

Appendix A LOS Criteria Definitions

APPENDIX A LEVEL-OF-SERVICE CONCEPT

Level of service (LOS) is a concept developed to quantify the degree of comfort (including such elements as travel time, number of stops, total amount of stopped delay, and impediments caused by other vehicles) afforded to drivers as they travel through an intersection or roadway segment. Six grades are used to denote the various level of service from “A” to “F”.

SIGNALIZED INTERSECTIONS

The six level-of-service grades are described qualitatively for signalized intersections in Table A1. Additionally, Table A2 identifies the relationship between level of service and average control delay per vehicle. Control delay is defined to include initial deceleration delay, queue move-up time, stopped delay, and final acceleration delay. Using this definition, Level of Service “D” is generally considered to represent the minimum acceptable design standard.

Table A-1 Level-of-Service Definitions (Signalized Intersections)

Level of Service	Average Delay per Vehicle
A	Very low average control delay, less than 10 seconds per vehicle. This occurs when progression is extremely favorable, and most vehicles arrive during the green phase. Most vehicles do not stop at all. Short cycle lengths may also contribute to low delay.
B	Average control delay is greater than 10 seconds per vehicle and less than or equal to 20 seconds per vehicle. This generally occurs with good progression and/or short cycle lengths. More vehicles stop than for a level of service A, causing higher levels of average delay.
C	Average control delay is greater than 20 seconds per vehicle and less than or equal to 35 seconds per vehicle. These higher delays may result from fair progression and/or longer cycle lengths. Individual cycle failures may begin to appear at this level. The number of vehicles stopping is significant at this level, although many still pass through the intersection without stopping.
D	Average control delay is greater than 35 seconds per vehicle and less than or equal to 55 seconds per vehicle. The influence of congestion becomes more noticeable. Longer delays may result from some combination of unfavorable progression, long cycle length, or high volume/capacity ratios. Many vehicles stop, and the proportion of vehicles not stopping declines. Individual cycle failures are noticeable.
E	Average control delay is greater than 55 seconds per vehicle and less than or equal to 80 seconds per vehicle. This is usually considered to be the limit of acceptable delay. These high delay values generally (but not always) indicate poor progression, long cycle lengths, and high volume/capacity ratios. Individual cycle failures are frequent occurrences.
F	Average control delay is in excess of 80 seconds per vehicle. This is considered to be unacceptable to most drivers. This condition often occurs with oversaturation. It may also occur at high volume/capacity ratios below 1.0 with many individual cycle failures. Poor progression and long cycle lengths may also contribute to such high delay values.

¹Most of the material in this appendix is adapted from the 2010 Highway Capacity Manual, published by the Transportation Research Board in 2010.

Table A2 Level-of-Service Criteria for Signalized Intersections

Level of Service	Average Control Delay per Vehicle (seconds)
A	<10.0
B	>10 and ≤20
C	>20 and ≤35
D	>35 and ≤55
E	>55 and ≤80
F	>80

UNSIGNALIZED INTERSECTIONS

The automobile LOS criteria for unsignalized intersections are different than the criteria used for signalized intersections, reflecting driver expectations that vary with different levels of performance from different types of transportation facilities. Driver expectation is that a signalized intersection is designed to carry higher traffic volumes than an unsignalized intersection. Additionally, there are a number of driver behavior considerations that combine to make delays at signalized intersections more tolerable than at unsignalized intersections. For example, drivers at signalized intersections are able to relax during the red interval, while drivers on the minor street approaches to TWSC intersections must remain attentive to the task of identifying acceptable gaps and vehicle conflicts. Also, there is often much more variability in the amount of delay experienced by individual drivers at unsignalized intersections compared to signalized intersections. For these reasons, the control delay threshold for any given level of service is lower for an unsignalized intersection than for a signalized intersection. Individual types of unsignalized intersections are defined in the 2010 HCM as described below.

TWO-WAY STOP CONTROLLED INTERSECTIONS

The 2010 HCM provides models for estimating control delay at two-way stop controlled (TWSC) intersections and defines LOS by control delay. Motor vehicle LOS is determined for each minor-street movement as well as for major street left-turns using the criteria shown in Table A3.

Table A3 Level-of-Service Criteria for Two-way Stop Controlled Intersections

Control Delay (Seconds per Vehicle)	LOS by Volume-to-Capacity Ratio*	
	v/c < 1.0	v/c > 1.0
<10.0	A	F
>10.0 and ≤ 15.0	B	F
>15.0 and ≤ 25.0	C	F
>25.0 and ≤ 35.0	D	F
>35.0 and ≤ 50.0	E	F
>50.0	F	F

Note: *For approaches and intersectionwide assessment, LOS is defined solely by control delay

As noted in Table A3, the 2010 HCM assigns LOS F to any movement whose v/c ratio exceeds 1.0 regardless of the control delay.

The 2010 HCM does not define LOS for intersections as a whole or for the major street approaches because:

- ▶ Major-street through movements are assumed to experience no delay;
- ▶ The large number of major street through movements at typical TWSC intersections skews averaging of overall delay for all vehicles; and
- ▶ Overall intersection delay measures have the potential to mask minor movement deficiencies.

In the performance evaluation of TWSC intersections, it is important to consider other measures of effectiveness (MOEs) in addition to delay, such as v/c ratios for individual movements, average queue lengths, and 95th percentile queue lengths. By focusing on a single MOE for the worst movement only, such as delay for the minor-street left turn, users may make inappropriate traffic control decisions. The potential for making such inappropriate decisions is likely to be particularly pronounced when the HCM level-of-service thresholds are adopted as legal standards, as is the case in many public agencies.

ALL-WAY STOP CONTROLLED INTERSECTIONS

The LOS for all-way stop controlled intersections is computed for each approach and, unlike TWSC intersections, for the intersection. Table A4 summarizes the AWSC LOS criteria defined in the 2010 HCM.

Table A4 Level-of-Service Criteria for All-Way Stop Controlled Intersections

Control Delay (Seconds per Vehicle)	LOS by Volume-to-Capacity Ratio*	
	v/c < 1.0	v/c > 1.0
<10.0	A	F
>10.0 and ≤ 15.0	B	F
>15.0 and ≤ 25.0	C	F
>25.0 and ≤ 35.0	D	F
>35.0 and ≤ 50.0	E	F
>50.0	F	F

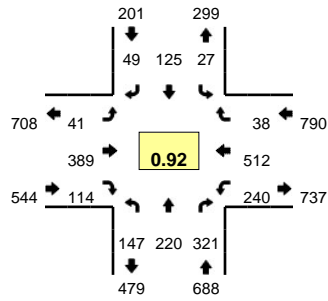
Note: *For approaches and intersectionwide assessment, LOS is defined solely by control delay

As Table A4 notes, LOS F is assigned if the volume-to-capacity ratio (v/c) ratio of a lane exceeds 1.0, regardless of the control delay. For assessment of LOS at the approach and intersection levels, LOS is based solely on control delay.

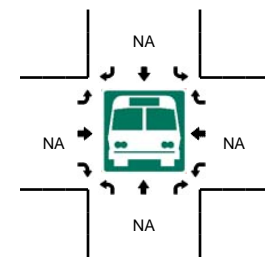
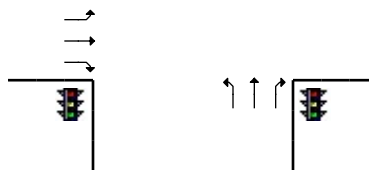
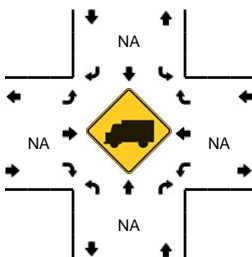
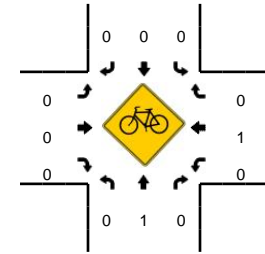
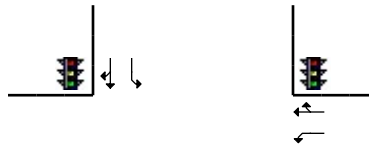
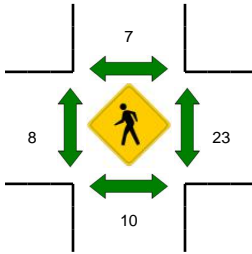
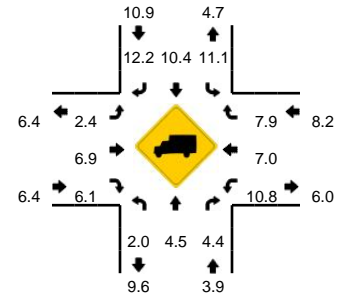
Appendix B Traffic Counts

LOCATION: SE 174th Ave -- SE Powell Blvd
CITY/STATE: Portland, OR

QC JOB #: 14500801
DATE: Wed, Oct 04 2017



Peak-Hour: 7:40 AM -- 8:40 AM
Peak 15-Min: 8:25 AM -- 8:40 AM

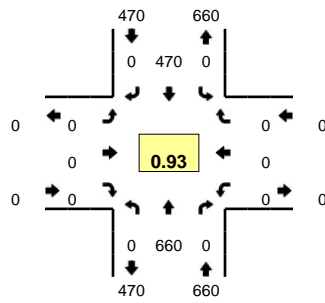


5-Min Count Period Beginning At	SE 174th Ave (Northbound)				SE 174th Ave (Southbound)				SE Powell Blvd (Eastbound)				SE Powell Blvd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	5	14	20	0	1	14	2	0	3	20	9	0	12	28	3	0	131	
7:05 AM	16	24	13	0	2	17	1	0	3	26	7	0	19	46	5	0	179	
7:10 AM	12	20	19	0	2	14	1	0	3	18	11	0	20	40	4	0	164	
7:15 AM	6	25	24	0	2	16	3	0	3	29	6	0	21	38	2	0	175	
7:20 AM	11	25	24	0	0	14	1	0	3	34	4	0	22	46	2	0	186	
7:25 AM	15	25	26	0	0	17	1	0	4	35	9	0	13	50	2	0	197	
7:30 AM	15	23	30	0	2	12	3	0	2	32	6	0	6	55	2	0	188	
7:35 AM	12	14	18	0	4	10	2	0	1	36	9	0	24	46	2	0	178	
7:40 AM	9	24	32	0	1	12	8	0	1	22	8	0	25	45	2	0	189	
7:45 AM	22	22	34	0	4	14	4	0	3	25	9	0	16	30	1	0	184	
7:50 AM	15	14	17	0	1	14	1	0	1	41	13	0	6	39	4	0	166	
7:55 AM	13	18	24	0	1	3	2	0	4	38	12	0	28	46	3	0	192	2129
8:00 AM	13	22	18	0	3	5	4	0	3	18	7	0	22	42	5	0	162	2160
8:05 AM	11	17	24	0	3	15	6	0	4	25	6	0	17	43	1	0	172	2153
8:10 AM	11	11	26	0	0	2	6	0	8	32	10	0	30	59	1	0	196	2185
8:15 AM	13	20	23	0	1	20	3	0	2	29	5	0	22	35	0	0	173	2183
8:20 AM	9	10	28	0	1	8	1	0	1	43	14	0	21	50	2	0	188	2185
8:25 AM	12	29	34	0	7	11	4	0	5	39	6	0	13	29	6	0	195	2183
8:30 AM	10	12	31	0	1	8	4	0	4	47	15	0	20	52	5	0	209	2204
8:35 AM	9	21	30	0	4	13	6	0	5	30	9	0	20	42	8	0	197	2223
8:40 AM	9	14	21	0	3	12	4	0	7	34	9	0	20	45	3	0	181	2215
8:45 AM	13	22	15	0	3	12	3	0	9	30	9	0	15	50	5	0	186	2217
8:50 AM	12	20	20	0	1	12	2	0	4	27	10	0	19	54	5	0	186	2237
8:55 AM	14	25	23	0	5	10	7	0	7	29	6	0	19	35	5	0	185	2230
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	124	248	380	0	48	128	56	0	56	464	120	0	212	492	76	0	2404	
Heavy Trucks	4	12	8		0	20	0		4	44	12		24	48	8		184	
Pedestrians		4				8				12				36			60	
Bicycles	0	1	0		0	0	0		0	0	0		0	0	0		1	
Railroad																		
Stopped Buses																		

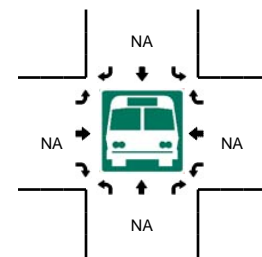
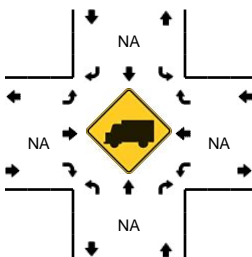
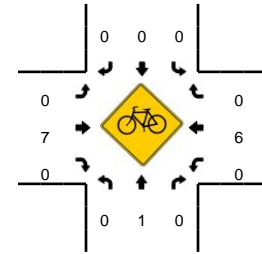
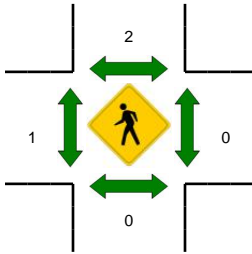
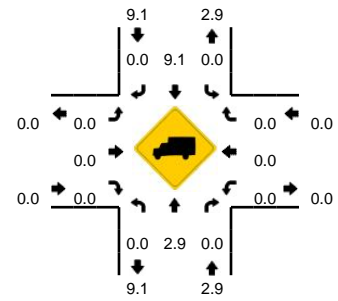
Comments:

LOCATION: SE 174th Ave -- Springwater Corridor Trail
CITY/STATE: Portland, OR

QC JOB #: 14500803
DATE: Wed, Oct 04 2017



Peak-Hour: 7:40 AM -- 8:40 AM
Peak 15-Min: 7:40 AM -- 7:55 AM

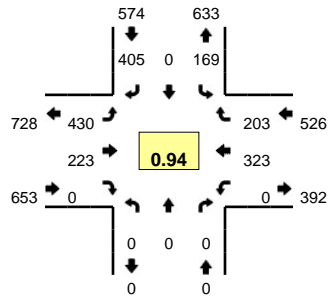


5-Min Count Period Beginning At	SE 174th Ave (Northbound)				SE 174th Ave (Southbound)				Springwater Corridor Trail (Eastbound)				Springwater Corridor Trail (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	0	54	0	0	0	34	0	0	0	0	0	0	0	0	0	0	88	
7:05 AM	0	45	0	0	0	41	0	0	0	0	0	0	0	0	0	0	86	
7:10 AM	0	65	0	0	0	56	0	0	0	0	0	0	0	0	0	0	121	
7:15 AM	0	47	0	0	0	45	0	0	0	0	0	0	0	0	0	0	92	
7:20 AM	0	63	0	0	0	35	0	0	0	0	0	0	0	0	0	0	98	
7:25 AM	0	67	0	0	0	37	0	0	0	0	0	0	0	0	0	0	104	
7:30 AM	0	55	0	0	0	33	0	0	0	0	0	0	0	0	0	0	88	
7:35 AM	0	46	0	0	0	49	0	0	0	0	0	0	0	0	0	0	95	
7:40 AM	0	67	0	0	0	35	0	0	0	0	0	0	0	0	0	0	102	
7:45 AM	0	68	0	0	0	40	0	0	0	0	0	0	0	0	0	0	108	
7:50 AM	0	56	0	0	0	39	0	0	0	0	0	0	0	0	0	0	95	
7:55 AM	0	55	0	0	0	39	0	0	0	0	0	0	0	0	0	0	94	1171
8:00 AM	0	51	0	0	0	34	0	0	0	0	0	0	0	0	0	0	85	1168
8:05 AM	0	49	0	0	0	42	0	0	0	0	0	0	0	0	0	0	91	1173
8:10 AM	0	48	0	0	0	36	0	0	0	0	0	0	0	0	0	0	84	1136
8:15 AM	0	47	0	0	0	55	0	0	0	0	0	0	0	0	0	0	102	1146
8:20 AM	0	60	0	0	0	49	0	0	0	0	0	0	0	0	0	0	109	1157
8:25 AM	0	58	0	0	0	25	0	0	0	0	0	0	0	0	0	0	83	1136
8:30 AM	0	52	0	0	0	37	0	0	0	0	0	0	0	0	0	0	89	1137
8:35 AM	0	49	0	0	0	39	0	0	0	0	0	0	0	0	0	0	88	1130
8:40 AM	0	54	0	0	0	42	0	0	0	0	0	0	0	0	0	0	96	1124
8:45 AM	0	44	0	0	0	38	0	0	0	0	0	0	0	0	0	0	82	1098
8:50 AM	0	63	0	0	0	37	0	0	0	0	0	0	0	0	0	0	100	1103
8:55 AM	0	49	0	0	0	32	0	0	0	0	0	0	0	0	0	0	81	1090
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	0	764	0	0	0	456	0	0	0	0	0	0	0	0	0	0	1220	
Heavy Trucks	0	28	0	0	0	36	0	0	0	0	0	0	0	0	0	0	64	
Pedestrians		0				0					0			0			0	
Bicycles	0	0	0		0	0	0		0	1	0		0	2	0		3	
Railroad																		
Stopped Buses																		

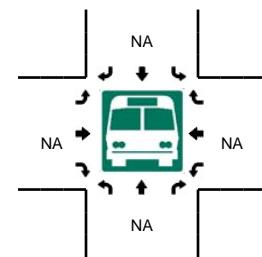
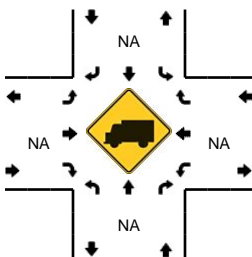
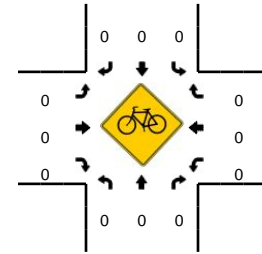
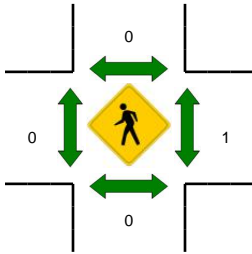
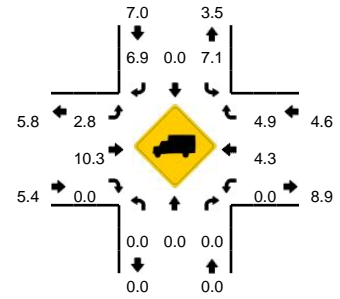
Comments:

LOCATION: SE Jenne Rd -- SE Foster Rd
CITY/STATE: Portland, OR

QC JOB #: 14500805
DATE: Wed, Oct 04 2017



Peak-Hour: 7:40 AM -- 8:40 AM
Peak 15-Min: 8:15 AM -- 8:30 AM

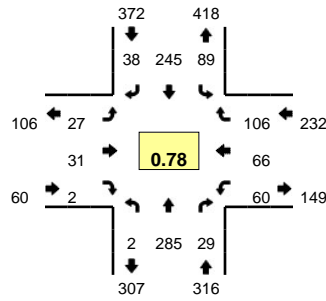


5-Min Count Period Beginning At	SE Jenne Rd (Northbound)				SE Jenne Rd (Southbound)				SE Foster Rd (Eastbound)				SE Foster Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	0	0	0	0	8	0	36	0	30	22	0	0	0	16	16	0	128	
7:05 AM	0	0	0	0	16	0	43	0	23	19	0	0	0	31	24	0	156	
7:10 AM	0	0	0	0	18	0	37	0	37	14	0	0	0	25	19	0	150	
7:15 AM	0	0	0	0	16	0	43	0	39	19	0	0	0	36	19	0	172	
7:20 AM	0	0	0	0	19	0	34	0	45	10	0	0	0	23	21	0	152	
7:25 AM	0	0	0	0	12	0	29	0	30	11	0	0	0	41	17	0	140	
7:30 AM	0	0	0	0	17	0	24	0	34	12	0	0	0	44	13	0	144	
7:35 AM	0	0	0	0	15	0	39	0	35	17	0	0	0	35	18	0	159	
7:40 AM	0	0	0	0	15	0	30	0	45	16	0	0	0	30	23	0	159	
7:45 AM	0	0	0	0	16	0	42	0	35	21	0	0	0	29	18	0	161	
7:50 AM	0	0	0	0	13	0	27	0	40	22	0	0	0	26	13	0	141	
7:55 AM	0	0	0	0	14	0	29	0	37	12	0	0	0	26	15	0	133	1795
8:00 AM	0	0	0	0	10	0	29	0	34	13	0	0	0	25	9	0	120	1787
8:05 AM	0	0	0	0	13	0	30	0	36	19	0	0	0	26	19	0	143	1774
8:10 AM	0	0	0	0	11	0	33	0	22	16	0	0	0	37	19	0	138	1762
8:15 AM	0	0	0	0	13	0	41	0	38	22	0	0	0	24	16	0	154	1744
8:20 AM	0	0	0	0	19	0	49	0	26	21	0	0	0	26	20	0	161	1753
8:25 AM	0	0	0	0	17	0	29	0	44	24	0	0	0	23	15	0	152	1765
8:30 AM	0	0	0	0	15	0	30	0	33	14	0	0	0	18	18	0	128	1749
8:35 AM	0	0	0	0	13	0	36	0	40	23	0	0	0	33	18	0	163	1753
8:40 AM	0	0	0	0	12	0	37	0	33	20	0	0	0	31	19	0	152	1746
8:45 AM	0	0	0	0	14	0	31	0	22	17	0	0	0	36	15	0	135	1720
8:50 AM	0	0	0	0	14	0	31	0	35	17	0	0	0	25	26	0	148	1727
8:55 AM	0	0	0	0	10	0	24	0	26	16	0	0	0	16	19	0	111	1705
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	0	0	0	0	196	0	476	0	432	268	0	0	0	292	204	0	1868	
Heavy Trucks	0	0	0	0	16	0	36	0	12	48	0	0	0	16	4	0	132	
Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Bicycles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Railroad	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Stopped Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

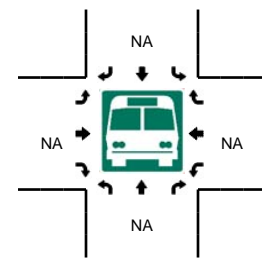
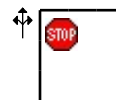
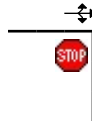
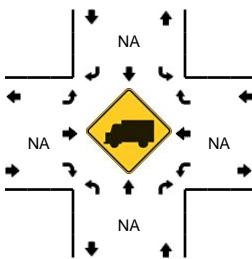
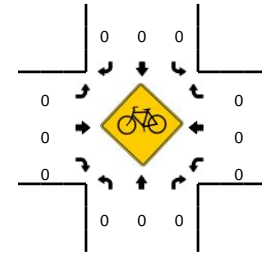
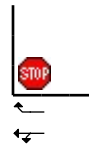
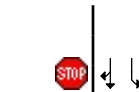
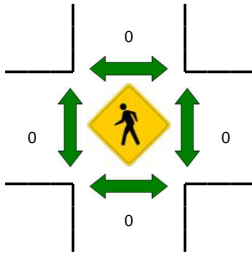
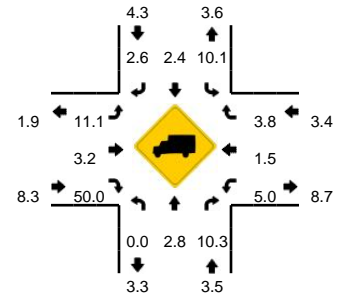
Comments:

LOCATION: SE 190th Dr -- SE Giese Rd
CITY/STATE: Gresham, OR

QC JOB #: 14500807
DATE: Wed, Oct 04 2017



Peak-Hour: 7:40 AM -- 8:40 AM
Peak 15-Min: 8:20 AM -- 8:35 AM

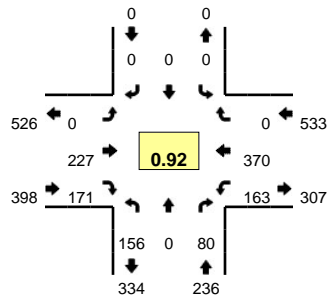


5-Min Count Period Beginning At	SE 190th Dr (Northbound)				SE 190th Dr (Southbound)				SE Giese Rd (Eastbound)				SE Giese Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	1	17	1	0	3	23	3	0	0	2	0	0	8	4	8	0	70	
7:05 AM	1	18	1	0	3	28	8	0	1	2	0	0	3	3	1	0	69	
7:10 AM	0	20	3	0	5	24	4	0	3	0	0	0	5	5	10	0	79	
7:15 AM	0	32	3	0	3	16	5	0	0	3	0	0	7	6	6	0	81	
7:20 AM	0	25	4	0	5	20	3	0	2	5	0	0	6	11	8	0	89	
7:25 AM	0	21	2	0	3	23	4	0	2	6	0	0	13	4	4	0	82	
7:30 AM	0	15	4	0	1	19	4	0	1	0	0	0	2	10	6	0	62	
7:35 AM	0	31	4	0	4	20	1	0	4	3	0	0	4	9	4	0	84	
7:40 AM	1	24	2	0	3	27	2	0	3	1	0	0	4	9	5	0	81	
7:45 AM	0	31	0	0	0	17	3	0	5	1	0	0	8	7	6	0	78	
7:50 AM	0	22	0	0	4	21	2	0	1	3	0	0	3	6	4	0	66	
7:55 AM	0	25	2	0	1	23	2	0	1	1	0	0	6	1	3	0	65	906
8:00 AM	0	31	3	0	3	15	5	0	2	2	0	0	9	8	8	0	86	922
8:05 AM	0	13	2	0	4	23	2	0	1	1	0	0	2	3	8	0	59	912
8:10 AM	0	18	1	0	4	25	4	0	5	2	0	0	4	5	7	0	75	908
8:15 AM	0	19	3	0	3	23	2	0	2	4	0	0	3	7	7	0	73	900
8:20 AM	0	26	5	0	17	20	4	0	3	4	1	0	5	1	14	0	100	911
8:25 AM	0	29	4	0	14	21	3	0	0	1	0	0	4	7	17	0	100	929
8:30 AM	0	24	4	0	24	19	8	0	2	6	1	0	8	5	14	0	115	982
8:35 AM	1	23	3	0	12	11	1	0	2	5	0	0	4	7	13	0	82	980
8:40 AM	0	21	1	0	8	22	2	0	4	4	0	0	5	7	19	0	93	992
8:45 AM	1	28	2	0	7	20	2	0	2	2	1	0	5	5	20	0	95	1009
8:50 AM	0	20	6	0	3	15	2	0	0	1	0	0	1	5	10	0	63	1006
8:55 AM	0	14	1	0	6	11	2	0	1	4	0	0	6	7	8	0	60	1001
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	0	316	52	0	220	240	60	0	20	44	8	0	68	52	180	0	1260	
Heavy Trucks	0	12	8		20	4	0		0	4	4		0	0	4		56	
Pedestrians	0	0	0		0	0	0		0	0	0		0	0	0		0	
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0	
Railroad																		
Stopped Buses																		

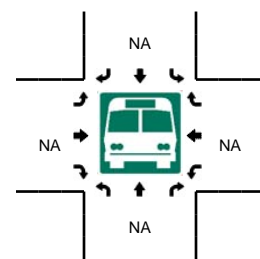
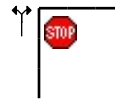
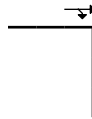
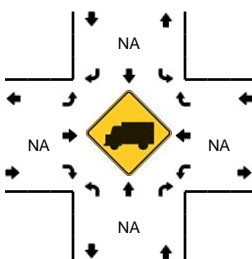
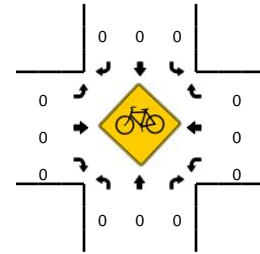
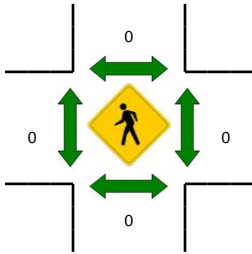
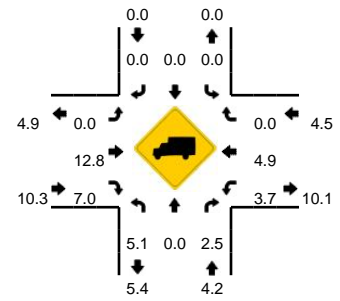
Comments:

LOCATION: SE 172nd Ave -- SE Foster Rd
CITY/STATE: Gresham, OR

QC JOB #: 14500809
DATE: Wed, Oct 04 2017



Peak-Hour: 7:40 AM -- 8:40 AM
Peak 15-Min: 8:25 AM -- 8:40 AM

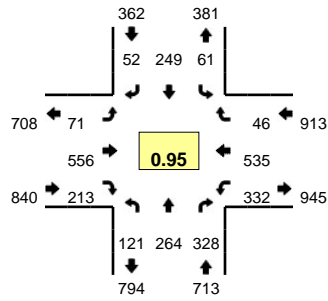


5-Min Count Period Beginning At	SE 172nd Ave (Northbound)				SE 172nd Ave (Southbound)				SE Foster Rd (Eastbound)				SE Foster Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	12	0	3	0	0	0	0	0	0	15	9	0	15	33	0	0	87	
7:05 AM	12	0	3	0	0	0	0	0	0	22	17	0	17	32	0	0	103	
7:10 AM	14	0	10	0	0	0	0	0	0	15	15	0	18	33	0	0	105	
7:15 AM	16	0	17	0	0	0	0	0	0	17	19	0	12	42	0	0	123	
7:20 AM	12	0	3	0	0	0	0	0	0	15	9	0	13	37	0	0	89	
7:25 AM	19	0	5	0	0	0	0	0	0	7	14	0	9	41	0	0	95	
7:30 AM	8	0	6	0	0	0	0	0	0	19	18	0	12	42	0	0	105	
7:35 AM	15	0	6	0	0	0	0	0	0	15	15	0	10	38	0	0	99	
7:40 AM	13	0	5	0	0	0	0	0	0	17	14	0	12	34	0	0	95	
7:45 AM	9	0	6	0	0	0	0	0	0	18	20	0	15	35	0	0	103	
7:50 AM	17	0	4	0	0	0	0	0	0	22	16	0	9	22	0	0	90	
7:55 AM	11	0	9	0	0	0	0	0	0	13	10	0	8	30	0	0	81	1175
8:00 AM	8	0	7	0	0	0	0	0	0	16	9	0	17	27	0	0	84	1172
8:05 AM	15	0	6	0	0	0	0	0	0	11	12	0	20	30	0	0	94	1163
8:10 AM	13	0	6	0	0	0	0	0	0	11	14	0	13	34	0	0	91	1149
8:15 AM	15	0	11	0	0	0	0	0	0	25	20	0	15	30	0	0	116	1142
8:20 AM	16	0	6	0	0	0	0	0	0	17	19	0	13	24	0	0	95	1148
8:25 AM	9	0	9	0	0	0	0	0	0	24	14	0	9	38	0	0	103	1156
8:30 AM	15	0	7	0	0	0	0	0	0	26	14	0	19	25	0	0	106	1157
8:35 AM	15	0	4	0	0	0	0	0	0	27	9	0	13	41	0	0	109	1167
8:40 AM	11	0	8	0	0	0	0	0	0	23	8	0	19	31	0	0	100	1172
8:45 AM	16	0	7	0	0	0	0	0	0	16	10	0	12	34	0	0	95	1164
8:50 AM	20	0	10	0	0	0	0	0	0	17	16	0	9	27	0	0	99	1173
8:55 AM	18	0	12	0	0	0	0	0	0	14	10	0	9	24	0	0	87	1179
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	156	0	80	0	0	0	0	0	0	308	148	0	164	416	0	0	1272	
Heavy Trucks	8	0	0	0	0	0	0	0	0	52	12	0	4	28	0	0	104	
Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Bicycles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Railroad																		
Stopped Buses																		

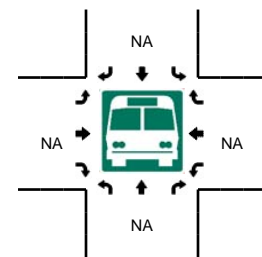
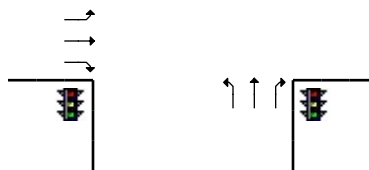
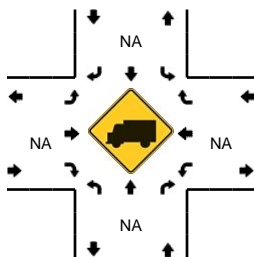
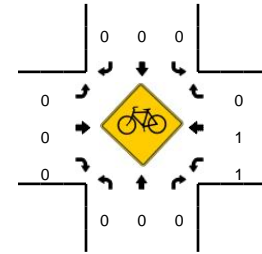
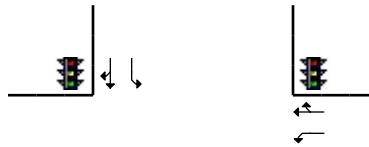
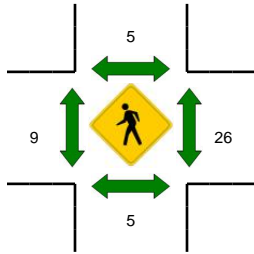
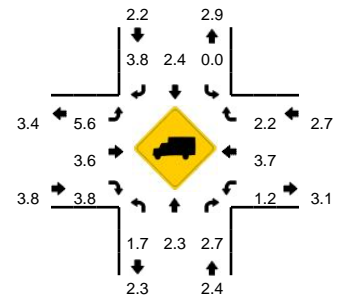
Comments:

LOCATION: SE 174th Ave -- SE Powell Blvd
CITY/STATE: Portland, OR

QC JOB #: 14500802
DATE: Wed, Oct 04 2017



Peak-Hour: 4:20 PM -- 5:20 PM
Peak 15-Min: 5:00 PM -- 5:15 PM

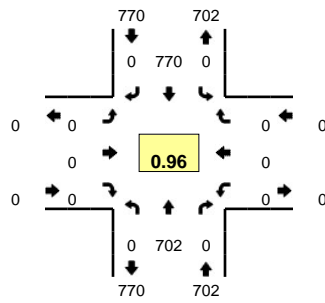


5-Min Count Period Beginning At	SE 174th Ave (Northbound)				SE 174th Ave (Southbound)				SE Powell Blvd (Eastbound)				SE Powell Blvd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	7	22	37	0	3	25	7	0	5	36	16	0	31	36	6	0	231	
4:05 PM	14	18	30	0	4	26	3	0	2	38	13	0	33	33	3	0	217	
4:10 PM	4	20	31	0	7	19	4	0	1	43	13	0	27	53	3	0	225	
4:15 PM	12	22	24	0	6	18	3	0	6	52	20	0	20	47	2	0	232	
4:20 PM	8	24	28	0	2	20	7	0	5	46	19	0	30	51	1	0	241	
4:25 PM	10	23	31	0	10	26	4	0	5	37	24	0	27	38	5	0	240	
4:30 PM	18	17	16	0	5	15	3	0	7	47	20	0	22	30	3	0	203	
4:35 PM	7	31	25	0	9	23	6	0	5	51	11	0	25	40	3	0	236	
4:40 PM	13	24	25	0	3	15	5	0	5	49	14	0	26	42	3	0	224	
4:45 PM	10	12	27	0	3	24	4	0	8	49	22	0	31	53	4	0	247	
4:50 PM	9	21	38	0	5	18	3	0	7	42	12	0	20	54	3	0	232	
4:55 PM	6	29	35	0	4	17	3	0	10	42	10	0	31	27	5	0	219	2747
5:00 PM	16	23	22	0	4	26	3	0	1	58	28	0	16	41	5	0	243	2759
5:05 PM	12	13	29	0	6	18	3	0	6	48	17	0	34	51	6	0	243	2785
5:10 PM	7	20	28	0	4	23	5	0	9	46	26	0	36	50	3	0	257	2817
5:15 PM	5	27	24	0	6	24	6	0	3	41	10	0	34	58	5	0	243	2828
5:20 PM	9	27	26	0	8	18	8	0	3	36	18	0	33	48	6	0	240	2827
5:25 PM	10	27	28	0	12	26	5	0	4	53	10	0	19	43	7	0	244	2831
5:30 PM	9	9	24	0	7	15	3	0	5	51	5	0	29	64	1	0	222	2850
5:35 PM	5	24	22	0	2	23	9	0	8	46	8	0	30	34	4	0	215	2829
5:40 PM	12	24	35	0	12	20	6	0	7	36	12	0	27	48	5	0	244	2849
5:45 PM	12	25	33	0	4	21	3	0	5	60	14	0	17	55	9	0	258	2860
5:50 PM	10	19	14	0	8	11	5	0	6	35	8	0	38	41	3	0	198	2826
5:55 PM	6	26	19	0	8	20	2	0	4	51	10	0	15	52	4	0	217	2824
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	140	224	316	0	56	268	44	0	64	608	284	0	344	568	56	0	2972	
Heavy Trucks	0	8	4	0	0	4	4	0	0	36	16	0	0	16	0	0	88	
Pedestrians		4				4				4				52			64	
Bicycles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Railroad																		
Stopped Buses																		

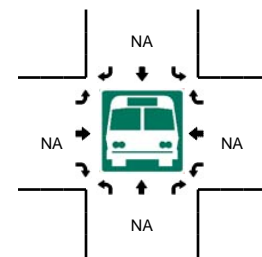
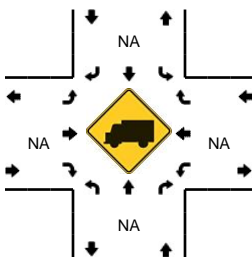
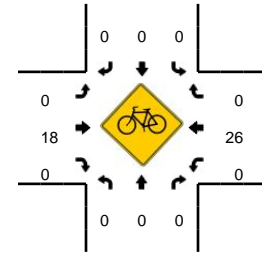
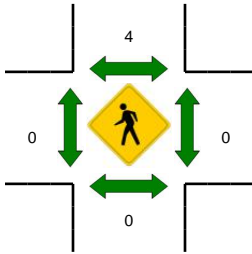
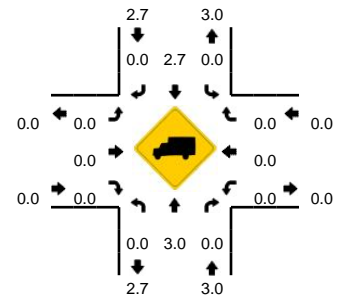
Comments:

LOCATION: SE 174th Ave -- Springwater Corridor Trail
CITY/STATE: Portland, OR

QC JOB #: 14500804
DATE: Wed, Oct 04 2017



Peak-Hour: 4:20 PM -- 5:20 PM
Peak 15-Min: 4:40 PM -- 4:55 PM

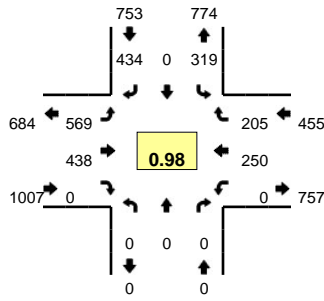


5-Min Count Period Beginning At	SE 174th Ave (Northbound)				SE 174th Ave (Southbound)				Springwater Corridor Trail (Eastbound)				Springwater Corridor Trail (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	0	51	0	0	0	74	0	0	0	0	0	0	0	0	0	0	125	
4:05 PM	0	64	0	0	0	67	0	0	0	0	0	0	0	0	0	0	131	
4:10 PM	0	58	0	0	0	57	0	0	0	0	0	0	0	0	0	0	115	
4:15 PM	0	58	0	0	0	58	0	0	0	0	0	0	0	0	0	0	116	
4:20 PM	0	57	0	0	0	59	0	0	0	0	0	0	0	0	0	0	116	
4:25 PM	0	50	0	0	0	71	0	0	0	0	0	0	0	0	0	0	121	
4:30 PM	0	63	0	0	0	50	0	0	0	0	0	0	0	0	0	0	113	
4:35 PM	0	63	0	0	0	61	0	0	0	0	0	0	0	0	0	0	124	
4:40 PM	0	54	0	0	0	64	0	0	0	0	0	0	0	0	0	0	118	
4:45 PM	0	71	0	0	0	64	0	0	0	0	0	0	0	0	0	0	135	
4:50 PM	0	69	0	0	0	60	0	0	0	0	0	0	0	0	0	0	129	
4:55 PM	0	54	0	0	0	55	0	0	0	0	0	0	0	0	0	0	109	1452
5:00 PM	0	59	0	0	0	75	0	0	0	0	0	0	0	0	0	0	134	1461
5:05 PM	0	60	0	0	0	70	0	0	0	0	0	0	0	0	0	0	130	1460
5:10 PM	0	50	0	0	0	59	0	0	0	0	0	0	0	0	0	0	109	1454
5:15 PM	0	52	0	0	0	82	0	0	0	0	0	0	0	0	0	0	134	1472
5:20 PM	0	47	0	0	0	57	0	0	0	0	0	0	0	0	0	0	104	1460
5:25 PM	0	56	0	0	0	64	0	0	0	0	0	0	0	0	0	0	120	1459
5:30 PM	0	58	0	0	0	65	0	0	0	0	0	0	0	0	0	0	123	1469
5:35 PM	0	62	0	0	0	60	0	0	0	0	0	0	0	0	0	0	122	1467
5:40 PM	0	55	0	0	0	48	0	0	0	0	0	0	0	0	0	0	103	1452
5:45 PM	0	55	0	0	0	62	0	0	0	0	0	0	0	0	0	0	117	1434
5:50 PM	0	56	0	0	0	44	0	0	0	0	0	0	0	0	0	0	100	1405
5:55 PM	0	52	0	0	0	48	0	0	0	0	0	0	0	0	0	0	100	1396
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	0	776	0	0	0	752	0	0	0	0	0	0	0	0	0	0	1528	
Heavy Trucks	0	24	0	0	0	24	0	0	0	0	0	0	0	0	0	0	48	
Pedestrians		0				8					0			0			8	
Bicycles	0	0	0		0	0	0		0	6	0		0	8	0		14	
Railroad																		
Stopped Buses																		

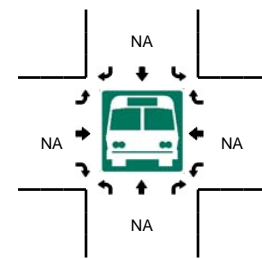
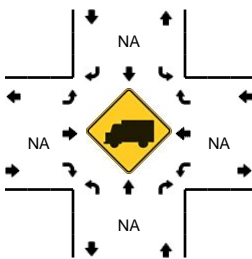
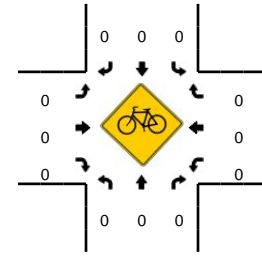
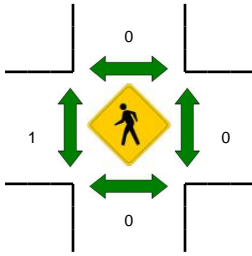
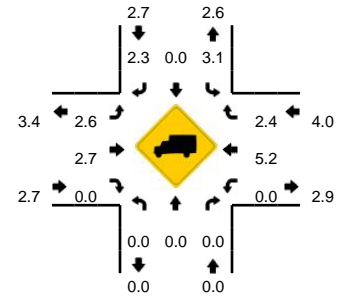
Comments:

LOCATION: SE Jenne Rd -- SE Foster Rd
CITY/STATE: Portland, OR

QC JOB #: 14500806
DATE: Wed, Oct 04 2017



Peak-Hour: 4:20 PM -- 5:20 PM
Peak 15-Min: 4:40 PM -- 4:55 PM

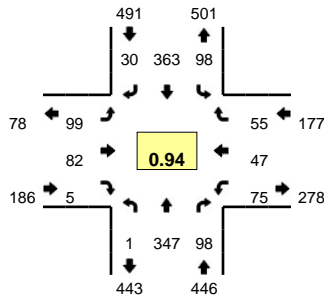


5-Min Count Period Beginning At	SE Jenne Rd (Northbound)				SE Jenne Rd (Southbound)				SE Foster Rd (Eastbound)				SE Foster Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	0	0	0	0	35	0	32	0	39	43	0	0	0	33	17	0	199	
4:05 PM	0	0	0	0	17	0	38	0	50	42	0	0	0	22	16	0	185	
4:10 PM	0	0	0	0	31	0	43	0	43	44	0	0	0	27	24	0	212	
4:15 PM	0	0	0	0	18	0	35	0	43	32	0	0	0	14	14	0	156	
4:20 PM	0	0	0	0	26	0	35	0	50	48	0	0	0	22	12	0	193	
4:25 PM	0	0	0	0	27	0	34	0	45	38	0	0	0	25	13	0	182	
4:30 PM	0	0	0	0	32	0	28	0	51	43	0	0	0	22	13	0	189	
4:35 PM	0	0	0	0	25	0	32	0	46	38	0	0	0	21	21	0	183	
4:40 PM	0	0	0	0	22	0	32	0	52	36	0	0	0	17	22	0	181	
4:45 PM	0	0	0	0	25	0	47	0	52	38	0	0	0	19	13	0	194	
4:50 PM	0	0	0	0	24	0	44	0	51	25	0	0	0	26	22	0	192	
4:55 PM	0	0	0	0	22	0	25	0	44	37	0	0	0	22	24	0	174	2240
5:00 PM	0	0	0	0	26	0	36	0	48	35	0	0	0	19	18	0	182	2223
5:05 PM	0	0	0	0	37	0	36	0	45	25	0	0	0	16	20	0	179	2217
5:10 PM	0	0	0	0	22	0	36	0	43	32	0	0	0	19	12	0	164	2169
5:15 PM	0	0	0	0	31	0	49	0	42	43	0	0	0	22	15	0	202	2215
5:20 PM	0	0	0	0	25	0	46	0	36	28	0	0	0	28	12	0	175	2197
5:25 PM	0	0	0	0	21	0	38	0	58	39	0	0	0	22	9	0	187	2202
5:30 PM	0	0	0	0	19	0	51	0	47	47	0	0	0	26	15	0	205	2218
5:35 PM	0	0	0	0	15	0	42	0	50	38	0	0	0	23	16	0	184	2219
5:40 PM	0	0	0	0	24	0	30	0	54	37	0	0	0	21	15	0	181	2219
5:45 PM	0	0	0	0	19	0	27	0	48	39	0	0	0	23	18	0	174	2199
5:50 PM	0	0	0	0	17	0	36	0	46	35	0	0	0	21	17	0	172	2179
5:55 PM	0	0	0	0	13	0	36	0	41	31	0	0	0	17	9	0	147	2152
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	0	0	0	0	284	0	492	0	620	396	0	0	0	248	228	0	2268	
Heavy Trucks	0	0	0	0	8	0	16	0	8	24	0	0	0	12	8	0	76	
Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Bicycles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Railroad	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Stopped Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

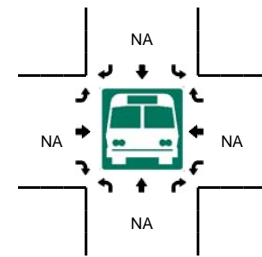
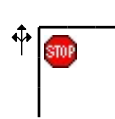
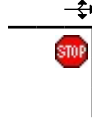
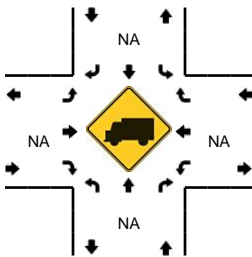
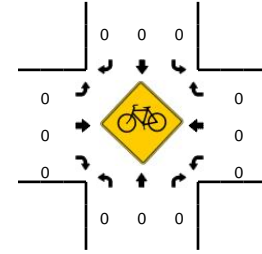
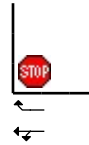
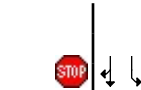
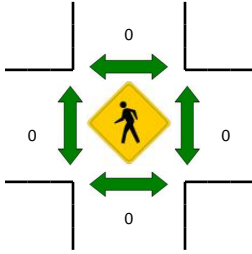
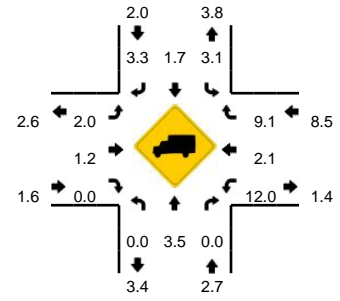
Comments:

LOCATION: SE 190th Dr -- SE Giese Rd
CITY/STATE: Gresham, OR

QC JOB #: 14500808
DATE: Wed, Oct 04 2017



Peak-Hour: 4:20 PM -- 5:20 PM
Peak 15-Min: 4:20 PM -- 4:35 PM

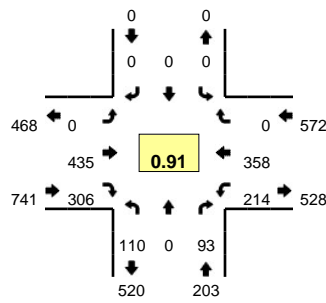


5-Min Count Period Beginning At	SE 190th Dr (Northbound)				SE 190th Dr (Southbound)				SE Giese Rd (Eastbound)				SE Giese Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	0	34	7	0	11	14	2	0	4	10	0	0	6	3	6	0	97	
4:05 PM	0	37	8	0	9	26	2	0	8	4	0	0	5	4	6	0	109	
4:10 PM	0	30	13	0	8	25	1	0	5	7	0	0	6	7	7	0	109	
4:15 PM	0	33	13	0	4	23	4	0	6	8	0	0	5	8	5	0	109	
4:20 PM	0	32	14	0	7	35	3	0	8	6	2	0	2	6	1	0	116	
4:25 PM	0	30	7	0	9	24	1	0	12	8	1	0	12	6	6	0	116	
4:30 PM	0	29	6	0	6	43	2	0	7	8	0	0	5	5	3	0	114	
4:35 PM	0	28	11	0	8	22	3	0	5	3	0	0	6	0	7	0	93	
4:40 PM	0	24	5	0	12	32	6	0	9	7	0	0	7	9	4	0	115	
4:45 PM	0	34	5	0	11	32	6	0	8	8	1	0	6	5	5	0	121	
4:50 PM	0	36	3	0	6	21	2	0	8	7	0	0	11	3	6	0	103	
4:55 PM	1	17	11	0	8	30	2	0	7	9	0	0	6	4	5	0	100	1302
5:00 PM	0	36	10	0	11	34	1	0	9	6	0	0	4	5	9	0	125	1330
5:05 PM	0	24	12	0	4	32	1	0	13	9	1	0	6	0	3	0	105	1326
5:10 PM	0	27	5	0	7	27	1	0	11	7	0	0	4	1	4	0	94	1311
5:15 PM	0	30	9	0	9	31	2	0	2	4	0	0	6	3	2	0	98	1300
5:20 PM	0	33	13	0	5	30	2	0	6	10	0	0	2	4	6	0	111	1295
5:25 PM	0	32	8	0	3	34	1	0	3	4	0	0	2	4	9	0	100	1279
5:30 PM	0	42	6	0	7	34	1	0	9	9	0	0	7	4	4	0	123	1288
5:35 PM	0	38	10	0	9	25	1	0	1	7	0	0	8	4	4	0	107	1302
5:40 PM	0	34	12	0	4	28	1	0	12	11	0	0	7	3	6	0	118	1305
5:45 PM	0	27	5	0	4	39	2	0	4	7	0	0	2	5	7	0	102	1286
5:50 PM	0	29	8	0	6	20	2	0	6	8	1	0	3	4	9	0	96	1279
5:55 PM	0	28	9	0	7	23	4	0	6	5	0	0	7	6	6	0	101	1280
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	0	364	108	0	88	408	24	0	108	88	12	0	76	68	40	0	1384	
Heavy Trucks	0	12	0		12	4	4		8	0	0		24	0	0		64	
Pedestrians	0	0	0		0	0	0		0	0	0		0	0	0		0	
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0	
Railroad																		
Stopped Buses																		

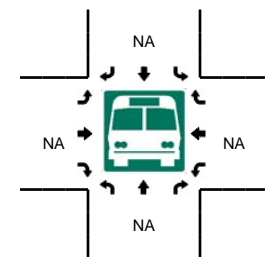
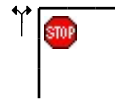
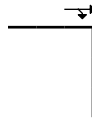
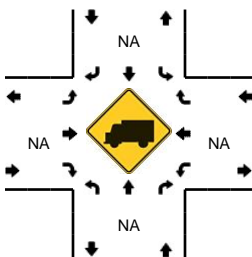
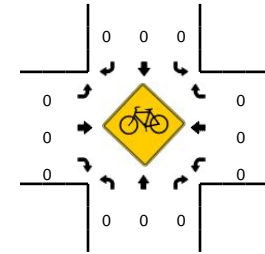
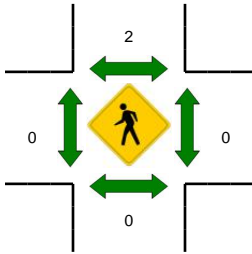
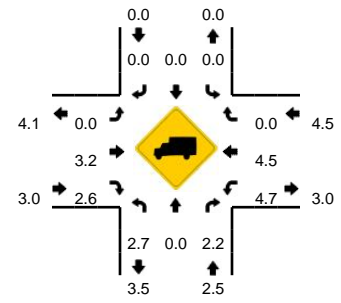
Comments:

LOCATION: SE 172nd Ave -- SE Foster Rd
CITY/STATE: Gresham, OR

QC JOB #: 14500810
DATE: Wed, Oct 04 2017



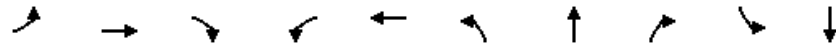
Peak-Hour: 4:20 PM -- 5:20 PM
Peak 15-Min: 4:25 PM -- 4:40 PM



5-Min Count Period Beginning At	SE 172nd Ave (Northbound)				SE 172nd Ave (Southbound)				SE Foster Rd (Eastbound)				SE Foster Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	8	0	13	0	0	0	0	0	0	40	26	0	11	34	0	0	132	
4:05 PM	9	0	14	0	0	0	0	0	0	40	25	0	17	34	0	0	139	
4:10 PM	13	0	9	0	0	0	0	0	0	43	31	0	10	27	0	0	133	
4:15 PM	7	0	5	0	0	0	0	0	0	28	28	0	17	33	0	0	118	
4:20 PM	6	0	10	0	0	0	0	0	0	47	16	0	20	27	0	0	126	
4:25 PM	7	0	7	0	0	0	0	0	0	45	29	0	19	35	0	0	142	
4:30 PM	5	0	9	0	0	0	0	0	0	39	31	0	19	30	0	0	133	
4:35 PM	12	0	8	0	0	0	0	0	0	35	31	0	23	33	0	0	142	
4:40 PM	8	0	7	0	0	0	0	0	0	39	17	0	19	28	0	0	118	
4:45 PM	14	0	5	0	0	0	0	0	0	42	20	0	18	22	0	0	121	
4:50 PM	12	0	2	0	0	0	0	0	0	33	22	0	12	31	0	0	112	
4:55 PM	12	0	12	0	0	0	0	0	0	24	31	0	15	36	0	0	130	1546
5:00 PM	7	0	9	0	0	0	0	0	0	34	27	0	17	25	0	0	119	1533
5:05 PM	8	0	6	0	0	0	0	0	0	33	28	0	22	34	0	0	131	1525
5:10 PM	11	0	13	0	0	0	0	0	0	29	28	0	16	26	0	0	123	1515
5:15 PM	8	0	5	0	0	0	0	0	0	35	26	0	14	31	0	0	119	1516
5:20 PM	4	0	5	0	0	0	0	0	0	46	23	0	18	30	0	0	126	1516
5:25 PM	10	0	9	0	0	0	0	0	0	33	21	0	19	23	0	0	115	1489
5:30 PM	9	0	12	0	0	0	0	0	0	37	25	0	17	30	0	0	130	1486
5:35 PM	11	0	8	0	0	0	0	0	0	35	20	0	24	29	0	0	127	1471
5:40 PM	12	0	2	0	0	0	0	0	0	40	19	0	18	25	0	0	116	1469
5:45 PM	11	0	10	0	0	0	0	0	0	25	27	0	17	24	0	0	114	1462
5:50 PM	8	0	8	0	0	0	0	0	0	37	22	0	21	21	0	0	117	1467
5:55 PM	10	0	7	0	0	0	0	0	0	31	11	0	14	18	0	0	91	1428
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	96	0	96	0	0	0	0	0	0	476	364	0	244	392	0	0	1668	
Heavy Trucks	0	0	0	0	0	0	0	0	0	16	12	0	16	36	0	0	80	
Pedestrians						4				0				0			4	
Bicycles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Railroad																		
Stopped Buses																		

Comments:
























Appendix C Existing Traffic Conditions



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	45	423	124	261	598	160	239	349	29	189
v/c Ratio	0.37	0.85	0.25	0.98	0.86	0.71	0.52	0.44	0.29	0.72
Control Delay	58.0	53.2	7.0	96.3	43.8	62.9	37.6	3.6	57.3	54.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	58.0	53.2	7.0	96.3	43.8	62.9	37.6	3.6	57.3	54.7
Queue Length 50th (ft)	30	273	0	182	376	106	145	2	19	115
Queue Length 95th (ft)	72	#531	46	#401	#759	194	233	49	52	199
Internal Link Dist (ft)		586			513		2445			560
Turn Bay Length (ft)	100			100		150		90	50	
Base Capacity (vph)	283	497	490	266	698	288	523	802	262	470
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.16	0.85	0.25	0.98	0.86	0.56	0.46	0.44	0.11	0.40

Intersection Summary

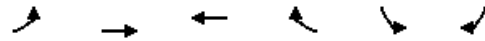
95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	41	389	114	240	512	38	147	220	321	27	125	49
Future Volume (vph)	41	389	114	240	512	38	147	220	321	27	125	49
Ideal Flow (vphpl)	1650	1650	1650	1650	1650	1650	1650	1650	1650	1650	1650	1650
Grade (%)		3%			-2%			-1%			1%	
Total Lost time (s)	3.5	5.3	5.3	3.5	5.3		3.5	5.0	3.5	3.5	5.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Frbp, ped/bikes	1.00	1.00	0.96	1.00	1.00		1.00	1.00	0.95	1.00	0.99	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Frt	1.00	1.00	0.85	1.00	0.99		1.00	1.00	0.85	1.00	0.96	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1514	1519	1247	1426	1536		1544	1579	1290	1405	1407	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1514	1519	1247	1426	1536		1544	1579	1290	1405	1407	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	45	423	124	261	557	41	160	239	349	29	136	53
RTOR Reduction (vph)	0	0	83	0	2	0	0	0	182	0	12	0
Lane Group Flow (vph)	45	423	41	261	596	0	160	239	167	29	177	0
Confl. Peds. (#/hr)	7		10	10		7	8		23	23		8
Confl. Bikes (#/hr)						1			1			
Heavy Vehicles (%)	2%	7%	6%	11%	7%	8%	2%	5%	4%	11%	10%	12%
Turn Type	Prot	NA	Perm	Prot	NA		Prot	NA	pm+ov	Prot	NA	
Protected Phases	5	2		1	6		3	8	1	7	4	
Permitted Phases			2						8			
Actuated Green, G (s)	7.4	36.1	36.1	20.2	48.9		15.7	31.2	51.4	5.2	20.7	
Effective Green, g (s)	7.4	36.1	36.1	20.2	48.9		15.7	31.2	51.4	5.2	20.7	
Actuated g/C Ratio	0.07	0.33	0.33	0.18	0.44		0.14	0.28	0.47	0.05	0.19	
Clearance Time (s)	3.5	5.3	5.3	3.5	5.3		3.5	5.0	3.5	3.5	5.0	
Vehicle Extension (s)	3.0	4.0	4.0	3.0	4.0		3.0	3.5	3.0	3.0	3.5	
Lane Grp Cap (vph)	101	498	409	261	682		220	447	602	66	264	
v/s Ratio Prot	0.03	0.28		c0.18	c0.39		c0.10	0.15	0.05	0.02	c0.13	
v/s Ratio Perm			0.03						0.08			
v/c Ratio	0.45	0.85	0.10	1.00	0.87		0.73	0.53	0.28	0.44	0.67	
Uniform Delay, d1	49.3	34.4	25.7	44.9	27.8		45.1	33.3	17.9	51.0	41.5	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	3.1	13.2	0.1	55.7	12.3		11.3	1.4	0.3	4.6	6.6	
Delay (s)	52.4	47.7	25.8	100.6	40.1		56.4	34.7	18.2	55.6	48.0	
Level of Service	D	D	C	F	D		E	C	B	E	D	
Approach Delay (s)		43.4			58.5			31.6			49.0	
Approach LOS		D			E			C			D	

Intersection Summary

HCM 2000 Control Delay	45.6	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.85		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	17.3
Intersection Capacity Utilization	76.8%	ICU Level of Service	D
Analysis Period (min)	15		

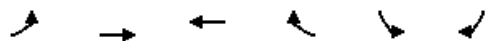
c Critical Lane Group



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group Flow (vph)	457	237	344	216	180	431
v/c Ratio	0.78	0.23	0.75	0.40	0.70	0.87
Control Delay	37.7	6.2	41.7	6.3	49.8	29.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	37.7	6.2	41.7	6.3	49.8	29.4
Queue Length 50th (ft)	195	34	168	0	91	54
Queue Length 95th (ft)	#547	106	325	55	180	203
Internal Link Dist (ft)		389	3361		596	
Turn Bay Length (ft)	250			190		75
Base Capacity (vph)	586	1423	1102	997	501	659
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.78	0.17	0.31	0.22	0.36	0.65

Intersection Summary




















95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

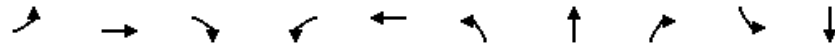


Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↖	↑	↑	↗	↖	↗
Traffic Volume (vph)	430	223	323	203	169	405
Future Volume (vph)	430	223	323	203	169	405
Ideal Flow (vphpl)	1650	1650	1650	1650	1650	1650
Grade (%)		5%	-5%		-2%	
Total Lost time (s)	3.0	5.0	5.0	5.0	5.0	5.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frbp, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Fr _t	1.00	1.00	1.00	0.85	1.00	0.85
Fl _t Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1484	1462	1626	1369	1480	1324
Fl _t Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1484	1462	1626	1369	1480	1324
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	457	237	344	216	180	431
RTOR Reduction (vph)	0	0	0	155	0	263
Lane Group Flow (vph)	457	237	344	61	180	168
Confl. Peds. (#/hr)					1	
Heavy Vehicles (%)	3%	10%	4%	5%	7%	7%
Turn Type	Prot	NA	NA	Perm	Prot	Perm
Protected Phases	5	2	6		4	
Permitted Phases				6		4
Actuated Green, G (s)	35.7	64.3	25.6	25.6	15.7	15.7
Effective Green, g (s)	35.7	64.3	25.6	25.6	15.7	15.7
Actuated g/C Ratio	0.40	0.71	0.28	0.28	0.17	0.17
Clearance Time (s)	3.0	5.0	5.0	5.0	5.0	5.0
Vehicle Extension (s)	0.5	0.5	0.5	0.5	0.5	0.5
Lane Grp Cap (vph)	588	1044	462	389	258	230
v/s Ratio Prot	c0.31	0.16	c0.21		0.12	
v/s Ratio Perm				0.04		c0.13
v/c Ratio	0.78	0.23	0.74	0.16	0.70	0.73
Uniform Delay, d ₁	23.7	4.4	29.2	24.1	34.9	35.1
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d ₂	5.9	0.0	5.6	0.1	6.5	9.4
Delay (s)	29.5	4.4	34.9	24.2	41.4	44.5
Level of Service	C	A	C	C	D	D
Approach Delay (s)		21.0	30.7		43.6	
Approach LOS		C	C		D	

Intersection Summary

HCM 2000 Control Delay	31.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.76		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	13.0
Intersection Capacity Utilization	69.5%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	27	31	2	60	66	106	2	285	29	89	245	38
Future Volume (vph)	27	31	2	60	66	106	2	285	29	89	245	38
Peak Hour Factor	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78
Hourly flow rate (vph)	35	40	3	77	85	136	3	365	37	114	314	49
Direction, Lane #	EB 1	WB 1	WB 2	NB 1	SB 1	SB 2						
Volume Total (vph)	78	162	136	405	114	363						
Volume Left (vph)	35	77	0	3	114	0						
Volume Right (vph)	3	0	136	37	0	49						
Hadj (s)	0.21	0.30	-0.63	0.01	0.67	-0.06						
Departure Headway (s)	8.2	7.6	6.7	6.6	7.2	6.5						
Degree Utilization, x	0.18	0.34	0.25	0.74	0.23	0.65						
Capacity (veh/h)	392	439	498	530	480	532						
Control Delay (s)	12.9	13.3	10.7	26.4	11.2	19.8						
Approach Delay (s)	12.9	12.1		26.4	17.7							
Approach LOS	B	B		D	C							
Intersection Summary												
Delay			18.9									
Level of Service			C									
Intersection Capacity Utilization			57.3%	ICU Level of Service	B							
Analysis Period (min)			15									



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	75	585	224	349	611	127	278	345	64	317
v/c Ratio	0.52	1.22	0.44	1.27	0.95	0.65	0.58	0.44	0.47	0.84
Control Delay	64.1	152.1	13.7	186.4	62.5	65.3	40.6	6.0	63.1	61.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	64.1	152.1	13.7	186.4	62.5	65.3	40.6	6.0	63.1	61.0
Queue Length 50th (ft)	54	~542	33	~332	~483	91	178	27	46	218
Queue Length 95th (ft)	109	#860	115	#579	#873	164	282	90	97	345
Internal Link Dist (ft)		586			2539		2445			560
Turn Bay Length (ft)	100			100		150		90	50	
Base Capacity (vph)	255	480	508	275	642	271	525	780	274	482
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.29	1.22	0.44	1.27	0.95	0.47	0.53	0.44	0.23	0.66

Intersection Summary

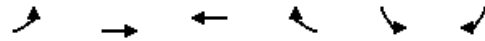
- ~ Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	71	556	213	332	535	46	121	264	328	61	249	52
Future Volume (vph)	71	556	213	332	535	46	121	264	328	61	249	52
Ideal Flow (vphpl)	1650	1650	1650	1650	1650	1650	1650	1650	1650	1650	1650	1650
Grade (%)		3%			-2%			-1%			1%	
Total Lost time (s)	3.5	5.3	5.3	3.5	5.3		3.5	5.0	3.5	3.5	5.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Frpb, ped/bikes	1.00	1.00	0.97	1.00	1.00		1.00	1.00	0.97	1.00	0.99	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Frt	1.00	1.00	0.85	1.00	0.99		1.00	1.00	0.85	1.00	0.97	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1457	1563	1285	1568	1582		1544	1626	1322	1560	1551	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1457	1563	1285	1568	1582		1544	1626	1322	1560	1551	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	75	585	224	349	563	48	127	278	345	64	262	55
RTOR Reduction (vph)	0	0	113	0	2	0	0	0	146	0	6	0
Lane Group Flow (vph)	75	585	111	349	609	0	127	278	199	64	311	0
Confl. Peds. (#/hr)	5		5	5		5	9		26	26		9
Confl. Bikes (#/hr)						1						
Heavy Vehicles (%)	6%	4%	4%	1%	4%	2%	2%	2%	3%	0%	2%	4%
Turn Type	Prot	NA	Perm	Prot	NA		Prot	NA	pm+ov	Prot	NA	
Protected Phases	5	2		1	6		3	8	1	7	4	
Permitted Phases			2						8			
Actuated Green, G (s)	9.8	36.1	36.1	20.2	46.5		14.4	34.0	54.2	8.7	28.3	
Effective Green, g (s)	9.8	36.1	36.1	20.2	46.5		14.4	34.0	54.2	8.7	28.3	
Actuated g/C Ratio	0.08	0.31	0.31	0.17	0.40		0.12	0.29	0.47	0.07	0.24	
Clearance Time (s)	3.5	5.3	5.3	3.5	5.3		3.5	5.0	3.5	3.5	5.0	
Vehicle Extension (s)	3.0	4.0	4.0	3.0	4.0		3.0	3.5	3.0	3.0	3.5	
Lane Grp Cap (vph)	122	485	398	272	632		191	475	616	116	377	
v/s Ratio Prot	0.05	c0.37		c0.22	0.39		c0.08	0.17	0.06	0.04	c0.20	
v/s Ratio Perm			0.09						0.09			
v/c Ratio	0.61	1.21	0.28	1.28	0.96		0.66	0.59	0.32	0.55	0.82	
Uniform Delay, d1	51.4	40.1	30.3	48.0	34.1		48.6	35.1	19.5	51.9	41.7	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	8.9	110.9	0.5	152.5	27.0		8.4	2.0	0.3	5.6	14.0	
Delay (s)	60.3	151.0	30.8	200.5	61.1		57.1	37.1	19.8	57.5	55.6	
Level of Service	E	F	C	F	E		E	D	B	E	E	
Approach Delay (s)		112.9			111.8			32.5			55.9	
Approach LOS		F			F			C			E	

Intersection Summary

HCM 2000 Control Delay	85.0	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.03		
Actuated Cycle Length (s)	116.3	Sum of lost time (s)	17.3
Intersection Capacity Utilization	97.0%	ICU Level of Service	F
Analysis Period (min)	15		

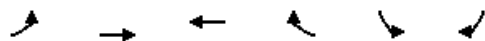
c Critical Lane Group



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group Flow (vph)	581	447	255	209	326	443
v/c Ratio	1.13	0.47	0.70	0.44	0.71	0.84
Control Delay	112.5	13.2	47.2	7.6	41.9	34.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	112.5	13.2	47.2	7.6	41.9	34.9
Queue Length 50th (ft)	~429	148	152	0	184	162
Queue Length 95th (ft)	#673	222	238	57	#310	#357
Internal Link Dist (ft)		446	3361		596	
Turn Bay Length (ft)	250			190		75
Base Capacity (vph)	515	1518	958	923	457	530
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	1.13	0.29	0.27	0.23	0.71	0.84

Intersection Summary




















- ~ Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↖	↑	↑	↗	↖	↗
Traffic Volume (vph)	569	438	250	205	319	434
Future Volume (vph)	569	438	250	205	319	434
Ideal Flow (vphpl)	1650	1650	1650	1650	1650	1650
Grade (%)		5%	-5%		-2%	
Total Lost time (s)	3.0	5.0	5.0	5.0	5.0	5.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Fr _t	1.00	1.00	1.00	0.85	1.00	0.85
Fl _t Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1484	1562	1611	1409	1537	1358
Fl _t Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1484	1562	1611	1409	1537	1358
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	581	447	255	209	326	443
RTOR Reduction (vph)	0	0	0	162	0	127
Lane Group Flow (vph)	581	447	255	47	326	316
Confl. Peds. (#/hr)						1
Heavy Vehicles (%)	3%	3%	5%	2%	3%	2%
Turn Type	Prot	NA	NA	Perm	Prot	Perm
Protected Phases	5	2	6		4	
Permitted Phases				6		4
Actuated Green, G (s)	35.0	60.8	22.8	22.8	30.0	30.0
Effective Green, g (s)	35.0	60.8	22.8	22.8	30.0	30.0
Actuated g/C Ratio	0.35	0.60	0.23	0.23	0.30	0.30
Clearance Time (s)	3.0	5.0	5.0	5.0	5.0	5.0
Vehicle Extension (s)	0.5	0.5	0.5	0.5	0.5	0.5
Lane Grp Cap (vph)	515	942	364	318	457	404
v/s Ratio Prot	c0.39	0.29	c0.16		0.21	
v/s Ratio Perm				0.03		c0.23
v/c Ratio	1.13	0.47	0.70	0.15	0.71	0.78
Uniform Delay, d1	32.9	11.1	35.9	31.2	31.6	32.4
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	79.9	0.1	4.9	0.1	4.4	8.8
Delay (s)	112.8	11.3	40.8	31.3	35.9	41.2
Level of Service	F	B	D	C	D	D
Approach Delay (s)		68.6	36.5		39.0	
Approach LOS		E	D		D	

Intersection Summary

HCM 2000 Control Delay	52.0	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.90		
Actuated Cycle Length (s)	100.8	Sum of lost time (s)	13.0
Intersection Capacity Utilization	83.5%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	99	82	5	75	47	55	1	347	98	98	363	30
Future Volume (vph)	99	82	5	75	47	55	1	347	98	98	363	30
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	105	87	5	80	50	59	1	369	104	104	386	32
Direction, Lane #	EB 1	WB 1	WB 2	NB 1	SB 1	SB 2						
Volume Total (vph)	197	130	59	474	104	418						
Volume Left (vph)	105	80	0	1	104	0						
Volume Right (vph)	5	0	59	104	0	32						
Hadj (s)	0.12	0.45	-0.55	-0.09	0.55	-0.02						
Departure Headway (s)	8.4	8.8	7.8	7.1	7.7	7.1						
Degree Utilization, x	0.46	0.32	0.13	0.93	0.22	0.83						
Capacity (veh/h)	403	390	435	500	453	492						
Control Delay (s)	18.4	14.7	10.7	51.3	11.7	34.6						
Approach Delay (s)	18.4	13.4		51.3	30.0							
Approach LOS	C	B		F	D							

Intersection Summary

Delay	33.4
Level of Service	D
Intersection Capacity Utilization	80.3% ICU Level of Service D
Analysis Period (min)	15



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↔			↔	↔	
Traffic Volume (veh/h)	227	171	163	370	156	80
Future Volume (Veh/h)	227	171	163	370	156	80
Sign Control	Free			Free	Stop	
Grade	-5%			3%	3%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	247	186	177	402	170	87
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None		None			
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			433		1096	340
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			433		1096	340
tC, single (s)			4.1		6.5	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			84		13	88
cM capacity (veh/h)			1116		196	702
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total	433	579	257			
Volume Left	0	177	170			
Volume Right	186	0	87			
cSH	1700	1116	259			
Volume to Capacity	0.25	0.16	0.99			
Queue Length 95th (ft)	0	14	242			
Control Delay (s)	0.0	4.0	96.1			
Lane LOS		A	F			
Approach Delay (s)	0.0	4.0	96.1			
Approach LOS			F			
Intersection Summary						
Average Delay			21.3			
Intersection Capacity Utilization			84.2%	ICU Level of Service	E	
Analysis Period (min)			15			
























Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↔			↔	↔	
Traffic Volume (veh/h)	435	306	214	358	110	93
Future Volume (Veh/h)	435	306	214	358	110	93
Sign Control	Free			Free	Stop	
Grade	-5%			3%	3%	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	478	336	235	393	121	102
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None		None			
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			814		1509	646
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			814		1509	646
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			71		0	78
cM capacity (veh/h)			800		93	471
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total	814	628	223			
Volume Left	0	235	121			
Volume Right	336	0	102			
cSH	1700	800	147			
Volume to Capacity	0.48	0.29	1.52			
Queue Length 95th (ft)	0	31	377			
Control Delay (s)	0.0	7.0	320.0			
Lane LOS		A	F			
Approach Delay (s)	0.0	7.0	320.0			
Approach LOS			F			
Intersection Summary						
Average Delay			45.5			
Intersection Capacity Utilization			106.8%		ICU Level of Service	G
Analysis Period (min)			15			



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	201	750	146	666	185	535	277	786	247
v/c Ratio	0.88	0.85	0.78	0.83	0.83	0.62	0.94	0.78	0.46
Control Delay	86.5	51.2	79.5	51.7	79.6	43.6	90.1	46.6	14.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	86.5	51.2	79.5	51.7	79.6	43.6	90.1	46.6	14.5
Queue Length 50th (ft)	158	280	116	253	147	205	222	318	40
Queue Length 95th (ft)	#271	#415	182	331	220	270	#389	#490	130
Internal Link Dist (ft)		2539		628		2175		1232	
Turn Bay Length (ft)	300		175		175		150		175
Base Capacity (vph)	263	891	263	842	301	856	304	1008	535
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.76	0.84	0.56	0.79	0.61	0.63	0.91	0.78	0.46

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	195	601	126	142	525	121	179	443	76	269	762	240
Future Volume (vph)	195	601	126	142	525	121	179	443	76	269	762	240
Ideal Flow (vphpl)	1650	1650	1650	1650	1650	1650	1650	1650	1650	1650	1650	1650
Total Lost time (s)	3.0	5.0		3.0	5.0		3.0	5.0		3.0	5.0	5.0
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95		1.00	0.95	1.00
Frbp, ped/bikes	1.00	0.99		1.00	0.99		1.00	1.00		1.00	1.00	0.91
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Frt	1.00	0.97		1.00	0.97		1.00	0.98		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1568	3019		1568	3024		1568	3053		1568	3135	1283
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1568	3019		1568	3024		1568	3053		1568	3135	1283
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	201	620	130	146	541	125	185	457	78	277	786	247
RTOR Reduction (vph)	0	14	0	0	16	0	0	10	0	0	0	123
Lane Group Flow (vph)	201	736	0	146	650	0	185	525	0	277	786	124
Confl. Peds. (#/hr)	24		21	21		24	31		14	14		31
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type	Prot	NA		Prot	NA		Prot	NA		Prot	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases												4
Actuated Green, G (s)	18.3	36.0		14.9	32.6		17.9	34.7		23.4	40.2	40.2
Effective Green, g (s)	18.3	36.0		14.9	32.6		17.9	34.7		23.4	40.2	40.2
Actuated g/C Ratio	0.15	0.29		0.12	0.26		0.14	0.28		0.19	0.32	0.32
Clearance Time (s)	3.0	5.0		3.0	5.0		3.0	5.0		3.0	5.0	5.0
Vehicle Extension (s)	1.0	6.0		1.0	6.0		1.0	6.0		1.0	6.0	6.0
Lane Grp Cap (vph)	229	869		186	788		224	847		293	1008	412
v/s Ratio Prot	c0.13	c0.24		0.09	0.21		0.12	0.17		c0.18	c0.25	
v/s Ratio Perm												0.10
v/c Ratio	0.88	0.85		0.78	0.82		0.83	0.62		0.95	0.78	0.30
Uniform Delay, d1	52.3	41.9		53.5	43.5		52.0	39.4		50.2	38.4	31.9
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	28.5	8.9		17.9	8.2		20.4	3.4		37.5	6.0	1.9
Delay (s)	80.7	50.8		71.4	51.7		72.5	42.8		87.7	44.4	33.7
Level of Service	F	D		E	D		E	D		F	D	C
Approach Delay (s)		57.1			55.2			50.4			51.5	
Approach LOS		E			E			D			D	

Intersection Summary

HCM 2000 Control Delay	53.5	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.89		
Actuated Cycle Length (s)	125.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	94.0%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Appendix D ODOT Crash Data

OREGON DEPARTMENT OF TRANSPORTATION - TRANSPORTATION DEVELOPMENT DIVISION
 TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT
 CRASH SUMMARIES BY YEAR BY COLLISION TYPE

SE Powell Blvd & SE 174th Ave
 January 1, 2011 through December 31, 2015

COLLISION TYPE	FATAL CRASHES	NON- FATAL CRASHES	PROPERTY DAMAGE ONLY	TOTAL CRASHES	PEOPLE KILLED	PEOPLE INJURED	TRUCKS	DRY SURF	WET SURF	DAY	DARK	INTER- SECTION	INTER- SECTION RELATED	OFF- ROAD
YEAR: 2015														
PEDESTRIAN	0	1	0	1	0	1	0	1	0	1	0	1	0	0
REAR-END	0	3	5	8	0	4	0	7	1	7	1	8	0	0
TURNING MOVEMENTS	0	1	0	1	0	1	0	1	0	1	0	1	0	0
2015 TOTAL	0	5	5	10	0	6	0	9	1	9	1	10	0	0
YEAR: 2014														
ANGLE	0	1	1	2	0	2	0	2	0	1	1	2	0	0
REAR-END	0	4	5	9	0	5	1	6	2	6	3	9	0	0
TURNING MOVEMENTS	0	0	1	1	0	0	0	1	0	1	0	1	0	0
2014 TOTAL	0	5	7	12	0	7	1	9	2	8	4	12	0	0
YEAR: 2013														
REAR-END	0	4	4	8	0	8	0	7	0	5	3	8	0	0
SIDESWIPE - OVERTAKING	0	0	1	1	0	0	0	1	0	1	0	1	0	0
TURNING MOVEMENTS	0	1	1	2	0	2	0	2	0	0	1	2	0	0
2013 TOTAL	0	5	6	11	0	10	0	10	0	6	4	11	0	0
YEAR: 2012														
REAR-END	0	4	4	8	0	4	0	7	1	6	2	8	0	0
TURNING MOVEMENTS	0	1	0	1	0	2	0	1	0	1	0	1	0	0
2012 TOTAL	0	5	4	9	0	6	0	8	1	7	2	9	0	0
YEAR: 2011														
FIXED / OTHER OBJECT	0	1	0	1	0	1	0	1	0	0	1	1	0	1
REAR-END	0	5	2	7	0	10	0	6	0	5	2	7	0	0
TURNING MOVEMENTS	0	0	1	1	0	0	0	1	0	0	1	1	0	0
2011 TOTAL	0	6	3	9	0	11	0	8	0	5	4	9	0	1
FINAL TOTAL	0	26	25	51	0	40	1	44	4	35	15	51	0	1

Disclaimer: A higher number of crashes may be reported as of 2011 compared to prior years. This does not reflect an increase in annual crashes. The higher numbers result from a change to an internal departmental process that allows the Crash Analysis and Reporting Unit to add previously unavailable, non-fatal crash reports to the annual data file. Please be aware of this change when comparing pre-2011 crash statistics.

OREGON DEPARTMENT OF TRANSPORTATION - TRANSPORTATION DEVELOPMENT DIVISION
TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT
CONTINUOUS SYSTEM CRASH LISTING

026 MT. HOOD

SE Powell Blvd & SE 174th Ave
January 1, 2011 through December 31, 2015

SER#	E A U C O	DATE	COUNTY	RD#	FC	CONN #	INT-TYP	RD CHAR	(MEDIAN)	INT-REL	OFFRD	WTHR	CRASH TYP	SPCL USE		MOVE	A S	LICNS	PED	ACTN	EVENT	CAUSE	
														TRLR QTY	OWNER								PRTC
INVEST	E L G H R	DAY/TIME	CITY	MILEPNT	FIRST STREET	SECOND STREET	DIRECT	LEGS	TRAF-	RNDBT	SURF	COLL TYP	V#	VEH TYPE	TO	P#	TYPE	SVRTY	E X				
UNLOC?	D C S L K	LAT/LONG	URBAN AREA	LRs	INTERSECTION	SEQ#	LOCTN	(#LANES)	CNTL	DRVWY	LIGHT	SVRTY											
09158	N N N	08/24/2012	MULTNOMAH	1	14		INTER	CROSS	N		N CLR	S-1STOP	01	NONE	0	STRGHT							
NONE		Fri 3P	PORTLAND SE	MN	0	SE POWELL BLVD	NW			TRF SIGNAL	N DRY	REAR		PRVTE	NW SE						000	00	
			PORTLAND UA		9.87	SE 174TH AVE	06	0			N DAY	INJ		PSNGR CAR		01	DRVR	NONE	19	F	OR-Y	026	
No	45	29 32.31	-122 29 4.82		002600100S00				1													000	07
																						OR>25	
														02	NONE	0	STOP					011	00
														PRVTE	NW SE							000	00
														PSNGR CAR		01	DRVR	INJC	25	F	UNK	000	000
																						OR>25	
05973	N Y N N N	06/16/2013	MULTNOMAH	1	14		INTER	CROSS	N		N CLR	S-1STOP	01	NONE	0	STRGHT							
CITY		Sun 5P	PORTLAND SE	MN	0	SE POWELL BLVD	NW			TRF SIGNAL	N DRY	REAR		UNKN	NW SE						000	00	
			PORTLAND UA		9.87	SE 174TH AVE	06	0			N DAY	INJ		PSNGR CAR		01	DRVR	NONE	31	M	OR-Y	026	
No	45	29 32.31	-122 29 4.82		002600100S00				1													000	07
																						OR<25	
														02	NONE	0	STOP					011	00
														PRVTE	NW SE							000	00
														PSNGR CAR		01	DRVR	INJC	78	M	OR-Y	000	000
																						OR<25	
10823	N N N	10/08/2013	MULTNOMAH	1	14		INTER	CROSS	N		N UNK	S-1STOP	01	NONE	0	STRGHT							
NONE		Tue 7P	PORTLAND SE	MN	0	SE POWELL BLVD	NW			TRF SIGNAL	N UNK	REAR		PRVTE	NW SE						000	00	
			PORTLAND UA		9.87	SE 174TH AVE	06	0			N DLIT	PDO		PSNGR CAR		01	DRVR	NONE	33	M	OR-Y	026	
No	45	29 32.31	-122 29 4.82		002600100S00				1													000	07
																						OR<25	
														02	NONE	0	STOP					011	00
														PRVTE	NW SE							000	00
														PSNGR CAR		01	DRVR	NONE	32	F	OR-Y	000	000
																						OR<25	
12538	N N N	11/18/2013	MULTNOMAH	1	14		INTER	CROSS	N		N CLR	S-1STOP	01	NONE	0	STRGHT							
NONE		Mon 5P	PORTLAND SE	MN	0	SE POWELL BLVD	NW			TRF SIGNAL	N DRY	REAR		PRVTE	NW SE						000	00	
			PORTLAND UA		9.87	SE 174TH AVE	06	0			N DUSK	PDO		PSNGR CAR		01	DRVR	NONE	65	F	OR-Y	026	
No	45	29 32.31	-122 29 4.82		002600100S00				1													000	07
																						OR<25	
														02	NONE	0	STOP					011	00
														PRVTE	NW SE							000	00
														PSNGR CAR		01	DRVR	NONE	42	M	OR-Y	000	000
																						OR<25	
00547	N N N	01/18/2014	MULTNOMAH	1	14		INTER	CROSS	N		N CLR	S-1STOP	01	NONE	0	STRGHT							
NONE		Sat 5P	PORTLAND SE	MN	0	SE POWELL BLVD	NW			TRF SIGNAL	N DRY	REAR		UNKN	NW SE						000	00	
			PORTLAND UA		9.87	SE 174TH AVE	06	0			N DLIT	INJ		SEMI TOW		01	DRVR	NONE	00	F	OR-Y	026	
No	45	29 32.31	-122 29 4.82		002600100S00				1													000	07
																						OR<25	
														02	NONE	0	STOP					011	00
														PRVTE	NW SE							000	00
														PSNGR CAR		01	DRVR	NONE	61	M	OR-Y	000	000
																						OR<25	
																						000	00
																						000	00
																						000	00
																						000	00
																						000	00
																						000	00
																						000	00

OREGON DEPARTMENT OF TRANSPORTATION - TRANSPORTATION DEVELOPMENT DIVISION
 TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT
 CRASH SUMMARIES BY YEAR BY COLLISION TYPE

SE 174th Ave from Powell Blvd to SE Circle Ave
 January 1, 2011 through December 31, 2015

COLLISION TYPE	FATAL CRASHES	NON- FATAL CRASHES	PROPERTY DAMAGE ONLY	TOTAL CRASHES	PEOPLE KILLED	PEOPLE INJURED	TRUCKS	DRY SURF	WET SURF	DAY	DARK	INTER- SECTION	INTER- SECTION RELATED	OFF- ROAD
YEAR: 2015														
REAR-END	0	1	0	1	0	3	0	1	0	0	1	0	0	0
TURNING MOVEMENTS	0	0	1	1	0	0	0	1	0	1	0	0	0	0
2015 TOTAL	0	1	1	2	0	3	0	2	0	1	1	0	0	0
YEAR: 2014														
BACKING	0	1	0	1	0	1	0	1	0	1	0	0	1	0
FIXED / OTHER OBJECT	0	1	0	1	0	1	0	0	1	1	0	0	0	1
TURNING MOVEMENTS	0	0	2	2	0	0	0	0	1	0	2	0	0	0
2014 TOTAL	0	2	2	4	0	2	0	1	2	2	2	0	1	1
YEAR: 2013														
HEAD-ON	0	0	1	1	0	0	0	0	1	1	0	0	0	0
NON-COLLISION	0	0	1	1	0	0	0	1	0	0	1	0	0	1
REAR-END	0	1	2	3	0	4	0	2	0	3	0	0	0	0
SIDESWIPE - MEETING	0	1	0	1	0	1	0	0	1	0	1	0	0	0
TURNING MOVEMENTS	0	0	3	3	0	0	0	3	0	2	1	0	0	0
2013 TOTAL	0	2	7	9	0	5	0	6	2	6	3	0	0	1
YEAR: 2012														
FIXED / OTHER OBJECT	0	1	1	2	0	3	0	2	0	1	1	0	0	2
TURNING MOVEMENTS	0	2	1	3	0	2	0	1	2	1	2	1	0	0
2012 TOTAL	0	3	2	5	0	5	0	3	2	2	3	1	0	2
YEAR: 2011														
PEDESTRIAN	0	1	0	1	0	1	0	1	0	1	0	0	0	0
REAR-END	0	1	0	1	0	1	0	1	0	1	0	0	0	0
TURNING MOVEMENTS	0	0	2	2	0	0	0	0	2	1	1	0	0	0
2011 TOTAL	0	2	2	4	0	2	0	2	2	3	1	0	0	0
FINAL TOTAL	0	10	14	24	0	17	0	14	8	14	10	1	1	4

Disclaimer: A higher number of crashes may be reported as of 2011 compared to prior years. This does not reflect an increase in annual crashes. The higher numbers result from a change to an internal departmental process that allows the Crash Analysis and Reporting Unit to add previously unavailable, non-fatal crash reports to the annual data file. Please be aware of this change when comparing pre-2011 crash statistics.

OREGON DEPARTMENT OF TRANSPORTATION - TRANSPORTATION DEVELOPMENT DIVISION
 TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT
 CRASH SUMMARIES BY YEAR BY COLLISION TYPE

SE Jenne Rd from Circle Ave to McKinley Rd
 January 1, 2011 through December 31, 2015

COLLISION TYPE	FATAL CRASHES	NON- FATAL CRASHES	PROPERTY DAMAGE ONLY	TOTAL CRASHES	PEOPLE KILLED	PEOPLE INJURED	TRUCKS	DRY SURF	WET SURF	DAY	DARK	INTER- SECTION	INTER- SECTION RELATED	OFF- ROAD
YEAR: 2015														
FIXED / OTHER OBJECT	0	1	1	2	0	2	0	1	1	0	2	0	0	2
HEAD-ON	0	1	0	1	0	2	0	0	1	1	0	0	0	0
REAR-END	0	2	1	3	0	3	0	3	0	3	0	0	0	0
2015 TOTAL	0	4	2	6	0	7	0	4	2	4	2	0	0	2
YEAR: 2014														
FIXED / OTHER OBJECT	0	1	0	1	0	2	0	1	0	0	1	0	0	1
HEAD-ON	0	1	0	1	0	3	0	0	1	1	0	0	0	0
2014 TOTAL	0	2	0	2	0	5	0	1	1	1	1	0	0	1
YEAR: 2013														
FIXED / OTHER OBJECT	0	1	1	2	0	1	0	1	1	1	1	0	0	2
REAR-END	0	4	2	6	0	6	0	5	1	6	0	1	0	0
SIDESWIPE - MEETING	0	2	2	4	0	2	0	3	1	3	1	0	0	0
2013 TOTAL	0	7	5	12	0	9	0	9	3	10	2	1	0	2
YEAR: 2012														
FIXED / OTHER OBJECT	0	2	1	3	0	2	0	2	1	3	0	0	0	3
HEAD-ON	0	1	0	1	0	2	0	0	1	1	0	0	0	0
REAR-END	0	3	1	4	0	4	0	3	1	3	1	0	0	0
2012 TOTAL	0	6	2	8	0	8	0	5	3	7	1	0	0	3
YEAR: 2011														
FIXED / OTHER OBJECT	0	2	2	4	0	3	0	3	1	2	2	0	0	4
HEAD-ON	0	2	0	2	0	3	0	1	1	0	2	0	0	0
NON-COLLISION	0	1	0	1	0	1	0	0	1	0	1	0	0	1
REAR-END	0	7	2	9	0	14	0	7	1	6	3	0	0	0
TURNING MOVEMENTS	0	0	1	1	0	0	0	0	1	1	0	0	0	0
2011 TOTAL	0	12	5	17	0	21	0	11	5	9	8	0	0	5
FINAL TOTAL	0	31	14	45	0	50	0	30	14	31	14	1	0	13

Disclaimer: A higher number of crashes may be reported as of 2011 compared to prior years. This does not reflect an increase in annual crashes. The higher numbers result from a change to an internal departmental process that allows the Crash Analysis and Reporting Unit to add previously unavailable, non-fatal crash reports to the annual data file. Please be aware of this change when comparing pre-2011 crash statistics.

OREGON DEPARTMENT OF TRANSPORTATION - TRANSPORTATION DEVELOPMENT DIVISION
TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT
COUNTY ROAD CRASH LISTING

MULTNOMAH COUNTY

SE Jenne Rd from Circle Ave to McKinley Rd
January 1, 2011 through December 31, 2015

Table with columns: SER#, INVEST, UNLOC?, S, D, P, R, S, W, E, A, U, C, O, DATE, MILEPNT, DIST FROM, COUNTY ROADS, FIRST STREET, SECOND STREET, INTERSECTION SEQ #, RD CHAR, DIRECT, LOCTN, INT-TYP, (MEDIAN), LEGS, INT-REL, TRAF-CONTL, OFF-RD, RDNBTR, WTHR, SURF, CRASH TYP, COLL TYP, SVRTY, SPCL USE, TRLR QTY, OWNER, MOVE, FROM, PRTC, INJ, SVRTY, A, S, G, E, LICNS, PED, X, RES, LOC, ERROR, ACTN, EVENT, CAUSE

OREGON DEPARTMENT OF TRANSPORTATION - TRANSPORTATION DEVELOPMENT DIVISION
 TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT
 COUNTY ROAD CRASH LISTING

MULTNOMAH COUNTY

SE Jenne Rd from Circle Ave to McKinley Rd
 January 1, 2011 through December 31, 2015

SER#	E A U C O DATE	MILEPNT	FIRST STREET	RD CHAR	INT-TYP	INT-REL	OFF-RD	WTHR	CRASH TYP	SPCL USE	MOVE	A S	PRTC INJ	G E LICNS PED	ACTN	EVENT	CAUSE
INVEST	E L G H R DAY/TIME	DIST FROM	SECOND STREET	DIRECT	(MEDIAN)	LEGS TRAF-	RNDBT	SURF	COLL TYP	TRLR QTY	OWNER	FROM	P#	TYPE SVRTY	E X RES	LOC	ERROR
UNLOC?	D C S L K LAT/LONG	INTERSECT	INTERSECTION SEQ #	LOCTN	(#LANES)	CONTL	DRVWY	LIGHT	SVRTY	V#	VEH TYPE	TO					
										02 NONE	0 STOP						
										PRVTE	S N					011 004	00
										PSNGR CAR			01	DRVR NONE	79 M OR-Y	000	000
														OR<25			
													02	PSNG INJC	09 M	000	000
09288	N N N N N 9/4/2011		SE JENNE RD	STRGHT		N	N	CLR	S-1STOP	01 NONE	0 STRGHT					013	07
COUNTY	Sun 5P 50		SE CIRCLE AVE	S	(NONE)	UNKNOWN	N	DRY	REAR	PRVTE	S N					000	00
No	45 29 7.84 -122 29 6.57	1		06	0		N	DAY	INJ	PSNGR CAR			01	DRVR NONE	55 M OR-Y	026	000
						(02)								OR<25			
										02 NONE	0 STOP						
										PRVTE	S N					011 013	00
										PSNGR CAR			01	DRVR NONE	20 M OR-Y	000	000
														OR<25			
													02	PSNG INJC	12 M	000	000
										03 NONE	0 STOP						
										PRVTE	S N					011	00
										PSNGR CAR			01	DRVR NONE	38 F OR-Y	000	000
														OR<25			
													02	PSNG INJC	32 F	000	000
													03	PSNG INJC	03 F	000	000
													04	PSNG INJC	78 F	000	000
05680	Y Y N N N 6/5/2011		SE JENNE RD	STRGHT		N	Y	CLR	FIX OBJ	01 NONE	0 STRGHT					079,088	01
COUNTY	Sun 1A 300		SE CIRCLE AVE	S	(NONE)	UNKNOWN	N	DRY	FIX	PRVTE	S N					000 079,088	00
No	45 29 5.35 -122 29 6.61	1		06	0		N	DLIT	PDO	PSNGR CAR			01	DRVR NONE	36 M SUSP	047,080	000
						(02)								OR<25			
01984	Y N N N N 3/1/2013		SE JENNE RD	CURVE		N	Y	CLR	FIX OBJ	01 NONE	0 STRGHT					079	32,01
COUNTY	Fri 10A 10		SE CIRCLE AVE	S	(NONE)	NONE	N	DRY	FIX	PRVTE	NE SW					000 079	00
No	45 29 3.22 -122 29 6.80	1		07			N	DAY	PDO	PSNGR CAR			01	DRVR NONE	20 M OR-Y	052,080	017
						(02)								OR<25			
13072	N N N 12/1/2011		SE JENNE RD	STRGHT		N	N	UNK	S-1STOP	01 UNKN	0 STRGHT					004	07
NONE	Thu 4P 100		SE CIRCLE AVE	S	(NONE)	UNKNOWN	N	UNK	REAR	UNKN	N S					000	00
No	45 29 7.37 -122 29 6.58	1		07	0		N	DUSK	PDO	UNKNOWN			01	DRVR NONE	00 M OR-Y	026	000
						(02)								OR<25			
										02 NONE	0 STOP						
										PRVTE	N S					011 004	00
										PSNGR CAR			01	DRVR NONE	39 M OR-Y	000	000
														OR<25			
05556	Y N N N N 5/24/2012		SE JENNE RD	STRGHT		N	Y	RAIN	FIX OBJ	01 NONE	0 STRGHT					088	32,01
CITY	Thu 8A 240		SE CIRCLE AVE	S	(NONE)	UNKNOWN	N	WET	FIX	PRVTE	S N					000 088	00
No	45 29 5.72 -122 29 6.60	1		07	0		N	DAY	PDO	PSNGR CAR			01	DRVR NONE	35 F OR-Y	052,047,080	000
						(02)								OR>25			

OREGON DEPARTMENT OF TRANSPORTATION - TRANSPORTATION DEVELOPMENT DIVISION
TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT
COUNTY ROAD CRASH LISTING

MULTNOMAH COUNTY

SE Jenne Rd from Circle Ave to McKinley Rd
January 1, 2011 through December 31, 2015

Table with columns: SER#, INVEST, UNLOC?, DATE, MILEPNT, COUNTY ROADS, RD CHAR, INT-TYP, INT-REL, OFF-RD, WTHR, CRASH TYP, SPCL USE, MOVE, PRTC, INJ, SVRTY, A, S, LICNS, PED, ACTN, EVENT, CAUSE. Rows include crash details for 13704, 01529, 11847, 06450, 00489, 03411, and 04412.

OREGON DEPARTMENT OF TRANSPORTATION - TRANSPORTATION DEVELOPMENT DIVISION
TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT
COUNTY ROAD CRASH LISTING

MULTNOMAH COUNTY

SE Jenne Rd from Circle Ave to McKinley Rd
January 1, 2011 through December 31, 2015

SER#	E A U C O DATE	MILEPNT	FIRST STREET	RD CHAR	INT-TYP	INT-REL	OFF-RD	WTHR	CRASH TYP	SPCL USE	MOVE	A S	PRTC INJ	G E LICNS PED	ACTN	EVENT	CAUSE			
INVEST	E L G H R DAY/TIME	DIST FROM	SECOND STREET	DIRECT	(MEDIAN)	LEGS TRAF-	RNDBT	SURF	COLL TYP	TRLR QTY	OWNER	FROM	P#	TYPE SVR TY	E X RES	LOC	ERROR			
UNLOC?	D C S L K LAT/LONG	INTERSECT	INTERSECTION SEQ #	LOCTN	(#LANES)	CONTL	DRVWY	LIGHT	SVR TY	V#	VEH TYPE	TO								
										02 NONE	0 STOP									
										PRVTE	S N					011	00			
										PSNGR CAR			01 DRVR	NONE	37 M	OR-Y	000	000	00	
																	OR<25			
02135	N N N 2/28/2015		SE JENNE RD	STRGHT		N	N	CLD	S-1STOP	01 NONE	0 STRGHT							013	07	
COUNTY	Sat 8A 17		SE JENNE LN	S	(NONE)	UNKNOWN	N	DRY	REAR	PRVTE	N S							000	00	
No	45 28 48.90 -122 29 19.28	1		03			Y	DAY	INJ	PSNGR CAR			01 DRVR	INJC	27 F	OR-Y	026	000	07	
						(02)												OR<25		
										02 NONE	0 STOP									
										PRVTE	N S							012 013	00	
										PSNGR CAR			01 DRVR	NONE	62 M	OR-Y	000	000	00	
																		OR<25		
										03 NONE	0 STRGHT									
										PRVTE	S N							022	00	
										PSNGR CAR			01 DRVR	INJC	44 M	OR-Y	000	000	00	
																		OR<25		
02302	Y N N N N 3/7/2011		SE JENNE RD	STRGHT		N	N	CLR	O-STRGHT	01 NONE	0 STRGHT								32,30,05	
COUNTY	Mon 8P 25		SE JENNE LN	S	(NONE)	NONE	N	DRY	HEAD	PRVTE	N S							000	00	
No	45 28 45.52 -122 29 21.25	1		05		0	N	DUSK	INJ	PSNGR CAR			01 DRVR	INJC	18 M	OR-Y	052,050,044	000	32,30,05	
						(02)												OR<25		
										02 NONE	0 STRGHT									
										PRVTE	S N							000	00	
										PSNGR CAR			01 DRVR	INJA	20 F	OR-Y	000	000	00	
																		OR<25		
82332	N N N N N 6/30/2013		SE JENNE RD	INTER	3-LEG	N	N	CLR	S-1STOP	01 NONE	0 STRGHT								10	
COUNTY	Sun 5P 0		SE JENNE LN	S		NONE	N	DRY	REAR	PRVTE	S N							000	00	
No	45 28 57.26 -122 29 13.97	1		06		0	N	DAY	INJ	PSNGR CAR			01 DRVR	NONE	18 M	OR-Y	000	000	00	
																		OR>25		
										02 NONE	0 STOP									
										PRVTE	S N							011	00	
										PSNGR CAR			01 DRVR	NONE	37 F	OR-Y	009	000	10	
																		OR<25		
													02 PSNG	INJB	41 M			000	000	00
													03 PSNG	INJB	10 F			000	000	00
13827	N N N 12/20/2011	0.11	SE JENNE RD	ALLEY		N	N	RAIN	S-1STOP	01 NONE	0 STRGHT								07	
NONE	Tue 5P		SE JENNE LN	S	(NONE)	UNKNOWN	N	WET	REAR	PRVTE	N S							000	00	
No	45 28 51.80 -122 29 17.65	1		07			N	DLIT	INJ	PSNGR CAR			01 DRVR	INJC	19 F	OR-Y	026	000	07	
						(02)												OR<25		
										02 NONE	0 STOP									
										PRVTE	N S							012	00	
										PSNGR CAR			01 DRVR	INJC	55 M	OR-Y	000	000	00	
																		OR<25		

OREGON DEPARTMENT OF TRANSPORTATION - TRANSPORTATION DEVELOPMENT DIVISION
 TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT
 COUNTY ROAD CRASH LISTING

MULTNOMAH COUNTY

SE Jenne Rd from Circle Ave to McKinley Rd
 January 1, 2011 through December 31, 2015

SER#	E A U C O DATE	MILEPNT	FIRST STREET	RD CHAR	INT-TYP	INT-REL	OFF-RD WTHR	CRASH TYP	SPCL USE	TRLR QTY	MOVE	A S	PRTC INJ	G E LICNS PED	UNLOC?	D C S L K LAT/LONG	INTERSECT	INTERSECTION SEQ #	LOCTN	(#LANES)	CONTL	DRVWY	LIGHT	SVRTY	V#	VEH TYPE	TO	P#	TYPE	SVRTY	E X RES	LOC	ERROR	ACTN	EVENT	CAUSE
													02	PSNG INJC	21	M															000		000		00	

OREGON DEPARTMENT OF TRANSPORTATION - TRANSPORTATION DEVELOPMENT DIVISION
 TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT
 CRASH SUMMARIES BY YEAR BY COLLISION TYPE

SE Jenne Rd between SE McKinley Rd and SE Foster Rd
 January 1, 2011 through December 31, 2015

COLLISION TYPE	FATAL CRASHES	NON- FATAL CRASHES	PROPERTY DAMAGE ONLY	TOTAL CRASHES	PEOPLE KILLED	PEOPLE INJURED	TRUCKS	DRY SURF	WET SURF	DAY	DARK	INTER- SECTION	INTER- SECTION RELATED	OFF- ROAD
YEAR: 2015														
REAR-END	0	2	1	3	0	2	0	2	0	3	0	0	1	0
2015 TOTAL	0	2	1	3	0	2	0	2	0	3	0	0	1	0
YEAR: 2013														
FIXED / OTHER OBJECT	0	1	0	1	0	1	0	0	1	0	1	0	0	1
2013 TOTAL	0	1	0	1	0	1	0	0	1	0	1	0	0	1
YEAR: 2012														
REAR-END	0	0	1	1	0	0	0	0	1	1	0	0	0	0
2012 TOTAL	0	0	1	1	0	0	0	0	1	1	0	0	0	0
YEAR: 2011														
FIXED / OTHER OBJECT	0	1	0	1	0	1	0	1	0	0	1	0	0	1
REAR-END	0	0	1	1	0	0	0	0	0	1	0	0	0	0
TURNING MOVEMENTS	0	0	1	1	0	0	0	0	1	0	1	0	0	1
2011 TOTAL	0	1	2	3	0	1	0	1	1	1	2	0	0	2
FINAL TOTAL	0	4	4	8	0	4	0	3	3	5	3	0	1	3

Disclaimer: A higher number of crashes may be reported as of 2011 compared to prior years. This does not reflect an increase in annual crashes. The higher numbers result from a change to an internal departmental process that allows the Crash Analysis and Reporting Unit to add previously unavailable, non-fatal crash reports to the annual data file. Please be aware of this change when comparing pre-2011 crash statistics.

OREGON DEPARTMENT OF TRANSPORTATION - TRANSPORTATION DEVELOPMENT DIVISION
 TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT
 CRASH SUMMARIES BY YEAR BY COLLISION TYPE

SE Foster Rd & SE Jenne Rd
 January 1, 2011 through December 31, 2015

COLLISION TYPE	FATAL CRASHES	NON- FATAL CRASHES	PROPERTY DAMAGE ONLY	TOTAL CRASHES	PEOPLE KILLED	PEOPLE INJURED	TRUCKS	DRY SURF	WET SURF	DAY	DARK	INTER- SECTION	INTER- SECTION RELATED	OFF- ROAD
YEAR: 2015														
REAR-END	0	0	1	1	0	0	0	1	0	1	0	1	0	0
2015 TOTAL	0	0	1	1	0	0	0	1	0	1	0	1	0	0
YEAR: 2014														
FIXED / OTHER OBJECT	0	1	1	2	0	1	0	2	0	1	1	2	0	2
2014 TOTAL	0	1	1	2	0	1	0	2	0	1	1	2	0	2
YEAR: 2013														
TURNING MOVEMENTS	0	1	0	1	0	1	0	1	0	0	1	1	0	0
2013 TOTAL	0	1	0	1	0	1	0	1	0	0	1	1	0	0
YEAR: 2012														
REAR-END	0	1	0	1	0	1	0	1	0	1	0	1	0	0
TURNING MOVEMENTS	0	0	1	1	0	0	0	1	0	1	0	1	0	0
2012 TOTAL	0	1	1	2	0	1	0	2	0	2	0	2	0	0
YEAR: 2011														
REAR-END	0	2	0	2	0	2	0	2	0	2	0	2	0	0
2011 TOTAL	0	2	0	2	0	2	0	2	0	2	0	2	0	0
FINAL TOTAL	0	5	3	8	0	5	0	8	0	6	2	8	0	2

Disclaimer: A higher number of crashes may be reported as of 2011 compared to prior years. This does not reflect an increase in annual crashes. The higher numbers result from a change to an internal departmental process that allows the Crash Analysis and Reporting Unit to add previously unavailable, non-fatal crash reports to the annual data file. Please be aware of this change when comparing pre-2011 crash statistics.

OREGON DEPARTMENT OF TRANSPORTATION - TRANSPORTATION DEVELOPMENT DIVISION
TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT
URBAN NON-SYSTEM CRASH LISTING

CITY OF PORTLAND SE, MULTNOMAH COUNTY

SE Foster Rd & SE Jenne Rd
January 1, 2011 through December 31, 2015

Table with columns: SER#, INVEST, UNLOC?, S, D, P, R, S, W, E, A, U, C, O, DATE, FC, CITY STREET, RD CHAR, INT-TYP, INT-REL, OFF-RD, WTHR, CRASH TYP, SPCL USE, MOVE, PRTC, INJ, G, E, LICNS, PED, ACTN, EVENT, CAUSE. Rows include crash records for SE Foster Rd & SE Jenne Rd intersections.

OREGON DEPARTMENT OF TRANSPORTATION - TRANSPORTATION DEVELOPMENT DIVISION
 TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT
 CRASH SUMMARIES BY YEAR BY COLLISION TYPE
 SE Foster Rd between SE Jenne Rd and SE 172nd Ave
 January 1, 2011 through December 31, 2015

COLLISION TYPE	FATAL CRASHES	NON- FATAL CRASHES	PROPERTY DAMAGE ONLY	TOTAL CRASHES	PEOPLE KILLED	PEOPLE INJURED	TRUCKS	DRY SURF	WET SURF	DAY	DARK	INTER- SECTION	INTER- SECTION RELATED	OFF- ROAD
YEAR: 2015														
SIDESWIPE - MEETING	0	1	0	1	0	1	0	0	1	0	1	0	0	0
TURNING MOVEMENTS	0	1	2	3	0	2	0	2	1	1	2	0	0	0
2015 TOTAL	0	2	2	4	0	3	0	2	2	1	3	0	0	0
YEAR: 2014														
TURNING MOVEMENTS	0	0	1	1	0	0	0	1	0	1	0	0	0	0
2014 TOTAL	0	0	1	1	0	0	0	1	0	1	0	0	0	0
YEAR: 2013														
NON-COLLISION	0	0	1	1	0	0	0	1	0	1	0	0	0	1
REAR-END	0	2	0	2	0	3	0	2	0	2	0	0	0	0
2013 TOTAL	0	2	1	3	0	3	0	3	0	3	0	0	0	1
YEAR: 2012														
FIXED / OTHER OBJECT	0	1	0	1	0	1	0	0	1	0	1	0	0	1
REAR-END	0	2	0	2	0	3	0	2	0	2	0	0	0	0
2012 TOTAL	0	3	0	3	0	4	0	2	1	2	1	0	0	1
YEAR: 2011														
FIXED / OTHER OBJECT	0	0	2	2	0	0	0	0	1	0	2	0	0	2
TURNING MOVEMENTS	0	1	1	2	0	1	0	0	1	1	1	0	0	0
2011 TOTAL	0	1	3	4	0	1	0	0	2	1	3	0	0	2
FINAL TOTAL	0	8	7	15	0	11	0	8	5	8	7	0	0	4

Disclaimer: A higher number of crashes may be reported as of 2011 compared to prior years. This does not reflect an increase in annual crashes. The higher numbers result from a change to an internal departmental process that allows the Crash Analysis and Reporting Unit to add previously unavailable, non-fatal crash reports to the annual data file. Please be aware of this change when comparing pre-2011 crash statistics.

OREGON DEPARTMENT OF TRANSPORTATION - TRANSPORTATION DEVELOPMENT DIVISION
TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT
URBAN NON-SYSTEM CRASH LISTING

CITY OF PORTLAND SE, MULTNOMAH COUNTY

SE Foster Rd between SE Jenne Rd and SE 172nd Ave
January 1, 2011 through December 31, 2015

Table with columns: SER#, INVEST, UNLOC?, S, D, P, R, S, W, E, A, U, C, O, DATE, CITY STREET, RD CHAR, INT-TYP, INT-REL, OFF-RD, WTHR, CRASH TYP, SPCL USE, MOVE, A, S, G, E, LICNS, PED, LOC, ERROR, ACTN, EVENT, CAUSE. Contains multiple rows of crash data for SE Foster Rd.

OREGON DEPARTMENT OF TRANSPORTATION - TRANSPORTATION DEVELOPMENT DIVISION
TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT
CRASH SUMMARIES BY YEAR BY COLLISION TYPE
SE Giese Rd & SE 190th Ave / SW Pleasant View Dr
January 1, 2011 through December 31, 2015

COLLISION TYPE	FATAL CRASHES	NON- FATAL CRASHES	PROPERTY DAMAGE ONLY	TOTAL CRASHES	PEOPLE KILLED	PEOPLE INJURED	TRUCKS	DRY SURF	WET SURF	DAY	DARK	INTER- SECTION	INTER- SECTION RELATED	OFF- ROAD
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YEAR:

TOTAL

FINAL TOTAL

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OREGON DEPARTMENT OF TRANSPORTATION - TRANSPORTATION DEVELOPMENT DIVISION
 TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT
 CRASH SUMMARIES BY YEAR BY COLLISION TYPE

SE 190th Dr from SE Giese Rd to SE Tillstrom Rd
 January 1, 2011 through December 31, 2015

COLLISION TYPE	FATAL CRASHES	NON- FATAL CRASHES	PROPERTY DAMAGE ONLY	TOTAL CRASHES	PEOPLE KILLED	PEOPLE INJURED	TRUCKS	DRY SURF	WET SURF	DAY	DARK	INTER- SECTION	INTER- SECTION RELATED	OFF- ROAD
YEAR: 2015														
ANGLE	0	0	1	1	0	0	0	0	1	1	0	1	0	0
TURNING MOVEMENTS	0	0	1	1	0	0	0	1	0	1	0	1	0	0
2015 TOTAL	0	0	2	2	0	0	0	1	1	2	0	2	0	0
YEAR: 2014														
TURNING MOVEMENTS	0	2	1	3	0	3	0	3	0	2	1	3	0	0
2014 TOTAL	0	2	1	3	0	3	0	3	0	2	1	3	0	0
YEAR: 2013														
TURNING MOVEMENTS	0	1	0	1	0	2	0	0	1	1	0	1	0	0
2013 TOTAL	0	1	0	1	0	2	0	0	1	1	0	1	0	0
FINAL TOTAL	0	3	3	6	0	5	0	4	2	5	1	6	0	0

Disclaimer: A higher number of crashes may be reported as of 2011 compared to prior years. This does not reflect an increase in annual crashes. The higher numbers result from a change to an internal departmental process that allows the Crash Analysis and Reporting Unit to add previously unavailable, non-fatal crash reports to the annual data file. Please be aware of this change when comparing pre-2011 crash statistics.

OREGON DEPARTMENT OF TRANSPORTATION - TRANSPORTATION DEVELOPMENT DIVISION
 TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT
 CRASH SUMMARIES BY YEAR BY COLLISION TYPE

SE Foster Rd & SE 172nd Ave
 January 1, 2011 through December 31, 2015

COLLISION TYPE	FATAL CRASHES	NON- FATAL CRASHES	PROPERTY DAMAGE ONLY	TOTAL CRASHES	PEOPLE KILLED	PEOPLE INJURED	TRUCKS	DRY SURF	WET SURF	DAY	DARK	INTER- SECTION	INTER- SECTION RELATED	OFF- ROAD
YEAR: 2015														
REAR-END	0	0	1	1	0	0	0	1	0	0	1	1	0	0
TURNING MOVEMENTS	0	2	5	7	0	2	0	5	1	4	3	7	0	0
2015 TOTAL	0	2	6	8	0	2	0	6	1	4	4	8	0	0
YEAR: 2014														
REAR-END	0	3	3	6	0	4	0	3	3	4	2	6	0	0
TURNING MOVEMENTS	0	2	2	4	0	4	0	2	2	2	2	4	0	0
2014 TOTAL	0	5	5	10	0	8	0	5	5	6	4	10	0	0
YEAR: 2013														
REAR-END	0	1	0	1	0	1	0	1	0	1	0	1	0	0
TURNING MOVEMENTS	0	1	1	2	0	2	0	2	0	2	0	2	0	0
2013 TOTAL	0	2	1	3	0	3	0	3	0	3	0	3	0	0
YEAR: 2012														
NON-COLLISION	0	1	0	1	0	3	0	1	0	1	0	1	0	1
REAR-END	0	5	0	5	0	8	0	4	1	5	0	5	0	0
TURNING MOVEMENTS	0	2	0	2	0	2	0	1	1	1	1	2	0	0
2012 TOTAL	0	8	0	8	0	13	0	6	2	7	1	8	0	1
YEAR: 2011														
TURNING MOVEMENTS	0	1	0	1	0	1	0	0	1	0	1	1	0	0
2011 TOTAL	0	1	0	1	0	1	0	0	1	0	1	1	0	0
FINAL TOTAL	0	18	12	30	0	27	0	20	9	20	10	30	0	1

Disclaimer: A higher number of crashes may be reported as of 2011 compared to prior years. This does not reflect an increase in annual crashes. The higher numbers result from a change to an internal departmental process that allows the Crash Analysis and Reporting Unit to add previously unavailable, non-fatal crash reports to the annual data file. Please be aware of this change when comparing pre-2011 crash statistics.

OREGON DEPARTMENT OF TRANSPORTATION - TRANSPORTATION DEVELOPMENT DIVISION
TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT
COUNTY ROAD CRASH LISTING

MULTNOMAH COUNTY

SE Foster Rd & SE 172nd Ave
January 1, 2011 through December 31, 2015

SER#	E A U C O DATE	MILEPNT	FIRST STREET	RD CHAR	INT-TYP	INT-REL	OFF-RD	WTHR	CRASH TYP	SPCL USE	MOVE	A S	PRTC INJ	G E LICNS PED	ERROR	ACTN	EVENT	CAUSE
INVEST	E L G H R DAY/TIME	DIST FROM	SECOND STREET	DIRECT	(MEDIAN)	LEGS TRAF-	RNDBT	SURF	COLL TYP	TRLR QTY	OWNER	FROM	P# TYPE SVRTY	E X RES LOC				
UNLOC?	D C S L K LAT/LONG	INTERSECT	INTERSECTION SEQ #	LOCTN	(#LANES)	CONTL	DRVWY	LIGHT	SVRTY	V#	VEH TYPE	TO						
													02 PSNG INJB	12 F	000	000		00
										02 NONE	0 STOP							
										PRVTE	SE NW						011 013	00
										PSNGR CAR			01 DRVR NONE	45 F OR-Y	000	000		00
														OR>25				
										03 NONE	0 STOP							
										PRVTE	SE NW						011	00
										PSNGR CAR			01 DRVR INJC	58 M OR-Y	000	000		00
														OR<25				
13079	N N N N N 11/22/2012		SE FOSTER RD	INTER	3-LEG	N	N	CLR	S-1STOP	01 NONE	0 STRGHT							07
COUNTY	Thu 3P 0		SE 172ND AVE	SE		UNKNOWN	N	DRY	REAR	PRVTE	SE NW							000
No	45 28 0.41 -122 29 8.87	1		06	0		N	DAY	INJ	PSNGR CAR			01 DRVR NONE	22 F OR-Y	043,026	000		07
														OR<25				
													02 PSNG INJC	22 F	000	000		00
										02 NONE	0 STOP							
										PRVTE	SE NW						012	00
										PSNGR CAR			01 DRVR INJC	43 F OR-Y	000	000		00
														OR<25				
10172	N N N N N 9/26/2013		SE FOSTER RD	INTER	3-LEG	N	N	CLR	S-1STOP	01 NONE	0 STRGHT							07
COUNTY	Thu 4P 0		SE 172ND AVE	SE		STOP SIGN	N	DRY	REAR	PRVTE	SE NW							000
No	45 28 0.41 -122 29 8.87	1		06	0		N	DAY	INJ	PSNGR CAR			01 DRVR NONE	33 M OR-Y	026	000		07
														OR>25				
										02 NONE	0 STOP							
										PRVTE	SE NW						011 013	00
										PSNGR CAR			01 DRVR INJC	77 F OTH-Y	000	000		00
														N-RES				
										03 NONE	0 STOP							
										PRVTE	SE NW						022	00
										PSNGR CAR			01 DRVR NONE	51 M OR-Y	000	000		00
														OR>25				
07655	Y N N N N 7/19/2012		SE FOSTER RD	INTER	3-LEG	N	Y	CLR	OVERTURN	01 NONE	0 TURN-L							01
COUNTY	Thu 5P 0		SE 172ND AVE	S		UNKNOWN	N	DRY	NCOL	PRVTE	E S							000
No	45 28 0.41 -122 29 8.87	1		05	0		N	DAY	INJ	PSNGR CAR			01 DRVR INJB	28 F OR-Y	047,080	000		01
														OR<25				
													02 PSNG INJB	33 M	000	000		00
													03 PSNG INJB	12 F	000	000		00
03072	N N N 3/28/2012		SE FOSTER RD	INTER	3-LEG	N	N	CLD	S-1STOP	01 NONE	0 STRGHT							07
NONE	Wed 5P 0		SE 172ND AVE	S		STOP SIGN	N	WET	REAR	PRVTE	S N							000
No	45 28 0.41 -122 29 8.87	1		06	0		N	DAY	INJ	PSNGR CAR			01 DRVR NONE	60 M OR-Y	026	000		07
														OR<25				

OREGON DEPARTMENT OF TRANSPORTATION - TRANSPORTATION DEVELOPMENT DIVISION
 TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT
 COUNTY ROAD CRASH LISTING

MULTNOMAH COUNTY

SE Foster Rd & SE 172nd Ave
 January 1, 2011 through December 31, 2015

SER#	E A U C O DATE	MILEPNT	FIRST STREET	RD CHAR	INT-TYP	INT-REL	OFF-RD	WTHR	CRASH TYP	SPCL USE	MOVE	PRTC INJ	A S	ACTN	EVENT	CAUSE
INVEST	E L G H R DAY/TIME	DIST FROM	SECOND STREET	DIRECT	(MEDIAN) LEGS	TRAF-	RNDBT	SURF	COLL TYP	TRLR QTY	OWNER	FROM	G E LICNS PED			
UNLOC?	D C S L K LAT/LONG	INTERSECT	INTERSECTION SEQ #	LOCTN	(#LANES)	CONTL	DRVWY	LIGHT	SVRTY	V#	VEH TYPE	TO	E X RES	LOC	ERROR	
10869	N N N 10/6/2015		SE FOSTER RD	INTER	3-LEG	N	N	CLR	ANGL-OTH	01	NONE	0	STRGHT			02
COUNTY	Tue 10P 0		SE 172ND AVE	CN		STOP SIGN	N	DRY	TURN		PRVTE	W E			000	00
No	45 28 0.41 -122 29 8.87	1		04	0		N	DARK	INJ		PSNGR CAR		01 DRVR INJB 23 F OR-Y	000	000	00
													OR<25			
										02	NONE	0	TURN-L			
											PRVTE	S W			015	00
											PSNGR CAR		01 DRVR NONE 47 M OR-Y	028	000	02
													OR<25			
12945	N N N N N 11/19/2015		SE FOSTER RD	INTER	3-LEG	N	N	CLD	ANGL-OTH	01	NONE	0	STRGHT			02
COUNTY	Thu 4P 0		SE 172ND AVE	CN		STOP SIGN	N	WET	TURN		PRVTE	W E			000	00
No	45 28 0.41 -122 29 8.87	1		04	0		N	DUSK	INJ		PSNGR CAR		01 DRVR INJC 67 F OR-Y	000	000	00
													OR<25			
										02	NONE	0	TURN-L			
											PRVTE	S W			015	00
											PSNGR CAR		01 DRVR NONE 42 F OR-Y	028	000	02
													OR<25			

CITY OF GRESHAM, MULTNOMAH COUNTY

SE 182nd Ave / SW Highland Dr & W Powell Blvd
 January 1, 2011 through December 31, 2015

SER#	INVEST	UNLOC?	S P E D C S L K	D R S W A U C O DATE	DATE	FC	CITY STREET FIRST STREET SECOND STREET INTERSECTION SEQ #	RD CHAR DIRECT LOCTN	INT-TYP (MEDIAN) LEGS (#LANES)	INT-REL TRAF- CONTL	OFF-RD RNDBT DRVWY	WTHR SURF LIGHT	CRASH TYP COLL TYP SVRTY	SPCL USE TRLR QTY OWNER V# VEH TYPE	MOVE FROM TO	A G E LICNS	S E RES	PED LOC	ERROR	ACTN	EVENT	CAUSE
08964	NONE	No	N	N	N	08/28/2011 Sun 11A 0	14 W POWELL BLVD 182ND AVE 1	INTER SE 06	CROSS 0	N	N	CLR DRY DAY	S-1STOP REAR INJ	01 NONE 0 PSNGR CAR	STRGHT SE NW	24 F	OR-Y	026	000 000		07 00 07	
														02 NONE 0 PSNGR CAR	STOP SE NW	59 M	OR-Y	000	011 000		00 00	
															02 PSNG INJC	55 F		000	000		00	
11224	NONE	No	N	N	N	10/20/2011 Thu 7P 0	14 W POWELL BLVD 182ND AVE 1	INTER SE 06	CROSS 0	N	N	CLR WET DLIT	S-1STOP REAR INJ	01 NONE 0 PSNGR CAR	STRGHT SE NW	18 F	OR-Y	026	000 000		07 00 07	
														02 NONE 0 PSNGR CAR	STOP SE NW	54 F	OR-Y	000	011 000		00 00	
11869	CITY	No	Y	N	N	11/05/2011 Sat 11A 0	14 W POWELL BLVD 182ND AVE 1	INTER SE 06	CROSS 0	N	Y	CLR DRY DAY	FIX OBJ FIX PDO	01 NONE 0 PSNGR CAR	STRGHT SE NW	48 M	OR-Y	047,080	000 000	050 050	01 00 01	
11519	CITY	No	Y	N	N	10/20/2012 Sat 10P 0	14 W POWELL BLVD 182ND AVE 1	INTER SE 06	CROSS 0	N	Y	CLD WET DLIT	FIX OBJ FIX PDO	01 NONE 0 PSNGR CAR	TURN-L N SE	39 M	OR-Y	047,080	017	040,058,010 040,058,010	01 00 01	
05941	NONE	No	N	N	N	06/14/2013 Fri 8A 0	14 W POWELL BLVD 182ND AVE 1	INTER SE 06	CROSS 0	N	N	CLR DRY DAY	S-1STOP REAR INJ	01 NONE 0 PSNGR CAR	STRGHT SE NW	22 F	OR-Y	026	000 000	004	07 00 07	
														02 NONE 0 PSNGR CAR	STOP SE NW	56 M	OR-Y	000	011 000	004	00 00	
07502	NONE	No	N	N	N	07/24/2013 Wed 8A 0	14 W POWELL BLVD 182ND AVE 1	INTER SE 06	CROSS 0	N	N	CLR DRY DAY	S-1STOP REAR INJ	01 UNKN 0 UNKNOWN	STRGHT SE NW	00 M	UNK	026	000 000		07 00 07	
														02 NONE 0 PSNGR CAR	STOP SE NW	49 F	OR-Y	000	011 000		00 00	
00751	NONE	No	N	N	N	01/24/2014 Fri 9A 0	14 W POWELL BLVD 182ND AVE 1	INTER SE 06	CROSS 0	N	N	CLR DRY DAY	S-1STOP REAR PDO	01 NONE 0 PSNGR CAR	STRGHT NW SE	44 F	OR-Y	026	000 000	004	07 00 07	

OREGON DEPARTMENT OF TRANSPORTATION - TRANSPORTATION DEVELOPMENT DIVISION
TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT
URBAN NON-SYSTEM CRASH LISTING

CITY OF GRESHAM, MULTNOMAH COUNTY

SE 182nd Ave / SW Highland Dr & W Powell Blvd
January 1, 2011 through December 31, 2015

Table with columns: SER#, INVEST, UNLOC?, S, D, P, R, S, W, E, A, U, C, O, DATE, FC, CITY STREET, INT-TYP, INT-REL, OFF-RD, WTHR, CRASH TYP, SPCL USE, MOVE, A, S, G, E, LICNS, PED, ACTN, EVENT, CAUSE. Rows include crash details for various dates like 05/21/2014, 06/19/2014, 07/26/2014, 05/28/2015, and 09/23/2015.

OREGON DEPARTMENT OF TRANSPORTATION - TRANSPORTATION DEVELOPMENT DIVISION
TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT
URBAN NON-SYSTEM CRASH LISTING

CITY OF GRESHAM, MULTNOMAH COUNTY

SE 182nd Ave / SW Highland Dr & W Powell Blvd

January 1, 2011 through December 31, 2015

Table with columns: SER#, INVEST, UNLOC?, S, D, P, R, S, W, E, A, U, C, O, DATE, FC, CITY STREET, RD CHAR, INT-TYP, INT-REL, OFF-RD, WTHR, CRASH TYP, SPCL USE, MOVE, A, S, G, E, LICNS, PED, LOC, ERROR, ACTN, EVENT, CAUSE. It lists crash incidents with details like date, time, location, and severity.

OREGON DEPARTMENT OF TRANSPORTATION - TRANSPORTATION DEVELOPMENT DIVISION
 TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT
 URBAN NON-SYSTEM CRASH LISTING

CITY OF GRESHAM, MULTNOMAH COUNTY

SE 182nd Ave / SW Highland Dr & W Powell Blvd
 January 1, 2011 through December 31, 2015

SER#	INVEST	UNLOC?	S	D	P	R	S	W	CITY STREET	INT-TYP	RD CHAR	(MEDIAN)	INT-REL	OFF-RD	WTHR	CRASH TYP	SPCL USE	MOVE	A	S	G	E	LICNS	PED	ACTN	EVENT	CAUSE
E	A	U	C	O	DATE	FC	FIRST STREET	RD CHAR	(MEDIAN)	INT-REL	OFF-RD	WTHR	CRASH TYP	SPCL USE	MOVE	A	S	G	E	LICNS	PED	ACTN	EVENT	CAUSE			
E	L	G	H	R	DAY/TIME	FC	SECOND STREET	DIRECT	LEGS	TRAF-	RNDBT	SURF	COLL TYP	OWNER	FROM	P#	INJ	G	E	LICNS	PED	ACTN	EVENT	CAUSE			
D	C	S	L	K	LAT/LONG	DISTNC	INTERSECTION SEQ #	LOCTN	(#LANES)	CONTL	DRVWY	LIGHT	SVRTY	V#	VEH TYPE	TO	P#	TYPE	SVRTY	E	X	RES	LOC	ERROR	ACTN	EVENT	CAUSE
																	03	PSNG	NO<5	01	M			000	000	00	

ACTION CODE TRANSLATION LIST

ACTION CODE	SHORT DESCRIPTION	LONG DESCRIPTION
000	NONE	NO ACTION OR NON-WARRANTED
001	SKIDDED	SKIDDED
002	ON/OFF V	GETTING ON OR OFF STOPPED OR PARKED VEHICLE
003	LOAD OVR	OVERHANGING LOAD STRUCK ANOTHER VEHICLE, ETC.
006	SLOW DN	SLOWED DOWN
007	AVOIDING	AVOIDING MANEUVER
008	PAR PARK	PARALLEL PARKING
009	ANG PARK	ANGLE PARKING
010	INTERFERE	PASSENGER INTERFERING WITH DRIVER
011	STOPPED	STOPPED IN TRAFFIC NOT WAITING TO MAKE A LEFT TURN
012	STP/L TRN	STOPPED BECAUSE OF LEFT TURN SIGNAL OR WAITING, ETC.
013	STP TURN	STOPPED WHILE EXECUTING A TURN
014	EMR V PKD	EMERGENCY VEHICLE LEGALLY PARKED IN THE ROADWAY
015	GO A/STOP	PROCEED AFTER STOPPING FOR A STOP SIGN/FLASHING RED.
016	TRN A/RED	TURNT ON RED AFTER STOPPING
017	LOSTCTRL	LOST CONTROL OF VEHICLE
018	EXIT DWY	ENTERING STREET OR HIGHWAY FROM ALLEY OR DRIVEWAY
019	ENTR DWY	ENTERING ALLEY OR DRIVEWAY FROM STREET OR HIGHWAY
020	STR ENTR	BEFORE ENTERING ROADWAY, STRUCK PEDESTRIAN, ETC. ON SIDEWALK OR SHOULDER
021	NO DRVR	CAR RAN AWAY - NO DRIVER
022	PREV COL	STRUCK, OR WAS STRUCK BY, VEHICLE OR PEDESTRIAN IN PRIOR COLLISION BEFORE ACC. STABILIZED
023	STALLED	VEHICLE STALLED OR DISABLED
024	DRVR DEAD	DEAD BY UNASSOCIATED CAUSE
025	FATIGUE	FATIGUED, SLEEPY, ASLEEP
026	SUN	DRIVER BLINDED BY SUN
027	HDLGHTS	DRIVER BLINDED BY HEADLIGHTS
028	ILLNESS	PHYSICALLY ILL
029	THRU MED	VEHICLE CROSSED, PLUNGED OVER, OR THROUGH MEDIAN BARRIER
030	PURSUIT	PURSUIT OR ATTEMPTING TO STOP A VEHICLE
031	PASSING	PASSING SITUATION
032	PRKOFFRD	VEHICLE PARKED BEYOND CURB OR SHOULDER
033	CROS MED	VEHICLE CROSSED EARTH OR GRASS MEDIAN
034	X N/SGNL	CROSSING AT INTERSECTION - NO TRAFFIC SIGNAL PRESENT
035	X W/ SGNL	CROSSING AT INTERSECTION - TRAFFIC SIGNAL PRESENT
036	DIAGONAL	CROSSING AT INTERSECTION - DIAGONALLY
037	BTWN INT	CROSSING BETWEEN INTERSECTIONS
038	DISTRACT	DRIVER'S ATTENTION DISTRACTED
039	W/TRAF-S	WALKING, RUNNING, RIDING, ETC., ON SHOULDER WITH TRAFFIC
040	A/TRAF-S	WALKING, RUNNING, RIDING, ETC., ON SHOULDER FACING TRAFFIC
041	W/TRAF-P	WALKING, RUNNING, RIDING, ETC., ON PAVEMENT WITH TRAFFIC
042	A/TRAF-P	WALKING, RUNNING, RIDING, ETC., ON PAVEMENT FACING TRAFFIC
043	PLAYINRD	PLAYING IN STREET OR ROAD
044	PUSH MV	PUSHING OR WORKING ON VEHICLE IN ROAD OR ON SHOULDER
045	WORK ON	WORKING IN ROADWAY OR ALONG SHOULDER
046	W/ TRAFIC	NON-MOTORIST WALKING, RUNNING, RIDING, ETC. WITH TRAFFIC
047	A/ TRAFIC	NON-MOTORIST WALKING, RUNNING, RIDING, ETC. FACING TRAFFIC
050	LAY ON RD	STANDING OR LYING IN ROADWAY
051	ENT OFFRD	ENTERING / STARTING IN TRAFFIC LANE FROM OFF ROAD
052	MERGING	MERGING
055	SPRAY	BLINDED BY WATER SPRAY

ACTION CODE TRANSLATION LIST

ACTION CODE	SHORT DESCRIPTION	LONG DESCRIPTION
088	OTHER	OTHER ACTION
099	UNK	UNKNOWN ACTION

CAUSE CODE TRANSLATION LIST

CAUSE CODE	SHORT DESCRIPTION	LONG DESCRIPTION
00	NO CODE	NO CAUSE ASSOCIATED AT THIS LEVEL
01	TOO-FAST	TOO FAST FOR CONDITIONS (NOT EXCEED POSTED SPEED)
02	NO-YIELD	DID NOT YIELD RIGHT-OF-WAY
03	PAS-STOP	PASSED STOP SIGN OR RED FLASHER
04	DIS SIG	DISREGARDED TRAFFIC SIGNAL
05	LEFT-CTR	DROVE LEFT OF CENTER ON TWO-WAY ROAD; STRADDLING
06	IMP-OVER	IMPROPER OVERTAKING
07	TOO-CLOS	FOLLOWED TOO CLOSELY
08	IMP-TURN	MADE IMPROPER TURN
09	DRINKING	ALCOHOL OR DRUG INVOLVED
10	OTHR-IMP	OTHER IMPROPER DRIVING
11	MECH-DEF	MECHANICAL DEFECT
12	OTHER	OTHER (NOT IMPROPER DRIVING)
13	IMP LN C	IMPROPER CHANGE OF TRAFFIC LANES
14	DIS TCD	DISREGARDED OTHER TRAFFIC CONTROL DEVICE
15	WRNG WAY	WRONG WAY ON ONE-WAY ROAD; WRONG SIDE DIVIDED ROAD
16	FATIGUE	DRIVER DROWSY/FATIGUED/SLEEPY
17	ILLNESS	PHYSICAL ILLNESS
18	IN RDWY	NON-MOTORIST ILLEGALLY IN ROADWAY
19	NT VISBL	NON-MOTORIST NOT VISIBLE; NON-REFLECTIVE CLOTHING
20	IMP PKNG	VEHICLE IMPROPERLY PARKED
21	DEF STER	DEFECTIVE STEERING MECHANISM
22	DEF BRKE	INADEQUATE OR NO BRAKES
24	LOADSHFT	VEHICLE LOST LOAD OR LOAD SHIFTED
25	TIREFAIL	TIRE FAILURE
26	PHANTOM	PHANTOM / NON-CONTACT VEHICLE
27	INATTENT	INATTENTION
28	NM INATT	NON-MOTORIST INATTENTION
29	F AVOID	FAILED TO AVOID VEHICLE AHEAD
30	SPEED	DRIVING IN EXCESS OF POSTED SPEED
31	RACING	SPEED RACING (PER PAR)
32	CARELESS	CARELESS DRIVING (PER PAR)
33	RECKLESS	RECKLESS DRIVING (PER PAR)
34	AGGRESV	AGGRESSIVE DRIVING (PER PAR)
35	RD RAGE	ROAD RAGE (PER PAR)
40	VIEW OBS	VIEW OBSCURED
50	USED MDN	IMPROPER USE OF MEDIAN OR SHOULDER
51	FAIL LN	FAILED TO MAINTAIN LANE
52	OFF RD	RAN OFF ROAD

COLLISION TYPE CODE TRANSLATION LIST

COLL CODE	SHORT DESCRIPTION	LONG DESCRIPTION
&	OTH	MISCELLANEOUS
-	BACK	BACKING
0	PED	PEDESTRIAN
1	ANGL	ANGLE
2	HEAD	HEAD-ON
3	REAR	REAR-END
4	SS-M	SIDESWIPE - MEETING
5	SS-O	SIDESWIPE - OVERTAKING
6	TURN	TURNING MOVEMENT
7	PARK	PARKING MANEUVER
8	NCOL	NON-COLLISION
9	FIX	FIXED OBJECT OR OTHER OBJECT

CRASH TYPE CODE TRANSLATION LIST

CRASH TYPE	SHORT DESCRIPTION	LONG DESCRIPTION
&	OVERTURN	OVERTURNED
0	NON-COLL	OTHER NON-COLLISION
1	OTH RDWY	MOTOR VEHICLE ON OTHER ROADWAY
2	PRKD MV	PARKED MOTOR VEHICLE
3	PED	PEDESTRIAN
4	TRAIN	RAILWAY TRAIN
6	BIKE	PEDALCYCLIST
7	ANIMAL	ANIMAL
8	FIX OBJ	FIXED OBJECT
9	OTH OBJ	OTHER OBJECT
A	ANGL-STP	ENTERING AT ANGLE - ONE VEHICLE STOPPED
B	ANGL-OTH	ENTERING AT ANGLE - ALL OTHERS
C	S-STRGHT	FROM SAME DIRECTION - BOTH GOING STRAIGHT
D	S-1TURN	FROM SAME DIRECTION - ONE TURN, ONE STRAIGHT
E	S-1STOP	FROM SAME DIRECTION - ONE STOPPED
F	S-OTHER	FROM SAME DIRECTION-ALL OTHERS, INCLUDING PARKING
G	O-STRGHT	FROM OPPOSITE DIRECTION - BOTH GOING STRAIGHT
H	O-1 L-TURN	FROM OPPOSITE DIRECTION-ONE LEFT TURN, ONE STRAIGHT
I	O-1STOP	FROM OPPOSITE DIRECTION - ONE STOPPED
J	O-OTHER	FROM OPPOSITE DIRECTION-ALL OTHERS INCL. PARKING

DRIVER LICENSE CODE TRANSLATION LIST

LIC CODE	SHORT DESC	LONG DESCRIPTION
0	NONE	NOT LICENSED (HAD NEVER BEEN LICENSED)
1	OR-Y	VALID OREGON LICENSE
2	OTH-Y	VALID LICENSE, OTHER STATE OR COUNTRY
3	SUSP	SUSPENDED/REVOKED

DRIVER RESIDENCE CODE TRANSLATION LIST

RES CODE	SHORT DESC	LONG DESCRIPTION
1	OR<25	OREGON RESIDENT WITHIN 25 MILE OF HOME
2	OR>25	OREGON RESIDENT 25 OR MORE MILES FROM HOME
3	OR-?	OREGON RESIDENT - UNKNOWN DISTANCE FROM HOME
4	N-RES	NON-RESIDENT
9	UNK	UNKNOWN IF OREGON RESIDENT

ERROR CODE TRANSLATION LIST

ERROR CODE	SHORT DESCRIPTION	FULL DESCRIPTION
000	NONE	NO ERROR
001	WIDE TRN	WIDE TURN
002	CUT CORN	CUT CORNER ON TURN
003	FAIL TRN	FAILED TO OBEY MANDATORY TRAFFIC TURN SIGNAL, SIGN OR LANE MARKINGS
004	L IN TRF	LEFT TURN IN FRONT OF ONCOMING TRAFFIC
005	L PROHIB	LEFT TURN WHERE PROHIBITED
006	FRM WRNG	TURNED FROM WRONG LANE
007	TO WRONG	TURNED INTO WRONG LANE
008	ILLEG U	U-TURNED ILLEGALLY
009	IMP STOP	IMPROPERLY STOPPED IN TRAFFIC LANE
010	IMP SIG	IMPROPER SIGNAL OR FAILURE TO SIGNAL
011	IMP BACK	BACKING IMPROPERLY (NOT PARKING)
012	IMP PARK	IMPROPERLY PARKED
013	UNPARK	IMPROPER START LEAVING PARKED POSITION
014	IMP STRT	IMPROPER START FROM STOPPED POSITION
015	IMP LGHT	IMPROPER OR NO LIGHTS (VEHICLE IN TRAFFIC)
016	INATTENT	INATTENTION (FAILURE TO DIM LIGHTS PRIOR TO 4/1/97)
017	UNSF VEH	DRIVING UNSAFE VEHICLE (NO OTHER ERROR APPARENT)
018	OTH PARK	ENTERING/EXITING PARKED POSITION W/ INSUFFICIENT CLEARANCE; OTHER IMPROPER PARKING MANEUVER
019	DIS DRIV	DISREGARDED OTHER DRIVER'S SIGNAL
020	DIS SGNL	DISREGARDED TRAFFIC SIGNAL
021	RAN STOP	DISREGARDED STOP SIGN OR FLASHING RED
022	DIS SIGN	DISREGARDED WARNING SIGN, FLARES OR FLASHING AMBER
023	DIS OFCR	DISREGARDED POLICE OFFICER OR FLAGMAN
024	DIS EMER	DISREGARDED SIREN OR WARNING OF EMERGENCY VEHICLE
025	DIS RR	DISREGARDED RR SIGNAL, RR SIGN, OR RR FLAGMAN
026	REAR-END	FAILED TO AVOID STOPPED OR PARKED VEHICLE AHEAD OTHER THAN SCHOOL BUS
027	BIKE ROW	DID NOT HAVE RIGHT-OF-WAY OVER PEDALCYCLIST
028	NO ROW	DID NOT HAVE RIGHT-OF-WAY
029	PED ROW	FAILED TO YIELD RIGHT-OF-WAY TO PEDESTRIAN
030	PAS CURV	PASSING ON A CURVE
031	PAS WRNG	PASSING ON THE WRONG SIDE
032	PAS TANG	PASSING ON STRAIGHT ROAD UNDER UNSAFE CONDITIONS
033	PAS X-WK	PASSED VEHICLE STOPPED AT CROSSWALK FOR PEDESTRIAN
034	PAS INTR	PASSING AT INTERSECTION
035	PAS HILL	PASSING ON CREST OF HILL
036	N/PAS ZN	PASSING IN "NO PASSING" ZONE
037	PAS TRAF	PASSING IN FRONT OF ONCOMING TRAFFIC
038	CUT-IN	CUTTING IN (TWO LANES - TWO WAY ONLY)
039	WRNGSIDE	DRIVING ON WRONG SIDE OF THE ROAD (2-WAY UNDIVIDED ROADWAYS)
040	THRU MED	DRIVING THROUGH SAFETY ZONE OR OVER ISLAND
041	F/ST BUS	FAILED TO STOP FOR SCHOOL BUS

ERROR CODE TRANSLATION LIST

ERROR CODE	SHORT DESCRIPTION	FULL DESCRIPTION
042	F/SLO MV	FAILED TO DECREASE SPEED FOR SLOWER MOVING VEHICLE
043	TOO CLOSE	FOLLOWING TOO CLOSELY (MUST BE ON OFFICER'S REPORT)
044	STRDL LN	STRADDLING OR DRIVING ON WRONG LANES
045	IMP CHG	IMPROPER CHANGE OF TRAFFIC LANES
046	WRNG WAY	WRONG WAY ON ONE-WAY ROADWAY; WRONG SIDE DIVIDED ROAD
047	BASCRULE	DRIVING TOO FAST FOR CONDITIONS (NOT EXCEEDING POSTED SPEED)
048	OPN DOOR	OPENED DOOR INTO ADJACENT TRAFFIC LANE
049	IMPEDING	IMPEDING TRAFFIC
050	SPEED	DRIVING IN EXCESS OF POSTED SPEED
051	RECKLESS	RECKLESS DRIVING (PER PAR)
052	CARELESS	CARELESS DRIVING (PER PAR)
053	RACING	SPEED RACING (PER PAR)
054	X N/SGNL	CROSSING AT INTERSECTION, NO TRAFFIC SIGNAL PRESENT
055	X W/SGNL	CROSSING AT INTERSECTION, TRAFFIC SIGNAL PRESENT
056	DIAGONAL	CROSSING AT INTERSECTION - DIAGONALLY
057	BTWN INT	CROSSING BETWEEN INTERSECTIONS
059	W/TRAF-S	WALKING, RUNNING, RIDING, ETC., ON SHOULDER WITH TRAFFIC
060	A/TRAF-S	WALKING, RUNNING, RIDING, ETC., ON SHOULDER FACING TRAFFIC
061	W/TRAF-P	WALKING, RUNNING, RIDING, ETC., ON PAVEMENT WITH TRAFFIC
062	A/TRAF-P	WALKING, RUNNING, RIDING, ETC., ON PAVEMENT FACING TRAFFIC
063	PLAYINRD	PLAYING IN STREET OR ROAD
064	PUSH MV	PUSHING OR WORKING ON VEHICLE IN ROAD OR ON SHOULDER
065	WORK IN RD	WORKING IN ROADWAY OR ALONG SHOULDER
070	LAY ON RD	STANDING OR LYING IN ROADWAY
071	NM IMP USE	IMPROPER USE OF TRAFFIC LANE BY NON-MOTORIST
073	ELUDING	ELUDING / ATTEMPT TO ELUDE
079	F NEG CURV	FAILED TO NEGOTIATE A CURVE
080	FAIL LN	FAILED TO MAINTAIN LANE
081	OFF RD	RAN OFF ROAD
082	NO CLEAR	DRIVER MISJUDGED CLEARANCE
083	OVRSTEER	OVER-CORRECTING
084	NOT USED	CODE NOT IN USE
085	OVRLOAD	OVERLOADING OR IMPROPER LOADING OF VEHICLE WITH CARGO OR PASSENGERS
097	UNA DIS TC	UNABLE TO DETERMINE WHICH DRIVER DISREGARDED TRAFFIC CONTROL DEVICE

EVENT CODE TRANSLATION LIST

EVENT CODE	SHORT DESCRIPTION	LONG DESCRIPTION
001	FEL/JUMP	OCCUPANT FELL, JUMPED OR WAS EJECTED FROM MOVING VEHICLE
002	INTERFER	PASSENGER INTERFERED WITH DRIVER
003	BUG INTF	ANIMAL OR INSECT IN VEHICLE INTERFERED WITH DRIVER
004	INDRCT PED	PEDESTRIAN INDIRECTLY INVOLVED (NOT STRUCK)
005	SUB-PED	"SUB-PED": PEDESTRIAN INJURED SUBSEQUENT TO COLLISION, ETC.
006	INDRCT BIK	PEDALCYCLIST INDIRECTLY INVOLVED (NOT STRUCK)
007	HITCHIKR	HITCHHIKER (SOLICITING A RIDE)
008	PSNGR TOW	PASSENGER OR NON-MOTORIST BEING TOWED OR PUSHED ON CONVEYANCE
009	ON/OFF V	GETTING ON/OFF STOPPED/PARKED VEHICLE (OCCUPANTS ONLY; MUST HAVE PHYSICAL CONTACT W/ VEHIC
010	SUB OTRN	OVERTURNED AFTER FIRST HARMFUL EVENT
011	MV PUSHD	VEHICLE BEING PUSHED
012	MV TOWED	VEHICLE TOWED OR HAD BEEN TOWING ANOTHER VEHICLE
013	FORCED	VEHICLE FORCED BY IMPACT INTO ANOTHER VEHICLE, PEDALCYCLIST OR PEDESTRIAN
014	SET MOTN	VEHICLE SET IN MOTION BY NON-DRIVER (CHILD RELEASED BRAKES, ETC.)
015	RR ROW	AT OR ON RAILROAD RIGHT-OF-WAY (NOT LIGHT RAIL)
016	LT RL ROW	AT OR ON LIGHT-RAIL RIGHT-OF-WAY
017	RR HIT V	TRAIN STRUCK VEHICLE
018	V HIT RR	VEHICLE STRUCK TRAIN
019	HIT RR CAR	VEHICLE STRUCK RAILROAD CAR ON ROADWAY
020	JACKNIFE	JACKKNIFE; TRAILER OR TOWED VEHICLE STRUCK TOWING VEHICLE
021	TRL OTRN	TRAILER OR TOWED VEHICLE OVERTURNED
022	CN BROKE	TRAILER CONNECTION BROKE
023	DETACH TRL	DETACHED TRAILING OBJECT STRUCK OTHER VEHICLE, NON-MOTORIST, OR OBJECT
024	V DOOR OPN	VEHICLE DOOR OPENED INTO ADJACENT TRAFFIC LANE
025	WHEELOFF	WHEEL CAME OFF
026	HOOD UP	HOOD FLEW UP
028	LOAD SHIFT	LOST LOAD, LOAD MOVED OR SHIFTED
029	TIREFAIL	TIRE FAILURE
030	PET	PET: CAT, DOG AND SIMILAR
031	LVSTOCK	STOCK: COW, CALF, BULL, STEER, SHEEP, ETC.
032	HORSE	HORSE, MULE, OR DONKEY
033	HRSE&RID	HORSE AND RIDER
034	GAME	WILD ANIMAL, GAME (INCLUDES BIRDS; NOT DEER OR ELK)
035	DEER ELK	DEER OR ELK, WAPITI
036	ANML VEH	ANIMAL-DRAWN VEHICLE
037	CULVERT	CULVERT, OPEN LOW OR HIGH MANHOLE
038	ATENUATN	IMPACT ATTENUATOR
039	PK METER	PARKING METER
040	CURB	CURB (ALSO NARROW SIDEWALKS ON BRIDGES)
041	JIGGLE	JIGGLE BAR OR TRAFFIC SNAKE FOR CHANNELIZATION
042	GDRL END	LEADING EDGE OF GUARDRAIL
043	GARDRAIL	GUARD RAIL (NOT METAL MEDIAN BARRIER)
044	BARRIER	MEDIAN BARRIER (RAISED OR METAL)
045	WALL	RETAINING WALL OR TUNNEL WALL
046	BR RAIL	BRIDGE RAILING OR PARAPET (ON BRIDGE OR APPROACH)
047	BR ABUTMNT	BRIDGE ABUTMENT (INCLUDED "APPROACH END" THRU 2013)
048	BR COLMN	BRIDGE PILLAR OR COLUMN
049	BR GIRDR	BRIDGE GIRDER (HORIZONTAL BRIDGE STRUCTURE OVERHEAD)
050	ISLAND	TRAFFIC RAISED ISLAND
051	GORE	GORE
052	POLE UNK	POLE - TYPE UNKNOWN
053	POLE UTL	POLE - POWER OR TELEPHONE
054	ST LIGHT	POLE - STREET LIGHT ONLY
055	TRF SGNL	POLE - TRAFFIC SIGNAL AND PED SIGNAL ONLY
056	SGN BRDG	POLE - SIGN BRIDGE
057	STOPSIGN	STOP OR YIELD SIGN
058	OTH SIGN	OTHER SIGN, INCLUDING STREET SIGNS
059	HYDRANT	HYDRANT

EVENT CODE TRANSLATION LIST

EVENT CODE	SHORT DESCRIPTION	LONG DESCRIPTION
060	MARKER	DELINEATOR OR MARKER (REFLECTOR POSTS)
061	MAILBOX	MAILBOX
062	TREE	TREE, STUMP OR SHRUBS
063	VEG OHED	TREE BRANCH OR OTHER VEGETATION OVERHEAD, ETC.
064	WIRE/CBL	WIRE OR CABLE ACROSS OR OVER THE ROAD
065	TEMP SGN	TEMPORARY SIGN OR BARRICADE IN ROAD, ETC.
066	PERM SGN	PERMANENT SIGN OR BARRICADE IN/OFF ROAD
067	SLIDE	SLIDES, FALLEN OR FALLING ROCKS
068	FRGN OBJ	FOREIGN OBSTRUCTION/DEBRIS IN ROAD (NOT GRAVEL)
069	EQP WORK	EQUIPMENT WORKING IN/OFF ROAD
070	OTH EQP	OTHER EQUIPMENT IN OR OFF ROAD (INCLUDES PARKED TRAILER, BOAT)
071	MAIN EQP	WRECKER, STREET SWEEPER, SNOW PLOW OR SANDING EQUIPMENT
072	OTHER WALL	ROCK, BRICK OR OTHER SOLID WALL
073	IRRL PVMT	OTHER BUMP (NOT SPEED BUMP), POTHOLE OR PAVEMENT IRREGULARITY (PER PAR)
074	OVERHD OBJ	OTHER OVERHEAD OBJECT (HIGHWAY SIGN, SIGNAL HEAD, ETC.); NOT BRIDGE
075	CAVE IN	BRIDGE OR ROAD CAVE IN
076	HI WATER	HIGH WATER
077	SNO BANK	SNOW BANK
078	LO-HI EDGE	LOW OR HIGH SHOULDER AT PAVEMENT EDGE
079	DITCH	CUT SLOPE OR DITCH EMBANKMENT
080	OBJ FRM MV	STRUCK BY ROCK OR OTHER OBJECT SET IN MOTION BY OTHER VEHICLE (INCL. LOST LOADS)
081	FLY-OBJ	STRUCK BY ROCK OR OTHER MOVING OR FLYING OBJECT (NOT SET IN MOTION BY VEHICLE)
082	VEH HID	VEHICLE OBSCURED VIEW
083	VEG HID	VEGETATION OBSCURED VIEW
084	BLDG HID	VIEW OBSCURED BY FENCE, SIGN, PHONE BOOTH, ETC.
085	WIND GUST	WIND GUST
086	IMMERSED	VEHICLE IMMERSED IN BODY OF WATER
087	FIRE/EXP	FIRE OR EXPLOSION
088	FENC/BLD	FENCE OR BUILDING, ETC.
089	OTHR CRASH	CRASH RELATED TO ANOTHER SEPARATE CRASH
090	TO 1 SIDE	TWO-WAY TRAFFIC ON DIVIDED ROADWAY ALL ROUTED TO ONE SIDE
091	BUILDING	BUILDING OR OTHER STRUCTURE
092	PHANTOM	OTHER (PHANTOM) NON-CONTACT VEHICLE
093	CELL PHONE	CELL PHONE (ON PAR OR DRIVER IN USE)
094	VIOL GDL	TEENAGE DRIVER IN VIOLATION OF GRADUATED LICENSE PGM
095	GUY WIRE	GUY WIRE
096	BERM	BERM (EARTHEN OR GRAVEL MOUND)
097	GRAVEL	GRAVEL IN ROADWAY
098	ABR EDGE	ABRUPT EDGE
099	CELL WTNSD	CELL PHONE USE WITNESSED BY OTHER PARTICIPANT
100	UNK FIXD	FIXED OBJECT, UNKNOWN TYPE.
101	OTHER OBJ	NON-FIXED OBJECT, OTHER OR UNKNOWN TYPE
102	TEXTING	TEXTING
103	WZ WORKER	WORK ZONE WORKER
104	ON VEHICLE	PASSENGER RIDING ON VEHICLE EXTERIOR
105	PEDAL PSGR	PASSENGER RIDING ON PEDALCYCLE
106	MAN WHLCHR	PEDESTRIAN IN NON-MOTORIZED WHEELCHAIR
107	MTR WHLCHR	PEDESTRIAN IN MOTORIZED WHEELCHAIR
108	OFFICER	LAW ENFORCEMENT / POLICE OFFICER
109	SUB-BIKE	"SUB-BIKE": PEDALCYCLIST INJURED SUBSEQUENT TO COLLISION, ETC.
110	N-MTR	NON-MOTORIST STRUCK VEHICLE
111	S CAR VS V	STREET CAR/TROLLEY (ON RAILS OR OVERHEAD WIRE SYSTEM) STRUCK VEHICLE
112	V VS S CAR	VEHICLE STRUCK STREET CAR/TROLLEY (ON RAILS OR OVERHEAD WIRE SYSTEM)
113	S CAR ROW	AT OR ON STREET CAR OR TROLLEY RIGHT-OF-WAY
114	RR EQUIP	VEHICLE STRUCK RAILROAD EQUIPMENT (NOT TRAIN) ON TRACKS
115	DSTRCT GPS	DISTRACTED BY NAVIGATION SYSTEM OR GPS DEVICE
116	DSTRCT OTH	DISTRACTED BY OTHER ELECTRONIC DEVICE
117	RR GATE	RAIL CROSSING DROP-ARM GATE

EVENT CODE TRANSLATION LIST

EVENT CODE	SHORT DESCRIPTION	LONG DESCRIPTION
118	EXPNSN JNT	EXPANSION JOINT
119	JERSEY BAR	JERSEY BARRIER
120	WIRE BAR	WIRE OR CABLE MEDIAN BARRIER
121	FENCE	FENCE
123	OBJ IN VEH	LOOSE OBJECT IN VEHICLE STRUCK OCCUPANT
124	SLIPPERY	SLIDING OR SWERVING DUE TO WET, ICY, SLIPPERY OR LOOSE SURFACE (NOT GRAVEL)
125	SHLDR	SHOULDER GAVE WAY
126	BOULDER	ROCK(S), BOULDER (NOT GRAVEL; NOT ROCK SLIDE)
127	LAND SLIDE	ROCK SLIDE OR LAND SLIDE
128	CURVE INV	CURVE PRESENT AT CRASH LOCATION
129	HILL INV	VERTICAL GRADE / HILL PRESENT AT CRASH LOCATION
130	CURVE HID	VIEW OBSCURED BY CURVE
131	HILL HID	VIEW OBSCURED BY VERTICAL GRADE / HILL
132	WINDOW HID	VIEW OBSCURED BY VEHICLE WINDOW CONDITIONS
133	SPRAY HID	VIEW OBSCURED BY WATER SPRAY
134	TORRENTIAL	TORRENTIAL RAIN (EXCEPTIONALLY HEAVY RAIN)

FUNCTIONAL CLASSIFICATION TRANSLATION LIST

FUNC CLASS	DESCRIPTION
01	RURAL PRINCIPAL ARTERIAL - INTERSTATE
02	RURAL PRINCIPAL ARTERIAL - OTHER
06	RURAL MINOR ARTERIAL
07	RURAL MAJOR COLLECTOR
08	RURAL MINOR COLLECTOR
09	RURAL LOCAL
11	URBAN PRINCIPAL ARTERIAL - INTERSTATE
12	URBAN PRINCIPAL ARTERIAL - OTHER FREEWAYS AND EXP
14	URBAN PRINCIPAL ARTERIAL - OTHER
16	URBAN MINOR ARTERIAL
17	URBAN MAJOR COLLECTOR
18	URBAN MINOR COLLECTOR
19	URBAN LOCAL
78	UNKNOWN RURAL SYSTEM
79	UNKNOWN RURAL NON-SYSTEM
98	UNKNOWN URBAN SYSTEM
99	UNKNOWN URBAN NON-SYSTEM

HIGHWAY COMPONENT TRANSLATION LIST

CODE	DESCRIPTION
0	MAINLINE STATE HIGHWAY
1	COUPLET
3	FRONTAGE ROAD
6	CONNECTION
8	HIGHWAY - OTHER

INJURY SEVERITY CODE TRANSLATION LIST

CODE	SHORT DESC	LONG DESCRIPTION
1	KILL	FATAL INJURY
2	INJA	INCAPACITATING INJURY - BLEEDING, BROKEN BONES
3	INJB	NON-INCAPACITATING INJURY
4	INJC	POSSIBLE INJURY - COMPLAINT OF PAIN
5	PRI	DIED PRIOR TO CRASH
7	NO<5	NO INJURY - 0 TO 4 YEARS OF AGE

LIGHT CONDITION CODE TRANSLATION LIST

CODE	SHORT DESC	LONG DESCRIPTION
0	UNK	UNKNOWN
1	DAY	DAYLIGHT
2	DLIT	DARKNESS - WITH STREET LIGHTS
3	DARK	DARKNESS - NO STREET LIGHTS
4	DAWN	DAWN (TWILIGHT)
5	DUSK	DUSK (TWILIGHT)

MEDIAN TYPE CODE TRANSLATION LIST

CODE	SHORT DESC	LONG DESCRIPTION
0	NONE	NO MEDIAN
1	RSDMD	SOLID MEDIAN BARRIER
2	DIVMD	EARTH, GRASS OR PAVED MEDIAN

MILEAGE TYPE CODE TRANSLATION LIST

CODE	LONG DESCRIPTION
0	REGULAR MILEAGE
T	TEMPORARY
Y	SPUR
Z	OVERLAPPING

MOVEMENT TYPE CODE TRANSLATION LIST

CODE	SHORT DESC	LONG DESCRIPTION
0	UNK	UNKNOWN
1	STRGHT	STRAIGHT AHEAD
2	TURN-R	TURNING RIGHT
3	TURN-L	TURNING LEFT
4	U-TURN	MAKING A U-TURN
5	BACK	BACKING
6	STOP	STOPPED IN TRAFFIC
7	PRKD-P	PARKED - PROPERLY
8	PRKD-I	PARKED - IMPROPERLY

PARTICIPANT TYPE CODE TRANSLATION LIST

CODE	SHORT DESC	LONG DESCRIPTION
0	OCC	UNKNOWN OCCUPANT TYPE
1	DRVR	DRIVER
2	PSNG	PASSENGER
3	PED	PEDESTRIAN
4	CONV	PEDESTRIAN USING A PEDESTRIAN CONVEYANCE
5	PTOW	PEDESTRIAN TOWING OR TRAILERING AN OBJECT
6	BIKE	PEDALCYCLIST
7	BTOW	PEDALCYCLIST TOWING OR TRAILERING AN OBJECT
8	PRKD	OCCUPANT OF A PARKED MOTOR VEHICLE
9	UNK	UNKNOWN TYPE OF NON-MOTORIST

PEDESTRIAN LOCATION CODE TRANSLATION LIST

CODE	LONG DESCRIPTION
00	AT INTERSECTION - NOT IN ROADWAY
01	AT INTERSECTION - INSIDE CROSSWALK
02	AT INTERSECTION - IN ROADWAY, OUTSIDE CROSSWALK
03	AT INTERSECTION - IN ROADWAY, XWALK AVAIL UNKNWN
04	NOT AT INTERSECTION - IN ROADWAY
05	NOT AT INTERSECTION - ON SHOULDER
06	NOT AT INTERSECTION - ON MEDIAN
07	NOT AT INTERSECTION - WITHIN TRAFFIC RIGHT-OF-WAY
08	NOT AT INTERSECTION - IN BIKE PATH OR PARKING LANE
09	NOT-AT INTERSECTION - ON SIDEWALK
10	OUTSIDE TRAFFICWAY BOUNDARIES
13	AT INTERSECTION - IN BIKE LANE
14	NOT AT INTERSECTION - IN BIKE LANE
15	NOT AT INTERSECTION - INSIDE MID-BLOCK CROSSWALK
16	NOT AT INTERSECTION - IN PARKING LANE

TRAFFIC CONTROL DEVICE CODE TRANSLATION LIST

CODE	SHORT DESC	LONG DESCRIPTION
000	NONE	NO CONTROL
001	TRF SIGNAL	TRAFFIC SIGNALS
002	FLASHBCN-R	FLASHING BEACON - RED (STOP)
003	FLASHBCN-A	FLASHING BEACON - AMBER (SLOW)
004	STOP SIGN	STOP SIGN
005	SLOW SIGN	SLOW SIGN
006	REG-SIGN	REGULATORY SIGN
007	YIELD	YIELD SIGN
008	WARNING	WARNING SIGN
009	CURVE	CURVE SIGN
010	SCHL X-ING	SCHOOL CROSSING SIGN OR SPECIAL SIGNAL
011	OFCR/FLAG	POLICE OFFICER, FLAGMAN - SCHOOL PATROL
012	BRDG-GATE	BRIDGE GATE - BARRIER
013	TEMP-BARR	TEMPORARY BARRIER
014	NO-PASS-ZN	NO PASSING ZONE
015	ONE-WAY	ONE-WAY STREET
016	CHANNEL	CHANNELIZATION
017	MEDIAN BAR	MEDIAN BARRIER
018	PILOT CAR	PILOT CAR
019	SP PED SIG	SPECIAL PEDESTRIAN SIGNAL
020	X-BUCK	CROSSBUCK
021	THR-GN-SIG	THROUGH GREEN ARROW OR SIGNAL
022	L-GRN-SIG	LEFT TURN GREEN ARROW, LANE MARKINGS, OR SIGNAL
023	R-GRN-SIG	RIGHT TURN GREEN ARROW, LANE MARKINGS, OR SIGNAL
024	WIGWAG	WIGWAG OR FLASHING LIGHTS W/O DROP-ARM GATE
025	X-BUCK WRN	CROSSBUCK AND ADVANCE WARNING
026	WW W/ GATE	FLASHING LIGHTS WITH DROP-ARM GATES
027	OVRHD SGNL	SUPPLEMENTAL OVERHEAD SIGNAL (RR XING ONLY)
028	SP RR STOP	SPECIAL RR STOP SIGN
029	ILLUM GRD X	ILLUMINATED GRADE CROSSING
037	RAMP METER	METERED RAMPS
038	RUMBLE STR	RUMBLE STRIP
090	L-TURN REF	LEFT TURN REFUGE (WHEN REFUGE IS INVOLVED)
091	R-TURN ALL	RIGHT TURN AT ALL TIMES SIGN, ETC.
092	EMR SGN/FL	EMERGENCY SIGNS OR FLARES
093	ACCEL LANE	ACCELERATION OR DECELERATION LANES
094	R-TURN PRO	RIGHT TURN PROHIBITED ON RED AFTER STOPPING

ROAD CHARACTER CODE TRANSLATION LIST

CODE	SHORT DESC	LONG DESCRIPTION
0	UNK	UNKNOWN
1	INTER	INTERSECTION
2	ALLEY	DRIVEWAY OR ALLEY
3	STRGHT	STRAIGHT ROADWAY
4	TRANS	TRANSITION
5	CURVE	CURVE (HORIZONTAL CURVE)
6	OPENAC	OPEN ACCESS OR TURNOUT
7	GRADE	GRADE (VERTICAL CURVE)
8	BRIDGE	BRIDGE STRUCTURE
9	TUNNEL	TUNNEL

095 BUS STPSGN BUS STOP SIGN AND RED LIGHTS
099 UNKNOWN UNKNOWN OR NOT DEFINITE

VEHICLE TYPE CODE TRANSLATION LIST

CODE	SHORT DESC	LONG DESCRIPTION
00	PDO	NOT COLLECTED FOR PDO CRASHES
01	PSNGR CAR	PASSENGER CAR, PICKUP, LIGHT DELIVERY, ETC.
02	BOBTAIL	TRUCK TRACTOR WITH NO TRAILERS (BOBTAIL)
03	FARM TRCTR	FARM TRACTOR OR SELF-PROPELLED FARM EQUIPMENT
04	SEMI TOW	TRUCK TRACTOR WITH TRAILER/MOBILE HOME IN TOW
05	TRUCK	TRUCK WITH NON-DETACHABLE BED, PANEL, ETC.
06	MOPED	MOPED, MINIBIKE, SEATED MOTOR SCOOTER, MOTOR BIKE
07	SCHL BUS	SCHOOL BUS (INCLUDES VAN)
08	OTH BUS	OTHER BUS
09	MTRCYCLE	MOTORCYCLE, DIRT BIKE
10	OTHER	OTHER: FORKLIFT, BACKHOE, ETC.
11	MOTRHOME	MOTORHOME
12	TROLLEY	MOTORIZED STREET CAR/TROLLEY (NO RAILS/WIRES)
13	ATV	ATV
14	MTRSCTR	MOTORIZED SCOOTER (STANDING)
15	SNOWMOBILE	SNOWMOBILE
99	UNKNOWN	UNKNOWN VEHICLE TYPE

WEATHER CONDITION CODE TRANSLATION LIST

CODE	SHORT DESC	LONG DESCRIPTION
0	UNK	UNKNOWN
1	CLR	CLEAR
2	CLD	CLOUDY
3	RAIN	RAIN
4	SLT	SLEET
5	FOG	FOG
6	SNOW	SNOW
7	DUST	DUST
8	SMOK	SMOKE
9	ASH	ASH

OREGON DEPARTMENT OF TRANSPORTATION - TRANSPORTATION DEVELOPMENT DIVISION
TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT
CRASH SUMMARIES BY YEAR BY COLLISION TYPE

SE 182nd Ave / SW Highland Dr & W Powell Blvd
January 1, 2011 through December 31, 2015

COLLISION TYPE	FATAL CRASHES	NON- FATAL CRASHES	PROPERTY DAMAGE ONLY	TOTAL CRASHES	PEOPLE KILLED	PEOPLE INJURED	TRUCKS	DRY SURF	WET SURF	DAY	DARK	INTER- SECTION	INTER- SECTION RELATED	OFF- ROAD
YEAR: 2015														
ANGLE	0	1	1	2	0	1	0	1	1	1	1	2	0	0
PEDESTRIAN	0	1	0	1	0	1	0	1	0	1	0	1	0	0
REAR-END	0	7	3	10	0	7	0	5	4	7	2	10	0	0
SIDESWIPE - MEETING	0	1	0	1	0	1	0	1	0	0	1	1	0	0
TURNING MOVEMENTS	0	2	1	3	0	2	0	3	0	2	1	3	0	0
2015 TOTAL	0	12	5	17	0	12	0	11	5	11	5	17	0	0
YEAR: 2014														
FIXED / OTHER OBJECT	0	1	0	1	0	1	0	1	0	0	1	1	0	1
REAR-END	0	6	2	8	0	7	0	7	1	6	2	8	0	0
TURNING MOVEMENTS	0	0	1	1	0	0	0	1	0	1	0	1	0	0
2014 TOTAL	0	7	3	10	0	8	0	9	1	7	3	10	0	1
YEAR: 2013														
ANGLE	0	1	1	2	0	1	0	2	0	2	0	2	0	0
FIXED / OTHER OBJECT	0	0	1	1	0	0	0	0	1	0	1	1	0	1
REAR-END	0	2	4	6	0	2	0	6	0	4	2	6	0	0
SIDESWIPE - OVERTAKING	0	0	1	1	0	0	0	0	1	1	0	1	0	0
TURNING MOVEMENTS	0	0	1	1	0	0	0	0	0	0	1	1	0	0
2013 TOTAL	0	3	8	11	0	3	0	8	2	7	4	11	0	1
YEAR: 2012														
ANGLE	0	2	1	3	0	2	0	2	1	1	2	3	0	0
FIXED / OTHER OBJECT	0	0	3	3	0	0	0	0	3	0	3	3	0	3
REAR-END	0	2	0	2	0	3	0	1	1	1	1	2	0	0
2012 TOTAL	0	4	4	8	0	5	0	3	5	2	6	8	0	3
YEAR: 2011														
ANGLE	0	1	0	1	0	3	0	1	0	1	0	1	0	0
BACKING	0	0	1	1	0	0	0	1	0	1	0	1	0	0
FIXED / OTHER OBJECT	0	0	1	1	0	0	0	1	0	1	0	1	0	1
REAR-END	0	7	1	8	0	18	0	5	3	4	4	8	0	0
TURNING MOVEMENTS	0	1	0	1	0	1	0	1	0	1	0	1	0	0
2011 TOTAL	0	9	3	12	0	22	0	9	3	8	4	12	0	1
FINAL TOTAL	0	35	23	58	0	50	0	40	16	35	22	58	0	6

Disclaimer: A higher number of crashes may be reported as of 2011 compared to prior years. This does not reflect an increase in annual crashes. The higher numbers result from a change to an internal departmental process that allows the Crash Analysis and Reporting Unit to add previously unavailable, non-fatal crash reports to the annual data file. Please be aware of this change when comparing pre-2011 crash statistics.

Appendix E Background Documents



PLEASANT VALLEY TSP REFINEMENT

>>> Background Document Review

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Document: Gresham Transportation System Plan..... 11

Document: Clackamas County Transportation System Plan..... 12

Document: Multnomah County Transportation System Plan..... 13

Document: Metro Powell/Foster Corridor Refinement Plan..... 14

Document: Metro Regional Transportation Plan..... 15

Document: East Metro Connections Plan..... 20

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BACKGROUND DOCUMENT OVERVIEW

This document summarizes a review of documents related to the Pleasant Valley TSP. Each document is summarized in the section below, with elements relevant to the Pleasant Valley TSP Refinement project specifically highlighted. A summary table is provided at the end including each document reviewed.

IN THIS PAPER>>>

- ▶ *Project Background*
- ▶ *Document Summaries*
- ▶ *Key Findings and Next Steps*

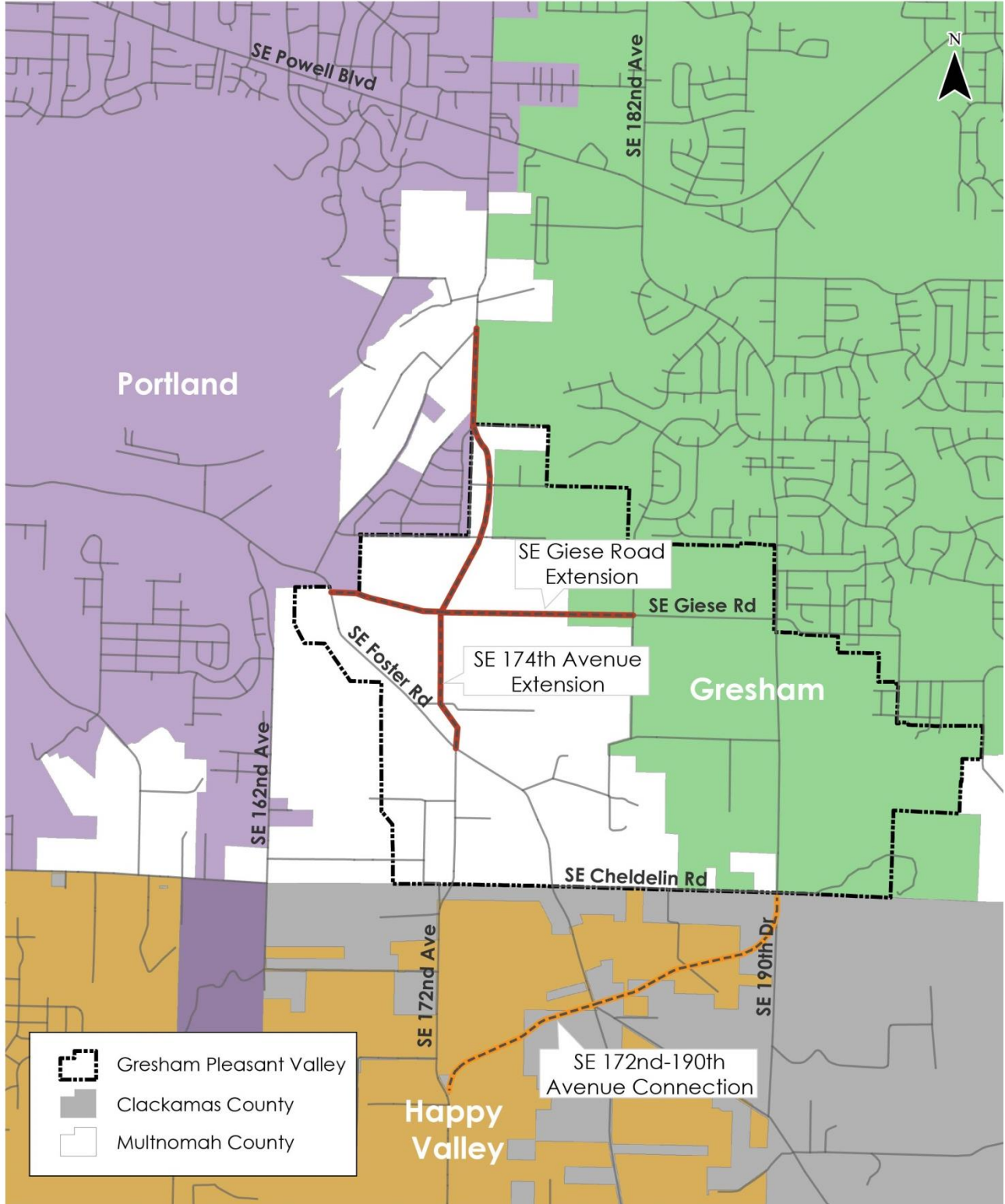
PROJECT BACKGROUND

The City of Gresham is beginning a process to review the transportation facilities in the Pleasant Valley Transportation System Plan (TSP) with primary focus on determining how the system can function adequately in the future. Alternatives that include and exclude a potential new arterial extension of SE 174th Avenue to connect between SE Giese Road and SE Jenne Road will be analyzed to understand the impacts of that connection on the overall function of the Pleasant Valley street network. The SE 174th Avenue extension was originally developed as part of planning for the Powell-Foster corridors and is included in the current Metro Regional Transportation Plan (RTP) project list. A preferred alternative will be incorporated into an updated Pleasant Valley TSP and identify the long-term vision for the area as well as near-term solutions to address community concerns and support growth of the area. In addition, it will identify how improvements can be phased and their costs, right-of-way needs, and impacts.

The Pleasant Valley TSP was adopted in 2005. Since that time, planning has occurred by Clackamas County, Portland, and Metro. These plans are based on the Pleasant Valley TSP, which includes an extension of Giese Road between SE Foster Road and SE 182nd Avenue. In addition, it includes the downgrading of Foster Road into a local access street (i.e., retain current two-lane configuration), with the potential to disconnect or vacate the street in the confluence area of Kelley Creek. For example, in 2012, Happy Valley and Clackamas County jointly adopted the 172nd Avenue/190th Drive Corridor Management Plan, including a new arterial connection between SE 172nd Avenue and SE 190th Drive (the “172nd-190th Connector”). That plan considered the constraints of Jenne Road and the 174th Extension and the need to provide a more robust connection to SE 190th Avenue to supplement north/south connectivity.

The Pleasant Valley TSP (PVTSP) Refinement project is needed to reassess the PVTSP based on the most recent transportation plans for the surrounding areas. It will validate planned projects in the TSP and assesses the need and feasibility of the 174th extension north of Giese Road. Figure 1 illustrates the Pleasant Valley Boundary, surrounding cities and counties, and the SE 174th Avenue extension, SE Giese Road extension, and 172nd-190th Connector.

Figure 1. Pleasant Valley Area and Surrounding Cities and Counties



Source: Based on GIS files from Metro

DOCUMENT SUMMARIES

DOCUMENT: PLEASANT VALLEY CONCEPT PLAN

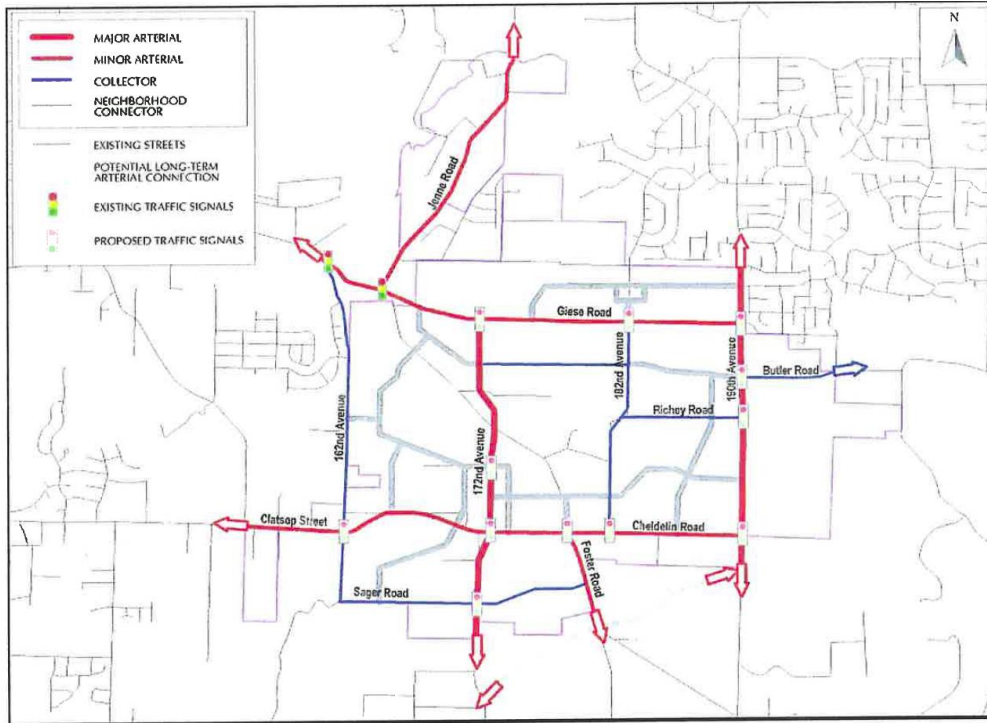
- ▶ **Date:** August 2002
- ▶ **Purpose:** “Establish a community plan addressing land use, transportation, natural resources, public facilities, infrastructure and funding strategies for the study area”
- ▶ **Study Area:** Pleasant Valley

Goals:

- A. Create a community
- B. Create a town center as the heart of the community
- C. Integrate schools and civic uses into the community
- D. Celebrate Pleasant Valley’s cultural and natural history
- E. Preserve, restore and enhance natural resources
- F. Use “green” development practices
- G. Locate and develop parks and open spaces throughout the community
- H. Provide transportation choices
- I. Provide housing choices
- J. Provide and coordinate opportunities to work in and near Pleasant Valley

The transportation network envisioned in the concept plan is shown in Figure 2.

Figure 2. Pleasant Valley Concept Plan Network (Source: Pleasant Valley Concept Plan)



New street extensions and connections include:

- ▶ 172nd Avenue extension north to Giese Rd
- ▶ Giese Rd west to Foster Rd
- ▶ Clatsop St west to Cheldelin Rd
- ▶ 182nd Ave south to Cheldelin Rd
- ▶ Butler Rd west to 190th Ave
- ▶ Sager Rd east to Foster Rd
- ▶ Long-term arterial connection from 172nd to 190th Avenue south of the study area

Transit

The Concept Plan includes an element to “provide regional and community transit service on key roads in Pleasant Valley, with direction connections to Happy Valley, Clackamas regional center, Damascus, Lents, Gresham, the Columbia Corridor and downtown Portland.” Transit streets include:

- ▶ 172nd Avenue
- ▶ Giese Road
- ▶ 182nd Avenue
- ▶ 190th Avenue
- ▶ A new east/west collector south of Giese Road
- ▶ Clatsop Street-Cheldelin Road

DOCUMENT: PLEASANT VALLEY TRANSPORTATION SYSTEM PLAN

- ▶ **Date:** January 2005
- ▶ **Purpose:** “establish a framework for addressing the transportation needs for this new urban community as urbanization occurs with the implementation of the Pleasant Valley Plan District.”
- ▶ **Study Area:** Pleasant Valley

Key Elements:

The Pleasant Valley TSP builds from concept plan to further define the transportation system for the area by including:

- ▶ Functional Classification for Streets
- ▶ Street Design Types
- ▶ Connectivity Plan
- ▶ Bike and Trail Plan
- ▶ Illustrative Street Plan
- ▶ Transit Plan

It includes the following action measures:

- ▶ As a near-term objective, downgrade the function of Foster and Richey roads in the confluence area of Kelley Creek to serve as local access streets. As a long-term objective, develop a strategy to disconnect and potentially vacate the vehicular function of these street segments while maintaining the opportunity for a local trail opportunity.
- ▶ Realign 172nd Avenue as it passes through Kelley Creek ESRA to not follow creek and reduce impact area by keeping it as far west of confluence as practical and minimizing the bridge footprint in the creek and adjacent riparian area.
- ▶ Investigate needed safety and capacity improvements to address future travel demand in the Foster Road and Powell Boulevard corridors and implement study recommendations.
- ▶ Evaluate the long-term need for an arterial connection between 172nd Avenue and 190th Avenue as part of urban area planning that responds to future urban growth boundary decisions.
- ▶ Implement needed transportation improvements to serve Pleasant Valley and correct existing safety issues.
- ▶ Implement regional corridor study recommendations and projects identified in the Regional Transportation Plan for key gateway routes, such as Sunnyside Road, Foster Road, Powell Boulevard, 172nd Avenue and 190th Avenue.

Transit: Expand the TriMet service boundary to include areas within Clackamas County to allow TriMet to serve this area.

Work with TriMet to develop a transit plan for Pleasant Valley that:

- ▶ Establishes a transit hub within the town center zoning district that provides transfer opportunities between regional and community transit routes
- ▶ Implements recommended community and regional transit service.
- ▶ Determines appropriate locations and design of bus loading areas and transit preferential treatments such as reserved bus lanes and signal pre-emption to enhance transit usage and public safety and to promote the smooth flow of traffic.
- ▶ With other transit service providers, and employers and social service agencies' efforts, enhances access for elderly, economically disadvantaged, and people with disabilities.

Figure 3 illustrates the transit system envisioned in the TSP.

Figure 3. Transit System (Source: Pleasant Valley TSP)

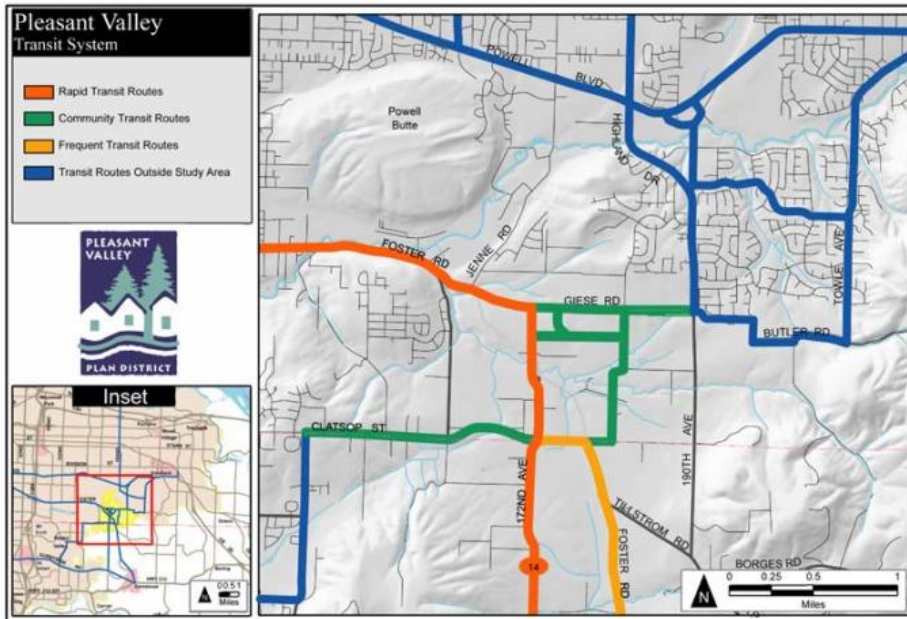
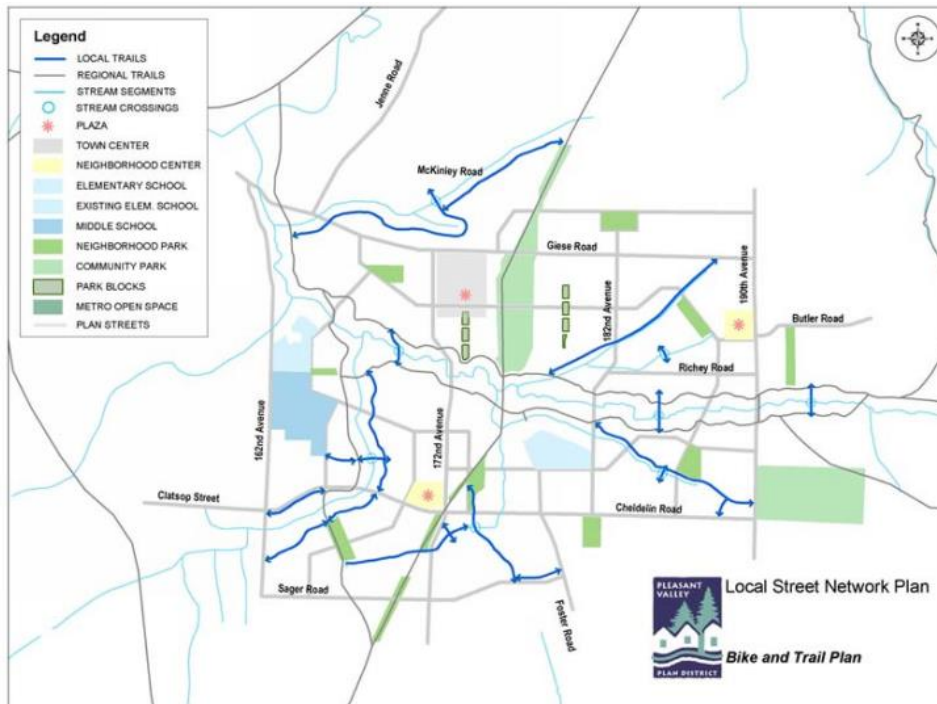


Figure 4 illustrates the bike and trail plan shown in the Pleasant Valley TSP.

Figure 4. PV TSP Bike and Trail Plan (Source: Pleasant Valley TSP)



DOCUMENT: HAPPY VALLEY TRANSPORTATION SYSTEM PLAN

- ▶ **Date:** November 2016
- ▶ **Purpose:** “Establish a community plan addressing land use, transportation, natural resources, public facilities, infrastructure and funding strategies for the study area”
- ▶ **Study Area:** Happy Valley

Goals: the Happy Valley TSP includes goals and policies that were developed by the project stakeholders. The goals are listed below.

- ▶ **Livability** - Transportation facilities shall be planned, designed and constructed in a manner which enhances the livability of Happy Valley.
- ▶ **Mobility** - Transportation facilities shall accommodate commercial, industrial and residential growth and provides access though and around Happy Valley.
- ▶ **Multi-Modal Travel** - Happy Valley shall strive to achieve a balanced transportation system that reduces the number of trips by single occupant vehicles by meeting the needs of auto, bicycle, pedestrian, and transit and increasing the connectivity for alternate travel modes.
- ▶ **Safety** - Happy Valley shall strive to achieve a safe transportation system by developing street standards, access management policies when constructing streets and by making street maintenance a priority.
- ▶ **Evaluation** - Transportation performance measures shall be maintained in the City.
- ▶ **Accessibility** - Develop transportation facilities which are accessible to all members of the community.
- ▶ **Cooperation** - Implement the Transportation System Plan (TSP) in a coordinated manner.
- ▶ **Goods Movement** - Provide for efficient movement of goods and services.
- ▶ **Interchange Management Areas** - Protect the public’s investment in the interchange management areas.
- ▶ **172nd Avenue/190th Drive Corridor Management Plan** – Implement the 172nd/190th Corridor Management Plan.

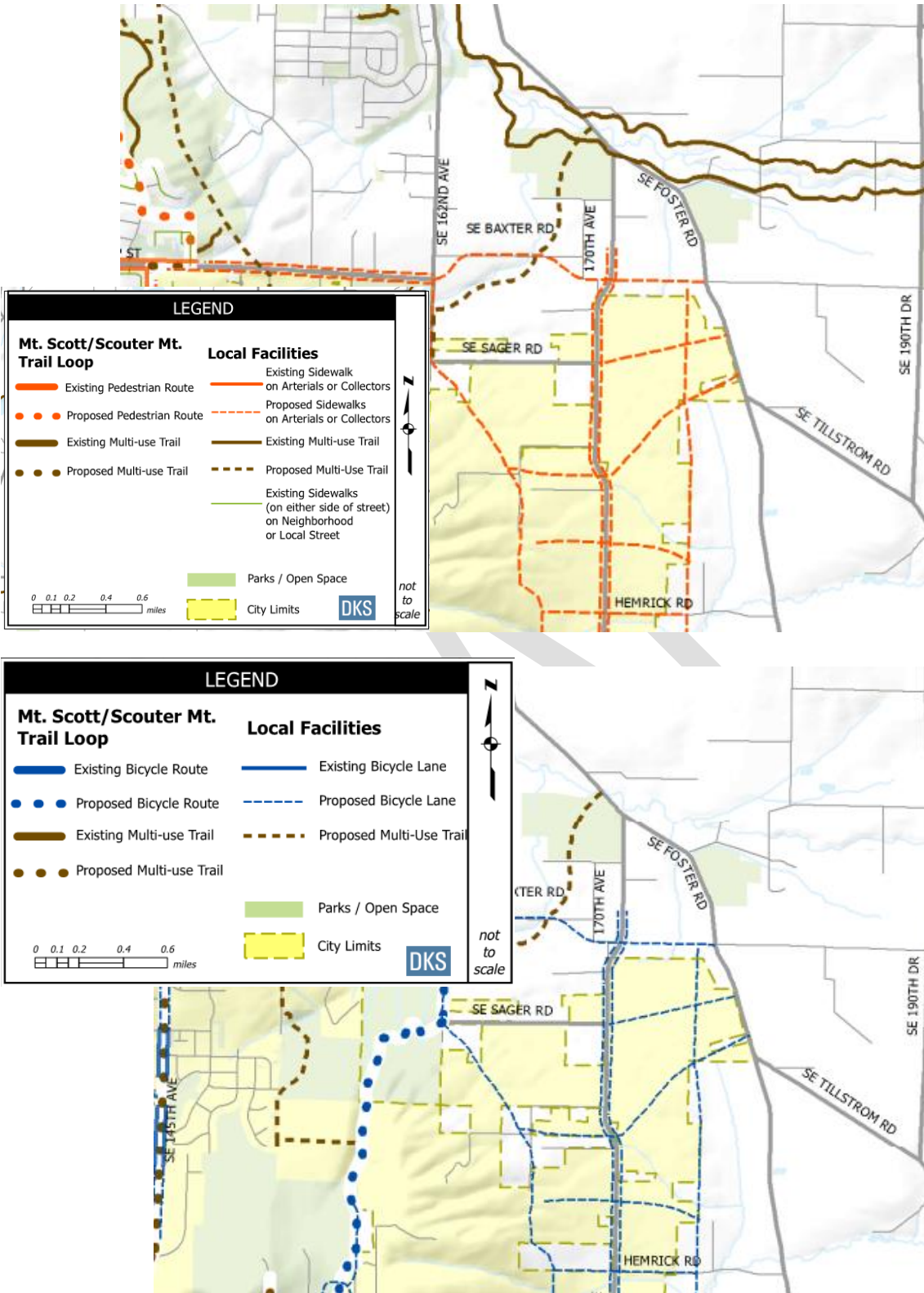
Proposed Roadways: the TSP shows the following proposed roadways, consistent with the 172nd/190th Corridor Plan:

- ▶ Extension of SE Clatsop Street to the east to SE Foster Road
- ▶ Extension of SE Sager Road to the east to SE Foster Road
- ▶ SE 172nd/190th Connector
- ▶ New east/west roadway parallel to SE 172nd Avenue to the east
- ▶ SE 162nd Avenue connection between SE Hagen Road and SE Sager Road

Transit: The TSP shows a proposed transit route (new bus route#10) on SE 172nd Avenue, providing a connection to the planned major employment center north of Highway 212. It also recommends bringing all of Happy Valley city limits into the TriMet district.

Pedestrian and Bicycle: The pedestrian and bicycle plans from the TSP are shown in Figure 5.

Figure 5. Pedestrian and Bicycle Master Plans (Source: Happy Valley TSP)



DOCUMENT: GRESHAM TRANSPORTATION SYSTEM PLAN

- ▶ **Date:** December 2013
- ▶ **Purpose:** “A key objective of the TSP is to create a balanced transportation system where pedestrians, bicyclists and motorists have equal opportunity to get around. The TSP also identifies strategies to facilitate freight and goods movement, improve neighborhood connections and provide an adequate funding forecast.
The TSP not only provides the framework for addressing the transportation needs for Gresham’s diverse and vital community, but is also consistent with state, regional and surrounding local plans.”
- ▶ **Study Area:** Gresham

Goals: the Gresham TSP includes a vision, guiding principles, and goals, which are woven through the TSP’s system plans, policies, action measures, project list, and funding forecast. Goals include:

- ▶ **Accessibility** – The ability to reach desired goods, services, activities and destinations with relative ease, within a reasonable time, at a reasonable cost and with reasonable choices.
- ▶ **Economic Development** – Constructing and maintaining a transportation system that supports new business as well as business retention, expansion and relocation.
- ▶ **Efficiency** – Constructing and maintaining a transportation system that performs and functions as fluidly as possible.
- ▶ **Environmental Stewardship** – Meeting the needs of the present generation without compromising future needs and resources.
- ▶ **Healthy Equity** – Promoting health with adequate biking and walking routes and trails among all transportation system users.
- ▶ **Livability** – Tying the quality and location of transportation facilities to broader opportunities such as access to good jobs, affordable housing, quality schools and safe streets.
- ▶ **Mobility** – The ability to move people and goods to destinations efficiently and reliably.
- ▶ **Safety** – Minimizing dangers or risks in the transportation system so users feel safe driving, biking, walking and taking transit.
- ▶ **Sustainable Funding** – Ensuring the establishment of funding mechanisms sufficient to support the continuous and safe operation of the transportation system.

As indicated in the TSP, Pleasant Valley was added to the Gresham UBG in 1998 to accommodate forecast population growth and provide a “more balanced distribution of housing and employment within the region.” The Pleasant Valley TSP was adopted by Gresham and is referenced to throughout the TSP.

DOCUMENT: CLACKAMAS COUNTY TRANSPORTATION SYSTEM PLAN

- ▶ **Date:** December 2013
- ▶ **Purpose:** “The TSP reflects all relevant national, state and regional transportation and planning requirements, and provides policies, guidelines and projects to meet transportation needs for residents, businesses and visitors in unincorporated Clackamas County for 20 years.”
- ▶ **Study Area:** Clackamas County

Goals: the Clackamas County TSP includes the following goals:

- ▶ Provide a transportation system that optimizes benefits to the environment, the economy and the community
- ▶ Plan the transportation system to create a prosperous and adaptable economy and further the economic well-being of businesses and residents of the County.
- ▶ Goal 3: Tailor transportation solutions to suit the diversity of local communities.
- ▶ Goal 4: Promote a transportation system that maintains or improves our safety, health, and security.
- ▶ Goal 5: Provide an equitable transportation system.
- ▶ Goal 6: Promote a fiscally responsible approach to protect and improve the existing transportation system and implement a cost-effective system to meet future needs.

Key Elements: The Clackamas County TSP includes a few projects in the study area, including:

- ▶ Long term capital projects to improve and extend Cheldelin Road (Project ID 3007 and 3008)
- ▶ Long-term project to add bikeway, pedestrian facilities, and turn lanes at major intersections to SE 162nd Avenue (Project ID 3002)

Otherwise, the Clackamas County TSP largely focuses on areas outside of the cities within the County.

DOCUMENT: MULTNOMAH COUNTY TRANSPORTATION SYSTEM PLAN

- ▶ **Date:** August 2016
- ▶ **Purpose:** “The TSP is the master plan for how the County’s rural transportation system will evolve and develop for the next 20 years. The plan’s primary focus is on enhancing the safety of the transportation system and balancing the needs of agricultural, visitor, residential, bicycle, pedestrian, and freight travel to and from the rural areas. The TSP supports economically vital and healthy communities.”
- ▶ **Study Area:** Multnomah County

Performance Metrics: the Multnomah County includes one goal, with several objectives, listed below.

GOAL: To provide a safe and efficient transportation network for all modes of travel that serves the rural areas of the County and achieves the following objectives:

1. Implement a transportation system that is safe and efficient in meeting the needs of area residents.
2. Implement a balanced transportation system that supports all modes of travel.
3. Develop a transportation system that supports the rural character of unincorporated Multnomah County.
4. Develop a transportation system the supports a healthy economy.
5. Provide transportation improvements in a timely manner according to funding capability.
6. Reduce vehicle traffic on rural County roadways caused by those traveling through the area.

Key Elements: the Multnomah County TSP includes the project in Table 1, relevant to the study area.

Table 1. Multnomah County TSP Projects

Project Number	Project Location	Project Description	Priority	Cost
E11	Foster Road: Jenne to County Line	Provide separation for bicycles where warranted and/or feasible. Improvements could include narrow shoulders (3-4 feet) to full width shoulders (6 feet) in on or both directions or could include minimal improvements such as uphill bicycle climbing lanes or intermittent bicycle pull-outs. Solutions can be used for pedestrian use (i.e. shoulders). See also Springwater Master Plan Transportation System Plan (September 2005, Gresham).	High	\$\$\$

DOCUMENT: METRO POWELL/FOSTER CORRIDOR REFINEMENT PLAN

- ▶ **Date:** September 2003
- ▶ **Purpose:** Provide a high-level look at multimodal transportation needs for the Powell//Foster corridor from the Willamette to Damascus. The plan includes an evaluation of performance, engineering, and environmental issues for potential projects. The goals of the plan is “to definite and preliminarily evaluate an initial range of multi-modal alternatives that will accommodate the 2020 corridor travel demand in a way that supports the 2040 Concept Plan.”
- ▶ **Study Area:** Powell Boulevard/Foster Road Corridor

Key objectives used to develop and evaluate alternatives:

- ▶ Cost-effectiveness
- ▶ Impacts to neighborhoods and the environment
- ▶ Preservation of the through movement function of the alternatives
- ▶ Safety
- ▶ Opportunities for access management

Relevant Roadway Recommendations: the plan includes recommendations for roadway segments, including Jenne Road/New SE 174th Avenue (Powell Boulevard to Foster Road).

The plan notes “additional north south capacity in this area is needed to provide access to and from growth areas in Pleasant Valley and Damascus.” It assesses either widening Jenne Road to provide an extra southbound lane or creating a new connection of 174th Avenue. It notes that widening Jenne Road “may not be very feasible from an engineering standpoint given the extremely constrained right-of-way and steep topography along much of Jenne Road.” It recommends that further study be done to assess the extension of SE 174th Avenue between Jenne Road and the future Giese Road extension and determine “cross sections, ... general alignment, ... proposed right-of way reservations, and identify further environmental constrains and mitigation.” The Plan also notes that “the new 174th Avenue option would relieve congestion and provide much better travel performance on Jenne Road by diverting trips to the new roadway.” A graphic of the new roadway from the plan is provided in Figure 6.

Figure 6. New SE 174th Avenue (Source: Metro Powell/Foster Corridor Refinement Plan)



The plan recommends bike lanes and sidewalks on Jenne Road and the new SE 174th Avenue. In addition, it recommends transit along both Powell Boulevard and Foster Road, as well as north-south bus service to connect the

Columbia Corridor with Pleasant Valley, Damascus and Clackamas Regional Center and routes connecting Gresham with Pleasant Valley and Damascus.

DOCUMENT: METRO REGIONAL TRANSPORTATION PLAN

- ▶ **Date:** July 2014
- ▶ **Purpose:** “The plan sets a new course for future transportation decisions and implementation of the 2040 Growth Concept. The plan takes into account the changing circumstances and challenges we face and addresses them directly. It continues most of the policies, goals and objectives from the 2035 Regional Transportation Plan, which adopted an outcomes based approach that distinguished it from past RTPs. The 2014 update has strengthened and added more detail to the bicycling and walking policies to reflect direction from the Regional Safety Plan and Regional Active Transportation plan.”
- ▶ **Study Area:** Portland Metropolitan Area

Goals: the Metro Regional Transportation Plan includes the following goals:

1. Foster Vibrant Communities and Efficient Urban Form
2. Sustain Economic Competitiveness and Prosperity
3. Expand Transportation Choices
4. Emphasize Effective and Efficient Management of the Transportation System
5. Enhance Safety and Security
6. Promote Environmental Stewardship
7. Enhance Human Health
8. Ensure Equity
9. Ensure Fiscal Stewardship
10. Deliver Accountability

Figure 7 illustrated the projects from the 2018 RTP, also listed in table 2.

Figure 7. 2018 RTP Projects within and near Study Area

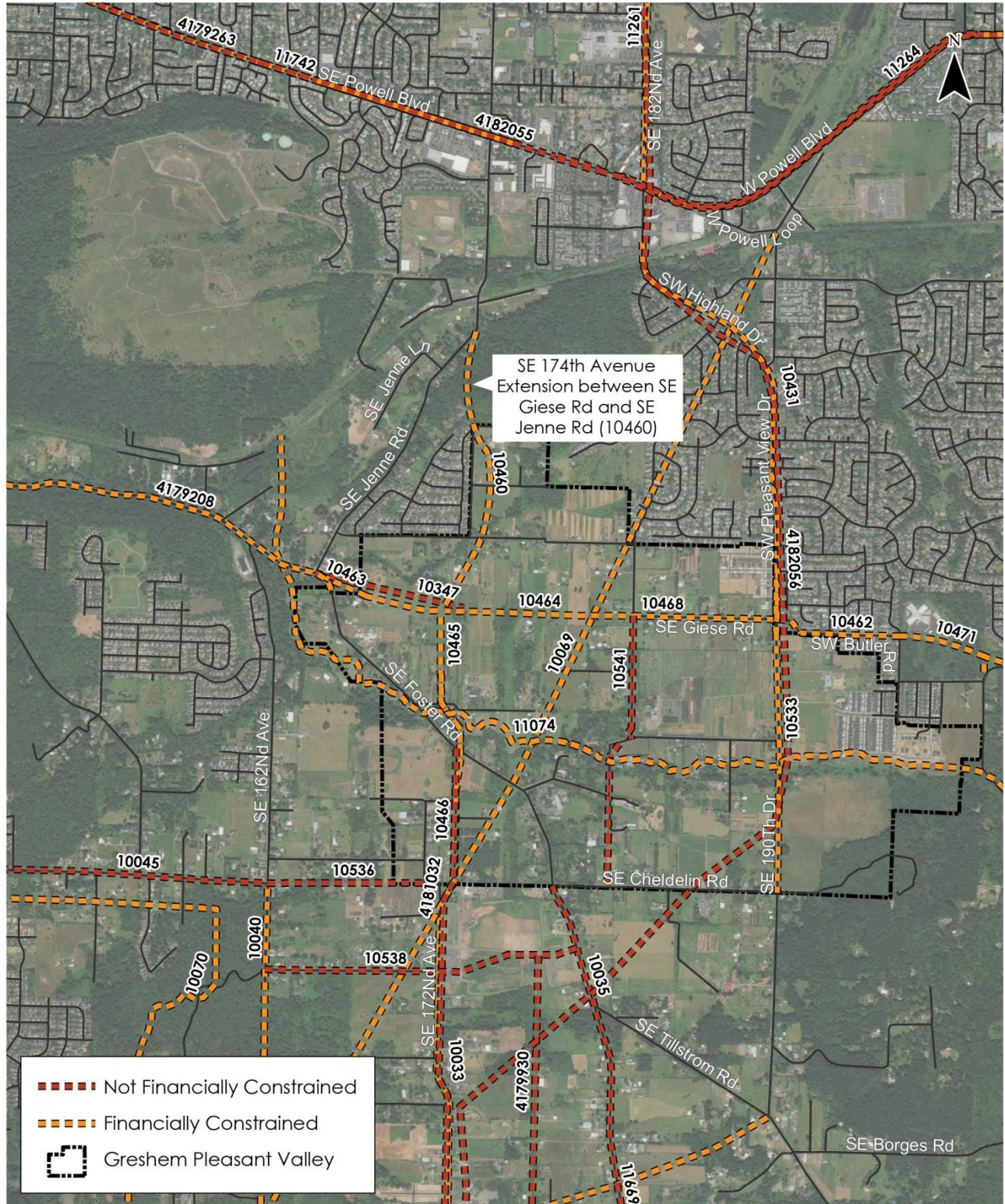


Table 2. (Proposed Initial) 2018 RTP Projects Relevant to the Pleasant Valley Network

ID	Nominating Agency	Project Location	Project Start	Project End	Description	Time Period	Financially Constrained
10033	Happy Valley	172nd Ave & 190th Connector	Clatsop	Sunnyside Rd	Widen 172nd to 5 lanes; construct connector between 172nd and 190th Ave using adopted alignment; project includes bike lanes sidewalks and continuous left turn lane; last connector in n/s freight route alternative to I-205 between I-84 and Hwy-212	2028-2040	Yes
10035	Happy Valley	Upper Foster Rd Improvements	County Line	172nd 190th Connector	Widen two-lane minor arterial from the county line to the 172nd_190th connector to include continuous left turn lane sidewalks and bike lanes Project Segment Length 4 500 feet	2028-2040	No
10040	Happy Valley	162nd Ave Extension North	Clatsop St	Hagen Rd	Extend 162nd Ave from Clatsop to Hagen including two through lanes left turn lanes sidewalks bike lanes and traffic signals Project creates direct connection between circuitous bike/ped parkways travel alternative to 172nd Ave arterial	2028-2040	Yes
10045	Happy Valley	Clatsop St	132nd Ave	162nd Ave	Widen road to 3 lanes with continuous left turn lane sidewalks bike lanes and traffic signals to mitigate multimodal conflicts Project improves access to industrial and employment center; completes segment of Mt Scott/Scouter Mt Loop	2028-2040	No
10069	Gresham	East Buttes Powerline Trail: Springwater/GFT to Clackamas Greenway	Springwater/Gresham-Fairview trail	Clackamas Greenway	Build trail linking Gresham and the Clackamas River	2028-2040	Yes
10070	Happy Valley	East Mount Scott/Scouter Mountain Trail Loop	Springwater Corridor	Hwy 212	Build loop trail from Clatsop street to Highway 212_Clackamas River Connects Springwater Corridor Mt Talbert Scouters Mountain Nature Park and the Clackamas River Partners include City of Portland and City of Happy Valley	2028-2040	Yes
10347	Portland	Pleasant Valley Foster Rd Extension	SE Jenne Rd	SE Giese Rd	Design and implement multimodal improvements based on the Pleasant Valley Implementation Plan recommendations	2028-2040	No

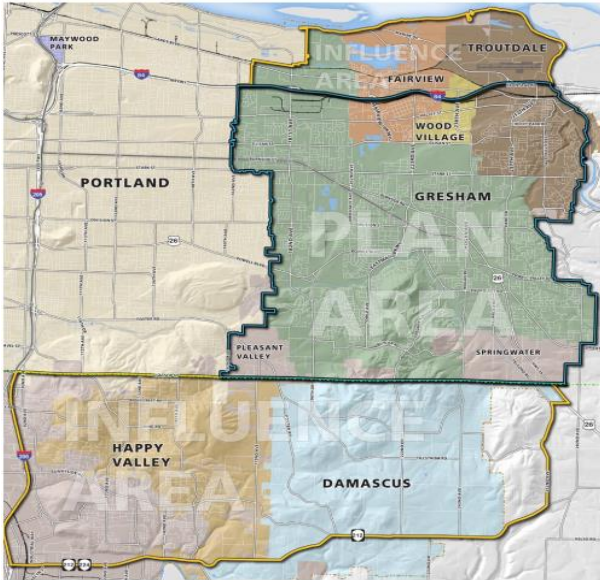
ID	Nominating Agency	Project Location	Project Start	Project End	Description	Time Period	Financially Constrained
10431	Gresham	190th_Highland: 11th to 30th Widening	200' south of SW 11th	30th	Reconstruct and widen street to five lanes with sidewalks and bike lanes Widen and determine the appropriate cross-section for Highland Drive and Pleasant View Drive from Powell Boulevard to 190th Ave	2028-2040	Yes
10460	Gresham	174th N/S Improvements	Giese	174th_Jenne	Construction of new roadway that adds n/s capacity in vicinity of 174_Jenne This facility will have two travel lanes in each direction total 4 travel lanes and a median turn lane which will be primarily a median with left turn pockets at the intersection	2028-2040	Yes
10462	Gresham	Butler: 190th to Binford	190th	Binford	Improve Butler Rd in new alignment to minor arterial standards at intersection add northbound and westbound turn pockets and signalize	2028-2040	Yes
10463	Gresham	Foster: Jenne to 172nd Extension	Jenne	172nd	New north extension of Foster	2028-2040	Yes
10464	Gresham	Giese: 182nd to 172nd Extension	182nd	172nd	New ext of Giese Rd to Foster Road	2028-2040	Yes
10465	Gresham	172nd: Giese to Foster	Giese Rd	Foster Rd	Upgrade street to urban standards w sidewalks bike lanes	2028-2040	Yes
10466	Gresham	172nd: Cheldelin to Foster	Foster	Cheldelin Rd	Upgrade street to urban standards w sidewalks bike lanes and add roundabout or traffic signal at 172nd_Foster	2028-2040	Yes
10468	Gresham	Giese: 182nd to 190th	182nd Ave	190th Ave	Upgrade street to urban standards w sidewalks bike lanes	2028-2040	Yes
10471	Gresham	Butler: Binford to Towle Extension and Bridge	Binford	Towle	Construct new Butler road extension and bridge crossing	2028-2040	Yes
10533	Gresham	190th: 30th to Cheldelin	30th	Cheldelin	Improve existing road to major arterial standards signalize 190th @ Giese Butler Richey Cheldelin	2018-2027	Yes
10536	Portland	Clatsop Street Extension	SE 162nd Ave	Portland City Limits	Extend street east into Pleasant Valley based on the Pleasant Valley Implementation Plan	2028-2040	No
10538	Happy Valley	Sager	162nd	Foster	Using existing alignment widen and extend rural roadway to three lanes including continuous left turn lane bike lanes and sidewalks to provide direct connect to employment lands Project will signalize corridor at 172nd Ave	2028-2040	No

ID	Nominating Agency	Project Location	Project Start	Project End	Description	Time Period	Financially Constrained
10541	Gresham	182nd: Giese to Cheldelin	Giese	Cheldelin	Improve 182nd to collector standards	2028-2040	No
11074	Gresham	East Buttes Loop Trail: Springwater Trail to Rodlun	Springwater Trail	Rodlun Road	Construct new shared use trail 12' wide pervious asphalt	2028-2040	Yes
4179208	Portland	Outer Foster Corridor Safety Improvements	SE Foster PI	City Limits	Improve safety and access by filling high-priority sidewalk gaps adding pedestrian crossings enhancing safety of existing bike lanes and employing safety countermeasures to reduce motor vehicle crash severity	2018-2027	Yes
4179930	Happy Valley	177th Ave ROW Acquisition and Planning	Sager Rd Extension East	Rock Creek Blvd	Conduct planning and preliminary right-of-way acquisition for a new 3 lane roadway with sidewalks bike lanes and continuous left turn lane from Sager Rd extension east to Rock Creek Blvd	2028-2040	No
4181032	Clackamas County	172nd Avenue Frequent Transit	Intersection of 172nd Ave and OR 212	Intersection of 190th Ave and Foster Rd	New bus transit providing frequent service on 172nd_190th between OR 212 and Foster Rd in Multnomah Co	2028-2040	No
4182056	TriMet	ETC: Columbia to Clackamas Enhanced Transit Project	Airport Way	Foster Road	Capital construction of regional enhanced transit project reflecting Multnomah County portion of corridor connects with Clackamas County 172nd Transit Project	2028-2040	No

DOCUMENT: EAST METRO CONNECTIONS PLAN

- ▶ **Date:** June 2012
- ▶ **Purpose:** “The East Metro Connections Plan analyzed present and future transportation challenges and presents solutions that reflect community values.” It recommends investments and projects to be advanced in the Regional Transportation Plan amendment to “advance economic and community development.”
- ▶ **Study Area:** Gresham, Wood Village, Fairview, Troutdale

Figure 8. East Metro Connections Plan Study Area



Key Elements: The East Metro Connection Plan includes Action Plan Projects, which are recommended to be advanced in the Regional Transportation Plan amendment, reflecting prioritization of projects based on current and future needs. The projects in the study area are included in the table below. As indicated Table 3, these projects are all included in the 2018 RTP project list.

Table 3. Action Plan Projects

RTP ID	Actions	Catalyst?	Funded	Phase I	Phase II	Phase III	Cost
10460	SE 174 th N/S Improvements Giese – 174/Jenne	Yes			X		\$\$\$\$
10463	Foster Rd Extension (north) Jenne – 172 nd	Yes			x		\$\$\$
10464	Giese Rd. Extension (182-172)					X	\$\$\$
10465	172 nd Ave. improvements (Giese to Foster)					X	\$\$\$
10466	172 nd Ave. Improvements (Foster to Cheldelin)					X	\$\$

SUMMARY TABLE

Table 4 provides a summary of key information from all the documents reviewed.

Table 4. Document Summary

Document (Year)	Goals/Objectives	Planned Projects	Bike	Ped	Transit
Pleasant Valley Concept Plan (2002)	<ul style="list-style-type: none"> A. Create a community B. Create a town center as the heart of the community C. Integrate schools and civic uses into the community D. Celebrate Pleasant Valley’s cultural and natural history E. Preserve, restore and enhance natural resources F. Use “green” development practices G. Locate and develop parks and open spaces throughout the community H. Provide transportation choices I. Provide housing choices J. Provide and coordinate opportunities to work in and near Pleasant Valley 	<ul style="list-style-type: none"> ▶ 172nd Avenue extension north to Giese Rd ▶ Giese Rd west to Foster Rd ▶ Clatsop St west to Cheldelin Rd ▶ 182nd Ave south to Chaldelin Rd ▶ Butler Rd west to 190th Ave ▶ Sager Rd east to Foster Rd ▶ Long-term arterial connection from 172nd to 190th Avenue south of the study area ▶ Downgrade Foster and Richey roads to serve as local access streets 	Street cross-sections including bike lanes on all roadways	Street cross-sections including sidewalks on all roadways	Transit streets: <ul style="list-style-type: none"> ▶ 172nd Ave ▶ Giese Rd ▶ 182nd Ave ▶ 190th Ave ▶ New east/west collector south of Giese Rd ▶ Clatsop St/Cheldelin Rd
Pleasant Valley Transportation System Plan (TSP)	Goal: Pleasant Valley will be a community where a wide range of safe and convenient transportation choices are provided.	Same extensions and connections called out in the concept plan.	Series of trails to interconnect parks and open spaces.	Pedestrian districts in town center, neighborhood centers, employment districts, and along transit streets.	Provide regional and community transit service on key roads in Pleasant Valley, with direct connections to Happy Valley, Clackamas regional center, Damascus, Lents, Gresham, the Columbia Corridor and downtown Portland. Transit streets same as concept plan.
Happy Valley TSP	<ul style="list-style-type: none"> ▶ Livability ▶ Mobility ▶ Multi-Modal Travel ▶ Safety ▶ Evaluation ▶ Accessibility ▶ Cooperation ▶ Goods Movement ▶ Interchange Management Areas ▶ 172nd Avenue/190th Drive Corridor Management Plan 	<ul style="list-style-type: none"> ▶ Extension of SE Clatsop Street to the east to SE Foster Road ▶ Extension of SE Sager Road to the east to SE Foster Road ▶ SE 172nd/190th Connector ▶ New east/west roadway parallel to SE 172nd Avenue to the east ▶ SE 162nd Avenue connection between SE Hagen Road and SE Sager Road 	Mt Scott/Scouter Loop Trail and bicycle facilities on key roadways.	Mt Scott/Scouter Loop Trail and pedestrian facilities along roadways.	Proposed transit route on SE 172 nd Avenue, providing a connection to the planned major employment center north of Highway 212. It also recommends bringing all of Happy Valley city limits into the TriMet district.

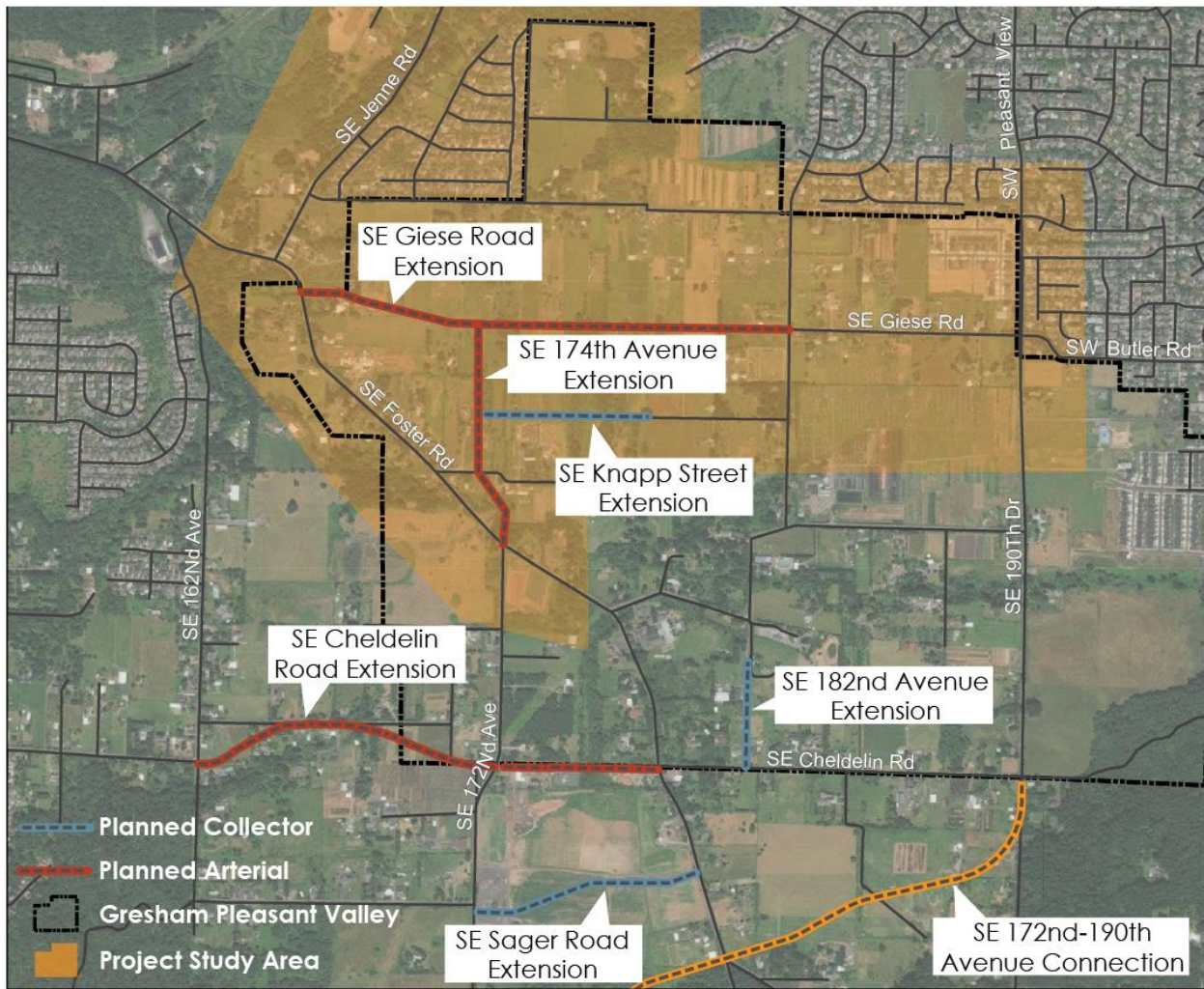
Document (Year)	Goals/Objectives	Planned Projects	Bike	Ped	Transit
Gresham TSP	<ul style="list-style-type: none"> ▶ Accessibility ▶ Economic Development ▶ Efficiency ▶ Environmental Stewardship ▶ Healthy Equity ▶ Livability ▶ Mobility ▶ Safety ▶ Sustainable Funding 	References Happy Valley TSP	References Happy Valley TSP	References Happy Valley TSP	References Happy Valley TSP
Clackamas County TSP	<ul style="list-style-type: none"> ▶ Goal 1: Provide a transportation system that optimizes benefits to the environment, the economy and the community ▶ Goal 2: Plan the transportation system to create a prosperous and adaptable economy and further the economic well-being of businesses and residents of the County. ▶ Goal 3: Tailor transportation solutions to suit the diversity of local communities. ▶ Goal 4: Promote a transportation system that maintains or improves our safety, health, and security. ▶ Goal 5: Provide an equitable transportation system. ▶ Goal 6: Promote a fiscally responsible approach to protect and improve the existing transportation system and implement a cost-effective system to meet future needs. 	<ul style="list-style-type: none"> ▶ Long term capital projects to improve and extend Cheldelin Road (Project ID 3007 and 3008) ▶ Long-term project to add bikeway, pedestrian facilities, and turn lanes at major intersections to SE 162nd Avenue (Project ID 3002) 	-	-	-
Multnomah County TSP	<p>GOAL: To provide a safe and efficient transportation network for all modes of travel that serves the rural areas of the County and achieves the following objectives:</p> <ol style="list-style-type: none"> 1. Implement a transportation system that is safe and efficient in meeting the needs of area residents. 2. Implement a balanced transportation system that supports all modes of travel. 3. Develop a transportation system that supports the rural character of unincorporated Multnomah County. 4. Develop a transportation system the supports a healthy economy. 5. Provide transportation improvements in a timely manner according to funding capability. 6. Reduce vehicle traffic on rural County roadways caused by those traveling through the area. 	-	<p>Foster Road: Jenne to County Line - Provide separation for bicycles where warranted and/or feasible. Improvements could include narrow shoulders (3-4 feet) to full width shoulders (6 feet) in on or both directions or could include minimal improvements such as uphill bicycle climbing lanes or intermittent bicycle pull-outs. Solutions can be used for pedestrian use (i.e. shoulders). See also Springwater Master Plan Transportation System Plan (September 2005, Gresham).</p>	-	-

Document (Year)	Goals/Objectives	Planned Projects	Bike	Ped	Transit
Metro Powell/Foster Corridor Refinement Plan	<ul style="list-style-type: none"> ▶ Cost-effectiveness ▶ Impacts to neighborhoods and the environment ▶ Preservation of the through movement function of the alternatives ▶ Safety ▶ Opportunities for access management 	Jenne Road or new SE 174 th Avenue (between Giese Road extension and Foster Road)	Provide bike lanes on Jenne Road or new SE 174 th Avenue extension	Provide sidewalks on Jenne Road or new SE 174 th Avenue extension	Improve north/south bus service to connect employment areas in the Columbia Corridor, Pleasant Valley and Damascus Town Centers, and Gresham and Clackamas regional centers.
Metro Regional Transportation Plan	<ol style="list-style-type: none"> 1. Foster Vibrant Communities and Efficient Urban Form 2. Sustain Economic Competitiveness and Prosperity 3. Expand Transportation Choices 4. Emphasize Effective and Efficient Management of the Transportation System 5. Enhance Safety and Security 6. Promote Environmental Stewardship 7. Enhance Human Health 8. Ensure Equity 9. Ensure Fiscal Stewardship 10. Deliver Accountability 	See Table 2 for full project list	See Table 2 for full project list	See Table 2 for full project list	See Table 2 for full project list
East Metro Connections Plan	-	Action plan projects: <ul style="list-style-type: none"> ▶ SE 174th N/S Improvements Giese – 174/Jenne ▶ Foster Rd Extension (north) Jenne – 172nd ▶ Giese Rd. Extension (182-172) ▶ 172nd Ave. improvements (Giese to Foster) ▶ 172nd Ave. Improvements (Foster to Cheldelin) 	-	-	-

KEY FINDINGS AND NEXT STEPS

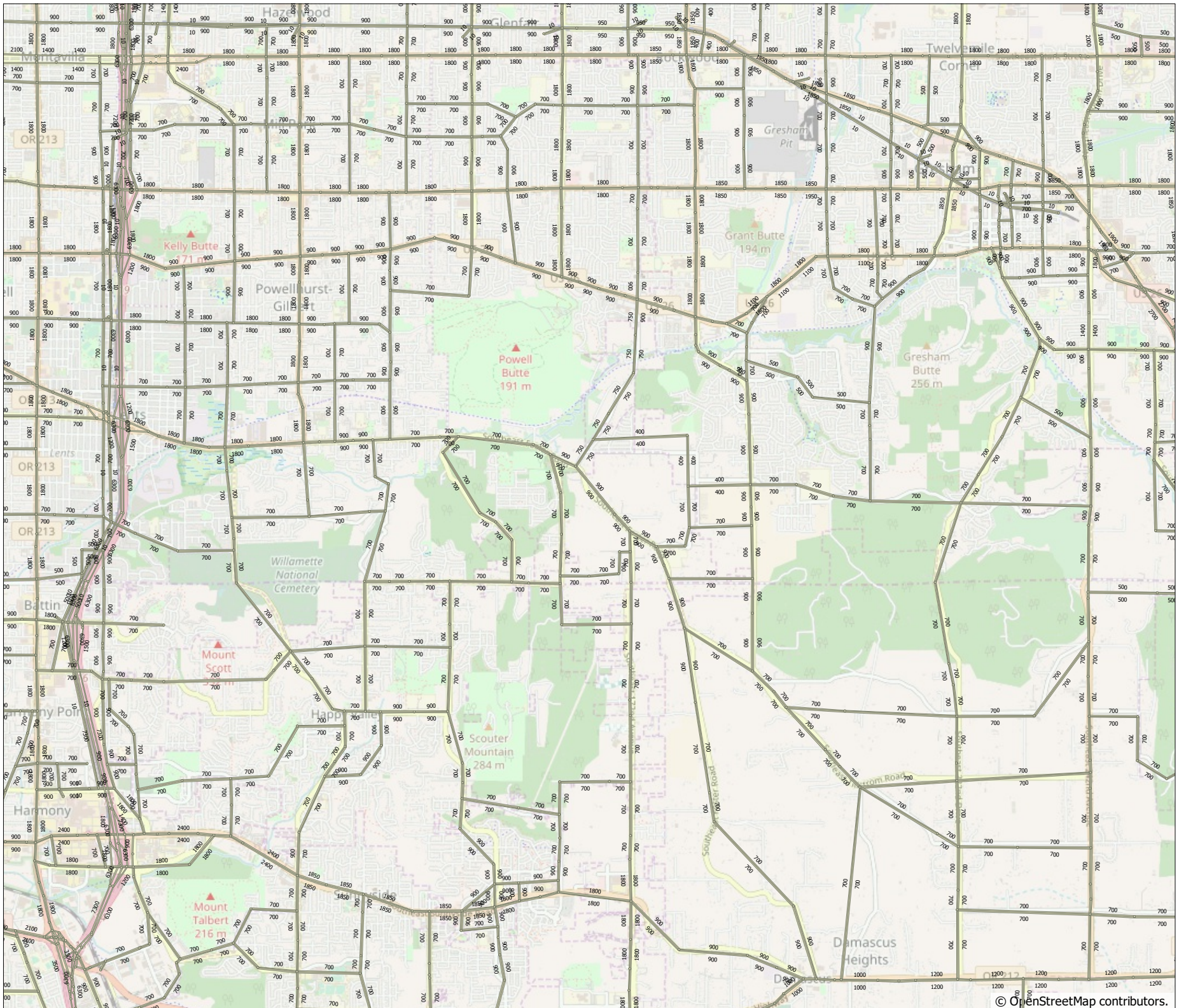
Based on the document review, planned projects were identified in the study area to model in the future planned analysis conducted for the project, shown in Figure 9. The projects identified are consistent with the Pleasant Valley Concept Plan and TSP. The SE 174th extension north of SE Giese Road is included in the Metro RTP project list, but is excluded from the analysis to assess the sufficiency of current planned projects without this connection.

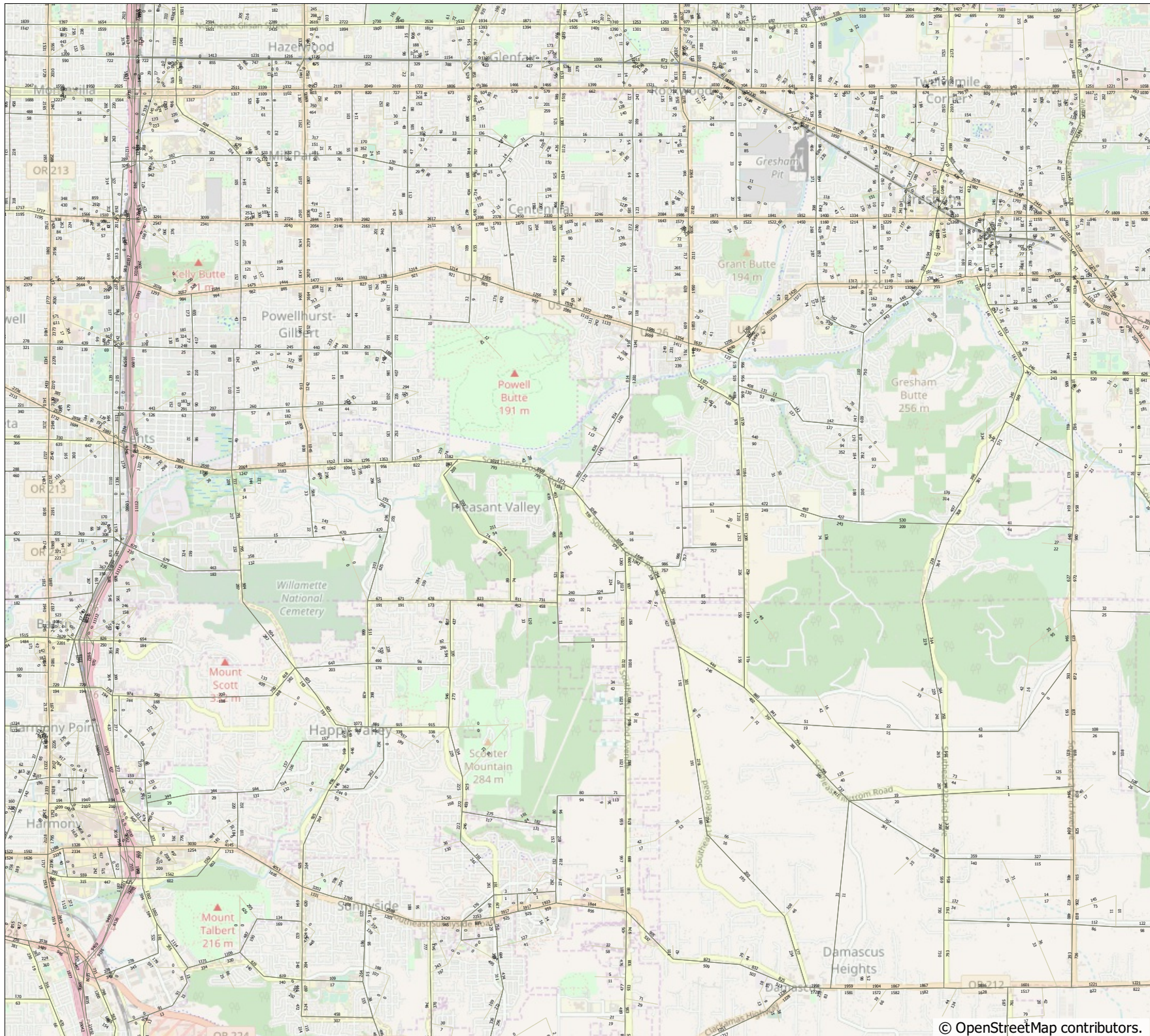
Figure 9: Future Network

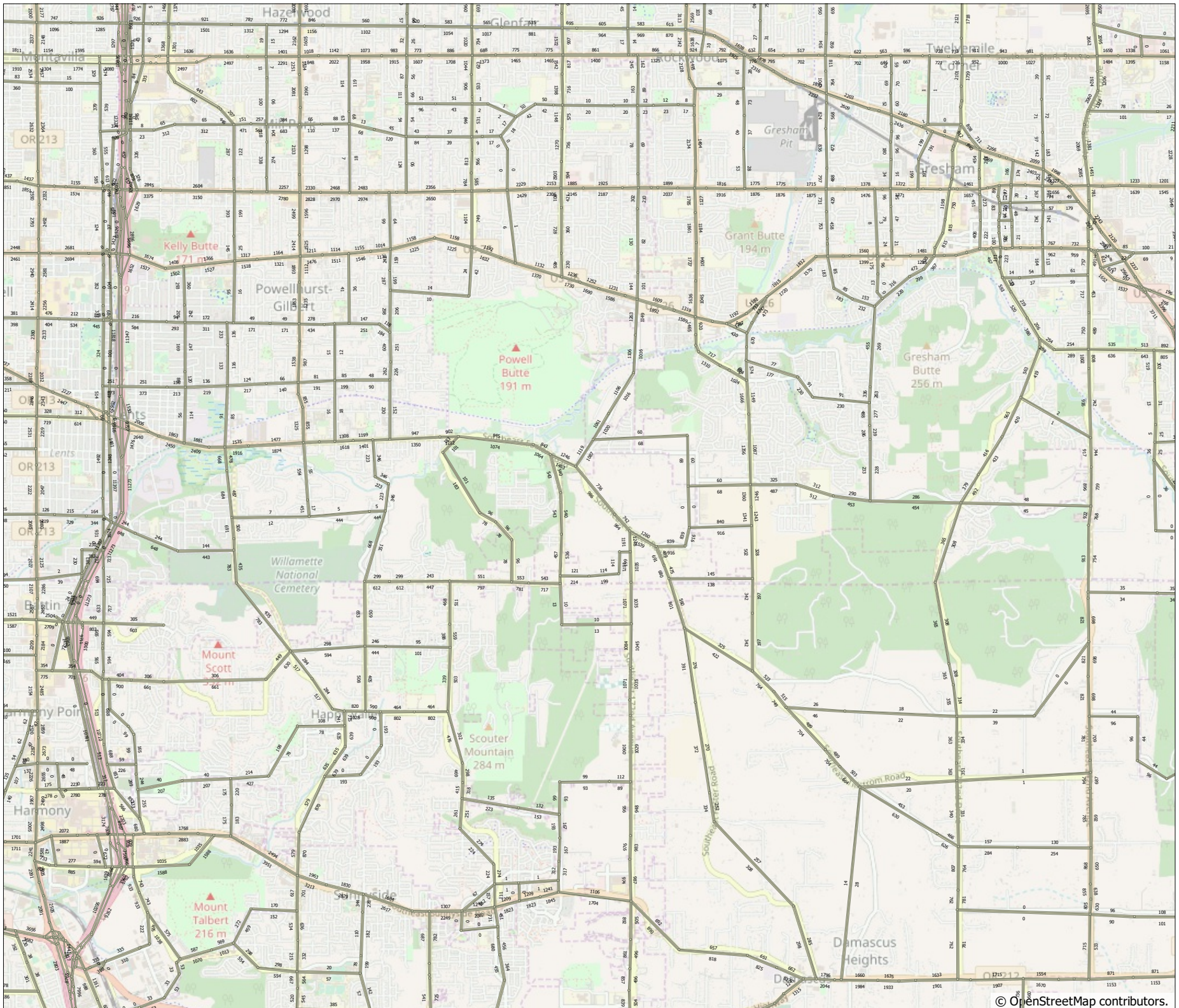


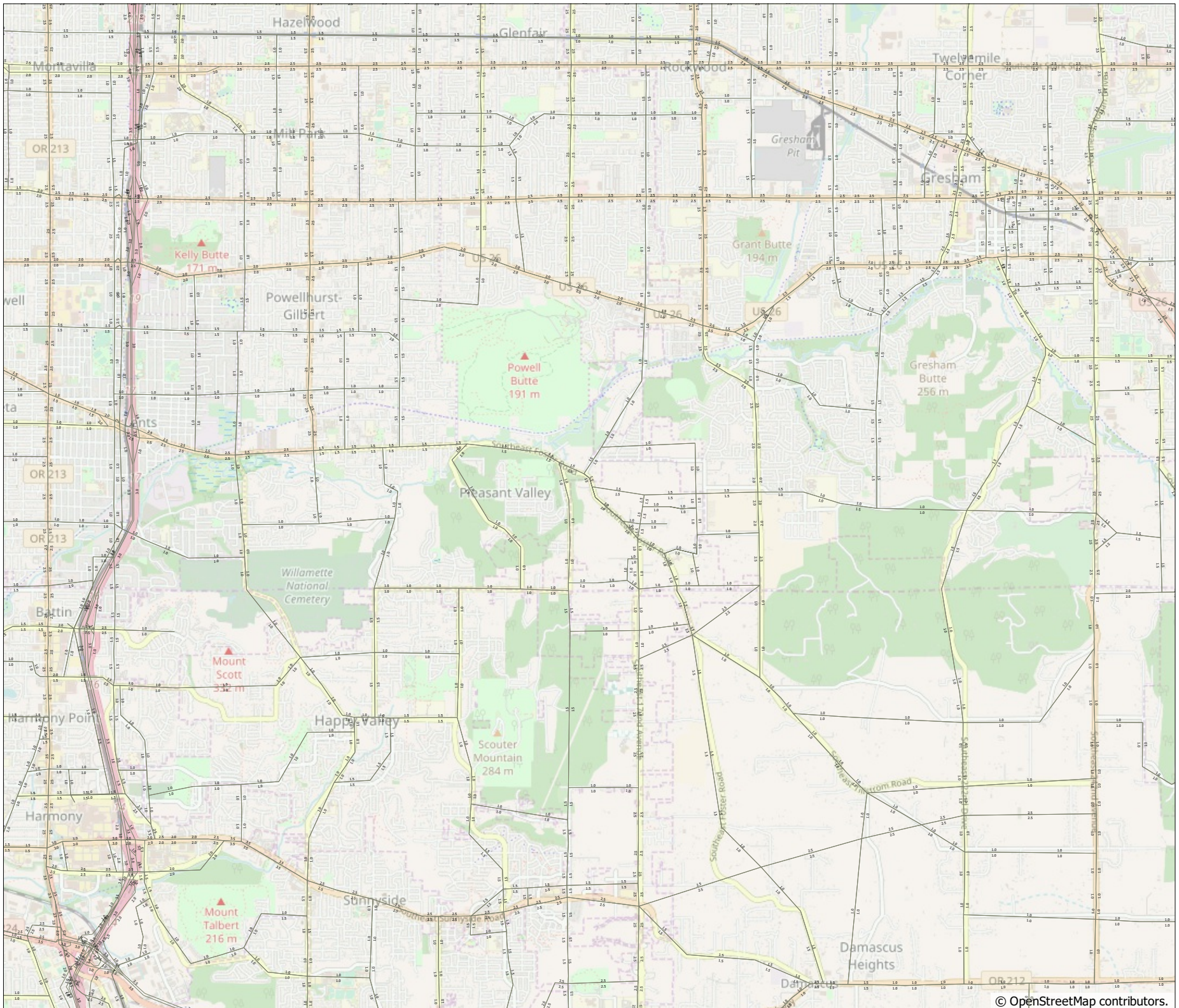
In addition, common themes were identified throughout the goals and performance metrics for the plans, which guided the development of project goals, objectives, and evaluation criteria for the Pleasant Valley TSP Refinement Project.

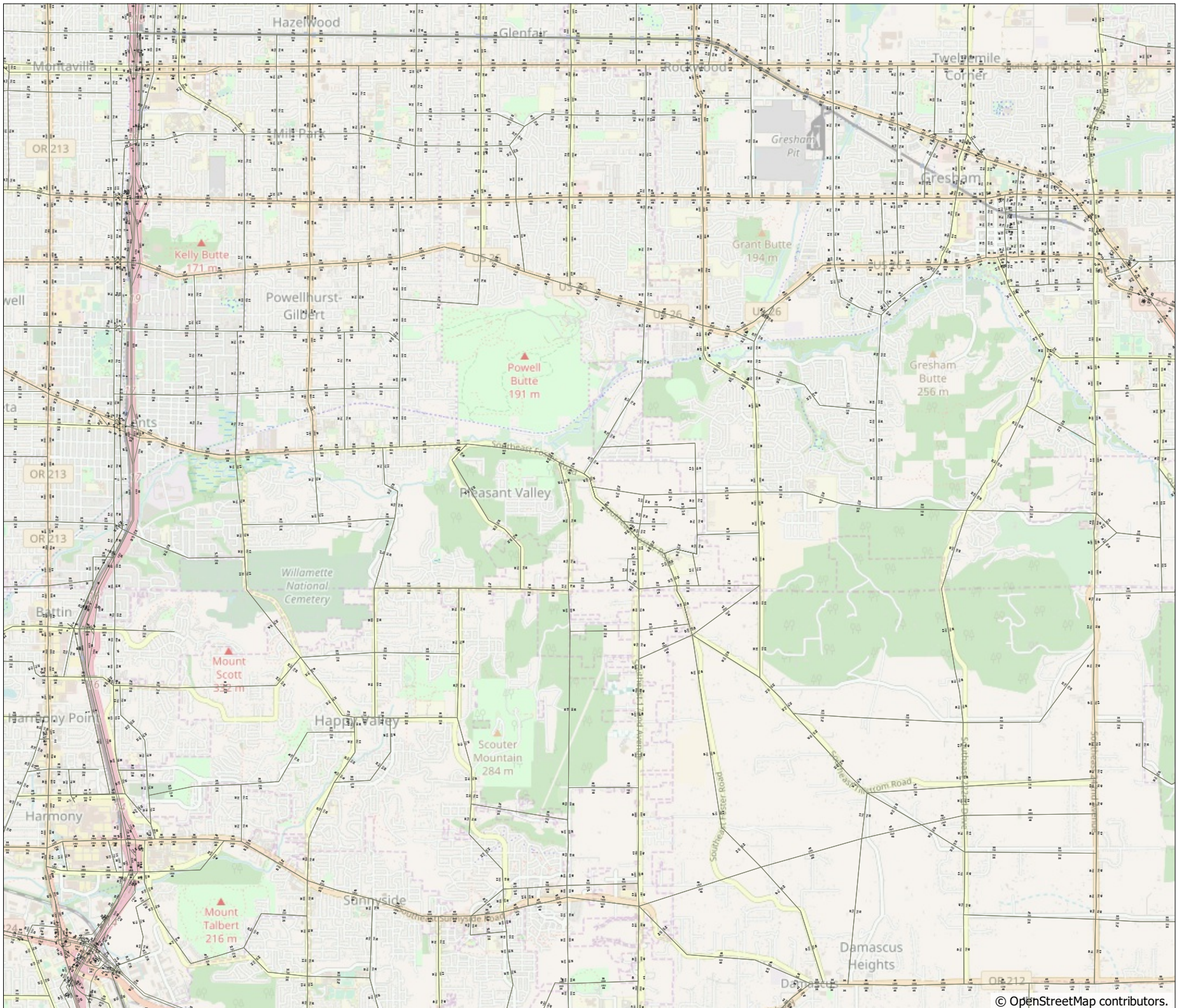
Appendix F Travel Demand Model Results

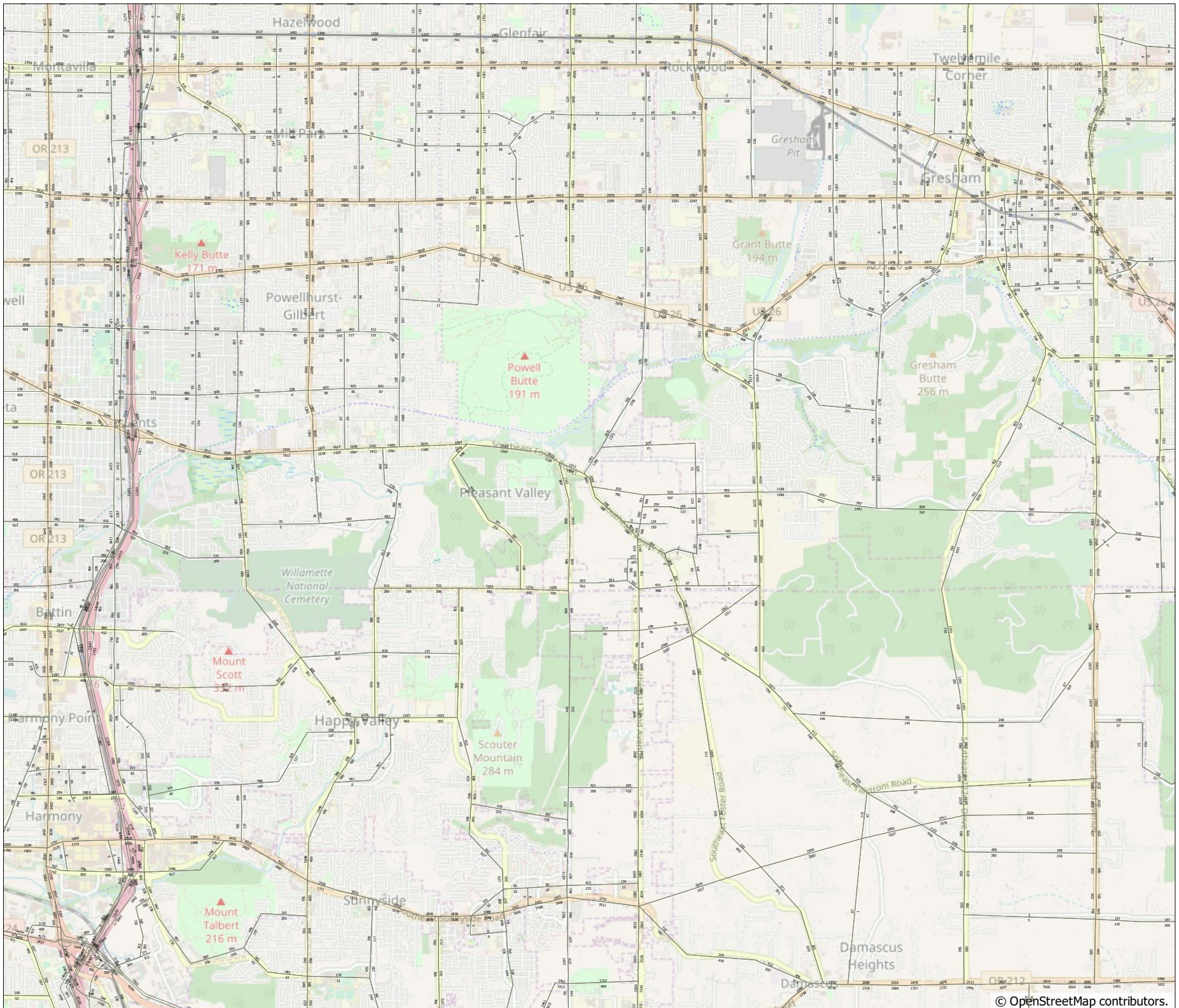


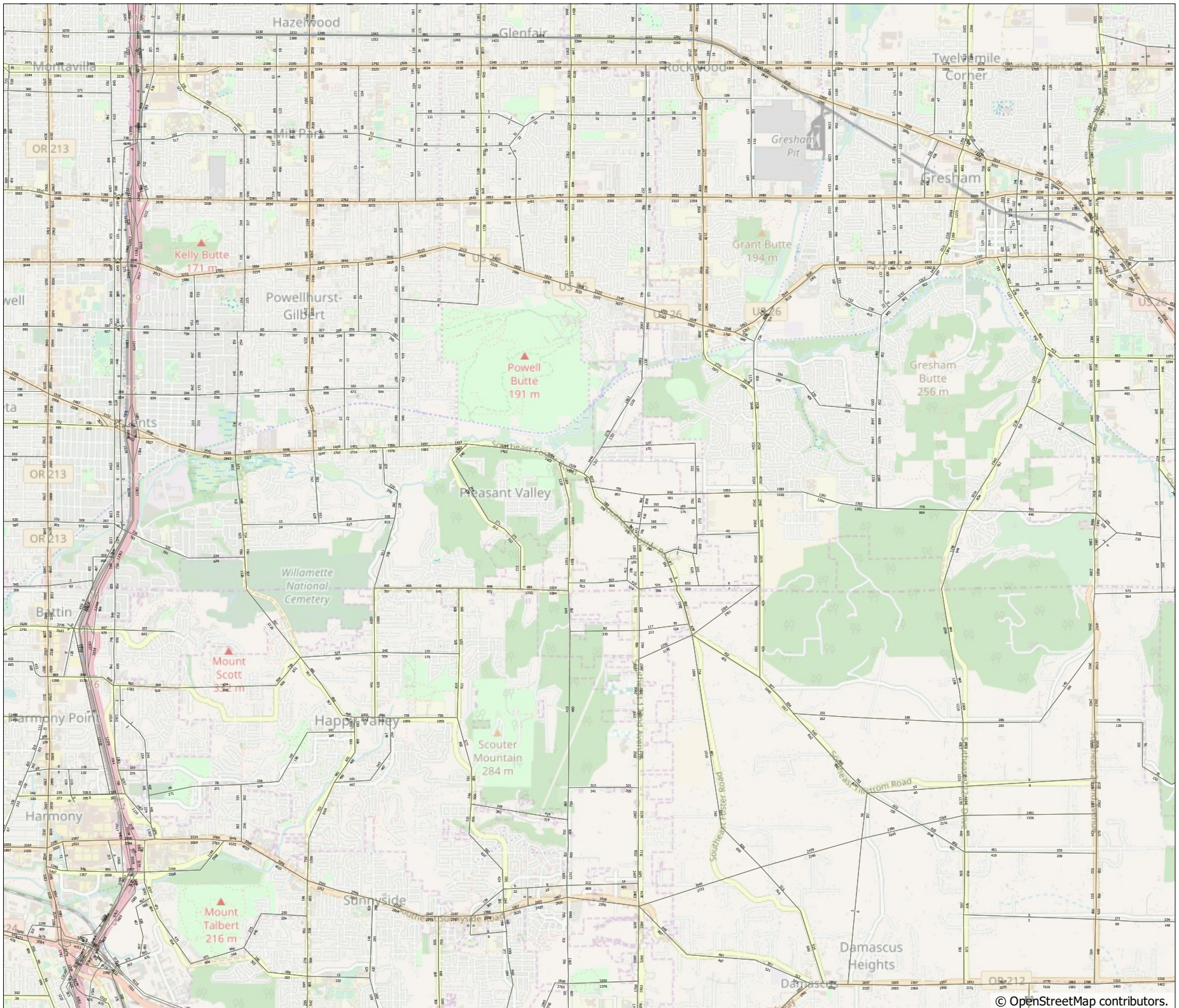












Appendix G Signal Warrant Analysis

Signal Warrant Assessment

Based on 2009 Edition of the MUTCD

Project #: 21593
 Project Name: Pleasant Valley TSP
 Analyst: KZP
 Date: 11/28/2017
 Intersection: SE Foster Road/SE Giese Road
 Scenario: 2040 No-Build Volumes

Volume Adjustment Factor = 1.0
 North-South Approach = Minor
 East-West Approach = Major
 Major Street Thru Lanes = 1
 Minor Street Thru Lanes = 1
 Speed > 40 mph? Yes
 Population < 10,000? No
 Warrant Factor 70%
 Peak Hour or Daily Count? Peak Hour

Warrant Summary

Warrant	Name	Analyzed?	Met?
#1	Eight-Highest	Yes	Yes
#2	Four-Hour	Yes	Yes
#3	Peak Hour	Yes	Yes

**This signal warrant shall be applied only in unusual cases, such as office complexes, manufacturing plants, industrial complexes, or high-occupancy vehicle facilities that attract or discharge large numbers of vehicles over a short time.*

Select Type Of Major Street Approach From Dropdown Menu

Urban Minor Arterial

Select Type Of Minor Street Approach From Dropdown Menu

Rural Major Collector

Note: traffic volume profile for weekday (if weekend is desired, tab "vol profile" needs to be adjusted)

Hour		Traffic Volumes				Major St. Adj. Factor	Minor St. Adj. Factor
Begin	End	Major Street		Minor Street			
		EB	WB	NB	SB		
5:00 PM	6:00 PM	857	485	231	0	1.00	1.00
2nd Highest Hour		811	459	206	0	0.95	0.89
3rd Highest Hour		800	453	179	0	0.93	0.77
4th Highest Hour		766	433	176	0	0.89	0.76
5th Highest Hour		754	427	156	0	0.88	0.68
6th Highest Hour		754	427	154	0	0.88	0.67
7th Highest Hour		720	407	149	0	0.84	0.65
8th Highest Hour		708	401	137	0	0.83	0.59
9th Highest Hour		686	388	129	0	0.80	0.56
10th Highest Hour		640	362	124	0	0.75	0.54
11th Highest Hour		617	349	122	0	0.72	0.53
12th Highest Hour		606	343	122	0	0.71	0.53
13th Highest Hour		583	330	119	0	0.68	0.52
14th Highest Hour		503	285	99	0	0.59	0.43
15th Highest Hour		400	226	97	0	0.47	0.42
16th Highest Hour		377	213	70	0	0.44	0.30
17th Highest Hour		263	149	70	0	0.31	0.30
18th Highest Hour		217	123	47	0	0.25	0.20
19th Highest Hour		114	65	30	0	0.13	0.13
20th Highest Hour		80	45	25	0	0.09	0.11
21st Highest Hour		69	39	12	0	0.08	0.05
22nd Highest Hour		46	26	10	0	0.05	0.04
23rd Highest Hour		23	13	10	0	0.03	0.04
24th Highest Hour		23	13	7	0	0.03	0.03

Data Input

Traffic Volumes						Calculations			
Hour		Major Street		Minor Street		Combined Major Street	Higher Minor Street	Threshold	Is Threshold Met?
Begin	End	EB	WB	NB	SB				
5:00 PM	6:00 PM	857	485	231	0	1342	231	75	Yes
2nd Highest Hour		811	459	206	0	1270	206	75	Yes
3rd Highest Hour		800	453	179	0	1253	179	75	Yes
4th Highest Hour		766	433	176	0	1199	176	75	Yes
5th Highest Hour		754	427	156	0	1181	156	75	Yes
6th Highest Hour		754	427	154	0	1181	154	75	Yes
7th Highest Hour		720	407	149	0	1127	149	75	Yes
8th Highest Hour		708	401	137	0	1109	137	75	Yes
9th Highest Hour		686	388	129	0	1074	129	77	Yes
10th Highest Hour		640	362	124	0	1002	124	83	Yes
11th Highest Hour		617	349	122	0	966	122	88	Yes
12th Highest Hour		606	343	122	0	948	122	90	Yes
13th Highest Hour		583	330	119	0	913	119	96	Yes
14th Highest Hour		503	285	99	0	787	99	121	No
15th Highest Hour		400	226	97	0	626	97	168	No
16th Highest Hour		377	213	70	0	590	70	181	No
17th Highest Hour		263	149	70	0	412	70	255	No
18th Highest Hour		217	123	47	0	340	47	290	No
19th Highest Hour		114	65	30	0	179	30	381	No
20th Highest Hour		80	45	25	0	125	25	415	No
21st Highest Hour		69	39	12	0	107	12	426	No
22nd Highest Hour		46	26	10	0	72	10	450	No
23rd Highest Hour		23	13	10	0	36	10	475	No
24th Highest Hour		23	13	7	0	36	7	475	No

13

Number of lanes for moving traffic on each approach (Major Street) 1
 Number of lanes for moving traffic on each approach (Minor Street) 1
 Warrant Factor 70%
 Row Index for VLOOKUP 5

Lookup Table

Index	Major Street	Minor Street	Break Point	x ²	x	c	alt
1	1	1	1490	0.00021	0.74456	737.483	100
2	2 or more	1	1940	0.00016	0.69501	820.599	100
3	2 or more	2 or more	1670	0.00021	0.88413	1051.357	150
4	1	2 or more	1490	0.00018	0.74004	840.841	150
5	1	1	1090	0.00030	0.72083	500.179	75
6	2 or more	1	1290	0.00027	0.74307	590.636	75
7	2 or more	2 or more	1190	0.00030	0.88720	740.149	100
8	1	2 or more	1090	0.00033	0.83500	619.667	100

70% Factor 100% Factor

Is Warrant #3 met based on the applicable warrant factor?

Yes

Condition A Criteria

	NB	SB
Total Stopped Delay Per Vehicle On Minor Approach (sec)	212.5	0.0
Number Of Lanes On Minor Street Approach	1	0
Vehicle-Hours Of Stopped Delay On Minor Approach	13.64	0.00
	Yes	No
Volume on Minor Street Approach During Same Hour	231	0
	Yes	No
Total Entering Volume On All Approaches During Same Hour	1573	
Number of Approaches to Intersection	3	
	Yes	

Is Warrant #3 met based on Condition A criteria?

Yes

Signal Warrant Assessment

Based on 2009 Edition of the MUTCD

Project #: 21593
 Project Name: Pleasant Valley TSP
 Analyst: KZP
 Date: 11/28/2017
 Intersection: SE Giese Road/SE 172nd Avenue
 Scenario: 2040 No-Build Volumes

Volume Adjustment Factor = 1.0
 North-South Approach = Minor
 East-West Approach = Major
 Major Street Thru Lanes = 1
 Minor Street Thru Lanes = 1
 Speed > 40 mph? No
 Population < 10,000? No
 Warrant Factor 100%
 Peak Hour or Daily Count? Peak Hour

Warrant Summary

Warrant	Name	Analyzed?	Met?
#1	Eight-Highest	Yes	Yes
#2	Four-Hour	Yes	Yes
#3	Peak Hour	Yes	Yes

**This signal warrant shall be applied only in unusual cases, such as office complexes, manufacturing plants, industrial complexes, or high-occupancy vehicle facilities that attract or discharge large numbers of vehicles over a short time.*

Select Type Of Major Street Approach From Dropdown Menu

Urban Minor Arterial

Select Type Of Minor Street Approach From Dropdown Menu

Rural Major Collector

Note: traffic volume profile for weekday (if weekend is desired, tab "vol profile" needs to be adjusted)

Hour		Traffic Volumes				Major St. Adj. Factor	Minor St. Adj. Factor
Begin	End	Major Street		Minor Street			
		EB	WB	NB	SB		
5:00 PM	6:00 PM	564	429	444	0	1.00	1.00
2nd Highest Hour		534	406	396	0	0.95	0.89
3rd Highest Hour		526	400	344	0	0.93	0.77
4th Highest Hour		504	383	339	0	0.89	0.76
5th Highest Hour		496	378	301	0	0.88	0.68
6th Highest Hour		496	378	296	0	0.88	0.67
7th Highest Hour		474	360	286	0	0.84	0.65
8th Highest Hour		466	355	263	0	0.83	0.59
9th Highest Hour		451	343	248	0	0.80	0.56
10th Highest Hour		421	320	239	0	0.75	0.54
11th Highest Hour		406	309	234	0	0.72	0.53
12th Highest Hour		399	303	234	0	0.71	0.53
13th Highest Hour		384	292	229	0	0.68	0.52
14th Highest Hour		331	252	191	0	0.59	0.43
15th Highest Hour		263	200	186	0	0.47	0.42
16th Highest Hour		248	189	134	0	0.44	0.30
17th Highest Hour		173	132	134	0	0.31	0.30
18th Highest Hour		143	109	91	0	0.25	0.20
19th Highest Hour		75	57	57	0	0.13	0.13
20th Highest Hour		53	40	48	0	0.09	0.11
21st Highest Hour		45	34	24	0	0.08	0.05
22nd Highest Hour		30	23	19	0	0.05	0.04
23rd Highest Hour		15	11	19	0	0.03	0.04
24th Highest Hour		15	11	14	0	0.03	0.03

Data Input

Traffic Volumes						Calculations			
Hour		Major Street		Minor Street		Combined Major Street	Higher Minor Street	Threshold	Is Threshold Met?
Begin	End	EB	WB	NB	SB				
5:00 PM	6:00 PM	564	429	444	0	993	444	209	Yes
2nd Highest Hour		534	406	396	0	940	396	227	Yes
3rd Highest Hour		526	400	344	0	927	344	231	Yes
4th Highest Hour		504	383	339	0	887	339	245	Yes
5th Highest Hour		496	378	301	0	874	301	250	Yes
6th Highest Hour		496	378	296	0	874	296	250	Yes
7th Highest Hour		474	360	286	0	834	286	265	Yes
8th Highest Hour		466	355	263	0	821	263	270	No
9th Highest Hour		451	343	248	0	794	248	281	No
10th Highest Hour		421	320	239	0	741	239	303	No
11th Highest Hour		406	309	234	0	715	234	315	No
12th Highest Hour		399	303	234	0	702	234	320	No
13th Highest Hour		384	292	229	0	675	229	332	No
14th Highest Hour		331	252	191	0	583	191	376	No
15th Highest Hour		263	200	186	0	463	186	438	No
16th Highest Hour		248	189	134	0	437	134	453	No
17th Highest Hour		173	132	134	0	305	134	531	No
18th Highest Hour		143	109	91	0	252	91	564	No
19th Highest Hour		75	57	57	0	132	57	643	No
20th Highest Hour		53	40	48	0	93	48	670	No
21st Highest Hour		45	34	24	0	79	24	680	No
22nd Highest Hour		30	23	19	0	53	19	699	No
23rd Highest Hour		15	11	19	0	26	19	718	No
24th Highest Hour		15	11	14	0	26	14	718	No

7

Number of lanes for moving traffic on each approach (Major Street)	1
Number of lanes for moving traffic on each approach (Minor Street)	1
Warrant Factor	100%
Row Index for VLOOKUP	1

Lookup Table

Index	Major Street	Minor Street	Break Point	x ²	x	c	alt
1	1	1	1490	0.00021	0.74456	737.483	100
2	2 or more	1	1940	0.00016	0.69501	820.599	100
3	2 or more	2 or more	1670	0.00021	0.88413	1051.357	150
4	1	2 or more	1490	0.00018	0.74004	840.841	150
5	1	1	1090	0.00030	0.72083	500.179	75
6	2 or more	1	1290	0.00027	0.74307	590.636	75
7	2 or more	2 or more	1190	0.00030	0.88720	740.149	100
8	1	2 or more	1090	0.00033	0.83500	619.667	100

70% Factor 100% Factor

Is Warrant #3 met based on the applicable warrant factor?

Yes

Condition A Criteria

	NB	SB
Total Stopped Delay Per Vehicle On Minor Approach (sec)	729.9	0.0
Number Of Lanes On Minor Street Approach	1	1
Vehicle-Hours Of Stopped Delay On Minor Approach	90.02	0.00
	Yes	No
Volume on Minor Street Approach During Same Hour	444	0
	Yes	No
Total Entering Volume On All Approaches During Same Hour	1437	
Number of Approaches to Intersection	3	
	Yes	

Is Warrant #3 met based on Condition A criteria?

Yes

Signal Warrant Assessment

Based on 2009 Edition of the MUTCD

Project #: 21593
 Project Name: Pleasant Valley TSP
 Analyst: KZP
 Date: 11/28/2017
 Intersection: SE Giese Road/SE 172nd Avenue
 Scenario: 2040 No-Build Volumes

Volume Adjustment Factor = 1.0
 North-South Approach = Major
 East-West Approach = Minor
 Major Street Thru Lanes = 2
 Minor Street Thru Lanes = 1
 Speed > 40 mph? No
 Population < 10,000? No
 Warrant Factor 100%
 Peak Hour or Daily Count? Peak Hour

Warrant Summary

Warrant	Name	Analyzed?	Met?
#1	Eight-Highest	Yes	Yes
#2	Four-Hour	Yes	Yes
#3	Peak Hour	Yes	Yes

**This signal warrant shall be applied only in unusual cases, such as office complexes, manufacturing plants, industrial complexes, or high-occupancy vehicle facilities that attract or discharge large numbers of vehicles over a short time.*

Select Type Of Major Street Approach From Dropdown Menu

Urban Minor Arterial

Select Type Of Minor Street Approach From Dropdown Menu

Rural Major Collector

Note: traffic volume profile for weekday (if weekend is desired, tab "vol profile" needs to be adjusted)

Hour		Traffic Volumes				Major St. Adj. Factor	Minor St. Adj. Factor
Begin	End	Major Street		Minor Street			
		NB	SB	EB	WB		
5:00 PM	6:00 PM	1050	1325	412	628	1.00	1.00
2nd Highest Hour		994	1254	368	560	0.95	0.89
3rd Highest Hour		980	1237	319	486	0.93	0.77
4th Highest Hour		938	1184	315	479	0.89	0.76
5th Highest Hour		924	1166	279	425	0.88	0.68
6th Highest Hour		924	1166	275	419	0.88	0.67
7th Highest Hour		882	1113	266	405	0.84	0.65
8th Highest Hour		868	1095	244	371	0.83	0.59
9th Highest Hour		840	1060	230	351	0.80	0.56
10th Highest Hour		784	989	222	338	0.75	0.54
11th Highest Hour		756	954	217	331	0.72	0.53
12th Highest Hour		742	936	217	331	0.71	0.53
13th Highest Hour		714	901	213	324	0.68	0.52
14th Highest Hour		616	777	177	270	0.59	0.43
15th Highest Hour		490	618	173	263	0.47	0.42
16th Highest Hour		462	583	124	189	0.44	0.30
17th Highest Hour		322	406	124	189	0.31	0.30
18th Highest Hour		266	336	84	128	0.25	0.20
19th Highest Hour		140	177	53	81	0.13	0.13
20th Highest Hour		98	124	44	68	0.09	0.11
21st Highest Hour		84	106	22	34	0.08	0.05
22nd Highest Hour		56	71	18	27	0.05	0.04
23rd Highest Hour		28	35	18	27	0.03	0.04
24th Highest Hour		28	35	13	20	0.03	0.03

Data Input

Traffic Volumes						Calculations			
Hour		Major Street		Minor Street		Combined Major Street	Higher Minor Street	Threshold	Is Threshold Met?
Begin	End	NB	SB	EB	WB				
5:00 PM	6:00 PM	1050	1325	412	628	2375	628	100	Yes
2nd Highest Hour		994	1254	368	560	2248	560	100	Yes
3rd Highest Hour		980	1237	319	486	2217	486	100	Yes
4th Highest Hour		938	1184	315	479	2122	479	100	Yes
5th Highest Hour		924	1166	279	425	2090	425	100	Yes
6th Highest Hour		924	1166	275	419	2090	419	100	Yes
7th Highest Hour		882	1113	266	405	1995	405	100	Yes
8th Highest Hour		868	1095	244	371	1963	371	100	Yes
9th Highest Hour		840	1060	230	351	1900	351	78	Yes
10th Highest Hour		784	989	222	338	1773	338	91	Yes
11th Highest Hour		756	954	217	331	1710	331	100	Yes
12th Highest Hour		742	936	217	331	1678	331	105	Yes
13th Highest Hour		714	901	213	324	1615	324	115	Yes
14th Highest Hour		616	777	177	270	1393	270	163	Yes
15th Highest Hour		490	618	173	263	1108	263	247	Yes
16th Highest Hour		462	583	124	189	1045	189	269	No
17th Highest Hour		322	406	124	189	728	189	399	No
18th Highest Hour		266	336	84	128	602	128	460	No
19th Highest Hour		140	177	53	81	317	81	617	No
20th Highest Hour		98	124	44	68	222	68	674	No
21st Highest Hour		84	106	22	34	190	34	694	No
22nd Highest Hour		56	71	18	27	127	27	735	No
23rd Highest Hour		28	35	18	27	63	27	777	No
24th Highest Hour		28	35	13	20	63	20	777	No

15

Number of lanes for moving traffic on each approach (Major Street) 2
 Number of lanes for moving traffic on each approach (Minor Street) 1
 Warrant Factor 100%
 Row Index for VLOOKUP 2

Lookup Table

Index	Major Street	Minor Street	Break Point	x ²	x	c	alt
1	1	1	1490	0.00021	0.74456	737.483	100
2	2 or more	1	1940	0.00016	0.69501	820.599	100
3	2 or more	2 or more	1670	0.00021	0.88413	1051.357	150
4	1	2 or more	1490	0.00018	0.74004	840.841	150
5	1	1	1090	0.00030	0.72083	500.179	75
6	2 or more	1	1290	0.00027	0.74307	590.636	75
7	2 or more	2 or more	1190	0.00030	0.88720	740.149	100
8	1	2 or more	1090	0.00033	0.83500	619.667	100

70% Factor 100% Factor

Is Warrant #3 met based on the applicable warrant factor?

Yes

Condition A Criteria

	EB	WB
Total Stopped Delay Per Vehicle On Minor Approach (sec)	158.0	205.2
Number Of Lanes On Minor Street Approach	1	1
Vehicle-Hours Of Stopped Delay On Minor Approach	18.08	35.80
	Yes	Yes
Volume on Minor Street Approach During Same Hour	412	628
	Yes	Yes
Total Entering Volume On All Approaches During Same Hour	3415	
Number of Approaches to Intersection	4	
	Yes	

Is Warrant #3 met based on Condition A criteria?

Yes

Signal Warrant Assessment

Based on 2009 Edition of the MUTCD

Project #: 21593
 Project Name: Pleasant Valley TSP
 Analyst: KZP
 Date: 11/28/2017
 Intersection: SE Foster Road/SE 172nd Avneue
 Scenario: 2040 No-Build Volumes

Volume Adjustment Factor = 1.0
 North-South Approach = Major
 East-West Approach = Minor
 Major Street Thru Lanes = 1
 Minor Street Thru Lanes = 1
 Speed > 40 mph? No
 Population < 10,000? No
 Warrant Factor 100%
 Peak Hour or Daily Count? Peak Hour

Warrant Summary

Warrant	Name	Analyzed?	Met?
#1	Eight-Highest	Yes	Yes
#2	Four-Hour	Yes	Yes
#3	Peak Hour	Yes	Yes

**This signal warrant shall be applied only in unusual cases, such as office complexes, manufacturing plants, industrial complexes, or high-occupancy vehicle facilities that attract or discharge large numbers of vehicles over a short time.*

Select Type Of Major Street Approach From Dropdown Menu

Urban Minor Arterial

Select Type Of Minor Street Approach From Dropdown Menu

Rural Major Collector

Note: traffic volume profile for weekday (if weekend is desired, tab "vol profile" needs to be adjusted)

Hour		Traffic Volumes				Major St. Adj. Factor	Minor St. Adj. Factor
Begin	End	Major Street		Minor Street			
		NB	SB	EB	WB		
5:00 PM	6:00 PM	291	501	412	173	1.00	1.00
2nd Highest Hour		275	474	368	154	0.95	0.89
3rd Highest Hour		272	468	319	134	0.93	0.77
4th Highest Hour		260	448	315	132	0.89	0.76
5th Highest Hour		256	441	279	117	0.88	0.68
6th Highest Hour		256	441	275	115	0.88	0.67
7th Highest Hour		244	421	266	112	0.84	0.65
8th Highest Hour		241	414	244	102	0.83	0.59
9th Highest Hour		233	401	230	97	0.80	0.56
10th Highest Hour		217	374	222	93	0.75	0.54
11th Highest Hour		210	361	217	91	0.72	0.53
12th Highest Hour		206	354	217	91	0.71	0.53
13th Highest Hour		198	341	213	89	0.68	0.52
14th Highest Hour		171	294	177	74	0.59	0.43
15th Highest Hour		136	234	173	73	0.47	0.42
16th Highest Hour		128	220	124	52	0.44	0.30
17th Highest Hour		89	154	124	52	0.31	0.30
18th Highest Hour		74	127	84	35	0.25	0.20
19th Highest Hour		39	67	53	22	0.13	0.13
20th Highest Hour		27	47	44	19	0.09	0.11
21st Highest Hour		23	40	22	9	0.08	0.05
22nd Highest Hour		16	27	18	7	0.05	0.04
23rd Highest Hour		8	13	18	7	0.03	0.04
24th Highest Hour		8	13	13	6	0.03	0.03

Data Input

Traffic Volumes						Calculations			
Hour		Major Street		Minor Street		Combined Major Street	Higher Minor Street	Threshold	Is Threshold Met?
Begin	End	NB	SB	EB	WB				
5:00 PM	6:00 PM	291	501	412	173	792	412	282	Yes
2nd Highest Hour		275	474	368	154	750	368	300	Yes
3rd Highest Hour		272	468	319	134	739	319	304	Yes
4th Highest Hour		260	448	315	132	708	315	318	No
5th Highest Hour		256	441	279	117	697	279	323	No
6th Highest Hour		256	441	275	115	697	275	323	No
7th Highest Hour		244	421	266	112	665	266	337	No
8th Highest Hour		241	414	244	102	655	244	342	No
9th Highest Hour		233	401	230	97	634	230	352	No
10th Highest Hour		217	374	222	93	591	222	372	No
11th Highest Hour		210	361	217	91	570	217	382	No
12th Highest Hour		206	354	217	91	560	217	388	No
13th Highest Hour		198	341	213	89	539	213	399	No
14th Highest Hour		171	294	177	74	465	177	438	No
15th Highest Hour		136	234	173	73	370	173	492	No
16th Highest Hour		128	220	124	52	348	124	504	No
17th Highest Hour		89	154	124	52	243	124	569	No
18th Highest Hour		74	127	84	35	201	84	597	No
19th Highest Hour		39	67	53	22	106	53	661	No
20th Highest Hour		27	47	44	19	74	44	684	No
21st Highest Hour		23	40	22	9	63	22	691	No
22nd Highest Hour		16	27	18	7	42	18	706	No
23rd Highest Hour		8	13	18	7	21	18	722	No
24th Highest Hour		8	13	13	6	21	13	722	No

3

Number of lanes for moving traffic on each approach (Major Street) 1
 Number of lanes for moving traffic on each approach (Minor Street) 1
 Warrant Factor 100%
 Row Index for VLOOKUP 1

Lookup Table

Index	Major Street	Minor Street	Break Point	x ²	x	c	alt
1	1	1	1490	0.00021	0.74456	737.483	100
2	2 or more	1	1940	0.00016	0.69501	820.599	100
3	2 or more	2 or more	1670	0.00021	0.88413	1051.357	150
4	1	2 or more	1490	0.00018	0.74004	840.841	150
5	1	1	1090	0.00030	0.72083	500.179	75
6	2 or more	1	1290	0.00027	0.74307	590.636	75
7	2 or more	2 or more	1190	0.00030	0.88720	740.149	100
8	1	2 or more	1090	0.00033	0.83500	619.667	100

70% Factor 100% Factor

Is Warrant #3 met based on the applicable warrant factor?

Yes

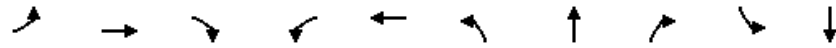
Condition A Criteria

	EB	WB
Total Stopped Delay Per Vehicle On Minor Approach (sec)	500.0	500.0
Number Of Lanes On Minor Street Approach	1	1
Vehicle-Hours Of Stopped Delay On Minor Approach	57.22	24.03
	Yes	Yes
Volume on Minor Street Approach During Same Hour	412	173
	Yes	Yes
Total Entering Volume On All Approaches During Same Hour	1377	
Number of Approaches to Intersection	4	
	Yes	

Is Warrant #3 met based on Condition A criteria?

Yes



























Appendix H Future Planned Traffic Conditions



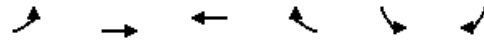
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	73	575	317	78	883	268	311	375	20	243
v/c Ratio	1.04	0.42	0.33	0.61	1.11	1.13	0.63	0.54	0.43	0.93
Control Delay	181.2	26.3	2.6	80.9	99.0	148.9	48.6	15.6	92.5	96.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	181.2	26.3	2.6	80.9	99.0	148.9	48.6	15.6	92.5	96.0
Queue Length 50th (ft)	~72	181	8	69	~919	~282	250	110	18	212
Queue Length 95th (ft)	#179	238	45	125	#1177	#466	360	207	#51	#379
Internal Link Dist (ft)		586			513		2445			560
Turn Bay Length (ft)	100			100		150		90	50	
Base Capacity (vph)	70	1376	955	158	797	238	495	718	47	265
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.04	0.42	0.33	0.49	1.11	1.13	0.63	0.52	0.43	0.92

Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 						 	
Traffic Volume (vph)	67	529	292	72	768	44	247	286	345	18	171	52
Future Volume (vph)	67	529	292	72	768	44	247	286	345	18	171	52
Ideal Flow (vphpl)	1650	1650	1650	1650	1650	1650	1650	1650	1650	1650	1650	1650
Grade (%)		3%			-2%			-1%			1%	
Total Lost time (s)	3.5	5.3	5.3	3.5	5.3		3.5	5.0	5.0	3.5	5.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	0.99	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Frt	1.00	1.00	0.85	1.00	0.99		1.00	1.00	0.85	1.00	0.96	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1514	2941	1316	1508	1570		1544	1579	1355	1485	1493	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1514	2941	1316	1508	1570		1544	1579	1355	1485	1493	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	73	575	317	78	835	48	268	311	375	20	186	57
RTOR Reduction (vph)	0	0	102	0	1	0	0	0	120	0	8	0
Lane Group Flow (vph)	73	575	215	78	882	0	268	311	255	20	235	0
Confl. Peds. (#/hr)	7		10	10		7	8		23	23		8
Confl. Bikes (#/hr)						1			1			
Heavy Vehicles (%)	2%	5%	5%	5%	5%	5%	2%	5%	4%	5%	5%	5%
Turn Type	Prot	NA	pt+ov	Prot	NA		Prot	NA	pt+ov	Prot	NA	
Protected Phases	5	2	2 3	1	6		3	8	8 1	7	4	
Permitted Phases												
Actuated Green, G (s)	6.5	65.3	92.1	11.9	70.7		21.5	43.8	60.7	2.7	25.0	
Effective Green, g (s)	6.5	65.3	92.1	11.9	70.7		21.5	43.8	60.7	2.7	25.0	
Actuated g/C Ratio	0.05	0.46	0.65	0.08	0.50		0.15	0.31	0.43	0.02	0.18	
Clearance Time (s)	3.5	5.3		3.5	5.3		3.5	5.0		3.5	5.0	
Vehicle Extension (s)	3.0	4.0		3.0	4.0		3.0	3.5		3.0	3.5	
Lane Grp Cap (vph)	69	1362	859	127	787		235	490	583	28	264	
v/s Ratio Prot	c0.05	0.20	0.16	0.05	c0.56		c0.17	0.20	0.19	0.01	c0.16	
v/s Ratio Perm												
v/c Ratio	1.06	0.42	0.25	0.61	1.12		1.14	0.63	0.44	0.71	0.89	
Uniform Delay, d1	67.2	25.3	10.1	62.3	35.1		59.8	41.7	28.2	68.8	56.6	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	125.2	0.3	0.2	8.5	70.4		101.8	2.8	0.6	60.5	28.8	
Delay (s)	192.5	25.5	10.4	70.8	105.6		161.6	44.5	28.8	129.3	85.4	
Level of Service	F	C	B	E	F		F	D	C	F	F	
Approach Delay (s)		33.2			102.7			71.2			88.7	
Approach LOS		C			F			E			F	
Intersection Summary												
HCM 2000 Control Delay			70.6			HCM 2000 Level of Service			E			
HCM 2000 Volume to Capacity ratio			1.07									
Actuated Cycle Length (s)			141.0			Sum of lost time (s)		17.3				
Intersection Capacity Utilization			100.5%			ICU Level of Service		G				
Analysis Period (min)			15									

c Critical Lane Group



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group Flow (vph)	487	354	403	239	243	435
v/c Ratio	0.74	0.34	0.80	0.41	0.82	0.87
Control Delay	20.1	7.8	44.2	7.0	59.1	31.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	20.1	7.8	44.2	7.0	59.1	31.7
Queue Length 50th (ft)	121	68	224	5	135	80
Queue Length 95th (ft)	#391	171	405	66	255	241
Internal Link Dist (ft)		389	585		596	
Turn Bay Length (ft)	250			190		75
Base Capacity (vph)	742	1301	740	747	563	687
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.66	0.27	0.54	0.32	0.43	0.63

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	458	333	379	225	228	409
Future Volume (vph)	458	333	379	225	228	409
Ideal Flow (vphpl)	1650	1650	1650	1650	1650	1650
Grade (%)		5%	-5%		-2%	
Total Lost time (s)	3.0	5.0	5.0	5.0	5.0	5.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frbp, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Fr _t	1.00	1.00	1.00	0.85	1.00	0.85
Fl _t Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1484	1532	1626	1369	1508	1349
Fl _t Permitted	0.26	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	408	1532	1626	1369	1508	1349
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	487	354	403	239	243	435
RTOR Reduction (vph)	0	0	0	155	0	235
Lane Group Flow (vph)	487	354	403	84	243	200
Confl. Peds. (#/hr)					1	
Heavy Vehicles (%)	3%	5%	4%	5%	5%	5%
Turn Type	pm+pt	NA	NA	Perm	Prot	Perm
Protected Phases	5	2	6		4	
Permitted Phases	2			6		4
Actuated Green, G (s)	62.3	62.3	28.4	28.4	17.7	17.7
Effective Green, g (s)	62.3	62.3	28.4	28.4	17.7	17.7
Actuated g/C Ratio	0.69	0.69	0.32	0.32	0.20	0.20
Clearance Time (s)	3.0	5.0	5.0	5.0	5.0	5.0
Vehicle Extension (s)	0.5	0.5	0.5	0.5	0.5	0.5
Lane Grp Cap (vph)	651	1060	513	431	296	265
v/s Ratio Prot	c0.26	0.23	0.25		c0.16	
v/s Ratio Perm	c0.26			0.06		0.15
v/c Ratio	0.75	0.33	0.79	0.19	0.82	0.75
Uniform Delay, d1	11.9	5.5	28.0	22.5	34.6	34.1
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	4.1	0.1	7.2	0.1	15.8	10.3
Delay (s)	16.1	5.6	35.2	22.5	50.4	44.3
Level of Service	B	A	D	C	D	D
Approach Delay (s)		11.7	30.5		46.5	
Approach LOS		B	C		D	
Intersection Summary						
HCM 2000 Control Delay			28.2		HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio			0.79			
Actuated Cycle Length (s)			90.0		Sum of lost time (s)	13.0
Intersection Capacity Utilization			78.4%		ICU Level of Service	D
Analysis Period (min)			15			
c Critical Lane Group						



Lane Group	EBT	WBT	NBL	NBR
Lane Group Flow (vph)	626	386	225	76
v/c Ratio	0.72	0.45	0.55	0.18
Control Delay	13.2	9.2	20.9	5.7
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	13.2	9.2	20.9	5.7
Queue Length 50th (ft)	83	51	43	0
Queue Length 95th (ft)	241	131	122	24
Internal Link Dist (ft)	585	1729	2732	
Turn Bay Length (ft)				150
Base Capacity (vph)	1159	1194	638	626
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.54	0.32	0.35	0.12

Intersection Summary



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↔			↔	↔	↔
Traffic Volume (vph)	329	247	0	355	207	70
Future Volume (vph)	329	247	0	355	207	70
Ideal Flow (vphpl)	1650	1650	1650	1650	1650	1650
Grade (%)	-5%			0%	-5%	
Total Lost time (s)	4.5			4.5	4.5	4.5
Lane Util. Factor	1.00			1.00	1.00	1.00
Fr _t	0.94			1.00	1.00	0.85
Fl _t Protected	1.00			1.00	0.95	1.00
Satd. Flow (prot)	1536			1618	1545	1409
Fl _t Permitted	1.00			1.00	0.95	1.00
Satd. Flow (perm)	1536			1618	1545	1409
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	358	268	0	386	225	76
RTOR Reduction (vph)	46	0	0	0	0	56
Lane Group Flow (vph)	580	0	0	386	225	20
Heavy Vehicles (%)	2%	6%	2%	2%	4%	2%
Turn Type	NA			NA	Prot	Perm
Protected Phases	2			6	4	
Permitted Phases			6			4
Actuated Green, G (s)	24.5			24.5	12.1	12.1
Effective Green, g (s)	24.5			24.5	12.1	12.1
Actuated g/C Ratio	0.54			0.54	0.27	0.27
Clearance Time (s)	4.5			4.5	4.5	4.5
Vehicle Extension (s)	3.0			3.0	3.0	3.0
Lane Grp Cap (vph)	825			869	409	373
v/s Ratio Prot	c0.38			0.24	c0.15	
v/s Ratio Perm						0.01
v/c Ratio	0.70			0.44	0.55	0.05
Uniform Delay, d ₁	7.8			6.4	14.4	12.5
Progression Factor	1.00			1.00	1.00	1.00
Incremental Delay, d ₂	2.7			0.4	1.6	0.1
Delay (s)	10.6			6.8	16.0	12.5
Level of Service	B			A	B	B
Approach Delay (s)	10.6			6.8	15.1	
Approach LOS	B			A	B	

Intersection Summary

HCM 2000 Control Delay	10.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	45.6	Sum of lost time (s)	9.0
Intersection Capacity Utilization	58.0%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	220	223	124	194	199	223
v/c Ratio	0.41	0.37	0.25	0.23	0.50	0.43
Control Delay	15.7	4.5	7.4	7.0	18.6	5.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	15.7	4.5	7.4	7.0	18.6	5.5
Queue Length 50th (ft)	42	0	13	21	38	0
Queue Length 95th (ft)	102	37	41	60	98	39
Internal Link Dist (ft)	1729			4672	1969	
Turn Bay Length (ft)		150	150			150
Base Capacity (vph)	728	741	496	1132	691	741
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.30	0.30	0.25	0.17	0.29	0.30













Intersection Summary

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↗	↘	↑	↘	↗
Traffic Volume (vph)	198	201	112	175	179	201
Future Volume (vph)	198	201	112	175	179	201
Ideal Flow (vphpl)	1650	1650	1650	1650	1650	1650
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	1618	1375	1537	1618	1537	1375
Flt Permitted	1.00	1.00	0.47	1.00	0.95	1.00
Satd. Flow (perm)	1618	1375	756	1618	1537	1375
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	220	223	124	194	199	223
RTOR Reduction (vph)	0	151	0	0	0	166
Lane Group Flow (vph)	220	72	124	194	199	57
Turn Type	NA	Perm	pm+pt	NA	Prot	Perm
Protected Phases	4		3	8	2	
Permitted Phases		4	8			2
Actuated Green, G (s)	13.7	13.7	22.4	22.4	10.8	10.8
Effective Green, g (s)	13.7	13.7	22.4	22.4	10.8	10.8
Actuated g/C Ratio	0.32	0.32	0.53	0.53	0.26	0.26
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	525	446	479	858	393	351
v/s Ratio Prot	c0.14		0.03	c0.12	c0.13	
v/s Ratio Perm		0.05	0.11			0.04
v/c Ratio	0.42	0.16	0.26	0.23	0.51	0.16
Uniform Delay, d1	11.1	10.2	5.3	5.3	13.4	12.2
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.5	0.2	0.3	0.1	1.0	0.2
Delay (s)	11.7	10.3	5.6	5.4	14.5	12.4
Level of Service	B	B	A	A	B	B
Approach Delay (s)	11.0			5.5	13.4	
Approach LOS	B			A	B	

Intersection Summary

HCM 2000 Control Delay	10.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.44		
Actuated Cycle Length (s)	42.2	Sum of lost time (s)	13.5
Intersection Capacity Utilization	41.8%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	170	249	16	161	193	214	11	1079	147	259	676	115
v/c Ratio	0.57	0.83	0.05	0.62	0.65	0.50	0.04	0.89	0.26	0.86	0.37	0.13
Control Delay	43.0	76.6	0.3	45.7	63.6	10.8	27.4	47.5	15.3	57.8	15.1	2.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	43.0	76.6	0.3	45.7	63.6	10.8	27.4	47.5	15.3	57.8	15.1	2.5
Queue Length 50th (ft)	123	234	0	116	174	0	6	504	43	170	170	0
Queue Length 95th (ft)	190	#373	0	180	264	75	21	612	97	#321	214	26
Internal Link Dist (ft)		4672			562			608			370	
Turn Bay Length (ft)	150		150	150		150	150		150	150		150
Base Capacity (vph)	327	363	367	301	373	476	306	1446	662	349	2178	1008
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.52	0.69	0.04	0.53	0.52	0.45	0.04	0.75	0.22	0.74	0.31	0.11

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	156	229	15	148	178	197	10	993	135	238	622	106
Future Volume (vph)	156	229	15	148	178	197	10	993	135	238	622	106
Ideal Flow (vphpl)	1650	1650	1650	1650	1650	1650	1650	1650	1650	1650	1650	1650
Grade (%)		4%			-2%			4%			-4%	
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1506	1585	1347	1508	1634	1362	1536	3012	1297	1523	3105	1389
Flt Permitted	0.40	1.00	1.00	0.32	1.00	1.00	0.39	1.00	1.00	0.10	1.00	1.00
Satd. Flow (perm)	633	1585	1347	501	1634	1362	638	3012	1297	162	3105	1389
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	170	249	16	161	193	214	11	1079	147	259	676	115
RTOR Reduction (vph)	0	0	13	0	0	175	0	0	45	0	0	47
Lane Group Flow (vph)	170	249	3	161	193	39	11	1079	102	259	676	68
Heavy Vehicles (%)	2%	2%	2%	5%	2%	4%	0%	2%	6%	5%	3%	3%
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8			2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Actuated Green, G (s)	41.1	25.3	25.3	39.1	24.3	24.3	53.7	53.7	53.7	78.3	78.3	78.3
Effective Green, g (s)	41.1	25.3	25.3	39.1	24.3	24.3	53.7	53.7	53.7	78.3	78.3	78.3
Actuated g/C Ratio	0.31	0.19	0.19	0.30	0.18	0.18	0.41	0.41	0.41	0.59	0.59	0.59
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	301	304	258	261	301	250	259	1226	528	303	1843	824
v/s Ratio Prot	0.07	c0.16		c0.07	0.12			0.36		c0.13	0.22	
v/s Ratio Perm	0.11		0.00	0.11		0.03	0.02		0.08	c0.38		0.05
v/c Ratio	0.56	0.82	0.01	0.62	0.64	0.16	0.04	0.88	0.19	0.85	0.37	0.08
Uniform Delay, d1	35.6	51.1	43.2	37.2	49.8	45.2	23.6	36.1	25.2	34.0	13.9	11.5
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	2.4	15.6	0.0	4.3	4.6	0.3	0.1	7.6	0.2	20.3	0.1	0.0
Delay (s)	38.1	66.8	43.2	41.5	54.4	45.5	23.7	43.8	25.3	54.3	14.0	11.5
Level of Service	D	E	D	D	D	D	C	D	C	D	B	B
Approach Delay (s)		54.7			47.4			41.4			23.7	
Approach LOS		D			D			D			C	
Intersection Summary												
HCM 2000 Control Delay			38.5								HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio			0.84									
Actuated Cycle Length (s)			131.9								Sum of lost time (s)	18.0
Intersection Capacity Utilization			85.1%								ICU Level of Service	E
Analysis Period (min)			15									













c Critical Lane Group

	→	←	↑	↓
Lane Group	EBT	WBT	NBT	SBT
Lane Group Flow (vph)	278	227	280	302
v/c Ratio	0.60	0.46	0.43	0.38
Control Delay	13.2	9.7	11.3	7.8
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	13.2	9.7	11.3	7.8
Queue Length 50th (ft)	26	18	33	23
Queue Length 95th (ft)	91	66	106	84
Internal Link Dist (ft)	2732	893	1627	1969
Turn Bay Length (ft)				
Base Capacity (vph)	754	799	759	905
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.37	0.28	0.37	0.33
Intersection Summary				

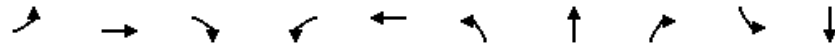
Pleasant Valley TSP Refinement
7: SE 172nd Ave & SE Foster Rd

Future No-Build Conditions, Weekday AM Peak Hour

11/28/2017

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (vph)	129	42	85	52	84	73	79	156	22	21	139	118
Future Volume (vph)	129	42	85	52	84	73	79	156	22	21	139	118
Ideal Flow (vphpl)	1650	1650	1650	1650	1650	1650	1650	1650	1650	1650	1650	1650
Grade (%)		-5%			3%			3%			0%	
Total Lost time (s)		4.5			4.5			4.5			4.5	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Flt		0.96			0.95			0.99			0.94	
Flt Protected		0.98			0.99			0.98			1.00	
Satd. Flow (prot)		1530			1475			1537			1519	
Flt Permitted		0.79			0.88			0.82			0.97	
Satd. Flow (perm)		1238			1311			1285			1472	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	140	46	92	57	91	79	86	170	24	23	151	128
RTOR Reduction (vph)	0	47	0	0	51	0	0	7	0	0	54	0
Lane Group Flow (vph)	0	231	0	0	176	0	0	273	0	0	248	0
Heavy Vehicles (%)	2%	4%	4%	4%	5%	2%	5%	2%	2%	2%	2%	2%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		9.5			9.5			15.0			15.0	
Effective Green, g (s)		9.5			9.5			15.0			15.0	
Actuated g/C Ratio		0.28			0.28			0.45			0.45	
Clearance Time (s)		4.5			4.5			4.5			4.5	
Vehicle Extension (s)		3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)		351			371			575			659	
v/s Ratio Prot												
v/s Ratio Perm		c0.19			0.13			c0.21			0.17	
v/c Ratio		0.66			0.47			0.48			0.38	
Uniform Delay, d1		10.6			9.9			6.5			6.1	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		4.4			1.0			0.6			0.4	
Delay (s)		15.0			10.9			7.1			6.5	
Level of Service		B			B			A			A	
Approach Delay (s)		15.0			10.9			7.1			6.5	
Approach LOS		B			B			A			A	
Intersection Summary												
HCM 2000 Control Delay			9.7					HCM 2000 Level of Service		A		
HCM 2000 Volume to Capacity ratio			0.55									
Actuated Cycle Length (s)			33.5					Sum of lost time (s)		9.0		
Intersection Capacity Utilization			77.0%					ICU Level of Service		D		
Analysis Period (min)			15									

c Critical Lane Group



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	114	844	446	349	755	229	295	347	63	461
v/c Ratio	1.16	0.93	0.66	1.13	1.09	1.19	0.57	0.44	0.57	1.18
Control Delay	196.1	64.8	26.1	142.0	100.5	175.2	46.4	15.7	82.2	148.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	196.1	64.8	26.1	142.0	100.5	175.2	46.4	15.7	82.2	148.5
Queue Length 50th (ft)	~122	393	226	~368	~775	~250	232	131	56	~497
Queue Length 95th (ft)	#252	#521	356	#569	#1026	#422	337	215	107	#717
Internal Link Dist (ft)		586			2406		2445			560
Turn Bay Length (ft)	100			100		150		90	50	
Base Capacity (vph)	98	905	674	308	690	193	516	787	130	391
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.16	0.93	0.66	1.13	1.09	1.19	0.57	0.44	0.48	1.18

Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

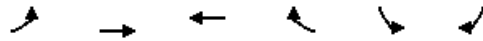
Pleasant Valley TSP Refinement
1: SE 174th Ave & SE Powell Blvd

Future No-Build Conditions, Weekday PM Peak Hour

12/21/2017

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	108	802	424	332	684	33	218	280	330	60	347	91
Future Volume (vph)	108	802	424	332	684	33	218	280	330	60	347	91
Ideal Flow (vphpl)	1650	1650	1650	1650	1650	1650	1650	1650	1650	1650	1650	1650
Grade (%)		3%			-2%			-1%			1%	
Total Lost time (s)	3.5	5.3	5.3	3.5	5.3		3.5	5.0	5.0	3.5	5.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	0.99	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Frt	1.00	1.00	0.85	1.00	0.99		1.00	1.00	0.85	1.00	0.97	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1457	2969	1328	1568	1590		1544	1626	1368	1560	1538	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1457	2969	1328	1568	1590		1544	1626	1368	1560	1538	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	114	844	446	349	720	35	229	295	347	63	365	96
RTOR Reduction (vph)	0	0	68	0	1	0	0	0	49	0	7	0
Lane Group Flow (vph)	114	844	378	349	754	0	229	295	298	63	454	0
Confl. Peds. (#/hr)	5		5	5		5	9		26	26		9
Confl. Bikes (#/hr)						1						
Heavy Vehicles (%)	6%	4%	4%	1%	4%	2%	2%	2%	3%	0%	2%	4%
Turn Type	Prot	NA	pt+ov	Prot	NA		Prot	NA	pt+ov	Prot	NA	
Protected Phases	5	2	2 3	1	6		3	8	8 1	7	4	
Permitted Phases												
Actuated Green, G (s)	9.5	42.7	65.5	27.5	60.7		17.5	44.5	77.0	8.7	35.7	
Effective Green, g (s)	9.5	42.7	65.5	27.5	60.7		17.5	44.5	77.0	8.7	35.7	
Actuated g/C Ratio	0.07	0.30	0.47	0.20	0.43		0.12	0.32	0.55	0.06	0.25	
Clearance Time (s)	3.5	5.3		3.5	5.3		3.5	5.0		3.5	5.0	
Vehicle Extension (s)	3.0	4.0		3.0	4.0		3.0	3.5		3.0	3.5	
Lane Grp Cap (vph)	98	901	618	306	685		192	514	748	96	390	
v/s Ratio Prot	0.08	0.28	0.28	c0.22	c0.47		c0.15	0.18	0.22	0.04	c0.30	
v/s Ratio Perm												
v/c Ratio	1.16	0.94	0.61	1.14	1.10		1.19	0.57	0.40	0.66	1.16	
Uniform Delay, d1	65.6	47.7	28.1	56.6	40.0		61.6	40.2	18.4	64.5	52.5	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	141.4	16.8	2.1	95.0	65.2		126.5	1.7	0.4	15.0	98.7	
Delay (s)	207.0	64.5	30.1	151.6	105.2		188.1	41.9	18.9	79.5	151.2	
Level of Service	F	E	C	F	F		F	D	B	E	F	
Approach Delay (s)		65.1			119.9			71.1			142.6	
Approach LOS		E			F			E			F	
Intersection Summary												
HCM 2000 Control Delay			92.4				HCM 2000 Level of Service		F			
HCM 2000 Volume to Capacity ratio			1.16									
Actuated Cycle Length (s)			140.7				Sum of lost time (s)		17.3			
Intersection Capacity Utilization			107.4%				ICU Level of Service		G			
Analysis Period (min)			15									

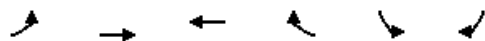
c Critical Lane Group



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group Flow (vph)	588	480	321	254	385	513
v/c Ratio	0.90	0.49	0.84	0.48	0.91	0.95
Control Delay	38.7	13.9	61.3	7.9	65.6	50.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	38.7	13.9	61.3	7.9	65.6	50.0
Queue Length 50th (ft)	325	190	232	0	269	222
Queue Length 95th (ft)	#578	284	#386	68	#434	#442
Internal Link Dist (ft)		446	754		596	
Turn Bay Length (ft)	250			190		75
Base Capacity (vph)	673	1063	435	566	530	619
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.87	0.45	0.74	0.45	0.73	0.83

Intersection Summary

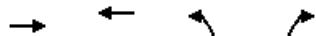
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↖	↗	↗	↖	↖	↖
Traffic Volume (vph)	576	470	315	249	377	503
Future Volume (vph)	576	470	315	249	377	503
Ideal Flow (vphpl)	1650	1650	1650	1650	1650	1650
Grade (%)		5%	-5%		-2%	
Total Lost time (s)	3.0	5.0	5.0	5.0	5.0	5.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frbp, ped/bikes	1.00	1.00	1.00	1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1484	1562	1611	1409	1537	1358
Flt Permitted	0.25	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	397	1562	1611	1409	1537	1358
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	588	480	321	254	385	513
RTOR Reduction (vph)	0	0	0	193	0	168
Lane Group Flow (vph)	588	480	321	61	385	345
Confl. Peds. (#/hr)						1
Heavy Vehicles (%)	3%	3%	5%	2%	3%	2%
Turn Type	pm+pt	NA	NA	Perm	Prot	Perm
Protected Phases	5	2	6		4	
Permitted Phases	2			6		4
Actuated Green, G (s)	68.9	68.9	26.0	26.0	29.9	29.9
Effective Green, g (s)	68.9	68.9	26.0	26.0	29.9	29.9
Actuated g/C Ratio	0.63	0.63	0.24	0.24	0.27	0.27
Clearance Time (s)	3.0	5.0	5.0	5.0	5.0	5.0
Vehicle Extension (s)	0.5	0.5	0.5	0.5	0.5	0.5
Lane Grp Cap (vph)	650	989	384	336	422	373
v/s Ratio Prot	c0.33	0.31	0.20		0.25	
v/s Ratio Perm	c0.24			0.04		c0.25
v/c Ratio	0.90	0.49	0.84	0.18	0.91	0.93
Uniform Delay, d1	20.8	10.6	39.4	32.9	38.2	38.4
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	15.8	0.1	13.9	0.1	23.4	28.1
Delay (s)	36.5	10.7	53.3	33.0	61.5	66.5
Level of Service	D	B	D	C	E	E
Approach Delay (s)		24.9	44.4		64.4	
Approach LOS		C	D		E	

Intersection Summary

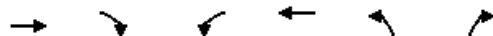
HCM 2000 Control Delay	43.3	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.94		
Actuated Cycle Length (s)	108.8	Sum of lost time (s)	13.0
Intersection Capacity Utilization	91.6%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			



Lane Group	EBT	WBT	NBL	NBR
Lane Group Flow (vph)	932	527	170	82
v/c Ratio	0.90	0.65	0.56	0.09
Control Delay	22.3	11.7	34.3	1.5
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	22.3	11.7	34.3	1.5
Queue Length 50th (ft)	233	106	69	0
Queue Length 95th (ft)	#634	237	135	13
Internal Link Dist (ft)	754	1527	2602	
Turn Bay Length (ft)				150
Base Capacity (vph)	1267	1004	457	1159
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.74	0.52	0.37	0.07

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↔			↔	↔	↔
Traffic Volume (vph)	493	364	50	435	156	75
Future Volume (vph)	493	364	50	435	156	75
Ideal Flow (vphpl)	1650	1650	1650	1650	1650	1650
Grade (%)	-5%			0%	-5%	
Total Lost time (s)	4.5			4.5	4.5	4.5
Lane Util. Factor	1.00			1.00	1.00	1.00
Fr _t	0.94			1.00	1.00	0.85
Fl _t Protected	1.00			0.99	0.95	1.00
Satd. Flow (prot)	1537			1609	1530	1409
Fl _t Permitted	1.00			0.77	0.95	1.00
Satd. Flow (perm)	1537			1238	1530	1409
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	536	396	54	473	170	82
RTOR Reduction (vph)	34	0	0	0	0	28
Lane Group Flow (vph)	898	0	0	527	170	54
Heavy Vehicles (%)	5%	2%	2%	2%	5%	2%
Turn Type	NA		Perm	NA	Prot	Perm
Protected Phases	2			6	4	
Permitted Phases			6			2
Actuated Green, G (s)	42.2			42.2	12.8	42.2
Effective Green, g (s)	42.2			42.2	12.8	42.2
Actuated g/C Ratio	0.66			0.66	0.20	0.66
Clearance Time (s)	4.5			4.5	4.5	4.5
Vehicle Extension (s)	3.0			3.0	3.0	3.0
Lane Grp Cap (vph)	1013			816	306	929
v/s Ratio Prot	c0.58				c0.11	
v/s Ratio Perm				0.43		0.04
v/c Ratio	0.89			0.65	0.56	0.06
Uniform Delay, d ₁	8.9			6.5	23.0	3.9
Progression Factor	1.00			1.00	1.00	1.00
Incremental Delay, d ₂	9.5			1.8	2.2	0.0
Delay (s)	18.4			8.2	25.2	3.9
Level of Service	B			A	C	A
Approach Delay (s)	18.4			8.2	18.3	
Approach LOS	B			A	B	

Intersection Summary

HCM 2000 Control Delay	15.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.81		
Actuated Cycle Length (s)	64.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	91.9%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group















Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	276	351	268	209	330	163
v/c Ratio	0.60	0.55	0.64	0.26	0.71	0.31
Control Delay	21.2	5.7	17.0	8.4	25.2	4.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	21.2	5.7	17.0	8.4	25.2	4.8
Queue Length 50th (ft)	66	0	42	31	79	0
Queue Length 95th (ft)	133	47	#102	68	#173	33
Internal Link Dist (ft)	1527			4743	1919	
Turn Bay Length (ft)		150	150			150
Base Capacity (vph)	637	754	421	981	605	639
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.43	0.47	0.64	0.21	0.55	0.26

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↗	↘	↑	↘	↗
Traffic Volume (vph)	248	316	241	188	297	147
Future Volume (vph)	248	316	241	188	297	147
Ideal Flow (vphpl)	1650	1650	1650	1650	1650	1650
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	1618	1375	1522	1602	1537	1375
Flt Permitted	1.00	1.00	0.39	1.00	0.95	1.00
Satd. Flow (perm)	1618	1375	626	1602	1537	1375
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	276	351	268	209	330	163
RTOR Reduction (vph)	0	251	0	0	0	114
Lane Group Flow (vph)	276	101	268	209	330	49
Heavy Vehicles (%)	2%	2%	3%	3%	2%	2%
Turn Type	NA	Perm	pm+pt	NA	Prot	Perm
Protected Phases	4		3	8	2	
Permitted Phases		4	8			2
Actuated Green, G (s)	13.4	13.4	23.6	23.6	14.2	14.2
Effective Green, g (s)	13.4	13.4	23.6	23.6	14.2	14.2
Actuated g/C Ratio	0.29	0.29	0.50	0.50	0.30	0.30
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	463	393	424	807	466	417
v/s Ratio Prot	0.17		c0.08	0.13	c0.21	
v/s Ratio Perm		0.07	c0.24			0.04
v/c Ratio	0.60	0.26	0.63	0.26	0.71	0.12
Uniform Delay, d1	14.4	12.9	7.5	6.6	14.5	11.8
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	2.1	0.3	3.1	0.2	4.9	0.1
Delay (s)	16.4	13.2	10.6	6.8	19.3	11.9
Level of Service	B	B	B	A	B	B
Approach Delay (s)	14.6			8.9	16.9	
Approach LOS	B			A	B	
Intersection Summary						
HCM 2000 Control Delay			13.6		HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio			0.73			
Actuated Cycle Length (s)			46.8		Sum of lost time (s)	13.5
Intersection Capacity Utilization			60.6%		ICU Level of Service	B
Analysis Period (min)			15			
c Critical Lane Group						

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	224	198	16	245	290	133	6	854	256	215	1026	169
v/c Ratio	0.72	0.60	0.04	0.66	0.82	0.34	0.04	0.83	0.43	0.75	0.64	0.22
Control Delay	39.9	49.3	0.3	33.8	60.9	10.5	25.3	40.0	10.2	35.4	21.1	4.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	39.9	49.3	0.3	33.8	60.9	10.5	25.3	40.0	10.2	35.4	21.1	4.4
Queue Length 50th (ft)	115	135	0	128	203	5	3	298	33	85	273	10
Queue Length 95th (ft)	#201	223	0	209	#341	57	13	386	101	#189	351	45
Internal Link Dist (ft)		4743			508			691			1591	
Turn Bay Length (ft)	150		150	150		150	150		150	150		150
Base Capacity (vph)	325	380	399	414	436	448	193	1282	699	311	1931	909
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.69	0.52	0.04	0.59	0.67	0.30	0.03	0.67	0.37	0.69	0.53	0.19

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

















Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Traffic Volume (vph)	211	186	15	230	273	125	6	803	241	202	964	159	
Future Volume (vph)	211	186	15	230	273	125	6	803	241	202	964	159	
Ideal Flow (vphpl)	1650	1650	1650	1650	1650	1650	1650	1650	1650	1650	1650	1650	
Grade (%)		4%			-2%			4%			-4%		
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	
Satd. Flow (prot)	1506	1601	1374	1494	1634	1336	1536	2983	1374	1552	3135	1389	
Flt Permitted	0.31	1.00	1.00	0.44	1.00	1.00	0.28	1.00	1.00	0.15	1.00	1.00	
Satd. Flow (perm)	487	1601	1374	699	1634	1336	452	2983	1374	241	3135	1389	
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	
Adj. Flow (vph)	224	198	16	245	290	133	6	854	256	215	1026	169	
RTOR Reduction (vph)	0	0	13	0	0	98	0	0	124	0	0	68	
Lane Group Flow (vph)	224	198	3	245	290	35	6	854	132	215	1026	101	
Heavy Vehicles (%)	2%	1%	0%	6%	2%	6%	0%	3%	0%	3%	2%	3%	
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA	Perm	pm+pt	NA	Perm	
Protected Phases	7	4		3	8			2		1	6		
Permitted Phases	4		4	8		8	2		2	6		6	
Actuated Green, G (s)	36.8	22.0	22.0	38.8	23.0	23.0	36.9	36.9	36.9	54.5	54.5	54.5	
Effective Green, g (s)	36.8	22.0	22.0	38.8	23.0	23.0	36.9	36.9	36.9	54.5	54.5	54.5	
Actuated g/C Ratio	0.35	0.21	0.21	0.37	0.22	0.22	0.35	0.35	0.35	0.52	0.52	0.52	
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	311	332	285	375	355	290	157	1040	479	286	1614	715	
v/s Ratio Prot	c0.10	0.12		0.10	c0.18			c0.29		c0.09	0.33		
v/s Ratio Perm	0.15		0.00	0.14		0.03	0.01		0.10	0.29		0.07	
v/c Ratio	0.72	0.60	0.01	0.65	0.82	0.12	0.04	0.82	0.28	0.75	0.64	0.14	
Uniform Delay, d1	27.1	37.9	33.3	25.7	39.4	33.3	22.7	31.4	24.8	18.6	18.5	13.4	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	8.0	2.9	0.0	4.1	13.5	0.2	0.1	5.3	0.3	10.6	0.8	0.1	
Delay (s)	35.1	40.8	33.3	29.7	52.9	33.5	22.8	36.7	25.1	29.2	19.3	13.5	
Level of Service	D	D	C	C	D	C	C	D	C	C	B	B	
Approach Delay (s)		37.6			40.5			34.0			20.1		
Approach LOS		D			D			C			C		
Intersection Summary													
HCM 2000 Control Delay			30.3		HCM 2000 Level of Service						C		
HCM 2000 Volume to Capacity ratio			0.79										
Actuated Cycle Length (s)			105.8		Sum of lost time (s)						18.0		
Intersection Capacity Utilization			83.5%		ICU Level of Service						E		
Analysis Period (min)			15										

c Critical Lane Group

	→	←	↑	↓
Lane Group	EBT	WBT	NBT	SBT
Lane Group Flow (vph)	452	189	320	550
v/c Ratio	0.90	0.39	0.56	0.89
Control Delay	42.1	14.1	15.9	33.5
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	42.1	14.1	15.9	33.5
Queue Length 50th (ft)	148	40	74	158
Queue Length 95th (ft)	#318	87	143	#340
Internal Link Dist (ft)	2602	893	1627	1919
Turn Bay Length (ft)				
Base Capacity (vph)	535	519	644	699
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.84	0.36	0.50	0.79

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.






















												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	211	186	15	64	74	35	67	190	34	100	297	104
Future Volume (vph)	211	186	15	64	74	35	67	190	34	100	297	104
Ideal Flow (vphpl)	1650	1650	1650	1650	1650	1650	1650	1650	1650	1650	1650	1650
Grade (%)		-5%			3%			3%			0%	
Total Lost time (s)		4.5			4.5			4.5			4.5	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frbp, ped/bikes		1.00			1.00			1.00			1.00	
Flpb, ped/bikes		1.00			1.00			1.00			1.00	
Frt		1.00			0.97			0.98			0.97	
Flt Protected		0.97			0.98			0.99			0.99	
Satd. Flow (prot)		1599			1486			1547			1557	
Flt Permitted		0.76			0.78			0.82			0.88	
Satd. Flow (perm)		1254			1186			1281			1376	
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	232	204	16	70	81	38	74	209	37	110	326	114
RTOR Reduction (vph)	0	2	0	0	15	0	0	8	0	0	16	0
Lane Group Flow (vph)	0	450	0	0	174	0	0	312	0	0	534	0
Confl. Peds. (#/hr)	2					2						
Heavy Vehicles (%)	2%	3%	3%	5%	4%	2%	3%	2%	2%	2%	2%	2%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		22.4			22.4			24.6			24.6	
Effective Green, g (s)		22.4			22.4			24.6			24.6	
Actuated g/C Ratio		0.40			0.40			0.44			0.44	
Clearance Time (s)		4.5			4.5			4.5			4.5	
Vehicle Extension (s)		3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)		501			474			562			604	
v/s Ratio Prot												
v/s Ratio Perm		c0.36			0.15			0.24			c0.39	
v/c Ratio		0.90			0.37			0.56			0.88	
Uniform Delay, d1		15.7			11.8			11.6			14.4	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		18.5			0.5			1.2			14.4	
Delay (s)		34.2			12.3			12.8			28.7	
Level of Service		C			B			B			C	
Approach Delay (s)		34.2			12.3			12.8			28.7	
Approach LOS		C			B			B			C	
Intersection Summary												
HCM 2000 Control Delay			25.0				HCM 2000 Level of Service				C	
HCM 2000 Volume to Capacity ratio			0.89									
Actuated Cycle Length (s)			56.0				Sum of lost time (s)			9.0		
Intersection Capacity Utilization			80.4%				ICU Level of Service				D	
Analysis Period (min)			15									
c Critical Lane Group												



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	265	833	197	761	258	845	310	1114	291
v/c Ratio	1.04	0.95	0.88	0.93	0.94	1.17	1.06	1.46	0.68
Control Delay	117.4	63.3	88.2	62.3	91.0	132.0	118.1	248.4	29.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	117.4	63.3	88.2	62.3	91.0	132.0	118.1	248.4	29.6
Queue Length 50th (ft)	~231	~348	155	307	205	~425	~276	~662	105
Queue Length 95th (ft)	#404	#499	#271	#433	#360	#557	#459	#798	215
Internal Link Dist (ft)		2406		1536		1967		1098	
Turn Bay Length (ft)	300		175		175		150		175
Base Capacity (vph)	255	875	255	814	292	723	292	764	425
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.04	0.95	0.77	0.93	0.88	1.17	1.06	1.46	0.68

Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	257	637	171	191	580	158	250	718	102	301	1081	282
Future Volume (vph)	257	637	171	191	580	158	250	718	102	301	1081	282
Ideal Flow (vphpl)	1650	1650	1650	1650	1650	1650	1650	1650	1650	1650	1650	1650
Total Lost time (s)	3.0	5.0		3.0	5.0		3.0	5.0		3.0	5.0	5.0
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95		1.00	0.95	1.00
Frbp, ped/bikes	1.00	0.99		1.00	0.99		1.00	1.00		1.00	1.00	0.91
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Frt	1.00	0.97		1.00	0.97		1.00	0.98		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1522	2923		1522	2921		1522	2976		1522	3044	1245
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1522	2923		1522	2921		1522	2976		1522	3044	1245
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	265	657	176	197	598	163	258	740	105	310	1114	291
RTOR Reduction (vph)	0	19	0	0	20	0	0	9	0	0	0	113
Lane Group Flow (vph)	265	814	0	197	741	0	258	836	0	310	1114	178
Confl. Peds. (#/hr)	24		21	21		24	31		14	14		31
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Turn Type	Prot	NA		Prot	NA		Prot	NA		Prot	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases												4
Actuated Green, G (s)	21.0	36.6		18.4	34.0		22.6	30.0		24.0	31.4	31.4
Effective Green, g (s)	21.0	36.6		18.4	34.0		22.6	30.0		24.0	31.4	31.4
Actuated g/C Ratio	0.17	0.29		0.15	0.27		0.18	0.24		0.19	0.25	0.25
Clearance Time (s)	3.0	5.0		3.0	5.0		3.0	5.0		3.0	5.0	5.0
Vehicle Extension (s)	1.0	6.0		1.0	6.0		1.0	6.0		1.0	6.0	6.0
Lane Grp Cap (vph)	255	855		224	794		275	714		292	764	312
v/s Ratio Prot	c0.17	c0.28		0.13	0.25		0.17	0.28		c0.20	c0.37	
v/s Ratio Perm												0.14
v/c Ratio	1.04	0.95		0.88	0.93		0.94	1.17		1.06	1.46	0.57
Uniform Delay, d1	52.0	43.3		52.2	44.4		50.5	47.5		50.5	46.8	40.9
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	67.0	20.7		29.2	18.8		37.2	91.4		69.9	213.4	7.4
Delay (s)	119.0	64.0		81.4	63.2		87.7	138.9		120.4	260.2	48.3
Level of Service	F	E		F	E		F	F		F	F	D
Approach Delay (s)		77.3			66.9			126.9			199.0	
Approach LOS		E			E			F			F	
Intersection Summary												
HCM 2000 Control Delay			129.3									F
HCM 2000 Volume to Capacity ratio			1.14									
Actuated Cycle Length (s)			125.0								16.0	
Intersection Capacity Utilization			107.6%									G
Analysis Period (min)			15									

c Critical Lane Group