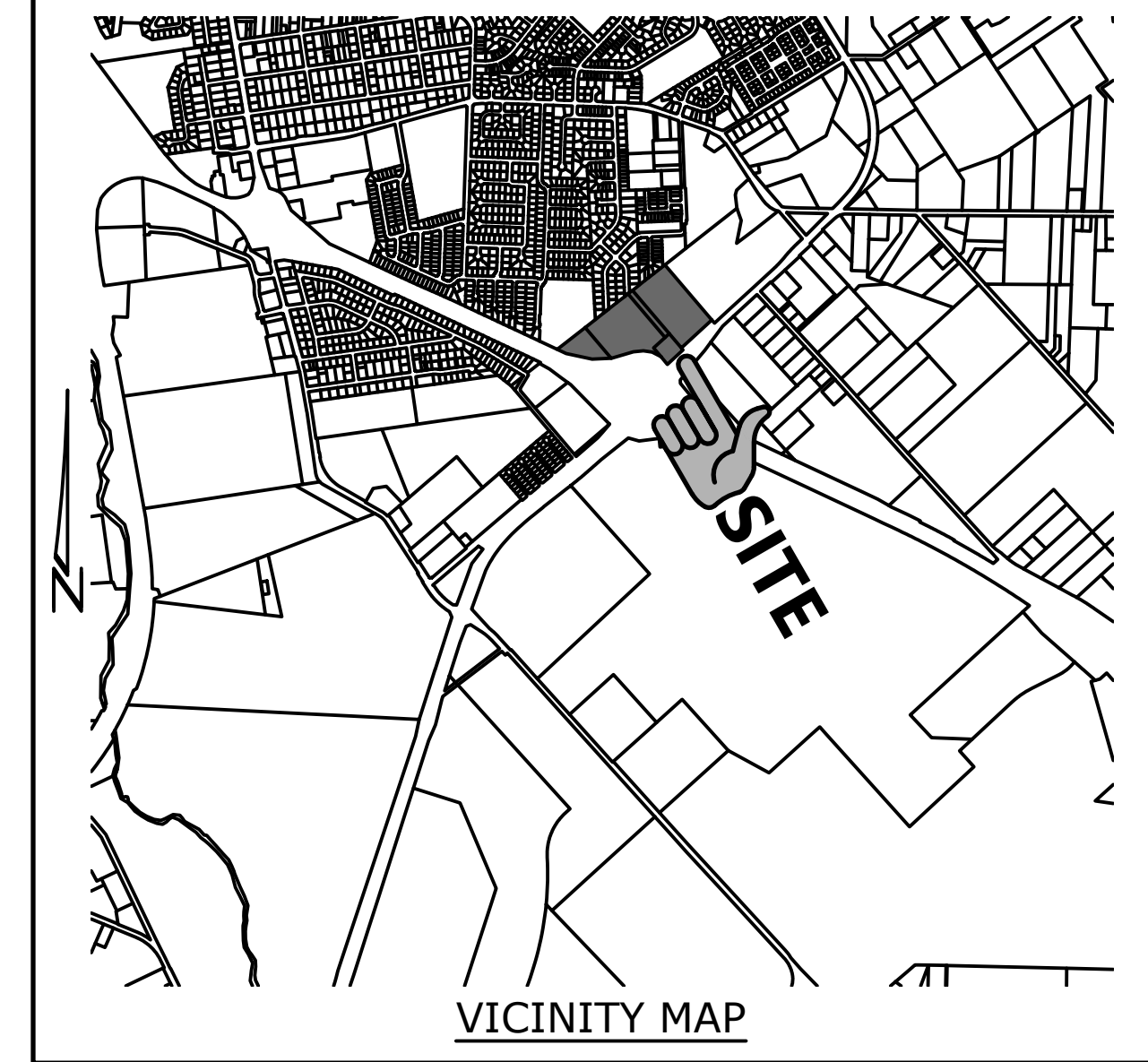
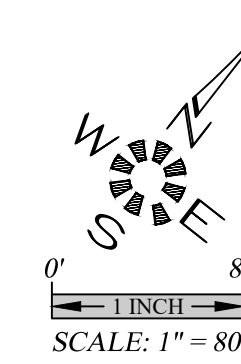


## **APPENDIX A: PROPOSED SITE PLAN**

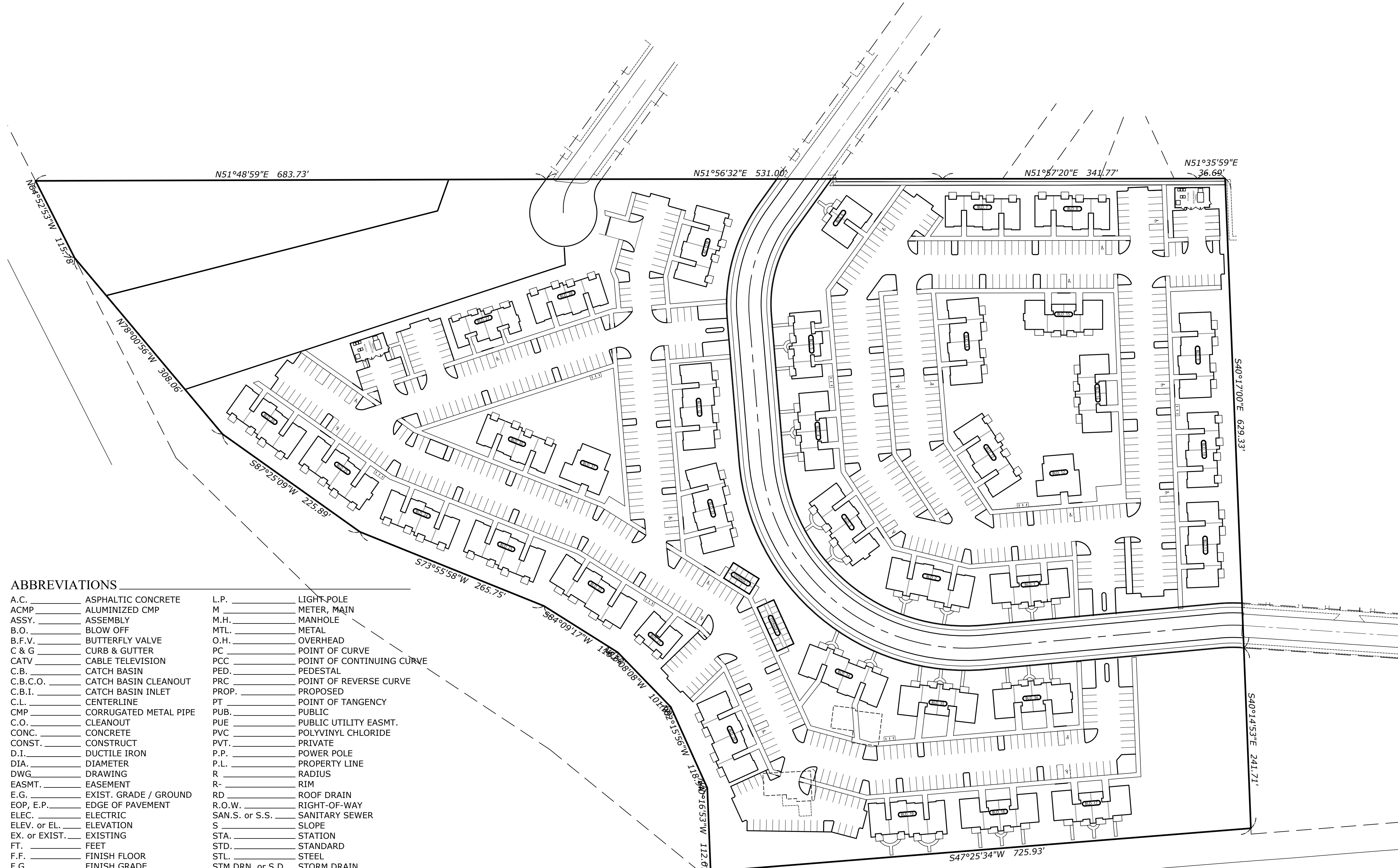
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# HAWK'S RIDGE APARTMENTS PH. 3

SEC. 5, T. 8 S., R. 2 W., W.M.  
CITY OF SALEM  
MARION COUNTY, OREGON



**T.B.M. 100.00**  
THIS IS THE DESCRIPTION & LOCATION OF THE T.B.M. ELEVATION MARKER.  
THIS IS THE DESCRIPTION & LOCATION OF THE NEAREST B.M. ELEVATION MARKER WITH THE ELEVATION OF THAT B.M.



ABBREVIATIONS	
A.C. ASPHALTIC CONCRETE	L.P. LIGHT-POLE
ACMP ALUMINIZED CMP	M METER, MAIN
ASSY. ASSEMBLY	M.H. MANHOLE
B.O. BLOW OFF	MTL. METAL
B.F.V. BUTTERFLY VALVE	O.H. OVERHEAD
C & G CURB & GUTTER	PC POINT OF CURVE
CATV CABLE TELEVISION	PCC POINT OF CONTINUING CURVE
C.B. CATCH BASIN	PED. PEDESTAL
C.B.C.O. CATCH BASIN CLEANOUT	PRC POINT OF REVERSE CURVE
C.B.I. CATCH BASIN INLET	PROP. PROPOSED
C.L. CENTERLINE	PT POINT OF TANGENCY
CMP CORRUGATED METAL PIPE	PUB. PUBLIC
C.O. CLEANOUT	PUE PUBLIC UTILITY EASMT.
CONC. CONCRETE	PVC POLYVINYL CHLORIDE
CONST. CONSTRUCT	PVT. PRIVATE
D.I. DUCTILE IRON	P.P. POWER POLE
DIA. DIAMETER	P.L. PROPERTY LINE
DWG. DRAWING	R RADIUS
EASMT. EASEMENT	R RIM
E.G. EXIST. GRADE / GROUND	RD ROOF DRAIN
EOP, E.P. EDGE OF PAVEMENT	R.O.W. RIGHT-OF-WAY
ELEC. ELECTRIC	SAN.S. or S.S. SANITARY SEWER
ELEV. or EL. ELEVATION	S SLOPE
EX. or EXIST. EXISTING	STA. STATION
FT. FEET	STD. STANDARD
F.F. FINISH FLOOR	STL. STEEL
F.G. FINISH GRADE	STM.DRN. or S.D. STORM DRAIN
F.H. FIRE HYDRANT	SVC. SERVICE
F.M. FORCE MAIN	SW SIDEWALK
GUT. or GTR. GUTTER	T.C. TOP OF CURB
G.V. GATE VALVE	TEL. TELEPHONE
IMP. IMPROVEMENT	TYP. TYPICAL
INST. INSERT	U.G. UNDERGROUND
INV. or I- INVERT	VL. VAULT
L LENGTH, LINE	W.M. WATER MAIN

SYMBOLS	
EXIST. PROP.	EXIST. PROP.
⊙ BLOW OFF ASSY.	⊙ MANHOLE SAN. SEWER
⊠ CATCH BASIN	⊙ MANHOLE STORM DRAIN
⊡ CATCH BASIN CLEANOUT	⊙ 2' DIA. C.O. / M.H.
⊞ CATCH BASIN INLET	⊙ MANHOLE TELEPHONE
⊠ CATCH BASIN INLET	⊙ MANHOLE WATER
⊠ CATV PED. / BOX	⊠ REDUCER / INCREASER
⊠ CLEANOUT	⊠ TEL. PED. / BOX
⊠ ELEC. PED. / BOX	⊠ TRAFFIC PED. / BOX
⊠ FIRE HYDRANT	⊠ UTILITY / POWER POLE
⊠ GAS LOCATION MARKER	⊠ WATER METER
⊠ GAS VALVE	⊠ WATER VALVE
⊠ MAIL BOX	
--- CABLE TELEVISION	--- SANITARY SEWER EXIST.
--- CENTERLINE	--- SANITARY SEWER PROP.
--- DITCH C.L.	--- STORM DRAIN EXIST.
--- ELECTRICAL LINE	--- STORM DRAIN PROP.
--- GAS MAIN	--- WATER MAIN EXIST.
--- TELEPHONE LINE	--- WATER MAIN PROP.

Owner / Developer:  
**KCH ENTERPRISES, LLC**  
10355 LIBERTY ROAD S  
SALEM, OREGON 97306

SHEET INDEX	
SDR1 COVER SHEET	L1.1 SCHEMATIC LANDSCAPE PLAN
SDR2 EXISTING CONDITIONS PLAN	
SDR3 SITE PLAN	
SDR4 OPEN SPACE PLAN	
SDR5 GRADING PLAN	
SDR6 PRIVATE STORM DRAIN PLAN	
SDR7 PRIVATE SANITARY SEWER PLAN	
SDR8 PRIVATE DOMESTIC WATER PLAN	
SDR9 PRIVATE FIRE SERVICE PLAN	
<b>BUILDING 1 (TYPE "D" UNITS)</b>	<b>BUILDING 5 (TYPES "C" &amp; "E" UNITS)</b>
A1.3 LOWER FLOOR PLAN	A5.3 LOWER FLOOR PLAN
A1.4 MIDDLE & UPPER FLOOR PLAN	A5.4 MIDDLE FLOOR PLAN
A1.8 BUILDING ELEVATIONS	A5.5 UPPER FLOOR PLAN
	A5.9 BUILDING ELEVATIONS
<b>BUILDING 2 (TYPES "A" &amp; "B" UNITS)</b>	<b>BUILDING 6 (TYPES "A" &amp; "B" UNITS)</b>
A2.3 LOWER FLOOR PLAN	A6.3 LOWER FLOOR PLAN
A2.4 UPPER FLOOR PLAN	A6.4 MIDDLE & UPPER FLOOR PLAN
A2.8 BUILDING ELEVATIONS	A6.8 BUILDING ELEVATIONS
<b>BUILDING 3 (TYPE "D" UNITS)</b>	<b>BUILDING 7 (TYPES "C" UNITS)</b>
A3.3 LOWER FLOOR PLAN	A8.3 LOWER FLOOR PLAN
A3.4 MIDDLE & UPPER FLOOR PLAN	A8.4 MIDDLE FLOOR PLAN
A3.8 BUILDING ELEVATIONS	A8.5 UPPER FLOOR PLAN
	A8.9 BUILDING ELEVATIONS
<b>BUILDING 4 (TYPES "A" &amp; "B" UNITS)</b>	<b>BUILDING 8 (RECREATION BUILDING)</b>
A4.3 LOWER FLOOR PLAN	A7.3 LOWER FLOOR PLAN
A4.4 MIDDLE & UPPER FLOOR PLAN	A7.6 BUILDING ELEVATIONS
A4.8 BUILDING ELEVATIONS	

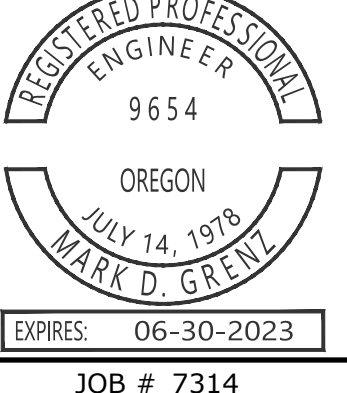
MULTI/TECH  
ENGINEERING SERVICES, INC.  
1155 13th ST., S.E. SALEM, OR, 97302  
PH. (503) 365-9227 FAX (503) 364-1260  
www.etsengineering.net office@etsengineering.net

COVER SHEET

HAWK'S RIDGE APARTMENTS  
PH. 3

NO CHANGES, MODIFICATIONS TO BE MADE TO THESE DRAWINGS WITHOUT WRITTEN AUTHORIZATION FROM THE DESIGN ENGINEER.  
DIMENSIONS & NOTES TAKE PRECEDENCE OVER GRAPHICAL REPRESENTATION.

Design: M.D.G.  
Drawn: A.R.T.  
Checked: B.M.G.  
Date: SEPT. 2021  
Scale: AS SHOWN



SDR1

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**SITE PLAN AREA 1:**

**174 TOTAL APARTMENT UNITS**

- 36 TYPE "A" 2-Bd, 1-Ba (903 S.F.) UNITS**
- 24 TYPE "B" 2-Bd, 2-Ba (1005 S.F.) UNITS**
- 54 TYPE "C" 2-Bd, 2-Ba (1139 S.F.) UNITS**
- 24 TYPE "D" 3-Bd, 2-Ba (1127 S.F.) UNITS**
- 36 TYPE "E" 1-Bd, 1-Ba (728 S.F.) UNITS**

**351 TOTAL PARKING STALLS**

- 297 STANDARD STALLS**
- 44 COMPACT STALLS**
- 10 HANDICAP STALLS**

- 1 12'x20' LOADING ZONE**
- 18 BICYCLE SPACES IN 3 RACKS (REQUIRED)**
- 1 RECREATION BUILDINGS**
- 1 TRASH COMPACTOR / RECYCLE**
- 1 REC. AREAS**
- 1 U.S. MAIL BOX AREA**
- 1 KEY GATE ENTRY'S**

**SITE PLAN AREA 2:**

**222 TOTAL APARTMENT UNITS**

- 42 TYPE "A" 2-Bd, 1-Ba (903 S.F.) UNITS**
- 60 TYPE "B" 2-Bd, 2-Ba (1005 S.F.) UNITS**
- 60 TYPE "C" 2-Bd, 2-Ba (1139 S.F.) UNITS**
- 24 TYPE "D" 3-Bd, 2-Ba (1127 S.F.) UNITS**
- 36 TYPE "E" 1-Bd, 1-Ba (728 S.F.) UNITS**

**435 TOTAL PARKING STALLS**

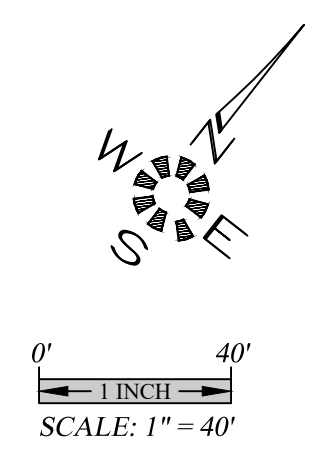
- 361 STANDARD STALLS**
- 64 COMPACT STALLS**
- 10 HANDICAP STALLS**

- 2 12'x20' LOADING ZONES**
- 2 STORAGE UNITS**
- 24 BICYCLE SPACES IN 4 RACKS (REQUIRED)**
- 1 RECREATION BUILDINGS**
- 1 MAINT. BUILDING**
- 1 TRASH COMPACTOR / RECYCLE**
- 1 REC. AREAS**
- 1 U.S. MAIL BOX AREA**
- 2 KEY GATE ENTRY'S**
- 1 WATER QUALITY AREA**

- POLE LIGHT MAXIMUM 14' TALL
- POST LIGHT MAXIMUM 5' TALL
- WALL PACK MOUNTED ON BUILDING
- LOCATION OF ELECTRICAL SEPARATION WALL
- MAXIMUM 1:12 SLOPE ON SIDEWALK END RAMPS
- 6 BICYCLE SPACES.

**ADA HANDICAP ACCESSIBILITY NOTES:**

1. ALL ON-SITE WALKWAYS, PEDESTRIAN CONNECTIONS TO THE PUBLIC SIDEWALK AND ROUTES TO BUILDING ENTRANCES ARE ACCESSIBLE WITH RUNNING SLOPES LESS THAN 5% AND CROSS SLOPE LESS THAN 2% MAX. LANDINGS AT BOTTOM OF STAIRS AND EXT. FACE OF ENTRANCE DOORS SHALL HAVE A SLOPE IN THE DIRECTION OF TRAVEL NOT TO EXCEED 2%.
2. HANDICAP PARKING STALLS AND ACCESS AISLES ARE TO HAVE SLOPES IN ANY DIRECTION OF LESS THAN 2% MAX. GRAPHIC MARKINGS & SIGNAGE FOR HANDICAP AND VAN ACCESSIBLE STALLS WILL BE PER OSSC 2010 CHPTR. 11 AND ORS. REQUIREMENTS.
3. HANDICAP ACCESSIBLE CURB RAMPS SHALL HAVE A RUNNING SLOPE NOT TO EXCEED 1:12 MAX. AND A CROSS SLOPE NOT TO EXCEED 1%.
4. THE COMMUNITY BUILDING & ON-SITE LAUNDRY FACILITIES WILL BE FULLY HANDICAP ACCESSIBLE IN ACCORDANCE WITH ANSI A117.1 AND CHAPTER 11 OF THE 2010 OSSC.
5. 2% OF THE LIVING UNITS OR (3) UNITS WILL BE TYPE 'A' HANDICAP ACCESSIBLE. THESE INCLUDE A 1, 2 AND 3 BEDROOM UNIT AS INDICATED ON THIS SITE PLAN. THE BALANCE OF THE GROUND FLOOR LIVING UNITS WILL BE TYPE 'B' ADAPTABLE UNITS IN ACCORDANCE WITH ANSI A117.1.



**SITE PLAN 1 & 2**

**HAWK'S RIDGE APARTMENTS  
 PH. 3**

NO CHANGES, MODIFICATIONS OR REPRODUCTIONS TO BE MADE TO THESE DRAWINGS WITHOUT WRITTEN AUTHORIZATION FROM THE DESIGN ENGINEER.  
 DIMENSIONS & NOTES TAKE PRECEDENCE OVER GRAPHICAL REPRESENTATION.

7319 SDR3-SITE  
 Design: M.D.G.  
 Drawn: A.R.T.  
 Checked: B.M.G.  
 Date: SEPT. 2021  
 Scale: AS SHOWN

REGISTERED PROFESSIONAL ENGINEER  
 9654  
 JULY 14, 1978  
 MARK D. GREIV  
 EXPIRES 06-30-2023

JOB # 7314

**SDR3**

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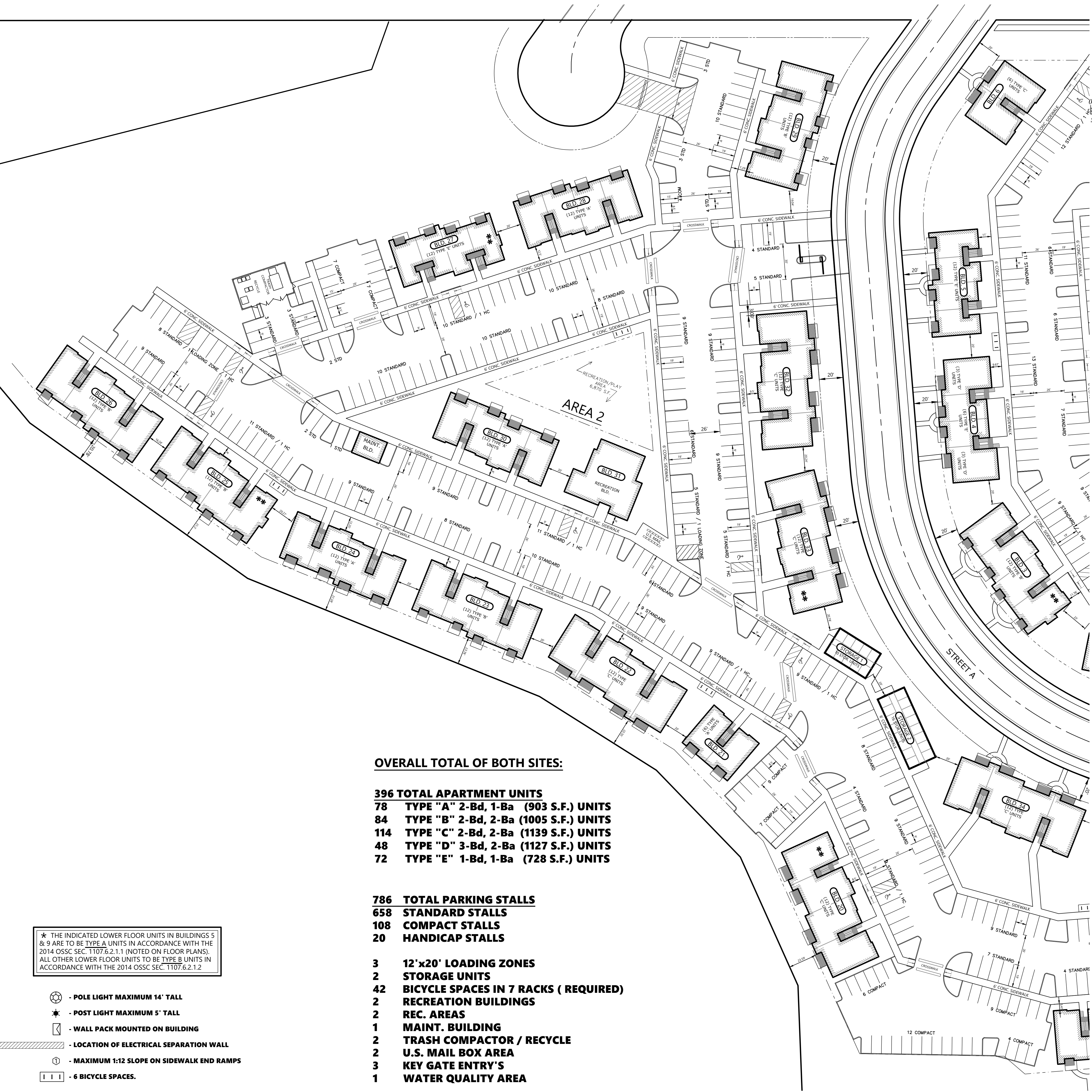
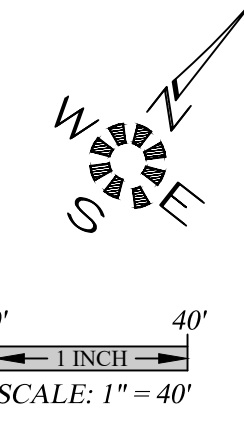


NO CHANGES, MODIFICATIONS  
 OR REPRODUCTIONS TO BE  
 MADE TO THESE DRAWINGS  
 WITHOUT WRITTEN  
 AUTHORIZATION FROM THE  
 DESIGN ENGINEER.  
 DIMENSIONS & NOTES TAKE  
 PRECEDENCE OVER  
 GRAPHICAL REPRESENTATION.

7319 SDR4-SITE  
 Design: M.D.G.  
 Drawn: A.R.T.  
 Checked: B.M.G.  
 Date: SEPT. 2021  
 Scale: AS SHOWN

REGISTERED PROFESSIONAL  
 ENGINEER  
 9654  
 OREGON  
 JULY 14, 1978  
 MARK D. GREIVL  
 EXPIRES 06-30-2023

JOB # 7314  
**SDR4**



**SITE PLAN AREA 2:**

- 222 TOTAL APARTMENT UNITS**  
**42 TYPE "A" 2-Bd, 1-Ba (903 S.F.) UNITS**  
**60 TYPE "B" 2-Bd, 2-Ba (1005 S.F.) UNITS**  
**60 TYPE "C" 2-Bd, 2-Ba (1139 S.F.) UNITS**  
**24 TYPE "D" 3-Bd, 2-Ba (1127 S.F.) UNITS**  
**36 TYPE "E" 1-Bd, 1-Ba (728 S.F.) UNITS**

- 435 TOTAL PARKING STALLS**  
**361 STANDARD STALLS**  
**64 COMPACT STALLS**  
**10 HANDICAP STALLS**

- 2 12'x20' LOADING ZONES**  
**2 STORAGE UNITS**  
**24 BICYCLE SPACES IN 4 RACKS (REQUIRED)**  
**1 RECREATION BUILDINGS**  
**1 MAINT. BUILDING**  
**1 TRASH COMPACTOR / RECYCLE**  
**1 REC. AREAS**  
**1 U.S. MAIL BOX AREA**  
**2 KEY GATE ENTRY'S**  
**1 WATER QUALITY AREA**

**ADA HANDICAP ACCESSIBILITY NOTES:**

- ALL ON-SITE WALKWAYS, PEDESTRIAN CONNECTIONS TO THE PUBLIC SIDEWALK AND ROUTES TO BUILDING ENTRANCES ARE ACCESSIBLE WITH RUNNING SLOPES LESS THAN 5% AND CROSS SLOPE LESS THAN 2% MAX. LANDINGS AT BOTTOM OF STAIRS AND EXT. FACE OF ENTRANCE DOORS SHALL HAVE A SLOPE IN THE DIRECTION OF TRAVEL NOT TO EXCEED 2%.
- HANDICAP PARKING STALLS AND ACCESS AISLES ARE TO HAVE SLOPES IN ANY DIRECTION OF LESS THAN 2% MAX. GRAPHIC MARKINGS & SIGNAGE FOR HANDICAP AND VAN ACCESSIBLE STALLS WILL BE PER OSSC 2010 CHPTR. 11 AND ORS. REQUIREMENTS.
- HANDICAP ACCESSIBLE CURB RAMPS SHALL HAVE A RUNNING SLOPE NOT TO EXCEED 1:12 MAX. AND A CROSS SLOPE NOT TO EXCEED 1%.
- THE COMMUNITY BUILDING & ON-SITE LAUNDRY FACILITIES WILL BE FULLY HANDICAP ACCESSIBLE IN ACCORDANCE WITH ANSI A117.1 AND CHAPTER 11 OF THE 2010 OSSC.
- 2% OF THE LIVING UNITS OR (3) UNITS WILL BE TYPE 'A' HANDICAP ACCESSIBLE. THESE INCLUDE A 1, 2 AND 3 BEDROOM UNIT AS INDICATED ON THIS SITE PLAN. THE BALANCE OF THE GROUND FLOOR LIVING UNITS WILL BE TYPE 'B' ADAPTABLE UNITS IN ACCORDANCE WITH ANSI A117.1.

\* THE INDICATED LOWER FLOOR UNITS IN BUILDINGS 5 & 9 ARE TO BE TYPE A UNITS IN ACCORDANCE WITH THE 2014 OSSC SEC. 1107.6.2.1.1 (NOTED ON FLOOR PLANS). ALL OTHER LOWER FLOOR UNITS TO BE TYPE B UNITS IN ACCORDANCE WITH THE 2014 OSSC SEC. 1107.6.2.1.2

- POLE LIGHT MAXIMUM 14' TALL
- POST LIGHT MAXIMUM 5' TALL
- WALL PACK MOUNTED ON BUILDING
- LOCATION OF ELECTRICAL SEPARATION WALL
- MAXIMUM 1:12 SLOPE ON SIDEWALK END RAMPS
- 6 BICYCLE SPACES.

**OVERALL TOTAL OF BOTH SITES:**

- 396 TOTAL APARTMENT UNITS**  
**78 TYPE "A" 2-Bd, 1-Ba (903 S.F.) UNITS**  
**84 TYPE "B" 2-Bd, 2-Ba (1005 S.F.) UNITS**  
**114 TYPE "C" 2-Bd, 2-Ba (1139 S.F.) UNITS**  
**48 TYPE "D" 3-Bd, 2-Ba (1127 S.F.) UNITS**  
**72 TYPE "E" 1-Bd, 1-Ba (728 S.F.) UNITS**

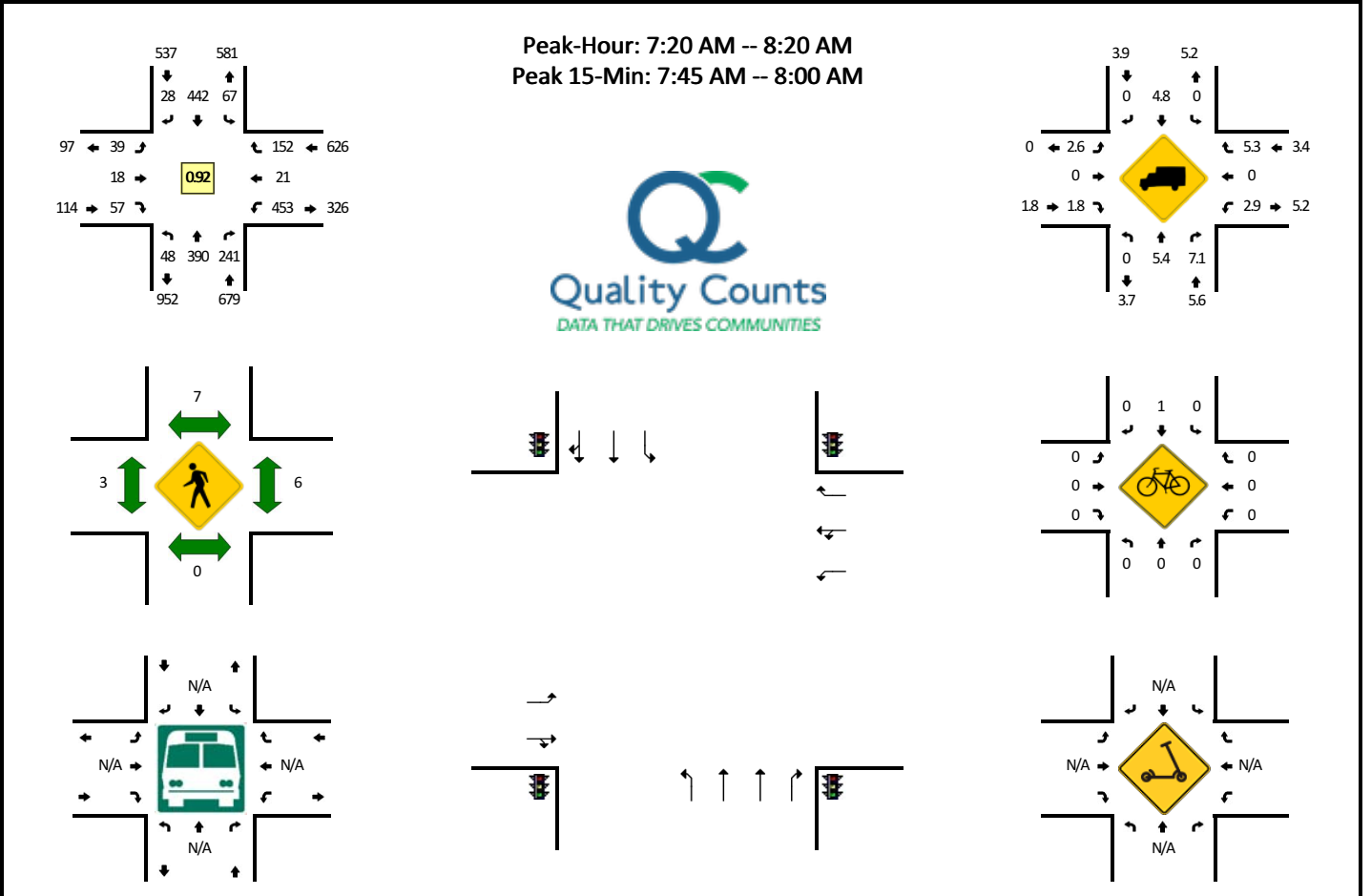
- 786 TOTAL PARKING STALLS**  
**658 STANDARD STALLS**  
**108 COMPACT STALLS**  
**20 HANDICAP STALLS**

- 3 12'x20' LOADING ZONES**  
**2 STORAGE UNITS**  
**42 BICYCLE SPACES IN 7 RACKS (REQUIRED)**  
**2 RECREATION BUILDINGS**  
**2 REC. AREAS**  
**1 MAINT. BUILDING**  
**2 TRASH COMPACTOR / RECYCLE**  
**2 U.S. MAIL BOX AREA**  
**3 KEY GATE ENTRY'S**  
**1 WATER QUALITY AREA**

## **APPENDIX B: TRAFFIC COUNTS**

**LOCATION:** Lancaster Dr SE -- Rickey St SE  
**CITY/STATE:** Salem, OR

**QC JOB #:** 15782401  
**DATE:** Thu, Apr 28 2022



5-Min Count Period Beginning At	Lancaster Dr SE (Northbound)				Lancaster Dr SE (Southbound)				Rickey St SE (Eastbound)				Rickey St SE (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
6:00 AM	2	10	8	0	1	25	3	0	1	2	2	0	16	1	2	0	73	
6:05 AM	1	15	7	0	1	27	0	0	0	1	4	0	31	1	9	0	97	
6:10 AM	0	7	8	0	1	32	2	0	0	0	4	0	22	4	5	0	85	
6:15 AM	1	15	4	0	3	20	0	0	3	2	3	0	25	2	4	0	82	
6:20 AM	1	19	8	0	3	30	1	0	0	1	4	0	26	1	4	0	98	
6:25 AM	2	13	8	0	5	27	0	0	0	1	2	0	17	1	6	0	82	
6:30 AM	1	16	5	0	4	27	1	0	3	0	4	0	28	2	6	0	97	
6:35 AM	3	20	3	0	2	32	0	0	1	0	5	0	28	0	7	0	101	
6:40 AM	3	24	12	0	2	30	4	0	1	0	7	0	22	1	6	0	112	
6:45 AM	2	24	10	0	5	29	2	0	0	0	5	0	24	0	0	0	101	
6:50 AM	3	28	12	0	4	26	1	0	0	0	4	0	19	1	3	0	101	
6:55 AM	1	17	14	0	5	33	2	0	1	2	4	0	26	5	7	0	117	1146
7:00 AM	1	25	16	0	5	28	1	0	0	0	1	0	24	0	7	0	108	1181
7:05 AM	3	21	11	0	5	42	4	0	1	2	3	0	32	0	14	0	138	1222
7:10 AM	0	15	21	0	5	23	0	0	3	3	8	0	43	1	10	0	132	1269
7:15 AM	1	34	19	0	5	33	2	0	1	3	6	0	17	3	8	0	132	1319
7:20 AM	4	38	17	0	2	39	3	0	2	0	2	0	33	1	12	0	153	1374
7:25 AM	2	35	20	0	7	35	3	0	4	0	5	0	32	3	13	0	159	1451
7:30 AM	4	26	11	0	7	35	3	0	4	1	4	0	35	1	11	0	142	1496
7:35 AM	6	26	21	0	4	40	2	0	2	2	6	0	56	4	8	0	177	1572
7:40 AM	3	29	24	0	9	25	2	0	4	0	6	0	50	1	20	0	173	1633
7:45 AM	4	41	22	0	4	46	2	0	2	2	0	0	41	2	12	0	178	1710
7:50 AM	3	38	28	0	9	34	3	0	2	2	3	0	41	4	11	0	178	1787
7:55 AM	5	39	19	0	4	43	3	0	2	2	7	0	37	3	12	0	176	1846
8:00 AM	4	25	14	0	5	37	1	0	9	3	9	0	32	0	12	0	151	1889
8:05 AM	1	34	17	0	6	40	1	0	1	1	4	0	20	0	12	0	137	1888
8:10 AM	5	32	28	0	4	30	3	0	4	5	5	0	48	1	12	0	177	1933
8:15 AM	7	27	20	0	6	38	2	0	3	0	6	0	28	1	17	0	155	1956
8:20 AM	1	30	19	0	5	44	2	0	4	4	5	0	23	2	11	0	150	1953
8:25 AM	3	34	19	0	6	21	7	0	2	0	5	0	21	1	7	0	126	1920
8:30 AM	3	35	12	0	3	26	8	0	4	2	4	0	15	3	6	0	121	1899
8:35 AM	3	26	15	0	13	23	5	0	7	3	8	0	28	2	7	0	140	1862
8:40 AM	6	34	14	0	9	42	4	0	2	2	7	0	21	1	13	0	155	1844
8:45 AM	3	46	19	0	12	43	3	0	2	1	4	0	35	1	5	0	174	1840
8:50 AM	7	29	11	0	6	23	3	0	2	0	2	0	28	0	10	0	121	1783
8:55 AM	2	33	11	0	17	32	3	0	5	2	5	0	18	4	8	0	140	1747

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	472	276	0	68	492	32	0	24	24	40	0	476	36	140	0	2128
Heavy Trucks	0	32	12		0	16	0		0	0	0		8	0	8		76
Buses																	
Pedestrians		0				8				0				12			20
Bicycles	0	0	0		0	4	0		0	0	0		0	0	0		4
Scoters																	

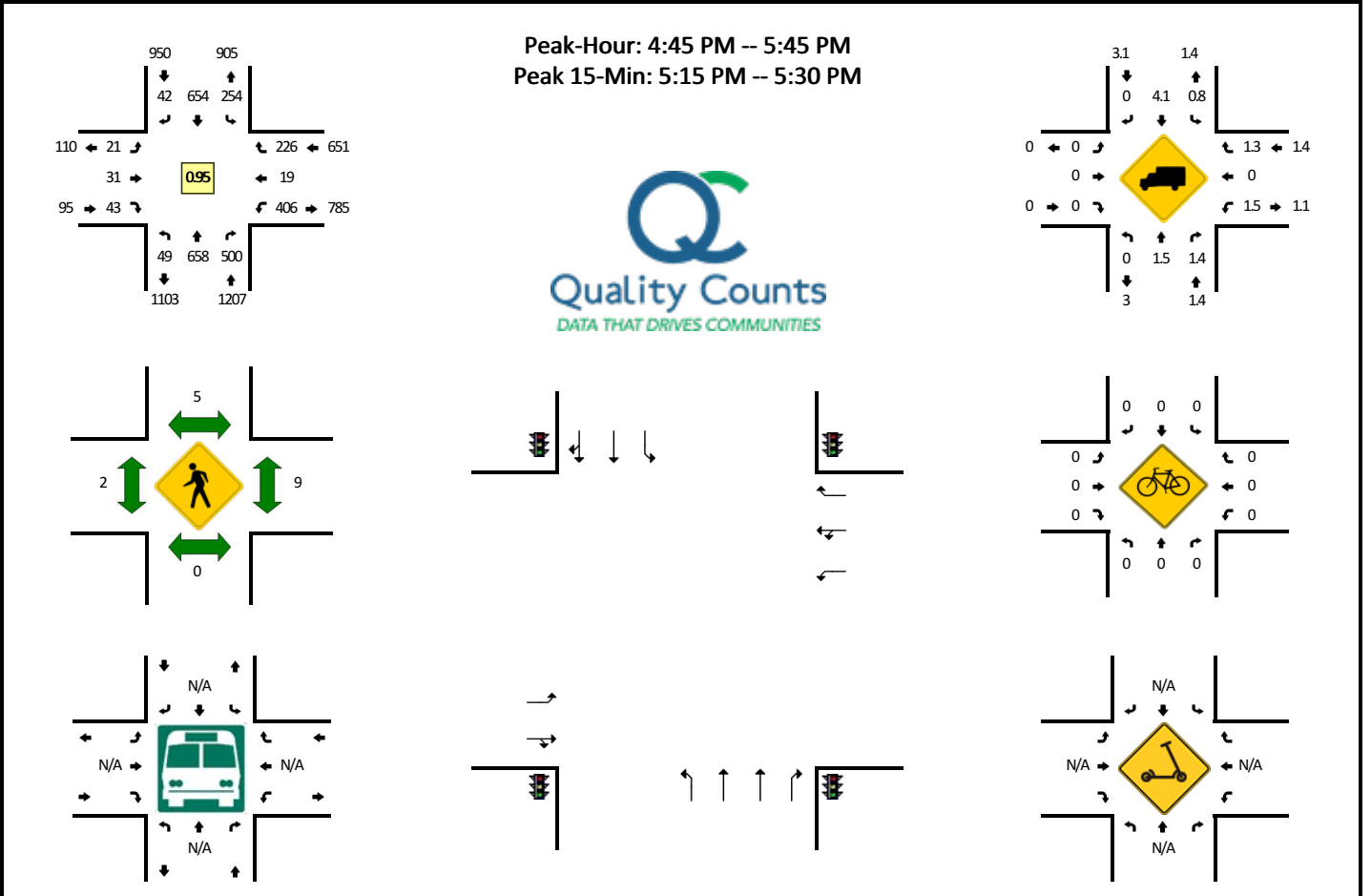
*Comments:*

Report generated on 5/5/2022 2:26 PM

SOURCE: Quality Counts, LLC (<http://www.qualitycounts.net>) 1-877-580-2212

**LOCATION:** Lancaster Dr SE -- Rickey St SE  
**CITY/STATE:** Salem, OR

**QC JOB #:** 15782402  
**DATE:** Wed, Apr 27 2022



5-Min Count Period Beginning At	Lancaster Dr SE (Northbound)				Lancaster Dr SE (Southbound)				Rickey St SE (Eastbound)				Rickey St SE (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
3:00 PM	4	39	32	0	16	40	5	0	1	1	5	0	38	5	19	0	205	
3:05 PM	2	40	29	0	17	61	3	0	1	3	4	0	29	4	18	0	211	
3:10 PM	4	71	21	0	20	61	3	0	2	2	9	0	33	0	21	0	247	
3:15 PM	0	40	38	0	10	58	4	0	2	7	6	0	24	2	24	0	215	
3:20 PM	7	42	27	0	19	48	1	0	0	0	4	0	40	2	18	0	208	
3:25 PM	3	57	30	0	11	61	1	0	1	3	8	0	31	1	15	0	222	
3:30 PM	1	45	40	0	15	51	3	0	6	3	6	0	22	0	17	0	209	
3:35 PM	3	47	43	0	12	55	2	0	1	2	4	0	40	0	15	0	224	
3:40 PM	4	67	51	0	30	66	5	0	2	1	2	0	31	5	11	0	275	
3:45 PM	2	66	55	0	17	75	1	0	5	2	12	0	29	2	17	0	283	
3:50 PM	1	49	31	0	23	41	5	0	3	4	4	0	51	2	18	0	232	
3:55 PM	3	43	27	0	28	54	3	0	0	3	3	0	28	1	21	0	214	2745
4:00 PM	3	49	38	0	15	59	0	0	2	2	2	0	20	2	16	0	208	2748
4:05 PM	2	35	33	0	18	52	2	0	1	2	6	0	42	9	35	0	237	2774
4:10 PM	5	41	33	0	17	49	4	0	5	2	1	0	37	2	31	0	227	2754
4:15 PM	0	66	42	0	15	59	5	0	1	3	4	0	37	1	23	0	256	2795
4:20 PM	6	51	36	0	20	49	2	0	3	2	4	0	44	3	26	0	246	2833
4:25 PM	4	30	38	0	20	42	3	0	2	2	4	0	35	0	26	0	206	2817
4:30 PM	3	53	28	0	11	56	3	0	2	2	9	0	23	3	21	0	214	2822
4:35 PM	2	35	38	0	16	47	5	0	0	5	6	0	27	0	20	0	201	2799
4:40 PM	2	51	30	0	18	50	3	0	3	4	6	0	46	2	16	0	231	2755
4:45 PM	4	55	43	0	29	61	6	0	6	1	3	0	29	3	13	0	253	2725
4:50 PM	3	53	38	0	20	50	2	0	2	2	3	0	25	1	13	0	212	2705
4:55 PM	4	47	38	0	17	39	6	0	4	3	2	0	41	0	17	0	218	2709
5:00 PM	2	51	37	0	31	45	5	0	2	2	6	0	25	1	20	0	227	2728
5:05 PM	1	69	48	0	20	58	6	0	3	3	1	0	36	2	21	0	268	2759
5:10 PM	4	36	36	0	15	46	2	0	4	2	4	0	46	1	22	0	218	2750
5:15 PM	8	60	39	0	24	73	3	0	0	2	2	0	30	3	20	0	264	2758
5:20 PM	3	77	46	0	18	65	4	0	0	2	5	0	29	0	17	0	266	2778
5:25 PM	4	46	42	0	16	49	3	0	0	4	5	0	36	2	23	0	230	2802
5:30 PM	11	50	41	0	20	45	1	0	0	3	2	0	50	1	21	0	245	2833
5:35 PM	3	63	46	0	25	59	4	0	0	5	6	0	29	3	17	0	260	2892
5:40 PM	2	51	46	0	19	64	0	0	0	2	4	0	30	2	22	0	242	2903
5:45 PM	4	25	28	0	22	34	2	0	0	1	5	0	26	2	23	0	172	2822
5:50 PM	5	51	29	0	19	64	2	0	0	5	1	0	24	1	19	0	220	2830
5:55 PM	6	48	50	0	14	40	2	0	0	2	4	0	37	1	19	0	223	2835



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	60	732	508	0	232	748	40	0	0	32	48	0	380	20	240	0	3040
Heavy Trucks	0	8	12		4	44	0		0	0	0		12	0	4		84
Buses																	
Pedestrians		0				8				0				12			20
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scoters																	

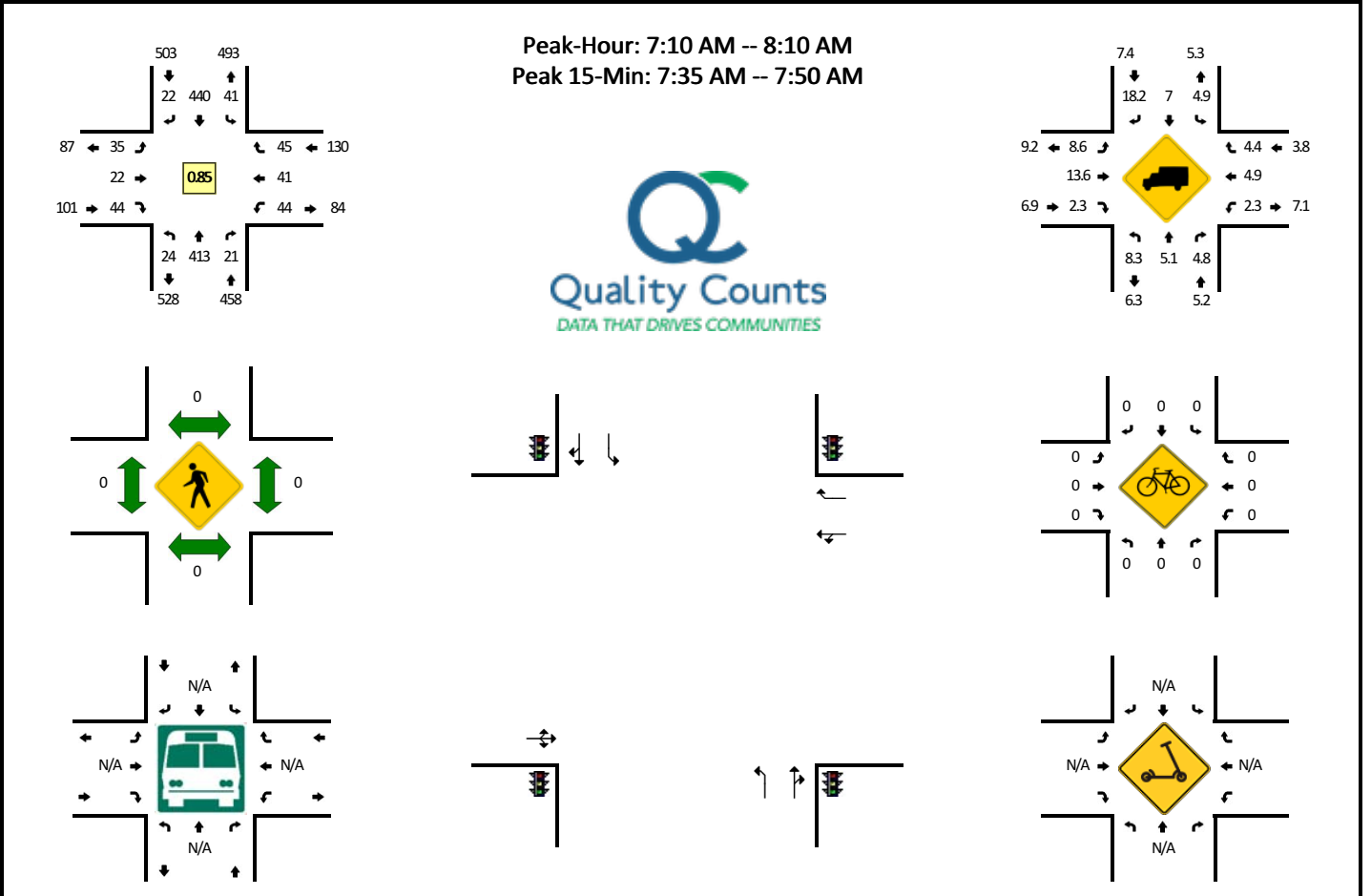
*Comments:*

Report generated on 5/5/2022 2:26 PM

SOURCE: Quality Counts, LLC (<http://www.qualitycounts.net>) 1-877-580-2212

**LOCATION:** Cordon Rd SE -- Macleay Rd SE  
**CITY/STATE:** Salem, OR

**QC JOB #:** 15782403  
**DATE:** Thu, Apr 28 2022



5-Min Count Period Beginning At	Cordon Rd SE (Northbound)				Cordon Rd SE (Southbound)				Macleay Rd SE (Eastbound)				Macleay Rd SE (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
6:00 AM	0	17	1	0	1	13	0	0	1	0	3	0	1	1	1	0	39	
6:05 AM	0	13	0	0	1	23	1	0	0	1	1	1	0	2	2	0	44	
6:10 AM	1	11	0	0	1	20	0	0	0	1	1	0	1	0	2	0	38	
6:15 AM	0	16	1	0	2	31	0	0	0	0	2	0	0	1	2	0	55	
6:20 AM	2	18	0	0	3	22	0	0	0	2	3	0	0	1	0	0	51	
6:25 AM	1	24	0	0	0	28	0	0	1	3	3	0	1	1	2	0	64	
6:30 AM	1	17	1	0	2	33	1	0	0	0	1	0	3	0	0	0	59	
6:35 AM	0	24	2	0	3	33	1	0	2	2	6	0	3	3	1	0	80	
6:40 AM	3	26	1	0	4	36	1	0	0	1	3	0	3	0	2	0	80	
6:45 AM	2	23	2	0	3	35	0	0	1	4	2	0	6	0	2	0	80	
6:50 AM	1	16	1	0	3	39	1	0	0	1	5	0	0	1	2	0	70	
6:55 AM	2	28	0	0	1	23	2	0	2	2	2	0	4	2	1	0	69	729
7:00 AM	2	32	2	0	4	30	3	0	2	1	3	0	1	4	0	0	84	774
7:05 AM	4	29	2	0	3	29	1	0	3	3	3	0	1	2	1	0	81	811
7:10 AM	1	31	2	0	5	25	0	0	1	6	5	0	5	2	4	0	87	860
7:15 AM	1	21	1	0	4	44	1	0	1	1	4	0	3	3	3	0	87	892
7:20 AM	2	30	1	0	3	47	4	0	1	0	2	0	4	4	4	0	102	943
7:25 AM	3	40	2	0	3	39	2	0	1	0	4	0	4	6	2	0	106	985
7:30 AM	3	28	3	0	4	32	0	0	1	0	4	0	3	4	5	0	87	1013
7:35 AM	1	44	1	0	3	34	1	0	7	5	6	0	4	4	6	0	116	1049
7:40 AM	2	36	0	0	4	41	0	0	8	4	5	0	3	9	4	0	116	1085
7:45 AM	1	41	2	0	4	47	3	0	3	3	3	0	3	2	5	0	117	1122
7:50 AM	2	39	3	0	3	35	1	0	5	0	4	0	2	3	4	0	101	1153
7:55 AM	5	32	4	0	2	34	3	0	2	0	2	0	4	3	2	0	93	1177
8:00 AM	3	33	0	0	1	28	3	0	3	0	4	0	5	1	2	0	83	1176
8:05 AM	0	38	2	0	5	34	4	0	2	3	1	0	4	0	4	0	97	1192
8:10 AM	2	27	0	0	4	28	1	0	0	2	6	0	3	2	3	0	78	1183
8:15 AM	2	27	4	0	2	32	0	0	2	0	2	0	4	1	3	0	79	1175
8:20 AM	1	33	2	0	1	47	0	0	1	1	3	0	1	1	4	0	95	1168
8:25 AM	4	20	6	0	3	34	2	0	2	2	0	0	3	2	2	0	80	1142
8:30 AM	2	23	2	0	1	37	1	0	3	2	3	0	3	2	3	0	82	1137
8:35 AM	0	24	4	0	3	31	0	0	1	4	1	0	6	3	0	0	77	1098
8:40 AM	1	23	3	0	2	30	0	0	3	1	1	0	3	4	1	0	72	1054
8:45 AM	2	29	2	0	5	22	0	0	2	2	2	0	3	2	4	0	75	1012
8:50 AM	3	24	2	0	1	34	2	0	1	1	5	0	4	2	3	0	82	993
8:55 AM	4	28	3	0	4	29	0	0	1	2	2	0	5	1	2	0	81	981

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	484	12	0	44	488	16	0	72	48	56	0	40	60	60	0	1396
Heavy Trucks	0	24	0		4	24	0		12	4	4		0	0	4		76
Buses																	
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scoters																	

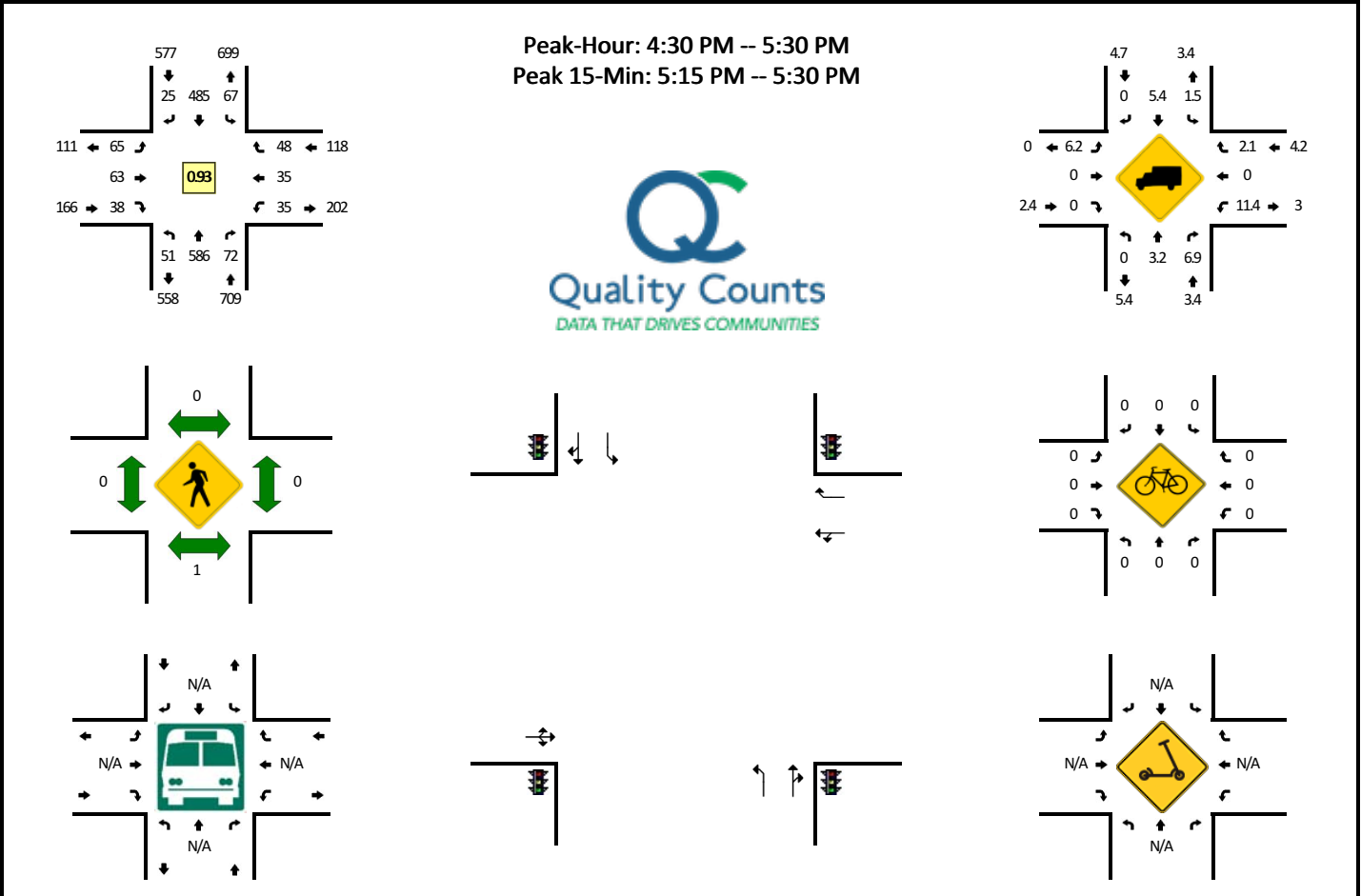
*Comments:*

Report generated on 5/5/2022 2:26 PM

SOURCE: Quality Counts, LLC (<http://www.qualitycounts.net>) 1-877-580-2212

**LOCATION:** Cordon Rd SE -- Macleay Rd SE  
**CITY/STATE:** Salem, OR

**QC JOB #:** 15782404  
**DATE:** Wed, Apr 27 2022



5-Min Count Period Beginning At	Cordon Rd SE (Northbound)				Cordon Rd SE (Southbound)				Macleay Rd SE (Eastbound)				Macleay Rd SE (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
3:00 PM	5	34	8	0	4	30	2	0	2	3	4	0	2	3	5	0	102	
3:05 PM	3	42	3	0	8	33	4	0	1	3	2	0	3	1	7	0	110	
3:10 PM	5	34	7	0	2	30	3	0	1	1	1	0	1	4	6	0	95	
3:15 PM	4	37	1	0	5	33	1	0	1	3	2	0	2	3	5	0	97	
3:20 PM	2	32	2	0	6	42	1	0	4	1	7	0	1	1	3	0	102	
3:25 PM	4	39	3	0	2	45	1	0	3	6	6	0	6	3	3	0	121	
3:30 PM	6	43	2	0	0	36	0	0	1	2	7	0	1	1	1	0	100	
3:35 PM	2	60	7	0	5	50	3	0	5	4	1	0	3	2	2	0	144	
3:40 PM	5	63	5	0	2	52	4	0	3	6	4	0	2	1	4	0	151	
3:45 PM	5	55	2	0	7	34	3	0	2	0	5	0	4	5	7	0	129	
3:50 PM	4	41	4	0	5	46	3	0	2	8	4	0	1	1	2	0	121	
3:55 PM	1	43	8	0	7	32	2	0	3	5	7	0	2	4	10	0	124	1396
4:00 PM	5	64	5	0	5	45	7	0	0	5	2	0	2	5	5	0	150	1444
4:05 PM	2	48	1	0	4	20	6	0	8	5	4	0	2	4	4	0	108	1442
4:10 PM	6	52	7	0	0	36	4	0	9	5	7	0	1	2	2	0	131	1478
4:15 PM	3	47	3	0	2	29	3	0	5	4	3	0	6	5	2	0	112	1493
4:20 PM	4	66	5	0	7	39	4	0	3	6	4	0	3	6	2	0	149	1540
4:25 PM	2	34	4	0	3	35	0	0	3	2	5	0	4	5	4	0	101	1520
4:30 PM	3	44	4	0	4	35	1	0	11	5	4	0	3	1	3	0	118	1538
4:35 PM	6	40	5	0	2	39	1	0	5	5	4	0	7	2	7	0	123	1517
4:40 PM	4	62	4	0	2	38	4	0	9	8	1	0	1	0	4	0	137	1503
4:45 PM	4	41	6	0	2	37	4	0	4	8	2	0	5	5	1	0	119	1493
4:50 PM	3	45	5	0	9	38	2	0	3	2	5	0	1	6	4	0	123	1495
4:55 PM	3	38	10	0	4	45	1	0	4	6	4	0	2	2	3	0	122	1493
5:00 PM	5	52	7	0	11	41	1	0	4	3	3	0	1	3	2	0	133	1476
5:05 PM	4	55	7	0	7	41	3	0	6	4	2	0	4	5	0	0	138	1506
5:10 PM	5	45	6	0	9	41	3	0	5	8	2	0	1	4	7	0	136	1511
5:15 PM	6	46	4	0	4	43	1	0	4	5	1	0	3	3	7	0	127	1526
5:20 PM	3	59	7	0	6	41	3	0	5	2	7	0	3	1	6	0	143	1520
5:25 PM	5	59	7	0	7	46	1	0	5	7	3	0	4	3	4	0	151	1570
5:30 PM	4	38	5	0	2	41	4	0	4	9	3	0	4	1	1	0	116	1568
5:35 PM	5	38	7	0	3	35	4	0	5	5	3	0	5	4	0	0	114	1559
5:40 PM	5	60	0	0	5	34	2	0	3	5	4	0	3	2	3	0	126	1548
5:45 PM	7	60	10	0	2	36	4	0	4	3	3	0	1	1	4	0	135	1564
5:50 PM	3	53	4	0	4	38	2	0	3	2	3	0	3	6	3	0	124	1565
5:55 PM	3	55	6	0	0	35	1	0	3	5	4	0	1	4	2	0	119	1562



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	656	72	0	68	520	20	0	56	56	44	0	40	28	68	0	1684
Heavy Trucks	0	12	4		0	24	0		4	0	0		0	0	0		44
Buses																	
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scoters																	

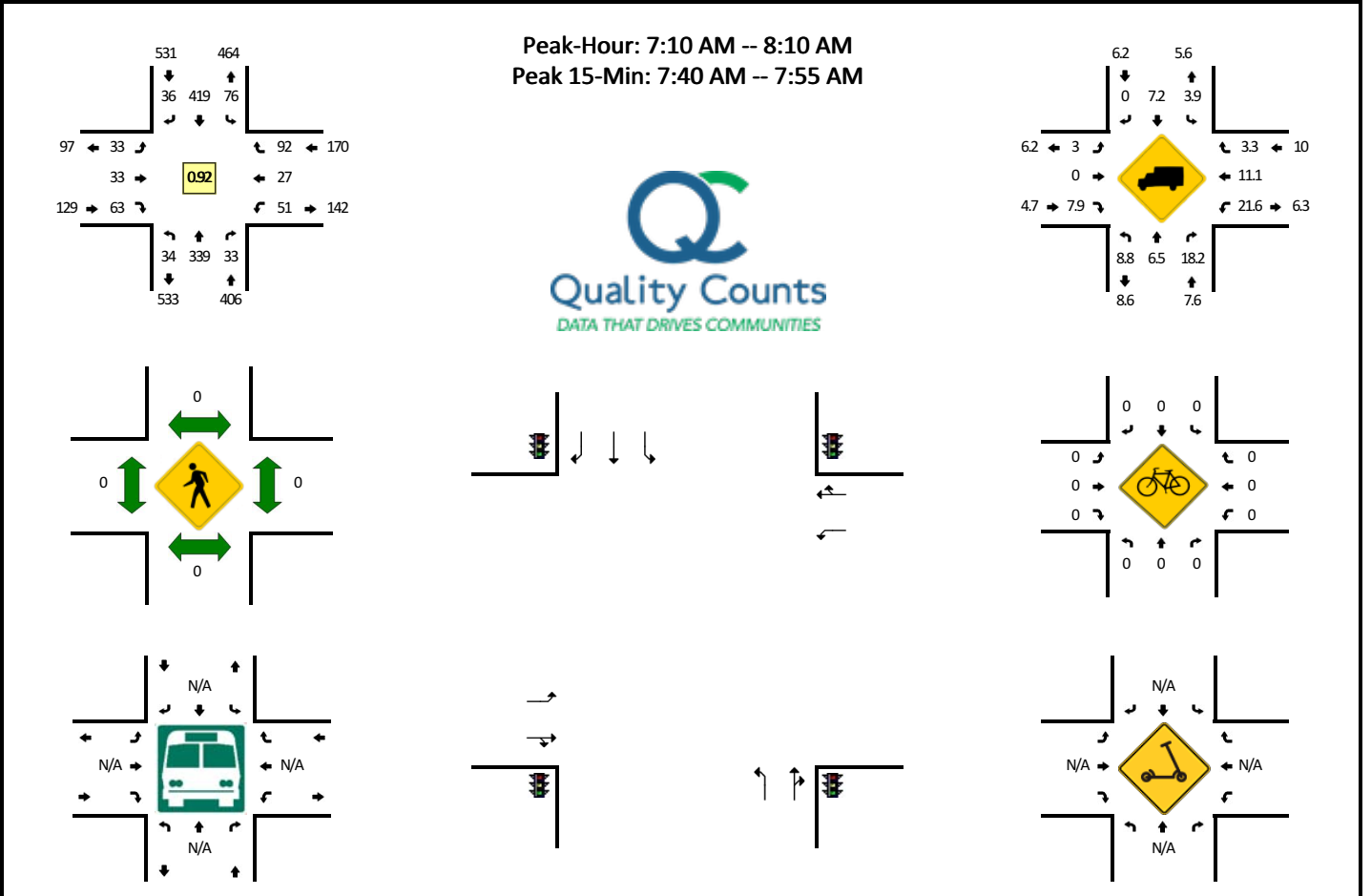
*Comments:*

Report generated on 5/5/2022 2:26 PM

SOURCE: Quality Counts, LLC (<http://www.qualitycounts.net>) 1-877-580-2212

**LOCATION:** Cordon Rd -- Gaffin Rd SE  
**CITY/STATE:** Salem, OR

**QC JOB #:** 15782405  
**DATE:** Thu, Apr 28 2022



5-Min Count Period Beginning At	Cordon Rd (Northbound)				Cordon Rd (Southbound)				Gaffin Rd SE (Eastbound)				Gaffin Rd SE (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
6:00 AM	1	14	1	0	4	11	0	0	1	0	0	0	2	0	2	0	36	
6:05 AM	1	9	2	0	4	15	3	0	1	3	3	0	5	0	3	0	49	
6:10 AM	0	10	4	0	9	16	0	0	0	2	2	0	2	1	2	0	48	
6:15 AM	1	17	1	0	10	24	2	0	0	1	1	0	0	0	3	0	60	
6:20 AM	2	14	0	0	9	14	1	0	2	1	3	0	6	1	1	0	54	
6:25 AM	1	17	0	0	6	24	2	0	3	2	2	0	3	0	4	0	64	
6:30 AM	1	14	2	0	8	24	4	0	2	0	4	0	3	3	6	0	71	
6:35 AM	0	14	2	0	10	23	2	0	3	2	4	0	3	1	6	0	70	
6:40 AM	3	22	8	0	4	39	4	0	1	1	5	0	2	0	5	0	94	
6:45 AM	1	20	6	0	4	38	1	0	2	2	3	0	4	3	6	0	90	
6:50 AM	2	13	9	0	6	33	5	0	2	2	4	0	2	2	4	0	84	
6:55 AM	4	24	3	0	2	24	2	0	0	1	9	0	4	1	11	0	85	805
7:00 AM	3	18	3	0	5	28	2	0	4	2	4	0	3	3	9	0	84	853
7:05 AM	3	24	4	0	6	25	2	0	2	6	2	0	2	3	9	0	88	892
7:10 AM	1	28	5	0	5	26	1	0	2	2	6	0	4	3	4	0	87	931
7:15 AM	4	17	0	0	4	44	5	0	2	3	5	0	3	2	7	0	96	967
7:20 AM	1	26	3	0	5	35	0	0	0	3	7	0	8	3	5	0	96	1009
7:25 AM	3	32	5	0	12	45	4	0	4	6	6	0	1	1	11	0	130	1075
7:30 AM	3	29	4	0	9	31	2	0	4	2	4	0	3	1	5	0	97	1101
7:35 AM	5	27	0	0	7	31	4	0	1	5	4	0	9	3	11	0	107	1138
7:40 AM	4	36	1	0	9	40	2	0	1	5	4	0	4	4	6	0	116	1160
7:45 AM	4	26	1	0	8	39	5	0	4	2	5	0	6	3	9	0	112	1182
7:50 AM	2	31	5	0	6	33	4	0	5	0	8	0	6	1	8	0	109	1207
7:55 AM	3	24	4	0	4	32	2	0	5	3	5	0	4	4	11	0	101	1223
8:00 AM	4	27	4	0	3	30	5	0	0	2	7	0	1	1	10	0	94	1233
8:05 AM	0	36	1	0	4	33	2	0	5	0	2	0	2	1	5	0	91	1236
8:10 AM	2	17	1	0	11	20	4	0	2	0	7	0	7	3	5	0	79	1228
8:15 AM	3	22	2	0	2	32	4	0	3	2	5	0	1	2	8	0	86	1218
8:20 AM	1	28	1	0	8	39	5	0	4	2	5	0	6	1	3	0	103	1225
8:25 AM	4	25	2	0	8	26	3	0	2	4	7	0	0	2	1	0	84	1179
8:30 AM	6	25	2	0	6	37	1	0	0	1	4	0	7	4	8	0	101	1183
8:35 AM	2	19	5	0	7	26	4	0	4	1	4	0	8	0	7	0	87	1163
8:40 AM	4	15	2	0	6	28	3	0	2	2	4	0	3	2	1	0	72	1119
8:45 AM	2	23	5	0	3	20	3	0	3	4	1	0	3	2	14	0	83	1090
8:50 AM	6	17	2	0	2	38	5	0	3	1	7	0	3	1	7	0	92	1073
8:55 AM	2	20	1	0	6	27	2	0	7	2	3	0	2	0	7	0	79	1051

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	40	372	28	0	92	448	44	0	40	28	68	0	64	32	92	0	1348
Heavy Trucks	8	20	4		4	28	0		4	0	12		20	8	4		112
Buses																	
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scoters																	

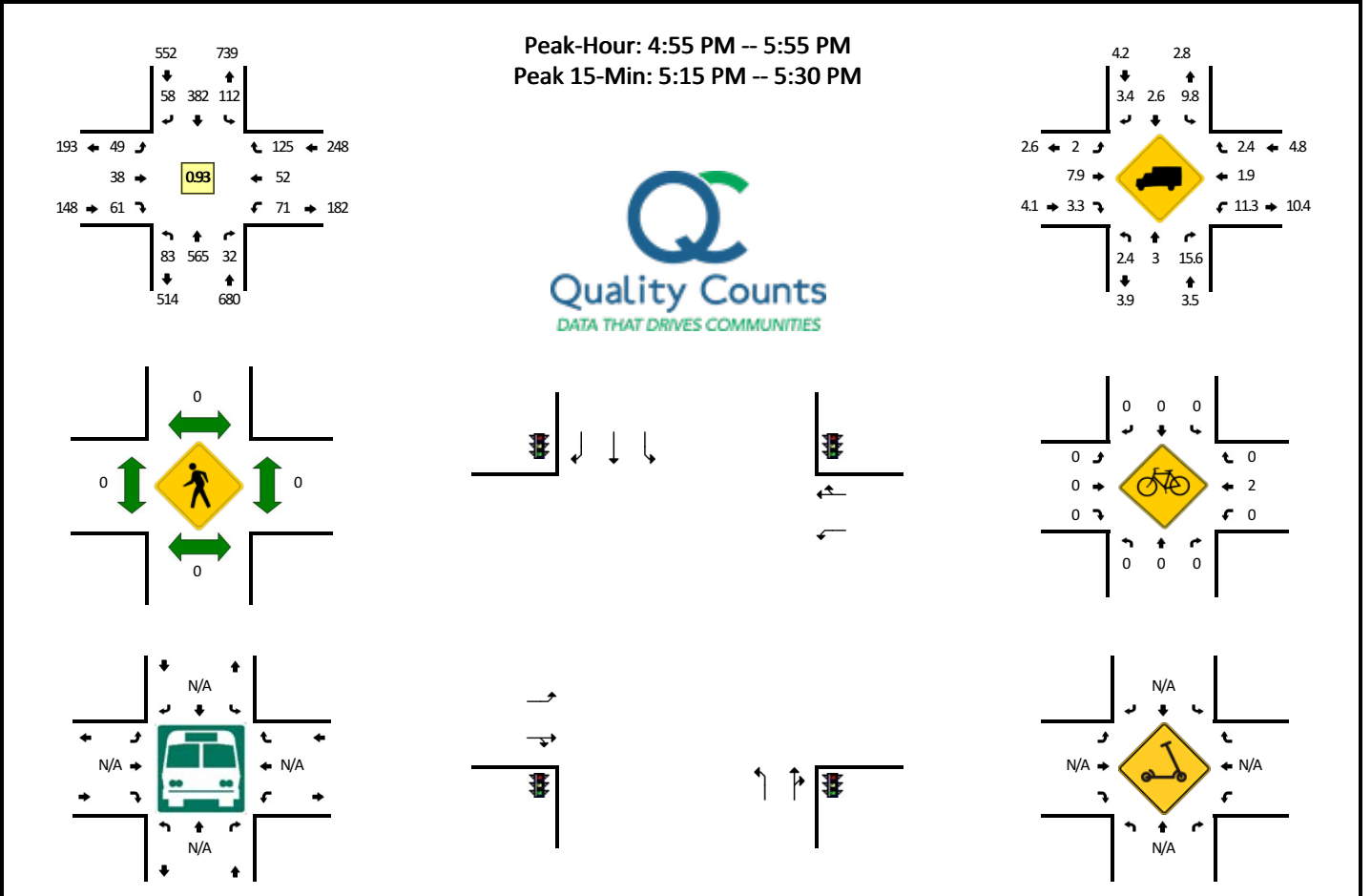
*Comments:*

Report generated on 5/5/2022 2:26 PM

SOURCE: Quality Counts, LLC (<http://www.qualitycounts.net>) 1-877-580-2212

**LOCATION:** Cordon Rd -- Gaffin Rd SE  
**CITY/STATE:** Salem, OR

**QC JOB #:** 15782406  
**DATE:** Wed, Apr 27 2022



5-Min Count Period Beginning At	Cordon Rd (Northbound)				Cordon Rd (Southbound)				Gaffin Rd SE (Eastbound)				Gaffin Rd SE (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
3:00 PM	7	39	4	0	4	29	5	0	1	2	2	0	2	1	7	0	103	
3:05 PM	3	37	3	0	6	32	2	0	4	4	5	0	3	0	8	0	107	
3:10 PM	7	36	7	0	5	23	3	0	1	7	4	0	7	4	9	0	113	
3:15 PM	5	33	1	0	4	34	0	0	1	4	1	0	5	4	8	0	100	
3:20 PM	5	32	2	0	7	37	3	0	2	1	7	0	8	2	4	0	110	
3:25 PM	5	34	2	0	6	38	8	0	4	4	3	0	9	2	8	0	123	
3:30 PM	4	36	2	0	14	33	5	0	4	6	5	0	11	3	9	0	132	
3:35 PM	5	53	3	0	6	39	5	0	4	7	4	0	2	1	18	0	147	
3:40 PM	6	49	3	0	9	36	6	0	3	1	5	0	7	5	14	0	144	
3:45 PM	8	43	1	0	9	33	5	0	4	3	7	0	4	4	12	0	133	
3:50 PM	6	43	4	0	9	36	4	0	0	1	4	0	3	4	8	0	122	
3:55 PM	6	34	3	0	11	28	4	0	8	1	5	0	5	5	13	0	123	1457
4:00 PM	2	46	3	0	3	40	3	0	7	2	4	0	6	8	18	0	142	1496
4:05 PM	11	37	1	0	4	25	3	0	1	4	6	0	1	5	15	0	113	1502
4:10 PM	8	38	3	0	3	30	2	0	6	4	4	0	4	7	19	0	128	1517
4:15 PM	3	37	6	0	10	29	5	0	6	0	4	0	5	4	13	0	122	1539
4:20 PM	11	50	1	0	10	32	5	0	4	7	2	0	4	4	15	0	145	1574
4:25 PM	11	32	3	0	7	27	6	0	4	3	6	0	0	4	5	0	108	1559
4:30 PM	3	39	3	0	9	32	5	0	4	5	3	0	7	7	9	0	126	1553
4:35 PM	10	43	4	0	11	31	4	0	4	0	4	0	1	1	10	0	123	1529
4:40 PM	7	47	2	0	9	27	4	0	1	6	2	0	7	2	16	0	130	1515
4:45 PM	8	39	5	0	11	22	7	0	4	0	2	0	10	4	9	0	121	1503
4:50 PM	5	38	3	0	7	36	5	0	3	4	4	0	4	3	10	0	122	1503
4:55 PM	7	45	7	0	15	30	3	0	2	3	7	0	6	3	8	0	136	1516
5:00 PM	7	53	2	0	11	35	5	0	2	3	3	0	4	1	7	0	133	1507
5:05 PM	6	51	3	0	12	30	3	0	6	8	7	0	9	6	14	0	155	1549
5:10 PM	9	42	2	0	6	36	3	0	3	4	5	0	6	3	5	0	124	1545
5:15 PM	5	54	1	0	10	26	9	0	5	2	5	0	11	3	9	0	140	1563
5:20 PM	6	39	2	0	10	35	4	0	6	2	6	0	8	9	15	0	142	1560
5:25 PM	4	43	5	0	8	38	7	0	5	3	7	0	6	6	23	0	155	1607
5:30 PM	3	35	1	0	9	36	3	0	1	4	6	0	4	6	8	0	116	1597
5:35 PM	8	46	1	0	10	33	6	0	0	2	4	0	5	2	7	0	124	1598
5:40 PM	7	56	4	0	6	21	5	0	8	1	3	0	5	5	14	0	135	1603
5:45 PM	8	46	1	0	10	34	5	0	5	4	3	0	4	5	9	0	134	1616
5:50 PM	13	55	3	0	5	28	5	0	6	2	5	0	3	3	6	0	134	1628
5:55 PM	5	45	1	0	11	18	5	0	7	8	7	0	3	2	8	0	120	1612



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	60	544	32	0	112	396	80	0	64	28	72	0	100	72	188	0	1748
Heavy Trucks	0	12	4		4	8	4		0	0	0		8	0	4		44
Buses																	
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scoters																	

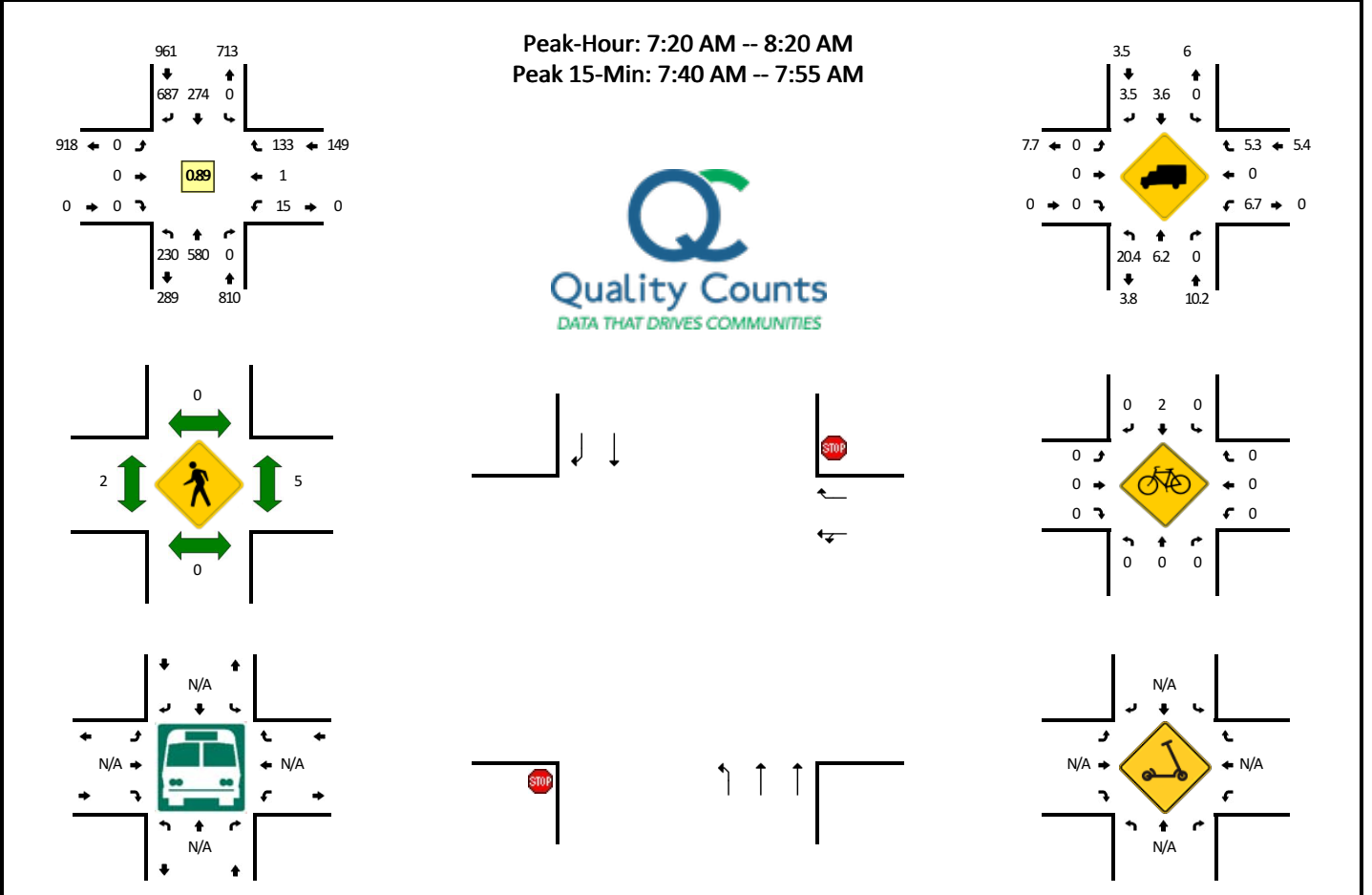
*Comments:*

Report generated on 5/5/2022 2:26 PM

SOURCE: Quality Counts, LLC (<http://www.qualitycounts.net>) 1-877-580-2212

**LOCATION:** Lancaster Dr SE -- N Santiam Hwy WB Ramps  
**CITY/STATE:** Salem, OR

**QC JOB #:** 15782407  
**DATE:** Thu, Apr 28 2022



5-Min Count Period Beginning At	Lancaster Dr SE (Northbound)				Lancaster Dr SE (Southbound)				N Santiam Hwy WB Ramps (Eastbound)				N Santiam Hwy WB Ramps (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
6:00 AM	14	20	0	0	0	14	32	0	0	0	0	0	1	0	7	0	88	
6:05 AM	10	13	0	0	0	12	55	0	0	0	0	0	1	0	5	0	96	
6:10 AM	10	14	0	0	0	14	36	0	0	0	0	0	1	0	4	0	79	
6:15 AM	15	20	0	0	0	11	45	0	0	0	0	0	0	0	5	0	96	
6:20 AM	13	25	0	0	0	16	40	0	0	0	0	0	3	0	2	0	99	
6:25 AM	15	18	0	0	0	12	39	0	0	0	0	0	0	0	5	0	89	
6:30 AM	15	21	0	0	0	13	44	0	0	0	0	0	1	0	4	0	98	
6:35 AM	15	22	0	0	0	15	54	0	0	0	0	0	0	0	7	0	113	
6:40 AM	20	38	0	0	0	18	42	0	0	0	0	0	0	0	11	0	129	
6:45 AM	19	24	0	0	0	16	46	0	0	0	0	0	0	0	8	0	113	
6:50 AM	19	33	0	0	0	13	38	0	0	0	0	0	1	0	9	0	113	
6:55 AM	11	36	0	0	0	18	42	0	0	0	0	0	2	0	4	0	113	1226
7:00 AM	20	37	0	0	0	16	45	0	0	0	0	0	1	0	8	0	127	1265
7:05 AM	17	28	0	0	0	28	50	0	0	0	0	0	0	0	4	0	127	1296
7:10 AM	13	39	0	0	0	20	49	0	0	0	0	0	2	0	6	0	129	1346
7:15 AM	18	42	0	0	0	19	42	0	0	0	0	0	2	0	11	0	134	1384
7:20 AM	22	48	0	0	0	23	49	0	0	0	0	0	1	0	13	0	156	1441
7:25 AM	11	41	0	0	0	19	55	0	0	0	0	0	1	0	12	0	139	1491
7:30 AM	11	31	0	0	0	18	58	0	0	0	0	0	2	0	10	0	130	1523
7:35 AM	22	51	0	0	0	24	70	0	0	0	0	0	1	0	8	0	176	1586
7:40 AM	15	54	0	0	0	19	71	0	0	0	0	0	0	0	8	0	167	1624
7:45 AM	28	59	0	0	0	23	58	0	0	0	0	0	0	0	22	0	190	1701
7:50 AM	26	68	0	0	0	25	54	0	0	0	0	0	0	0	8	0	181	1769
7:55 AM	20	44	0	0	0	22	69	0	0	0	0	0	0	0	11	0	166	1822
8:00 AM	19	42	0	0	0	28	50	0	0	0	0	0	2	0	11	0	152	1847
8:05 AM	15	43	0	0	0	26	44	0	0	0	0	0	2	1	13	0	144	1864
8:10 AM	21	43	0	0	0	23	57	0	0	0	0	0	1	0	11	0	156	1891
8:15 AM	20	56	0	0	0	24	52	0	0	0	0	0	5	0	6	0	163	1920
8:20 AM	23	43	0	0	0	21	43	0	0	0	0	0	3	0	11	0	144	1908
8:25 AM	20	37	0	0	0	16	34	0	0	0	0	0	5	0	9	0	121	1890
8:30 AM	16	57	0	0	0	12	31	0	0	0	0	0	1	0	3	0	120	1880
8:35 AM	14	43	0	0	0	22	36	0	0	0	0	0	2	0	7	0	124	1828
8:40 AM	31	57	0	0	0	32	46	0	0	0	0	0	0	0	7	0	173	1834
8:45 AM	14	54	0	0	0	31	54	0	0	0	0	0	1	0	8	0	162	1806
8:50 AM	20	36	0	0	0	17	41	0	0	0	0	0	1	0	10	0	125	1750
8:55 AM	18	53	0	0	0	27	29	0	0	0	0	0	2	0	9	0	138	1722

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	276	724	0	0	0	268	732	0	0	0	0	0	0	0	152	0	2152
Heavy Trucks	32	28	0		0	8	16		0	0	0	0	0	0	0		84
Buses																	
Pedestrians		0				0				4				0			4
Bicycles	0	0	0		0	4	0		0	0	0		0	0	0		4
Scoters																	

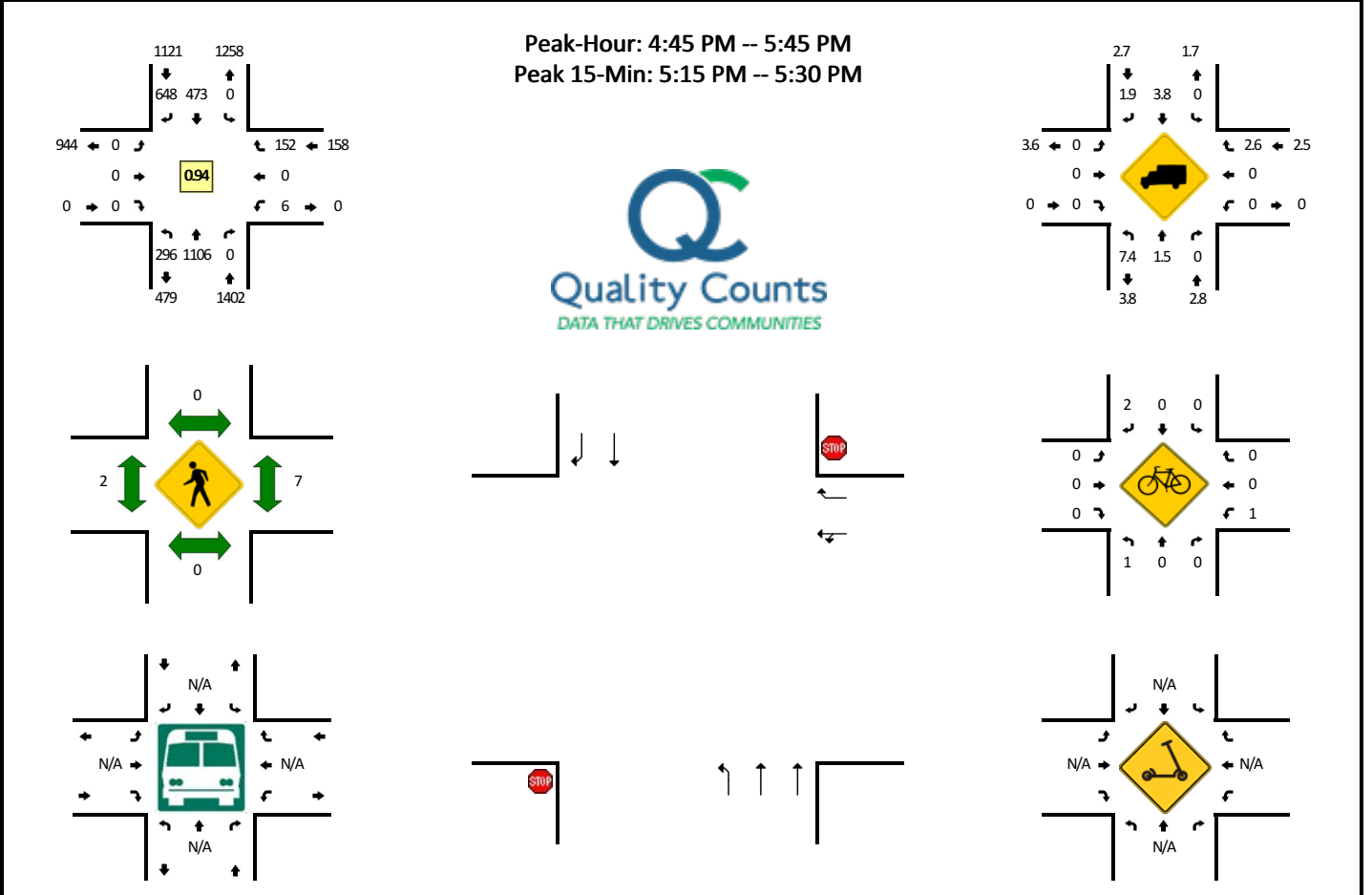
*Comments:*

Report generated on 5/5/2022 2:26 PM

SOURCE: Quality Counts, LLC (<http://www.qualitycounts.net>) 1-877-580-2212

**LOCATION:** Lancaster Dr SE -- N Santiam Hwy WB Ramps  
**CITY/STATE:** Salem, OR

**QC JOB #:** 15782408  
**DATE:** Wed, Apr 27 2022



5-Min Count Period Beginning At	Lancaster Dr SE (Northbound)				Lancaster Dr SE (Southbound)				N Santiam Hwy WB Ramps (Eastbound)				N Santiam Hwy WB Ramps (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
3:00 PM	31	72	0	0	0	34	40	0	0	0	0	0	1	0	3	0	181	
3:05 PM	25	71	0	0	0	40	68	0	0	0	0	0	2	1	13	0	220	
3:10 PM	22	82	0	0	0	38	69	0	0	0	0	0	0	0	2	0	213	
3:15 PM	20	86	0	0	0	39	48	0	0	0	0	0	2	0	8	0	203	
3:20 PM	21	74	0	0	0	34	55	0	0	0	0	0	2	0	6	0	192	
3:25 PM	15	70	0	0	0	52	54	1	0	0	0	0	0	0	10	0	202	
3:30 PM	24	83	0	0	0	39	41	0	0	0	0	0	1	0	12	0	200	
3:35 PM	26	94	0	0	0	41	60	0	0	0	0	0	0	1	11	0	233	
3:40 PM	25	110	0	0	0	33	67	0	0	0	0	0	0	0	12	0	247	
3:45 PM	24	106	0	0	0	59	58	0	0	0	0	0	3	0	15	0	265	
3:50 PM	20	74	0	0	0	45	50	0	0	0	0	0	0	0	8	0	197	
3:55 PM	25	80	0	0	0	35	53	0	0	0	0	0	0	0	6	0	199	2552
4:00 PM	21	66	0	0	0	43	41	0	0	0	0	0	2	0	14	0	187	2558
4:05 PM	35	80	0	0	0	36	57	0	0	0	0	0	0	0	12	0	220	2558
4:10 PM	32	81	0	0	0	34	51	0	0	0	0	0	1	0	6	0	205	2550
4:15 PM	25	81	0	0	0	36	70	0	0	0	0	0	2	0	13	0	227	2574
4:20 PM	24	84	0	0	0	47	45	0	0	0	0	0	2	0	11	0	213	2595
4:25 PM	29	83	0	0	0	32	51	1	0	0	0	0	0	0	6	0	202	2595
4:30 PM	23	87	0	0	0	48	47	0	0	0	0	0	0	0	5	0	210	2605
4:35 PM	34	76	0	0	0	37	45	0	0	0	0	0	3	0	7	0	202	2574
4:40 PM	18	85	0	0	0	49	61	0	0	0	0	0	0	0	10	0	223	2550
4:45 PM	20	84	0	0	0	35	64	0	0	0	0	0	1	0	12	0	216	2501
4:50 PM	25	78	0	0	0	41	40	0	0	0	0	0	0	0	16	0	200	2504
4:55 PM	20	86	0	0	0	33	48	0	0	0	0	0	0	0	10	0	197	2502
5:00 PM	31	101	0	0	0	33	51	0	0	0	0	0	0	0	8	0	224	2539
5:05 PM	29	84	0	0	0	35	55	0	0	0	0	0	0	0	20	0	223	2542
5:10 PM	33	77	0	0	0	34	55	0	0	0	0	0	0	0	9	0	208	2545
5:15 PM	31	97	0	0	0	50	53	0	0	0	0	0	0	0	14	0	245	2563
5:20 PM	25	114	0	0	0	47	58	0	0	0	0	0	1	0	16	0	261	2611
5:25 PM	18	91	0	0	0	45	42	0	0	0	0	0	0	0	14	0	210	2619
5:30 PM	19	102	0	0	0	42	60	0	0	0	0	0	3	0	8	0	234	2643
5:35 PM	22	100	0	0	0	40	59	0	0	0	0	0	1	0	13	0	235	2676
5:40 PM	23	92	0	0	0	38	63	0	0	0	0	0	0	0	12	0	228	2681
5:45 PM	28	63	0	0	0	29	38	0	0	0	0	0	1	0	8	0	167	2632
5:50 PM	10	82	0	0	0	42	41	0	0	0	0	0	0	0	8	0	183	2615
5:55 PM	18	94	0	0	0	45	42	0	0	0	0	0	0	0	10	0	209	2627



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	296	1208	0	0	0	568	612	0	0	0	0	0	4	0	176	0	2864
Heavy Trucks	20	20	0		0	24	16		0	0	0		0	0	0		80
Buses																	
Pedestrians		0				0				0				24			24
Bicycles	0	0	0		0	0	4		0	0	0		0	0	0		4
Scoters																	

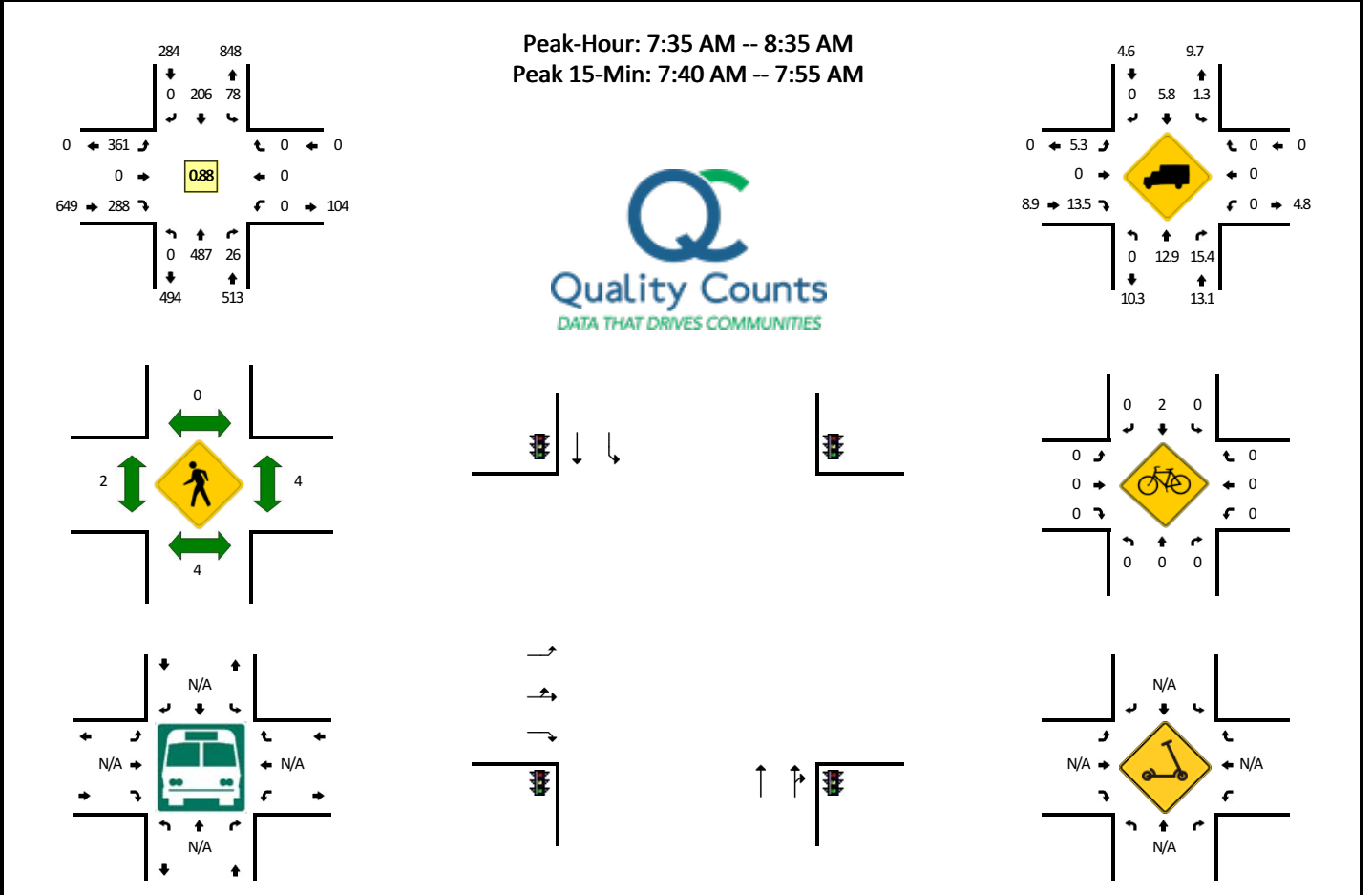
*Comments:*

Report generated on 5/5/2022 2:26 PM

SOURCE: Quality Counts, LLC (<http://www.qualitycounts.net>) 1-877-580-2212

**LOCATION:** Lancaster Dr SE -- N Santiam Hwy EB Ramps  
**CITY/STATE:** Salem, OR

**QC JOB #:** 15782409  
**DATE:** Thu, Apr 28 2022



5-Min Count Period Beginning At	Lancaster Dr SE (Northbound)				Lancaster Dr SE (Southbound)				N Santiam Hwy EB Ramps (Eastbound)				N Santiam Hwy EB Ramps (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
6:00 AM	0	23	0	0	2	9	0	0	10	0	16	0	0	0	0	0	60	
6:05 AM	0	14	0	0	7	11	0	0	9	0	10	0	0	0	0	0	51	
6:10 AM	0	14	1	0	3	12	0	0	10	0	16	0	0	0	0	0	56	
6:15 AM	0	24	1	0	1	11	0	0	12	0	12	0	0	0	0	0	61	
6:20 AM	0	31	2	0	4	15	0	0	11	0	21	0	0	0	0	0	84	
6:25 AM	0	16	0	0	4	8	0	0	11	0	12	0	0	0	0	0	51	
6:30 AM	0	27	2	0	5	8	0	0	12	0	12	0	0	0	0	0	66	
6:35 AM	0	20	3	0	3	12	0	0	15	0	15	0	0	0	0	0	68	
6:40 AM	0	40	2	0	2	13	0	0	19	0	22	0	0	0	0	0	98	
6:45 AM	0	28	3	0	4	15	0	0	15	0	27	0	0	0	0	0	92	
6:50 AM	0	30	1	0	3	11	0	0	20	0	18	0	0	0	0	0	83	
6:55 AM	0	30	2	0	11	10	0	0	20	0	16	0	0	0	0	0	89	859
7:00 AM	0	45	1	0	5	10	0	0	17	0	26	0	0	0	0	0	104	903
7:05 AM	0	23	1	0	9	20	0	0	17	0	19	0	0	0	0	0	89	941
7:10 AM	0	25	2	0	6	16	0	0	28	0	25	0	0	0	0	0	102	987
7:15 AM	0	31	2	0	4	16	0	0	34	0	28	0	0	0	0	0	115	1041
7:20 AM	0	38	1	0	4	17	0	0	29	0	22	0	0	0	0	0	111	1068
7:25 AM	0	25	1	0	5	20	0	0	27	0	22	0	0	0	0	0	100	1117
7:30 AM	0	25	6	0	9	11	0	0	16	0	21	0	0	0	0	0	88	1139
7:35 AM	0	46	4	0	9	16	0	0	28	0	22	0	0	0	0	0	125	1196
7:40 AM	0	38	5	0	2	16	0	0	32	0	31	0	0	0	0	0	124	1222
7:45 AM	0	60	2	0	5	20	0	0	31	0	22	0	0	0	0	0	140	1270
7:50 AM	0	47	4	0	4	24	0	0	44	0	26	0	0	0	0	0	149	1336
7:55 AM	0	35	1	0	6	14	0	0	29	0	27	0	0	0	0	0	112	1359
8:00 AM	0	34	3	0	8	19	0	0	27	0	17	0	0	0	0	0	108	1363
8:05 AM	0	40	1	0	13	18	0	0	18	0	25	0	0	0	0	0	115	1389
8:10 AM	0	31	0	0	6	19	0	0	31	0	23	0	0	0	0	0	110	1397
8:15 AM	0	48	3	0	9	19	0	0	31	0	24	0	0	0	0	0	134	1416
8:20 AM	0	38	2	0	9	18	0	0	26	0	21	0	0	0	0	0	114	1419
8:25 AM	0	30	0	0	5	14	0	0	27	0	29	0	0	0	0	0	105	1424
8:30 AM	0	40	1	0	2	9	0	0	37	0	21	0	0	0	0	0	110	1446
8:35 AM	0	31	3	0	8	16	0	0	29	0	16	0	0	0	0	0	103	1424
8:40 AM	0	46	6	0	7	23	0	0	36	0	23	0	0	0	0	0	141	1441
8:45 AM	0	34	0	0	9	24	0	0	33	0	30	0	0	0	0	0	130	1431
8:50 AM	0	37	1	0	2	17	0	0	17	0	12	0	0	0	0	0	86	1368
8:55 AM	0	40	0	0	5	24	0	0	35	0	37	0	0	0	0	0	141	1397

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	580	44	0	44	240	0	0	428	0	316	0	0	0	0	0	1652
Heavy Trucks	0	48	4		0	8	0		12	0	36		0	0	0		108
Buses																	
Pedestrians		0				0				0				4			4
Bicycles	0	0	0		0	4	0		0	0	0		0	0	0		4
Scoters																	

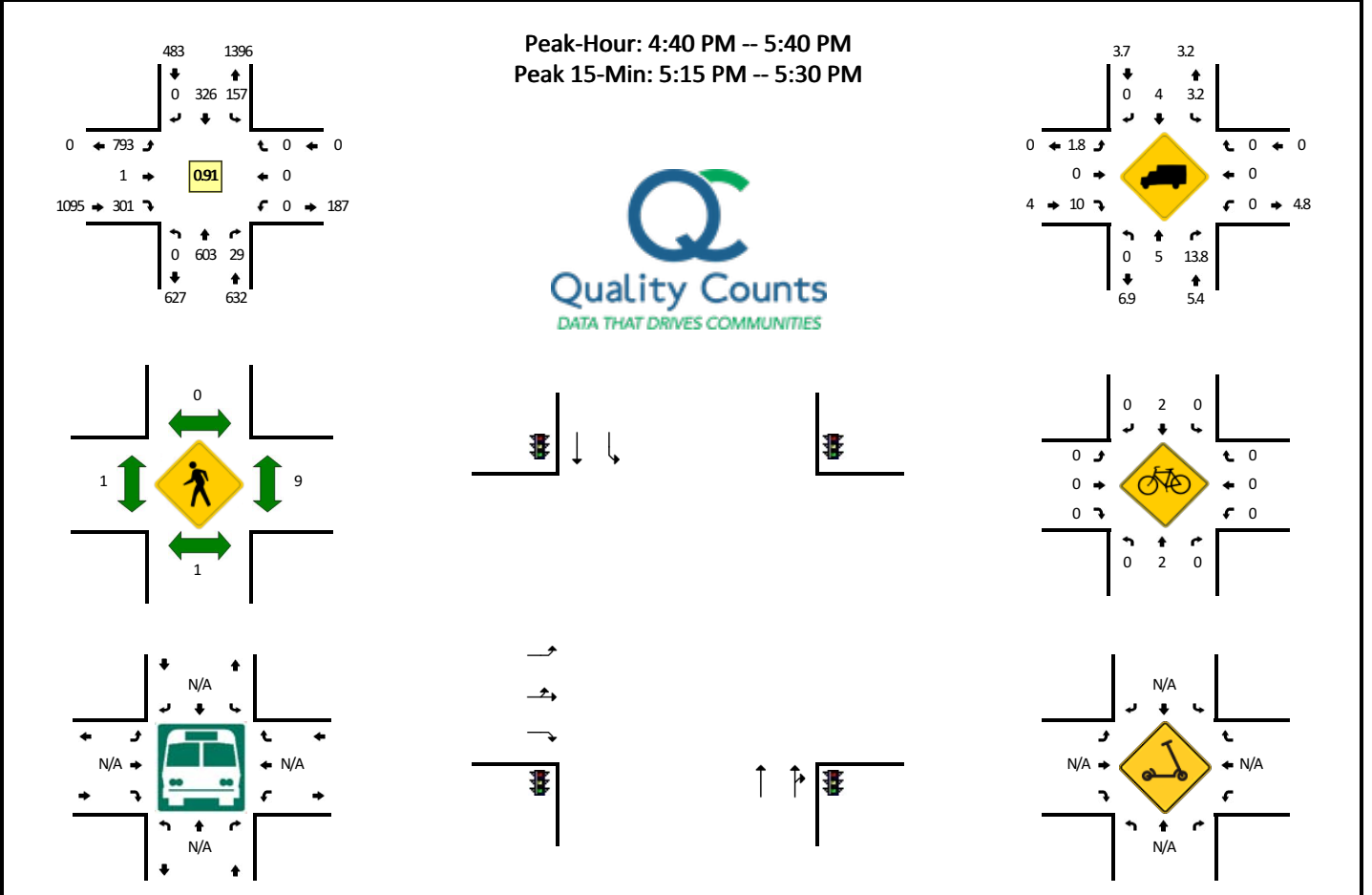
*Comments:*

Report generated on 5/5/2022 2:26 PM

SOURCE: Quality Counts, LLC (<http://www.qualitycounts.net>) 1-877-580-2212

**LOCATION:** Lancaster Dr SE -- N Santiam Hwy EB Ramps  
**CITY/STATE:** Salem, OR

**QC JOB #:** 15782410  
**DATE:** Wed, Apr 27 2022



5-Min Count Period Beginning At	Lancaster Dr SE (Northbound)				Lancaster Dr SE (Southbound)				N Santiam Hwy EB Ramps (Eastbound)				N Santiam Hwy EB Ramps (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
3:00 PM	0	57	1	0	15	22	0	0	42	0	24	0	0	0	0	0	161	
3:05 PM	0	56	3	0	11	31	0	0	44	0	23	0	0	0	0	0	168	
3:10 PM	0	61	1	0	8	29	0	0	38	0	27	0	0	0	0	0	164	
3:15 PM	0	50	2	0	10	30	0	0	60	0	25	0	0	0	0	0	177	
3:20 PM	0	47	5	0	11	29	0	0	47	0	33	0	0	0	0	0	172	
3:25 PM	0	45	1	0	9	35	0	0	40	0	32	0	0	0	0	0	162	
3:30 PM	0	48	6	0	17	31	0	0	59	0	28	0	0	0	0	0	189	
3:35 PM	0	58	4	0	15	26	0	0	62	1	35	0	0	0	0	0	201	
3:40 PM	0	65	6	0	9	22	0	0	76	0	20	0	0	0	0	0	198	
3:45 PM	0	65	7	0	17	41	0	0	58	0	29	0	0	0	0	0	217	
3:50 PM	0	38	2	0	19	30	0	0	57	0	23	0	0	0	0	0	169	
3:55 PM	0	49	4	0	17	19	0	0	60	0	19	0	0	0	0	0	168	
4:00 PM	0	53	4	0	15	31	0	0	28	0	23	0	0	0	0	0	154	2146
4:05 PM	0	58	8	0	13	21	0	0	55	0	23	0	0	0	0	0	178	2149
4:10 PM	0	48	7	0	15	18	0	0	66	0	29	0	0	0	0	0	183	2168
4:15 PM	0	58	3	0	10	29	0	0	49	0	22	0	0	0	0	0	171	2162
4:20 PM	0	47	2	0	13	41	0	0	58	0	23	0	0	0	0	0	184	2174
4:25 PM	0	47	9	0	5	20	0	0	69	0	27	0	0	0	0	0	177	2189
4:30 PM	0	53	1	0	16	30	0	0	52	0	22	0	0	0	0	0	174	2174
4:35 PM	0	62	4	0	11	32	0	0	47	0	18	0	0	0	0	0	174	2147
4:40 PM	0	39	1	0	25	27	0	0	74	0	19	0	0	0	0	0	185	2134
4:45 PM	0	38	2	0	10	19	0	0	58	0	30	0	0	0	0	0	157	2074
4:50 PM	0	47	2	0	10	34	0	0	59	0	31	0	0	0	0	0	183	2088
4:55 PM	0	45	2	0	15	18	0	0	61	0	30	0	0	0	0	0	171	2091
5:00 PM	0	49	1	0	5	17	0	0	83	0	26	0	0	0	0	0	181	2118
5:05 PM	0	72	3	0	11	33	0	0	42	0	21	0	0	0	0	0	182	2122
5:10 PM	0	62	2	0	17	19	0	0	46	0	19	0	0	0	0	0	165	2104
5:15 PM	0	56	2	0	15	32	0	0	91	0	24	0	0	0	0	0	220	2153
5:20 PM	0	48	5	0	10	33	0	0	71	0	29	0	0	0	0	0	196	2165
5:25 PM	0	41	7	0	12	36	0	0	68	0	27	0	0	0	0	0	191	2179
5:30 PM	0	43	0	0	18	27	0	0	87	0	24	0	0	0	0	0	199	2204
5:35 PM	0	63	2	0	9	31	0	0	53	1	21	0	0	0	0	0	180	2210
5:40 PM	0	67	2	0	12	28	0	0	53	0	18	0	0	0	0	0	180	2205
5:45 PM	0	39	2	0	7	21	0	0	47	0	25	0	0	0	0	0	141	2189
5:50 PM	0	27	3	0	17	24	0	0	67	0	22	0	0	0	0	0	160	2166
5:55 PM	0	43	1	0	11	35	0	0	64	0	19	0	0	0	0	0	173	2168

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	580	56	0	148	404	0	0	920	0	320	0	0	0	0	0	2428
Heavy Trucks	0	36	8		8	20	0		12	0	20		0	0	0		104
Buses																	
Pedestrians		4				0				0				20			24
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scoters																	

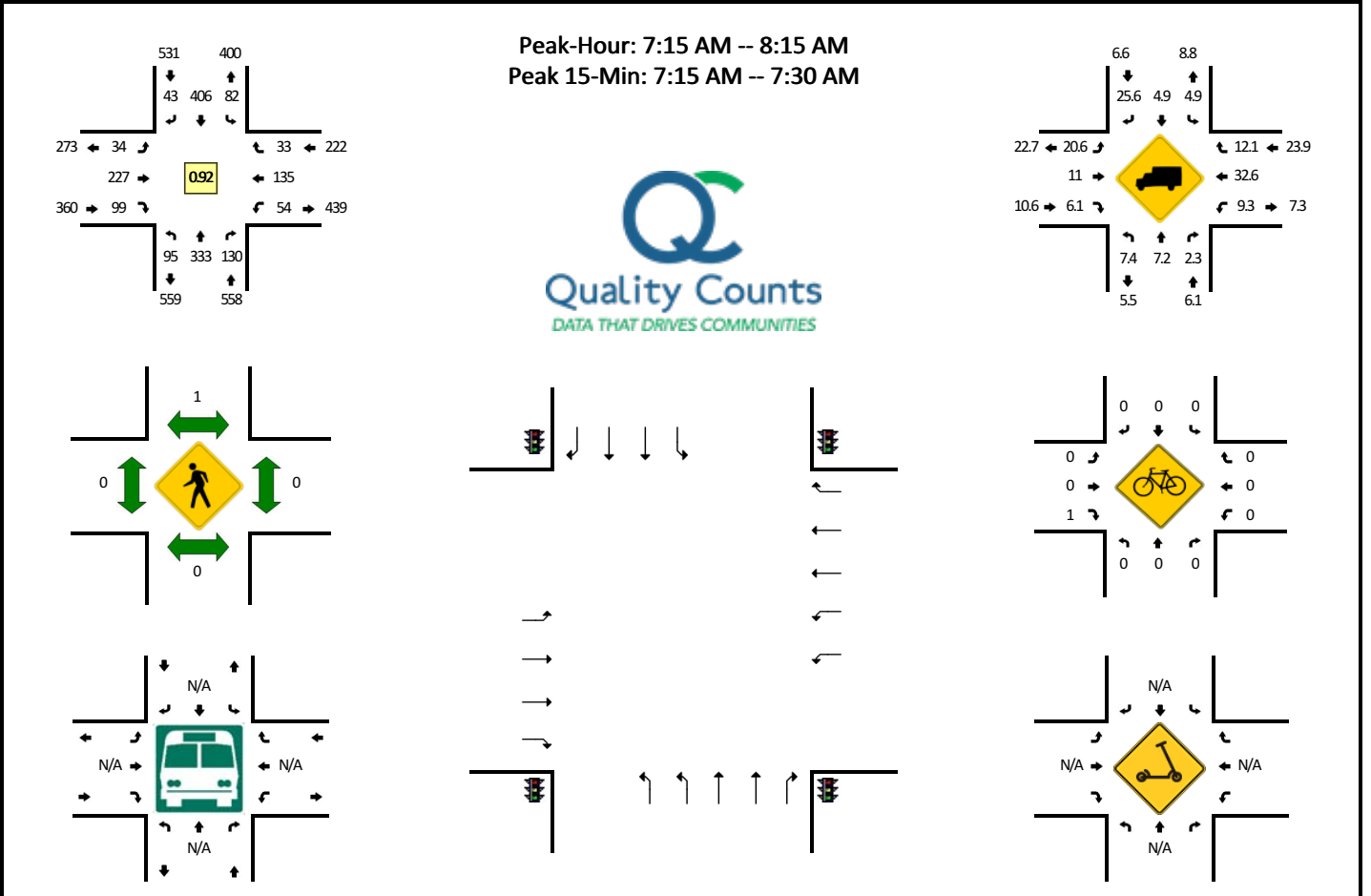
*Comments:*

Report generated on 5/5/2022 2:26 PM

SOURCE: Quality Counts, LLC (<http://www.qualitycounts.net>) 1-877-580-2212

**LOCATION:** Cordon Rd SE -- Lancaster Dr SE  
**CITY/STATE:** Salem, OR

**QC JOB #:** 15782411  
**DATE:** Thu, Apr 28 2022



5-Min Count Period Beginning At	Cordon Rd SE (Northbound)				Cordon Rd SE (Southbound)				Lancaster Dr SE (Eastbound)				Lancaster Dr SE (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
6:00 AM	2	10	5	0	1	12	5	0	0	9	2	0	1	7	1	0	55	
6:05 AM	2	11	2	0	1	19	3	0	2	12	6	0	3	3	2	0	66	
6:10 AM	4	12	7	0	3	16	0	0	0	14	6	0	2	7	0	0	71	
6:15 AM	3	13	8	0	3	18	1	0	2	5	4	0	4	11	4	0	76	
6:20 AM	7	11	8	0	4	18	1	0	2	11	8	0	1	12	0	0	83	
6:25 AM	3	13	3	0	3	24	1	0	5	8	5	0	4	7	3	0	79	
6:30 AM	1	17	8	0	4	26	4	0	0	9	7	0	4	9	2	0	91	
6:35 AM	8	17	10	0	3	19	2	0	5	10	7	0	3	10	1	0	95	
6:40 AM	6	23	7	0	9	37	1	0	1	9	12	0	5	16	2	0	128	
6:45 AM	7	24	10	0	14	24	3	0	2	25	12	0	6	14	0	0	141	
6:50 AM	4	19	10	0	10	28	2	0	4	17	4	0	5	10	1	0	114	
6:55 AM	8	27	11	0	6	33	1	0	0	19	3	0	4	15	4	0	131	1130
7:00 AM	8	15	17	0	12	22	2	0	2	16	7	0	4	10	7	0	122	1197
7:05 AM	3	27	4	0	6	25	5	0	3	27	8	0	2	8	3	0	121	1252
7:10 AM	5	24	9	0	5	20	2	0	0	20	7	0	4	9	4	0	109	1290
7:15 AM	7	23	21	0	10	34	3	0	3	22	11	0	1	10	0	0	145	1359
7:20 AM	11	25	17	0	8	35	2	0	3	28	3	0	6	9	3	0	150	1426
7:25 AM	4	30	12	0	12	49	4	0	4	17	7	0	6	10	3	0	158	1505
7:30 AM	6	28	15	0	2	23	4	0	5	24	9	0	7	17	3	0	143	1557
7:35 AM	5	37	6	0	9	32	3	0	3	11	13	0	2	8	3	0	132	1594
7:40 AM	15	26	11	0	13	33	3	0	4	20	8	0	6	8	3	0	150	1616
7:45 AM	7	23	7	0	6	40	3	0	1	17	8	0	4	10	5	0	131	1606
7:50 AM	9	35	10	0	6	39	7	0	4	29	14	0	6	11	2	0	172	1664
7:55 AM	12	30	4	0	0	35	3	0	3	23	5	0	4	8	3	0	130	1663
8:00 AM	8	24	7	0	6	28	4	0	2	15	7	0	7	10	2	0	120	1661
8:05 AM	6	30	12	0	6	31	1	0	1	9	10	0	3	15	3	0	127	1667
8:10 AM	5	22	8	0	4	27	6	0	1	12	4	0	2	19	3	0	113	1671
8:15 AM	9	24	4	0	3	20	6	0	2	14	3	0	4	16	7	0	112	1638
8:20 AM	7	23	6	0	4	37	5	0	4	16	11	0	4	11	2	0	130	1618
8:25 AM	6	20	3	0	7	41	1	0	0	20	7	0	10	12	2	0	129	1589
8:30 AM	6	28	9	0	6	30	4	0	1	10	6	0	5	7	7	0	119	1565
8:35 AM	8	22	5	0	5	32	3	0	1	19	2	0	0	21	1	0	119	1552
8:40 AM	13	17	6	0	2	30	7	0	3	16	9	0	1	12	4	0	120	1522
8:45 AM	3	30	9	0	2	20	0	0	2	23	7	0	4	12	1	0	113	1504
8:50 AM	8	16	5	0	7	37	0	0	2	18	14	0	7	14	4	0	132	1464
8:55 AM	9	23	3	0	10	32	0	0	1	12	9	0	3	17	4	0	123	1457

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	88	312	200	0	120	472	36	0	40	268	84	0	52	116	24	0	1812
Heavy Trucks	4	24	4		0	24	12		12	16	4		4	40	4		148
Buses																	
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scoters																	

*Comments:*

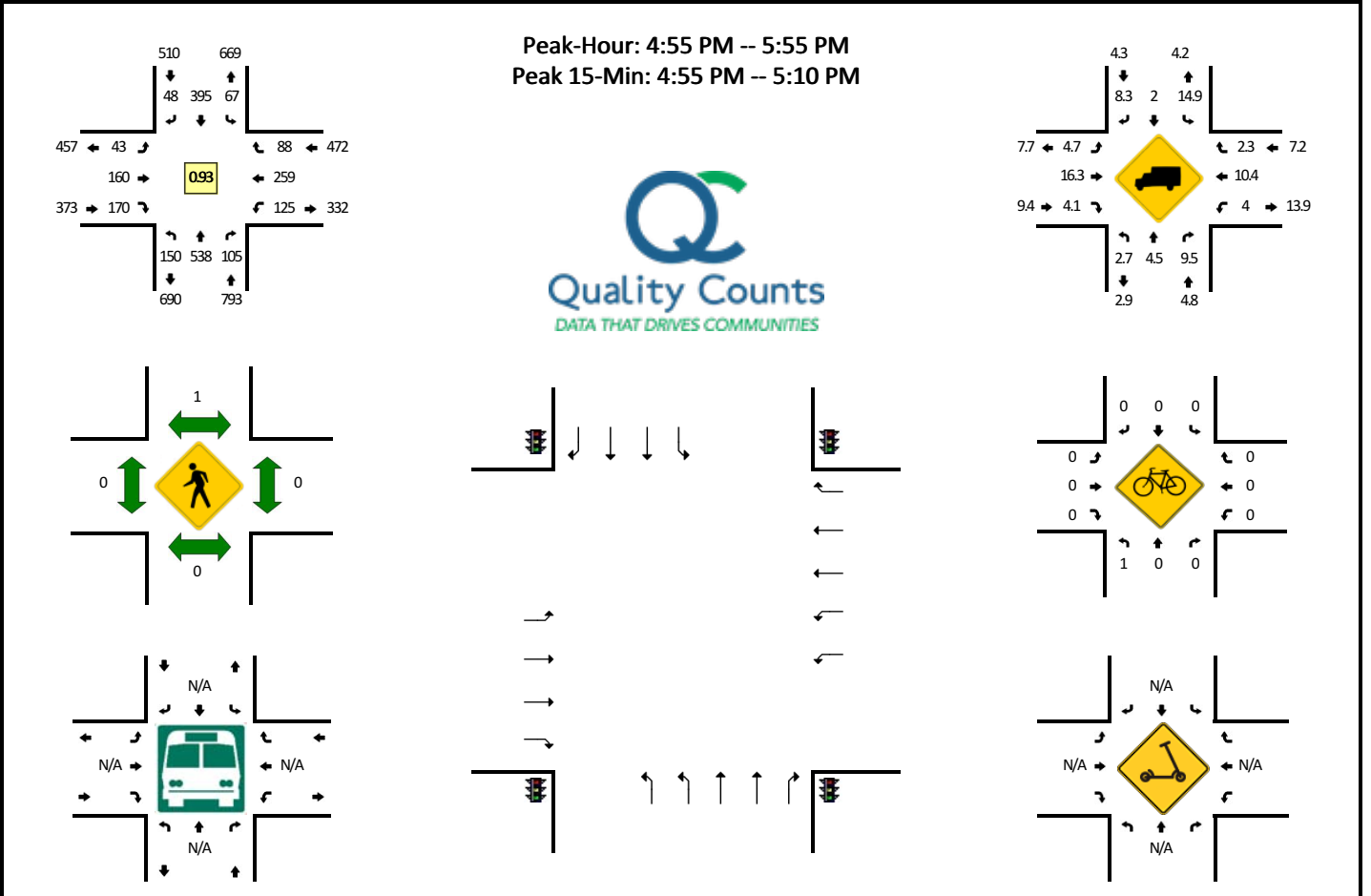
Report generated on 5/5/2022 2:26 PM

SOURCE: Quality Counts, LLC (<http://www.qualitycounts.net>) 1-877-580-2212



**LOCATION:** Cordon Rd SE -- Lancaster Dr SE  
**CITY/STATE:** Salem, OR

**QC JOB #:** 15782412  
**DATE:** Wed, Apr 27 2022



5-Min Count Period Beginning At	Cordon Rd SE (Northbound)				Cordon Rd SE (Southbound)				Lancaster Dr SE (Eastbound)				Lancaster Dr SE (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
3:00 PM	10	27	9	0	5	26	11	0	2	14	5	0	10	27	16	0	162	
3:05 PM	12	37	13	0	6	25	6	0	1	17	17	0	6	13	12	0	165	
3:10 PM	14	39	12	0	3	31	4	0	3	12	11	0	9	11	4	0	153	
3:15 PM	9	31	10	0	4	30	3	0	0	19	13	0	4	14	4	0	141	
3:20 PM	15	27	5	0	6	36	5	0	4	8	16	0	7	11	6	0	146	
3:25 PM	11	41	8	0	3	36	5	0	1	18	13	0	5	13	7	0	161	
3:30 PM	12	23	8	0	3	40	9	0	3	30	16	0	6	25	14	0	189	
3:35 PM	19	41	13	0	11	33	3	0	2	19	15	0	14	31	21	0	222	
3:40 PM	11	36	15	0	9	34	4	0	9	19	14	0	15	35	20	0	221	
3:45 PM	15	22	10	0	8	26	6	0	5	22	12	0	10	27	10	0	173	
3:50 PM	9	49	13	0	5	41	7	0	4	16	16	0	6	16	9	0	191	
3:55 PM	11	34	6	0	4	30	3	0	4	10	7	0	6	19	6	0	140	2064
4:00 PM	13	28	7	0	1	34	9	0	4	11	10	0	9	30	12	0	168	2070
4:05 PM	17	48	5	0	2	31	9	0	3	14	10	0	4	26	9	0	178	2083
4:10 PM	10	34	8	0	6	22	4	0	2	9	18	0	7	28	7	0	155	2085
4:15 PM	12	40	5	0	3	34	4	0	4	11	16	0	12	22	11	0	174	2118
4:20 PM	8	42	9	0	1	29	5	0	2	13	14	0	3	15	4	0	145	2117
4:25 PM	16	39	9	0	6	28	3	0	2	12	16	0	5	16	7	0	159	2115
4:30 PM	16	34	5	0	5	33	2	0	1	14	18	0	9	27	8	0	172	2098
4:35 PM	10	43	5	0	3	26	4	0	4	3	13	0	12	23	9	0	155	2031
4:40 PM	11	53	7	0	4	32	5	0	4	11	14	0	9	17	10	0	177	1987
4:45 PM	9	36	6	0	1	20	6	0	1	19	11	0	6	14	3	0	132	1946
4:50 PM	14	46	8	0	5	33	4	0	2	9	12	0	4	13	6	0	156	1911
4:55 PM	15	50	6	0	4	37	4	0	3	17	15	0	7	20	7	0	185	1956
5:00 PM	16	36	7	0	5	33	3	0	7	9	9	0	19	35	12	0	191	1979
5:05 PM	9	50	9	0	2	37	6	0	4	7	14	0	24	30	7	0	199	2000
5:10 PM	18	35	11	0	3	30	6	0	5	13	19	0	7	21	9	0	177	2022
5:15 PM	15	48	10	0	6	39	4	0	3	16	13	0	8	24	5	0	191	2039
5:20 PM	14	43	6	0	8	42	5	0	6	13	13	0	9	15	4	0	178	2072
5:25 PM	10	35	10	0	2	37	3	0	3	14	16	0	4	11	3	0	148	2061
5:30 PM	16	45	8	0	6	37	6	0	1	16	18	0	13	17	5	0	188	2077
5:35 PM	12	42	10	0	9	30	1	0	2	9	16	0	13	27	11	0	182	2104
5:40 PM	7	47	8	0	5	19	6	0	4	13	11	0	13	27	12	0	172	2099
5:45 PM	7	57	9	0	6	25	3	0	2	16	15	0	0	13	6	0	159	2126
5:50 PM	11	50	11	0	11	29	1	0	3	17	11	0	8	19	7	0	178	2148
5:55 PM	7	36	8	0	5	27	1	0	3	16	15	0	12	16	8	0	154	2117

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	160	544	88	0	44	428	52	0	56	132	152	0	200	340	104	0	2300
Heavy Trucks	0	48	8		4	4	8		4	24	12		4	36	4		156
Buses																	
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scoters																	

*Comments:*

Report generated on 5/5/2022 2:26 PM

SOURCE: Quality Counts, LLC (<http://www.qualitycounts.net>) 1-877-580-2212

**APPENDIX C:**  
**SYNCHRO REPORTS – 2022 EXISTING AM + PM**

# HCM Signalized Intersection Capacity Analysis

## 1: Lancaster Dr SE & Rickey St SE

08/28/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations	↖	↗		↖	↗	↗	↖	↑↑	↗	↖	↗		
Traffic Volume (vph)	39	18	57	453	21	152	48	390	241	67	442	28	
Future Volume (vph)	39	18	57	453	21	152	48	390	241	67	442	28	
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	
Total Lost time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0		
Lane Util. Factor	1.00	1.00		0.95	0.95	1.00	1.00	0.95	1.00	1.00	0.95		
Frpb, ped/bikes	1.00	1.00		1.00	1.00	0.98	1.00	1.00	0.97	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		
Frt	1.00	0.89		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99		
Flt Protected	0.95	1.00		0.95	0.96	1.00	0.95	1.00	1.00	0.95	1.00		
Satd. Flow (prot)	1676	1565		1577	1588	1455	1613	3226	1395	1644	3254		
Flt Permitted	0.95	1.00		0.95	0.96	1.00	0.95	1.00	1.00	0.95	1.00		
Satd. Flow (perm)	1676	1565		1577	1588	1455	1613	3226	1395	1644	3254		
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	
Adj. Flow (vph)	42	20	62	492	23	165	52	424	262	73	480	30	
RTOR Reduction (vph)	0	59	0	0	0	113	0	0	136	0	3	0	
Lane Group Flow (vph)	42	23	0	256	259	52	52	424	126	73	507	0	
Confl. Peds. (#/hr)	7					7	3		6	6		3	
Confl. Bikes (#/hr)												1	
Heavy Vehicles (%)	2%	2%	2%	3%	3%	3%	6%	6%	6%	4%	4%	4%	
Turn Type	Split	NA		Split	NA	Perm	Prot	NA	Perm	Prot	NA		
Protected Phases	3	3		4	4		1	6		5	2		
Permitted Phases						4			6				
Actuated Green, G (s)	5.4	5.4		22.7	22.7	22.7	7.4	53.1	53.1	8.8	54.5		
Effective Green, g (s)	5.4	5.4		22.7	22.7	22.7	7.4	53.1	53.1	8.8	54.5		
Actuated g/C Ratio	0.05	0.05		0.21	0.21	0.21	0.07	0.48	0.48	0.08	0.50		
Clearance Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0		
Vehicle Extension (s)	0.5	0.5		0.5	0.5	0.5	3.0	0.5	0.5	3.0	0.5		
Lane Grp Cap (vph)	82	76		325	327	300	108	1557	673	131	1612		
v/s Ratio Prot	c0.03	0.01		0.16	c0.16		0.03	0.13		c0.04	c0.16		
v/s Ratio Perm						0.04			0.09				
v/c Ratio	0.51	0.30		0.79	0.79	0.17	0.48	0.27	0.19	0.56	0.31		
Uniform Delay, d1	51.0	50.5		41.4	41.4	35.9	49.5	16.9	16.2	48.7	16.6		
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		
Incremental Delay, d2	2.2	0.8		11.1	11.6	0.1	3.4	0.4	0.6	5.1	0.5		
Delay (s)	53.3	51.3		52.4	53.0	36.0	52.8	17.4	16.8	53.8	17.1		
Level of Service	D	D		D	D	D	D	B	B	D	B		
Approach Delay (s)		52.0			48.7			19.7			21.7		
Approach LOS		D			D			B			C		
<b>Intersection Summary</b>													
HCM 2000 Control Delay			31.4		HCM 2000 Level of Service				C				
HCM 2000 Volume to Capacity ratio			0.47										
Actuated Cycle Length (s)			110.0		Sum of lost time (s)				20.0				
Intersection Capacity Utilization			57.3%		ICU Level of Service				B				
Analysis Period (min)			15										
c Critical Lane Group													

# HCM Signalized Intersection Capacity Analysis

## 1: Lancaster Dr SE & Rickey St SE

08/28/2022



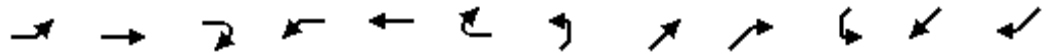
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗	↖	↖	↑↑	↖	↖	↗	↗
Traffic Volume (vph)	24	33	45	422	19	220	49	658	484	253	640	45
Future Volume (vph)	24	33	45	422	19	220	49	658	484	253	640	45
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
Lane Util. Factor	1.00	1.00		0.95	0.95	1.00	1.00	0.95	1.00	1.00	0.95	
Frbp, ped/bikes	1.00	1.00		1.00	1.00	0.97	1.00	1.00	0.95	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	
Frt	1.00	0.91		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99	
Flt Protected	0.95	1.00		0.95	0.96	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1710	1645		1593	1603	1461	1676	3353	1421	1660	3282	
Flt Permitted	0.95	1.00		0.95	0.96	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1710	1645		1593	1603	1461	1676	3353	1421	1660	3282	
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	35	47	444	20	232	52	693	509	266	674	47
RTOR Reduction (vph)	0	40	0	0	0	146	0	0	296	0	3	0
Lane Group Flow (vph)	25	42	0	231	233	86	52	693	213	266	718	0
Confl. Peds. (#/hr)	10					10	2		12	12		2
Confl. Bikes (#/hr)									1			
Heavy Vehicles (%)	0%	0%	0%	2%	2%	2%	2%	2%	2%	3%	3%	3%
Turn Type	Split	NA		Split	NA	Perm	Prot	NA	Perm	Prot	NA	
Protected Phases	3	3		4	4		1	6		5	2	
Permitted Phases						4			6			
Actuated Green, G (s)	7.1	7.1		23.7	23.7	23.7	8.3	54.3	54.3	24.9	70.9	
Effective Green, g (s)	7.1	7.1		23.7	23.7	23.7	8.3	54.3	54.3	24.9	70.9	
Actuated g/C Ratio	0.05	0.05		0.18	0.18	0.18	0.06	0.42	0.42	0.19	0.55	
Clearance Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
Vehicle Extension (s)	0.5	0.5		0.5	0.5	0.5	3.0	0.5	0.5	3.0	0.5	
Lane Grp Cap (vph)	93	89		290	292	266	107	1400	593	317	1789	
v/s Ratio Prot	0.01	c0.03		0.15	c0.15		0.03	c0.21		c0.16	0.22	
v/s Ratio Perm						0.06			0.15			
v/c Ratio	0.27	0.48		0.80	0.80	0.32	0.49	0.49	0.36	0.84	0.40	
Uniform Delay, d1	59.0	59.6		50.8	50.9	46.2	58.8	27.8	25.9	50.6	17.2	
Progression Factor	1.00	1.00		1.00	1.00	1.00	0.97	1.18	3.38	1.00	1.00	
Incremental Delay, d2	0.6	1.5		13.2	13.2	0.3	3.4	1.2	1.7	17.4	0.7	
Delay (s)	59.5	61.1		64.0	64.0	46.4	60.4	34.1	89.3	68.0	17.9	
Level of Service	E	E		E	E	D	E	C	F	E	B	
Approach Delay (s)		60.7			58.2			57.6			31.4	
Approach LOS		E			E			E			C	

### Intersection Summary

HCM 2000 Control Delay	49.3	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	67.7%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis  
 2: Cordon Rd/Cordon Rd SE & Macleay Rd SE

08/26/2022



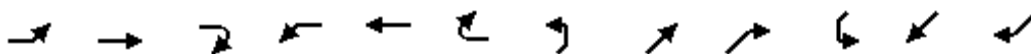
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations		↕			↕		↗	↘		↗	↘	
Traffic Volume (vph)	35	17	43	43	39	44	26	415	22	38	431	22
Future Volume (vph)	35	17	43	43	39	44	26	415	22	38	431	22
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)		5.0			5.0		4.0	6.0		4.0	6.0	
Lane Util. Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Frt		0.94			0.95		1.00	0.99		1.00	0.99	
Flt Protected		0.98			0.98		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1580			1621		1613	1685		1569	1639	
Flt Permitted		0.80			0.87		0.42	1.00		0.41	1.00	
Satd. Flow (perm)		1282			1427		720	1685		685	1639	
Peak-hour factor, PHF	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Adj. Flow (vph)	41	20	51	51	46	52	31	488	26	45	507	26
RTOR Reduction (vph)	0	43	0	0	28	0	0	2	0	0	2	0
Lane Group Flow (vph)	0	69	0	0	121	0	31	512	0	45	531	0
Heavy Vehicles (%)	5%	5%	5%	4%	4%	4%	6%	6%	6%	9%	9%	9%
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		8			4		1	6		5	2	
Permitted Phases	8			4			6			2		
Actuated Green, G (s)		9.1			9.1		44.5	43.0		46.3	43.9	
Effective Green, g (s)		9.1			9.1		44.5	43.0		46.3	43.9	
Actuated g/C Ratio		0.13			0.13		0.64	0.62		0.67	0.63	
Clearance Time (s)		5.0			5.0		4.0	6.0		4.0	6.0	
Vehicle Extension (s)		0.5			0.5		0.5	0.5		0.5	0.5	
Lane Grp Cap (vph)		167			186		480	1042		486	1035	
v/s Ratio Prot							0.00	0.30		c0.00	c0.32	
v/s Ratio Perm		0.05			c0.08		0.04			0.06		
v/c Ratio		0.41			0.65		0.06	0.49		0.09	0.51	
Uniform Delay, d1		27.7			28.7		4.7	7.3		4.2	7.0	
Progression Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		0.6			6.1		0.0	1.7		0.0	1.8	
Delay (s)		28.3			34.8		4.7	8.9		4.2	8.8	
Level of Service		C			C		A	A		A	A	
Approach Delay (s)		28.3			34.8			8.7			8.4	
Approach LOS		C			C			A			A	

Intersection Summary		
HCM 2000 Control Delay	13.0	HCM 2000 Level of Service
HCM 2000 Volume to Capacity ratio	0.53	B
Actuated Cycle Length (s)	69.5	Sum of lost time (s)
Intersection Capacity Utilization	50.7%	15.0
Analysis Period (min)	15	ICU Level of Service
		A
c Critical Lane Group		

# HCM Signalized Intersection Capacity Analysis

## 2: Cordon Rd/Cordon Rd SE & Macleay Rd SE

08/28/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations		↕			↕		↗	↘		↗	↘	
Traffic Volume (vph)	58	67	36	34	37	39	51	578	75	66	487	31
Future Volume (vph)	58	67	36	34	37	39	51	578	75	66	487	31
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)		5.0			5.0		4.0	6.0		4.0	6.0	
Lane Util. Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Frt		0.97			0.95		1.00	0.98		1.00	0.99	
Flt Protected		0.98			0.98		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1698			1623		1660	1717		1644	1715	
Flt Permitted		0.85			0.80		0.40	1.00		0.28	1.00	
Satd. Flow (perm)		1461			1319		691	1717		477	1715	
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	62	72	39	37	40	42	55	622	81	71	524	33
RTOR Reduction (vph)	0	15	0	0	28	0	0	4	0	0	2	0
Lane Group Flow (vph)	0	158	0	0	91	0	55	699	0	71	555	0
Heavy Vehicles (%)	1%	1%	1%	4%	4%	4%	3%	3%	3%	4%	4%	4%
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		8			4		1	6		5	2	
Permitted Phases	8			4			6			2		
Actuated Green, G (s)		10.5			10.5		45.2	42.7		47.0	43.6	
Effective Green, g (s)		10.5			10.5		45.2	42.7		47.0	43.6	
Actuated g/C Ratio		0.15			0.15		0.63	0.60		0.66	0.61	
Clearance Time (s)		5.0			5.0		4.0	6.0		4.0	6.0	
Vehicle Extension (s)		0.5			0.5		0.5	0.5		0.5	0.5	
Lane Grp Cap (vph)		214			193		470	1023		368	1044	
v/s Ratio Prot							0.00	c0.41		c0.01	0.32	
v/s Ratio Perm		c0.11			0.07		0.07			0.12		
v/c Ratio		0.74			0.47		0.12	0.68		0.19	0.53	
Uniform Delay, d1		29.2			28.0		5.3	9.8		5.8	8.1	
Progression Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		11.4			0.7		0.0	3.7		0.1	1.9	
Delay (s)		40.6			28.7		5.3	13.5		5.9	10.0	
Level of Service		D			C		A	B		A	B	
Approach Delay (s)		40.6			28.7			12.9			9.6	
Approach LOS		D			C			B			A	

### Intersection Summary






















HCM 2000 Control Delay	15.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	71.6	Sum of lost time (s)	15.0
Intersection Capacity Utilization	66.5%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



# HCM Signalized Intersection Capacity Analysis

## 3: Cordon Rd & Gaffin Rd SE






















08/26/2022

												
Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	34	30	64	52	27	94	34	333	31	80	401	38
Future Volume (vph)	34	30	64	52	27	94	34	333	31	80	401	38
Ideal Flow (vphp)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	6.0		4.0	6.0	6.0
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Frt	1.00	0.90		1.00	0.88		1.00	0.99		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1613	1524		1555	1446		1583	1646		1598	1682	1430
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1613	1524		1555	1446		1583	1646		1598	1682	1430
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	38	33	71	58	30	104	38	370	34	89	446	42
RTOR Reduction (vph)	0	65	0	0	94	0	0	3	0	0	0	18
Lane Group Flow (vph)	38	39	0	58	40	0	38	401	0	89	446	24
Heavy Vehicles (%)	6%	6%	6%	10%	10%	10%	8%	8%	8%	7%	7%	7%
Turn Type	Prot	NA		Prot	NA		Prot	NA		Prot	NA	Perm
Protected Phases	3	8		7	4		1	6		5	2	
Permitted Phases												2
Actuated Green, G (s)	2.2	5.1		3.2	6.1		2.1	34.7		4.5	37.1	37.1
Effective Green, g (s)	2.2	5.1		3.2	6.1		2.1	34.7		4.5	37.1	37.1
Actuated g/C Ratio	0.03	0.08		0.05	0.09		0.03	0.53		0.07	0.57	0.57
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	6.0		4.0	6.0	6.0
Vehicle Extension (s)	0.5	0.5		0.5	0.5		0.5	0.5		0.5	0.5	0.5
Lane Grp Cap (vph)	54	118		75	134		50	872		109	952	809
v/s Ratio Prot	0.02	0.03		c0.04	c0.03		0.02	0.24		c0.06	c0.27	
v/s Ratio Perm												0.02
v/c Ratio	0.70	0.33		0.77	0.30		0.76	0.46		0.82	0.47	0.03
Uniform Delay, d1	31.3	28.6		30.8	27.7		31.4	9.6		30.1	8.4	6.3
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	28.7	0.6		35.3	0.5		45.0	1.7		34.2	1.7	0.1
Delay (s)	60.0	29.2		66.1	28.1		76.5	11.3		64.3	10.0	6.3
Level of Service	E	C		E	C		E	B		E	B	A
Approach Delay (s)		37.4			39.6			16.9			18.1	
Approach LOS		D			D			B			B	
<b>Intersection Summary</b>												
HCM 2000 Control Delay			22.8	HCM 2000 Level of Service				C				
HCM 2000 Volume to Capacity ratio			0.52									
Actuated Cycle Length (s)			65.5	Sum of lost time (s)				18.0				
Intersection Capacity Utilization			51.6%	ICU Level of Service				A				
Analysis Period (min)			15									
c Critical Lane Group												

# HCM Signalized Intersection Capacity Analysis

## 3: Cordon Rd & Gaffin Rd SE

08/28/2022

												
Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	38	41	58	80	48	131	75	532	34	118	384	59
Future Volume (vph)	38	41	58	80	48	131	75	532	34	118	384	59
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	6.0		4.0	6.0	6.0
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Frbp, ped/bikes	1.00	1.00		1.00	0.98		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
Frt	1.00	0.91		1.00	0.89		1.00	0.99		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1660	1594		1629	1498		1644	1715		1629	1714	1457
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1660	1594		1629	1498		1644	1715		1629	1714	1457
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	42	45	64	88	53	144	82	585	37	130	422	65
RTOR Reduction (vph)	0	57	0	0	122	0	0	3	0	0	0	34
Lane Group Flow (vph)	42	52	0	88	75	0	82	619	0	130	422	31
Confl. Bikes (#/hr)						2						
Heavy Vehicles (%)	3%	3%	3%	5%	5%	5%	4%	4%	4%	5%	5%	5%
Turn Type	Prot	NA		Prot	NA		Prot	NA		Prot	NA	Perm
Protected Phases	3	8		7	4		1	6		5	2	
Permitted Phases												2
Actuated Green, G (s)	2.3	7.6		4.6	9.9		4.5	30.1		6.0	31.6	31.6
Effective Green, g (s)	2.3	7.6		4.6	9.9		4.5	30.1		6.0	31.6	31.6
Actuated g/C Ratio	0.03	0.11		0.07	0.15		0.07	0.45		0.09	0.48	0.48
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	6.0		4.0	6.0	6.0
Vehicle Extension (s)	0.5	0.5		0.5	0.5		0.5	0.5		0.5	0.5	0.5
Lane Grp Cap (vph)	57	182		113	223		111	778		147	816	694
v/s Ratio Prot	0.03	0.03		c0.05	c0.05		0.05	c0.36		c0.08	0.25	
v/s Ratio Perm												0.02
v/c Ratio	0.74	0.29		0.78	0.33		0.74	0.80		0.88	0.52	0.04
Uniform Delay, d1	31.7	26.9		30.3	25.2		30.3	15.5		29.8	12.1	9.3
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	34.3	0.3		25.8	0.3		19.6	8.3		41.0	2.3	0.1
Delay (s)	66.0	27.2		56.2	25.6		50.0	23.8		70.8	14.4	9.4
Level of Service	E	C		E	C		D	C		E	B	A
Approach Delay (s)		38.0			35.0			26.8			25.8	
Approach LOS		D			D			C			C	
<b>Intersection Summary</b>												
HCM 2000 Control Delay			28.7				HCM 2000 Level of Service				C	
HCM 2000 Volume to Capacity ratio			0.73									
Actuated Cycle Length (s)			66.3				Sum of lost time (s)			18.0		
Intersection Capacity Utilization			68.1%				ICU Level of Service			C		
Analysis Period (min)			15									

c Critical Lane Group

HCM 6th TWSC  
 4: Lancaster Dr SE & Santiam Hwy WB

08/28/2022

Intersection												
Int Delay, s/veh	3.5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations						↖	↖	↖	↖		↖	↖
Traffic Vol, veh/h	0	0	0	6	1	150	291	1099	0	0	484	646
Future Vol, veh/h	0	0	0	6	1	150	291	1099	0	0	484	646
Conflicting Peds, #/hr	0	0	0	0	0	0	1	0	8	8	0	1
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	Free
Storage Length	-	-	-	-	-	50	250	-	-	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	93	93	93	93	93	93	93	93	93	93	93	93
Heavy Vehicles, %	0	0	0	3	3	3	3	3	3	3	3	3
Mvmt Flow	0	0	0	6	1	161	313	1182	0	0	520	695

Major/Minor	Minor1		Major1		Major2		
Conflicting Flow All	2328	2329	591	521	0	-	0
Stage 1	1808	1808	-	-	-	-	-
Stage 2	520	521	-	-	-	-	-
Critical Hdwy	6.645	6.545	6.945	4.145	-	-	-
Critical Hdwy Stg 1	5.845	5.545	-	-	-	-	-
Critical Hdwy Stg 2	5.445	5.545	-	-	-	-	-
Follow-up Hdwy	3.5285	4.0285	3.3285	2.2285	-	-	-
Pot Cap-1 Maneuver	35	36	449	1037	-	0	0
Stage 1	116	129	-	-	-	0	0
Stage 2	593	529	-	-	-	0	0
Platoon blocked, %					-		-
Mov Cap-1 Maneuver	24	0	449	1037	-	-	-
Mov Cap-2 Maneuver	24	0	-	-	-	-	-
Stage 1	81	0	-	-	-	-	-
Stage 2	593	0	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	26.1	2.1	0
HCM LOS	D		

Minor Lane/Major Mvmt	NBL	NBTWBLn1	WBLn2	SBT
Capacity (veh/h)	1037	-	24 449	-
HCM Lane V/C Ratio	0.302	-	0.314 0.359	-
HCM Control Delay (s)	10	-	212.7 17.4	-
HCM Lane LOS	A	-	F C	-
HCM 95th %tile Q(veh)	1.3	-	0.9 1.6	-

HCM 6th TWSC  
4: Lancaster Dr SE & Santiam Hwy WB

08/26/2022

Intersection												
Int Delay, s/veh	3.6											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↔	↔	↔	↔			↔	↔
Traffic Vol, veh/h	0	0	0	15	1	133	230	580	0	0	274	687
Future Vol, veh/h	0	0	0	15	1	133	230	580	0	0	274	687
Conflicting Peds, #/hr	0	0	0	0	0	0	2	0	5	5	0	2
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	Free
Storage Length	-	-	-	-	-	50	250	-	-	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	89	89	89	89	89	89	89	89	89	89	89	89
Heavy Vehicles, %	0	0	0	5	5	5	10	10	10	4	4	4
Mvmt Flow	0	0	0	17	1	149	258	652	0	0	308	772

Major/Minor	Minor1		Major1		Major2		
Conflicting Flow All	1476	1478	326	310	0	-	0
Stage 1	1168	1168	-	-	-	-	-
Stage 2	308	310	-	-	-	-	-
Critical Hdwy	6.675	6.575	6.975	4.25	-	-	-
Critical Hdwy Stg 1	5.875	5.575	-	-	-	-	-
Critical Hdwy Stg 2	5.475	5.575	-	-	-	-	-
Follow-up Hdwy	3.5475	4.0475	3.3475	2.295	-	-	-
Pot Cap-1 Maneuver	125	123	663	1199	-	0	0
Stage 1	254	262	-	-	-	0	0
Stage 2	737	652	-	-	-	0	0
Platoon blocked, %					-		-
Mov Cap-1 Maneuver	98	0	663	1199	-	-	-
Mov Cap-2 Maneuver	98	0	-	-	-	-	-
Stage 1	199	0	-	-	-	-	-
Stage 2	737	0	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	16.1	2.5	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBTWBLn1	WBLn2	SBT
Capacity (veh/h)	1199	-	98 663	-
HCM Lane V/C Ratio	0.216	-	0.183 0.225	-
HCM Control Delay (s)	8.8	-	49.8 12	-
HCM Lane LOS	A	-	E B	-
HCM 95th %tile Q(veh)	0.8	-	0.6 0.9	-

# HCM Signalized Intersection Capacity Analysis

## 5: Lancaster Dr SE & Santiam Hwy EB




















08/28/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	793	1	301	0	0	0	0	603	29	157	326	0
Future Volume (vph)	793	1	301	0	0	0	0	603	29	157	326	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	6.0	6.0	6.0					5.5		4.5	5.5	
Lane Util. Factor	0.95	0.95	1.00					0.95		1.00	1.00	
Frpb, ped/bikes	1.00	1.00	1.00					1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00					1.00		1.00	1.00	
Frt	1.00	1.00	0.85					0.99		1.00	1.00	
Flt Protected	0.95	0.95	1.00					1.00		0.95	1.00	
Satd. Flow (prot)	1562	1566	1471					3227		1644	1731	
Flt Permitted	0.95	0.95	1.00					1.00		0.22	1.00	
Satd. Flow (perm)	1562	1566	1471					3227		380	1731	
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	871	1	331	0	0	0	0	663	32	173	358	0
RTOR Reduction (vph)	0	0	181	0	0	0	0	3	0	0	0	0
Lane Group Flow (vph)	435	437	150	0	0	0	0	692	0	173	358	0
Confl. Peds. (#/hr)	1						1	1		9	9	1
Confl. Bikes (#/hr)										2		2
Heavy Vehicles (%)	4%	4%	4%	0%	0%	0%	5%	5%	5%	4%	4%	4%
Turn Type	Split	NA	Perm					NA		pm+pt	NA	
Protected Phases	8	8						6		5	2	
Permitted Phases			8							2		
Actuated Green, G (s)	59.0	59.0	59.0					43.9		59.5	59.5	
Effective Green, g (s)	59.0	59.0	59.0					43.9		59.5	59.5	
Actuated g/C Ratio	0.45	0.45	0.45					0.34		0.46	0.46	
Clearance Time (s)	6.0	6.0	6.0					5.5		4.5	5.5	
Vehicle Extension (s)	0.5	0.5	0.5					0.5		0.5	0.5	
Lane Grp Cap (vph)	708	710	667					1089		281	792	
v/s Ratio Prot	0.28	c0.28						0.21		c0.05	0.21	
v/s Ratio Perm			0.10							c0.23		
v/c Ratio	0.61	0.62	0.23					0.64		0.62	0.45	
Uniform Delay, d1	26.9	26.9	21.6					36.3		23.6	24.1	
Progression Factor	1.00	1.00	1.00					1.00		1.42	1.43	
Incremental Delay, d2	1.1	1.1	0.1					2.8		2.6	1.7	
Delay (s)	28.0	28.0	21.7					39.1		36.1	36.3	
Level of Service	C	C	C					D		D	D	
Approach Delay (s)		26.3			0.0			39.1			36.2	
Approach LOS		C			A			D			D	
<b>Intersection Summary</b>												
HCM 2000 Control Delay			32.1					HCM 2000 Level of Service			C	
HCM 2000 Volume to Capacity ratio			0.63									
Actuated Cycle Length (s)			130.0					Sum of lost time (s)		16.0		
Intersection Capacity Utilization			72.7%					ICU Level of Service			C	
Analysis Period (min)			15									
c Critical Lane Group												

























HCM Signalized Intersection Capacity Analysis  
5: Lancaster Dr SE & Santiam Hwy EB

08/26/2022

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations								 				
Traffic Volume (vph)	343	1	282	0	0	0	0	467	31	80	213	0
Future Volume (vph)	343	1	282	0	0	0	0	467	31	80	213	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	6.0	6.0	6.0					5.5		4.5	5.5	
Lane Util. Factor	0.95	0.95	1.00					0.95		1.00	1.00	
Frpb, ped/bikes	1.00	1.00	0.98					1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00					1.00		1.00	1.00	
Frt	1.00	1.00	0.85					0.99		1.00	1.00	
Flt Protected	0.95	0.95	1.00					1.00		0.95	1.00	
Satd. Flow (prot)	1504	1508	1392					2966		1643	1731	
Flt Permitted	0.95	0.95	1.00					1.00		0.34	1.00	
Satd. Flow (perm)	1504	1508	1392					2966		592	1731	
Peak-hour factor, PHF	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Adj. Flow (vph)	399	1	328	0	0	0	0	543	36	93	248	0
RTOR Reduction (vph)	0	0	207	0	0	0	0	3	0	0	0	0
Lane Group Flow (vph)	199	201	121	0	0	0	0	576	0	93	248	0
Confl. Peds. (#/hr)			3	3				2		3	3	
Confl. Bikes (#/hr)												2
Heavy Vehicles (%)	8%	8%	8%	0%	0%	0%	14%	14%	14%	4%	4%	4%
Turn Type	Split	NA	Perm					NA		pm+pt	NA	
Protected Phases	8	8						6		5	2	
Permitted Phases			8							2		
Actuated Green, G (s)	47.9	47.9	47.9					59.2		70.6	70.6	
Effective Green, g (s)	47.9	47.9	47.9					59.2		70.6	70.6	
Actuated g/C Ratio	0.37	0.37	0.37					0.46		0.54	0.54	
Clearance Time (s)	6.0	6.0	6.0					5.5		4.5	5.5	
Vehicle Extension (s)	0.5	0.5	0.5					0.5		0.5	0.5	
Lane Grp Cap (vph)	554	555	512					1350		377	940	
v/s Ratio Prot	0.13	c0.13						c0.19		0.01	c0.14	
v/s Ratio Perm			0.09							0.12		
v/c Ratio	0.36	0.36	0.24					0.43		0.25	0.26	
Uniform Delay, d1	29.9	29.9	28.4					23.9		15.2	15.8	
Progression Factor	1.00	1.00	1.00					1.00		1.00	1.00	
Incremental Delay, d2	0.1	0.1	0.1					1.0		0.1	0.7	
Delay (s)	30.0	30.1	28.5					24.9		15.3	16.5	
Level of Service	C	C	C					C		B	B	
Approach Delay (s)		29.3			0.0			24.9			16.2	
Approach LOS		C			A			C			B	
<b>Intersection Summary</b>												
HCM 2000 Control Delay			25.1					HCM 2000 Level of Service			C	
HCM 2000 Volume to Capacity ratio			0.39									
Actuated Cycle Length (s)			130.0					Sum of lost time (s)		16.0		
Intersection Capacity Utilization			71.9%					ICU Level of Service		C		
Analysis Period (min)			15									
c	Critical Lane Group											

HCM Signalized Intersection Capacity Analysis  
6: Kuebler Blvd/Cordon Rd & Lancaster Dr SE

08/28/2022

													
Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR	
Lane Configurations													
Traffic Volume (vph)	33	219	91	57	141	40	97	334	113	75	392	46	
Future Volume (vph)	33	219	91	57	141	40	97	334	113	75	392	46	
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	
Total Lost time (s)	4.0	5.0	4.0	4.0	5.0	4.0	4.0	6.0	4.0	4.0	6.0	4.0	
Lane Util. Factor	1.00	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00	1.00	0.95	1.00	
Frbp, ped/bikes	1.00	1.00	0.99	1.00	1.00	0.99	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)	1527	3054	1352	2675	2758	1224	3100	3196	1430	1598	3196	1430	
Flt Permitted	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 (perm)	1527	3054	1352	2675	2758	1224	3100	3196	1430	1598	3196	1430	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	
Adj. Flow (vph)	37	243	101	63	157	44	108	371	126	83	436	51	
RTOR Reduction (vph)	0	0	80	0	0	34	0	0	0	0	0	24	
Lane Group Flow (vph)	37	243	21	63	157	10	108	371	126	83	436	27	
Confl. Peds. (#/hr)			2			2							
Confl. Bikes (#/hr)			1										
Heavy Vehicles (%)	12%	12%	12%	24%	24%	24%	7%	7%	7%	7%	7%	7%	
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	Free	Prot	NA	pm+ov	
Protected Phases	3	8	1	7	4	5	1	6		5	2	3	
Permitted Phases			8			4			Free			2	
Actuated Green, G (s)	3.7	10.1	14.6	3.0	9.4	15.1	4.5	31.6	69.4	5.7	32.8	36.5	
Effective Green, g (s)	3.7	10.1	14.6	3.0	9.4	15.1	4.5	31.6	69.4	5.7	32.8	36.5	
Actuated g/C Ratio	0.05	0.15	0.21	0.04	0.14	0.22	0.06	0.46	1.00	0.08	0.47	0.53	
Clearance Time (s)	4.0	5.0	4.0	4.0	5.0	4.0	4.0	6.0		4.0	6.0	4.0	
Vehicle Extension (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5		0.5	0.5	0.5	
Lane Grp Cap (vph)	81	444	284	115	373	266	201	1455	1430	131	1510	752	
v/s Ratio Prot	c0.02	c0.08	0.00	0.02	0.06	0.00	0.03	0.12		c0.05	c0.14	0.00	
v/s Ratio Perm			0.01			0.00			c0.09			0.02	
v/c Ratio	0.46	0.55	0.07	0.55	0.42	0.04	0.54	0.25	0.09	0.63	0.29	0.04	
Uniform Delay, d1	31.9	27.5	22.0	32.5	27.5	21.4	31.4	11.6	0.0	30.8	11.2	7.9	
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	1.5	0.7	0.0	2.8	0.3	0.0	1.4	0.4	0.1	7.2	0.5	0.0	
Delay (s)	33.4	28.3	22.0	35.4	27.8	21.4	32.8	12.1	0.1	38.0	11.7	8.0	
Level of Service	C	C	C	D	C	C	C	B	A	D	B	A	
Approach Delay (s)		27.1			28.5			13.3			15.2		
Approach LOS		C			C			B			B		
<b>Intersection Summary</b>													
HCM 2000 Control Delay			19.0									HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio			0.41										
Actuated Cycle Length (s)			69.4									Sum of lost time (s)	19.0
Intersection Capacity Utilization			41.5%									ICU Level of Service	A
Analysis Period (min)			15										
c Critical Lane Group													



HCM Signalized Intersection Capacity Analysis  
 6: Kuebler Blvd/Cordon Rd & Lancaster Dr SE

08/28/2022

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	41	153	170	123	244	82	159	519	98	55	407	53
Future Volume (vph)	41	153	170	123	244	82	159	519	98	55	407	53
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	4.0	5.0	4.0	4.0	5.0	4.0	4.0	6.0	4.0	4.0	6.0	4.0
Lane Util. Factor	1.00	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00	1.00	0.95	1.00
Frbp, ped/bikes	1.00	1.00	1.00	1.00	1.00	0.99	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)	1527	3054	1366	3100	3196	1417	3130	3226	1443	1644	3288	1471
Flt Permitted	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 (perm)	1527	3054	1366	3100	3196	1417	3130	3226	1443	1644	3288	1471
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	45	168	187	135	268	90	175	570	108	60	447	58
RTOR Reduction (vph)	0	0	147	0	0	71	0	0	0	0	0	29
Lane Group Flow (vph)	45	168	40	135	268	19	175	570	108	60	447	29
Confl. Peds. (#/hr)	1					1						
Heavy Vehicles (%)	12%	12%	12%	7%	7%	7%	6%	6%	6%	4%	4%	4%
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	Free	Prot	NA	pm+ov
Protected Phases	3	8	1	7	4	5	1	6		5	2	3
Permitted Phases			8			4			Free			2
Actuated Green, G (s)	4.1	8.9	15.9	6.1	10.9	15.9	7.0	35.1	74.1	5.0	33.1	37.2
Effective Green, g (s)	4.1	8.9	15.9	6.1	10.9	15.9	7.0	35.1	74.1	5.0	33.1	37.2
Actuated g/C Ratio	0.06	0.12	0.21	0.08	0.15	0.21	0.09	0.47	1.00	0.07	0.45	0.50
Clearance Time (s)	4.0	5.0	4.0	4.0	5.0	4.0	4.0	6.0		4.0	6.0	4.0
Vehicle Extension (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5		0.5	0.5	0.5
Lane Grp Cap (vph)	84	366	293	255	470	304	295	1528	1443	110	1468	738
v/s Ratio Prot	0.03	0.06	0.01	c0.04	c0.08	0.00	c0.06	c0.18		0.04	0.14	0.00
v/s Ratio Perm			0.02			0.01			c0.07			0.02
v/c Ratio	0.54	0.46	0.14	0.53	0.57	0.06	0.59	0.37	0.07	0.55	0.30	0.04
Uniform Delay, d1	34.1	30.4	23.5	32.6	29.4	23.2	32.2	12.5	0.0	33.4	13.1	9.4
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	3.3	0.3	0.1	0.9	1.0	0.0	2.1	0.7	0.1	2.9	0.5	0.0
Delay (s)	37.3	30.7	23.6	33.5	30.5	23.2	34.3	13.2	0.1	36.4	13.7	9.4
Level of Service	D	C	C	C	C	C	C	B	A	D	B	A
Approach Delay (s)		28.1			30.0			15.8			15.6	
Approach LOS		C			C			B			B	
<b>Intersection Summary</b>												
HCM 2000 Control Delay			20.9									HCM 2000 Level of Service C
HCM 2000 Volume to Capacity ratio			0.48									
Actuated Cycle Length (s)			74.1									Sum of lost time (s) 19.0
Intersection Capacity Utilization			45.4%									ICU Level of Service A
Analysis Period (min)			15									

c Critical Lane Group

**APPENDIX D:  
METHODS AND ASSUMPTIONS MEMORANDUM**

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# MEMORANDUM

**DATE:** April 11, 2022  
**TO:** Tony Martin/City of Salem  
**FROM:** Tegan Enloe, PE/Enloe Consulting, LLC  
**SUBJECT:** Hawks Ridge Traffic Impact Analysis: Methods & Assumptions

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## Background

KCH Enterprises, LLC, is proposing to build a multi-family development located adjacent to Cordon Rd and N Santiam Hwy in Salem, Oregon. Enloe Consulting, LLC, is contracted to prepare a traffic impacts analysis for the proposed development as part of their land use application. This memorandum outlines key analysis assumptions that will be used in the traffic impact analysis for review and comment prior to application submittal.

## Trip Generation

Trip generation values for the proposed development are estimated using the ITE Trip Generation Manual, 10<sup>th</sup> Edition, and the Land Use Code 221: Multi-Family Mid-Rise. Trip numbers are estimated using data provided by ITE for the number of intended dwelling units. The applicant intends to build 396 apartment units. Trip generation values are provided in **Table 1**.



**Table 1: Trip Generation**

Land Use	Unit of Measure	Time Period	Peak Hour Trips		
			In	Out	Total
Multi-Family Mid-Rise (221)	396 Dwelling Units	AM Peak	34	98	132
Multi-Family Mid-Rise (221)	396 Dwelling Units	PM Peak	101	65	166

### Trip Distribution

The following distribution is proposed for routing trips from the proposed development onto the surrounding network and is based on trends observed from the MWCOG travel demand model plots.

Overall network distribution is recommended as follows:

- 7% north on Lancaster Dr SE
- 6% north on Cordon Rd SE
- 7% south on Kuebler Blvd
- 9% east on N Santiam Hwy
- 12% west on N Santiam Hwy
- 30% north on I-5
- 29% south on I-5

The development will have access to the surrounding network via a connection to Clydesdale Dr SE and Whitaker Dr SE. It is assumed that 90% of trips will access the surrounding network by taking Whitaker Dr SE to Gaffin Rd SE/Cordon Rd SE intersection. An additional 10% of trips are likely to head north and distribute throughout the surrounding neighborhood through various roadway connections to Mackleay Rd SE.

## Study Intersections

Based on the trip generation and trip distribution, we propose the following intersections be included in the traffic impact analysis study:

1. Lancaster Dr SE/ Rickey St SE
2. Macleay Rd SE/ Cordon Rd SE
3. Cordon Rd/ Gaffin Rd SE
4. Lancaster Dr SE/ N Santiam Hwy WB Ramps
5. Lancaster Dr SE/ N Santiam Hwy EB Ramps
6. Lancaster Dr SE/ Cordon Rd SE

## Analysis Scenarios

The traffic analysis will be completed under the assumption that the development will have an opening year of 2024. The analysis will be completed using Synchro.

The following analysis scenarios are proposed for review:

- 2022 Existing Conditions, AM Peak Hour
- 2022 Existing Conditions, PM Peak Hour
- 2024 Background Traffic, AM Peak Hour
- 2024 Background Traffic, PM Peak Hour
- 2024 Total Traffic (Background + Site), AM Peak Hour
- 2024 Total Traffic (Background + Site), PM Peak Hour

## Analysis Volumes

Counts will be conducted at the study intersections the first part of April on a typical Tuesday – Thursday weekday. AM Peak Hour (6:00 AM – 9:00 AM) and PM Peak Hour (3:00 PM– 6:00 PM) will be collected at all study intersections.

Growth rates for the study area are calculated using travel demand models. The MWCOG models allow for extrapolating an annual linear growth rate between the current model year (2017) and future year (2043). The 2043 model includes a new interchange at N Santiam Hwy and Cordon Rd SE. The new interchange results in changes in travel behaviors between the 2017 and 2043 models, which makes it difficult to establish which portion of increased traffic is from actual growth and which is from induced demand from the new interchange. As a result of the change to the network, annual traffic growth ranges from 0.54 (N Santiam Hwy) to 5.62% (Cordon Rd SE) in the project area. The extreme change in volumes on Cordon Rd SE is likely related to the



addition of the interchange. Taking an average of the annual growth on N Santiam Hwy and I-5 yields a 0.88% annual growth rate. This is reasonable since the overall travel on N Santiam Hwy and I-5 should experience less impacts from the additional interchange when compared to the local street network, which will see large shifts in traffic rerouting. A 0.88% annual linear growth rate to project volumes to their future values.

City of Salem does not recommend use of seasonal adjustment factors. Counts are collected during the school year, which represents the peak commuter trends for the area.

***In Process Developments***

There are currently no in-process developments recommended for inclusion in the study area.

## **APPENDIX E: CRASH DATA REPORTS**

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CITY OF SALEM, MARION COUNTY



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CITY OF SALEM, MARION COUNTY



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OREGON.. DEPARTMENT OF TRANSPORTATION - TRANSPORTATION DEVELOPMENT DIVISION  
TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT  
URBAN NON-SYSTEM CRASH LISTING  
CORDON RD at MACLEAY RD, City of Salem, Marion County, 01/01/2016 to 12/31/2020

CITY OF SALEM, MARION COUNTY

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

CITY OF SALEM, MARION COUNTY

CORDON RD at MACLEAY RD, City of Salem, Marion County, 01/01/2016 to 12/31/2020

9 - 9 of 9 Crash records shown.

SER#	S	D	M	P	R	J	S	W	DATE	CLASS	CITY STREET	INT-TYPE	SPCL USE																	
INVEST	E	A	U	I	C	O	DAY	DIST	FIRST STREET	RD CHAR	(MEDIAN)	INT-REL	OFFRD	WTHR	CRASH	TRLR QTY	MOVE													
RD DPT	E	L	G	N	H	R	TIME	FROM	SECOND STREET	DIRECT	LEGS	TRAF-	RNDBT	SURF	COLL	OWNER	FROM	PRTC	INJ	G	E	LICNS	PED							
UNLOC?	D	C	S	V	L	K	LAT	LONG	LRS	LOCTN	(#LANES)	CONTL	DRVWY	LIGHT	SVRTY	V#	TYPE	TO	P#	TYPE	SVRTY	E	X	RES	LOC	ERROR	ACT	EVENT	CAUSE	
00158	N	N	N				01/11/2020	14	CORDON RD SE	INTER	CROSS	N	N	CLR	ANGL-OTH	01	NONE	9	STRGHT											04
NONE							SA	0	MACLEAY RD SE	CN		TRF SIGNAL	N	DRY	ANGL	N/A		W -E									000		00	
N							11A			03	0		N	DAY	PDO		PSNGR CAR		01	DRVR	NONE	00	Unk	UNK		000	000		00	
N							44 54 49.26	-122 57																						
							14.37																							
																02	NONE	9	STRGHT											
																N/A		NE-SW									000		00	
																PSNGR CAR			01	DRVR	NONE	00	Unk	UNK		000	000		00	

Disclaimer: The information contained in this report is compiled from individual driver and police crash reports submitted to the Oregon Department of Transportation as required in ORS 811.720. The Crash Analysis and Reporting Unit is committed to providing the highest quality crash data to customers. However, because submittal of crash report forms is the responsibility of the individual driver, the Crash Analysis and Reporting Unit can not guarantee that all qualifying crashes are represented nor can assurances be made that all details pertaining to a single crash are accurate. Note: Legislative changes to DMV's vehicle crash reporting requirement, effective 01/01/2004, may result in fewer property damage only crashes being eligible for inclusion in the Statewide Crash Data File.



CITY OF SALEM, MARION COUNTY



OREGON.. DEPARTMENT OF TRANSPORTATION - TRANSPORTATION DEVELOPMENT DIVISION  
TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT  
URBAN NON-SYSTEM CRASH LISTING  
CORDON RD at GAFFIN RD, City of Salem, Marion County, 01/01/2016 to 12/31/2020

CITY OF SALEM, MARION COUNTY



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CITY OF SALEM, MARION COUNTY





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URBAN NON-SYSTEM CRASH LISTING  
CORDON RD at GAFFIN RD, City of Salem, Marion County, 01/01/2016 to 12/31/2020

CITY OF SALEM, MARION COUNTY



CITY OF SALEM, MARION COUNTY

**LANCASTER DR at WB EX LANCASTER C4, City of Salem, Marion County, 01/01/2016 to 12/31/2020**



CITY OF SALEM, MARION COUNTY

**LANCASTER DR at WB EX LANCASTER C4, City of Salem, Marion County, 01/01/2016 to 12/31/2020**



CITY OF SALEM, MARION COUNTY

**LANCASTER DR at WB EX LANCASTER C4, City of Salem, Marion County, 01/01/2016 to 12/31/2020**





CITY OF SALEM, MARION COUNTY

**LANCASTER DR at WB EX LANCASTER C4, City of Salem, Marion County, 01/01/2016 to 12/31/2020**



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CITY OF SALEM, MARION COUNTY

**LANCASTER DR at WB EX LANCASTER C4, City of Salem, Marion County, 01/01/2016 to 12/31/2020**





CITY OF SALEM, MARION COUNTY

**LANCASTER DR at WB EX LANCASTER C4, City of Salem, Marion County, 01/01/2016 to 12/31/2020**

CITY OF SALEM, MARION COUNTY

LANCASTER DR at WB EF LANCASTER C5, City of Salem, Marion County, 01/01/2016 to 12/31/2020

SER#	P	R	J	S	W	DATE	CLASS	CITY STREET	RD CHAR	INT-TYPE	SPCL USE	MOVE	A	S	INVEST	E	A	U	I	C	O	DAY	DIST	FIRST STREET	DIRECT	LEGS	TRAF-	RNDBT	SURF	COLL	OWNER	FROM	PRTC	INJ	G	E	LICNS	PED	RD DPT	E	L	G	N	H	R	TIME	FROM	SECOND STREET	LOCTN	(#LANES)	CONTL	DRVWY	LIGHT	SVRTY	V#	TYPE	TO	P#	TYPE	SVRTY	E	X	RES	LOC	ERROR	ACT	EVENT	CAUSE	UNLOC?	D	C	S	V	L	K	LAT	LONG	LRS
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CITY OF SALEM, MARION COUNTY

**LANCASTER DR at WB EF LANCASTER C5, City of Salem, Marion County, 01/01/2016 to 12/31/2020**



CITY OF SALEM, MARION COUNTY

**LANCASTER DR at EB EX LANCASTER C1, City of Salem, Marion County, 01/01/2016 to 12/31/2020**



CITY OF SALEM, MARION COUNTY

**LANCASTER DR at EB EX LANCASTER C1, City of Salem, Marion County, 01/01/2016 to 12/31/2020**





CITY OF SALEM, MARION COUNTY

**LANCASTER DR at EB EX LANCASTER C1, City of Salem, Marion County, 01/01/2016 to 12/31/2020**



CITY OF SALEM, MARION COUNTY

**LANCASTER DR at EB EF LANCASTER C3, City of Salem, Marion County, 01/01/2016 to 12/31/2020**



CITY OF SALEM, MARION COUNTY

**LANCASTER DR at EB EF LANCASTER C3, City of Salem, Marion County, 01/01/2016 to 12/31/2020**

CITY OF SALEM, MARION COUNTY

AUMSVILLE HY at CORDON RD, City of Salem, Marion County, 01/01/2016 to 12/31/2020

SER#	S	D	M	P	R	J	S	W	DATE	CLASS	CITY STREET	INT-TYPE	SPCL USE	TRLR	QTY	MOVE	A	S	RD DPT	E	L	G	N	H	R	TIME	FROM	SECOND STREET	DIRECT	LEGS	TRAF-	RNDBT	SURF	COLL	OWNER	FROM	PRTC	INJ	G	E	LICNS	PED	UNLOC?	D	C	S	V	L	K	LAT	LONG	LRS	LOCTN	(#LANES)	CONTL	DRVWY	LIGHT	SVRTY	V#	TYPE	TO	P#	TYPE	SVRTY	E	X	RES	LOC	ERROR	ACT	EVENT	CAUSE
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Disclaimer: The information contained in this report is compiled from individual driver and police crash reports submitted to the Oregon Department of Transportation as required in ORS 811.720. The Crash Analysis and Reporting Unit is committed to providing the highest quality crash data to customers. However, because submittal of crash report forms is the responsibility of the individual driver, the Crash Analysis and Reporting Unit can not guarantee that all qualifying crashes are represented nor can assurances be made that all details pertaining to a single crash are accurate. Note: Legislative changes to DMV's vehicle crash reporting requirement, effective 01/01/2004, may result in fewer property damage only crashes being eligible for inclusion in the Statewide Crash Data File.

CITY OF SALEM, MARION COUNTY

**APPENDIX F:**  
**SYNCHRO REPORTS – 2024 BACKGROUND AM + PM**



# HCM Signalized Intersection Capacity Analysis

## 1: Lancaster Dr SE & Rickey St SE

08/28/2022

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Traffic Volume (vph)	40	18	58	461	21	155	49	397	245	68	450	28	
Future Volume (vph)	40	18	58	461	21	155	49	397	245	68	450	28	
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	
Total Lost time (s)	5.0	5.0		5.0	5.0	5.0	4.0	5.0	5.0	4.5	5.0		
Lane Util. Factor	1.00	1.00		0.95	0.95	1.00	1.00	0.95	1.00	1.00	0.95		
Frpb, ped/bikes	1.00	1.00		1.00	1.00	0.98	1.00	1.00	0.97	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		
Frt	1.00	0.89		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99		
Flt Protected	0.95	1.00		0.95	0.96	1.00	0.95	1.00	1.00	0.95	1.00		
Satd. Flow (prot)	1676	1564		1577	1588	1455	1613	3226	1395	1644	3254		
Flt Permitted	0.95	1.00		0.95	0.96	1.00	0.95	1.00	1.00	0.95	1.00		
Satd. Flow (perm)	1676	1564		1577	1588	1455	1613	3226	1395	1644	3254		
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	
Adj. Flow (vph)	43	20	63	501	23	168	53	432	266	74	489	30	
RTOR Reduction (vph)	0	60	0	0	0	122	0	0	137	0	3	0	
Lane Group Flow (vph)	43	23	0	261	263	46	53	432	129	74	516	0	
Confl. Peds. (#/hr)	7					7	3		6	6		3	
Confl. Bikes (#/hr)												1	
Heavy Vehicles (%)	2%	2%	2%	3%	3%	3%	6%	6%	6%	4%	4%	4%	
Turn Type	Split	NA		Split	NA	Perm	Prot	NA	Perm	Prot	NA		
Protected Phases	3	3		4	4		1	6		5	2		
Permitted Phases						4			6				
Actuated Green, G (s)	5.4	5.4		23.0	23.0	23.0	5.9	53.2	53.2	8.9	56.7		
Effective Green, g (s)	5.4	5.4		23.0	23.0	23.0	5.9	53.2	53.2	8.9	56.7		
Actuated g/C Ratio	0.05	0.05		0.21	0.21	0.21	0.05	0.48	0.48	0.08	0.52		
Clearance Time (s)	5.0	5.0		5.0	5.0	5.0	4.0	5.0	5.0	4.5	5.0		
Vehicle Extension (s)	0.5	0.5		0.5	0.5	0.5	0.5	0.5	0.5	3.0	0.5		
Lane Grp Cap (vph)	82	76		329	332	304	86	1560	674	133	1677		
v/s Ratio Prot	c0.03	0.01		0.17	c0.17		0.03	0.13		c0.05	c0.16		
v/s Ratio Perm						0.03			0.09				
v/c Ratio	0.52	0.30		0.79	0.79	0.15	0.62	0.28	0.19	0.56	0.31		
Uniform Delay, d1	51.0	50.5		41.2	41.2	35.5	50.9	16.9	16.2	48.7	15.3		
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		
Incremental Delay, d2	2.8	0.8		11.6	11.4	0.1	8.9	0.4	0.6	5.0	0.5		
Delay (s)	53.8	51.3		52.8	52.7	35.6	59.8	17.4	16.8	53.6	15.8		
Level of Service	D	D		D	D	D	E	B	B	D	B		
Approach Delay (s)		52.2			48.6			20.2			20.5		
Approach LOS		D			D			C			C		
<b>Intersection Summary</b>													
HCM 2000 Control Delay			31.2		HCM 2000 Level of Service					C			
HCM 2000 Volume to Capacity ratio			0.47										
Actuated Cycle Length (s)			110.0		Sum of lost time (s)					19.5			
Intersection Capacity Utilization			57.3%		ICU Level of Service					B			
Analysis Period (min)			15										
c	Critical Lane Group												

# HCM Signalized Intersection Capacity Analysis

## 1: Lancaster Dr SE & Rickey St SE

08/28/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗	↗	↖	↑↑	↗	↖	↗↖	
Traffic Volume (vph)	24	34	46	429	19	224	50	670	493	257	651	46
Future Volume (vph)	24	34	46	429	19	224	50	670	493	257	651	46
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
Lane Util. Factor	1.00	1.00		0.95	0.95	1.00	1.00	0.95	1.00	1.00	0.95	
Frpb, ped/bikes	1.00	1.00		1.00	1.00	0.97	1.00	1.00	0.95	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	
Frt	1.00	0.91		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99	
Flt Protected	0.95	1.00		0.95	0.96	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1710	1646		1593	1603	1461	1676	3353	1421	1660	3282	
Flt Permitted	0.95	1.00		0.95	0.96	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1710	1646		1593	1603	1461	1676	3353	1421	1660	3282	
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	36	48	452	20	236	53	705	519	271	685	48
RTOR Reduction (vph)	0	40	0	0	0	146	0	0	305	0	3	0
Lane Group Flow (vph)	25	44	0	235	237	90	53	705	214	271	730	0
Confl. Peds. (#/hr)	10					10	2		12	12		2
Confl. Bikes (#/hr)									1			
Heavy Vehicles (%)	0%	0%	0%	2%	2%	2%	2%	2%	2%	3%	3%	3%
Turn Type	Split	NA		Split	NA	Perm	Prot	NA	Perm	Prot	NA	
Protected Phases	3	3		4	4		1	6		5	2	
Permitted Phases						4			6			
Actuated Green, G (s)	7.2	7.2		23.9	23.9	23.9	8.3	53.5	53.5	25.4	70.6	
Effective Green, g (s)	7.2	7.2		23.9	23.9	23.9	8.3	53.5	53.5	25.4	70.6	
Actuated g/C Ratio	0.06	0.06		0.18	0.18	0.18	0.06	0.41	0.41	0.20	0.54	
Clearance Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
Vehicle Extension (s)	0.5	0.5		0.5	0.5	0.5	3.0	0.5	0.5	3.0	0.5	
Lane Grp Cap (vph)	94	91		292	294	268	107	1379	584	324	1782	
v/s Ratio Prot	0.01	c0.03		0.15	c0.15		0.03	c0.21		c0.16	0.22	
v/s Ratio Perm						0.06			0.15			
v/c Ratio	0.27	0.49		0.80	0.81	0.34	0.50	0.51	0.37	0.84	0.41	
Uniform Delay, d1	58.9	59.6		50.8	50.8	46.1	58.8	28.5	26.5	50.3	17.5	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.07	1.16	3.67	1.00	1.00	
Incremental Delay, d2	0.6	1.5		14.0	14.0	0.3	3.0	1.1	1.5	16.8	0.7	
Delay (s)	59.4	61.1		64.8	64.9	46.4	65.9	34.2	98.7	67.1	18.2	
Level of Service	E	E		E	E	D	E	C	F	E	B	
Approach Delay (s)		60.7			58.7			61.7			31.4	
Approach LOS		E			E			E			C	

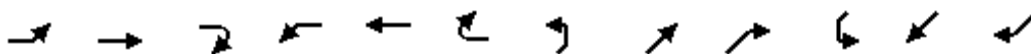
### Intersection Summary

HCM 2000 Control Delay	51.2	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	68.0%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

# HCM Signalized Intersection Capacity Analysis

## 2: Cordon Rd/Cordon Rd SE & Macleay Rd SE

08/28/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations		↕			↕		↗	↘		↗	↘	
Traffic Volume (vph)	59	68	37	35	38	40	52	588	76	67	496	32
Future Volume (vph)	59	68	37	35	38	40	52	588	76	67	496	32
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)		5.0			5.0		4.0	6.0		4.0	6.0	
Lane Util. Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Frt		0.97			0.95		1.00	0.98		1.00	0.99	
Flt Protected		0.98			0.98		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1697			1623		1660	1717		1644	1715	
Flt Permitted		0.84			0.80		0.39	1.00		0.27	1.00	
Satd. Flow (perm)		1454			1314		679	1717		460	1715	
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	63	73	40	38	41	43	56	632	82	72	533	34
RTOR Reduction (vph)	0	15	0	0	28	0	0	4	0	0	2	0
Lane Group Flow (vph)	0	161	0	0	94	0	56	710	0	72	565	0
Heavy Vehicles (%)	1%	1%	1%	4%	4%	4%	3%	3%	3%	4%	4%	4%
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		8			4		1	6		5	2	
Permitted Phases	8			4			6			2		
Actuated Green, G (s)		10.6			10.6		44.9	42.4		46.9	43.4	
Effective Green, g (s)		10.6			10.6		44.9	42.4		46.9	43.4	
Actuated g/C Ratio		0.15			0.15		0.63	0.59		0.66	0.61	
Clearance Time (s)		5.0			5.0		4.0	6.0		4.0	6.0	
Vehicle Extension (s)		0.5			0.5		0.5	0.5		0.5	0.5	
Lane Grp Cap (vph)		215			194		460	1018		359	1040	
v/s Ratio Prot							0.00	c0.41		c0.01	0.33	
v/s Ratio Perm		c0.11			0.07		0.07			0.12		
v/c Ratio		0.75			0.48		0.12	0.70		0.20	0.54	
Uniform Delay, d1		29.2			27.9		5.4	10.1		6.0	8.2	
Progression Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		11.7			0.7		0.0	4.0		0.1	2.0	
Delay (s)		40.8			28.6		5.4	14.0		6.1	10.3	
Level of Service		D			C		A	B		A	B	
Approach Delay (s)		40.8			28.6			13.4			9.8	
Approach LOS		D			C			B			A	

### Intersection Summary

HCM 2000 Control Delay	16.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.68		
Actuated Cycle Length (s)	71.5	Sum of lost time (s)	15.0
Intersection Capacity Utilization	67.4%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

# HCM Signalized Intersection Capacity Analysis

## 2: Cordon Rd/Cordon Rd SE & Macleay Rd SE

08/28/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations		↕			↕		↗	↘		↗	↘	
Traffic Volume (vph)	36	17	44	44	40	45	26	422	22	39	439	22
Future Volume (vph)	36	17	44	44	40	45	26	422	22	39	439	22
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)		5.0			5.0		4.0	6.0		4.0	6.0	
Lane Util. Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Frt		0.94			0.95		1.00	0.99		1.00	0.99	
Flt Protected		0.98			0.98		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1580			1622		1613	1685		1569	1639	
Flt Permitted		0.79			0.86		0.42	1.00		0.41	1.00	
Satd. Flow (perm)		1272			1423		708	1685		675	1639	
Peak-hour factor, PHF	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Adj. Flow (vph)	42	20	52	52	47	53	31	496	26	46	516	26
RTOR Reduction (vph)	0	43	0	0	28	0	0	2	0	0	1	0
Lane Group Flow (vph)	0	71	0	0	124	0	31	520	0	46	541	0
Heavy Vehicles (%)	5%	5%	5%	4%	4%	4%	6%	6%	6%	9%	9%	9%
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		8			4		1	6		5	2	
Permitted Phases	8			4			6			2		
Actuated Green, G (s)		9.2			9.2		44.5	43.0		46.3	43.9	
Effective Green, g (s)		9.2			9.2		44.5	43.0		46.3	43.9	
Actuated g/C Ratio		0.13			0.13		0.64	0.62		0.67	0.63	
Clearance Time (s)		5.0			5.0		4.0	6.0		4.0	6.0	
Vehicle Extension (s)		0.5			0.5		0.5	0.5		0.5	0.5	
Lane Grp Cap (vph)		168			188		472	1041		479	1033	
v/s Ratio Prot							0.00	0.31		c0.00	c0.33	
v/s Ratio Perm		0.06			c0.09		0.04			0.06		
v/c Ratio		0.42			0.66		0.07	0.50		0.10	0.52	
Uniform Delay, d1		27.7			28.7		4.7	7.4		4.3	7.1	
Progression Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		0.6			6.6		0.0	1.7		0.0	1.9	
Delay (s)		28.4			35.3		4.8	9.1		4.3	9.0	
Level of Service		C			D		A	A		A	A	
Approach Delay (s)		28.4			35.3			8.8			8.6	
Approach LOS		C			D			A			A	






















### Intersection Summary

HCM 2000 Control Delay	13.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.54		
Actuated Cycle Length (s)	69.6	Sum of lost time (s)	15.0
Intersection Capacity Utilization	51.4%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

# HCM Signalized Intersection Capacity Analysis

## 3: Cordon Rd & Gaffin Rd SE

08/28/2022






















												
Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	39	42	59	81	49	133	76	541	35	120	391	60
Future Volume (vph)	39	42	59	81	49	133	76	541	35	120	391	60
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	6.0		4.0	6.0	6.0
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Frbp, ped/bikes	1.00	1.00		1.00	0.98		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
Frt	1.00	0.91		1.00	0.89		1.00	0.99		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1660	1594		1629	1499		1644	1715		1629	1714	1457
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1660	1594		1629	1499		1644	1715		1629	1714	1457
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	43	46	65	89	54	146	84	595	38	132	430	66
RTOR Reduction (vph)	0	57	0	0	124	0	0	3	0	0	0	35
Lane Group Flow (vph)	43	54	0	89	76	0	84	630	0	132	430	31
Confl. Bikes (#/hr)						2						
Heavy Vehicles (%)	3%	3%	3%	5%	5%	5%	4%	4%	4%	5%	5%	5%
Turn Type	Prot	NA		Prot	NA		Prot	NA		Prot	NA	Perm
Protected Phases	3	8		7	4		1	6		5	2	
Permitted Phases												2
Actuated Green, G (s)	2.3	7.7		4.6	10.0		4.5	30.1		6.0	31.6	31.6
Effective Green, g (s)	2.3	7.7		4.6	10.0		4.5	30.1		6.0	31.6	31.6
Actuated g/C Ratio	0.03	0.12		0.07	0.15		0.07	0.45		0.09	0.48	0.48
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	6.0		4.0	6.0	6.0
Vehicle Extension (s)	0.5	0.5		0.5	0.5		0.5	0.5		0.5	0.5	0.5
Lane Grp Cap (vph)	57	184		112	225		111	777		147	815	693
v/s Ratio Prot	0.03	0.03		c0.05	c0.05		0.05	c0.37		c0.08	0.25	
v/s Ratio Perm												0.02
v/c Ratio	0.75	0.29		0.79	0.34		0.76	0.81		0.90	0.53	0.05
Uniform Delay, d1	31.8	26.9		30.4	25.2		30.4	15.7		29.9	12.2	9.3
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	38.8	0.3		29.3	0.3		22.6	9.0		44.1	2.4	0.1
Delay (s)	70.5	27.2		59.7	25.6		53.0	24.7		74.0	14.6	9.4
Level of Service	E	C		E	C		D	C		E	B	A
Approach Delay (s)		39.3			36.1			28.0			26.6	
Approach LOS		D			D			C			C	
<b>Intersection Summary</b>												
HCM 2000 Control Delay			29.8									HCM 2000 Level of Service C
HCM 2000 Volume to Capacity ratio			0.75									
Actuated Cycle Length (s)			66.4							18.0		
Intersection Capacity Utilization			69.0%									ICU Level of Service C
Analysis Period (min)			15									

c Critical Lane Group

# HCM Signalized Intersection Capacity Analysis

## 3: Cordon Rd & Gaffin Rd SE

08/28/2022

												
Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	35	31	65	53	27	96	35	339	32	81	408	39
Future Volume (vph)	35	31	65	53	27	96	35	339	32	81	408	39
Ideal Flow (vphp)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	6.0		4.0	6.0	6.0
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Frt	1.00	0.90		1.00	0.88		1.00	0.99		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1613	1525		1555	1445		1583	1645		1598	1682	1430
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1613	1525		1555	1445		1583	1645		1598	1682	1430
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	39	34	72	59	30	107	39	377	36	90	453	43
RTOR Reduction (vph)	0	66	0	0	97	0	0	3	0	0	0	19
Lane Group Flow (vph)	39	40	0	59	40	0	39	410	0	90	453	24
Heavy Vehicles (%)	6%	6%	6%	10%	10%	10%	8%	8%	8%	7%	7%	7%
Turn Type	Prot	NA		Prot	NA		Prot	NA		Prot	NA	Perm
Protected Phases	3	8		7	4		1	6		5	2	
Permitted Phases												2
Actuated Green, G (s)	2.2	5.1		3.2	6.1		2.1	34.7		4.5	37.1	37.1
Effective Green, g (s)	2.2	5.1		3.2	6.1		2.1	34.7		4.5	37.1	37.1
Actuated g/C Ratio	0.03	0.08		0.05	0.09		0.03	0.53		0.07	0.57	0.57
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	6.0		4.0	6.0	6.0
Vehicle Extension (s)	0.5	0.5		0.5	0.5		0.5	0.5		0.5	0.5	0.5
Lane Grp Cap (vph)	54	118		75	134		50	871		109	952	809
v/s Ratio Prot	0.02	0.03		c0.04	c0.03		0.02	0.25		c0.06	c0.27	
v/s Ratio Perm												0.02
v/c Ratio	0.72	0.34		0.79	0.30		0.78	0.47		0.83	0.48	0.03
Uniform Delay, d1	31.3	28.6		30.8	27.7		31.5	9.6		30.1	8.4	6.3
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	32.9	0.6		38.0	0.5		50.7	1.8		36.2	1.7	0.1
Delay (s)	64.3	29.2		68.8	28.2		82.1	11.5		66.3	10.1	6.3
Level of Service	E	C		E	C		F	B		E	B	A
Approach Delay (s)		38.6			40.4			17.6			18.5	
Approach LOS		D			D			B			B	
<b>Intersection Summary</b>												
HCM 2000 Control Delay			23.4	HCM 2000 Level of Service				C				
HCM 2000 Volume to Capacity ratio			0.52									
Actuated Cycle Length (s)			65.5	Sum of lost time (s)				18.0				
Intersection Capacity Utilization			52.1%	ICU Level of Service				A				
Analysis Period (min)			15									
c Critical Lane Group												

HCM 6th TWSC  
 4: Lancaster Dr SE & Santiam Hwy WB

08/28/2022

Intersection												
Int Delay, s/veh	3.5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations						↔	↔	↔	↔		↔	↔
Traffic Vol, veh/h	0	0	0	6	1	153	296	1118	0	0	493	657
Future Vol, veh/h	0	0	0	6	1	153	296	1118	0	0	493	657
Conflicting Peds, #/hr	0	0	0	0	0	0	1	0	8	8	0	1
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	Free
Storage Length	-	-	-	-	-	50	250	-	-	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	93	93	93	93	93	93	93	93	93	93	93	93
Heavy Vehicles, %	0	0	0	3	3	3	3	3	3	3	3	3
Mvmt Flow	0	0	0	6	1	165	318	1202	0	0	530	706

Major/Minor	Minor1		Major1		Major2		
Conflicting Flow All	2368	2369	601	531	0	-	0
Stage 1	1838	1838	-	-	-	-	-
Stage 2	530	531	-	-	-	-	-
Critical Hdwy	6.645	6.545	6.945	4.145	-	-	-
Critical Hdwy Stg 1	5.845	5.545	-	-	-	-	-
Critical Hdwy Stg 2	5.445	5.545	-	-	-	-	-
Follow-up Hdwy	3.5285	4.0285	3.3285	2.2285	-	-	-
Pot Cap-1 Maneuver	33	34	442	1028	-	0	0
Stage 1	111	124	-	-	-	0	0
Stage 2	587	523	-	-	-	0	0
Platoon blocked, %					-		-
Mov Cap-1 Maneuver	23	0	442	1028	-	-	-
Mov Cap-2 Maneuver	23	0	-	-	-	-	-
Stage 1	77	0	-	-	-	-	-
Stage 2	587	0	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	26.9	2.1	0
HCM LOS	D		

Minor Lane/Major Mvmt	NBL	NBT	WBLn1	WBLn2	SBT
Capacity (veh/h)	1028	-	23	442	-
HCM Lane V/C Ratio	0.31	-	0.327	0.372	-
HCM Control Delay (s)	10.1	-	224.5	17.9	-
HCM Lane LOS	B	-	F	C	-
HCM 95th %tile Q(veh)	1.3	-	1	1.7	-

HCM 6th TWSC  
 4: Lancaster Dr SE & Santiam Hwy WB

08/28/2022

Intersection												
Int Delay, s/veh	3.6											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations						↕	↕	↕	↕		↕	↕
Traffic Vol, veh/h	0	0	0	15	1	135	234	590	0	0	279	699
Future Vol, veh/h	0	0	0	15	1	135	234	590	0	0	279	699
Conflicting Peds, #/hr	0	0	0	0	0	0	2	0	5	5	0	2
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	Free
Storage Length	-	-	-	-	-	50	250	-	-	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	89	89	89	89	89	89	89	89	89	89	89	89
Heavy Vehicles, %	0	0	0	5	5	5	10	10	10	4	4	4
Mvmt Flow	0	0	0	17	1	152	263	663	0	0	313	785

Major/Minor	Minor1		Major1		Major2		
Conflicting Flow All	1502	1504	332	315	0	-	-
Stage 1	1189	1189	-	-	-	-	-
Stage 2	313	315	-	-	-	-	-
Critical Hdwy	6.675	6.575	6.975	4.25	-	-	-
Critical Hdwy Stg 1	5.875	5.575	-	-	-	-	-
Critical Hdwy Stg 2	5.475	5.575	-	-	-	-	-
Follow-up Hdwy	3.5475	4.0475	3.3475	2.295	-	-	-
Pot Cap-1 Maneuver	120	118	657	1194	-	0	0
Stage 1	247	256	-	-	-	0	0
Stage 2	733	648	-	-	-	0	0
Platoon blocked, %					-		-
Mov Cap-1 Maneuver	94	0	657	1194	-	-	-
Mov Cap-2 Maneuver	94	0	-	-	-	-	-
Stage 1	193	0	-	-	-	-	-
Stage 2	733	0	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	16.3	2.5	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBTWBLn1	WBLn2	SBT
Capacity (veh/h)	1194	-	94 657	-
HCM Lane V/C Ratio	0.22	-	0.191 0.231	-
HCM Control Delay (s)	8.9	-	52.1 12.1	-
HCM Lane LOS	A	-	F B	-
HCM 95th %tile Q(veh)	0.8	-	0.7 0.9	-



HCM Signalized Intersection Capacity Analysis  
 5: Lancaster Dr SE & Santiam Hwy EB




















08/28/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR		
Lane Configurations														
Traffic Volume (vph)	807	1	306	0	0	0	0	614	30	160	332	0		
Future Volume (vph)	807	1	306	0	0	0	0	614	30	160	332	0		
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800		
Total Lost time (s)	6.0	6.0	6.0					5.5		4.5	5.5			
Lane Util. Factor	0.95	0.95	1.00					0.95		1.00	1.00			
Frpb, ped/bikes	1.00	1.00	1.00					1.00		1.00	1.00			
Flpb, ped/bikes	1.00	1.00	1.00					1.00		1.00	1.00			
Frt	1.00	1.00	0.85					0.99		1.00	1.00			
Flt Protected	0.95	0.95	1.00					1.00		0.95	1.00			
Satd. Flow (prot)	1562	1566	1471					3226		1644	1731			
Flt Permitted	0.95	0.95	1.00					1.00		0.21	1.00			
Satd. Flow (perm)	1562	1566	1471					3226		366	1731			
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91		
Adj. Flow (vph)	887	1	336	0	0	0	0	675	33	176	365	0		
RTOR Reduction (vph)	0	0	184	0	0	0	0	3	0	0	0	0		
Lane Group Flow (vph)	443	445	152	0	0	0	0	705	0	176	365	0		
Confl. Peds. (#/hr)	1						1	1		9	9	1		
Confl. Bikes (#/hr)										2		2		
Heavy Vehicles (%)	4%	4%	4%	0%	0%	0%	5%	5%	5%	4%	4%	4%		
Turn Type	Split	NA	Perm					NA		pm+pt	NA			
Protected Phases	8	8						6		5	2			
Permitted Phases			8							2				
Actuated Green, G (s)	59.0	59.0	59.0					43.7		59.5	59.5			
Effective Green, g (s)	59.0	59.0	59.0					43.7		59.5	59.5			
Actuated g/C Ratio	0.45	0.45	0.45					0.34		0.46	0.46			
Clearance Time (s)	6.0	6.0	6.0					5.5		4.5	5.5			
Vehicle Extension (s)	0.5	0.5	0.5					0.5		0.5	0.5			
Lane Grp Cap (vph)	708	710	667					1084		278	792			
v/s Ratio Prot	0.28	c0.28						0.22		c0.05	0.21			
v/s Ratio Perm			0.10							c0.23				
v/c Ratio	0.63	0.63	0.23					0.65		0.63	0.46			
Uniform Delay, d1	27.1	27.1	21.6					36.7		23.8	24.2			
Progression Factor	1.00	1.00	1.00					1.00		1.41	1.42			
Incremental Delay, d2	1.2	1.3	0.1					3.0		3.1	1.7			
Delay (s)	28.3	28.3	21.7					39.7		36.6	36.2			
Level of Service	C	C	C					D		D	D			
Approach Delay (s)		26.5			0.0			39.7			36.4			
Approach LOS		C			A			D			D			
<b>Intersection Summary</b>														
HCM 2000 Control Delay			32.4									HCM 2000 Level of Service	C	
HCM 2000 Volume to Capacity ratio			0.65											
Actuated Cycle Length (s)			130.0								16.0		Sum of lost time (s)	
Intersection Capacity Utilization			73.7%										ICU Level of Service	D
Analysis Period (min)			15											
c Critical Lane Group														

HCM Signalized Intersection Capacity Analysis  
5: Lancaster Dr SE & Santiam Hwy EB

08/28/2022

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations								 				
Traffic Volume (vph)	349	1	287	0	0	0	0	475	32	81	217	0
Future Volume (vph)	349	1	287	0	0	0	0	475	32	81	217	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	6.0	6.0	6.0					5.5		4.5	5.5	
Lane Util. Factor	0.95	0.95	1.00					0.95		1.00	1.00	
Frpb, ped/bikes	1.00	1.00	0.98					1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00					1.00		1.00	1.00	
Frt	1.00	1.00	0.85					0.99		1.00	1.00	
Flt Protected	0.95	0.95	1.00					1.00		0.95	1.00	
Satd. Flow (prot)	1504	1508	1392					2966		1643	1731	
Flt Permitted	0.95	0.95	1.00					1.00		0.33	1.00	
Satd. Flow (perm)	1504	1508	1392					2966		579	1731	
Peak-hour factor, PHF	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Adj. Flow (vph)	406	1	334	0	0	0	0	552	37	94	252	0
RTOR Reduction (vph)	0	0	209	0	0	0	0	3	0	0	0	0
Lane Group Flow (vph)	203	204	125	0	0	0	0	586	0	94	252	0
Confl. Peds. (#/hr)			3	3				2		3	3	2
Confl. Bikes (#/hr)												2
Heavy Vehicles (%)	8%	8%	8%	0%	0%	0%	14%	14%	14%	4%	4%	4%
Turn Type	Split	NA	Perm					NA		pm+pt	NA	
Protected Phases	8	8						6		5	2	
Permitted Phases			8							2		
Actuated Green, G (s)	48.6	48.6	48.6					58.4		69.9	69.9	
Effective Green, g (s)	48.6	48.6	48.6					58.4		69.9	69.9	
Actuated g/C Ratio	0.37	0.37	0.37					0.45		0.54	0.54	
Clearance Time (s)	6.0	6.0	6.0					5.5		4.5	5.5	
Vehicle Extension (s)	0.5	0.5	0.5					0.5		0.5	0.5	
Lane Grp Cap (vph)	562	563	520					1332		368	930	
v/s Ratio Prot	0.13	c0.14						c0.20		0.01	c0.15	
v/s Ratio Perm			0.09							0.12		
v/c Ratio	0.36	0.36	0.24					0.44		0.26	0.27	
Uniform Delay, d1	29.5	29.5	28.0					24.6		15.6	16.3	
Progression Factor	1.00	1.00	1.00					1.00		1.00	1.00	
Incremental Delay, d2	0.1	0.1	0.1					1.1		0.1	0.7	
Delay (s)	29.6	29.6	28.1					25.6		15.7	17.0	
Level of Service	C	C	C					C		B	B	
Approach Delay (s)		28.9			0.0			25.6			16.6	
Approach LOS		C			A			C			B	
<b>Intersection Summary</b>												
HCM 2000 Control Delay			25.2					HCM 2000 Level of Service			C	
HCM 2000 Volume to Capacity ratio			0.40									
Actuated Cycle Length (s)			130.0					Sum of lost time (s)		16.0		
Intersection Capacity Utilization			72.9%					ICU Level of Service		C		
Analysis Period (min)			15									
c	Critical Lane Group											

HCM Signalized Intersection Capacity Analysis  
 6: Kuebler Blvd/Cordon Rd & Lancaster Dr SE































08/28/2022

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	42	156	173	125	248	83	162	528	100	56	414	54
Future Volume (vph)	42	156	173	125	248	83	162	528	100	56	414	54
Ideal Flow (vphp)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	4.0	5.0	4.0	4.0	5.0	4.0	4.0	6.0	4.0	4.0	6.0	4.0
Lane Util. Factor	1.00	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00	1.00	0.95	1.00
Frbp, ped/bikes	1.00	1.00	1.00	1.00	1.00	0.99	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)	1527	3054	1366	3100	3196	1418	3130	3226	1443	1644	3288	1471
Flt Permitted	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 (perm)	1527	3054	1366	3100	3196	1418	3130	3226	1443	1644	3288	1471
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	46	171	190	137	273	91	178	580	110	62	455	59
RTOR Reduction (vph)	0	0	149	0	0	71	0	0	0	0	0	29
Lane Group Flow (vph)	46	171	41	137	273	20	178	580	110	62	455	30
Confl. Peds. (#/hr)	1					1						
Heavy Vehicles (%)	12%	12%	12%	7%	7%	7%	6%	6%	6%	4%	4%	4%
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	Free	Prot	NA	pm+ov
Protected Phases	3	8	1	7	4	5	1	6		5	2	3
Permitted Phases			8			4			Free			2
Actuated Green, G (s)	4.1	8.9	16.0	6.2	11.0	16.1	7.1	35.1	74.3	5.1	33.1	37.2
Effective Green, g (s)	4.1	8.9	16.0	6.2	11.0	16.1	7.1	35.1	74.3	5.1	33.1	37.2
Actuated g/C Ratio	0.06	0.12	0.22	0.08	0.15	0.22	0.10	0.47	1.00	0.07	0.45	0.50
Clearance Time (s)	4.0	5.0	4.0	4.0	5.0	4.0	4.0	6.0		4.0	6.0	4.0
Vehicle Extension (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5		0.5	0.5	0.5
Lane Grp Cap (vph)	84	365	294	258	473	307	299	1523	1443	112	1464	736
v/s Ratio Prot	0.03	0.06	0.01	c0.04	c0.09	0.00	c0.06	c0.18		0.04	0.14	0.00
v/s Ratio Perm			0.02			0.01			c0.08			0.02
v/c Ratio	0.55	0.47	0.14	0.53	0.58	0.06	0.60	0.38	0.08	0.55	0.31	0.04
Uniform Delay, d1	34.2	30.5	23.6	32.7	29.5	23.1	32.2	12.6	0.0	33.5	13.3	9.5
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	3.9	0.3	0.1	1.1	1.1	0.0	2.1	0.7	0.1	3.3	0.6	0.0
Delay (s)	38.1	30.8	23.7	33.7	30.5	23.1	34.3	13.3	0.1	36.8	13.8	9.5
Level of Service	D	C	C	C	C	C	C	B	A	D	B	A
Approach Delay (s)		28.3			30.1			16.0			15.8	
Approach LOS		C			C			B			B	
<b>Intersection Summary</b>												
HCM 2000 Control Delay			21.1									HCM 2000 Level of Service C
HCM 2000 Volume to Capacity ratio			0.49									
Actuated Cycle Length (s)			74.3									Sum of lost time (s) 19.0
Intersection Capacity Utilization			45.8%									ICU Level of Service A
Analysis Period (min)			15									

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis  
6: Kuebler Blvd/Cordon Rd & Lancaster Dr SE

08/28/2022

													
Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR	
Lane Configurations		 		 	 		 	 			 		
Traffic Volume (vph)	34	223	93	58	143	41	99	340	115	76	399	47	
Future Volume (vph)	34	223	93	58	143	41	99	340	115	76	399	47	
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	
Total Lost time (s)	4.0	5.0	4.0	4.0	5.0	4.0	4.0	6.0	4.0	4.0	6.0	4.0	
Lane Util. Factor	1.00	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00	1.00	0.95	1.00	
Frbp, ped/bikes	1.00	1.00	0.99	1.00	1.00	0.99	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)	1527	3054	1352	2675	2758	1224	3100	3196	1430	1598	3196	1430	
Flt Permitted	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 (perm)	1527	3054	1352	2675	2758	1224	3100	3196	1430	1598	3196	1430	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	
Adj. Flow (vph)	38	248	103	64	159	46	110	378	128	84	443	52	
RTOR Reduction (vph)	0	0	81	0	0	36	0	0	0	0	0	25	
Lane Group Flow (vph)	38	248	22	64	159	10	110	378	128	84	443	27	
Confl. Peds. (#/hr)			2			2							
Confl. Bikes (#/hr)			1										
Heavy Vehicles (%)	12%	12%	12%	24%	24%	24%	7%	7%	7%	7%	7%	7%	
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	Free	Prot	NA	pm+ov	
Protected Phases	3	8	1	7	4	5	1	6		5	2	3	
Permitted Phases			8			4			Free			2	
Actuated Green, G (s)	3.8	10.1	14.6	3.1	9.4	15.1	4.5	31.7	69.6	5.7	32.9	36.7	
Effective Green, g (s)	3.8	10.1	14.6	3.1	9.4	15.1	4.5	31.7	69.6	5.7	32.9	36.7	
Actuated g/C Ratio	0.05	0.15	0.21	0.04	0.14	0.22	0.06	0.46	1.00	0.08	0.47	0.53	
Clearance Time (s)	4.0	5.0	4.0	4.0	5.0	4.0	4.0	6.0		4.0	6.0	4.0	
Vehicle Extension (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5		0.5	0.5	0.5	
Lane Grp Cap (vph)	83	443	283	119	372	265	200	1455	1430	130	1510	754	
v/s Ratio Prot	c0.02	c0.08	0.00	0.02	0.06	0.00	0.04	0.12		c0.05	c0.14	0.00	
v/s Ratio Perm			0.01			0.01			c0.09			0.02	
v/c Ratio	0.46	0.56	0.08	0.54	0.43	0.04	0.55	0.26	0.09	0.65	0.29	0.04	
Uniform Delay, d1	31.9	27.7	22.1	32.5	27.6	21.5	31.6	11.7	0.0	31.0	11.2	7.9	
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	1.5	0.9	0.0	2.3	0.3	0.0	1.9	0.4	0.1	8.0	0.5	0.0	
Delay (s)	33.4	28.6	22.1	34.9	27.9	21.5	33.4	12.1	0.1	39.0	11.7	7.9	
Level of Service	C	C	C	C	C	C	C	C	A	D	B	A	
Approach Delay (s)		27.3			28.5			13.4			15.3		
Approach LOS		C			C			B			B		
<b>Intersection Summary</b>													
HCM 2000 Control Delay			19.1									HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio			0.41										
Actuated Cycle Length (s)			69.6									Sum of lost time (s)	19.0
Intersection Capacity Utilization			41.8%									ICU Level of Service	A
Analysis Period (min)			15										
c Critical Lane Group													

Queuing and Blocking Report  
Baseline

08/28/2022

Intersection: 1: Lancaster Dr SE & Rickey St SE

Movement	EB	EB	WB	WB	WB	NB	NB	NB	NB	SB	SB	SB
Directions Served	L	TR	L	LT	R	L	T	T	R	L	T	TR
Maximum Queue (ft)	108	161	375	2200	125	127	269	254	197	218	647	683
Average Queue (ft)	34	58	320	1634	105	50	116	117	63	84	293	342
95th Queue (ft)	84	121	490	3103	172	109	211	210	128	195	793	814
Link Distance (ft)		1135		2445			450	450			1659	1659
Upstream Blk Time (%)				29			0					
Queuing Penalty (veh)				0			0					
Storage Bay Dist (ft)	100		350		100	450			350	225		
Storage Blk Time (%)	1	4	8	68	1		0	0	0	0	11	
Queuing Penalty (veh)	1	2	32	262	7		0	0	0	0	8	

Intersection: 2: Cordon Rd/Cordon Rd SE & Macleay Rd SE

Movement	EB	WB	NE	NE	SW	SW
Directions Served	LTR	LTR	L	TR	L	TR
Maximum Queue (ft)	143	142	43	203	88	225
Average Queue (ft)	51	60	9	58	16	70
95th Queue (ft)	104	120	27	145	52	171
Link Distance (ft)	858	962		1172		995
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)			150		175	
Storage Blk Time (%)				1		1
Queuing Penalty (veh)				0		0

Intersection: 3: Cordon Rd & Gaffin Rd SE

Movement	SE	SE	NW	NW	NE	NE	SW	SW	SW
Directions Served	L	TR	L	TR	L	TR	L	T	R
Maximum Queue (ft)	83	107	134	158	93	234	157	205	107
Average Queue (ft)	26	46	48	57	32	99	58	88	16
95th Queue (ft)	66	84	106	118	73	194	114	177	63
Link Distance (ft)		689		1499		4580		1172	
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (ft)	100		200		375		150		100
Storage Blk Time (%)	0	1		0			0	4	0
Queuing Penalty (veh)	0	0		0			1	5	0

Queuing and Blocking Report  
Baseline

08/28/2022

Intersection: 4: Lancaster Dr SE & Santiam Hwy WB

Movement	WB	WB	NB	SB	SB
Directions Served	LT	R	L	T	R
Maximum Queue (ft)	102	80	152	479	486
Average Queue (ft)	22	51	45	144	421
95th Queue (ft)	71	77	106	481	556
Link Distance (ft)	1329			450	450
Upstream Blk Time (%)				1	15
Queuing Penalty (veh)				7	71
Storage Bay Dist (ft)		50	250		
Storage Blk Time (%)	1	7	0		
Queuing Penalty (veh)	1	1	0		

Intersection: 5: Lancaster Dr SE & Santiam Hwy EB

Movement	EB	EB	EB	NB	NB	SB	SB
Directions Served	L	LT	R	T	TR	L	T
Maximum Queue (ft)	269	359	279	289	221	105	178
Average Queue (ft)	134	177	82	99	70	37	61
95th Queue (ft)	238	297	166	216	168	80	140
Link Distance (ft)		720					582
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)	650		275			250	
Storage Blk Time (%)		1	0				
Queuing Penalty (veh)		6	0				

Queuing and Blocking Report  
Baseline

08/28/2022

Intersection: 6: Kuebler Blvd/Cordon Rd & Lancaster Dr SE

Movement	SE	SE	SE	SE	NW	NW	NW	NW	NW	NE	NE	NE
Directions Served	L	T	T	R	L	L	T	T	R	L	L	T
Maximum Queue (ft)	107	160	127	81	65	128	168	137	92	50	119	229
Average Queue (ft)	28	80	48	22	10	46	72	34	27	10	59	97
95th Queue (ft)	73	135	107	57	40	98	132	96	68	36	103	183
Link Distance (ft)							1785	1785				1123
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	150			325	225	225			200	300	300	
Storage Blk Time (%)		1					0	0				
Queuing Penalty (veh)		0					0	0				

Intersection: 6: Kuebler Blvd/Cordon Rd & Lancaster Dr SE

Movement	NE	NE	SW	SW	SW	SW
Directions Served	T	R	L	T	T	R
Maximum Queue (ft)	39	38	136	146	145	63
Average Queue (ft)	2	2	54	69	67	13
95th Queue (ft)	16	19	108	123	127	45
Link Distance (ft)	1123			361	361	
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		200	225		200	
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 20: Lancaster Dr SE

Movement
Directions Served
Maximum Queue (ft)
Average Queue (ft)
95th Queue (ft)
Link Distance (ft)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (ft)
Storage Blk Time (%)
Queuing Penalty (veh)

Network Summary

Network wide Queuing Penalty: 404
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Queuing and Blocking Report  
Baseline

08/28/2022

Intersection: 1: Lancaster Dr SE & Rickey St SE

Movement	EB	EB	WB	WB	WB	NB	NB	NB	NB	SB	SB	SB
Directions Served	L	TR	L	LT	R	L	T	T	R	L	T	TR
Maximum Queue (ft)	114	173	375	1828	125	119	411	433	372	250	1551	1550
Average Queue (ft)	30	65	317	983	116	46	230	235	170	232	1273	1252
95th Queue (ft)	79	136	460	2213	160	100	355	362	327	302	2009	1989
Link Distance (ft)		1135		2445			450	450			1659	1659
Upstream Blk Time (%)				8			1	1			26	20
Queuing Penalty (veh)				0			4	6			0	0
Storage Bay Dist (ft)	100		350		100	450			350	225		
Storage Blk Time (%)	0	8	5	68	5		1	1	1	34	27	
Queuing Penalty (veh)	0	2	22	298	21		0	7	2	111	68	

Intersection: 2: Cordon Rd/Cordon Rd SE & Macleay Rd SE

Movement	EB	WB	NE	NE	SW	SW
Directions Served	LTR	LTR	L	TR	L	TR
Maximum Queue (ft)	183	131	131	320	155	268
Average Queue (ft)	84	57	24	147	29	107
95th Queue (ft)	155	108	84	287	88	233
Link Distance (ft)	858	962		1172		995
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)			150		175	
Storage Blk Time (%)			0	6		2
Queuing Penalty (veh)			0	3		1

Intersection: 3: Cordon Rd & Gaffin Rd SE

Movement	SE	SE	NW	NW	NE	NE	SW	SW	SW
Directions Served	L	TR	L	TR	L	TR	L	T	R
Maximum Queue (ft)	77	118	134	180	142	351	174	397	125
Average Queue (ft)	32	51	58	80	54	179	94	145	27
95th Queue (ft)	69	94	111	144	113	315	171	314	92
Link Distance (ft)		689		1498		4575		1172	
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (ft)	100		200		375		150		100
Storage Blk Time (%)	0	1		0		0	6	9	0
Queuing Penalty (veh)	0	0		0		0	26	16	0



Queuing and Blocking Report  
Baseline

08/28/2022

Intersection: 4: Lancaster Dr SE & Santiam Hwy WB

Movement	WB	WB	NB	NB	NB	SB	SB
Directions Served	LT	R	L	T	T	T	R
Maximum Queue (ft)	241	89	179	112	135	505	488
Average Queue (ft)	59	63	60	5	9	222	453
95th Queue (ft)	180	87	121	84	117	590	510
Link Distance (ft)	1329			582	582	450	450
Upstream Blk Time (%)					0	4	20
Queuing Penalty (veh)					0	21	111
Storage Bay Dist (ft)		50	250				
Storage Blk Time (%)	1	33	0	1			
Queuing Penalty (veh)	1	2	0	2			

Intersection: 5: Lancaster Dr SE & Santiam Hwy EB

Movement	EB	EB	EB	NB	NB	SB	SB
Directions Served	L	LT	R	T	TR	L	T
Maximum Queue (ft)	665	741	300	350	322	264	381
Average Queue (ft)	305	383	189	191	164	93	145
95th Queue (ft)	542	632	384	319	279	200	293
Link Distance (ft)		720					582
Upstream Blk Time (%)		1					0
Queuing Penalty (veh)		0					0
Storage Bay Dist (ft)	650		275			250	
Storage Blk Time (%)	0	17	0			0	2
Queuing Penalty (veh)	0	119	3			1	3

Queuing and Blocking Report  
Baseline

08/28/2022

Intersection: 6: Kuebler Blvd/Cordon Rd & Lancaster Dr SE

Movement	SE	SE	SE	SE	NW	NW	NW	NW	NW	NE	NE	NE
Directions Served	L	T	T	R	L	L	T	T	R	L	L	T
Maximum Queue (ft)	109	116	115	114	85	135	145	137	75	121	224	331
Average Queue (ft)	37	57	34	38	23	66	82	56	32	28	90	159
95th Queue (ft)	86	104	89	85	60	117	134	113	62	74	156	275
Link Distance (ft)							1786	1786				1123
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	150			325	225	225			200	300	300	
Storage Blk Time (%)	0	0										1
Queuing Penalty (veh)	0	0										1

Intersection: 6: Kuebler Blvd/Cordon Rd & Lancaster Dr SE

Movement	NE	NE	SW	SW	SW	SW
Directions Served	T	R	L	T	T	R
Maximum Queue (ft)	120	45	99	158	171	68
Average Queue (ft)	9	4	43	71	70	18
95th Queue (ft)	76	48	83	123	134	50
Link Distance (ft)	1123			365	365	
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		200	225			200
Storage Blk Time (%)	0	0			0	
Queuing Penalty (veh)	0	0			0	

Intersection: 20: Lancaster Dr SE

Movement
Directions Served
Maximum Queue (ft)
Average Queue (ft)
95th Queue (ft)
Link Distance (ft)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (ft)
Storage Blk Time (%)
Queuing Penalty (veh)

Network Summary

Network wide Queuing Penalty: 852

**APPENDIX G:**  
**SYNCHRO REPORTS – 2024 TOTAL AM + PM**

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# HCM Signalized Intersection Capacity Analysis

## 1: Lancaster Dr SE & Rickey St SE

08/28/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗	↖	↖	↕	↖	↖	↗	↗
Traffic Volume (vph)	40	18	58	461	21	155	49	397	258	71	450	28
Future Volume (vph)	40	18	58	461	21	155	49	397	258	71	450	28
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	5.0	5.0		5.0	5.0	5.0	4.0	5.0	5.0	4.5	5.0	
Lane Util. Factor	1.00	1.00		0.95	0.95	1.00	1.00	0.95	1.00	1.00	0.95	
Frbp, ped/bikes	1.00	1.00		1.00	1.00	0.98	1.00	1.00	0.97	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	
Frt	1.00	0.89		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99	
Flt Protected	0.95	1.00		0.95	0.96	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1676	1564		1577	1588	1455	1613	3226	1395	1644	3254	
Flt Permitted	0.95	1.00		0.95	0.96	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1676	1564		1577	1588	1455	1613	3226	1395	1644	3254	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	43	20	63	501	23	168	53	432	280	77	489	30
RTOR Reduction (vph)	0	60	0	0	0	122	0	0	145	0	3	0
Lane Group Flow (vph)	43	23	0	261	263	46	53	432	135	77	516	0
Confl. Peds. (#/hr)	7					7	3		6	6		3
Confl. Bikes (#/hr)												1
Heavy Vehicles (%)	2%	2%	2%	3%	3%	3%	6%	6%	6%	4%	4%	4%
Turn Type	Split	NA		Split	NA	Perm	Prot	NA	Perm	Prot	NA	
Protected Phases	3	3		4	4		1	6		5	2	
Permitted Phases						4			6			
Actuated Green, G (s)	5.4	5.4		23.0	23.0	23.0	5.9	53.1	53.1	9.0	56.7	
Effective Green, g (s)	5.4	5.4		23.0	23.0	23.0	5.9	53.1	53.1	9.0	56.7	
Actuated g/C Ratio	0.05	0.05		0.21	0.21	0.21	0.05	0.48	0.48	0.08	0.52	
Clearance Time (s)	5.0	5.0		5.0	5.0	5.0	4.0	5.0	5.0	4.5	5.0	
Vehicle Extension (s)	0.5	0.5		0.5	0.5	0.5	0.5	0.5	0.5	3.0	0.5	
Lane Grp Cap (vph)	82	76		329	332	304	86	1557	673	134	1677	
v/s Ratio Prot	c0.03	0.01		0.17	c0.17		0.03	0.13		c0.05	c0.16	
v/s Ratio Perm						0.03			0.10			
v/c Ratio	0.52	0.30		0.79	0.79	0.15	0.62	0.28	0.20	0.57	0.31	
Uniform Delay, d1	51.0	50.5		41.2	41.2	35.5	50.9	17.0	16.3	48.7	15.3	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	2.8	0.8		11.6	11.4	0.1	8.9	0.4	0.7	5.8	0.5	
Delay (s)	53.8	51.3		52.8	52.7	35.6	59.8	17.4	17.0	54.5	15.8	
Level of Service	D	D		D	D	D	E	B	B	D	B	
Approach Delay (s)		52.2			48.6			20.2			20.8	
Approach LOS		D			D			C			C	

### Intersection Summary

HCM 2000 Control Delay	31.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.47		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	19.5
Intersection Capacity Utilization	57.3%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

# HCM Signalized Intersection Capacity Analysis

## 1: Lancaster Dr SE & Rickey St SE

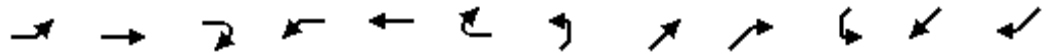
08/28/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations	↖	↗		↖	↗	↗	↖	↑↑	↗	↖	↗↖		
Traffic Volume (vph)	24	34	46	429	19	224	50	670	532	264	651	46	
Future Volume (vph)	24	34	46	429	19	224	50	670	532	264	651	46	
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	
Total Lost time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0		
Lane Util. Factor	1.00	1.00		0.95	0.95	1.00	1.00	0.95	1.00	1.00	0.95		
Frpb, ped/bikes	1.00	1.00		1.00	1.00	0.97	1.00	1.00	0.95	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		
Frt	1.00	0.91		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99		
Flt Protected	0.95	1.00		0.95	0.96	1.00	0.95	1.00	1.00	0.95	1.00		
Satd. Flow (prot)	1710	1646		1593	1603	1461	1676	3353	1421	1660	3282		
Flt Permitted	0.95	1.00		0.95	0.96	1.00	0.95	1.00	1.00	0.95	1.00		
Satd. Flow (perm)	1710	1646		1593	1603	1461	1676	3353	1421	1660	3282		
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	36	48	452	20	236	53	705	560	278	685	48	
RTOR Reduction (vph)	0	40	0	0	0	146	0	0	333	0	3	0	
Lane Group Flow (vph)	25	44	0	235	237	90	53	705	227	278	730	0	
Confl. Peds. (#/hr)	10					10	2		12	12		2	
Confl. Bikes (#/hr)									1				
Heavy Vehicles (%)	0%	0%	0%	2%	2%	2%	2%	2%	2%	3%	3%	3%	
Turn Type	Split	NA		Split	NA	Perm	Prot	NA	Perm	Prot	NA		
Protected Phases	3	3		4	4		1	6		5	2		
Permitted Phases						4			6				
Actuated Green, G (s)	7.2	7.2		23.9	23.9	23.9	8.3	52.8	52.8	26.1	70.6		
Effective Green, g (s)	7.2	7.2		23.9	23.9	23.9	8.3	52.8	52.8	26.1	70.6		
Actuated g/C Ratio	0.06	0.06		0.18	0.18	0.18	0.06	0.41	0.41	0.20	0.54		
Clearance Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0		
Vehicle Extension (s)	0.5	0.5		0.5	0.5	0.5	3.0	0.5	0.5	3.0	0.5		
Lane Grp Cap (vph)	94	91		292	294	268	107	1361	577	333	1782		
v/s Ratio Prot	0.01	c0.03		0.15	c0.15		0.03	c0.21		c0.17	0.22		
v/s Ratio Perm						0.06			0.16				
v/c Ratio	0.27	0.49		0.80	0.81	0.34	0.50	0.52	0.39	0.83	0.41		
Uniform Delay, d1	58.9	59.6		50.8	50.8	46.1	58.8	29.0	27.3	49.9	17.5		
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.07	1.15	3.79	1.00	1.00		
Incremental Delay, d2	0.6	1.5		14.0	14.0	0.3	3.0	1.2	1.7	16.3	0.7		
Delay (s)	59.4	61.1		64.8	64.9	46.4	65.7	34.7	105.0	66.2	18.2		
Level of Service	E	E		E	E	D	E	C	F	E	B		
Approach Delay (s)		60.7			58.7			65.8			31.4		
Approach LOS		E			E			E			C		
<b>Intersection Summary</b>													
HCM 2000 Control Delay			53.0		HCM 2000 Level of Service				D				
HCM 2000 Volume to Capacity ratio			0.65										
Actuated Cycle Length (s)			130.0		Sum of lost time (s)				20.0				
Intersection Capacity Utilization			68.8%		ICU Level of Service				C				
Analysis Period (min)			15										
c Critical Lane Group													

HCM Signalized Intersection Capacity Analysis  
 2: Cordon Rd/Cordon Rd SE & Macleay Rd SE

08/28/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations		↕			↕		↕	↕		↕	↕	
Traffic Volume (vph)	36	17	58	44	40	45	26	422	22	39	440	23
Future Volume (vph)	36	17	58	44	40	45	26	422	22	39	440	23
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)		5.0			5.0		4.0	6.0		4.0	6.0	
Lane Util. Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Frt		0.93			0.95		1.00	0.99		1.00	0.99	
Flt Protected		0.98			0.98		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1568			1622		1613	1685		1569	1639	
Flt Permitted		0.81			0.84		0.41	1.00		0.41	1.00	
Satd. Flow (perm)		1293			1380		705	1685		675	1639	
Peak-hour factor, PHF	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Adj. Flow (vph)	42	20	68	52	47	53	31	496	26	46	518	27
RTOR Reduction (vph)	0	57	0	0	28	0	0	2	0	0	2	0
Lane Group Flow (vph)	0	73	0	0	124	0	31	520	0	46	543	0
Heavy Vehicles (%)	5%	5%	5%	4%	4%	4%	6%	6%	6%	9%	9%	9%
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		8			4		1	6		5	2	
Permitted Phases	8			4			6			2		
Actuated Green, G (s)		9.2			9.2		44.5	43.0		46.3	43.9	
Effective Green, g (s)		9.2			9.2		44.5	43.0		46.3	43.9	
Actuated g/C Ratio		0.13			0.13		0.64	0.62		0.67	0.63	
Clearance Time (s)		5.0			5.0		4.0	6.0		4.0	6.0	
Vehicle Extension (s)		0.5			0.5		0.5	0.5		0.5	0.5	
Lane Grp Cap (vph)		170			182		470	1041		479	1033	
v/s Ratio Prot							0.00	0.31		c0.00	c0.33	
v/s Ratio Perm		0.06			c0.09		0.04			0.06		
v/c Ratio		0.43			0.68		0.07	0.50		0.10	0.53	
Uniform Delay, d1		27.8			28.8		4.8	7.4		4.3	7.1	
Progression Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		0.6			8.1		0.0	1.7		0.0	1.9	
Delay (s)		28.4			36.9		4.8	9.1		4.3	9.0	
Level of Service		C			D		A	A		A	A	
Approach Delay (s)		28.4			36.9			8.8			8.6	
Approach LOS		C			D			A			A	

Intersection Summary		
HCM 2000 Control Delay	13.5	HCM 2000 Level of Service B
HCM 2000 Volume to Capacity ratio	0.54	
Actuated Cycle Length (s)	69.6	Sum of lost time (s) 15.0
Intersection Capacity Utilization	52.1%	ICU Level of Service A
Analysis Period (min)	15	
c Critical Lane Group		

HCM Signalized Intersection Capacity Analysis  
2: Cordon Rd/Cordon Rd SE & Macleay Rd SE

08/28/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations		↕			↕		↗	↘		↗	↘	
Traffic Volume (vph)	59	68	78	35	38	40	52	588	76	67	497	37
Future Volume (vph)	59	68	78	35	38	40	52	588	76	67	497	37
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)		5.0			5.0		4.0	6.0		4.0	6.0	
Lane Util. Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Frt		0.95			0.95		1.00	0.98		1.00	0.99	
Flt Protected		0.99			0.98		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1666			1623		1660	1717		1644	1713	
Flt Permitted		0.87			0.76		0.37	1.00		0.26	1.00	
Satd. Flow (perm)		1472			1255		653	1717		442	1713	
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	63	73	84	38	41	43	56	632	82	72	534	40
RTOR Reduction (vph)	0	31	0	0	28	0	0	5	0	0	3	0
Lane Group Flow (vph)	0	189	0	0	94	0	56	709	0	72	571	0
Heavy Vehicles (%)	1%	1%	1%	4%	4%	4%	3%	3%	3%	4%	4%	4%
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		8			4		1	6		5	2	
Permitted Phases	8			4			6			2		
Actuated Green, G (s)		11.9			11.9		43.8	41.3		45.6	42.2	
Effective Green, g (s)		11.9			11.9		43.8	41.3		45.6	42.2	
Actuated g/C Ratio		0.17			0.17		0.61	0.58		0.64	0.59	
Clearance Time (s)		5.0			5.0		4.0	6.0		4.0	6.0	
Vehicle Extension (s)		0.5			0.5		0.5	0.5		0.5	0.5	
Lane Grp Cap (vph)		244			208		434	990		338	1009	
v/s Ratio Prot							0.00	c0.41		c0.01	0.33	
v/s Ratio Perm		c0.13			0.08		0.07			0.13		
v/c Ratio		0.78			0.45		0.13	0.72		0.21	0.57	
Uniform Delay, d1		28.6			26.9		5.9	10.9		6.7	9.1	
Progression Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		13.1			0.6		0.0	4.4		0.1	2.3	
Delay (s)		41.6			27.5		6.0	15.4		6.8	11.4	
Level of Service		D			C		A	B		A	B	
Approach Delay (s)		41.6			27.5			14.7			10.8	
Approach LOS		D			C			B			B	






















Intersection Summary

HCM 2000 Control Delay	17.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.70		
Actuated Cycle Length (s)	71.6	Sum of lost time (s)	15.0
Intersection Capacity Utilization	69.7%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

# HCM Signalized Intersection Capacity Analysis

## 3: Cordon Rd & Gaffin Rd SE

08/28/2022






















												
Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	35	31	65	53	27	96	51	339	32	81	408	54
Future Volume (vph)	35	31	65	53	27	96	51	339	32	81	408	54
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	6.0		4.0	6.0	6.0
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Frt	1.00	0.90		1.00	0.88		1.00	0.99		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1613	1525		1555	1445		1583	1645		1598	1682	1430
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1613	1525		1555	1445		1583	1645		1598	1682	1430
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	39	34	72	59	30	107	57	377	36	90	453	60
RTOR Reduction (vph)	0	66	0	0	97	0	0	3	0	0	0	27
Lane Group Flow (vph)	39	40	0	59	40	0	57	410	0	90	453	33
Heavy Vehicles (%)	6%	6%	6%	10%	10%	10%	8%	8%	8%	7%	7%	7%
Turn Type	Prot	NA		Prot	NA		Prot	NA		Prot	NA	Perm
Protected Phases	3	8		7	4		1	6		5	2	
Permitted Phases												2
Actuated Green, G (s)	2.2	5.1		3.2	6.1		3.2	34.0		4.5	35.3	35.3
Effective Green, g (s)	2.2	5.1		3.2	6.1		3.2	34.0		4.5	35.3	35.3
Actuated g/C Ratio	0.03	0.08		0.05	0.09		0.05	0.52		0.07	0.54	0.54
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	6.0		4.0	6.0	6.0
Vehicle Extension (s)	0.5	0.5		0.5	0.5		0.5	0.5		0.5	0.5	0.5
Lane Grp Cap (vph)	54	120		76	136		78	863		110	916	778
v/s Ratio Prot	0.02	0.03		c0.04	c0.03		0.04	0.25		c0.06	c0.27	
v/s Ratio Perm												0.02
v/c Ratio	0.72	0.33		0.78	0.29		0.73	0.47		0.82	0.49	0.04
Uniform Delay, d1	31.0	28.2		30.4	27.3		30.4	9.7		29.7	9.2	6.9
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	32.9	0.6		35.3	0.4		25.8	1.9		34.2	1.9	0.1
Delay (s)	63.9	28.8		65.7	27.8		56.2	11.6		63.9	11.1	7.0
Level of Service	E	C		E	C		E	B		E	B	A
Approach Delay (s)		38.3			39.2			17.0			18.6	
Approach LOS		D			D			B			B	
<b>Intersection Summary</b>												
HCM 2000 Control Delay			22.9				HCM 2000 Level of Service				C	
HCM 2000 Volume to Capacity ratio			0.54									
Actuated Cycle Length (s)			64.8				Sum of lost time (s)			18.0		
Intersection Capacity Utilization			52.1%				ICU Level of Service			A		
Analysis Period (min)			15									
c Critical Lane Group												



# HCM Signalized Intersection Capacity Analysis

## 3: Cordon Rd & Gaffin Rd SE

08/28/2022

												
Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	39	42	59	81	49	133	125	541	35	120	391	102
Future Volume (vph)	39	42	59	81	49	133	125	541	35	120	391	102
Ideal Flow (vphp)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	6.0		4.0	6.0	6.0
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Frbp, ped/bikes	1.00	1.00		1.00	0.98		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
Frt	1.00	0.91		1.00	0.89		1.00	0.99		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1660	1594		1629	1499		1644	1715		1629	1714	1457
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1660	1594		1629	1499		1644	1715		1629	1714	1457
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	43	46	65	89	54	146	137	595	38	132	430	112
RTOR Reduction (vph)	0	57	0	0	124	0	0	3	0	0	0	62
Lane Group Flow (vph)	43	54	0	89	76	0	137	630	0	132	430	50
Confl. Bikes (#/hr)						2						
Heavy Vehicles (%)	3%	3%	3%	5%	5%	5%	4%	4%	4%	5%	5%	5%
Turn Type	Prot	NA		Prot	NA		Prot	NA		Prot	NA	Perm
Protected Phases	3	8		7	4		1	6		5	2	
Permitted Phases												2
Actuated Green, G (s)	2.3	7.7		4.6	10.0		6.0	29.2		6.0	29.2	29.2
Effective Green, g (s)	2.3	7.7		4.6	10.0		6.0	29.2		6.0	29.2	29.2
Actuated g/C Ratio	0.04	0.12		0.07	0.15		0.09	0.45		0.09	0.45	0.45
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	6.0		4.0	6.0	6.0
Vehicle Extension (s)	0.5	0.5		0.5	0.5		0.5	0.5		0.5	0.5	0.5
Lane Grp Cap (vph)	58	187		114	228		150	764		149	764	649
v/s Ratio Prot	0.03	0.03		c0.05	c0.05		c0.08	c0.37		0.08	0.25	
v/s Ratio Perm												0.03
v/c Ratio	0.74	0.29		0.78	0.33		0.91	0.82		0.89	0.56	0.08
Uniform Delay, d1	31.3	26.4		30.0	24.8		29.5	15.9		29.4	13.4	10.4
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	35.5	0.3		26.6	0.3		47.7	9.9		40.9	3.0	0.2
Delay (s)	66.8	26.7		56.5	25.1		77.2	25.8		70.3	16.4	10.6
Level of Service	E	C		E	C		E	C		E	B	B
Approach Delay (s)		37.9			34.8			34.9			26.0	
Approach LOS		D			C			C			C	
<b>Intersection Summary</b>												
HCM 2000 Control Delay			32.0				HCM 2000 Level of Service				C	
HCM 2000 Volume to Capacity ratio			0.75									
Actuated Cycle Length (s)			65.5				Sum of lost time (s)			18.0		
Intersection Capacity Utilization			69.0%				ICU Level of Service			C		
Analysis Period (min)			15									

c Critical Lane Group

HCM 6th TWSC  
4: Lancaster Dr SE & Santiam Hwy WB

08/28/2022

Intersection												
Int Delay, s/veh	3.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations						↖ ↗	↖ ↗	↖ ↗			↖ ↗	↖ ↗
Traffic Vol, veh/h	0	0	0	17	1	136	234	602	0	0	279	699
Future Vol, veh/h	0	0	0	17	1	136	234	602	0	0	279	699
Conflicting Peds, #/hr	0	0	0	0	0	0	2	0	5	5	0	2
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	Free
Storage Length	-	-	-	-	-	50	250	-	-	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	89	89	89	89	89	89	89	89	89	89	89	89
Heavy Vehicles, %	0	0	0	5	5	5	10	10	10	4	4	4
Mvmt Flow	0	0	0	19	1	153	263	676	0	0	313	785

Major/Minor	Minor1		Major1		Major2		
Conflicting Flow All	1515	1517	338	315	0	-	0
Stage 1	1202	1202	-	-	-	-	-
Stage 2	313	315	-	-	-	-	-
Critical Hdwy	6.675	6.575	6.975	4.25	-	-	-
Critical Hdwy Stg 1	5.875	5.575	-	-	-	-	-
Critical Hdwy Stg 2	5.475	5.575	-	-	-	-	-
Follow-up Hdwy	3.5475	4.0475	3.3475	2.295	-	-	-
Pot Cap-1 Maneuver	118	116	651	1194	-	0	0
Stage 1	244	252	-	-	-	0	0
Stage 2	733	648	-	-	-	0	0
Platoon blocked, %					-		-
Mov Cap-1 Maneuver	92	0	651	1194	-	-	-
Mov Cap-2 Maneuver	92	0	-	-	-	-	-
Stage 1	190	0	-	-	-	-	-
Stage 2	733	0	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	17.2	2.5	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBTWBLn1	WBLn2	SBT
Capacity (veh/h)	1194	-	92 651	-
HCM Lane V/C Ratio	0.22	-	0.22 0.235	-
HCM Control Delay (s)	8.9	-	54.8 12.2	-
HCM Lane LOS	A	-	F B	-
HCM 95th %tile Q(veh)	0.8	-	0.8 0.9	-

HCM 6th TWSC  
 4: Lancaster Dr SE & Santiam Hwy WB

08/28/2022

Intersection												
Int Delay, s/veh	4.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations						↖ ↗	↖ ↗	↖ ↗	↖ ↗		↖ ↗	↖ ↗
Traffic Vol, veh/h	0	0	0	11	1	157	296	1153	0	0	493	657
Future Vol, veh/h	0	0	0	11	1	157	296	1153	0	0	493	657
Conflicting Peds, #/hr	0	0	0	0	0	0	1	0	8	8	0	1
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	Free
Storage Length	-	-	-	-	-	50	250	-	-	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	93	93	93	93	93	93	93	93	93	93	93	93
Heavy Vehicles, %	0	0	0	3	3	3	3	3	3	3	3	3
Mvmt Flow	0	0	0	12	1	169	318	1240	0	0	530	706

Major/Minor	Minor1		Major1		Major2		
Conflicting Flow All	2406	2407	620	531	0	-	0
Stage 1	1876	1876	-	-	-	-	-
Stage 2	530	531	-	-	-	-	-
Critical Hdwy	6.645	6.545	6.945	4.145	-	-	-
Critical Hdwy Stg 1	5.845	5.545	-	-	-	-	-
Critical Hdwy Stg 2	5.445	5.545	-	-	-	-	-
Follow-up Hdwy	3.5285	4.0285	3.3285	2.2285	-	-	-
Pot Cap-1 Maneuver	31	32	430	1028	-	0	0
Stage 1	106	119	-	-	-	0	0
Stage 2	587	523	-	-	-	0	0
Platoon blocked, %					-		-
Mov Cap-1 Maneuver	21	0	430	1028	-	-	-
Mov Cap-2 Maneuver	21	0	-	-	-	-	-
Stage 1	73	0	-	-	-	-	-
Stage 2	587	0	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	40.4	2.1	0
HCM LOS	E		

Minor Lane/Major Mvmt	NBL	NBTWBLn1	WBLn2	SBT
Capacity (veh/h)	1028	-	21 430	-
HCM Lane V/C Ratio	0.31	-	0.614 0.393	-
HCM Control Delay (s)	10.1	-	\$ 324 18.7	-
HCM Lane LOS	B	-	F C	-
HCM 95th %tile Q(veh)	1.3	-	1.8 1.8	-

HCM Signalized Intersection Capacity Analysis  
5: Lancaster Dr SE & Santiam Hwy EB

08/28/2022

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	361	1	299	0	0	0	0	475	32	81	219	0
Future Volume (vph)	361	1	299	0	0	0	0	475	32	81	219	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	6.0	6.0	6.0					5.5		4.5	5.5	
Lane Util. Factor	0.95	0.95	1.00					0.95		1.00	1.00	
Frpb, ped/bikes	1.00	1.00	0.98					1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00					1.00		1.00	1.00	
Frt	1.00	1.00	0.85					0.99		1.00	1.00	
Flt Protected	0.95	0.95	1.00					1.00		0.95	1.00	
Satd. Flow (prot)	1504	1508	1392					2966		1643	1731	
Flt Permitted	0.95	0.95	1.00					1.00		0.33	1.00	
Satd. Flow (perm)	1504	1508	1392					2966		574	1731	
Peak-hour factor, PHF	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Adj. Flow (vph)	420	1	348	0	0	0	0	552	37	94	255	0
RTOR Reduction (vph)	0	0	215	0	0	0	0	3	0	0	0	0
Lane Group Flow (vph)	210	211	133	0	0	0	0	586	0	94	255	0
Confl. Peds. (#/hr)			3	3				2		3	3	2
Confl. Bikes (#/hr)												2
Heavy Vehicles (%)	8%	8%	8%	0%	0%	0%	14%	14%	14%	4%	4%	4%
Turn Type	Split	NA	Perm					NA		pm+pt	NA	
Protected Phases	8	8						6		5	2	
Permitted Phases			8							2		
Actuated Green, G (s)	49.6	49.6	49.6					57.4		68.9	68.9	
Effective Green, g (s)	49.6	49.6	49.6					57.4		68.9	68.9	
Actuated g/C Ratio	0.38	0.38	0.38					0.44		0.53	0.53	
Clearance Time (s)	6.0	6.0	6.0					5.5		4.5	5.5	
Vehicle Extension (s)	0.5	0.5	0.5					0.5		0.5	0.5	
Lane Grp Cap (vph)	573	575	531					1309		361	917	
v/s Ratio Prot	0.14	c0.14						c0.20		0.01	c0.15	
v/s Ratio Perm			0.10							0.12		
v/c Ratio	0.37	0.37	0.25					0.45		0.26	0.28	
Uniform Delay, d1	28.9	28.9	27.5					25.3		16.1	16.8	
Progression Factor	1.00	1.00	1.00					1.00		1.00	1.00	
Incremental Delay, d2	0.1	0.1	0.1					1.1		0.1	0.8	
Delay (s)	29.0	29.1	27.6					26.4		16.2	17.6	
Level of Service	C	C	C					C		B	B	
Approach Delay (s)		28.4			0.0			26.4			17.2	
Approach LOS		C			A			C			B	
<b>Intersection Summary</b>												
HCM 2000 Control Delay			25.4					HCM 2000 Level of Service			C	
HCM 2000 Volume to Capacity ratio			0.41									
Actuated Cycle Length (s)			130.0					Sum of lost time (s)		16.0		
Intersection Capacity Utilization			72.9%					ICU Level of Service		C		
Analysis Period (min)			15									
c	Critical Lane Group											

HCM Signalized Intersection Capacity Analysis  
 5: Lancaster Dr SE & Santiam Hwy EB

























08/28/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	842	1	343	0	0	0	0	614	30	160	337	0
Future Volume (vph)	842	1	343	0	0	0	0	614	30	160	337	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	6.0	6.0	6.0					5.5		4.5	5.5	
Lane Util. Factor	0.95	0.95	1.00					0.95		1.00	1.00	
Frpb, ped/bikes	1.00	1.00	1.00					1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00					1.00		1.00	1.00	
Frt	1.00	1.00	0.85					0.99		1.00	1.00	
Flt Protected	0.95	0.95	1.00					1.00		0.95	1.00	
Satd. Flow (prot)	1562	1566	1471					3226		1644	1731	
Flt Permitted	0.95	0.95	1.00					1.00		0.21	1.00	
Satd. Flow (perm)	1562	1566	1471					3226		366	1731	
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	925	1	377	0	0	0	0	675	33	176	370	0
RTOR Reduction (vph)	0	0	206	0	0	0	0	3	0	0	0	0
Lane Group Flow (vph)	462	464	171	0	0	0	0	705	0	176	370	0
Confl. Peds. (#/hr)	1						1	1		9	9	1
Confl. Bikes (#/hr)										2		2
Heavy Vehicles (%)	4%	4%	4%	0%	0%	0%	5%	5%	5%	4%	4%	4%
Turn Type	Split	NA	Perm					NA		pm+pt	NA	
Protected Phases	8	8						6		5	2	
Permitted Phases			8							2		
Actuated Green, G (s)	59.0	59.0	59.0					43.7		59.5	59.5	
Effective Green, g (s)	59.0	59.0	59.0					43.7		59.5	59.5	
Actuated g/C Ratio	0.45	0.45	0.45					0.34		0.46	0.46	
Clearance Time (s)	6.0	6.0	6.0					5.5		4.5	5.5	
Vehicle Extension (s)	0.5	0.5	0.5					0.5		0.5	0.5	
Lane Grp Cap (vph)	708	710	667					1084		278	792	
v/s Ratio Prot	0.30	c0.30						0.22		c0.05	0.21	
v/s Ratio Perm			0.12							c0.23		
v/c Ratio	0.65	0.65	0.26					0.65		0.63	0.47	
Uniform Delay, d1	27.5	27.6	21.9					36.7		23.8	24.3	
Progression Factor	1.00	1.00	1.00					1.00		1.41	1.42	
Incremental Delay, d2	1.7	1.7	0.1					3.0		3.1	1.8	
Delay (s)	29.2	29.2	22.0					39.7		36.6	36.4	
Level of Service	C	C	C					D		D	D	
Approach Delay (s)		27.1			0.0			39.7			36.4	
Approach LOS		C			A			D			D	
<b>Intersection Summary</b>												
HCM 2000 Control Delay			32.6					HCM 2000 Level of Service		C		
HCM 2000 Volume to Capacity ratio			0.66									
Actuated Cycle Length (s)			130.0					Sum of lost time (s)		16.0		
Intersection Capacity Utilization			73.7%					ICU Level of Service		D		
Analysis Period (min)			15									
c Critical Lane Group												

























HCM Signalized Intersection Capacity Analysis  
 6: Kuebler Blvd/Cordon Rd & Lancaster Dr SE

08/28/2022

													
Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR	
Lane Configurations													
Traffic Volume (vph)	48	223	93	58	143	41	99	342	115	76	399	47	
Future Volume (vph)	48	223	93	58	143	41	99	342	115	76	399	47	
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	
Total Lost time (s)	4.0	5.0	4.0	4.0	5.0	4.0	4.0	6.0	4.0	4.0	6.0	4.0	
Lane Util. Factor	1.00	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00	1.00	0.95	1.00	
Frbp, ped/bikes	1.00	1.00	0.99	1.00	1.00	0.99	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)	1527	3054	1352	2675	2758	1224	3100	3196	1430	1598	3196	1430	
Flt Permitted	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 (perm)	1527	3054	1352	2675	2758	1224	3100	3196	1430	1598	3196	1430	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	
Adj. Flow (vph)	53	248	103	64	159	46	110	380	128	84	443	52	
RTOR Reduction (vph)	0	0	81	0	0	36	0	0	0	0	0	24	
Lane Group Flow (vph)	53	248	22	64	159	10	110	380	128	84	443	28	
Confl. Peds. (#/hr)			2			2							
Confl. Bikes (#/hr)			1										
Heavy Vehicles (%)	12%	12%	12%	24%	24%	24%	7%	7%	7%	7%	7%	7%	
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	Free	Prot	NA	pm+ov	
Protected Phases	3	8	1	7	4	5	1	6		5	2	3	
Permitted Phases			8			4			Free			2	
Actuated Green, G (s)	4.1	10.3	14.8	3.1	9.3	15.0	4.5	31.7	69.8	5.7	32.9	37.0	
Effective Green, g (s)	4.1	10.3	14.8	3.1	9.3	15.0	4.5	31.7	69.8	5.7	32.9	37.0	
Actuated g/C Ratio	0.06	0.15	0.21	0.04	0.13	0.21	0.06	0.45	1.00	0.08	0.47	0.53	
Clearance Time (s)	4.0	5.0	4.0	4.0	5.0	4.0	4.0	6.0		4.0	6.0	4.0	
Vehicle Extension (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5		0.5	0.5	0.5	
Lane Grp Cap (vph)	89	450	286	118	367	263	199	1451	1430	130	1506	758	
v/s Ratio Prot	c0.03	c0.08	0.00	0.02	0.06	0.00	0.04	0.12		c0.05	c0.14	0.00	
v/s Ratio Perm			0.01			0.01			c0.09			0.02	
v/c Ratio	0.60	0.55	0.08	0.54	0.43	0.04	0.55	0.26	0.09	0.65	0.29	0.04	
Uniform Delay, d1	32.0	27.6	22.0	32.7	27.8	21.7	31.7	11.8	0.0	31.1	11.3	7.9	
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	6.9	0.8	0.0	2.7	0.3	0.0	1.9	0.4	0.1	8.0	0.5	0.0	
Delay (s)	39.0	28.4	22.1	35.4	28.1	21.7	33.6	12.2	0.1	39.1	11.8	7.9	
Level of Service	D	C	C	D	C	C	C	B	A	D	B	A	
Approach Delay (s)		28.2			28.8			13.5			15.4		
Approach LOS		C			C			B			B		
<b>Intersection Summary</b>													
HCM 2000 Control Delay			19.5									HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio			0.43										
Actuated Cycle Length (s)			69.8									Sum of lost time (s)	19.0
Intersection Capacity Utilization			41.8%									ICU Level of Service	A
Analysis Period (min)			15										
c Critical Lane Group													

HCM Signalized Intersection Capacity Analysis  
 6: Kuebler Blvd/Cordon Rd & Lancaster Dr SE

08/28/2022

												
Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	84	156	173	125	248	83	162	535	100	56	414	54
Future Volume (vph)	84	156	173	125	248	83	162	535	100	56	414	54
Ideal Flow (vphp)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	4.0	5.0	4.0	4.0	5.0	4.0	4.0	6.0	4.0	4.0	6.0	4.0
Lane Util. Factor	1.00	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00	1.00	0.95	1.00
Frbp, ped/bikes	1.00	1.00	1.00	1.00	1.00	0.99	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)	1527	3054	1366	3100	3196	1418	3130	3226	1443	1644	3288	1471
Flt Permitted	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 (perm)	1527	3054	1366	3100	3196	1418	3130	3226	1443	1644	3288	1471
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	92	171	190	137	273	91	178	588	110	62	455	59
RTOR Reduction (vph)	0	0	149	0	0	73	0	0	0	0	0	28
Lane Group Flow (vph)	92	171	41	137	273	18	178	588	110	62	455	31
Confl. Peds. (#/hr)	1					1						
Heavy Vehicles (%)	12%	12%	12%	7%	7%	7%	6%	6%	6%	4%	4%	4%
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	Free	Prot	NA	pm+ov
Protected Phases	3	8	1	7	4	5	1	6		5	2	3
Permitted Phases			8			4			Free			2
Actuated Green, G (s)	6.0	9.1	16.2	6.2	9.3	14.4	7.1	35.0	74.4	5.1	33.0	39.0
Effective Green, g (s)	6.0	9.1	16.2	6.2	9.3	14.4	7.1	35.0	74.4	5.1	33.0	39.0
Actuated g/C Ratio	0.08	0.12	0.22	0.08	0.12	0.19	0.10	0.47	1.00	0.07	0.44	0.52
Clearance Time (s)	4.0	5.0	4.0	4.0	5.0	4.0	4.0	6.0		4.0	6.0	4.0
Vehicle Extension (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5		0.5	0.5	0.5
Lane Grp Cap (vph)	123	373	297	258	399	274	298	1517	1443	112	1458	771
v/s Ratio Prot	c0.06	0.06	0.01	0.04	c0.09	0.00	c0.06	c0.18		0.04	0.14	0.00
v/s Ratio Perm			0.02			0.01			c0.08			0.02
v/c Ratio	0.75	0.46	0.14	0.53	0.68	0.06	0.60	0.39	0.08	0.55	0.31	0.04
Uniform Delay, d1	33.5	30.4	23.5	32.7	31.1	24.5	32.3	12.8	0.0	33.5	13.4	8.6
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	19.3	0.3	0.1	1.1	3.8	0.0	2.1	0.7	0.1	3.3	0.6	0.0
Delay (s)	52.8	30.7	23.6	33.8	35.0	24.5	34.4	13.5	0.1	36.9	13.9	8.6
Level of Service	D	C	C	C	C	C	C	B	A	D	B	A
Approach Delay (s)		32.2			32.8			16.1			15.9	
Approach LOS		C			C			B			B	
<b>Intersection Summary</b>												
HCM 2000 Control Delay			22.5									C
HCM 2000 Volume to Capacity ratio			0.51									
Actuated Cycle Length (s)			74.4							19.0		
Intersection Capacity Utilization			47.6%									A
Analysis Period (min)			15									

c Critical Lane Group

Queuing and Blocking Report  
Baseline

08/28/2022

Intersection: 1: Lancaster Dr SE & Rickey St SE

Movement	EB	EB	WB	WB	WB	NB	NB	NB	NB	SB	SB	SB
Directions Served	L	TR	L	LT	R	L	T	T	R	L	T	TR
Maximum Queue (ft)	109	228	375	2291	125	138	225	225	181	250	879	887
Average Queue (ft)	39	63	346	1733	101	53	112	116	73	114	469	514
95th Queue (ft)	89	193	472	3099	174	109	193	198	136	255	901	896
Link Distance (ft)		1135		2445			450	450			1659	1659
Upstream Blk Time (%)				42								
Queuing Penalty (veh)				0								
Storage Bay Dist (ft)	100		350		100	450			350	225		
Storage Blk Time (%)	1	7	10	75	2					0	21	
Queuing Penalty (veh)	0	3	41	288	10					1	15	

Intersection: 2: Cordon Rd/Cordon Rd SE & Macleay Rd SE

Movement	EB	WB	NE	NE	SW	SW
Directions Served	LTR	LTR	L	TR	L	TR
Maximum Queue (ft)	158	151	74	198	81	272
Average Queue (ft)	58	58	10	71	13	89
95th Queue (ft)	125	119	39	169	46	202
Link Distance (ft)	858	962		1172		995
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)			150		175	
Storage Blk Time (%)				1	0	1
Queuing Penalty (veh)				0	0	1

Intersection: 3: Cordon Rd & Gaffin Rd SE

Movement	SE	SE	NW	NW	NE	NE	SW	SW	SW
Directions Served	L	TR	L	TR	L	TR	L	T	R
Maximum Queue (ft)	107	171	123	108	119	264	168	224	118
Average Queue (ft)	31	52	38	51	46	98	62	100	25
95th Queue (ft)	76	111	85	92	93	206	122	196	87
Link Distance (ft)		689		1499		4583		1172	
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (ft)	100		200		375		150		100
Storage Blk Time (%)	0	2					1	6	0
Queuing Penalty (veh)	0	1					3	8	0



Intersection: 4: Lancaster Dr SE & Santiam Hwy WB

Movement	WB	WB	NB	SB	SB
Directions Served	LT	R	L	T	R
Maximum Queue (ft)	128	86	115	500	505
Average Queue (ft)	22	54	44	222	459
95th Queue (ft)	74	83	94	585	514
Link Distance (ft)	1329			450	450
Upstream Blk Time (%)				3	21
Queuing Penalty (veh)				15	103
Storage Bay Dist (ft)		50	250		
Storage Blk Time (%)	1	7			
Queuing Penalty (veh)	1	1			

Intersection: 5: Lancaster Dr SE & Santiam Hwy EB

Movement	EB	EB	EB	NB	NB	SB	SB
Directions Served	L	LT	R	T	TR	L	T
Maximum Queue (ft)	283	361	297	275	212	106	167
Average Queue (ft)	147	186	88	106	71	33	56
95th Queue (ft)	245	305	187	213	157	76	133
Link Distance (ft)		720					582
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)	650		275			250	
Storage Blk Time (%)		1	0				
Queuing Penalty (veh)		3	0				

Queuing and Blocking Report  
Baseline

08/28/2022

Intersection: 6: Kuebler Blvd/Cordon Rd & Lancaster Dr SE

Movement	SE	SE	SE	SE	NW	NW	NW	NW	NW	NE	NE	NE
Directions Served	L	T	T	R	L	L	T	T	R	L	L	T
Maximum Queue (ft)	100	153	118	68	72	137	154	129	79	55	118	243
Average Queue (ft)	37	79	47	23	11	46	67	33	22	12	57	103
95th Queue (ft)	82	130	107	56	45	97	119	85	58	40	98	188
Link Distance (ft)							1785	1785				1123
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	150			325	225	225			200	300	300	
Storage Blk Time (%)		0										0
Queuing Penalty (veh)		0										0

Intersection: 6: Kuebler Blvd/Cordon Rd & Lancaster Dr SE

Movement	NE	NE	SW	SW	SW	SW
Directions Served	T	R	L	T	T	R
Maximum Queue (ft)	61	63	162	146	183	70
Average Queue (ft)	3	3	59	67	71	14
95th Queue (ft)	34	30	123	120	132	44
Link Distance (ft)	1123			358	358	
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		200	225			200
Storage Blk Time (%)	0				0	
Queuing Penalty (veh)	0				0	

Intersection: 20: Lancaster Dr SE

Movement
Directions Served
Maximum Queue (ft)
Average Queue (ft)
95th Queue (ft)
Link Distance (ft)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (ft)
Storage Blk Time (%)
Queuing Penalty (veh)

Network Summary

Network wide Queuing Penalty: 495
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Queuing and Blocking Report  
Baseline

08/28/2022

Intersection: 1: Lancaster Dr SE & Rickey St SE

Movement	EB	EB	WB	WB	WB	NB	NB	NB	NB	SB	SB	SB
Directions Served	L	TR	L	LT	R	L	T	T	R	L	T	TR
Maximum Queue (ft)	104	147	375	2497	125	131	373	442	374	250	1695	1709
Average Queue (ft)	20	60	339	1644	113	55	206	231	198	227	1304	1278
95th Queue (ft)	60	116	467	3001	164	105	312	369	362	308	2033	2025
Link Distance (ft)		1135		2445			450	450			1659	1659
Upstream Blk Time (%)				29			0	0			36	28
Queuing Penalty (veh)				0			0	2			0	0
Storage Bay Dist (ft)	100		350		100	450			350	225		
Storage Blk Time (%)	0	4	5	75	4		0	0	2	30	28	
Queuing Penalty (veh)	0	1	24	328	20		0	1	8	98	74	

Intersection: 2: Cordon Rd/Cordon Rd SE & Macleay Rd SE

Movement	EB	WB	NE	NE	SW	SW
Directions Served	LTR	LTR	L	TR	L	TR
Maximum Queue (ft)	213	151	153	329	109	341
Average Queue (ft)	102	61	30	157	27	125
95th Queue (ft)	182	124	109	293	70	253
Link Distance (ft)	858	962		1172		995
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)			150		175	
Storage Blk Time (%)			0	9		3
Queuing Penalty (veh)			0	5		2

Intersection: 3: Cordon Rd & Gaffin Rd SE

Movement	SE	SE	NW	NW	NE	NE	SW	SW	SW
Directions Served	L	TR	L	TR	L	TR	L	T	R
Maximum Queue (ft)	78	128	134	176	266	461	174	352	125
Average Queue (ft)	30	54	60	80	97	197	86	130	43
95th Queue (ft)	67	102	118	147	200	350	157	265	107
Link Distance (ft)		689		1498		4575		1172	
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (ft)	100		200		375		150		100
Storage Blk Time (%)	0	1	0	0	0	1	2	9	0
Queuing Penalty (veh)	0	1	0	0	0	1	9	21	0

Queuing and Blocking Report  
Baseline

08/28/2022

Intersection: 4: Lancaster Dr SE & Santiam Hwy WB

Movement	WB	WB	NB	NB	NB	SB	SB
Directions Served	LT	R	L	T	T	T	R
Maximum Queue (ft)	268	79	159	18	53	501	493
Average Queue (ft)	85	66	61	1	2	296	460
95th Queue (ft)	238	85	118	13	24	646	494
Link Distance (ft)	1329			582	582	450	450
Upstream Blk Time (%)						5	23
Queuing Penalty (veh)						27	132
Storage Bay Dist (ft)		50	250				
Storage Blk Time (%)	1	39					
Queuing Penalty (veh)	1	5					

Intersection: 5: Lancaster Dr SE & Santiam Hwy EB

Movement	EB	EB	EB	NB	NB	SB	SB
Directions Served	L	LT	R	T	TR	L	T
Maximum Queue (ft)	657	743	300	380	348	227	328
Average Queue (ft)	317	433	226	199	186	79	127
95th Queue (ft)	564	686	403	331	310	169	255
Link Distance (ft)		720					582
Upstream Blk Time (%)		1					
Queuing Penalty (veh)		0					
Storage Bay Dist (ft)	650		275			250	
Storage Blk Time (%)	0	19	1			0	1
Queuing Penalty (veh)	0	143	5			0	2

Queuing and Blocking Report  
Baseline

08/28/2022

Intersection: 6: Kuebler Blvd/Cordon Rd & Lancaster Dr SE

Movement	SE	SE	SE	SE	NW	NW	NW	NW	NW	NE	NE	NE
Directions Served	L	T	T	R	L	L	T	T	R	L	L	T
Maximum Queue (ft)	150	174	151	138	107	152	191	180	71	111	257	363
Average Queue (ft)	70	63	35	42	28	67	90	63	33	28	97	165
95th Queue (ft)	141	140	103	96	72	118	145	122	64	78	181	300
Link Distance (ft)							1786	1786				1123
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	150			325	225	225			200	300	300	
Storage Blk Time (%)	3	0					0	0			0	1
Queuing Penalty (veh)	2	0					0	0			0	2

Intersection: 6: Kuebler Blvd/Cordon Rd & Lancaster Dr SE

Movement	NE	NE	SW	SW	SW	SW
Directions Served	T	R	L	T	T	R
Maximum Queue (ft)	163	43	109	170	182	102
Average Queue (ft)	9	1	45	77	84	22
95th Queue (ft)	81	31	92	137	149	65
Link Distance (ft)	1123			365	365	
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		200	225			200
Storage Blk Time (%)	0	0		0	0	0
Queuing Penalty (veh)	0	0		0	0	0

Intersection: 20: Lancaster Dr SE

Movement
Directions Served
Maximum Queue (ft)
Average Queue (ft)
95th Queue (ft)
Link Distance (ft)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (ft)
Storage Blk Time (%)
Queuing Penalty (veh)

Network Summary

Network wide Queuing Penalty: 916