

Appendix 2  
Performance Standards

The performance standard applied at each intersection depends on the jurisdiction, location, and facility type. The following describes the performance standards applied at County and ODOT intersections. A table displaying the standard applied at each study intersection is provided as well.

## COUNTY INTERSECTIONS

County intersections outside the Metro UGB have a performance standard of LOS “D,” based on the current Clackamas County Comprehensive Plan. This standard refers to the average LOS experienced by all vehicles entering the intersection at signalized, all-way stop-controlled intersections, and roundabouts. At two-way stop controlled intersections, this standard refers to the LOS experienced by the critical movement at the intersection, typically a left-turn from the stop-controlled road.

Clackamas County intersections inside the Metro UGB are subject to the standards in the Metro Regional Transportation Plan (RTP). Metro has developed motor vehicle performance indicators that vary based on location of the facility. The standards are based on volume-to-capacity ratios for the 1<sup>st</sup> hour and 2<sup>nd</sup> hour during the PM 2-Hour Peak, as well as during the Mid-Day One-Hour Peak. The v/c ratio standards for the 1<sup>st</sup> hour during the PM 2-Hour Peak were used. For signalized intersections, the v/c ratio standard applies to the overall intersection v/c ratio. At roundabouts, all-way stop-controlled intersection, and two-way stop controlled intersections, the v/c ratio applies to the critical movement. The standards in the Metro Functional Plan are shown in Table 3.08-2.

Table 3.08-2

Interim Regional Mobility Policy  
 Deficiency Thresholds and Operating Standards

Location	Standard	Standard	
		PM 2-Hour Peak <sup>A</sup>	
	Mid-Day One-Hour Peak <sup>A</sup>	1st Hour	2nd Hour
Central City			
Regional Centers			
Town Centers			
Main Streets	.99	1.1	.99
Station Communities			
Corridors			
Industrial Areas			
Intermodal Facilities			
Employment Areas	.90	.99	.99
Inner Neighborhoods			
Outer Neighborhoods			
I-84 (from I-5 to I-205)	.99	1.1	.99
I-5 North (from Marquam Bridge to Interstate Bridge)	.99	1.1	.99
OR 99E (from Lincoln Street to OR 224 interchange)	.99	1.1	.99
US 26 (from I-405 to Sylvan interchange)	.99	1.1	.99
I-405 <sup>B</sup> (I-5 South to I-5 North)	.99	1.1	.99
Other Principal Arterial Routes	.90	.99	.99
I-205 <sup>B</sup>			
I-84 (east of I-205)			
I-5 (Marquam Bridge to Wilsonville) <sup>B</sup>			
OR 217			
US 26 (west of Sylvan)			
US 30			
OR 8 (Murray Boulevard to Brookwood Avenue) <sup>B</sup>			
OR 212			
OR 224			
OR 47			
OR 213			

A. The demand-to-capacity ratios in the table are for the highest two consecutive hours of weekday traffic volumes. The mid-day peak hour as the highest 60-minute period between the hours of 9 a.m. and 3 p.m. The 2<sup>nd</sup> hour is defined as the single 60-minute period either before or after the peak 60-minute period, whichever is highest.

B. A corridor refinement plan is required in Chapter 6 of the RTP, and will include a recommended mobility policy for each corridor.

(Ordinance No. 10-1241B, § 5)

## ODOT INTERSECTIONS

ODOT presently uses volume-to-capacity ratio standards to measure vehicular highway mobility performance and make initial determinations of facility needs necessary to maintain acceptable and reliably levels of mobility. The Oregon Highway Plan (OHP) provides maximum volume-to-capacity ratios for all signalized and unsignalized intersections and interchange ramp terminals. Performance standards vary based on the highway category, the location of the facility (within a Special Transportation Area, Metropolitan Planning Organization, Urban Growth Boundary, unincorporated community or rural lands), and the posted speed on the facility.

The Mobility Standard Guidelines for unsignalized intersections and signalized intersections other than crossroads of freeway ramps are provided in Table 6 and Table 7 of the OHP. At unsignalized intersections, the volume to capacity ratios in Tables 6 and 7 shall not be exceeded for either of the state highway approaches that are not stopped. Approaches at which traffic must stop, or otherwise yield the right of way, shall not exceed the volume to capacity ratios for District/Local Interest Roads in Table 6 and Table 7 within urban growth boundaries or 0.80 outside of urban growth boundaries. At signalized intersections other than crossroads of freeway ramps, the volume to capacity ratio for the intersection shall not exceed the volume to capacity ratios in Tables 6 and 7. Where two state highways of different classifications intersect, the lower of the volume to capacity ratios in the tables shall apply. Where a state highway intersects with a local road or street, the volume to capacity ratio for the state highway shall apply. At crossroads of freeway ramps, the maximum volume to capacity ratio for the ramp terminals of the interchange shall be the smaller of the values of the volume to capacity ratios for the crossroad, or 0.85.

OHP Table 6: Maximum Volume to Capacity Ratios for Peak Hour Operating Conditions<sup>12</sup>

MAXIMUM VOLUME TO CAPACITY RATIOS OUTSIDE METRO <sup>A,B,C</sup>							
Highway Category	Inside Urban Growth Boundary					Outside Urban Growth Boundary	
	STA <sup>D</sup>	MPO	Non-MPO Outside of STAs where non-freeway posted speed <= 35 mph, or a Designated UBA	Non-MPO outside of STAs where non-freeway speed > 35 mph	Non-MPO where non-freeway speed limit >= 45 mph	Unincorporated Communities	Rural Lands
Interstate Highways <sup>E</sup>	N/A	0.80	N/A	0.70	0.70	0.70	0.70
Statewide Expressways	N/A	0.80	0.70	0.70	0.70	0.70	0.70
Freight Route on a Statewide Highway	0.85	0.80	0.80	0.75	0.70	0.70	0.70
Statewide (not a Freight Route)	0.90	0.85	0.85	0.80	0.75	0.75	0.70
Freight Route on a Regional or District Highway	0.90	0.85	0.85	0.80	0.75	0.75	0.70
Expressway on a Regional or District Highway	N/A	0.85	N/A	0.80	0.75	0.75	0.70
Regional Highways	0.95	0.85	0.85	0.80	0.75	0.75	0.70
District / Local Interest Roads	0.95	0.90	0.90	0.85	0.80	0.80	0.75

**Notes for Table 6**

<sup>A</sup> OHP Amendment 00-04 established alternative mobility standards for Portland Metro and the Rogue Valley MPO (RVMPO). For Metro, see Table 7, below. For RVMPO see note B, below and the OHP amendment establishing the RVMPO alternative standards located on the web at:

<http://www.oregon.gov/ODOT/TD/TP/docs/orhwyplan/registry/0004.pdf>. Where there is a conflict between the Table 6 standards and the established alternative mobility standards, the more tolerant standard (higher v/c ratio) applies.

<sup>B</sup> The maximum volume to capacity ratio at the Northbound and Southbound off-ramps of the South Medford Interchange is >1.0 for four hours daily until the new South Medford Interchange is constructed. The maximum v/c ratio at Highway 99 at Stewart Avenue is >1.0 for two hours daily. When the new interchange is completed, the mobility standards for the ramps will be those in Table 6.

<sup>C</sup> For the purposes of this policy, the peak hour shall be the 30<sup>th</sup> highest annual hour. This approximates weekday peak hour traffic in larger urban areas.

<sup>D</sup> Interstates and Expressways shall not be identified as Special Transportation Areas.

<sup>E</sup> National Highway System (NHS) highway design requirements are addressed in the Highway Design Manual (HDM).

<sup>12</sup> Table 6 was replaced in August 2005, part of OHP Amendment 05-16.

OHP Table 7: Maximum Volume to Capacity Ratios within Portland Metropolitan Region

MAXIMUM VOLUME TO CAPACITY RATIOS INSIDE METRO <sup>A</sup>		
Location	Standard	
	1 <sup>st</sup> hour	2 <sup>nd</sup> hour
Central City Regional Centers Town Centers Main Streets Station Communities	1.1	.99
Corridors <sup>B</sup> Industrial Areas Intermodal Facilities Employment Areas Inner Neighborhoods Outer Neighborhoods	0.99	.99
Banfield Freeway (from I-5 to I-205) <sup>C</sup>	1.1	.99
I-5 North <sup>C</sup> (from Marquam Bridge to Interstate Bridge)	1.1	.99
Highway 99E <sup>C</sup> (from Lincoln Street to Highway 224 Interchange)	1.1	.99
Sunset Highway <sup>C</sup> (from I-405 to Sylvan Interchange)	1.1	.99
Stadium Freeway <sup>C</sup> (from I-5 South to I-5 North)	1.1	.99
<b>Other Principal Arterial Routes</b> I-205 <sup>C</sup> I-82 (east of I-205) I-5 (Marquam Bridge to Wilsonville) <sup>C</sup> Highway 217 <sup>C</sup> US 26 (west of Sylvan) Highway 30 Tualatin Valley Highway (Cedar Hills Blvd to Brookwood Avenue) <sup>C</sup> Highway 224 <sup>C</sup> Highway 47 Highway 213 242 <sup>nd</sup> /US26 in Gresham	.99	.99
<b>Areas of Special Concern<sup>D</sup></b> Beaverton Regional Center Highway 99W (I-5 to Tualatin Road)	1.0 .95	D

Notes for Table 7: Maximum volume to capacity ratios for two hour peak operating conditions through a 20-year horizon for state highway sections within the Portland metropolitan area urban growth boundary.

<sup>A</sup> The volume to capacity ratios in the table are for the highest two consecutive hours of weekday traffic volumes. This is calculated by dividing the traffic volume for the average weekly two-hour PM peak by twice the hourly capacity.

<sup>B</sup> Corridors that are also state highways are 99W, Sandy Boulevard, Powell Boulevard, 82<sup>nd</sup> Avenue, North Portland Road, North Denver Street, Lombard Street, Hall Boulevard, Farmington Road, Canyon Road, Beaverton-Hillsdale Highway, Tualatin Valley Highway (from Hall Boulevard to Cedar Hills Boulevard and from Brookwood Street to E Street in Forest Grove), Scholls Ferry Road, 99E (from Milwaukie to Oregon City and Highway 43).

<sup>C</sup> Thresholds shown are for interim purposes only; refinement plans for these corridors are required in Metro’s Regional Transportation Plan and will include a recommended motor vehicle performance policy for each corridor.

<sup>D</sup> Areas with this designation are planned for mixed use development, but are also characterized by physical, environmental or other constraints that limit the range of acceptable transportation solutions for addressing a level-of-service need, but where alternative routes for regional through traffic are provided. In these areas, substitute performance measures are allowed by OAR.660.012.0060(2)(d). Provisions for determining the alternative performance measures are included in Section 6.7.7 of the 2000 RTP. The OHP mobility standard for state highways in these areas applies until the alternative performance measures are adopted in local plans and approved by the Oregon Transportation Commission.

## PERFORMANCE STANDARDS AT STUDY INTERSECTIONS

The following table lists the performance standard applied at each study intersection.

ID	Intersection	Jurisdiction	In Metro UGB?	Category	Performance Standard (LOS or v/c)
101	SE Johnson Creek Blvd/SE Flavel Dr	County	Y	Arterial	0.99
102	SE Johnson Creek Blvd/SE Bell Ave	County	Y	Arterial	0.99
103	SE Johnson Creek Blvd/SE 79th Pla	County	Y	Town Center	1.1
104	SE Johnson Creek Blvd/80th Ave	County	Y	Town Center	1.1
105	SE Johnson Creek Blvd/82nd Ave	ODOT	Y	Corridor	0.99
106	SE Johnson Creek Blvd/SE Fuller Rd	County	Y	Town Center	1.1
107	SE Johnson Creek Blvd/I-205 SB Ramps	ODOT	Y	Freeway Ramp	0.85
108	SE Johnson Creek Blvd/I-205 NB Ramps	ODOT	Y	Freeway Ramp	0.85
109	SE Johnson Creek Blvd/SE 92nd Ave	County	Y	Town Center	1.1
110	SE Overland Street/SE 82nd Ave	ODOT	Y	Corridor	0.99
111	SE Otty Road/SE 82nd Ave	ODOT	Y	Corridor	0.99
112	SE Otty Road/SE Fuller Rd	County	Y	Town Center	1.1
113	SE Otty Road/SE 92nd Ave	County	Y	Town Center	1.1
114	SE Glencoe Rd/SE 82nd Ave	ODOT	Y	Corridor	0.99
115	SE King Rd/SE Bell Ave	County	Y	Arterial	0.99
116	SE King Rd/SE Fuller Rd	County	Y	Town Center	1.1
117	SE King Rd/SE 82nd Ave	ODOT	Y	Corridor	0.99
118	SE 82nd Ave/SE Boyer	ODOT	Y	Corridor	0.99
119	SE Causey Ave/SE 82nd Ave	ODOT	Y	Corridor	0.99
120	SE Monterey Ave/SE 82nd Ave	ODOT	Y	Corridor	0.99
121	SE Monterey Ave/SE Bob Schumacher Rd	County	Y	Town Center	1.1
122	SE Bob Schumacher Rd/SE Stevens Rd	County	Y	Town Center	1.1
123	SE Lake Rd/SE International Way	County	Y	Arterial	0.99
124	SE Harmony Rd/SE Linwood Ave	County	Y	Arterial	0.99
125	SE Harmony Rd/SE Fuller Rd	County	Y	Town Center	1.1
126	SE Sunnyside Rd/SE Harmony Rd/SE 82nd Ave	ODOT	Y	Corridor	0.99
127	SE Sunnyside Rd/8600 Block	County	Y	Town Center	1.1
128	SE Sunnyside Rd/9000 Block	County	Y	Town Center	1.1
129	SE Sunnyside Rd/SE 93rd Ave	County	Y	Town Center	1.1
130	SE Sunnyside Rd/I-205 SB Ramps	ODOT	Y	Freeway Ramp	0.85
131	SE Sunnyside Rd/I-205 NB Ramps	ODOT	Y	Freeway Ramp	0.85
132	SE Sunnyside Rd/SE Stevens Rd	County	Y	Town Center	1.1
133	SE Sunnyside Rd/SE 101st Ave	County	Y	Town Center	1.1
134	SE Sunnyside Rd/SE Sunnybrook Blvd	County	Y	Town Center	1.1
135	SE Sunnyside Rd/SE Valley View Terrace	County	Y	Town Center	1.1
136	SE Sunnybrook Blvd/SE 82nd Ave	ODOT	Y	Corridor	0.99
137	SE Sunnybrook Blvd/I-205 SB Ramps	ODOT	Y	Freeway Ramp	0.85
138	SE Sunnybrook Blvd/I-205 NB Ramps	ODOT	Y	Freeway Ramp	0.85
139	SE Sunnybrook Blvd/97th Ave	County	Y	Town Center	1.1
140	OR 224/SE Rusk Rd	ODOT	Y	Highway 224	0.99
141	OR 224/SE Lake Rd/SE Webster Rd	ODOT	Y	Highway 224	0.99

142	SE Lake Rd/SE Webster Rd	County	Y	Arterial	0.99
143	OR 224/SE Johnson Rd	ODOT	Y	Highway 224	0.99
144	SE Sunnyside Rd/SE 122nd Ave	County	Y	Arterial	0.99
145	SE Sunnyside Rd/SE 132nd Ave	County	Y	Arterial	0.99
146	SE Sunnyside Rd/SE 142nd Ave	County	Y	Arterial	0.99
147	SE Sunnyside Rd/SE 152nd Ave	County	Y	Arterial	0.99
148	SE Sunnyside Rd/SE 162nd Ave	County	Y	Arterial	0.99
149	SE Sunnyside Rd/SE 172nd Ave	County	Y	Arterial	0.99
150	SE Mather Rd/SE 122nd Ave	County	Y	Arterial	0.99
151	SE Summers Lane/SE 122nd Ave	County	Y	Arterial	0.99
152	SE Hubbard Rd/SE 132nd Ave	County	Y	Arterial	0.99
153	OR 212/I-205 SB Ramps	ODOT	Y	Freeway Ramp	0.85
154	OR 212/I-205 NB Ramps	ODOT	Y	Freeway Ramp	0.85
155	OR 212/SE 82nd Dr	ODOT	Y	Highway 224	0.99
156	OR 212/224/SE 102nd Ave	ODOT	Y	Highway 224	0.99
157	OR 224/SE Hubbard Rd/135th Ave	ODOT	Y	Highway 224	0.99
158	OR 224/SE 142nd Ave	ODOT	Y	Highway 224	0.99
159	OR 212/OR 224	ODOT	Y	Highway 224	0.99
160	OR 212/SE 162nd Ave	ODOT	Y	Corridor	0.99
161	OR 212/SE 172nd Ave	ODOT	Y	Corridor	0.99
162	SE Jennifer St/SE Evelyn St	County	Y	Arterial	0.99
163	SE 82nd Dr/SE Jennifer Street	County	Y	Arterial	0.99
164	SE Strawberry Lane/SE 82nd Dr	County	Y	Arterial	0.99
165	OR 224/Springwater Rd	ODOT	Y	Highway 224	0.99
201	SE Park Ave/SE River Rd	County	Y	Arterial	0.99
202	SE Park Ave/OR 99E	ODOT	Y	Highway 99E (Lincoln to 224 interchange)	1.1
203	SE Oatfield Rd/SE Park Ave	County	Y	Arterial	0.99
204	SE Courtney Ave/SE River Rd	County	Y	Arterial	0.99
205	SE Courtney Ave/OR 99E	ODOT	Y	Highway 99E (Lincoln to 224 interchange)	1.1
206	SE Courtney Ave/SE Oatfield Rd	County	Y	Arterial	0.99
207	SE Oak Grove Blvd/SE Courtney Ave	County	Y	Arterial	0.99
208	SE Oak Grove Blvd/OR 99E	ODOT	Y	Highway 99E (Lincoln to 224 interchange)	1.1
209	SE Hill Rd/SE Oatfield Rd	County	Y	Arterial	0.99
210	SE Concord Rd/SE River Rd	County	Y	Arterial	0.99
211	SE Concord Rd/OR 99E	ODOT	Y	Highway 99E (Lincoln to 224 interchange)	1.1
212	SE Oatfield Rd/SE Concord Rd	County	Y	Arterial	0.99
213	SE Roathe Rd/OR 99E	ODOT	Y	Highway 99E (Lincoln to 224 interchange)	1.1
214	SE Jennings Ave/SE River Rd	County	Y	Arterial	0.99
215	SE Jennings Ave/OR 99E	ODOT	Y	Highway 99E (Lincoln to 224 interchange)	1.1
216	SE Jennings Ave/SE Oatfield Rd	County	Y	Arterial	0.99
217	SE Glen Echo Ave/SE River Rd	County	Y	Arterial	0.99
218	SE Glen Echo Ave/OR 99E	ODOT	Y	Highway 99E (Lincoln to 224 interchange)	1.1
219	SE Thiessen Rd/SE Hill Rd	County	Y	Arterial	0.99
220	SE Thiessen Rd/SE Aldercrest Rd	County	Y	Arterial	0.99
221	SE Thiessen Rd/SE Webster Rd	County	Y	Arterial	0.99
222	SE Thiessen Rd/SE Johnson Rd	County	Y	Arterial	0.99
223	SE Roots Rd/SE Webster Rd	County	Y	Arterial	0.99



224	SE Jennings Ave/SE Webster Rd	County	Y	Arterial	0.99
225	SE Strawberry Lane/SE Webster Rd	County	Y	Arterial	0.99
301	SW Childs Rd/SW Stafford Rd	County	N	Arterial	D
302	SW Borland Rd/SW Stafford Rd	County	N	Arterial	D
303	SW Mountain Rd/SW Stafford Rd	County	N	Arterial	D
304	SW Ellingson Rd/SW 65th Ave	County	N	Arterial	D
305	SW 65th Ave/SW Stafford Rd	County	N	Arterial	D
401	Clackamas River Dr & Springwater Rd	County	Y	Arterial	D
402	S. Redland Road/S. Holly Lane	County	Y	Arterial	0.99
403	S. Redland Rd/S. Ferguson Rd	County	N	Arterial	D
404	S. Redland Rd/S. Bradley Rd	County	N	Arterial	D
405	S. Beavercreek Rd/S. Maple Lane Rd	County	Y	Arterial	0.99
406	S. Henrici Rd/OR 213	ODOT	N	Highway 213	0.99
407	S. Henrici Rd/S. Beavercreek Rd	County	N	Arterial	D
408	South End Rd./OR 99E	ODOT	N	Highway 99E	1.1
409	S. Leland Rd/OR 213	ODOT	N	Highway 213	0.99
410	S. Leland Rd/S. Beavercreek Rd	County	N	Arterial	D
411	NE Miley Rd/NE Airport Rd	County	N	Arterial	D
412	Arndt Rd/NE Airport Rd	County	N	Arterial	D
413	Knights Bridge Rd/S. Barlow Rd	County	N	Arterial	D
414	Arndt Rd/Knights Bridge Rd	County	N	Arterial	D
415	Arndt Rd/S. Barlow Rd	County	N	Arterial	D
416	OR 99E/S. Barlow Rd	ODOT	N	Highway 99E	1.1
417	SE 13th Ave/S. Mulino Rd	County	N	Arterial	D
418	S. Spangler Rd/OR 213	ODOT	N	Highway 213	0.99
419	Mulino Rd/OR 213	ODOT	N	Highway 213	0.99
420	S. Union Mills Rd/OR 213	ODOT	N	Highway 213	0.99
421	S. Barnards Rd/OR 213	ODOT	N	Highway 213	0.99
422	S. Union Mills Rd/S. Beavercreek Rd	ODOT	N	Corridor	0.99
423	OR 211/Barlow Rd	ODOT	N	Corridor	0.99
424	OR 211/Canby Marquam	ODOT	N	Corridor	0.99
501	OR 212 /SE 282nd Ave	ODOT	N	State Hwy, NHS, FR, Unincorporated Community (Boring)	0.7
502	OR 224 /SE 232nd Ave	ODOT	N	District Hwy, Rural	0.7
503	OR 224/OR 211	ODOT	N	District Hwy, Unincorporated Community (Eagle Creek)	0.75
504	US 26/Salmon River Rd	ODOT	N	State Hwy, NHS, FR, Unincorporated Community (Mt. Hood Village)	0.7
505	US 26/Government Camp West	ODOT	N	State Hwy, NHS, FR, Unincorporated Community (Government Camp)	0.7
506	US 26/Government Camp East	ODOT	N	State Hwy, NHS, FR, Unincorporated Community (Government Camp)	0.7

NHS = National Highway System, FR = Freight Route