Ellensburg Pierce Plat Traffic Impact Analysis

Prepared for:
P&P Homes, LLC

February 7, 2024

TC24-0091

FEHR PEERS

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Introduction

The purpose of this Transportation Impact Analysis (TIA) is to determine the potential impact of the proposed Pierce Plat development (project) on the surrounding transportation system to ensure the City's street network continues to meet the safety and mobility standards of in Ellensburg's Comprehensive Plan (last updated in 2021). This analysis was prepared for Roohani-Mauer Century 21 (developer). This TIA is completed in conformance with the City of Ellensburg Transportation Impact Analysis Guidelines and analysis scope review discussions with City of Ellensburg Staff.

This TIA estimates the number of PM peak hour vehicle trips that may be generated by the proposed project and compares that to the estimated current conditions. Future year conditions were not evaluated for this project as discussed in scoping conversations with City Staff.

The proposed Pierce Plat is a single family detached housing development in the City of Ellensburg. The project is located southeast of the intersection of Airport Road and Industrial Road on Parcels 136233 & 959777. The extents of the proposed development and the surrounding area are shown in **Figure 1**. At the time of this analysis the number of proposed lots was not finalized. In conversations with the developer and the city, this analysis is based on the development of 48 single family lots. The most recent update from the developer indicated the project was reduced to 44 single family lots; but for the purposes of this analysis, the more conservative unit estimate of 48 single family lots was used. This development will also consist of newly constructed streets: Blakely Lane, Beech Road extension, Penny Court, and Preston Court as shown in **Figure 2**. The existing residence on Parcel 136233 will be removed, but the existing residence on Parcel 296233, adjacent to the development, will remain. The zoning of Parcels 136233 & 959777 is RS-Residential Suburban.

The project will access the existing transportation system at the intersection of Airport Road and proposed Blakely Lane (West Access) and at the intersection of Industrial Road and proposed Beech Road extension (North Access). The proposed streets will be developed to meet city design standards for local roads and comply with the City of Ellensburg Complete Streets Program.

This project is anticipated to begin construction as early as fall 2024 and completed in a single phase with an estimated construction time of one year.

Figure 1: Project Vicinity Map & Study Intersections

Source: Fehr & Peers, 2024.

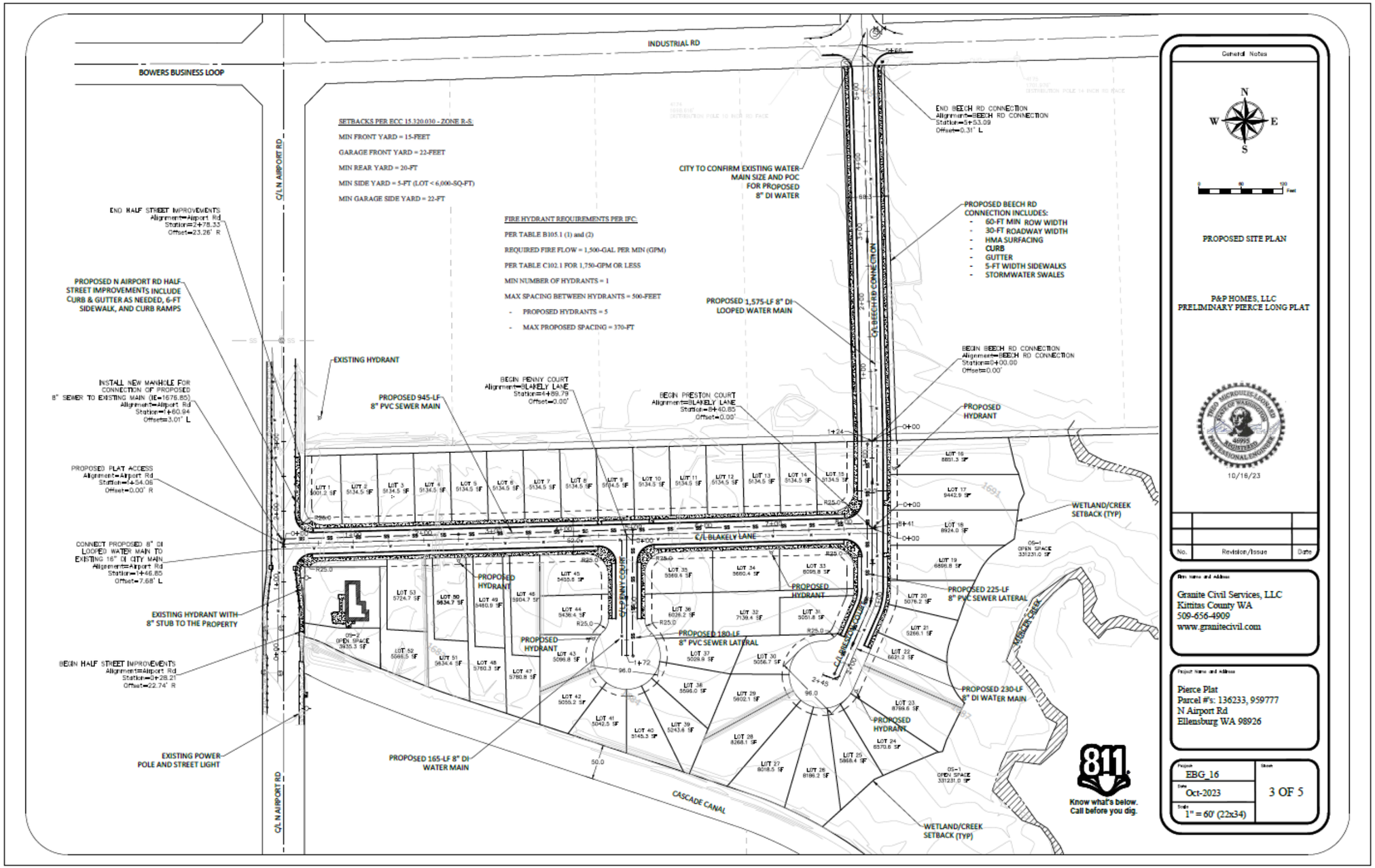


Figure 2: Site Plan

Source: Ellensburg Pierce Plat, 2023

Existing Conditions

Existing Network

The transportation network directly adjacent to the study area includes the following roadways:

- **Airport Road:** This is a two-lane roadway classified as a Minor Arterial in the City of Ellensburg's Comprehensive Plan. This roadway has a posted speed limit of 35 miles per hour (mph)
- **Sanders Road/Bender Road:** This is a two-lane roadway classified as a Major Collector in the City of Ellensburg's Comprehensive Plan. This roadway has a posted speed limit of 35 mph.
- **Industrial Road:** This is a two-lane roadway classified as a Local Road in the City of Ellensburg's Comprehensive Plan. This roadway has a posted speed limit of 25 mph.
- **Beech Road:** This is a two-lane roadway classified as a Local Road in the City of Ellensburg's Comprehensive Plan. This roadway has no posted speed limit, but was assumed to be 25 mph.

Traffic Volumes

The following intersections were evaluated under existing and existing plus project conditions for the weekday PM peak hour. Their intersection control type is noted in parentheses. Note study intersection 3 does not exist currently but is the location of the proposed West Site Access. The project will construct Blakely Lane and create an three-way intersection with Airport road that is study intersection 3.

1. Industrial Road & Airport Road (Side-Street Stop-Control)
2. Sanders Road & Airport Road (Side-Street Stop-Control)
3. West Site Access/Blakely Lane & Airport Road (Side-Street Stop-Control)
4. North Site Access/Beech Road Extension & Industrial Road (Side-Street Stop-Control)

The existing weekday PM peak hour intersection operations were evaluated using traffic counts collected by IDAX Data Solutions on Thursday January 4th, 2024 from 4:00 PM to 6:00 PM. Counts were collected for study intersections 1, 2 and 4. Based on these counts, the PM peak hour for the study area was identified as 4:15PM – 5:15PM. **Figure 3** illustrates weekday PM peak volumes based on the traffic counts observed. The count data is included in **Appendix A**.

Level of Service Methodology

Level of Service (LOS) is a term that describes the operating performance of an intersection. It is measured quantitatively and reported qualitatively on a scale from A to F, with LOS A representing the free flow operations with insignificant delay and LOS F representing forced and unpredictable flows with excessive delays. It's important to note LOS A is not the ideal condition in every context for every user of the transportation network. In **Table 1**, each LOS letter designation is briefly explained, accompanied by the

average delay per vehicle for both signalized and unsignalized intersections. Fehr & Peers utilized the Highway Capacity Manual 6th Edition (HCM 6th Edition) methodology, which is industry standard. This methodology employs distinct quantitative assessments for signalized and unsignalized intersections. The LOS of signalized intersections is determined by a weighted average of all approach delays. The LOS of unsignalized intersections is determined by the poorest-performing intersection approach. Currently, there isn't any standard measure for LOS for uncontrolled intersections.

Table 1. Level of Service Descriptions

LOS	Description	Signalized Delay (sec/veh)	Unsignalized Delay (sec/veh)[1]
A	Free flow operations with insignificant delay	<= 10	<= 10
B	Stable operations with minimum delays	> 10 to 20	> 10 to 15
C	Stable operations with acceptable delays	> 20 to 35	> 15 to 25
D	Approaching unstable flows with tolerable delays	> 35 to 55	> 25 to 35
E	Unstable operations with potentially significant delays	> 55 to 80	> 35 to 50
F	Forced, unpredictable flows with excessive delays	> 80	> 50

1. For side-street stop-controlled intersections, the delay for the worst movement or lane group is reported.
Source: Highway Capacity Manual 6th Edition.

The City of Ellensburg's established performance thresholds are:

- LOS B for intersections exclusively on local streets
- LOS C for intersections on arterials and collectors
- LOS D for arterials at the interchanges with I-90

Kittitas County established performance thresholds are:

- LOS C for rural roads
- LOS D for roads within urban growth boundaries.

Study intersections 1 and 4 are located outside of city limits, however for the purposes of this study it was determined to use the City's LOS standards for these intersections since it resulted in a higher standard requirement. Based on this, the LOS standards for each study intersection are as follows:

1. Industrial Road & Airport Road – LOS C
2. Sanders Road & Airport Road – LOS C
3. West Site Access (Blakely Lane) & Airport Road – LOS C
4. North Site Access (Beech Road Extension) & Industrial Road – LOS B

Level of Service Analysis

Fehr & Peers used HCM Edition 6th delay thresholds to compute the LOS at each study intersection for the existing weekday peak hour LOS. Study intersection 3 only exists in the post project condition, therefore no LOS was reported for existing conditions. The findings are detailed in **Table 2**. The detailed results are included in **Appendix B**. Since all study intersections are unsignalized, the LOS and delay for these intersections reports the worst performing movement.

As previously noted, the level of service standard for study intersections 1 and 2 is LOS C and the level of service standard for study intersection 4 is LOS B. The findings of the analysis indicate that none of the study intersections operate below acceptable levels of delay under existing conditions.

Table 2: Existing Condition Level of Service

ID	Intersection	Control	LOS / Delay (Worst Movement) [1]
1	Industrial Road & Airport Road	SSSC	A/9
2	Sanders Road & Airport Road	SSSC	B/11
3	West Side Access (Blakely Lane) & Airport Road	-	-
4	North Site Access (Beech Road) & Industrial Road	Uncontrolled[2]	A/7

NOTES:
SSSC = Side-Street Stop-Controlled; AWSC = All-Way Stop-Controlled
1. Consistent with HCM 6th Edition, SSSC intersection performance is determined based on worst movement delay, rather than average intersection delay.
2. Approach LOS for an uncontrolled Intersection 4 was calculated as an AWSC intersection as vehicles entering an uncontrolled intersection would tend to yield to each other, similar to an AWSC.
Source: Fehr & Peers, 2024.

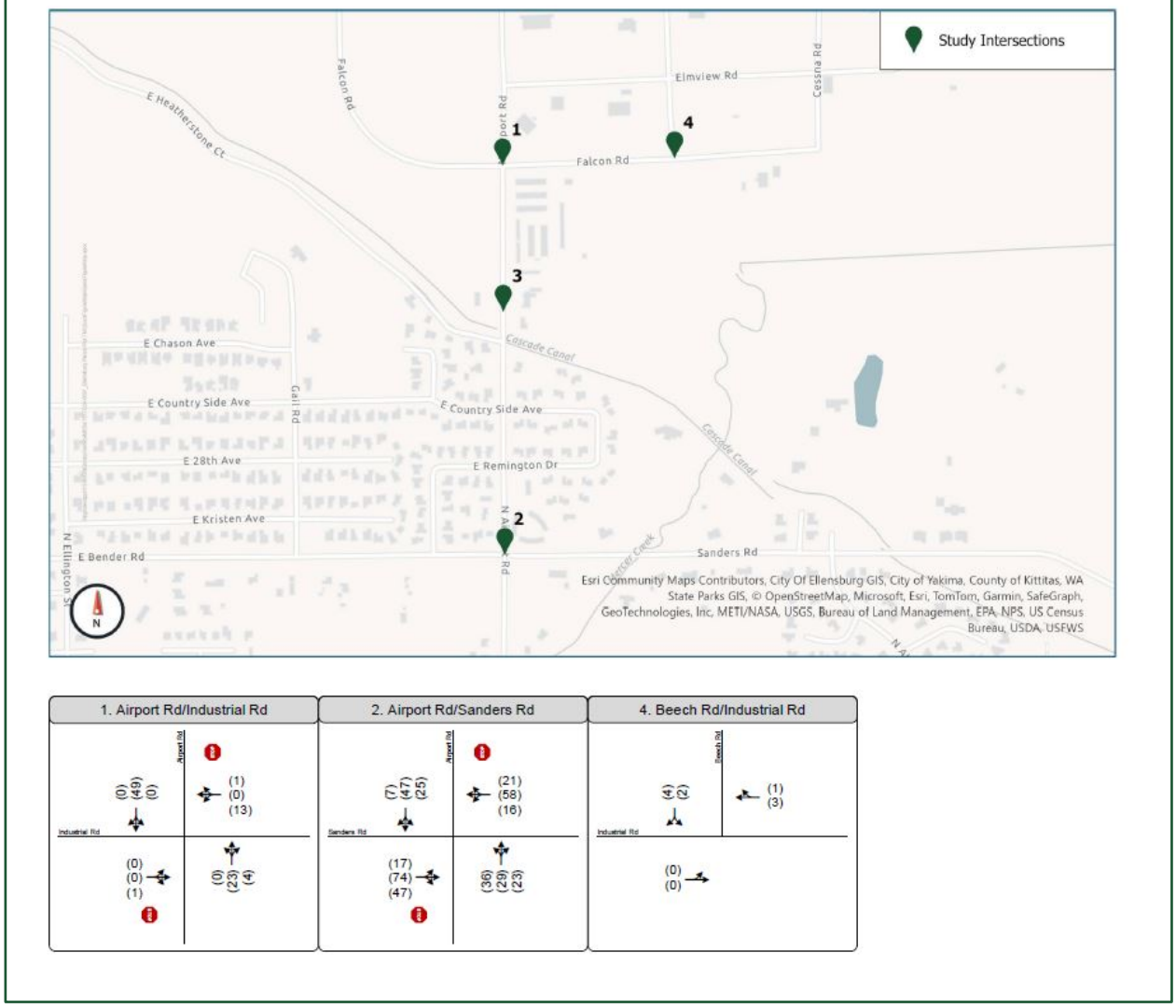


Figure 3: Existing Volume at Study Intersections (PM)

Source: Fehr & Peers, 2024.

Existing Year Plus Project

The existing year plus project analysis includes the 2024 existing conditions, incorporating the additional vehicle trips generated by the proposed project and loss of trips from the demolished single-family housing. An analysis of this current year plus-project condition was conducted to assess potential traffic impacts arising from trips through the study intersections during the weekday PM peak analysis period.

Site Trip Generation

The calculation of trip generation for the project utilized the trip generation rates as detailed in the Institute of Transportation Engineers (ITE) *Trip Generation Manual*, 11th Edition. ITE land use code 210 was used for Single-Family Detached Housing.

As previously noted, the site is planned for a maximum of 48 single-family units. Currently, one unit exists on the site that will be removed as part of this project. On subtracting the trip generation of the existing unit from the total trip generation for the proposed site, the project is expected to generate 44 net new trips during the weekday PM peak hour, with 27 trips entering and 17 trips exiting. Detailed calculations for the site trips generated are shown in **Table 3**.

Table 3: Net Project Trip Generation

ITE Code & Description	Quantity (Dwelling Units)	Daily Total	PM Peak Hour		
			In	Out	Total
Existing Trip Generation (Removed)					
(210) Single-Family Detached Housing	-1	-9	-1	-0	-1
New Units					
(210) Single-Family Detached Housing	48	453	28	17	45
Net New Project Trips	**47**	**444**	**27**	**17**	**44**

Source: Fehr & Peers, 2024.

Trip Distribution and Assignment

Fehr & Peers assigned the trips generated by the proposed project to the roadway network using the Ellensburg Travel Demand Model. Existing travel patterns observed during data collection also provided helpful guidance to establish these distribution percentages, especially near the site. See **Figure 4** for trip distribution and the corresponding percentages.

Based on these assumptions, trips generated by the proposed project were added to the 2024 Existing Condition scenario. **Figure 5** shows the trips contributed by the project itself, while **Figure 6** presents the intersection volumes for the existing plus project scenario. Note existing northbound and southbound traffic volumes at study intersection 3 were estimated based on traffic counts collected at study intersections 1 and 2.

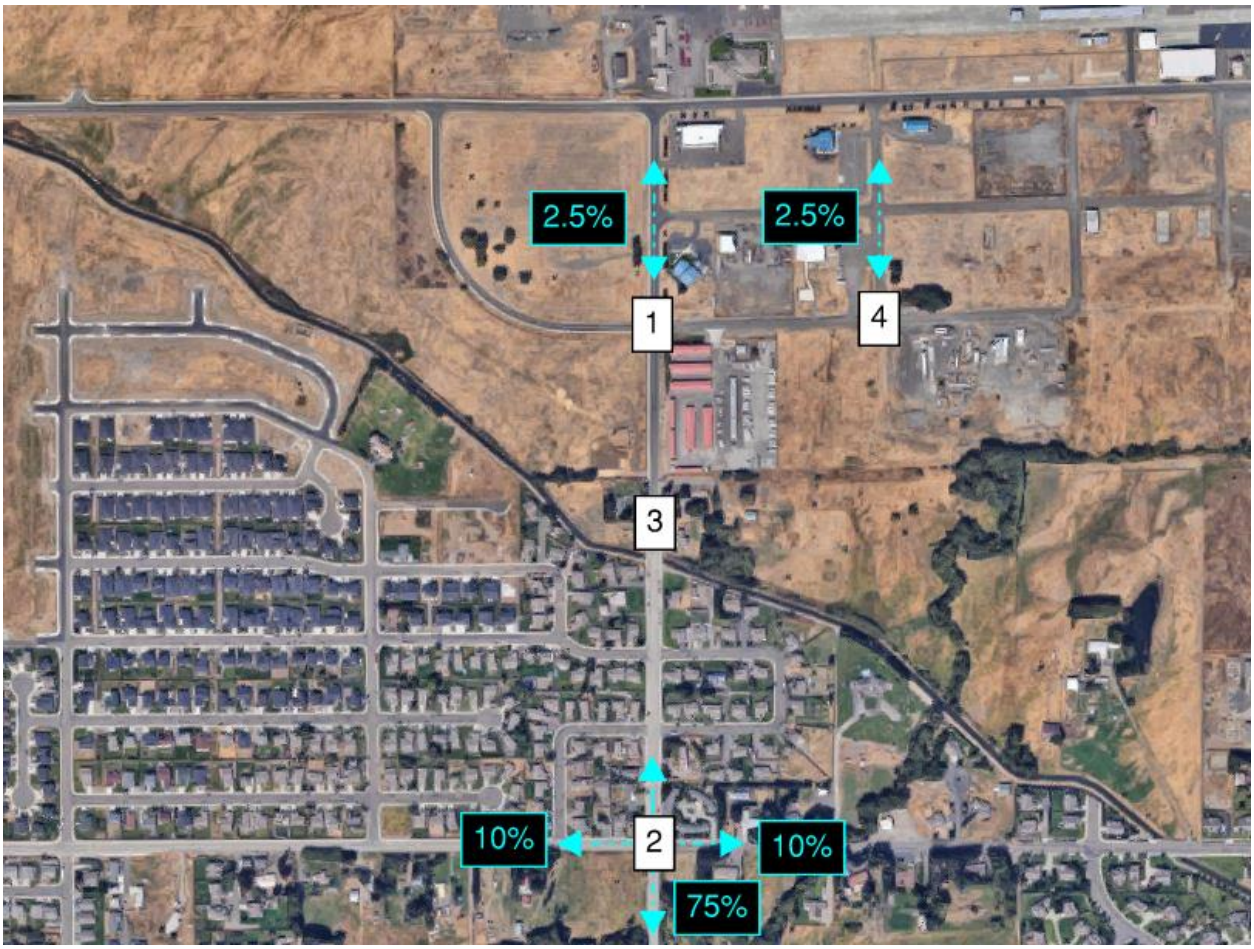


Figure 4: Inbound and Outbound Trip Distribution

Source: Fehr & Peers, 2024.

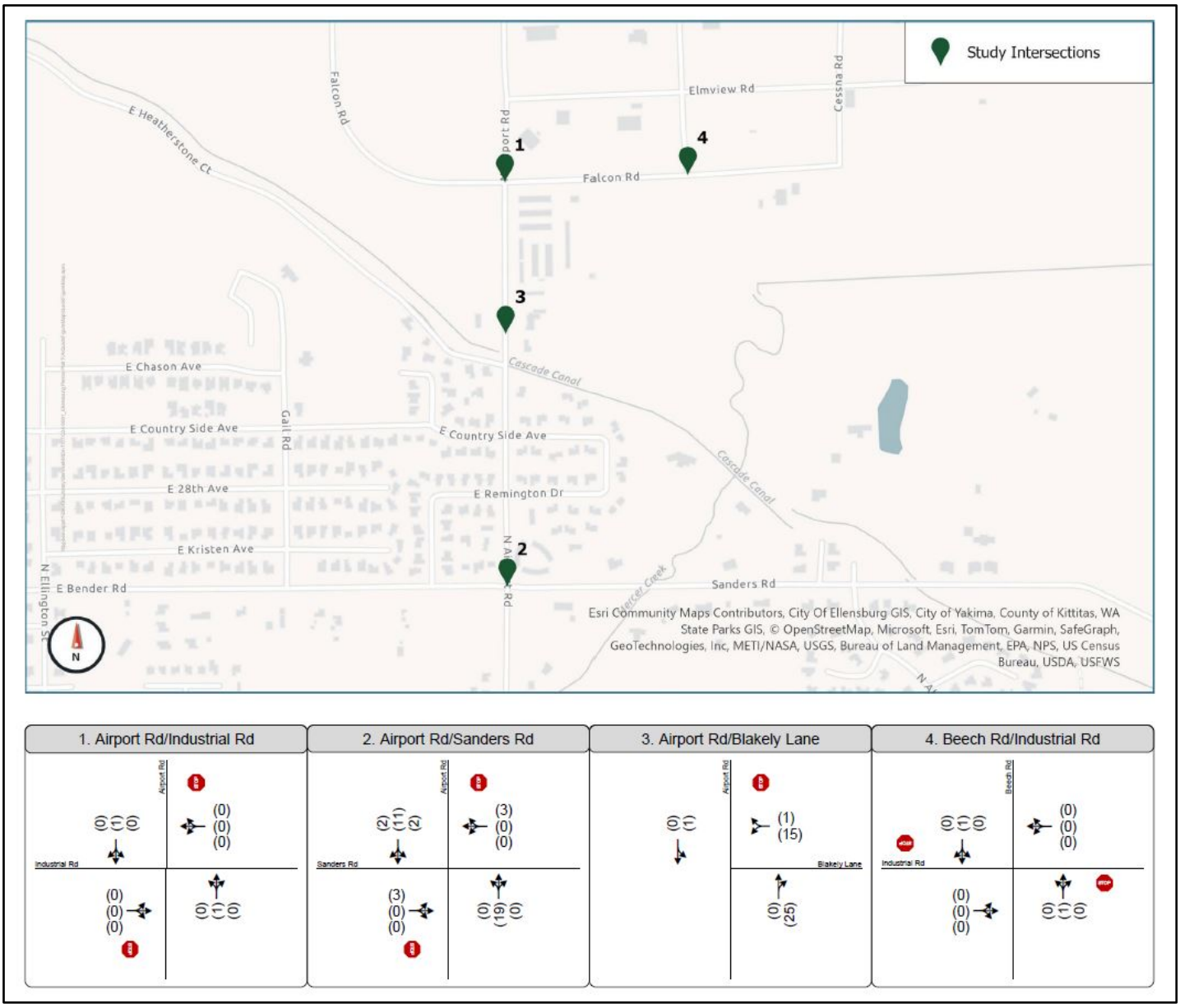


Figure 5: Net New Trips from the Project Study (PM)

Source: Fehr & Peers, 2024.

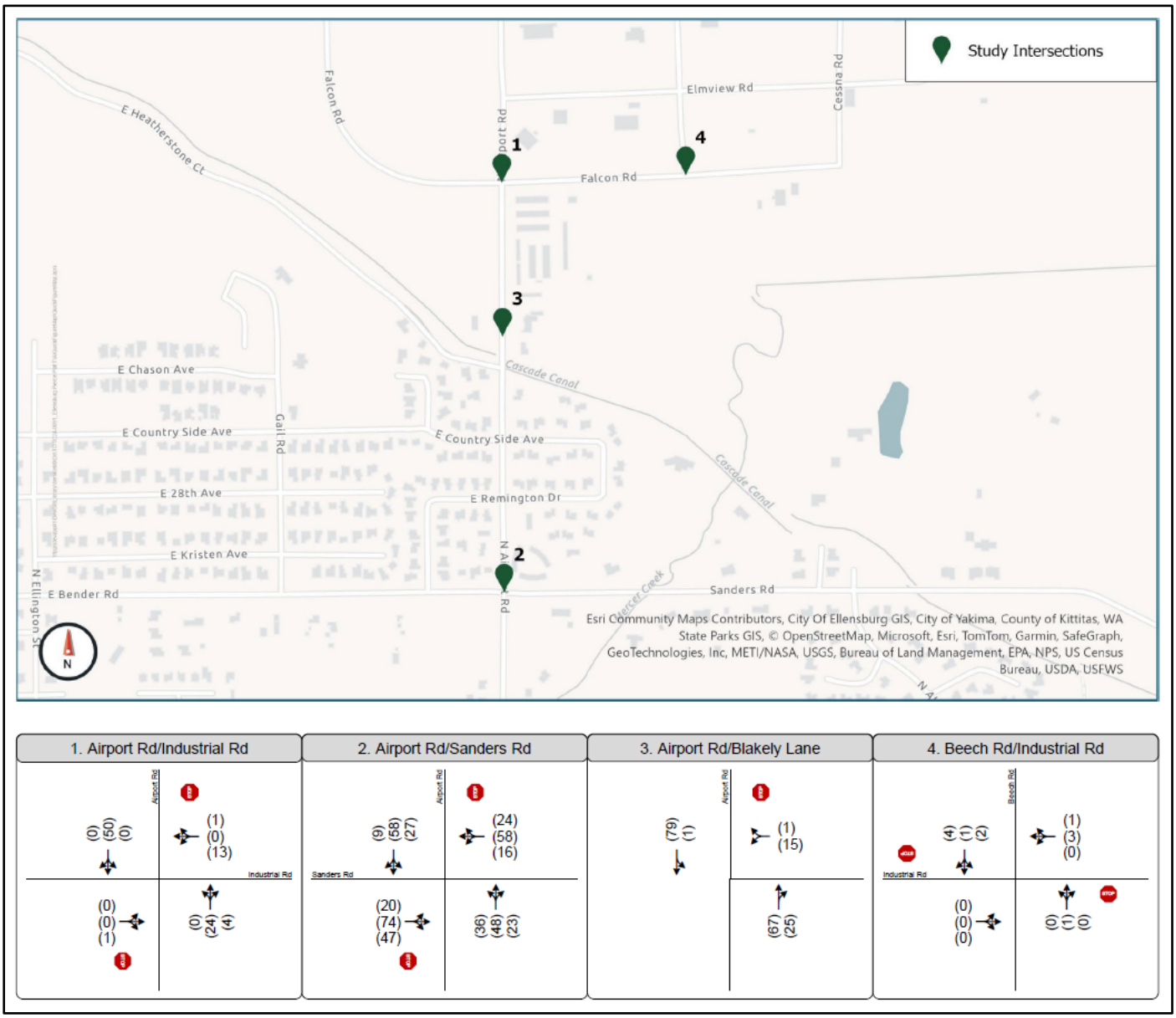


Figure 6: Existing Plus Project Volume at Study Intersections (PM)

Source: Fehr & Peers, 2024.

Level of Service Analysis

Fehr & Peers used the HCM 6th Edition delay thresholds provided in the introduction to compute the LOS at each study intersection for the existing year with project weekday PM peak hour LOS. **Table 4** reports the results of this LOS analysis as compared to existing conditions. A detailed LOS Report is included in **Appendix B**.

As previously noted, the level of service standard for study intersections 1, 2 and 3 is LOS C and the level of service standard for study intersection 4 is LOS B. Side-Street Stop-Control (SSSC) was assumed for study intersections 3 and 4, with stop control at the accesses to the site. The findings of the analysis indicate that none of the study intersections operate below acceptable levels of delay for existing plus project conditions.

Table 4: Existing Year (2024) Weekday with Project Level of Service

ID	Intersection	Control	2024 Existing W/O Project PM: Approach LOS / Delay [1]	2024 Existing W/ Project PM: Approach LOS / Delay[1]
1	Industrial Road & Airport Road	SSSC	A/9	A/9
2	Sanders Road & Airport Road	SSSC	B/11	B/12
3	West Side Access (Blakely Lane) & Airport Road	SSSC[2]	-	A/10
4	North Site Access (Beech Road) & Industrial Road	SSSC[2]	A/7	A/9

NOTES:
SSSC = Side-Street Stop-Controlled; AWSC = All-Way Stop-Controlled
1. Consistent with HCM 6th Edition, SSSC intersection performance is determined based on worst movement delay, rather than average intersection delay.
2. Assumed SSSC for newly built or reconstructed intersections
Source: Fehr & Peers, 2024.

The development will include side-street stop control intersections at the proposed west and north access points. Proper stop control will need to be added to the north leg of the intersection of Industrial Road and Beech Road as part of construction of the north access.

Active Transportation

Sidewalks are located along the west side of Airport Road north and directly adjacent to the project site, along both east and west sides of Airport Road just south of the project site, along the south and west side of Bowers Business Loop, and along the north side of Bowers Road. People walking and biking were observed during data collection. This development is expected to result in additional travel, including vehicle trips, as well as trips made on foot and by bike.

The project will construct sidewalks along both sides of all newly constructed roads, excluding the bulb of the proposed cul-de-sacs. Sidewalks will also be constructed along the project frontage of Airport Road connecting to the existing sidewalk just south of the project site, extending the pedestrian facilities in the area and improving connection to existing transit facilities.

Transit

Ellensburg is serviced by Central Transit. Route 13 connects through all study intersections and links this area with downtown Ellensburg with hourly frequency on weekdays. Two Route 13 bus stops are within walking distance of the access points of this development. One is located at the Intersection of Sanders Road and Airport Road (study Intersection 4) which is about a quarter mile south of the project's West Access (study Intersection 3). The other is located at the intersection of Beech Road and Elmview Road which is about 300 feet north of the project's North Access. The development has the potential to increase the number of people accessing these bus stops. As such, it will be important to ensure that frontage pedestrian improvements tie into existing infrastructure to improve connections to these stops.

Safety

WSDOT manages a collision database containing details about location features, collision types, contributing circumstances, and other factors associated with recorded collisions. To identify the collision patterns at the designated intersections, an analysis of collision data from the past five years (2018-2022) was conducted. There were no reported collisions involving bicyclists or pedestrians at any of the study intersections during this period. All collisions occurred at Sanders Road & Airport Road, which experiences higher vehicle volumes compared to the rest of the intersections. Details of five-year collision history at the study intersections are shown in **Table 5.**

Table 5: Study Intersection Collisions 2018-2022

Location	Total	No Apparent Injury	Possible Injury	Suspected Minor Injury	Dead at Scene
Industrial Road & Airport Road	0	0	0	0	0
Sanders Road & Airport Road	0	8	2	3	0
West Side Access (Blakely Lane) & Airport Road	0	0	0	0	0
North Site Access (Beech Road) & Industrial Road	0	0	0	0	0

Source: WSDOT Collision Data, Fehr & Peers, 2024.
Note: 2023 collision data was not yet to be available at the time of this analysis.

Traffic Impact Fee

The City of Ellensburg has established a traffic impact fee, as described in section 14.04.140 Appendix C of the City of Ellensburg municipal code. The developer provided an updated plat that included 44 single-family developed lots. Considering the removal of one existing lot, this would result in a net increase of 43 single family detached dwelling units. Should the number of lots proposed for this project change, the traffic impact fee will need to be adjusted accordingly.

It is recommended that the project pay the City of Ellensburg traffic impact fee of $98,917.63 at the time of the building permit.

Table 6: Traffic Impact Fee

Peak Hour Rate (per Dwelling Unit)	Dwelling Unit	Anticipated Fee
$2,300.41	43	$98,917.63

Source: Fehr & Peers, 2024.

Conclusion

The proposed project would not result in a significant delay compared to existing conditions and the findings of the analysis indicate that none of the study intersections operate below acceptable levels of delay for existing plus project conditions.

The development will include side-street stop control intersections at the proposed west and north access points. Proper stop control will need to be added to the north leg of the intersection of Industrial Road and Beech Road as part of construction of the north access.

The development will construct sidewalks to the north and south of Airport Road alongside its frontage, connecting to existing pedestrian infrastructure and extending pedestrian facilities to the north.

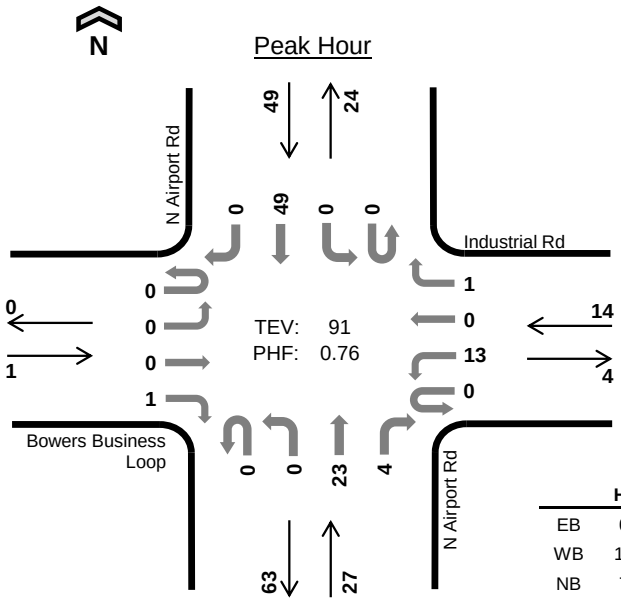
Two bus stops are within walking distance of the proposed project and consideration should be made for safe pedestrian connections from the project to these bus stops, including the proposed frontage.

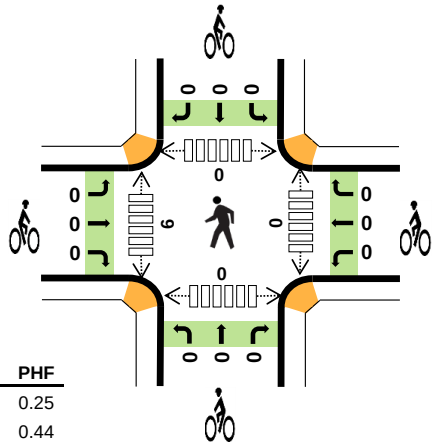
Additionally, in accordance with section 14.04.140 Appendix C of the City of Ellensburg municipal code, it is recommended recommend that the project covers the City of Ellensburg traffic fee to the amount of $98,917.63, during the building permit acquisition.

Appendix A: Traffic Counts

N Airport Rd
Industrial Rd

Date: 01/04/2024
Count Period: 4:00 PM to 6:00 PM
Peak Hour: 4:00 PM to 5:00 PM





	HV %:	PHF
EB	0.0%	0.25
WB	14.3%	0.44
NB	7.4%	0.75
SB	0.0%	0.64
TOTAL	4.4%	0.76

Two-Hour Count Summaries

Interval Start	Bowers Business Loop Eastbound				Industrial Rd Westbound				N Airport Rd Northbound				N Airport Rd Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	**0**	**0**	**0**	**0**	**0**	**8**	**0**	**0**	**0**	**0**	**9**	**0**	**0**	**0**	**13**	**0**	**30**	0
4:15 PM	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**5**	**1**	**0**	**0**	**6**	**0**	**14**	0
4:30 PM	**0**	**0**	**0**	**1**	**0**	**2**	**0**	**0**	**0**	**0**	**2**	**1**	**0**	**0**	**19**	**0**	**25**	0
4:45 PM	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**1**	**0**	**0**	**7**	**2**	**0**	**0**	**11**	**0**	**22**	**91**
5:00 PM	0	0	0	0	0	3	0	0	0	0	9	0	0	0	14	0	26	87
5:15 PM	0	0	0	0	0	0	0	0	0	0	4	1	0	1	8	0	14	87
5:30 PM	0	0	0	0	0	1	0	0	0	0	2	0	0	0	7	0	10	72
5:45 PM	0	0	0	0	0	0	0	0	0	0	3	0	0	0	4	0	7	57
Count Total	0	0	0	1	0	17	0	1	0	0	41	5	0	1	82	0	148	0
Peak Hour All	**0**	**0**	**0**	**1**	**0**	**13**	**0**	**1**	**0**	**0**	**23**	**4**	**0**	**0**	**49**	**0**	**91**	**0**
Peak Hour HV	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**4**	**0**
Peak Hour HV%	**-**	**-**	**-**	**0%**	**-**	**15%**	**-**	**0%**	**-**	**-**	**9%**	**0%**	**-**	**-**	**0%**	**-**	**4%**	**0**

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
4:00 PM	**0**	**1**	**2**	**0**	***3***	**0**	**0**	**0**	**0**	***0***	**0**	**3**	**0**	**0**	*3*
4:15 PM	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	***0***	**0**	**1**	**0**	**0**	*1*
4:30 PM	**0**	**1**	**0**	**0**	***1***	**0**	**0**	**0**	**0**	***0***	**0**	**1**	**0**	**0**	*1*
4:45 PM	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	***0***	**0**	**1**	**0**	**0**	***1***
5:00 PM	0	1	2	0	*3*	0	0	0	0	*0*	0	0	0	0	*0*
5:15 PM	0	0	0	0	*0*	0	0	0	0	*0*	0	0	0	0	*0*
5:30 PM	0	0	0	0	*0*	0	0	0	0	*0*	0	0	0	0	*0*
5:45 PM	0	0	0	1	*1*	0	0	0	0	*0*	0	0	0	0	*0*
Count Total	0	3	4	1	*8*	0	0	0	0	*0*	0	6	0	0	*6*
Peak Hour	**0**	**2**	**2**	**0**	***4***	**0**	**0**	**0**	**0**	***0***	**0**	**6**	**0**	**0**	***6***

Two-Hour Count Summaries - Heavy Vehicles

Interval Start	Bowers Business Loop Eastbound				Industrial Rd Westbound				N Airport Rd Northbound				N Airport Rd Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**3**	0
4:15 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
4:30 PM	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	0
4:45 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**4**
5:00 PM	0	0	0	0	0	1	0	0	0	0	2	0	0	0	0	0	3	4
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	4
Count Total	0	0	0	0	0	3	0	0	0	0	4	0	0	0	1	0	8	0
Peak Hour	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**4**	**0**

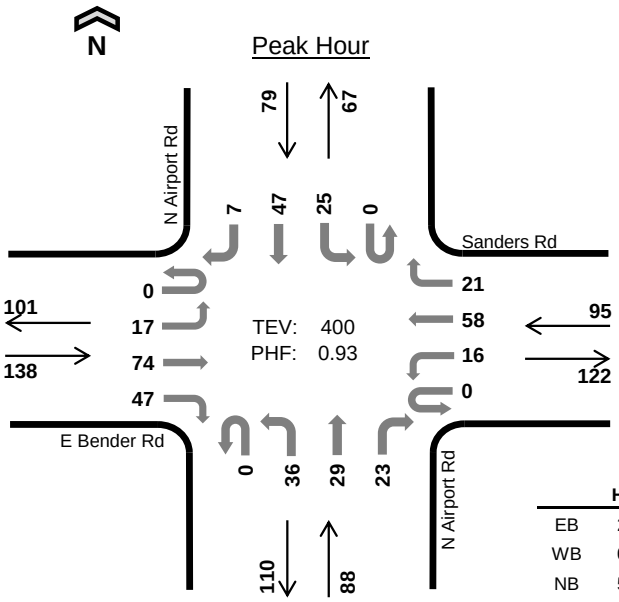
Two-Hour Count Summaries - Bikes

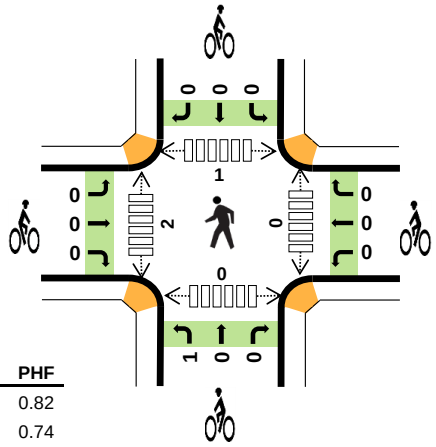
Interval Start	Bowers Business Loop Eastbound			Industrial Rd Westbound			N Airport Rd Northbound			N Airport Rd Southbound			15-min Total	Rolling One Hour
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
4:00 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
4:15 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
4:30 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
4:45 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Count Total	0	0	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**

Note: U-Turn volumes for bikes are included in Left-Turn, if any.

N Airport Rd
Sanders Rd

Date: 01/04/2024
Count Period: 4:00 PM to 6:00 PM
Peak Hour: 4:30 PM to 5:30 PM





	HV %:	PHF
EB	2.9%	0.82
WB	0.0%	0.74
NB	5.7%	0.69
SB	2.5%	0.73
TOTAL	2.8%	0.93

Two-Hour Count Summaries

Interval Start		E Bender Rd Eastbound				Sanders Rd Westbound				N Airport Rd Northbound				N Airport Rd Southbound				15-min Total	Rolling One Hour
		UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM		0	3	13	10	0	5	28	2	0	3	10	3	0	8	12	2	99	0
4:15 PM		0	2	20	8	0	1	14	2	0	5	11	5	0	3	4	4	79	0
4:30 PM		**0**	**3**	**21**	**10**	**0**	**3**	**8**	**2**	**0**	**5**	**5**	**4**	**0**	**9**	**16**	**2**	**88**	0
4:45 PM		**0**	**4**	**14**	**10**	**0**	**8**	**19**	**5**	**0**	**11**	**8**	**6**	**0**	**8**	**13**	**0**	**106**	372
5:00 PM		**0**	**3**	**17**	**14**	**0**	**2**	**14**	**7**	**0**	**12**	**10**	**10**	**0**	**5**	**10**	**4**	**108**	381
5:15 PM		**0**	**7**	**22**	**13**	**0**	**3**	**17**	**7**	**0**	**8**	**6**	**3**	**0**	**3**	**8**	**1**	**98**	**400**
5:30 PM		0	2	13	13	0	4	14	3	0	8	6	2	0	4	8	1	78	390
5:45 PM		0	1	13	10	0	2	12	4	0	9	4	7	0	5	6	1	74	358
Count Total		0	25	133	88	0	28	126	32	0	61	60	40	0	45	77	15	730	0
Peak Hour	**All**	**0**	**17**	**74**	**47**	**0**	**16**	**58**	**21**	**0**	**36**	**29**	**23**	**0**	**25**	**47**	**7**	**400**	**0**
	HV	**0**	**0**	**3**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**3**	**0**	**0**	**2**	**0**	**11**	**0**
	HV%	**-**	**0%**	**4%**	**2%**	**-**	**0%**	**0%**	**0%**	**-**	**0%**	**7%**	**13%**	**-**	**0%**	**4%**	**0%**	**3%**	**0**

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
4:00 PM	2	2	1	1	*6*	0	0	0	0	*0*	0	1	0	0	*1*
4:15 PM	0	0	2	0	*2*	0	0	0	0	*0*	1	1	0	0	*2*
4:30 PM	**2**	**0**	**1**	**1**	***4***	**0**	**0**	**1**	**0**	***1***	**0**	**2**	**0**	**0**	*2*
4:45 PM	**1**	**0**	**0**	**0**	***1***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	*0*
5:00 PM	**1**	**0**	**3**	**1**	***5***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**1**	**0**	*1*
5:15 PM	**0**	**0**	**1**	**0**	***1***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	***0***
5:30 PM	1	0	0	1	*2*	0	0	0	0	*0*	0	0	0	0	*0*
5:45 PM	0	1	1	1	*3*	0	0	0	0	*0*	0	0	0	0	*0*
Count Total	7	3	9	5	*24*	0	0	1	0	*1*	1	4	1	0	*6*
Peak Hour	**4**	**0**	**5**	**2**	***11***	**0**	**0**	**1**	**0**	***1***	**0**	**2**	**1**	**0**	***3***

Two-Hour Count Summaries - Heavy Vehicles

Interval Start	E Bender Rd				Sanders Rd				N Airport Rd				N Airport Rd				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	0	1	1	0	0	0	1	1	0	0	1	0	0	0	1	0	6	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	2	0
4:30 PM	**0**	**0**	**1**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**1**	**0**	**4**	0
4:45 PM	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	13
5:00 PM	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**1**	**0**	**0**	**1**	**0**	**5**	12
5:15 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**1**	**11**
5:30 PM	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	2	9
5:45 PM	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	1	3	11
Count Total	0	1	4	2	0	0	1	2	0	0	4	5	0	0	3	2	24	0
Peak Hour	**0**	**0**	**3**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**3**	**0**	**0**	**2**	**0**	**11**	**0**

Two-Hour Count Summaries - Bikes

Interval Start	E Bender Rd			Sanders Rd			N Airport Rd			N Airport Rd			15-min Total	Rolling One Hour
	Eastbound			Westbound			Northbound			Southbound				
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**1**	0
4:45 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	1
5:00 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	1
5:15 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Count Total	0	0	0	0	0	0	1	0	0	0	0	0	1	0
Peak Hour	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**1**	**0**

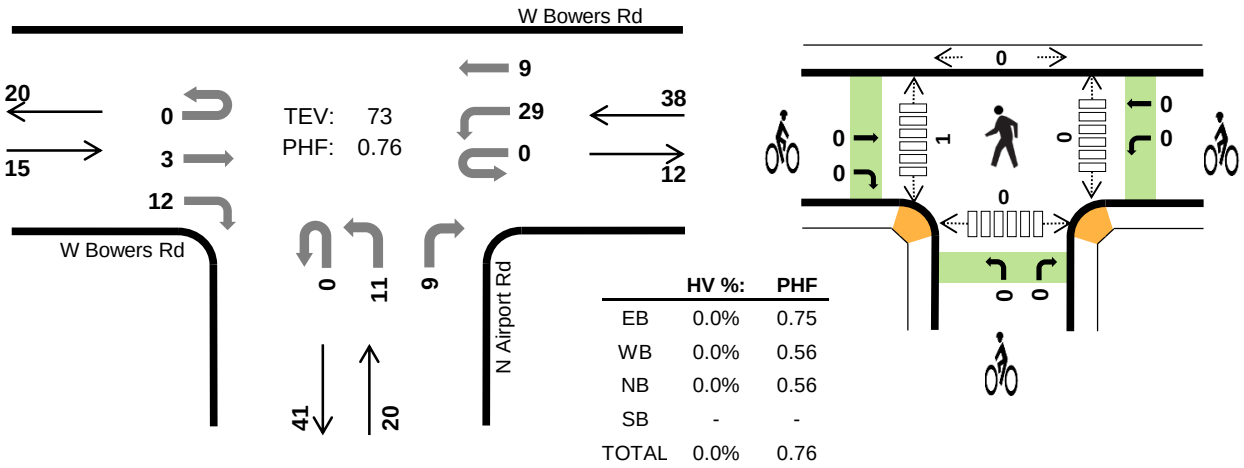
Note: U-Turn volumes for bikes are included in Left-Turn, if any.

N Airport Rd
W Bowers Rd

N

Peak Hour

Date: 01/04/2024
Count Period: 4:00 PM to 6:00 PM
Peak Hour: 4:15 PM to 5:15 PM



Two-Hour Count Summaries

Interval Start		W Bowers Rd Eastbound				W Bowers Rd Westbound				N Airport Rd Northbound				0 Southbound				15-min Total	Rolling One Hour
		UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM		0	0	0	2	0	4	2	0	0	6	0	1	0	0	0	0	15	0
4:15 PM		**0**	**0**	**1**	**2**	**0**	**6**	**1**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**11**	0
4:30 PM		**0**	**0**	**1**	**3**	**0**	**13**	**4**	**0**	**0**	**2**	**0**	**1**	**0**	**0**	**0**	**0**	**24**	0
4:45 PM		**0**	**0**	**1**	**2**	**0**	**5**	**2**	**0**	**0**	**4**	**0**	**3**	**0**	**0**	**0**	**0**	**17**	67
5:00 PM		**0**	**0**	**0**	**5**	**0**	**5**	**2**	**0**	**0**	**5**	**0**	**4**	**0**	**0**	**0**	**0**	**21**	**73**
5:15 PM		0	0	0	3	0	2	0	0	0	1	0	0	0	0	0	0	6	68
5:30 PM		0	0	0	3	0	2	0	0	0	3	0	0	0	0	0	0	8	52
5:45 PM		0	0	0	1	0	0	1	0	0	2	0	0	0	0	0	0	4	39
Count Total		0	0	3	21	0	37	12	0	0	23	0	10	0	0	0	0	106	0
Peak Hour	**All**	**0**	**0**	**3**	**12**	**0**	**29**	**9**	**0**	**0**	**11**	**0**	**9**	**0**	**0**	**0**	**0**	**73**	**0**
	HV	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
	HV%	**-**	**-**	**0%**	**0%**	**-**	**0%**	**0%**	**-**	**-**	**0%**	**-**	**0%**	**-**	**-**	**-**	**-**	**0%**	**0**

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals EB	WB	NB	SB	Total	Bicycles EB	WB	NB	SB	Total	Pedestrians (Crossing Leg) East	West	North	South	Total
4:00 PM	0	0	0	0	*0*	0	0	0	0	*0*	0	4	0	0	*4*
4:15 PM	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	***0***	**0**	**1**	**0**	**0**	*1*
4:30 PM	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	*0*
4:45 PM	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	*0*
5:00 PM	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	***0***
5:15 PM	0	0	0	0	*0*	0	0	0	0	*0*	0	0	0	0	*0*
5:30 PM	0	0	0	0	*0*	0	0	0	0	*0*	0	0	0	0	*0*
5:45 PM	0	0	0	0	*0*	0	0	0	0	*0*	0	0	0	0	*0*
Count Total	0	0	0	0	*0*	0	0	0	0	*0*	0	5	0	0	*5*
Peak Hr	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	***0***	**0**	**1**	**0**	**0**	***1***

Two-Hour Count Summaries - Heavy Vehicles

Interval Start	W Bowers Rd				W Bowers Rd				N Airport Rd				0				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
4:30 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
4:45 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
5:00 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Count Total	0	0	0	0	0	0	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**

Two-Hour Count Summaries - Bikes

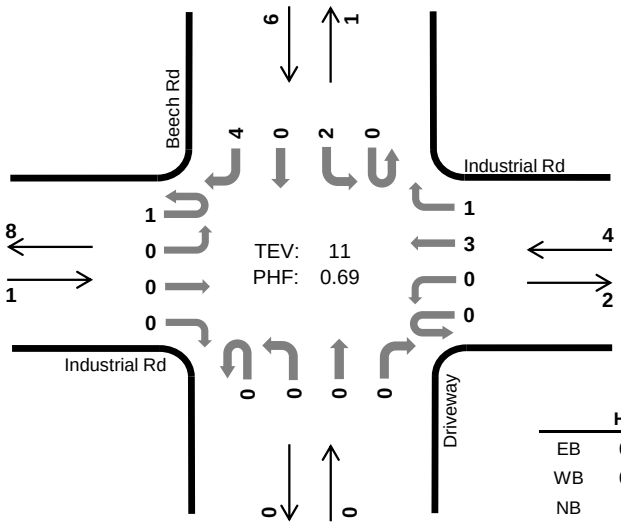
Interval Start	W Bowers Rd			W Bowers Rd			N Airport Rd			0			15-min Total	Rolling One Hour
	Eastbound			Westbound			Northbound			Southbound				
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
4:30 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
4:45 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
5:00 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Count Total	0	0	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**

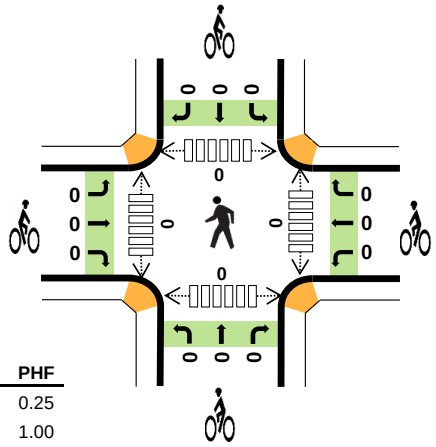
Note: U-Turn volumes for bikes are included in Left-Turn, if any.

Beech Rd
Industrial Rd

Date: 01/04/2024
Count Period: 4:00 PM to 6:00 PM
Peak Hour: 4:00 PM to 5:00 PM

Peak Hour





	HV %:	PHF
EB	0.0%	0.25
WB	0.0%	1.00
NB	-	-
SB	33.3%	0.50
TOTAL	18.2%	0.69

Two-Hour Count Summaries

Interval Start	Industrial Rd Eastbound				Industrial Rd Westbound				Driveway Northbound				Beech Rd Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**3**	**4**	0
4:15 PM	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	0
4:30 PM	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**1**	**3**	0
4:45 PM	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**3**	**11**
5:00 PM	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1	2	9
5:15 PM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	9
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
Count Total	1	0	1	0	0	0	4	1	0	0	0	0	0	2	0	5	14	0
Peak Hour All	**1**	**0**	**0**	**0**	**0**	**0**	**3**	**1**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**4**	**11**	**0**
Peak Hour HV	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**2**	**0**
Peak Hour HV%	**0%**	**-**	**-**	**-**	**-**	**-**	**0%**	**0%**	**-**	**-**	**-**	**-**	**-**	**0%**	**-**	**50%**	**18%**	**0**

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
4:00 PM	**0**	**0**	**0**	**1**	***1***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	*0*
4:15 PM	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	*0*
4:30 PM	**0**	**0**	**0**	**1**	***1***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	*0*
4:45 PM	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	***0***
5:00 PM	0	0	0	1	*1*	0	0	0	0	*0*	0	0	0	0	*0*
5:15 PM	0	0	0	0	*0*	0	0	0	0	*0*	0	0	0	0	*0*
5:30 PM	0	0	0	0	*0*	0	0	0	0	*0*	0	0	0	0	*0*
5:45 PM	0	0	0	0	*0*	0	0	0	0	*0*	0	0	0	0	*0*
Count Total	0	0	0	3	*3*	0	0	0	0	*0*	0	0	0	0	*0*
Peak Hour	**0**	**0**	**0**	**2**	***2***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	***0***

Two-Hour Count Summaries - Heavy Vehicles

Interval Start	Industrial Rd Eastbound				Industrial Rd Westbound				Driveway Northbound				Beech Rd Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**1**	0
4:15 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
4:30 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**1**	0
4:45 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	2
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Count Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	3	0
Peak Hour	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**2**	**0**

Two-Hour Count Summaries - Bikes

Interval Start	Industrial Rd Eastbound			Industrial Rd Westbound			Driveway Northbound			Beech Rd Southbound			15-min Total	Rolling One Hour
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
4:00 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
4:15 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
4:30 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
4:45 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Count Total	0	0	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**

Note: U-Turn volumes for bikes are included in Left-Turn, if any.

Appendix B: Detailed Level of Service Reports

Intersection	
Int Delay, s/veh	1.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	0	0	1	13	0	1	0	23	4	0	49	0
Future Vol, veh/h	0	0	1	13	0	1	0	23	4	0	49	0
Conflicting Peds, #/hr	0	0	0	0	0	0	6	0	0	0	0	6
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	76	76	76	76	76	76	76	76	76	76	76	76
Heavy Vehicles, %	0	0	0	14	14	14	7	7	7	0	0	0
Mvmt Flow	0	0	1	17	0	1	0	30	5	0	64	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	103	105	70	98	103	33	70	0	0	35	0	0
Stage 1	70	70	-	33	33	-	-	-	-	-	-	-
Stage 2	33	35	-	65	70	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.24	6.64	6.34	4.17	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.24	5.64	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.24	5.64	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.626	4.126	3.426	2.263	-	-	2.2	-	-
Pot Cap-1 Maneuver	882	789	998	856	765	1007	1499	-	-	1589	-	-
Stage 1	945	841	-	953	844	-	-	-	-	-	-	-
Stage 2	988	870	-	916	814	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	876	784	992	855	760	1007	1490	-	-	1589	-	-
Mov Cap-2 Maneuver	876	784	-	855	760	-	-	-	-	-	-	-
Stage 1	939	836	-	953	844	-	-	-	-	-	-	-
Stage 2	987	870	-	915	809	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	8.6	9.3	0	0
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1490	-	-	992	864	1589	-	-
HCM Lane V/C Ratio	-	-	-	0.001	0.021	-	-	-
HCM Control Delay (s)	0	-	-	8.6	9.3	0	-	-
HCM Lane LOS	A	-	-	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0	0.1	0	-	-

Intersection	
Int Delay, s/veh	7.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	17	74	47	16	58	21	36	29	23	25	47	7
Future Vol, veh/h	17	74	47	16	58	21	36	29	23	25	47	7
Conflicting Peds, #/hr	1	0	0	0	0	1	2	0	0	0	0	2
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
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, %	3	3	3	0	0	0	6	6	6	2	2	2
Mvmt Flow	18	80	51	17	62	23	39	31	25	27	51	8

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	276	245	57	297	237	45	61	0	0	56	0	0
Stage 1	111	111	-	122	122	-	-	-	-	-	-	-
Stage 2	165	134	-	175	115	-	-	-	-	-	-	-
Critical Hdwy	7.13	6.53	6.23	7.1	6.5	6.2	4.16	-	-	4.12	-	-
Critical Hdwy Stg 1	6.13	5.53	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.13	5.53	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.527	4.027	3.327	3.5	4	3.3	2.254	-	-	2.218	-	-
Pot Cap-1 Maneuver	674	655	1006	659	667	1031	1517	-	-	1549	-	-
Stage 1	892	802	-	887	799	-	-	-	-	-	-	-
Stage 2	835	784	-	832	804	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	588	625	1004	546	636	1030	1514	-	-	1549	-	-
Mov Cap-2 Maneuver	588	625	-	546	636	-	-	-	-	-	-	-
Stage 1	866	786	-	863	777	-	-	-	-	-	-	-
Stage 2	730	763	-	697	788	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	11.4	11.3	3	2.3
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1514	-	-	711	674	1549	-	-
HCM Lane V/C Ratio	0.026	-	-	0.209	0.152	0.017	-	-
HCM Control Delay (s)	7.4	0	-	11.4	11.3	7.4	0	-
HCM Lane LOS	A	A	-	B	B	A	A	-
HCM 95th %tile Q(veh)	0.1	-	-	0.8	0.5	0.1	-	-

Intersection	
Intersection Delay, s/veh	7
Intersection LOS	A

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	0	3	1	2	4
Future Vol, veh/h	0	0	3	1	2	4
Peak Hour Factor	0.75	0.75	0.75	0.75	0.75	0.75
Heavy Vehicles, %	0	0	0	0	33	33
Mvmt Flow	0	0	4	1	3	5
Number of Lanes	0	1	1	0	1	0

Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	1	1	0
Conflicting Approach Left	SB		WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	1	1
HCM Control Delay	0	6.8	7.2
HCM LOS	-	A	A

Lane	EBLn1	WBLn1	SBLn1
Vol Left, %	0%	0%	33%
Vol Thru, %	100%	75%	0%
Vol Right, %	0%	25%	67%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	0	4	6
LT Vol	0	0	2
Through Vol	0	3	0
RT Vol	0	1	4
Lane Flow Rate	0	5	8
Geometry Grp	1	1	1
Degree of Util (X)	0	0.006	0.009
Departure Headway (Hd)	3.918	3.764	4.138
Convergence, Y/N	Yes	Yes	Yes
Cap	0	956	870
Service Time	1.923	1.768	2.139
HCM Lane V/C Ratio	0	0.005	0.009
HCM Control Delay	6.9	6.8	7.2
HCM Lane LOS	N	A	A
HCM 95th-tile Q	0	0	0

Intersection	
Int Delay, s/veh	1.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	0	0	1	13	0	1	0	24	4	0	50	0
Future Vol, veh/h	0	0	1	13	0	1	0	24	4	0	50	0
Conflicting Peds, #/hr	0	0	0	0	0	0	6	0	0	0	0	6
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	76	76	76	76	76	76	76	76	76	76	76	76
Heavy Vehicles, %	0	0	0	14	14	14	7	7	7	0	0	0
Mvmt Flow	0	0	1	17	0	1	0	32	5	0	66	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	107	109	72	102	107	35	72	0	0	37	0	0
Stage 1	72	72	-	35	35	-	-	-	-	-	-	-
Stage 2	35	37	-	67	72	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.24	6.64	6.34	4.17	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.24	5.64	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.24	5.64	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.626	4.126	3.426	2.263	-	-	2.2	-	-
Pot Cap-1 Maneuver	877	785	996	851	761	1005	1497	-	-	1587	-	-
Stage 1	943	839	-	951	843	-	-	-	-	-	-	-
Stage 2	986	868	-	914	812	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	871	780	990	850	756	1005	1488	-	-	1587	-	-
Mov Cap-2 Maneuver	871	780	-	850	756	-	-	-	-	-	-	-
Stage 1	937	834	-	951	843	-	-	-	-	-	-	-
Stage 2	985	868	-	913	807	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	8.6	9.3	0	0
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1488	-	-	990	859	1587	-	-
HCM Lane V/C Ratio	-	-	-	0.001	0.021	-	-	-
HCM Control Delay (s)	0	-	-	8.6	9.3	0	-	-
HCM Lane LOS	A	-	-	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0	0.1	0	-	-

Intersection	
Int Delay, s/veh	7.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	20	74	47	16	58	24	36	48	23	27	58	9
Future Vol, veh/h	20	74	47	16	58	24	36	48	23	27	58	9
Conflicting Peds, #/hr	1	0	0	0	0	1	2	0	0	0	0	2
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
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, %	3	3	3	0	0	0	6	6	6	2	2	2
Mvmt Flow	22	80	51	17	62	26	39	52	25	29	62	10

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	315	282	69	334	275	66	74	0	0	77	0	0
Stage 1	127	127	-	143	143	-	-	-	-	-	-	-
Stage 2	188	155	-	191	132	-	-	-	-	-	-	-
Critical Hdwy	7.13	6.53	6.23	7.1	6.5	6.2	4.16	-	-	4.12	-	-
Critical Hdwy Stg 1	6.13	5.53	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.13	5.53	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.527	4.027	3.327	3.5	4	3.3	2.254	-	-	2.218	-	-
Pot Cap-1 Maneuver	636	625	991	623	636	1003	1500	-	-	1522	-	-
Stage 1	874	789	-	865	782	-	-	-	-	-	-	-
Stage 2	811	767	-	815	791	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	550	595	989	512	605	1002	1497	-	-	1522	-	-
Mov Cap-2 Maneuver	550	595	-	512	605	-	-	-	-	-	-	-
Stage 1	849	772	-	842	761	-	-	-	-	-	-	-
Stage 2	705	746	-	680	774	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	11.8	11.6	2.5	2.1
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1497	-	-	677	649	1522	-	-
HCM Lane V/C Ratio	0.026	-	-	0.224	0.162	0.019	-	-
HCM Control Delay (s)	7.5	0	-	11.8	11.6	7.4	0	-
HCM Lane LOS	A	A	-	B	B	A	A	-
HCM 95th %tile Q(veh)	0.1	-	-	0.9	0.6	0.1	-	-

Intersection	
Int Delay, s/veh	0.9

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	15	1	67	25	1	79
Future Vol, veh/h	15	1	67	25	1	79
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	75	75	75	75	75	75
Heavy Vehicles, %	0	0	6	6	0	0
Mvmt Flow	20	1	89	33	1	105

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	213	106	0	0	122	0
Stage 1	106	-	-	-	-	-
Stage 2	107	-	-	-	-	-
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	780	954	-	-	1478	-
Stage 1	923	-	-	-	-	-
Stage 2	922	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	779	954	-	-	1478	-
Mov Cap-2 Maneuver	779	-	-	-	-	-
Stage 1	923	-	-	-	-	-
Stage 2	921	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.7	0	0.1
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	788	1478	-
HCM Lane V/C Ratio	-	-	0.027	0.001	-
HCM Control Delay (s)	-	-	9.7	7.4	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0	-

Intersection	
Int Delay, s/veh	5.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		⇕			⇕			⇕			⇕	
Traffic Vol, veh/h	0	0	0	0	3	1	0	1	0	2	1	4
Future Vol, veh/h	0	0	0	0	3	1	0	1	0	2	1	4
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	75	75	75	75	75	75	75	75	75	75	75	75
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	33	33	33
Mvmt Flow	0	0	0	0	4	1	0	1	0	3	1	5

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	5	0	0	1	0	0	9	6	1	7	6	5
Stage 1	-	-	-	-	-	-	1	1	-	5	5	-
Stage 2	-	-	-	-	-	-	8	5	-	2	1	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.43	6.83	6.53
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.43	5.83	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.43	5.83	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.797	4.297	3.597
Pot Cap-1 Maneuver	1630	-	-	1635	-	-	1015	893	1090	938	831	994
Stage 1	-	-	-	-	-	-	1027	899	-	942	834	-
Stage 2	-	-	-	-	-	-	1019	896	-	946	837	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1630	-	-	1635	-	-	1008	893	1090	937	831	994
Mov Cap-2 Maneuver	-	-	-	-	-	-	1008	893	-	937	831	-
Stage 1	-	-	-	-	-	-	1027	899	-	942	834	-
Stage 2	-	-	-	-	-	-	1012	896	-	945	837	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0	9	8.8
HCM LOS			A	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	893	1630	-	-	1635	-	-	951
HCM Lane V/C Ratio	0.001	-	-	-	-	-	-	0.01
HCM Control Delay (s)	9	0	-	-	0	-	-	8.8
HCM Lane LOS	A	A	-	-	A	-	-	A
HCM 95th %tile Q(veh)	0	0	-	-	0	-	-	0