

























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

091 PACIFIC HIGHWAY WEST

OR 99W & Brutscher St  
 January 1, 2011 through December 31, 2015

SER#	E A U C O DATE	COUNTY	RD# FC CONN #	INT-TYP	INT-REL	OFFRD WTHR	CRASH TYP	SPCL USE	MOVE	A S	PED	CAUSE		
UNLOC?	D C S L K LAT/LONG	URBAN AREA	CMPT/MLG MILEPNT LRS	FIRST STREET SECOND STREET INTERSECTION SEQ#	DIRECT LEGS TRAF-CNTL	RNDBT SURF DRVMY LIGHT	COLL TYP SVRVTY	TRLR QTY OWNER V# VEH TYPE	FROM TO	P#	PRTC INJ SVRVTY	E X RES LOC ERROR	ACTN EVENT	
00415	NNN 05/19/2012	YAMHILL	1 14	INTER	3-LEG	N	S-1STOP	01 NONE	0 STRGHT			013	07	
NO RPT	Sat 10A	NEWBERG	MN 0	NE	TRF SIGNAL	N DRY	REAR	PRVTE	NE SW			000	00	
		NEWBERG UA	21.80	06	0	N DAY	INJ	PSNGR CAR		01	DRVR NONE	31 M OR-Y	026	
No	45 18 28.53 -122 56 31.38		009100100S00									OR<25	000	07
00518	NNN 06/22/2012	YAMHILL	1 14	INTER	3-LEG	N	S-1STOP	01 NONE	0 STRGHT				27	
NO RPT	Fri 4P	NEWBERG	MN 0	NE	TRF SIGNAL	N WET	REAR	PRVTE	NE SW			000	00	
		NEWBERG UA	21.80	06	0	N DAY	INJ	PSNGR CAR		01	DRVR NONE	20 F OR-Y	026	
No	45 18 28.53 -122 56 31.38		009100100S00									OR<25	000	27
00907	NNN 10/04/2012	YAMHILL	1 14	INTER	CROSS	N	S-1STOP	01 NONE	0 STRGHT				07	
NONE	Thu 5P	NEWBERG	MN 0	NE	TRF SIGNAL	N DRY	REAR	PRVTE	NE SW			000	00	
		NEWBERG UA	21.80	06	0	N DAY	PDO	PSNGR CAR		01	DRVR NONE	26 M OR-Y	026	
No	45 18 28.53 -122 56 31.38		009100100S00									OR<25	000	07
00829	NNN 09/23/2013	YAMHILL	1 14	INTER	3-LEG	N	S-1STOP	01 NONE	0 STRGHT				07	
NONE	Mon 2P	NEWBERG	MN 0	NE	TRF SIGNAL	N WET	REAR	PRVTE	NE SW			000	00	
		NEWBERG UA	21.80	06	0	N DAY	INJ	PSNGR CAR		01	DRVR NONE	40 F OR-Y	026	
No	45 18 28.53 -122 56 31.38		009100100S00									OR<25	000	07
01413	NNN 12/30/2014	YAMHILL	1 14	INTER	3-LEG	N	S-1STOP	01 NONE	0 STRGHT				29	
NO RPT	Tue 2P	NEWBERG	MN 0	NE	TRF SIGNAL	N DRY	REAR	PRVTE	NE SW			000	00	
		NEWBERG UA	21.80	06	0	N DAY	PDO	PSNGR CAR		01	DRVR NONE	33 M OR-Y	026	
No	45 18 28.53 -122 56 31.38		009100100S00									OR<25	000	29











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

091 PACIFIC HIGHWAY WEST

OR 99W & Vittoria Way  
 January 1, 2011 through December 31, 2015

SER#	E A U C O DATE	COUNTY	RD# FC CONN #	INT-TYP	INT-REL	OFFRD WTHR	CRASH TYP	SPCL USE	MOVE	A S	PED	CAUSE				
INVEST E L G H R DAY/TIME	CITY	MILEPNT	FIRST STREET	RD CHAR (MEDIAN)	TRAFF-LEGS	RNDBT SURF	COLL TYP	TRLR QTY	FROM	G E	LOC					
UNLOC? D C S L K LAT/LONG	URBAN AREA	LR	INTERSECTION SEQ#	DIRECT	(#LANES)	DRVWY LIGHT	SVRTY	V#	VEH TYPE	E X	RES					
				LOCTN					TO	P#	TYPE	SVRTY				
00013	NNNNN 01/04/2012	YAMHILL	1 14	INTER	3-LEG	N	N RAIN	01 NONE	0	TURN-L		02				
CITY	Wed 7P	NEWBERG	MN 0	NE		UNKNOWN	N WET	PRVTE	N NE			00				
		NEWBERG UA	21.54	05	0		N DARK	PSNGR CAR		01	DRVR NONE	28 F	OR-Y	028	000	02
No	45 18 34.08 -122 56 14.07		009100100S00										OR<25			
								02 NONE	1	STRGHT						
								PRVTE	SW NE			000			000	00
								SEMI TOW		01	DRVR NONE	52 M	OTH-Y	000	000	00
													N-RES			
00066	NNNNN 01/21/2014	YAMHILL	1 14	INTER	3-LEG	N	N CLR	01 NONE	0	STRGHT		32				
CITY	Tue 8A	NEWBERG	MN 0	NE		STOP SIGN	N DRY	PRVTE	NE SW			00				
		NEWBERG UA	21.54	06	0		N DAY	PSNGR CAR		01	DRVR NONE	19 F	OR-Y	052,026	000	32
No	45 18 34.08 -122 56 14.07		009100100S00										OR<25			
								02 NONE	0	STOP						
								PRVTE	NE SW			011				
								PSNGR CAR		01	DRVR INJC	47 M	OR-Y	000	000	00
													OR<25			
00836	NNN 10/13/2011	YAMHILL	1 14	INTER	3-LEG	N	N RAIN	01 NONE	0	STRGHT		07				
NO RPT	Thu 6P	NEWBERG	MN 0	SW		TRF SIGNAL	N WET	PRVTE	SW NE			00				
		NEWBERG UA	21.54	06	0		N DAY	PSNGR CAR		01	DRVR NONE	73 M	OR-Y	026	000	07
No	45 18 34.08 -122 56 14.07		009100100S00										OR<25			
								02 NONE	0	STOP						
								PRVTE	SW NE			011				
								PSNGR CAR		01	DRVR NONE	18 F	OR-Y	000	000	00
													OR<25			
00131	NNN 02/13/2012	YAMHILL	1 14	INTER	3-LEG	N	N CLR	01 NONE	0	TURN-L		32				
NO RPT	Mon 10A	NEWBERG	MN 0	CN		UNKNOWN	N DRY	PRVTE	SE SW			00				
		NEWBERG UA	21.54	04	0		N DAY	PSNGR CAR		01	DRVR NONE	76 F	OR-Y	052	000	32
No	45 18 34.08 -122 56 14.07		009100100S00										OR<25			
								02 NONE	0	STRGHT						
								PRVTE	SW NE			000				
								PSNGR CAR		01	DRVR INJC	27 F	OR-Y	000	000	00
													OR<25			







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

091 PACIFIC HIGHWAY WEST

OR 99W & Benjamin Rd  
January 1, 2011 through December 31, 2015

SER#	UNLOC?	S D P R S W	E A U C O DATE	YAMHILL CITY URBAN AREA	RD# FC	CONN #	INT-TYP	RD CHAR	(MEDIAN)	INT-REL	OFFRD WTHR	CRASH TYP	SPCL USE	MOVE	A S	PED	CAUSE						
INVEST	D C S L K	E L G H R	DAY/TIME	CITY	MILEPNT	FIRST STREET	DIRECT	LEGS	TRAF-	RNDBT	SURF	COLL TYP	TRLR QTY	FROM	G E	LICNS	LOC	ERROR	ACTN	EVENT	CAUSE		
UNLOC?	D C S L K	E L G H R	LAT/LONG	URBAN AREA	LRs	INTERSECTION SEQ#	LOCTN	(#LANES)	CNTL	DRVWY	LIGHT	SVRTY	V#	VEH TYPE	P#	TYPE	SVRTY	E X RES	LOC	ERROR	ACTN	EVENT	CAUSE
00620	N N N		08/08/2011	YAMHILL	1 02		INTER	3-LEG	N	N CLR	ANGL-OTH	01 NONE	0	TURN-L									02
NONE			Mon 4P		MN 0		CN		STOP SIGN	N DRY	TURN	PRVTE	N E										00
					21.08		01	0		N DAY	PDO	PSNGR CAR			01	DRVR	NONE	27 M	OR-Y	028			02
No	45 18	43.08	-122 55 42.80		009100100S00													OR<25					
												02 NONE	0	STRGHT									00
												PRVTE	E W										00
												PSNGR CAR			01	DRVR	NONE	66 M	OR-Y	000			00
																		OR<25					00
00579	N N N N N		07/09/2012	YAMHILL	1 02		INTER	3-LEG	N	N CLR	ANGL-OTH	01 NONE	0	TURN-L									02
STATE			Mon 5P		MN 0		CN		STOP SIGN	N DRY	TURN	PRVTE	N E										00
					21.08		01	0		N DAY	INJ	PSNGR CAR			01	DRVR	NONE	51 F	OR-Y	028			02
No	45 18	43.08	-122 55 42.80		009100100S00													OR<25					
												02 NONE	0	STRGHT									00
												PRVTE	E W										00
												PSNGR CAR			01	DRVR	INJC	38 M	OR-Y	000			00
																		OR<25					00
00318	N N N		03/28/2014	YAMHILL	1 02		INTER	3-LEG	N	N RAIN	ANGL-OTH	01 NONE	0	TURN-L									02
NO RPT			Fri 3P		MN 0		CN		STOP SIGN	N WET	TURN	PRVTE	N E										00
					21.08		01	0		N DAY	INJ	PSNGR CAR			01	DRVR	INJB	66 F	OR-Y	028			02
No	45 18	43.08	-122 55 42.80		009100100S00													OR<25					
																							00
												02 PSNG	NO<5		04	F							00
												02 NONE	0	STRGHT									00
												PRVTE	E W										00
												PSNGR CAR			01	DRVR	NONE	56 M	OR-Y	000			00
																		OR<25					00
00675	N N N N N		06/23/2014	YAMHILL	1 02		INTER	3-LEG	N	N CLD	ANGL-OTH	01 NONE	0	TURN-R									02
CITY			Mon 3P		MN 0		CN		STOP SIGN	N DRY	TURN	PRVTE	N W										00
					21.08		03	0		N DAY	INJ	PSNGR CAR			01	DRVR	NONE	43 M	OR-Y	028			02
No	45 18	43.08	-122 55 42.80		009100100S00													OR<25					
												02 NONE	0	STRGHT									00
												PRVTE	E W										00
												PSNGR CAR			01	DRVR	INJC	24 F	OR-Y	000			00
																		OR<25					00

**ACTION CODE TRANSLATION LIST**

<b>ACTION CODE</b>	<b>SHORT DESCRIPTION</b>	<b>LONG DESCRIPTION</b>
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	TURNED 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	PURSUING 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 RO
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 CLOTHIN
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	TURNTD FROM WRONG LANE
007	TO WRONG	TURNTD INTO WRONG LANE
008	ILLEG U	U-TURNTD 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	PNGR 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	JACKKNIFE	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	IRRGL 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

**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	COUPLER
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	ILUM 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

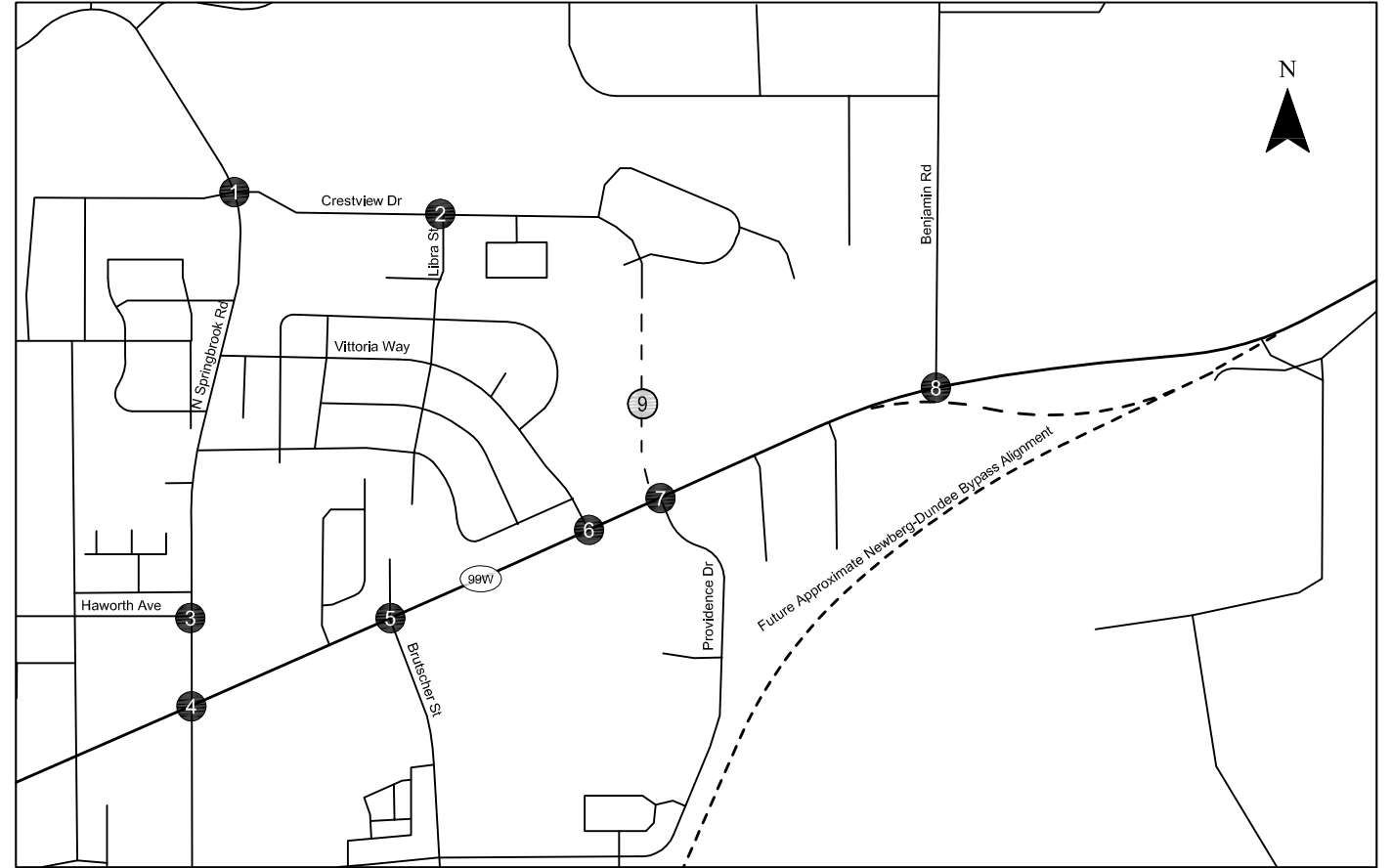
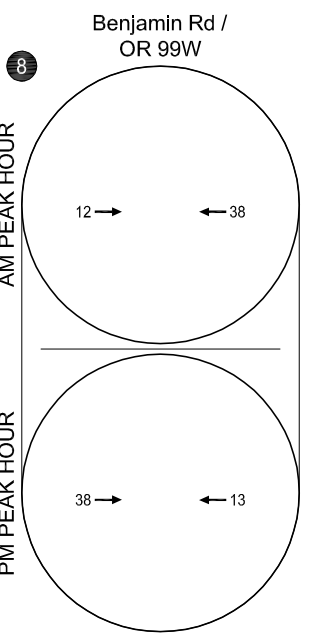
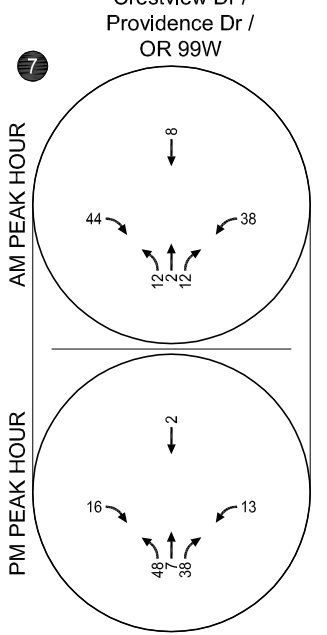
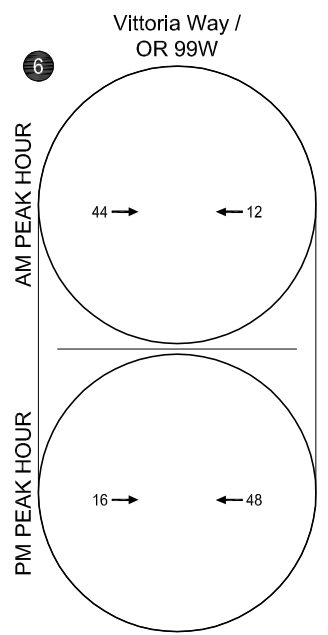
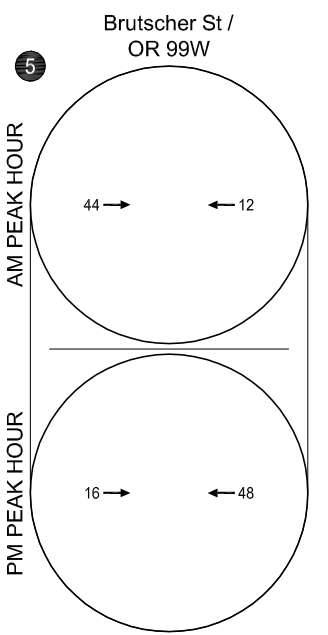
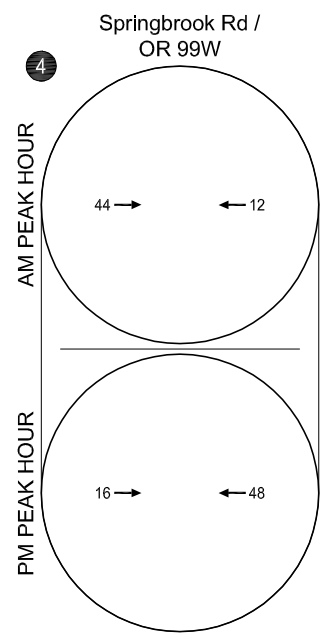
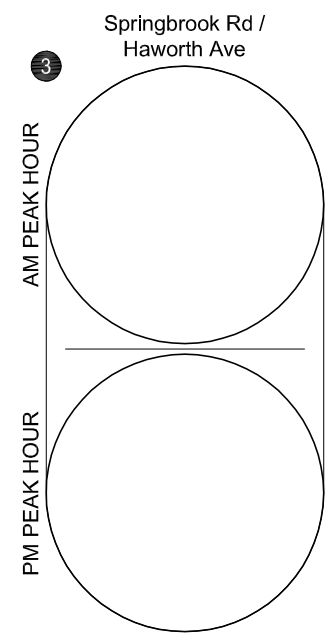
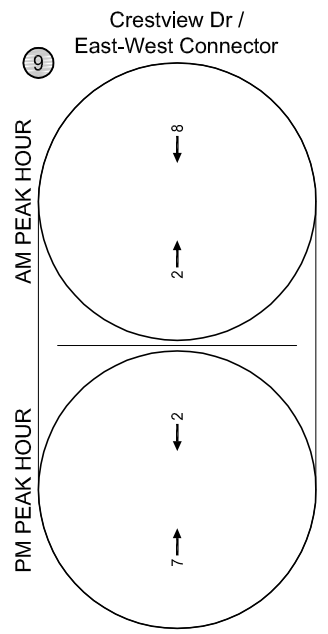
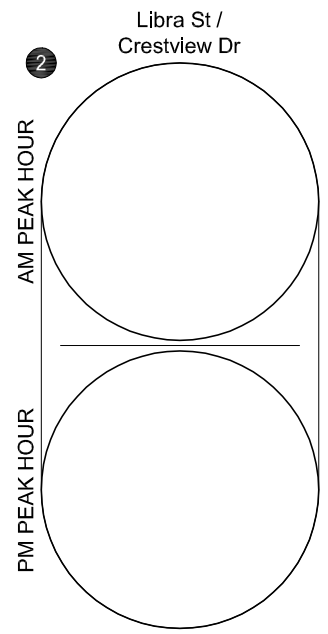
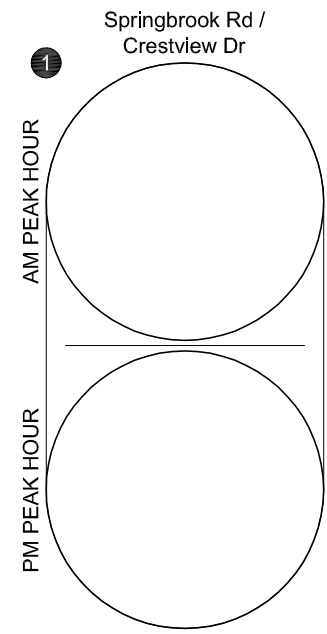
CODE	SHORT DESC	LONG DESCRIPTION
00	PDO	NOT COLLECTED FOR PDO CRASHES
01	PSNGR CAR	PASSENGER CAR, PICKUP, LIGHT DELIVERY, ETC.
02	BOBTAIL	TRUCK TRACTOR WITH NO TRAILERS (BOBTAIL)
03	FARM TRCTR	FARM TRACTOR OR SELF-PROPELLED FARM EQUIPMENT
04	SEMI TOW	TRUCK TRACTOR WITH TRAILER/MOBILE HOME IN TOW
05	TRUCK	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



Appendix E  
In-Process Developments



In Process Trips  
Weekday AM and PM Peak Hours  
Newberg, Oregon

Figure  
E-1

C:\Users\zbugg\Desktop\21709 Figs-.dwg Aug 15, 2018 - 2:14pm - zbugg Layout Tab: In Process

# Traffic Impact Analysis

## Newberg Ambulatory Surgical Center

Newberg, Oregon

March 9, 2017

completed with  
Anderson Dabrowski Architects, LLC  
Portland, Oregon

Prepared by:  
Associated Transportation Engineering & Planning, Inc.  
Salem, Oregon  
March 6, 2017  
ATEP 17-346



# Traffic Impact Analysis Newberg Ambulatory Surgical Center

Newberg, Oregon

March 9, 2017



12/31/2017

completed with  
Anderson Dabrowski Architects, LLC  
Portland, Oregon

Prepared by:  
Associated Transportation Engineering & Planning, Inc.  
Salem, Oregon  
March 6, 2017  
ATEP 17-346



### Table of Contents

Introduction:..... 2

Summary of Findings: ..... 2

History and Existing Conditions:..... 2

Traffic Conditions when Newberg Surgical Center is Complete: ..... 3

Crash Data: ..... 5

Summary:..... 5

### Figures

Figure 1 - Vicinity Map ..... 2

Figure 2 - Existing Traffic Conditions ..... 3

Figure 3 – 2017 Traffic Conditions with Newberg Surgical Center ..... 4

Figure 4 – 2032 Traffic Conditions with Newberg Surgical Center ..... 4

Figure 5 – Reported Crashes at Studied Intersections in 2010-2014 ..... 5

Figure 6 - Existing AM Peak hour Counts and Performance Metrics ..... 5

Figure 7 - Existing PM Peak hour Counts and Performance Metrics ..... 6

Figure 8 - 2017 AM Counts and Performance Metrics with Newberg Surgical Center ..... 6

Figure 9 - 2017 PM Counts and Performance Metrics with Newberg Surgical Center ..... 7

Figure 10 - 2032 AM Counts and Performance Metrics with Newberg Surgical Center ..... 7

Figure 11 - 2032 PM Counts and Performance Metrics with Newberg Surgical Center ..... 8

### Appendices

Turning Movement Counts

ODOT Crash Data

Computer Modeling Printouts

# Traffic Impact Analysis

## Newberg Ambulatory Surgical Center

### Newberg, Oregon



### Introduction:

The Oregon Clinic intends to develop a 17,510 sq. ft. Ambulatory Surgery Center on 3 acres of tax lot 2001 of tax map 3S2W16 in Newberg, Oregon. The site is west of Providence Drive and south of the Providence Hospital in Newberg. The facility will be developed with access to Providence Dr.

The Newberg Ambulatory Surgical Center will use the Newberg transportation system and add traffic to the roadways. This analysis will consider the traffic impacts at the intersection of 1) Providence Dr at Hwy 99W, 2) Hayes St at Werth Blvd. 3) Hayes St at Brutscher St and 4) Site Access at Providence Dr. Brutscher St at Fernwood Rd was closed while this study was conducted, diverting traffic to other intersections. Crash data was provided by the ODOT Crash Data Unit for the most recent 5 years.



**Figure 1 - Vicinity Map**

### Summary of Findings:

The Newberg Ambulatory Surgical Center will generate an estimated 633 trips each day. 42 of those trips will be in the AM Peak hour and 62 trips will be in the PM Peak hour. The performance metrics at the studied intersections are shown in the following table upon opening in 2017.

	AM Peak hour		PM Peak hour	
	LOS	v/c	LOS	v/c
Hwy 99W at Providence Dr	A	0.661	B	0.721
Hayes at Werth	A		A	
Hayes at Brutscher	A		A	
Site Access at Providence Dr	A	0.012	B	0.067

Crash data from ODOT Crash Data Unit identifies 9 crashes at the studied intersections in the last 5 years. None were fatal crashes, 4 were injury crashes and 5 were property damage only crashes.

### History and Existing Conditions:

The site has been vacant in the recent past and was is adjacent to the Providence Medical Center. The site is zoned Residential/Specific Plan (R R/SP). Traffic from the planned ambulatory surgery center will travel north or south on Providence Dr to access the transportation system. The intersection of Providence

Dr at Hwy 99 W is signal controlled, the intersections of Hayes at Brutscher are roundabouts, and the site access is two way stop controlled.

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Hwy 99W at Providence Dr	Signalized	HCM 6th Edition	NWB Right	0.652	5.0	A
3	Brutscher St at Hayes St	Roundabout	HCM 6th Edition	NB Thru		3.8	A
4	Hayes at Werth	Roundabout	HCM 6th Edition	EB Thru		3.2	A

Existing AM Peak Hour Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Hwy 99W at Providence Dr	Signalized	HCM 6th Edition	SWB Left	0.714	10.7	B
3	Brutscher St at Hayes St	Roundabout	HCM 6th Edition	SB Right		4.6	A
4	Hayes at Werth	Roundabout	HCM 6th Edition	WB Thru		3.5	A

Existing PM Peak Hour Summary

**Figure 2 - Existing Traffic Conditions**

### Traffic Conditions when Newberg Surgical Center is Complete:

Newberg Ambulatory Surgical Center will add 42 trips to the AM Peak hour traffic and 62 trips to the PM Peak hour traffic. This study will assume that 60% of the traffic will travel north of the site then toward Newberg, 30% north on Providence Dr then toward Sherwood and 10% to the south of the site. The study assumed that traffic volumes will increase linearly 1% per year to estimate the 2017 and 2032 performance metrics.

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Hwy 99W at Providence Dr	Signalized	HCM 6th Edition	NWB Right	0.661	5.4	A
3	Brutscher St at Hayes St	Roundabout	HCM 6th Edition	NB Thru		3.8	A
4	Hayes at Werth	Roundabout	HCM 6th Edition	EB Thru		3.2	A
5	Site Access at Providence Dr.	Two-way stop	HCM 6th Edition	EB Left	0.012	9.3	A

2017 AM Peak Hour Summary with Newberg Surgical Center

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Hwy 99W at Providence Dr	Signalized	HCM 6th Edition	SWB Left	0.731	12.0	B
3	Brutsher St at Hayes St	Roundabout	HCM 6th Edition	SB Right		4.6	A
4	Hayes at Werth	Roundabout	HCM 6th Edition	WB Thru		3.5	A
5	Site Access at Providence Dr.	Two-way stop	HCM 6th Edition	EB Left	0.067	10.1	B

2017 PM Peak Hour Summary with Newberg Surgical Center

**Figure 3 – 2017 Traffic Conditions with Newberg Surgical Center**

It is anticipated traffic will continue to increase at a rate of 1% / year. The following tables estimate the performance metrics and traffic volumes in the intersections in 15 years (2032) for planning purposes.

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Hwy 99W at Providence Dr	Signalized	HCM 6th Edition	NWB Right	0.758	7.7	A
3	Brutsher St at Hayes St	Roundabout	HCM 6th Edition	NB Thru		4.0	A
4	Hayes at Werth	Roundabout	HCM 6th Edition	EB Thru		3.3	A
5	Site Access at Providence Dr.	Two-way stop	HCM 6th Edition	EB Left	0.012	9.4	A

2032 AM Peak Hour Summary with Newberg Surgical Center

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Hwy 99W at Providence Dr	Signalized	HCM 6th Edition	SWB Left	0.839	17.6	B
3	Brutsher St at Hayes St	Roundabout	HCM 6th Edition	SB Right		5.0	A
4	Hayes at Werth	Roundabout	HCM 6th Edition	WB Thru		3.6	A
5	Site Access at Providence Dr.	Two-way stop	HCM 6th Edition	EB Left	0.069	10.3	B

2032 PM Peak Hour Summary with Newberg Surgical Center

**Figure 4 – 2032 Traffic Conditions with Newberg Surgical Center**



### Crash Data:

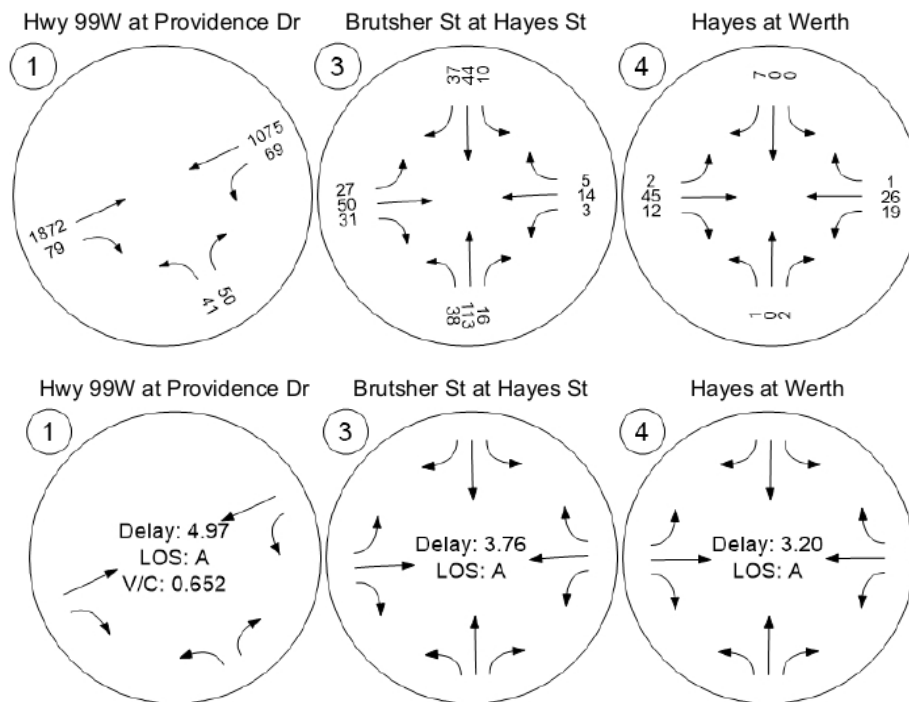
The ODOT Crash Data Unit provided information about reported crashes at the shown intersections for the past 5 years.

Intersection	Fatal	Injury	Property Damage	Total Crashes
Hwy 99W at Providence Dr	0	3	5	8
Hayes at Werth	0	0	0	0
Hayes at Brutscher	0	1	0	1

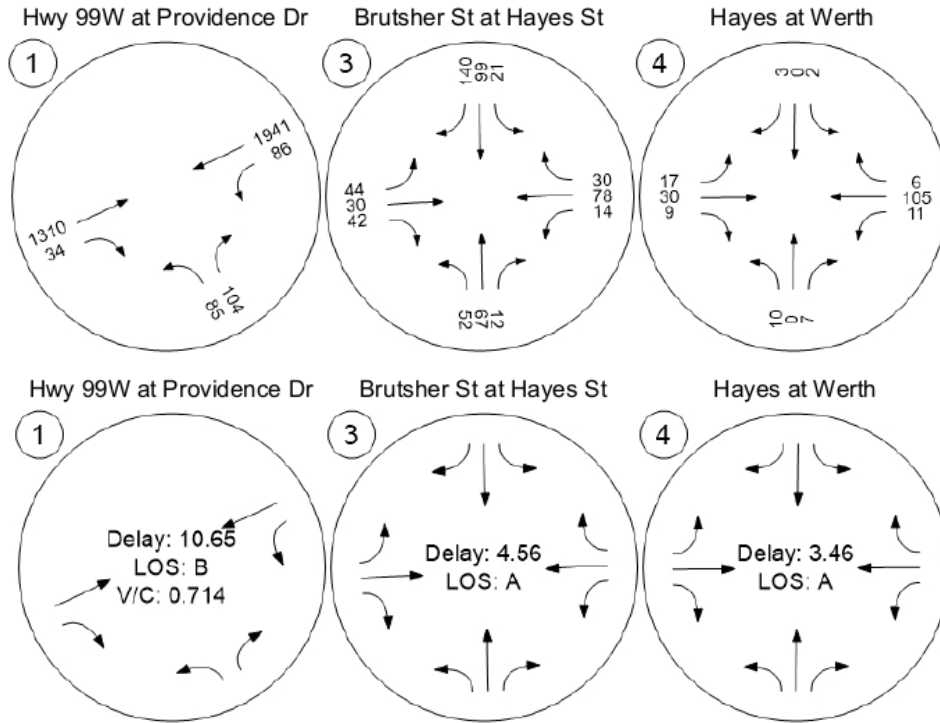
**Figure 5 – Reported Crashes at Studied Intersections in 2010-2014**

### Summary:

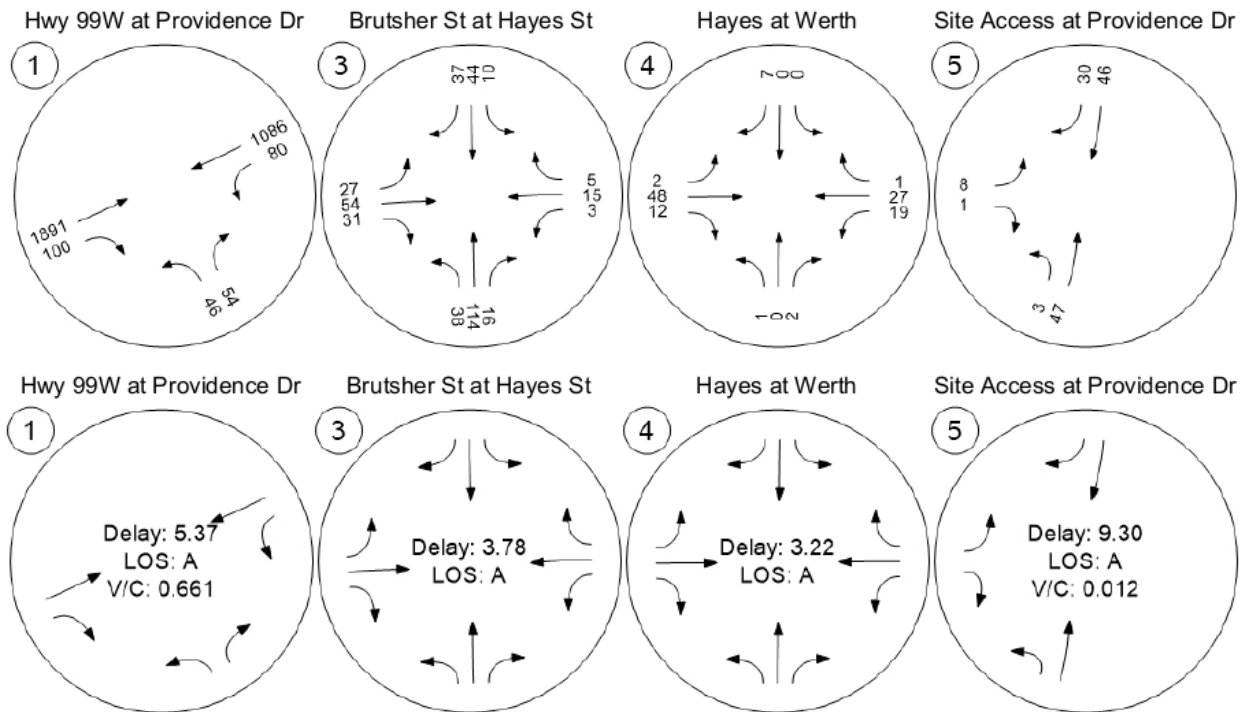
The development of the planned Newberg Ambulatory Surgical Center in Newberg will add traffic to the transportation system. This study finds there is and will continue to be adequate capacity at the studied intersections when it is completed. Crash data does not indicate significant safety problems at the intersections.



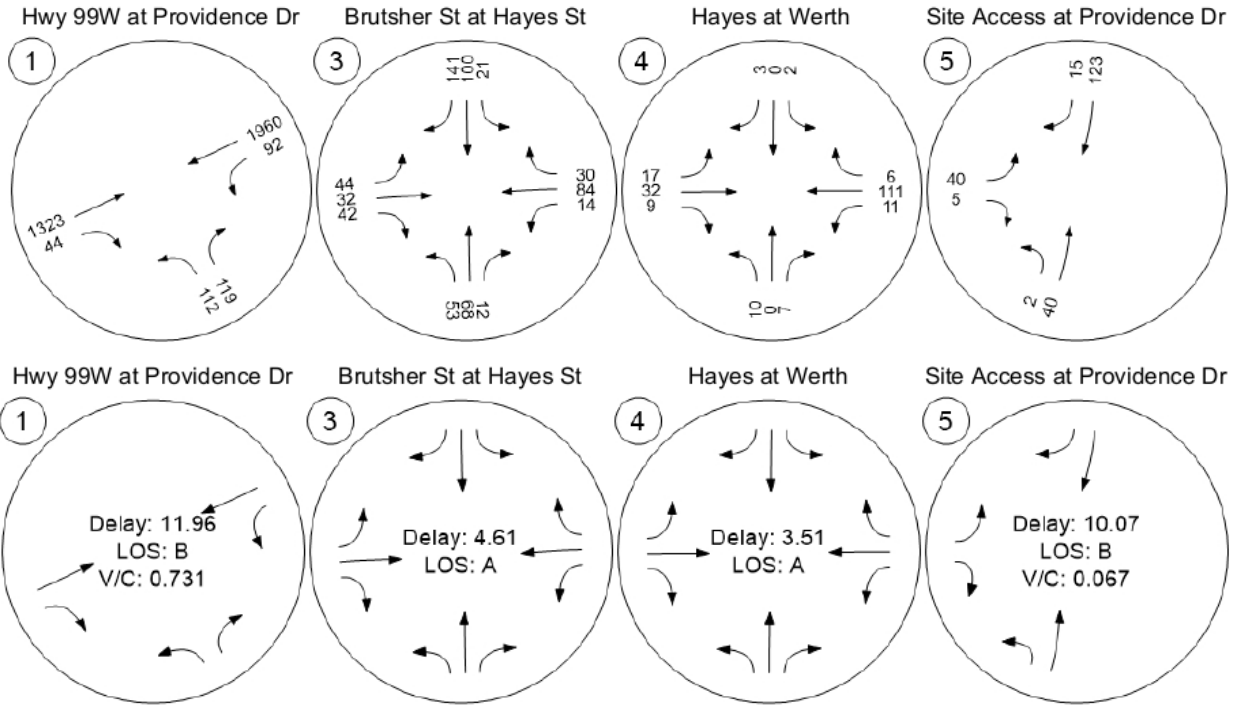
**Figure 6 - Existing AM Peak hour Counts and Performance Metrics**



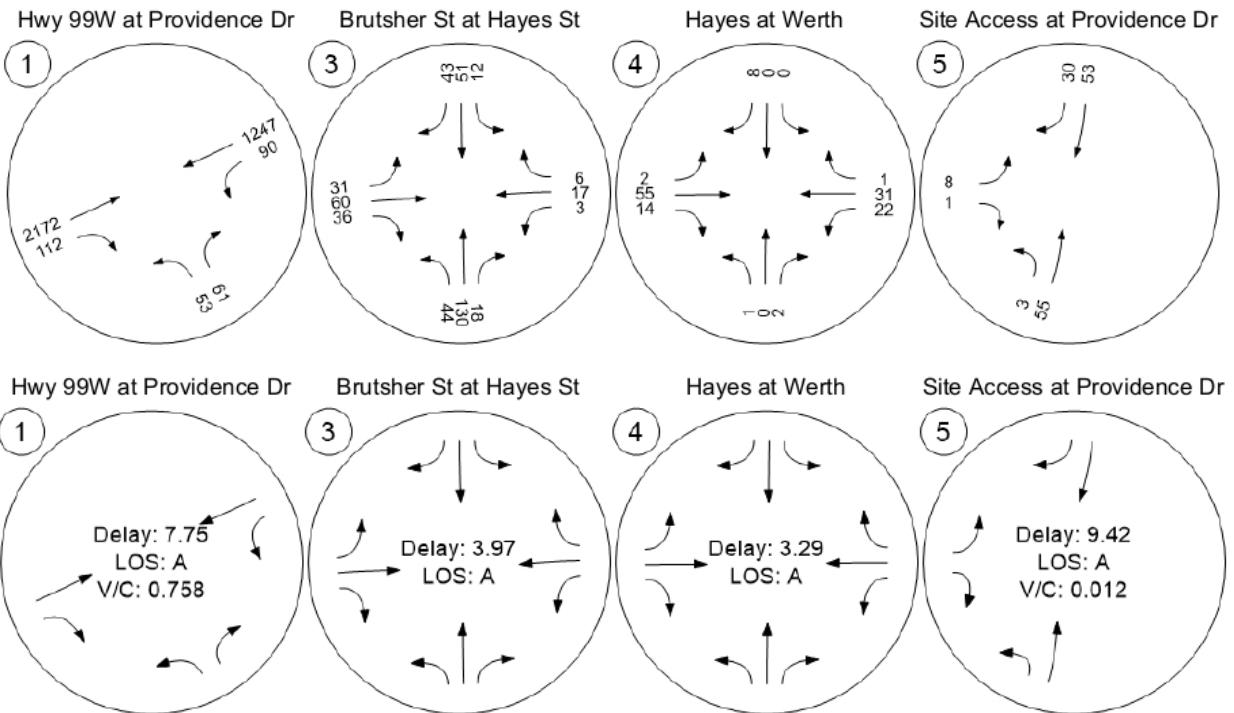
**Figure 7 - Existing PM Peak hour Counts and Performance Metrics**



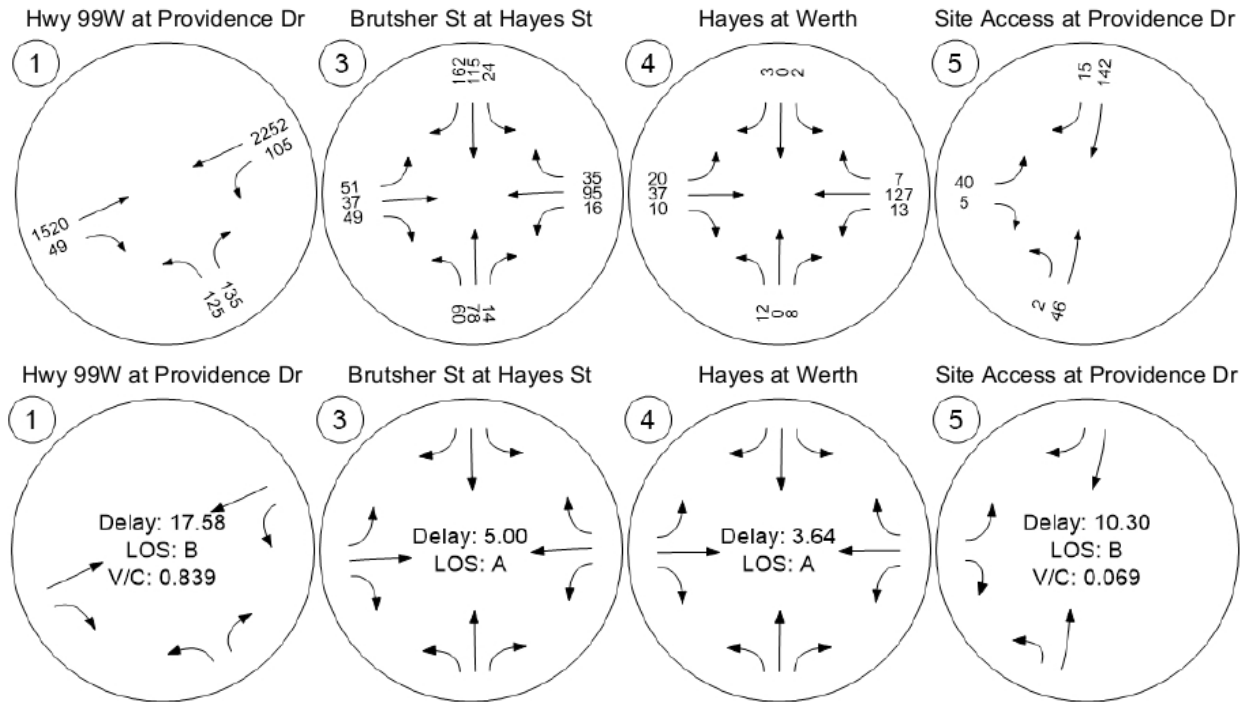
**Figure 8 - 2017 AM Counts and Performance Metrics with Newberg Surgical Center**



**Figure 9 - 2017 PM Counts and Performance Metrics with Newberg Surgical Center**



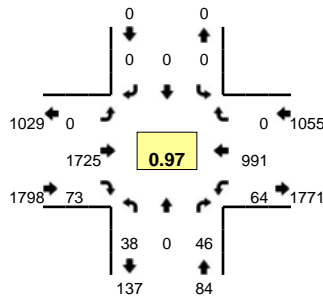
**Figure 10 - 2032 AM Counts and Performance Metrics with Newberg Surgical Center**



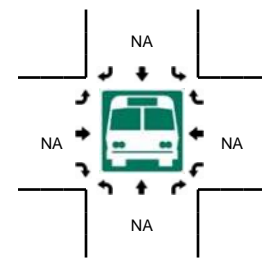
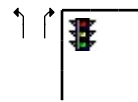
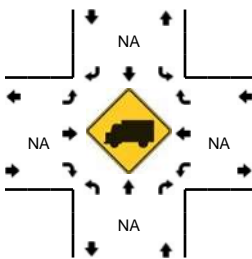
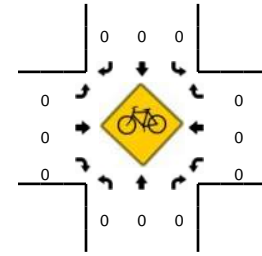
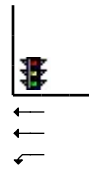
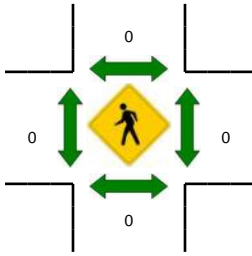
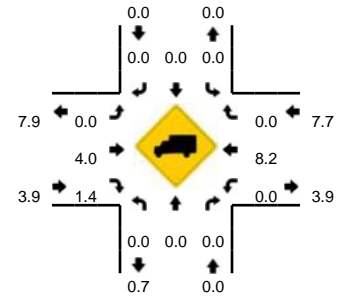
**Figure 11 - 2032 PM Counts and Performance Metrics with Newberg Surgical Center**

**LOCATION:** Providence Dr -- OR-99W  
**CITY/STATE:** Newberg, OR

**QC JOB #:** 14233601  
**DATE:** Tue, Feb 21 2017



**Peak-Hour: 7:00 AM -- 8:00 AM**  
**Peak 15-Min: 7:45 AM -- 8:00 AM**

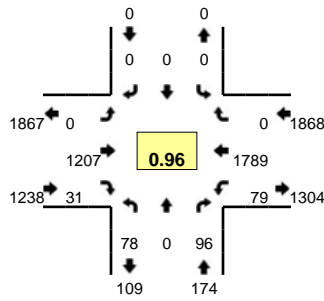


5-Min Count Period Beginning At	Providence Dr (Northbound)				Providence Dr (Southbound)				OR-99W (Eastbound)				OR-99W (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	0	0	1	0	0	0	0	0	0	171	5	0	5	68	0	0	250	
7:05 AM	1	0	4	0	0	0	0	0	0	169	6	0	4	73	0	0	257	
7:10 AM	3	0	3	0	0	0	0	0	0	132	3	0	3	88	0	0	232	
7:15 AM	1	0	1	0	0	0	0	0	0	143	2	0	10	74	0	0	231	
7:20 AM	3	0	4	0	0	0	0	0	0	176	6	0	4	77	0	0	270	
7:25 AM	4	0	8	0	0	0	0	0	0	128	3	0	3	79	0	0	225	
7:30 AM	7	0	7	0	0	0	0	0	0	141	6	0	4	87	0	0	252	
7:35 AM	1	0	6	0	0	0	0	0	0	146	7	0	10	77	0	0	247	
7:40 AM	4	0	1	0	0	0	0	0	0	134	7	0	2	70	0	0	218	
7:45 AM	6	0	5	0	0	0	0	0	0	135	4	0	7	100	0	0	257	
7:50 AM	4	0	5	0	0	0	0	0	0	129	11	0	6	96	0	0	251	
7:55 AM	4	0	1	0	0	0	0	0	0	121	13	0	6	102	0	0	247	2937
8:00 AM	3	0	7	0	0	0	0	0	0	119	5	0	4	83	0	0	221	2908
8:05 AM	1	0	4	0	0	0	0	0	0	102	4	0	7	77	0	0	195	2846
8:10 AM	4	0	3	0	0	0	0	0	0	97	4	0	3	79	0	0	190	2804
8:15 AM	6	0	2	0	0	0	0	0	0	109	7	0	2	68	0	0	194	2767
8:20 AM	4	0	5	0	0	0	0	0	0	113	7	0	9	75	0	0	213	2710
8:25 AM	4	0	5	0	0	0	0	0	0	120	1	0	2	69	0	0	201	2686
8:30 AM	2	0	4	0	0	0	0	0	0	105	4	0	5	69	0	0	189	2623
8:35 AM	5	0	3	0	0	0	0	0	0	114	6	0	3	87	0	0	218	2594
8:40 AM	7	0	3	0	0	0	0	0	0	75	4	0	4	59	0	0	152	2528
8:45 AM	11	0	6	0	0	0	0	0	0	113	5	0	6	51	0	0	192	2463
8:50 AM	9	0	2	0	0	0	0	0	0	91	4	0	3	89	0	0	198	2410
8:55 AM	7	0	0	0	0	0	0	0	0	100	5	0	3	56	0	0	171	2334
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	56	0	44	0	0	0	0	0	0	1540	112	0	76	1192	0	0	3020	
Heavy Trucks	0	0	0	0	0	0	0	0	0	48	4	0	0	84	0	0	136	
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																		

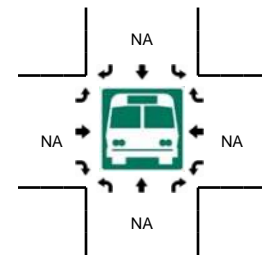
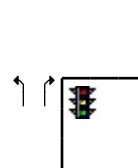
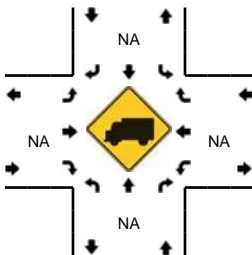
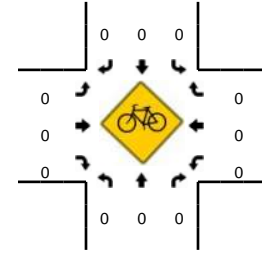
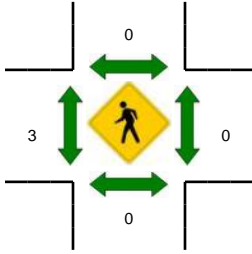
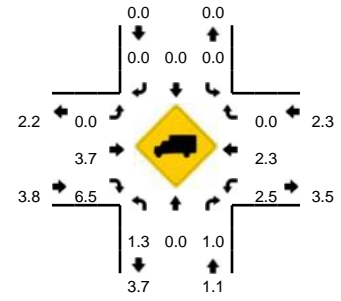
Comments:

**LOCATION:** Providence Dr -- OR-99W  
**CITY/STATE:** Newberg, OR

**QC JOB #:** 14233602  
**DATE:** Tue, Feb 21 2017



**Peak-Hour: 4:30 PM -- 5:30 PM**  
**Peak 15-Min: 4:40 PM -- 4:55 PM**

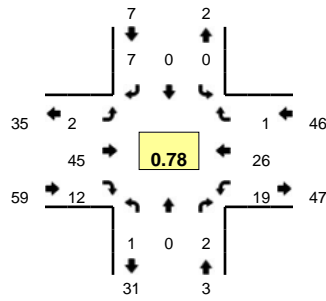


5-Min Count Period Beginning At	Providence Dr (Northbound)				Providence Dr (Southbound)				OR-99W (Eastbound)				OR-99W (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	4	0	4	0	0	0	0	0	0	88	0	0	7	149	0	1	253	
4:05 PM	12	0	9	0	0	0	0	0	0	91	2	0	4	145	0	0	263	
4:10 PM	6	0	8	0	0	0	0	0	0	100	3	0	11	166	0	0	294	
4:15 PM	8	0	4	0	0	0	0	0	0	92	3	0	6	146	0	0	259	
4:20 PM	9	0	6	0	0	0	0	0	0	81	4	0	7	151	0	0	258	
4:25 PM	9	0	5	0	0	0	0	0	0	97	4	0	2	114	0	0	231	
4:30 PM	5	0	6	0	0	0	0	0	0	82	5	0	2	167	0	0	267	
4:35 PM	16	0	15	0	0	0	0	0	0	86	4	0	2	133	0	0	256	
4:40 PM	1	0	7	0	0	0	0	0	0	106	3	0	8	179	0	1	305	
4:45 PM	5	0	8	0	0	0	0	0	0	90	2	0	7	147	0	0	259	
4:50 PM	6	0	10	0	0	0	0	0	0	111	4	0	6	156	0	0	293	
4:55 PM	3	0	9	0	0	0	0	0	0	105	1	0	8	151	0	0	277	3215
5:00 PM	4	0	9	0	0	0	0	0	0	82	2	0	10	138	0	0	245	3207
5:05 PM	13	0	9	0	0	0	0	0	0	121	1	0	11	120	0	0	275	3219
5:10 PM	5	0	6	0	0	0	0	0	0	123	3	0	9	132	0	0	278	3203
5:15 PM	7	0	10	0	0	0	0	0	0	96	3	0	3	146	0	0	265	3209
5:20 PM	7	0	6	0	0	0	0	0	0	94	2	0	9	167	0	0	285	3236
5:25 PM	6	0	1	0	0	0	0	0	0	111	1	0	3	153	0	0	275	3280
5:30 PM	6	0	6	0	0	0	0	0	0	98	1	0	7	140	0	0	258	3271
5:35 PM	5	0	4	0	0	0	0	0	0	84	2	0	5	151	0	1	252	3267
5:40 PM	7	0	5	0	0	0	0	0	0	101	3	0	10	149	0	0	275	3237
5:45 PM	8	0	5	0	0	0	0	0	0	86	0	0	4	142	0	0	245	3223
5:50 PM	2	0	4	0	0	0	0	0	0	84	3	0	8	147	0	0	248	3178
5:55 PM	1	0	3	0	0	0	0	0	0	108	3	0	1	145	0	0	261	3162
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	48	0	100	0	0	0	0	0	0	1228	36	0	84	1928	0	4	3428	
Heavy Trucks	0	0	0	0	0	0	0	0	0	48	4	0	4	56	0	0	112	
Pedestrians	0	0	0	0	0	0	0	0	0	4	0	0	0	0	0	0	4	
Bicycles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Railroad																		
Stopped Buses																		

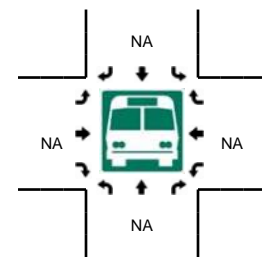
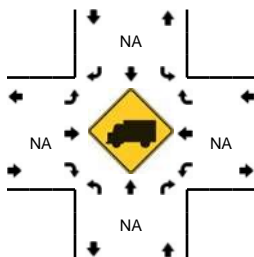
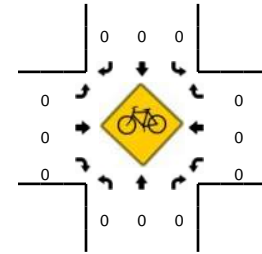
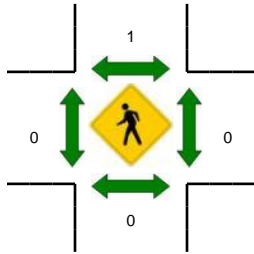
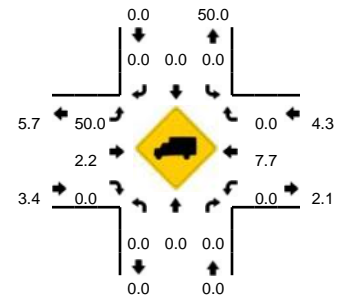
Comments:

**LOCATION:** Werth Blvd -- Hayes St  
**CITY/STATE:** Newberg, OR

**QC JOB #:** 14233603  
**DATE:** Tue, Feb 21 2017



**Peak-Hour: 8:00 AM -- 9:00 AM**  
**Peak 15-Min: 8:45 AM -- 9:00 AM**

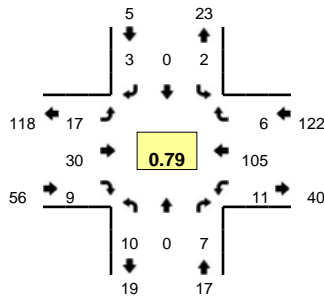


5-Min Count Period Beginning At	Werth Blvd (Northbound)				Werth Blvd (Southbound)				Hayes St (Eastbound)				Hayes St (Westbound)				Total	Hourly Totals	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U			
7:00 AM	0	0	1	0	0	0	0	0	0	1	2	0	0	1	2	0	0	5	
7:05 AM	0	0	1	0	1	0	0	0	1	4	1	0	0	0	1	0	0	9	
7:10 AM	0	0	0	0	0	1	0	0	0	4	0	0	0	0	3	0	0	8	
7:15 AM	0	0	1	0	1	0	0	0	0	4	1	0	0	1	1	0	0	9	
7:20 AM	0	0	0	0	0	0	0	0	0	8	0	0	0	0	3	0	0	11	
7:25 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	
7:30 AM	0	0	0	0	1	0	0	0	0	7	0	0	0	1	0	0	0	9	
7:35 AM	0	0	0	0	0	0	0	0	0	3	0	0	0	0	2	0	0	5	
7:40 AM	0	0	0	0	0	0	0	0	0	4	2	1	0	0	3	0	0	10	
7:45 AM	0	0	0	0	0	0	0	0	0	10	1	0	0	0	1	0	0	12	
7:50 AM	0	0	0	0	0	0	0	0	0	6	1	0	0	0	0	0	0	7	
7:55 AM	0	0	0	0	0	0	0	0	0	1	0	0	0	1	2	0	0	4	91
8:00 AM	0	0	0	0	0	0	0	0	0	8	0	0	0	0	3	0	0	11	97
8:05 AM	0	0	0	0	0	0	0	0	0	4	1	0	0	0	1	0	0	6	94
8:10 AM	1	0	0	0	0	0	0	0	0	1	1	0	0	3	1	0	0	7	93
8:15 AM	0	0	0	0	0	0	0	0	0	3	0	0	0	4	1	1	0	9	93
8:20 AM	0	0	0	0	0	0	0	0	0	1	1	0	0	3	3	0	0	8	90
8:25 AM	0	0	0	0	0	0	1	0	0	5	0	0	0	1	1	0	0	8	96
8:30 AM	0	0	0	0	0	0	1	0	0	6	1	0	0	1	3	0	0	12	99
8:35 AM	0	0	0	0	0	0	2	0	0	3	2	0	0	1	5	0	0	13	107
8:40 AM	0	0	0	0	0	0	0	0	0	0	1	0	0	2	1	0	0	4	101
8:45 AM	0	0	0	0	0	0	1	0	0	6	1	0	0	1	2	0	0	11	100
8:50 AM	0	0	1	0	0	0	1	0	1	5	2	0	0	0	4	0	0	14	107
8:55 AM	0	0	1	0	0	0	1	0	0	3	2	1	0	3	1	0	0	12	115
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	8	0	0	0	12	0	4	56	20	4	16	28	0	0	148		
Heavy Trucks	0	0	0	0	0	0	0	0	4	0	0	0	0	4	0	0	8		
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																			

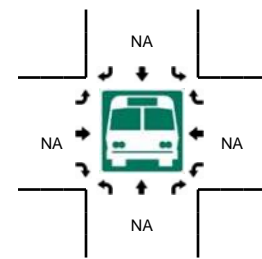
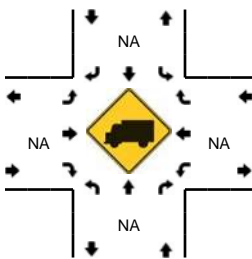
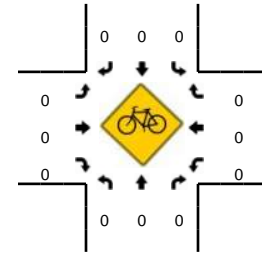
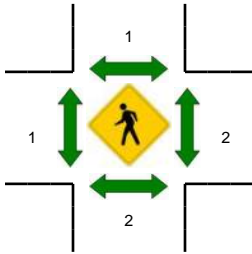
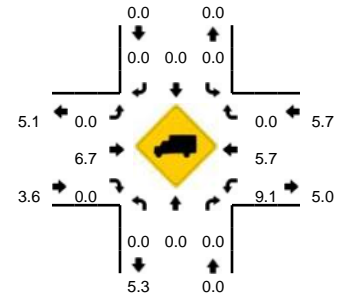
Comments:

**LOCATION:** Werth Blvd -- Hayes St  
**CITY/STATE:** Newberg, OR

**QC JOB #:** 14233604  
**DATE:** Tue, Feb 21 2017



**Peak-Hour: 4:10 PM -- 5:10 PM**  
**Peak 15-Min: 4:55 PM -- 5:10 PM**



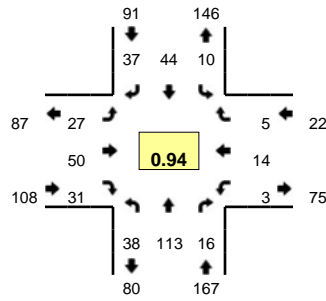
5-Min Count Period Beginning At	Werth Blvd (Northbound)				Werth Blvd (Southbound)				Hayes St (Eastbound)				Hayes St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	2	0	1	0	0	0	0	0	1	2	0	0	1	9	1	0	17	
4:05 PM	1	0	1	0	0	0	0	0	2	2	2	0	0	8	0	0	16	
4:10 PM	0	0	0	0	0	0	0	0	2	2	2	0	0	8	2	0	16	
4:15 PM	0	0	0	0	0	0	1	0	2	2	2	0	1	9	1	0	18	
4:20 PM	1	0	0	0	0	0	0	0	2	1	0	0	0	11	0	0	15	
4:25 PM	0	0	2	0	0	0	1	0	6	3	2	0	2	5	1	0	22	
4:30 PM	2	0	2	0	0	0	0	0	0	1	0	0	2	4	1	0	12	
4:35 PM	1	0	1	0	0	0	0	0	1	2	0	0	0	10	0	1	16	
4:40 PM	0	0	0	0	0	0	0	0	0	4	0	0	0	6	0	0	10	
4:45 PM	2	0	1	0	0	0	0	0	0	3	2	0	1	12	0	0	21	
4:50 PM	0	0	0	0	0	0	1	0	1	2	0	0	1	2	0	0	7	
4:55 PM	0	0	0	0	0	0	0	0	0	4	0	0	1	14	0	0	19	189
5:00 PM	2	0	0	0	0	0	0	0	1	2	0	0	1	12	1	0	19	191
5:05 PM	2	0	1	0	2	0	0	0	2	4	1	0	1	12	0	0	25	200
5:10 PM	0	0	1	0	0	0	0	0	0	3	0	0	1	7	1	0	13	197
5:15 PM	0	0	1	0	0	0	1	0	0	5	1	0	0	5	0	0	13	192
5:20 PM	3	0	1	0	1	0	0	0	1	2	0	0	1	9	0	0	18	195
5:25 PM	0	0	0	0	1	0	1	0	0	3	0	0	2	8	0	0	15	188
5:30 PM	0	0	1	0	0	0	0	0	0	2	1	0	0	5	0	0	9	185
5:35 PM	0	0	0	0	0	0	0	0	0	1	0	0	0	8	0	0	9	178
5:40 PM	0	0	1	0	0	0	3	0	1	4	2	0	0	8	1	0	20	188
5:45 PM	1	0	0	0	1	0	0	0	0	2	0	0	0	5	0	0	9	176
5:50 PM	2	0	0	0	0	0	0	0	0	1	2	0	0	2	0	0	7	176
5:55 PM	0	0	0	0	0	0	0	0	0	4	1	0	0	4	0	0	9	166
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	16	0	4	0	8	0	0	0	12	40	4	0	12	152	4	0	252	
Heavy Trucks	0	0	0		0	0	0		0	0	0		0	4	0		4	
Pedestrians	0				0				0				0	4			4	
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0	
Railroad																		
Stopped Buses																		

Comments:

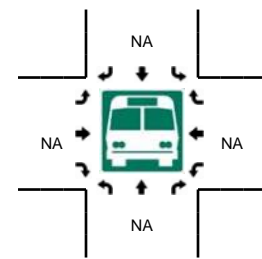
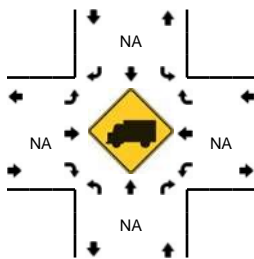
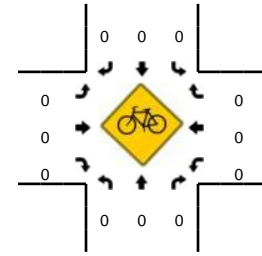
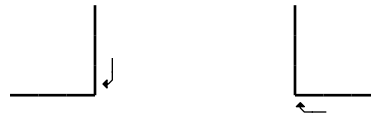
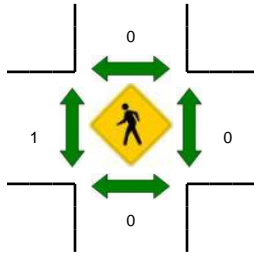
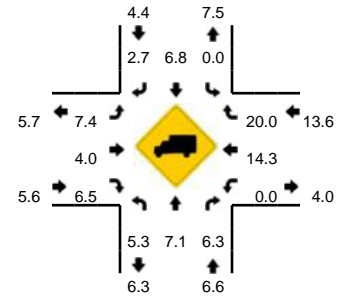


**LOCATION:** Brutscher St -- Hayes St  
**CITY/STATE:** Newberg, OR

**QC JOB #:** 14233605  
**DATE:** Tue, Feb 21 2017



**Peak-Hour: 7:15 AM -- 8:15 AM**  
**Peak 15-Min: 7:35 AM -- 7:50 AM**

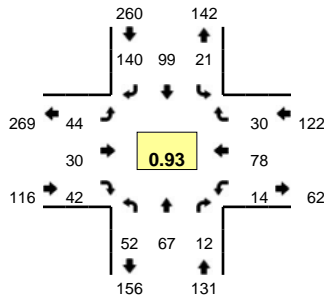


5-Min Count Period Beginning At	Brutscher St (Northbound)				Brutscher St (Southbound)				Hayes St (Eastbound)				Hayes St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	3	4	0	0	0	1	2	0	4	1	0	0	1	0	2	0	18	
7:05 AM	4	5	1	0	0	1	0	0	0	5	1	0	0	1	0	0	18	
7:10 AM	3	6	1	0	0	3	1	0	0	4	1	0	0	0	2	1	22	
7:15 AM	6	14	2	0	1	1	4	0	3	3	2	0	0	1	0	0	37	
7:20 AM	3	14	2	0	1	1	1	1	1	5	0	0	1	0	2	0	32	
7:25 AM	4	12	0	1	0	2	1	0	1	3	2	0	0	2	0	0	28	
7:30 AM	3	6	1	0	3	5	1	0	3	6	4	0	0	1	0	0	33	
7:35 AM	0	10	0	0	0	1	6	0	2	3	5	0	0	2	0	0	29	
7:40 AM	4	7	1	0	1	5	3	0	2	6	2	0	2	2	1	0	36	
7:45 AM	3	8	3	0	1	4	5	0	3	7	4	0	0	0	0	0	38	
7:50 AM	2	4	1	0	1	4	3	0	4	6	1	0	0	1	0	0	27	
7:55 AM	3	8	3	0	0	4	2	0	2	2	1	0	0	1	0	0	26	344
8:00 AM	1	4	1	1	1	6	3	0	1	4	4	0	0	2	1	0	29	355
8:05 AM	6	13	0	0	0	3	4	0	5	5	4	0	0	1	0	0	41	378
8:10 AM	1	13	2	0	0	8	4	0	0	0	2	0	0	1	1	0	32	388
8:15 AM	4	8	3	0	0	4	3	1	1	0	2	0	0	1	1	0	28	379
8:20 AM	5	9	1	0	0	6	2	0	2	2	2	0	0	0	2	0	31	378
8:25 AM	2	6	0	0	1	10	0	1	5	5	2	0	1	1	0	0	34	384
8:30 AM	4	6	3	0	0	4	1	0	3	3	2	0	0	2	2	0	30	381
8:35 AM	3	6	1	0	1	4	3	0	2	3	2	0	1	2	3	0	31	383
8:40 AM	1	3	1	0	0	6	4	0	1	3	3	0	0	2	1	0	25	372
8:45 AM	3	5	1	0	2	5	0	0	2	5	3	0	0	1	2	0	29	363
8:50 AM	2	1	0	0	3	8	4	0	3	3	5	0	1	2	3	0	35	371
8:55 AM	6	7	0	0	4	6	1	0	1	2	7	0	0	1	1	0	36	381
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	28	100	16	0	8	40	56	0	28	64	44	0	8	16	4	0	412	
Heavy Trucks	0	4	0	0	0	0	0	0	4	4	4	0	0	0	0	0	16	
Pedestrians		0				0				4				0			4	
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0	
Railroad																		
Stopped Buses																		

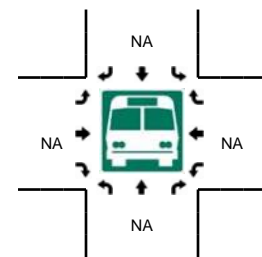
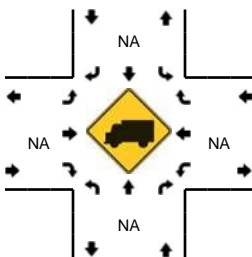
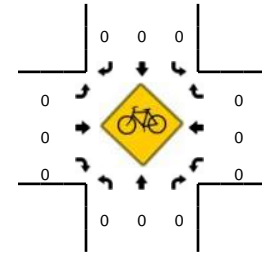
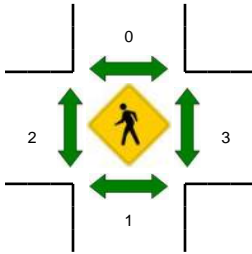
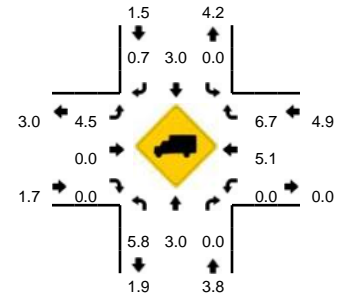
Comments:

**LOCATION:** Brutscher St -- Hayes St  
**CITY/STATE:** Newberg, OR

**QC JOB #:** 14233606  
**DATE:** Tue, Feb 21 2017



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



5-Min Count Period Beginning At	Brutscher St (Northbound)				Brutscher St (Southbound)				Hayes St (Eastbound)				Hayes St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	4	3	0	0	2	10	7	0	2	2	3	0	3	7	4	0	47	
4:05 PM	8	7	1	0	0	4	12	1	2	4	4	0	0	9	1	0	53	
4:10 PM	5	4	1	0	4	10	5	0	3	3	1	0	0	5	4	0	45	
4:15 PM	4	5	1	0	4	5	10	0	3	2	2	0	1	5	0	0	42	
4:20 PM	3	4	1	0	5	6	13	0	4	2	2	0	2	9	4	0	55	
4:25 PM	2	8	0	0	7	9	10	0	2	2	1	0	0	4	3	0	48	
4:30 PM	5	7	1	0	0	12	16	0	7	0	2	0	0	4	2	0	56	
4:35 PM	5	5	0	0	2	5	11	0	4	1	2	0	2	9	3	0	49	
4:40 PM	4	7	2	0	1	4	7	0	3	3	4	0	0	6	1	0	42	
4:45 PM	8	5	0	0	0	15	11	0	6	4	1	0	2	7	3	0	62	
4:50 PM	8	5	0	1	1	5	16	0	2	2	5	0	1	3	3	0	52	
4:55 PM	5	3	2	0	0	5	13	0	3	1	4	0	1	7	1	0	45	596
5:00 PM	1	9	3	0	2	6	6	0	2	3	4	0	1	14	3	0	54	603
5:05 PM	4	3	1	0	2	8	19	0	4	4	9	0	1	7	3	0	65	615
5:10 PM	3	4	0	0	0	13	8	0	4	4	5	0	3	5	2	0	51	621
5:15 PM	3	7	2	0	0	11	10	1	3	4	3	0	1	3	2	0	50	629
5:20 PM	0	4	1	0	1	5	14	0	3	2	2	0	1	12	0	0	45	619
5:25 PM	8	6	0	0	1	4	9	0	1	1	6	0	1	9	1	0	47	618
5:30 PM	2	2	0	0	1	9	11	0	4	2	2	0	1	3	2	0	39	601
5:35 PM	6	6	0	0	1	12	10	1	4	1	4	0	0	6	1	0	52	604
5:40 PM	0	4	2	0	0	6	12	0	4	4	1	0	1	13	0	0	47	609
5:45 PM	0	10	0	0	0	15	10	0	2	2	4	1	1	3	2	0	50	597
5:50 PM	5	9	0	0	1	8	7	0	0	3	7	0	1	3	0	0	44	589
5:55 PM	7	10	1	0	1	4	6	0	0	2	3	0	2	2	0	0	38	582
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	32	64	16	0	16	108	132	0	40	44	72	0	20	104	32	0	680	
Heavy Trucks	0	4	0	0	0	4	0	0	4	0	0	0	0	0	0	0	12	
Pedestrians		0				0				4				0			4	
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0	
Railroad																		
Stopped Buses																		

Comments:

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

Providence Dr & 99W Pacific Highway (091)  
 January 1, 2010 through December 31, 2014

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: 2014														
REAR-END	0	0	2	2	0	0	0	2	0	2	0	2	0	0
2014 TOTAL	0	0	2	2	0	0	0	2	0	2	0	2	0	0
YEAR: 2013														
REAR-END	0	0	1	1	0	0	0	1	0	1	0	1	0	0
2013 TOTAL	0	0	1	1	0	0	0	1	0	1	0	1	0	0
YEAR: 2012														
REAR-END	0	2	1	3	0	3	0	2	1	3	0	3	0	0
2012 TOTAL	0	2	1	3	0	3	0	2	1	3	0	3	0	0
YEAR: 2011														
REAR-END	0	0	1	1	0	0	0	0	1	1	0	1	0	0
2011 TOTAL	0	0	1	1	0	0	0	0	1	1	0	1	0	0
YEAR: 2010														
REAR-END	0	1	0	1	0	2	0	1	0	1	0	1	0	0
2010 TOTAL	0	1	0	1	0	2	0	1	0	1	0	1	0	0
FINAL TOTAL	0	3	5	8	0	5	0	6	2	8	0	8	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

Hayes St & Brutscher St  
 January 1, 2010 through December 31, 2014

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: 2013														
NON-COLLISION	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
FINAL TOTAL	0	1	0	1	0	1	0	1	0	0	1	1	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.*

17-346 Newberg Surg. Ctr TIA

Vistro File: J:\...\17-346 Newberg Ambulatory Surgery  
 TIA.vistro

Scenario 1 AM Existing 17-346

Report File: J:\...\17-346 Existing AM.pdf

3/2/2017

**Intersection Analysis Summary**

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Hwy 99W at Providence Dr	Signalized	HCM 6th Edition	NWB Right	0.652	5.0	A
3	Brutsher St at Hayes St	Roundabout	HCM 6th Edition	NB Thru		3.8	A
4	Hayes at Werth	Roundabout	HCM 6th Edition	EB Thru		3.2	A

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. for all other control types, they are taken for the whole intersection.

**Intersection Level Of Service Report  
Intersection 1: Hwy 99W at Providence Dr**

Control Type:	Signalized	Delay (sec / veh):	5.0
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.652

**Intersection Setup**

Name	Hwy 99W		Hwy 99W		Providence Dr	
Approach	Northeastbound		Southwestbound		Northwestbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	1	1	0	1	0
Pocket Length [ft]	100.00	75.00	100.00	100.00	150.00	100.00
Speed [mph]	45.00		45.00		25.00	
Grade [%]	0.00		0.00		0.00	
Curb Present	No		No		No	
Crosswalk	Yes		Yes		Yes	

**Volumes**

Name	Hwy 99W		Hwy 99W		Providence Dr	
Base Volume Input [veh/h]	1725	73	64	991	38	46
Base Volume Adjustment Factor	1.0850	1.0850	1.0850	1.0850	1.0850	1.0850
Heavy Vehicles Percentage [%]	4.50	4.50	4.50	4.50	4.50	4.50
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	1872	79	69	1075	41	50
Peak Hour Factor	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	482	20	18	277	11	13
Total Analysis Volume [veh/h]	1930	81	71	1108	42	52
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0		0		0	
v_di, Inbound Pedestrian Volume crossing	0		0		0	
v_co, Outbound Pedestrian Volume crossing	0		0		0	
v_ci, Inbound Pedestrian Volume crossing	0		0		0	
v_ab, Corner Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

**Intersection Settings**

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	0.00

**Phasing & Timing**

Control Type	Permissive	Permissive	Permissive	Permissive	Permissive	Permissive
Signal group	8	0	0	4	5	0
Auxiliary Signal Groups						
Lead / Lag	-	-	-	-	Lead	-
Minimum Green [s]	5	0	0	5	5	0
Maximum Green [s]	30	0	0	30	30	0
Amber [s]	3.0	0.0	0.0	3.0	3.0	0.0
All red [s]	1.0	0.0	0.0	1.0	1.0	0.0
Split [s]	19	0	0	19	101	0
Vehicle Extension [s]	3.0	0.0	0.0	3.0	3.0	0.0
Walk [s]	5	0	0	5	5	0
Pedestrian Clearance [s]	10	0	0	10	10	0
Rest In Walk	No			No	No	
I1, Start-Up Lost Time [s]	2.0	0.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	0.0	0.0	2.0	2.0	0.0
Minimum Recall	No			No	No	
Maximum Recall	No			No	No	
Pedestrian Recall	No			No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

**Exclusive Pedestrian Phase**

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

**Lane Group Calculations**

Lane Group	C	R	L	C	L	R
C, Cycle Length [s]	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	2.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	106	106	106	106	6	6
g / C, Green / Cycle	0.88	0.88	0.88	0.88	0.05	0.05
(v / s)_j Volume / Saturation Flow Rate	0.61	0.06	0.35	0.35	0.03	0.04
s, saturation flow rate [veh/h]	3140	1402	203	3140	1571	1402
c, Capacity [veh/h]	2765	1234	195	2765	83	74
d1, Uniform Delay [s]	2.22	0.91	10.29	1.32	55.27	55.86
k, delay calibration	0.50	0.50	0.50	0.50	0.11	0.11
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	1.49	0.10	5.16	0.43	4.72	11.46
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

**Lane Group Results**

X, volume / capacity	0.70	0.07	0.36	0.40	0.51	0.70
d, Delay for Lane Group [s/veh]	3.71	1.01	15.45	1.76	59.99	67.32
Lane Group LOS	A	A	B	A	E	E
Critical Lane Group	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh]	1.61	0.07	1.11	0.52	1.36	1.80
50th-Percentile Queue Length [ft]	40.21	1.77	27.64	13.03	33.90	44.91
95th-Percentile Queue Length [veh]	2.90	0.13	1.99	0.94	2.44	3.23
95th-Percentile Queue Length [ft]	72.38	3.18	49.75	23.46	61.02	80.84



**Movement, Approach, & Intersection Results**

d_M, Delay for Movement [s/veh]	3.71	1.01	15.45	1.76	59.99	67.32
Movement LOS	A	A	B	A	E	E
d_A, Approach Delay [s/veh]	3.60		2.58		64.04	
Approach LOS	A		A		E	
d_I, Intersection Delay [s/veh]	4.97					
Intersection LOS	A					
Intersection V/C	0.652					

**Other Modes**

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft <sup>2</sup> /ped]	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft <sup>2</sup> /ped]	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34
I_p,int, Pedestrian LOS Score for Intersection	3.299	3.240	2.123
Crosswalk LOS	C	C	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	0	0	0
d_b, Bicycle Delay [s]	60.00	60.00	60.00
I_b,int, Bicycle LOS Score for Intersection	5.791	5.105	4.132
Bicycle LOS	F	F	D

**Sequence**

Ring 1	-	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



**Intersection Level Of Service Report  
Intersection 3: Brutsher St at Hayes St**

Control Type:	Roundabout	Delay (sec / veh):	3.8
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes		

**Intersection Setup**

Name	Brutsher St			Brutsher St			Hayes St			Hayes St		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	+			+			+			+		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	25.00			25.00			25.00			25.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

**Volumes**

Name	Brutsher St			Brutsher St			Hayes St			Hayes St		
Base Volume Input [veh/h]	38	113	16	10	44	37	27	50	31	3	14	5
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	1.59	1.59	1.59	1.59	1.59	1.59	1.59	1.59	1.59	1.59	1.59	1.59
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	38	113	16	10	44	37	27	50	31	3	14	5
Peak Hour Factor	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	10	30	4	3	12	10	7	13	8	1	4	1
Total Analysis Volume [veh/h]	40	120	17	11	47	39	29	53	33	3	15	5
Pedestrian Volume [ped/h]	0			0			0			0		

**Intersection Settings**

Number of Conflicting Circulating Lanes	1			1			1			1		
Circulating Flow Rate [veh/h]	94			59			62			192		
Exiting Flow Rate [veh/h]	65			56			51			151		
Demand Flow Rate [veh/h]	38	113	16	10	44	37	27	50	31	3	14	5
Adjusted Demand Flow Rate [veh/h]	40	120	17	11	47	39	29	53	33	3	15	5

**Lanes**

Overwrite Calculated Critical Headway	No			No			No			No		
User-Defined Critical Headway [s]	4.00			4.00			4.00			4.00		
Overwrite Calculated Follow-Up Time	No			No			No			No		
User-Defined Follow-Up Time [s]	3.00			3.00			3.00			3.00		
A (intercept)	1380.00			1380.00			1380.00			1380.00		
B (coefficient)	0.00102			0.00102			0.00102			0.00102		
HV Adjustment Factor	0.98			0.98			0.98			0.98		
Entry Flow Rate [veh/h]	180			99			117			24		
Capacity of Entry and Bypass Lanes [veh/h]	1254			1300			1296			1135		
Pedestrian Impedance	1.00			1.00			1.00			1.00		
Capacity per Entry Lane [veh/h]	1234			1280			1276			1117		
X, volume / capacity	0.14			0.08			0.09			0.02		

**Movement, Approach, & Intersection Results**

Lane LOS	A			A			A			A		
95th-Percentile Queue Length [veh]	0.50			0.25			0.30			0.06		
95th-Percentile Queue Length [ft]	12.52			6.14			7.42			1.58		
Approach Delay [s/veh]	4.12			3.42			3.55			3.39		
Approach LOS	A			A			A			A		
Intersection Delay [s/veh]	3.76											
Intersection LOS	A											

**Intersection Level Of Service Report  
Intersection 4: Hayes at Werth**

Control Type: Roundabout  
 Analysis Method: HCM 6th Edition  
 Analysis Period: 15 minutes

Delay (sec / veh): 3.2  
 Level Of Service: A

**Intersection Setup**

Name	Werth			Werth			Hayes St			Providence Dr		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	+			+			+			+		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	25.00			25.00			25.00			25.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

**Volumes**

Name	Werth			Werth			Hayes St			Providence Dr		
Base Volume Input [veh/h]	1	0	2	0	0	7	2	45	12	19	26	1
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	5.40	5.40	5.40	5.40	5.40	5.40	5.40	5.40	5.40	5.40	5.40	5.40
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	1	0	2	0	0	7	2	45	12	19	26	1
Peak Hour Factor	0.7800	0.7800	0.7800	0.7800	0.7800	0.7800	0.7800	0.7800	0.7800	0.7800	0.7800	0.7800
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	1	0	0	2	1	14	4	6	8	0
Total Analysis Volume [veh/h]	1	0	3	0	0	9	3	58	15	24	33	1
Pedestrian Volume [ped/h]	0			0			0			0		

**Intersection Settings**

Number of Conflicting Circulating Lanes	1			1			1			1		
Circulating Flow Rate [veh/h]	64			61			25			4		
Exiting Flow Rate [veh/h]	61			36			25			3		
Demand Flow Rate [veh/h]	1	0	2	0	0	7	2	45	12	19	26	1
Adjusted Demand Flow Rate [veh/h]	1	0	3	0	0	9	3	58	15	24	33	1

**Lanes**

Overwrite Calculated Critical Headway	No	No	No	No
User-Defined Critical Headway [s]	4.00	4.00	4.00	4.00
Overwrite Calculated Follow-Up Time	No	No	No	No
User-Defined Follow-Up Time [s]	3.00	3.00	3.00	3.00
A (intercept)	1380.00	1380.00	1380.00	1380.00
B (coefficient)	0.00102	0.00102	0.00102	0.00102
HV Adjustment Factor	0.95	0.95	0.95	0.95
Entry Flow Rate [veh/h]	5	10	81	62
Capacity of Entry and Bypass Lanes [veh/h]	1293	1297	1345	1375
Pedestrian Impedance	1.00	1.00	1.00	1.00
Capacity per Entry Lane [veh/h]	1227	1231	1276	1304
X, volume / capacity	0.00	0.01	0.06	0.04

**Movement, Approach, & Intersection Results**

Lane LOS	A	A	A	A
95th-Percentile Queue Length [veh]	0.01	0.02	0.19	0.14
95th-Percentile Queue Length [ft]	0.25	0.55	4.74	3.49
Approach Delay [s/veh]	2.96	2.98	3.30	3.11
Approach LOS	A	A	A	A
Intersection Delay [s/veh]	3.20			
Intersection LOS	A			

17-346 Newberg Surg. Ctr TIA

Vistro File: J:\...\17-346 Newberg Ambulatory Surgery  
TIA.vistro

Scenario 1 AM Existing 17-346

Report File: J:\...\17-346 Existing AM.pdf

3/2/2017

**Turning Movement Volume: Summary**

ID	Intersection Name	Northeastbound		Southwestbound		Northwestbound		Total Volume
		Thru	Right	Left	Thru	Left	Right	
1	Hwy 99W at Providence Dr	1872	79	69	1075	41	50	3186

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
3	Brutsher St at Hayes St	38	113	16	10	44	37	27	50	31	3	14	5	388

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
4	Hayes at Werth	1	0	2	0	0	7	2	45	12	19	26	1	115

17-346 Newberg Surg. Ctr TIA

Vistro File: J:\...\17-346 Newberg Ambulatory Surgery TIA.vistro

Scenario 1 AM Existing 17-346

Report File: J:\...\17-346 Existing AM.pdf

3/2/2017

**Turning Movement Volume: Detail**

ID	Intersection Name	Volume Type	Northeastbound		Southwestbound		Northwestbound		Total Volume
			Thru	Right	Left	Thru	Left	Right	
1	Hwy 99W at Providence Dr	Final Base	1872	79	69	1075	41	50	3186
		Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	-
		In Process	0	0	0	0	0	0	0
		Net New Trips	0	0	0	0	0	0	0
		Other	0	0	0	0	0	0	0
		<b>Future Total</b>	<b>1872</b>	<b>79</b>	<b>69</b>	<b>1075</b>	<b>41</b>	<b>50</b>	<b>3186</b>

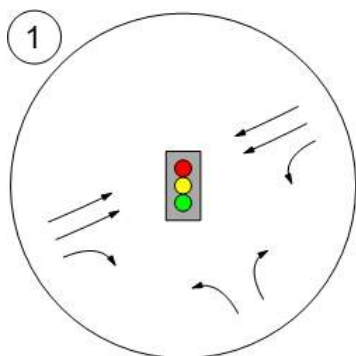
ID	Intersection Name	Volume Type	Northbound			Southbound			Eastbound			Westbound			Total Volume
			Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
3	Brutsher St at Hayes St	Final Base	38	113	16	10	44	37	27	50	31	3	14	5	388
		Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	-
		In Process	0	0	0	0	0	0	0	0	0	0	0	0	0
		Net New Trips	0	0	0	0	0	0	0	0	0	0	0	0	0
		Other	0	0	0	0	0	0	0	0	0	0	0	0	0
		<b>Future Total</b>	<b>38</b>	<b>113</b>	<b>16</b>	<b>10</b>	<b>44</b>	<b>37</b>	<b>27</b>	<b>50</b>	<b>31</b>	<b>3</b>	<b>14</b>	<b>5</b>	<b>388</b>

ID	Intersection Name	Volume Type	Northbound			Southbound			Eastbound			Westbound			Total Volume
			Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
4	Hayes at Werth	Final Base	1	0	2	0	0	7	2	45	12	19	26	1	115
		Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	-
		In Process	0	0	0	0	0	0	0	0	0	0	0	0	0
		Net New Trips	0	0	0	0	0	0	0	0	0	0	0	0	0
		Other	0	0	0	0	0	0	0	0	0	0	0	0	0
		<b>Future Total</b>	<b>1</b>	<b>0</b>	<b>2</b>	<b>0</b>	<b>0</b>	<b>7</b>	<b>2</b>	<b>45</b>	<b>12</b>	<b>19</b>	<b>26</b>	<b>1</b>	<b>115</b>

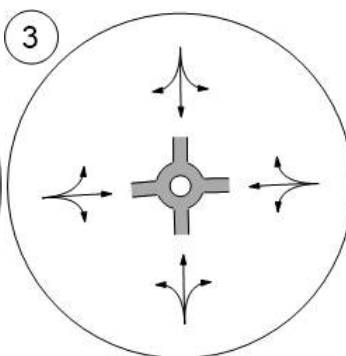
Report Figure 1: Lane Configuration and Traffic Control



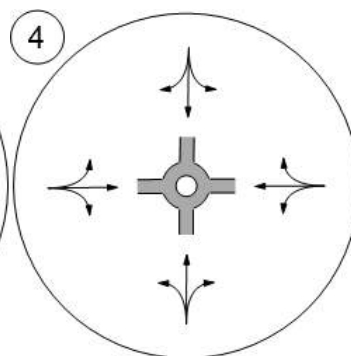
Hwy 99W at Providence Dr



Brutsher St at Hayes St



Hayes at Werth

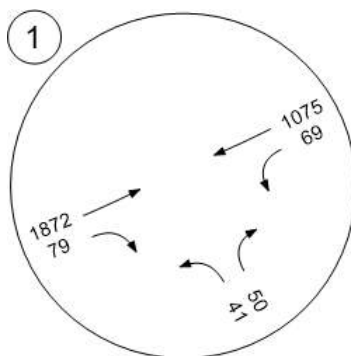




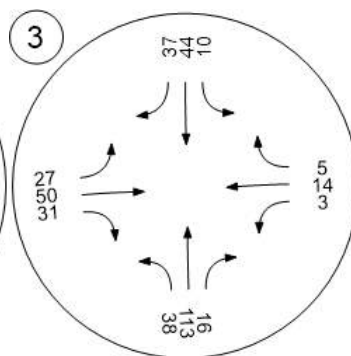
Report Figure 2a: Traffic Volume - Base Volume



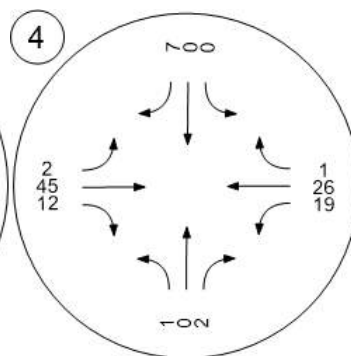
Hwy 99W at Providence Dr



Brutsher St at Hayes St



Hayes at Werth



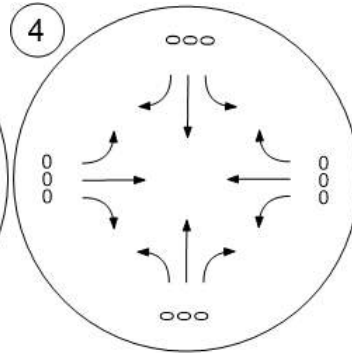
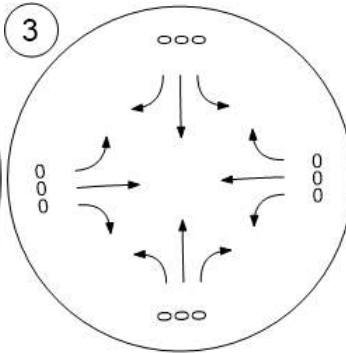
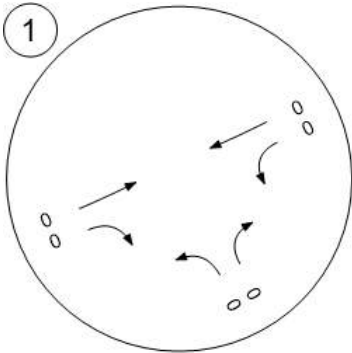
Report Figure 2c: Traffic Volume - Net New Site Trips



Hwy 99W at Providence Dr

Brutsher St at Hayes St

Hayes at Werth



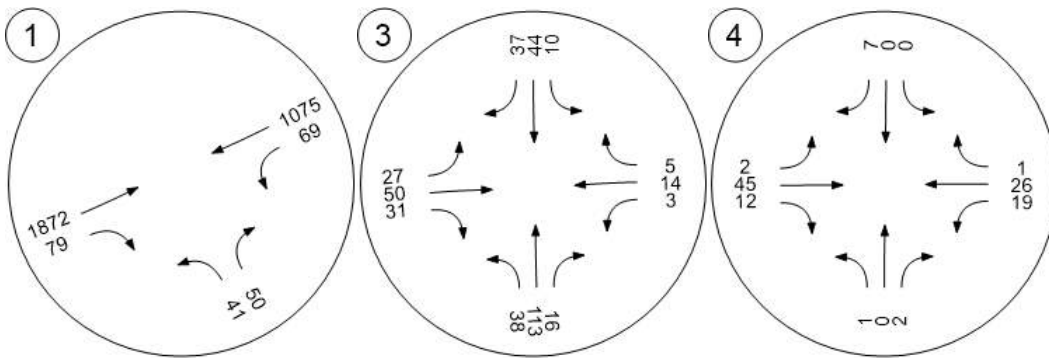
Report Figure 2e: Traffic Volume - Future Total Volume



Hwy 99W at Providence Dr

Brutsher St at Hayes St

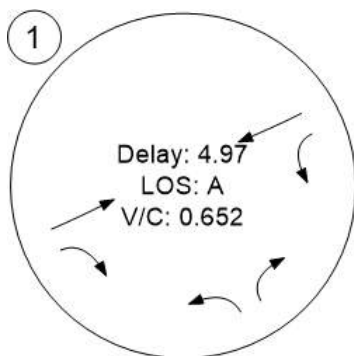
Hayes at Werth



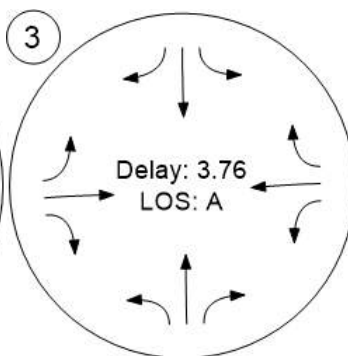
Report Figure 3: Traffic Conditions



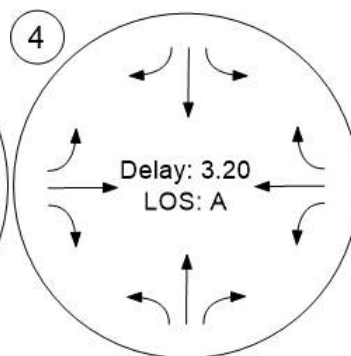
Hwy 99W at Providence Dr



Brutsher St at Hayes St



Hayes at Werth



17-346 Newberg Surg. Ctr TIA

Vistro File: J:\...\17-346 Newberg Ambulatory Surgery  
TIA.vistro

Scenario 2 PM Existing 17-346

Report File: J:\...\17-346 Existing PM.pdf

3/6/2017

**Intersection Analysis Summary**

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Hwy 99W at Providence Dr	Signalized	HCM 6th Edition	SWB Left	0.714	10.7	B
3	Brutsher St at Hayes St	Roundabout	HCM 6th Edition	SB Right		4.6	A
4	Hayes at Werth	Roundabout	HCM 6th Edition	WB Thru		3.5	A

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. for all other control types, they are taken for the whole intersection.

**Intersection Level Of Service Report  
Intersection 1: Hwy 99W at Providence Dr**

Control Type:	Signalized	Delay (sec / veh):	10.7
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.714

**Intersection Setup**

Name	Hwy 99W		Hwy 99W		Providence Dr	
Approach	Northeastbound		Southwestbound		Northwestbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	1	1	0	1	0
Pocket Length [ft]	100.00	75.00	100.00	100.00	150.00	100.00
Speed [mph]	45.00		45.00		25.00	
Grade [%]	0.00		0.00		0.00	
Curb Present	No		No		No	
Crosswalk	Yes		Yes		Yes	

**Volumes**

Name	Hwy 99W		Hwy 99W		Providence Dr	
Base Volume Input [veh/h]	1207	31	79	1789	78	96
Base Volume Adjustment Factor	1.0850	1.0850	1.0850	1.0850	1.0850	1.0850
Heavy Vehicles Percentage [%]	3.27	3.27	3.27	3.27	3.27	3.27
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	1310	34	86	1941	85	104
Peak Hour Factor	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	341	9	22	505	22	27
Total Analysis Volume [veh/h]	1365	35	90	2022	89	108
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0		0		0	
v_di, Inbound Pedestrian Volume crossing	0		0		0	
v_co, Outbound Pedestrian Volume crossing	0		0		0	
v_ci, Inbound Pedestrian Volume crossing	0		0		0	
v_ab, Corner Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

**Intersection Settings**

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	0.00

**Phasing & Timing**

Control Type	Permissive	Permissive	Protected	Permissive	Permissive	Permissive
Signal group	8	0	7	4	5	0
Auxiliary Signal Groups						
Lead / Lag	-	-	Lead	-	Lead	-
Minimum Green [s]	5	0	5	5	5	0
Maximum Green [s]	30	0	30	30	30	0
Amber [s]	3.0	0.0	3.0	3.0	3.0	0.0
All red [s]	1.0	0.0	1.0	1.0	1.0	0.0
Split [s]	27	0	44	71	19	0
Vehicle Extension [s]	3.0	0.0	3.0	3.0	3.0	0.0
Walk [s]	5	0	0	5	5	0
Pedestrian Clearance [s]	10	0	0	10	10	0
Rest In Walk	No			No	No	
I1, Start-Up Lost Time [s]	2.0	0.0	2.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	0.0	2.0	2.0	2.0	0.0
Minimum Recall	No		No	No	No	
Maximum Recall	No		No	No	No	
Pedestrian Recall	No		No	No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

**Exclusive Pedestrian Phase**

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

**Lane Group Calculations**

Lane Group	C	R	L	C	L	R
C, Cycle Length [s]	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	63	63	6	73	9	9
g / C, Green / Cycle	0.70	0.70	0.07	0.81	0.10	0.10
(v / s)_j Volume / Saturation Flow Rate	0.43	0.02	0.06	0.64	0.06	0.08
s, saturation flow rate [veh/h]	3172	1416	1587	3172	1587	1416
c, Capacity [veh/h]	2204	984	115	2575	158	141
d1, Uniform Delay [s]	7.35	4.29	41.06	4.40	38.70	39.54
k, delay calibration	0.50	0.50	0.11	0.50	0.11	0.11
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	1.32	0.07	10.96	2.49	3.16	8.48
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

**Lane Group Results**

X, volume / capacity	0.62	0.04	0.78	0.79	0.57	0.77
d, Delay for Lane Group [s/veh]	8.67	4.36	52.02	6.89	41.86	48.03
Lane Group LOS	A	A	D	A	D	D
Critical Lane Group	No	No	No	Yes	No	Yes
50th-Percentile Queue Length [veh]	5.25	0.16	2.22	4.05	2.01	2.65
50th-Percentile Queue Length [ft]	131.22	4.09	55.60	101.13	50.30	66.37
95th-Percentile Queue Length [veh]	9.01	0.29	4.00	7.28	3.62	4.78
95th-Percentile Queue Length [ft]	225.15	7.36	100.08	182.04	90.54	119.47



**Movement, Approach, & Intersection Results**

d_M, Delay for Movement [s/veh]	8.67	4.36	52.02	6.89	41.86	48.03
Movement LOS	A	A	D	A	D	D
d_A, Approach Delay [s/veh]	8.56		8.81		45.24	
Approach LOS	A		A		D	
d_I, Intersection Delay [s/veh]	10.65					
Intersection LOS	B					
Intersection V/C	0.714					

**Other Modes**

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft <sup>2</sup> /ped]	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft <sup>2</sup> /ped]	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	36.45	36.45	36.45
I_p,int, Pedestrian LOS Score for Intersection	3.455	3.350	2.029
Crosswalk LOS	C	C	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	0	0	0
d_b, Bicycle Delay [s]	45.00	45.00	45.00
I_b,int, Bicycle LOS Score for Intersection	5.287	5.875	4.132
Bicycle LOS	F	F	D

**Sequence**

Ring 1	-	-	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



**Intersection Level Of Service Report  
Intersection 3: Brutsher St at Hayes St**

Control Type:	Roundabout	Delay (sec / veh):	4.6
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes		

**Intersection Setup**

Name	Brutsher St			Brutsher St			Hayes St			Hayes St		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	⊕			⊕			⊕			⊕		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	25.00			25.00			25.00			25.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

**Volumes**

Name	Brutsher St			Brutsher St			Hayes St			Hayes St		
Base Volume Input [veh/h]	52	67	12	21	99	140	44	30	42	14	78	30
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	1.76	1.76	1.76	1.76	1.76	1.76	1.76	1.76	1.76	1.76	1.76	1.76
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	52	67	12	21	99	140	44	30	42	14	78	30
Peak Hour Factor	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	14	18	3	6	27	38	12	8	11	4	21	8
Total Analysis Volume [veh/h]	56	72	13	23	106	151	47	32	45	15	84	32
Pedestrian Volume [ped/h]	0			0			0			0		

**Intersection Settings**

Number of Conflicting Circulating Lanes	1			1			1			1		
Circulating Flow Rate [veh/h]	104			158			147			178		
Exiting Flow Rate [veh/h]	56			142			123			121		
Demand Flow Rate [veh/h]	52	67	12	21	99	140	44	30	42	14	78	30
Adjusted Demand Flow Rate [veh/h]	56	72	13	23	106	151	47	32	45	15	84	32

**Lanes**

Overwrite Calculated Critical Headway	No			No			No			No		
User-Defined Critical Headway [s]	4.00			4.00			4.00			4.00		
Overwrite Calculated Follow-Up Time	No			No			No			No		
User-Defined Follow-Up Time [s]	3.00			3.00			3.00			3.00		
A (intercept)	1380.00			1380.00			1380.00			1380.00		
B (coefficient)	0.00102			0.00102			0.00102			0.00102		
HV Adjustment Factor	0.98			0.98			0.98			0.98		
Entry Flow Rate [veh/h]	144			285			127			134		
Capacity of Entry and Bypass Lanes [veh/h]	1242			1175			1189			1151		
Pedestrian Impedance	1.00			1.00			1.00			1.00		
Capacity per Entry Lane [veh/h]	1220			1155			1168			1131		
X, volume / capacity	0.12			0.24			0.11			0.12		

**Movement, Approach, & Intersection Results**

Lane LOS	A			A			A			A		
95th-Percentile Queue Length [veh]	0.39			0.95			0.36			0.39		
95th-Percentile Queue Length [ft]	9.77			23.80			8.89			9.80		
Approach Delay [s/veh]	3.91			5.33			3.98			4.18		
Approach LOS	A			A			A			A		
Intersection Delay [s/veh]	4.56											
Intersection LOS	A											

**Intersection Level Of Service Report  
Intersection 4: Hayes at Werth**

Control Type: Roundabout  
 Analysis Method: HCM 6th Edition  
 Analysis Period: 15 minutes

Delay (sec / veh): 3.5  
 Level Of Service: A

**Intersection Setup**

Name	Werth			Werth			Hayes St			Providence Dr		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	+			+			+			+		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	25.00			25.00			25.00			25.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

**Volumes**

Name	Werth			Werth			Hayes St			Providence Dr		
Base Volume Input [veh/h]	10	0	7	2	0	3	17	30	9	11	105	6
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	1.59	1.59	1.59	1.59	1.59	1.59	1.59	1.59	1.59	1.59	1.59	1.59
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	10	0	7	2	0	3	17	30	9	11	105	6
Peak Hour Factor	0.7900	0.7900	0.7900	0.7900	0.7900	0.7900	0.7900	0.7900	0.7900	0.7900	0.7900	0.7900
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	3	0	2	1	0	1	5	9	3	3	33	2
Total Analysis Volume [veh/h]	13	0	9	3	0	4	22	38	11	14	133	8
Pedestrian Volume [ped/h]	0			0			0			0		

**Intersection Settings**

Number of Conflicting Circulating Lanes	1			1			1			1		
Circulating Flow Rate [veh/h]	64			163			17			36		
Exiting Flow Rate [veh/h]	42			148			14			22		
Demand Flow Rate [veh/h]	10	0	7	2	0	3	17	30	9	11	105	6
Adjusted Demand Flow Rate [veh/h]	13	0	9	3	0	4	22	38	11	14	133	8

**Lanes**

Overwrite Calculated Critical Headway	No			No			No			No		
User-Defined Critical Headway [s]	4.00			4.00			4.00			4.00		
Overwrite Calculated Follow-Up Time	No			No			No			No		
User-Defined Follow-Up Time [s]	3.00			3.00			3.00			3.00		
A (intercept)	1380.00			1380.00			1380.00			1380.00		
B (coefficient)	0.00102			0.00102			0.00102			0.00102		
HV Adjustment Factor	0.98			0.98			0.98			0.98		
Entry Flow Rate [veh/h]	23			8			73			158		
Capacity of Entry and Bypass Lanes [veh/h]	1293			1170			1356			1331		
Pedestrian Impedance	1.00			1.00			1.00			1.00		
Capacity per Entry Lane [veh/h]	1273			1151			1335			1311		
X, volume / capacity	0.02			0.01			0.05			0.12		

**Movement, Approach, & Intersection Results**

Lane LOS	A			A			A			A		
95th-Percentile Queue Length [veh]	0.05			0.02			0.17			0.40		
95th-Percentile Queue Length [ft]	1.32			0.46			4.21			10.04		
Approach Delay [s/veh]	2.97			3.18			3.11			3.71		
Approach LOS	A			A			A			A		
Intersection Delay [s/veh]	3.46											
Intersection LOS	A											

17-346 Newberg Surg. Ctr TIA

Vistro File: J:\...\17-346 Newberg Ambulatory Surgery  
TIA.vistro

Scenario 2 PM Existing 17-346

Report File: J:\...\17-346 Existing PM.pdf

3/6/2017

**Turning Movement Volume: Summary**

ID	Intersection Name	Northeastbound		Southwestbound		Northwestbound		Total Volume
		Thru	Right	Left	Thru	Left	Right	
1	Hwy 99W at Providence Dr	1310	34	86	1941	85	104	3560

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
3	Brutsher St at Hayes St	52	67	12	21	99	140	44	30	42	14	78	30	629

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
4	Hayes at Werth	10	0	7	2	0	3	17	30	9	11	105	6	200

17-346 Newberg Surg. Ctr TIA

Vistro File: J:\...\17-346 Newberg Ambulatory Surgery TIA.vistro

Scenario 2 PM Existing 17-346

Report File: J:\...\17-346 Existing PM.pdf

3/6/2017

**Turning Movement Volume: Detail**

ID	Intersection Name	Volume Type	Northeastbound		Southwestbound		Northwestbound		Total Volume
			Thru	Right	Left	Thru	Left	Right	
1	Hwy 99W at Providence Dr	Final Base	1310	34	86	1941	85	104	3560
		Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	-
		In Process	0	0	0	0	0	0	0
		Net New Trips	0	0	0	0	0	0	0
		Other	0	0	0	0	0	0	0
		<b>Future Total</b>	<b>1310</b>	<b>34</b>	<b>86</b>	<b>1941</b>	<b>85</b>	<b>104</b>	<b>3560</b>

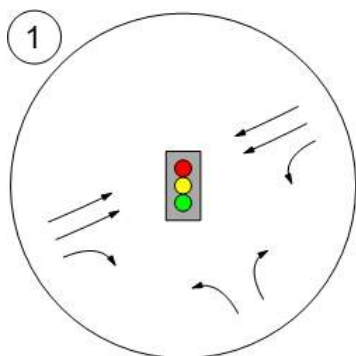
ID	Intersection Name	Volume Type	Northbound			Southbound			Eastbound			Westbound			Total Volume
			Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
3	Brutsher St at Hayes St	Final Base	52	67	12	21	99	140	44	30	42	14	78	30	629
		Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	-
		In Process	0	0	0	0	0	0	0	0	0	0	0	0	0
		Net New Trips	0	0	0	0	0	0	0	0	0	0	0	0	0
		Other	0	0	0	0	0	0	0	0	0	0	0	0	0
		<b>Future Total</b>	<b>52</b>	<b>67</b>	<b>12</b>	<b>21</b>	<b>99</b>	<b>140</b>	<b>44</b>	<b>30</b>	<b>42</b>	<b>14</b>	<b>78</b>	<b>30</b>	<b>629</b>

ID	Intersection Name	Volume Type	Northbound			Southbound			Eastbound			Westbound			Total Volume
			Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
4	Hayes at Werth	Final Base	10	0	7	2	0	3	17	30	9	11	105	6	200
		Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	-
		In Process	0	0	0	0	0	0	0	0	0	0	0	0	0
		Net New Trips	0	0	0	0	0	0	0	0	0	0	0	0	0
		Other	0	0	0	0	0	0	0	0	0	0	0	0	0
		<b>Future Total</b>	<b>10</b>	<b>0</b>	<b>7</b>	<b>2</b>	<b>0</b>	<b>3</b>	<b>17</b>	<b>30</b>	<b>9</b>	<b>11</b>	<b>105</b>	<b>6</b>	<b>200</b>

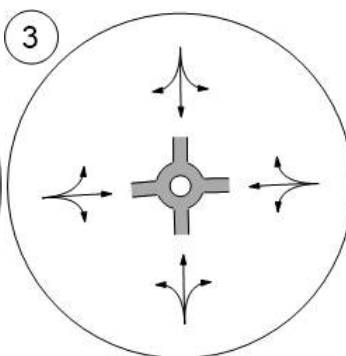
Report Figure 1: Lane Configuration and Traffic Control



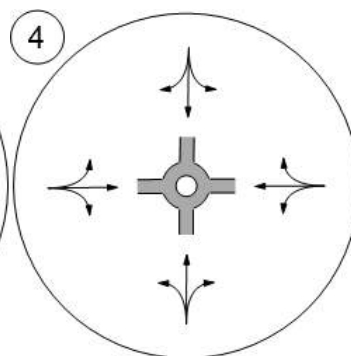
Hwy 99W at Providence Dr



Brutsher St at Hayes St



Hayes at Werth





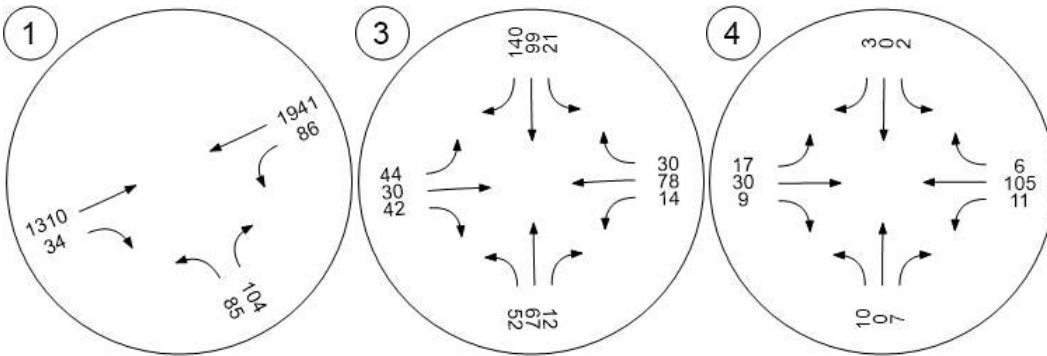
Report Figure 2a: Traffic Volume - Base Volume



Hwy 99W at Providence Dr

Brutsher St at Hayes St

Hayes at Werth



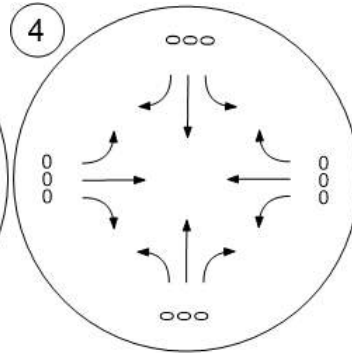
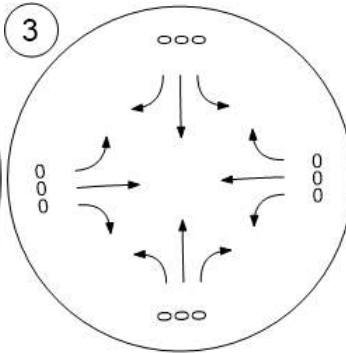
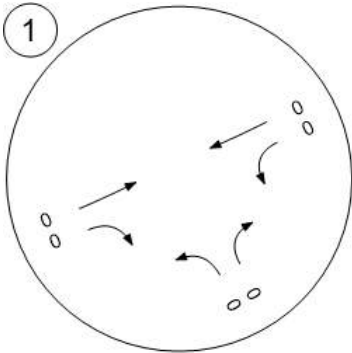
Report Figure 2c: Traffic Volume - Net New Site Trips



Hwy 99W at Providence Dr

Brutsher St at Hayes St

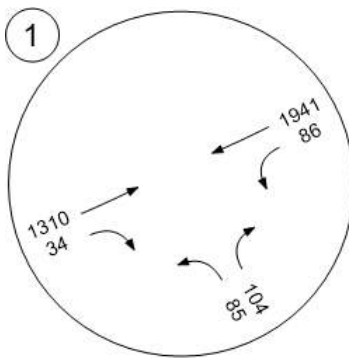
Hayes at Werth



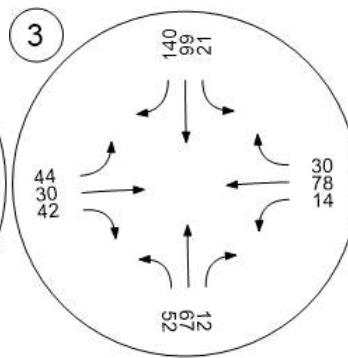
Report Figure 2e: Traffic Volume - Future Total Volume



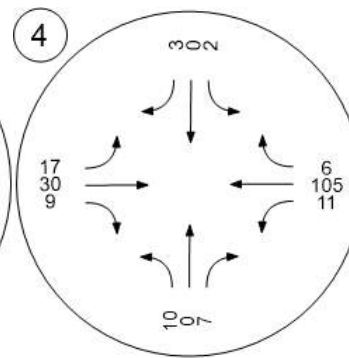
Hwy 99W at Providence Dr



Brutsher St at Hayes St



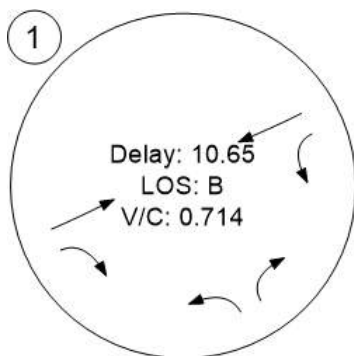
Hayes at Werth



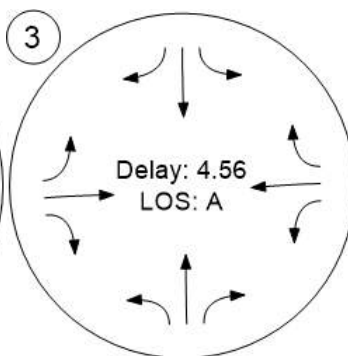
Report Figure 3: Traffic Conditions



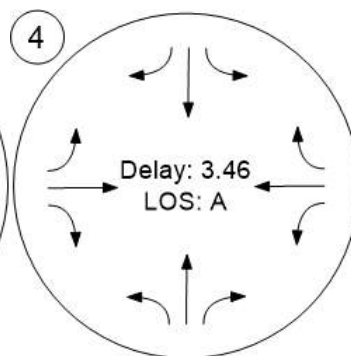
Hwy 99W at Providence Dr



Brutsher St at Hayes St



Hayes at Werth



17-346 Newberg Surg. Ctr TIA

Vistro File: J:\...\17-346 Newberg Ambulatory Surgery  
 TIA.vistro

Scenario 4 AM Developed 17-346

Report File: J:\...\17-346 Developed AM.pdf

3/6/2017

**Intersection Analysis Summary**

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Hwy 99W at Providence Dr	Signalized	HCM 6th Edition	NWB Right	0.661	5.4	A
3	Brutsher St at Hayes St	Roundabout	HCM 6th Edition	NB Thru		3.8	A
4	Hayes at Werth	Roundabout	HCM 6th Edition	EB Thru		3.2	A
5	Site Access at Providence Dr.	Two-way stop	HCM 6th Edition	EB Left	0.012	9.3	A

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. for all other control types, they are taken for the whole intersection.

**Intersection Level Of Service Report**  
**Intersection 1: Hwy 99W at Providence Dr**

Control Type:	Signalized	Delay (sec / veh):	5.4
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.661

**Intersection Setup**

Name	Hwy 99W		Hwy 99W		Providence Dr	
Approach	Northeastbound		Southwestbound		Northwestbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	1	1	0	1	0
Pocket Length [ft]	100.00	75.00	100.00	100.00	150.00	100.00
Speed [mph]	45.00		45.00		25.00	
Grade [%]	0.00		0.00		0.00	
Curb Present	No		No		No	
Crosswalk	Yes		Yes		Yes	

**Volumes**

Name	Hwy 99W		Hwy 99W		Providence Dr	
Base Volume Input [veh/h]	1725	73	64	991	38	46
Base Volume Adjustment Factor	1.0850	1.0850	1.0850	1.0850	1.0850	1.0850
Heavy Vehicles Percentage [%]	4.50	4.50	4.50	4.50	4.50	4.50
Growth Rate	1.01	1.01	1.01	1.01	1.01	1.01
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	20	10	0	5	3
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	1891	100	80	1086	46	54
Peak Hour Factor	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	487	26	21	280	12	14
Total Analysis Volume [veh/h]	1949	103	82	1120	47	56
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0		0		0	
v_di, Inbound Pedestrian Volume crossing m	0		0		0	
v_co, Outbound Pedestrian Volume crossing	0		0		0	
v_ci, Inbound Pedestrian Volume crossing mi	0		0		0	
v_ab, Corner Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

**Intersection Settings**

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	0.00

**Phasing & Timing**

Control Type	Permissive	Permissive	Permissive	Permissive	Permissive	Permissive
Signal group	8	0	0	4	5	0
Auxiliary Signal Groups						
Lead / Lag	-	-	-	-	Lead	-
Minimum Green [s]	5	0	0	5	5	0
Maximum Green [s]	30	0	0	30	30	0
Amber [s]	3.0	0.0	0.0	3.0	3.0	0.0
All red [s]	1.0	0.0	0.0	1.0	1.0	0.0
Split [s]	19	0	0	19	101	0
Vehicle Extension [s]	3.0	0.0	0.0	3.0	3.0	0.0
Walk [s]	5	0	0	5	5	0
Pedestrian Clearance [s]	10	0	0	10	10	0
Rest In Walk	No			No	No	
I1, Start-Up Lost Time [s]	2.0	0.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	0.0	0.0	2.0	2.0	0.0
Minimum Recall	No			No	No	
Maximum Recall	No			No	No	
Pedestrian Recall	No			No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

**Exclusive Pedestrian Phase**

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

**Lane Group Calculations**

Lane Group	C	R	L	C	L	R
C, Cycle Length [s]	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	2.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	105	105	105	105	7	7
g / C, Green / Cycle	0.88	0.88	0.88	0.88	0.06	0.06
(v / s)_j Volume / Saturation Flow Rate	0.62	0.07	0.41	0.36	0.03	0.04
s, saturation flow rate [veh/h]	3140	1402	200	3140	1571	1402
c, Capacity [veh/h]	2754	1229	190	2754	88	79
d1, Uniform Delay [s]	2.39	0.98	12.32	1.41	55.04	55.62
k, delay calibration	0.50	0.50	0.50	0.50	0.11	0.11
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	1.56	0.13	6.98	0.45	4.89	11.14
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

**Lane Group Results**

X, volume / capacity	0.71	0.08	0.43	0.41	0.53	0.71
d, Delay for Lane Group [s/veh]	3.95	1.11	19.31	1.86	59.93	66.76
Lane Group LOS	A	A	B	A	E	E
Critical Lane Group	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh]	1.96	0.10	1.49	0.63	1.51	1.92
50th-Percentile Queue Length [ft]	49.00	2.62	37.15	15.81	37.87	48.08
95th-Percentile Queue Length [veh]	3.53	0.19	2.67	1.14	2.73	3.46
95th-Percentile Queue Length [ft]	88.20	4.71	66.86	28.46	68.17	86.55



**Movement, Approach, & Intersection Results**

d_M, Delay for Movement [s/veh]	3.95	1.11	19.31	1.86	59.93	66.76
Movement LOS	A	A	B	A	E	E
d_A, Approach Delay [s/veh]	3.81		3.05		63.65	
Approach LOS	A		A		E	
d_I, Intersection Delay [s/veh]	5.37					
Intersection LOS	A					
Intersection V/C	0.661					

**Other Modes**

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft <sup>2</sup> /ped]	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft <sup>2</sup> /ped]	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34
I_p,int, Pedestrian LOS Score for Intersection	3.324	3.253	2.150
Crosswalk LOS	C	C	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	0	0	0
d_b, Bicycle Delay [s]	60.00	60.00	60.00
I_b,int, Bicycle LOS Score for Intersection	5.825	5.124	4.132
Bicycle LOS	F	F	D

**Sequence**

Ring 1	-	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



**Intersection Level Of Service Report  
Intersection 3: Brutsher St at Hayes St**

Control Type:	Roundabout	Delay (sec / veh):	3.8
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes		

**Intersection Setup**

Name	Brutscher St			Brutscher St			Hayes St			Hayes St		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	+			+			+			+		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	25.00			25.00			25.00			25.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

**Volumes**

Name	Brutscher St			Brutscher St			Hayes St			Hayes St		
Base Volume Input [veh/h]	38	113	16	10	44	37	27	50	31	3	14	5
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	1.59	1.59	1.59	1.59	1.59	1.59	1.59	1.59	1.59	1.59	1.59	1.59
Growth Rate	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	3	0	0	1	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	38	114	16	10	44	37	27	54	31	3	15	5
Peak Hour Factor	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	10	30	4	3	12	10	7	14	8	1	4	1
Total Analysis Volume [veh/h]	40	121	17	11	47	39	29	57	33	3	16	5
Pedestrian Volume [ped/h]	0			0			0			0		

**Intersection Settings**

Number of Conflicting Circulating Lanes	1			1			1			1		
Circulating Flow Rate [veh/h]	99			60			62			193		
Exiting Flow Rate [veh/h]	69			57			51			152		
Demand Flow Rate [veh/h]	38	114	16	10	44	37	27	54	31	3	15	5
Adjusted Demand Flow Rate [veh/h]	40	121	17	11	47	39	29	57	33	3	16	5

**Lanes**

Override Calculated Critical Headway	No			No			No			No		
User-Defined Critical Headway [s]	4.00			4.00			4.00			4.00		
Override Calculated Follow-Up Time	No			No			No			No		
User-Defined Follow-Up Time [s]	3.00			3.00			3.00			3.00		
A (intercept)	1380.00			1380.00			1380.00			1380.00		
B (coefficient)	0.00102			0.00102			0.00102			0.00102		
HV Adjustment Factor	0.98			0.98			0.98			0.98		
Entry Flow Rate [veh/h]	181			99			121			25		
Capacity of Entry and Bypass Lanes [veh/h]	1249			1299			1296			1134		
Pedestrian Impedance	1.00			1.00			1.00			1.00		
Capacity per Entry Lane [veh/h]	1229			1278			1276			1116		
X, volume / capacity	0.14			0.08			0.09			0.02		

**Movement, Approach, & Intersection Results**

Lane LOS	A			A			A			A		
95th-Percentile Queue Length [veh]	0.51			0.25			0.31			0.07		
95th-Percentile Queue Length [ft]	12.66			6.15			7.70			1.65		
Approach Delay [s/veh]	4.15			3.43			3.58			3.41		
Approach LOS	A			A			A			A		
Intersection Delay [s/veh]	3.78											
Intersection LOS	A											

**Intersection Level Of Service Report  
Intersection 4: Hayes at Werth**

Control Type: Roundabout  
 Analysis Method: HCM 6th Edition  
 Analysis Period: 15 minutes

Delay (sec / veh): 3.2  
 Level Of Service: A

**Intersection Setup**

Name	Werth			Werth			Hayes St			Providence Dr		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	+			+			+			+		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	25.00			25.00			25.00			25.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

**Volumes**

Name	Werth			Werth			Hayes St			Providence Dr		
Base Volume Input [veh/h]	1	0	2	0	0	7	2	45	12	19	26	1
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	5.40	5.40	5.40	5.40	5.40	5.40	5.40	5.40	5.40	5.40	5.40	5.40
Growth Rate	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	3	0	0	1	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	1	0	2	0	0	7	2	48	12	19	27	1
Peak Hour Factor	0.7800	0.7800	0.7800	0.7800	0.7800	0.7800	0.7800	0.7800	0.7800	0.7800	0.7800	0.7800
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	1	0	0	2	1	15	4	6	9	0
Total Analysis Volume [veh/h]	1	0	3	0	0	9	3	62	15	24	35	1
Pedestrian Volume [ped/h]	0			0			0			0		

**Intersection Settings**

Number of Conflicting Circulating Lanes	1			1			1			1		
Circulating Flow Rate [veh/h]	69			63			25			4		
Exiting Flow Rate [veh/h]	65			38			25			3		
Demand Flow Rate [veh/h]	1	0	2	0	0	7	2	48	12	19	27	1
Adjusted Demand Flow Rate [veh/h]	1	0	3	0	0	9	3	62	15	24	35	1

**Lanes**

Overwrite Calculated Critical Headway	No			No			No			No		
User-Defined Critical Headway [s]	4.00			4.00			4.00			4.00		
Overwrite Calculated Follow-Up Time	No			No			No			No		
User-Defined Follow-Up Time [s]	3.00			3.00			3.00			3.00		
A (intercept)	1380.00			1380.00			1380.00			1380.00		
B (coefficient)	0.00102			0.00102			0.00102			0.00102		
HV Adjustment Factor	0.95			0.95			0.95			0.95		
Entry Flow Rate [veh/h]	5			10			85			64		
Capacity of Entry and Bypass Lanes [veh/h]	1287			1294			1345			1375		
Pedestrian Impedance	1.00			1.00			1.00			1.00		
Capacity per Entry Lane [veh/h]	1221			1228			1276			1304		
X, volume / capacity	0.00			0.01			0.06			0.05		

**Movement, Approach, & Intersection Results**

Lane LOS	A			A			A			A		
95th-Percentile Queue Length [veh]	0.01			0.02			0.20			0.14		
95th-Percentile Queue Length [ft]	0.25			0.55			5.01			3.61		
Approach Delay [s/veh]	2.97			2.99			3.32			3.12		
Approach LOS	A			A			A			A		
Intersection Delay [s/veh]	3.22											
Intersection LOS	A											

**Intersection Level Of Service Report  
Intersection 5: Site Access at Providence Dr.**

Control Type:	Two-way stop	Delay (sec / veh):	9.3
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.012

**Intersection Setup**

Name	Providence Dr		Providence Dr		Site Access	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration	↰		↳		↔	
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	25.00		25.00		25.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

**Volumes**

Name	Providence Dr		Providence Dr		Site Access	
Base Volume Input [veh/h]	0	47	46	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.54	0.54	0.54	0.54	0.54	0.54
Growth Rate	1.01	1.01	1.01	1.01	1.01	1.01
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	3	0	0	30	8	1
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	3	47	46	30	8	1
Peak Hour Factor	0.7800	0.7800	0.7800	0.7800	0.7800	0.7800
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	15	15	10	3	0
Total Analysis Volume [veh/h]	4	60	59	38	10	1
Pedestrian Volume [ped/h]	0		0		0	

**Intersection Settings**

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

**Movement, Approach, & Intersection Results**

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.00	0.01	0.00
d_M, Delay for Movement [s/veh]	7.40	0.00	0.00	0.00	9.30	8.70
Movement LOS	A	A	A	A	A	A
95th-Percentile Queue Length [veh]	0.13	0.13	0.00	0.00	0.04	0.04
95th-Percentile Queue Length [ft]	3.33	3.33	0.00	0.00	0.97	0.97
d_A, Approach Delay [s/veh]	0.46		0.00		9.25	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	0.76					
Intersection LOS	A					

17-346 Newberg Surg. Ctr TIA

Vistro File: J:\...\17-346 Newberg Ambulatory Surgery  
TIA.vistro

Scenario 4 AM Developed 17-346

Report File: J:\...\17-346 Developed AM.pdf

3/6/2017

**Turning Movement Volume: Summary**

ID	Intersection Name	Northeastbound		Southwestbound		Northwestbound		Total Volume
		Thru	Right	Left	Thru	Left	Right	
1	Hwy 99W at Providence Dr	1891	100	80	1086	46	54	3257

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
3	Brutsher St at Hayes St	38	114	16	10	44	37	27	54	31	3	15	5	394

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
4	Hayes at Werth	1	0	2	0	0	7	2	48	12	19	27	1	119

ID	Intersection Name	Northbound		Southbound		Eastbound		Total Volume
		Left	Thru	Thru	Right	Left	Right	
5	Site Access at Providence Dr.	3	47	46	30	8	1	135



17-346 Newberg Surg. Ctr TIA

Vistro File: J:\...\17-346 Newberg Ambulatory Surgery TIA.vistro

Scenario 4 AM Developed 17-346

Report File: J:\...\17-346 Developed AM.pdf

3/6/2017

**Turning Movement Volume: Detail**

ID	Intersection Name	Volume Type	Northeastbound		Southwestbound		Northwestbound		Total Volume
			Thru	Right	Left	Thru	Left	Right	
1	Hwy 99W at Providence Dr	Final Base	1872	79	69	1075	41	50	3186
		Growth Rate	1.01	1.01	1.01	1.01	1.01	1.01	-
		In Process	0	0	0	0	0	0	0
		Net New Trips	0	20	10	0	5	3	38
		Other	0	0	0	0	0	0	0
		<b>Future Total</b>	<b>1891</b>	<b>100</b>	<b>80</b>	<b>1086</b>	<b>46</b>	<b>54</b>	<b>3257</b>

ID	Intersection Name	Volume Type	Northbound			Southbound			Eastbound			Westbound			Total Volume	
			Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right		
3	Brutsher St at Hayes St	Final Base	38	113	16	10	44	37	27	50	31	3	14	5	388	
		Growth Rate	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	-	
		In Process	0	0	0	0	0	0	0	0	0	0	0	0	0	
		Net New Trips	0	0	0	0	0	0	0	0	3	0	0	1	0	4
		Other	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		<b>Future Total</b>	<b>38</b>	<b>114</b>	<b>16</b>	<b>10</b>	<b>44</b>	<b>37</b>	<b>27</b>	<b>54</b>	<b>31</b>	<b>3</b>	<b>15</b>	<b>5</b>	<b>394</b>	

ID	Intersection Name	Volume Type	Northbound			Southbound			Eastbound			Westbound			Total Volume	
			Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right		
4	Hayes at Werth	Final Base	1	0	2	0	0	7	2	45	12	19	26	1	115	
		Growth Rate	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	-	
		In Process	0	0	0	0	0	0	0	0	0	0	0	0	0	
		Net New Trips	0	0	0	0	0	0	0	0	3	0	0	1	0	4
		Other	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		<b>Future Total</b>	<b>1</b>	<b>0</b>	<b>2</b>	<b>0</b>	<b>0</b>	<b>7</b>	<b>2</b>	<b>48</b>	<b>12</b>	<b>19</b>	<b>27</b>	<b>1</b>	<b>119</b>	

ID	Intersection Name	Volume Type	Northbound		Southbound		Eastbound		Total Volume
			Left	Thru	Thru	Right	Left	Right	
5	Site Access at Providence Dr.	Final Base	0	47	46	0	0	0	93
		Growth Rate	1.01	1.01	1.01	1.01	1.01	1.01	-
		In Process	0	0	0	0	0	0	0
		Net New Trips	3	0	0	30	8	1	42
		Other	0	0	0	0	0	0	0
		<b>Future Total</b>	<b>3</b>	<b>47</b>	<b>46</b>	<b>30</b>	<b>8</b>	<b>1</b>	<b>135</b>

17-346 Newberg Surg. Ctr TIA

Vistro File: J:\...\17-346 Newberg Ambulatory Surgery  
TIA.vistro

Scenario 4 AM Developed 17-346

Report File: J:\...\17-346 Developed AM.pdf

3/6/2017

**Trip Generation summary**

**Added Trips**

Zone ID: Name	Land Use variables	Code	Ind. Var.	Rate	Quantity	% In	% Out	Trips In	Trips Out	Total Trips	% of Total Trips
7: Newberg Surgery Ctr	Med/Dental Office Bldg	ITE 720	ksf	2.390	17.500	79.00	21.00	33	9	42	100.00
<b>Added Trips Total</b>								<b>33</b>	<b>9</b>	<b>42</b>	<b>100.00</b>

17-346 Newberg Surg. Ctr TIA

Vistro File: J:\...\17-346 Newberg Ambulatory Surgery  
TIA.vistro

Scenario 4 AM Developed 17-346

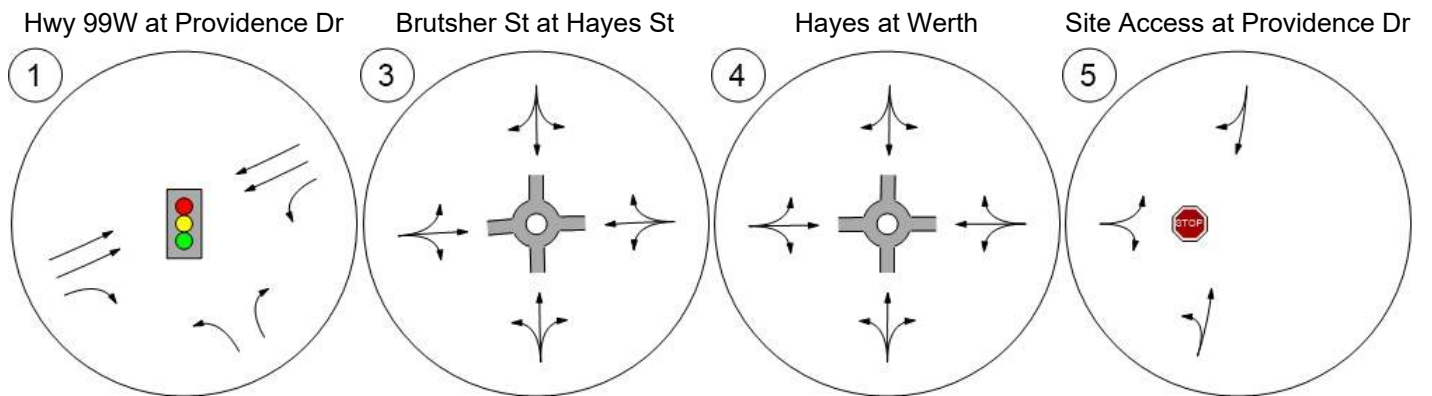
Report File: J:\...\17-346 Developed AM.pdf

3/6/2017

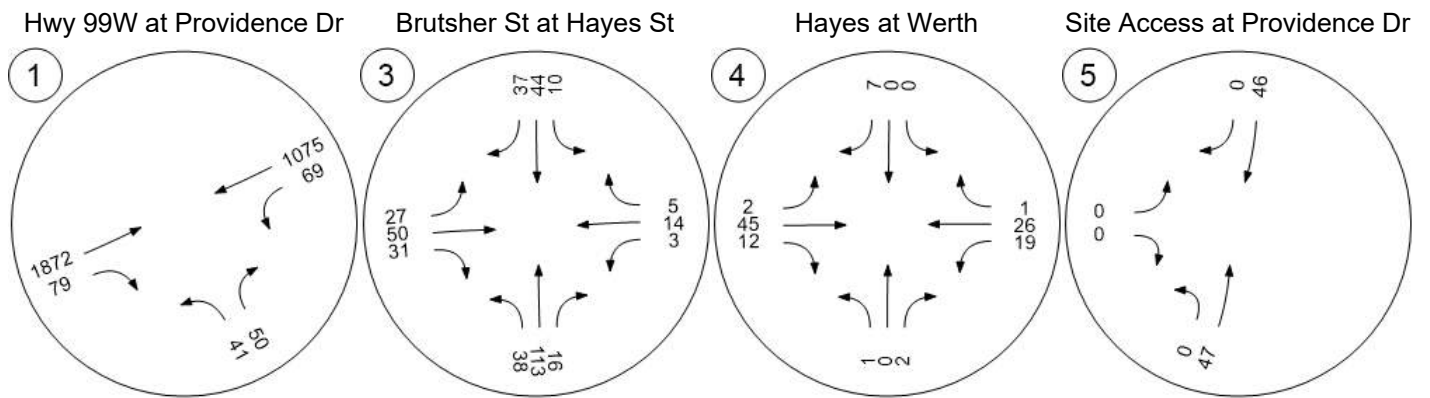
**Trip Distribution summary**

Zone / Gate	Zone 7: Newberg Surgery Ctr			
	To Newberg Surgery Ctr:		From Newberg Surgery Ctr:	
	Share %	Trips	Share %	Trips
1: Gate	60.00	20	60.00	5
2: Gate	30.00	10	30.00	3
3: Gate	10.00	3	10.00	1
4: Gate	0.00	0	0.00	0
5: Gate	0.00	0	0.00	0
6: Gate	0.00	0	0.00	0
8: Gate	0.00	0	0.00	0
9: Gate	0.00	0	0.00	0
<b>Total</b>	<b>100.00</b>	<b>33</b>	<b>100.00</b>	<b>9</b>

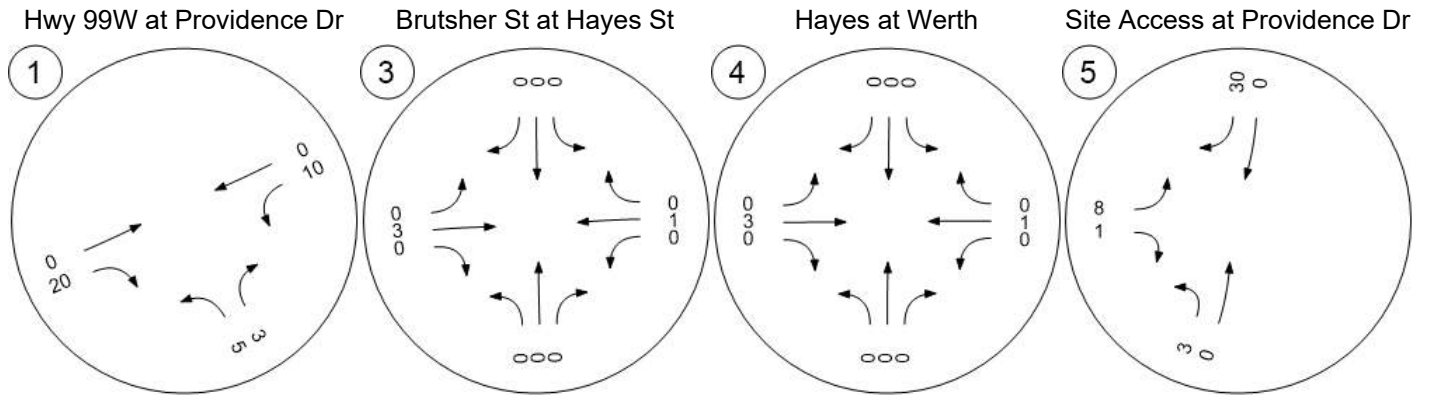
Report Figure 1: Lane Configuration and Traffic Control



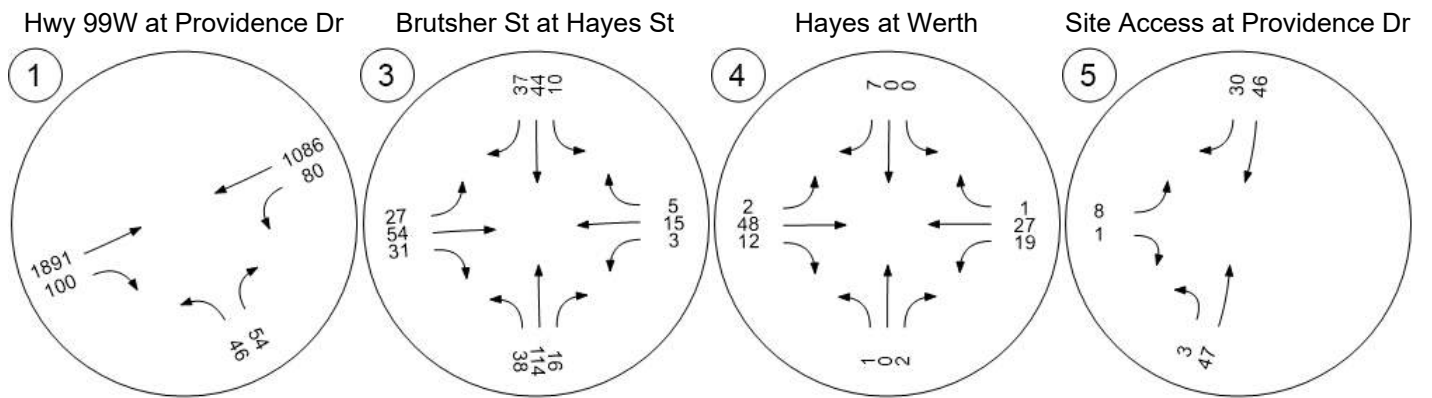
Report Figure 2a: Traffic Volume - Base Volume



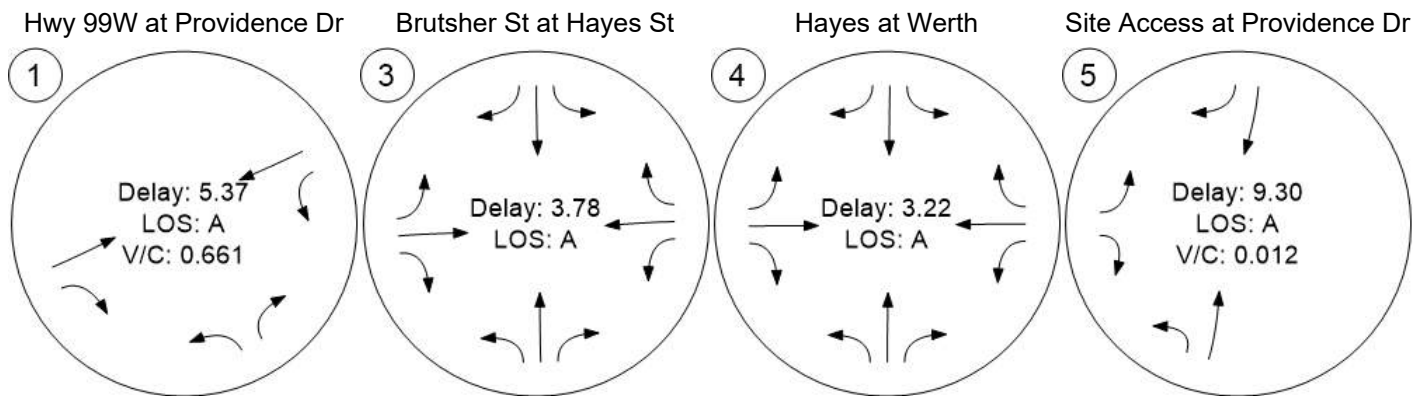
Report Figure 2c: Traffic Volume - Net New Site Trips



Report Figure 2e: Traffic Volume - Future Total Volume



Report Figure 3: Traffic Conditions





17-346 Newberg Surg. Ctr TIA

Vistro File: J:\...\17-346 Newberg Ambulatory Surgery  
 TIA.vistro

Scenario 3 PM Developed 17-346

Report File: J:\...\17-346 Developed PM.pdf

3/6/2017

**Intersection Analysis Summary**

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Hwy 99W at Providence Dr	Signalized	HCM 6th Edition	SWB Left	0.731	12.0	B
3	Brutsher St at Hayes St	Roundabout	HCM 6th Edition	SB Right		4.6	A
4	Hayes at Werth	Roundabout	HCM 6th Edition	WB Thru		3.5	A
5	Site Access at Providence Dr.	Two-way stop	HCM 6th Edition	EB Left	0.067	10.1	B

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. for all other control types, they are taken for the whole intersection.

**Intersection Level Of Service Report**  
**Intersection 1: Hwy 99W at Providence Dr**

Control Type:	Signalized	Delay (sec / veh):	12.0
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.731

**Intersection Setup**

Name	Hwy 99W		Hwy 99W		Providence Dr	
Approach	Northeastbound		Southwestbound		Northwestbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	1	1	0	1	0
Pocket Length [ft]	100.00	75.00	100.00	100.00	150.00	100.00
Speed [mph]	45.00		45.00		25.00	
Grade [%]	0.00		0.00		0.00	
Curb Present	No		No		No	
Crosswalk	Yes		Yes		Yes	

**Volumes**

Name	Hwy 99W		Hwy 99W		Providence Dr	
Base Volume Input [veh/h]	1207	31	79	1789	78	96
Base Volume Adjustment Factor	1.0850	1.0850	1.0850	1.0850	1.0850	1.0850
Heavy Vehicles Percentage [%]	3.27	3.27	3.27	3.27	3.27	3.27
Growth Rate	1.01	1.01	1.01	1.01	1.01	1.01
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	10	5	0	26	14
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	1323	44	92	1960	112	119
Peak Hour Factor	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	345	11	24	510	29	31
Total Analysis Volume [veh/h]	1378	46	96	2042	117	124
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0		0		0	
v_di, Inbound Pedestrian Volume crossing	0		0		0	
v_co, Outbound Pedestrian Volume crossing	0		0		0	
v_ci, Inbound Pedestrian Volume crossing	0		0		0	
v_ab, Corner Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

**Intersection Settings**

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	0.00

**Phasing & Timing**

Control Type	Permissive	Permissive	Protected	Permissive	Permissive	Permissive
Signal group	8	0	7	4	5	0
Auxiliary Signal Groups						
Lead / Lag	-	-	Lead	-	Lead	-
Minimum Green [s]	5	0	5	5	5	0
Maximum Green [s]	30	0	30	30	30	0
Amber [s]	3.0	0.0	3.0	3.0	3.0	0.0
All red [s]	1.0	0.0	1.0	1.0	1.0	0.0
Split [s]	27	0	44	71	19	0
Vehicle Extension [s]	3.0	0.0	3.0	3.0	3.0	0.0
Walk [s]	5	0	0	5	5	0
Pedestrian Clearance [s]	10	0	0	10	10	0
Rest In Walk	No			No	No	
I1, Start-Up Lost Time [s]	2.0	0.0	2.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	0.0	2.0	2.0	2.0	0.0
Minimum Recall	No		No	No	No	
Maximum Recall	No		No	No	No	
Pedestrian Recall	No		No	No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

**Exclusive Pedestrian Phase**

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

**Lane Group Calculations**

Lane Group	C	R	L	C	L	R
C, Cycle Length [s]	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	61	61	7	72	10	10
g / C, Green / Cycle	0.68	0.68	0.08	0.80	0.11	0.11
(v / s)_j Volume / Saturation Flow Rate	0.43	0.03	0.06	0.64	0.07	0.09
s, saturation flow rate [veh/h]	3172	1416	1587	3172	1587	1416
c, Capacity [veh/h]	2152	961	122	2538	176	157
d1, Uniform Delay [s]	8.22	4.81	40.82	5.05	38.41	38.99
k, delay calibration	0.50	0.50	0.11	0.50	0.11	0.11
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	1.47	0.09	10.48	2.83	4.24	8.47
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

**Lane Group Results**

X, volume / capacity	0.64	0.05	0.79	0.80	0.66	0.79
d, Delay for Lane Group [s/veh]	9.70	4.90	51.30	7.88	42.65	47.46
Lane Group LOS	A	A	D	A	D	D
Critical Lane Group	No	No	No	Yes	No	Yes
50th-Percentile Queue Length [veh]	5.87	0.24	2.35	5.09	2.68	3.03
50th-Percentile Queue Length [ft]	146.70	5.92	58.78	127.16	67.02	75.77
95th-Percentile Queue Length [veh]	9.84	0.43	4.23	8.78	4.83	5.46
95th-Percentile Queue Length [ft]	246.02	10.66	105.80	219.62	120.64	136.38

**Movement, Approach, & Intersection Results**

d_M, Delay for Movement [s/veh]	9.70	4.90	51.30	7.88	42.65	47.46
Movement LOS	A	A	D	A	D	D
d_A, Approach Delay [s/veh]	9.54		9.83		45.13	
Approach LOS	A		A		D	
d_I, Intersection Delay [s/veh]	11.96					
Intersection LOS	B					
Intersection V/C	0.731					

**Other Modes**

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft <sup>2</sup> /ped]	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft <sup>2</sup> /ped]	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	36.45	36.45	36.45
I_p,int, Pedestrian LOS Score for Intersection	3.516	3.366	2.045
Crosswalk LOS	D	C	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	0	0	0
d_b, Bicycle Delay [s]	45.00	45.00	45.00
I_b,int, Bicycle LOS Score for Intersection	5.307	5.896	4.132
Bicycle LOS	F	F	D

**Sequence**

Ring 1	-	-	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



**Intersection Level Of Service Report  
Intersection 3: Brutsher St at Hayes St**

Control Type:	Roundabout	Delay (sec / veh):	4.6
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes		

**Intersection Setup**

Name	Brutscher St			Brutscher St			Hayes St			Hayes St		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	+			+			+			+		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	25.00			25.00			25.00			25.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

**Volumes**

Name	Brutscher St			Brutscher St			Hayes St			Hayes St		
Base Volume Input [veh/h]	52	67	12	21	99	140	44	30	42	14	78	30
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	1.76	1.76	1.76	1.76	1.76	1.76	1.76	1.76	1.76	1.76	1.76	1.76
Growth Rate	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	2	0	0	5	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	53	68	12	21	100	141	44	32	42	14	84	30
Peak Hour Factor	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	14	18	3	6	27	38	12	9	11	4	23	8
Total Analysis Volume [veh/h]	57	73	13	23	108	152	47	34	45	15	90	32
Pedestrian Volume [ped/h]	0			0			0			0		

**Intersection Settings**

Number of Conflicting Circulating Lanes	1			1			1			1		
Circulating Flow Rate [veh/h]	106			165			149			180		
Exiting Flow Rate [veh/h]	58			150			125			122		
Demand Flow Rate [veh/h]	53	68	12	21	100	141	44	32	42	14	84	30
Adjusted Demand Flow Rate [veh/h]	57	73	13	23	108	152	47	34	45	15	90	32

**Lanes**

Overwrite Calculated Critical Headway	No			No			No			No		
User-Defined Critical Headway [s]	4.00			4.00			4.00			4.00		
Overwrite Calculated Follow-Up Time	No			No			No			No		
User-Defined Follow-Up Time [s]	3.00			3.00			3.00			3.00		
A (intercept)	1380.00			1380.00			1380.00			1380.00		
B (coefficient)	0.00102			0.00102			0.00102			0.00102		
HV Adjustment Factor	0.98			0.98			0.98			0.98		
Entry Flow Rate [veh/h]	146			288			129			140		
Capacity of Entry and Bypass Lanes [veh/h]	1239			1167			1186			1149		
Pedestrian Impedance	1.00			1.00			1.00			1.00		
Capacity per Entry Lane [veh/h]	1218			1147			1166			1129		
X, volume / capacity	0.12			0.25			0.11			0.12		

**Movement, Approach, & Intersection Results**

Lane LOS	A			A			A			A		
95th-Percentile Queue Length [veh]	0.40			0.97			0.36			0.41		
95th-Percentile Queue Length [ft]	9.95			24.37			9.07			10.33		
Approach Delay [s/veh]	3.94			5.40			4.00			4.24		
Approach LOS	A			A			A			A		
Intersection Delay [s/veh]	4.61											
Intersection LOS	A											

**Intersection Level Of Service Report  
Intersection 4: Hayes at Werth**

Control Type: Roundabout  
 Analysis Method: HCM 6th Edition  
 Analysis Period: 15 minutes

Delay (sec / veh): 3.5  
 Level Of Service: A

**Intersection Setup**

Name	Werth			Werth			Hayes St			Providence Dr		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	+			+			+			+		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	25.00			25.00			25.00			25.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

**Volumes**

Name	Werth			Werth			Hayes St			Providence Dr		
Base Volume Input [veh/h]	10	0	7	2	0	3	17	30	9	11	105	6
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	1.59	1.59	1.59	1.59	1.59	1.59	1.59	1.59	1.59	1.59	1.59	1.59
Growth Rate	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	2	0	0	5	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	10	0	7	2	0	3	17	32	9	11	111	6
Peak Hour Factor	0.7900	0.7900	0.7900	0.7900	0.7900	0.7900	0.7900	0.7900	0.7900	0.7900	0.7900	0.7900
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	3	0	2	1	0	1	5	10	3	3	35	2
Total Analysis Volume [veh/h]	13	0	9	3	0	4	22	41	11	14	141	8
Pedestrian Volume [ped/h]	0			0			0			0		



**Intersection Settings**

Number of Conflicting Circulating Lanes	1			1			1			1		
Circulating Flow Rate [veh/h]	67			171			17			36		
Exiting Flow Rate [veh/h]	45			156			14			22		
Demand Flow Rate [veh/h]	10	0	7	2	0	3	17	32	9	11	111	6
Adjusted Demand Flow Rate [veh/h]	13	0	9	3	0	4	22	41	11	14	141	8

**Lanes**

Overwrite Calculated Critical Headway	No			No			No			No		
User-Defined Critical Headway [s]	4.00			4.00			4.00			4.00		
Overwrite Calculated Follow-Up Time	No			No			No			No		
User-Defined Follow-Up Time [s]	3.00			3.00			3.00			3.00		
A (intercept)	1380.00			1380.00			1380.00			1380.00		
B (coefficient)	0.00102			0.00102			0.00102			0.00102		
HV Adjustment Factor	0.98			0.98			0.98			0.98		
Entry Flow Rate [veh/h]	23			8			76			166		
Capacity of Entry and Bypass Lanes [veh/h]	1289			1160			1356			1331		
Pedestrian Impedance	1.00			1.00			1.00			1.00		
Capacity per Entry Lane [veh/h]	1269			1142			1335			1311		
X, volume / capacity	0.02			0.01			0.06			0.12		

**Movement, Approach, & Intersection Results**

Lane LOS	A			A			A			A		
95th-Percentile Queue Length [veh]	0.05			0.02			0.18			0.43		
95th-Percentile Queue Length [ft]	1.32			0.46			4.40			10.63		
Approach Delay [s/veh]	2.97			3.20			3.13			3.76		
Approach LOS	A			A			A			A		
Intersection Delay [s/veh]	3.51											
Intersection LOS	A											

**Intersection Level Of Service Report  
Intersection 5: Site Access at Providence Dr.**

Control Type:	Two-way stop	Delay (sec / veh):	10.1
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.067

**Intersection Setup**

Name	Providence Dr		Providence Dr		Site Access	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration	↰		↳		↵	
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	25.00		25.00		25.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

**Volumes**

Name	Providence Dr		Providence Dr		Site Access	
Base Volume Input [veh/h]	0	40	122	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	1.59	1.59	1.59	1.59	1.59	1.59
Growth Rate	1.01	1.01	1.01	1.01	1.01	1.01
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	2	0	0	15	40	5
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	2	40	123	15	40	5
Peak Hour Factor	0.7900	0.7900	0.7900	0.7900	0.7900	0.7900
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	13	39	5	13	2
Total Analysis Volume [veh/h]	3	51	156	19	51	6
Pedestrian Volume [ped/h]	0		0		0	

**Intersection Settings**

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

**Movement, Approach, & Intersection Results**

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.00	0.07	0.01
d_M, Delay for Movement [s/veh]	7.57	0.00	0.00	0.00	10.07	9.46
Movement LOS	A	A	A	A	B	A
95th-Percentile Queue Length [veh]	0.12	0.12	0.00	0.00	0.24	0.24
95th-Percentile Queue Length [ft]	3.00	3.00	0.00	0.00	5.93	5.93
d_A, Approach Delay [s/veh]	0.42		0.00		10.01	
Approach LOS	A		A		B	
d_I, Intersection Delay [s/veh]	2.07					
Intersection LOS	B					

17-346 Newberg Surg. Ctr TIA

Vistro File: J:\...\17-346 Newberg Ambulatory Surgery  
TIA.vistro

Scenario 3 PM Developed 17-346

Report File: J:\...\17-346 Developed PM.pdf

3/6/2017

**Turning Movement Volume: Summary**

ID	Intersection Name	Northeastbound		Southwestbound		Northwestbound		Total Volume
		Thru	Right	Left	Thru	Left	Right	
1	Hwy 99W at Providence Dr	1323	44	92	1960	112	119	3650

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
3	Brutsher St at Hayes St	53	68	12	21	100	141	44	32	42	14	84	30	641

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
4	Hayes at Werth	10	0	7	2	0	3	17	32	9	11	111	6	208

ID	Intersection Name	Northbound		Southbound		Eastbound		Total Volume
		Left	Thru	Thru	Right	Left	Right	
5	Site Access at Providence Dr.	2	40	123	15	40	5	225

17-346 Newberg Surg. Ctr TIA

Vistro File: J:\...\17-346 Newberg Ambulatory Surgery TIA.vistro

Scenario 3 PM Developed 17-346

Report File: J:\...\17-346 Developed PM.pdf

3/6/2017

**Turning Movement Volume: Detail**

ID	Intersection Name	Volume Type	Northeastbound		Southwestbound		Northwestbound		Total Volume
			Thru	Right	Left	Thru	Left	Right	
1	Hwy 99W at Providence Dr	Final Base	1310	34	86	1941	85	104	3560
		Growth Rate	1.01	1.01	1.01	1.01	1.01	1.01	-
		In Process	0	0	0	0	0	0	0
		Net New Trips	0	10	5	0	26	14	55
		Other	0	0	0	0	0	0	0
		<b>Future Total</b>	<b>1323</b>	<b>44</b>	<b>92</b>	<b>1960</b>	<b>112</b>	<b>119</b>	<b>3650</b>

ID	Intersection Name	Volume Type	Northbound			Southbound			Eastbound			Westbound			Total Volume	
			Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right		
3	Brutsher St at Hayes St	Final Base	52	67	12	21	99	140	44	30	42	14	78	30	629	
		Growth Rate	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	-	
		In Process	0	0	0	0	0	0	0	0	0	0	0	0	0	
		Net New Trips	0	0	0	0	0	0	0	0	2	0	0	5	0	7
		Other	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		<b>Future Total</b>	<b>53</b>	<b>68</b>	<b>12</b>	<b>21</b>	<b>100</b>	<b>141</b>	<b>44</b>	<b>32</b>	<b>42</b>	<b>14</b>	<b>84</b>	<b>30</b>	<b>641</b>	

ID	Intersection Name	Volume Type	Northbound			Southbound			Eastbound			Westbound			Total Volume	
			Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right		
4	Hayes at Werth	Final Base	10	0	7	2	0	3	17	30	9	11	105	6	200	
		Growth Rate	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	-	
		In Process	0	0	0	0	0	0	0	0	0	0	0	0	0	
		Net New Trips	0	0	0	0	0	0	0	0	2	0	0	5	0	7
		Other	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		<b>Future Total</b>	<b>10</b>	<b>0</b>	<b>7</b>	<b>2</b>	<b>0</b>	<b>3</b>	<b>17</b>	<b>32</b>	<b>9</b>	<b>11</b>	<b>111</b>	<b>6</b>	<b>208</b>	

ID	Intersection Name	Volume Type	Northbound		Southbound		Eastbound		Total Volume
			Left	Thru	Thru	Right	Left	Right	
5	Site Access at Providence Dr.	Final Base	0	40	122	0	0	0	162
		Growth Rate	1.01	1.01	1.01	1.01	1.01	1.01	-
		In Process	0	0	0	0	0	0	0
		Net New Trips	2	0	0	15	40	5	62
		Other	0	0	0	0	0	0	0
		<b>Future Total</b>	<b>2</b>	<b>40</b>	<b>123</b>	<b>15</b>	<b>40</b>	<b>5</b>	<b>225</b>

17-346 Newberg Surg. Ctr TIA

Vistro File: J:\...\17-346 Newberg Ambulatory Surgery  
TIA.vistro

Scenario 3 PM Developed 17-346

Report File: J:\...\17-346 Developed PM.pdf

3/6/2017

**Trip Generation summary**

**Added Trips**

Zone ID: Name	Land Use variables	Code	Ind. Var.	Rate	Quantity	% In	% Out	Trips In	Trips Out	Total Trips	% of Total Trips
7: Newberg Sugery Ctr	Med/Dental Office	ITE 720	ksf	3.570	17.500	28.00	72.00	17	45	62	100.00
<b>Added Trips Total</b>								<b>17</b>	<b>45</b>	<b>62</b>	<b>100.00</b>

17-346 Newberg Surg. Ctr TIA

Vistro File: J:\...\17-346 Newberg Ambulatory Surgery  
TIA.vistro

Scenario 3 PM Developed 17-346

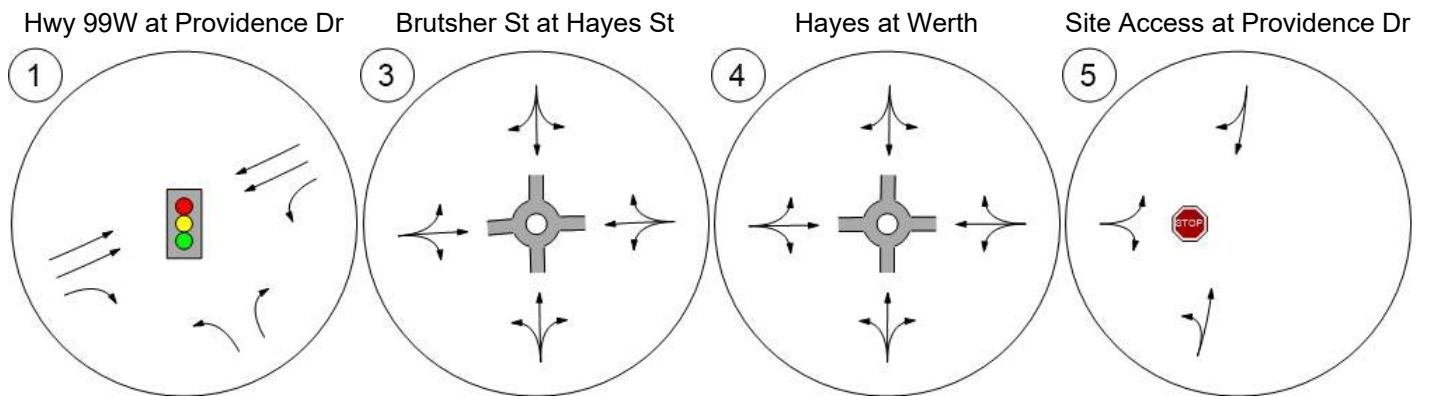
Report File: J:\...\17-346 Developed PM.pdf

3/6/2017

**Trip Distribution summary**

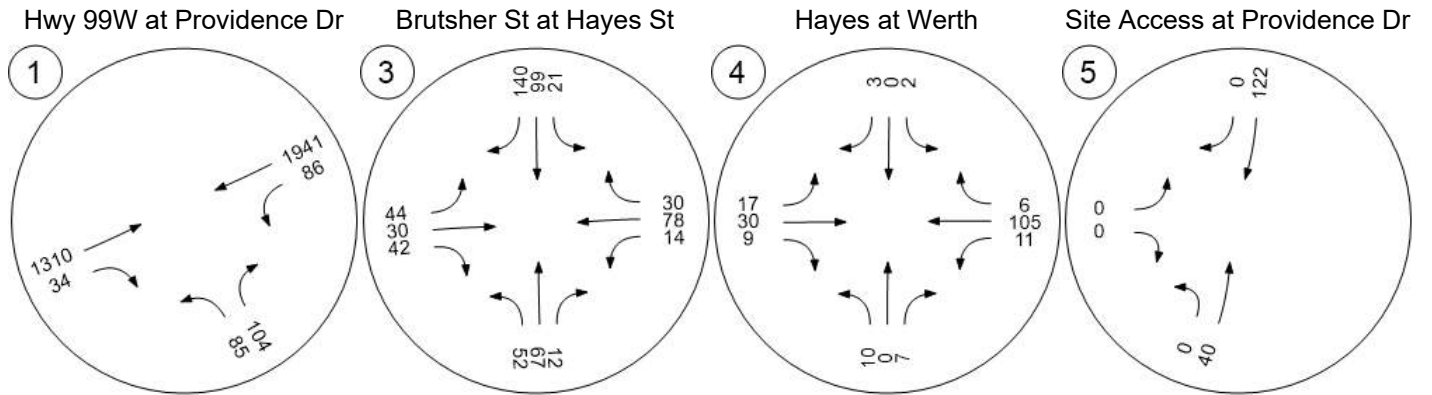
Zone / Gate	Zone 7: Newberg Sugery Ctr			
	To Newberg Sugery Ctr:		From Newberg Sugery Ctr:	
	Share %	Trips	Share %	Trips
1: Gate	60.00	10	60.00	26
2: Gate	30.00	5	30.00	14
3: Gate	10.00	2	10.00	5
4: Gate	0.00	0	0.00	0
5: Gate	0.00	0	0.00	0
6: Gate	0.00	0	0.00	0
8: Gate	0.00	0	0.00	0
9: Gate	0.00	0	0.00	0
<b>Total</b>	<b>100.00</b>	<b>17</b>	<b>100.00</b>	<b>45</b>

Report Figure 1: Lane Configuration and Traffic Control

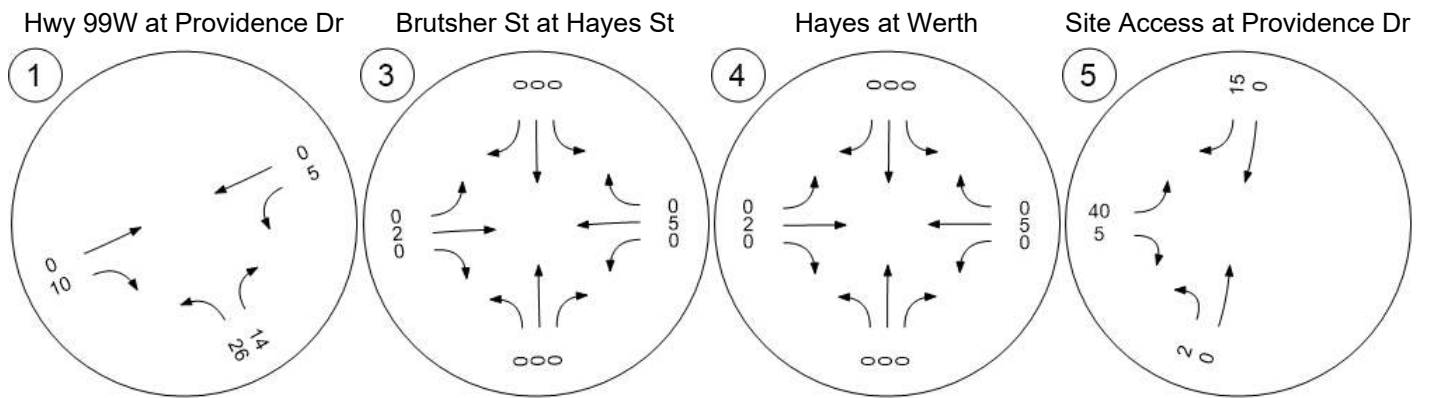




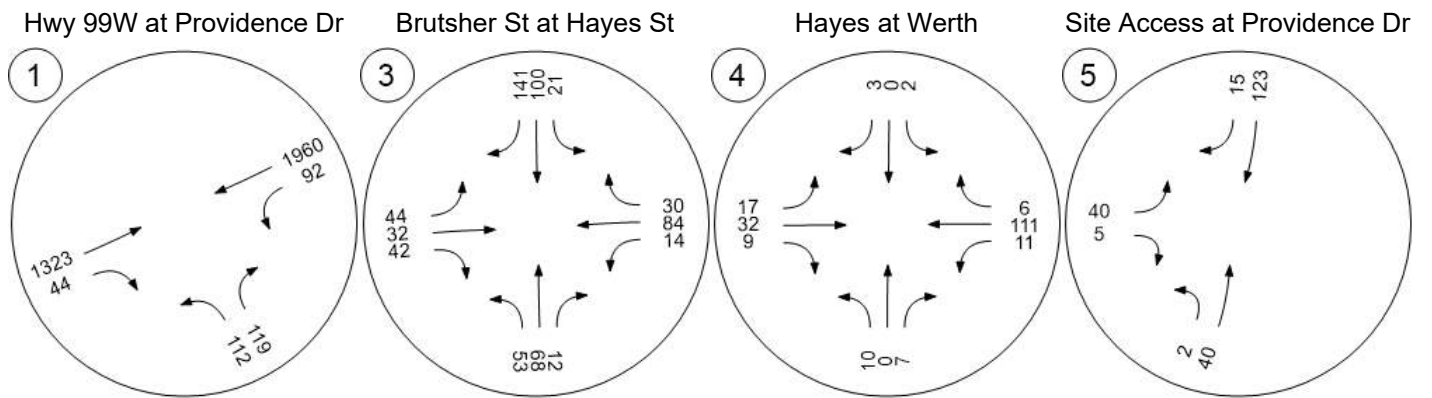
Report Figure 2a: Traffic Volume - Base Volume



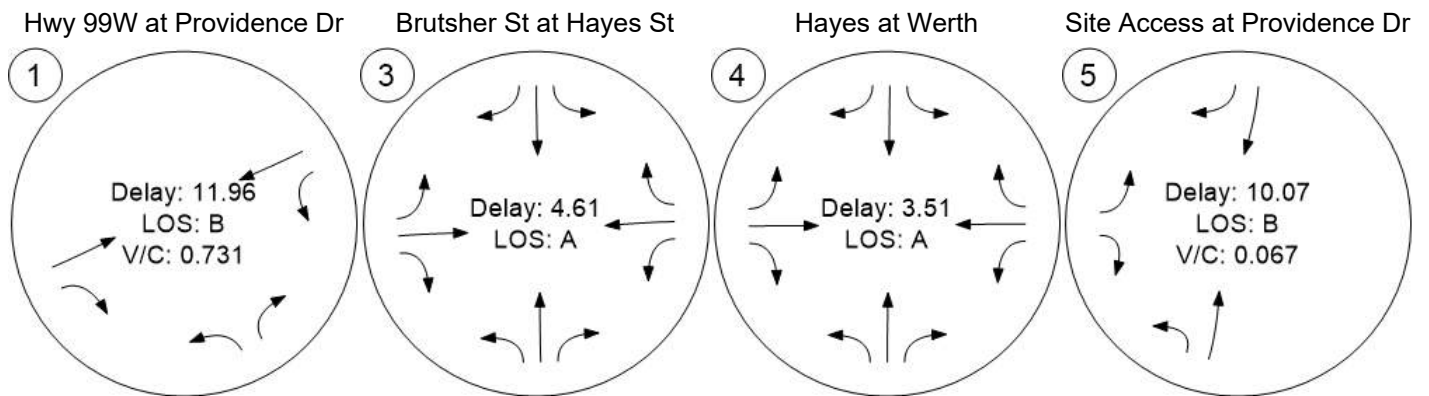
Report Figure 2c: Traffic Volume - Net New Site Trips



Report Figure 2e: Traffic Volume - Future Total Volume



Report Figure 3: Traffic Conditions



17-346 Newberg Surg. Ctr TIA

Vistro File: J:\...\17-346 Newberg Ambulatory Surgery  
TIA.vistro

Scenario 6 AM Future 17-346

Report File: J:\...\17-346 Future 2032 AM.pdf

3/6/2017

**Intersection Analysis Summary**

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Hwy 99W at Providence Dr	Signalized	HCM 6th Edition	NWB Right	0.758	7.7	A
3	Brutsher St at Hayes St	Roundabout	HCM 6th Edition	NB Thru		4.0	A
4	Hayes at Werth	Roundabout	HCM 6th Edition	EB Thru		3.3	A
5	Site Access at Providence Dr.	Two-way stop	HCM 6th Edition	EB Left	0.012	9.4	A

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. for all other control types, they are taken for the whole intersection.

**Intersection Level Of Service Report  
Intersection 1: Hwy 99W at Providence Dr**

Control Type:	Signalized	Delay (sec / veh):	7.7
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.758

**Intersection Setup**

Name	Hwy 99W		Hwy 99W		Providence Dr	
Approach	Northeastbound		Southwestbound		Northwestbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	1	1	0	1	0
Pocket Length [ft]	100.00	75.00	100.00	100.00	150.00	100.00
Speed [mph]	45.00		45.00		25.00	
Grade [%]	0.00		0.00		0.00	
Curb Present	No		No		No	
Crosswalk	Yes		Yes		Yes	

**Volumes**

Name	Hwy 99W		Hwy 99W		Providence Dr	
Base Volume Input [veh/h]	1725	73	64	991	38	46
Base Volume Adjustment Factor	1.0850	1.0850	1.0850	1.0850	1.0850	1.0850
Heavy Vehicles Percentage [%]	4.50	4.50	4.50	4.50	4.50	4.50
Growth Rate	1.16	1.16	1.16	1.16	1.16	1.16
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	20	10	0	5	3
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	2172	112	90	1247	53	61
Peak Hour Factor	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	560	29	23	321	14	16
Total Analysis Volume [veh/h]	2239	115	93	1286	55	63
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0		0		0	
v_di, Inbound Pedestrian Volume crossing	0		0		0	
v_co, Outbound Pedestrian Volume crossing	0		0		0	
v_ci, Inbound Pedestrian Volume crossing	0		0		0	
v_ab, Corner Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

**Intersection Settings**

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	0.00

**Phasing & Timing**

Control Type	Permissive	Permissive	Permissive	Permissive	Permissive	Permissive
Signal group	8	0	0	4	5	0
Auxiliary Signal Groups						
Lead / Lag	-	-	-	-	Lead	-
Minimum Green [s]	5	0	0	5	5	0
Maximum Green [s]	30	0	0	30	30	0
Amber [s]	3.0	0.0	0.0	3.0	3.0	0.0
All red [s]	1.0	0.0	0.0	1.0	1.0	0.0
Split [s]	19	0	0	19	101	0
Vehicle Extension [s]	3.0	0.0	0.0	3.0	3.0	0.0
Walk [s]	5	0	0	5	5	0
Pedestrian Clearance [s]	10	0	0	10	10	0
Rest In Walk	No			No	No	
I1, Start-Up Lost Time [s]	2.0	0.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	0.0	0.0	2.0	2.0	0.0
Minimum Recall	No			No	No	
Maximum Recall	No			No	No	
Pedestrian Recall	No			No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

**Exclusive Pedestrian Phase**

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

**Lane Group Calculations**

Lane Group	C	R	L	C	L	R
C, Cycle Length [s]	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	2.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	105	105	105	105	7	7
g / C, Green / Cycle	0.87	0.87	0.87	0.87	0.06	0.06
(v / s)_j Volume / Saturation Flow Rate	0.71	0.08	0.62	0.41	0.04	0.04
s, saturation flow rate [veh/h]	3140	1402	150	3140	1571	1402
c, Capacity [veh/h]	2736	1221	139	2736	97	87
d1, Uniform Delay [s]	3.46	1.08	33.04	1.68	54.66	55.23
k, delay calibration	0.50	0.50	0.50	0.50	0.11	0.11
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	2.86	0.15	22.61	0.58	5.05	10.83
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

**Lane Group Results**

X, volume / capacity	0.82	0.09	0.67	0.47	0.56	0.72
d, Delay for Lane Group [s/veh]	6.33	1.24	55.65	2.26	59.71	66.05
Lane Group LOS	A	A	E	A	E	E
Critical Lane Group	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh]	3.91	0.14	3.64	1.01	1.77	2.15
50th-Percentile Queue Length [ft]	97.75	3.56	91.04	25.22	44.16	53.69
95th-Percentile Queue Length [veh]	7.04	0.26	6.55	1.82	3.18	3.87
95th-Percentile Queue Length [ft]	175.95	6.42	163.87	45.40	79.49	96.65



**Movement, Approach, & Intersection Results**

d_M, Delay for Movement [s/veh]	6.33	1.24	55.65	2.26	59.71	66.05
Movement LOS	A	A	E	A	E	E
d_A, Approach Delay [s/veh]	6.08		5.87		63.09	
Approach LOS	A		A		E	
d_I, Intersection Delay [s/veh]	7.75					
Intersection LOS	A					
Intersection V/C	0.758					

**Other Modes**

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft <sup>2</sup> /ped]	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft <sup>2</sup> /ped]	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34
I_p,int, Pedestrian LOS Score for Intersection	3.474	3.392	2.176
Crosswalk LOS	C	C	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	0	0	0
d_b, Bicycle Delay [s]	60.00	60.00	60.00
I_b,int, Bicycle LOS Score for Intersection	6.074	5.270	4.132
Bicycle LOS	F	F	D

**Sequence**

Ring 1	-	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



**Intersection Level Of Service Report  
Intersection 3: Brutsher St at Hayes St**

Control Type:	Roundabout	Delay (sec / veh):	4.0
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes		

**Intersection Setup**

Name	Brutsher St			Brutsher St			Hayes St			Hayes St		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	⊕			⊕			⊕			⊕		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	25.00			25.00			25.00			25.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

**Volumes**

Name	Brutsher St			Brutsher St			Hayes St			Hayes St		
Base Volume Input [veh/h]	38	113	16	10	44	37	27	50	31	3	14	5
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	1.59	1.59	1.59	1.59	1.59	1.59	1.59	1.59	1.59	1.59	1.59	1.59
Growth Rate	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	3	0	0	1	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	44	130	18	12	51	43	31	60	36	3	17	6
Peak Hour Factor	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	12	35	5	3	14	11	8	16	10	1	5	2
Total Analysis Volume [veh/h]	47	138	19	13	54	46	33	64	38	3	18	6
Pedestrian Volume [ped/h]	0			0			0			0		

**Intersection Settings**

Number of Conflicting Circulating Lanes	1			1			1			1		
Circulating Flow Rate [veh/h]	112			69			71			221		
Exiting Flow Rate [veh/h]	78			66			58			174		
Demand Flow Rate [veh/h]	44	130	18	12	51	43	31	60	36	3	17	6
Adjusted Demand Flow Rate [veh/h]	47	138	19	13	54	46	33	64	38	3	18	6

**Lanes**

Override Calculated Critical Headway	No			No			No			No		
User-Defined Critical Headway [s]	4.00			4.00			4.00			4.00		
Override Calculated Follow-Up Time	No			No			No			No		
User-Defined Follow-Up Time [s]	3.00			3.00			3.00			3.00		
A (intercept)	1380.00			1380.00			1380.00			1380.00		
B (coefficient)	0.00102			0.00102			0.00102			0.00102		
HV Adjustment Factor	0.98			0.98			0.98			0.98		
Entry Flow Rate [veh/h]	208			115			138			28		
Capacity of Entry and Bypass Lanes [veh/h]	1232			1287			1284			1101		
Pedestrian Impedance	1.00			1.00			1.00			1.00		
Capacity per Entry Lane [veh/h]	1213			1266			1264			1084		
X, volume / capacity	0.17			0.09			0.11			0.02		

**Movement, Approach, & Intersection Results**

Lane LOS	A			A			A			A		
95th-Percentile Queue Length [veh]	0.60			0.29			0.36			0.08		
95th-Percentile Queue Length [ft]	15.11			7.34			8.95			1.92		
Approach Delay [s/veh]	4.41			3.57			3.72			3.53		
Approach LOS	A			A			A			A		
Intersection Delay [s/veh]	3.97											
Intersection LOS	A											

**Intersection Level Of Service Report  
Intersection 4: Hayes at Werth**

Control Type: Roundabout  
 Analysis Method: HCM 6th Edition  
 Analysis Period: 15 minutes

Delay (sec / veh): 3.3  
 Level Of Service: A

**Intersection Setup**

Name	Werth			Werth			Hayes St			Providence Dr		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	+			+			+			+		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	25.00			25.00			25.00			25.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

**Volumes**

Name	Werth			Werth			Hayes St			Providence Dr		
Base Volume Input [veh/h]	1	0	2	0	0	7	2	45	12	19	26	1
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	5.40	5.40	5.40	5.40	5.40	5.40	5.40	5.40	5.40	5.40	5.40	5.40
Growth Rate	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	3	0	0	1	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	1	0	2	0	0	8	2	55	14	22	31	1
Peak Hour Factor	0.7800	0.7800	0.7800	0.7800	0.7800	0.7800	0.7800	0.7800	0.7800	0.7800	0.7800	0.7800
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	1	0	0	3	1	18	4	7	10	0
Total Analysis Volume [veh/h]	1	0	3	0	0	10	3	71	18	28	40	1
Pedestrian Volume [ped/h]	0			0			0			0		

**Intersection Settings**

Number of Conflicting Circulating Lanes	1			1			1			1		
Circulating Flow Rate [veh/h]	78			73			30			4		
Exiting Flow Rate [veh/h]	75			43			30			3		
Demand Flow Rate [veh/h]	1	0	2	0	0	8	2	55	14	22	31	1
Adjusted Demand Flow Rate [veh/h]	1	0	3	0	0	10	3	71	18	28	40	1

**Lanes**

Overwrite Calculated Critical Headway	No			No			No			No		
User-Defined Critical Headway [s]	4.00			4.00			4.00			4.00		
Overwrite Calculated Follow-Up Time	No			No			No			No		
User-Defined Follow-Up Time [s]	3.00			3.00			3.00			3.00		
A (intercept)	1380.00			1380.00			1380.00			1380.00		
B (coefficient)	0.00102			0.00102			0.00102			0.00102		
HV Adjustment Factor	0.95			0.95			0.95			0.95		
Entry Flow Rate [veh/h]	5			11			97			73		
Capacity of Entry and Bypass Lanes [veh/h]	1275			1282			1340			1375		
Pedestrian Impedance	1.00			1.00			1.00			1.00		
Capacity per Entry Lane [veh/h]	1210			1216			1271			1304		
X, volume / capacity	0.00			0.01			0.07			0.05		

**Movement, Approach, & Intersection Results**

Lane LOS	A			A			A			A		
95th-Percentile Queue Length [veh]	0.01			0.02			0.23			0.17		
95th-Percentile Queue Length [ft]	0.25			0.62			5.85			4.19		
Approach Delay [s/veh]	3.00			3.03			3.42			3.18		
Approach LOS	A			A			A			A		
Intersection Delay [s/veh]	3.29											
Intersection LOS	A											

**Intersection Level Of Service Report  
Intersection 5: Site Access at Providence Dr.**

Control Type:	Two-way stop	Delay (sec / veh):	9.4
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.012

**Intersection Setup**

Name	Providence Dr		Providence Dr		Site Access	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration	↶		↷		↷	
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	25.00		25.00		25.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

**Volumes**

Name	Providence Dr		Providence Dr		Site Access	
Base Volume Input [veh/h]	0	47	46	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.54	0.54	0.54	0.54	0.54	0.54
Growth Rate	1.16	1.16	1.16	1.16	1.16	1.16
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	3	0	0	30	8	1
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	3	55	53	30	8	1
Peak Hour Factor	0.7800	0.7800	0.7800	0.7800	0.7800	0.7800
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	18	17	10	3	0
Total Analysis Volume [veh/h]	4	71	68	38	10	1
Pedestrian Volume [ped/h]	0		0		0	

**Intersection Settings**

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

**Movement, Approach, & Intersection Results**

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.00	0.01	0.00
d_M, Delay for Movement [s/veh]	7.42	0.00	0.00	0.00	9.42	8.75
Movement LOS	A	A	A	A	A	A
95th-Percentile Queue Length [veh]	0.16	0.16	0.00	0.00	0.04	0.04
95th-Percentile Queue Length [ft]	3.96	3.96	0.00	0.00	1.00	1.00
d_A, Approach Delay [s/veh]	0.40		0.00		9.36	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	0.69					
Intersection LOS	A					

17-346 Newberg Surg. Ctr TIA

Vistro File: J:\...\17-346 Newberg Ambulatory Surgery  
TIA.vistro

Scenario 6 AM Future 17-346

Report File: J:\...\17-346 Future 2032 AM.pdf

3/6/2017

**Turning Movement Volume: Summary**

ID	Intersection Name	Northeastbound		Southwestbound		Northwestbound		Total Volume
		Thru	Right	Left	Thru	Left	Right	
1	Hwy 99W at Providence Dr	2172	112	90	1247	53	61	3735

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
3	Brutsher St at Hayes St	44	130	18	12	51	43	31	60	36	3	17	6	451

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
4	Hayes at Werth	1	0	2	0	0	8	2	55	14	22	31	1	136

ID	Intersection Name	Northbound		Southbound		Eastbound		Total Volume
		Left	Thru	Thru	Right	Left	Right	
5	Site Access at Providence Dr.	3	55	53	30	8	1	150



17-346 Newberg Surg. Ctr TIA

Vistro File: J:\...\17-346 Newberg Ambulatory Surgery TIA.vistro

Scenario 6 AM Future 17-346

Report File: J:\...\17-346 Future 2032 AM.pdf

3/6/2017

**Turning Movement Volume: Detail**

ID	Intersection Name	Volume Type	Northeastbound		Southwestbound		Northwestbound		Total Volume
			Thru	Right	Left	Thru	Left	Right	
1	Hwy 99W at Providence Dr	Final Base	1872	79	69	1075	41	50	3186
		Growth Rate	1.16	1.16	1.16	1.16	1.16	1.16	-
		In Process	0	0	0	0	0	0	0
		Net New Trips	0	20	10	0	5	3	38
		Other	0	0	0	0	0	0	0
		<b>Future Total</b>	<b>2172</b>	<b>112</b>	<b>90</b>	<b>1247</b>	<b>53</b>	<b>61</b>	<b>3735</b>

ID	Intersection Name	Volume Type	Northbound			Southbound			Eastbound			Westbound			Total Volume	
			Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right		
3	Brutsher St at Hayes St	Final Base	38	113	16	10	44	37	27	50	31	3	14	5	388	
		Growth Rate	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	-	
		In Process	0	0	0	0	0	0	0	0	0	0	0	0	0	
		Net New Trips	0	0	0	0	0	0	0	0	3	0	0	1	0	4
		Other	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		<b>Future Total</b>	<b>44</b>	<b>130</b>	<b>18</b>	<b>12</b>	<b>51</b>	<b>43</b>	<b>31</b>	<b>60</b>	<b>36</b>	<b>3</b>	<b>17</b>	<b>6</b>	<b>451</b>	

ID	Intersection Name	Volume Type	Northbound			Southbound			Eastbound			Westbound			Total Volume	
			Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right		
4	Hayes at Werth	Final Base	1	0	2	0	0	7	2	45	12	19	26	1	115	
		Growth Rate	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16	-	
		In Process	0	0	0	0	0	0	0	0	0	0	0	0	0	
		Net New Trips	0	0	0	0	0	0	0	0	3	0	0	1	0	4
		Other	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		<b>Future Total</b>	<b>1</b>	<b>0</b>	<b>2</b>	<b>0</b>	<b>0</b>	<b>8</b>	<b>2</b>	<b>55</b>	<b>14</b>	<b>22</b>	<b>31</b>	<b>1</b>	<b>136</b>	

ID	Intersection Name	Volume Type	Northbound		Southbound		Eastbound		Total Volume
			Left	Thru	Thru	Right	Left	Right	
5	Site Access at Providence Dr.	Final Base	0	47	46	0	0	0	93
		Growth Rate	1.16	1.16	1.16	1.16	1.16	1.16	-
		In Process	0	0	0	0	0	0	0
		Net New Trips	3	0	0	30	8	1	42
		Other	0	0	0	0	0	0	0
		<b>Future Total</b>	<b>3</b>	<b>55</b>	<b>53</b>	<b>30</b>	<b>8</b>	<b>1</b>	<b>150</b>

17-346 Newberg Surg. Ctr TIA

Vistro File: J:\...\17-346 Newberg Ambulatory Surgery  
TIA.vistro

Scenario 6 AM Future 17-346

Report File: J:\...\17-346 Future 2032 AM.pdf

3/6/2017

**Trip Generation summary**

**Added Trips**

Zone ID: Name	Land Use variables	Code	Ind. Var.	Rate	Quantity	% In	% Out	Trips In	Trips Out	Total Trips	% of Total Trips
7: Newberg Surgery Ctr	Med/Dental Office Bldg	ITE 720	ksf	2.390	17.500	79.00	21.00	33	9	42	100.00
<b>Added Trips Total</b>								<b>33</b>	<b>9</b>	<b>42</b>	<b>100.00</b>

17-346 Newberg Surg. Ctr TIA

Vistro File: J:\...\17-346 Newberg Ambulatory Surgery  
TIA.vistro

Scenario 6 AM Future 17-346

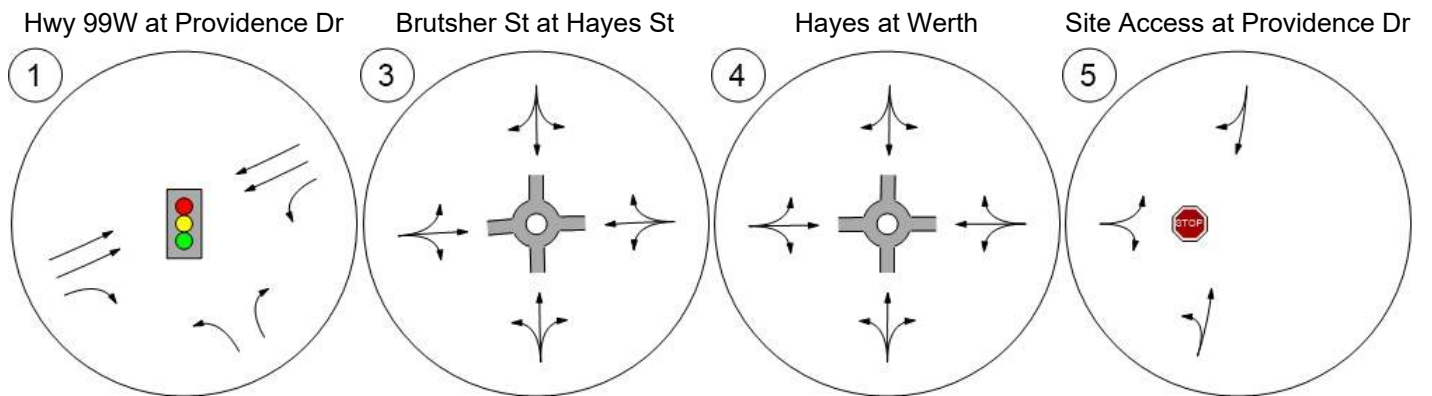
Report File: J:\...\17-346 Future 2032 AM.pdf

3/6/2017

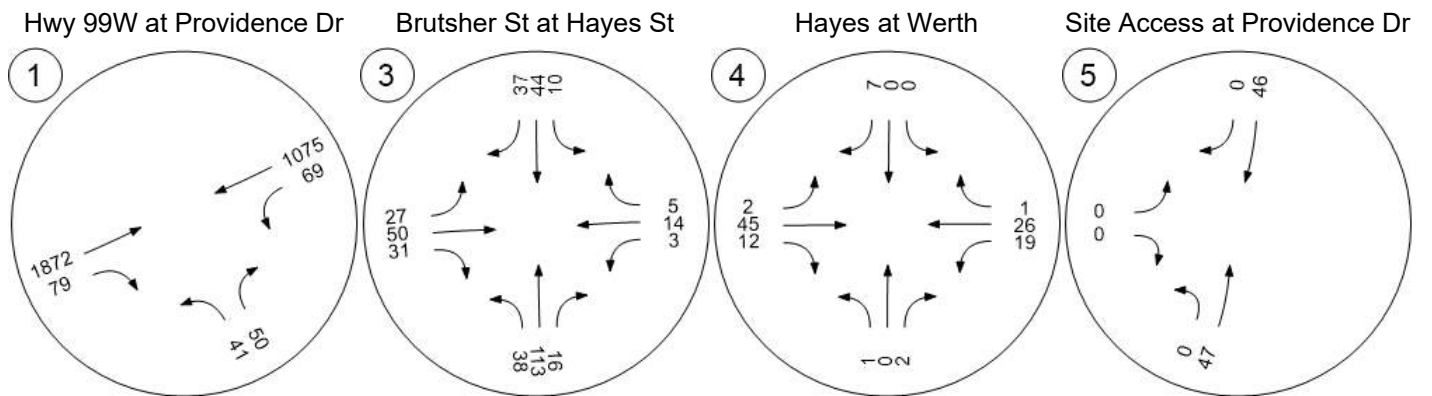
**Trip Distribution summary**

Zone / Gate	Zone 7: Newberg Surgery Ctr			
	To Newberg Surgery Ctr:		From Newberg Surgery Ctr:	
	Share %	Trips	Share %	Trips
1: Gate	60.00	20	60.00	5
2: Gate	30.00	10	30.00	3
3: Gate	10.00	3	10.00	1
4: Gate	0.00	0	0.00	0
5: Gate	0.00	0	0.00	0
6: Gate	0.00	0	0.00	0
8: Gate	0.00	0	0.00	0
9: Gate	0.00	0	0.00	0
<b>Total</b>	<b>100.00</b>	<b>33</b>	<b>100.00</b>	<b>9</b>

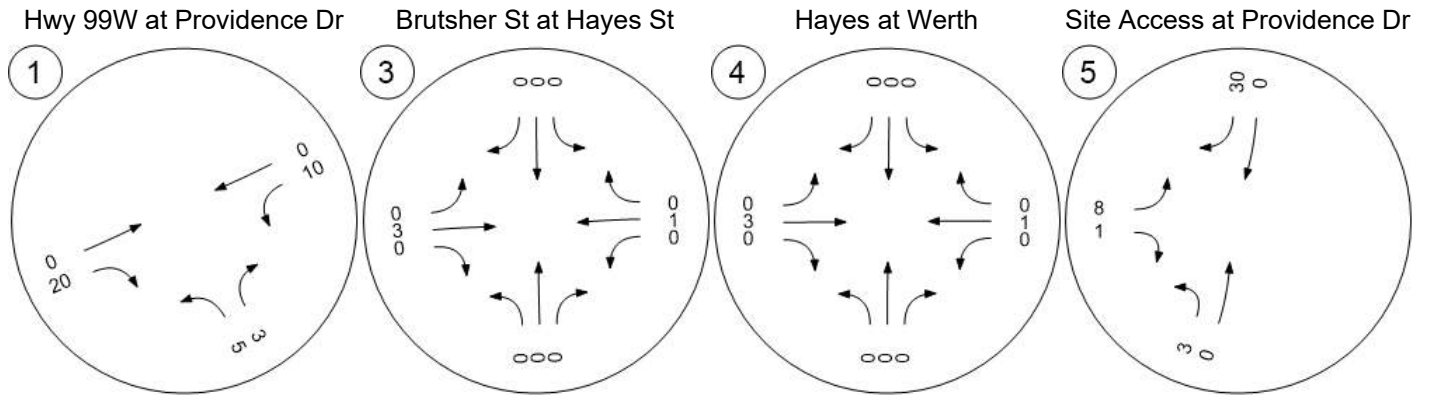
Report Figure 1: Lane Configuration and Traffic Control



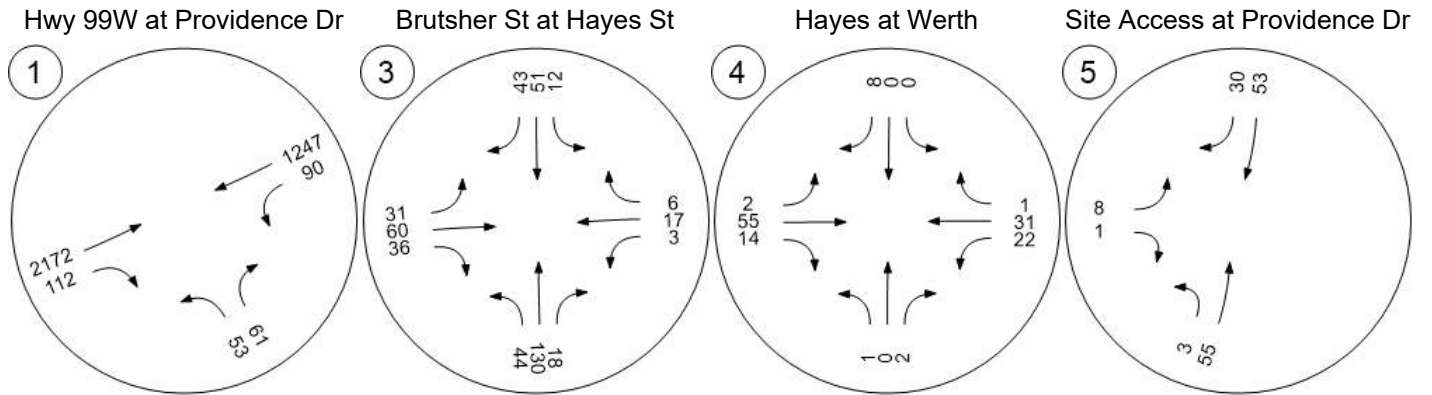
Report Figure 2a: Traffic Volume - Base Volume



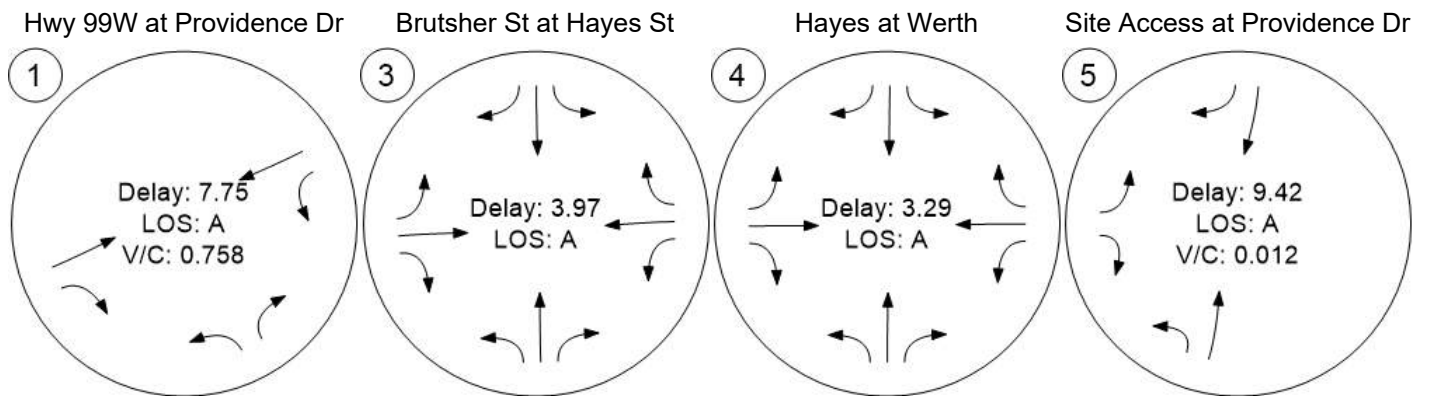
Report Figure 2c: Traffic Volume - Net New Site Trips



Report Figure 2e: Traffic Volume - Future Total Volume



Report Figure 3: Traffic Conditions





17-346 Newberg Surg. Ctr TIA

Vistro File: J:\...\17-346 Newberg Ambulatory Surgery  
TIA.vistro

Scenario 5 PM Future 17-346

Report File: J:\...\17-346 Future 2032 PM.pdf

3/6/2017

**Intersection Analysis Summary**

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Hwy 99W at Providence Dr	Signalized	HCM 6th Edition	SWB Left	0.839	17.6	B
3	Brutsher St at Hayes St	Roundabout	HCM 6th Edition	SB Right		5.0	A
4	Hayes at Werth	Roundabout	HCM 6th Edition	WB Thru		3.6	A
5	Site Access at Providence Dr.	Two-way stop	HCM 6th Edition	EB Left	0.069	10.3	B

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. for all other control types, they are taken for the whole intersection.

**Intersection Level Of Service Report  
Intersection 1: Hwy 99W at Providence Dr**

Control Type:	Signalized	Delay (sec / veh):	17.6
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.839

**Intersection Setup**

Name	Hwy 99W		Hwy 99W		Providence Dr	
Approach	Northeastbound		Southwestbound		Northwestbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	1	1	0	1	0
Pocket Length [ft]	100.00	75.00	100.00	100.00	150.00	100.00
Speed [mph]	45.00		45.00		25.00	
Grade [%]	0.00		0.00		0.00	
Curb Present	No		No		No	
Crosswalk	Yes		Yes		Yes	

**Volumes**

Name	Hwy 99W		Hwy 99W		Providence Dr	
Base Volume Input [veh/h]	1207	31	79	1789	78	96
Base Volume Adjustment Factor	1.0850	1.0850	1.0850	1.0850	1.0850	1.0850
Heavy Vehicles Percentage [%]	3.27	3.27	3.27	3.27	3.27	3.27
Growth Rate	1.16	1.16	1.16	1.16	1.16	1.16
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	10	5	0	26	14
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	1520	49	105	2252	125	135
Peak Hour Factor	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	396	13	27	586	33	35
Total Analysis Volume [veh/h]	1583	51	109	2346	130	141
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0		0		0	
v_di, Inbound Pedestrian Volume crossing m	0		0		0	
v_co, Outbound Pedestrian Volume crossing	0		0		0	
v_ci, Inbound Pedestrian Volume crossing mi	0		0		0	
v_ab, Corner Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

**Intersection Settings**

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	0.00

**Phasing & Timing**

Control Type	Permissive	Permissive	Protected	Permissive	Permissive	Permissive
Signal group	8	0	7	4	5	0
Auxiliary Signal Groups						
Lead / Lag	-	-	Lead	-	Lead	-
Minimum Green [s]	5	0	5	5	5	0
Maximum Green [s]	30	0	30	30	30	0
Amber [s]	3.0	0.0	3.0	3.0	3.0	0.0
All red [s]	1.0	0.0	1.0	1.0	1.0	0.0
Split [s]	27	0	44	71	19	0
Vehicle Extension [s]	3.0	0.0	3.0	3.0	3.0	0.0
Walk [s]	5	0	0	5	5	0
Pedestrian Clearance [s]	10	0	0	10	10	0
Rest In Walk	No			No	No	
I1, Start-Up Lost Time [s]	2.0	0.0	2.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	0.0	2.0	2.0	2.0	0.0
Minimum Recall	No		No	No	No	
Maximum Recall	No		No	No	No	
Pedestrian Recall	No		No	No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

**Exclusive Pedestrian Phase**

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

**Lane Group Calculations**

Lane Group	C	R	L	C	L	R
C, Cycle Length [s]	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	59	59	8	71	11	11
g / C, Green / Cycle	0.66	0.66	0.09	0.79	0.12	0.12
(v / s)_j Volume / Saturation Flow Rate	0.50	0.04	0.07	0.74	0.08	0.10
s, saturation flow rate [veh/h]	3172	1416	1587	3172	1587	1416
c, Capacity [veh/h]	2084	930	138	2500	195	174
d1, Uniform Delay [s]	10.57	5.49	40.31	7.75	37.73	38.47
k, delay calibration	0.50	0.50	0.11	0.50	0.11	0.11
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	2.66	0.11	9.70	8.40	3.90	8.69
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

**Lane Group Results**

X, volume / capacity	0.76	0.05	0.79	0.94	0.67	0.81
d, Delay for Lane Group [s/veh]	13.23	5.60	50.01	16.15	41.63	47.16
Lane Group LOS	B	A	D	B	D	D
Critical Lane Group	No	No	No	Yes	No	Yes
50th-Percentile Queue Length [veh]	8.66	0.29	2.63	10.67	2.94	3.44
50th-Percentile Queue Length [ft]	216.56	7.33	65.69	266.81	73.54	85.99
95th-Percentile Queue Length [veh]	13.49	0.53	4.73	16.03	5.30	6.19
95th-Percentile Queue Length [ft]	337.24	13.19	118.25	400.75	132.38	154.78

**Movement, Approach, & Intersection Results**

d_M, Delay for Movement [s/veh]	13.23	5.60	50.01	16.15	41.63	47.16
Movement LOS	B	A	D	B	D	D
d_A, Approach Delay [s/veh]	13.00		17.65		44.51	
Approach LOS	B		B		D	
d_I, Intersection Delay [s/veh]	17.58					
Intersection LOS	B					
Intersection V/C	0.839					

**Other Modes**

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft <sup>2</sup> /ped]	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft <sup>2</sup> /ped]	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	36.45	36.45	36.45
I_p,int, Pedestrian LOS Score for Intersection	3.688	3.524	2.058
Crosswalk LOS	D	D	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	0	0	0
d_b, Bicycle Delay [s]	45.00	45.00	45.00
I_b,int, Bicycle LOS Score for Intersection	5.480	6.158	4.132
Bicycle LOS	F	F	D

**Sequence**

Ring 1	-	-	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



**Intersection Level Of Service Report  
Intersection 3: Brutsher St at Hayes St**

Control Type:	Roundabout	Delay (sec / veh):	5.0
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes		

**Intersection Setup**

Name	Brutsher St			Brutsher St			Hayes St			Hayes St		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	+			+			+			+		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	25.00			25.00			25.00			25.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

**Volumes**

Name	Brutsher St			Brutsher St			Hayes St			Hayes St		
Base Volume Input [veh/h]	52	67	12	21	99	140	44	30	42	14	78	30
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	1.76	1.76	1.76	1.76	1.76	1.76	1.76	1.76	1.76	1.76	1.76	1.76
Growth Rate	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	2	0	0	5	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	60	78	14	24	115	162	51	37	49	16	95	35
Peak Hour Factor	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	16	21	4	6	31	44	14	10	13	4	26	9
Total Analysis Volume [veh/h]	65	84	15	26	124	174	55	40	53	17	102	38
Pedestrian Volume [ped/h]	0			0			0			0		

**Intersection Settings**

Number of Conflicting Circulating Lanes	1			1			1			1		
Circulating Flow Rate [veh/h]	123			187			170			208		
Exiting Flow Rate [veh/h]	67			170			143			141		
Demand Flow Rate [veh/h]	60	78	14	24	115	162	51	37	49	16	95	35
Adjusted Demand Flow Rate [veh/h]	65	84	15	26	124	174	55	40	53	17	102	38

**Lanes**

Override Calculated Critical Headway	No			No			No			No		
User-Defined Critical Headway [s]	4.00			4.00			4.00			4.00		
Override Calculated Follow-Up Time	No			No			No			No		
User-Defined Follow-Up Time [s]	3.00			3.00			3.00			3.00		
A (intercept)	1380.00			1380.00			1380.00			1380.00		
B (coefficient)	0.00102			0.00102			0.00102			0.00102		
HV Adjustment Factor	0.98			0.98			0.98			0.98		
Entry Flow Rate [veh/h]	167			330			151			160		
Capacity of Entry and Bypass Lanes [veh/h]	1218			1141			1161			1117		
Pedestrian Impedance	1.00			1.00			1.00			1.00		
Capacity per Entry Lane [veh/h]	1197			1121			1141			1098		
X, volume / capacity	0.14			0.29			0.13			0.14		

**Movement, Approach, & Intersection Results**

Lane LOS	A			A			A			A		
95th-Percentile Queue Length [veh]	0.47			1.21			0.45			0.50		
95th-Percentile Queue Length [ft]	11.87			30.15			11.15			12.47		
Approach Delay [s/veh]	4.17			5.96			4.28			4.54		
Approach LOS	A			A			A			A		
Intersection Delay [s/veh]	5.00											
Intersection LOS	A											

**Intersection Level Of Service Report  
Intersection 4: Hayes at Werth**

Control Type: Roundabout  
 Analysis Method: HCM 6th Edition  
 Analysis Period: 15 minutes

Delay (sec / veh): 3.6  
 Level Of Service: A

**Intersection Setup**

Name	Werth			Werth			Hayes St			Providence Dr		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	+			+			+			+		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	25.00			25.00			25.00			25.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

**Volumes**

Name	Werth			Werth			Hayes St			Providence Dr		
Base Volume Input [veh/h]	10	0	7	2	0	3	17	30	9	11	105	6
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	1.59	1.59	1.59	1.59	1.59	1.59	1.59	1.59	1.59	1.59	1.59	1.59
Growth Rate	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	2	0	0	5	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	12	0	8	2	0	3	20	37	10	13	127	7
Peak Hour Factor	0.7900	0.7900	0.7900	0.7900	0.7900	0.7900	0.7900	0.7900	0.7900	0.7900	0.7900	0.7900
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	4	0	3	1	0	1	6	12	3	4	40	2
Total Analysis Volume [veh/h]	15	0	10	3	0	4	25	47	13	16	161	9
Pedestrian Volume [ped/h]	0			0			0			0		



**Intersection Settings**

Number of Conflicting Circulating Lanes	1			1			1			1		
Circulating Flow Rate [veh/h]	76			195			19			41		
Exiting Flow Rate [veh/h]	51			179			16			25		
Demand Flow Rate [veh/h]	12	0	8	2	0	3	20	37	10	13	127	7
Adjusted Demand Flow Rate [veh/h]	15	0	10	3	0	4	25	47	13	16	161	9

**Lanes**

Overwrite Calculated Critical Headway	No			No			No			No		
User-Defined Critical Headway [s]	4.00			4.00			4.00			4.00		
Overwrite Calculated Follow-Up Time	No			No			No			No		
User-Defined Follow-Up Time [s]	3.00			3.00			3.00			3.00		
A (intercept)	1380.00			1380.00			1380.00			1380.00		
B (coefficient)	0.00102			0.00102			0.00102			0.00102		
HV Adjustment Factor	0.98			0.98			0.98			0.98		
Entry Flow Rate [veh/h]	26			8			87			189		
Capacity of Entry and Bypass Lanes [veh/h]	1277			1132			1354			1324		
Pedestrian Impedance	1.00			1.00			1.00			1.00		
Capacity per Entry Lane [veh/h]	1257			1114			1332			1304		
X, volume / capacity	0.02			0.01			0.06			0.14		

**Movement, Approach, & Intersection Results**

Lane LOS	A			A			A			A		
95th-Percentile Queue Length [veh]	0.06			0.02			0.20			0.50		
95th-Percentile Queue Length [ft]	1.52			0.47			5.11			12.44		
Approach Delay [s/veh]	3.02			3.29			3.21			3.94		
Approach LOS	A			A			A			A		
Intersection Delay [s/veh]	3.64											
Intersection LOS	A											

**Intersection Level Of Service Report  
Intersection 5: Site Access at Providence Dr.**

Control Type:	Two-way stop	Delay (sec / veh):	10.3
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.069

**Intersection Setup**

Name	Providence Dr		Providence Dr		Site Access	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration	↶		↷		↷	
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	25.00		25.00		25.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

**Volumes**

Name	Providence Dr		Providence Dr		Site Access	
Base Volume Input [veh/h]	0	40	122	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	1.59	1.59	1.59	1.59	1.59	1.59
Growth Rate	1.16	1.16	1.16	1.16	1.16	1.16
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	2	0	0	15	40	5
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	2	46	142	15	40	5
Peak Hour Factor	0.7900	0.7900	0.7900	0.7900	0.7900	0.7900
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	15	45	5	13	2
Total Analysis Volume [veh/h]	3	58	180	19	51	6
Pedestrian Volume [ped/h]	0		0		0	

**Intersection Settings**

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

**Movement, Approach, & Intersection Results**

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.00	0.07	0.01
d_M, Delay for Movement [s/veh]	7.62	0.00	0.00	0.00	10.30	9.62
Movement LOS	A	A	A	A	B	A
95th-Percentile Queue Length [veh]	0.14	0.14	0.00	0.00	0.25	0.25
95th-Percentile Queue Length [ft]	3.48	3.48	0.00	0.00	6.19	6.19
d_A, Approach Delay [s/veh]	0.37		0.00		10.23	
Approach LOS	A		A		B	
d_I, Intersection Delay [s/veh]	1.91					
Intersection LOS	B					

17-346 Newberg Surg. Ctr TIA

Vistro File: J:\...\17-346 Newberg Ambulatory Surgery  
TIA.vistro

Scenario 5 PM Future 17-346

Report File: J:\...\17-346 Future 2032 PM.pdf

3/6/2017

**Turning Movement Volume: Summary**

ID	Intersection Name	Northeastbound		Southwestbound		Northwestbound		Total Volume
		Thru	Right	Left	Thru	Left	Right	
1	Hwy 99W at Providence Dr	1520	49	105	2252	125	135	4186

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
3	Brutsher St at Hayes St	60	78	14	24	115	162	51	37	49	16	95	35	736

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
4	Hayes at Werth	12	0	8	2	0	3	20	37	10	13	127	7	239

ID	Intersection Name	Northbound		Southbound		Eastbound		Total Volume
		Left	Thru	Thru	Right	Left	Right	
5	Site Access at Providence Dr.	2	46	142	15	40	5	250

17-346 Newberg Surg. Ctr TIA

Vistro File: J:\...\17-346 Newberg Ambulatory Surgery TIA.vistro

Scenario 5 PM Future 17-346

Report File: J:\...\17-346 Future 2032 PM.pdf

3/6/2017

**Turning Movement Volume: Detail**

ID	Intersection Name	Volume Type	Northeastbound		Southwestbound		Northwestbound		Total Volume
			Thru	Right	Left	Thru	Left	Right	
1	Hwy 99W at Providence Dr	Final Base	1310	34	86	1941	85	104	3560
		Growth Rate	1.16	1.16	1.16	1.16	1.16	1.16	-
		In Process	0	0	0	0	0	0	0
		Net New Trips	0	10	5	0	26	14	55
		Other	0	0	0	0	0	0	0
		<b>Future Total</b>	<b>1520</b>	<b>49</b>	<b>105</b>	<b>2252</b>	<b>125</b>	<b>135</b>	<b>4186</b>

ID	Intersection Name	Volume Type	Northbound			Southbound			Eastbound			Westbound			Total Volume	
			Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right		
3	Brutsher St at Hayes St	Final Base	52	67	12	21	99	140	44	30	42	14	78	30	629	
		Growth Rate	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16	-	
		In Process	0	0	0	0	0	0	0	0	0	0	0	0	0	
		Net New Trips	0	0	0	0	0	0	0	0	2	0	0	5	0	7
		Other	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		<b>Future Total</b>	<b>60</b>	<b>78</b>	<b>14</b>	<b>24</b>	<b>115</b>	<b>162</b>	<b>51</b>	<b>37</b>	<b>49</b>	<b>16</b>	<b>95</b>	<b>35</b>	<b>736</b>	

ID	Intersection Name	Volume Type	Northbound			Southbound			Eastbound			Westbound			Total Volume	
			Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right		
4	Hayes at Werth	Final Base	10	0	7	2	0	3	17	30	9	11	105	6	200	
		Growth Rate	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16	-	
		In Process	0	0	0	0	0	0	0	0	0	0	0	0	0	
		Net New Trips	0	0	0	0	0	0	0	0	2	0	0	5	0	7
		Other	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		<b>Future Total</b>	<b>12</b>	<b>0</b>	<b>8</b>	<b>2</b>	<b>0</b>	<b>3</b>	<b>20</b>	<b>37</b>	<b>10</b>	<b>13</b>	<b>127</b>	<b>7</b>	<b>239</b>	

ID	Intersection Name	Volume Type	Northbound		Southbound		Eastbound		Total Volume
			Left	Thru	Thru	Right	Left	Right	
5	Site Access at Providence Dr.	Final Base	0	40	122	0	0	0	162
		Growth Rate	1.16	1.16	1.16	1.16	1.16	1.16	-
		In Process	0	0	0	0	0	0	0
		Net New Trips	2	0	0	15	40	5	62
		Other	0	0	0	0	0	0	0
		<b>Future Total</b>	<b>2</b>	<b>46</b>	<b>142</b>	<b>15</b>	<b>40</b>	<b>5</b>	<b>250</b>

17-346 Newberg Surg. Ctr TIA

Vistro File: J:\...\17-346 Newberg Ambulatory Surgery  
 TIA.vistro

Scenario 5 PM Future 17-346

Report File: J:\...\17-346 Future 2032 PM.pdf

3/6/2017

**Trip Generation summary**

**Added Trips**

Zone ID: Name	Land Use variables	Code	Ind. Var.	Rate	Quantity	% In	% Out	Trips In	Trips Out	Total Trips	% of Total Trips
7: Newberg Sugery Ctr	Med/Dental Office	ITE 720	ksf	3.570	17.500	28.00	72.00	17	45	62	100.00
<b>Added Trips Total</b>								<b>17</b>	<b>45</b>	<b>62</b>	<b>100.00</b>

17-346 Newberg Surg. Ctr TIA

Vistro File: J:\...\17-346 Newberg Ambulatory Surgery  
 TIA.vistro

Scenario 5 PM Future 17-346

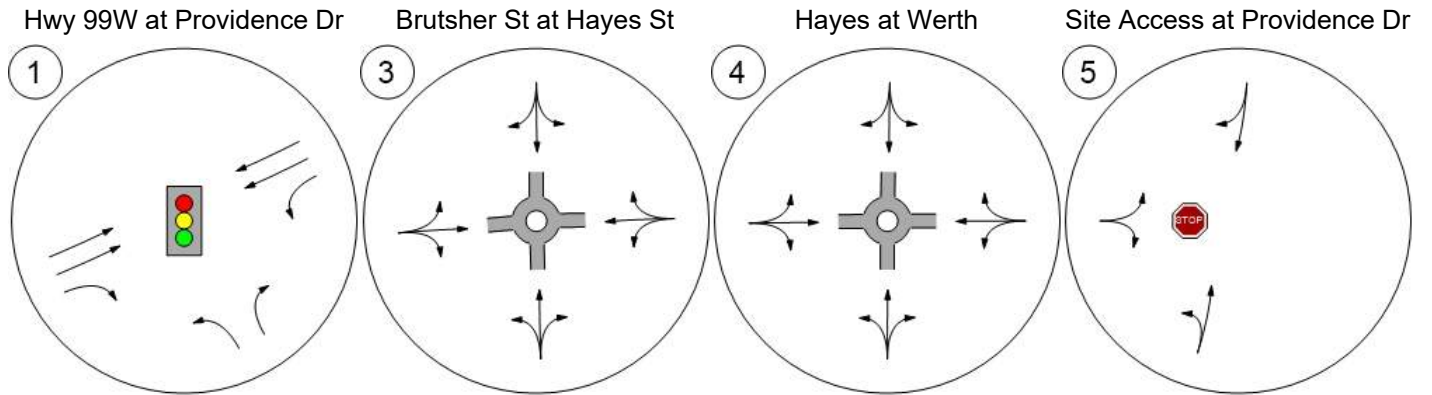
Report File: J:\...\17-346 Future 2032 PM.pdf

3/6/2017

**Trip Distribution summary**

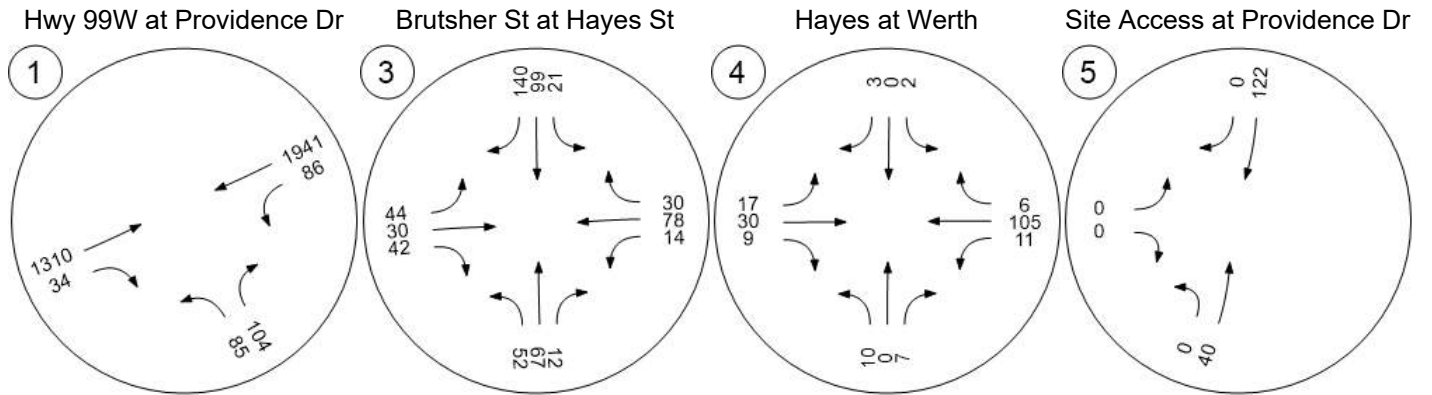
Zone / Gate	Zone 7: Newberg Sugery Ctr			
	To Newberg Sugery Ctr:		From Newberg Sugery Ctr:	
	Share %	Trips	Share %	Trips
1: Gate	60.00	10	60.00	26
2: Gate	30.00	5	30.00	14
3: Gate	10.00	2	10.00	5
4: Gate	0.00	0	0.00	0
5: Gate	0.00	0	0.00	0
6: Gate	0.00	0	0.00	0
8: Gate	0.00	0	0.00	0
9: Gate	0.00	0	0.00	0
<b>Total</b>	<b>100.00</b>	<b>17</b>	<b>100.00</b>	<b>45</b>

Report Figure 1: Lane Configuration and Traffic Control

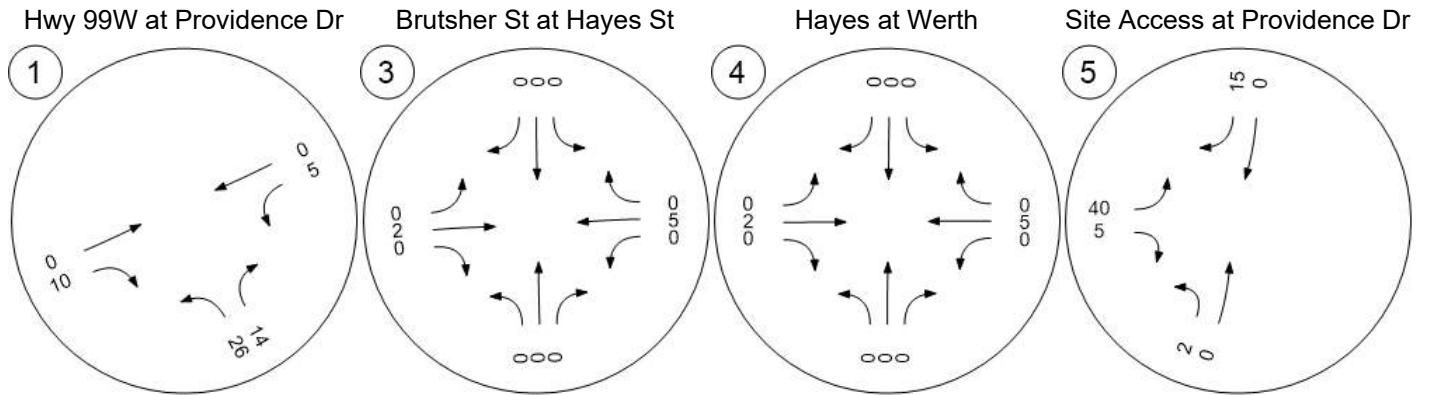




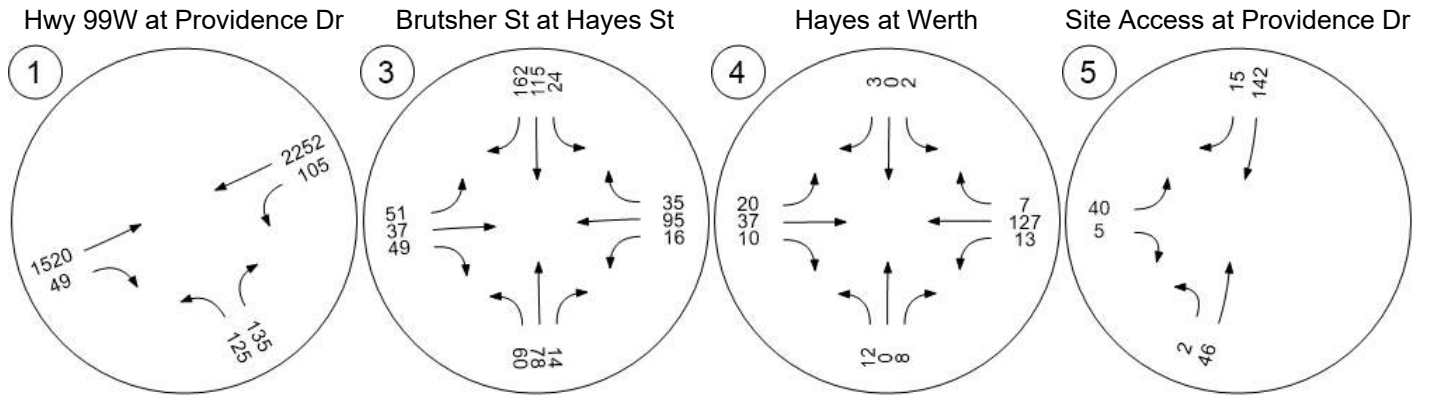
Report Figure 2a: Traffic Volume - Base Volume



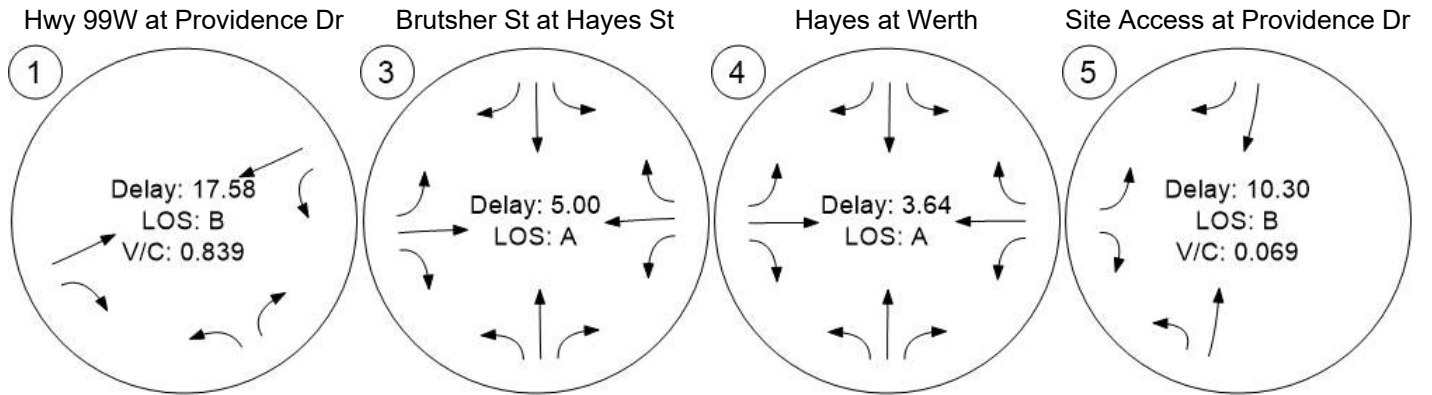
Report Figure 2c: Traffic Volume - Net New Site Trips



Report Figure 2e: Traffic Volume - Future Total Volume



Report Figure 3: Traffic Conditions



## TRAFFIC IMPACT STUDY

---

Date: March 27, 2018  
To: Doug Rux & Kaaren Hofman, City of Newberg  
Weston York, Providence Health & Services  
Scott Harris & Tom Wesel, JRJ  
From: Chris Brehmer, PE and Jacki Gulczynski  
Project: Providence Medical Office Building  
Subject: Traffic Analysis

Project #: 22340



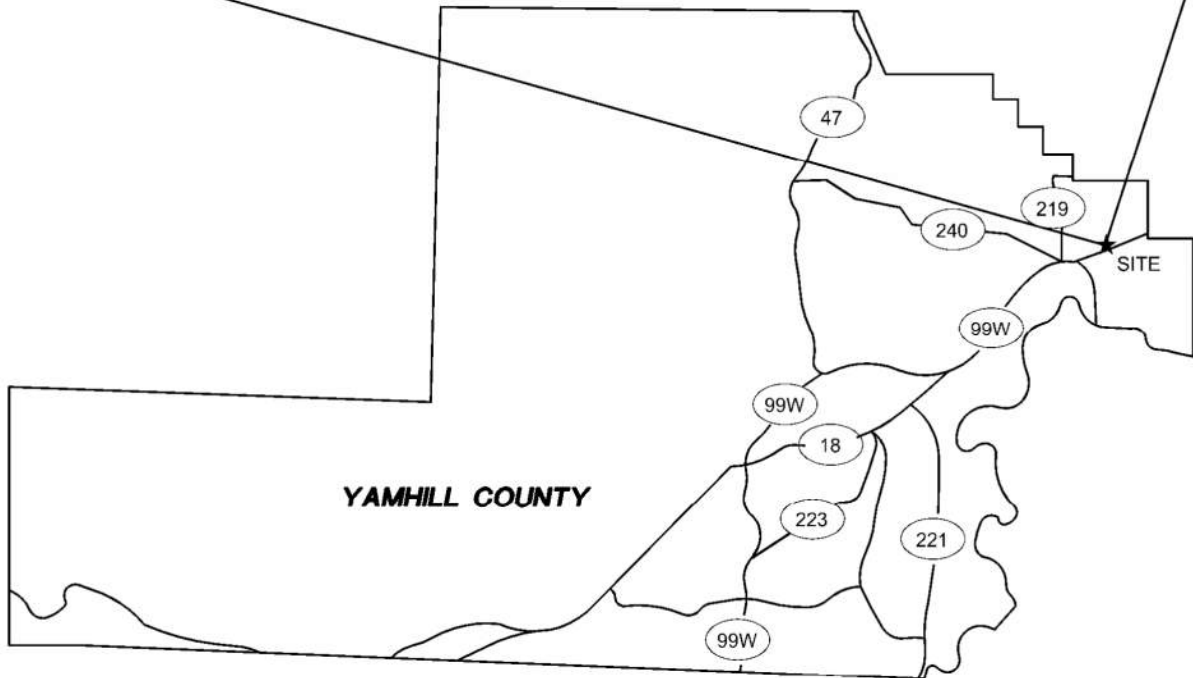
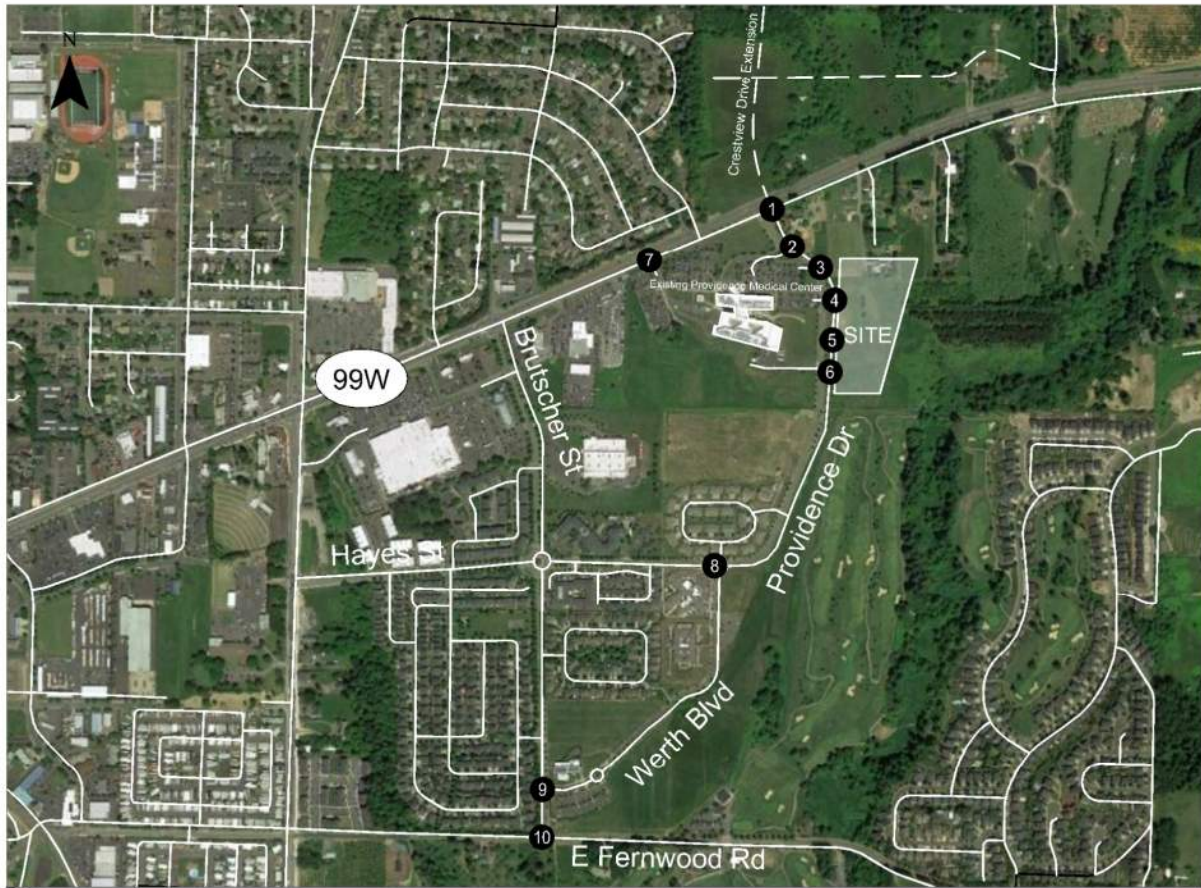
Providence Health & Services (herein referred to as "Providence") is proposing a 63,000 square feet expansion to its existing Medical Center in Newberg. As proposed, the new building would be constructed to the east of the existing campus, across Providence Drive. The property is currently vacant and to the north of the Chehalem Glenn Golf Course and south of Oregon 99W. The new building is anticipated to be constructed and occupied in 2019. This traffic study addresses the transportation-related impacts associated with the new building, in compliance with the Chapter 5 of the City of Newberg's Public Works Design and Construction Standards.

Based on the analysis herein, there are no off-site capacity needs associated with the new building and a southbound left-turn lane is not warranted at the proposed Providence Drive site driveways. We recommend that Providence locate and maintain all future landscaping, above-ground utilities, and site signage to ensure minimum required sight lines are provided at all site access points, internal intersections, and at the potential mid-block pedestrian crossing of Providence Drive.

At the request of City staff, we evaluated the need for an eastbound right-turn deceleration lane at the existing right-in, left-in access on Oregon 99W to the Medical Center. Although not warranted by the occupancy of the new building, the existing volumes at the access meet ODOT guidance for installation of a right-turn deceleration lane.

## INTRODUCTION

Providence is proposing up to 63,000 square feet expansion to its existing Newberg Medical Center (PNMC). Today, the campus is located to the west of Providence Drive and south of Oregon 99W and includes 180,080 square feet of hospital and medical office space. PNMC is currently served by a right-in, left-in access on Oregon 99W and four full accesses along Providence Drive. The new building will be located to the east of Providence Drive and will be served by two access points, one of which will align with an existing campus access. Figure 1 shows the site vicinity of the campus and Figure 2 shows the proposed site plan for the campus.



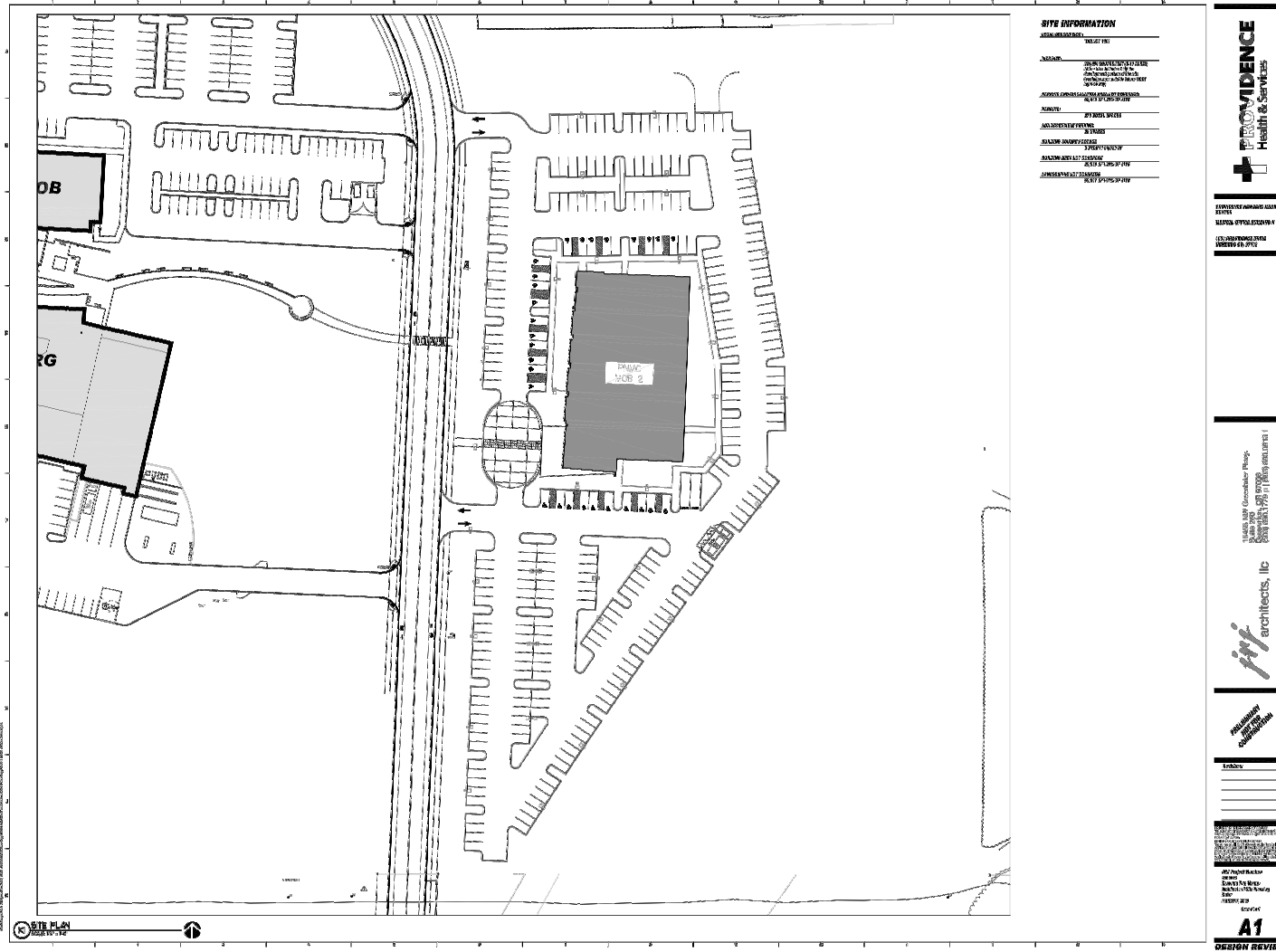
# - Study Intersection

Site Vicinity  
Newberg, Oregon

Figure  
1

H:\2\213140 - Newberg Providence Medical Center\vdwgs\figs\2340\figs.dwg Mar 22, 2018 - 9:38am - jgoliczynski Layout Tab: 1Site Vicinity Ma p

H:\22\22340 - Newberg Providence Medical Center\dwgs\Figs\22340figs.dwg Mar 22, 2018 - 9:33am - jgulczynski Layout Tab: 2Proposed Site Plan



Site Plan Provided by JRJ Architects, LLC 03/20/2017

Proposed Site Plan  
Newberg, Oregon

Figure  
2

## SCOPE OF THE REPORT

This report identifies the transportation-related impacts associated with the proposed PNMC campus expansion and was prepared in accordance with City of Newberg Traffic Analysis requirements (per Section 5.4 of the Public Works Design and Construction standards). Per City requirements, a traffic analysis is required when a development is anticipated to generate more than 40 weekday PM peak hour trips and must include the following:

- Executive summary;
- Description of site and study area roadways (as defined by those expected to experience a traffic volume increase of 5% due to the development);
- Bike, pedestrian, and transit needs;
- Off-site traffic evaluation of affected intersections (conducted for the weekday AM and PM peak hour under existing and year 2019 conditions);
- On-site traffic evaluation of accesses, circulation and parking;
- Recommendations for public improvements; and,
- The need for access management, as appropriate.

Based on scoping direction provided by the City of Newberg and Oregon Department of Transportation (ODOT) staff, the affected intersections included in this study are:

1. Oregon 99W/Providence Drive
2. Providence Drive/Existing PNMC North Driveway
3. Providence Drive/Existing PNMC Middle Driveway/Proposed Campus Expansion Access
4. Providence Drive/Existing PNMC South Driveway
5. Providence Drive/Campus Expansion Access
6. Providence Drive/Existing PNMC Shipping and Receiving Driveway
7. Oregon 99W/PNMC right-in, left-in access
8. Providence Drive-Hayes Street/Werth Boulevard
9. Brutscher Street/Werth Boulevard
10. E Fernwood Road/Brutscher Street



## Analysis Methodology

The intersection operational analyses presented in this report were prepared following *Highway Capacity Manual 2000* (Reference 1) analysis procedures using Synchro 9 software (ODOT requires *Highway Capacity Manual 2000* analysis of signalized intersections on ODOT facilities). The unsignalized Highway 99W right-in, left-in only access and the Providence Drive-Hayes Street/Werth Boulevard roundabout were analyzed following the *Highway Capacity Manual 2010*.

## Operating Standards

Intersection performance measures reported in this study include level of service (LOS), volume-to-capacity ratio (v/c), and delay. Queuing at the proposed accesses for the expansion area are also assessed. Intersection operating standards adopted by the respective transportation review authorities for the facilities they operate and maintain are summarized in this section.

### ***City of Newberg***

The City requires level of service "D" with maximum volume to capacity (v/c) ratio of 0.90. All study intersections are under City jurisdiction except Oregon 99W/Providence Drive.

### ***ODOT***

ODOT classifies Oregon 99W as a statewide freight route. With a 45 mile per hour posted speed, the applicable mobility target for the Oregon 99W/Providence Drive intersection is a v/c ratio of 0.80 per the Oregon Highway Plan.

## EXISTING CONDITIONS

This section summarizes the existing characteristics of the transportation system and adjacent land uses near the PNMC campus, including an inventory of the existing multimodal transportation facilities and options, an evaluation of existing intersection operations for motor vehicles at the study intersections, and a summary of recent crash history.

### Site Conditions and Adjacent Land Uses

The campus is located adjacent to Providence Drive and south of Oregon 99W. The expansion will occur east of Providence Drive. Commercial uses are located to the west of the campus whereas the Chehalem Glenn golf course and residential uses are located to the south.

## Transportation Facilities

Table 1 summarizes the study area roadways. Figure 3 illustrates the existing lane configurations and traffic control at the study intersections.

**Table 1. Street Characteristics in Site Vicinity**

Street	Classification <sup>1</sup>	Vehicle Travel Lanes	Posted Speed (mph)	Pedestrian Facilities	Bicycle Facilities
Oregon 99W	Statewide Freight Route	5	45	South side	Yes
Providence Drive	Major Collector	2	25	Yes	Yes
Brutscher Street	Major Collector	2 – 3	25	Yes	Yes
Hayes Street	Major Collector	2	25	Yes	No
Werth Boulevard	Local Street	2	25	West side	No
Fernwood Road	Major Collector	2	25	North side	No

<sup>1</sup>Per the City of Newberg Transportation System Plan (Reference 2).

### ***Pedestrian Facilities***

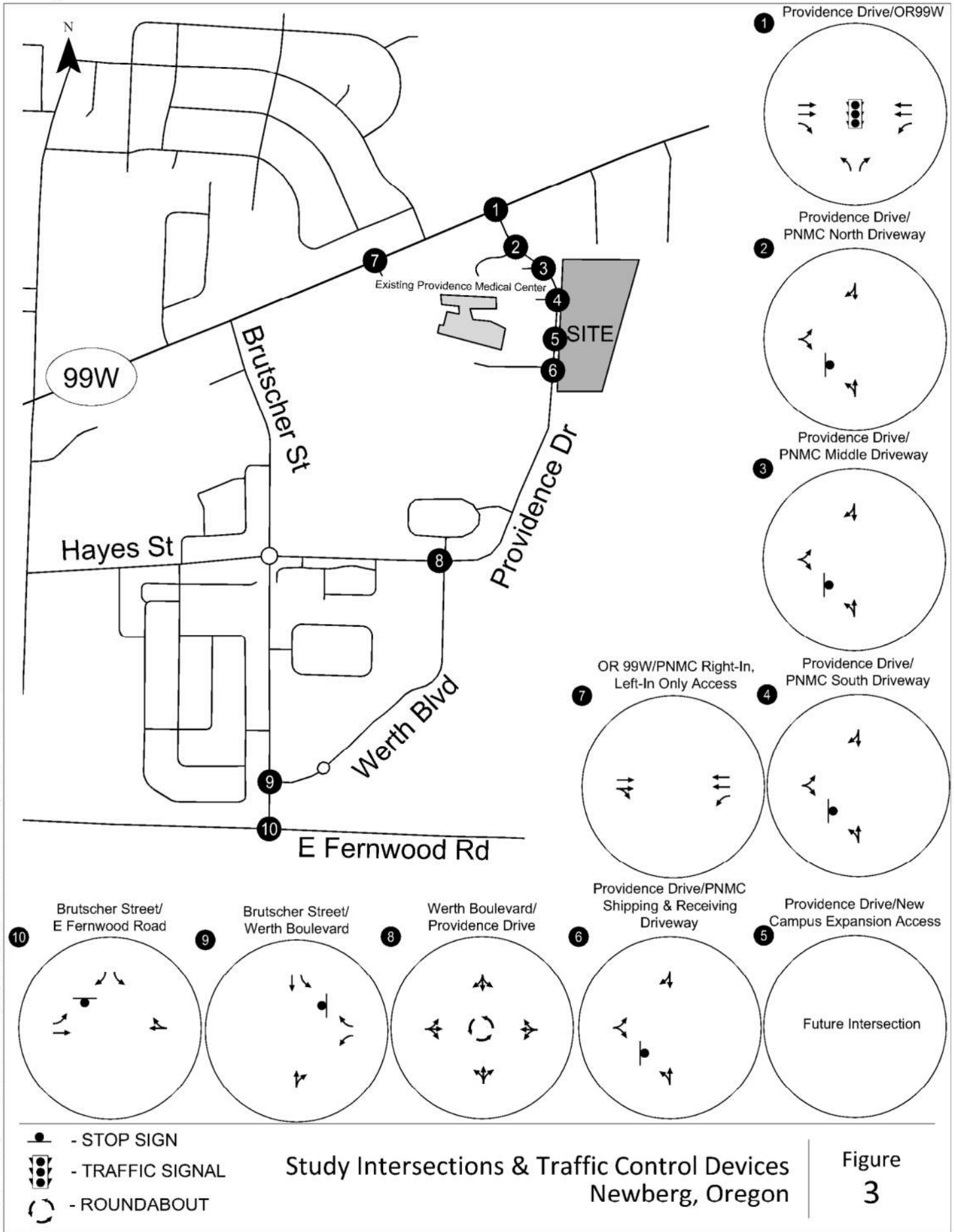
As shown in Table 1, sidewalks are generally provided along the study area roadways connecting the hospital campus to the adjacent commercial and residential areas. In addition, marked crossings are provided along Providence Drive near the campus access points as well as at key points along other study area roadways, such as Brutscher Street.

### ***Bicycle Facilities***

Bike lanes are generally provided along study area roadways. No modifications to the existing bicycle infrastructure is anticipated as part of the campus expansion.

### ***Transit Facilities***

Yamhill County Transit (YCTA) operates fixed transit route and dial-a-ride service in Newberg. Route 7 includes a stop within the Providence campus, providing convenient transit access for Providence employees, patients, and visitors. Service is provided on hourly headways between 7 AM and 7 PM on weekdays only.



H:\2\2\3340 - Newberg Providence Medical Center\vdms\fig\2340\fig.dwg Mar 22, 2018 - 10:28am - jgucizynski Layout Tab: BlumeCon

## Existing Conditions Operational Analysis

Manual turning movement counts were collected at the study intersections on a mid-week day in February 2018 when school was in session and no inclement weather conditions occurred that would affect typical traffic patterns. These counts were collected approximately one month after the first phase of the Newberg-Dundee Bypass was opened to traffic. Per scoping directions, the traffic counts were conducted during the morning (7:00 AM to 9:00 AM) and evening (4:00 PM to 6:00 PM) peak time periods. Further, per ODOT Analysis Procedures Manual (APM, Reference 3) requirements, the traffic counts were seasonally adjusted. Figures 4 and 5 summarize the seasonally adjusted traffic volumes at the study intersections during the weekday AM and PM peak hours, respectively. *Appendix “A” contains the traffic count worksheets.*

The figures also reflect the operational analysis for the study intersections during the weekday AM and PM peak hours. As shown, all City intersections and PNMC accesses operate acceptably today during the weekday AM and PM peak hours. The Providence Drive/Oregon 99W exceeds ODOT’s mobility target of 0.80 and operates with a v/c ratio of 0.82 during both peak hours. *Appendix “B” includes the operations analysis worksheets for the Existing Conditions analysis.*

## Traffic Safety

The crash history of each study intersection was reviewed to identify potential intersection safety issues. Crash data for the study intersections was obtained from the Oregon Department of Transportation (ODOT) for the five-year period from January 1, 2011 through December 31, 2015. Table 2 summarizes the crashes reported at the study intersections. *Appendix “C” contains the ODOT crash data.*

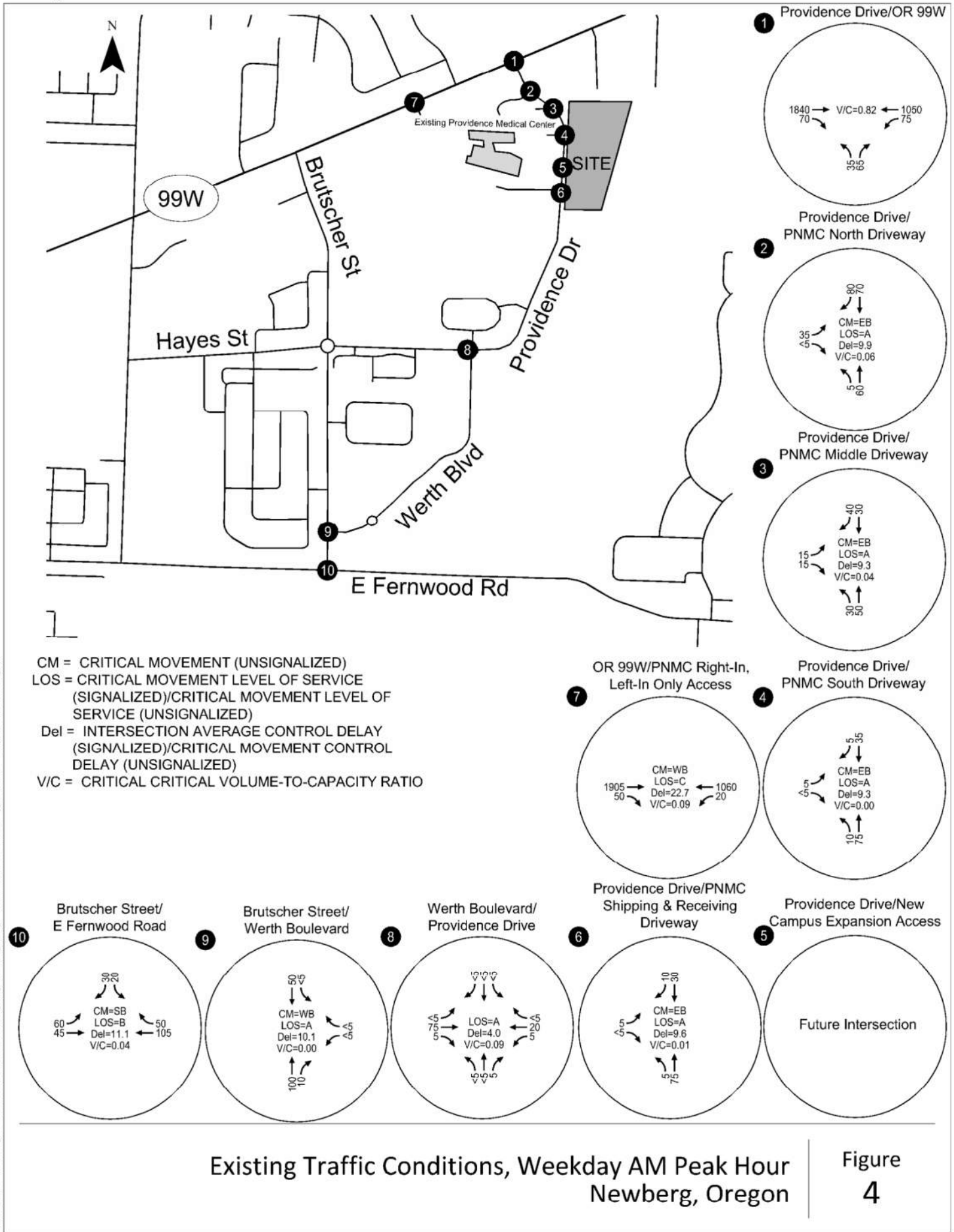
**Table 2. Intersection Crash History (January 1, 2011 through December 31, 2015)**

Location	Collision Type					Severity		Total Crashes	Crash Rate <sup>2</sup>	Statewide 90 <sup>th</sup> -percentile Crash Rate <sup>4</sup>	Observed Crash Rate > Statewide 90 <sup>th</sup> -percentile?
	Turning	Fixed Object	Rear End	Sideswipe	Angle	PDO <sup>1</sup>	Injury				
Oregon 99W/ Providence Drive	0	0	11	0	0	8	3	11	0.17	0.87	No
Providence Drive/ Hayes Street	0	0	0	0	0	0	0	0	0.0	1.53	No
Brutscher Street/ Werth Boulevard	0	0	0	0	0	0	0	0	0.0	1.53	No
Fernwood Road/ Brutscher Street	1	0	0	0	0	1	0	1	0.11	1.53	No

<sup>1</sup>PDO – Property damage only

<sup>2</sup>Crash rate per million entering vehicles

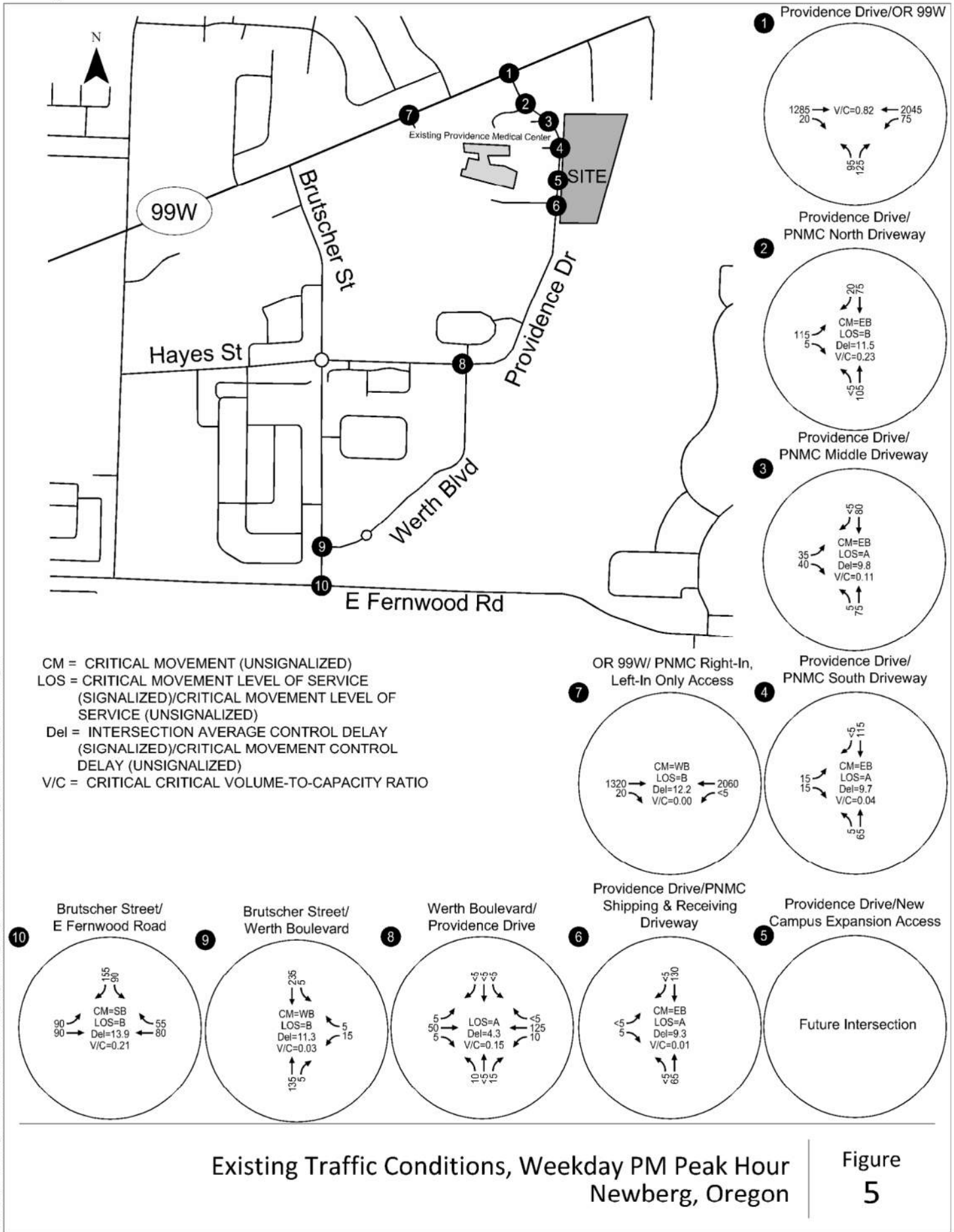
As shown in Table 2, the observed crash rate at each intersection was compared to the statewide 90<sup>th</sup>-percentile crash rate for similar intersection types, consistent with the ODOT APM. None of the observed crash rates at the study intersections exceed the statewide 90<sup>th</sup>-percentile crash rates. As such, no safety-related mitigation measures are recommended as part of the campus expansion.



Existing Traffic Conditions, Weekday AM Peak Hour  
 Newberg, Oregon

Figure  
 4

H:\2\2\2340 - Newberg Providence Medical Center\dwgs\fig\23400\figs.dwg Mar 22, 2018 - 9:42am - jgalski L:\out\Tab-4\Existing\AM



Existing Traffic Conditions, Weekday PM Peak Hour  
 Newberg, Oregon

Figure 5

H:\2\2\3140 - Newberg Providence Medical Center\vdgs\fig\2340\fig.dwg Mar 22, 2018 - 9:43am - jgalscynski L:\vdgs\Tab:5\ExistingPM

## TRAFFIC IMPACT ANALYSIS

The traffic impact analysis identifies how the study area's transportation system will operate in 2019 when the new building is expected to be occupied. This section of the report addresses the following elements:

- Build-out year 2019 background traffic conditions during the weekday AM and PM peak periods, considering in-process developments and planned transportation improvements in the study area;
- Trip generation and distribution estimates for the proposed campus expansion;
- Build-out year 2019 total traffic conditions during the weekday AM and PM peak assuming occupancy of the proposed expansion;
- Site access and circulation evaluation (including turn lane warrants);
- Providence Drive pedestrian crosswalk evaluation; and,
- Recommended improvements/intersection considerations.

### 2019 Background Operational Analysis

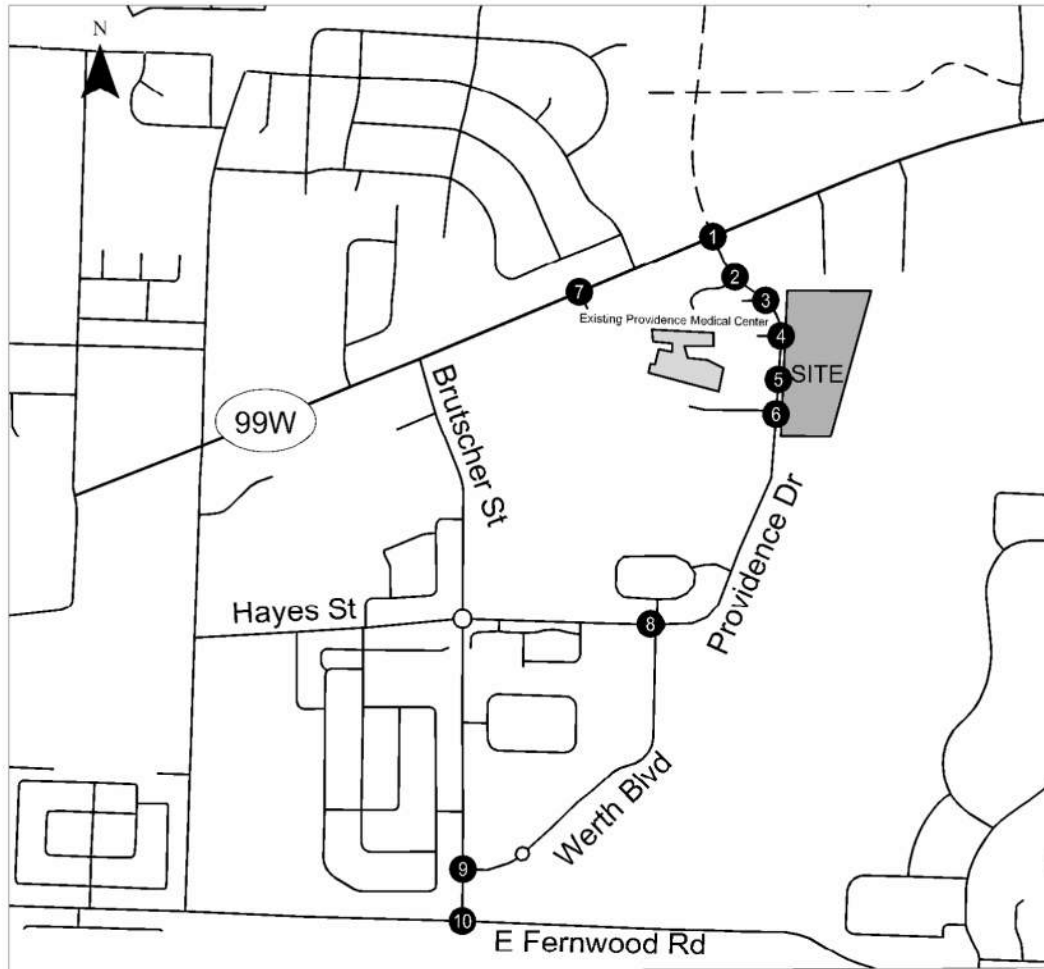
Background traffic volumes include trips from new development in the vicinity as well as general regional growth. The year 2019 analyses include a background annual growth rate of two percent at each study intersection, as well as traffic generated by two in-process developments identified by City and ODOT staff, including:

- Oregon Clinic; and,
- Crestview Crossing.

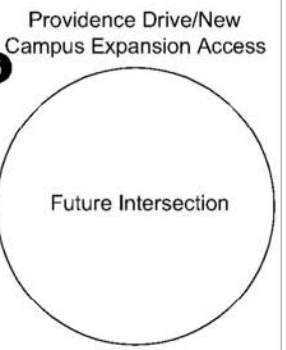
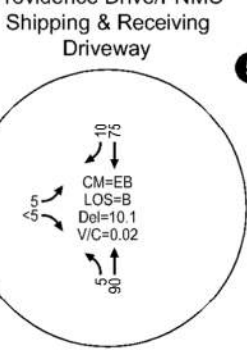
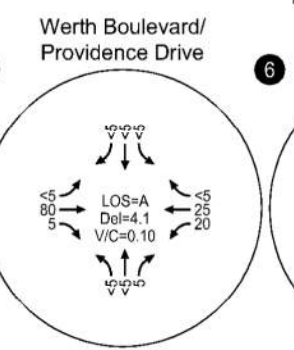
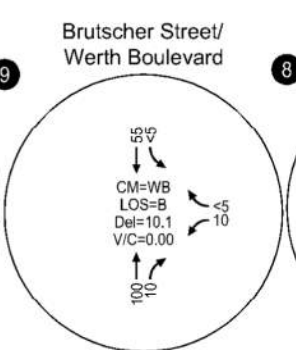
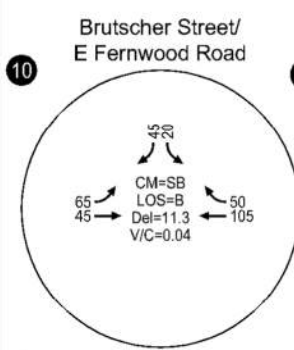
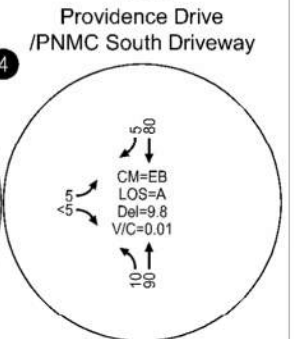
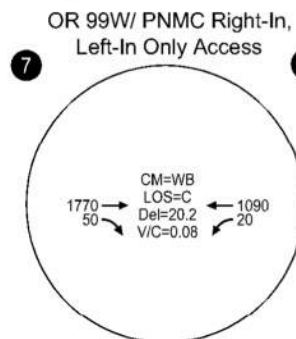
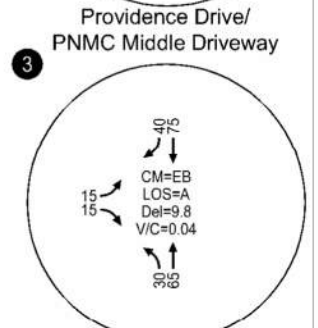
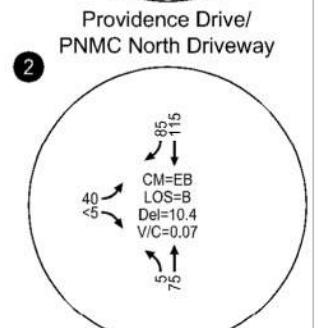
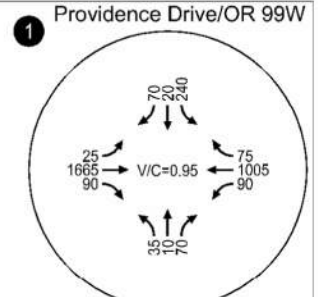
As part of the Crestview Crossing development, JT Smith will be extending Crestview Drive to the intersection of Oregon 99W/Providence Drive. Per direction from City staff, this improvement was also included in the analysis of year 2019 background conditions.

Figures 6 and 7 summarize the background traffic volumes at the study intersections during the weekday AM and PM peak hours, respectively. These figures also summarize the operational analysis for the study intersections during the weekday AM and PM peak hours. As shown, all City intersections and PNMC accesses are forecast to continue operating acceptably during both peak hours. With the Crestview Drive extension to Oregon 99W and the increase in background traffic volumes, the intersection of Providence Drive/Oregon 99W/Crestview Drive is forecast to operate at a v/c ratio of 0.95 during the weekday AM peak hour and 0.98 during the weekday PM peak hour.

*Appendix "D" includes the operations analysis worksheets for the 2019 Background Conditions analysis, as well as a summary of the in-process traffic volumes and assumptions associated with the extension of Crestview Drive to the Oregon 99W/Providence Drive intersection.*



CM = CRITICAL MOVEMENT (UNSIGNALIZED)  
 LOS = CRITICAL MOVEMENT LEVEL OF SERVICE (SIGNALIZED)/CRITICAL MOVEMENT LEVEL OF SERVICE (UNSIGNALIZED)  
 Del = INTERSECTION AVERAGE CONTROL DELAY (SIGNALIZED)/CRITICAL MOVEMENT CONTROL DELAY (UNSIGNALIZED)  
 V/C = CRITICAL CRITICAL VOLUME-TO-CAPACITY RATIO

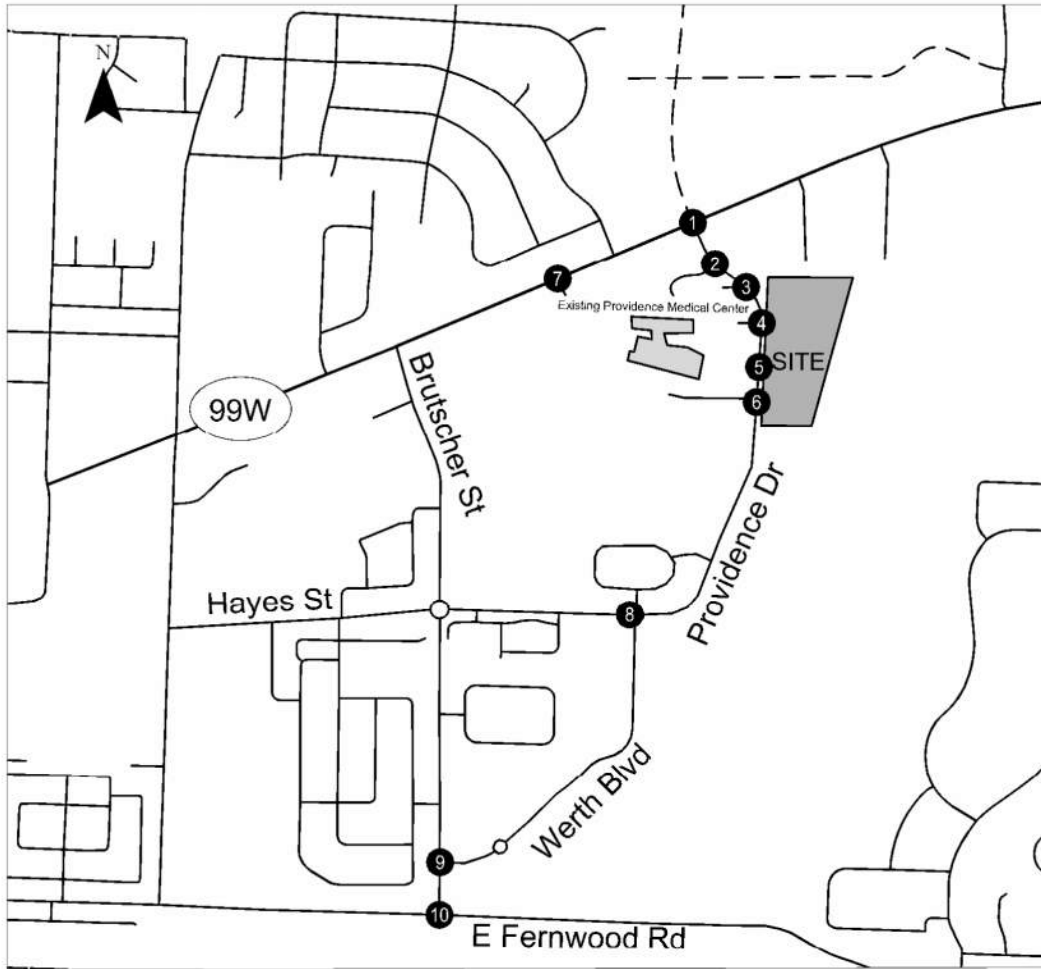


Background Traffic Conditions, Weekday AM Peak Hour  
 Newberg, Oregon

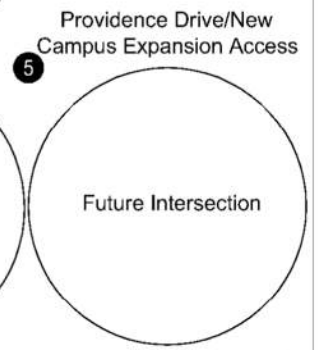
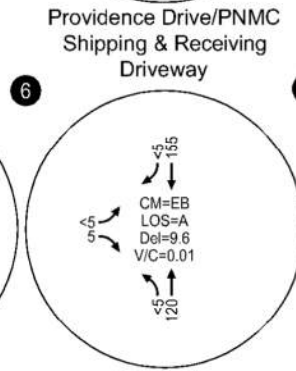
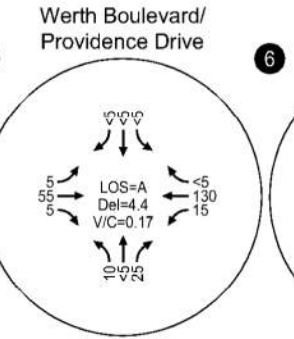
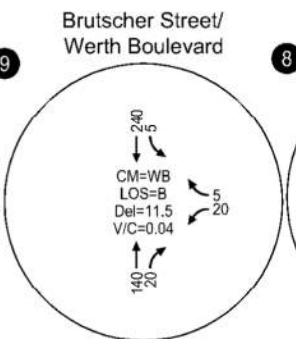
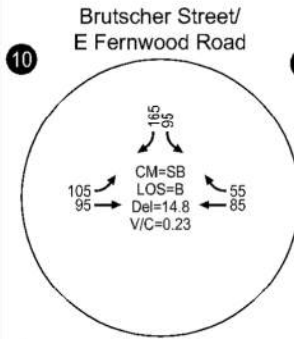
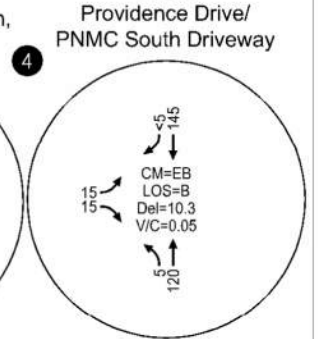
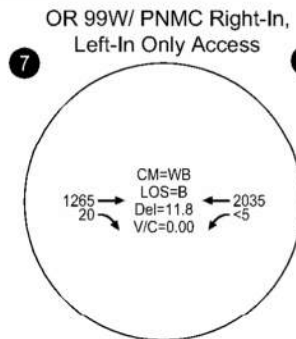
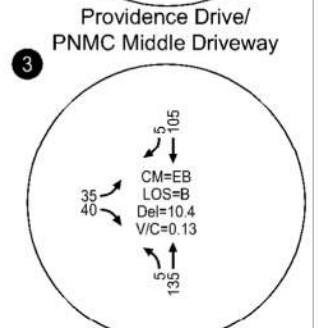
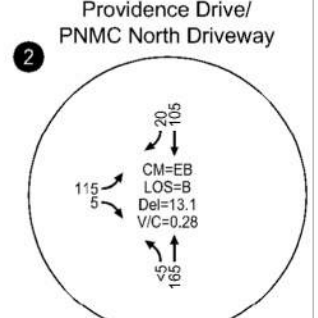
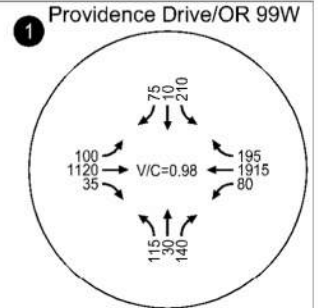
Figure 6

H:\2\2\3\340 - Newberg Providence Medical Center\vdgms\fig\2340\figs.dwg Mar 22, 2018 - 10:26am - jgucizynski Layout Tab: 68fig.dwg





CM = CRITICAL MOVEMENT (UNSIGNALIZED)  
 LOS = CRITICAL MOVEMENT LEVEL OF SERVICE (SIGNALIZED)/CRITICAL MOVEMENT LEVEL OF SERVICE (UNSIGNALIZED)  
 Del = INTERSECTION AVERAGE CONTROL DELAY (SIGNALIZED)/CRITICAL MOVEMENT CONTROL DELAY (UNSIGNALIZED)  
 V/C = CRITICAL CRITICAL VOLUME-TO-CAPACITY RATIO



Background Traffic Conditions, Weekday PM Peak Hour  
 Newberg, Oregon

Figure  
 7

H:\2\2\3\340 - Newberg Providence Medical Center\vdgs\fig\2340\figs.dwg Mar 22, 2018 - 10:26am - jgucizynski Layout Tab: 7B\fig\PM

## Trip Generation Estimate

Recent studies conducted at other hospital campuses in the state have shown that it is most appropriate to identify an overall hospital campus rate, rather than trying to separate out the trip generation by use (e.g., hospital, medical office building, administrative office, etc.). These studies have shown that there is a synergy and efficiency that is gained by a campus between the main hospital, medical office buildings and ancillary uses<sup>1</sup>.

We used the traffic counts at the four existing campus accesses along Providence Drive and the right-in, left-in access on Oregon 99W during the weekday AM (7 – 9 AM) and PM (4 – 6 PM) peak periods to determine the current campus trip rate for PNMC. An existing PNMC trip generation rate was developed by dividing the total number of vehicles observed at the driveways by the total size of the existing buildings (i.e., 180,080 square feet). This rate was applied to the new building for purposes of the traffic impact analysis. Table 3 summarizes the existing campus rate whereas Table 4 shows the estimated trip generation for the expansion area.<sup>2</sup>

**Table 3. Existing Campus Trip Generation**

Land Use	Data Source	Size (square feet)	Total Daily Trips	Weekday AM Peak Hour			Weekday PM Peak Hour		
				Total Trips	In	Out	Total Trips	In	Out
Existing Campus	Based on Driveway Counts	180,080	Not Measured	291 (1.62 trips per 1,000 sq. ft.)	222 (76% in)	69 (24% out)	246 (1.37 trips per 1,000 sq. ft.)	53 (22% in)	193 (78% out)

**Table 4. Estimated Trip Generation for Campus Expansion**

Land Use	Site Rates	Size	Total Daily Trips	Weekday AM Peak Hour			Weekday PM Peak Hour		
				Total Trips	In	Out	Total Trips	In	Out
Hospital Expansion	N/A	63,000	n/a	102	78	24	86	19	67

<sup>1</sup> Sources: *Portland Providence Medical Center Transportation Impact Analysis*, June 2011; *Providence Willamette Falls Medical Center Transportation Impact Analysis*, August 2011; *PeaceHealth Southwest Public Facilities Master Plan*, February 2015; *Adventist Medical Center Conditional Use Master Plan*, February 2018.

<sup>2</sup> For reference purposes, the hospital trip generation rates in *Trip Generation Manual* (10<sup>th</sup> Edition, Institute of Transportation Engineers) reflect a weekday AM peak hour rate of 0.89 trips per 1,000 square feet and a weekday PM peak hour rate of 0.97 trips per 1,000 square feet versus the PNMC measured rates of 1.62 weekday AM and 1.37 weekday PM trips per 1,000 square feet.

## Trip Distribution and Assignment

Figure 8 illustrates the estimated trip distribution pattern, as well as the assignment of site-generated trips during the weekday AM and PM peak hours. The trip distribution pattern was calculated based on existing traffic patterns associated with PNMC. To ensure a conservative analysis of site-generated trip capacity impacts to off-site study intersections, no vehicle trips were assumed between the proposed building and the existing Providence campus.

## 2019 Total Traffic Operational Analysis

Total traffic volumes include the site-generated trips in addition to the 2019 background traffic volumes. The background traffic volumes shown in Figures 6 and 7 were added to the site-generated trips shown in Figure 8 arrive at the 2019 total traffic volumes shown in Figures 9 and 10 for the weekday AM and PM peak hours, respectively. These figures also summarize the operational analysis for the study intersections during the weekday AM and PM peak hours.

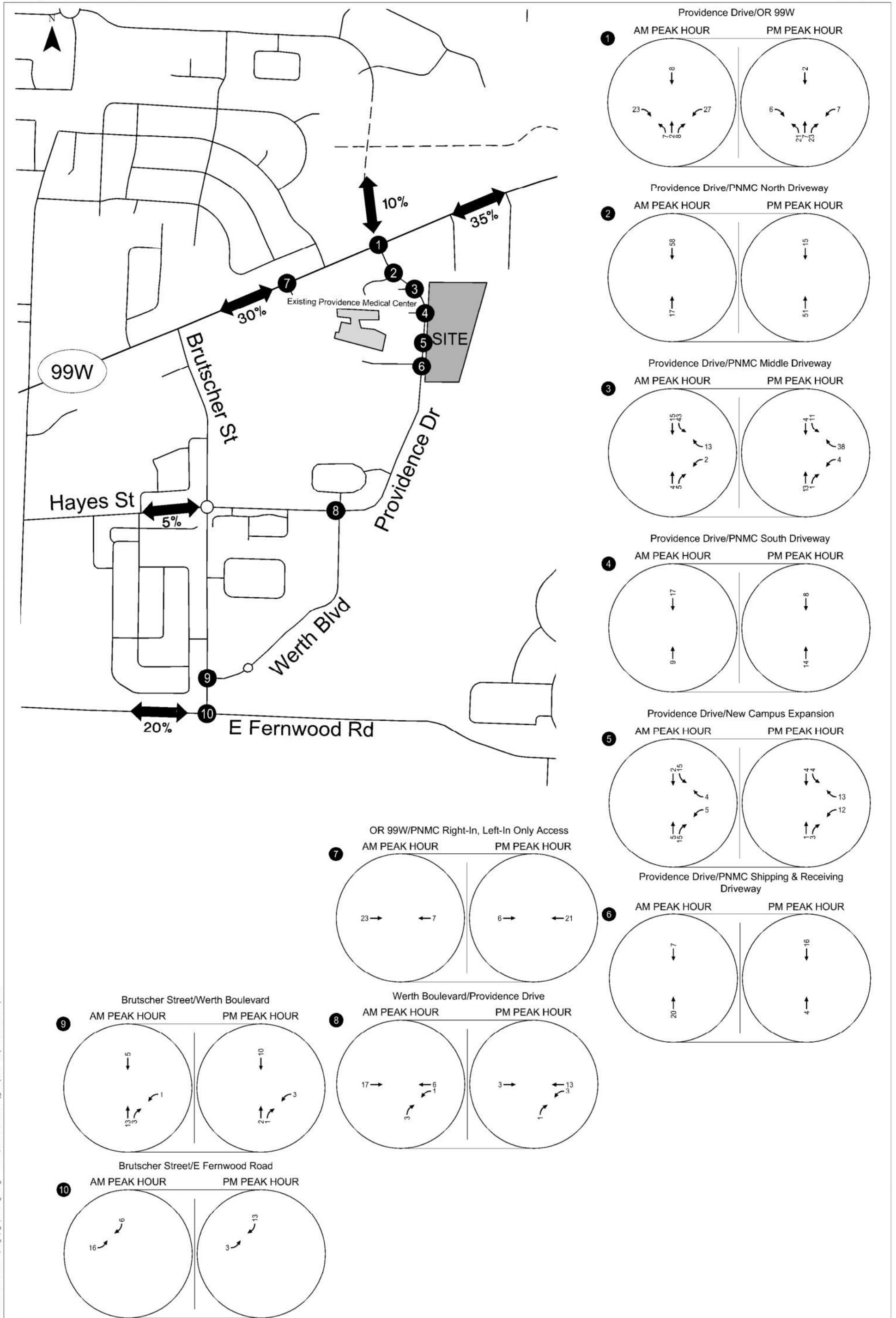
As shown, all City intersections are forecast to continue operating acceptably during both peak hours. With the addition of the traffic from the new building, the intersection of Providence Drive/Oregon 99W/Crestview Drive is forecast to operate at a v/c ratio of 0.96 during the weekday AM peak hour and 0.98 during the weekday PM peak hour. A comparison of the operational results shown in Figures 6 and 7 with those reflected in Figures 9 and 10 reveals that the v/c ratio during the weekday AM peak hour is anticipated to increase by 0.01 as a result of the new building whereas the v/c ratio during the PM peak hour is anticipated to remain the same as background conditions (although a small increase in delay is anticipated upon occupancy of the new building). Per ODOT policy guidance, when an intersection exceeds mobility targets, but the v/c ratio increases by less than 0.03 due to development, the impacts are not considered significant<sup>3</sup>. Based on this policy, no mitigation measures are warranted at this intersection. *Appendix "E" includes the year 2019 total traffic operations worksheets.*

### ***Left-Turn Lane Warrant Analysis***

As discussed above, two accesses are proposed to serve the new building along Providence Drive. One will align with the Middle PNMC access (i.e., Intersection 3 in the figures) and one will be located between the South access (Intersection 4 in the figures) and the PNMC Shipping and Receiving access (Intersection 5 in the figures). Based on scoping direction from the City, we evaluated the need for a southbound left-turn lane at both new access points. Based on year 2019 traffic volumes and APM procedures, a southbound left-turn-lane is not warranted at either location. *Appendix "F" includes the turn lane warrant analysis worksheets.*

---

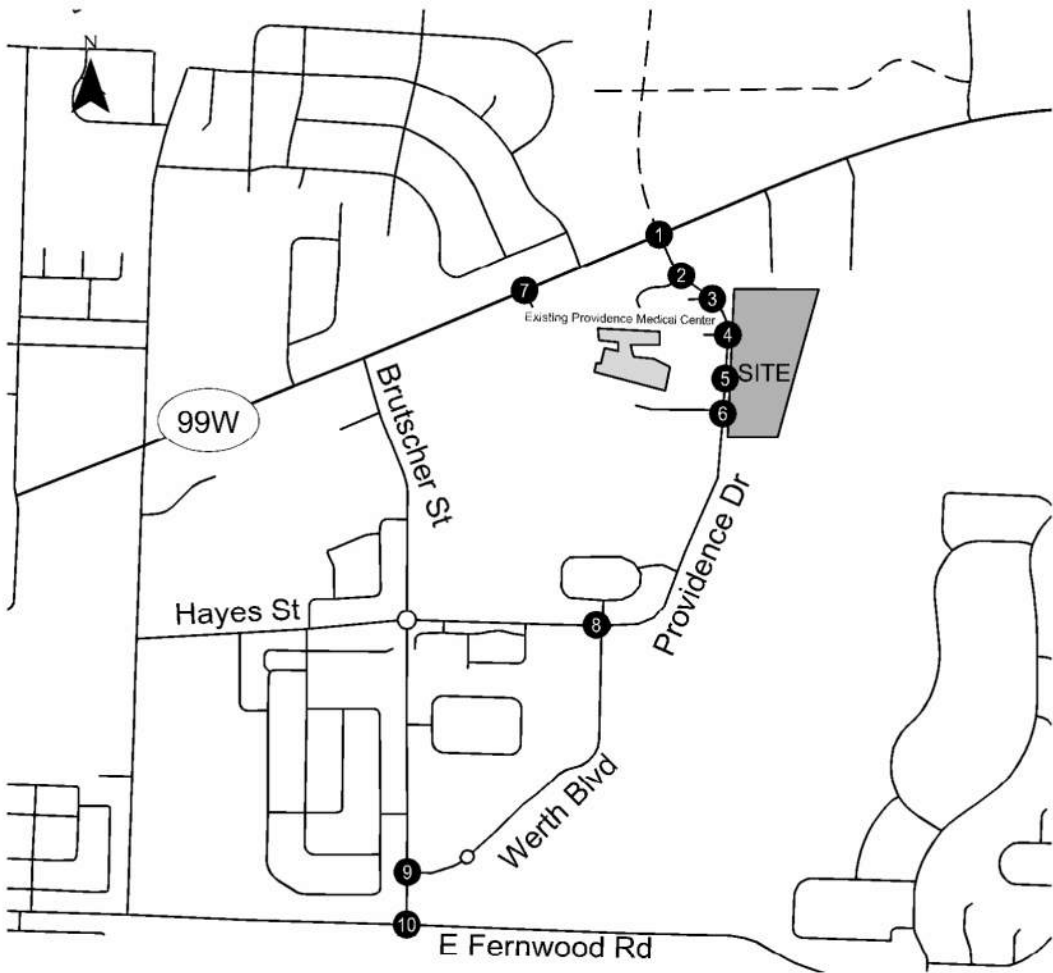
<sup>3</sup> Source: May 25, 20011 Oregon Department of Transportation Memorandum from Matthew Garrett, Director. Subject: Oregon Highway Plan Policy Intent Statements



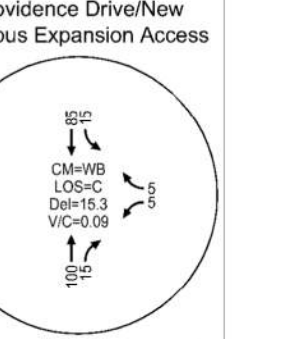
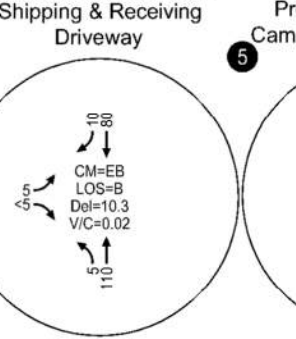
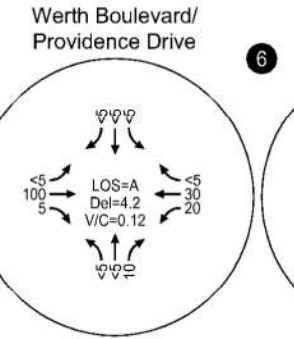
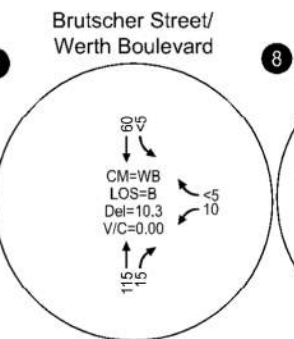
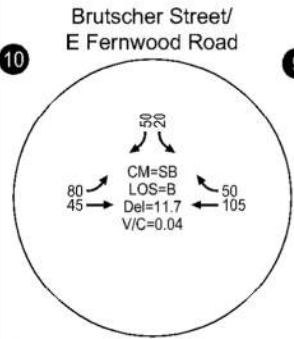
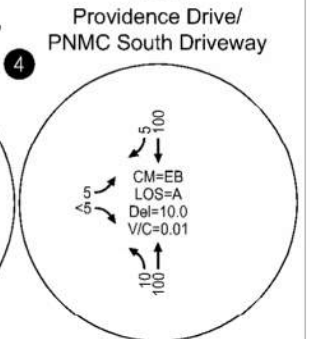
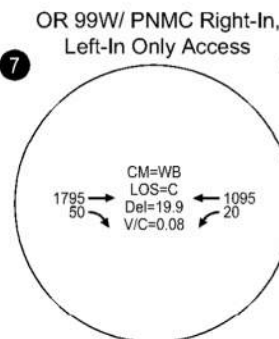
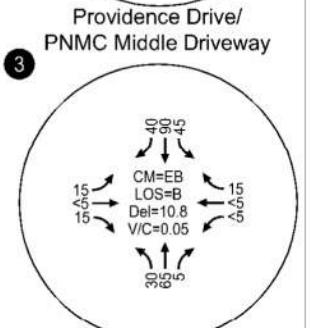
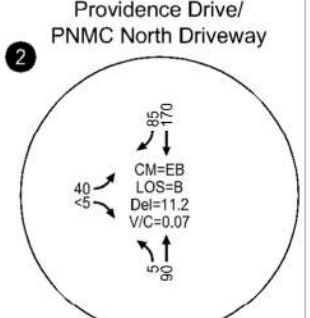
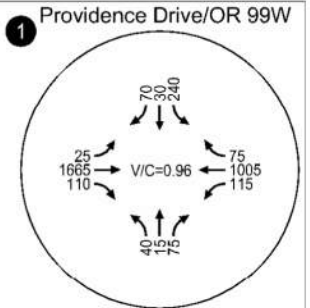
Estimated Trip Distribution Pattern and Assignment  
 Newberg, Oregon

Figure  
 8

H:\222340 - Newberg, Providence Medical Center\dwg\fig\22407fig.dwg Mar 22, 2018 - 10:25am - jgulczynski Layout Tab: 8EAT Trip Dist



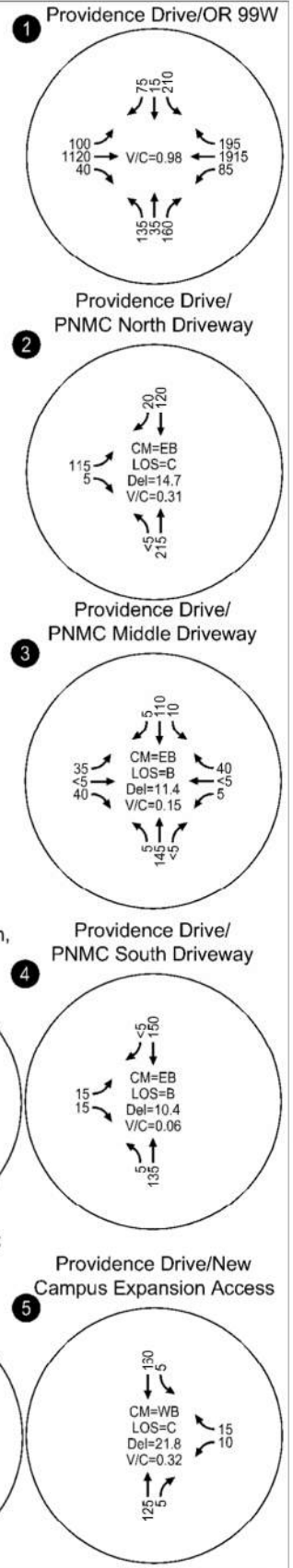
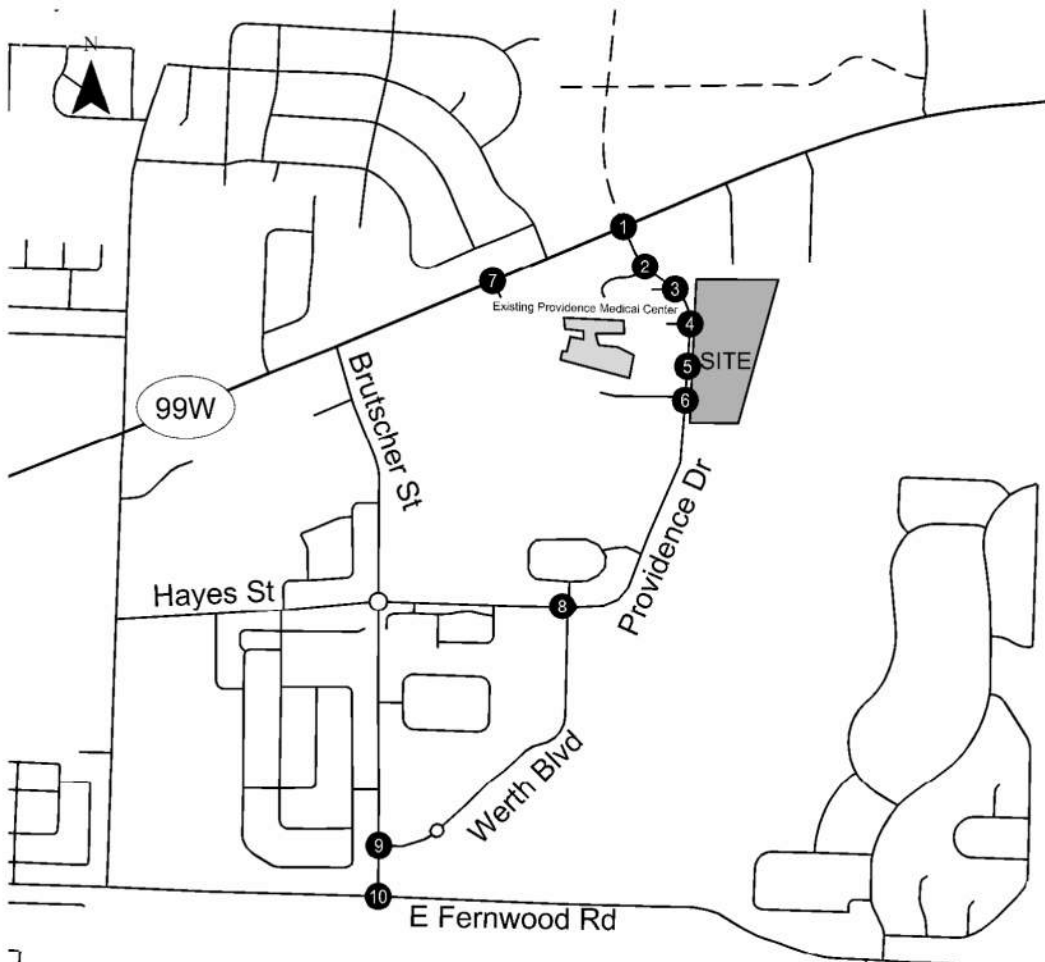
CM = CRITICAL MOVEMENT (UNSIGNALIZED)  
 LOS = CRITICAL MOVEMENT LEVEL OF SERVICE (SIGNALIZED)/CRITICAL MOVEMENT LEVEL OF SERVICE (UNSIGNALIZED)  
 Del = INTERSECTION AVERAGE CONTROL DELAY (SIGNALIZED)/CRITICAL MOVEMENT CONTROL DELAY (UNSIGNALIZED)  
 V/C = CRITICAL CRITICAL VOLUME-TO-CAPACITY RATIO



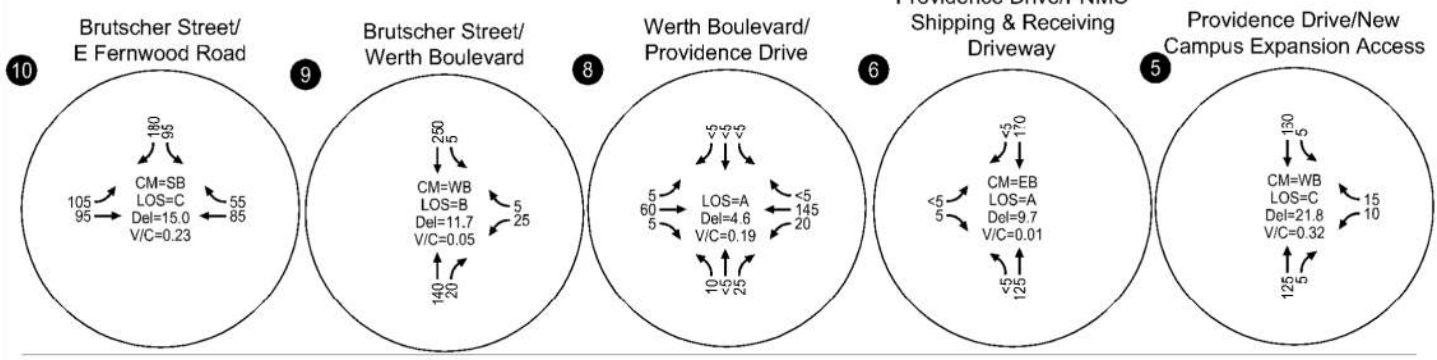
Total Traffic Conditions, Weekday AM Peak Hour  
 Newberg, Oregon

Figure  
 9

H:\2\2\3140 - Newberg Providence Medical Center\vdgms\fig\2340\figs.dwg Mar 22, 2018 - 10:25am - jgucizynski Layout Tab: STotalAMI



**CM = CRITICAL MOVEMENT (UNSIGNALIZED)**  
**LOS = CRITICAL MOVEMENT LEVEL OF SERVICE (SIGNALIZED)/CRITICAL MOVEMENT LEVEL OF SERVICE (UNSIGNALIZED)**  
**Del = INTERSECTION AVERAGE CONTROL DELAY (SIGNALIZED)/CRITICAL MOVEMENT CONTROL DELAY (UNSIGNALIZED)**  
**V/C = CRITICAL CRITICAL VOLUME-TO-CAPACITY RATIO**



Total Traffic Conditions, Weekday PM Peak Hour  
 Newberg, Oregon

Figure  
 10

H:\2\2\3140 - Newberg Providence Medical Center\vdwg\fig\2340\fig.dwg Mar 22, 2018 - 10:24am - jgucizynski Layout Tab: 10TotalPM

### Oregon 99W Right-Turn Lane Warrant Analysis

At the request of City staff, we evaluated the need for an eastbound right-turn deceleration lane at the PNMC right-in, left-in access on Oregon 99W. Although not warranted by the occupancy of the new building, the existing volumes at the access meet ODOT APM guidance for installation of a deceleration lane. We recommend Providence work with the City and ODOT to determine, if and, when to construct this deceleration lane, especially in consideration of any planned construction of the next phase of the Newberg-Dundee Bypass and its effect on Oregon 99W traffic volumes. *Appendix “F” includes the turn lane warrant analysis worksheets.*

### Queuing Analyses

Table 5 identifies the projected 95<sup>th</sup> percentile queuing at the two access points proposed to serve the campus expansion area along Providence Drive intersection assuming full occupancy of the new building. We worked with the project team to ensure that adequate queue storage can be provided within the parking area proposed to serve the campus expansion and that no queue spillback would occur onto Providence Drive at either location. Further, because the proposed driveways are stop-controlled on the side-street approaches and uncontrolled along Providence Drive, the driveway queues will have no impact to a potential mid-block pedestrian crossing on Providence Drive.

**Table 5. 95<sup>th</sup> Percentile Queues at New Campus Accesses on Providence Drive**

Location	Movement	95th-percentile Queue (ft)	
		Total AM	Total PM
Existing Middle PNMC Access/ Campus Expansion Access	Westbound	<25	<25
	Southbound	<25	<25
Campus Expansion Access (southern)	Westbound	<25	50
	Southbound	<25	<25

### On-Site Circulation

The project team has provided for adequate vehicular, pedestrian and bicycle circulation and access within the campus expansion area. Further, both access points are expected to operate acceptably under stop control.

### Crosswalk Assessment

The National Cooperative Highway Research Program (NCHRP) *Report 562 Improving Pedestrian Safety at Unsignalized Crossings* recommends an engineering study method for evaluating the appropriate levels of crosswalk protection. The Report 562 method was applied to determine if a striped crosswalk might be needed between the existing hospital and the new building.

Approximately 160 staff are expected to be on-site in the new building, plus visitors and patients. Some walking trips between the proposed new building and the hospital campus west of Providence Drive are

expected to be made by employees and/or visitors. The number of pedestrian crossings per day is likely to vary based on considerations including weather, time of day, and the extent of services/amenities that require trips between buildings (for example, some staff and visitors may walk to the existing hospital campus cafeteria, though a coffee/snack bar will be provided in the lobby of the proposed new building).

The NCHRP 562 analysis procedure suggests a crosswalk treatment for facilities like Providence Drive where 20 or more pedestrians cross per hour. Based on conversations with Providence staff, it is estimated that fewer than 20 pedestrian trips per hour are likely to use the pedestrian crossing (equivalent to 10 persons making a round trip between buildings in one hour). Accordingly, a striped crosswalk does not appear to be warranted and the projected traffic and pedestrian volumes also do not warrant an “active or enhanced” treatment per the NCHRP Report 562 thresholds. The need for such treatments or provision of a marked crosswalk could be re-evaluated in the future as necessary.

Providence should provide street lighting along the site frontage and ensure that all landscaping, above-ground utilities, and site signage are located to ensure a clear line of sight for vehicles on Providence Drive to detect and yield to pedestrians.

*Appendix G contains the worksheet used in the crosswalk evaluation.*

### Intersection Sight Distance

Providence should locate and maintain all future landscaping, above-ground utilities, and site signage to ensure minimum intersection required sight lines are provided at all site accesses, as well as internal intersections in accordance with City standards.

### Access Management

Per Newberg Municipal Code Section 15.505.030.R.2 and R.3, driveways along Major Collector roadways must be located 150 feet from adjacent street intersections and more than one driveway is permitted along a site frontage provided 100 feet is provided between access points. The site plan has been designed to meet these standards and as such, no access management measures are needed.

Note that the proposed north access location was chosen to align with an existing access to the west. At some point in the future, a new east-west public street is expected to be constructed along the north side of the proposed development site by ODOT to facilitate extension of the Newberg-Dundee Bypass. At that time, the north site access is expected to be closed and relocated to interface with the new east-west roadway at a location at least 150 feet east of Providence Drive. The site parking lot has been designed to accommodate this potential future access change.



## RECOMMENDATIONS

Based on the analysis herein, the following recommendations are associated with the proposed campus expansion:

- Providence should locate and maintain all future landscaping, above-ground utilities, and site signage to ensure minimum required sight lines are provided at the site accesses, at all internal site intersections, and at any future mid-block pedestrian crossing of Providence Drive between the two buildings.
- Providence should work with the City and ODOT to determine, if and, when to construct an eastbound right-turn deceleration lane at the existing PNMC Oregon 99W right-in, left-in access, especially in consideration of any planned construction of the next phase of the Newberg-Dundee Bypass and its effect on Oregon 99W traffic volumes.

Please contact us at (503) 228-5230 if you have any questions regarding this study or the findings and recommendations presented.

## REFERENCES

1. Transportation Research Board. *2000 Highway Capacity Manual*. 2000.
2. Newberg Transportation System Plan Update. 2016.
3. Oregon Department of Transportation. *Analysis Procedures Manual Version 2*. 2016.

## APPENDICES

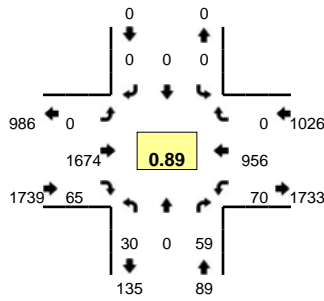
- A. Traffic Counts
- B. Existing Traffic Conditions Worksheets
- C. ODOT Crash Data
- D. Year 2019 Background Traffic Conditions Worksheets
- E. Year 2019 Total Traffic Conditions Worksheets
- F. Warrant Analysis Worksheets
- G. Pedestrian Crossing Worksheets

## Appendix A Traffic Counts

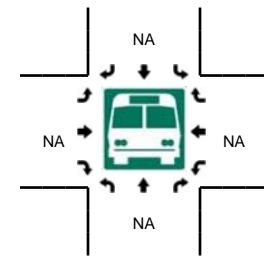
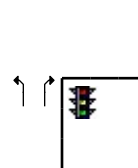
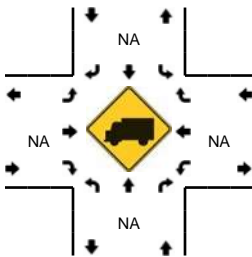
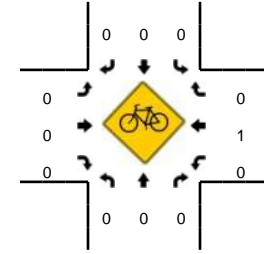
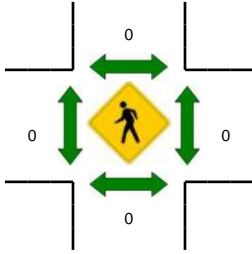
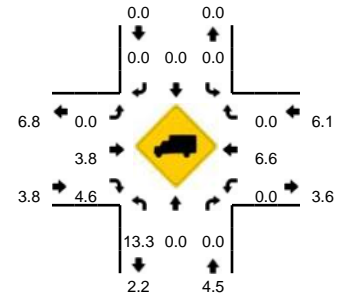
THIS PAGE INTENTIONALLY BLANK

**LOCATION:** Providence Dr -- N Hwy 99W  
**CITY/STATE:** Newberg, OR

**QC JOB #:** 14609601  
**DATE:** Tue, Feb 06 2018



**Peak-Hour: 7:00 AM -- 8:00 AM**  
**Peak 15-Min: 7:15 AM -- 7:30 AM**

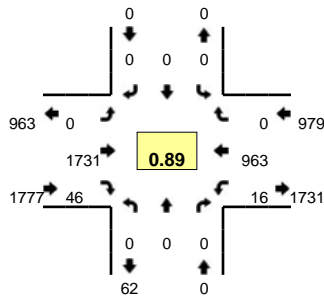


5-Min Count Period Beginning At	Providence Dr (Northbound)				Providence Dr (Southbound)				N Hwy 99W (Eastbound)				N Hwy 99W (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	0	0	3	0	0	0	0	0	0	133	8	0	8	77	0	0	229	
7:05 AM	1	0	3	0	0	0	0	0	0	180	6	0	4	73	0	0	267	
7:10 AM	3	0	5	0	0	0	0	0	0	133	2	0	5	73	0	0	221	
7:15 AM	3	0	4	0	0	0	0	0	0	160	6	0	10	57	0	0	240	
7:20 AM	1	0	3	0	0	0	0	0	0	175	3	0	3	81	0	0	266	
7:25 AM	3	0	7	0	0	0	0	0	0	170	8	0	5	104	0	0	297	
7:30 AM	3	0	8	0	0	0	0	0	0	118	1	0	2	76	0	0	208	
7:35 AM	4	0	2	0	0	0	0	0	0	154	3	0	5	68	0	0	236	
7:40 AM	5	0	6	0	0	0	0	0	0	120	8	0	4	75	0	0	218	
7:45 AM	2	0	7	0	0	0	0	0	0	117	9	0	9	80	0	0	224	
7:50 AM	2	0	7	0	0	0	0	0	0	92	6	0	7	97	0	0	211	
7:55 AM	3	0	4	0	0	0	0	0	0	122	5	0	8	95	0	0	237	2854
8:00 AM	3	0	8	0	0	0	0	0	0	104	5	0	7	75	0	0	202	2827
8:05 AM	6	0	5	0	0	0	0	0	0	87	6	0	8	90	0	0	202	2762
8:10 AM	4	0	5	0	0	0	0	0	0	118	1	0	7	77	0	0	212	2753
8:15 AM	1	0	9	0	0	0	0	0	0	123	6	0	5	70	0	0	214	2727
8:20 AM	5	0	6	0	0	0	0	0	0	112	3	0	6	97	0	0	229	2690
8:25 AM	7	0	2	0	0	0	0	0	0	95	1	0	5	80	0	0	190	2583
8:30 AM	3	0	1	0	0	0	0	0	0	96	4	0	2	77	0	0	183	2558
8:35 AM	6	0	3	0	0	0	0	0	0	90	4	0	1	82	0	0	186	2508
8:40 AM	5	0	2	0	0	0	0	0	0	116	5	0	9	68	0	0	205	2495
8:45 AM	4	0	4	0	0	0	0	0	0	87	5	0	6	85	0	0	191	2462
8:50 AM	6	0	4	0	0	0	0	0	0	110	3	0	8	91	0	0	222	2473
8:55 AM	8	0	8	0	0	0	0	0	0	69	1	0	1	56	0	0	143	2379
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	28	0	56	0	0	0	0	0	0	2020	68	0	72	968	0	0	3212	
Heavy Trucks	8	0	0	0	0	0	0	0	0	80	4	0	0	52	0	0	144	
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																		

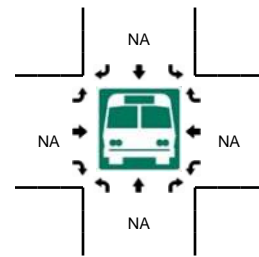
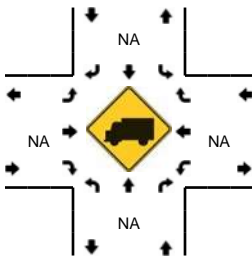
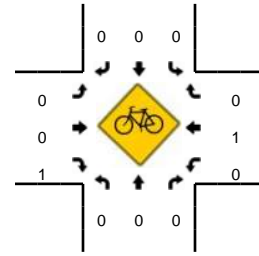
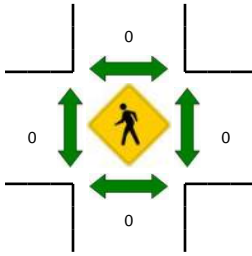
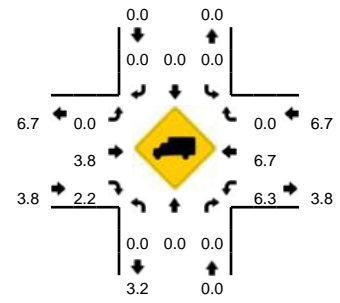
Comments:

**LOCATION:** PNMC West Dwy -- N Hwy 99W  
**CITY/STATE:** Newberg, OR

**QC JOB #:** 14609603  
**DATE:** Tue, Feb 06 2018



**Peak-Hour: 7:00 AM -- 8:00 AM**  
**Peak 15-Min: 7:15 AM -- 7:30 AM**

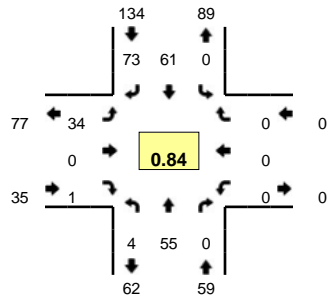


5-Min Count Period Beginning At	PNMC West Dwy (Northbound)				PNMC West Dwy (Southbound)				N Hwy 99W (Eastbound)				N Hwy 99W (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	0	0	0	0	0	0	0	0	0	144	2	0	4	72	0	0	222	
7:05 AM	0	0	0	0	0	0	0	0	0	188	1	0	1	74	0	0	264	
7:10 AM	0	0	0	0	0	0	0	0	0	134	1	0	1	73	0	0	209	
7:15 AM	0	0	0	0	0	0	0	0	0	173	5	0	0	62	0	0	240	
7:20 AM	0	0	0	0	0	0	0	0	0	160	5	0	1	76	0	0	242	
7:25 AM	0	0	0	0	0	0	0	0	0	174	7	0	0	109	0	0	290	
7:30 AM	0	0	0	0	0	0	0	0	0	121	3	0	2	76	0	0	202	
7:35 AM	0	0	0	0	0	0	0	0	0	161	5	0	1	75	0	0	242	
7:40 AM	0	0	0	0	0	0	0	0	0	127	2	0	1	77	0	0	207	
7:45 AM	0	0	0	0	0	0	0	0	0	125	5	0	2	78	0	0	210	
7:50 AM	0	0	0	0	0	0	0	0	0	98	6	0	3	95	0	0	202	
7:55 AM	0	0	0	0	0	0	0	0	0	126	4	0	0	96	0	0	226	2756
8:00 AM	0	0	0	0	0	0	0	0	0	108	9	0	2	72	0	0	191	2725
8:05 AM	0	0	0	0	0	0	0	0	0	93	2	0	2	95	0	0	192	2653
8:10 AM	0	0	0	0	0	0	0	0	0	122	8	0	0	74	0	0	204	2648
8:15 AM	0	0	0	0	0	0	0	0	0	127	3	0	2	71	0	0	203	2611
8:20 AM	0	0	0	0	0	0	0	0	0	113	2	0	3	98	0	0	216	2585
8:25 AM	0	0	0	0	0	0	0	0	0	94	2	0	1	81	0	0	178	2473
8:30 AM	0	0	0	0	0	0	0	0	0	101	4	0	0	81	0	0	186	2457
8:35 AM	0	0	0	0	0	0	0	0	0	94	5	0	1	91	0	0	191	2406
8:40 AM	0	0	0	0	0	0	0	0	0	121	6	0	0	77	0	0	204	2403
8:45 AM	0	0	0	0	0	0	0	0	0	89	5	0	0	89	0	0	183	2376
8:50 AM	0	0	0	0	0	0	0	0	0	112	5	0	0	98	0	0	215	2389
8:55 AM	0	0	0	0	0	0	0	0	0	75	6	0	3	55	0	0	139	2302
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
All Vehicles	0	0	0	0	0	0	0	0	0	2028	68	0	4	988	0	0	3088	
Heavy Trucks	0	0	0	0	0	0	0	0	0	84	0	0	0	60	0	0	144	
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	1	0	0	0	0	0	1	
Railroad																		
Stopped Buses																		

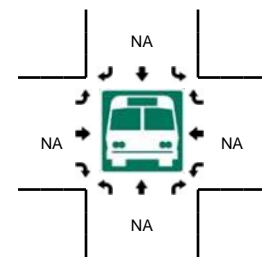
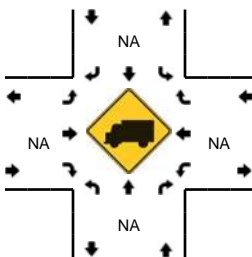
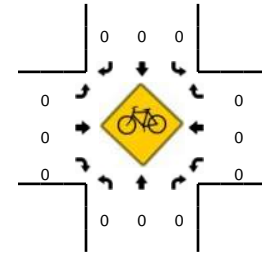
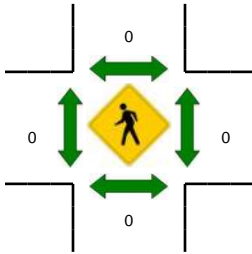
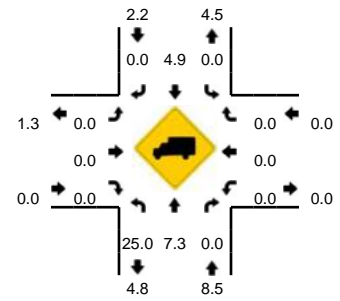
Comments:

**LOCATION:** Providence Dr -- PNMC North Dwy  
**CITY/STATE:** Newberg, OR

**QC JOB #:** 14609605  
**DATE:** Tue, Feb 06 2018



**Peak-Hour: 7:00 AM -- 8:00 AM**  
**Peak 15-Min: 7:40 AM -- 7:55 AM**

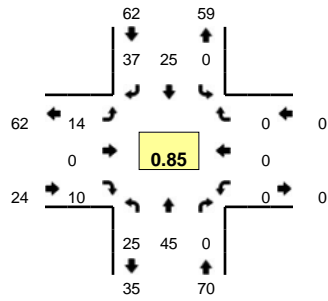


5-Min Count Period Beginning At	Providence Dr (Northbound)				Providence Dr (Southbound)				PNMC North Dwy (Eastbound)				PNMC North Dwy (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	0	3	0	0	0	8	8	0	0	0	0	0	0	0	0	0	19	
7:05 AM	0	3	0	0	0	7	3	0	1	0	0	0	0	0	0	0	14	
7:10 AM	0	3	0	0	0	4	3	0	6	0	0	0	0	0	0	0	16	
7:15 AM	1	6	0	0	0	7	9	0	0	0	0	0	0	0	0	0	23	
7:20 AM	0	4	0	0	0	3	3	0	1	0	1	0	0	0	0	0	12	
7:25 AM	0	8	0	0	0	7	6	0	3	0	0	0	0	0	0	0	24	
7:30 AM	1	5	0	0	0	2	1	0	4	0	0	0	0	0	0	0	13	
7:35 AM	0	4	0	0	0	2	6	0	6	0	0	0	0	0	0	0	18	
7:40 AM	1	5	0	0	0	3	9	0	3	0	0	0	0	0	0	0	21	
7:45 AM	0	6	0	0	0	5	13	0	4	0	0	0	0	0	0	0	28	
7:50 AM	0	6	0	0	0	8	4	0	1	0	0	0	0	0	0	0	19	
7:55 AM	1	2	0	0	0	5	8	0	5	0	0	0	0	0	0	0	21	228
8:00 AM	1	9	0	0	0	5	7	0	2	0	0	0	0	0	0	0	24	233
8:05 AM	0	5	0	0	0	6	8	0	4	0	1	0	0	0	0	0	24	243
8:10 AM	0	7	0	0	0	4	3	0	4	0	1	0	0	0	0	0	19	246
8:15 AM	1	6	0	0	0	5	4	0	1	0	0	0	0	0	0	0	17	240
8:20 AM	1	7	0	0	0	7	6	0	4	0	1	0	0	0	0	0	26	254
8:25 AM	0	4	0	0	0	3	3	0	5	0	1	0	0	0	0	0	16	246
8:30 AM	0	4	0	0	0	3	3	0	1	0	0	0	0	0	0	0	11	244
8:35 AM	1	4	0	0	0	3	2	0	5	0	0	0	0	0	0	0	15	241
8:40 AM	0	5	0	0	0	8	5	0	3	0	0	0	0	0	0	0	21	241
8:45 AM	3	6	0	0	0	2	10	0	2	0	1	0	0	0	0	0	24	237
8:50 AM	1	6	0	0	0	5	6	0	3	0	0	0	0	0	0	0	21	239
8:55 AM	2	11	0	0	0	0	2	0	7	0	0	0	0	0	0	0	22	240
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	4	68	0	0	0	64	104	0	32	0	0	0	0	0	0	0	272	
Heavy Trucks	0	4	0	0	0	8	0	0	0	0	0	0	0	0	0	0	12	
Pedestrians		0				0				0				0			0	
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0	
Railroad																		
Stopped Buses																		

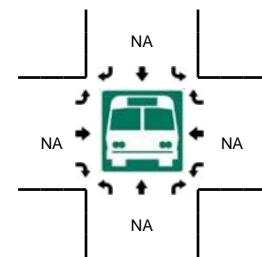
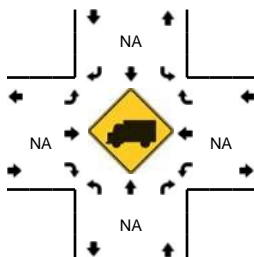
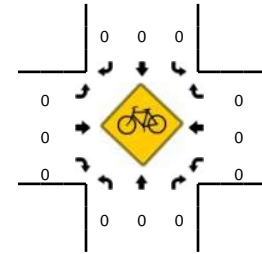
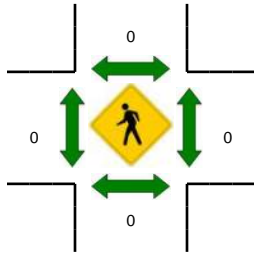
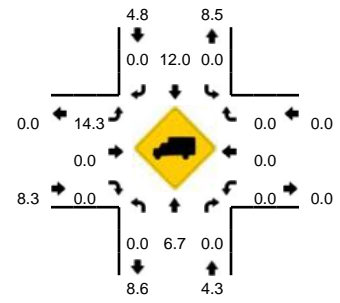
Comments:

**LOCATION:** Providence Dr -- PNMC North-Central Dwy  
**CITY/STATE:** Newberg, OR

**QC JOB #:** 14609607  
**DATE:** Tue, Feb 06 2018



**Peak-Hour: 7:00 AM -- 8:00 AM**  
**Peak 15-Min: 7:25 AM -- 7:40 AM**

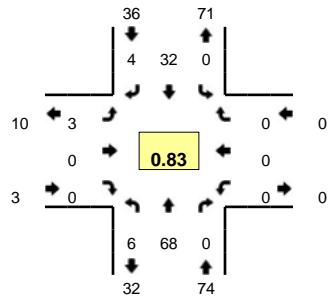


5-Min Count Period Beginning At	Providence Dr (Northbound)				Providence Dr (Southbound)				PNMC North-Central Dwy (Eastbound)				PNMC North-Central Dwy (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	0	3	0	0	0	2	5	0	0	0	0	0	0	0	0	0	10	
7:05 AM	4	2	0	0	0	1	6	0	1	0	0	0	0	0	0	0	14	
7:10 AM	0	3	0	0	0	3	2	0	1	0	1	0	0	0	0	0	10	
7:15 AM	1	4	0	0	0	4	3	0	2	0	0	0	0	0	0	0	14	
7:20 AM	3	2	0	0	0	1	2	0	2	0	0	0	0	0	0	0	10	
7:25 AM	4	5	0	0	0	3	4	0	3	0	1	0	0	0	0	0	20	
7:30 AM	2	6	0	0	0	2	1	0	0	0	3	0	0	0	0	0	14	
7:35 AM	2	2	0	0	0	0	2	0	3	0	3	0	0	0	0	0	12	
7:40 AM	1	5	0	0	0	2	1	0	0	0	0	0	0	0	0	0	9	
7:45 AM	4	5	0	0	0	0	5	0	1	0	1	0	0	0	0	0	16	
7:50 AM	4	5	0	0	0	4	4	0	1	0	1	0	0	0	0	0	19	
7:55 AM	0	3	0	0	0	3	2	0	0	0	0	0	0	0	0	0	8	156
8:00 AM	2	6	0	0	0	3	2	0	5	0	2	0	0	0	0	0	20	166
8:05 AM	0	2	0	0	0	4	3	0	2	0	0	0	0	0	0	0	11	163
8:10 AM	1	6	0	0	0	4	1	0	1	0	4	0	0	0	0	0	17	170
8:15 AM	1	5	0	0	0	5	0	0	3	0	0	0	0	0	0	0	14	170
8:20 AM	1	5	0	0	0	4	2	0	2	0	1	0	0	0	0	0	15	175
8:25 AM	0	1	0	0	0	5	1	0	3	0	1	0	0	0	0	0	11	166
8:30 AM	1	2	0	0	0	3	0	0	2	0	0	0	0	0	0	0	8	160
8:35 AM	1	4	0	0	0	2	1	0	1	0	3	0	0	0	0	0	12	160
8:40 AM	2	2	0	0	0	6	2	0	4	0	0	0	0	0	0	0	16	167
8:45 AM	3	7	0	0	0	2	1	0	1	0	1	0	0	0	0	0	15	166
8:50 AM	0	4	0	0	0	4	1	0	3	0	0	0	0	0	0	0	12	159
8:55 AM	0	10	0	0	0	0	0	0	4	0	1	0	0	0	0	0	15	166
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	32	52	0	0	0	20	28	0	24	0	28	0	0	0	0	0	184	
Heavy Trucks	0	0	0	0	0	4	0	0	4	0	0	0	0	0	0	0	8	
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																		

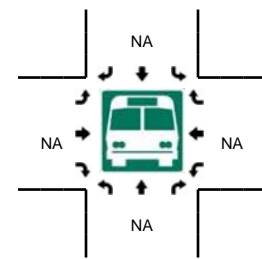
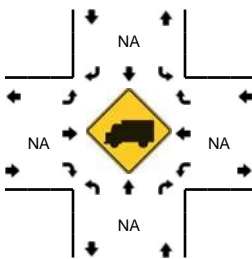
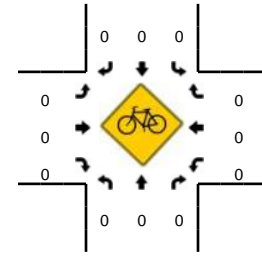
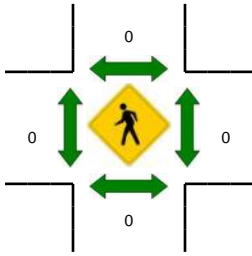
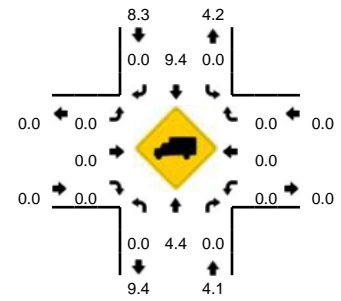
Comments:

**LOCATION:** Providence Dr -- PNMC South-Central Dwy  
**CITY/STATE:** Newberg, OR

**QC JOB #:** 14609609  
**DATE:** Tue, Feb 06 2018



**Peak-Hour: 7:00 AM -- 8:00 AM**  
**Peak 15-Min: 7:40 AM -- 7:55 AM**



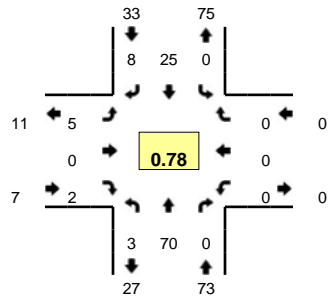
5-Min Count Period Beginning At	Providence Dr (Northbound)				Providence Dr (Southbound)				PNMC South-Central Dwy (Eastbound)				PNMC South-Central Dwy (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	0	3	0	0	0	1	2	0	0	0	0	0	0	0	0	0	6	
7:05 AM	0	7	0	0	0	1	0	0	0	0	0	0	0	0	0	0	8	
7:10 AM	2	2	0	0	0	3	1	0	1	0	0	0	0	0	0	0	9	
7:15 AM	0	5	0	0	0	3	1	0	0	0	0	0	0	0	0	0	9	
7:20 AM	0	6	0	0	0	1	0	0	0	0	0	0	0	0	0	0	7	
7:25 AM	0	8	0	0	0	4	0	0	0	0	0	0	0	0	0	0	12	
7:30 AM	0	8	0	0	0	5	0	0	0	0	0	0	0	0	0	0	13	
7:35 AM	0	4	0	0	0	4	0	0	0	0	0	0	0	0	0	0	8	
7:40 AM	0	7	0	0	0	2	0	0	0	0	0	0	0	0	0	0	9	
7:45 AM	0	8	0	0	0	1	0	0	0	0	0	0	0	0	0	0	9	
7:50 AM	3	8	0	0	0	4	0	0	1	0	0	0	0	0	0	0	16	
7:55 AM	1	2	0	0	0	3	0	0	1	0	0	0	0	0	0	0	7	113
8:00 AM	0	8	0	0	0	5	0	0	0	0	0	0	0	0	0	0	13	120
8:05 AM	0	2	0	0	0	4	0	0	0	0	0	0	0	0	0	0	6	118
8:10 AM	1	6	0	0	0	7	1	0	1	0	0	0	0	0	0	0	16	125
8:15 AM	0	6	0	0	0	5	0	0	0	0	0	0	0	0	0	0	11	127
8:20 AM	0	6	0	0	0	5	0	0	0	0	0	0	0	0	0	0	11	131
8:25 AM	0	1	0	0	0	6	0	0	0	0	0	0	0	0	0	0	7	126
8:30 AM	1	2	0	0	0	3	0	0	0	0	0	0	0	0	0	0	6	119
8:35 AM	0	5	0	0	0	5	0	0	0	0	0	0	0	0	0	0	10	121
8:40 AM	0	4	0	0	0	6	0	0	0	0	0	0	0	0	0	0	10	122
8:45 AM	0	8	0	0	0	3	0	0	2	0	0	0	0	0	0	0	13	126
8:50 AM	0	5	0	0	0	4	0	0	0	0	0	0	0	0	0	0	9	119
8:55 AM	1	8	0	0	0	1	0	0	1	0	0	0	0	0	0	0	11	123
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	12	92	0	0	0	28	0	0	4	0	0	0	0	0	0	0	136	
Heavy Trucks	0	4	0	0	0	4	0	0	0	0	0	0	0	0	0	0	8	
Pedestrians		0				0				0				0			0	
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0	
Railroad																		
Stopped Buses																		

Comments:

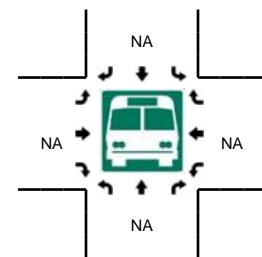
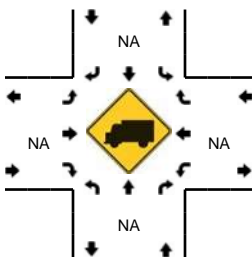
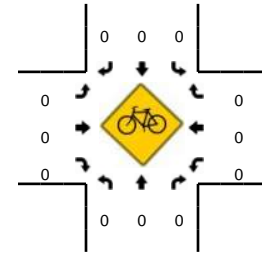
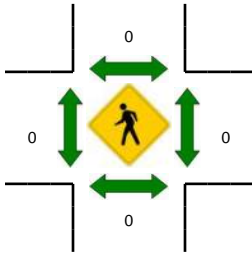
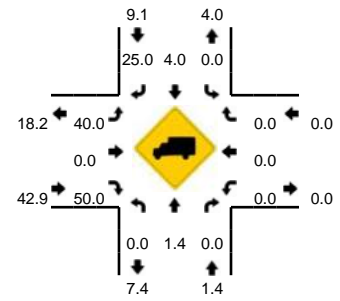


**LOCATION:** Providence Dr -- PNMC South Dwy  
**CITY/STATE:** Newberg, OR

**QC JOB #:** 14609611  
**DATE:** Tue, Feb 06 2018



**Peak-Hour: 7:00 AM -- 8:00 AM**  
**Peak 15-Min: 7:40 AM -- 7:55 AM**

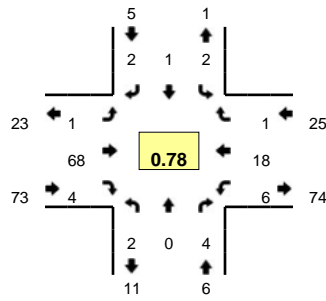


5-Min Count Period Beginning At	Providence Dr (Northbound)				Providence Dr (Southbound)				PNMC South Dwy (Eastbound)				PNMC South Dwy (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	0	3	0	0	0	1	0	0	0	0	0	0	0	0	0	0	4	
7:05 AM	0	7	0	0	0	0	1	0	0	0	0	0	0	0	0	0	8	
7:10 AM	1	4	0	0	0	2	0	0	1	0	0	0	0	0	0	0	8	
7:15 AM	0	4	0	0	0	2	2	0	0	0	0	0	0	0	0	0	8	
7:20 AM	0	6	0	0	0	1	0	0	0	0	0	0	0	0	0	0	7	
7:25 AM	0	8	0	0	0	2	2	0	0	0	0	0	0	0	0	0	12	
7:30 AM	2	8	0	0	0	4	1	0	0	0	0	0	0	0	0	0	15	
7:35 AM	0	3	0	0	0	3	0	0	1	0	1	0	0	0	0	0	8	
7:40 AM	0	6	0	0	0	1	1	0	1	0	1	0	0	0	0	0	10	
7:45 AM	0	10	0	0	0	1	0	0	0	0	0	0	0	0	0	0	11	
7:50 AM	0	9	0	0	0	4	1	0	1	0	0	0	0	0	0	0	15	
7:55 AM	0	2	0	0	0	4	0	0	1	0	0	0	0	0	0	0	7	113
8:00 AM	0	6	0	0	0	4	1	0	2	0	0	0	0	0	0	0	13	122
8:05 AM	0	2	0	0	0	3	0	0	0	0	0	0	0	0	0	0	5	119
8:10 AM	0	7	0	0	0	7	1	0	0	0	0	0	0	0	0	0	15	126
8:15 AM	0	6	0	0	0	5	0	0	0	0	0	0	0	0	0	0	11	129
8:20 AM	0	6	0	0	0	3	2	0	0	0	0	0	0	0	0	0	11	133
8:25 AM	0	1	0	0	0	4	1	0	0	0	0	0	0	0	0	0	6	127
8:30 AM	0	2	0	0	0	3	0	0	1	0	0	0	0	0	0	0	6	118
8:35 AM	0	4	0	0	0	4	0	0	1	0	0	0	0	0	0	0	9	119
8:40 AM	0	3	0	0	0	6	1	0	0	0	0	0	0	0	0	0	10	119
8:45 AM	0	7	0	0	0	3	0	0	1	0	2	0	0	0	0	0	13	121
8:50 AM	0	6	0	0	0	3	0	0	0	0	0	0	0	0	0	0	9	115
8:55 AM	0	8	0	0	0	1	0	0	0	0	0	0	0	0	0	0	9	117
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	100	0	0	0	24	8	0	8	0	4	0	0	0	0	0	144	
Heavy Trucks	0	0	0	0	0	4	4	0	4	0	4	0	0	0	0	0	16	
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																		

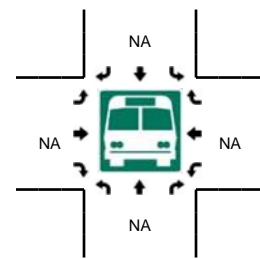
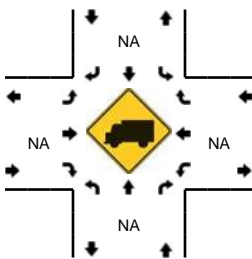
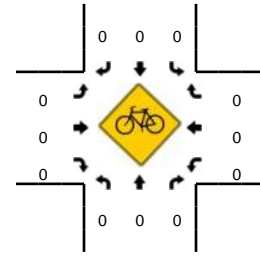
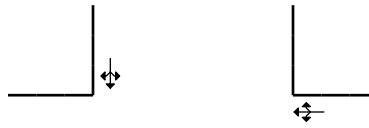
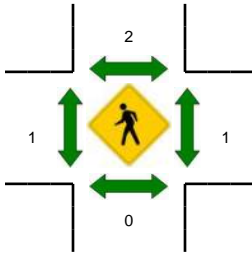
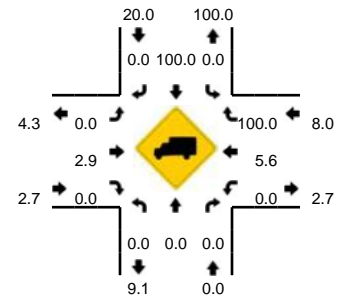
Comments:

**LOCATION:** Werth Blvd -- Providence Dr/Hayes St  
**CITY/STATE:** Newberg, OR

**QC JOB #:** 14609613  
**DATE:** Tue, Feb 06 2018



**Peak-Hour: 7:00 AM -- 8:00 AM**  
**Peak 15-Min: 7:20 AM -- 7:35 AM**

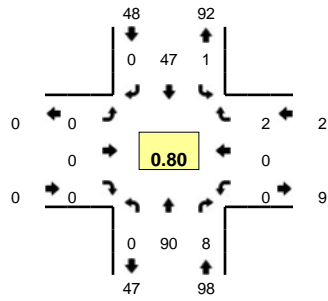


5-Min Count Period Beginning At	Werth Blvd (Northbound)				Werth Blvd (Southbound)				Providence Dr/Hayes St (Eastbound)				Providence Dr/Hayes St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	0	0	0	0	0	0	0	0	0	5	0	0	0	0	0	0	5	
7:05 AM	0	0	0	0	0	0	0	0	0	5	1	0	0	0	0	0	6	
7:10 AM	0	0	1	0	0	0	0	0	0	4	0	0	0	0	2	0	7	
7:15 AM	1	0	0	0	0	0	0	0	0	5	1	0	0	0	0	0	7	
7:20 AM	1	0	0	0	1	0	0	0	0	5	0	0	0	0	2	0	9	
7:25 AM	0	0	0	0	0	0	1	0	0	7	0	0	0	1	2	0	11	
7:30 AM	0	0	0	0	0	0	0	0	0	11	0	0	0	1	3	0	15	
7:35 AM	0	0	0	0	0	0	0	0	0	4	0	1	0	0	3	0	8	
7:40 AM	0	0	1	0	0	0	0	0	0	3	0	0	0	0	2	1	7	
7:45 AM	0	0	2	0	1	0	0	0	0	8	0	0	0	0	0	0	11	
7:50 AM	0	0	0	0	0	1	1	0	0	9	1	0	0	1	3	0	16	
7:55 AM	0	0	0	0	0	0	0	0	0	2	1	0	0	3	1	0	7	109
8:00 AM	0	0	0	0	0	0	0	0	0	6	0	0	0	0	2	0	8	112
8:05 AM	0	0	0	0	0	0	0	0	0	3	0	0	0	1	4	0	8	114
8:10 AM	0	0	2	0	0	0	0	0	0	5	1	0	0	2	3	0	14	121
8:15 AM	0	0	0	0	0	0	0	0	1	4	0	0	0	3	3	0	11	125
8:20 AM	1	0	0	0	0	0	0	0	0	6	0	0	0	0	2	0	9	125
8:25 AM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	4	1	7	121
8:30 AM	0	0	0	0	0	0	1	0	0	4	2	0	0	1	2	0	10	116
8:35 AM	0	0	0	0	0	0	0	0	1	2	2	0	0	1	2	0	8	116
8:40 AM	0	0	0	0	0	0	1	0	0	3	1	0	0	2	3	0	10	119
8:45 AM	0	0	0	0	0	0	2	0	1	7	0	0	0	4	3	0	17	125
8:50 AM	0	0	1	0	1	0	0	0	0	6	1	1	0	1	1	0	12	121
8:55 AM	0	0	1	0	1	0	0	0	0	5	0	0	0	1	2	0	10	124
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	4	0	0	0	4	0	4	0	0	92	0	0	8	28	0	0	140	
Heavy Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
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																		

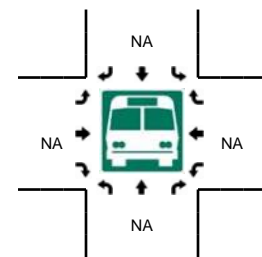
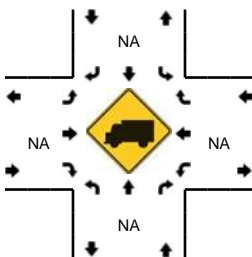
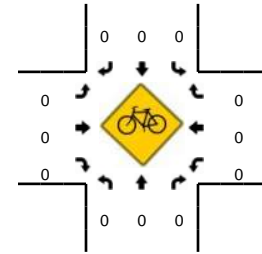
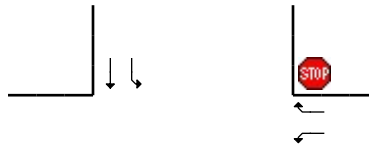
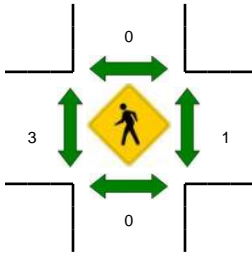
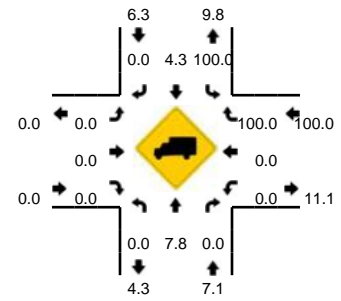
Comments:

**LOCATION:** Brutscher St -- Werth Blvd  
**CITY/STATE:** Newberg, OR

**QC JOB #:** 14609615  
**DATE:** Tue, Feb 06 2018



**Peak-Hour: 7:00 AM -- 8:00 AM**  
**Peak 15-Min: 7:10 AM -- 7:25 AM**

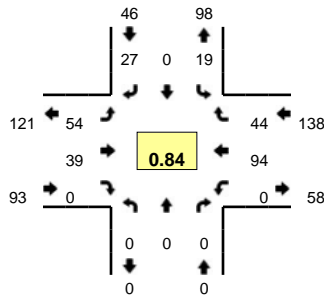


5-Min Count Period Beginning At	Brutscher St (Northbound)				Brutscher St (Southbound)				Werth Blvd (Eastbound)				Werth Blvd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	0	9	0	0	0	6	0	0	0	0	0	0	0	0	0	0	15	
7:05 AM	0	7	1	0	0	0	0	0	0	0	0	0	0	0	0	0	8	
7:10 AM	0	8	0	0	1	7	0	0	0	0	0	0	0	0	0	0	16	
7:15 AM	0	11	0	0	0	5	0	0	0	0	0	0	0	0	1	0	17	
7:20 AM	0	8	3	0	0	2	0	0	0	0	0	0	0	0	0	0	13	
7:25 AM	0	10	0	0	0	2	0	0	0	0	0	0	0	0	0	0	12	
7:30 AM	0	9	0	0	0	4	0	0	0	0	0	0	0	0	0	0	13	
7:35 AM	0	4	0	0	0	5	0	0	0	0	0	0	0	0	0	0	9	
7:40 AM	0	4	1	0	0	6	0	0	0	0	0	0	0	0	0	0	11	
7:45 AM	0	7	1	0	0	4	0	0	0	0	0	0	0	0	0	0	12	
7:50 AM	0	8	1	0	0	4	0	0	0	0	0	0	0	0	0	0	13	
7:55 AM	0	5	1	0	0	2	0	0	0	0	0	0	0	0	1	0	9	148
8:00 AM	0	7	1	0	1	5	0	0	0	0	0	0	0	0	0	0	14	147
8:05 AM	0	11	0	0	1	7	0	0	0	0	0	0	0	0	0	0	19	158
8:10 AM	0	5	2	0	2	10	0	0	0	0	0	0	1	0	0	0	20	162
8:15 AM	0	10	1	0	1	5	0	0	0	0	0	0	0	0	1	0	18	163
8:20 AM	0	9	0	0	0	5	0	0	0	0	0	0	1	0	0	0	15	165
8:25 AM	0	10	0	0	0	6	0	0	0	0	0	0	0	0	0	0	16	169
8:30 AM	0	5	0	0	1	8	0	0	0	0	0	0	1	0	0	0	15	171
8:35 AM	0	6	0	0	1	15	0	0	0	0	0	0	0	0	0	0	22	184
8:40 AM	0	5	0	0	1	6	0	0	0	0	0	0	1	0	0	0	13	186
8:45 AM	0	10	2	0	0	5	0	0	0	0	0	0	0	0	1	0	18	192
8:50 AM	0	6	0	0	2	8	0	0	0	0	0	0	1	0	0	0	17	196
8:55 AM	0	4	1	0	1	6	0	0	0	0	0	0	0	0	0	0	12	199
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	108	12	0	4	56	0	0	0	0	0	0	0	0	4	0	184	
Heavy Trucks	0	8	0	0	4	0	0	0	0	0	0	0	0	0	4	0	16	
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																		

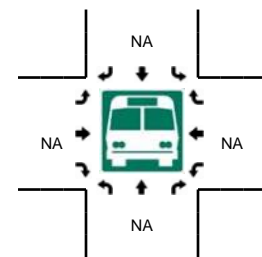
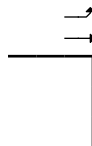
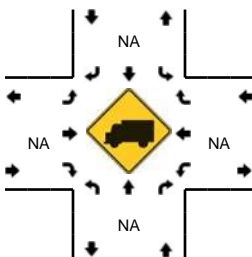
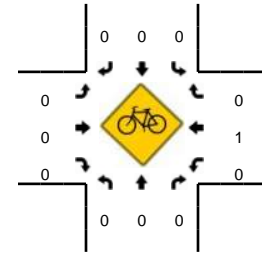
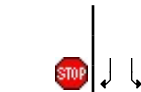
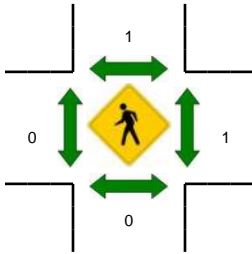
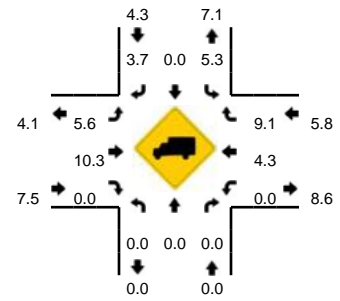
Comments:

**LOCATION:** Brutscher St -- E Fernwood Rd  
**CITY/STATE:** Newberg, OR

**QC JOB #:** 14609617  
**DATE:** Tue, Feb 06 2018



**Peak-Hour: 7:00 AM -- 8:00 AM**  
**Peak 15-Min: 7:10 AM -- 7:25 AM**

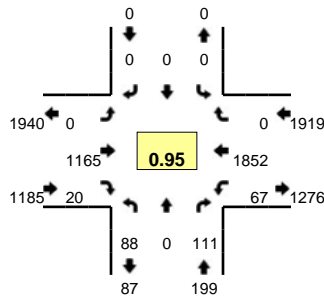


5-Min Count Period Beginning At	Brutscher St (Northbound)				Brutscher St (Southbound)				E Fernwood Rd (Eastbound)				E Fernwood Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	0	0	0	0	3	0	3	0	5	0	0	0	0	1	4	0	16	
7:05 AM	0	0	0	0	0	0	0	0	5	4	0	0	0	5	3	0	17	
7:10 AM	0	0	0	0	1	0	5	0	3	2	0	0	0	10	5	0	26	
7:15 AM	0	0	0	0	3	0	3	0	4	0	0	0	0	8	7	0	25	
7:20 AM	0	0	0	0	0	0	2	0	5	5	0	0	0	13	6	0	31	
7:25 AM	0	0	0	0	0	0	2	0	5	3	0	0	0	11	5	0	26	
7:30 AM	0	0	0	0	0	0	4	0	4	4	0	0	0	6	4	0	22	
7:35 AM	0	0	0	0	3	0	2	0	3	8	0	0	0	7	1	0	24	
7:40 AM	0	0	0	0	4	0	2	0	3	5	0	0	0	6	2	0	22	
7:45 AM	0	0	0	0	1	0	2	0	6	3	0	0	0	9	4	0	25	
7:50 AM	0	0	0	0	3	0	2	0	8	3	0	0	0	7	0	0	23	
7:55 AM	0	0	0	0	1	0	0	0	3	2	0	0	0	11	3	0	20	277
8:00 AM	0	0	0	0	3	0	3	0	5	5	0	0	0	3	3	0	22	283
8:05 AM	0	0	0	0	5	0	2	0	4	1	0	0	0	6	7	0	25	291
8:10 AM	0	0	0	0	4	0	7	0	3	5	0	0	0	11	4	0	34	299
8:15 AM	0	0	0	0	2	0	3	0	4	5	0	0	0	7	7	0	28	302
8:20 AM	0	0	0	0	3	0	2	0	4	2	0	0	0	3	5	0	19	290
8:25 AM	0	0	0	0	4	0	2	0	6	4	0	0	0	14	4	0	34	298
8:30 AM	0	0	0	0	8	0	2	0	2	2	0	0	0	2	2	0	18	294
8:35 AM	0	0	0	0	8	0	7	0	3	1	0	0	0	3	3	0	25	295
8:40 AM	0	0	0	0	3	0	3	0	1	4	0	0	0	6	4	0	21	294
8:45 AM	0	0	0	0	2	0	4	0	9	5	0	0	0	6	4	0	30	299
8:50 AM	0	0	0	0	6	0	3	0	3	3	0	0	0	4	3	0	22	298
8:55 AM	0	0	0	0	1	0	4	0	1	1	0	0	0	3	4	0	14	292
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	16	0	40	0	48	28	0	0	0	124	72	0	328	
Heavy Trucks	0	0	0	0	0	0	0	0	4	4	0	0	0	4	4	0	16	
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																		

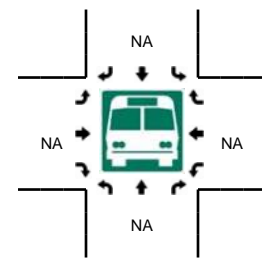
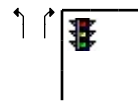
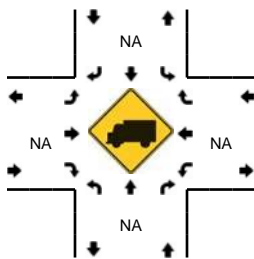
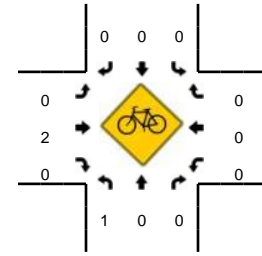
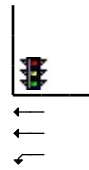
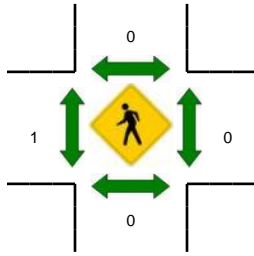
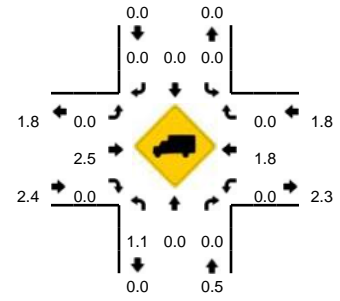
Comments:

**LOCATION:** Providence Dr -- N Hwy 99W  
**CITY/STATE:** Newberg, OR

**QC JOB #:** 14609602  
**DATE:** Tue, Feb 06 2018



**Peak-Hour: 4:40 PM -- 5:40 PM**  
**Peak 15-Min: 5:00 PM -- 5:15 PM**

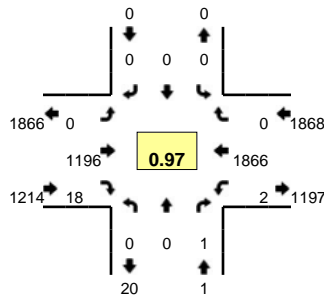


5-Min Count Period Beginning At	Providence Dr (Northbound)				Providence Dr (Southbound)				N Hwy 99W (Eastbound)				N Hwy 99W (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	5	0	7	0	0	0	0	0	0	79	1	0	5	167	0	0	264	
4:05 PM	7	0	9	0	0	0	0	0	0	97	2	0	3	148	0	0	266	
4:10 PM	7	0	8	0	0	0	0	0	0	86	0	0	10	148	0	0	259	
4:15 PM	9	0	7	0	0	0	0	0	0	88	3	0	8	150	0	0	265	
4:20 PM	12	0	5	0	0	0	0	0	0	110	4	0	3	155	0	0	289	
4:25 PM	8	0	8	0	0	0	0	0	0	86	2	0	7	153	0	0	264	
4:30 PM	5	0	8	0	0	0	0	0	0	99	4	0	7	137	0	0	260	
4:35 PM	16	0	11	0	0	0	0	0	0	82	2	0	5	135	0	0	251	
4:40 PM	7	0	6	0	0	0	0	0	0	92	3	0	3	169	0	0	280	
4:45 PM	9	0	7	0	0	0	0	0	0	83	1	0	7	151	0	0	258	
4:50 PM	6	0	8	0	0	0	0	0	0	89	2	0	7	150	0	0	262	
4:55 PM	6	0	6	0	0	0	0	0	0	94	3	0	6	158	0	0	273	3191
5:00 PM	7	0	11	0	0	0	0	0	0	117	1	0	9	152	0	0	297	3224
5:05 PM	7	0	11	0	0	0	0	0	0	107	2	0	8	163	0	0	298	3256
5:10 PM	13	0	17	0	0	0	0	0	0	82	0	0	5	160	0	0	277	3274
5:15 PM	8	0	12	0	0	0	0	0	0	113	1	0	8	145	0	0	287	3296
5:20 PM	4	0	10	0	0	0	0	0	0	88	3	0	7	148	0	0	260	3267
5:25 PM	10	0	7	0	0	0	0	0	0	94	1	0	1	134	0	0	247	3250
5:30 PM	5	0	8	0	0	0	0	0	0	94	1	0	4	166	0	0	278	3268
5:35 PM	6	0	8	0	0	0	0	0	0	112	2	0	2	156	0	0	286	3303
5:40 PM	3	0	4	0	0	0	0	0	0	108	2	0	5	145	0	0	267	3290
5:45 PM	1	0	10	0	0	0	0	0	0	82	2	0	0	129	0	0	224	3256
5:50 PM	4	0	9	0	0	0	0	0	0	107	3	0	8	156	0	0	287	3281
5:55 PM	3	0	9	0	0	0	0	0	0	72	2	0	5	129	0	0	220	3228
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	108	0	156	0	0	0	0	0	0	1224	12	0	88	1900	0	0	3488	
Heavy Trucks	0	0	0	0	0	0	0	0	0	32	0	0	0	16	0	0	48	
Pedestrians										0				0			0	
Bicycles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Railroad																		
Stopped Buses																		

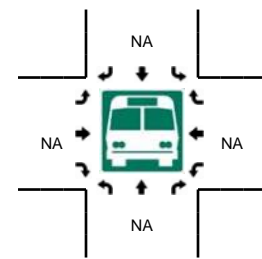
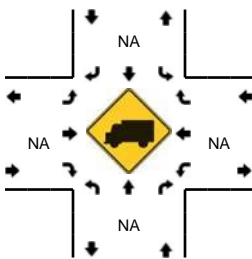
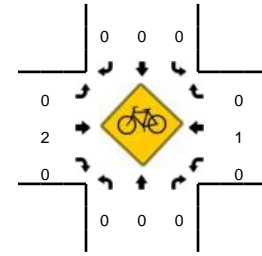
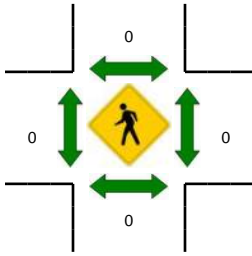
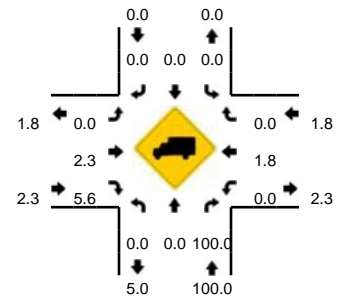
Comments:

**LOCATION:** PNMC West Dwy -- N Hwy 99W  
**CITY/STATE:** Newberg, OR

**QC JOB #:** 14609604  
**DATE:** Tue, Feb 06 2018



**Peak-Hour: 4:40 PM -- 5:40 PM**  
**Peak 15-Min: 4:50 PM -- 5:05 PM**

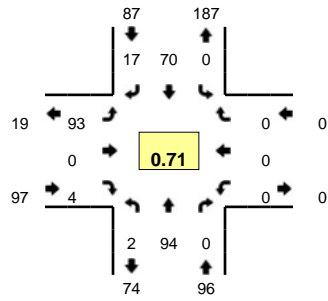


5-Min Count Period Beginning At	PNMC West Dwy (Northbound)				PNMC West Dwy (Southbound)				N Hwy 99W (Eastbound)				N Hwy 99W (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	0	0	0	0	0	0	0	0	0	80	0	0	1	148	0	0	229	
4:05 PM	0	0	0	0	0	0	0	0	0	97	3	0	0	163	0	0	263	
4:10 PM	0	0	0	0	0	0	0	0	0	86	1	0	0	153	0	0	240	
4:15 PM	0	0	0	0	0	0	0	0	0	91	1	0	0	148	0	0	240	
4:20 PM	0	0	0	0	0	0	0	0	0	115	3	0	0	163	0	0	281	
4:25 PM	0	0	0	0	0	0	0	0	0	88	3	0	0	156	0	0	247	
4:30 PM	0	0	0	0	0	0	0	0	0	102	1	0	0	145	0	0	248	
4:35 PM	0	0	0	0	0	0	0	0	0	84	3	0	0	142	0	0	229	
4:40 PM	0	0	0	0	0	0	0	0	0	95	1	0	2	166	0	0	264	
4:45 PM	0	0	0	0	0	0	0	0	0	83	2	0	0	156	0	0	241	
4:50 PM	0	0	0	0	0	0	0	0	0	91	2	0	0	155	0	0	248	
4:55 PM	0	0	0	0	0	0	0	0	0	100	3	0	0	160	0	0	263	2993
5:00 PM	0	0	0	0	0	0	0	0	0	122	3	0	0	156	0	0	281	3045
5:05 PM	0	0	0	0	0	0	0	0	0	81	1	0	0	147	0	0	229	3011
5:10 PM	0	0	0	0	0	0	0	0	0	115	0	0	0	167	0	0	282	3053
5:15 PM	0	0	0	0	0	0	0	0	0	95	1	0	0	151	0	0	247	3060
5:20 PM	0	0	0	0	0	0	0	0	0	96	2	0	0	140	0	0	238	3017
5:25 PM	0	0	0	0	0	0	0	0	0	94	3	0	0	144	0	0	241	3011
5:30 PM	0	0	1	0	0	0	0	0	0	109	0	0	0	169	0	0	279	3042
5:35 PM	0	0	0	0	0	0	0	0	0	115	0	0	0	155	0	0	270	3083
5:40 PM	0	0	0	0	0	0	0	0	0	96	0	0	0	140	0	0	236	3055
5:45 PM	0	0	0	0	0	0	0	0	0	99	0	0	0	133	0	0	232	3046
5:50 PM	0	0	0	0	0	0	0	0	0	98	3	0	0	150	0	0	251	3049
5:55 PM	0	0	0	0	0	0	0	0	0	72	2	0	0	135	0	0	209	2995
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	0	0	0	0	0	1252	32	0	0	1884	0	0	3168	
Heavy Trucks	0	0	0	0	0	0	0	0	0	20	4	0	0	24	0	0	48	
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																		

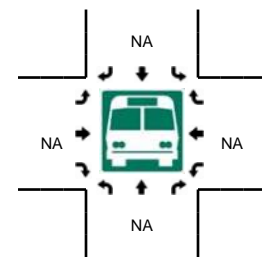
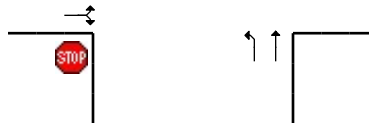
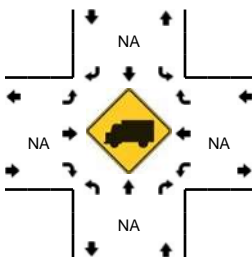
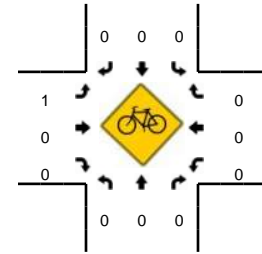
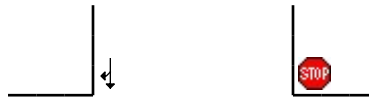
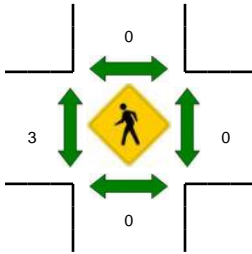
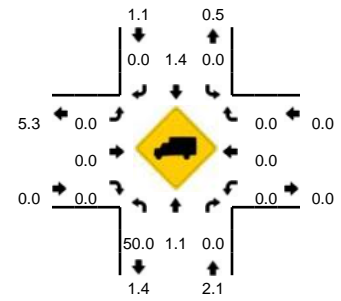
Comments:

**LOCATION:** Providence Dr -- PNMC North Dwy  
**CITY/STATE:** Newberg, OR

**QC JOB #:** 14609606  
**DATE:** Tue, Feb 06 2018



**Peak-Hour: 4:40 PM -- 5:40 PM**  
**Peak 15-Min: 5:00 PM -- 5:15 PM**

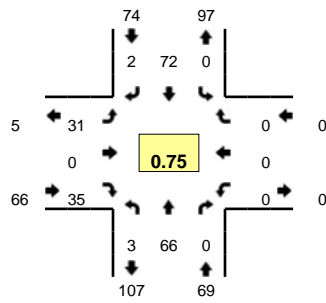


5-Min Count Period Beginning At	Providence Dr (Northbound)				Providence Dr (Southbound)				PNMC North Dwy (Eastbound)				PNMC North Dwy (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	0	7	0	0	0	5	0	0	6	0	0	0	0	0	0	0	18	
4:05 PM	0	7	0	0	0	4	1	0	8	0	0	0	0	0	0	0	20	
4:10 PM	0	6	0	0	0	5	2	0	9	0	0	0	0	0	0	0	22	
4:15 PM	2	10	0	0	0	8	5	0	5	0	0	0	0	0	0	0	30	
4:20 PM	1	10	0	0	0	3	5	0	7	0	1	0	0	0	0	0	27	
4:25 PM	0	5	0	0	0	6	3	0	12	0	0	0	0	0	0	0	26	
4:30 PM	0	5	0	0	0	4	7	0	13	0	1	0	0	0	0	0	30	
4:35 PM	0	15	0	0	0	5	2	0	9	0	4	0	0	0	0	0	35	
4:40 PM	0	6	0	0	0	1	5	0	7	0	0	0	0	0	0	0	19	
4:45 PM	0	6	0	0	0	7	1	0	5	0	0	0	0	0	0	0	19	
4:50 PM	1	7	0	0	0	7	2	0	8	0	1	0	0	0	0	0	26	
4:55 PM	0	3	0	0	0	8	1	0	8	0	0	0	0	0	0	0	20	292
5:00 PM	0	8	0	0	0	8	2	0	14	0	0	0	0	0	0	0	32	306
5:05 PM	0	18	0	0	0	8	1	0	17	0	1	0	0	0	0	0	45	331
5:10 PM	0	6	0	0	0	6	0	0	7	0	2	0	0	0	0	0	21	330
5:15 PM	0	7	0	0	0	11	0	0	10	0	0	0	0	0	0	0	28	328
5:20 PM	1	10	0	0	0	6	0	0	3	0	0	0	0	0	0	0	20	321
5:25 PM	0	9	0	0	0	3	1	0	3	0	0	0	0	0	0	0	16	311
5:30 PM	0	8	0	0	0	4	2	0	7	0	0	0	0	0	0	0	21	302
5:35 PM	0	6	0	0	0	1	2	0	4	0	0	0	0	0	0	0	13	280
5:40 PM	1	5	0	0	0	3	5	0	6	0	2	0	0	0	0	0	22	283
5:45 PM	0	9	0	0	0	3	0	0	4	0	0	0	0	0	0	0	16	280
5:50 PM	0	9	0	0	0	5	5	0	6	0	0	0	0	0	0	0	25	279
5:55 PM	0	9	0	0	0	3	2	0	3	0	0	0	0	0	0	0	17	276
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	128	0	0	0	88	12	0	152	0	12	0	0	0	0	0	392	
Heavy Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Pedestrians	0	0	0	0	0	0	0	0	8	0	0	0	0	0	0	0	8	
Bicycles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Railroad																		
Stopped Buses																		

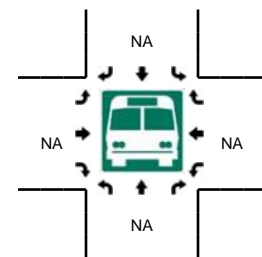
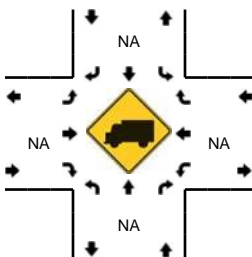
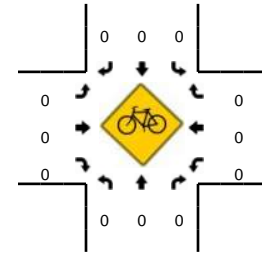
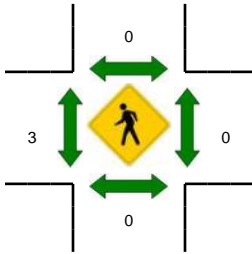
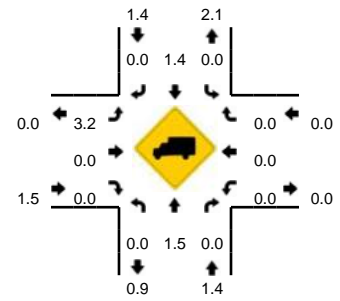
Comments:

**LOCATION:** Providence Dr -- PNMC North-Central Dwy  
**CITY/STATE:** Newberg, OR

**QC JOB #:** 14609608  
**DATE:** Tue, Feb 06 2018



**Peak-Hour: 4:40 PM -- 5:40 PM**  
**Peak 15-Min: 5:05 PM -- 5:20 PM**



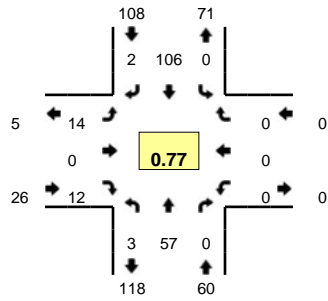
5-Min Count Period Beginning At	Providence Dr (Northbound)				Providence Dr (Southbound)				PNMC North-Central Dwy (Eastbound)				PNMC North-Central Dwy (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	1	7	0	0	0	5	0	0	0	0	1	0	0	0	0	0	14	
4:05 PM	1	3	0	0	0	4	0	0	0	4	0	3	0	0	0	0	15	
4:10 PM	0	5	0	0	0	5	0	0	0	1	0	1	0	0	0	0	12	
4:15 PM	0	7	0	0	0	5	0	0	0	6	0	1	0	0	0	0	19	
4:20 PM	1	9	0	0	0	6	1	0	0	2	0	4	0	0	0	0	23	
4:25 PM	2	1	0	0	0	5	1	0	0	4	0	5	0	0	0	0	18	
4:30 PM	0	4	0	0	0	5	0	0	0	2	0	1	0	0	0	0	12	
4:35 PM	1	10	0	0	0	9	0	0	0	3	0	6	0	0	0	0	29	
4:40 PM	0	2	0	0	0	1	0	0	0	6	0	3	0	0	0	0	12	
4:45 PM	0	2	0	0	0	7	0	0	0	2	0	2	0	0	0	0	13	
4:50 PM	0	7	0	0	0	7	0	0	0	1	0	8	0	0	0	0	23	
4:55 PM	0	1	0	0	0	9	0	0	0	2	0	4	0	0	0	0	16	206
5:00 PM	0	5	0	0	0	8	0	0	0	3	0	1	0	0	0	0	17	209
5:05 PM	0	10	0	0	0	9	0	0	0	8	0	4	0	0	0	0	31	225
5:10 PM	0	6	0	0	0	8	0	0	0	0	0	4	0	0	0	0	18	231
5:15 PM	1	6	0	0	0	11	0	0	0	1	0	2	0	0	0	0	21	233
5:20 PM	0	9	0	0	0	6	0	0	0	4	0	1	0	0	0	0	20	230
5:25 PM	0	6	0	0	0	2	1	0	0	1	0	3	0	0	0	0	13	225
5:30 PM	0	9	0	0	0	3	1	0	0	0	0	1	0	0	0	0	14	227
5:35 PM	2	3	0	0	0	1	0	0	0	3	0	2	0	0	0	0	11	209
5:40 PM	2	4	0	0	0	4	0	0	0	2	0	1	0	0	0	0	13	210
5:45 PM	0	3	0	0	0	3	1	0	0	6	0	0	0	0	0	0	13	210
5:50 PM	1	6	0	0	0	5	0	0	0	2	0	0	0	0	0	0	14	201
5:55 PM	0	4	0	0	0	3	0	0	0	5	0	2	0	0	0	0	14	199
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	4	88	0	0	0	112	0	0	0	36	0	40	0	0	0	0	0	280
Heavy Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrians	0	0	0	0	0	0	0	0	0	0	4	0	0	0	0	0	4	0
Bicycles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Railroad																		
Stopped Buses																		

Comments:

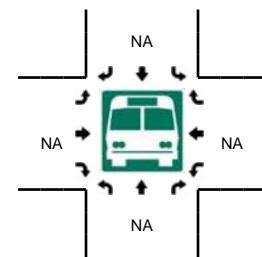
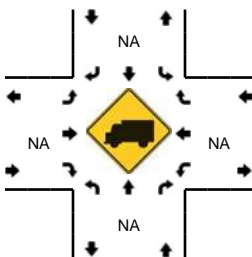
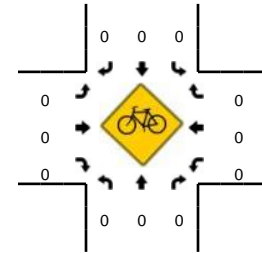
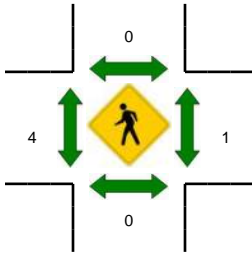
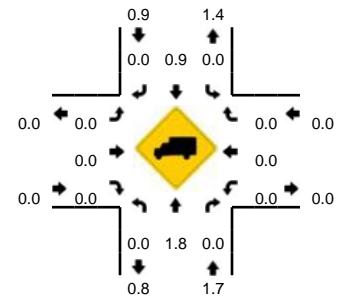


**LOCATION:** Providence Dr -- PNMC South-Central Dwy  
**CITY/STATE:** Newberg, OR

**QC JOB #:** 14609610  
**DATE:** Tue, Feb 06 2018



**Peak-Hour: 4:40 PM -- 5:40 PM**  
**Peak 15-Min: 5:05 PM -- 5:20 PM**

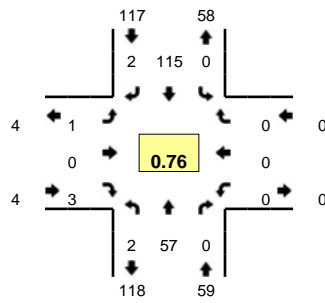


5-Min Count Period Beginning At	Providence Dr (Northbound)				Providence Dr (Southbound)				PNMC South-Central Dwy (Eastbound)				PNMC South-Central Dwy (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	1	6	0	0	0	6	0	0	2	0	0	0	0	0	0	0	15	
4:05 PM	0	4	0	0	0	6	0	0	0	0	0	0	0	0	0	0	10	
4:10 PM	0	5	0	0	0	7	0	0	0	0	0	0	0	0	0	0	12	
4:15 PM	0	7	0	0	0	6	0	0	0	0	0	0	0	0	0	0	13	
4:20 PM	1	10	0	0	0	10	0	0	0	0	1	0	0	0	0	0	22	
4:25 PM	0	3	0	0	0	9	1	0	0	0	1	0	0	0	0	0	14	
4:30 PM	0	3	0	0	0	6	0	0	0	0	0	0	0	0	0	0	9	
4:35 PM	0	10	0	0	0	15	0	0	1	0	0	0	0	0	0	0	26	
4:40 PM	0	2	0	0	0	3	0	0	1	0	1	0	0	0	0	0	7	
4:45 PM	0	2	0	0	0	9	0	0	0	0	0	0	0	0	0	0	11	
4:50 PM	0	7	0	0	0	16	0	0	1	0	1	0	0	0	0	0	25	
4:55 PM	0	1	0	0	0	14	1	0	0	0	0	0	0	0	0	0	16	180
5:00 PM	1	5	0	0	0	9	0	0	0	0	2	0	0	0	0	0	17	182
5:05 PM	0	6	0	0	0	13	0	0	4	0	1	0	0	0	0	0	24	196
5:10 PM	1	6	0	0	0	12	0	0	0	0	0	0	0	0	0	0	19	203
5:15 PM	0	7	0	0	0	11	1	0	0	0	1	0	0	0	0	0	20	210
5:20 PM	0	9	0	0	0	7	0	0	0	0	0	0	0	0	0	0	16	204
5:25 PM	1	4	0	0	0	5	0	0	2	0	2	0	0	0	0	0	14	204
5:30 PM	0	4	0	0	0	4	0	0	5	0	2	0	0	0	0	0	15	210
5:35 PM	0	4	0	0	0	3	0	0	1	0	2	0	0	0	0	0	10	194
5:40 PM	0	6	0	0	0	5	0	0	0	0	0	0	0	0	0	0	11	198
5:45 PM	0	2	0	0	0	3	0	0	1	0	2	0	0	0	0	0	8	195
5:50 PM	0	7	0	0	0	5	0	0	0	0	0	0	0	0	0	0	12	182
5:55 PM	0	4	0	0	0	4	0	0	1	0	1	0	0	0	0	0	10	176
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	4	76	0	0	0	144	4	0	16	0	8	0	0	0	0	0	252	
Heavy Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Pedestrians	0	0	0	0	0	0	0	0	0	8	0	0	0	0	0	0	8	
Bicycles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Railroad																		
Stopped Buses																		

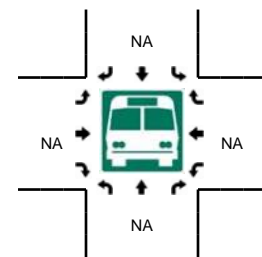
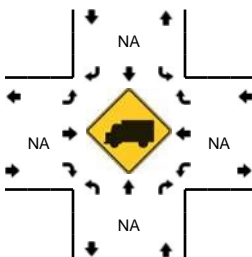
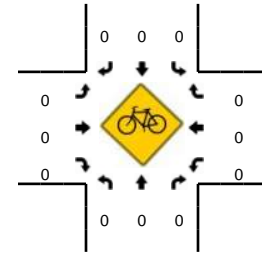
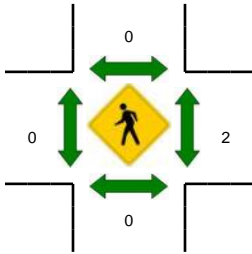
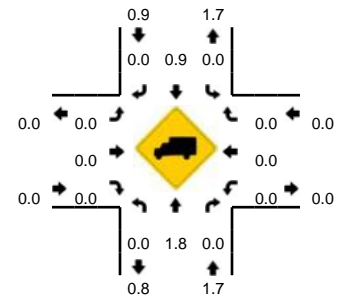
Comments:

**LOCATION:** Providence Dr -- PNMC South Dwy  
**CITY/STATE:** Newberg, OR

**QC JOB #:** 14609612  
**DATE:** Tue, Feb 06 2018



**Peak-Hour: 4:40 PM -- 5:40 PM**  
**Peak 15-Min: 5:05 PM -- 5:20 PM**

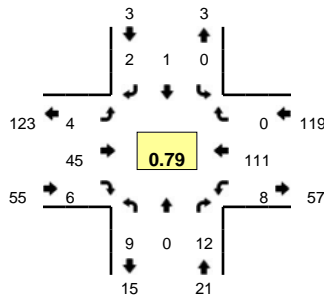


5-Min Count Period Beginning At	Providence Dr (Northbound)				Providence Dr (Southbound)				PNMC South Dwy (Eastbound)				PNMC South Dwy (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	0	6	0	0	0	5	0	0	1	0	0	0	0	0	0	0	12	
4:05 PM	0	4	0	0	0	6	0	0	0	0	0	0	0	0	0	0	10	
4:10 PM	0	5	0	0	0	8	0	0	0	0	1	0	0	0	0	0	14	
4:15 PM	0	6	0	0	0	6	0	0	1	0	0	0	0	0	0	0	13	
4:20 PM	0	11	0	0	0	12	0	0	0	0	0	0	0	0	0	0	23	
4:25 PM	0	2	0	0	0	9	0	0	1	0	0	0	0	0	0	0	12	
4:30 PM	0	4	0	0	0	7	0	0	1	0	0	0	0	0	0	0	12	
4:35 PM	0	9	0	0	0	15	0	0	0	0	0	0	0	0	0	0	24	
4:40 PM	0	1	0	0	0	5	0	0	0	0	0	0	0	0	0	0	6	
4:45 PM	0	2	0	0	0	9	0	0	0	0	0	0	0	0	0	0	11	
4:50 PM	1	6	0	0	0	16	0	0	0	0	0	0	0	0	0	0	23	
4:55 PM	1	2	0	0	0	12	0	0	0	0	0	0	0	0	0	0	15	175
5:00 PM	0	5	0	0	0	11	0	0	0	0	0	0	0	0	0	0	16	179
5:05 PM	0	7	0	0	0	13	1	0	0	0	0	0	0	0	0	0	21	190
5:10 PM	0	6	0	0	0	12	0	0	0	0	0	0	0	0	0	0	18	194
5:15 PM	0	7	0	0	0	11	1	0	1	0	0	0	0	0	0	0	20	201
5:20 PM	0	8	0	0	0	8	0	0	0	0	0	0	0	0	0	0	16	194
5:25 PM	0	5	0	0	0	7	0	0	0	0	1	0	0	0	0	0	13	195
5:30 PM	0	4	0	0	0	5	0	0	0	0	0	0	0	0	0	0	9	192
5:35 PM	0	4	0	0	0	6	0	0	0	0	2	0	0	0	0	0	12	180
5:40 PM	0	6	0	0	0	5	0	0	0	0	0	0	0	0	0	0	11	185
5:45 PM	0	2	0	0	0	3	2	0	0	0	0	0	0	0	0	0	7	181
5:50 PM	0	6	0	0	0	5	0	0	1	0	0	0	0	0	0	0	12	170
5:55 PM	0	4	0	0	0	5	0	0	0	0	0	0	0	0	0	0	9	164
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	80	0	0	0	144	8	0	4	0	0	0	0	0	0	0	236	
Heavy Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
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																		

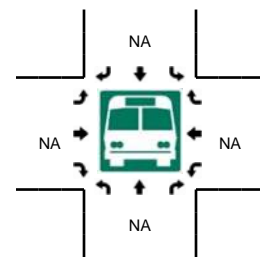
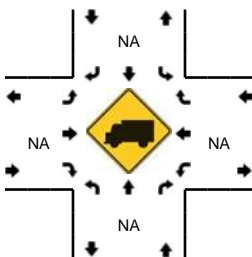
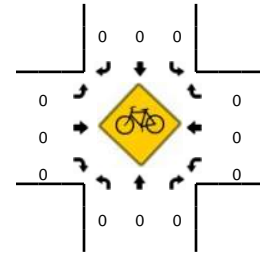
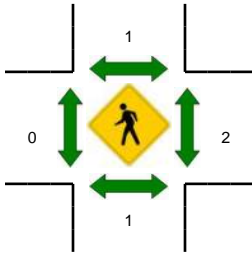
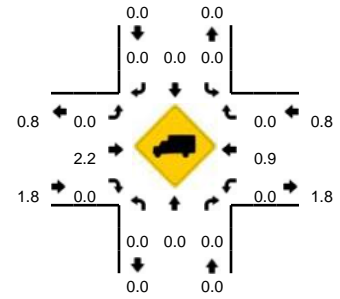
Comments:

**LOCATION:** Werth Blvd -- Providence Dr/Hayes St  
**CITY/STATE:** Newberg, OR

**QC JOB #:** 14609614  
**DATE:** Tue, Feb 06 2018



**Peak-Hour: 4:40 PM -- 5:40 PM**  
**Peak 15-Min: 5:10 PM -- 5:25 PM**

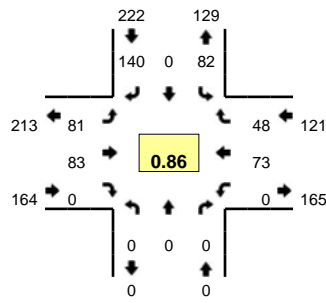


5-Min Count Period Beginning At	Werth Blvd (Northbound)				Werth Blvd (Southbound)				Providence Dr/Hayes St (Eastbound)				Providence Dr/Hayes St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	0	0	3	0	0	0	1	0	0	3	2	0	0	6	0	0	15	
4:05 PM	0	0	0	0	0	0	1	0	0	3	0	0	0	6	0	0	10	
4:10 PM	0	0	1	0	0	1	0	0	0	5	0	0	2	5	0	0	14	
4:15 PM	0	1	1	0	0	0	2	0	1	4	2	0	0	7	0	0	18	
4:20 PM	1	0	0	0	0	0	0	0	1	11	1	0	1	7	1	0	23	
4:25 PM	0	0	0	0	0	0	1	0	0	3	1	0	0	10	0	0	15	
4:30 PM	0	0	1	0	0	0	1	0	0	3	0	0	0	8	0	0	13	
4:35 PM	2	0	2	0	0	0	1	0	1	5	0	0	0	13	1	0	25	
4:40 PM	1	0	1	0	0	0	1	0	0	1	1	0	0	7	0	0	12	
4:45 PM	0	0	0	0	0	0	0	0	0	1	0	0	2	7	0	0	10	
4:50 PM	0	0	1	0	0	0	0	0	1	5	0	0	2	14	0	0	23	
4:55 PM	2	0	2	0	0	0	0	0	0	2	0	0	1	9	0	0	16	194
5:00 PM	0	0	3	0	0	1	0	0	0	1	0	0	0	12	0	0	17	196
5:05 PM	2	0	1	0	0	0	0	0	1	5	0	0	1	6	0	0	16	202
5:10 PM	0	0	2	0	0	0	0	0	0	3	1	0	0	19	0	0	25	213
5:15 PM	0	0	1	0	0	0	0	0	0	6	1	1	1	10	0	0	20	215
5:20 PM	0	0	0	0	0	0	0	0	1	8	1	0	1	7	0	0	18	210
5:25 PM	2	0	1	0	0	0	1	0	0	6	1	0	0	7	0	0	18	213
5:30 PM	0	0	0	0	0	0	0	0	0	2	1	0	0	5	0	0	8	208
5:35 PM	2	0	0	0	0	0	0	0	0	5	0	0	0	8	0	0	15	198
5:40 PM	2	0	1	0	0	0	0	0	0	4	0	0	0	6	0	0	13	199
5:45 PM	0	0	0	0	0	0	0	0	0	2	0	0	0	2	1	0	5	194
5:50 PM	1	0	1	0	0	1	1	0	1	6	3	0	0	5	0	0	19	190
5:55 PM	0	0	2	0	0	0	1	0	1	2	0	0	0	5	0	0	11	185
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	12	0	0	0	0	0	4	68	12	4	8	144	0	0	252	
Heavy Trucks	0	0	0	0	0	0	0	0	0	4	0	0	0	0	0	0	4	
Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	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																		

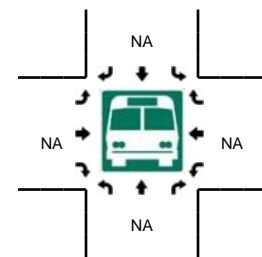
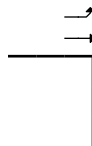
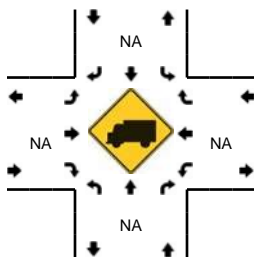
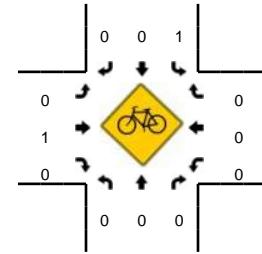
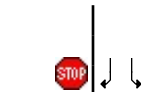
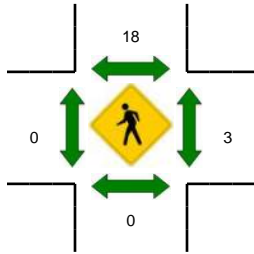
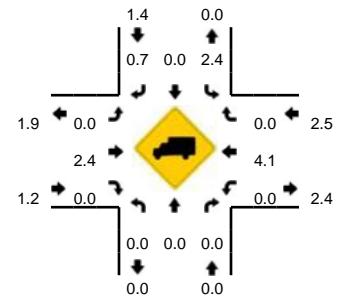
Comments:

**LOCATION:** Brutscher St -- E Fernwood Rd  
**CITY/STATE:** Newberg, OR

**QC JOB #:** 14609618  
**DATE:** Tue, Feb 06 2018



**Peak-Hour: 4:40 PM -- 5:40 PM**  
**Peak 15-Min: 5:10 PM -- 5:25 PM**



5-Min Count Period Beginning At	Brutscher St (Northbound)				Brutscher St (Southbound)				E Fernwood Rd (Eastbound)				E Fernwood 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	5	0	10	0	6	2	0	0	0	10	3	0	36	
4:05 PM	0	0	0	0	6	0	9	0	11	2	0	0	0	5	6	0	39	
4:10 PM	0	0	0	0	6	0	10	0	7	4	0	0	0	8	4	0	39	
4:15 PM	0	0	0	0	12	0	5	0	8	5	0	0	0	10	5	0	45	
4:20 PM	0	0	0	0	5	0	4	0	4	6	0	0	0	13	5	0	37	
4:25 PM	0	0	0	0	6	0	16	0	3	5	0	0	0	5	6	0	41	
4:30 PM	0	0	0	0	10	0	8	0	5	5	0	0	0	12	4	0	44	
4:35 PM	0	0	0	0	6	0	10	0	6	4	0	0	0	9	7	0	42	
4:40 PM	0	0	0	0	8	0	8	0	9	5	0	0	0	9	5	0	44	
4:45 PM	0	0	0	0	5	0	9	0	6	4	0	0	0	5	3	0	32	
4:50 PM	0	0	0	0	3	0	18	0	5	10	0	0	0	8	6	0	50	
4:55 PM	0	0	0	0	12	0	13	0	2	9	0	0	0	1	6	0	43	492
5:00 PM	0	0	0	0	1	0	14	0	3	7	0	0	0	7	2	0	34	490
5:05 PM	0	0	0	0	11	0	15	0	7	7	0	0	0	8	3	0	51	502
5:10 PM	0	0	0	0	9	0	11	0	6	5	0	0	0	6	7	0	44	507
5:15 PM	0	0	0	0	5	0	14	0	11	8	0	0	0	10	2	0	50	512
5:20 PM	0	0	0	0	9	0	10	0	11	13	0	0	0	8	2	0	53	528
5:25 PM	0	0	0	0	6	0	10	0	7	5	0	0	0	4	4	0	36	523
5:30 PM	0	0	0	0	8	0	7	0	6	5	0	0	0	3	7	0	36	515
5:35 PM	0	0	0	0	5	0	11	0	8	5	0	0	0	4	1	0	34	507
5:40 PM	0	0	0	0	8	0	10	0	2	4	0	0	0	6	3	0	33	496
5:45 PM	0	0	0	0	4	0	9	0	6	5	0	0	0	11	5	0	40	504
5:50 PM	0	0	0	0	6	0	7	0	14	9	0	0	0	7	6	0	49	503
5:55 PM	0	0	0	0	3	0	7	0	7	4	0	0	0	6	4	0	31	491
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	92	0	140	0	112	104	0	0	0	96	44	0	588	
Heavy Trucks	0	0	0	0	0	0	0	0	0	4	0	0	0	8	0	0	12	
Pedestrians	0	0	0	0	36	0	0	0	0	0	0	0	0	8	0	0	44	
Bicycles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Railroad																		
Stopped Buses																		

Comments:

## Appendix B Existing Traffic Conditions

THIS PAGE INTENTIONALLY BLANK

Queues

1: Providence Dr & N Hwy 99W

03/07/2018



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	2069	81	87	1182	37	73
v/c Ratio	1.02	0.09	0.52	0.51	0.15	0.24
Control Delay	50.6	8.3	61.6	6.8	44.2	11.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	50.6	8.3	61.6	6.8	44.2	11.7
Queue Length 50th (ft)	~930	18	65	165	25	0
Queue Length 95th (ft)	#1080	42	115	200	56	41
Internal Link Dist (ft)	676			463	180	
Turn Bay Length (ft)		80	115		150	
Base Capacity (vph)	2020	904	212	2319	247	310
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	1.02	0.09	0.41	0.51	0.15	0.24

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.

# HCM Signalized Intersection Capacity Analysis

## 1: Providence Dr & N Hwy 99W

03/07/2018

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↓	↑↑	↓	↑
Traffic Volume (vph)	1841	72	77	1052	33	65
Future Volume (vph)	1841	72	77	1052	33	65
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Grade (%)	-3%			2%	3%	
Total Lost time (s)	6.0	6.0	4.5	4.5	4.5	4.5
Lane Util. Factor	0.95	1.00	1.00	0.95	1.00	1.00
Fr <sub>t</sub>	1.00	0.85	1.00	1.00	1.00	0.85
Fl <sub>t</sub> Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	3245	1438	1646	3076	1449	1465
Fl <sub>t</sub> Permitted	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (perm)	3245	1438	1646	3076	1449	1465
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	2069	81	87	1182	37	73
RTOR Reduction (vph)	0	8	0	0	0	61
Lane Group Flow (vph)	2069	73	87	1182	37	12
Heavy Vehicles (%)	4%	5%	0%	7%	13%	0%
Turn Type	NA	Perm	Prot	NA	Prot	Perm
Protected Phases	2		1	6	8	
Permitted Phases		2				8
Actuated Green, G (s)	73.8	73.8	10.7	90.5	20.5	20.5
Effective Green, g (s)	73.8	73.8	10.7	90.5	20.5	20.5
Actuated g/C Ratio	0.61	0.61	0.09	0.75	0.17	0.17
Clearance Time (s)	6.0	6.0	4.5	4.5	4.5	4.5
Vehicle Extension (s)	5.0	5.0	4.0	4.0	4.0	4.0
Lane Grp Cap (vph)	1995	884	146	2319	247	250
v/s Ratio Prot	c0.64		0.05	c0.38	c0.03	
v/s Ratio Perm		0.05				0.01
v/c Ratio	1.04	0.08	0.60	0.51	0.15	0.05
Uniform Delay, d <sub>1</sub>	23.1	9.4	52.6	5.9	42.3	41.6
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d <sub>2</sub>	30.5	0.2	7.4	0.8	1.3	0.4
Delay (s)	53.6	9.5	60.0	6.7	43.6	42.0
Level of Service	D	A	E	A	D	D
Approach Delay (s)	51.9			10.3	42.5	
Approach LOS	D			B	D	

### Intersection Summary

HCM 2000 Control Delay	36.7	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.82		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	76.6%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group



# HCM Unsignalized Intersection Capacity Analysis

## 2: Providence Dr & PNMC North Dwy

03/07/2018



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	Y			↑	↑	
Traffic Volume (veh/h)	37	1	4	61	68	81
Future Volume (Veh/h)	37	1	4	61	68	81
Sign Control	Stop			Free	Free	
Grade	0%			3%	-3%	
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84
Hourly flow rate (vph)	44	1	5	73	81	96
<b>Pedestrians</b>						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (ft)						260
pX, platoon unblocked						
vC, conflicting volume	212	129	177			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	212	129	177			
tC, single (s)	6.4	6.2	4.3			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.4			
p0 queue free %	94	100	100			
cM capacity (veh/h)	778	926	1272			
<b>Direction, Lane #</b>	<b>EB 1</b>	<b>NB 1</b>	<b>SB 1</b>			
Volume Total	45	78	177			
Volume Left	44	5	0			
Volume Right	1	0	96			
cSH	781	1272	1700			
Volume to Capacity	0.06	0.00	0.10			
Queue Length 95th (ft)	5	0	0			
Control Delay (s)	9.9	0.5	0.0			
Lane LOS	A	A				
Approach Delay (s)	9.9	0.5	0.0			
Approach LOS	A					
<b>Intersection Summary</b>						
Average Delay			1.6			
Intersection Capacity Utilization			18.5%	ICU Level of Service	A	
Analysis Period (min)			15			

# HCM Unsignalized Intersection Capacity Analysis

## 3: Providence Dr & PNMC Middle Dwy

03/07/2018



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	Y			↑	↑	
Traffic Volume (veh/h)	15	13	28	50	28	41
Future Volume (Veh/h)	15	13	28	50	28	41
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85
Hourly flow rate (vph)	18	15	33	59	33	48
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (ft)					680	
pX, platoon unblocked						
vC, conflicting volume	182	57	81			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	182	57	81			
tC, single (s)	6.5	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.6	3.3	2.2			
p0 queue free %	98	99	98			
cM capacity (veh/h)	764	1015	1529			
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total	33	92	81			
Volume Left	18	33	0			
Volume Right	15	0	48			
cSH	861	1529	1700			
Volume to Capacity	0.04	0.02	0.05			
Queue Length 95th (ft)	3	2	0			
Control Delay (s)	9.3	2.8	0.0			
Lane LOS	A	A				
Approach Delay (s)	9.3	2.8	0.0			
Approach LOS	A					
Intersection Summary						
Average Delay			2.7			
Intersection Capacity Utilization			20.8%	ICU Level of Service	A	
Analysis Period (min)			15			

# HCM Unsignalized Intersection Capacity Analysis

## 4: Providence Dr & PNMC South Dwy/Campus Expansion Access

03/07/2018



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	Y			↑	↑	
Traffic Volume (veh/h)	3	0	8	75	37	4
Future Volume (Veh/h)	3	0	8	75	37	4
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83
Hourly flow rate (vph)	4	0	10	90	45	5
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (ft)					793	
pX, platoon unblocked						
vC, conflicting volume	158	48	50			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	158	48	50			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	100	99			
cM capacity (veh/h)	833	1027	1570			
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total	4	100	50			
Volume Left	4	10	0			
Volume Right	0	0	5			
cSH	833	1570	1700			
Volume to Capacity	0.00	0.01	0.03			
Queue Length 95th (ft)	0	0	0			
Control Delay (s)	9.3	0.8	0.0			
Lane LOS	A	A				
Approach Delay (s)	9.3	0.8	0.0			
Approach LOS	A					
Intersection Summary						
Average Delay			0.7			
Intersection Capacity Utilization			20.6%	ICU Level of Service	A	
Analysis Period (min)			15			

# HCM Unsignalized Intersection Capacity Analysis

## 6: Providence Dr & PNMC Truck Dwy

03/07/2018

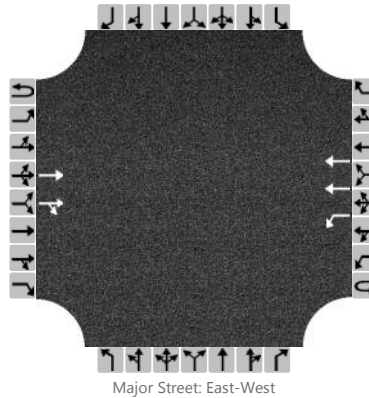


Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	Y			↑	↑	
Traffic Volume (veh/h)	6	2	3	77	28	9
Future Volume (Veh/h)	6	2	3	77	28	9
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.78	0.78	0.78	0.78	0.78	0.78
Hourly flow rate (vph)	8	3	4	99	36	12
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (ft)					1143	
pX, platoon unblocked						
vC, conflicting volume	149	42	48			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	149	42	48			
tC, single (s)	6.8	6.7	4.1			
tC, 2 stage (s)						
tF (s)	3.9	3.8	2.2			
p0 queue free %	99	100	100			
cM capacity (veh/h)	760	907	1572			
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total	11	103	48			
Volume Left	8	4	0			
Volume Right	3	0	12			
cSH	795	1572	1700			
Volume to Capacity	0.01	0.00	0.03			
Queue Length 95th (ft)	1	0	0			
Control Delay (s)	9.6	0.3	0.0			
Lane LOS	A	A				
Approach Delay (s)	9.6	0.3	0.0			
Approach LOS	A					
Intersection Summary						
Average Delay			0.8			
Intersection Capacity Utilization			16.5%	ICU Level of Service	A	
Analysis Period (min)			15			

# HCS 2010 Two-Way Stop Control Summary Report

General Information				Site Information			
Analyst	Kittelson & Associates			Intersection	OR 99 W/PNMC Access		
Agency/Co.	City of Newberg			Jurisdiction	Newberg, Oregon		
Date Performed	3/7/2018			East/West Street	OR 99W		
Analysis Year	2018			North/South Street	Right-In, Left-Out Access		
Time Analyzed	Existing AM			Peak Hour Factor	0.89		
Intersection Orientation	East-West			Analysis Time Period (hrs)	0.25		
Project Description	Newberg Providence Medical Center						

## Lanes



## Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Priority																
Number of Lanes	0	0	2	0	0	1	2	0		0	0	0		0	0	0
Configuration			T	TR		L	T									
Volume (veh/h)			1904	51		18	1059									
Percent Heavy Vehicles						3										
Proportion Time Blocked																
Right Turn Channelized	No				No				No				No			
Median Type	Undivided															
Median Storage																

## Delay, Queue Length, and Level of Service

Flow Rate (veh/h)					20											
Capacity					234											
v/c Ratio					0.09											
95% Queue Length					0.3											
Control Delay (s/veh)					21.8											
Level of Service (LOS)					C											
Approach Delay (s/veh)					0.4											
Approach LOS																

# HCS 2010 Roundabout Report

General Information					Site Information				
Analyst	Kittelson & Associates, Inc.				Intersection	Werth Blvd/Providence Dr/Hayes St			
Agency or Co.	City of Newberg				E/W Street Name	Providence Dr/Hayes St			
Date Performed	3/6/2018				N/S Street Name	Werth Blvd			
Analysis Year	2018				Analysis Time Period (hrs)	0.25			
Time Period	Existing AM				Peak Hour Factor	0.78			
Project Description	Newberg Providence Medical Center				Jurisdiction	Newberg, OR			

Volume Adjustment and Site Characteristics																
Approach	EB				WB				NB				SB			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Number of Lanes (N)	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0
Lane Assignment			LTR				LTR				LTR				LTR	
Volume (V), veh/h	0	1	75	4	0	7	20	1	0	2	0	4	0	2	1	2
Percent Heavy Vehicles, %	0	0	3	0	0	0	6	100	0	0	0	0	0	0	100	0
Flow Rate (vPCE) pc/h	0	1	99	5	0	9	27	3	0	3	0	5	0	3	3	3
Right-Turn Bypass	None				None				None				None			
Conflicting Lanes	1				1				1				1			
Pedestrians Crossing	1				1				0				2			

Critical and Follow-Up Headway Adjustment													
Approach	EB			WB			NB			SB			
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	
Critical Headway (sec)		5.1929			5.1929			5.1929			5.1929		
Follow-Up Headway (sec)		3.1858			3.1858			3.1858			3.1858		

Flow Computations, Capacity and v/c Ratios													
Approach	EB			WB			NB			SB			
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	
Entry Flow (Ve), pc/h		105			39			8			9		
Entry Volume veh/h		102			36			8			8		
Circulating Flow (Vc), pc/h	15			4			103			39			
Exiting Flow (Vex), pc/h	107			33			4			17			
Capacity (cPCE), pc/h		1113			1126			1019			1087		
Capacity (c), veh/h		1082			1038			1019			905		
v/c Ratio (X)		0.09			0.03			0.01			0.01		

Delay and Level of Service													
Approach	EB			WB			NB			SB			
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	
Lane Control Delay (d), s/veh		4.1			3.8			3.6			4.1		
Lane LOS		A			A			A			A		
95% Queue		0.3			0.1			0.0			0.0		
Approach Delay, s/veh	4.1			3.8			3.6			4.1			
Approach LOS	A			A			A			A			
Intersection Delay, s/veh / LOS	4.0						A						

# HCM Unsignalized Intersection Capacity Analysis

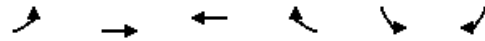
## 9: Brutscher St & Werth Blvd

03/07/2018

	↙	↖	↑	↗	↘	↓
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↙	↖	↗		↘	↙
Traffic Volume (veh/h)	0	2	99	9	1	52
Future Volume (Veh/h)	0	2	99	9	1	52
Sign Control	Stop		Free		Free	
Grade	0%		0%		0%	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80
Hourly flow rate (vph)	0	3	124	11	1	65
Pedestrians	1					
Lane Width (ft)	12.0					
Walking Speed (ft/s)	3.5					
Percent Blockage	0					
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	198	130			136	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	198	130			136	
tC, single (s)	6.4	7.2			5.1	
tC, 2 stage (s)						
tF (s)	3.5	4.2			3.1	
p0 queue free %	100	100			100	
cM capacity (veh/h)	794	711			1014	
Direction, Lane #	WB 1	WB 2	NB 1	SB 1	SB 2	
Volume Total	0	3	135	1	65	
Volume Left	0	0	0	1	0	
Volume Right	0	3	11	0	0	
cSH	1700	711	1700	1014	1700	
Volume to Capacity	0.00	0.00	0.08	0.00	0.04	
Queue Length 95th (ft)	0	0	0	0	0	
Control Delay (s)	0.0	10.1	0.0	8.6	0.0	
Lane LOS	A	B		A		
Approach Delay (s)	10.1		0.0	0.1		
Approach LOS	B					
Intersection Summary						
Average Delay			0.2			
Intersection Capacity Utilization			16.0%	ICU Level of Service	A	
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis  
 10: E Fernwood Rd & Brutscher St

03/07/2018



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↶	↷	↷		↶	↷
Traffic Volume (veh/h)	59	43	103	49	21	31
Future Volume (Veh/h)	59	43	103	49	21	31
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84
Hourly flow rate (vph)	70	51	123	58	25	37
Pedestrians			1		1	
Lane Width (ft)			12.0		12.0	
Walking Speed (ft/s)			3.5		3.5	
Percent Blockage			0		0	
Right turn flare (veh)						
Median type		None	None			
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	182				345	153
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	182				345	153
tC, single (s)	4.2				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.3				3.5	3.3
p0 queue free %	95				96	96
cM capacity (veh/h)	1368				611	887
Direction, Lane #	EB 1	EB 2	WB 1	SB 1	SB 2	
Volume Total	70	51	181	25	37	
Volume Left	70	0	0	25	0	
Volume Right	0	0	58	0	37	
cSH	1368	1700	1700	611	887	
Volume to Capacity	0.05	0.03	0.11	0.04	0.04	
Queue Length 95th (ft)	4	0	0	3	3	
Control Delay (s)	7.8	0.0	0.0	11.1	9.2	
Lane LOS	A			B	A	
Approach Delay (s)	4.5		0.0	10.0		
Approach LOS				B		
Intersection Summary						
Average Delay			3.2			
Intersection Capacity Utilization			25.3%	ICU Level of Service		A
Analysis Period (min)			15			



# Queues

## 1: Providence Dr & N Hwy 99W

03/06/2018



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	1355	23	78	2153	102	129
v/c Ratio	0.59	0.02	0.52	0.81	0.59	0.12
Control Delay	13.6	7.0	71.8	10.1	72.2	1.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	13.6	7.0	71.8	10.1	72.2	1.8
Queue Length 50th (ft)	311	4	69	428	90	0
Queue Length 95th (ft)	472	17	121	680	147	25
Internal Link Dist (ft)	676			463	180	
Turn Bay Length (ft)		80	115		150	
Base Capacity (vph)	2292	1026	241	2671	353	1054
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	0.59	0.02	0.32	0.81	0.29	0.12

### Intersection Summary

# HCM Signalized Intersection Capacity Analysis

## 1: Providence Dr & N Hwy 99W

03/06/2018

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↓	↑↑	↓	↓
Traffic Volume (vph)	1287	22	74	2045	97	123
Future Volume (vph)	1287	22	74	2045	97	123
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Grade (%)	-3%			2%	3%	
Total Lost time (s)	6.0	6.0	4.5	4.5	4.5	6.0
Lane Util. Factor	0.95	1.00	1.00	0.95	1.00	1.00
Frbp, ped/bikes	1.00	0.98	1.00	1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Fr <sub>t</sub>	1.00	0.85	1.00	1.00	1.00	0.85
Fl <sub>t</sub> Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	3309	1478	1646	3227	1621	1465
Fl <sub>t</sub> Permitted	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (perm)	3309	1478	1646	3227	1621	1465
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	1355	23	78	2153	102	129
RTOR Reduction (vph)	0	2	0	0	0	40
Lane Group Flow (vph)	1355	21	78	2153	102	89
Confl. Peds. (#/hr)					1	
Confl. Bikes (#/hr)		2				
Heavy Vehicles (%)	2%	0%	0%	2%	1%	0%
Turn Type	NA	Perm	Prot	NA	Prot	Perm
Protected Phases	2		1	6	8	
Permitted Phases		2				2
Actuated Green, G (s)	97.0	97.0	12.9	115.9	15.1	97.0
Effective Green, g (s)	97.0	97.0	12.9	115.9	15.1	97.0
Actuated g/C Ratio	0.69	0.69	0.09	0.83	0.11	0.69
Clearance Time (s)	6.0	6.0	4.5	4.5	4.5	6.0
Vehicle Extension (s)	5.0	5.0	4.0	4.0	4.0	5.0
Lane Grp Cap (vph)	2292	1024	151	2671	174	1015
v/s Ratio Prot	0.41		0.05	c0.67	c0.06	
v/s Ratio Perm		0.01				0.06
v/c Ratio	0.59	0.02	0.52	0.81	0.59	0.09
Uniform Delay, d1	11.2	6.7	60.6	6.2	59.5	7.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.1	0.0	3.9	2.7	5.9	0.2
Delay (s)	12.3	6.7	64.5	9.0	65.3	7.2
Level of Service	B	A	E	A	E	A
Approach Delay (s)	12.2			10.9	32.9	
Approach LOS	B			B	C	

### Intersection Summary

HCM 2000 Control Delay	12.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.82		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	74.7%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

# HCM Unsignalized Intersection Capacity Analysis

## 2: Providence Dr & PNMC North Dwy

03/06/2018



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	113	5	2	107	77	19
Future Volume (Veh/h)	113	5	2	107	77	19
Sign Control	Stop			Free	Free	
Grade	0%			3%	-3%	
Peak Hour Factor	0.71	0.71	0.71	0.71	0.71	0.71
Hourly flow rate (vph)	159	7	3	151	108	27
Pedestrians	3					
Lane Width (ft)	12.0					
Walking Speed (ft/s)	3.5					
Percent Blockage	0					
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (ft)						260
pX, platoon unblocked						
vC, conflicting volume	282	124	138			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	282	124	138			
tC, single (s)	6.4	6.2	4.6			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.7			
p0 queue free %	78	99	100			
cM capacity (veh/h)	709	929	1194			
<b>Direction, Lane #</b>	<b>EB 1</b>	<b>NB 1</b>	<b>SB 1</b>			
Volume Total	166	154	135			
Volume Left	159	3	0			
Volume Right	7	0	27			
cSH	716	1194	1700			
Volume to Capacity	0.23	0.00	0.08			
Queue Length 95th (ft)	22	0	0			
Control Delay (s)	11.5	0.2	0.0			
Lane LOS	B	A				
Approach Delay (s)	11.5	0.2	0.0			
Approach LOS	B					
<b>Intersection Summary</b>						
Average Delay			4.3			
Intersection Capacity Utilization			20.5%	ICU Level of Service	A	
Analysis Period (min)			15			

# HCM Unsignalized Intersection Capacity Analysis

## 3: Providence Dr & PNMC North-Central Dwy

03/06/2018



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	Y			↑	↑	
Traffic Volume (veh/h)	34	39	3	75	80	2
Future Volume (Veh/h)	34	39	3	75	80	2
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.75	0.75	0.75	0.75	0.75	0.75
Hourly flow rate (vph)	45	52	4	100	107	3
Pedestrians	3					
Lane Width (ft)	12.0					
Walking Speed (ft/s)	3.5					
Percent Blockage	0					
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (ft)						680
pX, platoon unblocked						
vC, conflicting volume	220	112	113			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	220	112	113			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	94	94	100			
cM capacity (veh/h)	762	944	1485			
<b>Direction, Lane #</b>	<b>EB 1</b>	<b>NB 1</b>	<b>SB 1</b>			
Volume Total	97	104	110			
Volume Left	45	4	0			
Volume Right	52	0	3			
cSH	850	1485	1700			
Volume to Capacity	0.11	0.00	0.06			
Queue Length 95th (ft)	10	0	0			
Control Delay (s)	9.8	0.3	0.0			
Lane LOS	A	A				
Approach Delay (s)	9.8	0.3	0.0			
Approach LOS	A					
<b>Intersection Summary</b>						
Average Delay			3.2			
Intersection Capacity Utilization			17.3%	ICU Level of Service	A	
Analysis Period (min)			15			

# HCM Unsignalized Intersection Capacity Analysis

## 4: Providence Dr & PNMC South-Central Dwy

03/06/2018



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	Y			↑	↑	
Traffic Volume (veh/h)	15	13	3	63	117	2
Future Volume (Veh/h)	15	13	3	63	117	2
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.77	0.77	0.77	0.77	0.77	0.77
Hourly flow rate (vph)	19	17	4	82	152	3
Pedestrians	4					
Lane Width (ft)	12.0					
Walking Speed (ft/s)	3.5					
Percent Blockage	0					
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (ft)						793
pX, platoon unblocked						
vC, conflicting volume	248	158	159			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	248	158	159			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	97	98	100			
cM capacity (veh/h)	740	890	1427			
<b>Direction, Lane #</b>	<b>EB 1</b>	<b>NB 1</b>	<b>SB 1</b>			
Volume Total	36	86	155			
Volume Left	19	4	0			
Volume Right	17	0	3			
cSH	804	1427	1700			
Volume to Capacity	0.04	0.00	0.09			
Queue Length 95th (ft)	4	0	0			
Control Delay (s)	9.7	0.4	0.0			
Lane LOS	A	A				
Approach Delay (s)	9.7	0.4	0.0			
Approach LOS	A					
<b>Intersection Summary</b>						
Average Delay			1.4			
Intersection Capacity Utilization			17.2%	ICU Level of Service	A	
Analysis Period (min)			15			

# HCM Unsignalized Intersection Capacity Analysis

## 6: Providence Dr & PNMC South Dwy

03/06/2018



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	Y			↑	↑	
Traffic Volume (veh/h)	1	3	2	65	128	2
Future Volume (Veh/h)	1	3	2	65	128	2
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.76	0.76	0.76	0.76	0.76	0.76
Hourly flow rate (vph)	1	4	3	86	168	3
<b>Pedestrians</b>						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (ft)	1143					
pX, platoon unblocked						
vC, conflicting volume	262	170	171			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	262	170	171			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	100	100			
cM capacity (veh/h)	730	880	1418			
<b>Direction, Lane #</b>	<b>EB 1</b>	<b>NB 1</b>	<b>SB 1</b>			
Volume Total	5	89	171			
Volume Left	1	3	0			
Volume Right	4	0	3			
cSH	845	1418	1700			
Volume to Capacity	0.01	0.00	0.10			
Queue Length 95th (ft)	0	0	0			
Control Delay (s)	9.3	0.3	0.0			
Lane LOS	A	A				
Approach Delay (s)	9.3	0.3	0.0			
Approach LOS	A					
<b>Intersection Summary</b>						
Average Delay			0.3			
Intersection Capacity Utilization			16.9%	ICU Level of Service	A	
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis  
 7: PNMC West Dwy & N Hwy 99W

03/06/2018



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↵	↑↑		
Traffic Volume (veh/h)	1322	20	2	2061	0	0
Future Volume (Veh/h)	1322	20	2	2061	0	0
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Hourly flow rate (vph)	1363	21	2	2125	0	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	TWLTL		TWLTL			
Median storage veh	2		2			
Upstream signal (ft)					756	
pX, platoon unblocked					0.21	
vC, conflicting volume			1384		2440 692	
vC1, stage 1 conf vol					1374	
vC2, stage 2 conf vol					1066	
vCu, unblocked vol			1384		327 692	
tC, single (s)			4.1		6.8 8.9	
tC, 2 stage (s)					5.8	
tF (s)			2.2		3.5 4.3	
p0 queue free %			100		100 100	
cM capacity (veh/h)			501		180 222	
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	
Volume Total	909	475	2	1062	1062	
Volume Left	0	0	2	0	0	
Volume Right	0	21	0	0	0	
cSH	1700	1700	501	1700	1700	
Volume to Capacity	0.53	0.28	0.00	0.63	0.63	
Queue Length 95th (ft)	0	0	0	0	0	
Control Delay (s)	0.0	0.0	12.2	0.0	0.0	
Lane LOS			B			
Approach Delay (s)	0.0		0.0			
Approach LOS						
Intersection Summary						
Average Delay			0.0			
Intersection Capacity Utilization			60.3%		ICU Level of Service B	
Analysis Period (min)	15					

# HCS 2010 Roundabout Report

General Information					Site Information				
Analyst	Kittelson & Associates, Inc.				Intersection	Werth Blvd/Providence Dr/Hayes St			
Agency or Co.	City of Newberg				E/W Street Name	Providence Dr/Hayes St			
Date Performed	3/6/2018				N/S Street Name	Werth Blvd			
Analysis Year	2018				Analysis Time Period (hrs)	0.25			
Time Period	Existing PM				Peak Hour Factor	0.79			
Project Description	Newberg Providence Medical Center				Jurisdiction	Newberg, OR			

Volume Adjustment and Site Characteristics																
Approach	EB				WB				NB				SB			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Number of Lanes (N)	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0
Lane Assignment			LTR				LTR				LTR				LTR	
Volume (V), veh/h	0	4	50	7	0	9	123	0	0	10	0	13	0	0	1	2
Percent Heavy Vehicles, %	0	0	2	0	0	0	1	0	0	0	0	0	0	0	0	0
Flow Rate (vPCE) pc/h	0	5	65	9	0	11	157	0	0	13	0	16	0	0	1	3
Right-Turn Bypass	None				None				None				None			
Conflicting Lanes	1				1				1				1			
Pedestrians Crossing	0				2				1				1			

Critical and Follow-Up Headway Adjustment													
Approach	EB			WB			NB			SB			
Movement	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	
Critical Headway (sec)		5.1929			5.1929			5.1929			5.1929		
Follow-Up Headway (sec)		3.1858			3.1858			3.1858			3.1858		

Flow Computations, Capacity and v/c Ratios													
Approach	EB			WB			NB			SB			
Movement	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	
Entry Flow (Ve), pc/h		79			168			29			4		
Entry Volume veh/h		78			166			29			4		
Circulating Flow (Vc), pc/h	12			18			70			181			
Exiting Flow (Vex), pc/h	81			173			5			21			
Capacity (cPCE), pc/h		1117			1110			1054			943		
Capacity (c), veh/h		1099			1099			1053			943		
v/c Ratio (X)		0.07			0.15			0.03			0.00		












Delay and Level of Service													
Approach	EB			WB			NB			SB			
Movement	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	
Lane Control Delay (d), s/veh		3.9			4.6			3.7			3.9		
Lane LOS		A			A			A			A		
95% Queue		0.2			0.5			0.1			0.0		
Approach Delay, s/veh	3.9			4.6			3.7			3.9			
Approach LOS	A			A			A			A			
Intersection Delay, s/veh / LOS	4.3						A						



# HCM Unsignalized Intersection Capacity Analysis

## 9: Brutscher St & Werth Blvd

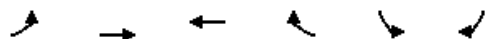
03/06/2018

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	14	7	136	6	4	233
Future Volume (Veh/h)	14	7	136	6	4	233
Sign Control	Stop		Free		Free	
Grade	0%		0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	15	8	148	7	4	253
Pedestrians	8				1	
Lane Width (ft)	12.0				12.0	
Walking Speed (ft/s)	3.5				3.5	
Percent Blockage	1				0	
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	420	160			163	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	420	160			163	
tC, single (s)	6.4	6.4			4.3	
tC, 2 stage (s)						
tF (s)	3.5	3.5			2.4	
p0 queue free %	97	99			100	
cM capacity (veh/h)	587	840			1277	
Direction, Lane #	WB 1	WB 2	NB 1	SB 1	SB 2	
Volume Total	15	8	155	4	253	
Volume Left	15	0	0	4	0	
Volume Right	0	8	7	0	0	
cSH	587	840	1700	1277	1700	
Volume to Capacity	0.03	0.01	0.09	0.00	0.15	
Queue Length 95th (ft)	2	1	0	0	0	
Control Delay (s)	11.3	9.3	0.0	7.8	0.0	
Lane LOS	B	A		A		
Approach Delay (s)	10.6		0.0	0.1		
Approach LOS	B					
Intersection Summary						
Average Delay			0.6			
Intersection Capacity Utilization			22.6%	ICU Level of Service	A	
Analysis Period (min)			15			

# HCM Unsignalized Intersection Capacity Analysis

## 10: E Fernwood Rd & Brutscher St

03/06/2018



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↶	↷	↷		↶	↷
Traffic Volume (veh/h)	89	92	81	53	91	156
Future Volume (Veh/h)	89	92	81	53	91	156
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86
Hourly flow rate (vph)	103	107	94	62	106	181
Pedestrians			3		18	
Lane Width (ft)			12.0		12.0	
Walking Speed (ft/s)			3.5		3.5	
Percent Blockage			0		2	
Right turn flare (veh)						
Median type		None	None			
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	174				459	143
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	174				459	143
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	93				79	80
cM capacity (veh/h)	1391				508	892
Direction, Lane #	EB 1	EB 2	WB 1	SB 1	SB 2	
Volume Total	103	107	156	106	181	
Volume Left	103	0	0	106	0	
Volume Right	0	0	62	0	181	
cSH	1391	1700	1700	508	892	
Volume to Capacity	0.07	0.06	0.09	0.21	0.20	
Queue Length 95th (ft)	6	0	0	19	19	
Control Delay (s)	7.8	0.0	0.0	13.9	10.1	
Lane LOS	A			B	B	
Approach Delay (s)	3.8		0.0	11.5		
Approach LOS				B		
Intersection Summary						
Average Delay			6.3			
Intersection Capacity Utilization			30.5%	ICU Level of Service		A
Analysis Period (min)			15			

## Appendix C ODOT Crash Data

THIS PAGE INTENTIONALLY BLANK

## Chris Brehmer

---

**Subject:** RE: Crash Data Request/Newberg Locations - Req #180020

---

**From:** WARD Kimberlee S <Kimberlee.S.WARD@odot.state.or.us>  
**Sent:** Tuesday, February 06, 2018 9:46 AM  
**To:** Chris Brehmer <CBREHMER@kittelson.com>  
**Cc:** VOGEL Sylvia M <Sylvia.M.VOGEL@odot.state.or.us>  
**Subject:** RE: Crash Data Request/Newberg Locations - Req #180020

Hi Chris,

I have placed your crash data on our FTP site in the folder named "Brehmer". The link is located below for your convenience:

<ftp://ftp.odot.state.or.us/outgoing/Brehmer/>

The segment of Providence Dr 1200 feet south of OR 99W you requested, had *no crashes reported during the time period 2011 to 2015.*

*\*Please see your original email below, the intersections highlighted have no crash data.*

Thank you again Chris and hope you have a good work week !

Kim

*Kim Ward*

Crash Reporting Technician  
Crash Analysis and Reporting Unit  
Transportation Data Section  
555 13th Street NE, Suite 2  
Salem, Oregon 97301-4178  
ph: (503) 986-4237  
fax: (503) 986-4249  
mailto: [kimberlee.s.ward@odot.state.or.us](mailto:kimberlee.s.ward@odot.state.or.us)

---

**From:** Chris Brehmer [<mailto:CBREHMER@kittelson.com>]  
**Sent:** Friday, January 19, 2018 9:17 AM  
**To:** WARD Kimberlee S  
**Subject:** Crash Data Request/Newberg Locations

Happy Friday Kim!

I'm writing to request crash data for several locations in Newberg, Oregon that we are studying for a traffic impact study. The locations are listed below and shown in the embedded image.

- OR99W/Providence Drive
- Providence Drive/Hayes Street
- Brutscher Street/Werth Boulevard
- E Fernwood Rd/Brutscher Street

- Four private driveways serving the Providence campus along Providence Drive – it may be easiest just to search Providence Drive as a segment from Highway 99W south about 1,200 feet?



Would you please research and provide this information at your convenience?

Thank you,  
Chris

Christopher L. Brehmer, PE  
Senior Principal Engineer

Please note our Portland office has a **\*NEW ADDRESS\***

[Kittelson & Associates, Inc.](#)

Transportation Engineering / Planning

**851 SW 6th Avenue, Suite 600**

**Portland OR 97204**

503.228.5230 (Portland)

503.535.7433 (direct)

[Streetwise](#) [Twitter](#) [Facebook](#)

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

Brutscher St & Fernwood 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: 2014														
TURNING MOVEMENTS	0	0	1	1	0	0	0	1	0	0	1	1	0	0
2014 TOTAL	0	0	1	1	0	0	0	1	0	0	1	1	0	0
FINAL TOTAL	0	0	1	1	0	0	0	1	0	0	1	1	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.*





## 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	TURNE D 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	PURSUING 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 RO
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 CLOTHIN
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	JACKKNIFE	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	IRRGL 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

OR 99W & Providence 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
YEAR: 2015														
REAR-END	0	0	4	4	0	0	0	4	0	3	1	4	0	0
2015 TOTAL	0	0	4	4	0	0	0	4	0	3	1	4	0	0
YEAR: 2014														
REAR-END	0	0	2	2	0	0	0	2	0	2	0	2	0	0
2014 TOTAL	0	0	2	2	0	0	0	2	0	2	0	2	0	0
YEAR: 2013														
REAR-END	0	0	1	1	0	0	0	1	0	1	0	1	0	0
2013 TOTAL	0	0	1	1	0	0	0	1	0	1	0	1	0	0
YEAR: 2012														
REAR-END	0	2	1	3	0	3	0	2	1	3	0	3	0	0
2012 TOTAL	0	2	1	3	0	3	0	2	1	3	0	3	0	0
YEAR: 2011														
REAR-END	0	0	1	1	0	0	0	0	1	1	0	1	0	0
2011 TOTAL	0	0	1	1	0	0	0	0	1	1	0	1	0	0
FINAL TOTAL	0	2	9	11	0	3	0	9	2	10	1	11	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.*



091 PACIFIC HIGHWAY WEST

OR 99W & Providence Dr  
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	P E D	CAUSE								
INVEST	E L G H R	DAY/TIME	CITY	CMPT/MLG	FIRST	STREET	DIRECT	LEGS	TRAF-	RNDBT	SURF	COLL TYP	TRLR QTY	OWNER	FROM	G E	LICNS	LOC	ERROR	ACTN	EVENT	CAUSE				
UNLOC?	D C S L K	LAT/LONG	URBAN AREA	MILEPNT	SECOND	STREET	LOCTN	(#LANES)	CNTL	DRVWY	LIGHT	SVRTY	V#	VEH TYPE	TO	P#	TYPE	SVRTY	E X	RES	LOC	ERROR	ACTN	EVENT	CAUSE	
00623	N N N N N	07/18/2013	YAMHILL	1	14		INTER	3-LEG	N		N	CLR	S-1STOP	01 NONE	0	STRGHT									27	
CITY		Thu 7P	NEWBERG	MN	0	PROVIDENCE DR	SW		TRF	SIGNAL	N	DRY	REAR	PRVTE	SW NE									000	00	
			NEWBERG UA		21.46	PACIFIC HY 99W	06	0			N	DAY	PDO	PSNGR	CAR		01	DRVR	NONE	32	M	OR-Y	026	000	27	
No	45 18 36.11	-122 56 7.77			009100100S00																					
														02 NONE	0	STOP									011	00
														PRVTE	SW NE									000	000	00
														PSNGR	CAR		01	DRVR	NONE	40	M	OR-Y	000	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	TURNE D 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	PURSUIING 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	JACKKNIFE	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	ILUM 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**

<b>CODE</b>	<b>SHORT DESC</b>	<b>LONG DESCRIPTION</b>
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**

<b>CODE</b>	<b>SHORT DESC</b>	<b>LONG DESCRIPTION</b>
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

THIS PAGE INTENTIONALLY BLANK













## Appendix D Year 2019 Background Traffic Conditions

THIS PAGE INTENTIONALLY BLANK

# Queues

## 1: Providence Dr & N Hwy 99W

03/07/2018

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	25	1752	93	94	1057	81	35	12	73	251	22	76
v/c Ratio	0.30	1.14	0.13	0.92	0.65	0.10	0.10	0.03	0.16	0.64	0.05	0.15
Control Delay	64.9	100.9	2.7	126.2	23.8	1.6	28.0	34.0	1.6	42.8	33.8	1.9
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	64.9	100.9	2.7	126.2	23.8	1.6	28.0	34.0	1.6	42.8	33.8	1.9
Queue Length 50th (ft)	19	~832	0	74	326	0	18	7	0	152	13	0
Queue Length 95th (ft)	49	#971	22	#180	407	15	43	23	7	232	35	10
Internal Link Dist (ft)		676			463			180			187	
Turn Bay Length (ft)	150		100	230		300	160		160	350		150
Base Capacity (vph)	82	1541	740	102	1622	813	354	429	464	394	488	502
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	0.30	1.14	0.13	0.92	0.65	0.10	0.10	0.03	0.16	0.64	0.05	0.15

### 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.

# HCM Signalized Intersection Capacity Analysis

## 1: Providence Dr & N Hwy 99W

03/07/2018

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	24	1664	88	89	1004	77	33	11	69	238	21	72
Future Volume (vph)	24	1664	88	89	1004	77	33	11	69	238	21	72
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Grade (%)		-3%			2%			3%			2%	
Total Lost time (s)	6.0	6.0	6.0	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	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)	1654	3245	1438	1646	3076	1444	1449	1690	1465	1614	1699	1444
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.74	1.00	1.00	0.70	1.00	1.00
Satd. Flow (perm)	1654	3245	1438	1646	3076	1444	1133	1690	1465	1192	1699	1444
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)	25	1752	93	94	1057	81	35	12	73	251	22	76
RTOR Reduction (vph)	0	0	50	0	0	41	0	0	53	0	0	54
Lane Group Flow (vph)	25	1752	43	94	1057	40	35	12	20	251	22	22
Heavy Vehicles (%)	2%	4%	5%	0%	7%	2%	13%	2%	0%	2%	2%	2%
Turn Type	Prot	NA	Perm	Prot	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			2			6	8		8	4		4
Actuated Green, G (s)	3.6	55.2	55.2	7.5	59.1	59.1	35.6	32.3	32.3	40.0	34.5	34.5
Effective Green, g (s)	3.6	55.2	55.2	7.5	59.1	59.1	35.6	32.3	32.3	40.0	34.5	34.5
Actuated g/C Ratio	0.03	0.46	0.46	0.06	0.49	0.49	0.30	0.27	0.27	0.33	0.29	0.29
Clearance Time (s)	6.0	6.0	6.0	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Vehicle Extension (s)	4.0	5.0	5.0	4.0	4.0	4.0	3.0	4.0	4.0	3.0	4.0	4.0
Lane Grp Cap (vph)	49	1492	661	102	1514	711	344	454	394	416	488	415
v/s Ratio Prot	0.02	c0.54		c0.06	0.34		0.00	0.01		c0.03	0.01	
v/s Ratio Perm			0.03			0.03	0.03		0.01	c0.17		0.02
v/c Ratio	0.51	1.17	0.06	0.92	0.70	0.06	0.10	0.03	0.05	0.60	0.05	0.05
Uniform Delay, d1	57.3	32.4	18.0	56.0	23.6	15.9	30.4	32.3	32.5	33.4	30.9	30.9
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	11.4	85.8	0.2	64.9	2.7	0.2	0.1	0.1	0.2	2.5	0.1	0.1
Delay (s)	68.8	118.2	18.2	120.8	26.2	16.0	30.5	32.4	32.7	35.9	30.9	31.0
Level of Service	E	F	B	F	C	B	C	C	C	D	C	C
Approach Delay (s)		112.6			32.8			32.1			34.5	
Approach LOS		F			C			C			C	

### Intersection Summary

HCM 2000 Control Delay	74.7	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.95		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	19.5
Intersection Capacity Utilization	88.8%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group



# HCM Unsignalized Intersection Capacity Analysis

## 2: Providence Dr & PNMC North Dwy

03/07/2018



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	39	1	4	74	114	84
Future Volume (Veh/h)	39	1	4	74	114	84
Sign Control	Stop			Free	Free	
Grade	0%			3%	-3%	
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84
Hourly flow rate (vph)	46	1	5	88	136	100
<b>Pedestrians</b>						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (ft)						260
pX, platoon unblocked						
vC, conflicting volume	284	186	236			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	284	186	236			
tC, single (s)	6.4	6.2	4.3			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.4			
p0 queue free %	93	100	100			
cM capacity (veh/h)	708	861	1207			
<b>Direction, Lane #</b>	<b>EB 1</b>	<b>NB 1</b>	<b>SB 1</b>			
Volume Total	47	93	236			
Volume Left	46	5	0			
Volume Right	1	0	100			
cSH	710	1207	1700			
Volume to Capacity	0.07	0.00	0.14			
Queue Length 95th (ft)	5	0	0			
Control Delay (s)	10.4	0.5	0.0			
Lane LOS	B	A				
Approach Delay (s)	10.4	0.5	0.0			
Approach LOS	B					
<b>Intersection Summary</b>						
Average Delay			1.4			
Intersection Capacity Utilization			21.1%	ICU Level of Service	A	
Analysis Period (min)			15			

# HCM Unsignalized Intersection Capacity Analysis

## 3: Providence Dr & PNMC Middle Dwy

03/07/2018



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	Y			↑	↑	
Traffic Volume (veh/h)	15	13	29	63	73	42
Future Volume (Veh/h)	15	13	29	63	73	42
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85
Hourly flow rate (vph)	18	15	34	74	86	49
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (ft)					680	
pX, platoon unblocked						
vC, conflicting volume	252	110	135			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	252	110	135			
tC, single (s)	6.5	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.6	3.3	2.2			
p0 queue free %	97	98	98			
cM capacity (veh/h)	694	948	1462			
<b>Direction, Lane #</b>	<b>EB 1</b>	<b>NB 1</b>	<b>SB 1</b>			
Volume Total	33	108	135			
Volume Left	18	34	0			
Volume Right	15	0	49			
cSH	790	1462	1700			
Volume to Capacity	0.04	0.02	0.08			
Queue Length 95th (ft)	3	2	0			
Control Delay (s)	9.8	2.5	0.0			
Lane LOS	A	A				
Approach Delay (s)	9.8	2.5	0.0			
Approach LOS	A					
<b>Intersection Summary</b>						
Average Delay			2.1			
Intersection Capacity Utilization			21.6%	ICU Level of Service	A	
Analysis Period (min)			15			

# HCM Unsignalized Intersection Capacity Analysis

## 4: Providence Dr & PNMC South Dwy/Campus Expansion Access

03/07/2018



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	Y			↑	↑	
Traffic Volume (veh/h)	3	0	8	89	82	4
Future Volume (Veh/h)	3	0	8	89	82	4
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83
Hourly flow rate (vph)	4	0	10	107	99	5
<b>Pedestrians</b>						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (ft)					793	
pX, platoon unblocked						
vC, conflicting volume	228	102	104			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	228	102	104			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	99	100	99			
cM capacity (veh/h)	759	959	1500			
<b>Direction, Lane #</b>	<b>EB 1</b>	<b>NB 1</b>	<b>SB 1</b>			
Volume Total	4	117	104			
Volume Left	4	10	0			
Volume Right	0	0	5			
cSH	759	1500	1700			
Volume to Capacity	0.01	0.01	0.06			
Queue Length 95th (ft)	0	1	0			
Control Delay (s)	9.8	0.7	0.0			
Lane LOS	A	A				
Approach Delay (s)	9.8	0.7	0.0			
Approach LOS	A					
<b>Intersection Summary</b>						
Average Delay			0.5			
Intersection Capacity Utilization			21.3%	ICU Level of Service	A	
Analysis Period (min)			15			

# HCM Unsignalized Intersection Capacity Analysis

## 6: Providence Dr & PNMC Truck Dwy

03/07/2018

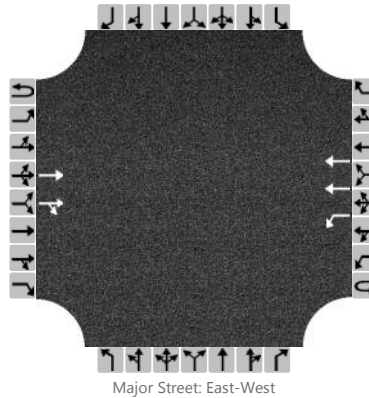


Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	6	2	3	91	73	9
Future Volume (Veh/h)	6	2	3	91	73	9
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.78	0.78	0.78	0.78	0.78	0.78
Hourly flow rate (vph)	8	3	4	117	94	12
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (ft)	1143					
pX, platoon unblocked						
vC, conflicting volume	225	100	106			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	225	100	106			
tC, single (s)	6.8	6.7	4.1			
tC, 2 stage (s)						
tF (s)	3.9	3.8	2.2			
p0 queue free %	99	100	100			
cM capacity (veh/h)	684	839	1498			
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total	11	121	106			
Volume Left	8	4	0			
Volume Right	3	0	12			
cSH	721	1498	1700			
Volume to Capacity	0.02	0.00	0.06			
Queue Length 95th (ft)	1	0	0			
Control Delay (s)	10.1	0.3	0.0			
Lane LOS	B	A				
Approach Delay (s)	10.1	0.3	0.0			
Approach LOS	B					
Intersection Summary						
Average Delay	0.6					
Intersection Capacity Utilization	17.2%			ICU Level of Service	A	
Analysis Period (min)	15					

# HCS 2010 Two-Way Stop Control Summary Report

General Information		Site Information	
Analyst	Kittelson & Associates	Intersection	OR 99 W/PNMC Access
Agency/Co.	City of Newberg	Jurisdiction	Newberg, Oregon
Date Performed	3/7/2018	East/West Street	OR 99W
Analysis Year	2020	North/South Street	Right-In, Left-Out Access
Time Analyzed	Background AM	Peak Hour Factor	0.89
Intersection Orientation	East-West	Analysis Time Period (hrs)	0.25
Project Description	Newberg Providence Medical Center		

## Lanes



## Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Priority																
Number of Lanes	0	0	2	0	0	1	2	0		0	0	0		0	0	0
Configuration			T	TR		L	T									
Volume (veh/h)			1772	51		18	1088									
Percent Heavy Vehicles						3										
Proportion Time Blocked																
Right Turn Channelized	No				No				No				No			
Median Type	Undivided															
Median Storage																

## Delay, Queue Length, and Level of Service

Flow Rate (veh/h)					20											
Capacity					267											
v/c Ratio					0.07											
95% Queue Length					0.2											
Control Delay (s/veh)					19.6											
Level of Service (LOS)					C											
Approach Delay (s/veh)					0.3											
Approach LOS																

# HCS 2010 Roundabout Report

General Information					Site Information				
Analyst	Kittelson & Associates, Inc.				Intersection	Werth Blvd/Providence Dr/Hayes St			
Agency or Co.	City of Newberg				E/W Street Name	Providence Dr/Hayes St			
Date Performed	3/6/2018				N/S Street Name	Werth Blvd			
Analysis Year	2020				Analysis Time Period (hrs)	0.25			
Time Period	Background AM				Peak Hour Factor	0.78			
Project Description	Newberg Providence Medical Center				Jurisdiction	Newberg, OR			

Volume Adjustment and Site Characteristics																
Approach	EB				WB				NB				SB			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Number of Lanes (N)	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0
Lane Assignment	LTR				LTR				LTR				LTR			
Volume (V), veh/h	0	1	81	4	0	18	24	1	0	2	0	7	0	2	1	2
Percent Heavy Vehicles, %	0	0	3	0	0	0	6	100	0	0	0	0	0	0	100	0
Flow Rate (vPCE) pc/h	0	1	107	5	0	23	33	3	0	3	0	9	0	3	3	3
Right-Turn Bypass	None				None				None				None			
Conflicting Lanes	1				1				1				1			
Pedestrians Crossing	1				1				0				2			

Critical and Follow-Up Headway Adjustment													
Approach	EB			WB			NB			SB			
Movement	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	
Critical Headway (sec)		5.1929			5.1929			5.1929			5.1929		
Follow-Up Headway (sec)		3.1858			3.1858			3.1858			3.1858		

Flow Computations, Capacity and v/c Ratios													
Approach	EB			WB			NB			SB			
Movement	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	
Entry Flow (Ve), pc/h		113			59			12			9		
Entry Volume veh/h		110			56			12			8		
Circulating Flow (Vc), pc/h	29			4			111			59			
Exiting Flow (Vex), pc/h	119			39			4			31			
Capacity (cPCE), pc/h		1098			1126			1011			1065		
Capacity (c), veh/h		1067			1061			1011			887		
v/c Ratio (X)		0.10			0.05			0.01			0.01		

Delay and Level of Service													
Approach	EB			WB			NB			SB			
Movement	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	
Lane Control Delay (d), s/veh		4.3			3.8			3.7			4.1		
Lane LOS		A			A			A			A		
95% Queue		0.3			0.2			0.0			0.0		
Approach Delay, s/veh	4.3			3.8			3.7			4.1			
Approach LOS	A			A			A			A			
Intersection Delay, s/veh / LOS	4.1						A						

# HCM Unsignalized Intersection Capacity Analysis

## 9: Brutscher St & Werth Blvd

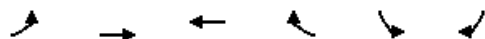
03/07/2018

	↙	↖	↑	↗	↘	↓
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↙	↖	↗		↘	↕
Traffic Volume (veh/h)	11	2	101	12	1	53
Future Volume (Veh/h)	11	2	101	12	1	53
Sign Control	Stop		Free		Free	
Grade	0%		0%		0%	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80
Hourly flow rate (vph)	14	3	126	15	1	66
Pedestrians	1					
Lane Width (ft)	12.0					
Walking Speed (ft/s)	3.5					
Percent Blockage	0					
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	202	134			142	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	202	134			142	
tC, single (s)	6.4	7.2			5.1	
tC, 2 stage (s)						
tF (s)	3.5	4.2			3.1	
p0 queue free %	98	100			100	
cM capacity (veh/h)	789	707			1008	
Direction, Lane #	WB 1	WB 2	NB 1	SB 1	SB 2	
Volume Total	14	3	141	1	66	
Volume Left	14	0	0	1	0	
Volume Right	0	3	15	0	0	
cSH	789	707	1700	1008	1700	
Volume to Capacity	0.02	0.00	0.08	0.00	0.04	
Queue Length 95th (ft)	1	0	0	0	0	
Control Delay (s)	9.6	10.1	0.0	8.6	0.0	
Lane LOS	A	B		A		
Approach Delay (s)	9.7		0.0	0.1		
Approach LOS	A					
Intersection Summary						
Average Delay			0.8			
Intersection Capacity Utilization			16.3%	ICU Level of Service	A	
Analysis Period (min)			15			

# HCM Unsignalized Intersection Capacity Analysis

## 10: E Fernwood Rd & Brutscher St

03/07/2018















Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↶	↷	↷		↶	↷
Traffic Volume (veh/h)	63	44	105	50	21	43
Future Volume (Veh/h)	63	44	105	50	21	43
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84
Hourly flow rate (vph)	75	52	125	60	25	51
Pedestrians			1		1	
Lane Width (ft)			12.0		12.0	
Walking Speed (ft/s)			3.5		3.5	
Percent Blockage			0		0	
Right turn flare (veh)						
Median type		None	None			
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	186				359	156
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	186				359	156
tC, single (s)	4.2				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.3				3.5	3.3
p0 queue free %	94				96	94
cM capacity (veh/h)	1363				598	884
Direction, Lane #	EB 1	EB 2	WB 1	SB 1	SB 2	
Volume Total	75	52	185	25	51	
Volume Left	75	0	0	25	0	
Volume Right	0	0	60	0	51	
cSH	1363	1700	1700	598	884	
Volume to Capacity	0.06	0.03	0.11	0.04	0.06	
Queue Length 95th (ft)	4	0	0	3	5	
Control Delay (s)	7.8	0.0	0.0	11.3	9.3	
Lane LOS	A			B	A	
Approach Delay (s)	4.6		0.0	10.0		
Approach LOS				A		
Intersection Summary						
Average Delay			3.5			
Intersection Capacity Utilization			25.6%	ICU Level of Service		A
Analysis Period (min)			15			



# Queues

## 1: Providence Dr & N Hwy 99W

03/07/2018

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	105	1179	35	84	2018	206	121	29	146	220	12	79
v/c Ratio	0.44	0.58	0.04	0.49	1.08	0.23	0.60	0.25	0.62	1.08	0.10	0.40
Control Delay	61.9	18.1	0.1	68.5	74.4	5.8	65.3	65.7	21.0	138.9	61.1	10.6
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	61.9	18.1	0.1	68.5	74.4	5.8	65.3	65.7	21.0	138.9	61.1	10.6
Queue Length 50th (ft)	90	315	0	73	~1053	26	101	26	0	~222	11	0
Queue Length 95th (ft)	150	453	0	127	#1275	72	159	58	67	#350	31	28
Internal Link Dist (ft)		676			463			180			285	
Turn Bay Length (ft)	150		100	230		300	160		160	350		150
Base Capacity (vph)	238	2043	948	171	1873	912	202	369	428	203	371	393
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	0.44	0.58	0.04	0.49	1.08	0.23	0.60	0.08	0.34	1.08	0.03	0.20

### 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.

# HCM Signalized Intersection Capacity Analysis

## 1: Providence Dr & N Hwy 99W

03/07/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 							
Traffic Volume (vph)	100	1120	33	80	1917	196	115	28	139	209	11	75
Future Volume (vph)	100	1120	33	80	1917	196	115	28	139	209	11	75
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Grade (%)		-3%			2%			3%			2%	
Total Lost time (s)	6.0	6.0	6.0	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00	0.98	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	1.00	1.00
Fr <sub>t</sub>	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Fl <sub>t</sub> 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)	1687	3309	1478	1646	3227	1473	1619	1724	1465	1646	1732	1452
Fl <sub>t</sub> Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.75	1.00	1.00	0.72	1.00	1.00
Satd. Flow (perm)	1687	3309	1478	1646	3227	1473	1277	1724	1465	1253	1732	1452
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)	105	1179	35	84	2018	206	121	29	146	220	12	79
RTOR Reduction (vph)	0	0	13	0	0	58	0	0	136	0	0	74
Lane Group Flow (vph)	105	1179	22	84	2018	148	121	29	10	220	12	5
Confl. Peds. (#/hr)							1					1
Confl. Bikes (#/hr)			2									
Heavy Vehicles (%)	0%	2%	0%	0%	2%	0%	1%	0%	0%	0%	0%	0%
Turn Type	Prot	NA	Perm	Prot	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			2			6	8		8	4		4
Actuated Green, G (s)	19.8	86.5	86.5	14.5	81.2	81.2	19.3	9.5	9.5	19.7	9.7	9.7
Effective Green, g (s)	19.8	86.5	86.5	14.5	81.2	81.2	19.3	9.5	9.5	19.7	9.7	9.7
Actuated g/C Ratio	0.14	0.62	0.62	0.10	0.58	0.58	0.14	0.07	0.07	0.14	0.07	0.07
Clearance Time (s)	6.0	6.0	6.0	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Vehicle Extension (s)	4.0	5.0	5.0	4.0	4.0	4.0	3.0	4.0	4.0	3.0	4.0	4.0
Lane Grp Cap (vph)	238	2044	913	170	1871	854	199	116	99	204	120	100
v/s Ratio Prot	c0.06	c0.36		0.05	c0.63		0.04	0.02		c0.08	0.01	
v/s Ratio Perm			0.01			0.10	0.04		0.01	c0.07		0.00
v/c Ratio	0.44	0.58	0.02	0.49	1.08	0.17	0.61	0.25	0.10	1.08	0.10	0.05
Uniform Delay, d1	55.0	15.9	10.4	59.3	29.4	13.7	56.2	61.9	61.2	59.5	61.1	60.9
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	1.8	1.2	0.0	3.1	45.6	0.4	5.2	1.5	0.6	85.4	0.5	0.3
Delay (s)	56.8	17.1	10.4	62.3	75.0	14.2	61.4	63.4	61.8	144.9	61.6	61.2
Level of Service	E	B	B	E	E	B	E	E	E	F	E	E
Approach Delay (s)		20.1			69.1			61.8			120.4	
Approach LOS		C			E			E			F	

### Intersection Summary

HCM 2000 Control Delay	57.1	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.98		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	19.5
Intersection Capacity Utilization	95.3%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

# HCM Unsignalized Intersection Capacity Analysis

## 2: Providence Dr & PNMC North Dwy

03/07/2018



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	116	5	2	166	104	20
Future Volume (Veh/h)	116	5	2	166	104	20
Sign Control	Stop			Free	Free	
Grade	0%			3%	-3%	
Peak Hour Factor	0.71	0.71	0.71	0.71	0.71	0.71
Hourly flow rate (vph)	163	7	3	234	146	28
Pedestrians	3					
Lane Width (ft)	12.0					
Walking Speed (ft/s)	3.5					
Percent Blockage	0					
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (ft)						260
pX, platoon unblocked						
vC, conflicting volume	403	163	177			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	403	163	177			
tC, single (s)	6.4	6.2	4.6			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.7			
p0 queue free %	73	99	100			
cM capacity (veh/h)	604	884	1152			
<b>Direction, Lane #</b>	<b>EB 1</b>	<b>NB 1</b>	<b>SB 1</b>			
Volume Total	170	237	174			
Volume Left	163	3	0			
Volume Right	7	0	28			
cSH	612	1152	1700			
Volume to Capacity	0.28	0.00	0.10			
Queue Length 95th (ft)	28	0	0			
Control Delay (s)	13.1	0.1	0.0			
Lane LOS	B	A				
Approach Delay (s)	13.1	0.1	0.0			
Approach LOS	B					
<b>Intersection Summary</b>						
Average Delay			3.9			
Intersection Capacity Utilization			23.7%	ICU Level of Service	A	
Analysis Period (min)			15			

# HCM Unsignalized Intersection Capacity Analysis

## 3: Providence Dr & PNMC Middle Dwy

03/07/2018



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	Y			↑	↑	
Traffic Volume (veh/h)	35	39	3	133	106	3
Future Volume (Veh/h)	35	39	3	133	106	3
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.75	0.75	0.75	0.75	0.75	0.75
Hourly flow rate (vph)	47	52	4	177	141	4
Pedestrians	3					
Lane Width (ft)	12.0					
Walking Speed (ft/s)	3.5					
Percent Blockage	0					
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (ft)						680
pX, platoon unblocked						
vC, conflicting volume	331	146	148			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	331	146	148			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	93	94	100			
cM capacity (veh/h)	658	904	1442			
<b>Direction, Lane #</b>	<b>EB 1</b>	<b>NB 1</b>	<b>SB 1</b>			
Volume Total	99	181	145			
Volume Left	47	4	0			
Volume Right	52	0	4			
cSH	768	1442	1700			
Volume to Capacity	0.13	0.00	0.09			
Queue Length 95th (ft)	11	0	0			
Control Delay (s)	10.4	0.2	0.0			
Lane LOS	B	A				
Approach Delay (s)	10.4	0.2	0.0			
Approach LOS	B					
<b>Intersection Summary</b>						
Average Delay			2.5			
Intersection Capacity Utilization			20.4%	ICU Level of Service	A	
Analysis Period (min)			15			

# HCM Unsignalized Intersection Capacity Analysis

## 4: Providence Dr & PNMC South Dwy/Campus Expansion Access

03/07/2018



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	Y			↑	↑	
Traffic Volume (veh/h)	16	14	3	120	143	2
Future Volume (Veh/h)	16	14	3	120	143	2
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.77	0.77	0.77	0.77	0.77	0.77
Hourly flow rate (vph)	21	18	4	156	186	3
Pedestrians	4					
Lane Width (ft)	12.0					
Walking Speed (ft/s)	3.5					
Percent Blockage	0					
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (ft)						793
pX, platoon unblocked						
vC, conflicting volume	356	192	193			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	356	192	193			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	97	98	100			
cM capacity (veh/h)	642	852	1387			
<b>Direction, Lane #</b>	<b>EB 1</b>	<b>NB 1</b>	<b>SB 1</b>			
Volume Total	39	160	189			
Volume Left	21	4	0			
Volume Right	18	0	3			
cSH	725	1387	1700			
Volume to Capacity	0.05	0.00	0.11			
Queue Length 95th (ft)	4	0	0			
Control Delay (s)	10.3	0.2	0.0			
Lane LOS	B	A				
Approach Delay (s)	10.3	0.2	0.0			
Approach LOS	B					
<b>Intersection Summary</b>						
Average Delay			1.1			
Intersection Capacity Utilization			18.7%	ICU Level of Service	A	
Analysis Period (min)			15			

# HCM Unsignalized Intersection Capacity Analysis

## 6: Providence Dr & PNMC Truck Dwy

03/07/2018

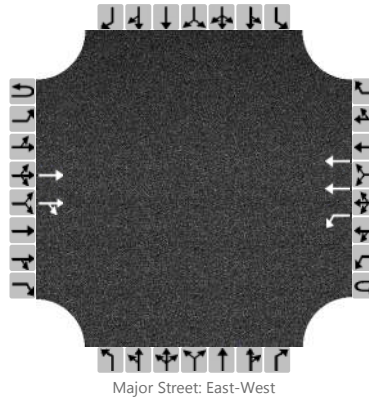


Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	Y			↑	↑	
Traffic Volume (veh/h)	1	3	2	122	155	2
Future Volume (Veh/h)	1	3	2	122	155	2
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.76	0.76	0.76	0.76	0.76	0.76
Hourly flow rate (vph)	1	4	3	161	204	3
<b>Pedestrians</b>						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (ft)					1143	
pX, platoon unblocked						
vC, conflicting volume	372	206	207			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	372	206	207			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	100	100			
cM capacity (veh/h)	631	840	1376			
<b>Direction, Lane #</b>	<b>EB 1</b>	<b>NB 1</b>	<b>SB 1</b>			
Volume Total	5	164	207			
Volume Left	1	3	0			
Volume Right	4	0	3			
cSH	788	1376	1700			
Volume to Capacity	0.01	0.00	0.12			
Queue Length 95th (ft)	0	0	0			
Control Delay (s)	9.6	0.2	0.0			
Lane LOS	A	A				
Approach Delay (s)	9.6	0.2	0.0			
Approach LOS	A					
<b>Intersection Summary</b>						
Average Delay			0.2			
Intersection Capacity Utilization			18.3%	ICU Level of Service	A	
Analysis Period (min)			15			

# HCS 2010 Two-Way Stop Control Summary Report

General Information		Site Information	
Analyst	Kittelson & Associates	Intersection	OR 99 W/PNMC Access
Agency/Co.	City of Newberg	Jurisdiction	Newberg, Oregon
Date Performed	3/7/2018	East/West Street	OR 99W
Analysis Year	2020	North/South Street	Right-In, Left-Out Access
Time Analyzed	Background PM	Peak Hour Factor	0.97
Intersection Orientation	East-West	Analysis Time Period (hrs)	0.25
Project Description	Newberg Providence Medical Center		

## Lanes



## Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	2	0	0	1	2	0		0	0	0		0	0	0
Configuration			T	TR		L	T									
Volume (veh/h)			1264	20		2	2034									
Percent Heavy Vehicles						3										
Proportion Time Blocked																
Right Turn Channelized	No				No				No				No			
Median Type	Undivided															
Median Storage																

## Delay, Queue Length, and Level of Service

Flow Rate (veh/h)						2										
Capacity						512										
v/c Ratio						0.00										
95% Queue Length						0.0										
Control Delay (s/veh)						12.1										
Level of Service (LOS)						B										
Approach Delay (s/veh)					0.0											
Approach LOS																

# HCS 2010 Roundabout Report

General Information					Site Information				
Analyst	Kittelson & Associates, Inc.				Intersection	Werth Blvd/Providence Dr/Hayes St			
Agency or Co.	City of Newberg				E/W Street Name	Providence Dr/Hayes St			
Date Performed	3/6/2018				N/S Street Name	Werth Blvd			
Analysis Year	2020				Analysis Time Period (hrs)	0.25			
Time Period	Background PM				Peak Hour Factor	0.79			
Project Description	Newberg Providence Medical Center				Jurisdiction	Newberg, OR			

Volume Adjustment and Site Characteristics																
Approach	EB				WB				NB				SB			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Number of Lanes (N)	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0
Lane Assignment			LTR				LTR				LTR				LTR	
Volume (V), veh/h	0	4	56	7	0	16	132	0	0	10	0	26	0	0	1	2
Percent Heavy Vehicles, %	0	0	2	0	0	0	1	0	0	0	0	0	0	0	0	0
Flow Rate (vPCE) pc/h	0	5	72	9	0	20	169	0	0	13	0	33	0	0	1	3
Right-Turn Bypass	None				None				None				None			
Conflicting Lanes	1				1				1				1			
Pedestrians Crossing	0				2				1				1			

Critical and Follow-Up Headway Adjustment													
Approach	EB			WB			NB			SB			
Movement	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	
Critical Headway (sec)		5.1929			5.1929			5.1929			5.1929		
Follow-Up Headway (sec)		3.1858			3.1858			3.1858			3.1858		

Flow Computations, Capacity and v/c Ratios													
Approach	EB			WB			NB			SB			
Movement	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	
Entry Flow (Ve), pc/h		86			189			46			4		
Entry Volume veh/h		85			187			46			4		
Circulating Flow (Vc), pc/h	21			18			77			202			
Exiting Flow (Vex), pc/h	105			185			5			30			
Capacity (cPCE), pc/h		1107			1110			1046			923		
Capacity (c), veh/h		1088			1100			1046			923		
v/c Ratio (X)		0.08			0.17			0.04			0.00		












Delay and Level of Service													
Approach	EB			WB			NB			SB			
Movement	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	
Lane Control Delay (d), s/veh		4.0			4.8			3.8			3.9		
Lane LOS		A			A			A			A		
95% Queue		0.3			0.6			0.1			0.0		
Approach Delay, s/veh	4.0			4.8			3.8			3.9			
Approach LOS	A			A			A			A			
Intersection Delay, s/veh / LOS	4.4						A						



# HCM Unsignalized Intersection Capacity Analysis

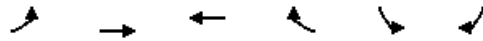
## 9: Brutscher St & Werth Blvd

03/07/2018

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	21	7	139	19	4	238
Future Volume (Veh/h)	21	7	139	19	4	238
Sign Control	Stop		Free		Free	
Grade	0%		0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	23	8	151	21	4	259
Pedestrians	8				1	
Lane Width (ft)	12.0				12.0	
Walking Speed (ft/s)	3.5				3.5	
Percent Blockage	1				0	
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	436	170			180	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	436	170			180	
tC, single (s)	6.4	6.4			4.3	
tC, 2 stage (s)						
tF (s)	3.5	3.5			2.4	
p0 queue free %	96	99			100	
cM capacity (veh/h)	575	829			1259	
Direction, Lane #	WB 1	WB 2	NB 1	SB 1	SB 2	
Volume Total	23	8	172	4	259	
Volume Left	23	0	0	4	0	
Volume Right	0	8	21	0	0	
cSH	575	829	1700	1259	1700	
Volume to Capacity	0.04	0.01	0.10	0.00	0.15	
Queue Length 95th (ft)	3	1	0	0	0	
Control Delay (s)	11.5	9.4	0.0	7.9	0.0	
Lane LOS	B	A		A		
Approach Delay (s)	11.0		0.0	0.1		
Approach LOS	B					
Intersection Summary						
Average Delay			0.8			
Intersection Capacity Utilization			22.9%	ICU Level of Service	A	
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis  
 10: E Fernwood Rd & Brutscher St

03/07/2018



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↶	↷	↷		↶	↷
Traffic Volume (veh/h)	104	94	83	54	93	166
Future Volume (Veh/h)	104	94	83	54	93	166
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86
Hourly flow rate (vph)	121	109	97	63	108	193
Pedestrians			3		18	
Lane Width (ft)			12.0		12.0	
Walking Speed (ft/s)			3.5		3.5	
Percent Blockage			0		2	
Right turn flare (veh)						
Median type		None	None			
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	178				500	146
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	178				500	146
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	91				77	78
cM capacity (veh/h)	1386				474	888
Direction, Lane #	EB 1	EB 2	WB 1	SB 1	SB 2	
Volume Total	121	109	160	108	193	
Volume Left	121	0	0	108	0	
Volume Right	0	0	63	0	193	
cSH	1386	1700	1700	474	888	
Volume to Capacity	0.09	0.06	0.09	0.23	0.22	
Queue Length 95th (ft)	7	0	0	22	21	
Control Delay (s)	7.8	0.0	0.0	14.8	10.2	
Lane LOS	A			B	B	
Approach Delay (s)	4.1		0.0	11.8		
Approach LOS				B		
Intersection Summary						
Average Delay			6.5			
Intersection Capacity Utilization			31.5%	ICU Level of Service		A
Analysis Period (min)			15			













## Appendix E Year 2019 Total Traffic Conditions

THIS PAGE INTENTIONALLY BLANK

Queues

1: Providence Dr & N Hwy 99W

03/22/2018

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	25	1752	117	122	1057	81	42	14	81	251	31	76
v/c Ratio	0.30	1.14	0.16	1.20	0.65	0.10	0.12	0.03	0.17	0.62	0.07	0.16
Control Delay	64.4	100.9	4.4	198.8	23.8	1.6	28.3	34.1	2.6	42.2	34.7	1.9
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	64.4	100.9	4.4	198.8	23.8	1.6	28.3	34.1	2.6	42.2	34.7	1.9
Queue Length 50th (ft)	19	~832	3	~114	326	0	22	8	0	151	18	0
Queue Length 95th (ft)	49	#971	35	#239	407	15	49	26	14	231	44	10
Internal Link Dist (ft)		676			463			180			303	
Turn Bay Length (ft)	150		100	230		300	160		160	350		150
Base Capacity (vph)	84	1541	740	102	1622	812	352	438	464	402	469	488
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	0.30	1.14	0.16	1.20	0.65	0.10	0.12	0.03	0.17	0.62	0.07	0.16

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.

# HCM Signalized Intersection Capacity Analysis

## 1: Providence Dr & N Hwy 99W

03/22/2018

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations		 			 								
Traffic Volume (vph)	24	1664	111	116	1004	77	40	13	77	238	29	72	
Future Volume (vph)	24	1664	111	116	1004	77	40	13	77	238	29	72	
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	
Grade (%)		-3%			2%			3%			2%		
Total Lost time (s)	6.0	6.0	6.0	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	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	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	1.00	1.00	1.00	1.00	1.00	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)	1687	3245	1438	1646	3076	1442	1449	1724	1465	1646	1732	1473	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.74	1.00	1.00	0.72	1.00	1.00	
Satd. Flow (perm)	1687	3245	1438	1646	3076	1442	1124	1724	1465	1253	1732	1473	
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)	25	1752	117	122	1057	81	42	14	81	251	31	76	
RTOR Reduction (vph)	0	0	58	0	0	41	0	0	60	0	0	55	
Lane Group Flow (vph)	25	1752	59	122	1057	41	42	14	21	251	31	21	
Confl. Bikes (#/hr)						1							
Heavy Vehicles (%)	0%	4%	5%	0%	7%	0%	13%	0%	0%	0%	0%	0%	
Turn Type	Prot	NA	Perm	Prot	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	
Protected Phases	5	2		1	6		3	8		7	4		
Permitted Phases			2			6	8		8	4		4	
Actuated Green, G (s)	3.6	56.1	56.1	7.5	60.0	60.0	35.8	31.4	31.4	38.0	32.5	32.5	
Effective Green, g (s)	3.6	56.1	56.1	7.5	60.0	60.0	35.8	31.4	31.4	38.0	32.5	32.5	
Actuated g/C Ratio	0.03	0.47	0.47	0.06	0.50	0.50	0.30	0.26	0.26	0.32	0.27	0.27	
Clearance Time (s)	6.0	6.0	6.0	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	
Vehicle Extension (s)	4.0	5.0	5.0	4.0	4.0	4.0	3.0	4.0	4.0	3.0	4.0	4.0	
Lane Grp Cap (vph)	50	1517	672	102	1538	721	347	451	383	414	469	398	
v/s Ratio Prot	0.01	c0.54		c0.07	0.34		0.00	0.01		c0.03	0.02		
v/s Ratio Perm			0.04			0.03	0.03		0.01	c0.16		0.01	
v/c Ratio	0.50	1.15	0.09	1.20	0.69	0.06	0.12	0.03	0.06	0.61	0.07	0.05	
Uniform Delay, d1	57.3	31.9	17.7	56.2	22.9	15.4	30.4	33.0	33.2	34.3	32.5	32.4	
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	10.3	77.7	0.3	151.1	2.5	0.1	0.2	0.1	0.3	2.5	0.1	0.1	
Delay (s)	67.6	109.6	18.0	207.3	25.4	15.6	30.6	33.1	33.5	36.8	32.6	32.4	
Level of Service	E	F	B	F	C	B	C	C	C	D	C	C	
Approach Delay (s)		103.4			42.4			32.5			35.5		
Approach LOS		F			D			C			D		
<b>Intersection Summary</b>													
HCM 2000 Control Delay			73.0									HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio			0.96										
Actuated Cycle Length (s)			120.0									Sum of lost time (s)	19.5
Intersection Capacity Utilization			90.4%									ICU Level of Service	E
Analysis Period (min)			15										
c Critical Lane Group													

# HCM Unsignalized Intersection Capacity Analysis

## 2: Providence Dr & PNMC North Dwy

03/22/2018



















Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	Y			↑	↑	
Traffic Volume (veh/h)	39	1	4	91	172	84
Future Volume (Veh/h)	39	1	4	91	172	84
Sign Control	Stop			Free	Free	
Grade	0%			3%	-3%	
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84
Hourly flow rate (vph)	46	1	5	108	205	100
<b>Pedestrians</b>						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (ft)						260
pX, platoon unblocked						
vC, conflicting volume	373	255	305			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	373	255	305			
tC, single (s)	6.4	6.2	4.3			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.4			
p0 queue free %	93	100	100			
cM capacity (veh/h)	629	789	1136			
<b>Direction, Lane #</b>	<b>EB 1</b>	<b>NB 1</b>	<b>SB 1</b>			
Volume Total	47	113	305			
Volume Left	46	5	0			
Volume Right	1	0	100			
cSH	632	1136	1700			
Volume to Capacity	0.07	0.00	0.18			
Queue Length 95th (ft)	6	0	0			
Control Delay (s)	11.2	0.4	0.0			
Lane LOS	B	A				
Approach Delay (s)	11.2	0.4	0.0			
Approach LOS	B					
<b>Intersection Summary</b>						
Average Delay			1.2			
Intersection Capacity Utilization			24.2%	ICU Level of Service	A	
Analysis Period (min)			15			

# HCM Unsignalized Intersection Capacity Analysis

## 3: Providence Dr & PNMC Middle Dwy

03/22/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	15	0	13	2	0	13	29	67	5	43	88	42
Future Volume (Veh/h)	15	0	13	2	0	13	29	67	5	43	88	42
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.85	0.92	0.85	0.92	0.92	0.92	0.85	0.85	0.92	0.92	0.85	0.85
Hourly flow rate (vph)	18	0	15	2	0	14	34	79	5	47	104	49
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type												
Median storage (veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	386	374	128	387	396	82	153			84		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	386	374	128	387	396	82	153			84		
tC, single (s)	7.2	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.6	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	97	100	98	100	100	99	98			97		
cM capacity (veh/h)	521	526	927	539	512	978	1440			1513		
Direction, Lane #												
	EB 1	WB 1	NB 1	SB 1								
Volume Total	33	16	118	200								
Volume Left	18	2	34	47								
Volume Right	15	14	5	49								
cSH	651	888	1440	1513								
Volume to Capacity	0.05	0.02	0.02	0.03								
Queue Length 95th (ft)	4	1	2	2								
Control Delay (s)	10.8	9.1	2.3	1.9								
Lane LOS	B	A	A	A								
Approach Delay (s)	10.8	9.1	2.3	1.9								
Approach LOS	B	A										
Intersection Summary												
Average Delay			3.2									
Intersection Capacity Utilization			23.5%		ICU Level of Service					A		
Analysis Period (min)			15									



# HCM Unsignalized Intersection Capacity Analysis

## 4: Providence Dr & PNMC South Dwy/Campus Expansion Access

03/22/2018












Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↶			↷	↷	
Traffic Volume (veh/h)	3	0	8	98	99	4
Future Volume (Veh/h)	3	0	8	98	99	4
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83
Hourly flow rate (vph)	4	0	10	118	119	5
<b>Pedestrians</b>						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (ft)						793
pX, platoon unblocked						
vC, conflicting volume	260	122	124			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	260	122	124			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	99	100	99			
cM capacity (veh/h)	729	935	1475			
<b>Direction, Lane #</b>	<b>EB 1</b>	<b>NB 1</b>	<b>SB 1</b>			
Volume Total	4	128	124			
Volume Left	4	10	0			
Volume Right	0	0	5			
cSH	729	1475	1700			
Volume to Capacity	0.01	0.01	0.07			
Queue Length 95th (ft)	0	1	0			
Control Delay (s)	10.0	0.6	0.0			
Lane LOS	A	A				
Approach Delay (s)	10.0	0.6	0.0			
Approach LOS	A					
<b>Intersection Summary</b>						
Average Delay			0.5			
Intersection Capacity Utilization			21.8%	ICU Level of Service	A	
Analysis Period (min)			15			

# HCM Unsignalized Intersection Capacity Analysis

## 5: Providence Dr & New Campus Expansion

03/22/2018

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	5	4	102	15	15	84
Future Volume (Veh/h)	5	4	102	15	15	84
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.25	0.25	0.25	0.25	0.25	0.25
Hourly flow rate (vph)	20	16	408	60	60	336
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage (veh)						
Upstream signal (ft)						1093
pX, platoon unblocked						
vC, conflicting volume	894	438			468	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	894	438			468	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	93	97			95	
cM capacity (veh/h)	297	623			1104	
Direction, Lane #	WB 1	NB 1	SB 1			
Volume Total	36	468	396			
Volume Left	20	0	60			
Volume Right	16	60	0			
cSH	387	1700	1104			
Volume to Capacity	0.09	0.28	0.05			
Queue Length 95th (ft)	8	0	4			
Control Delay (s)	15.3	0.0	1.8			
Lane LOS	C		A			
Approach Delay (s)	15.3	0.0	1.8			
Approach LOS	C					
Intersection Summary						
Average Delay			1.4			
Intersection Capacity Utilization		21.9%		ICU Level of Service		A
Analysis Period (min)			15			

# HCM Unsignalized Intersection Capacity Analysis

## 6: Providence Dr & PNMC Truck Dw

03/22/2018

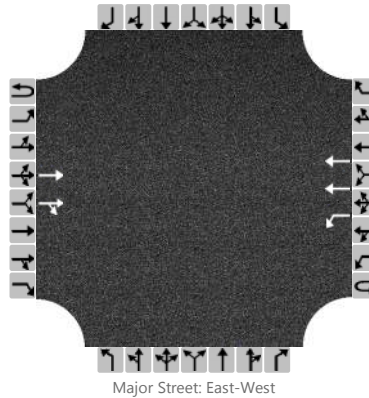


Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	Y			↑	↑	
Traffic Volume (veh/h)	6	2	3	111	80	9
Future Volume (Veh/h)	6	2	3	111	80	9
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.78	0.78	0.78	0.78	0.78	0.78
Hourly flow rate (vph)	8	3	4	142	103	12
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (ft)					1143	
pX, platoon unblocked						
vC, conflicting volume	259	109	115			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	259	109	115			
tC, single (s)	6.8	6.7	4.1			
tC, 2 stage (s)						
tF (s)	3.9	3.8	2.2			
p0 queue free %	99	100	100			
cM capacity (veh/h)	653	829	1487			
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total	11	146	115			
Volume Left	8	4	0			
Volume Right	3	0	12			
cSH	693	1487	1700			
Volume to Capacity	0.02	0.00	0.07			
Queue Length 95th (ft)	1	0	0			
Control Delay (s)	10.3	0.2	0.0			
Lane LOS	B	A				
Approach Delay (s)	10.3	0.2	0.0			
Approach LOS	B					
Intersection Summary						
Average Delay			0.5			
Intersection Capacity Utilization			18.3%	ICU Level of Service	A	
Analysis Period (min)			15			

# HCS 2010 Two-Way Stop Control Summary Report

General Information		Site Information	
Analyst	Kittelson & Associates	Intersection	OR 99 W/PNMC Access
Agency/Co.	City of Newberg	Jurisdiction	Newberg, Oregon
Date Performed	3/20/2018	East/West Street	OR 99W
Analysis Year	2020	North/South Street	Right-In, Left-Out Access
Time Analyzed	Total Traffic AM	Peak Hour Factor	0.89
Intersection Orientation	East-West	Analysis Time Period (hrs)	0.25
Project Description	Newberg Providence Medical Center		

## Lanes



## Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Priority																
Number of Lanes	0	0	2	0	0	1	2	0		0	0	0		0	0	0
Configuration			T	TR		L	T									
Volume (veh/h)			1795	51		18	1095									
Percent Heavy Vehicles						3										
Proportion Time Blocked																
Right Turn Channelized	No				No				No				No			
Median Type	Undivided															
Median Storage																

## Delay, Queue Length, and Level of Service

Flow Rate (veh/h)					20											
Capacity					261											
v/c Ratio					0.08											
95% Queue Length					0.2											
Control Delay (s/veh)					19.9											
Level of Service (LOS)					C											
Approach Delay (s/veh)					0.3											
Approach LOS																

# HCS 2010 Roundabout Report

General Information					Site Information				
Analyst	Kittelson & Associates, Inc.				Intersection	Werth Blvd/Providence Dr/Hayes St			
Agency or Co.	City of Newberg				E/W Street Name	Providence Dr/Hayes St			
Date Performed	3/20/2018				N/S Street Name	Werth Blvd			
Analysis Year	2020				Analysis Time Period (hrs)	0.25			
Time Period	Total Traffic AM				Peak Hour Factor	0.78			
Project Description	Newberg Providence Medical Center				Jurisdiction	Newberg, OR			

Volume Adjustment and Site Characteristics																
Approach	EB				WB				NB				SB			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement																
Number of Lanes (N)	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0
Lane Assignment			LTR				LTR				LTR				LTR	
Volume (V), veh/h	0	1	98	4	0	19	30	1	0	2	0	10	0	2	1	2
Percent Heavy Vehicles, %	0	0	3	0	0	0	6	100	0	0	0	0	0	0	100	0
Flow Rate (vPCE) pc/h	0	1	129	5	0	24	41	3	0	3	0	13	0	3	3	3
Right-Turn Bypass	None				None				None				None			
Conflicting Lanes	1				1				1				1			
Pedestrians Crossing	1				1				0				2			

Critical and Follow-Up Headway Adjustment													
Approach	EB			WB			NB			SB			
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	
Critical Headway (sec)		5.1929			5.1929			5.1929			5.1929		
Follow-Up Headway (sec)		3.1858			3.1858			3.1858			3.1858		












Flow Computations, Capacity and v/c Ratios													
Approach	EB			WB			NB			SB			
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	
Entry Flow (Ve), pc/h		135			68			16			9		
Entry Volume veh/h		131			64			16			8		
Circulating Flow (Vc), pc/h	30			4			133			68			
Exiting Flow (Vex), pc/h	145			47			4			32			
Capacity (cPCE), pc/h		1097			1126			989			1056		
Capacity (c), veh/h		1066			1062			989			880		
v/c Ratio (X)		0.12			0.06			0.02			0.01		

Delay and Level of Service													
Approach	EB			WB			NB			SB			
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	
Lane Control Delay (d), s/veh		4.5			3.9			3.8			4.2		
Lane LOS		A			A			A			A		
95% Queue		0.4			0.2			0.0			0.0		
Approach Delay, s/veh	4.5			3.9			3.8			4.2			
Approach LOS	A			A			A			A			
Intersection Delay, s/veh / LOS	4.2						A						

# HCM Unsignalized Intersection Capacity Analysis

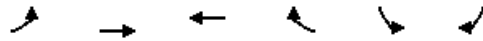
## 9: Brutscher St & Werth Blvd

03/22/2018

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	12	2	114	15	1	58
Future Volume (Veh/h)	12	2	114	15	1	58
Sign Control	Stop		Free		Free	
Grade	0%		0%		0%	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80
Hourly flow rate (vph)	15	3	143	19	1	73
Pedestrians	1					
Lane Width (ft)	12.0					
Walking Speed (ft/s)	3.5					
Percent Blockage	0					
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	228	154			163	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	228	154			163	
tC, single (s)	6.4	7.2			5.1	
tC, 2 stage (s)						
tF (s)	3.5	4.2			3.1	
p0 queue free %	98	100			100	
cM capacity (veh/h)	763	688			987	
Direction, Lane #	WB 1	WB 2	NB 1	SB 1	SB 2	
Volume Total	15	3	162	1	73	
Volume Left	15	0	0	1	0	
Volume Right	0	3	19	0	0	
cSH	763	688	1700	987	1700	
Volume to Capacity	0.02	0.00	0.10	0.00	0.04	
Queue Length 95th (ft)	2	0	0	0	0	
Control Delay (s)	9.8	10.3	0.0	8.7	0.0	
Lane LOS	A	B		A		
Approach Delay (s)	9.9		0.0	0.1		
Approach LOS	A					
Intersection Summary						
Average Delay			0.7			
Intersection Capacity Utilization			17.1%	ICU Level of Service	A	
Analysis Period (min)	15					

HCM Unsignalized Intersection Capacity Analysis  
 10: E Fernwood Rd & Brutscher St

03/22/2018















Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↶	↷	↷		↶	↷
Traffic Volume (veh/h)	79	44	105	50	21	49
Future Volume (Veh/h)	79	44	105	50	21	49
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84
Hourly flow rate (vph)	94	52	125	60	25	58
Pedestrians			1		1	
Lane Width (ft)			12.0		12.0	
Walking Speed (ft/s)			3.5		3.5	
Percent Blockage			0		0	
Right turn flare (veh)						
Median type		None	None			
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	186				397	156
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	186				397	156
tC, single (s)	4.2				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.3				3.5	3.3
p0 queue free %	93				96	93
cM capacity (veh/h)	1363				560	884
Direction, Lane #	EB 1	EB 2	WB 1	SB 1	SB 2	
Volume Total	94	52	185	25	58	
Volume Left	94	0	0	25	0	
Volume Right	0	0	60	0	58	
cSH	1363	1700	1700	560	884	
Volume to Capacity	0.07	0.03	0.11	0.04	0.07	
Queue Length 95th (ft)	6	0	0	3	5	
Control Delay (s)	7.8	0.0	0.0	11.7	9.4	
Lane LOS	A			B	A	
Approach Delay (s)	5.0		0.0	10.1		
Approach LOS				B		
Intersection Summary						
Average Delay			3.8			
Intersection Capacity Utilization			26.5%	ICU Level of Service		A
Analysis Period (min)			15			

# Queues

## 1: Providence Dr & N Hwy 99W

03/22/2018

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	105	1179	41	92	2018	206	143	37	171	220	14	79
v/c Ratio	0.44	0.59	0.04	0.50	1.09	0.23	0.68	0.29	0.66	1.05	0.11	0.39
Control Delay	61.9	19.6	0.1	67.2	78.8	6.0	69.6	65.8	22.7	128.5	60.2	10.1
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	61.9	19.6	0.1	67.2	78.8	6.0	69.6	65.8	22.7	128.5	60.2	10.1
Queue Length 50th (ft)	90	328	0	80	~1061	26	120	33	7	~212	12	0
Queue Length 95th (ft)	150	472	0	137	#1294	74	182	68	80	#324	34	28
Internal Link Dist (ft)		676			463			180			257	
Turn Bay Length (ft)	150		100	230		300	160		160	350		150
Base Capacity (vph)	238	1995	928	185	1855	905	209	369	442	210	371	393
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	0.44	0.59	0.04	0.50	1.09	0.23	0.68	0.10	0.39	1.05	0.04	0.20

### 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.



# HCM Signalized Intersection Capacity Analysis

## 1: Providence Dr & N Hwy 99W

03/22/2018

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	100	1120	39	87	1917	196	136	35	162	209	13	75
Future Volume (vph)	100	1120	39	87	1917	196	136	35	162	209	13	75
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Grade (%)		-3%			2%			3%			2%	
Total Lost time (s)	6.0	6.0	6.0	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00	0.98	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	1.00	1.00
Fr <sub>t</sub>	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Fl <sub>t</sub> 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)	1687	3309	1478	1646	3227	1473	1619	1724	1465	1646	1732	1452
Fl <sub>t</sub> Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.75	1.00	1.00	0.73	1.00	1.00
Satd. Flow (perm)	1687	3309	1478	1646	3227	1473	1275	1724	1465	1270	1732	1452
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)	105	1179	41	92	2018	206	143	37	171	220	14	79
RTOR Reduction (vph)	0	0	16	0	0	58	0	0	151	0	0	73
Lane Group Flow (vph)	105	1179	25	92	2018	148	143	37	20	220	14	6
Confl. Peds. (#/hr)							1					1
Confl. Bikes (#/hr)			2									
Heavy Vehicles (%)	0%	2%	0%	0%	2%	0%	1%	0%	0%	0%	0%	0%
Turn Type	Prot	NA	Perm	Prot	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			2			6	8		8	4		4
Actuated Green, G (s)	19.8	84.4	84.4	15.8	80.4	80.4	20.3	10.3	10.3	20.3	10.3	10.3
Effective Green, g (s)	19.8	84.4	84.4	15.8	80.4	80.4	20.3	10.3	10.3	20.3	10.3	10.3
Actuated g/C Ratio	0.14	0.60	0.60	0.11	0.57	0.57	0.15	0.07	0.07	0.15	0.07	0.07
Clearance Time (s)	6.0	6.0	6.0	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Vehicle Extension (s)	4.0	5.0	5.0	4.0	4.0	4.0	3.0	4.0	4.0	3.0	4.0	4.0
Lane Grp Cap (vph)	238	1994	891	185	1853	845	209	126	107	211	127	106
v/s Ratio Prot	c0.06	c0.36		0.06	c0.63		0.05	0.02		c0.07	0.01	
v/s Ratio Perm			0.02			0.10	0.05		0.01	c0.08		0.00
v/c Ratio	0.44	0.59	0.03	0.50	1.09	0.17	0.68	0.29	0.19	1.04	0.11	0.05
Uniform Delay, d1	55.0	17.2	11.2	58.4	29.8	14.1	56.2	61.4	60.9	59.2	60.6	60.3
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	1.8	1.3	0.1	2.9	49.7	0.5	8.9	1.8	1.2	73.6	0.5	0.3
Delay (s)	56.8	18.5	11.3	61.2	79.5	14.6	65.1	63.2	62.1	132.8	61.1	60.6
Level of Service	E	B	B	E	E	B	E	E	E	F	E	E
Approach Delay (s)		21.3			73.0			63.4			111.4	
Approach LOS		C			E			E			F	

### Intersection Summary

HCM 2000 Control Delay	59.1	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.98		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	19.5
Intersection Capacity Utilization	95.3%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

# HCM Unsignalized Intersection Capacity Analysis

## 2: Providence Dr & PNMC North Dwy

03/22/2018



















Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	116	5	2	217	119	20
Future Volume (Veh/h)	116	5	2	217	119	20
Sign Control	Stop			Free	Free	
Grade	0%			3%	-3%	
Peak Hour Factor	0.71	0.71	0.71	0.71	0.71	0.71
Hourly flow rate (vph)	163	7	3	306	168	28
Pedestrians	3					
Lane Width (ft)	12.0					
Walking Speed (ft/s)	3.5					
Percent Blockage	0					
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (ft)						260
pX, platoon unblocked						
vC, conflicting volume	497	185	199			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	497	185	199			
tC, single (s)	6.4	6.2	4.6			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.7			
p0 queue free %	69	99	100			
cM capacity (veh/h)	533	860	1129			
<b>Direction, Lane #</b>	<b>EB 1</b>	<b>NB 1</b>	<b>SB 1</b>			
Volume Total	170	309	196			
Volume Left	163	3	0			
Volume Right	7	0	28			
cSH	542	1129	1700			
Volume to Capacity	0.31	0.00	0.12			
Queue Length 95th (ft)	33	0	0			
Control Delay (s)	14.7	0.1	0.0			
Lane LOS	B	A				
Approach Delay (s)	14.7	0.1	0.0			
Approach LOS	B					
<b>Intersection Summary</b>						
Average Delay			3.7			
Intersection Capacity Utilization			26.4%	ICU Level of Service	A	
Analysis Period (min)			15			

# HCM Unsignalized Intersection Capacity Analysis

## 3: Providence Dr & PNMC Middle Dwy

03/22/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	35	0	39	4	0	38	3	146	1	11	110	3
Future Volume (Veh/h)	35	0	39	4	0	38	3	146	1	11	110	3
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.75	0.92	0.75	0.92	0.92	0.92	0.75	0.75	0.92	0.92	0.75	0.75
Hourly flow rate (vph)	47	0	52	4	0	41	4	195	1	12	147	4
Pedestrians		3										
Lane Width (ft)		12.0										
Walking Speed (ft/s)		3.5										
Percent Blockage		0										
Right turn flare (veh)												
Median type								None			None	
Median storage (veh)												
Upstream signal (ft)											680	
pX, platoon unblocked												
vC, conflicting volume	420	380	152	428	382	196	154			196		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	420	380	152	428	382	196	154			196		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	91	100	94	99	100	95	100			99		
cM capacity (veh/h)	508	544	897	500	543	846	1435			1377		
<b>Direction, Lane #</b>	<b>EB 1</b>	<b>WB 1</b>	<b>NB 1</b>	<b>SB 1</b>								
Volume Total	99	45	200	163								
Volume Left	47	4	4	12								
Volume Right	52	41	1	4								
cSH	658	797	1435	1377								
Volume to Capacity	0.15	0.06	0.00	0.01								
Queue Length 95th (ft)	13	4	0	1								
Control Delay (s)	11.4	9.8	0.2	0.6								
Lane LOS	B	A	A	A								
Approach Delay (s)	11.4	9.8	0.2	0.6								
Approach LOS	B	A										
<b>Intersection Summary</b>												
Average Delay			3.4									
Intersection Capacity Utilization			29.7%		ICU Level of Service					A		
Analysis Period (min)			15									

# HCM Unsignalized Intersection Capacity Analysis

## 4: Providence Dr & PNMC South Dwy/Campus Expansion Access

03/22/2018












Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	16	14	3	134	151	2
Future Volume (Veh/h)	16	14	3	134	151	2
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.77	0.77	0.77	0.77	0.77	0.77
Hourly flow rate (vph)	21	18	4	174	196	3
Pedestrians	4					
Lane Width (ft)	12.0					
Walking Speed (ft/s)	3.5					
Percent Blockage	0					
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (ft)					793	
pX, platoon unblocked						
vC, conflicting volume	384	202	203			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	384	202	203			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	97	98	100			
cM capacity (veh/h)	619	841	1376			
<b>Direction, Lane #</b>	<b>EB 1</b>	<b>NB 1</b>	<b>SB 1</b>			
Volume Total	39	178	199			
Volume Left	21	4	0			
Volume Right	18	0	3			
cSH	705	1376	1700			
Volume to Capacity	0.06	0.00	0.12			
Queue Length 95th (ft)	4	0	0			
Control Delay (s)	10.4	0.2	0.0			
Lane LOS	B	A				
Approach Delay (s)	10.4	0.2	0.0			
Approach LOS	B					
<b>Intersection Summary</b>						
Average Delay			1.1			
Intersection Capacity Utilization			19.5%	ICU Level of Service	A	
Analysis Period (min)			15			

# HCM Unsignalized Intersection Capacity Analysis

## 5: Providence Dr & New Campus Expansion










03/22/2018

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	12	13	124	3	4	161
Future Volume (Veh/h)	12	13	124	3	4	161
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.25	0.25	0.25	0.25	0.25	0.25
Hourly flow rate (vph)	48	52	496	12	16	644
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage (veh)						
Upstream signal (ft)						1093
pX, platoon unblocked						
vC, conflicting volume	1178	502			508	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1178	502			508	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	77	91			99	
cM capacity (veh/h)	210	573			1067	
Direction, Lane #	WB 1	NB 1	SB 1			
Volume Total	100	508	660			
Volume Left	48	0	16			
Volume Right	52	12	0			
cSH	313	1700	1067			
Volume to Capacity	0.32	0.30	0.01			
Queue Length 95th (ft)	34	0	1			
Control Delay (s)	21.8	0.0	0.4			
Lane LOS	C		A			
Approach Delay (s)	21.8	0.0	0.4			
Approach LOS	C					
Intersection Summary						
Average Delay			1.9			
Intersection Capacity Utilization		21.7%		ICU Level of Service		A
Analysis Period (min)			15			

# HCM Unsignalized Intersection Capacity Analysis

## 6: Providence Dr & PNMC Truck Dwy

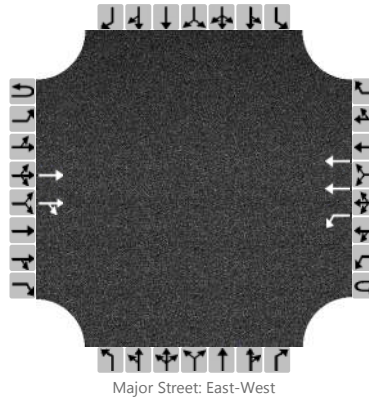
03/22/2018

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	1	3	2	126	171	2
Future Volume (Veh/h)	1	3	2	126	171	2
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.76	0.76	0.76	0.76	0.76	0.76
Hourly flow rate (vph)	1	4	3	166	225	3
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (ft)	1143					
pX, platoon unblocked						
vC, conflicting volume	398	226	228			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	398	226	228			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	100	100			
cM capacity (veh/h)	610	818	1352			
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total	5	169	228			
Volume Left	1	3	0			
Volume Right	4	0	3			
cSH	766	1352	1700			
Volume to Capacity	0.01	0.00	0.13			
Queue Length 95th (ft)	0	0	0			
Control Delay (s)	9.7	0.2	0.0			
Lane LOS	A	A				
Approach Delay (s)	9.7	0.2	0.0			
Approach LOS	A					
Intersection Summary						
Average Delay			0.2			
Intersection Capacity Utilization			19.1%	ICU Level of Service	A	
Analysis Period (min)	15					

# HCS 2010 Two-Way Stop Control Summary Report

General Information				Site Information			
Analyst	Kittelson & Associates			Intersection	OR 99 W/PNMC Access		
Agency/Co.	City of Newberg			Jurisdiction	Newberg, Oregon		
Date Performed	3/20/2018			East/West Street	OR 99W		
Analysis Year	2020			North/South Street	Right-In, Left-Out Access		
Time Analyzed	Total Traffic PM			Peak Hour Factor	0.97		
Intersection Orientation	East-West			Analysis Time Period (hrs)	0.25		
Project Description	Newberg Providence Medical Center						

## Lanes



## Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	2	0	0	1	2	0		0	0	0		0	0	0
Configuration			T	TR		L	T									
Volume (veh/h)			1270	20		2	2055									
Percent Heavy Vehicles						3										
Proportion Time Blocked																
Right Turn Channelized	No				No				No				No			
Median Type	Undivided															
Median Storage																

## Delay, Queue Length, and Level of Service

Flow Rate (veh/h)						2										
Capacity						510										
v/c Ratio						0.00										
95% Queue Length						0.0										
Control Delay (s/veh)						12.1										
Level of Service (LOS)						B										
Approach Delay (s/veh)					0.0											
Approach LOS																

# HCS 2010 Roundabout Report

General Information					Site Information				
Analyst	Kittelson & Associates, Inc.				Intersection	Werth Blvd/Providence Dr/Hayes St			
Agency or Co.	City of Newberg				E/W Street Name	Providence Dr/Hayes St			
Date Performed	3/20/2018				N/S Street Name	Werth Blvd			
Analysis Year	2020				Analysis Time Period (hrs)	0.25			
Time Period	Total Traffic PM				Peak Hour Factor	0.79			
Project Description	Newberg Providence Medical Center				Jurisdiction	Newberg, OR			

Volume Adjustment and Site Characteristics																
Approach	EB				WB				NB				SB			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Number of Lanes (N)	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0
Lane Assignment	LTR				LTR				LTR				LTR			
Volume (V), veh/h	0	4	59	7	0	19	145	0	0	10	0	27	0	0	1	2
Percent Heavy Vehicles, %	0	0	2	0	0	0	1	0	0	0	0	0	0	0	0	0
Flow Rate (vPCE) pc/h	0	5	76	9	0	24	185	0	0	13	0	34	0	0	1	3
Right-Turn Bypass	None				None				None				None			
Conflicting Lanes	1				1				1				1			
Pedestrians Crossing	0				2				1				1			

Critical and Follow-Up Headway Adjustment													
Approach	EB			WB			NB			SB			
Movement	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	
Critical Headway (sec)		5.1929			5.1929			5.1929			5.1929		
Follow-Up Headway (sec)		3.1858			3.1858			3.1858			3.1858		

Flow Computations, Capacity and v/c Ratios												
Approach	EB			WB			NB			SB		
Movement	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Entry Flow (Ve), pc/h		90			209			47			4	
Entry Volume veh/h		89			207			47			4	
Circulating Flow (Vc), pc/h	25			18			81			222		
Exiting Flow (Vex), pc/h	110			201			5			34		
Capacity (cPCE), pc/h		1102			1110			1042			905	
Capacity (c), veh/h		1084			1100			1042			905	
v/c Ratio (X)		0.08			0.19			0.05			0.00	












Delay and Level of Service												
Approach	EB			WB			NB			SB		
Movement	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Lane Control Delay (d), s/veh		4.0			5.0			3.8			4.0	
Lane LOS		A			A			A			A	
95% Queue		0.3			0.7			0.1			0.0	
Approach Delay, s/veh	4.0			5.0			3.8			4.0		
Approach LOS	A			A			A			A		
Intersection Delay, s/veh / LOS	4.6						A					



# HCM Unsignalized Intersection Capacity Analysis

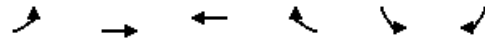
## 9: Brutscher St & Werth Blvd

03/22/2018

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	24	7	141	20	4	248
Future Volume (Veh/h)	24	7	141	20	4	248
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	26	8	153	22	4	270
Pedestrians	8					1
Lane Width (ft)	12.0					12.0
Walking Speed (ft/s)	3.5					3.5
Percent Blockage	1					0
Right turn flare (veh)						
Median type			None			None
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	450	173			183	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	450	173			183	
tC, single (s)	6.4	6.4			4.3	
tC, 2 stage (s)						
tF (s)	3.5	3.5			2.4	
p0 queue free %	95	99			100	
cM capacity (veh/h)	564	826			1255	
Direction, Lane #	WB 1	WB 2	NB 1	SB 1	SB 2	
Volume Total	26	8	175	4	270	
Volume Left	26	0	0	4	0	
Volume Right	0	8	22	0	0	
cSH	564	826	1700	1255	1700	
Volume to Capacity	0.05	0.01	0.10	0.00	0.16	
Queue Length 95th (ft)	4	1	0	0	0	
Control Delay (s)	11.7	9.4	0.0	7.9	0.0	
Lane LOS	B	A		A		
Approach Delay (s)	11.1		0.0	0.1		
Approach LOS	B					
Intersection Summary						
Average Delay			0.8			
Intersection Capacity Utilization			23.4%	ICU Level of Service		A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis  
 10: E Fernwood Rd & Brutscher St

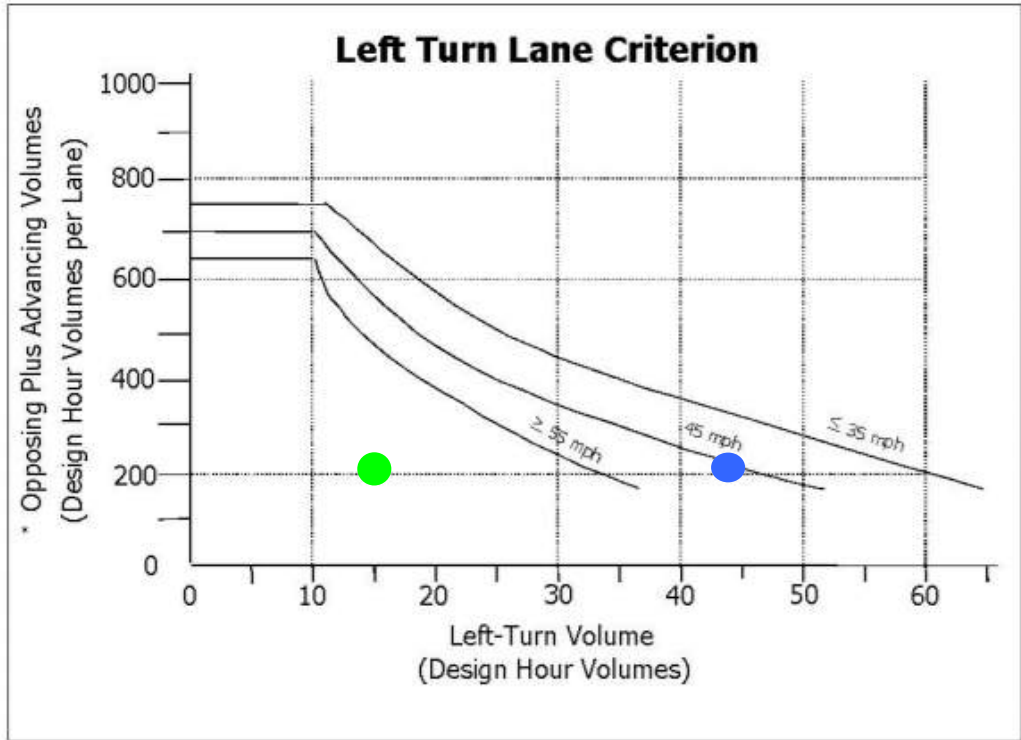
03/22/2018



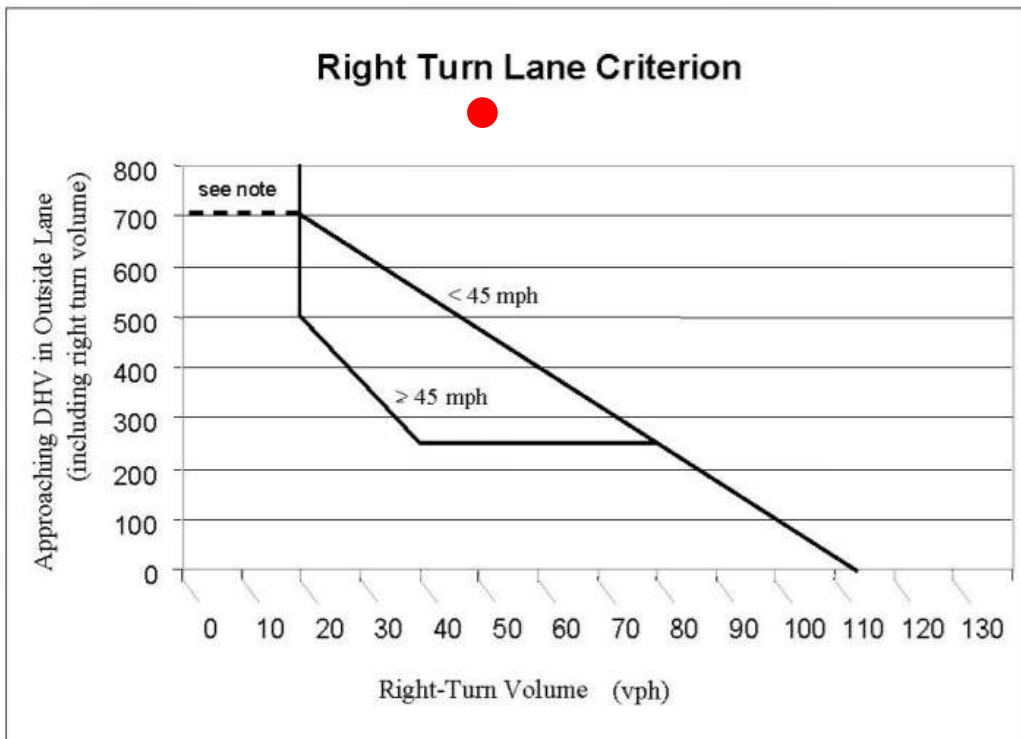
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↶	↷	↷		↶	↷
Traffic Volume (veh/h)	107	94	83	54	93	179
Future Volume (Veh/h)	107	94	83	54	93	179
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86
Hourly flow rate (vph)	124	109	97	63	108	208
Pedestrians			3		18	
Lane Width (ft)			12.0		12.0	
Walking Speed (ft/s)			3.5		3.5	
Percent Blockage			0		2	
Right turn flare (veh)						
Median type		None	None			
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	178				506	146
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	178				506	146
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	91				77	77
cM capacity (veh/h)	1386				469	888
Direction, Lane #	EB 1	EB 2	WB 1	SB 1	SB 2	
Volume Total	124	109	160	108	208	
Volume Left	124	0	0	108	0	
Volume Right	0	0	63	0	208	
cSH	1386	1700	1700	469	888	
Volume to Capacity	0.09	0.06	0.09	0.23	0.23	
Queue Length 95th (ft)	7	0	0	22	23	
Control Delay (s)	7.9	0.0	0.0	15.0	10.3	
Lane LOS	A			B	B	
Approach Delay (s)	4.2		0.0	11.9		
Approach LOS				B		
Intersection Summary						
Average Delay			6.7			
Intersection Capacity Utilization			31.7%	ICU Level of Service		A
Analysis Period (min)			15			

## Appendix F Turn Lane Warrant Worksheets

THIS PAGE INTENTIONALLY BLANK



- Intersection 3: Providence Drive/PNMC Middle Driveway (AM Peak highest)
- Intersection 5: Providence Drive/New Campus Expansion Access (AM Peak highest)



- Intersection 7: OR 99W/ PNMC Right-In, Left-In Only Access (Above Approaching DHV limit)

THIS PAGE INTENTIONALLY BLANK

## Appendix G Pedestrian Crossing Worksheets

THIS PAGE INTENTIONALLY BLANK



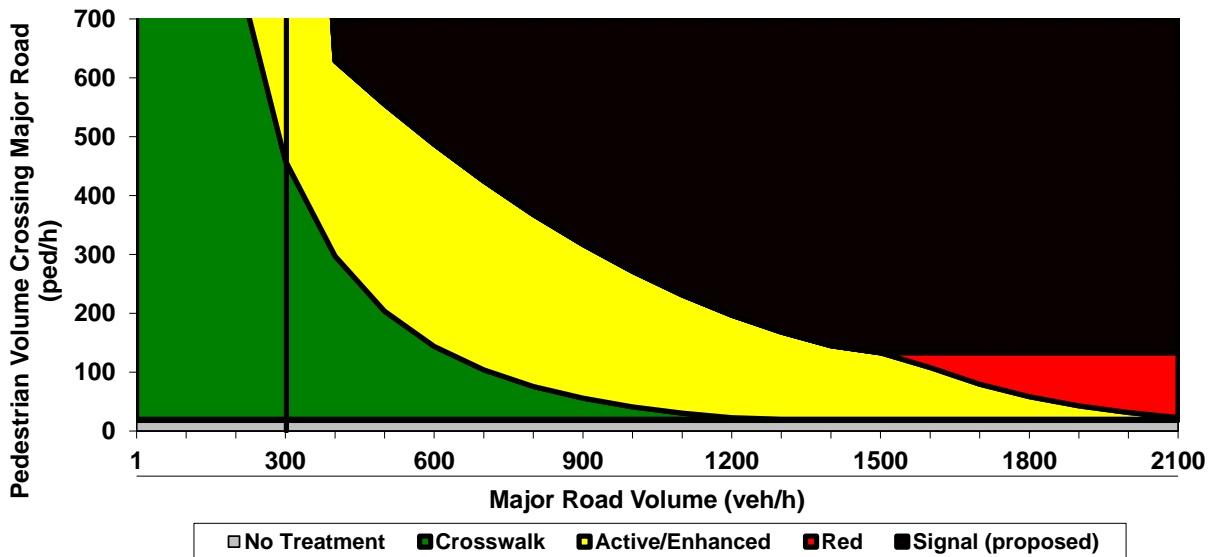
## GUIDELINES FOR PEDESTRIAN CROSSING TREATMENTS

This spreadsheet combines Worksheet 1 and Worksheet 2 (Appendix A, pages 69-70) of TCRP Report 112/NCHRP Report 562 (*Improving Pedestrian Safety at Unsignalized Intersections*) into an electronic format. This spreadsheet should be used in conjunction with, and not independent of, Appendix A documentation.

Blue fields contain descriptive information.
Green fields are required and must be completed.
Tan fields are adjustments that are filled out only under certain conditions (follow instructions to the left of the cell).
Gray fields are automatically calculated and should not be edited.

This spreadsheet is still under development, please inform TTI if errors are identified.

Analyst and Site Information			
Analyst	Chris Brehmer	Major Street	Providence Drive
Analysis Date	March 19, 2018	Minor Street or Location	Mid-block
Data Collection Date	February 6, 2018	Peak Hour	PM
Step 1: Select worksheet:			
Posted or statutory speed limit (or 85th percentile speed) on the major street (mph)	1a	25	
Is the population of the surrounding area <10,000? (enter <b>YES</b> or <b>NO</b> )	1b	NO	
Step 2: Does the crossing meet minimum pedestrian volumes to be considered for a traffic control device?			
Peak-hour pedestrian volume (ped/h), $V_p$	2a	18	
<b>Result: Consider raised median islands, curb extensions, traffic calming, etc. as feasible.</b>			
Step 3: Does the crossing meet the pedestrian warrant for a traffic signal?			
Major road volume, total of both approaches during peak hour (veh/h), $V_{maj-s}$	3a	302	
[Calculated automatically] Preliminary (before min. threshold) peak hour pedestrian volume to meet warrant	3b	706	
[Calculated automatically] Minimum required peak hour pedestrian volume to meet traffic signal warrant	3c	706	
Is 15th percentile crossing speed of pedestrians less than 3.5 ft/s (1.1 m/s)? (enter <b>YES</b> or <b>NO</b> )	3d	No	
If 15th percentile crossing speed of pedestrians is less than 3.5 ft/s (1.1 m/s), then reduce 3c by up to 50%.	% rate of reduction for 3c (up to 50%)	3e	
	Reduced value or 3c	3f	706
<b>Result:</b>			
Step 4: Estimate pedestrian delay.			
Pedestrian crossing distance, curb to curb (ft), L	4a	35	
Pedestrian walking speed (ft/s), $S_p$ (suggested speed = 3.5 ft/s)	4b	3.5	
Pedestrian start-up time and end clearance time (s), $t_s$ (suggested start-up time = 3 sec)	4c	3	
[Calculated automatically] Critical gap required for crossing pedestrian (s), $t_c$	4d	13	
Major road volume, total both approaches OR approach being crossed if raised median island is present, during peak hour (veh/h), $V_{maj-d}$	4e	302	
Major road flow rate (veh/s), v	4f	0.08	
Average pedestrian delay (s/person), $d_p$	4g	10	
Total pedestrian delay (h), $D_p$ The value in 4h is the calculated estimated delay for all pedestrians crossing the major roadway without a crossing treatment (assumes 0% compliance). If the actual total pedestrian delay has been measured at the site, that value can be entered in 4i to replace the calculated value in 4h.	4h	0.0	
	4i		
Step 5: Select treatment based up on total pedestrian delay and expected motorist compliance.			
Expected motorist compliance at pedestrian crossings in region: enter <b>HIGH for High Compliance</b> or <b>LOW for Low Compliance</b>	5a	HIGH	
<b>Treatment Category:</b>		<b>Consider raised median islands, curb extensions, traffic calming, etc. as feasible.</b>	



This worksheet provides general recommendations on pedestrian crossing treatments to consider at unsignalized intersections; in all cases, engineering judgment should be used in selecting a specific treatment for installation. This worksheet does not apply to school crossings. In addition to the results provided by this worksheet, users should consider whether a pedestrian treatment could present an increased safety risk to pedestrians, such as where there is poor sight distance, complex geometrics, or nearby traffic signals.

Appendix F  
Year 2020 Background with  
Reassigned Traffic Conditions  
Level of Service Worksheets

# HCS7 Roundabouts Report

General Information				Site Information			
Analyst	ZHB			Intersection	Springbrook/Crestview		
Agency or Co.	KAI			E/W Street Name	Crestview Dr		
Date Performed	10/21/2017			N/S Street Name	Springbrook Rd		
Analysis Year	2020			Analysis Time Period (hrs)	0.25		
Time Analyzed	Background with Reassigned Traffic AM			Peak Hour Factor	0.66		
Project Description	Crestview Crossing			Jurisdiction			

## Volume Adjustments and Site Characteristics

Approach	EB				WB				NB				SB			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement																
Number of Lanes (N)	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0
Lane Assignment	LTR				LTR				LTR				LTR			
Volume (V), veh/h	2	54	23	54	0	3	24	67	2	49	254	2	1	211	145	135
Percent Heavy Vehicles, %	9	9	13	3	0	0	0	0	2	2	4	0	25	25	4	7
Flow Rate (v <sub>PCE</sub> ), pc/h	3	89	39	84	0	5	36	102	3	76	400	3	2	400	228	219
Right-Turn Bypass	None				None				None				None			
Conflicting Lanes	1				1				1				1			
Pedestrians Crossing, p/h	0				0				0				0			

## Critical and Follow-Up Headway Adjustment

Approach	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Critical Headway (s)		4.9763			4.9763			4.9763			4.9763	
Follow-Up Headway (s)		2.6087			2.6087			2.6087			2.6087	

## Flow Computations, Capacity and v/c Ratios

Approach	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Entry Flow (v <sub>e</sub> ), pc/h		215			143			482			849	
Entry Volume veh/h		200			143			465			746	
Circulating Flow (v <sub>c</sub> ), pc/h	638			573			533			123		
Exiting Flow (v <sub>ex</sub> ), pc/h	442			334			593			320		
Capacity (c <sub>PCE</sub> ), pc/h		720			769			801			1217	
Capacity (c), veh/h		671			769			773			1069	
v/c Ratio (x)		0.30			0.19			0.60			0.70	

## Delay and Level of Service

Approach	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Lane Control Delay (d), s/veh		9.1			6.7			14.4			14.2	
Lane LOS		A			A			B			B	
95% Queue, veh		1.3			0.7			4.1			6.0	
Approach Delay, s/veh	9.1			6.7			14.4			14.2		
Approach LOS	A			A			B			B		
Intersection Delay, s/veh   LOS	12.9						B					

# HCM Unsignalized Intersection Capacity Analysis

## 2: Libra St & Crestview Dr

08/11/2018



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↶			↷	↶	↷
Traffic Volume (veh/h)	221	5	8	85	6	5
Future Volume (Veh/h)	221	5	8	85	6	5
Sign Control	Free			Free	Stop	
Grade	0%			0%	2%	
Peak Hour Factor	0.68	0.68	0.68	0.68	0.68	0.68
Hourly flow rate (vph)	325	7	12	125	9	7
<b>Pedestrians</b>						
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			332		478	328
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			332		478	328
tC, single (s)			4.1		6.6	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.7	3.3
p0 queue free %			99		98	99
cM capacity (veh/h)			1239		515	717
<b>Direction, Lane #</b>	<b>EB 1</b>	<b>WB 1</b>	<b>NB 1</b>			
Volume Total	332	137	16			
Volume Left	0	12	9			
Volume Right	7	0	7			
cSH	1700	1239	587			
Volume to Capacity	0.20	0.01	0.03			
Queue Length 95th (ft)	0	1	2			
Control Delay (s)	0.0	0.8	11.3			
Lane LOS		A	B			
Approach Delay (s)	0.0	0.8	11.3			
Approach LOS			B			
<b>Intersection Summary</b>						
Average Delay			0.6			
Intersection Capacity Utilization			21.9%	ICU Level of Service	A	
Analysis Period (min)			15			