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Cascade Mixed-Use Traffic Impact Analysis

Jurisdiction: City of Arlington

July 2021

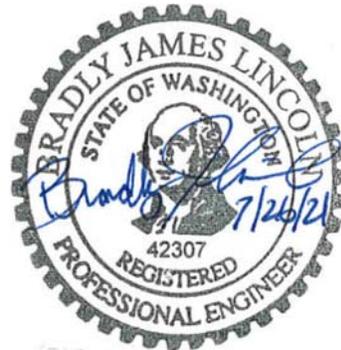


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1. INTRODUCTION

Gibson Traffic Consultants, Inc. (GTC) has been retained to analyze the traffic impacts of the proposed Cascade Mixed-Use development. The proposed development is located north of SR-531/172nd Street NE between Smokey Point Boulevard and 40th Avenue NE. A site vicinity map is included in Figure 1. The Cascade Mixed-Use development is proposed to consist of 105 apartments units with 8,641 square-feet (SF) of retail space. The site is currently undeveloped. Access to the site is from an existing loop road with restricted access to SR-531/172nd Street NE at both intersections. The site will also provide for access to the future 173rd Street NE roadway along the north side of the site.

Brad Lincoln, responsible for this report, is a licensed professional engineer (Civil) in the State of Washington and member of the Washington State section of the Institute of Transportation Engineers (ITE).

2. TRIP GENERATION

Trip generation calculations for the proposed Cascade Mixed-Use development are based on national research data for land uses contained in the Institute of Transportation Engineers’ (ITE) *Trip Generation Manual, 10th Edition (2017)*. The average trip generation rates for the following ITE Land Use Codes have been utilized for the trip generation calculations:

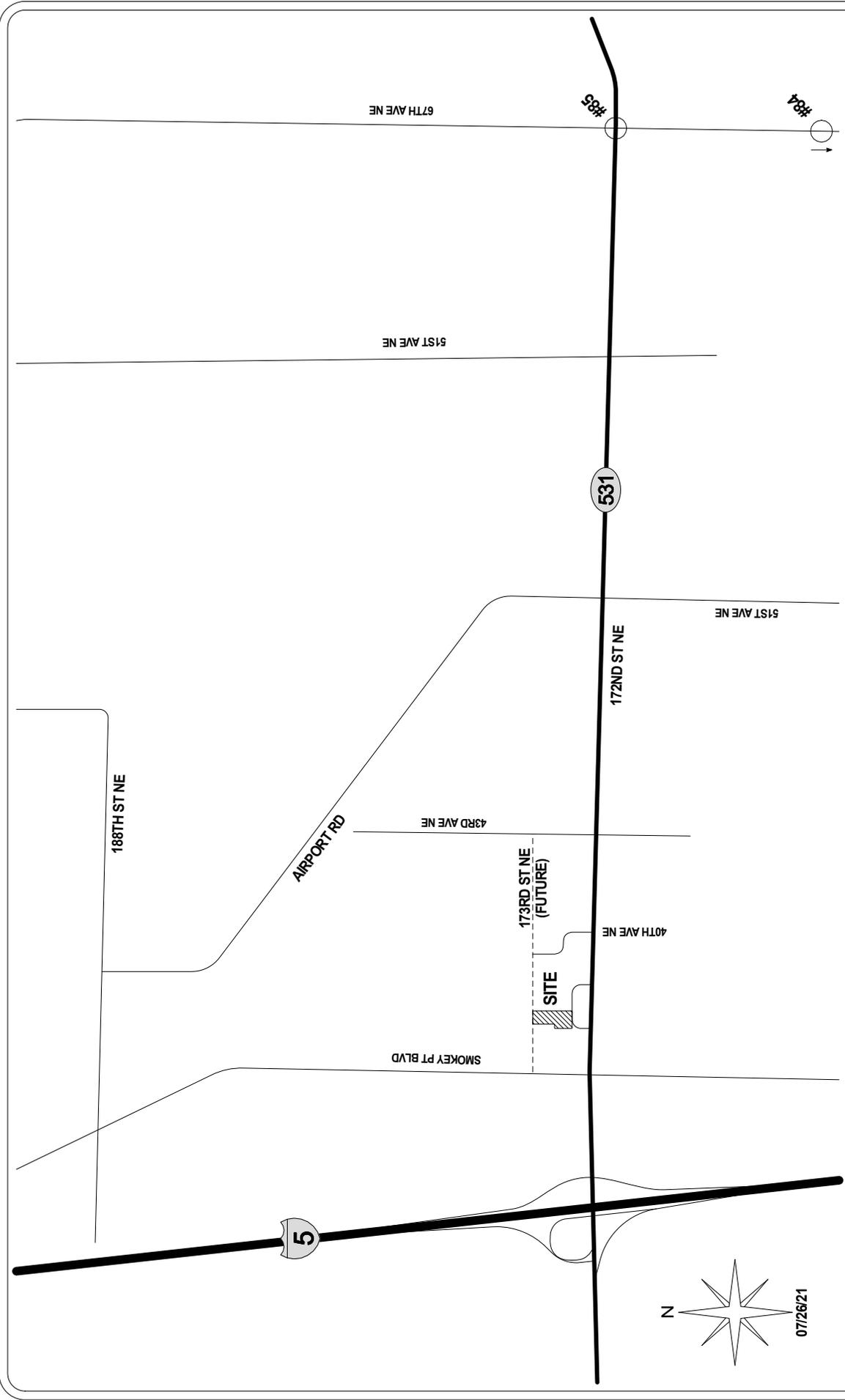
- ITE Land Use Code 221, Multifamily Housing (Mid-Rise) – 105 units
- ITE Land Use Code 820, Shopping Center – 8,641 SF

ITE identifies a pass-by reduction of 34% for the retail use. These trips account for vehicles currently on the roadway that will travel to and from the site and are therefore not new trips. The trip generation of the Cascade Mixed-Use development is summarized in Table 1.

Table 1: Trip Generation Summary

Land Use	Size	Average Daily Trips	AM Peak-Hour Trips			PM Peak-Hour Trips		
			Inbound	Outbound	Total	Inbound	Outbound	Total
Multifamily (ITE LUC 221)	105 units	571	10	28	38	28	18	46
Retail (ITE LUC 820)	8,641 SF	326	5	3	8	16	17	33
Retail Pass-By	---	-111	-2	-1	-3	-5	-6	-11
TOTAL		786	13	30	43	39	29	68

The Cascade Mixed-Use development is anticipated to generate 786 new daily trips with 43 new AM peak-hour trips and 68 new PM peak-hour trips. The trip generation calculations are included in the attachments.



TRAFFIC IMPACT STUDY
GTC #21-149

GIBSON TRAFFIC CONSULTANTS

CASCADE MIXED-USE
105 RESIDENTIAL UNITS
8,641 SF RETAIL

LEGEND

DEVELOPMENT SITE



SNOHOMISH COUNTY KEY INTERSECTION

FIGURE 1
SITE VICINITY
MAP

CITY OF ARLINGTON

3. TRIP DISTRIBUTION AND ASSIGNMENT

The trip distribution for the Cascade Mixed-Use development is based on previously approved distributions in the site vicinity and surrounding uses. It is anticipated that 35% of the trips generated by the development will travel along Interstate-5, ten percent to and from the north and twenty-five percent to and from the south. Approximately 20% of the trips will travel along Smokey Point Boulevard, five percent to and from the north and fifteen percent to and from the south. The remaining 45% of the trips generated by the development will be split between trips traveling along SR-531/172nd Street NE west of Interstate-5 and trips traveling to and from the east. Detailed distributions of the AM and PM peak-hour trips are shown in Figure 2 and Figure 3, respectively.

The interlocal agreement between the City of Arlington and Snohomish County requires detailed development trip turning movement data at Snohomish County key intersections impacted with three or more directional trips on any approach or departure. The trips generated by the development are anticipated to impact 2 Snohomish County key intersections during the AM and PM peak-hours. The AM and PM peak-hour key intersection impacts are shown in tabular form in Table 2 and Table 3, respectively.

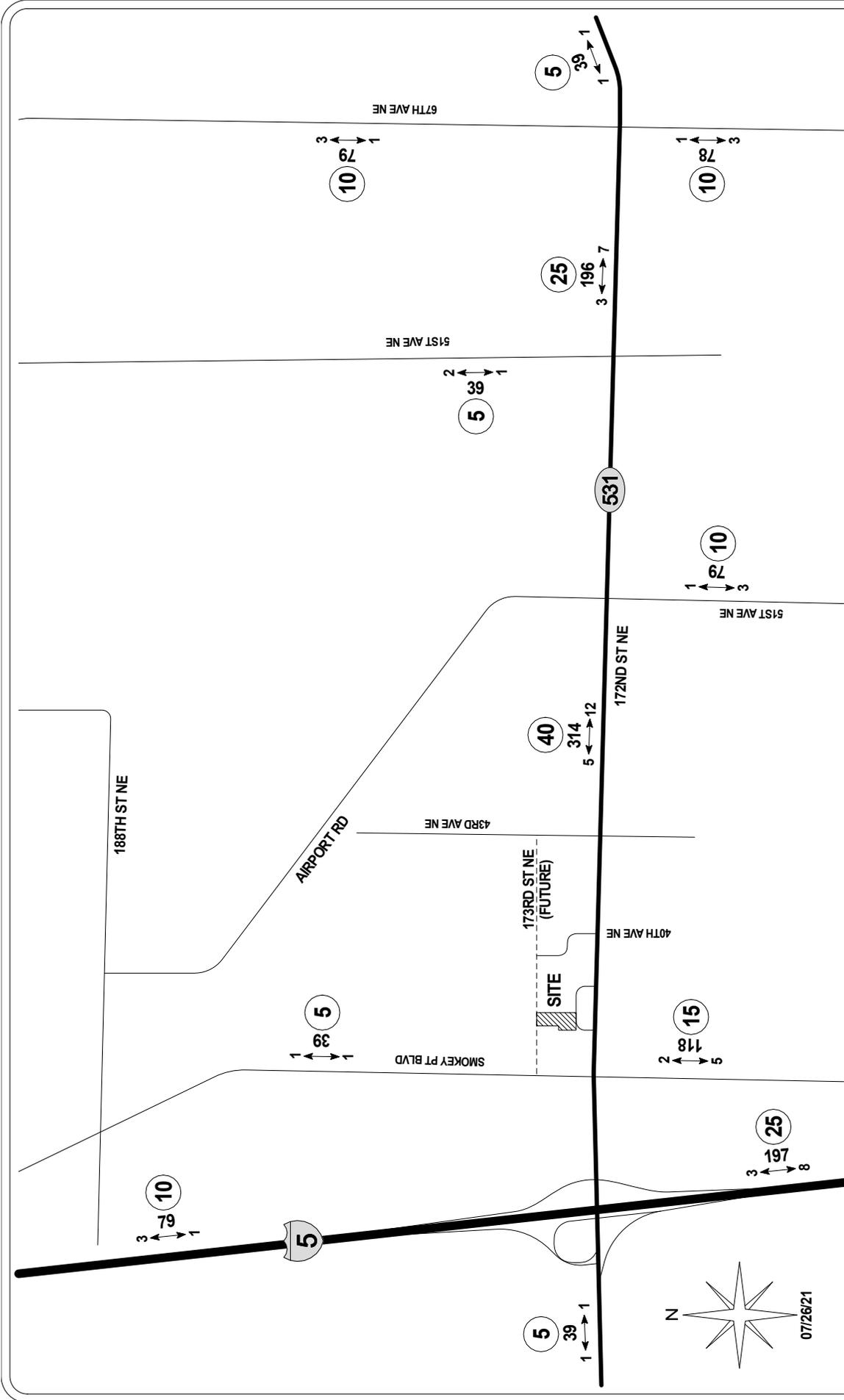
Table 2: AM Peak-Hour Key Intersection Volumes

Intersection	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
#84: 67 th Avenue NE at 152 nd Street NE	0	N/A	0	N/A	N/A	N/A	0	1	N/A	N/A	3	0
#85: 67 th Avenue NE at SR-531	3	1	3	0	1	0	1	0	0	0	0	1

Table 3: PM Peak-Hour Key Intersection Volumes

Intersection	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
#84: 67 th Avenue NE at 152 nd Street NE	0	N/A	0	N/A	N/A	N/A	0	4	N/A	N/A	3	0
#85: 67 th Avenue NE at SR-531	3	1	3	0	2	0	4	0	0	0	0	4

The key intersection volumes are also shown in Figure 4 for the AM and PM peak-hours.



TRAFFIC IMPACT STUDY
GTC #21-149

FIGURE 2
DEVELOPMENT
TRIP DISTRIBUTION
AM PEAK-HOUR

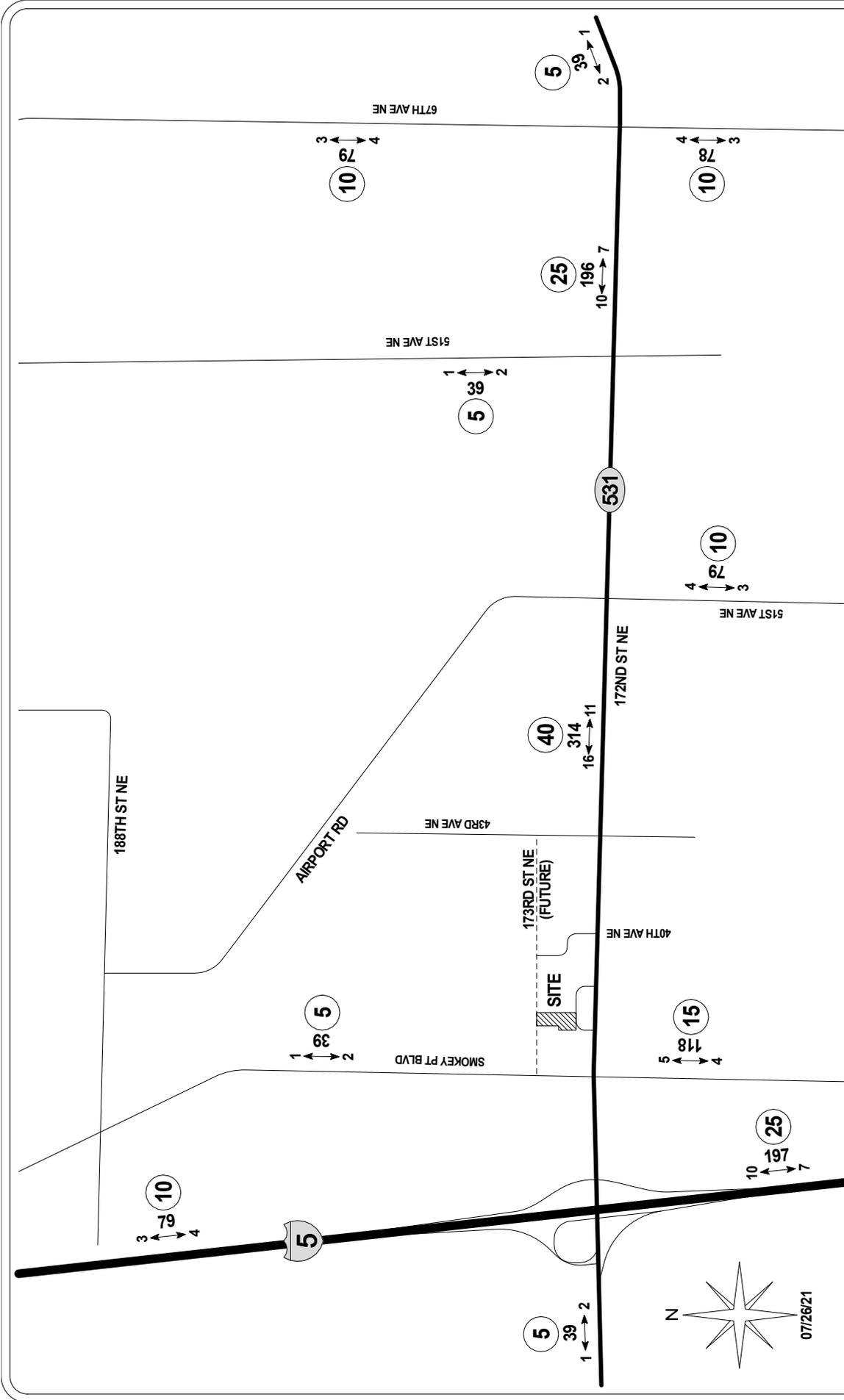
GIBSON TRAFFIC CONSULTANTS

CASCADE MIXED-USE
105 RESIDENTIAL UNITS
8,641 SF RETAIL

CITY OF ARLINGTON

LEGEND
AWDT
AM ← → PEAK
XX
NEW DAILY TRIPS
NEW AM PEAK-HOUR TRIPS
TRIP DISTRIBUTION %

07/26/21



TRAFFIC IMPACT STUDY
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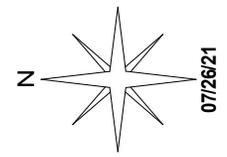
GIBSON TRAFFIC CONSULTANTS

CASCADE MIXED-USE
105 RESIDENTIAL UNITS
8,641 SF RETAIL

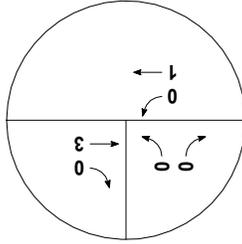
LEGEND
AWDT
PM ← → PEAK
XX
NEW DAILY TRIPS
NEW PM PEAK-HOUR TRIPS
TRIP DISTRIBUTION %

FIGURE 3
DEVELOPMENT
TRIP DISTRIBUTION
PM PEAK-HOUR

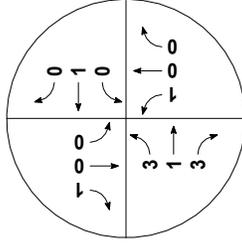
CITY OF ARLINGTON



#84
67TH AVENUE @
152ND ST NE



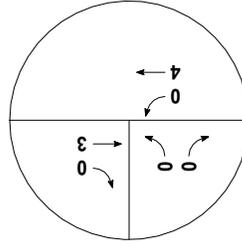
#85
67TH AVENUE @
SR-531



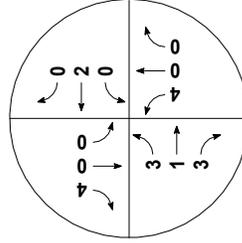
AM PEAK-HOUR

PM PEAK-HOUR

#84
67TH AVENUE @
152ND ST NE



#85
67TH AVENUE @
SR-531



GIBSON TRAFFIC CONSULTANTS

TRAFFIC IMPACT STUDY
GTC #21-149

CASCADE MIXED-USE
105 RESIDENTIAL UNITS
8,641 SF RETAIL

LEGEND
XXX →

KEY INTERSECTION VOLUMES

FIGURE 4
KEY INTERSECTION
TURNING MOVEMENT VOLUMES
AM AND PM PEAK-HOURS

CITY OF ARLINGTON

4. INTERSECTION IMPACTS

The City of Arlington typically requires analysis for intersections impacted with 10 PM peak-hour trips. The only intersections that are anticipated to be impacted by 10 PM peak-hour trips are along the SR-531/172nd Street NE corridor between the Interstate-5 interchange and 67th Avenue NE. The section of the SR-531/172nd Street NE corridor from 43rd Avenue NE to 67th Avenue NE is planned to be improved to a 5-lane section with roundabouts at major intersections. These improvements are currently being design by WSDOT with the improvements at the 43rd Avenue NE intersection being completed as part of the Roxy Development. The intersection of SR-531/172nd Street NE at Smokey Point Boulevard is being evaluated for different improvements. Improvements to this intersection are being funded through the *Manufacturing and Industrial Center Planned Action* EIS that was passed in January 2021. Additionally, the planned 173rd Avenue NE connection is along the north side of the development and is currently under construction.

All of these improvements are in various stages of planning, design, and construction. The traffic mitigation fees that will be due as part of the Cascade Mixed-Use development will help fund portions of these improvements, thereby mitigating the impacts of the development. Additionally, the existing accesses to SR-531/172nd Street NE that will serve this site are restricted with the centerline channelization. Intersection operational analysis should therefore not be required for the Cascade Mixed-Use development.

5. TRAFFIC MITIGATION FEES

The City of Arlington collects traffic mitigation fees based on the number of new PM peak-hour trips generated by a development. The City of Arlington also has an interlocal agreement with Snohomish County for traffic mitigation fees.

5.1 City of Arlington

The City of Arlington currently has a traffic mitigation fee of \$3,355 per PM peak-hour trip. The Cascade Mixed-Use development is anticipated to generate 68 new PM peak-hour trips. These trips result in a City of Arlington traffic mitigation fees of \$228,140.00. The fees for each of the uses are:

- Multifamily Units (105 units) – \$3,355 for 46 PM peak-hour trips
 - \$154,330.00, equivalent to \$1,469.81 per unit
- Retail (8,641 SF) – \$3,355 for 22 PM peak-hour trips
 - \$73,810.00, equivalent to \$8.54 per square-foot

It is important to note that City of Arlington traffic mitigation fees do not vest to the time of application. It is possible that the City of Arlington mitigation fees will increase between the time of this report and when the traffic mitigation fees are required to be paid.

5.2 Snohomish County

The City of Arlington has an interlocal agreement with Snohomish County that provides for mitigation payments for impacts to Snohomish County arterials. City of Arlington developments that impact road improvement projects with 3 directional PM peak-hour trips identified in Snohomish County’s *Transportation Needs Report* (TNR) are required to pay mitigation fees to Snohomish County. There is one improvement project identified in the Snohomish County TNR, the intersection of 67th Avenue NE at 152nd Street NE. This improvement project is anticipated to be impacted by 10% of the trips generated by the development, equivalent to 78 daily trips. The Snohomish County traffic mitigation fees for each of the uses are:

- Multifamily Units (105 units) – \$185 per daily trip for 57 daily trips
 - \$10,545.00, equivalent to \$100.43 per unit
- Retail (8,641 SF) – \$157 per daily trip for 21 daily trips
 - \$3,297.00, equivalent to \$0.38 per square-foot

The Snohomish County traffic mitigation fees should vest to the time of submit.

5.3 Washington State Department of Transportation

WSDOT improvement projects and their associated fees are based on the most recent Exhibit C list, which is part of the interlocal agreement between Snohomish County and WSDOT. City of Arlington developments are required to pay for WSDOT improvement projects on the Exhibit C list impacted with 10 or more PM peak-hour trips. There is an improvement project along SR-531/172nd Street NE that is identified on the Exhibit C list. However, these improvements are funded as part of the Connecting Washington legislation. WSDOT traffic mitigation fees should therefore not be required for the Cascade Mixed-Use development.

5.4 Total Traffic Mitigation Fees

The total traffic mitigation fees for the Cascade Mixed-Use development are summarized in Table 4.

Table 4: Traffic Mitigation Fee Summary

Jurisdiction	Multifamily Housing – 105 Units				Retail – 8,641 SF			
	Fee	Trips	Mitigation Fee		Fee	Trips	Mitigation Fee	
			Total	Per Unit			Total	Per SF
City of Arlington ¹	\$3,355	46	\$154,330.00	\$1,469.81	\$3,355	22	\$73,810.00	\$8.54
Snohomish County ²	\$185	57	\$10,545.00	\$100.43	\$157	21	\$3,297.00	\$0.38
TOTAL	---	---	\$164,875.00	\$1,570.24	---	---	\$77,107.00	\$8.92

¹ The City of Arlington fees are based on PM peak-hour trips.

² The Snohomish County fees are based on daily trips.

6. CONCLUSIONS

The proposed Cascade Mixed-Use development is located north of SR-531/172nd Street NE and west of 40th Avenue NE. The development is proposed to consist of 105 multifamily units and 8,641 SF of retail space. The development is anticipated to generate 786 new daily trips with 68 new PM peak-hour trips. The only intersections impacted with 10 PM peak-hour trips are along the SR-531/172nd Street NE corridor. The accesses to the site are already restricted with the center median channelization and the remaining intersections either have planned improvements or the City of Arlington is investigating improvements.

The Cascade Mixed-Use development will have traffic mitigation fees of \$241,982.00. The total fees for the residential portion will be \$164,875.00, equivalent to \$1,570.24 per unit. The total fees for the retail portion will be \$77,107.00, equivalent to \$8.92 per unit. These traffic mitigation fees should adequately mitigate the impacts of the development, including to the intersections along the SR-531/172nd Street NE corridor.

Trip Generation Calculations

Trip Generation for: Development Peak Weekday
(a.k.a.): Average Weekday Daily Trips (AWDT)

LAND USES		NET EXTERNAL TRIPS BY TYPE																	
		IN BOTH DIRECTIONS					DIRECTIONAL ASSIGNMENTS												
		TOTAL	PASS-BY		DIVERGED LINK		NEW	PASS-BY		DIVERGED LINK		NEW							
ITE LU code	VARIABLE	Trip Rate	% IN	% OUT	In+Out (Total)	% of Gross Trips	Internal Crossover	In+Out (Total)	% of Ext. Trips	In+Out (Total)	% of Ext. Trips	In+Out (Total)	In	Out	In	Out	In	Out	
	105 Units	5.44	50%	50%	571	0.0%	0	0	0%	0	0%	571	0	0	0	0	0	0	0
	8,641 KSF	37.75	50%	50%	326	0.0%	0	0	34%	111	0%	215	56	55	0	0	108	107	0
Total					897		0	0		111		786	56	55	0	0	394	107	392

**Trip Generation for: Development Peak Weekday, Peak Hour of Adjacent Street Traffic, One Hour between 7 and 9 AM
(a.k.a.): Weekday AM Peak Hour**

LAND USES		NET EXTERNAL TRIPS BY TYPE																
		IN BOTH DIRECTIONS					DIRECTIONAL ASSIGNMENTS											
		TOTAL	PASS-BY		DIVERGED LINK		NEW	PASS-BY		DIVERGED LINK		NEW						
ITE LU code	VARIABLE	Trip Rate	% IN	% OUT	In+Out (Total)	% of Gross Trips	Internal Crossover	% of Ext. Trips	In+Out (Total)	% of Ext. Trips	In+Out (Total)	In	Out	In	Out	In	Out	
	105 Units	0.36	26%	74%	38	0.0%	0	0%	0	0%	0	0	0	0	0	0	0	0
	8.641 KSF	0.94	62%	38%	8	0.0%	0	34%	3	0%	0	2	1	0	0	0	3	2
Total					46		0		3		0	2	1	0	0	0	13	30

