TRAFFIC IMPACT ANALYSIS

ROBERTS INDUSTRIAL PARK

Coburg, Oregon

May 27, 2022

160 Madison Street, Suite A
Eugene, Oregon 97402
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SANDOW ENGINEERING

Traffic Impact Analysis

Roberts Road Industrial Park

Coburg, Oregon
May 27, 2021

Kelly Sandow PE

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project # 5980

EXECUTIVE SUMMARY

This report provides the Traffic Impact Analysis and findings prepared for the proposed Roberts Industrial Park in Coburg, Oregon. The subject site is located on Assessor's Map 16-03-33-13 tax lot 900. The applicant is proposing to construct a 77,500 sf Industrial Park containing separate leasable spaces.

The analysis evaluates the transportation impacts as per the City of Coburg and Lane County criteria, evaluating adjacent roadway and intersection operations with the addition of development traffic PM peak hour conditions with and without the development in place. The analysis follows City of Coburg and Lane County criteria for evaluating the Level of Service and queuing conditions utilizing the HCM6 methodology.

The following report recommendations are based on the information and analysis documented in this report.

FINDINGS

- All studied intersections operate within the mobility standards with and without the development traffic.
- The addition of development traffic does not substantially increase queuing conditions.
- The existing crash patterns do not indicate a need for roadway safety improvements.

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LIST OF APPENDICES

1.0 BACKGROUND

1.1 SITE INFORMATION

This report provides the Traffic Impact Analysis and findings prepared for the proposed Roberts in Coburg, Oregon. The subject site is located on Assessor's Map 16-03-33-13 tax lot 900. The 4.86-acre site is currently vacant and is zoned Light Industrial. Current access to the site is via an improved access connection.

The development proposal is 77,500 square feet of multi-tenant leasable space contained within 5 buildings, built over two phases. The first phase, estimated to be completed in the year 2023, is the southern portion of the development containing approximately 32,640 sf over 23 units and will construct 4 access connections. The second phase, estimated to be completed in the year 2025, is the northern portion of the site containing approximately 44,712 sf over 33 units and will construct the 2 northern access points. The proposal, once fully completed, will contain approximately 77,500 sf and 56 individual leasable spaces for uses allowed within the zoning. The site will provide a total of 6 access connections to Roberts Road. Appendix A contains the site plan.

1.2 ANALYSIS SCOPE

The traffic study is performed in accordance with the City of Coburg and Lane County standards and criteria. A turning movement/intersection analysis was performed for the adjacent intersections anticipated to be most impacted by the development. The following intersections are included in the study:

- Robert Road @ Coburg Industrial Way

The operational analysis was performed at the study area intersections for the PM peak hour (4-6 PM). The City requested an evaluation of conditions at the completion of phase 2/total development. The operational analysis is performed for the following conditions:

- Existing conditions, the year 2022
- Year of completion of the total development, the year 2025, with and without the proposed development

Appendix B contains the Scopes of Work from the City of Coburg and Lane County

2.0 EXISTING ROADWAY CONDITIONS

2.1 STREET NETWORK

Streets included in the study are Roberts Road and Coburg Industrial Way. The roadway characteristics within the study area are included in Table 1. Figure 1 provides a map of the

site location and study area. Figure 2 illustrates the study area intersection geometry and access control. Figure 3 provides the adjacent roadway street classification.

TABLE 1: ROADWAY CHARACTERISTICS WITHIN STUDY AREA

Characteristic	Roberts Road	Coburg Industrial Way
Jurisdiction	City of Coburg	City of Coburg
Functional Classification	Local/Collector	Collector
Lanes per Direction	1	1
Center Left Turn lane	None	None
Restrictions in the Median	None	None
Bikes Lanes Present	None	None
Sidewalks Present	No	Yes
Transit Route	No	North of Pearl St
On-Street Parking	Yes	No
Vertical or Horizontal Sight Limitations	None	None

2.2 CRASH ANALYSIS

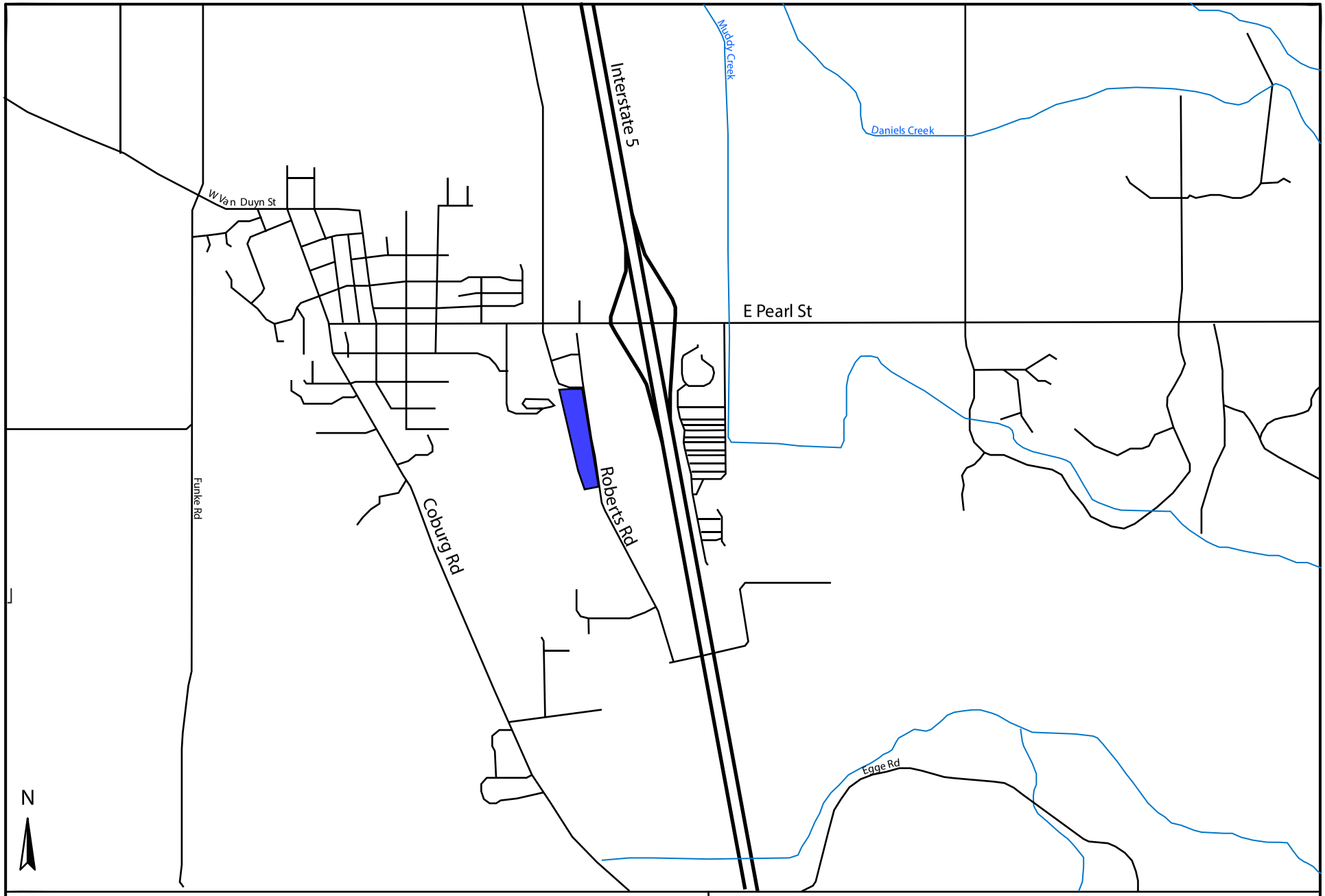
A crash estimation was performed for the study area intersections. The analysis investigates crash data available for the most recent 5 years, 1/1/2016-12/31/2020, to determine a crash rate in crashes per million entering vehicles and the type of crashes that occurred. The crash rate is compared to the crash rate of 1.0. The crash data is provided in Appendix C. The data is summarized in Table 2.

TABLE 2: INTERSECTION CRASH RATES

Location	Number of Crashes	Types of Crashes						ADT	Crash Rate*
		Head	Rear	Side	Turn	Other	Pedestrian/ Bike		
Roberts Rd at Coburg Industrial Way	0	0	0	0	0	0	0	2,200	0.00

***(crashes/million entering vehicles)**

There were no reported crashes at the intersection of Roberts Road at Coburg Industrial Way in the previous 5 years.



Roberts Road Industrial Park, Coburg, Oregon

Figure 1: Site Location and Vicinity Map

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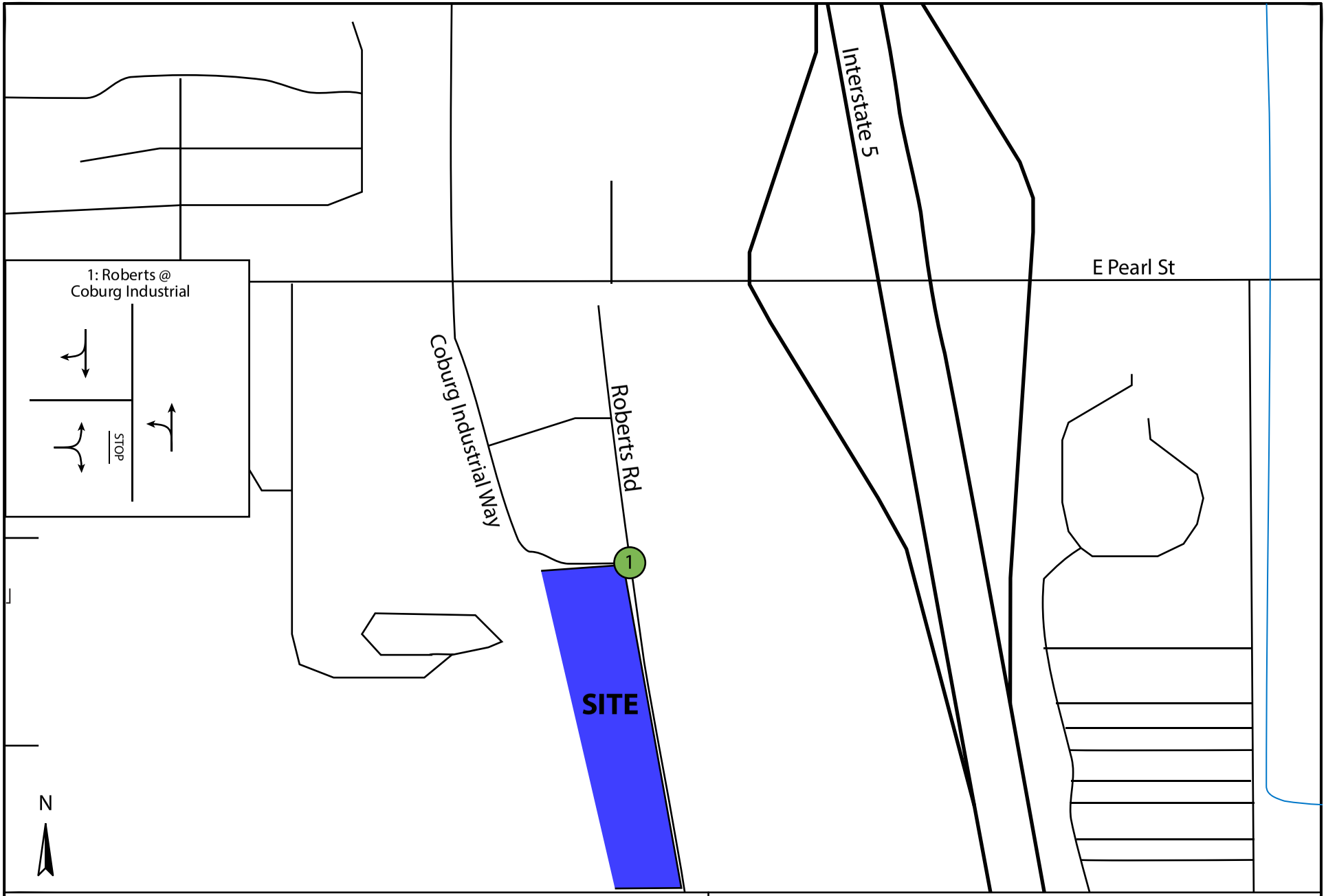

Roberts Road Industrial Park, Coburg, Oregon

Figure 2: Existing Lane Configuration and Traffic Control

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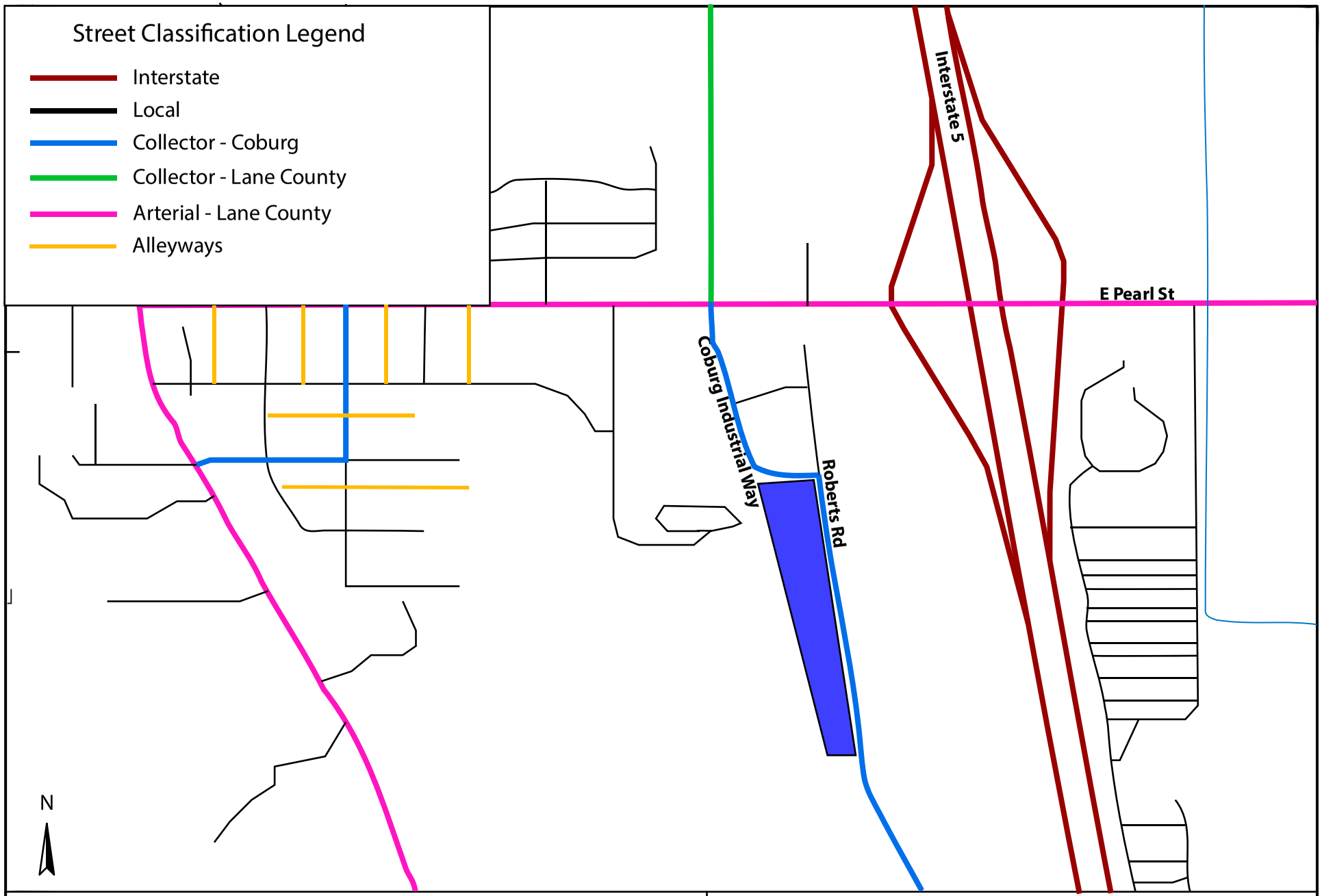

Roberts Road Industrial Park, Coburg, Oregon

Figure 3: Street Classification

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3.0 FUTURE IMPROVEMENTS

The City of Coburg will be modifying the intersection control at Roberts Road and Coburg Industrial Way to:

- Stop control for the southbound approach
- Eastbound right turn permitted without stopping
- Eastbound left turn stop control
- All northbound movements are free

4.0 DEVELOPMENT TRIP GENERATION AND DISTRIBUTION

The trips anticipated to be generated by the proposed development are estimated using the ITE Trip Generation Manuals 11th Edition. The ITE Land Use data for 130-Industrial Park and 770-Business Park were considered for this study. In general, a business park considers a higher percentage of office and commercial space (including restaurant uses) than what is anticipated for this site. The anticipated uses are more closely aligned with the uses typically found in 130- Industrial Park. Therefore, 130-Industrial Park is used.

The AM Peak Hour, PM Peak Hour, and Average Daily trip generation is illustrated in Table 3.

TABLE 3: TRIP GENERATION PEAK HOUR

ITE Land Use	Size	Trip Generation					
		Rate	Trips	%IN	%OUT	IN	OUT
AM Peak Hour Trips							
130- Industrial Park	77.5	0.34	26	81%	29%	21	5
AM Peak Hour Trips							
130- Industrial Park	77.5	0.34	26	22%	78%	5	21
Daily Trips							
130- Industrial Park	77.5	Ln(T)=0.52*ln(x)+4.45	882	50%	50%	411	411

The existing travel patterns from the traffic counts are used to estimate how the development trips will use the surrounding transportation system to access the site. The trips are distributed through the study area based on those existing travel patterns as described below:

- 25% to/from West via Pearl
- 75% to/from east via I-5

The traffic volumes were distributed within the study area according to the percentages above and are illustrated in Figure 4 for the PM peak hour.

Roberts Road Industrial Park, Coburg, Oregon

Figure 4: PM Peak Hour Development Trips

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5.0 BACKGROUND TRAFFIC VOLUMES

5.1 INTERSECTION COUNTS

As part of the analysis, peak hour turning movement counts were collected at the intersections. Traffic counts were performed for the weekday peak period of 4:00 PM to 6:00 PM. The turning movement counts illustrate that the peak of the count periods occurred between 4:15 PM and 5:15 PM.

The traffic volumes are included in Appendix D.

5.2 VOLUME ADJUSTMENT

The turning movement count at Roberts Road and Coburg Industrial Way was collected on January 27, 2021. During this time, traffic volumes were generally affected by Covid-19 shutdowns. Therefore, the traffic volumes are adjusted to represent traffic levels during pre-Covid-19 times. ODOT has been collecting traffic volumes on state highways during the Covid-19 shutdowns and comparing the traffic volumes to pre Covid-19 data. Statewide the current volumes are, on average, 11% lower during the count times than at the same time in the year 2020 (pre-Covid-19). Therefore, a factor of 1.11 was applied to the counted data to represent pre-Covid-19 volumes.

5.3 GROWTH RATES

The proposed site development is projected to be completed by the year 2025. Consistent with the traffic impact analysis criteria, the intersections were evaluated for the year of completion, the year 2025. To account for naturally occurring traffic increases between the count year and the future analysis year an annual growth rate was applied. The growth rate was determined using the EMME/2 outputs from LCOG. The Emme/2 outputs illustrated a growth rate of 3.5 % for the study area.

5.4 PIPELINE TRIPS

As stated previously, the traffic counts for Roberts Road at Coburg Industrial Park were collected in January of 2021. Kendall Collision, located on Roberts Road south of this project site, has been approved and constructed after the counts were taken. The development trips from the Kendall Collision TIA were added to the background trips.

5.5 FINAL TRAFFIC VOLUMES

The existing traffic volumes were adjusted according to the methodology described above. Appendix D provides the traffic volume calculations. The development trips are added to the background traffic to volume to represent the build conditions. Figure 5 illustrates the year 2022 PM Peak hour background traffic volumes. Figure 6 illustrates the year 2025 PM peak hour background and with development traffic volumes.

Roberts Road Industrial Park, Coburg, Oregon

Figure 5: Year 2022 Peak Hour Background Traffic Volumes

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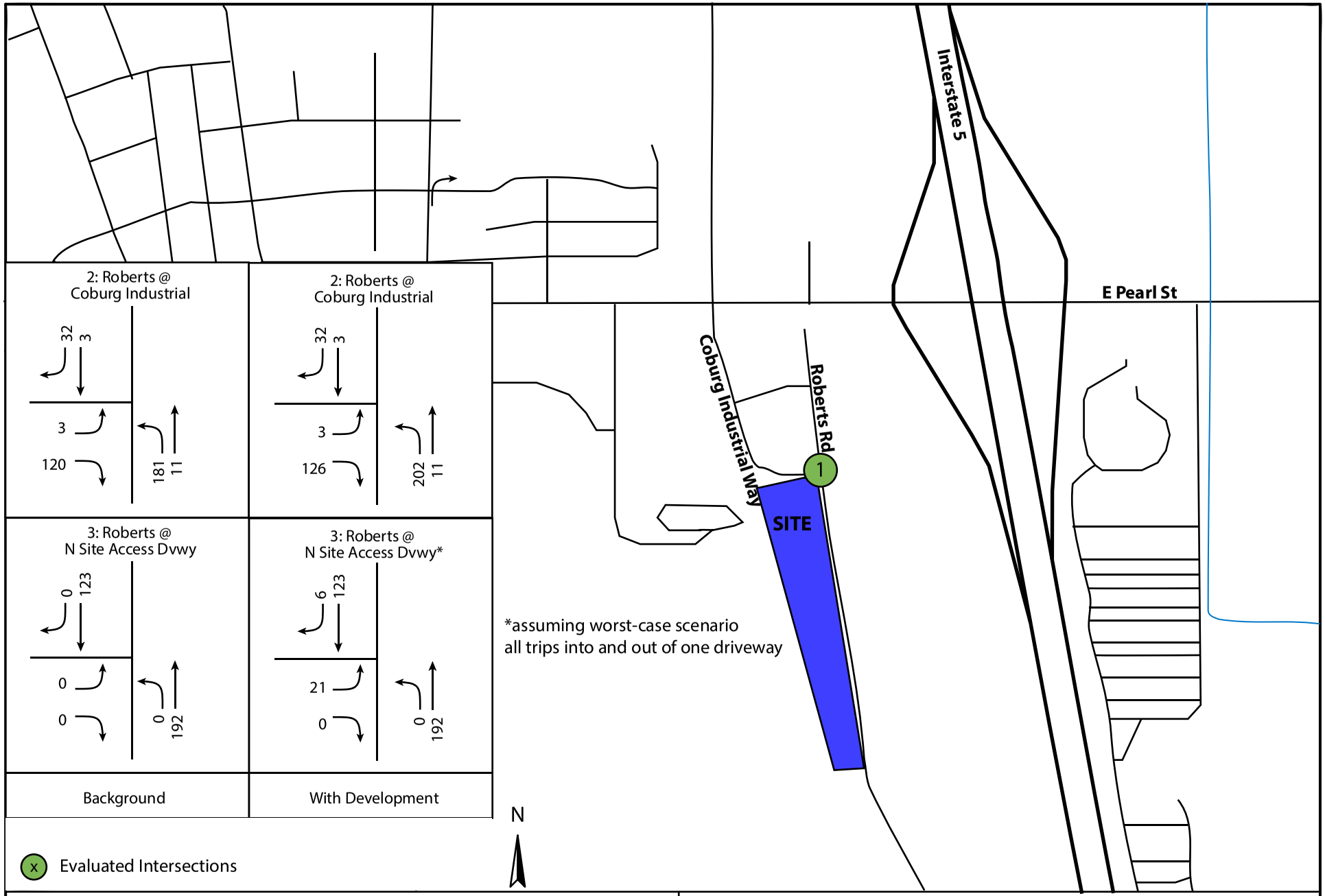

Roberts Road Industrial Park, Coburg, Oregon

Figure 6: Year 2025 Peak Hour Traffic Volumes

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6.0 INTERSECTION ANALYSIS

6.1 PERFORMANCE MEASURES

The measure of performance for intersections in this analysis is based on the Highway Capacity Manual (HCM) defined level of service (LOS). LOS is a concept developed to quantify the degree of comfort (including such elements as travel time, number of stops, total amount of stopped delay, and impediments caused by other vehicles) afforded to drivers as they travel through an intersection or along a roadway segment. It was developed to quantify the quality of service of transportation facilities.

LOS is based on average delay, defined as the average total elapsed time from when a vehicle stops at the end of a queue until the vehicle departs from the stop line. The average delay is measured in seconds per vehicle per hour and then translated into a grade or "level of service" for each intersection. LOS ranges from A to F, with A indicating the most desirable condition and F indicating the most unsatisfactory condition.

The LOS criteria, as defined by the Highway Capacity Manual for intersections, are provided in Table 4.

TABLE 4: HCM LEVEL OF SERVICE FOR INTERSECTIONS

	Stopped Delay Per Vehicle (Seconds per Vehicle)	
	Unsignalized Intersections	**Signalized Intersections**
A	≤ 10.0	≤ 10
B	> 10.0 and ≤ 15.0	> 10 and ≤ 20
C	> 15.0 and ≤ 25.0	> 20 and ≤ 35
D	> 25.0 and ≤ 35.0	> 35 and ≤ 55
E	> 35.0 and ≤ 50.0	> 55 and ≤ 80
F	> 50.0	> 80

The City of Coburg has a mobility standard of LOS D for intersections within their jurisdiction.

6.2 ANALYSIS METHODOLOGY

The intersection of Roberts Road at Coburg Industrial way evaluates conditions using the Highway Capacity Manual 6th ed methodology found within Synchro 10. The HCM methodology has a limitation in the ability to calculate nonstandard stop-control at T-intersections. The proposed stop control reconfiguration to a free eastbound right, a stopped eastbound left, stopped southbound approach, and free northbound approach is considered nonstandard. The LOS cannot be estimated using the HCM6 methodology. The ODOT Analysis Procedures Manual 2nd ed. provides guidance on how to modify the intersection evaluation when this condition exists. The recommendation as per Section 12.3.3 of the APM, the

"workaround" is to model the intersection as a standard T-intersection with the leg of the T stop-controlled, to model as an all-way stop control, and to average the results of the two. This recommendation of averaging the two analysis methodologies was performed for this intersection.

The site is proposing 6 access connections. Several of the access connections are anticipated to have very few development trips during the PM peak hour. Therefore, in lieu of analyzing all 6 access connections with the trips distributed amongst them, the trips were analyzed using a worst-case scenario of all trips into one access connection during the peak time.

6.3 INTERSECTION ANALYSIS RESULTS

A performance analysis was conducted for the studied intersections for the Year 2022 and year 2025 PM peak hour. The intersection evaluation was performed using Synchro 10. The results are shown in Table 5. The SYNCHRO outputs are provided in Appendix E.

TABLE 5: INTERSECTION PERFORMANCE: WEEKDAY AM AND PM PEAK HOUR

Intersection	Mobility Standard LOS, v/c	2022 Background	2025 Background	2025 Build
		PM		
Roberts Rd @ Coburg Industrial Way*	D	A	A	A
Roberts Rd @ Driveway**	D	N/A	N/A	B

*Results reported for critical movement
**in lieu of analyzing the trips distributed over the 6 access connections, the worst-case scenario of all trips into one access during the PM peak hour was analyzed.

As illustrated in Table 5, the addition of development trips does not impact the operation of the studied intersections.

7.0 QUEUE ANALYSIS

A queuing analysis was conducted for the studied intersections. The analysis was performed using SimTraffic 10, a microsimulation software tool that uses the HCM defined criteria to estimate the queuing of vehicles within the study area. The average and 95th percentile queuing results are illustrated in Table 6 PM peak hour. All results are rounded to 25 feet to represent the total number of vehicles in the queue, as one vehicle typically occupies 25 feet of space. The SimTraffic outputs are provided in Appendix F.

TABLE 6: INTERSECTION QUEUING: WEEKDAY AM PEAK HOUR

Intersection			Available Storage (Feet)	2022 Background (Feet)		2025 Background (Feet)		2025 Build (Feet)	
				Average	95th	Average	95th	Average	95th
Roberts Rd @ Coburg Industrial Way	EB	LTR	500+	50	75	50	75	50	75
	NB	LTR	500+	25	50	25	50	25	50
	SB	LTR	480	0	25	25	50	25	50
Roberts Rd @ Access*	NB	TR	500+	N/A	N/A	N/A	N/A	0	0
	SB	LT	500+	N/A	N/A	N/A	N/A	0	25
	EB	LR	100	N/A	N/A	N/A	N/A	25	50

**in lieu of analyzing the trips distributed over the 6 access connections, the worst-case scenario of all trips into one access during the PM peak hour was analyzed.

As demonstrated in Table 6, the addition of development traffic does not increase the queuing conditions at the studied intersections.

8.0 CONCLUSION

This report provides the Traffic Impact Analysis and findings prepared for the proposed Roberts Road Industrial Park for the PM peak hour conditions with and without the development in place. The analysis follows City of Coburg and Lane County criteria for evaluating LOS and queuing conditions utilizing the HCM6 methodology.

FINDINGS

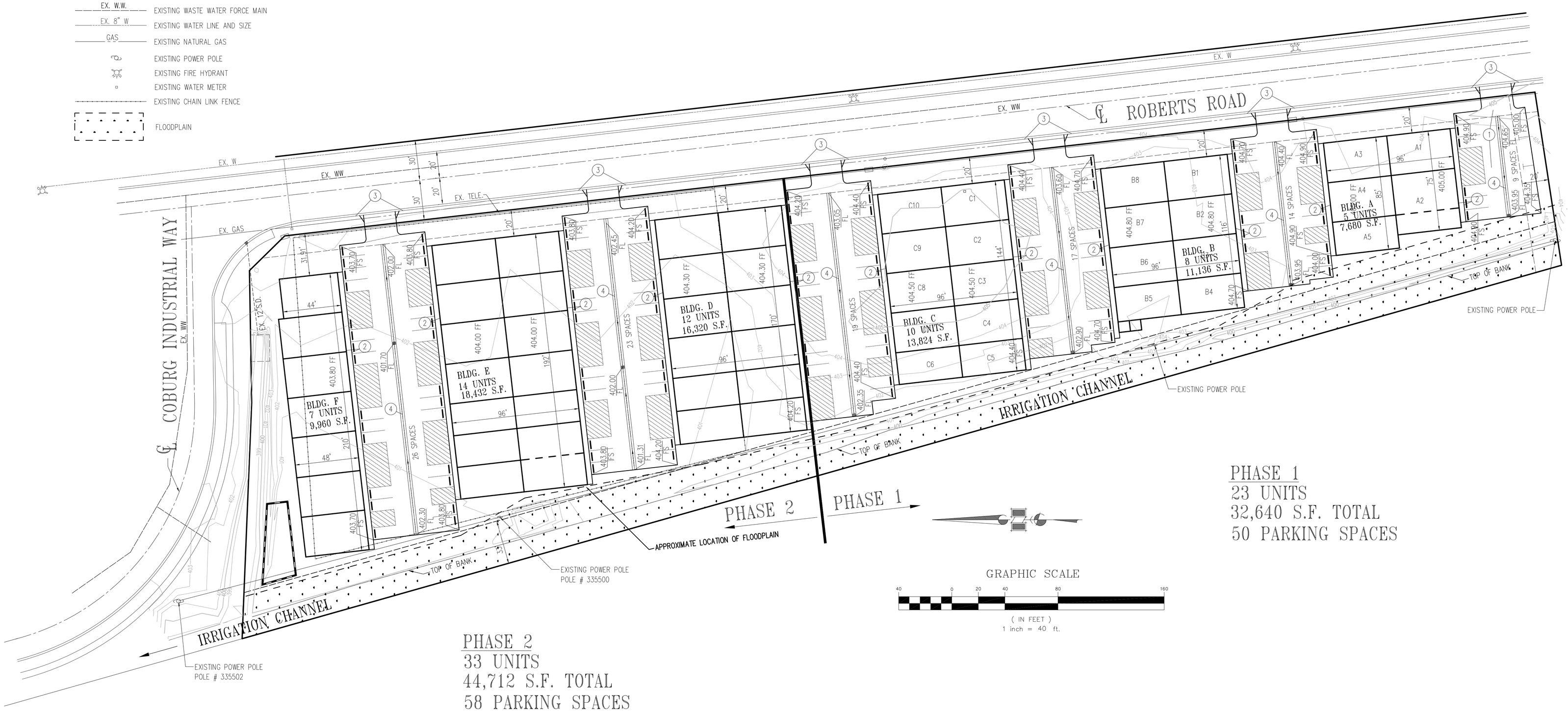
- All studied intersections operate within the mobility standards with and without the development traffic.
- The addition of development traffic does not substantially increase queuing conditions.
- The existing crash patterns do not indicate a need for roadway safety improvements

APPENDIX A: SITE PLAN

Roberts Road Industrial Park

LEGEND

- 400 — EXISTING MAJOR CONTOUR AND ELEVATION
- 402 — EXISTING MINOR CONTOUR
- EX. 12" S.D. — EXISTING STORM DRAIN AND SIZE
- EX. W.W. — EXISTING WASTE WATER FORCE MAIN
- EX. 8" W — EXISTING WATER LINE AND SIZE
- GAS — EXISTING NATURAL GAS
- EXISTING POWER POLE
- EXISTING FIRE HYDRANT
- EXISTING WATER METER
- EXISTING CHAIN LINK FENCE
- FLOODPLAIN



PHASE 1
23 UNITS
32,640 S.F. TOTAL
50 PARKING SPACES

PHASE 2
33 UNITS
44,712 S.F. TOTAL
58 PARKING SPACES

GRAPHIC SCALE

40 0 20 40 80 160

(IN FEET)
1 inch = 40 ft.

CONSTRUCTION NOTES

1. CONSTRUCT 4" AC OVER 12" OF CRUSHED ROCK
2. CONSTRUCT 6" THICK CONCRETE SIDEWALK
3. CONSTRUCT 6" THICK, 24' WIDE DRIVEWAY PER OREGON STANDARD RD750, OPTION M
4. CONSTRUCT 6" THICK, 3' WIDE DRIVEWAY VALLEY GUTTER

GRADING PLAN
FOR
COBURG INDUSTRIAL PARK

CITY OF COBURG
PUBLIC WORKS DEPARTMENT

TAX MAP
16-03-33-13-00900

APPROVED:
DATE

DESIGNED
DRAWN
DATE 05-17-22
CHECKED
APP.

REVISIONS

DESCRIPTION	BY	DATE

PLANS PREPARED BY:
THE FAVREAU GROUP
CIVIL ENGINEERING
3750 NORWICH AVE.
EUGENE, OR 97408 (541) 683-7048

REGISTERED PROFESSIONAL ENGINEER
OREGON
DEC. 31, 1985
ANTHONY J. FAVREAU
EXPIRES DEC. 31, 2023

APPENDIX B: SCOPES OF WORK

Roberts Road Industrial Park

SANDOW ENGINEERING

kellysandow@sandowengineering.com

From: LENZEN-HAMMEREL Alycia B <Alycia.LENZEN-HAMMEREL@lanecountyor.gov>
Sent: Thursday, May 26, 2022 11:56 AM
To: kellysandow@sandowengineering.com
Cc: damieng@branchengineering.com; 'Dan H'; BAJRACHARYA Shashi
Subject: RE: Scope of work Roberts Industrial Park Coburg Oregon

Hi Kelly,

Lane County is in agreement with the requirements Dan Haga requested. Further, we hope you will include a timing evaluation at Pearl St & Coburg Industrial Way. This would include updated turning movement counts of all vehicle combinations expected to travel this route. Let us know if you have any further questions or concerns.

Thanks,

Alycia

Alycia Lenzen-Hammerel, LSIT
Engineering Associate
Transportation Engineering Services
Lane County Public Works
3040 N Delta Hwy, Eugene, OR 97408
Office: 541.682.6955

From: kellysandow@sandowengineering.com <kellysandow@sandowengineering.com>
Sent: Wednesday, May 25, 2022 1:38 PM
To: 'Dan H' <danh@branchengineering.com>; LENZEN-HAMMEREL Alycia B <Alycia.LENZEN-HAMMEREL@lanecountyor.gov>
Cc: 'Damien G' <damieng@branchengineering.com>
Subject: RE: Scope of work Roberts Industrial Park Coburg Oregon

[EXTERNAL ⚠]

Thank you Dan.

Kelly

KELLY SANDOW PE
SANDOWENGINEERING
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Email: kellysandow@sandowengineering.com
Office: 160 Madison St. Suite A Eugene, Oregon 97402

Web: sandowengineering.com
Oregon DBE/WBE/ESB Certified: #8760

From: Dan H <danh@branchengineering.com>
Sent: Wednesday, May 25, 2022 1:17 PM
To: kellysandow@sandowengineering.com; 'LENZEN-HAMMEREL Alycia B' <Alycia.LENZEN-HAMMEREL@lanecountyor.gov>
Cc: Damien G < >
Subject: RE: Scope of work Roberts Industrial Park Coburg Oregon

Hi Kelly,
I had a chance to share and discuss your scoping request with Damien, who is the current City Engineer of Record for Coburg. It sounds like Damien and Tony Favreau have discussed this site previously, and I have seen the site plan for it previously as well. The proposed use doesn't appear to be a significant traffic generating use, or at least not during peak hour conditions. With the other traffic studies in the area that we have seen recently, I don't see there being a significant benefit to studying a number of intersections for this one. Per your trip numbers and the Coburg Development Code, it looks like we do need a TIA to satisfy City Code criteria. For the City's purposes, analysis of the crash history and performance for the intersection at Roberts Rd and S. Industrial during the PM peak hour conditions for the anticipated build-out year of phase 2 with all site traffic should be sufficient for the traffic study. Please include the pipeline trips from the Kendall Collision Center with your background conditions (if it's not, or wasn't built-out when you collect(ed) traffic data). The County and/or ODOT may have additional scoping requirements, so I would defer to them for any scoping of their facilities. It looks like you've already cc'd Alycia, so please contact Ariel Ferber at ODOT to see if they have any interest in scoping. The site is within the ODOT-Coburg IAMP area, but I'm sure you're fully aware of that.

We are currently in the process of changing the stop control configuration of the intersection of Roberts Rd at S. Industrial Way. The change will make the southbound approach stop controlled and the eastbound right-turn movement will be permitted without stopping. The stop condition will remain for other eastbound movements, and the free movements will remain at the northbound approach, so please include this configuration in your background and build model study conditions.

When I looked at the site previously for Damien, I looked at Business Park and Industrial Park ITE categories of use, and I believe Damien discussed that with Tony. We don't have a preference for the category of use, but please make sure the TIA addresses the land use you go with consistent with what the land use and building permit applications will state the use as, so there isn't a hiccup with the occupancy class, zoning compliance and/or parking ratios down the road.

Thanks,

DAN HAGA, P.E.
Project Engineer

BRANCH ENGINEERING, INC.
310 5th Street, Springfield, OR 97477
p_ 541.746.0637 ext. 113
www.branchengineering.com

Springfield OR | Albany-Corvallis OR

From: kellysandow@sandowengineering.com <kellysandow@sandowengineering.com>
Sent: Tuesday, May 24, 2022 4:24 PM
To: Dan H <danh@branchengineering.com>; 'LENZEN-HAMMEREL Alycia B' <Alycia.LENZEN-HAMMEREL@lanecountyor.gov>
Subject: Scope of work Roberts Industrial Park Coburg Oregon

Good afternoon, I am working on a project in Coburg that triggers a TIA. The site is illustrated below, found of Roberts Road. The site is a 77,500 sf industrial park. Using ITE trip generation rates the trips are 822 ADT, 26 AM and 26 PM peak hour. The preliminary trip distribution is shown below. Can you please provide me with a scope of work for this project. The preliminary site plan is attached for your reference.

Thank you,
Kelly

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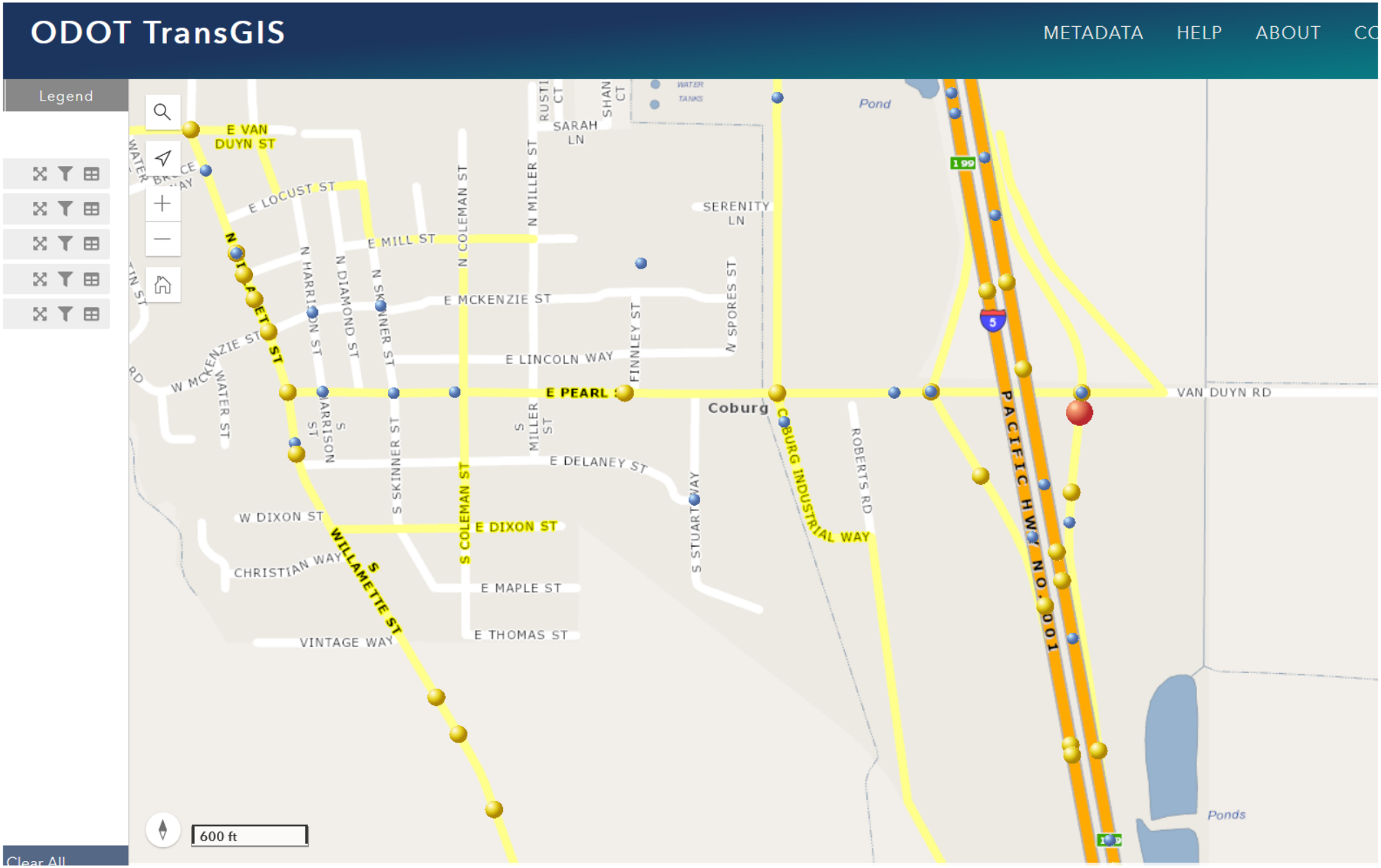
Web: sandowengineering.com
Oregon DBE/WBE/ESB Certified: #8760

APPENDIX C: CRASH DATA

Roberts Road Industrial Park


ODOT TransGIS
METADATA
HELP
ABOUT
Legend
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E LOCUST ST
E MILL ST
E MCKENZIE ST
E LINCOLN WAY
E PEARL ST
E DELANEY ST
E DIXON ST
E MAPLE ST
E THOMAS ST
W DIXON ST
W MCKENZIE ST
CHRISTIAN WAY
VINTAGE WAY
VAN DUYN RD
Coburg
COBURG INDUSTRIAL WAY
PACIFIC HWY NO. 001
N COLEMAN ST
S COLEMAN ST
N MILLER ST
S MILLER ST
N HARRISON ST
S HARRISON ST
N DIAMOND ST
N SKINNER ST
S SKINNER ST
FINNLEY ST
N SPORES ST
S STUART WAY
ROBERTS RD
SERENITY LN
SARAH LN
WATER TANKS
Pond
Ponds
600 ft
Clear All

APPENDIX D: TRAFFIC VOLUMES

Roberts Road Industrial Park

SANDOW ENGINEERING

2

Intersection: 2: Roberts Rd @ Coburg Industrial **City:** Coburg, OR

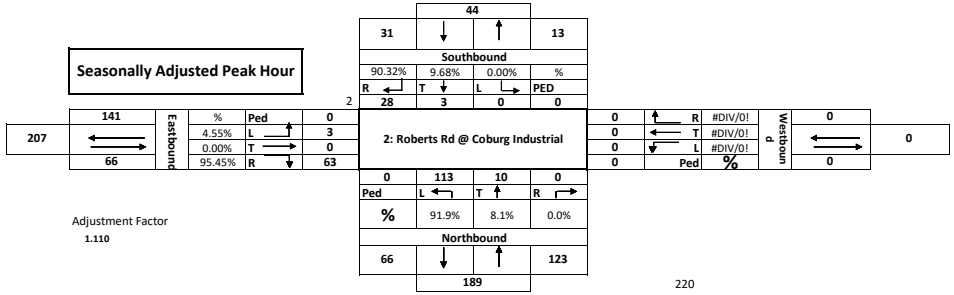
Counter: Sandow Engineering **Date:** Wednesday, January 27, 2021

Total of All Vehicles

Time Period		Southbound				Westbound				Northbound				Eastbound				15 Minute Volume	Hourly Volume	Pedestrians			
		Right	Thru	Left	Approach Total	Right	Thru	Left	Approach Total	Right	Thru	Left	Approach Total	Right	Thru	Left	Approach Total			SB	WB	NB	EB
16:00	16:15	2	0	0	2	0	0	0	0	0	0	17	17	8	0	0	8	27		0	0	0	0
16:15	16:30	2	0	0	2	0	0	0	0	0	1	11	12	11	0	1	12	26		0	0	0	0
16:30	16:45	11	2	0	13	0	0	0	0	0	3	14	17	13	0	2	15	45		0	0	0	0
16:45	17:00	8	1	0	9	0	0	0	0	0	2	31	33	17	0	0	17	59	157	0	0	0	0
17:00	17:15	4	0	0	4	0	0	0	0	0	3	46	49	16	0	0	16	69	199	0	0	0	0
17:15	17:30	2	0	0	2	0	0	0	0	0	2	8	10	11	0	0	11	23	196	0	0	0	0
17:30	17:45	0	0	0	0	0	0	0	0	0	3	1	4	3	0	0	3	7	158	0	0	0	0
17:45	18:00	0	0	0	0	0	0	0	0	0	0	4	4	3	0	0	3	7	106	0	0	0	0
18:00	18:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0
18:15	18:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0
18:30	18:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0
18:45	19:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0
Count Period Total		**29**	**3**	**0**		**0**	**0**	**0**		**0**	**14**	**132**		**82**	**0**	**3**		**263**		**0**	**0**	**0**	**0**

PM Peak Hour Count Summary

	Southbound				Westbound				Northbound				Eastbound						Pedestrians			
	Right	Thru	Left	Approach	Right	Thru	Left	Approach	Right	Thru	Left	Approach	Right	Thru	Left	Approach			SB	WB	NB	EB
Peak Volumes	**25**	**3**	**0**	**28**	**0**	**0**	**0**	**0**	**0**	**9**	**102**	**111**	**57**	**0**	**3**	**60**	**199**		**0**	**0**	**0**	**0**
PHF	0.57	0.38	0.00	0.54	0.00	0.00	0.00	0.00	0.00	0.75	0.55	0.57	0.84	0.00	0.38	0.88	0.72					
Trucks	0	0	0		0	0	0		0	0	6		6	0	0							
% Trucks	0%	0%	0%		0%	0%	0%		0%	0%	6%		11%	0%	0%							


Seasonally Adjusted Peak Hour
44
31
13
Southbound
90.32%
9.68%
0.00%
%
R
T
L
PED
2
28
3
0
0
141
207
66
Eastbound
%
Ped
0
4.55%
L
3
0.00%
T
0
95.45%
R
63
2: Roberts Rd @ Coburg Industrial
0
0
0
0
R
#DIV/0!
T
#DIV/0!
L
#DIV/0!
Ped
%
Westboun
d
0
0
0
0
0
113
10
0
Ped
L
T
R
%
91.9%
8.1%
0.0%
Northbound
66
123
189
220
Adjustment Factor
1.110

2: Roberts Rd @ Coburg Industrial

Pedestrians and Cars

Time Period	Southbound					Westbound					Northbound					Eastbound					15 Minute Volume	Hourly Volume
	Peds	Right	Thru	Left		Peds	Right	Thru	Left		Peds	Right	Thru	Left		Peds	Right	Thru	Left			
4:00 PM		2	0										0	17			8		0		27	
4:15 PM		2	0										1	11			11		1		26	
4:30 PM		11	2										3	14			13		2		45	
4:45 PM		8	1										2	31			17		0		59	157
5:00 PM		4											3	40			10				57	187
5:15 PM		2											2	5			6				15	176
5:30 PM		0											3	0			2				5	136
5:45 PM													0	3			2				5	82
6:00 PM																					0	25
6:15 PM																					0	10
6:30 PM																					0	5
6:45 PM																					0	0
Total	0	29	3	0		0	0	0	0		0	0	14	121		0	69	0	3			
Peak Hour	**0**	**25**	**3**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**9**	**96**	**0**	**0**	**51**	**0**	**3**	**0**	**187**	**344**

Trucks

Time Period	Southbound				Westbound				Northbound				Eastbound				15 Minute Volume	Hourly Volume
	Right	Thru	Left		Right	Thru	Left		Right	Thru	Left		Right	Thru	Left			
4:00 PM																	0	
4:15 PM																	0	
4:30 PM																	0	
4:45 PM																	0	0
5:00 PM											6		6				12	12
5:15 PM											3		5				8	20
5:30 PM											1		1				2	22
5:45 PM											1		1				2	24
6:00 PM																	0	12
6:15 PM																	0	4
6:30 PM																	0	2
6:45 PM																	0	0
Total	0	0	0		0	0	0		0	0	11		13	0	0			
Peak Hour	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**6**	**0**	**6**	**0**	**0**	**0**	**12**	**12**

Bikes

Time Period	Southbound				Westbound				Northbound				Eastbound			SB	WB	NB	EB
	Right	Thru	Left		Right	Thru	Left		Right	Thru	Left		Right	Thru	Left				
4:00 PM																0	0	0	0
4:15 PM																0	0	0	0
4:30 PM																0	0	0	0
4:45 PM																0	0	0	0
5:00 PM																0	0	0	0
5:15 PM																0	0	0	0
5:30 PM																0	0	0	0
5:45 PM																0	0	0	0
6:00 PM																0	0	0	0
6:15 PM																0	0	0	0
6:30 PM																0	0	0	0
6:45 PM																0	0	0	0
Total	0	0	0		0	0	0		0	0	0		0	0	0				
Peak Hour	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

Pedestrians

Time Period	NE				NW				SW				SE			SB	WB	NB	EB
	Left	Right	Total		Left	Right	Total		Left	Right	Total		Left	Right	Total				
4:00 PM			0				0				0				0	0	0	0	0
4:15 PM			0				0				0				0	0	0	0	0
4:30 PM			0				0				0				0	0	0	0	0
4:45 PM			0				0				0				0	0	0	0	0
5:00 PM			0				0				0				0	0	0	0	0
5:15 PM			0				0				0				0	0	0	0	0
5:30 PM			0			1	1				0				0	1	0	0	0
5:45 PM			0				0				0				0	0	0	0	0
6:00 PM			0				0				0				0	0	0	0	0
6:15 PM			0				0				0				0	0	0	0	0
6:30 PM			0				0				0				0	0	0	0	0
6:45 PM			0				0				0				0	0	0	0	0
Total	0	0	0		0	1	1		0	0	0		0	0	0	1	0	0	0
Peak Hour	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

2021

			R	T	L	PED			
			1	42	12	186	0		
	Ped	0					16	R	
300	L	5					204	T	345
	T	204		1: Coburg Industrial @ Pearl St			125	L	564
245	R	36					0	Ped	
			0	54	3	174			
			Ped	L	T	R			
				173		231			

240 24

2021

			R	T	L	PED			
			2	28	3	0	0		
	Ped	0					0	R	0
141	L	3					0	T	
	T	0		2: Roberts Rd @ Coburg Industrial			0	L	0
66	R	63					0	Ped	
			0	113	10	0			
			Ped	L	T	R			
				66		123			

31 13

EDIT Highlighted

Base Year	2021
Target Year	2022
Years of Growth	1
Growth Rate Per Year	0.035
Growth Factor	1.04

2022 PM Volumes Background

			R	T	L	PED			
			1	43	12	193	0		
	Ped	0					17	R	400
316	L	5					211	T	
	T	211		1: Coburg Industrial @ Pearl St			172	L	631
259	R	42					0	Ped	
			0	61	3	227			
			Ped	L	T	R			
				227		291			

248 25

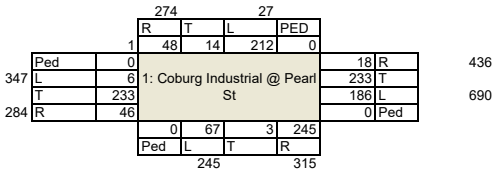
			R	T	L	PED			
			1	29	3	0	0		
	Ped	0					0	R	0
198	L	3					0	T	
	T	0		2: Roberts Rd @ Coburg Industrial			0	L	0
116	R	113					0	Ped	
			0	169	10	0			
			Ped	L	T	R			
				116		179			

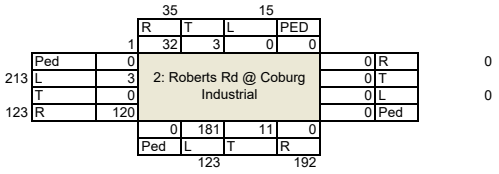
32 13

EDIT Highlighted

Base Year	2021
Target Year	2025
Years of Growth	4
Growth Rate Per Year	0.035
Growth Factor	1.14

2025 PM Volumes Background





ODOT Covid table

1.11 Covid factor

		2021 Volumes		2020 Volumes		2019 Volu
Date	Corridor	Average Weekday	Average Weekend	Average Weekday	Average Weekend	Average Weekday
Week 3 Jan 11-17, 2021	I-5	507,038	426,720	556,810	486,137	554,363
	I-205	214,940	176,106	227,728	191,463	250,019
	I-405	108,821	81,586	130,873	101,455	137,314
	I-84	291,907	254,334	306,083	269,589	314,197
	US 97	130,299	103,343	119,900	97,346	130,708
	US197	2,462	2,022	2,143	1,655	2,359
	US20	20,960	19,172	19,445	16,728	20,748
	US26	41,382	46,008	38,656	43,455	43,756
	US30	9,982	9,820	8,881	8,347	9,965
	US395	22,540	16,678	21,450	17,913	27,294
	OR18	15,555	21,707	12,239	17,296	14,197
	OR22	27,159	20,963	26,999	21,009	28,069
	US101	65,700	65,830	64,015	59,399	68,823
Statewide Average		298,371	251,704	321,517	279,000	387,223
Week 4 Jan 18-24, 2021	I-5	516,523	405,508	589,181	498,062	565,165
	I-205	219,425	177,727	236,728	197,396	249,612
	I-405	110,619	56,998	133,415	104,080	135,553
	I-84	299,553	237,084	327,003	286,307	325,588
	US 97	125,881	90,133	135,928	104,449	135,782
	US197	2,506	1,911	2,499	1,916	2,620
	US20	21,773	18,043	21,279	17,234	21,191
	US26	44,449	42,857	44,746	43,311	45,746
	US30	10,413	9,035	10,293	9,627	10,306
	US395	21,594	16,000	24,781	17,787	26,077
	OR18	17,362	20,699	15,058	17,142	15,225
	OR22	27,439	20,777	28,191	21,808	27,860
	US101	66,431	54,503	66,549	56,168	70,000
Statewide Average		303,933	237,199	341,004	288,454	334,183

mes		2021 as % of 2020	
Average Weekend		Weekday Diff	Weekend Diff
471,889		(0.09)	(0.12)
199,730		(0.06)	(0.08)
101,804		(0.17)	(0.20)
265,519		(0.05)	(0.06)
97,810		0.09	0.06
1,953		0.15	0.22
16,345		0.08	0.15
43,118		0.07	0.06
8,815		0.12	0.18
20,930		0.05	(0.07)
17,567		0.27	0.26
20,089		0.01	(0.00)
62,252		0.03	0.11
274,360		(0.07)	(0.10)
491,281		(0.12)	(0.19)
205,575		(0.07)	(0.10)
106,953		(0.17)	(0.45)
277,736		(0.08)	(0.17)
106,798		(0.07)	(0.14)
2,041		0.00	(0.00)
18,648		0.02	0.05
46,469		(0.01)	(0.01)
9,928		0.01	(0.06)
18,732		(0.13)	(0.10)
19,776		0.15	0.21
21,594		(0.03)	(0.05)
65,239		(0.00)	(0.03)
286,415		(0.11)	(0.18)

APPENDIX E: SYNCHRO OUTPUTS

Roberts Road Industrial Park

Intersection	
Int Delay, s/veh	7.3

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	3	115	169	10	3	29
Future Vol, veh/h	3	115	169	10	3	29
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	72	72	72	72	72	72
Heavy Vehicles, %	0	11	6	0	0	0
Mvmt Flow	4	160	235	14	4	40

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	508	24	44	0	-	0
Stage 1	24	-	-	-	-	-
Stage 2	484	-	-	-	-	-
Critical Hdwy	6.4	6.31	4.16	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.399	2.254	-	-	-
Pot Cap-1 Maneuver	528	1027	1539	-	-	-
Stage 1	1004	-	-	-	-	-
Stage 2	624	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	447	1027	1539	-	-	-
Mov Cap-2 Maneuver	447	-	-	-	-	-
Stage 1	849	-	-	-	-	-
Stage 2	624	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.3	7.3	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1539	-	994	-	-
HCM Lane V/C Ratio	0.153	-	0.165	-	-
HCM Control Delay (s)	7.8	0	9.3	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0.5	-	0.6	-	-

Intersection	
Int Delay, s/veh	7.4

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	3	120	181	11	3	32
Future Vol, veh/h	3	120	181	11	3	32
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	72	72	72	72	72	72
Heavy Vehicles, %	0	11	6	0	0	0
Mvmt Flow	4	167	251	15	4	44

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	543	26	48	0	-	0
Stage 1	26	-	-	-	-	-
Stage 2	517	-	-	-	-	-
Critical Hdwy	6.4	6.31	4.16	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.399	2.254	-	-	-
Pot Cap-1 Maneuver	504	1024	1534	-	-	-
Stage 1	1002	-	-	-	-	-
Stage 2	603	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	421	1024	1534	-	-	-
Mov Cap-2 Maneuver	421	-	-	-	-	-
Stage 1	837	-	-	-	-	-
Stage 2	603	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.4	7.4	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1534	-	989	-	-
HCM Lane V/C Ratio	0.164	-	0.173	-	-
HCM Control Delay (s)	7.8	0	9.4	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0.6	-	0.6	-	-

Intersection	
Intersection Delay, s/veh	9
Intersection LOS	A

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	3	120	181	11	3	32
Future Vol, veh/h	3	120	181	11	3	32
Peak Hour Factor	0.72	0.72	0.72	0.72	0.72	0.72
Heavy Vehicles, %	0	11	6	0	0	0
Mvmt Flow	4	167	251	15	4	44
Number of Lanes	1	0	0	1	1	0

Approach	EB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left	SB	EB	
Conflicting Lanes Left	1	1	0
Conflicting Approach Right	NB		EB
Conflicting Lanes Right	1	0	1
HCM Control Delay	8	9.9	7.3
HCM LOS	A	A	A

Lane	NBLn1	EBLn1	SBLn1
Vol Left, %	94%	2%	0%
Vol Thru, %	6%	0%	9%
Vol Right, %	0%	98%	91%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	192	123	35
LT Vol	181	3	0
Through Vol	11	0	3
RT Vol	0	120	32
Lane Flow Rate	267	171	49
Geometry Grp	1	1	1
Degree of Util (X)	0.336	0.193	0.054
Departure Headway (Hd)	4.53	4.062	4.015
Convergence, Y/N	Yes	Yes	Yes
Cap	784	888	892
Service Time	2.622	2.065	2.036
HCM Lane V/C Ratio	0.341	0.193	0.055
HCM Control Delay	9.9	8	7.3
HCM Lane LOS	A	A	A
HCM 95th-tile Q	1.5	0.7	0.2

Intersection	
Int Delay, s/veh	7.5

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	3	126	202	11	3	32
Future Vol, veh/h	3	126	202	11	3	32
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	72	72	72	72	72	72
Heavy Vehicles, %	0	11	6	0	0	0
Mvmt Flow	4	175	281	15	4	44

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	603	26	48	0	-	0
Stage 1	26	-	-	-	-	-
Stage 2	577	-	-	-	-	-
Critical Hdwy	6.4	6.31	4.16	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.399	2.254	-	-	-
Pot Cap-1 Maneuver	465	1024	1534	-	-	-
Stage 1	1002	-	-	-	-	-
Stage 2	566	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	379	1024	1534	-	-	-
Mov Cap-2 Maneuver	379	-	-	-	-	-
Stage 1	817	-	-	-	-	-
Stage 2	566	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.5	7.5	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1534	-	985	-	-
HCM Lane V/C Ratio	0.183	-	0.182	-	-
HCM Control Delay (s)	7.9	0	9.5	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0.7	-	0.7	-	-

Intersection	
Intersection Delay, s/veh	9.4
Intersection LOS	A

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	3	126	202	11	3	32
Future Vol, veh/h	3	126	202	11	3	32
Peak Hour Factor	0.72	0.72	0.72	0.72	0.72	0.72
Heavy Vehicles, %	0	11	6	0	0	0
Mvmt Flow	4	175	281	15	4	44
Number of Lanes	1	0	0	1	1	0

Approach	EB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left	SB	EB	
Conflicting Lanes Left	1	1	0
Conflicting Approach Right	NB		EB
Conflicting Lanes Right	1	0	1
HCM Control Delay	8.2	10.5	7.3
HCM LOS	A	B	A

Lane	NBLn1	EBLn1	SBLn1
Vol Left, %	95%	2%	0%
Vol Thru, %	5%	0%	9%
Vol Right, %	0%	98%	91%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	213	129	35
LT Vol	202	3	0
Through Vol	11	0	3
RT Vol	0	126	32
Lane Flow Rate	296	179	49
Geometry Grp	1	1	1
Degree of Util (X)	0.382	0.206	0.055
Departure Headway (Hd)	4.65	4.133	4.071
Convergence, Y/N	Yes	Yes	Yes
Cap	778	869	878
Service Time	2.65	2.154	2.105
HCM Lane V/C Ratio	0.38	0.206	0.056
HCM Control Delay	10.5	8.2	7.3
HCM Lane LOS	B	A	A
HCM 95th-tile Q	1.8	0.8	0.2

Intersection	
Int Delay, s/veh	0.7

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	21	0	0	192	123	6
Future Vol, veh/h	21	0	0	192	123	6
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	72	72	72	72	72	72
Heavy Vehicles, %	0	0	0	0	8	0
Mvmt Flow	29	0	0	267	171	8

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	442	175	179	0	-	0
Stage 1	175	-	-	-	-	-
Stage 2	267	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.1	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	577	874	1409	-	-	-
Stage 1	860	-	-	-	-	-
Stage 2	782	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	577	874	1409	-	-	-
Mov Cap-2 Maneuver	577	-	-	-	-	-
Stage 1	860	-	-	-	-	-
Stage 2	782	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	11.6	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1409	-	577	-	-
HCM Lane V/C Ratio	-	-	0.051	-	-
HCM Control Delay (s)	0	-	11.6	-	-
HCM Lane LOS	A	-	B	-	-
HCM 95th %tile Q(veh)	0	-	0.2	-	-

APPENDIX F: QUEUING OUTPUTS

Roberts Road Industrial Park

Intersection: 5: Roberts Rd & Coburg Industrail Way, Interval #1

Movement	EB	NB
Directions Served	LR	LT
Maximum Queue (ft)	66	58
Average Queue (ft)	40	14
95th Queue (ft)	64	53
Link Distance (ft)	953	256
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 5: Roberts Rd & Coburg Industrail Way, Interval #2

Movement	EB	NB
Directions Served	LR	LT
Maximum Queue (ft)	86	58
Average Queue (ft)	37	7
95th Queue (ft)	67	33
Link Distance (ft)	953	256
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 5: Roberts Rd & Coburg Industrail Way, All Intervals

Movement	EB	NB
Directions Served	LR	LT
Maximum Queue (ft)	88	71
Average Queue (ft)	38	9
95th Queue (ft)	66	39
Link Distance (ft)	953	256
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Network Summary

Network wide Queuing Penalty, Interval #1: 1
Network wide Queuing Penalty, Interval #2: 1
Network wide Queuing Penalty, All Intervals: 1

Intersection: 5: Roberts Rd & Coburg Industrail Way, Interval #1

Movement	EB	NB	SB
Directions Served	LR	LT	TR
Maximum Queue (ft)	70	66	4
Average Queue (ft)	42	16	1
95th Queue (ft)	70	44	6
Link Distance (ft)	953	256	233
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 5: Roberts Rd & Coburg Industrail Way, Interval #2

Movement	EB	NB
Directions Served	LR	LT
Maximum Queue (ft)	61	77
Average Queue (ft)	34	9
95th Queue (ft)	56	46
Link Distance (ft)	953	256
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 5: Roberts Rd & Coburg Industrail Way, All Intervals

Movement	EB	NB	SB
Directions Served	LR	LT	TR
Maximum Queue (ft)	72	82	4
Average Queue (ft)	36	11	0
95th Queue (ft)	60	46	3
Link Distance (ft)	953	256	233
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Network Summary

Network wide Queuing Penalty, Interval #1: 6
Network wide Queuing Penalty, Interval #2: 2
Network wide Queuing Penalty, All Intervals: 3

Intersection: 5: Roberts Rd & Coburg Industrail Way, Interval #1

Movement	EB	NB	SB
Directions Served	LR	LT	TR
Maximum Queue (ft)	69	79	35
Average Queue (ft)	46	53	22
95th Queue (ft)	79	82	45
Link Distance (ft)	953	256	233
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 5: Roberts Rd & Coburg Industrail Way, Interval #2

Movement	EB	NB	SB
Directions Served	LR	LT	TR
Maximum Queue (ft)	67	83	40
Average Queue (ft)	36	45	20
95th Queue (ft)	61	74	44
Link Distance (ft)	953	256	233
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 5: Roberts Rd & Coburg Industrail Way, All Intervals

Movement	EB	NB	SB
Directions Served	LR	LT	TR
Maximum Queue (ft)	73	87	45
Average Queue (ft)	38	47	21
95th Queue (ft)	66	76	44
Link Distance (ft)	953	256	233
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 5: Roberts Rd & Coburg Industial way, Interval #1

Movement	EB	NB	SB
Directions Served	LR	LT	TR
Maximum Queue (ft)	83	89	34
Average Queue (ft)	44	50	24
95th Queue (ft)	77	96	45
Link Distance (ft)	953	200	233
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 5: Roberts Rd & Coburg Industial way, Interval #2

Movement	EB	NB	SB
Directions Served	LR	LT	TR
Maximum Queue (ft)	78	90	35
Average Queue (ft)	38	46	19
95th Queue (ft)	68	78	43
Link Distance (ft)	953	200	233
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 5: Roberts Rd & Coburg Industial way, All Intervals

Movement	EB	NB	SB
Directions Served	LR	LT	TR
Maximum Queue (ft)	89	101	39
Average Queue (ft)	39	47	20
95th Queue (ft)	70	83	43
Link Distance (ft)	953	200	233
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 5: Roberts Rd & Coburg Industrial way, Interval #1

Movement	EB	NB	SB
Directions Served	LR	LT	TR
Maximum Queue (ft)	69	54	9
Average Queue (ft)	49	18	1
95th Queue (ft)	76	57	10
Link Distance (ft)	953	200	233
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 5: Roberts Rd & Coburg Industrial way, Interval #2

Movement	EB	NB	SB
Directions Served	LR	LT	TR
Maximum Queue (ft)	72	50	6
Average Queue (ft)	35	9	0
95th Queue (ft)	59	36	5
Link Distance (ft)	953	200	233
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 5: Roberts Rd & Coburg Industrial way, All Intervals

Movement	EB	NB	SB
Directions Served	LR	LT	TR
Maximum Queue (ft)	74	60	14
Average Queue (ft)	38	11	0
95th Queue (ft)	65	42	6
Link Distance (ft)	953	200	233
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 8: Site Access & Roberts Rd, Interval #1

Movement	EB
Directions Served	LR
Maximum Queue (ft)	40
Average Queue (ft)	20
95th Queue (ft)	47
Link Distance (ft)	453
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 8: Site Access & Roberts Rd, Interval #2

Movement	EB
Directions Served	LR
Maximum Queue (ft)	31
Average Queue (ft)	12
95th Queue (ft)	37
Link Distance (ft)	453
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 8: Site Access & Roberts Rd, All Intervals

Movement	EB
Directions Served	LR
Maximum Queue (ft)	40
Average Queue (ft)	14
95th Queue (ft)	40
Link Distance (ft)	453
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Network Summary

Network wide Queuing Penalty, Interval #1: 6
Network wide Queuing Penalty, Interval #2: 3
Network wide Queuing Penalty, All Intervals: 3

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