January 25, 2019
W.O. No. 2015-1409

Whipple Consulting Engineers, Inc.

City of Spokane
Department of Engineering Services
801 W. Spokane Falls Boulevard
Spokane, WA 99201

Attn: Inga Note, P.E.

Re: **Woodridge View 3rd Addition**
Navaho Drive & Wieber Drive
Traffic (Trip) Distribution Letter

Dear Inga,

The purpose of this document is to provide a Trip Generation and Distribution letter (TGDL) for the proposed Woodridge View 3rd Addition Subdivision to be located along the Northeast side of Navaho Drive. As shown on Figure 2, Preliminary Site Plan. This letter will follow the standards for doing Trip Distribution Letters as required by the City of Spokane and the Institute of Transportation Engineers (ITE).

PROJECT DESCRIPTION

The Woodridge View 3rd Addition is proposed to develop 40± acres of a 88.35± acre parcel. The land currently has a water tank that has an access that extends north from the north end of Wieber Drive but is otherwise undeveloped with field grass, trees and weeds. The Woodridge View 3rd Addition will have 138 units of single family or single family attached housing. The property is proposed to be accessed by a proposed extension to Skyline Drive that will go generally north/south until it curves right under the current power lines where it is proposed to intersect with the proposed extension to Wieber that will generally go north/south under the current power lines.

The proposed development will be accessed via three (3) proposed local access roads within the development. The first access extends east from the proposed intersection of Skyline Drive and Wieber Drive under the current power lines to the east boundary of the property where it curves south and continues with two potential future road accesses along its east side before its termination. The other two site accesses are generally north/south roads that will connect to Wieber Drive. Additionally, there will be four (4) east/west local access roads within the addition. Please see Figure 2, Preliminary Site Plan.

VICINITY / SITE PLAN

The site is currently listed on the Comprehensive Plan Map as Residential 4-10 and conservation open space (under the powerlines). The property is currently zoned as Residential Single Family (RSF). The site lies on the NE ¼ of Section 15, T. 26 N., R. 42 E., W.M. within the City of Spokane, Washington. The parcel number for the site is 26155.0002. A vicinity map is included as Figure 1, along with a preliminary site plan as Figure 2.

21 South Pines Rd. • Spokane Valley, WA 99206 PO Box 1566 • Veradale, WA 99037
Phone 509-893-2617 • Fax 509-926-0227 • WhippleCE.com • Info@WhippleCE.com
Civil, Structural, Traffic, Survey, Landscape Architecture and Entitlements

TRIP GENERATION AND DISTRIBUTION

Trip Types

The proposed land use is single family residential; ITE has developed data regarding various trip types that all developments experience. These are found in several places, however, for this analysis the *Trip Generation Manual 10th Edition* as well as the Institute of transportation Engineers (ITE) *Trip Generation Handbook* were used to develop the criteria for this analysis.

Generally all existing and proposed developments will be made up of one or more of the following four trip types: new (destination) trips, pass-by trips, diverted trips, and shared (internal trips). In order to better understand the trip types available for land access a description of each specific trip type follows.

New (Destination) Trips - These types of trips occur only to access a specific land use such as a new retail development or a new residential subdivision. These types of trips will travel to and from the new site and a single other destination such as home or work. This is the only trip type that will result in a net increase in the total amount of traffic within the study area. The reason primarily is that these trips represent planned trips to a specific destination that never took trips to that part of the City prior to the development being constructed and occupied. This project will develop new trips.

Pass-by Trips - These trips represent vehicles which currently use adjacent roadways providing primary access to new land uses or projects and are trips of convenience. These trips, however, have an ultimate destination other than the project in question. They should be viewed as customers who stop in on their way home from work. An example would be on payday, where an individual generally drives by their bank every day without stopping, except on payday. On that day, this driver would drive into the bank, perform the prerequisite banking and then continue on home. In this example, the trip started from work with a destination of home, however on the way, the driver stopped at the grocery store/latte stand and/or bank directly adjacent to their path. Pass-by trips are most always associated with commercial/retail types of development along major roadways. Therefore, for this project pass-by trips will not be considered.

Diverted (Linked) Trips - These trips occur when a vehicle takes a different route than normal to access a specific facility. Diverted trips are similar to pass-by trips, but diverted trips occur from roadways, which do not provide direct access to the site. Instead, one or more streets must be utilized to get to and from the site. For this project, no diverted trips are anticipated.

Shared / Internal / Trips - These are trips which occur on the site where a vehicle/ consumer/ tenant will stop at more than one place on the site. For example, someone destined for a certain shop at a commercial site may stop at a bank just before or after they visit the shop that they went to the site to visit. This trip type reduces the number of new trips generated on the public road system and is most commonly used for commercial developments. These trips are incorporated within the ITE shopping center land use.

Trip Generation Characteristics for the Existing and Proposed land uses

As noted earlier, trip generation rates for the AM and PM peak hours are determined by the use of the *Trip Generation Manual, 10th Edition* published by the Institute of Transportation Engineers (ITE). The purpose of the *Trip Generation Manual* is to compile and quantify empirical data into trip generation rates for specific land uses within the US, UK and Canada.

Proposed Land Use
For the proposed 138 units of single family residential development, Land Use Code (LUC) #210, Single Family Detached Housing was used to establish the number of potential trips generated by the proposed land use for the single family residential lots. The trip generation rates and the anticipated number of AM and PM peak hour trips for the single family residential land use are shown on Table 1.

Table 1-Trip Generation Rates for LUC # 210 – Single Family Detached Housing (Fig. 3)

Dwelling Units	AM Peak Hour Trips			PM Peak Hour Trips		
	Vol. @ 0.74 trips/units	Directional Distribution		Vol. @ 0.99 trips / Units	Directional Distribution	
		25% In	75% Out		63% In	37% Out
138	103	26	77	137	86	51
Average Daily Trip Ends (ADT)						
Units	Rate		ADT			
138	9.44		1,303			

As shown in Table 1, the proposed land uses are anticipated to generate a total of 103 trips in the AM peak hour with 26 trips entering the site and 77 trips exiting the site. In the PM peak hour, the proposed land use is anticipated to generate a total of 137 trips in the PM peak hour with 86 trips entering the site and 51 trips exiting the site. The proposed land use is anticipated to generate 1,303 average daily trips to/from the project. Please see Figure 3 for Trip Distribution.

TRIP DISTRIBUTION

As previously discussed, and as shown on the site plan (Figure 2), the site will be accessed from proposed extensions to Wieber Drive and Skyline Drive.

Skyline Route is an access route to/from the site. The route extends south from the site on Skyline Drive to Prairie Drive. The route then extends west on Prairie Drive until it turns south and becomes Fleetwood Street. The route then extends south on Fleetwood Street to Seminole Drive. The route then extends west on Seminole Drive until Woodridge Drive. The route then extends south on Woodridge Drive until Navaho Avenue. Once at Navaho Avenue the trips can either go to/from the west on Navaho Avenue to Indian Trail Road or go to/from the east on Navhoe Avenue to Farmdale Street where they can go to/from the south to Barnes Road.

Wieber Route is an access route to/from the site. The route extends south from the site on Wieber Drive to Shawnee Avenue. The route then extends west on Shawnee Avenue to the intersection of Shawnee Avenue and Farmdale Street. From the intersection of Shawnee Avenue and Farmdale Street the trips can either continue to go to/from the west on Shawnee Avenue to Indian Trail Road or go to/from the south on Farmdale Street to Barnes Road.

Skyline Drive is generally a north/south, two-way, 2-lane local access road. Skyline Drive extends north from Prairie Drive to its termination at an intersection with Navaho Drive. Skyline Drive serves single family residential land uses. The speed limit on Skyline Drive is 25 MPH.

Prairie Drive is generally an east/west, two-way, 2-lane local access road. Praire Drive extends west from Wieber Drive through Skyline Drive and Fleetwood Court before turning south into Fleetwood Street. Prairie Drive serves single family residential land uses. The speed limit on Prairie Drive is 25 MPH.

Fleetwood Street is generally a north/south, two-way, 2-lane local access road. Fleetwood Street extends north from Alpine Drive through Navaho Avenue and Seminole Drive before turning into Prairie Drive. Fleetwood Street serves single family residential land uses. The speed limit on Fleetwood Street is 25 MPH.

Seminole Drive is generally an east/west, two-way, 2-lane local access road. Seminole Drive extends east from Woodridge Drive through Fleetwood Street, Navaho Avenue and Alpine Drive before turning south and extending through Elderberry Avenue to Shawnee Avenue. Seminole Drive serves single family residential land uses. The speed limit on Seminole Drive is 25 MPH.

Woodridge Drive is generally a north/south, two-way, 2-lane local access road. Woodridge Drive extends south from Bedford Avenue through Russett Drive, Seminole Drive, Navaho Avenue and Shawnee Avenue to Lamar Avenue. Woodridge Drive serves single family residential land uses. The speed limit on Woodridge Drive is 25 MPH.

Navaho Avenue is generally an east/west, two-way, 2-lane local access road. Navaho Avenue extends west from Seminole Drive through Fleetwood Street, Larchwood Street, Woodridge Drive, Ridgecrest Drive, Arrowhead Drive, Indian Trail Road and Fotheringham Street to Moore Street. Navaho Avenue serves single family residential land uses. The speed limit on Navaho Avenue is 25 MPH.

Indian Trail Road is generally a north/south, two-way, 2-, 3-, 4- & 5-lane principal arterial. Indian Trail Road extends north from Francis Avenue through Strong Road, Lowell Avenue, Barnes Road and Shawnee Avenue to Rutter Parkway. Indian Trail Road serves generally single family residential and rural land uses. The posted speed limits on Indian Trail Road are 30, 35 and 45 MPH.

Farmdale Street is generally a north/south, two-way, 2-lane local access road. Farmdale Street extends south from Navaho Avenue through Shawnee Avenue and Barnes Road to Lowell Avenue. Farmdale Street serves single family residential land uses. The speed limit on Farmdale Street is 25 MPH.

Wieber Drive is generally a north/south, two-way, 2-lane local access road. Wieber Drive begins just south of Shawnee Avenue and extends north through Shawnee Avenue and Prairie Drive to Navaho Drive. Wieber Drive serves single family residential land uses. The speed limit on Wieber Drive is 25 MPH.

Shawnee Avenue is generally an east/west, two-way, 2-lane collector road. Shawnee Avenue extends west from Wieber Drive through Farmdale Street, Woodridge Drive, Indian Trail Road, Moore Street and Sundance Drive to Comanche Drive. Shawnee Avenue serves single family residential land uses. The posted speed limit on Shawnee Avenue is 25 MPH.

Barnes Road is generally an east/west, two-way, 2-, 3-, 4- & 5-lane collector. Barnes Road begins just east of Pheobe Drive and extends west through Pheobe Drive, Seminole, James Drive, Farmdale Street, Indian Trail Road, Pamela Street, Greenwood Street and Sundance Drive before its termination. Barnes Road serves single family residential land uses. The posted speed limit on Barnes Road is 30 MPH.

Considering many factors such as the surrounding transportation facilities, typical commuting patterns, existing development in the area, and Average Daily Traffic counts, traffic for the proposed development is anticipated as follows: It is anticipated that 70% of the trips will go to/from the south to Navaho Drive via the Skyline Route. The trips will then distribute with 60% going to/from the west via Navaho Avenue to Indian Trail Road and 10% going to/from the east on Barnes Road via Farmdale Street and Navaho Avenue.

It is anticipated that 30% of the trips will go to/from the south to Shawnee Avenue via the Wieber Route. The trips will then distribute with 20% of trips going to/from the west via Shawnee Avenue to Indian Trail Road and 10% of trips going to/from the east on Barnes Road via Farmdale Street.

A total of 80% of trips from the site are expected to go to/from Indian Trail Road. The trips will then distribute with 75% of trips going to/from the south on Indian Trail Road and 5% of trips going to/from the north on Indian Trail Road. A total of 20% of Trips are expected to go to/from the east on Barnes Road and Strong Road.

Impacted Intersections ≥ 20 PM Peak Hour Trips

The trip generation and distribution as a result of the proposed project has identified the following affected intersections for potential additional analysis.

- Indian Trail Road & Navaho Avenue
- Indian Trail Road & Shawnee Avenue
- Shawnee Avenue & Farmdale Street
- Barnes Road & Farmdale Street

Traffic Impact Fee

A transportation impact fee for the City of Spokane is considered here. The City of Spokane code has established transportation impact fees under Spokane Municipal Code Title 17 Chapter 17D.075.180. The proposed project is adjacent to the Northwest Service area and as such is subject to the current Impact Fee Schedule. Table 2 calculates the anticipated Impact fee for the proposed project.

Table 2 – Proposed Land Use Impact Fee

Land Use	LUC	Quantity	Unit of Measure	Fee per unit	Fee
LUC # 210 Single Family Residential	210	138	Dwellings	$749.20	$103,389.60
Total	-	-	-	-	**$103,389.60**

Pre-Analysis Summary

An existing traffic volume count for the intersections of Indian Trail Road & Navaho Avenue, Indian Trail Road & Shawnee Avenue and Barnes Road & Farmdale Street was taken and recorded. The traffic counts were then used to do an existing level of service analysis. The existing levels of service at the intersections were calculated using the methods from the *2010 Highway Capacity Manual* as implemented in Synchro, *version 9 - Build 915*. The existing levels of service for the intersection within the study area is summarized in Table 3.

Table 3 - Year 2019 Existing Level of Service

Intersections	(U)nsignalized (S)ignalized	AM Peak Hour		PM Peak Hour	
		Delay (sec)	LOS	Delay (sec)	LOS
Indian Trail Road & Navaho Avenue	U	13.6	B	15.3	C
Indian Trail Road & Shawnee Avenue	S	10.5	B	10.7	B
Barnes Road & Farmdale Street	U	11.1	B	11.8	B

As shown in Table 3, the existing intersections within the study area are currently operating within acceptable levels of service.

The intersection of **Indian Trail Road & Navaho Avenue** is an unsignalized controlled intersection with Indian Trail Road having control. The intersection was observed and counted. There were no standing queues observed and traffic was able to flow freely during the time period. The intersection Level of service is currently acceptable in the AM and Pm Peak hours.

The intersection of **Indian Trail Road & Shawnee Avenue** is a signalized intersection. The intersection was observed and counted. There were no standing queues observed and traffic was able to flow freely during the time period. The intersection Level of service is currently acceptable in the AM and Pm Peak hours.

The intersection of **Shawnee Avenue & Farmdale Street** is an unsignalized controlled intersection with Shawnee Avenue having control. The intersection was observed. There were no standing queues observed and traffic was able to flow freely during the time period.

The intersection of **Barnes Road & Farmdale Street** is an unsignalized controlled intersection with Barnes Road having control. The intersection was observed and counted. There were no standing queues observed and traffic was able to flow freely during the time period. The intersection Level of service is currently acceptable in the AM and Pm Peak hours.

The existing counts and level of service calculations are included in the appendix

CONCLUSIONS AND RECOMMENDATIONS

It is anticipated that the proposed project will generate 103 trips in the AM peak hour and 137 trips in the PM peak hour trips. Based upon the number of anticipated trips, and the distribution of those trips, we believe that while the generated trips will contribute to the intersections of the transportation system that those trips would have a minimal impact on the transportation system given the current intersection level of service. Therefore, we recommend that the project pay the anticipated impact fee of $103,389.60, extend Skyline and Wieber Drives, complete frontage improvements and be allowed to move forward without further traffic analysis.

Should you have any questions related to this document please do not hesitate to contact us at (509) 893-2617.

Sincerely,

TODD R. WHIPPLE
STATE OF WASHINGTON
25462
REGISTERED
PROFESSIONAL ENGINEER

1/29/19

Todd R. Whipple, P.E.

TRW/tae

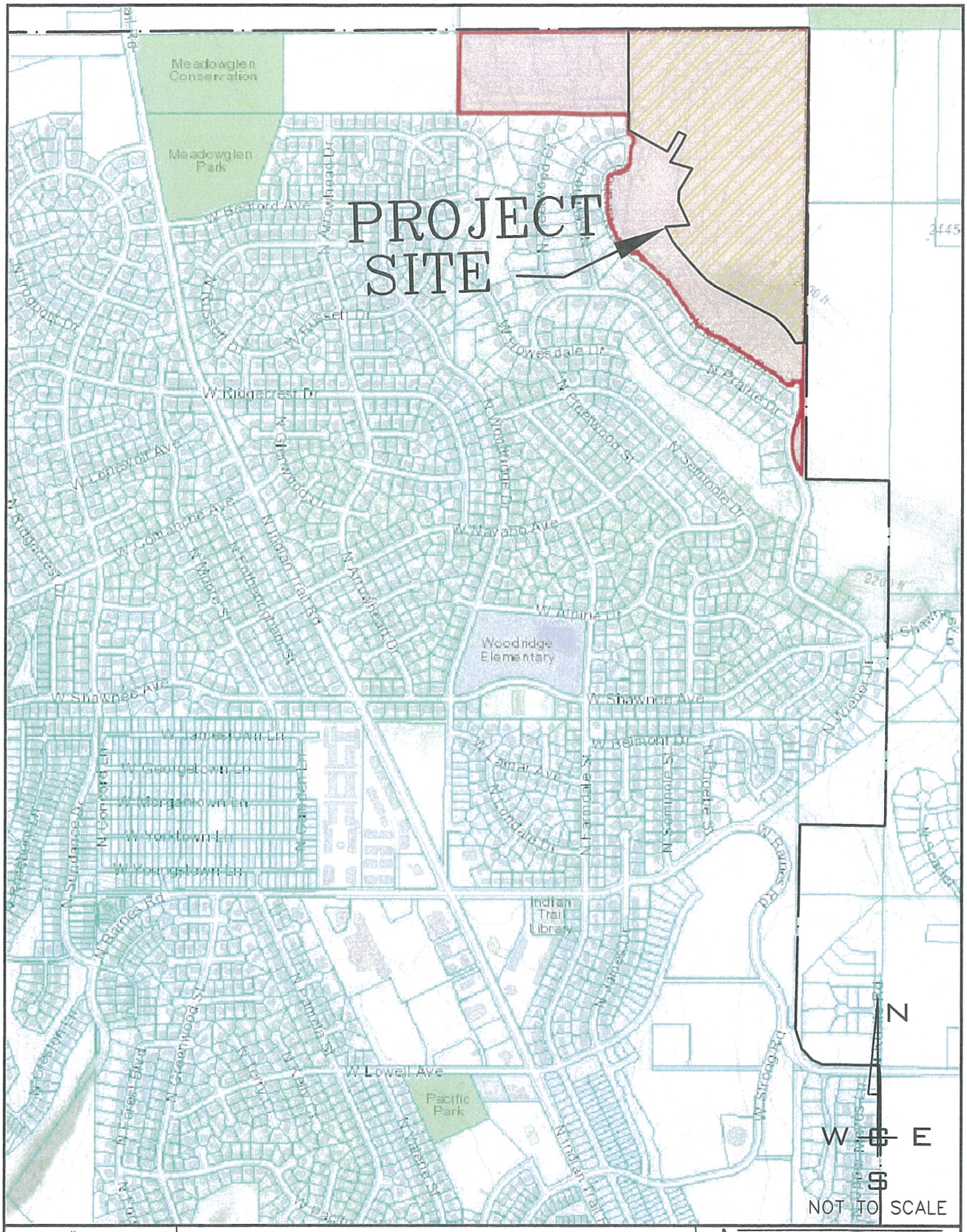
encl. Appendix (Vicinity Map, Site Plan, Trip Dist %, Photos)

cc:

Sponsor
File

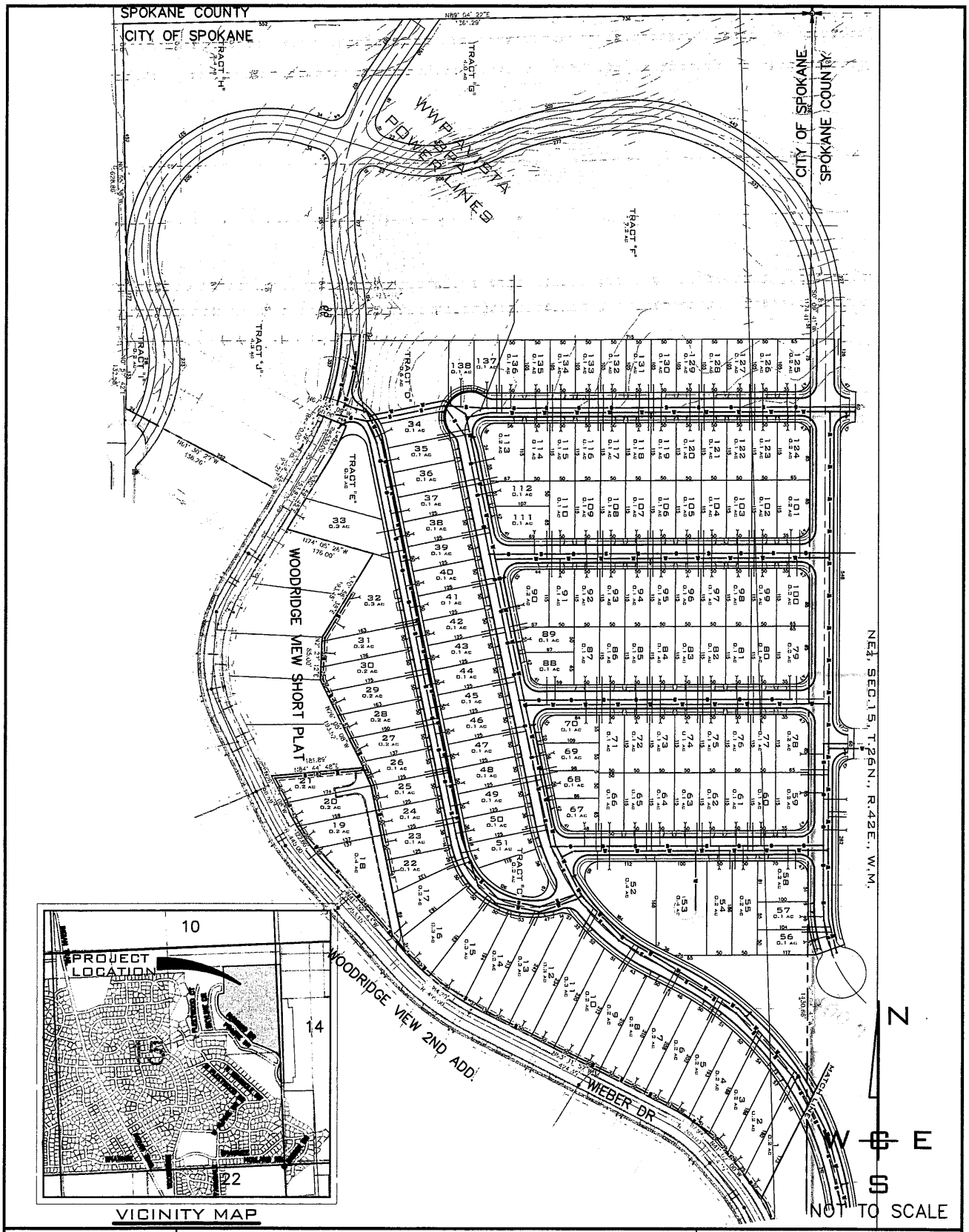
APPENDIX

1. Vicinity Map
2. Site Plan
3. Trip Distribution by Percent
4. Site Photos
5. Raw Traffic Counts
6. Existing LOS Calculations

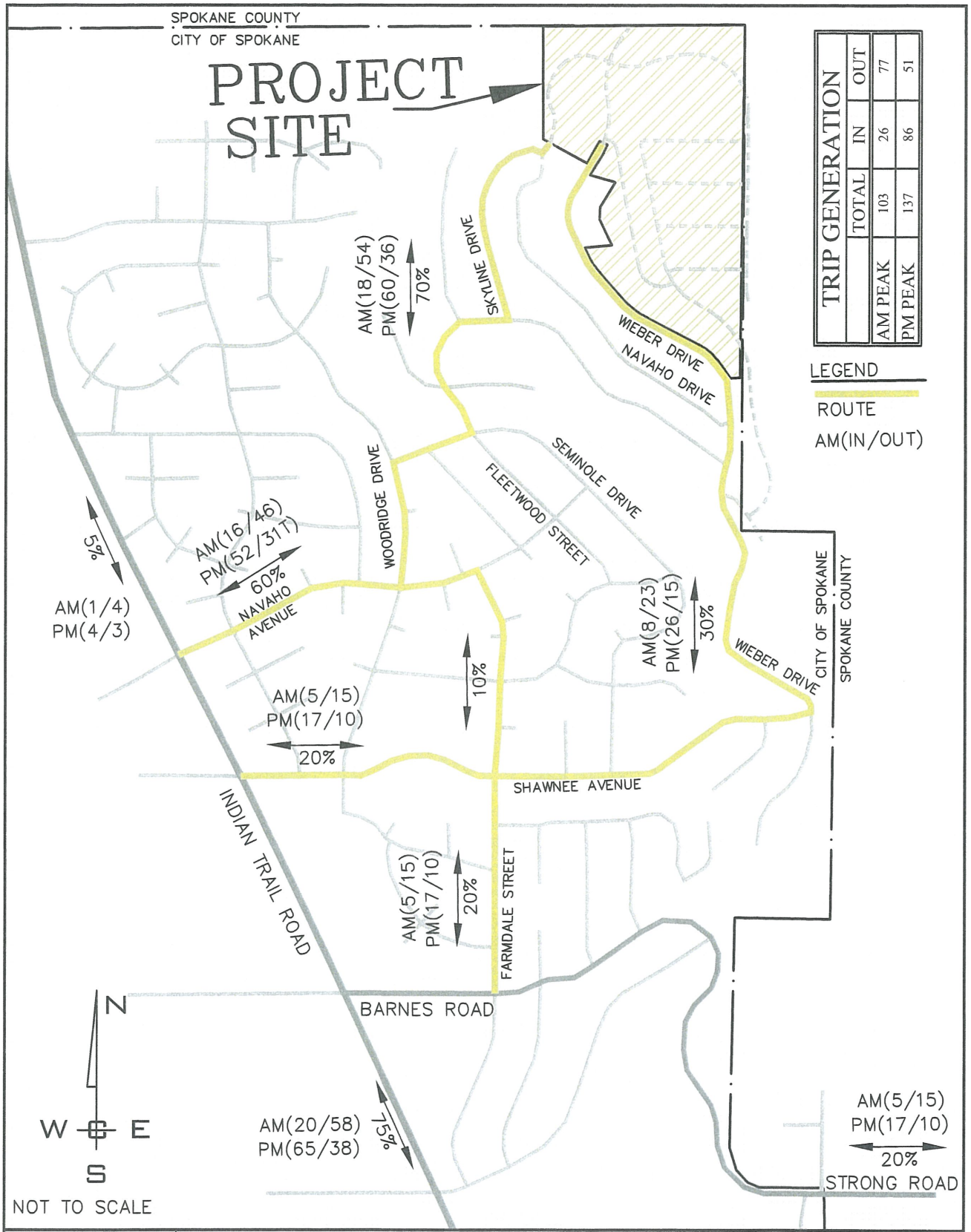


PROJ #: 15-1409 DATE: 11/06/18 DRAWN: BNG APPROVED: TRW	TRIP GENERATION & DISTRIBUTION WOODRIDGE VIEW 3RD ADD WIEBER DR. & NAVAHO SPOKANE, WASHINGTON	WCE WHIPPLE CONSULTING ENGINEERS CIVIL AND TRANSPORTATION ENGINEERING 21 S. PINES ROAD SPOKANE VALLEY, WASHINGTON 99206 PH: 509-893-2617 FAX: 509-926-0227
FIGURE 1	VICINITY MAP	

P:\WCE_WORK\2015 WCE PROJECTS\2015-1409 Kinney - Woodridge View 3rd(City)\DWG\1409-TRAFFIC.dwg, 1/28/2019 8:35:10 AM



PROJ #: 15-1409 DATE: 11/06/18 DRAWN: BNG APPROVED: TRW	TRIP GENERATION & DISTRIBUTION **WOODRIDGE VIEW 3RD ADD** WIEBER DR. & NAVAHO SPOKANE, WASHINGTON	WCE WHIPPLE CONSULTING ENGINEERS CIVIL AND TRANSPORTATION ENGINEERING 21 S. PINES ROAD SPOKANE VALLEY, WASHINGTON 99206 PH: 509-893-2617 FAX: 509-926-0227
FIGURE 2	PRELIMINARY SITE PLAN	



PROJ #: 15-1409
DATE: 11/06/18
DRAWN: BNG
APPROVED: TRW

TRIP GENERATION & DISTRIBUTION
WOODRIDGE VIEW 3RD ADD
WIEBER DR. & NAVAHO
SPOKANE, WASHINGTON

FIGURE 3

PROJECT TRIP DISTRIBUTION

WCE
WHIPPLE CONSULTING ENGINEERS
CIVIL AND TRANSPORTATION ENGINEERING
21 S. PINES ROAD
SPOKANE VALLEY, WASHINGTON 99206
PH: 509-893-2617 FAX: 509-926-0227

P:\WCE_WORK\2015 WCE PROJECTS\2015-1409 Kinney - Woodridge View 3rd(City)\DWG\1409-TRAFFIC.dwg, 1/28/2019 8:36:24 AM

Photo 1 – Intersection of Indian Trail Road & Navaho Avenue Looking West


Photo 2 – Intersection of Indian Trail Road & Shawnee Avenue Looking West

Photo 3 – Intersection of Shawnee Avenue & Farmdale Street Looking West

Photo 4 – Intersection of Barnes Road & Farmdale Street Looking West

PROJECT: WCE Woodridge
JOB NO. 19-10
INTERSECTION: Navaho Avenue & Indian Trail Road

TRAFFIC COUNT REDUCTION WORKSHEET

Phone: (509) 951-1851
email: beng@trfcnts.com
Traffic Counts & Surveys Inc.

DATE OF COUNT: 1/16/2019
Counter: Miovision
Analyst: BNG

AM PEAK HOURS

APPROACH	MOVEMENT	6:30 AM		6:45 AM		7:00 AM		7:15 AM		7:30 AM		7:45 AM		8:00 AM		8:15 AM		8:30 AM		8:45 AM		9:00 AM		9:15 AM	
		15 Minute Period Beginning @																							
		pass	trk	pass	trk	pass	trk	pass	trk	pass	trk	pass	trk	pass	trk	pass	trk	pass	trk	pass	trk	pass	trk	pass	trk
Eastbound	Left	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Through	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Right	1	0	1	0	2	0	1	0	2	0	2	0	1	0	1	0	2	0	2	0	3	0	2	0
	App. Total	1	0	1	0	3	0	1	0	2	0	2	0	1	0	1	0	2	0	2	0	3	0	2	0
	Pct Trucks		0		0		0		0		0		0		0		0		0		0		0		0
Westbound	Left	15	0	12	0	15	0	19	0	16	0	9	0	11	0	14	1	17	0	9	0	9	1	8	0
	Through	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
	Right	0	0	1	0	1	0	1	0	2	0	1	0	1	0	4	0	3	0	1	0	0	0	0	0
	App. Total	15	0	13	0	17	0	20	0	18	0	10	0	12	0	19	1	20	0	10	0	9	1	8	0
	Pct Trucks		0		0		0		0		0		0		0		0.05		0		0		0.1		0
Northbound	Left	0	0	0	0	1	0	0	1	1	0	0	0	0	1	0	0	3	0	0	0	0	0	3	0
	Through	10	0	18	2	16	5	17	3	12	1	26	1	25	4	27	3	28	2	31	0	32	2	27	1
	Right	0	0	0	0	2	0	2	0	1	0	4	0	2	0	4	0	5	0	8	1	2	0	3	0
	App. Total	10	0	18	2	19	5	19	4	14	1	30	1	27	5	31	3	36	2	39	1	34	2	33	1
	Pct Trucks		0		0.1		0.208		0.174		0.067		0.032		0.156		0.088		0.053		0.025		0.056		0.029
Southbound	Left	0	0	0	0	1	0	1	0	1	0	3	0	3	0	9	0	1	0	2	0	1	0	0	0
	Through	60	1	52	1	88	1	94	5	97	1	78	1	81	2	67	1	69	2	54	0	51	2	67	0
	Right	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
	App. Total	60	1	52	1	89	1	95	5	98	1	81	1	84	2	76	1	70	2	56	0	53	2	67	0
	Pct Trucks		0.016		0.019		0.011		0.05		0.01		0.012		0.023		0.013		0.028		0		0.036		0
Total Intersection Volume		86	1	84	3	128	6	135	9	132	2	123	2	124	7	127	5	128	4	107	1	99	5	110	1
Intersection Pct Trucks		1.1%		3.4%		4.5%		6.3%		1.5%		1.6%		5.3%		3.8%		3.0%		0.9%		4.8%		0.9%	

Pedestrian Volumes

APPROACH	MOVEMENT	6:30	6:45	7:00	7:15	7:30	7:45	8:00	8:15	8:30	8:45	9:00	9:15
		15 Minute Period Beginning @											
		Ped	Ped	Ped	Ped	Ped	Ped	Ped	Ped	Ped	Ped	Ped	Ped
Eastbound	Crosswalk	0	0	0	0	0	0	0	1	0	0	0	0
Westbound	Crosswalk	0	0	0	1	0	1	0	2	0	0	0	1
Northbound	Crosswalk	0	0	0	0	0	0	0	0	0	0	0	0
Southbound	Crosswalk	0	0	0	1	0	0	2	0	0	0	0	0
	Total	0	0	0	2	0	1	2	3	0	0	0	1

Bicycle Volumes

APPROACH	MOVEMENT	6:30	6:45	7:00	7:15	7:30	7:45	8:00	8:15	8:30	8:45	9:00	9:15
		15 Minute Period Beginning @											
		bike	bike	bike	bike	bike	bike	bike	bike	bike	bike	bike	bike
Eastbound	Through												
Westbound	Through												
Northbound	Through												
Southbound	Through												
	Total	0	0	0	0	0	0	0	0	0	0	0	0

Intersection Total One Hour Volumes		Pct Trucks
6:30 AM	452	4.2%
6:45 AM	499	4.0%
7:00 AM	**537**	**3.5%**
7:15 AM	534	3.7%
7:30 AM	522	3.1%
7:45 AM	520	3.5%
8:00 AM	503	3.4%
8:15 AM	476	3.2%
8:30 AM	455	2.4%

PROJECT: WCE Woodridge
JOB NO. 19-10
INTERSECTION: Navaho Avenue & Indian Trail Road

Data Transfer
Intersection No. 1

DATE OF COUNT: 1/16/2019
Counter Analyst
Miovision BNG

TRAFFIC COUNT REDUCTION WORKSHEET
AM PEAK HOUR BREAKDOWN

Phone: (509) 951-1851
email: beng@trfcnts.com

Traffic Counts & Surveys Inc.

APPROACH	MOVEMENT	7:00 AM		7:15 AM		7:30 AM		7:45 AM		TOTAL	P.H.F.	Pct Trucks		App Dist
		pass	trk	pass	trk	pass	trk	pass	trk					
Eastbound	Left	0	0	0	0	0	0	0	0	0				0.00%
	Through	1	0	0	0	0	0	0	0	1	0.25	0%		12.50%
	Right	2	0	1	0	2	0	2	0	7	0.88	0%		87.50%
	App. Total	3	0	1	0	2	0	2	0	8	0.67			
	Pct Trucks		0		0		0		0					
Westbound	Left	15	0	19	0	16	0	9	0	59	0.78	0%		90.77%
	Through	1	0	0	0	0	0	0	0	1	0.25	0%		1.54%
	Right	1	0	1	0	2	0	1	0	5	0.63	0%		7.69%
	App. Total	17	0	20	0	18	0	10	0	65	0.81			
	Pct Trucks		0		0		0		0					
Northbound	Left	1	0	0	1	1	0	0	0	3	0.75	33%		3.23%
	Through	16	5	17	3	12	1	26	1	81	0.75	12%		87.10%
	Right	2	0	2	0	1	0	4	0	9	0.56	0%		9.68%
	App. Total	19	5	19	4	14	1	30	1	93	0.75			
	Pct Trucks		0.208333		0.173913		0.066667		0.032258					
Southbound	Left	1	0	1	0	1	0	3	0	6	0.50	0%		1.62%
	Through	88	1	94	5	97	1	78	1	365	0.92	2%		98.38%
	Right	0	0	0	0	0	0	0	0	0				0.00%
	App. Total	89	1	95	5	98	1	81	1	371	0.93			
	Pct Trucks		0.011111		0.05		0.010101		0.012195					
Total Intersection Volume		128	6	135	9	132	2	123	2	**537**	**0.93**	**4%**		
Intersection Pct Trucks			4.5%		6.3%		1.5%		1.6%					

Pedestrian Volumes

APPROACH	MOVEMENT	7:00 Ped	7:15 Ped	7:30 Ped	7:45 Ped	Confli. Ped TOTAL
Eastbound	Crosswalk	0	0	0	0	0
Westbound	Crosswalk	0	1	0	1	2
Northbound	Crosswalk	0	0	0	0	0
Southbound	Crosswalk	0	1	0	0	1
	Total	0	2	0	1	

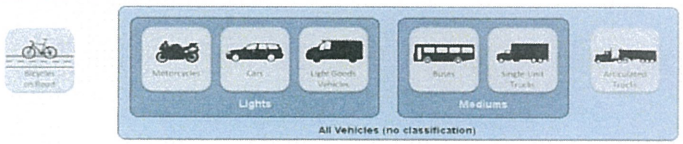
Bicycles Volumes

APPROACH	MOVEMENT	7:00 bike	7:15 bike	7:30 bike	7:45 bike	Confli. Bike TOTAL
Eastbound	Through					0
Westbound	Through					0
Northbound	Through					0
Southbound	Through					0
	Total	0	0	0	0	

Notes

Miovision Vehicle classification

Passenger Vehicle	Truck Vehicle



PROJECT: WCE Woodridge
JOB NO. 19-10
INTERSECTION: Navaho Avenue & Indian Trail Road

TRAFFIC COUNT REDUCTION WORKSHEET

Traffic Counts & Surveys Inc.
Phone: (509) 951-1851
email: beng@trfcnts.com

DATE OF COUNT: 1/16/2019
Counter: Miovision
Analyst: BNG

PM PEAK HOURS

APPROACH	MOVEMENT	3:30 PM		3:45 PM		4:00 PM		4:15 PM		4:30 PM		4:45 PM		5:00 PM		5:15 PM		5:30 PM		5:45 PM		6:00 PM		6:15 PM	
		15 Minute Period Beginning @																							
		pass	trk	pass	trk	pass	trk	pass	trk	pass	trk	pass	trk	pass	trk	pass	trk	pass	trk	pass	trk	pass	trk	pass	trk
Eastbound	Left	0	0	0	0	1	0	0	0	0	0	1	0	1	0	1	0	0	0	0	0	0	0	0	0
	Through	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Right	2	0	3	0	1	0	0	0	2	0	1	0	0	0	3	0	0	2	0	0	2	0	0	0
	App. Total	2	0	3	0	2	0	0	0	2	0	2	0	1	0	4	0	0	2	0	0	2	0	0	0
	Pct Trucks		0		0		0				0		0		0		0		1				0		
Westbound	Left	6	1	8	0	5	0	6	0	10	0	9	0	7	0	5	0	6	0	6	0	10	0	6	0
	Through	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Right	1	0	1	0	0	0	1	0	0	0	1	0	0	0	0	0	1	0	1	1	0	0	0	0
	App. Total	7	1	9	0	5	0	7	0	10	0	10	0	7	0	5	0	7	0	7	1	10	0	6	0
	Pct Trucks		0.125		0		0		0		0		0		0		0		0		0.125		0		0
Northbound	Left	1	0	3	1	1	0	2	0	4	1	3	0	1	0	3	0	1	0	1	0	0	0	2	0
	Through	76	4	93	1	78	1	84	2	86	1	89	0	83	3	71	2	83	2	82	0	69	2	67	0
	Right	12	0	13	1	15	0	14	0	13	0	19	0	14	0	8	1	16	0	15	0	12	0	9	0
	App. Total	89	4	109	3	94	1	100	2	103	2	111	0	98	3	82	3	100	2	98	0	81	2	78	0
	Pct Trucks		0.043		0.027		0.011		0.02		0.019		0		0.03		0.035		0.02		0		0.024		0
Southbound	Left	1	0	1	0	3	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
	Through	41	1	42	5	42	2	34	2	57	2	45	0	36	1	42	1	36	2	55	2	44	3	31	3
	Right	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
	App. Total	42	1	43	5	46	2	35	2	58	2	45	0	36	1	42	1	37	2	55	2	44	3	32	3
	Pct Trucks		0.023		0.104		0.042		0.054		0.033		0		0.027		0.023		0.051		0.035		0.064		0.086
Total Intersection Volume		140	6	164	8	147	3	142	4	173	4	168	0	142	4	133	4	144	6	160	3	137	5	116	3
Intersection Pct Trucks		4.1%		4.7%		2.0%		2.7%		2.3%		0.0%		2.7%		2.9%		4.0%		1.8%		3.5%		2.5%	

Pedestrian Volumes

APPROACH	MOVEMENT	3:30	3:45	4:00	4:15	4:30	4:45	5:00	5:15	5:30	5:45	6:00	6:15
		15 Minute Period Beginning @											
		Ped	Ped	Ped	Ped	Ped	Ped	Ped	Ped	Ped	Ped	Ped	Ped
Eastbound	Crosswalk	1	0	0	0	0	0	0	0	0	0	0	0
Westbound	Crosswalk	0	0	0	0	1	2	0	0	0	0	0	0
Northbound	Crosswalk	1	0	0	0	0	0	0	0	0	0	0	0
Southbound	Crosswalk	0	2	0	0	0	0	0	0	1	0	0	0
	Total	2	2	0	0	1	2	0	0	1	0	0	0

Bicycle Volumes

APPROACH	MOVEMENT	3:30	3:45	4:00	4:15	4:30	4:45	5:00	5:15	5:30	5:45	6:00	6:15
		15 Minute Period Beginning @											
		bike	bike	bike	bike	bike	bike	bike	bike	bike	bike	bike	bike
Eastbound	Through												
Westbound	Through												
Northbound	Through												
Southbound	Through												
	Total	0	0	0	0	0	0	0	0	0	0	0	0

Intersection Total One Hour Volumes		Pct Trucks
3:30 PM	614	3.4%
3:45 PM	**645**	**2.9%**
4:00 PM	641	1.7%
4:15 PM	637	1.9%
4:30 PM	628	1.9%
4:45 PM	601	2.3%
5:00 PM	596	2.9%
5:15 PM	592	3.0%
5:30 PM	574	3.0%

PROJECT: WCE Woodridge
JOB NO. 19-10
INTERSECTION: Navaho Avenue & Indian Trail Road

Data Transfer
Intersection No. 1

DATE OF COUNT: 1/16/2019
Counter Analyst
Miovision BNG

TRAFFIC COUNT REDUCTION WORKSHEET
PM PEAK HOUR BREAKDOWN

Phone: (509) 951-1851
email: beng@trfcnts.com

Traffic Counts & Surveys Inc.

APPROACH	MOVEMENT	3:45 PM		4:00 PM		4:15 PM		4:30 PM		TOTAL	P.H.F.	Pct Trucks		App Dist
		pass	trk	pass	trk	pass	trk	pass	trk					
Eastbound	Left	0	0	1	0	0	0	0	0	1	0.25	0%		14.29%
	Through	0	0	0	0	0	0	0	0	0				0.00%
	Right	3	0	1	0	0	0	2	0	6	0.50	0%		85.71%
	App. Total	3	0	2	0	0	0	2	0	7	0.58			
	Pct Trucks		0		0				0					
Westbound	Left	8	0	5	0	6	0	10	0	29	0.73	0%		93.55%
	Through	0	0	0	0	0	0	0	0	0				0.00%
	Right	1	0	0	0	1	0	0	0	2	0.50	0%		6.45%
	App. Total	9	0	5	0	7	0	10	0	31	0.78			
	Pct Trucks		0		0		0		0					
Northbound	Left	3	1	1	0	2	0	4	1	12	0.60	17%		2.90%
	Through	93	1	78	1	84	2	86	1	346	0.92	1%		83.57%
	Right	13	1	15	0	14	0	13	0	56	0.93	2%		13.53%
	App. Total	109	3	94	1	100	2	103	2	414	0.92			
	Pct Trucks		0.026786		0.010526		0.019608		0.019048					
Southbound	Left	1	0	3	0	1	0	1	0	6	0.50	0%		3.11%
	Through	42	5	42	2	34	2	57	2	186	0.79	6%		96.37%
	Right	0	0	1	0	0	0	0	0	1	0.25	0%		0.52%
	App. Total	43	5	46	2	35	2	58	2	193	0.80			
	Pct Trucks		0.104167		0.041667		0.054054		0.033333					
Total Intersection Volume		164	8	147	3	142	4	173	4	**645**	**0.91**	**3%**		
Intersection Pct Trucks			4.7%		2.0%		2.7%		2.3%					

Pedestrian Volumes

APPROACH	MOVEMENT	3:45 Ped	4:00 Ped	4:15 Ped	4:30 Ped	Confli. Ped TOTAL
Eastbound	Crosswalk	0	0	0	0	0
Westbound	Crosswalk	0	0	0	1	1
Northbound	Crosswalk	0	0	0	0	0
Southbound	Crosswalk	2	0	0	0	2
	Total	2	0	0	1	

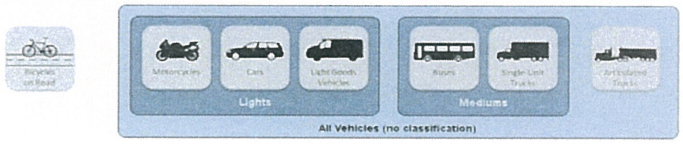
Bicycles Volumes

APPROACH	MOVEMENT	5:00 bike	5:15 bike	5:30 bike	5:45 bike	Confli. Bike TOTAL
Eastbound	Through					0
Westbound	Through					0
Northbound	Through					0
Southbound	Through					0
	Total	0	0	0	0	

Notes

Miovision Vehicle classification

Passenger Vehicle	Truck Vehicle



PROJECT: WCE Woodridge
JOB NO. 19-10
INTERSECTION: Shawnee Avenue & Indian Trail Road

TRAFFIC COUNT REDUCTION WORKSHEET

Phone: (509) 951-1851
email: beng@trfcnts.com

Traffic Counts & Surveys Inc.

DATE OF COUNT: 1/16/2019
Counter: Miovision
Analyst: BNG

AM PEAK HOURS

APPROACH	MOVEMENT	15 Minute Period Beginning @																							
		6:30 AM		6:45 AM		7:00 AM		7:15 AM		7:30 AM		7:45 AM		8:00 AM		8:15 AM		8:30 AM		8:45 AM		9:00 AM		9:15 AM	
		pass	trk	pass	trk	pass	trk	pass	trk	pass	trk	pass	trk	pass	trk	pass	trk	pass	trk	pass	trk	pass	trk	pass	trk
Eastbound	Left	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0
	Through	0	0	0	0	0	0	0	0	1	0	2	0	7	0	24	0	0	0	0	0	0	0	0	0
	Right	8	0	12	0	9	0	9	0	14	0	12	0	4	1	11	0	8	0	4	0	7	0	12	1
	App. Total	8	0	12	0	9	0	10	0	15	0	15	0	11	1	35	0	8	0	5	0	7	0	12	1
	Pct Trucks		0		0		0		0		0		0		0.083		0		0		0		0		0.077
Westbound	Left	13	0	16	1	22	0	29	0	13	0	24	1	36	0	73	1	29	1	10	0	5	0	10	0
	Through	0	0	0	0	0	1	0	0	1	0	1	0	2	0	9	0	4	0	0	0	0	0	0	0
	Right	0	0	0	0	1	1	2	0	0	0	4	0	2	0	7	0	3	0	1	0	0	0	0	0
	App. Total	13	0	16	1	23	2	31	0	14	0	29	1	40	0	89	1	36	1	11	0	5	0	10	0
	Pct Trucks		0		0.059		0.08		0		0		0.033		0		0.011		0.027		0		0		0
Northbound	Left	2	0	1	0	2	0	1	0	0	0	2	0	1	1	0	0	2	0	5	0	2	0	2	0
	Through	10	0	18	2	18	4	16	4	14	1	25	2	26	3	23	4	33	2	37	2	34	1	34	1
	Right	2	0	4	1	7	4	11	2	6	1	17	0	34	0	35	0	14	2	13	0	10	0	6	0
	App. Total	14	0	23	3	27	8	28	6	20	2	44	2	61	4	58	4	49	4	55	2	46	1	42	1
	Pct Trucks		0		0.115		0.229		0.176		0.091		0.043		0.062		0.065		0.075		0.035		0.021		0.023
Southbound	Left	1	0	1	0	2	0	2	1	0	0	6	0	7	1	11	0	0	0	1	0	0	0	0	0
	Through	75	1	65	1	103	1	114	4	113	1	81	1	83	1	73	2	90	1	64	0	61	3	78	0
	Right	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
	App. Total	76	1	66	1	105	1	116	5	113	1	87	1	90	2	84	2	90	1	65	0	62	3	78	0
	Pct Trucks		0.013		0.015		0.009		0.041		0.009		0.011		0.022		0.023		0.011		0		0.046		0
Total Intersection Volume		111	1	117	5	164	11	185	11	162	3	175	4	202	7	266	7	183	6	136	2	120	4	142	2
Intersection Pct Trucks		0.9%		4.1%		6.3%		5.6%		1.8%		2.2%		3.3%		2.6%		3.2%		1.4%		3.2%		1.4%	

Pedestrian Volumes

APPROACH	MOVEMENT	15 Minute Period Beginning @											
		6:30	6:45	7:00	7:15	7:30	7:45	8:00	8:15	8:30	8:45	9:00	9:15
		Ped	Ped	Ped	Ped	Ped	Ped	Ped	Ped	Ped	Ped	Ped	Ped
Eastbound	Crosswalk	0	0	0	0	0	0	0	0	0	0	0	0
Westbound	Crosswalk	0	1	0	0	0	1	15	2	2	0	0	0
Northbound	Crosswalk	0	0	0	0	0	0	0	0	0	1	0	0
Southbound	Crosswalk	0	1	0	0	0	0	1	0	0	0	0	0
	Total	0	2	0	0	0	1	16	2	2	1	0	0

Bicycle Volumes

APPROACH	MOVEMENT	15 Minute Period Beginning @											
		6:30	6:45	7:00	7:15	7:30	7:45	8:00	8:15	8:30	8:45	9:00	9:15
		bike	bike	bike	bike	bike	bike	bike	bike	bike	bike	bike	bike
Eastbound	Through												
Westbound	Through												
Northbound	Through												
Southbound	Through												
	Total	0	0	0	0	0	0	0	0	0	0	0	0

Intersection Total One Hour Volumes		Pct Trucks
6:30 AM	605	4.6%
6:45 AM	658	4.6%
7:00 AM	715	4.1%
7:15 AM	749	3.3%
7:30 AM	826	2.5%
7:45 AM	**850**	**2.8%**
8:00 AM	809	2.7%
8:15 AM	724	2.6%
8:30 AM	595	2.4%

PROJECT: WCE Woodridge
JOB NO. 19-10
INTERSECTION: Shawnee Avenue & Indian Trail Road

Data Transfer
Intersection No. 1

DATE OF COUNT: 1/16/2019
Counter Analyst
Miovision BNG

TRAFFIC COUNT REDUCTION WORKSHEET
AM PEAK HOUR BREAKDOWN

Phone: (509) 951-1851
email: beng@trfcnts.com

Traffic Counts & Surveys Inc.

APPROACH	MOVEMENT	7:45 AM		8:00 AM		8:15 AM		8:30 AM		TOTAL	P.H.F.	Pct Trucks		App Dist
		pass	trk	pass	trk	pass	trk	pass	trk					
Eastbound	Left	1	0	0	0	0	0	0	0	1	0.25	0%		1.43%
	Through	2	0	7	0	24	0	0	0	33	0.34	0%		47.14%
	Right	12	0	4	1	11	0	8	0	36	0.75	3%		51.43%
	App. Total	15	0	11	1	35	0	8	0	70	0.50			
	Pct Trucks		0		0.083333		0		0					
Westbound	Left	24	1	36	0	73	1	29	1	165	0.56	2%		83.76%
	Through	1	0	2	0	9	0	4	0	16	0.44	0%		8.12%
	Right	4	0	2	0	7	0	3	0	16	0.57	0%		8.12%
	App. Total	29	1	40	0	89	1	36	1	197	0.55			
	Pct Trucks		0.033333		0		0.011111		0.027027					
Northbound	Left	2	0	1	1	0	0	2	0	6	0.75	17%		2.65%
	Through	25	2	26	3	23	4	33	2	118	0.84	9%		52.21%
	Right	17	0	34	0	35	0	14	2	102	0.73	2%		45.13%
	App. Total	44	2	61	4	58	4	49	4	226	0.87			
	Pct Trucks		0.043478		0.061538		0.064516		0.075472					
Southbound	Left	6	0	7	1	11	0	0	0	25	0.57	4%		7.00%
	Through	81	1	83	1	73	2	90	1	332	0.91	2%		93.00%
	Right	0	0	0	0	0	0	0	0	0				0.00%
	App. Total	87	1	90	2	84	2	90	1	357	0.97			
	Pct Trucks		0.011364		0.021739		0.023256		0.010989					
Total Intersection Volume		175	4	202	7	266	7	183	6	**850**	**0.78**	**3%**		
Intersection Pct Trucks			2.2%		3.3%		2.6%		3.2%					

Pedestrian Volumes

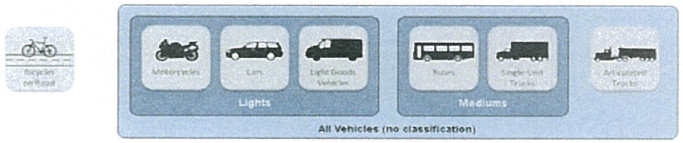
APPROACH	MOVEMENT	7:45 Ped	8:00 Ped	8:15 Ped	8:30 Ped	Confli. Ped TOTAL
Eastbound	Crosswalk	0	0	0	0	0
Westbound	Crosswalk	1	15	2	2	20
Northbound	Crosswalk	0	0	0	0	0
Southbound	Crosswalk	0	1	0	0	1
	Total	1	16	2	2	

Bicycles Volumes

APPROACH	MOVEMENT	7:45 bike	8:00 bike	8:15 bike	8:30 bike	Confli. Bike TOTAL
Eastbound	Through					0
Westbound	Through					0
Northbound	Through					0
Southbound	Through					0
	Total	0	0	0	0	

Notes

Miovision Vehicle classification	
Passenger Vehicle	Truck Vehicle



PROJECT: WCE Woodridge
JOB NO. 19-10
INTERSECTION: Shawnee Avenue & Indian Trail Road

TRAFFIC COUNT REDUCTION WORKSHEET

Phone: (509) 951-1851
email: beng@trfcnts.com

Traffic Counts & Surveys Inc.

DATE OF COUNT: 1/16/2019
Counter: Miovision
Analyst: BNG

PM PEAK HOURS

APPROACH	MOVEMENT	3:30 PM		3:45 PM		4:00 PM		4:15 PM		4:30 PM		4:45 PM		5:00 PM		5:15 PM		5:30 PM		5:45 PM		6:00 PM		6:15 PM	
		15 Minute Period Beginning @																							
		pass	trk	pass	trk	pass	trk	pass	trk	pass	trk	pass	trk	pass	trk	pass	trk	pass	trk	pass	trk	pass	trk	pass	trk
Eastbound	Left	0	0	0	0	0	0	2	0	0	0	1	0	1	0	0	0	1	0	2	0	2	0	0	0
	Through	0	0	1	0	1	0	2	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0
	Right	7	0	4	0	6	1	5	0	5	0	10	0	3	0	4	0	6	0	3	0	5	0	3	0
	App. Total	7	0	5	0	7	1	9	0	5	0	11	0	5	0	4	0	7	0	6	0	7	0	3	0
	Pct Trucks		0		0		0.125		0		0		0		0		0		0		0		0		0
Westbound	Left	17	1	22	0	18	1	15	0	9	0	10	0	11	0	7	0	7	0	7	0	25	0	9	0
	Through	2	0	2	0	2	0	2	0	0	0	0	0	1	0	0	0	0	0	2	0	1	0	0	0
	Right	5	0	2	1	2	0	0	0	2	0	0	0	2	1	3	0	0	0	3	0	4	0	0	0
	App. Total	24	1	26	1	22	1	17	0	11	0	10	0	14	1	10	0	7	0	12	0	30	0	9	0
	Pct Trucks		0.04		0.037		0.043		0		0		0		0.067		0		0		0		0		0
Northbound	Left	5	0	9	0	6	0	8	0	12	0	7	0	7	1	9	0	7	0	7	0	10	0	9	0
	Through	84	1	109	1	91	2	97	0	102	3	109	3	95	1	81	0	98	2	98	0	75	0	81	0
	Right	9	0	15	0	21	0	13	0	10	0	13	2	16	0	13	0	20	0	31	0	12	0	13	0
	App. Total	98	1	133	1	118	2	118	0	124	3	129	5	118	2	103	0	125	2	136	0	97	0	103	0
	Pct Trucks		0.01		0.007		0.017		0		0.024		0.037		0.017		0		0.016		0		0		0
Southbound	Left	2	0	3	0	1	0	3	0	3	0	2	0	1	0	3	0	1	0	3	0	8	0	1	0
	Through	44	2	49	2	47	2	37	0	66	1	50	1	45	3	43	2	47	3	56	3	51	0	38	0
	Right	1	0	3	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	1	0	0	0
	App. Total	47	2	55	2	48	2	40	0	70	1	53	1	46	3	46	2	48	3	59	3	60	0	39	0
	Pct Trucks		0.041		0.035		0.04		0		0.014		0.019		0.061		0.042		0.059		0.048		0		0
Total Intersection Volume		176	4	219	4	195	6	184	0	210	4	203	6	183	6	163	2	187	5	213	3	194	0	154	0
Intersection Pct Trucks		2.2%		1.8%		3.0%		0.0%		1.9%		2.9%		3.2%		1.2%		2.6%		1.4%		0.0%		0.0%	

Pedestrian Volumes

APPROACH	MOVEMENT	3:30	3:45	4:00	4:15	4:30	4:45	5:00	5:15	5:30	5:45	6:00	6:15
		15 Minute Period Beginning @											
		Ped	Ped	Ped	Ped	Ped	Ped	Ped	Ped	Ped	Ped	Ped	Ped
Eastbound	Crosswalk	1	0	0	0	0	2	0	0	0	0	0	0
Westbound	Crosswalk	0	0	0	2	1	0	0	0	3	2	0	0
Northbound	Crosswalk	0	0	0	1	0	0	0	0	0	0	0	0
Southbound	Crosswalk	0	0	0	0	3	0	0	0	1	0	0	0
	Total	1	0	0	3	4	2	0	0	4	2	0	0

Bicycle Volumes

APPROACH	MOVEMENT	3:30	3:45	4:00	4:15	4:30	4:45	5:00	5:15	5:30	5:45	6:00	6:15
		15 Minute Period Beginning @											
		bike	bike	bike	bike	bike	bike	bike	bike	bike	bike	bike	bike
Eastbound	Through												
Westbound	Through												
Northbound	Through												
Southbound	Through												
	Total	0	0	0	0	0	0	0	0	0	0	0	0

Intersection Total One Hour Volumes		Pct Trucks
3:30 PM	788	1.8%
3:45 PM	**822**	**1.7%**
4:00 PM	808	2.0%
4:15 PM	796	2.0%
4:30 PM	777	2.3%
4:45 PM	755	2.5%
5:00 PM	762	2.1%
5:15 PM	767	1.3%
5:30 PM	756	1.1%

PROJECT: WCE Woodridge
JOB NO. 19-10
INTERSECTION: Shawnee Avenue & Indian Trail Road

Data Transfer
Intersection No. 1

DATE OF COUNT: 1/16/2019
Counter Analyst
Miovision BNG

TRAFFIC COUNT REDUCTION WORKSHEET
PM PEAK HOUR BREAKDOWN

Phone: (509) 951-1851
email: beng@trfcnts.com

Traffic Counts & Surveys Inc.

APPROACH	MOVEMENT	3:45 PM		4:00 PM		4:15 PM		4:30 PM				Pct		App
		pass	trk	pass	trk	pass	trk	pass	trk	TOTAL	P.H.F.	Trucks		Dist
Eastbound	Left	0	0	0	0	2	0	0	0	2	0.25	0%		7.41%
	Through	1	0	1	0	2	0	0	0	4	0.50	0%		14.81%
	Right	4	0	6	1	5	0	5	0	21	0.75	5%		77.78%
	App. Total	5	0	7	1	9	0	5	0	27	0.75			
	Pct Trucks		0		0.125		0		0					
Westbound	Left	22	0	18	1	15	0	9	0	65	0.74	2%		83.33%
	Through	2	0	2	0	2	0	0	0	6	0.75	0%		7.69%
	Right	2	1	2	0	0	0	2	0	7	0.58	14%		8.97%
	App. Total	26	1	22	1	17	0	11	0	78	0.72			
	Pct Trucks		0.037037		0.043478		0		0					
Northbound	Left	9	0	6	0	8	0	12	0	35	0.73	0%		7.01%
	Through	109	1	91	2	97	0	102	3	405	0.92	1%		81.16%
	Right	15	0	21	0	13	0	10	0	59	0.70	0%		11.82%
	App. Total	133	1	118	2	118	0	124	3	499	0.93			
	Pct Trucks		0.007463		0.016667		0		0.023622					
Southbound	Left	3	0	1	0	3	0	3	0	10	0.83	0%		4.59%
	Through	49	2	47	2	37	0	66	1	204	0.76	2%		93.58%
	Right	3	0	0	0	0	0	1	0	4	0.33	0%		1.83%
	App. Total	55	2	48	2	40	0	70	1	218	0.77			
	Pct Trucks		0.035088		0.04		0		0.014085					
Total Intersection Volume		219	4	195	6	184	0	210	4	**822**	**0.92**	**2%**		
Intersection Pct Trucks			1.8%		3.0%		0.0%		1.9%					

Pedestrian Volumes

APPROACH	MOVEMENT	3:45 Ped	4:00 Ped	4:15 Ped	4:30 Ped	Confli. Ped TOTAL
Eastbound	Crosswalk	0	0	0	0	0
Westbound	Crosswalk	0	0	2	1	3
Northbound	Crosswalk	0	0	1	0	1
Southbound	Crosswalk	0	0	0	3	3
	Total	0	0	3	4	

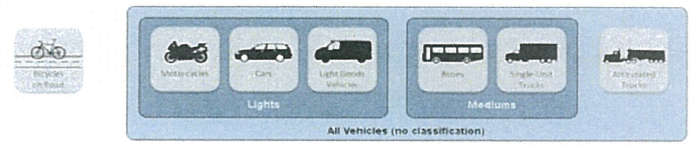
Bicycles Volumes

APPROACH	MOVEMENT	5:00 bike	5:15 bike	5:30 bike	5:45 bike	Confli. Bike TOTAL
Eastbound	Through					0
Westbound	Through					0
Northbound	Through					0
Southbound	Through					0
	Total	0	0	0	0	

Notes

Miovision Vehicle classification

Passenger Vehicle	Truck Vehicle



PROJECT: WCE Woodridge
JOB NO. 19-10
INTERSECTION: Barnes Road & Farmdale Street

TRAFFIC COUNT REDUCTION WORKSHEET

Phone: (509) 951-1851
email: beng@trfcnts.com
Traffic Counts & Surveys Inc.

DATE OF COUNT: 1/17/2019
Counter: Miovision
Analyst: BNG

AM PEAK HOURS

APPROACH	MOVEMENT	6:30 AM		6:45 AM		7:00 AM		7:15 AM		7:30 AM		7:45 AM		8:00 AM		8:15 AM		8:30 AM		8:45 AM		9:00 AM		9:15 AM	
		15 Minute Period Beginning @																							
		pass	trk	pass	trk	pass	trk	pass	trk	pass	trk	pass	trk	pass	trk	pass	trk	pass	trk	pass	trk	pass	trk	pass	trk
Eastbound	Left	2	0	10	1	4	0	4	0	5	1	5	0	9	0	11	0	6	1	12	0	8	0	3	0
	Through	10	1	15	0	16	0	20	0	27	0	16	0	15	0	16	0	39	0	21	0	23	1	10	0
	Right	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1	0	1	0	0	0	0	0	0	0
	App. Total	12	1	25	1	20	0	24	0	32	1	21	1	24	1	28	0	46	1	33	0	31	1	13	0
	Pct Trucks		0.077		0.038		0		0		0.03		0.045		0.04		0		0.021		0		0.031		0
Westbound	Left	0	0	0	0	0	0	0	0	0	0	1	0	1	0	1	0	0	0	1	0	0	0	0	0
	Through	12	0	10	0	13	0	16	1	14	0	10	0	10	0	10	0	15	1	27	1	17	0	13	1
	Right	1	0	1	0	6	0	4	0	1	0	2	0	9	0	11	0	2	0	3	0	6	0	3	0
	App. Total	13	0	11	0	19	0	20	1	15	0	13	0	20	0	22	0	17	1	31	1	23	0	16	1
	Pct Trucks		0		0		0		0.048		0		0		0		0		0.056		0.031		0		0.059
Northbound	Left	3	0	4	0	4	0	3	0	1	0	3	0	0	0	0	0	0	0	1	0	0	0	0	0
	Through	0	0	0	0	1	0	1	0	0	0	0	0	1	0	3	1	0	1	2	0	1	0	0	0
	Right	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
	App. Total	3	0	4	0	5	0	5	0	2	0	3	0	1	0	3	1	0	1	4	0	1	0	0	0
	Pct Trucks		0		0		0		0		0		0		0		0.25		1		0		0		
Southbound	Left	2	0	6	0	7	0	7	1	16	0	7	0	5	0	17	0	17	0	7	0	5	0	6	0
	Through	0	0	0	0	3	0	2	0	3	0	1	0	0	0	2	0	5	0	1	0	1	0	1	0
	Right	24	0	23	0	20	0	25	2	24	0	23	0	18	1	25	2	29	3	15	0	10	0	13	0
	App. Total	26	0	29	0	30	0	34	3	43	0	31	0	23	1	44	2	51	3	23	0	16	0	20	0
	Pct Trucks		0		0		0		0.081		0		0		0.042		0.043		0.056		0		0		0
Total Intersection Volume		54	1	69	1	74	0	83	4	92	1	68	1	68	2	97	3	114	6	91	1	71	1	49	1
Intersection Pct Trucks		1.8%		1.4%		0.0%		4.6%		1.1%		1.4%		2.9%		3.0%		5.0%		1.1%		1.4%		2.0%	

Pedestrian Volumes

APPROACH	MOVEMENT	6:30	6:45	7:00	7:15	7:30	7:45	8:00	8:15	8:30	8:45	9:00	9:15
		15 Minute Period Beginning @											
		Ped	Ped	Ped	Ped	Ped	Ped	Ped	Ped	Ped	Ped	Ped	Ped
Eastbound	Crosswalk	0	0	0	0	0	0	0	0	0	0	0	0
Westbound	Crosswalk	0	0	0	0	0	0	0	0	0	0	0	0
Northbound	Crosswalk	0	0	0	0	0	0	0	1	1	0	0	0
Southbound	Crosswalk	0	0	1	0	0	0	2	1	0	0	0	0
	Total	0	0	1	0	0	0	2	2	1	0	0	0

Bicycle Volumes

APPROACH	MOVEMENT	6:30	6:45	7:00	7:15	7:30	7:45	8:00	8:15	8:30	8:45	9:00	9:15
		15 Minute Period Beginning @											
		bike	bike	bike	bike	bike	bike	bike	bike	bike	bike	bike	bike
Eastbound	Through												
Westbound	Through												
Northbound	Through												
Southbound	Through												
	Total	0	0	0	0	0	0	0	0	0	0	0	0

Intersection Total One Hour Volumes		Pct Trucks
6:30 AM	286	2.1%
6:45 AM	324	1.9%
7:00 AM	323	1.9%
7:15 AM	319	2.5%
7:30 AM	332	2.1%
7:45 AM	359	3.3%
8:00 AM	382	3.1%
8:15 AM	**384**	**2.9%**
8:30 AM	334	2.7%

PROJECT: WCE Woodridge
JOB NO. 19-10
INTERSECTION: Barnes Road & Farmdale Street

Data Transfer
Intersection No. 1

DATE OF COUNT: 1/17/2019
Counter Analyst
Miovision BNG

TRAFFIC COUNT REDUCTION WORKSHEET
AM PEAK HOUR BREAKDOWN

Phone: (509) 951-1851
email: beng@trfcnts.com

Traffic Counts & Surveys Inc.

APPROACH	MOVEMENT	8:15 AM		8:30 AM		8:45 AM		9:00 AM		TOTAL	P.H.F.	Pct Trucks		App Dist
		pass	trk	pass	trk	pass	trk	pass	trk					
Eastbound	Left	11	0	6	1	12	0	8	0	38	0.79	3%		27.14%
	Through	16	0	39	0	21	0	23	1	100	0.64	1%		71.43%
	Right	1	0	1	0	0	0	0	0	2	0.50	0%		1.43%
	App. Total	28	0	46	1	33	0	31	1	140	0.74			
	Pct Trucks		0		0.021277		0		0.03125					
Westbound	Left	1	0	0	0	1	0	0	0	2	0.50	0%		2.11%
	Through	10	0	15	1	27	1	17	0	71	0.63	3%		74.74%
	Right	11	0	2	0	3	0	6	0	22	0.50	0%		23.16%
	App. Total	22	0	17	1	31	1	23	0	95	0.74			
	Pct Trucks		0		0.055556		0.03125		0					
Northbound	Left	0	0	0	0	1	0	0	0	1	0.25	0%		10.00%
	Through	3	1	0	1	2	0	1	0	8	0.50	25%		80.00%
	Right	0	0	0	0	1	0	0	0	1	0.25	0%		10.00%
	App. Total	3	1	0	1	4	0	1	0	10	0.63			
	Pct Trucks		0.25		1		0		0					
Southbound	Left	17	0	17	0	7	0	5	0	46	0.68	0%		33.09%
	Through	2	0	5	0	1	0	1	0	9	0.45	0%		6.47%
	Right	25	2	29	3	15	0	10	0	84	0.66	6%		60.43%
	App. Total	44	2	51	3	23	0	16	0	139	0.64			
	Pct Trucks		0.043478		0.055556		0		0					
Total Intersection Volume		97	3	114	6	91	1	71	1	**384**	**0.80**	**3%**		
Intersection Pct Trucks			3.0%		5.0%		1.1%		1.4%					

Pedestrian Volumes

APPROACH	MOVEMENT	8:15 Ped	8:30 Ped	8:45 Ped	9:00 Ped	Confli. Ped TOTAL
Eastbound	Crosswalk	0	0	0	0	0
Westbound	Crosswalk	0	0	0	0	0
Northbound	Crosswalk	1	1	0	0	2
Southbound	Crosswalk	1	0	0	0	1
	Total	2	1	0	0	

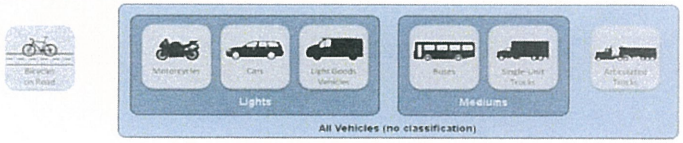
Bicycles Volumes

APPROACH	MOVEMENT	8:15 bike	8:30 bike	8:45 bike	9:00 bike	Confli. Bike TOTAL
Eastbound	Through					0
Westbound	Through					0
Northbound	Through					0
Southbound	Through					0
	Total	0	0	0	0	

Notes

Miovision Vehicle classification

Passenger Vehicle	Truck Vehicle



PROJECT: WCE Woodridge
JOB NO. 19-10
INTERSECTION: Barnes Road & Farmdale Street

TRAFFIC COUNT REDUCTION WORKSHEET

DATE OF COUNT: 1/17/2019
Counter: Miovision
Analyst: BNG

PM PEAK HOURS

Phone: (509) 951-1851
email: beng@trfcnts.com
Traffic Counts & Surveys Inc.

APPROACH	MOVEMENT	3:30 PM		3:45 PM		4:00 PM		4:15 PM		4:30 PM		4:45 PM		5:00 PM		5:15 PM		5:30 PM		5:45 PM		6:00 PM		6:15 PM	
		pass	trk	pass	trk	pass	trk	pass	trk	pass	trk	pass	trk	pass	trk	pass	trk	pass	trk	pass	trk	pass	trk	pass	trk
Eastbound	Left	20	0	40	1	24	0	26	1	20	0	21	0	25	0	14	0	28	0	18	0	26	0	19	0
	Through	31	0	23	0	22	0	28	0	34	1	24	0	27	0	34	0	24	0	24	0	20	0	27	1
	Right	0	0	1	0	1	0	1	0	1	0	1	0	0	0	3	0	2	0	1	0	0	0	1	0
	App. Total	51	0	64	1	47	0	55	1	55	1	46	0	52	0	51	0	54	0	43	0	46	0	47	1
	Pct Trucks		0		0.015		0		0.018		0.018		0		0		0		0		0		0		0.021
Westbound	Left	0	0	1	0	0	0	0	0	1	0	1	0	0	0	2	0	0	0	1	0	1	0	1	0
	Through	25	0	33	0	39	1	31	0	32	0	39	0	31	0	42	0	28	0	33	1	27	0	21	0
	Right	9	0	13	0	4	1	12	0	11	0	8	0	8	0	14	0	4	0	13	0	5	0	4	0
	App. Total	34	0	47	0	43	2	43	0	44	0	48	0	39	0	58	0	32	0	47	1	33	0	26	0
	Pct Trucks		0		0		0.044		0		0		0		0		0		0		0.021		0		0
Northbound	Left	1	0	0	0	0	0	1	0	0	0	2	0	2	0	0	0	2	0	0	0	0	0	1	0
	Through	0	0	0	0	1	0	2	0	3	0	1	0	0	0	2	0	1	1	1	0	0	0	2	0
	Right	1	0	0	0	0	0	1	0	0	0	1	0	1	0	2	0	1	0	0	0	0	0	1	0
	App. Total	2	0	0	0	1	0	4	0	3	0	4	0	3	0	4	0	4	1	1	0	0	0	4	0
	Pct Trucks		0				0		0		0		0		0		0		0.2		0				0
Southbound	Left	9	0	3	0	7	0	4	0	4	0	2	0	9	0	2	0	9	0	4	0	2	0	5	0
	Through	0	0	0	0	1	0	4	0	0	0	2	0	0	0	1	0	1	0	4	0	0	0	3	0
	Right	5	0	15	0	9	0	7	0	14	0	11	0	11	0	14	0	6	0	11	1	7	0	8	0
	App. Total	14	0	18	0	17	0	15	0	18	0	15	0	20	0	17	0	16	0	19	1	9	0	16	0
	Pct Trucks		0		0		0		0		0		0		0		0		0		0.05		0		0
Total Intersection Volume		101	0	129	1	108	2	117	1	120	1	113	0	114	0	130	0	106	1	110	2	88	0	93	1
Intersection Pct Trucks		0.0%		0.8%		1.8%		0.8%		0.8%		0.0%		0.0%		0.0%		0.9%		1.8%		0.0%		1.1%	

Pedestrian Volumes

APPROACH	MOVEMENT	3:30	3:45	4:00	4:15	4:30	4:45	5:00	5:15	5:30	5:45	6:00	6:15
		Ped	Ped	Ped	Ped	Ped	Ped	Ped	Ped	Ped	Ped	Ped	Ped
Eastbound	Crosswalk	0	0	0	1	0	0	0	0	0	0	0	0
Westbound	Crosswalk	0	2	0	0	0	0	0	0	0	0	0	1
Northbound	Crosswalk	0	0	0	0	0	0	0	0	0	0	0	0
Southbound	Crosswalk	0	0	0	1	0	0	0	0	0	0	0	0
	Total	0	2	0	2	0	0	0	0	0	0	0	1

Bicycle Volumes

APPROACH	MOVEMENT	3:30	3:45	4:00	4:15	4:30	4:45	5:00	5:15	5:30	5:45	6:00	6:15
		bike	bike	bike	bike	bike	bike	bike	bike	bike	bike	bike	bike
Eastbound	Through												
Westbound	Through												
Northbound	Through												
Southbound	Through												
	Total	0	0	0	0	0	0	0	0	0	0	0	0

Intersection Total		Pct
One Hour Volumes		Trucks
3:30 PM	459	0.9%
3:45 PM	479	1.0%
4:00 PM	462	0.9%
4:15 PM	466	0.4%
4:30 PM	**478**	**0.2%**
4:45 PM	464	0.2%
5:00 PM	463	0.6%
5:15 PM	437	0.7%
5:30 PM	401	1.0%

PROJECT: WCE Woodridge
JOB NO. 19-10
INTERSECTION: Barnes Road & Farmdale Street

Data Transfer
Intersection No. 1

DATE OF COUNT: 1/17/2019
Counter Analyst
Miovision BNG

TRAFFIC COUNT REDUCTION WORKSHEET
PM PEAK HOUR BREAKDOWN

Phone: (509) 951-1851
email: beng@trfcnts.com

Traffic Counts & Surveys Inc.

APPROACH	MOVEMENT	4:30 PM		4:45 PM		5:00 PM		5:15 PM		TOTAL	P.H.F.	Pct Trucks		App Dist
		pass	trk	pass	trk	pass	trk	pass	trk					
Eastbound	Left	20	0	21	0	25	0	14	0	80	0.80	0%		39.02%
	Through	34	1	24	0	27	0	34	0	120	0.86	1%		58.54%
	Right	1	0	1	0	0	0	3	0	5	0.42	0%		2.44%
	App. Total	55	1	46	0	52	0	51	0	205	0.92			
	Pct Trucks		0.017857		0		0		0					
Westbound	Left	1	0	1	0	0	0	2	0	4	0.50	0%		2.12%
	Through	32	0	39	0	31	0	42	0	144	0.86	0%		76.19%
	Right	11	0	8	0	8	0	14	0	41	0.73	0%		21.69%
	App. Total	44	0	48	0	39	0	58	0	189	0.81			
	Pct Trucks		0		0		0		0					
Northbound	Left	0	0	2	0	2	0	0	0	4	0.50	0%		28.57%
	Through	3	0	1	0	0	0	2	0	6	0.50	0%		42.86%
	Right	0	0	1	0	1	0	2	0	4	0.50	0%		28.57%
	App. Total	3	0	4	0	3	0	4	0	14	0.88			
	Pct Trucks		0		0		0		0					
Southbound	Left	4	0	2	0	9	0	2	0	17	0.47	0%		24.29%
	Through	0	0	2	0	0	0	1	0	3	0.38	0%		4.29%
	Right	14	0	11	0	11	0	14	0	50	0.89	0%		71.43%
	App. Total	18	0	15	0	20	0	17	0	70	0.88			
	Pct Trucks		0		0		0		0					
Total Intersection Volume		120	1	113	0	114	0	130	0	**478**	**0.92**	**0%**		
Intersection Pct Trucks			0.8%		0.0%		0.0%		0.0%					

Pedestrian Volumes

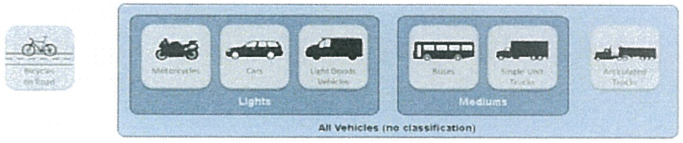
APPROACH	MOVEMENT	4:30 Ped	4:45 Ped	5:00 Ped	5:15 Ped	Confli. Ped TOTAL
Eastbound	Crosswalk	0	0	0	0	0
Westbound	Crosswalk	0	0	0	0	0
Northbound	Crosswalk	0	0	0	0	0
Southbound	Crosswalk	0	0	0	0	0
	Total	0	0	0	0	

Bicycles Volumes

APPROACH	MOVEMENT	5:00 bike	5:15 bike	5:30 bike	5:45 bike	Confli. Bike TOTAL
Eastbound	Through					0
Westbound	Through					0
Northbound	Through					0
Southbound	Through					0
	Total	0	0	0	0	

Notes

Miovision Vehicle classification	
Passenger Vehicle	Truck Vehicle



Intersection	
Int Delay, s/veh	1.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	1	7	59	1	5	3	81	9	6	365	0
Future Vol, veh/h	0	1	7	59	1	5	3	81	9	6	365	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	100	-	-	100	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	93	93	93	93	93	93	93	93	93	93	93	93
Heavy Vehicles, %	0	0	0	0	0	0	33	12	0	0	2	0
Mvmt Flow	0	1	8	63	1	5	3	87	10	6	392	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	505	507	392	507	502	92	392	0	0	97	0	0
Stage 1	404	404	-	98	98	-	-	-	-	-	-	-
Stage 2	101	103	-	409	404	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.43	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.497	-	-	2.2	-	-
Pot Cap-1 Maneuver	481	471	661	479	474	971	1016	-	-	1509	-	-
Stage 1	627	603	-	913	818	-	-	-	-	-	-	-
Stage 2	910	814	-	623	603	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	475	468	661	470	471	971	1016	-	-	1509	-	-
Mov Cap-2 Maneuver	475	468	-	470	471	-	-	-	-	-	-	-
Stage 1	625	601	-	910	816	-	-	-	-	-	-	-
Stage 2	901	812	-	612	601	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	10.8	13.6	0.3	0.1
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1016	-	-	629	489	1509	-	-
HCM Lane V/C Ratio	0.003	-	-	0.014	0.143	0.004	-	-
HCM Control Delay (s)	8.6	-	-	10.8	13.6	7.4	-	-
HCM Lane LOS	A	-	-	B	B	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0	0.5	0	-	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1	33	36	165	16	16	6	116	102	25	332	0
Future Volume (veh/h)	1	33	36	165	16	16	6	116	102	25	332	0
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1871	1900	1863	1900	1900	1624	1743	1863	1827	1863	1900
Adj Flow Rate, veh/h	1	42	46	212	21	21	8	149	131	32	426	0
Adj No. of Lanes	1	1	0	1	1	0	1	1	1	1	1	0
Peak Hour Factor	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78
Percent Heavy Veh, %	0	0	0	2	0	0	17	9	2	4	2	2
Cap, veh/h	714	327	358	659	349	349	365	697	633	549	745	0
Arrive On Green	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.00
Sat Flow, veh/h	1386	817	895	1304	873	873	835	1743	1583	1074	1863	0
Grp Volume(v), veh/h	1	0	88	212	0	42	8	149	131	32	426	0
Grp Sat Flow(s),veh/h/ln	1386	0	1713	1304	0	1746	835	1743	1583	1074	1863	0
Q Serve(g_s), s	0.0	0.0	1.3	4.9	0.0	0.6	0.3	2.2	2.2	0.8	7.1	0.0
Cycle Q Clear(g_c), s	0.6	0.0	1.3	6.2	0.0	0.6	7.4	2.2	2.2	3.0	7.1	0.0
Prop In Lane	1.00		0.52	1.00		0.50	1.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	714	0	685	659	0	698	365	697	633	549	745	0
V/C Ratio(X)	0.00	0.00	0.13	0.32	0.00	0.06	0.02	0.21	0.21	0.06	0.57	0.00
Avail Cap(c_a), veh/h	714	0	685	659	0	698	365	697	633	549	745	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	7.6	0.0	7.6	9.6	0.0	7.4	12.2	7.9	7.8	8.9	9.3	0.0
Incr Delay (d2), s/veh	0.0	0.0	0.4	1.3	0.0	0.2	0.1	0.7	0.7	0.2	3.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	0.7	2.0	0.0	0.3	0.1	1.2	1.1	0.3	4.2	0.0
LnGrp Delay(d),s/veh	7.6	0.0	8.0	10.8	0.0	7.5	12.3	8.6	8.6	9.1	12.5	0.0
LnGrp LOS	A		A	B		A	B	A	A	A	B	
Approach Vol, veh/h		89			254			288			458	
Approach Delay, s/veh		8.0			10.3			8.7			12.3	
Approach LOS		A			B			A			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		20.0		20.0		20.0		20.0
Change Period (Y+Rc), s		4.0		4.0		4.0		4.0
Max Green Setting (Gmax), s		16.0		16.0		16.0		16.0
Max Q Clear Time (g_c+I1), s		9.4		3.3		9.1		8.2
Green Ext Time (p_c), s		2.3		1.2		2.4		0.9

Intersection Summary	
HCM 2010 Ctrl Delay	10.5
HCM 2010 LOS	B

Intersection	
Int Delay, s/veh	5.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	38	100	2	2	71	22	1	8	1	46	9	84
Future Vol, veh/h	38	100	2	2	71	22	1	8	1	46	9	84
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	80	80	80	80	80	80	80	80	80	80	80	80
Heavy Vehicles, %	3	1	0	0	3	0	0	25	0	0	0	6
Mvmt Flow	48	125	3	3	89	28	1	10	1	58	11	105

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	117	0	0	128	0	0	390	346	127	337	333	103
Stage 1	-	-	-	-	-	-	223	223	-	109	109	-
Stage 2	-	-	-	-	-	-	167	123	-	228	224	-
Critical Hdwy	4.13	-	-	4.1	-	-	7.1	6.75	6.2	7.1	6.5	6.26
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.75	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.75	-	6.1	5.5	-
Follow-up Hdwy	2.227	-	-	2.2	-	-	3.5	4.225	3.3	3.5	4	3.354
Pot Cap-1 Maneuver	1465	-	-	1470	-	-	573	542	929	621	590	941
Stage 1	-	-	-	-	-	-	784	678	-	901	809	-
Stage 2	-	-	-	-	-	-	840	752	-	779	722	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1465	-	-	1470	-	-	487	522	929	594	568	941
Mov Cap-2 Maneuver	-	-	-	-	-	-	487	522	-	594	568	-
Stage 1	-	-	-	-	-	-	757	654	-	869	807	-
Stage 2	-	-	-	-	-	-	734	750	-	739	697	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	2	0.2	11.8	11.1
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	542	1465	-	-	1470	-	-	761
HCM Lane V/C Ratio	0.023	0.032	-	-	0.002	-	-	0.228
HCM Control Delay (s)	11.8	7.5	0	-	7.5	0	-	11.1
HCM Lane LOS	B	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	0.1	0.1	-	-	0	-	-	0.9

Intersection	
Int Delay, s/veh	1.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	1	0	6	29	0	2	12	346	56	6	186	1
Future Vol, veh/h	1	0	6	29	0	2	12	346	56	6	186	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	100	-	-	100	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	91	91	91	91	91	91	91	91	91	91	91	91
Heavy Vehicles, %	0	0	0	0	0	0	17	1	2	0	6	0
Mvmt Flow	1	0	7	32	0	2	13	380	62	7	204	1

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	657	687	205	659	656	411	205	0	0	442	0	0
Stage 1	219	219	-	437	437	-	-	-	-	-	-	-
Stage 2	438	468	-	222	219	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.27	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.353	-	-	2.2	-	-
Pot Cap-1 Maneuver	381	372	841	380	388	645	1282	-	-	1129	-	-
Stage 1	788	726	-	602	583	-	-	-	-	-	-	-
Stage 2	601	565	-	785	726	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	375	366	841	372	382	645	1282	-	-	1129	-	-
Mov Cap-2 Maneuver	375	366	-	372	382	-	-	-	-	-	-	-
Stage 1	780	722	-	596	577	-	-	-	-	-	-	-
Stage 2	593	559	-	774	722	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	10.1	15.3	0.2	0.3
HCM LOS	B	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1282	-	-	714	382	1129	-	-
HCM Lane V/C Ratio	0.01	-	-	0.011	0.089	0.006	-	-
HCM Control Delay (s)	7.8	-	-	10.1	15.3	8.2	-	-
HCM Lane LOS	A	-	-	B	C	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0	0.3	0	-	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	2	4	21	65	6	7	35	405	59	10	204	4
Future Volume (veh/h)	2	4	21	65	6	7	35	405	59	10	204	4
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1822	1900	1863	1768	1900	1900	1881	1900	1900	1863	1900
Adj Flow Rate, veh/h	2	4	23	71	7	8	38	440	64	11	222	4
Adj No. of Lanes	1	1	0	1	1	0	1	1	1	1	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	0	0	0	2	0	0	0	1	0	0	2	2
Cap, veh/h	740	94	540	717	302	345	552	752	646	377	730	13
Arrive On Green	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40
Sat Flow, veh/h	1421	235	1350	1378	754	862	1173	1881	1615	909	1825	33
Grp Volume(v), veh/h	2	0	27	71	0	15	38	440	64	11	0	226
Grp Sat Flow(s),veh/h/ln	1421	0	1584	1378	0	1616	1173	1881	1615	909	0	1858
Q Serve(g_s), s	0.0	0.0	0.4	1.3	0.0	0.2	0.9	7.3	1.0	0.4	0.0	3.3
Cycle Q Clear(g_c), s	0.3	0.0	0.4	1.7	0.0	0.2	4.2	7.3	1.0	7.7	0.0	3.3
Prop In Lane	1.00		0.85	1.00		0.53	1.00		1.00	1.00		0.02
Lane Grp Cap(c), veh/h	740	0	634	717	0	646	552	752	646	377	0	743
V/C Ratio(X)	0.00	0.00	0.04	0.10	0.00	0.02	0.07	0.58	0.10	0.03	0.00	0.30
Avail Cap(c_a), veh/h	740	0	634	717	0	646	552	752	646	377	0	743
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	7.3	0.0	7.3	7.9	0.0	7.3	9.6	9.4	7.5	12.4	0.0	8.2
Incr Delay (d2), s/veh	0.0	0.0	0.1	0.3	0.0	0.1	0.2	3.3	0.3	0.1	0.0	1.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	0.2	0.5	0.0	0.1	0.3	4.5	0.5	0.1	0.0	1.9
LnGrp Delay(d),s/veh	7.4	0.0	7.5	8.1	0.0	7.3	9.9	12.7	7.8	12.6	0.0	9.3
LnGrp LOS	A		A	A		A	A	B	A	B		A
Approach Vol, veh/h		29			86			542			237	
Approach Delay, s/veh		7.4			8.0			11.9			9.4	
Approach LOS		A			A			B			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		20.0		20.0		20.0		20.0
Change Period (Y+Rc), s		4.0		4.0		4.0		4.0
Max Green Setting (Gmax), s		16.0		16.0		16.0		16.0
Max Q Clear Time (g_c+I1), s		9.3		2.4		9.7		3.7
Green Ext Time (p_c), s		2.5		0.3		2.4		0.3

Intersection Summary	
HCM 2010 Ctrl Delay	10.7
HCM 2010 LOS	B

Intersection	
Int Delay, s/veh	5.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	38	100	2	2	71	22	1	8	1	46	9	84
Future Vol, veh/h	38	100	2	2	71	22	1	8	1	46	9	84
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	80	80	80	80	80	80	80	80	80	80	80	80
Heavy Vehicles, %	3	1	0	0	3	0	0	25	0	0	0	6
Mvmt Flow	48	125	3	3	89	28	1	10	1	58	11	105

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	117	0	0	128	0	0	390	346	127	337	333	103
Stage 1	-	-	-	-	-	-	223	223	-	109	109	-
Stage 2	-	-	-	-	-	-	167	123	-	228	224	-
Critical Hdwy	4.13	-	-	4.1	-	-	7.1	6.75	6.2	7.1	6.5	6.26
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.75	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.75	-	6.1	5.5	-
Follow-up Hdwy	2.227	-	-	2.2	-	-	3.5	4.225	3.3	3.5	4	3.354
Pot Cap-1 Maneuver	1465	-	-	1470	-	-	573	542	929	621	590	941
Stage 1	-	-	-	-	-	-	784	678	-	901	809	-
Stage 2	-	-	-	-	-	-	840	752	-	779	722	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1465	-	-	1470	-	-	487	522	929	594	568	941
Mov Cap-2 Maneuver	-	-	-	-	-	-	487	522	-	594	568	-
Stage 1	-	-	-	-	-	-	757	654	-	869	807	-
Stage 2	-	-	-	-	-	-	734	750	-	739	697	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	2	0.2	11.8	11.1
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	542	1465	-	-	1470	-	-	761
HCM Lane V/C Ratio	0.023	0.032	-	-	0.002	-	-	0.228
HCM Control Delay (s)	11.8	7.5	0	-	7.5	0	-	11.1
HCM Lane LOS	B	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	0.1	0.1	-	-	0	-	-	0.9

PRELIMINARY
STORM
DRAINAGE REPORT

FOR

WOODRIDGE VIEW ESTATES 3RD ADDITION

City of Spokane, Washington

March, 2019

2015-1409

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This report has been prepared by Justin Penner, EIT of Whipple Consulting Engineers under the direction of the undersigned professional engineer whose seal and signature appears hereon:

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25462
REGISTERED
PROFESSIONAL ENGINEER

3/20/19

Todd R Whipple, P.E.