWD Originating Riders Per Revenue Hour *					
5.	Percent Covered Households (w/in 1/4 mile)	66%	62%	62%		
6.	Percent Covered Employment (w/in 1/4 mile)	84%	81%	81%		
<b>Pedestrian Data</b>						
1.	Total Walk Trips (does not include walk trips to transit)	394,105	663,867	677,131		
2.	Walk Percent of Person Trips	6.59%	7.32%	7.47%		
<b>Bicycle Data</b>						
1.	Total Bike Trips	64,428	112,584	109,977		
2.	Bike Percent of Person Trips	1.08%	1.24%	1.21%		
<b>Environmental Data</b>						
1	Total Number of Projects within Habitat Conservation Area (HCA)	n/a	n/a	573		
1 a.	Total Number of Projects within High HCA	n/a	n/a			
<b>Equity Data</b>						

\* AWD Transit Revenue Hours were calculated using existing daily peak and off-peak expansion factors.

\*\* Walk trips are consistently understated between systems because they represent only trips 6 blocks or longer in length and improvement in the pedestrian environment is not accounted for.

\*\*\* Bike trips are consistently understated between systems due to the broad area of coverage and sample size of the 1994 Metro Travel Behavior Survey.