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Grandview Apple
Traffic Impact Analysis

Jurisdiction: City of Arlington

November 2021

GTC #21-219

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1. INTRODUCTION

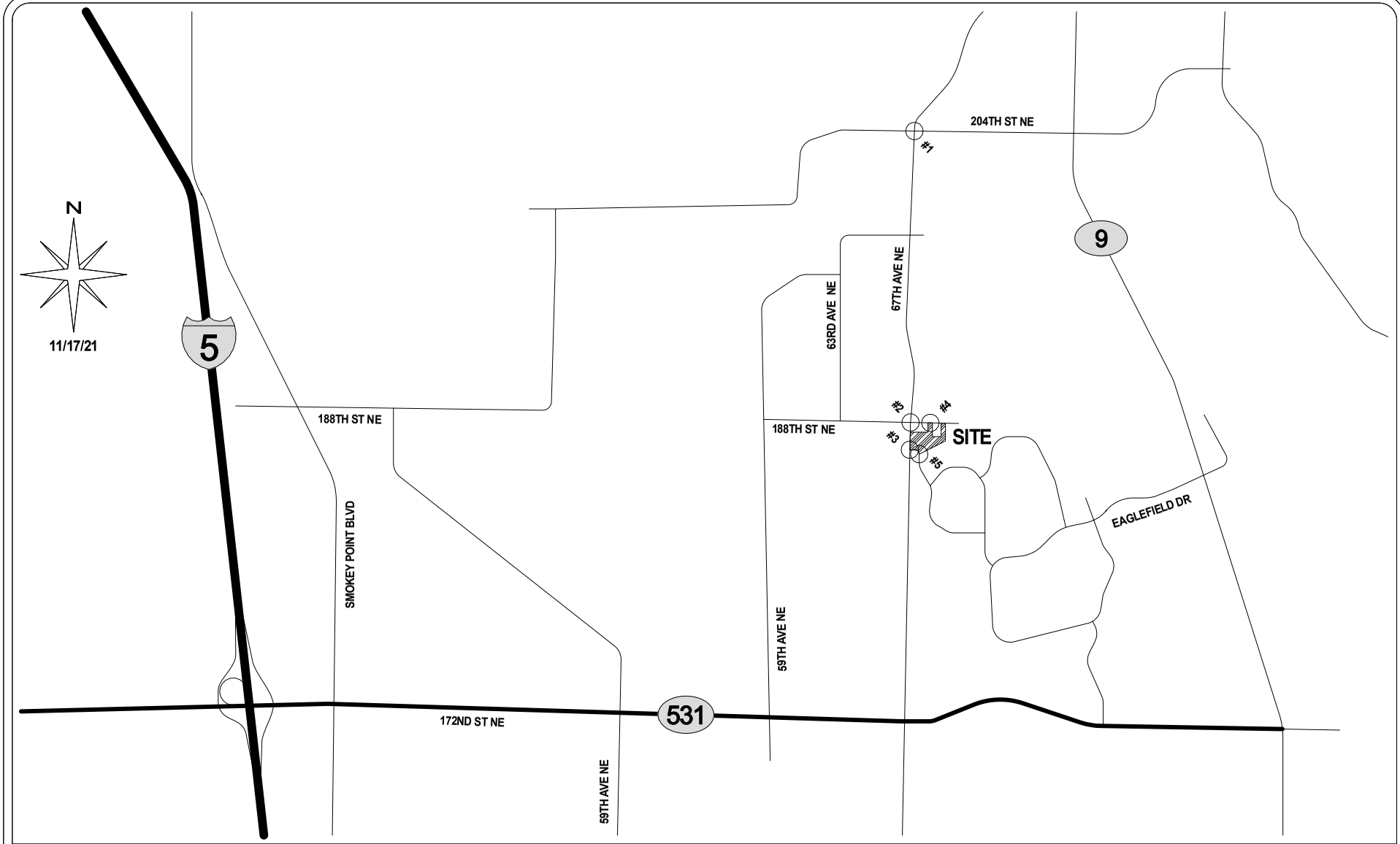
Gibson Traffic Consultants, Inc. (GTC) has been retained to analyze the traffic impacts of the proposed Grandview Apple development. The proposed development is located along the east side of 67th Avenue NE between Woodlands Way and 188th Street NE. A site vicinity map is included in Figure 1. The development is proposed to consist of 102 mid-rise apartments and 12,870 square-feet (SF) of retail space. The development is planned to be constructed and occupied in the year 2024. However, a 4-year horizon period to the year 2025 has been used for the analysis in this report to account for any delays and represent a conservative analysis.

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. METHODOLOGY

Trip generation for the Grandview Apple development is based on average trip generation rates from the Institute of Transportation Engineers (ITE) *Trip Generation Manual, 10th Edition (2017)*. Level of service (LOS) at the study intersections is determined using the methodology described in the *Highway Capacity Manual, 6th Edition* (HCM). The analysis has been performed using the *Synchro 11.1, Build 0* software. The intersection level of service analysis has been performed for the 2021 existing conditions, 2025 baseline conditions, and 2025 future with development conditions during the PM peak-hour. The year 2025 has been utilized for the horizon year to represent a conservative 4-year horizon period; even though the development is anticipated to be completed by 2024.

Traffic congestion on roadways is generally measured in terms of level of service at critical intersections. In accordance with the *Highway Capacity Manual, 6th Edition*, roadway facilities and intersections are rated between LOS A and LOS F, with LOS A being free flow and LOS F being forced flow or over-capacity conditions. The level of service at signalized, all-way stop-controlled, and roundabout intersections are based on the average stopped delay for all entering vehicles. The level of service at two-way stop-controlled intersections is based on stopped delay times for the critical approach. Geometric characteristics and conflicting traffic movements are taken into consideration when determining level of service values. A summary of the level of service criteria has been included in Table 1.



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TRAFFIC IMPACT STUDY
GTC #21-219

GRANDVIEW APPLE
MIXED USE

CITY OF ARLINGTON

LEGEND

DEVELOPMENT SITE

#X DEVELOPMENT SITE

FIGURE 1
SITE VICINITY
MAP

Table 1: Level of Service Criteria for Intersections

Level of Service [1]	Expected Delay	Intersection Control Delay (Seconds per Vehicle)	
		Unsignalized Intersections	Signalized & Roundabout Intersections
A	Little/No Delay	≤10	≤10
B	Short Delays	>10 and ≤15	>10 and ≤20
C	Average Delays	>15 and ≤25	>20 and ≤35
D	Long Delays	>25 and ≤35	>35 and ≤55
E	Very Long Delays	>35 and ≤50	>55 and ≤80
F	Extreme Delays[2]	>50	>80

The City of Arlington has established an acceptable level of service of LOS D.

The City of Arlington and Snohomish County have an interlocal agreement that provides for reciprocal mitigation fees. Snohomish County mitigation fees can be calculated based on the default percentage in the interlocal agreement, which is 70%, or based on actual impacts. The City of Arlington also has an interlocal agreement with WSDOT that provides for mitigation fees to WSDOT for impacts to WSDOT improvement projects. WSDOT improvement projects and their associated fees are based on the most recent Exhibit C list, which is included in the attachments. City of Arlington developments are required to pay for any WSDOT improvement project on the Exhibit C list impacted with 3 or more directional PM peak-hour trips or based on the area wide mitigation fee.

[1] **Source:** *Highway Capacity Manual, 6th Edition.*
- LOS A: Free-flow traffic conditions, with minimal delay to stopped vehicles (no vehicle is delayed longer than one cycle at signalized intersection).
- LOS B: Generally stable traffic flow conditions.
- LOS C: Occasional back-ups may develop, but delay to vehicles is short term and still tolerable.
- LOS D: During short periods of the peak hour, delays to approaching vehicles may be substantial but are tolerable during times of less demand (i.e. vehicles delayed one cycle or less at signal).
- LOS E: Intersections operate at or near capacity, with long queues developing on all approaches and long delays.
- LOS F: Jammed conditions on all approaches with excessively long delays and vehicles unable to move at times.

[2] When demand volume exceeds the capacity of the lane, extreme delays will be encountered with queuing which may cause severe congestion affecting other traffic movements in the intersection.

3. TRIP GENERATION

Trip generation calculations for the proposed Grandview Apple 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 following ITE Land Use Codes have been utilized for the trip generation calculations:

- ITE Land Use Code 221, Multifamily Housing (Mid-Rise) – 102 units
- ITE Land Use Code 820, Shopping Center – 12,870 SF of retail space

The average trip generation rates for the land uses since that is the basis for the City of Arlington traffic mitigation fee. Additionally, the trip generation for ITE Land Use Code 820 using the regression equation produces unreasonable results, particularly for the daily and PM peak-hours. The daily trip generation using the regression equation would equate to an average of 1 trip every 2.5 minutes throughout the entire day. The PM peak-hour trip generation would equate to approximately 1 trip every minute. This trip generation is not reasonable for a relatively small trip generation that will be surrounded by residential units. It is also important to note that this methodology utilized for the trip generation calculations in this report is consistent with the methodology utilized for the Centennial Park development in the northeast corner of 172nd Street NE at 67th Avenue NE.

A pass-by reduction of 34% for the retail use has been applied using ITE data. The pass-by trips account for vehicles currently on the roadway that will use the proposed use and therefore the pass-by trips are not new to the surrounding roadways. The trip generation of the Grandview Apple development is summarized in Table 2.

Table 2: Trip Generation Summary

Grandview Apple	Units/Size	Average Daily Trips	AM Peak-Hour Trips			PM Peak-Hour Trips		
			Inbound	Outbound	Total	Inbound	Outbound	Total
Multifamily (Mid-Rise) ITE LUC 221	102 units	555	10	27	37	27	18	45
Shopping Center ITE LUC 820	12,870 SF	486	7	5	12	23	26	49
Pass-By Trips	---	-165	-2	-2	-4	-8	-9	-17
TOTAL		**876**	**15**	**30**	**45**	**42**	**35**	**77**

The Grandview Apple development is anticipated to generate approximately 876 new average daily trips (ADT) with 45 new AM peak-hour trips and 77 new PM peak-hour trips. The trip generation calculations are included in the attachments.

4. TRIP DISTRIBUTION

The trip distribution for the Grandview Apple development is based on previously approved distributions in the site vicinity and surrounding uses. It is anticipated that 320% of the trips generated by the development will travel to and from the north along 67th Avenue NE. Approximately 25% of the trips generated by the development will travel to and from the south, ten percent along 67th Avenue NE and fifteen percent along SR-9. An estimated 40% of the trips generated by the development will travel to and from the west along 172nd Street NE (SR-531). The remaining 15% of the trips generated by the development are anticipated to travel to and from local areas in the site vicinity. Detailed distributions for the AM and PM peak-hours 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 during the AM peak-hour and PM peak-hour. The trips generated by the development will impact 3 Snohomish County key intersections during the AM and PM peak-hours. Individual trip turning movements at the impacted Snohomish County key intersections are included in the attachments.

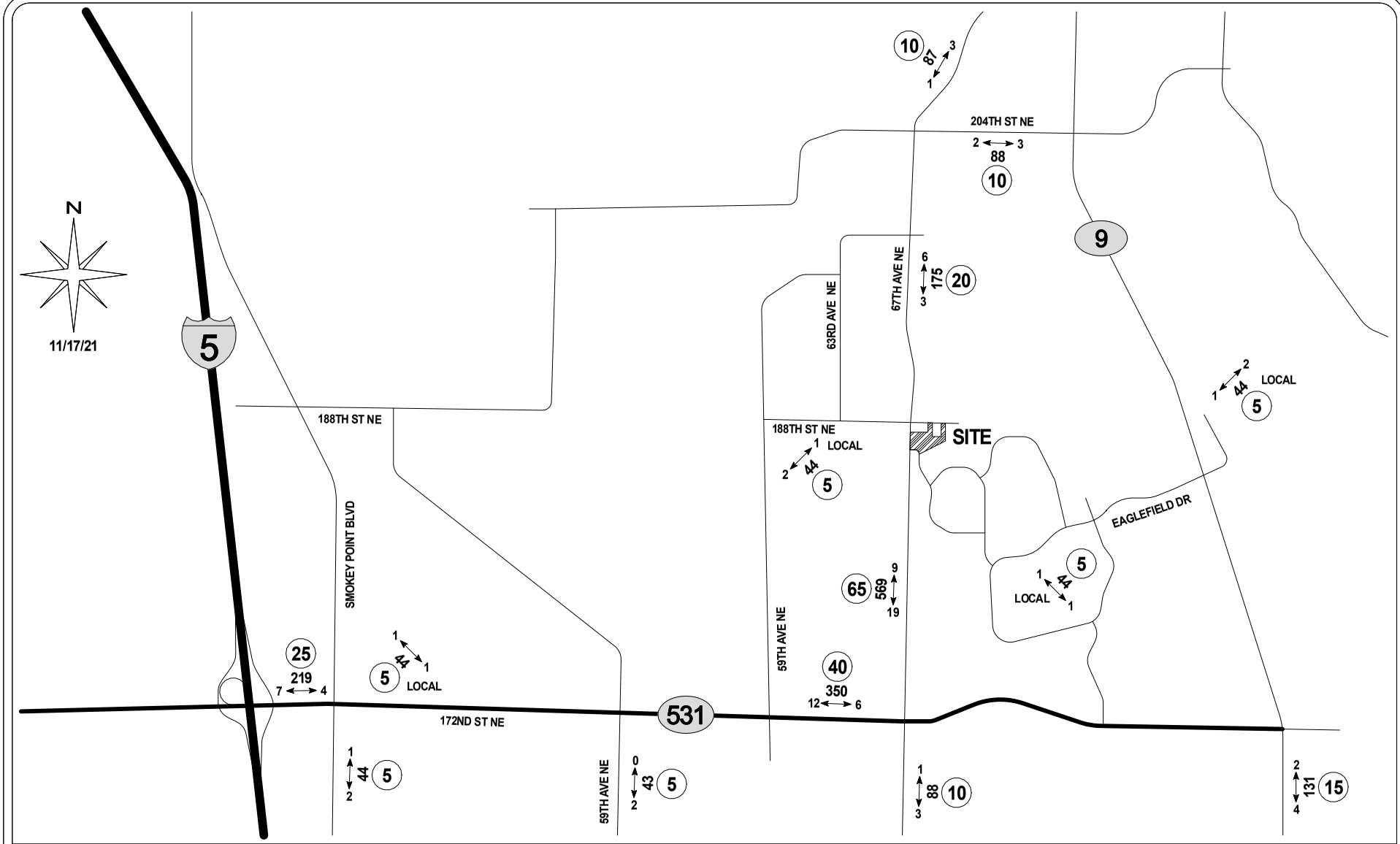
5. LEVEL OF SERVICE ANALYSIS

The following intersections have been analyzed as a part of this report:

1. 67th Avenue NE at 204th Street NE – Signalized
2. 67th Avenue NE at 188th Street NE – Two-Way Stop-Controlled
3. 67th Avenue NE at Woodlands Way – Two-Way Stop-Controlled
4. Site Access at 188th Street NE – Two-Way Stop-Controlled (future only)
5. Site Access at Woodlands Way – Two-Way Stop-Controlled (future only)

The existing intersections have been analyzed for the 2021 existing conditions, 2025 baseline conditions, and 2025 future with development conditions.

It is important to note that the intersections along the 172nd Street NE (SR-531) corridor west of 67th Avenue NE are impacted with 10 PM peak-hour trips. A level of service analysis has not been included in this report, but a detailed discussion of the impacts, operations, and future improvements is included in this report.



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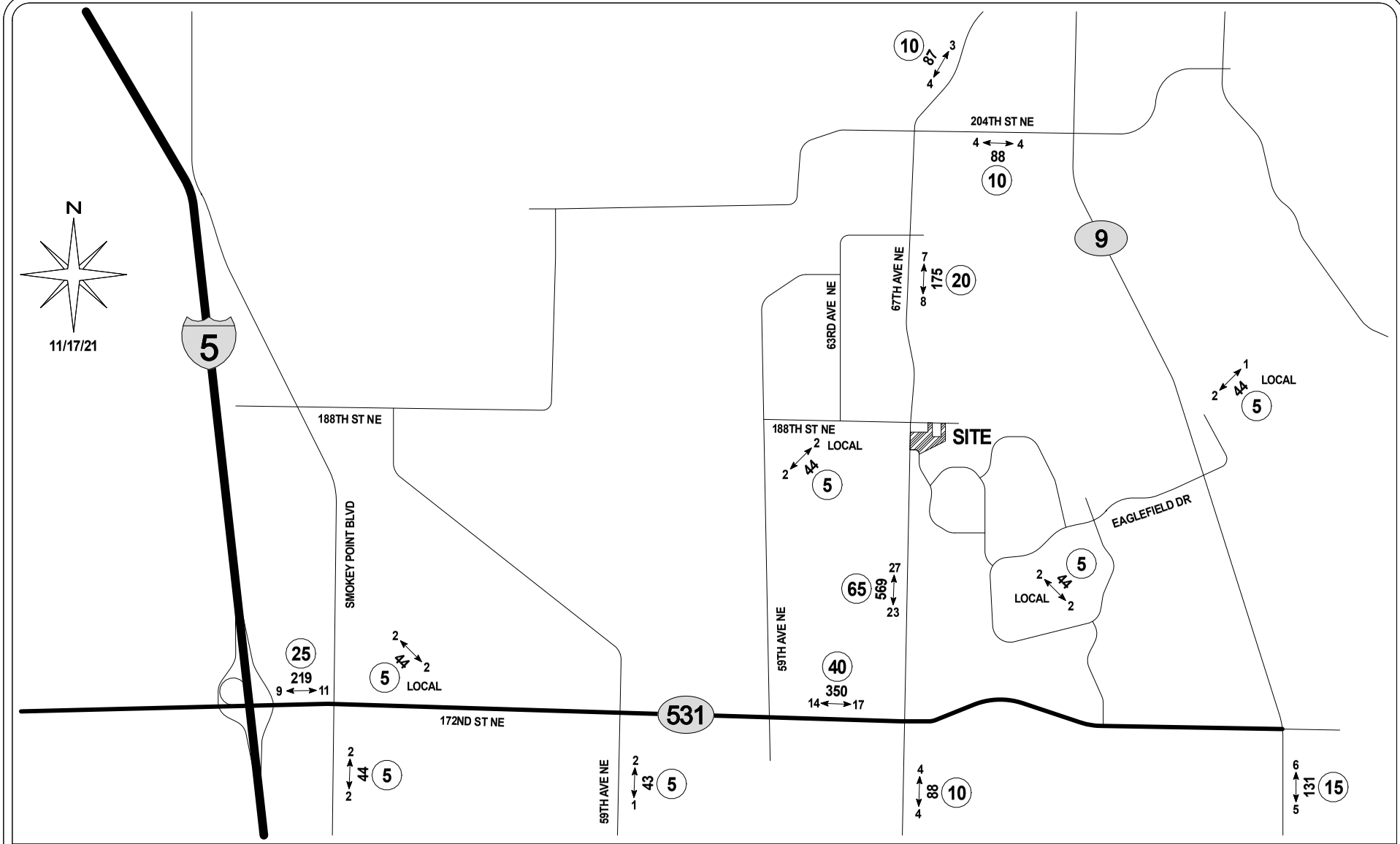
AWDT	NEW DAILY TRIPS
AM ↔ PEAK	NEW AM PEAK-HOUR TRIPS
(XX)	TRIP DISTRIBUTION %

FIGURE 2
DEVELOPMENT
TRIP DISTRIBUTION
AM PEAK-HOUR



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AWDT — NEW DAILY TRIPS
PM ↔ PEAK — NEW PM PEAK-HOUR TRIPS
(XX) — TRIP DISTRIBUTION %

FIGURE 3
DEVELOPMENT
TRIP DISTRIBUTION
PM PEAK-HOUR

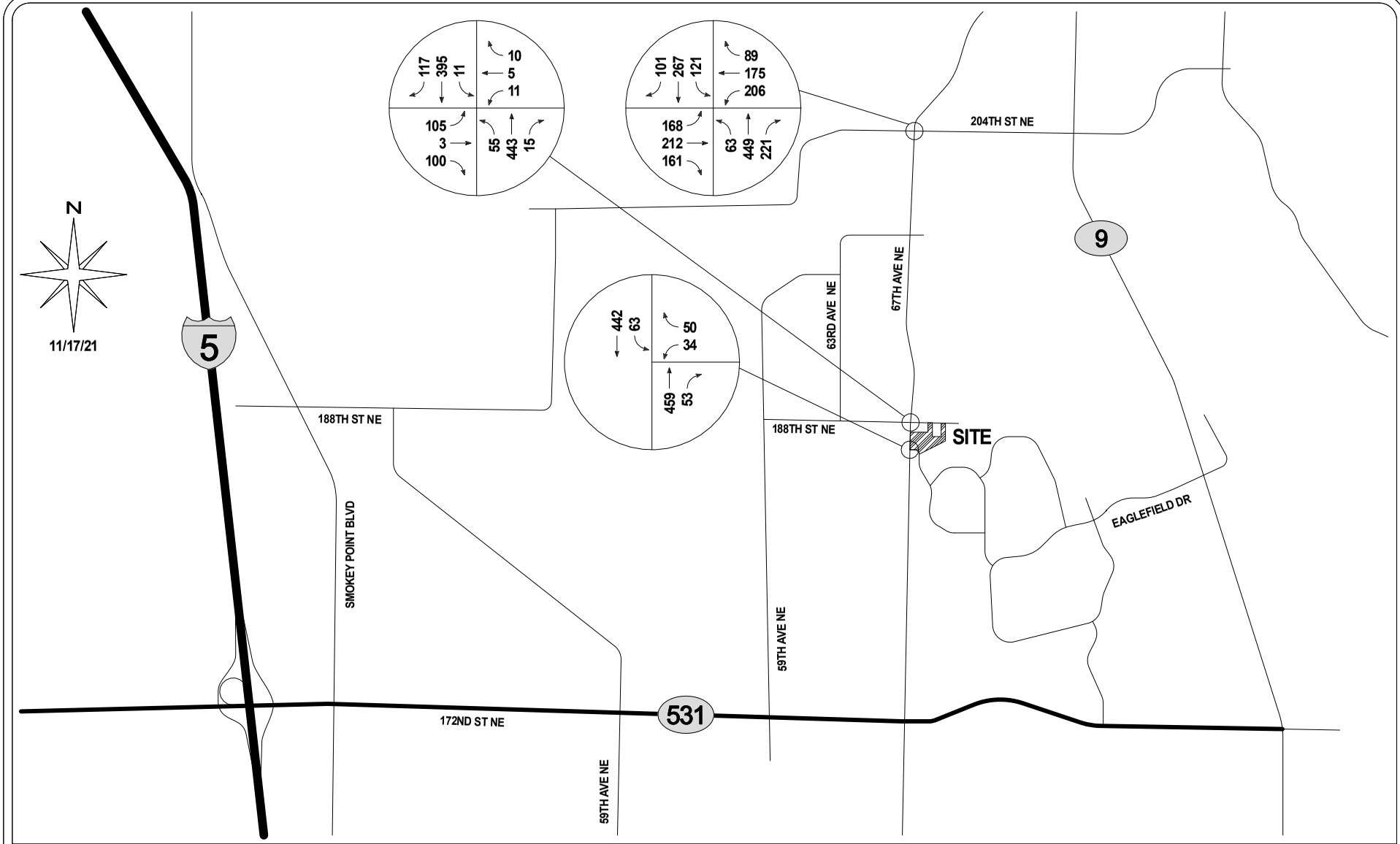
5.1 Intersection Turning Movements

The existing volumes at the study intersections are based on counts performed by the independent count firm Traffic Data Gathering (TDG) in October 2021. The existing turning movements at the study intersections are shown in Figure 4. The 2025 baseline turning movements at the intersections have been calculated utilizing a 2% annually compounding growth rate, which is consistent with previous analysis performed in the City of Arlington. The 2025 baseline turning movements are shown in Figure 5. The 2025 future with development turning movements were calculated by adding the trips generated by the development to the 2025 baseline tuning movements. The trips generated by the development have been assigned to the site accesses based on the overall trip distribution. The 2025 future with development turning movements are shown in Figure 6. The existing turning movement counts and future turning movement calculations are included in the attachments.

5.2 Level of Service Analysis

The level of service analysis has been completed with the existing channelization and intersection control. The intersection of 67th Avenue NE at 188th Street NE is on the 6-Year Transportation Improvement Plan (TIP) to convert the intersection to a controlled intersection. It is not clear what this means, but it is assumed the plan is to signalize the intersection. This intersection has been analyzed with a signal for the 2025 baseline and 2025 future with development conditions.

The analysis shows that the majority of intersections analyzed as part of this report will operate at acceptable LOS D or better under the 2021 existing, 2025 baseline, and 2025 future with development conditions. The exception is the intersection of 67th Avenue NE at 188th Street NE. The intersection of 67th Avenue NE at 188th Street NE currently operates at LOS E and is anticipated to operate at LOS F under the 2025 baseline and 2025 future with development conditions. The intersection is anticipated to operate at LOS B under the 2025 baseline and 2025 future with development conditions if the intersection is signalized. The level of service results for the study intersections are summarized in Table 3.



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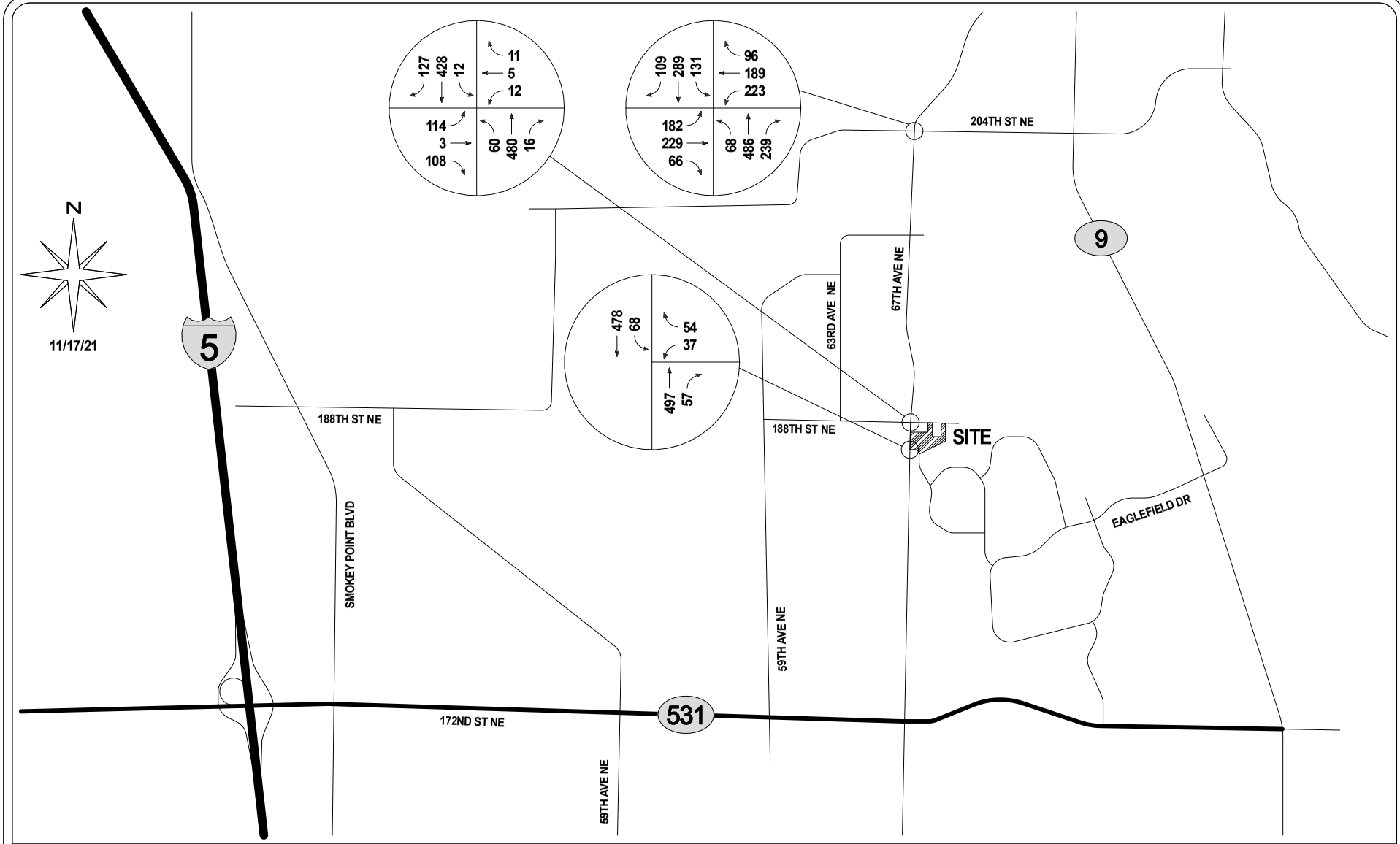
XXX → TURNING MOVEMENT VOLUMES

FIGURE 4

2021 EXISTING
TURNING MOVEMENTS



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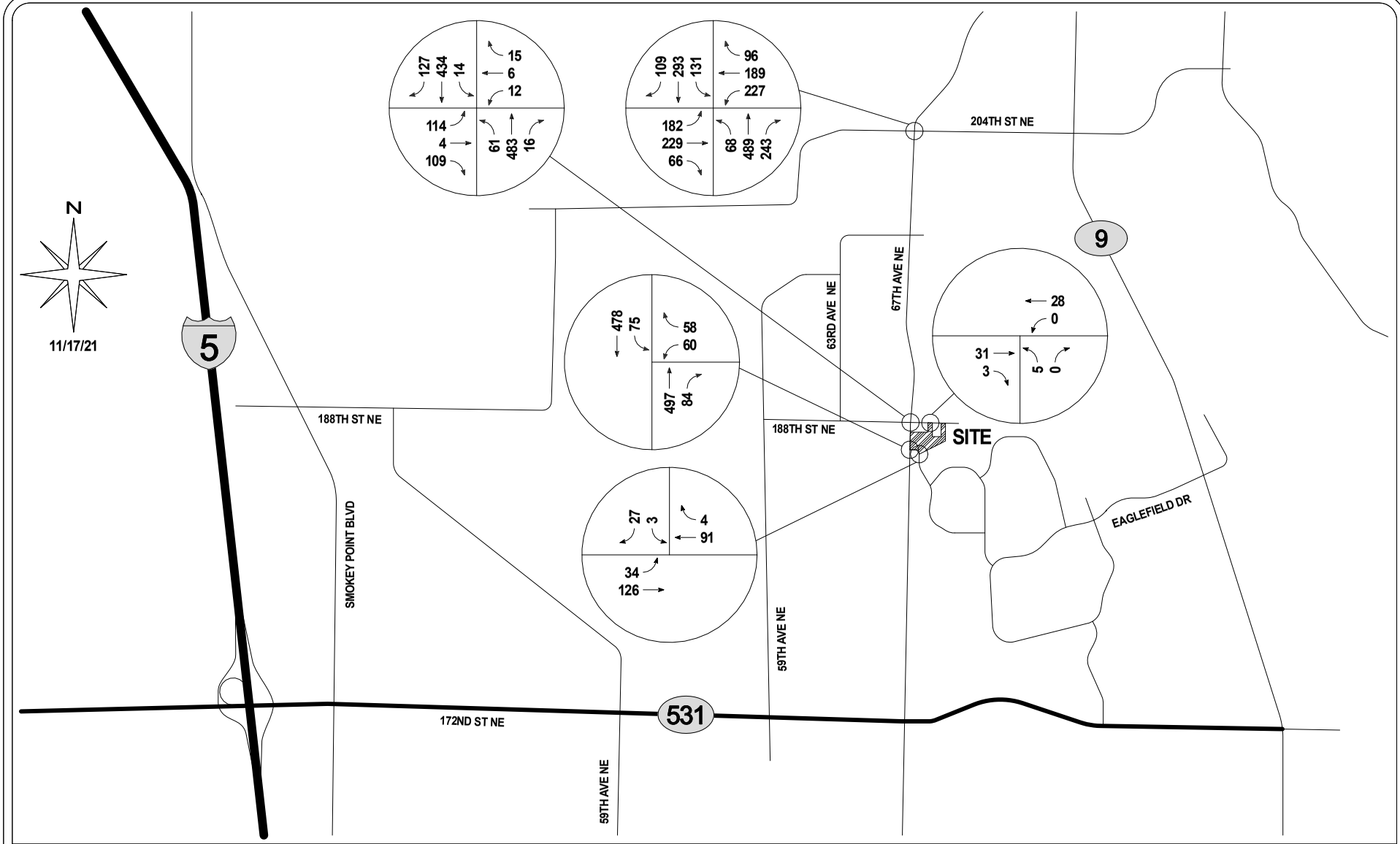
XXX → TURNING MOVEMENT VOLUMES

FIGURE 5

2025 BASELINE
TURNING MOVEMENTS



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XXX → TURNING MOVEMENT VOLUMES

FIGURE 6

2026 FUTURE
WITH DEVELOPMENT
TURNING MOVEMENTS

Table 3: Level of Service Summary

Intersection	Control	2021 Existing Conditions		2025 Baseline Conditions		2025 Future w Dev. Conditions	
		LOS	Delay	LOS	Delay	LOS	Delay
1. 67th Avenue NE at 204th Street NE	Signal	D	36.7 sec	D	40.0 sec	D	40.1 sec
2. 67th Avenue NE at 188th Street NE	Two-Way Stop-Controlled	E	47.1 sec	F	78.6 sec	F	88.6 sec
with 6-Year TIP Improvements	Signal	---	---	B	11.5 sec	B	11.6 sec
3. 67th Avenue NE at Woodlands Way	Two-Way Stop-Controlled	C	20.3 sec	C	23.6 sec	D	33.5 sec
4. Site Access at 188th Street NE	Two-Way Stop-Controlled	---	---	---	---	A	8.9 sec
6. Site Access at Woodlands Way	Two-Way Stop-Controlled	---	---	---	---	A	9.2 sec

The level of service calculations are included in the attachments.

5.3 172nd Street NE (SR-531) Corridor

The 172nd Street NE (SR-531) corridor west of 67th Avenue NE is impacted by 10 PM peak-hour trips generated by the Grandview Apple development. There are several planned improvements for the 172nd Street NE (SR-531) corridor since the intersections are forecast to operate at deficient levels in the future, regardless of whether the Grandview Apple development is constructed. The improvements are in various stages of finding, planning, and construction. The improvements are summarized in Table 4.

Table 4: 172nd Street NE (SR-531) Improvements

Section/Location	Jurisdiction	Status	Improvements
43rd Avenue NE to 67th Avenue NE	WSDOT	Funded	• 5-lane section • Roundabouts at 43rd Ave, 51st Ave, 59th Ave & 63rd Ave • 43rd Ave roundabout constructed as part of Roxy Dev.
Smokey Point Blvd to 43rd Avenue NE	Arlington	Construction 2021/2022	• Signalize 40th Avenue NE intersection • Fully restrict left-turns between signals
173rd Avenue NE Corridor	Arlington	Construction 2021/2022	• Roadway between Smokey Point Blvd and 40th Ave NE • Connection to 172nd St NE at 40th Ave NE signal
Smokey Point Boulevard Intersection	Arlington	Planning	• The intersection is included in the Planned Action EIS, to include planning and funding for improvements

All of these improvements are planned to allow the 172nd Street NE (SR-531) corridor to operate at acceptable levels with future traffic volumes. Intersection operational analysis should therefore not be required for the Cascade Mixed-Use development.

6. TRAFFIC MITIGATION FEES

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

6.1 City of Arlington

The City of Arlington currently has a traffic mitigation fee of $3,355 per PM peak-hour trip. The Grandview Apple development is anticipated to generate 77 new PM peak-hour trips. These trips result in a City of Arlington traffic mitigation fees of $258,335.00.

The City of Arlington fees for the uses of the development are:

- Multifamily Housing (Mid-Rise), 102 units - $150,975.00 $1,480.15 per unit)
- Shopping Center, 12,870 SF - $107,360.00 ($8.34 per SF)

These traffic mitigation fee will help fund improvements for the intersection of 67th Avenue NE at 188th Street NE. 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.

6.2 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 and included in the attachments. City of Arlington developments are typically required to pay for WSDOT improvement projects on the Exhibit C list impacted with 10 or more PM peak-hour trips. The Grandview Apple development will impact one improvement project on the WSDOT Exhibit C List:

- DOT-05 – SR-531, 43rd Avenue NE to 67th Avenue NE

The improvements for this segment have already been funded as part of Connecting Washington, but WSDOT has not updated the Exhibit C list to reflect the funding of this improvement project. The interlocal agreement between Snohomish County and WSDOT identifies that mitigation fees are not required for impacts to improvement projects that have been fully funded. WSDOT traffic mitigation fees should therefore not be required for the Grandview Apple development.

6.3 Snohomish County

The City of Arlington has an interlocal agreement with Snohomish County for reciprocal traffic mitigation fees. The fees can be calculated based on a standard rate or impacts to actual improvement projects on the Snohomish County Transportation Needs Report, Appendix D: Impact Fee Cost Basis. Snohomish County has three projects identified in Transportation Service Area A (TSA A), which includes the City of Arlington. There is only one Snohomish County project that is impacted with 3 directional PM peak-hour trips generated by the Grandview Apple development. The improvement project is 67th Avenue NE at 152nd Street NE, TNR # INT-007. This intersection is anticipated to be impacted by 10% of the PM peak-hour trips generated by the development. The residential and commercial impacts and Snohomish County traffic mitigation fees are:

- Multifamily Housing (Mid-Rise), 102 units
  - Total new daily trips – 555
  - 10% of new daily trips – 55.5
  - Snohomish County fee rate - $185 per daily trip
  - Snohomish County Traffic Mitigation Fee - $10,267.50 ($100.66 per unit)
- Shopping Center, 12,870 SF
  - Total new daily trips – 321
  - 10% of new daily trips – 32.1
  - Snohomish County fee rate - $157 per daily trip
  - Snohomish County Traffic Mitigation Fee - $5,039.70 ($0.39 per SF)

The Snohomish County traffic mitigation fees are typically paid as part of the building permit application process with the City of Arlington and are typically only required for the units or commercial square-footage that is being constructed.

7. CONCLUSIONS

The proposed Grandview Apple development is located on the east side of 67th Avenue NE between Woodlands Way and 188th Street NE. The development is proposed to consist of 102 multifamily residential units and 12,870 SF of retail space. The Grandview Apple development is anticipated to generate 876 new daily trips with 45 new AM peak-hour trips and 77 new PM peak-hour trips.

The level of service analysis shows that most of the study intersections are anticipated to operate at acceptable LOS D or better under the 2025 future with development conditions. The intersection of 67th Avenue NE at 188th Street NE is planned for improvements. The City of Arlington traffic mitigation fees will help fund these improvements and payment of the City of Arlington traffic mitigation fees should therefore mitigate the impacts of the Grandview Apple development.

The Grandview Apple development will have a total traffic mitigation fee of $258,335.00 for the impacts to the City of Arlington and $15,307.20 for impacts to Snohomish County. Traffic mitigation fees to WSDOT should not be required. It is important to note that the City of Arlington traffic mitigation fees do not vest and could increase in the future.

Trip Generation Calculations

Grandview Apple
GTC #21-219

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

									NET EXTERNAL TRIPS BY TYPE											
									IN BOTH DIRECTIONS						DIRECTIONAL ASSIGNMENTS					
			Gross Trips				Internal Crossover		TOTAL	PASS-BY		DIVERTED LINK		NEW	PASS-BY		DIVERTED LINK		NEW	
LAND USES	VARIABLE	ITE LU code	Trip Rate	% IN	% OUT	In+Out (Total)	% of Gross Trips	Trips In+Out (Total)	In+Out (Total)	% of Ext. Trips	In+Out (Total)	% of Ext. Trips	In+Out (Total)	In+Out (Total)	In	Out	In	Out	In	Out
Multifamily Housing (Mid-Rise)	102 Units	221	5.44	50%	50%	555	0.0%	0	555	0%	0	0%	0	555	0	0	0	0	278	277
Shopping Center (Retail)	12.870 KSF	820	37.75	50%	50%	486	0.0%	0	486	34%	165	0%	0	321	83	82	0	0	161	160
Total						1,041		0	1,041		165		0	876	83	82	0	0	439	437

Grandview Apple
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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**

									NET EXTERNAL TRIPS BY TYPE											
									IN BOTH DIRECTIONS						DIRECTIONAL ASSIGNMENTS					
			Gross Trips				Internal Crossover		TOTAL	PASS-BY		DIVERTED LINK		NEW	PASS-BY		DIVERTED LINK		NEW	
LAND USES	VARIABLE	ITE LU code	Trip Rate	% IN	% OUT	In+Out (Total)	% of Gross Trips	Trips In+Out (Total)	In+Out (Total)	% of Ext. Trips	In+Out (Total)	% of Ext. Trips	In+Out (Total)	In+Out (Total)	In	Out	In	Out	In	Out
Multifamily Housing (Mid-Rise)	102 Units	221	0.36	26%	74%	37	0.0%	0	37	0%	0	0%	0	37	0	0	0	0	10	27
Shopping Center (Retail)	12.870 KSF	820	0.94	62%	38%	12	0.0%	0	12	34%	4	0%	0	8	2	2	0	0	5	3
Total						49		0	49		4		0	45	2	2	0	0	15	30

Grandview Apple
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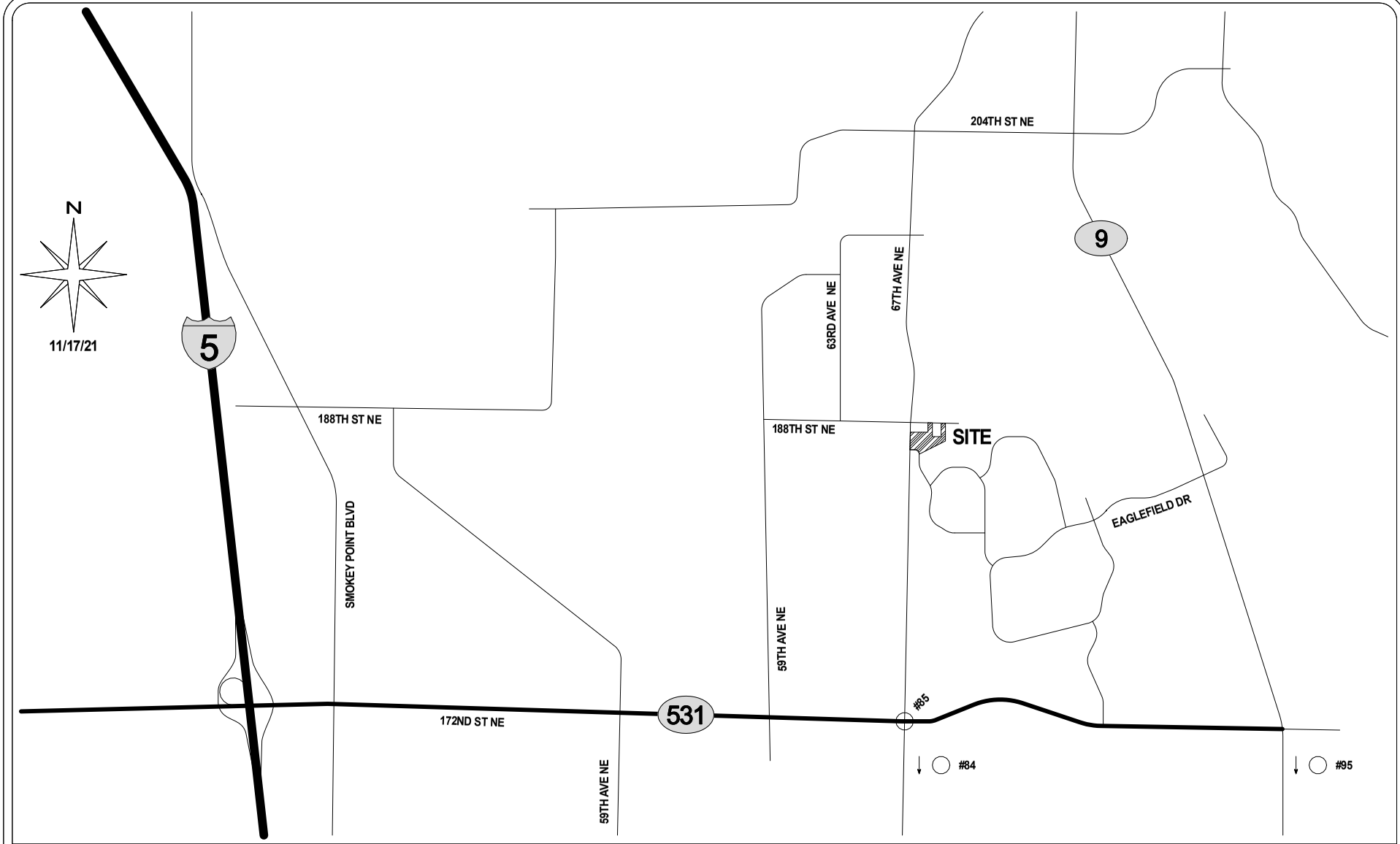
Trip Generation for: **Development Peak Weekday, Peak Hour of Adjacent Street Traffic, One Hour between 4 and 6 PM**
(a.k.a.): **Weekday PM Peak Hour**

									NET EXTERNAL TRIPS BY TYPE											
									IN BOTH DIRECTIONS						DIRECTIONAL ASSIGNMENTS					
			Gross Trips				Internal Crossover		TOTAL	PASS-BY		DIVERTED LINK		NEW	PASS-BY		DIVERTED LINK		NEW	
LAND USES	VARIABLE	ITE LU code	Trip Rate	% IN	% OUT	In+Out (Total)	% of Gross Trips	Trips In+Out (Total)	In+Out (Total)	% of Ext. Trips	In+Out (Total)	% of Ext. Trips	In+Out (Total)	In+Out (Total)	In	Out	In	Out	In	Out
Multifamily Housing (Mid-Rise)	102 Units	221	0.44	61%	39%	45	0.0%	0	45	0%	0	0%	0	45	0	0	0	0	27	18
Shopping Center (Retail)	12.870 KSF	820	3.81	48%	52%	49	0.0%	0	49	34%	17	0%	0	32	8	9	0	0	15	17
Total						94		0	94		17		0	77	8	9	0	0	42	35

Snohomish County Key Intersections



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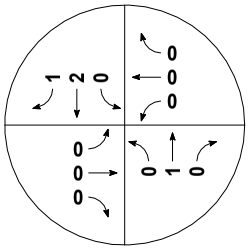
DEVELOPMENT SITE

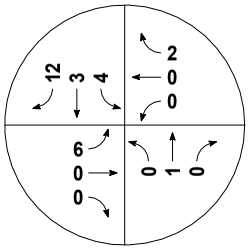
#X SNOHOMISH COUNTY KEY INTERSECTION

FIGURE A1
SITE VICINITY MAP

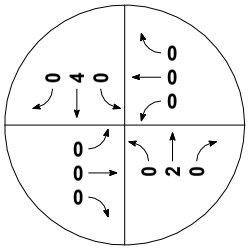
#84 67TH AVE NE @ 152ND ST NE



#85 67TH AVE NE @ SR-531



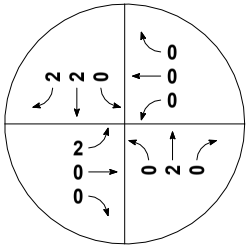
#95 SR-9 @ 132ND ST NE



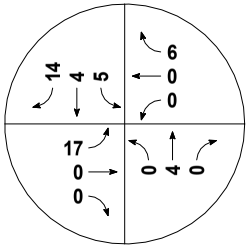
AM PEAK-HOUR

PM PEAK-HOUR

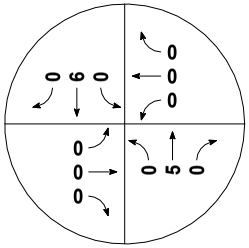
#84 67TH AVE NE @ 152ND ST NE



#85 67TH AVE NE @ SR-531



#95 SR-9 @ 132ND ST NE



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LEGEND

XXX → PEAK-HOUR TURNING MOVEMENT VOLUMES

FIGURE A2
KEY INTERSECTION TURNING MOVEMENT VOLUMES AM AND PM PEAK-HOURS

Table A1: AM Peak-Hour Key Intersection Volumes

Intersection	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
#84: 67th Ave NE at 152nd St NE	0	0	0	0	0	0	0	1	0	0	2	1
#85: 67th Ave NE at SR-531	6	0	0	0	0	2	0	1	0	4	3	12
#95: SR-9 at 132nd St NE	0	0	0	0	0	0	0	2	0	0	4	0

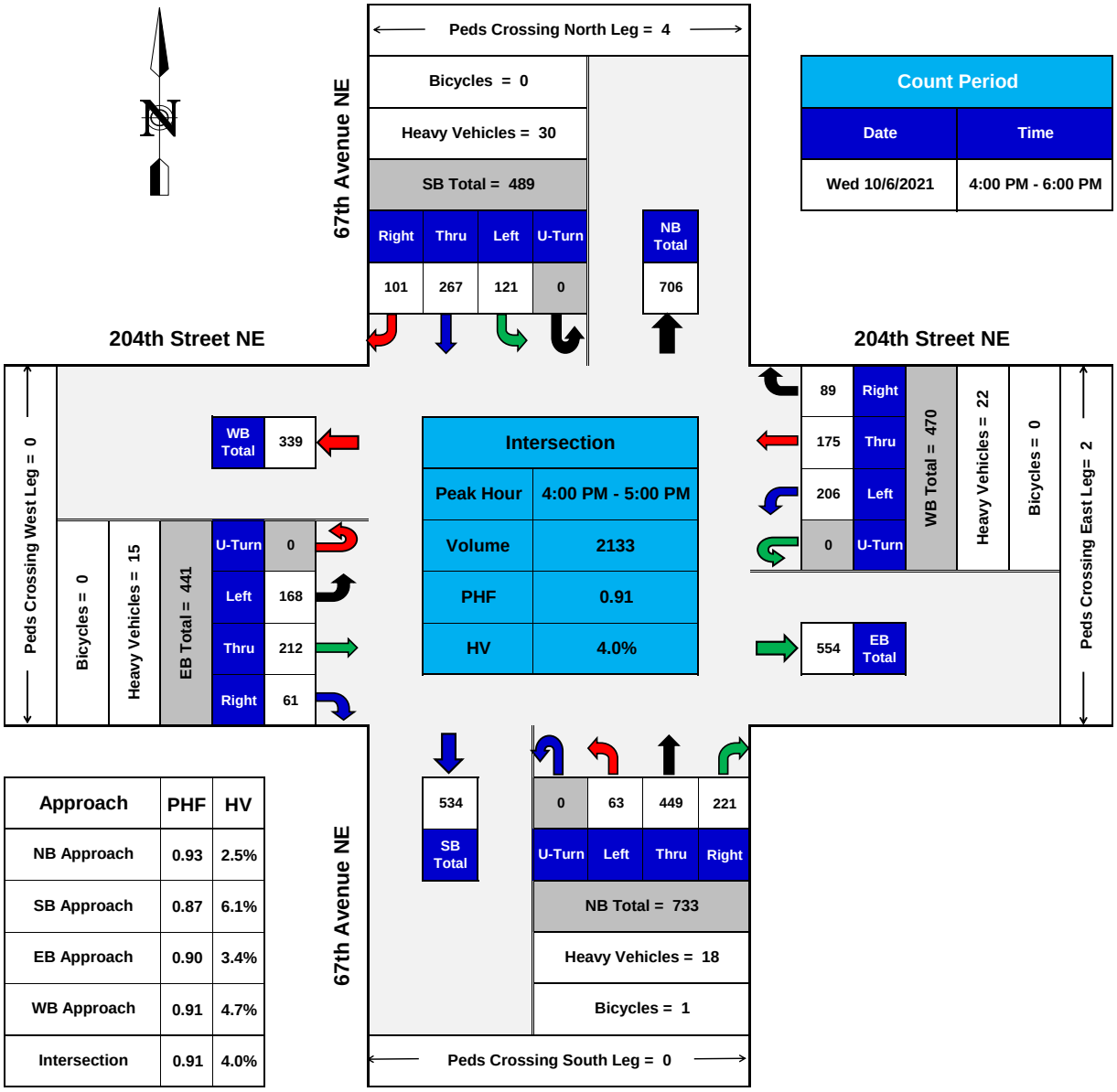
Table A2: PM Peak-Hour Key Intersection Volumes

Intersection	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
#84: 67th Ave NE at 152nd St NE	2	0	0	0	0	0	0	2	0	0	2	2
#85: 67th Ave NE at SR-531	17	0	0	0	0	6	0	4	0	5	4	14
#95: SR-9 at 132nd St NE	0	0	0	0	0	0	0	5	0	0	6	0

Counts and Turning Movement Calculations

67th Avenue NE @ 204th Street NE

Arlington, WA



Approach	PHF	HV
NB Approach	0.93	2.5%
SB Approach	0.87	6.1%
EB Approach	0.90	3.4%
WB Approach	0.91	4.7%
Intersection	0.91	4.0%

PHF = Peak Hour Factor
HV = Heavy Vehicles

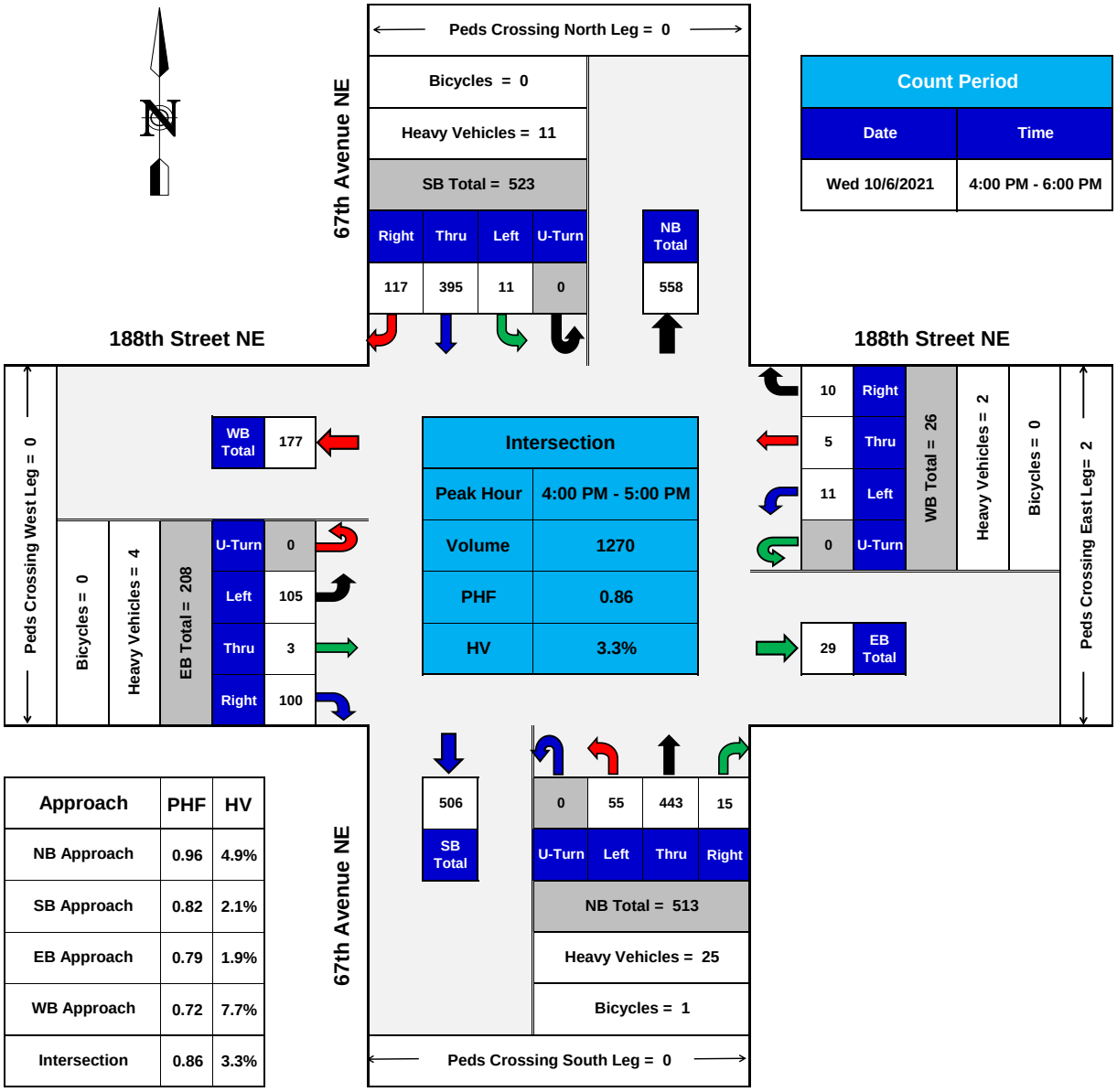
TURNING MOVEMENTS DIAGRAM

PEAK HOUR SUMMARY

TRAFFIC DATA GATHERING

67th Avenue NE @ 188th Street NE

Arlington, WA



Approach	PHF	HV
NB Approach	0.96	4.9%
SB Approach	0.82	2.1%
EB Approach	0.79	1.9%
WB Approach	0.72	7.7%
Intersection	0.86	3.3%

PHF = Peak Hour Factor
HV = Heavy Vehicles

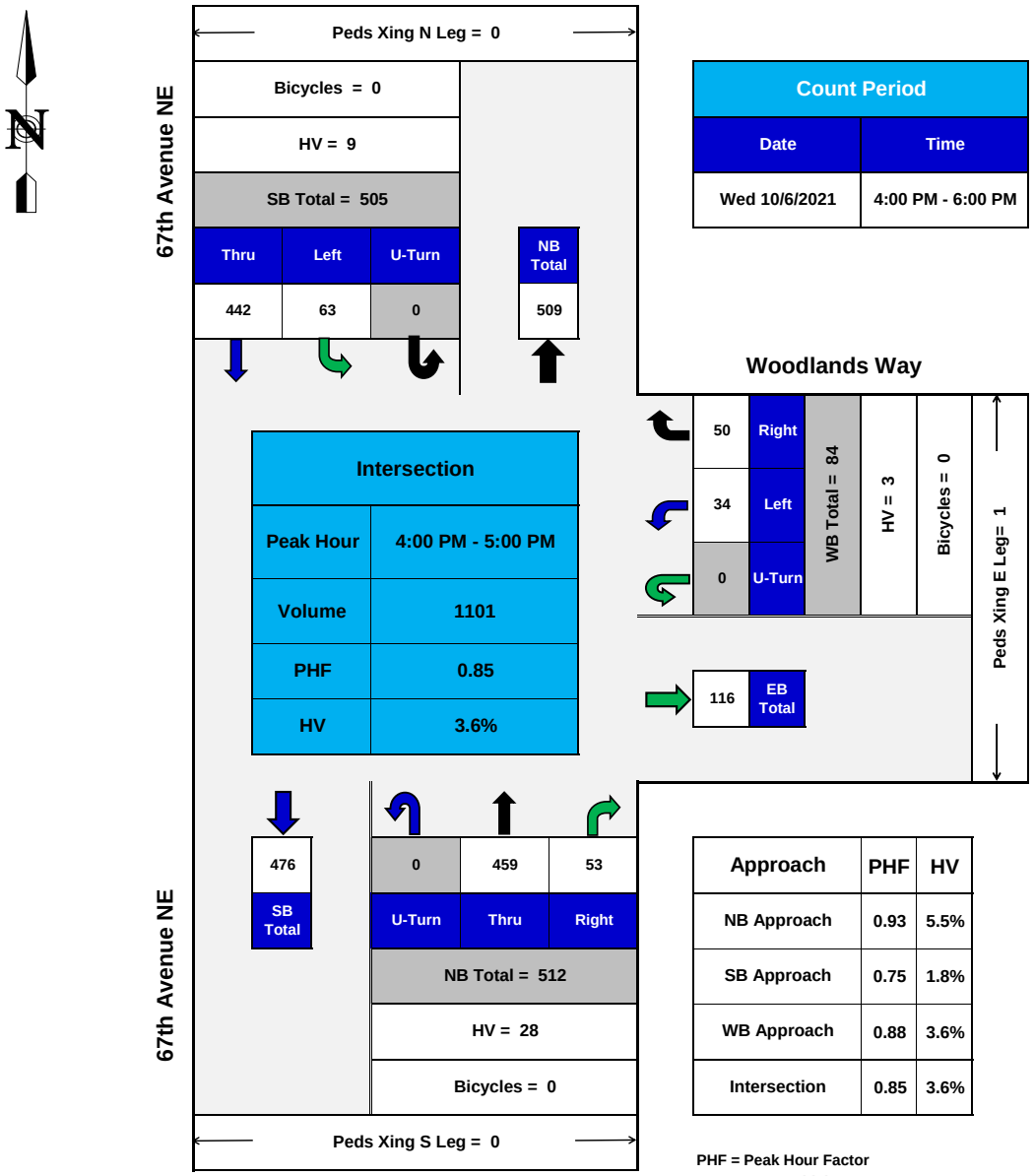
TURNING MOVEMENTS DIAGRAM

PEAK HOUR SUMMARY

TRAFFIC DATA GATHERING

67th Avenue NE @ Woodlands Way

Arlington, WA



Approach	PHF	HV
NB Approach	0.93	5.5%
SB Approach	0.75	1.8%
WB Approach	0.88	3.6%
Intersection	0.85	3.6%

PHF = Peak Hour Factor
HV = Heavy Vehicles

TURNING MOVEMENTS DIAGRAM

PEAK HOUR SUMMARY

TRAFFIC DATA GATHERING

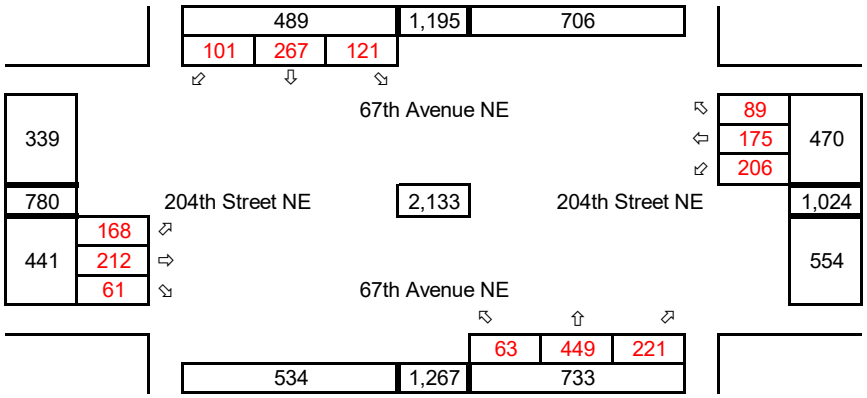
1 67th Ave NE at 204th St NE

Synchro ID: 1

Existing
Average Weekday
PM Peak Hour

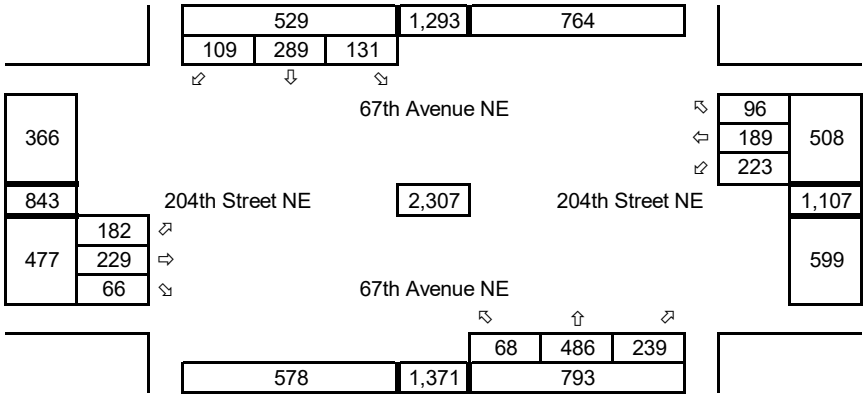
Year: **10/6/2021**

Data Source: **TDG**

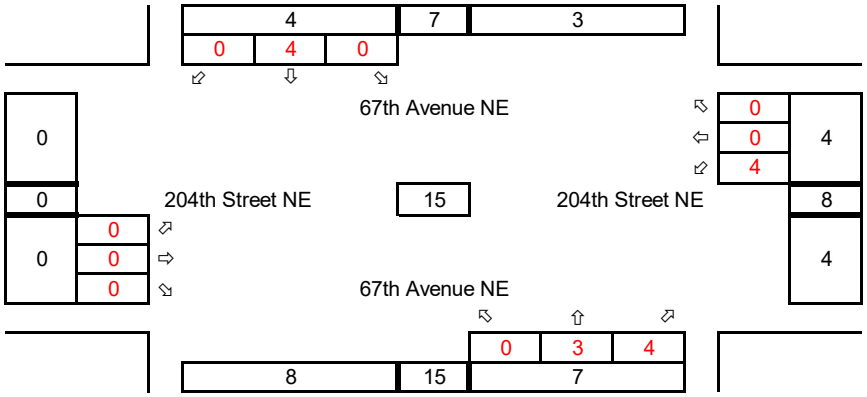


Future without Project
Average Weekday
PM Peak Hour

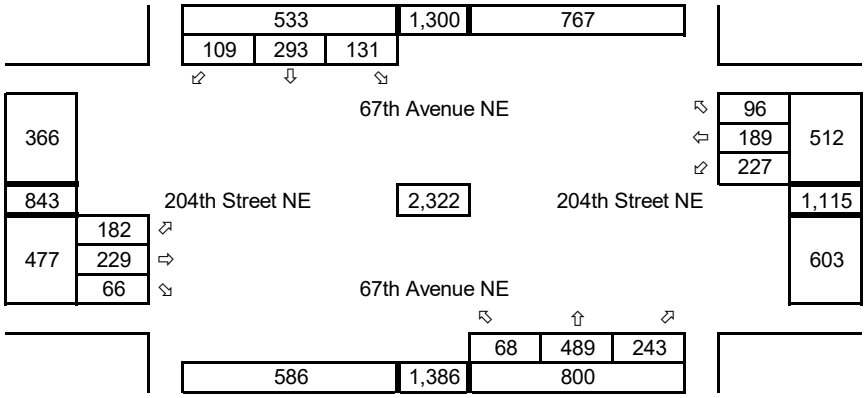
Year: 2025
Growth Rate = 2.0%
Years of Growth = 4
Total Growth = 1.0824



Total Project Trips
Average Weekday
PM Peak Hour



Future with Project
Average Weekday
PM Peak Hour



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2 67th Ave NE at 188th St NE

Synchro ID: 2

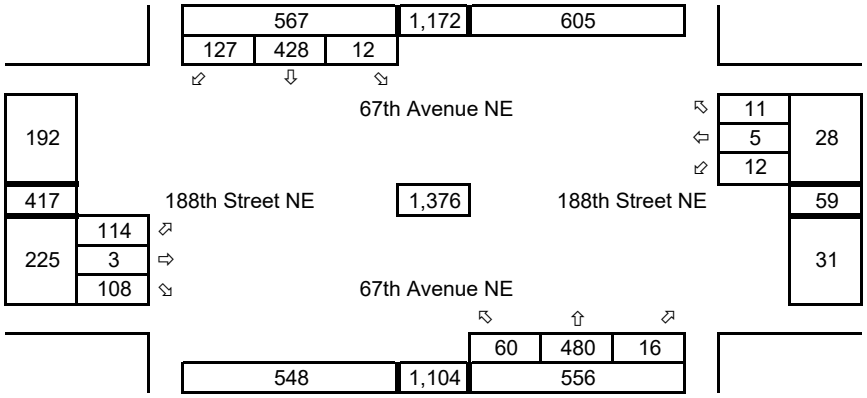
Existing
Average Weekday
PM Peak Hour

Year: **10/6/2021**

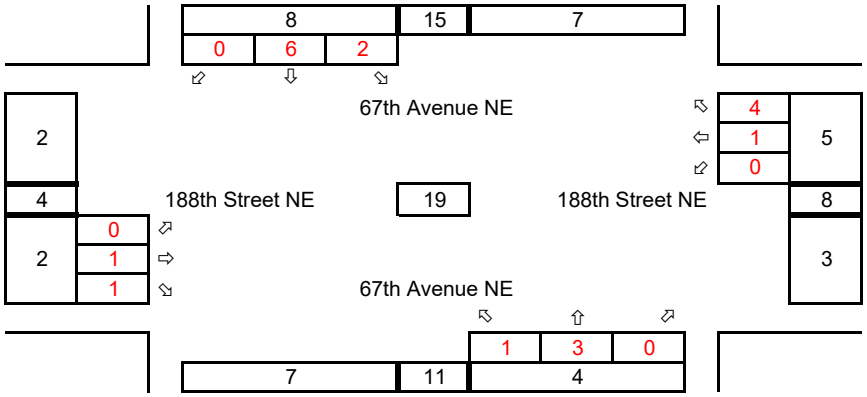
Data Source: **TDG**

Future without Project
Average Weekday
PM Peak Hour

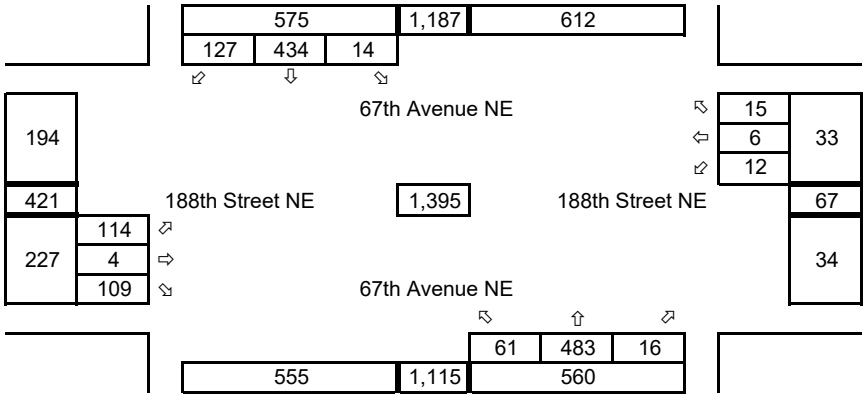
Year: 2025
Growth Rate = 2.0%
Years of Growth = 4
Total Growth = 1.0824



Total Project Trips
Average Weekday
PM Peak Hour



Future with Project
Average Weekday
PM Peak Hour



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3 67th Ave NE at Woodlands Way

Synchro ID: 3

Existing
Average Weekday
PM Peak Hour

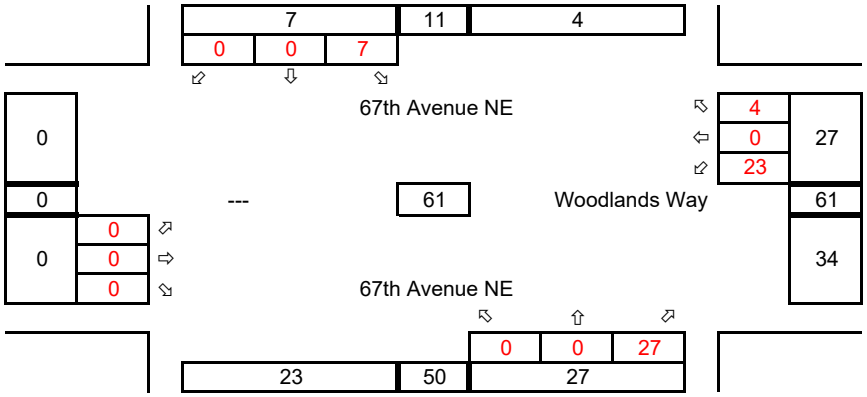
Year: **10/6/2021**

Data Source: **TDG**

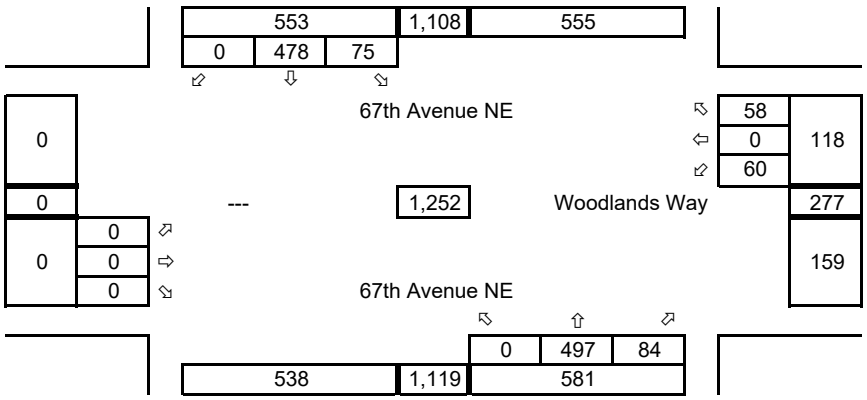
Future without Project
Average Weekday
PM Peak Hour

Year: 2025
Growth Rate = 2.0%
Years of Growth = 4
Total Growth = 1.0824

Total Project Trips
Average Weekday
PM Peak Hour



Future with Project
Average Weekday
PM Peak Hour



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4 Site Access at 188th St NE

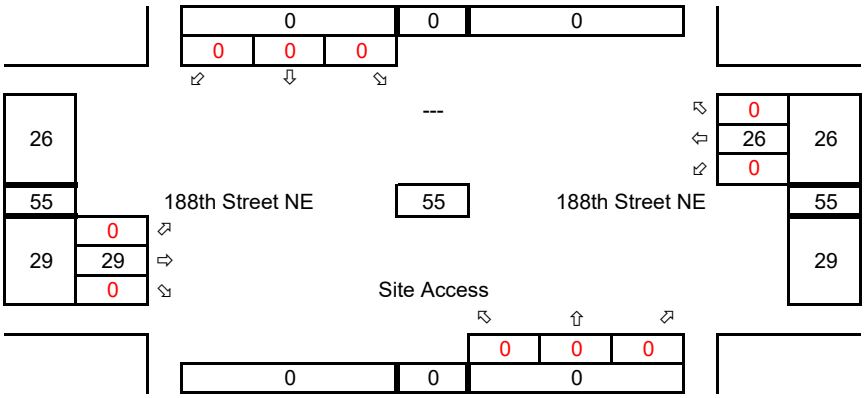
Synchro ID: 4

Existing
Average Weekday
PM Peak Hour

Year: **10/6/2021**

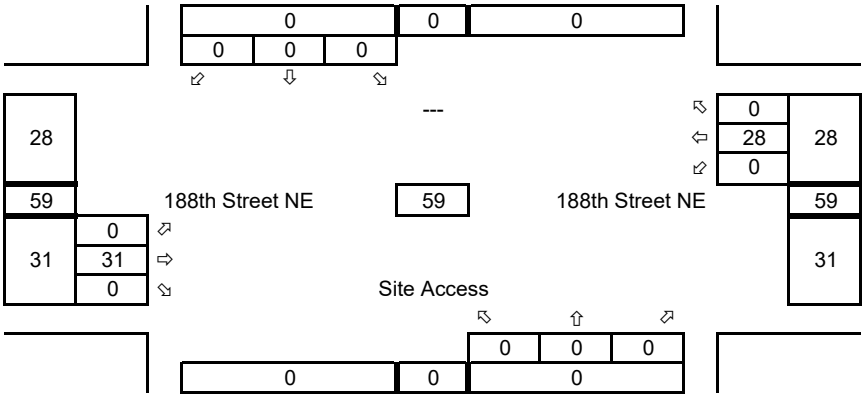
Data Source: **TDG**

Volumes are based on count for intersection of 67th Avenue NE at 188th Street NE

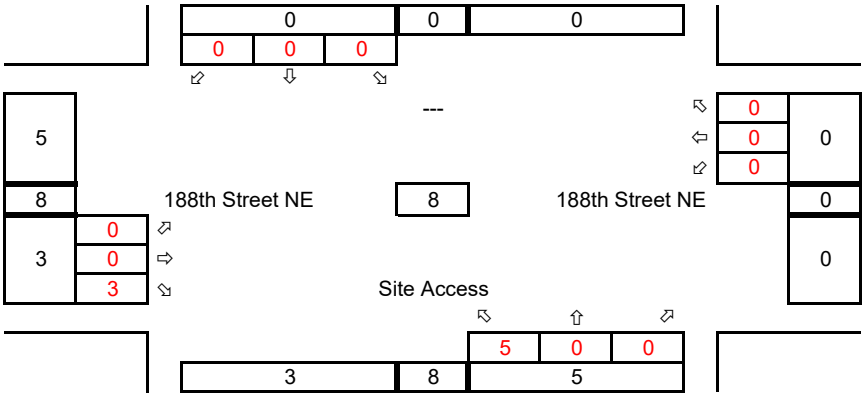


Future without Project
Average Weekday
PM Peak Hour

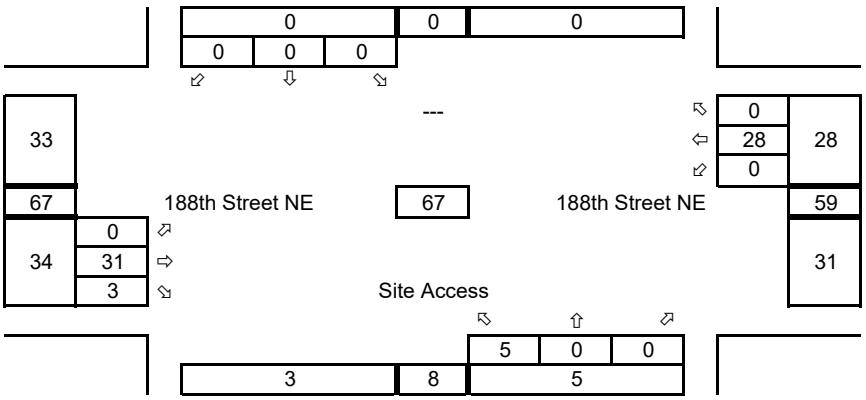
Year: 2025
Growth Rate = 2.0%
Years of Growth = 4
Total Growth = 1.0824



Total Project Trips
Average Weekday
PM Peak Hour



Future with Project
Average Weekday
PM Peak Hour



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5 Site Access at Woodlands Way

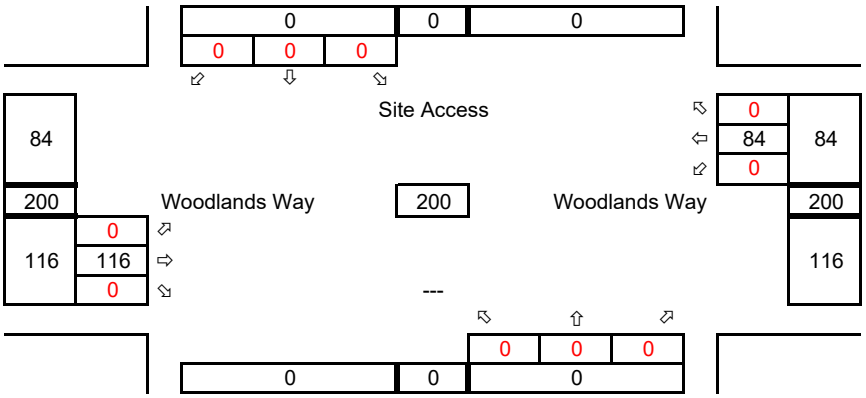
Synchro ID: 5

Existing
Average Weekday
PM Peak Hour

Year: **10/6/2021**

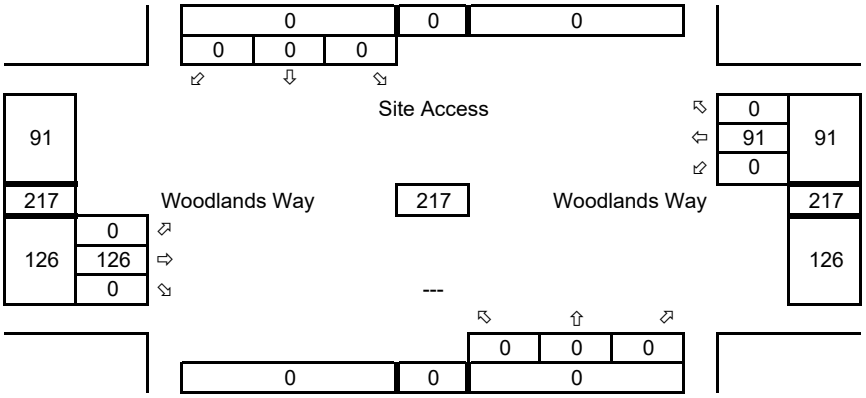
Data Source: **TDG**

Volumes are based on count for intersection of 67th Avenue NE at Woodlands Way

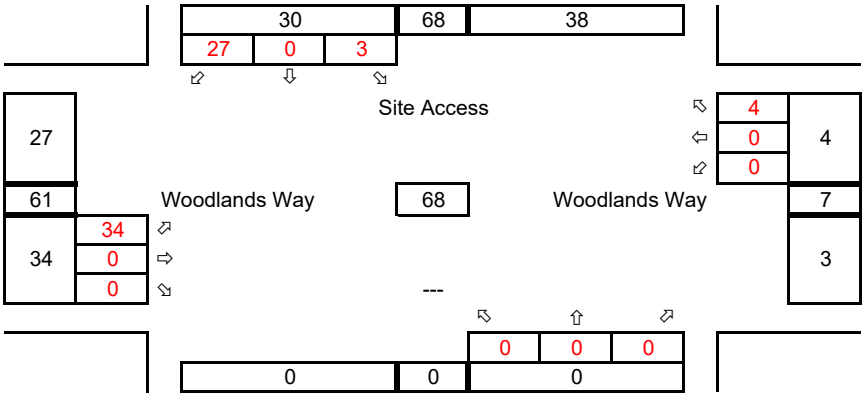


Future without Project
Average Weekday
PM Peak Hour

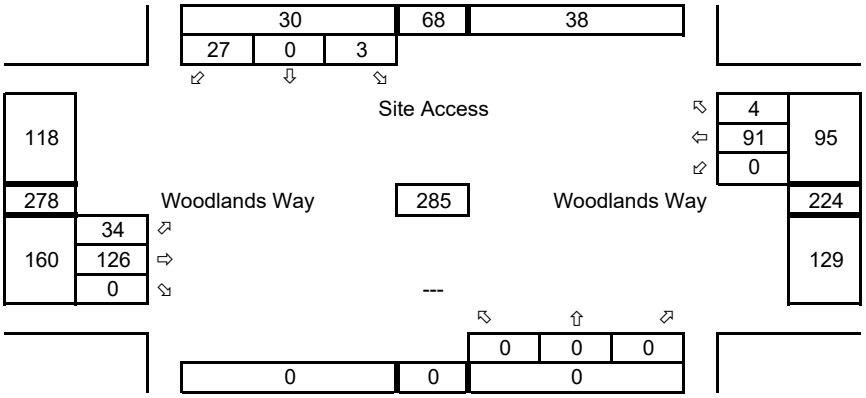
Year: 2025
Growth Rate = 2.0%
Years of Growth = 4
Total Growth = 1.0824



Total Project Trips
Average Weekday
PM Peak Hour



Future with Project
Average Weekday
PM Peak Hour



Level of Service Calculations

Lanes, Volumes, Timings
1: 67th Avenue NE & 204th Street NE

Grandview Apple

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	168	212	61	206	175	89	63	449	221	121	267	101
Future Volume (vph)	168	212	61	206	175	89	63	449	221	121	267	101
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	160		0	200		0	280		150	200		0
Storage Lanes	1		0	1		0	1		1	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00				0.99				0.97	1.00		
Frt		0.966			0.949				0.850		0.959	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1736	1765	0	1736	1717	0	1736	1827	1553	1736	1752	0
Flt Permitted	0.310			0.239			0.412			0.242		
Satd. Flow (perm)	564	1765	0	437	1717	0	753	1827	1514	442	1752	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		11			19				147		16	
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		653			2790			3943			1387	
Travel Time (s)		12.7			54.4			76.8			27.0	
Confl. Peds. (#/hr)	4					4			2	2		
Confl. Bikes (#/hr)									1			
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	185	300	0	226	290	0	69	493	243	133	404	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8			2		2	6		
Detector Phase	7	4		3	8		5	2	2	1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	10.0	10.0	5.0	10.0	
Minimum Split (s)	10.2	38.2		10.2	34.2		10.5	35.5	35.5	10.5	28.5	
Total Split (s)	20.2	38.2		20.2	34.2		20.5	50.5	50.5	20.5	50.5	
Total Split (%)	15.6%	29.5%		15.6%	26.4%		15.8%	39.0%	39.0%	15.8%	39.0%	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.5	4.5	4.5	4.5	4.5	
All-Red Time (s)	1.2	1.2		1.2	1.2		1.0	1.0	1.0	1.0	1.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	5.2	5.2		5.2	5.2		5.5	5.5	5.5	5.5	5.5	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes	Yes	Yes	Yes	
Recall Mode	None	None		None	None		None	Max	Max	None	Max	
Act Effct Green (s)	37.1	24.0		39.6	25.2		54.2	45.3	45.3	59.8	50.5	
Actuated g/C Ratio	0.32	0.21		0.34	0.22		0.47	0.39	0.39	0.51	0.43	
v/c Ratio	0.59	0.81		0.73	0.75		0.16	0.69	0.36	0.38	0.53	
Control Delay	33.9	59.5		41.6	53.0		16.2	37.9	12.8	18.4	29.1	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	33.9	59.5		41.6	53.0		16.2	37.9	12.8	18.4	29.1	
LOS	C	E		D	D		B	D	B	B	C	
Approach Delay		49.7			48.0			28.5			26.4	

Lanes, Volumes, Timings
1: 67th Avenue NE & 204th Street NE

Grandview Apple

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach LOS		D			D			C			C	
Queue Length 50th (ft)	95	209		120	193		25	309	47	49	222	
Queue Length 95th (ft)	158	320		#199	305		55	508	128	96	371	
Internal Link Dist (ft)		573			2710			3863			1307	
Turn Bay Length (ft)	160			200			280		150	200		
Base Capacity (vph)	341	511		319	503		516	711	679	402	768	
Starvation Cap Reductn	0	0		0	0		0	0	0	0	0	
Spillback Cap Reductn	0	0		0	0		0	0	0	0	0	
Storage Cap Reductn	0	0		0	0		0	0	0	0	0	
Reduced v/c Ratio	0.54	0.59		0.71	0.58		0.13	0.69	0.36	0.33	0.53	

Intersection Summary

Area Type: Other
Cycle Length: 129.4
Actuated Cycle Length: 116.4
Natural Cycle: 95
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.81
Intersection Signal Delay: 36.7 Intersection LOS: D
Intersection Capacity Utilization 75.8% ICU Level of Service D
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 1: 67th Avenue NE & 204th Street NE

2021 Existing Conditions
Gibson Traffic Consultants, Inc. [BJL #21-219]
PM Peak-Hour

Intersection												
Int Delay, s/veh	8.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	105	3	100	11	5	10	55	443	15	11	395	117
Future Vol, veh/h	105	3	100	11	5	10	55	443	15	11	395	117
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	2	2	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	50	-	-	50	-	-	200	-	-	200	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	86	86	86	86	86	86	86	86	86	86	86	86
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	122	3	116	13	6	12	64	515	17	13	459	136

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1146	1147	459	1267	1275	526	595	0	0	534	0	0
Stage 1	485	485	-	654	654	-	-	-	-	-	-	-
Stage 2	661	662	-	613	621	-	-	-	-	-	-	-
Critical Hdwy	7.13	6.53	6.23	7.13	6.53	6.23	4.13	-	-	4.13	-	-
Critical Hdwy Stg 1	6.13	5.53	-	6.13	5.53	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.13	5.53	-	6.13	5.53	-	-	-	-	-	-	-
Follow-up Hdwy	3.527	4.027	3.327	3.527	4.027	3.327	2.227	-	-	2.227	-	-
Pot Cap-1 Maneuver	176	198	600	145	166	550	976	-	-	1029	-	-
Stage 1	561	550	-	454	462	-	-	-	-	-	-	-
Stage 2	450	458	-	478	478	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	157	182	600	108	153	549	976	-	-	1027	-	-
Mov Cap-2 Maneuver	157	182	-	108	153	-	-	-	-	-	-	-
Stage 1	524	543	-	424	431	-	-	-	-	-	-	-
Stage 2	406	427	-	378	472	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	47.1	28.5	1	0.2
HCM LOS	E	D		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	976	-	-	157	562	108	295	1027	-	-
HCM Lane V/C Ratio	0.066	-	-	0.778	0.213	0.118	0.059	0.012	-	-
HCM Control Delay (s)	8.9	-	-	80.5	13.1	42.8	18	8.6	-	-
HCM Lane LOS	A	-	-	F	B	E	C	A	-	-
HCM 95th %tile Q(veh)	0.2	-	-	4.9	0.8	0.4	0.2	0	-	-

Intersection	
Int Delay, s/veh	2.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	34	50	459	53	63	442
Future Vol, veh/h	34	50	459	53	63	442
Conflicting Peds, #/hr	0	0	0	1	1	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	85	0	-	-	100	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	85	85	85	85	85	85
Heavy Vehicles, %	4	4	4	4	4	4
Mvmt Flow	40	59	540	62	74	520

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1240	572	0	0	603	0
Stage 1	572	-	-	-	-	-
Stage 2	668	-	-	-	-	-
Critical Hdwy	6.44	6.24	-	-	4.14	-
Critical Hdwy Stg 1	5.44	-	-	-	-	-
Critical Hdwy Stg 2	5.44	-	-	-	-	-
Follow-up Hdwy	3.536	3.336	-	-	2.236	-
Pot Cap-1 Maneuver	192	516	-	-	965	-
Stage 1	561	-	-	-	-	-
Stage 2	506	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	177	516	-	-	964	-
Mov Cap-2 Maneuver	177	-	-	-	-	-
Stage 1	560	-	-	-	-	-
Stage 2	467	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	20.3	0	1.1
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	177	516	964	-
HCM Lane V/C Ratio	-	-	0.226	0.114	0.077	-
HCM Control Delay (s)	-	-	31.2	12.9	9	-
HCM Lane LOS	-	-	D	B	A	-
HCM 95th %tile Q(veh)	-	-	0.8	0.4	0.2	-

Lanes, Volumes, Timings
1: 67th Avenue NE & 204th Street NE

Grandview Apple

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	182	229	66	223	189	96	68	486	239	131	289	109
Future Volume (vph)	182	229	66	223	189	96	68	486	239	131	289	109
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	160		0	200		0	280		150	200		0
Storage Lanes	1		0	1		0	1		1	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00				0.99				0.97			
Frt		0.966			0.950				0.850		0.959	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1736	1765	0	1736	1719	0	1736	1827	1553	1736	1752	0
Flt Permitted	0.273			0.211			0.370			0.196		
Satd. Flow (perm)	497	1765	0	385	1719	0	676	1827	1514	358	1752	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		11			19				147		16	
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		653			2790			3943			1387	
Travel Time (s)		12.7			54.4			76.8			27.0	
Confl. Peds. (#/hr)	4					4			2	2		
Confl. Bikes (#/hr)									1			
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	200	325	0	245	313	0	75	534	263	144	438	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8			2		2	6		
Detector Phase	7	4		3	8		5	2	2	1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	10.0	10.0	5.0	10.0	
Minimum Split (s)	10.2	38.2		10.2	34.2		10.5	35.5	35.5	10.5	28.5	
Total Split (s)	20.2	38.2		20.2	34.2		20.5	50.5	50.5	20.5	50.5	
Total Split (%)	15.6%	29.5%		15.6%	26.4%		15.8%	39.0%	39.0%	15.8%	39.0%	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.5	4.5	4.5	4.5	4.5	
All-Red Time (s)	1.2	1.2		1.2	1.2		1.0	1.0	1.0	1.0	1.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	5.2	5.2		5.2	5.2		5.5	5.5	5.5	5.5	5.5	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes	Yes	Yes	Yes	
Recall Mode	None	None		None	None		None	Max	Max	None	Max	
Act Effct Green (s)	39.0	25.5		41.2	26.6		54.4	45.3	45.3	60.3	50.5	
Actuated g/C Ratio	0.33	0.22		0.35	0.22		0.46	0.38	0.38	0.51	0.43	
v/c Ratio	0.66	0.84		0.82	0.78		0.19	0.77	0.39	0.46	0.58	
Control Delay	36.6	62.2		49.5	55.4		16.9	42.3	14.5	20.5	31.4	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	36.6	62.2		49.5	55.4		16.9	42.3	14.5	20.5	31.4	
LOS	D	E		D	E		B	D	B	C	C	
Approach Delay		52.5			52.8			31.7			28.7	

Lanes, Volumes, Timings
1: 67th Avenue NE & 204th Street NE

Grandview Apple

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach LOS		D			D			C			C	
Queue Length 50th (ft)	105	233		133	217		28	360	60	56	257	
Queue Length 95th (ft)	171	351		#248	332		59	#600	148	103	414	
Internal Link Dist (ft)		573			2710			3863			1307	
Turn Bay Length (ft)	160			200			280		150	200		
Base Capacity (vph)	328	502		307	495		477	697	669	362	756	
Starvation Cap Reductn	0	0		0	0		0	0	0	0	0	
Spillback Cap Reductn	0	0		0	0		0	0	0	0	0	
Storage Cap Reductn	0	0		0	0		0	0	0	0	0	
Reduced v/c Ratio	0.61	0.65		0.80	0.63		0.16	0.77	0.39	0.40	0.58	

Intersection Summary

Area Type: Other
Cycle Length: 129.4
Actuated Cycle Length: 118.5
Natural Cycle: 95
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.84
Intersection Signal Delay: 40.0 Intersection LOS: D
Intersection Capacity Utilization 79.1% ICU Level of Service D
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 1: 67th Avenue NE & 204th Street NE

2025 Baseline Conditions
Gibson Traffic Consultants, Inc. [BJL #21-219]
PM Peak-Hour

Intersection												
Int Delay, s/veh	14											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	114	3	108	12	5	11	60	480	16	12	428	127
Future Vol, veh/h	114	3	108	12	5	11	60	480	16	12	428	127
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	2	2	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	50	-	-	50	-	-	200	-	-	200	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	86	86	86	86	86	86	86	86	86	86	86	86
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	133	3	126	14	6	13	70	558	19	14	498	148

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1243	1245	498	1375	1384	570	646	0	0	579	0	0
Stage 1	526	526	-	710	710	-	-	-	-	-	-	-
Stage 2	717	719	-	665	674	-	-	-	-	-	-	-
Critical Hdwy	7.13	6.53	6.23	7.13	6.53	6.23	4.13	-	-	4.13	-	-
Critical Hdwy Stg 1	6.13	5.53	-	6.13	5.53	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.13	5.53	-	6.13	5.53	-	-	-	-	-	-	-
Follow-up Hdwy	3.527	4.027	3.327	3.527	4.027	3.327	2.227	-	-	2.227	-	-
Pot Cap-1 Maneuver	151	173	570	122	143	519	935	-	-	990	-	-
Stage 1	533	527	-	423	435	-	-	-	-	-	-	-
Stage 2	419	431	-	448	452	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	133	157	570	87	130	518	935	-	-	988	-	-
Mov Cap-2 Maneuver	133	157	-	87	130	-	-	-	-	-	-	-
Stage 1	493	520	-	390	402	-	-	-	-	-	-	-
Stage 2	373	398	-	342	446	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	78.6	34.3	1	0.2
HCM LOS	F	D		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	935	-	-	133	532	87	268	988	-	-
HCM Lane V/C Ratio	0.075	-	-	0.997	0.243	0.16	0.069	0.014	-	-
HCM Control Delay (s)	9.2	-	-	141.5	13.9	54.1	19.4	8.7	-	-
HCM Lane LOS	A	-	-	F	B	F	C	A	-	-
HCM 95th %tile Q(veh)	0.2	-	-	7	0.9	0.5	0.2	0	-	-

Lanes, Volumes, Timings
2: 67th Avenue NE & 188th Street NE

Grandview Apple

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	114	3	108	12	5	11	60	480	16	12	428	127
Future Volume (vph)	114	3	108	12	5	11	60	480	16	12	428	127
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	50		0	50		0	200		0	200		0
Storage Lanes	1		0	1		0	1		0	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor								1.00		1.00		
Frt		0.853			0.897			0.995				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1752	1573	0	1752	1655	0	1752	1834	0	1752	1845	1568
Flt Permitted	0.745			0.674			0.346			0.358		
Satd. Flow (perm)	1374	1573	0	1243	1655	0	638	1834	0	659	1845	1568
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		126			13			3				148
Link Speed (mph)		30			30			35			35	
Link Distance (ft)		1295			516			515			1185	
Travel Time (s)		29.4			11.7			10.0			23.1	
Confl. Peds. (#/hr)									2	2		
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	133	129	0	14	19	0	70	577	0	14	498	148
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		pm+pt	NA	Perm
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8			2			6		6
Detector Phase	4	4		8	8		5	2		1	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	5.0
Minimum Split (s)	22.5	22.5		22.5	22.5		9.5	22.5		9.5	22.5	22.5
Total Split (s)	25.0	25.0		25.0	25.0		10.0	55.0		10.0	55.0	55.0
Total Split (%)	27.8%	27.8%		27.8%	27.8%		11.1%	61.1%		11.1%	61.1%	61.1%
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5		3.5	3.5	3.5
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	4.5
Lead/Lag							Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	Yes
Recall Mode	None	None		None	None		None	Min		None	Min	Min
Act Effct Green (s)	10.9	10.9		10.9	10.9		29.4	28.6		27.6	24.7	24.7
Actuated g/C Ratio	0.22	0.22		0.22	0.22		0.58	0.57		0.55	0.49	0.49
v/c Ratio	0.45	0.30		0.05	0.05		0.14	0.55		0.03	0.55	0.18
Control Delay	25.1	7.3		20.0	13.4		5.2	10.6		4.7	13.5	2.6
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	25.1	7.3		20.0	13.4		5.2	10.6		4.7	13.5	2.6
LOS	C	A		B	B		A	B		A	B	A
Approach Delay		16.3			16.2			10.0			10.9	
Approach LOS		B			B			A			B	

Lanes, Volumes, Timings
2: 67th Avenue NE & 188th Street NE

Grandview Apple

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)	33	1		3	1		7	76		1	110	0
Queue Length 95th (ft)	96	37		18	17		22	256		7	210	22
Internal Link Dist (ft)		1215			436			435			1105	
Turn Bay Length (ft)	50			50			200			200		
Base Capacity (vph)	596	754		539	725		501	1687		487	1697	1454
Starvation Cap Reductn	0	0		0	0		0	0		0	0	0
Spillback Cap Reductn	0	0		0	0		0	0		0	0	0
Storage Cap Reductn	0	0		0	0		0	0		0	0	0
Reduced v/c Ratio	0.22	0.17		0.03	0.03		0.14	0.34		0.03	0.29	0.10

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 50.5
Natural Cycle: 60
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.55
Intersection Signal Delay: 11.5 Intersection LOS: B
Intersection Capacity Utilization 54.6% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 2: 67th Avenue NE & 188th Street NE

2025 Baseline Conditions with Improvements
Gibson Traffic Consultants, Inc. [BJL #21-219]
PM Peak-Hour

Intersection	
Int Delay, s/veh	2.4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	37	54	497	57	68	478
Future Vol, veh/h	37	54	497	57	68	478
Conflicting Peds, #/hr	0	0	0	1	1	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	85	0	-	-	100	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	85	85	85	85	85	85
Heavy Vehicles, %	4	4	4	4	4	4
Mvmt Flow	44	64	585	67	80	562

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1342	620	0	0	653	0
Stage 1	620	-	-	-	-	-
Stage 2	722	-	-	-	-	-
Critical Hdwy	6.44	6.24	-	-	4.14	-
Critical Hdwy Stg 1	5.44	-	-	-	-	-
Critical Hdwy Stg 2	5.44	-	-	-	-	-
Follow-up Hdwy	3.536	3.336	-	-	2.236	-
Pot Cap-1 Maneuver	166	484	-	-	924	-
Stage 1	533	-	-	-	-	-
Stage 2	477	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	151	484	-	-	923	-
Mov Cap-2 Maneuver	151	-	-	-	-	-
Stage 1	532	-	-	-	-	-
Stage 2	436	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	23.6	0	1.2
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	151	484	923	-
HCM Lane V/C Ratio	-	-	0.288	0.131	0.087	-
HCM Control Delay (s)	-	-	38.2	13.6	9.3	-
HCM Lane LOS	-	-	E	B	A	-
HCM 95th %tile Q(veh)	-	-	1.1	0.4	0.3	-

Lanes, Volumes, Timings
1: 67th Avenue NE & 204th Street NE

Grandview Apple

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	182	229	66	227	189	96	68	489	243	131	293	109
Future Volume (vph)	182	229	66	227	189	96	68	489	243	131	293	109
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	160		0	200		0	280		150	200		0
Storage Lanes	1		0	1		0	1		1	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00				0.99				0.97			
Frt		0.966			0.950				0.850		0.959	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1736	1765	0	1736	1719	0	1736	1827	1553	1736	1752	0
Flt Permitted	0.275			0.213			0.365			0.192		
Satd. Flow (perm)	500	1765	0	389	1719	0	667	1827	1514	351	1752	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		11			19				148		16	
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		653			2790			3943			1387	
Travel Time (s)		12.7			54.4			76.8			27.0	
Confl. Peds. (#/hr)	4					4			2	2		
Confl. Bikes (#/hr)									1			
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	200	325	0	249	313	0	75	537	267	144	442	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8			2		2	6		
Detector Phase	7	4		3	8		5	2	2	1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	10.0	10.0	5.0	10.0	
Minimum Split (s)	10.2	38.2		10.2	34.2		10.5	35.5	35.5	10.5	28.5	
Total Split (s)	20.2	38.2		20.2	34.2		20.5	50.5	50.5	20.5	50.5	
Total Split (%)	15.6%	29.5%		15.6%	26.4%		15.8%	39.0%	39.0%	15.8%	39.0%	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.5	4.5	4.5	4.5	4.5	
All-Red Time (s)	1.2	1.2		1.2	1.2		1.0	1.0	1.0	1.0	1.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	5.2	5.2		5.2	5.2		5.5	5.5	5.5	5.5	5.5	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes	Yes	Yes	Yes	
Recall Mode	None	None		None	None		None	Max	Max	None	Max	
Act Effct Green (s)	39.1	25.6		41.3	26.7		54.4	45.3	45.3	60.3	50.6	
Actuated g/C Ratio	0.33	0.22		0.35	0.23		0.46	0.38	0.38	0.51	0.43	
v/c Ratio	0.66	0.84		0.83	0.78		0.19	0.77	0.40	0.46	0.59	
Control Delay	36.6	62.2		50.5	55.3		16.9	42.6	14.7	20.7	31.6	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	36.6	62.2		50.5	55.3		16.9	42.6	14.7	20.7	31.6	
LOS	D	E		D	E		B	D	B	C	C	
Approach Delay		52.5			53.2			31.9			28.9	

Lanes, Volumes, Timings
1: 67th Avenue NE & 204th Street NE

Grandview Apple

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach LOS		D			D			C			C	
Queue Length 50th (ft)	105	233		135	217		28	363	62	56	260	
Queue Length 95th (ft)	171	351		#253	332		59	#603	150	103	419	
Internal Link Dist (ft)		573			2710			3863			1307	
Turn Bay Length (ft)	160			200			280		150	200		
Base Capacity (vph)	328	502		308	494		474	697	669	359	755	
Starvation Cap Reductn	0	0		0	0		0	0	0	0	0	
Spillback Cap Reductn	0	0		0	0		0	0	0	0	0	
Storage Cap Reductn	0	0		0	0		0	0	0	0	0	
Reduced v/c Ratio	0.61	0.65		0.81	0.63		0.16	0.77	0.40	0.40	0.59	

Intersection Summary

Area Type: Other
Cycle Length: 129.4
Actuated Cycle Length: 118.6
Natural Cycle: 95
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.84
Intersection Signal Delay: 40.1 Intersection LOS: D
Intersection Capacity Utilization 79.5% ICU Level of Service D
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 1: 67th Avenue NE & 204th Street NE

2025 Future Conditions with Development
Gibson Traffic Consultants, Inc. [BJL #21-219]
PM Peak-Hour

Intersection	
Int Delay, s/veh	15.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	114	4	109	12	6	15	61	483	16	14	434	127
Future Vol, veh/h	114	4	109	12	6	15	61	483	16	14	434	127
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	2	2	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	50	-	-	50	-	-	200	-	-	200	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	86	86	86	86	86	86	86	86	86	86	86	86
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	133	5	127	14	7	17	71	562	19	16	505	148

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1263	1262	505	1393	1401	574	653	0	0	583	0	0
Stage 1	537	537	-	716	716	-	-	-	-	-	-	-
Stage 2	726	725	-	677	685	-	-	-	-	-	-	-
Critical Hdwy	7.13	6.53	6.23	7.13	6.53	6.23	4.13	-	-	4.13	-	-
Critical Hdwy Stg 1	6.13	5.53	-	6.13	5.53	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.13	5.53	-	6.13	5.53	-	-	-	-	-	-	-
Follow-up Hdwy	3.527	4.027	3.327	3.527	4.027	3.327	2.227	-	-	2.227	-	-
Pot Cap-1 Maneuver	146	169	565	119	139	516	929	-	-	986	-	-
Stage 1	526	521	-	420	433	-	-	-	-	-	-	-
Stage 2	414	428	-	441	447	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	~ 126	153	565	84	126	515	929	-	-	984	-	-
Mov Cap-2 Maneuver	~ 126	153	-	84	126	-	-	-	-	-	-	-
Stage 1	486	513	-	387	399	-	-	-	-	-	-	-
Stage 2	363	395	-	333	440	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	88.6	32.8	1	0.2
HCM LOS	F	D		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	929	-	-	126	516	84	274	984	-	-
HCM Lane V/C Ratio	0.076	-	-	1.052	0.255	0.166	0.089	0.017	-	-
HCM Control Delay (s)	9.2	-	-	162.2	14.3	56.2	19.4	8.7	-	-
HCM Lane LOS	A	-	-	F	B	F	C	A	-	-
HCM 95th %tile Q(veh)	0.2	-	-	7.5	1	0.6	0.3	0.1	-	-

Notes

~: Volume exceeds capacity $: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

Lanes, Volumes, Timings
2: 67th Avenue NE & 188th Street NE

Grandview Apple

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	114	4	109	12	6	15	61	483	16	14	434	127
Future Volume (vph)	114	4	109	12	6	15	61	483	16	14	434	127
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	50		0	50		0	200		0	200		0
Storage Lanes	1		0	1		0	1		0	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor								1.00		1.00		
Frt		0.856			0.894			0.995				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1752	1579	0	1752	1649	0	1752	1834	0	1752	1845	1568
Flt Permitted	0.742			0.673			0.341			0.355		
Satd. Flow (perm)	1369	1579	0	1241	1649	0	629	1834	0	654	1845	1568
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		127			17			3				148
Link Speed (mph)		30			30			35			35	
Link Distance (ft)		1295			516			515			1185	
Travel Time (s)		29.4			11.7			10.0			23.1	
Confl. Peds. (#/hr)									2	2		
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	133	132	0	14	24	0	71	581	0	16	505	148
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		pm+pt	NA	Perm
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8			2			6		6
Detector Phase	4	4		8	8		5	2		1	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	5.0
Minimum Split (s)	22.5	22.5		22.5	22.5		9.5	22.5		9.5	22.5	22.5
Total Split (s)	25.0	25.0		25.0	25.0		10.0	55.0		10.0	55.0	55.0
Total Split (%)	27.8%	27.8%		27.8%	27.8%		11.1%	61.1%		11.1%	61.1%	61.1%
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5		3.5	3.5	3.5
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	4.5
Lead/Lag							Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	Yes
Recall Mode	None	None		None	None		None	Min		None	Min	Min
Act Effct Green (s)	10.9	10.9		10.9	10.9		29.5	28.8		27.8	24.9	24.9
Actuated g/C Ratio	0.21	0.21		0.21	0.21		0.58	0.57		0.55	0.49	0.49
v/c Ratio	0.45	0.30		0.05	0.07		0.14	0.56		0.03	0.56	0.18
Control Delay	25.3	7.4		20.1	13.0		5.3	10.6		4.7	13.6	2.6
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	25.3	7.4		20.1	13.0		5.3	10.6		4.7	13.6	2.6
LOS	C	A		C	B		A	B		A	B	A
Approach Delay		16.4			15.6			10.0			11.0	
Approach LOS		B			B			B			B	

Lanes, Volumes, Timings
2: 67th Avenue NE & 188th Street NE

Grandview Apple

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)	33	1		3	2		7	78		2	112	0
Queue Length 95th (ft)	96	38		18	19		22	259		8	214	22
Internal Link Dist (ft)		1215			436			435			1105	
Turn Bay Length (ft)	50			50			200			200		
Base Capacity (vph)	593	756		537	724		496	1683		485	1693	1451
Starvation Cap Reductn	0	0		0	0		0	0		0	0	0
Spillback Cap Reductn	0	0		0	0		0	0		0	0	0
Storage Cap Reductn	0	0		0	0		0	0		0	0	0
Reduced v/c Ratio	0.22	0.17		0.03	0.03		0.14	0.35		0.03	0.30	0.10

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 50.7
Natural Cycle: 60
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.56
Intersection Signal Delay: 11.6 Intersection LOS: B
Intersection Capacity Utilization 54.8% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 2: 67th Avenue NE & 188th Street NE

2025 Future Conditions with Development and Improvements
Gibson Traffic Consultants, Inc. [BJL #21-219]
PM Peak-Hour

Intersection	
Int Delay, s/veh	3.7

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	60	58	497	84	75	478
Future Vol, veh/h	60	58	497	84	75	478
Conflicting Peds, #/hr	0	0	0	1	1	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	85	0	-	-	100	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	85	85	85	85	85	85
Heavy Vehicles, %	4	4	4	4	4	4
Mvmt Flow	71	68	585	99	88	562

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1374	636	0	0	685	0
Stage 1	636	-	-	-	-	-
Stage 2	738	-	-	-	-	-
Critical Hdwy	6.44	6.24	-	-	4.14	-
Critical Hdwy Stg 1	5.44	-	-	-	-	-
Critical Hdwy Stg 2	5.44	-	-	-	-	-
Follow-up Hdwy	3.536	3.336	-	-	2.236	-
Pot Cap-1 Maneuver	159	474	-	-	899	-
Stage 1	524	-	-	-	-	-
Stage 2	469	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	143	474	-	-	898	-
Mov Cap-2 Maneuver	143	-	-	-	-	-
Stage 1	523	-	-	-	-	-
Stage 2	423	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	33.5	0	1.3
HCM LOS	D		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	143	474	898	-
HCM Lane V/C Ratio	-	-	0.494	0.144	0.098	-
HCM Control Delay (s)	-	-	52.5	13.9	9.4	-
HCM Lane LOS	-	-	F	B	A	-
HCM 95th %tile Q(veh)	-	-	2.3	0.5	0.3	-

Intersection	
Int Delay, s/veh	0.7

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	31	3	0	28	5	0
Future Vol, veh/h	31	3	0	28	5	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	86	86	86	86	86	86
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	36	3	0	33	6	0

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	39	0	71	38
Stage 1	-	-	-	-	38	-
Stage 2	-	-	-	-	33	-
Critical Hdwy	-	-	4.13	-	6.43	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	-	-	2.227	-	3.527	3.327
Pot Cap-1 Maneuver	-	-	1565	-	931	1031
Stage 1	-	-	-	-	982	-
Stage 2	-	-	-	-	987	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1565	-	931	1031
Mov Cap-2 Maneuver	-	-	-	-	931	-
Stage 1	-	-	-	-	982	-
Stage 2	-	-	-	-	987	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	8.9
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	931	-	-	1565	-
HCM Lane V/C Ratio	0.006	-	-	-	-
HCM Control Delay (s)	8.9	-	-	0	-
HCM Lane LOS	A	-	-	A	-
HCM 95th %tile Q(veh)	0	-	-	0	-

Intersection	
Int Delay, s/veh	1.9

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	34	126	91	4	3	27
Future Vol, veh/h	34	126	91	4	3	27
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	85	85	85	85	85	85
Heavy Vehicles, %	4	4	4	4	4	4
Mvmt Flow	40	148	107	5	4	32

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	112	0	-	0	338	110
Stage 1	-	-	-	-	110	-
Stage 2	-	-	-	-	228	-
Critical Hdwy	4.14	-	-	-	6.44	6.24
Critical Hdwy Stg 1	-	-	-	-	5.44	-
Critical Hdwy Stg 2	-	-	-	-	5.44	-
Follow-up Hdwy	2.236	-	-	-	3.536	3.336
Pot Cap-1 Maneuver	1465	-	-	-	654	938
Stage 1	-	-	-	-	910	-
Stage 2	-	-	-	-	805	-
Platoon blocked, %			-	-	-	
Mov Cap-1 Maneuver	1465	-	-	-	634	938
Mov Cap-2 Maneuver	-	-	-	-	634	-
Stage 1	-	-	-	-	883	-
Stage 2	-	-	-	-	805	-

Approach	EB	WB	SB
HCM Control Delay, s	1.6	0	9.2
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1465	-	-	-	895
HCM Lane V/C Ratio	0.027	-	-	-	0.039
HCM Control Delay (s)	7.5	0	-	-	9.2
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0.1	-	-	-	0.1