From: Jeffrey Delapena
To: hcpheidi@yahoo.com
Cc: Oliver Orjiako; Jose Alvarez; Rebecca Messinger
Subject: FW: Comp Plan: Mill Creek Estates and Avery Drive Traffic Studies
Date: Monday, October 12, 2026 8:09:00 AM
Attachments: Avery Drive 14 Traffic Study.pdf

Hello Heidi,

Thank you for providing this comment and attachments. Confirming these have been received and will be added to the Comprehensive Plan Index of Record.

Best,

Jeff Delapena
Program Assistant
COMMUNITY PLANNING

564.397.4558

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From: Heidi Pozzo <hcpheidi@yahoo.com>
Sent: Monday, October 12, 2026 6:26 AM
To: Jeffrey Delapena <Jeffrey.Delapena@clark.wa.gov>
Cc: Oliver Orjiako <Oliver.Orjiako@clark.wa.gov>; Jose Alvarez <Jose.Alvarez@clark.wa.gov>
Subject: Comp Plan: Mill Creek Estates and Avery Drive Traffic Studies

EXTERNAL: This email originated from outside of Clark County. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Dear Jeff,

Please enter the following into the Comp Plan index. I've uploaded Traffic Studies for Mill Creek Estates (June 9, 2026) into the link you provided and attached Avery Drive (June 18, 2026) below as I was getting an error while trying to upload. Both contain the following issues:

- The analysis year is 2028, although the studies were stamped in June 2026 and should analyze 2029.
- Known in-process developments are missing, including commercial developments and the same engineer's own concurrent projects.

- Road capacities are reflected as fully built out, even though the road segments are not on the 6-Year TIP and reasonably funded, and are not built out to their design capacity.
- V/C ratios for the same road segments and the same horizon year are substantially lower than in the same engineer's studies from December 2025 and May 2026, changing several segments from failing to passing, and the removal of the WSU trips does not account for the difference.
- Road segments and intersections that the same engineer reported as failing in other studies are left out of the study area, including the I-5 northbound ramp roundabout on NE 179th Street.
- Road segments exceeding the 0.90 V/C standard are dismissed because nearby intersections operate acceptably.
- Road segments exceeding the 0.90 V/C standard are dismissed because the development adds no trips in the failing direction.
- Avery Drive substitutes a Highway Capacity Manual capacity for the capacity set in County code.
- Traffic counts were taken while NE 179th Street was closed at NE 29th, and the studies do not disclose it.
- Traffic counts were taken in summer with no seasonal adjustment.
- Avery Drive's published traffic volumes do not match the method the study describes.
- Avery Drive's trip distribution changed between the scoping memo and the final study without explanation.
- The two studies use different inputs for the same intersections and developments, although they were prepared by the same engineer nine days apart.
- Planned improvements are treated as in place before the construction dates the studies themselves state.
- Intersection results are reported as overall averages, while approach-level failures appear only in the appendix.
- Mill Creek Estates' signal warrant analysis uses the wrong number of lanes on NE 50th Avenue; corrected, the warrant is met and the intersection fails the applicable standard.
- Mill Creek Estates offers volunteered mitigation for a failing intersection in place of meeting the standard.
- Avery Drive finds a left-turn lane warranted on NE 179th Street but does not provide it, and proposes omitting a required raised median without the County Engineer determination the code requires.

Thank you,

Heidi

TRANSPORTATION IMPACT STUDY

Mill Creek Estates Subdivision

Clark County, Washington

Prepared by:
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6/9/2026



Prepared for:
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Prepared: June 9, 2026

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Executive Summary

1. The proposed Mill Creek Estates project will include the construction of a residential subdivision on two properties located at 3511/3619 NE 174th Street in unincorporated Clark County, Washington. The proposal will include the construction of a 43-lot subdivision, where one existing house will be removed and second existing house will be retained. Access to the site will be provided via NE 174th Street to the east of the site and NE 171st Way to the south. Note that the remaining existing house will be served access via the private road segment of NE 174th Street. This private segment of NE 174th Street will serve as emergency vehicle access only for all other proposed houses until the private segment is redesigned and reclassified as a public street.
2. The trip generation calculations show that the proposed subdivision is projected to generate 29 net new AM peak hour trips, 38 net new PM peak hour trips, and 373 net new average weekday trips.
3. The intersection of NE 179th Street at NE 50th Avenue is projected to operate at LOS E during the PM peak hour under 2028 post-development conditions. While not necessarily operating in excess of County standards, it is expected that future operation may eventually degrade to LOS F. The applicant will be volunteering to install a dedicated northbound left-turn lane at the intersection of NE 179th Street at NE 50th Avenue as part of this proposed development application. This volunteered mitigation is intended to demonstrate improved LOS D operation and to add additional capacity to the critical minor street approach and turning movement of the intersection.
4. All other study intersections are currently operating acceptably per Clark County standards and are projected to continue operating acceptably through the 2028 development year of the site. No operational mitigation is necessary or recommended at these study intersections as part of the proposed development application.
5. The roadway segment of NE 10th Avenue between NE 179th Street and NE 189th Street is projected to exceed Clark County's roadway segment v/c ratio threshold under year 2028 conditions. Although projected to operate with a v/c ratio in excess of 0.90 during the PM peak hour, no mitigation as part of the proposed development application is recommended for the following reasons:
    a. During the PM peak hour, the northbound travel direction of the roadway segment operates with a v/c ratio of 0.921 and the southbound direction operates with an acceptable v/c ratio of 0.551. The proposed development is projected to add 0 PM peak hour trips to the northbound travel direction of the roadway segment. Therefore, the proposed development will not impact or increase the v/c ratio of the failing travel direction of NE 10th Avenue.

b. This segment of NE 10th Avenue is projected to operate with v/c ratios above 0.90 under year 2028 conditions without impacts from the proposed development, noting the proposed development does not impact this movement. Therefore, the proposed Mill Creek Estates project does not cause this roadway segment to exceed the 0.90 v/c ratio threshold.

c. The study intersection of NE 179th Street at NE 15th Avenue is projected to operate at LOS A during the AM and PM peak hours under year 2028 post-development conditions. Therefore, the high roadway v/c ratio is not expected to create operational issues at the relevant/applicable study intersections.

6. All other relevant roadway segments are projected to operate acceptably per Clark County standards through the 2028 development year of the site during both the AM and PM peak hours. Accordingly, no roadway capacity-related mitigation is necessary or recommended as part of the proposed development application.
7. Under 2028 post-development conditions, a total of 142 single-family detached houses are expected to utilize and add 1,291 average daily trips to NE 40th Avenue on a typical basis to access the greater transportation system. This number of trips generated is below the design volume threshold of a Neighborhood Circulator. Accordingly, the increase in traffic volume on NE 40th Avenue will not exceed its design volume threshold.
8. Aside from the intersection of NE 179th Street at NE 29th Avenue, which is experiencing a high crash rate nearing 1.00 crashes per million entering vehicles, no significant trends or crash patterns were identified at any of the study intersections that are indicative of safety concerns. Planned improvements at the intersection of NE 179th Street at NE 29th Avenue are expected to reduce the overall number of recurring crashes at the intersection. Therefore, no crash-related mitigation is necessary or recommended as part of the Mill Creek Estates application.
9. Adequate intersection and stopping sight distances are available at the proposed site access intersection to allow for safe and efficient operation along NE 174th Street. No sight distance related mitigation is necessary or recommended.
10. Left-turn lane warrants are not projected to be met at the site access intersection along NE 174th Street under any analysis scenario through the 2028 post-development year of the site. No new turn lanes are necessary or recommended as part of the proposed development.
11. Traffic signal warrants are not projected to be met at the intersections of NE 179th Street at NE 50th Avenue or NE 174th Street at NE 50th Avenue, under year 2028 post-development conditions. Therefore, no new traffic signals are necessary or recommended as part of the proposed development application.

Section A – Project Description

Introduction

The proposed Mill Creek Estates project will include the construction of a residential subdivision on two properties located at 3511/3619 NE 174th Street in unincorporated Clark County, Washington. The proposal will include the construction of a 43-lot subdivision, where one existing house will be removed and second existing house will be retained. Access to the site will be provided via NE 174th Street to the east of the site and NE 171st Way to the south. Note that the remaining existing house will be served access via the private road segment of NE 174th Street. This private segment of NE 174th Street will serve as emergency vehicle access only for all other proposed houses until the private segment is redesigned and reclassified as a public street.

Based on correspondence with Clark County staff, the report conducts safety and capacity/level of service analyses at the following intersections:

1. NE 179th Street at NE 15th Avenue
2. NE 179th Street at NE 29th Avenue
3. NE 179th Street at NE 50th Avenue
4. NE 174th Street at NE 50th Avenue

- Future Site Access at NE 174th Street (Sight Distance and Turn Lane Warrant Analysis Only)

The purpose of this study is to determine whether the transportation system within the vicinity of the site is capable of safely and efficiently supporting the surrounding existing and proposed uses, and to determine any mitigation that may be necessary to do so. Detailed information on traffic counts, trip generation calculations, safety analyses, and level of service calculations is included in the appendix to this report.

Location Description

The project site is located north of NE 171st Way, south of NE 174th Street, and west of NE 40th Avenue in unincorporated Clark County, Washington. Located within a developing residential area of the County, the site is immediately surrounded by a residential subdivision to the south, and low density residential/undeveloped land in all other directions.

The site consists of two properties (assessor parcels 181674000 and 181754000) which encompass an approximate total of 10 acres. Two single-family detached houses and ancillary storage structures are currently built on-site, all of which will be removed except for one house following site redevelopment. The site is currently served by individual lot driveways along a currently private road section of NE 174th Street to the west of NE 40th Avenue.

Figure 1 presents an aerial image of the nearby vicinity with the project site outlined in yellow.



Figure 1 – Aerial Photo of Site Vicinity (Image from Google Earth)

Vicinity Streets

The study intersections are composed of five roadways. Table 1 provides a description of each vicinity roadway within a quarter mile of the study intersections.

Table 1 – Vicinity Roadway Descriptions

Street Name	Jurisdiction	Functional Classification	Speed (MPH)	On-Street Parking	Curbs & Sidewalks	Bicycle Lanes
NE 179th Street	Clark County	Principal Arterial	40/50	Not Permitted	Partial Both Sides	None
NE 174th Street	Clark County	Collector	35	Not Permitted	None	None
NE 15th Avenue	Clark County	Minor Arterial	40	Not Permitted	Both Sides	Both Sides
NE 29th Avenue	Clark County	Minor Arterial	35/40	Partially Permitted	Partial Both Sides	None
NE 50th Avenue	Clark County	Minor Arterial	40/50	Not Permitted	None	None

Table Notes: Functional classification based on Clark County's MapsOnline GIS website.

Study Intersections

Based on correspondence with agency staff, an analysis of four existing intersections of significance was conducted. A summarized description of these study intersections under their existing lane configurations is provided in Table 2.

Table 2 – Study Intersection Descriptions

Number	Intersection	Geometry	Traffic Control	Phasing/Stopped Approaches
1	NE 179th Street at NE 15th Avenue	Three-Legged	Traffic Signal	Permitted NB Left-Turn Lane
2	NE 179th Street at NE 29th Avenue	Four-Legged	Stop-Controlled	All-Way Stop-Controlled
3	NE 179th Street at NE 50th Avenue	Four-Legged	Stop-Controlled	All-Way Stop-Controlled
4	NE 174th Street at NE 50th Avenue	Four-Legged	Stop-Controlled	Stop-Controlled EB/WB Approaches

Table Notes: Flashing-Yellow-Arrow denoted as FYA.

A vicinity map showing the project site, vicinity streets, and study intersection configurations are shown in Figure 2.

LEGEND

- STUDY INTERSECTION
- STOP SIGN
- TRAFFIC SIGNAL
- ROUNDABOUT
- PROJECT SITE
- ARTERIAL STREET
- COLLECTOR STREET
- LOCAL STREET
- FUTURE STREET

EXISTING INTERSECTION CONFIGURATIONS

PLANNED INTERSECTION CONFIGURATIONS

NOT TO SCALE

FIGURE 2

MILL CREEK ESTATES

VICINITY MAP

INTERSECTION LANE & TRAFFIC CONTROL CONFIGURATIONS

PLS ENGINEERING

Section B – Site Trips

Trip Generation

The proposed Mill Creek Estates project will include the construction of a 43-lot subdivision, where one existing house will be removed and second existing house will be retained. To estimate the number of trips that are and will be generated by the existing and proposed uses, trip rates from the *Trip Generation Manual, 12th Edition*[1] were used. Data from land use code 210, Single-Family Detached Housing was used to estimate site trip generation based on the number of dwelling units.

The trip generation calculations show that the proposed subdivision is projected to generate 29 net new AM peak hour trips, 38 net new PM peak hour trips, and 373 net new average weekday trips. The trip generation estimates are summarized in Table 3. Detailed trip generation calculations are included in the technical appendix.

Table 3 – Site Trip Generation Summary

ITE Land Use Code		Variable	AM Peak Hour			PM Peak Hour			Weekday Total
			Enter	Exit	Total	Enter	Exit	Total	
Existing Conditions									
210	Single-Family Detached Housing	2 units	0	1	1	1	1	2	18
Proposed Conditions									
210	Single-Family Detached Housing	43 units	8	22	30	25	15	40	391
Net Change In Site Trip Generation									
Net New Trips		**41 units**	**8**	**21**	**29**	**24**	**14**	**38**	**373**

Trip Distribution

The trip distribution used for the proposed development was referenced from the *Viers Subdivision PUD Transportation Impact Analysis (TIA)*, dated December 2022. According to the TIA, the trip distribution was derived using the Southwest Washington Regional Transportation Council (RTC) transportation system model. Both the Viers Subdivision and the project site are located in Transportation Analysis Zone (TAZ) #1983 (formerly #525), for which a select zone analysis was run to determine the distribution of site trips entering and exiting the zone.

[1] Institute of Transportation Engineers (ITE), *Trip Generation Manual*, 12th Edition, 2025.

The following trip distribution is estimated:

- Approximately 3% of site trips will travel to/from the north along NE 10th Avenue, north of NE 179th Street.
- Approximately 35% of site trips will travel to/from the west along NE 179th Street, west of NE 15th Avenue.
- Approximately 1% of site trips will travel to/from the south along NE 15th Avenue, south of NE 179th Street.
- Approximately 4% of site trips will travel to/from the north along NE 50th Avenue, north of NE 179th Street.
- Approximately 15% of site trips will travel to/from the east along NE 179th Street, east of NE 50th Avenue.
- Approximately 33% of site trips will travel to/from the south along NE 50th Avenue, south of NE 159th Street.
- Approximately 9% of site trips will travel to/from the east along NE 159th Street, east of NE 50th Avenue.

Although within a one-mile radius of the site, four regionally significant intersections were determined as not requiring analysis based on limited site trip impacts. The following intersections were determined as not requiring analysis with explanation for removal provided:

A. NE 189th Street at NE 29th Avenue – no peak hour trip impact.
B. NE 159th Street at NE 29th Avenue – no peak hour trip impact.
C. NE 179th Street at NE 47th Avenue – 11 AM and 14 PM peak hour trip impact.
D. NE 159th Street at NE 50th Avenue – 13 AM and 16 PM peak hour trip impact.

Intersections A and B are not projected to be impacted by peak hour trips. Therefore, no mitigation can be required at these intersections as part of this application per Clark County Unified Development Code 40.350.020.G.1.c., not-with-standing safety improvements which may be necessary per section 40.350.030(B)(6).

Although Intersections C and D will be impacted by more than 5 peak hour trips, the stop-controlled approaches will experience an increase of less than 5 AM or PM peak hour trips. Therefore, no mitigation can be required at these intersections as part of the application per Clark County Unified Development Code 40.350.020.G.1.c., not-with-standing safety improvements which may be necessary per section 40.350.030(B)(6).

The trip distribution and assignment for the site trips generated during the AM and PM peak hours are shown in Figures 3 and 4, respectively. Trip assignment is depicted for both the study intersections and the four aforementioned intersections.

LEGEND

XX% PERCENT OF SITE TRIPS

NET NEW SITE TRIP GENERATION			
ANALYSIS SCENARIO	PRIMARY TRIPS		TOTAL
	ENTER	EXIT	
AM PEAK HOUR	8	21	29

NE 10TH AVENUE
NE 199TH STREET
NE 179TH STREET
NE 174TH STREET
NE 159TH STREET
NE 139TH STREET
NE 29TH AVENUE
NE 50TH AVENUE
NE 20TH AVENUE
NE 10TH AVENUE
INTERSTATE 5
ONE-MILE RADIUS
ONE-MILE RADIUS
ONE-MILE RADIUS
A
B
C
D
1
2
3
4
35%
39%
39%
15%
1%
4%
3%
33%
9%

NOT TO SCALE

FIGURE 3

MILL CREEK ESTATES

SITE TRIP ASSIGNMENT

AM PEAK HOUR

PLS ENGINEERING

LEGEND

XX% PERCENT OF SITE TRIPS

NET NEW SITE TRIP GENERATION			
ANALYSIS SCENARIO	PRIMARY TRIPS		TOTAL
	ENTER	EXIT	
PM PEAK HOUR	24	14	38

NE 10TH AVENUE
NE 199TH STREET
NE 179TH STREET
NE 174TH STREET
NE 159TH STREET
NE 139TH STREET
NE 29TH AVENUE
NE 50TH AVENUE
NE 20TH AVENUE
NE 10TH AVENUE
INTERSTATE 5
ONE-MILE RADIUS
ONE-MILE RADIUS
ONE-MILE RADIUS
35%
3%
39%
39%
15%
4%
1%
33%
9%
A
B
C
D
1
2
3
4

NOT TO SCALE

FIGURE 4

MILL CREEK ESTATES

SITE TRIP ASSIGNMENT

PM PEAK HOUR

PLS ENGINEERING

Section C – Traffic Volumes

2026 Existing Volumes

Traffic counts were conducted at the study intersections on the following dates from 7:00 AM to 9:00 AM and from 4:00 PM to 6:00 PM:

- Tuesday, July 15, 2025.
- Tuesday, August 5, 2025.
- Wednesday, August 6, 2025.
- Thursday, December 4, 2025.

Data was used from each intersection's respective AM and PM peak hours. To reflect current year 2026 conditions, traffic volumes were increased by applying a two percent per year growth factor over a one-year period.

In addition to collecting traffic counts at the study intersections, data was also collected at the intersection of NE 179th Street at NE 10th Avenue/Interstate 5 Off-Ramp on Thursday, December 4, 2025. The intent of collecting traffic counts at the intersection was to take into consideration the planned future realignment of NE 10th Avenue to a location opposite of NE 15th Avenue. Details regarding this realignment project are discussed in the *2028 Pre-Development Volumes* section below. The 2025 existing year traffic counts are depicted in Figure B in the technical appendix to this report.

Figure 5 shows the 2026 existing year traffic volumes at the study intersections during the AM and PM peak hours.

2028 Pre-Development Volumes

Volume Growth

An estimate of future traffic volumes is required to provide analysis of the proposed development impacts to the nearby transportation system. To approximate the future year 2028 traffic volumes at the study intersections, a compounding growth rate of two percent per year for over a two-year period was applied to the year 2026 existing traffic volumes.

In-Process Development Data

In addition to the traffic volume growth described above, there are several in-process developments that are currently approved/proposed for construction within the site vicinity that are expected to impact nearby study intersections. These in-process developments include the following:

- 174th Street Subdivision
- Anderson Dental
- Four Creeks North Subdivision
- Kozy Manor Estates
- M&H Subdivision (60% built, 40% in-process)
- Mill Creek Meadows
- Mill Creek Terrace
- Mountain Estates Cluster Subdivision
- Mountain View Ridge PUD
- Mt Vista Logistics
- NE 29th Avenue Subdivision
- South Ridge Central Apartments
- Three Creeks North Phase 1 & 2
- Three Creeks East Subdivision
- Viers Subdivision
- Woodbrook Subdivision (aka Mill Creek PUD, 60% built, 40% in-process)

The in-process developments are not currently/fully contributing trips to the transportation system but may potentially be by the assumed 2028 development year of the site. Additional trips corresponding to each in-process development were added to the existing year traffic volumes in addition to the two years of traffic growth at each of the applicable study intersections. To maintain a conservative analysis of operation at the study intersections, all in-process developments were assumed to be constructed by year 2028. Figure A in the technical appendix shows the in-process development trips at the study intersections during the AM and PM peak hours.

Clark County staff had initially requested that in-process trips associated with the Washington State University (WSU) Master Plan be considered when developing the future traffic volume projections. Upon reviewing two Development Agreement (DA) documents associated with this Master Plan, dated December 11, 1998, and October 31, 2008, both indicate that the terms of the DA ended at the end of calendar year 2025. This expiration of the DA includes the vesting of trips associated with the Master Plan; therefore, in-process trips associated with the WSU Master Plan were not considered.

Planned Transportation Infrastructure Revisions

Several planned transportation improvement projects were incorporated in the future year analysis scenarios. According to the Clark County's *Northeast 179th Street Corridor Improvements project website*[2], the Washington Department of Transportation's (WSDOT) *I-5 – 179th Street Interchange – Interchange Improvements* project website[3], and the 2026-2031 Transportation Improvement Program (TIP), these projects include the following:

- NE 10th Avenue, just north of NE 179th Street and opposite of the Interstate 5 northbound off-ramp, will be closed and reconstructed at a location opposite of NE 15th Avenue along NE 179th Street (2026-2031 TIP Project C). Clark County's *179th Street Circulation and Access Management Plan*, dated July 2023, and 2026-2031 TIP Project E indicate the intersection of NE 179th Street at NE 15th Avenue will be reconstructed as a roundabout. The anticipated lane configuration of the intersection was referenced from a WSDOT concept design for the NE 179th Street interchange improvement project. Construction is estimated to occur between 2028 and 2030.
- The intersection of NE 179th Street at NE 29th Avenue will be reconstructed as a roundabout (2026-2031 TIP Project F). The initial design will include a single circulating lane but will be sized to be expandable as a multilane roundabout once NE 179th Street is widened to four lanes. Intersection reconstruction is currently ongoing.
- According to Clark County's *179th Street Circulation and Access Management Plan*, dated July 2023, the intersection of NE 179th Street at NE 50th will be reconstructed as a roundabout; however, based on correspondence with County staff this is not expected to occur until post-2030.

[2] "Northeast 179th Street Corridor Improvements | Clark County." Clark County, 2 February 2026, https://clark.wa.gov/public-works/northeast-179th-street-corridor-improvements.
[3] I-5 - 179th St. Interchange - Interchange Improvements | WSDOT. 2 February 2026, https://wsdot.wa.gov/construction-planning/search-projects/i-5-179th-st-interchange-interchange-improvements.

- NE 179th Street will be widened to accommodate two eastbound travel lanes, two westbound travel lanes, and a center median/turn lane. This roadway widening project will occur in phases:
    - Between NE 10th Avenue and NE 15th Avenue (2026-2031 TIP Project A). The project will be constructed in collaboration with WSDOT as part of the Interstate 5 interchange improvement project. Construction is estimated to occur sometime between 2028 and 2029.
    - Between NE 15th Avenue and NE 26th Avenue (2026-2031 TIP Project E). Construction is estimated to occur sometime between 2028 and 2030.
    - Between NE 29th Avenue and NE 50th Avenue (2026-2031 TIP Project 2). Construction is estimated to occur post-2031.
- Although not a part of the NE 179th Street corridor improvement project or County TIP, as part of the Viers PUD application a dedicated northbound left-turn lane will be constructed at the intersection of NE 174th Street at NE 50th Avenue.

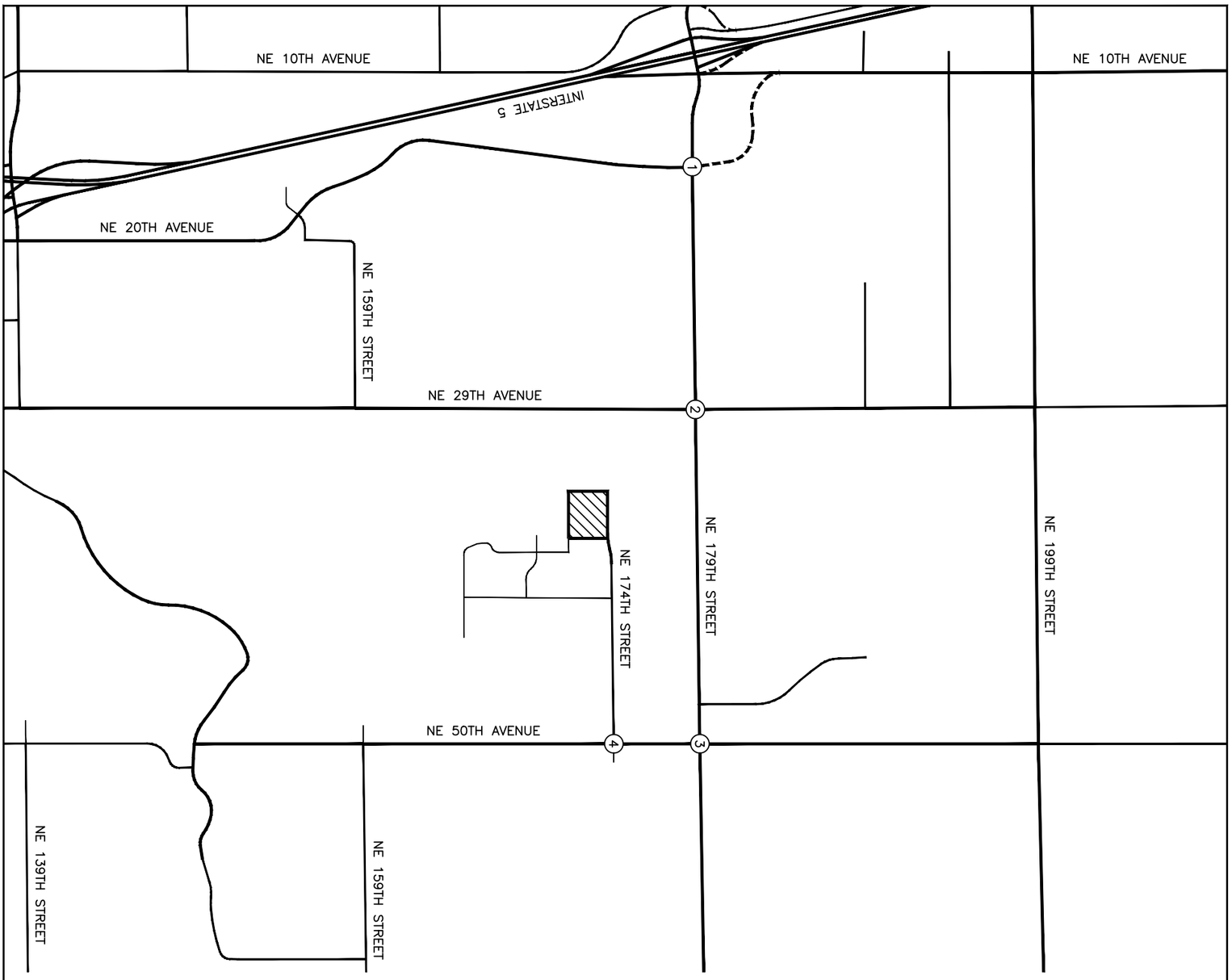
It is assumed that the future year 2028 conditions would only reflect realigning NE 10th Avenue opposite of NE 15th Avenue, reconstructing the intersection of NE 179th Street at NE 15th Avenue as a roundabout, and reconstructing the intersection of NE 179th Street at NE 29th Avenue as a single-lane roundabout. Rerouted peak hour traffic volumes associated with the relocation of NE 10th Avenue are shown in Figure B in the technical appendix. Note that Figure B shows the rerouted 2028 volumes after applying the annual two percent per year growth rate to the existing year traffic volumes.

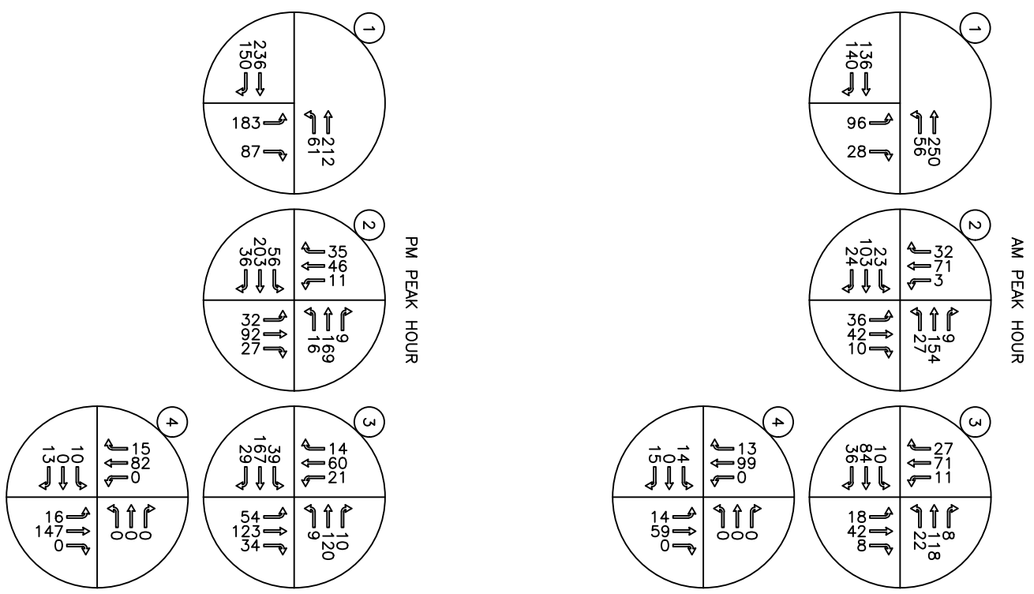
Figure 6 shows the projected year 2028 pre-development traffic volumes at the study intersections during the AM and PM peak hours.

2028 Post-Development Volumes

Peak hour trips calculated to be generated by the proposed development, as described earlier in Section B of this report, were added to the year 2028 pre-development traffic volumes to estimate future traffic conditions with the proposed development in place.

Figure 7 shows the year 2028 post-development traffic volumes at the study intersections during the AM and PM peak hours.





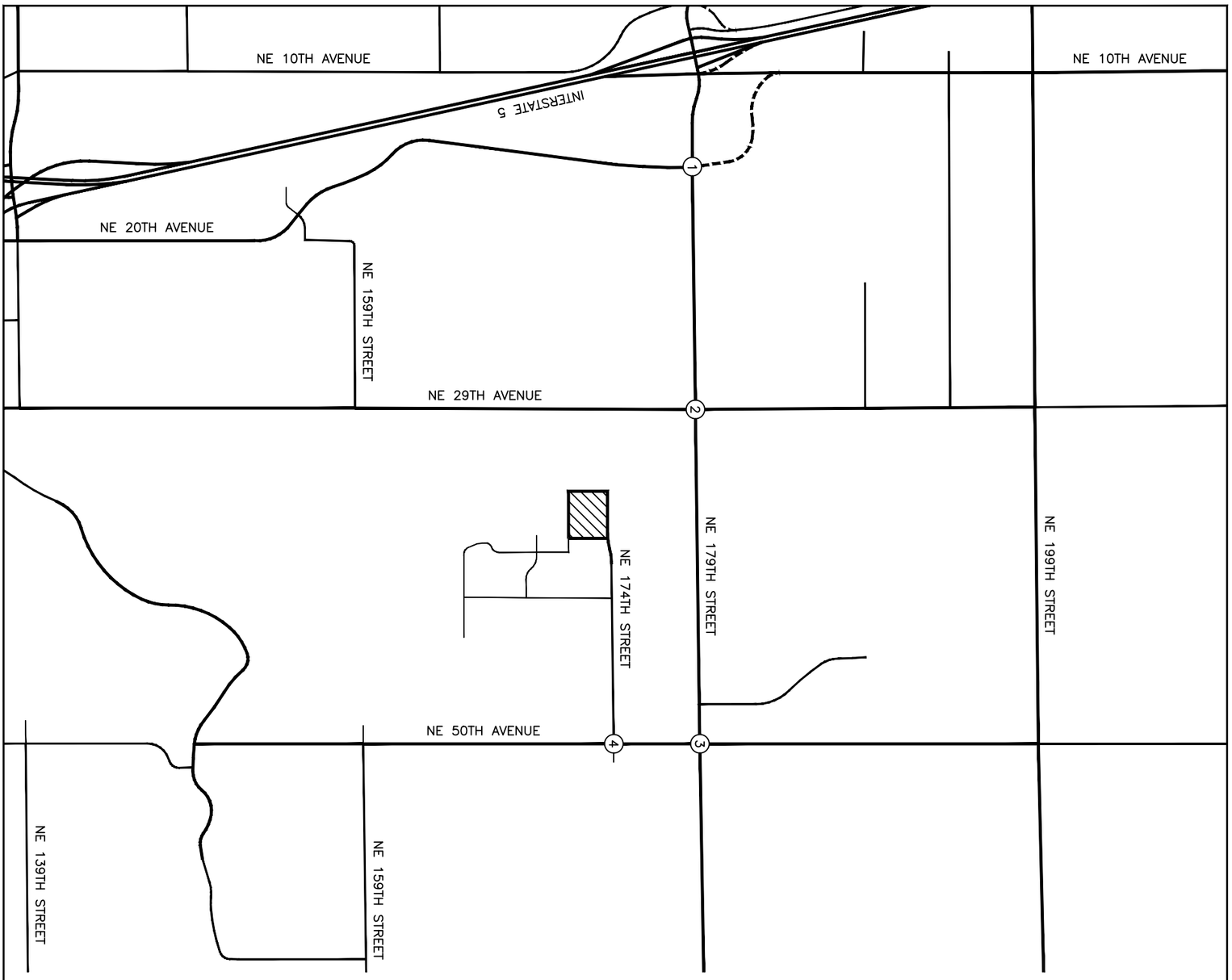
NOT TO SCALE

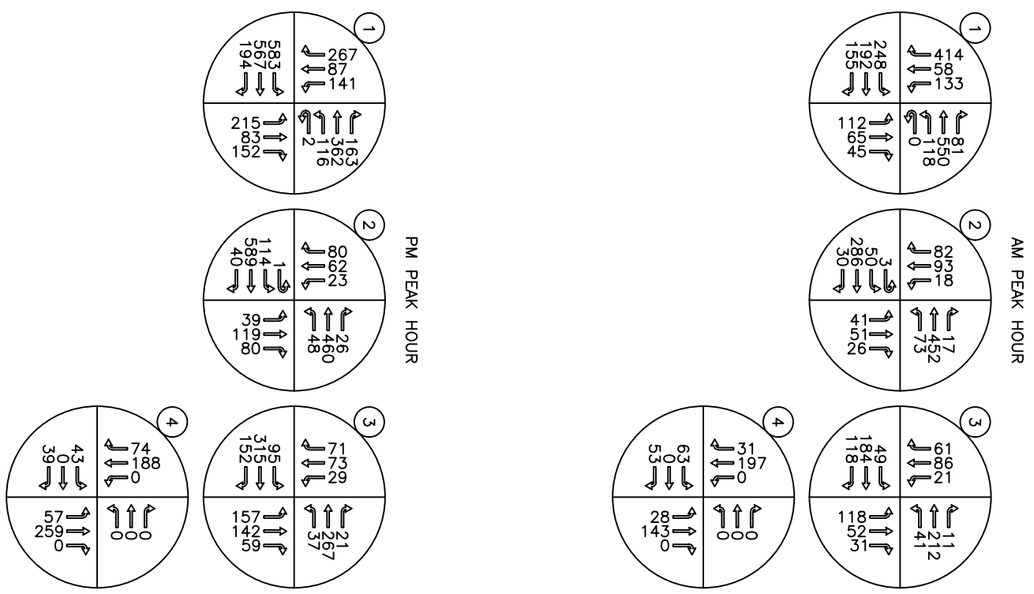
2026 EXISTING VOLUMES

AM & PM PEAK HOURS

FIGURE 5

MILL CREEK ESTATES





NOT TO SCALE

PLS ENGINEERING

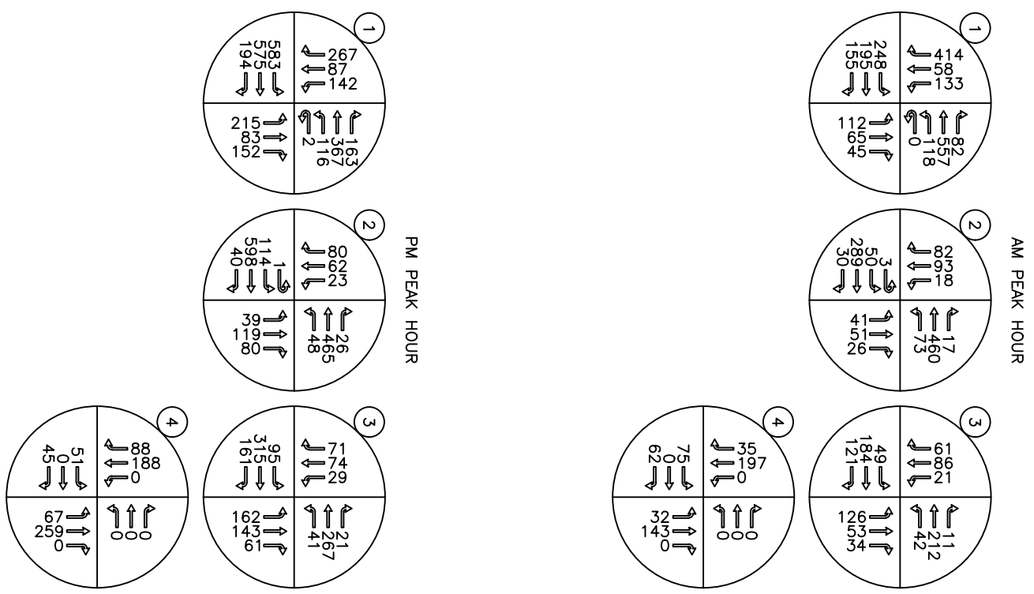
2028 PRE-DEVELOPMENT VOLUMES

AM & PM PEAK HOURS

FIGURE 6

MILL CREEK ESTATES





NOT TO SCALE

2028 POST-DEVELOPMENT VOLUMES

AM & PM PEAK HOURS

FIGURE 7

MILL CREEK ESTATES

Section D – Operations Analysis

Intersection Capacity Analysis

A capacity and delay analysis were conducted for the study intersections per the signalized and unsignalized intersection analysis methodologies in the *Highway Capacity Manual* (HCM)[4]. Intersections are generally evaluated based on the average control delay experienced by vehicles and are assigned a grade according to their operation. The Level of Service (LOS) is a qualitative measure of traffic operational conditions, and can range from LOS A, which indicates little or no delay experienced by vehicles, to LOS F, which indicates a high degree of congestion and delay. The volume-to-capacity (v/c) ratio is a measure that compares the traffic volumes (demand) against the available capacity of an intersection or roadway.

Performance Standards

According to Clark County's Unified Development Code, *Title 40.350 – Transportation and Circulation*, Clark County's performance standards require unsignalized intersections to operate at LOS E or better unless traffic signal warrants are met. If traffic signal warrants are met, the intersection is required to operate at LOS D or better. Individual movements at signalized intersections of regional significance are to operate with average delays of less than two cycle lengths or 240 seconds, whichever is less.

Delay and Capacity Analysis

The study intersections were analyzed utilizing methodologies and parameters detailed in the WSDOT Synchro & SimTraffic Protocol document. Of specific note, the following peak hour factors (PHF) were incorporated in the analysis models:

- For existing year conditions, a PHF of no less than 0.80 was applied to each study intersection.
- For future year conditions, for study intersections where count data recorded a PHF of 0.90 or greater, the PHF was increased to 1.0.
- To better avoid showing a future year scenario with lower delays than under existing conditions, for study intersections where count data recorded a PHF of 0.89 or less the PHF was increased to 0.92.

Due to the lane configuration at the signalized study intersection of NE 179th Street at NE 15th Avenue (i.e., non-NEMA phasing), the HCM 7th Edition methodology utilizing Trafficware's Synchro 12 software does not provide capacity outputs for this intersection under existing conditions. Therefore, the reported results at this intersection are based on HCM 2000 methodologies.

[4] Transportation Research Board, *Highway Capacity Manual*, 7th Edition, 2022.

For future year 2028 conditions, the intersections of NE 179th Street at NE 15th Avenue and NE 179th Street at NE 29th Avenue were modeled as roundabouts. In accordance with the *WSDOT Synchro & SimTraffic Protocol* and *WSDOT Sidra Policy Settings* documents, the roundabout study intersections were modeled using Sidra Intersection 11 software.

The LOS, delay, and v/c results of the capacity analysis are shown in Table 4 for the AM and PM peak hours. Detailed capacity calculations as well as the LOS grading descriptions and corresponding delays are included in the appendix to this report.

Table 4 – Intersection Capacity Analysis Summary

Analysis Scenario	AM Peak Hour			PM Peak Hour		
	LOS	Delay (s)	v/c	LOS	Delay (s)	v/c
1. NE 179th Street at NE 15th Avenue						
2026 Existing Conditions	A	6	0.38	A	7	0.45
2028 Pre-Development Conditions[1]	A	8	0.42	A	8	0.43
2028 Post-Development Conditions[1]	A	8	0.42	A	8	0.43
2. NE 179th Street at NE 29th Avenue						
2026 Existing Conditions	A	9	0.29	B	11	0.48
2028 Pre-Development Conditions[1]	A	6	0.49	A	7	0.64
2028 Post-Development Conditions[1]	A	6	0.50	A	7	0.65
3. NE 179th Street at NE 50th Avenue						
2026 Existing Conditions	A	9	0.24	B	11	0.34
2028 Pre-Development Conditions	B	14	0.57	D	34	0.94
2028 Post-Development Conditions	B	15	0.58	E	37	0.97
4. NE 174th Street at NE 50th Avenue						
2026 Existing Conditions	A	10	0.05	B	10	0.04
2028 Pre-Development Conditions	B	13	0.21	B	15	0.19
2028 Post-Development Conditions	B	13	0.25	C	16	0.24

Table Notes: [1] *Intersection analyzed as a roundabout.*

Based on the results of the operational analysis, the intersection of NE 179th Street at NE 50th Avenue is projected to operate at LOS E during the PM peak hour under 2028 post-development conditions. While not necessarily operating in excess of County standards, it is expected that future operation may eventually degrade to LOS F based on the following:

- Prior analysis of the intersection had demonstrated operation at LOS F, noting that trips associated with the WSU Master Plan project had previously been incorporated in these prior studies. Additionally, future planned development applications in the area are expected to add trips to this intersection which may further degrade operation over time.
- The intersection is expected to be nearing the volume warrants for installing a traffic signal (further reviewed in Section F and associated appendix materials).

Therefore, the applicant will be volunteering to install a dedicated northbound left-turn lane at the intersection of NE 179th Street at NE 50th Avenue as part of this proposed development application. This volunteered mitigation is intended to demonstrate improved LOS D operation and to add additional capacity to the critical minor street approach and turning movement of the intersection.

The Table 5 demonstrates operation at the intersection of NE 179th Street at NE 50th Avenue with installation of a dedicated northbound left-turn lane.

Table 5 – Mitigation Capacity Analysis Summary

Analysis Scenario	AM Peak Hour			PM Peak Hour		
	LOS	Delay (s)	v/c	LOS	Delay (s)	v/c
3. NE 179th Street at NE 50th Avenue						
2028 Post-Development Conditions	B	15	0.58	E	37	0.97
2028 Mitigated Conditions	B	15	0.59	D	30	0.94

All other study intersections are currently operating acceptably per Clark County standards and are projected to continue operating acceptably through the 2028 development year of the site. No operational mitigation is necessary or recommended at these study intersections as part of the proposed development application.

Roadway Capacity Analysis

In accordance with Clark County Code Section *40.350.020(G) – Level of Service Standards*, a capacity analysis was conducted for roadway segments within the analysis area of the site. The code section requires all Collector and Arterial roadway segments located within the Vancouver Urban Growth Area, but outside Vancouver city limits, as well as state highways of regional significance to have a maximum v/c ratio no greater than 0.90, measured independently for each direction of travel. Roadway volumes were determined utilizing the 2028 post-development volumes during the AM and PM peak hours. Roadway capacities were referenced from Table 40.350.020-1 of the Clark County code based on the County roadway designation and classification.

The results of the roadway capacity analysis for the projected year 2028 post-development traffic volumes are shown in Table 6. The maximum calculated v/c ratio along each roadway segment is reported for both the AM and PM peak hours, regardless of direction of travel.

Table 6 – Roadway Capacity Analysis Summary

Roadway	From	To	Classification	Capacity (veh/hr)	V/C Ratio			
					AM		PM	
NE 179th Street	NE 10th Avenue	NE 15th Avenue	Pr-4cb	1,800	0.332	EB	0.751	EB
					0.602	WB	0.472	WB
	NE 15th Avenue	NE 29th Avenue	Pr-4cb	1,800	0.207	EB	0.484	EB
					0.421	WB	0.360	WB
	NE 29th Avenue	NE 50th Avenue	Pr-4cb	1,800	0.197	EB	0.389	EB
					0.306	WB	0.299	WB
	NE 50th Avenue	NE 72nd Avenue	Pr-4cb	1,800	0.133	EB	0.225	EB
					0.147	WB	0.183	WB
NE 174th Street	West	NE 50th Avenue	C-2cb	800	0.171	EB	0.120	EB
					0.084	WB	0.194	WB
			C-2cb*	600	0.228	EB	0.160	EB
					0.112	WB	0.258	WB
NE 10th Avenue	NE 189th Street	NE 179th Street	M-2cb	900	0.439	NB	**0.921**	NB
					0.672	SB	0.551	SB
NE 15th Avenue	NE 179th Street	NE 173rd Street	M-2cb	900	0.247	NB	0.500	NB
					0.368	SB	0.441	SB
NE 29th Avenue	NE 189th Street	NE 179th Street	M-4cb	1,800	0.066	NB	0.144	NB
					0.107	SB	0.092	SB
	NE 179th Street	NE 159th Street	M-2cb	900	0.131	NB	0.264	NB
					0.218	SB	0.167	SB
NE 50th Avenue	NE 199th Street	NE 179th Street	M-4cb	1,800	0.063	NB	0.144	NB
					0.093	SB	0.097	SB
	NE 179th Street	NE 174th Street	M-2cb	900	0.242	NB	0.407	NB
					0.277	SB	0.307	SB
	NE 174th Street	NE 159th Street	M-2cb	900	0.194	NB	0.362	NB
					0.288	SB	0.259	SB

Table Notes: ***BOLDED*** *text indicates a roadway capacity in excess of 0.90.*

* *Alternative roadway capacities utilized per Clark County Code section 40.350.020.G.1.a.*

Based on the results of the roadway capacity analysis, the roadway segment of NE 10th Avenue between NE 179th Street and NE 189th Street is projected to exceed Clark County's roadway segment v/c ratio threshold under year 2028 conditions. Although projected to operate with a v/c ratio in excess of 0.90 during the PM peak hour, no mitigation as part of the proposed development application is recommended for the following reasons:

- During the PM peak hour, the northbound travel direction of the roadway segment operates with a v/c ratio of 0.921 and the southbound direction operates with an acceptable v/c ratio of 0.551. The proposed development is projected to add 0 PM peak hour trips to the northbound travel direction of the roadway segment. Therefore, the proposed development will not impact or increase the v/c ratio of the failing travel direction of NE 10th Avenue. Since no nexus of impact from the proposed development to the failing travel direction on the NE 10th Avenue corridor can be established, no mitigation can be required as part of the proposed development application under the Nollan-Dolan test.
- This segment of NE 10th Avenue is projected to operate with v/c ratios above 0.90 under year 2028 conditions without impacts from the proposed development, noting the proposed development does not impact this movement. Therefore, the proposed Mill Creek Estates project does not cause this roadway segment to exceed the 0.90 v/c ratio threshold.
- The study intersection of NE 179th Street at NE 15th Avenue is projected to operate at LOS A during the AM and PM peak hours under year 2028 post-development conditions. Therefore, the high roadway v/c ratio is not expected to create operational issues at the relevant/applicable study intersections.

All other relevant roadway segments are projected to operate acceptably per Clark County standards through the 2028 development year of the site during both the AM and PM peak hours. Accordingly, no roadway capacity-related mitigation is necessary or recommended as part of the proposed development application.

NE 40th Avenue Daily Volumes

NE 40th Avenue is classified as a Neighborhood Circulator, where according to Table 40.350.030-3, the design volume of a Neighborhood Circulator is 3,000 average daily trips. At the time of writing the following existing houses, approved subdivisions, and proposed development are/will take direct access to the area roadways of NE 40th Avenue, NE 37th Avenue, NE 165th Circle and/or NE 174th Street.

- Existing Houses along NE 40th Avenue, NE 37th Avenue, and NE 165th Circle: 28 houses.
- Existing Houses along NE 174th Street: 16 houses
- M&H Subdivision: 72 houses

- Mill Creek Meadows: 40 houses (removing 1 existing house along NE 174th Street).
- Viers Subdivision: 84 houses
- Proposed Mill Creek Estates:43 houses (removing 1 existing house along NE 174th Street and noting only 42 houses will add trips to NE 40th Avenue).

Unlike NE 174th Street, NE 40th Avenue does not provide an outlet or alternative connection to the greater transportation system. Additionally, no commercial, institutional, or major recreational uses are currently developed along NE 40th Avenue, NE 37th Avenue, NE 165th Circle and NE 174th Street. Therefore, it is reasonable to assume all residential trips generated by the aforementioned land uses will travel to/from the east along NE 174th Street toward the intersection of NE 174th Street at NE 50th Avenue. On this basis it is assumed that only the following residential uses may add trips to NE 40th Avenue:

- Existing Houses along NE 40th Avenue, NE 37th Avenue, and NE 165th Circle: 28 houses.
- M&H Subdivision: 72 houses
- Proposed Mill Creek Estates: 42 houses.

Only a nominal, or de minimis, number of vehicular trips are expected to be added to NE 40th Avenue by Mill Creek Meadows, the Viers Subdivision, and other existing houses with direct access to NE 174th Street for the reasons described above. Motorists typically do not travel out-of-direction without a good reason for doing so, noting there is no reason for residents of Mill Creek Meadows or the Viers Subdivision to travel out-of-direction along NE 40th Avenue. Both subdivisions will have fully improved access roads connecting directly to NE 174th Street at locations east of NE 40th Avenue, which provides a shorter and only path to access the greater transportation network via NE 50th Avenue. Residents of Mill Creek Meadows and Viers Subdivision have no reason for traveling west along NE 174th Street unless they choose to visit another resident within the M&H or Mill Creek East subdivision, noting that the M&H and Mill Creek East transportation studies have already accounted for this. Once the Viers Subdivision is constructed, NE 40th Avenue will have a second public street access connection to NE 174th Street through the Viers Subdivision via NE 45th Avenue. To the extent the Viers Subdivision has any impact on NE 40th Avenue the effect will likely be a reduction of trips on NE 40th Avenue since:

- Very few motorists from the Viers Subdivision will travel out-of-direction to use NE 40th Avenue; and
- It is more likely that motorists from the M&H subdivision would drive through the Viers Subdivision to reach NE 174th Street (thus bypassing NE 40th Avenue).

Therefore, the Viers Subdivision is expected to have no impact on NE 40th Avenue, but rather will likely create a small reduction in trips on the roadway.

A total of 142 single-family detached houses are expected to utilize NE 40th Avenue on a typical basis to access the greater transportation system. Based on the ITE *Trip Generation Manual, 12th Edition* and data from land use code 210, Single-Family Detached Housing, these 142 houses are projected to generate and add 1,291 average daily trips to NE 40th Avenue. This number of trips generated is below the design volume threshold of a Neighborhood Circulator. Accordingly, the increase in traffic volume on NE 40th Avenue will not exceed its design volume threshold.

Section E – Safety Analysis

Crash History Review

Using data obtained from the Washington Department of Transportation (WSDOT) Crash Data and Reporting Branch, a review of the most recent available five years of crash history (January 2021 to December 2025) at the study intersections was performed. The crash data was evaluated based on the number of crashes, the type of collisions, the severity of the collisions, and the resulting crash rate for the intersection.

Crash rates provide the ability to compare safety risks at different intersections by accounting for both the number of crashes that have occurred during the analysis period and the number of vehicles that typically travel through the intersection. Crash rates were calculated using the common assumption that traffic counted during the PM peak hour represents approximately 10 percent of the annual average daily traffic (AADT) at the intersection. Crash rates in excess of 1.00 crashes per million entering vehicles (CMEV) may be indicative of design deficiencies and therefore require a need for further investigation and possible mitigation.

Regarding crash severity, WSDOT classifies crashes in the following categories:

- No Apparent Injury (NA)
- Possible Injury (P)
- Suspected Minor Injury (SM)
- Suspected Serious Injury (SS)
- Fatality or Fatal Injury

Table 7 provides a summary of crash types while Table 8 summarizes crash severities and rates for each of the applicable study intersections. Crash data is included in the technical appendix to this report.

Table 7 – Crash Type Summary

No.	Intersection	Crash Type						Total
		Rear End	Turn/ Angle	Fixed Object	Side swipe	Ped/ Bike	Other	
1	NE 179th Street at NE 15th Avenue	0	4	0	0	0	0	4
2	NE 179th Street at NE 29th Avenue	0	13	0	0	0	0	13
3	NE 179th Street at NE 50th Avenue	1	2	0	0	0	0	3
4	NE 177th Street at NE 50th Avenue	0	0	0	0	0	0	0

Table 8 – Crash Severity and Rate Summary

No.	Intersection	Crash Severity						Total Crashes	AADT	Crash Rate
		NA	P	SM	SS	Fatal	Unknown			
1	NE 179th Street at NE 15th Avenue	3	1	0	0	0	0	4	9,100	0.24
2	NE 179th Street at NE 29th Avenue	7	4	1	1	0	0	13	7,170	0.99
3	NE 179th Street at NE 50th Avenue	3	0	0	0	0	0	3	6,680	0.25
4	NE 174th Street at NE 50th Avenue	0	0	0	0	0	0	0	2,780	0.00

Per Table 8, the intersection of NE 179th Street at NE 29th Avenue had two reported crashes that were classified as *Suspected Serious Injury*. The crash occurred when the driver of a northbound left-turning passenger car failed to yield right-of-way to a westbound passenger car. One person involved in the collision was reported to have sustained injuries.

Additionally, the intersection of NE 179th Street at NE 29th Avenue was found to be nearing a crash rate of 1.00 CMEV. All of the reported collisions at the intersection were either turning movement or angle type crashes. The intersection is currently undergoing reconstruction as a roundabout. Per WSDOT's Traffic Safety Methods website[5] roundabouts often reduce the overall number of recurring crashes at signalized and stop-controlled intersections by approximately 37 percent. Therefore, the overall crash rate at the intersection is expected to decrease to approximately 0.62 CMEV after this intersection improvement has been implemented. No additional mitigation is necessary or recommended.

Based on a review of the crash data, no significant trends or crash patterns were identified at any of the study intersections beyond the intersection of NE 179th Street at NE 29th Avenue that are indicative of safety concerns. Planned improvements at the intersection of NE 179th Street at NE 29th Avenue are expected to reduce the overall number of recurring crashes at the intersection. Therefore, no crash-related mitigation is necessary or recommended as part of the Mill Creek Estates application.

Sight Distance Evaluation

Sight Distance Definitions and Methodologies

Intersection and stopping sight distances were measured at the proposed emergency vehicle site access along NE 174th Street, located approximately 125 feet west of the project site's east boundary line. Sight distances were measured and evaluated at the intersection in accordance with standards established in *A Policy of Geometric Design of Highways and Streets*[6], as well as per Clark County standards.

Intersection sight distance is an operational measure, intended to provide sufficient line of sight along the major street so that a driver can enter the roadway without impeding the flow of through traffic. For intersection sight distance, the driver's eye is assumed to be 15 feet from the near edge of the nearest travel lane (or traveled way) of the intersecting street and at a height of 3.5 feet above the minor street approach pavement. The oncoming vehicle driver's eye height along the major street approach is assumed to be 3.5 feet above the cross-street pavement.

[5] Traffic Safety Methods | WSDOT. 2 February 2026, https://wsdot.wa.gov/travel/traffic-safety-methods/roundabouts.

[6] American Association of State Highway and Transportation Officials (AASHTO), *A Policy on Geometric Design of Highways and Streets*, 7th Edition, 2018.

Stopping sight distance is considered the minimum requirement to ensure safe operation of an intersection with respect to sight lines. This distance allows the driver of a vehicle traveling on the major street to react to a turning vehicle or other object in the roadway and, if necessary, come to a complete stop to avoid a collision. To ensure safe operation, the extent of available intersection sight distance must at least equal the minimum required stopping sight distance. For stopping sight distance, the major street approaching driver's eye height is 3.5 feet while an object height of 2 feet above the street pavement is used.

According to Clark County Unified Development Code section 40.350.030.B.8, the minimum recommended intersection sight distance is based on ten times the posted/statutory speed of the roadway. However, alternative standards may be considered provided intersection sight distance cannot reasonably be met. Stopping sight distances were based on Table 40.350.030-7 of the County's code.

Based on a posted speed of 35 mph along NE 174th Street, the following minimum intersection and stopping sight distances are applicable to the proposed site access intersection:

- Intersection Sight Distance: 350 feet to the east and west.
- Stopping Sight Distance:
    - 235 feet to the east, considering the major street uphill eastbound approach grade of approximately 4.4% over a 275-foot distance
    - 250 feet to the east, considering the major street westbound approach grade is less than 3.0% over a 260-foot distance.

Sight Distance Measurements

Field measurements were conducted at the proposed site access intersection on Monday, May 12, 2026. Intersection and stopping sight distances to the east of the site access location were measured to be in excess of 350 feet, while sight distances to the west were measured back to the end of a turnaround/cul-de-sac along the private road section of NE 174th Street. Accordingly, no sight distance related mitigation is necessary or recommended.

Analysis Summary

Based on the sight distance analysis, adequate intersection and stopping sight distances are available at the proposed site access intersection to allow for safe and efficient operation along NE 174th Street. No sight distance related mitigation is necessary or recommended.

Section F – Warrant Analysis

Left-Turn Lane Warrants

Left-turn lane warrants were examined for the proposed emergency vehicle site access along NE 174th Street, located approximately 125 feet west of the project site's east property line. A left-turn refuge lane is primarily a safety consideration for the major street, removing left-turning vehicles from the through traffic stream. To evaluate left-turn lane warrants, section *1310.02(13) Left-Turn Lanes and Turn Radii* and *Exhibit 1310-9 Left-Turn Storage Guidelines: Two-Lane, Unsignalized* from the WSDOT Design Manual were referenced. Turn lane warrants were evaluated based on the number of advancing and opposing vehicles, the number of turning vehicles, the travel speed, and the number of through lanes.

To determine the combined major street peak hour traffic volumes at the site access intersection, volumes were balanced with those projected at the intersection of NE 174th Street at NE 50th Avenue under year 2028 post-development conditions. This is expected to provide a highly conservative evaluation of major street volumes at the site access intersection when considering the following:

- NE 174th Street terminates as a cul-de-sac near the west edge of the project site; and
- None of the major street volumes were assumed to originate/terminate at intermittent land uses along NE 174th Street, NE 40th Avenue, or other adjoining roadways.

For the site access intersection along NE 174th Street, the combined eastbound and westbound design hour volumes are below 300 vehicles per hour under year 2028 post-development conditions for both the AM and PM peak hours (i.e., 204 and 251 AM and PM peak hour volumes, respectively). Therefore, the WSDOT volume thresholds for warranting a left-turn lane will not be met at the intersection. No left-turn lane is necessary or recommended.

Preliminary Traffic Signal Warrants

Preliminary traffic signal warrants were examined for the unsignalized intersections of NE 179th Street at NE 50th Avenue and NE 174th Street at NE 50th Avenue to determine whether the installation of a new traffic signal will be warranted by the 2028 post-development year. These warrants were not evaluated at the other unsignalized study intersections since these intersections will be reconstructed as roundabout intersections according to the Clark County 2026-2031 TIP.

Based on a preliminary review of Warrants 1 and 2 in the *Manual on Uniform Traffic Control Devices*, or MUTCD, traffic signal warrants are not projected to be met at the intersections of NE 179th Street at NE 50th Avenue or NE 174th Street at NE 50th Avenue, under year 2028 post-development conditions. Therefore, no new traffic signals are necessary or recommended as part of the proposed development application.

Note that a review of Warrant 3 was not considered as part of this analysis. According to the MUTCD regarding Warrant 3:

> *This signal warrant should be applied only in unusual cases, such as office complexes, manufacturing plants, industrial complexes, or high-occupancy vehicle facilities that attract or discharge large numbers of vehicles over a short time.*

These study intersections are not located near land uses that are expected to generate this type of traffic impact on a consistent basis. Therefore, it was concluded that Warrant 3 would not be applicable to the analyzed study intersection.

Conclusions

- The intersection of NE 179th Street at NE 50th Avenue is projected to operate at LOS E during the PM peak hour under 2028 post-development conditions. While not necessarily operating in excess of County standards, it is expected that future operation may eventually degrade to LOS F. The applicant will be volunteering to install a dedicated northbound left-turn lane at the intersection of NE 179th Street at NE 50th Avenue as part of this proposed development application. This volunteered mitigation is intended to demonstrate improved LOS D operation and to add additional capacity to the critical minor street approach and turning movement of the intersection.
- All other study intersections are currently operating acceptably per Clark County standards and are projected to continue operating acceptably through the 2028 development year of the site. No operational mitigation is necessary or recommended at these study intersections as part of the proposed development application.
- The roadway segment of NE 10th Avenue between NE 179th Street and NE 189th Street is projected to exceed Clark County's roadway segment v/c ratio threshold under year 2028 conditions. Although projected to operate with a v/c ratio in excess of 0.90 during the PM peak hour, no mitigation as part of the proposed development application is recommended for the following reasons:
    - During the PM peak hour, the northbound travel direction of the roadway segment operates with a v/c ratio of 0.921 and the southbound direction operates with an acceptable v/c ratio of 0.551. The proposed development is projected to add 0 PM peak hour trips to the northbound travel direction of the roadway segment. Therefore, the proposed development will not impact or increase the v/c ratio of the failing travel direction of NE 10th Avenue.
    - This segment of NE 10th Avenue is projected to operate with v/c ratios above 0.90 under year 2028 conditions without impacts from the proposed development, noting the proposed development does not impact this movement. Therefore, the proposed Mill Creek Estates project does not cause this roadway segment to exceed the 0.90 v/c ratio threshold.
    - The study intersection of NE 179th Street at NE 15th Avenue is projected to operate at LOS A during the AM and PM peak hours under year 2028 post-development conditions. Therefore, the high roadway v/c ratio is not expected to create operational issues at the relevant/applicable study intersections.
- All other relevant roadway segments are projected to operate acceptably per Clark County standards through the 2028 development year of the site during both the AM and PM peak hours. Accordingly, no roadway capacity-related mitigation is necessary or recommended as part of the proposed development application.

- Under 2028 post-development conditions, a total of 142 single-family detached houses are expected to utilize and add 1,291 average daily trips to NE 40th Avenue on a typical basis to access the greater transportation system. This number of trips generated is below the design volume threshold of a Neighborhood Circulator. Accordingly, the increase in traffic volume on NE 40th Avenue will not exceed its design volume threshold.
- Aside from the intersection of NE 179th Street at NE 29th Avenue, which is experiencing a high crash rate nearing 1.00 crashes per million entering vehicles, no significant trends or crash patterns were identified at any of the study intersections that are indicative of safety concerns. Planned improvements at the intersection of NE 179th Street at NE 29th Avenue are expected to reduce the overall number of recurring crashes at the intersection. Therefore, no crash-related mitigation is necessary or recommended as part of the Mill Creek Estates application.
- Adequate intersection and stopping sight distances are available at the proposed site access intersection to allow for safe and efficient operation along NE 174th Street. No sight distance related mitigation is necessary or recommended.
- Left-turn lane warrants are not projected to be met at the site access intersection along NE 174th Street under any analysis scenario through the 2028 post-development year of the site. No new turn lanes are necessary or recommended as part of the proposed development.
- Traffic signal warrants are not projected to be met at the intersections of NE 179th Street at NE 50th Avenue or NE 174th Street at NE 50th Avenue, under year 2028 post-development conditions. Therefore, no new traffic signals are necessary or recommended as part of the proposed development application.

APPENDIX A – SCOPING MATERIALS

Scoping Memorandum
Scoping Email Response

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To: Craig Kathol, Clark County

From: Daniel Stumpf, PE

Date: 4/8/2026

RE: Mill Creek Estates
Transportation Scoping Memorandum

Introduction

This memorandum details a proposed scope of work for a Transportation Impact Study (TIS) related to the Mill Creek Estates project. The project site is located on two properties (assessor parcels 181674000 and 181754000) addressed at 3511/3619 NE 174th Street in unincorporated Clark County, Washington. The proposal will include the construction of a 43-lot subdivision, where one existing house will be removed and second existing house will be retained. Access to the site will be provided via NE 174th Street to the east of the site and NE 171st Way to the south.

Site Trips

Trip Generation

To estimate the number of trips that are and will be generated by the existing and proposed uses, trip rates from the *Trip Generation Manual, 12th Edition*[1] were used. Data from land use code 210, Single-Family Detached Housing, was used to estimate site trip generation based on the number of dwelling units.

The trip generation calculations show that the proposed subdivision is projected to generate 29 net new AM peak hour trips, 38 net new PM peak hour trips, and 373 net new average weekday trips. The trip generation estimates are summarized in Table 1. Detailed trip generation calculations are included in the technical appendix.

[1] Institute of Transportation Engineers (ITE), *Trip Generation Manual*, 12th Edition, 2025.

Table 1 – Site Trip Generation Summary

ITE Land Use Code		Variable	AM Peak Hour			PM Peak Hour			Weekday Total
			Enter	Exit	Total	Enter	Exit	Total	
Existing Conditions									
210	Single-Family Detached Housing	2 units	0	1	1	1	1	2	18
Proposed Conditions									
210	Single-Family Detached Housing	43 units	8	22	30	25	15	40	391
Net Change In Site Trip Generation									
Net New Trips		**41 units**	**8**	**21**	**29**	**24**	**14**	**38**	**373**

Trip Distribution

The trip distribution used for the proposed development was referenced from the *Viers Subdivision PUD Transportation Impact Analysis (TIA)*, dated December 2022. According to the TIA, the trip distribution was derived using the Southwest Washington Regional Transportation Council (RTC) transportation system model. Both the Viers Subdivision and the project site are located in Transportation Analysis Zone (TAZ) #1983 (formerly #525), for which a select zone analysis was run to determine the distribution of site trips entering and exiting the zone. The following trip distribution is estimated:

- Approximately 3% of site trips will travel to/from the north along NE 10th Avenue, north of NE 179th Street.
- Approximately 35% of site trips will travel to/from the west along NE 179th Street, west of NE 15th Avenue.
- Approximately 1% of site trips will travel to/from the south along NE 15th Avenue, south of NE 179th Street.
- Approximately 4% of site trips will travel to/from the north along NE 50th Avenue, north of NE 179th Street.
- Approximately 15% of site trips will travel to/from the east along NE 179th Street, east of NE 50th Avenue.
- Approximately 33% of site trips will travel to/from the south along NE 50th Avenue, south of NE 159th Street.
- Approximately 9% of site trips will travel to/from the east along NE 159th Street, east of NE 50th Avenue.

Figure A in the attachments depicts the site trip distribution and assignment for the AM and PM peak hours.

Proposed Study Intersections

According to the project's Pre-Application Final Report:

> *Any development generating 10 or more peak hour trips is required to complete a transportation impact study. A general outline is provided in the concurrency administrative manual. A traffic impact study shall analyze impacts according to the following:*
>
> *- 50 or less new peak hour trips; one mile from site*
>
> *- 51-250 new peak hour trips; two miles from the site*
>
> *- 251 or more new peak hour trips; three miles from the site*

Based on the projected trips generated, the preliminary trip distribution, and the anticipated impacts to the transportation system, the following study intersections are suggested for analysis (refer to Figure A for the numbering convention of listed intersections):

2. NE 179th Street at NE 15th Avenue
3. NE 179th Street at NE 29th Avenue
5. NE 179th Street at NE 50th Avenue
6. NE 174th Street at NE 50th Avenue

Although considered higher classification intersections within a one-mile radius of the site, the following regionally significant intersections are not recommended for analysis, with explanations for removal provided:

> The following intersections will either experience no site trip impacts or will be impacted by less than 5 peak hour trips. Therefore, no mitigation can be required as part of the application per Clark County Unified Development Code 40.350.020.G.1.c., not-with-standing safety improvements which may be necessary per section 40.350.030(B)(6):

1. NE 189th Street at NE 29th Avenue – no peak hour trip impact.
7. NE 159th Street at NE 29th Avenue – no peak hour trip impact.

Although the following unsignalized intersection will be impacted by more than 5 peak hour trips, the minor street approaches of the intersection will be impacted by less than 5 approaching AM or PM peak hour trips. Therefore, no mitigation can be required at this intersection as part of this development application per Clark County Unified Development Code 40.350.020.G.1.c., not-with-standing safety improvements which may be necessary per section 40.350.030(B)(6):

8. NE 159th Street at NE 50th Avenue – 13 AM and 16 PM peak hour trip impact.

Other Considerations

In-Process Development Data

Please provide in-process development data which should be incorporated in the TIS. If available, the traffic studies for these projects are requested.

PLS Engineering currently has access to data for the following projects (please let me know if any of the following can be removed):

- 174th Street Subdivision (PLD-2026-00002)
- Four Creeks North Subdivision (PLD-2025-00040)
- Kozy Manor Estates (PLD-2025-00014)
- M&H Subdivision (25% built, 75% in-process, located at/near 3801 NE 174th Street)
- Mill Creek Meadows (PLD-2024-00092)
- Mill Creek Terrace (PLD-2024-00015)
- Mountain Estates Cluster Subdivision (PLD-2017-00046)
- Mountain View Ridge PUD (PLD-2023-00053)
- Mt Vista Logistics (PSR-2023-00008)
- NE 29th Avenue Subdivision (located at/near 18216 NE 29th Avenue)
- South Ridge Central Apartments (PSR-2023-00158)
- Three Creeks North Phase 1 & 2 (located at/near 18701 NE 10th Avenue)
- Three Creeks East Subdivision (PLD-2025-00077)
- Viers Subdivision (assessor parcel 181682000)
- Washington State University Master Plan (located at/near 14204 NE Salmon Creek Avenue)
- Woodbrook Subdivision (aka Mill Creek PUD, 40% built, 60% in-process, located at/near 4519 NE 183rd Street)

Traffic Counts & Ongoing Road Construction

Due to ongoing road construction along NE 179th Street, between NE 29th Avenue and NE 50th Avenue, as well as intersection reconstruction at NE 179th Street at NE 29th Avenue, traffic volumes and patterns at the following two suggested study intersections may not currently reflect typical traffic conditions:

3. NE 179th Street at NE 29th Avenue
5. NE 179th Street at NE 50th Avenue

The most recent set of count data PLS Engineering has available at these intersections that reflect normal traffic conditions were collected on Tuesday, August 5, 2025. At the time of writing, these traffic counts have been collected within a 12-month period as required in Clark County Unified Development Code 40.350.020.B.4. However, in the event the development application has not been deemed fully complete by early August would it be acceptable to continue utilizing these counts in this development application's traffic study, assuming roadway closures continue beyond early August?

Conclusions

Based on the projected trips generated, the preliminary trip distribution, and the anticipated impacts to the transportation system, the following study intersections are suggested for analysis:

2. NE 179th Street at NE 15th Avenue
3. NE 179th Street at NE 29th Avenue
5. NE 179th Street at NE 50th Avenue
6. NE 174th Street at NE 50th Avenue

Please confirm if the above study area is sufficient for the TIS. Also, please confirm the following:

- In addition to those listed above, are there any other in-process development projects that should be incorporated in the TIS? If yes, could their traffic studies be provided?
- For the intersections of NE 179th Street at NE 29th Avenue and NE 179th Street at NE 50th Avenue, in the event the development application has not been deemed fully complete by early August would it be acceptable to continue utilizing counts collected on Tuesday, August 5, 2025, in this development application's traffic study? This assumes roadway closures in the study area continue beyond early August.

If you have any questions or concerns regarding the preparation of this scoping memorandum, please do not hesitate to contact me at daniels@plsengineering.com.

Attachments

- Preliminary Site Plan
- Site Trip Distribution and Assignment (Figure A)
- Trip Generation Calculations
- Viers Subdivision Trip Distribution Figure

Mill Creek Estates

THOMPSON & WATT

43 lots (1 retained home), R1-7.5 rezone

50'x100' lot min

JT, 3/30/2026



FIGURE A

MILL CREEK ESTATES

SITE TRIP ASSIGNMENT

AM & PM PEAK HOURS

NET NEW SITE TRIP GENERATION			
ANALYSIS SCENARIO	PRIMARY TRIPS		TOTAL
	ENTER	EXIT	
AM PEAK HOUR	8	21	29
PM PEAK HOUR	24	14	38

AM PEAK HOUR

PM PEAK HOUR

NOT TO SCALE

PLS ENGINEERING

Trip Generation Calculations

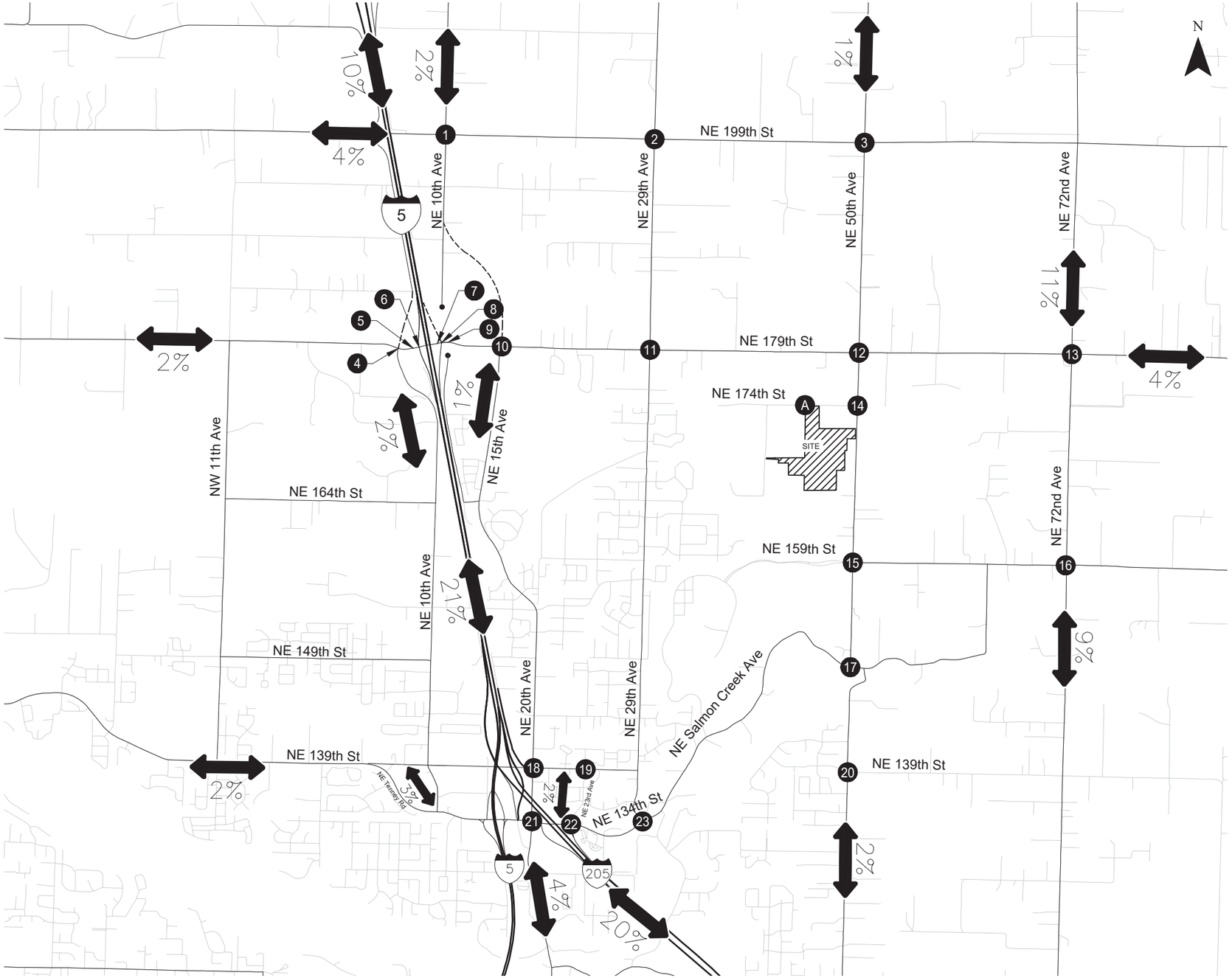
Source: Institute of Transportation Engineers (ITE) Trip Generation Manual, 12th Edition

Analysis Scenario: Existing Conditions
Land Use Code: 210, Single-Family Detached Housing
Subcategory: All Sites
Setting/Location General Urban/Suburban
Trip Type: Vehicle
Formula Type: Rate
Variable Type & Quanity: 2 Dwelling Units

Scenario	Trip Rate	Enter (*Percentage Split*)		Exit (*Percentage Split*)		Total
AM Peak Hour	0.70	0	*27%*	1	*73%*	1
PM Peak Hour	0.93	1	*62%*	1	*38%*	2
Weekday	9.09	9	*50%*	9	*50%*	18

Analysis Scenario: Proposed Conditions
Land Use Code: 210, Single-Family Detached Housing
Subcategory: All Sites
Setting/Location General Urban/Suburban
Trip Type: Vehicle
Formula Type: Rate
Variable Type & Quanity: 43 Dwelling Units

Scenario	Trip Rate	Enter (*Percentage Split*)		Exit (*Percentage Split*)		Total
AM Peak Hour	0.70	8	*27%*	22	*73%*	30
PM Peak Hour	0.93	25	*62%*	15	*38%*	40
Weekday	9.09	196	*50%*	195	*50%*	391



Estimated Trip Distribution Pattern
Clark County, Washington

Figure
9

C:\KAI Applications\AutodeskITEMPAcPublish_13841257\95_Viers_Figures_NP_2022-12-12.dwg Dec 14, 2022 - 10:22am - nick Layout Tab: 09

Outlook

Re: Mill Creek Estates - Traffic Scoping Memo

From Daniel Stumpf <daniels@plsengineering.com>
Date Wed 4/15/2026 10:32 AM
To Craig Kathol <Craig.Kathol@clark.wa.gov>
Cc David Jardin <David.Jardin@clark.wa.gov>; Chad Stewart <chad@ginngrp.com>; Morgan Chadwick <morgan@ginngrp.com>; Jayson Taylor <jayson@plsengineering.com>

Good morning Craig,

Perfect, thank you for providing input on this traffic study scope. Everything you mentioned looks pretty straightforward so I should be set to go. Of course, I'll let you know if I have any questions later on.

Thanks and have a good rest of the day!

Daniel

Daniel Stumpf, PE
Transportation Engineer
604 W. Evergreen Blvd, Vancouver, WA 98660
O: 360.944.6519 | **D**: 360.977.5509

From: Craig Kathol <Craig.Kathol@clark.wa.gov>
Sent: Wednesday, April 15, 2026 10:27 AM
To: Daniel Stumpf <daniels@plsengineering.com>
Cc: David Jardin <David.Jardin@clark.wa.gov>; Chad Stewart <chad@ginngrp.com>; Morgan Chadwick <morgan@ginngrp.com>; Jayson Taylor <jayson@plsengineering.com>
Subject: RE: Mill Creek Estates - Traffic Scoping Memo

Good morning Daniel,

I have reviewed the traffic scoping memo for Mill Creek Estates and generally agree with your findings.

Please retain the intersections below for analysis:

1. NE 179th Street/NE 15th Avenue
2. NE 179th Street/NE 29th Avenue
3. NE 179th Street/NE 50th Avenue
4. NE 174th Street/NE 50th Avenue

Please retain the following intersections in the trip assignments/trip distribution for illustrative purposes only:

1. NE 159th Street/NE 29th Avenue
2. NE 159th Street/NE 50th Avenue
3. NE 189th Street/NE 29th Avenue

I agree with your in process data provided in your scoping memo. Please retain **all** of the developments within your scoping memo for in-process. There are a few changes to be made for the percent in-process/built-out for M&H Subdivision and Woodbrook Subdivision as well as one additional in-process development that wasn't included in your memo. See below:

Change

- M&H Subdivision (60% built-out, 40% in-process)
- Woodbrook Subdivision (60% built-out, 40% in-process)

Add

- PSR-2026-00006 Anderson Dental

Regarding your question for the intersections of NE 179th Street/NE 29th Avenue and NE 179th Street/NE 50th Avenue, in the event the development application has not been deemed fully complete by early August, it **would** be acceptable to continue utilizing counts collected from August 5, 2025 due to ongoing road construction along NE 179th Street, between NE 29th Avenue and NE 50th Avenue. However, if the older counts are used, a 2% growth rate should be applied to the August 5, 2025 counts.

Please let me know if you have any questions.

Thank you,

Craig Kathol, E.I.T.
Transportation Concurrency Engineer
Clark County Public Works

Cell: 360.553.8247

From: Daniel Stumpf <daniels@plsengineering.com>
Sent: Wednesday, April 8, 2026 3:45 PM
To: Craig Kathol <Craig.Kathol@clark.wa.gov>
Cc: David Jardin <David.Jardin@clark.wa.gov>; Chad Stewart <chad@ginngrp.com>; Morgan Chadwick <morgan@ginngrp.com>; Jayson Taylor <jayson@plsengineering.com>
Subject: Re: Mill Creek Estates - Traffic Scoping Memo

Good afternoon Craig,

Attached is an updated scoping memo which depicts site trip assignment for regionally significant intersections within a one-mile radius of the site. Based on expected impacts, would reviewing the following intersections be sufficient for preparation of the TIS:

- NE 179th Street at NE 15th Avenue
- NE 179th Street at NE 29th Avenue
- NE 179th Street at NE 50th Avenue
- NE 174th Street at NE 50th Avenue

Let me know if you have any questions or need additional info from the applicant team.

Thanks,

Daniel

Daniel Stumpf, PE
Transportation Engineer
604 W. Evergreen Blvd, Vancouver, WA 98660
O: 360.944.6519 | **D**: 360.977.5509

From: Craig Kathol <Craig.Kathol@clark.wa.gov>
Sent: Tuesday, April 7, 2026 8:34 AM
To: Daniel Stumpf <daniels@plsengineering.com>
Cc: David Jardin <David.Jardin@clark.wa.gov>; Chad Stewart <chad@ginngrp.com>; Morgan Chadwick <morgan@ginngrp.com>; Jayson Taylor <jayson@plsengineering.com>
Subject: RE: Mill Creek Estates - Traffic Scoping Memo

Hi Daniel,

Thank you for letting me know. I actually haven't gotten around to reviewing this yet. I was planning on reviewing it this week. I will wait for the updated scoping memo.

Thank you,

Craig Kathol, E.I.T.
Transportation Concurrency Engineer
Clark County Public Works

Cell: 360.553.8247

From: Daniel Stumpf <daniels@plsengineering.com>
Sent: Tuesday, April 7, 2026 8:32 AM
To: Craig Kathol <Craig.Kathol@clark.wa.gov>
Cc: David Jardin <David.Jardin@clark.wa.gov>; Chad Stewart <chad@ginngrp.com>; Morgan Chadwick <morgan@ginngrp.com>; Jayson Taylor <jayson@plsengineering.com>
Subject: Re: Mill Creek Estates - Traffic Scoping Memo

EXTERNAL: This email originated from outside of Clark County. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Good morning Craig,

Hopefully you haven't gotten too far into reviewing this scoping memo, but the size of our development will be dropping down to 43-lots on two parcels. The development plan will largely match what was shown in the Mill Creek Estates Subdivision pre-app report dated January 22, 2026 (PAC-2025-00446). I'll work on sending you an updated scoping memo in the next few days.

Thanks,

Daniel

Daniel Stumpf, PE
Transportation Engineer
604 W. Evergreen Blvd, Vancouver, WA 98660
O: 360.944.6519 | **D**: 360.977.5509

From: Daniel Stumpf <daniels@plsengineering.com>
Sent: Friday, March 20, 2026 10:42 AM
To: Craig Kathol <craig.kathol@clark.wa.gov>
Cc: David Jardin <david.jardin@clark.wa.gov>; Chad Stewart <chad@ginngrp.com>; Morgan Chadwick <morgan@ginngrp.com>; Jayson Taylor <jayson@plsengineering.com>
Subject: Re: Mill Creek Estates - Traffic Scoping Memo

Hi Craig,

Just a quick follow up on something I neglected to ask in the scoping memo. Because of ongoing construction along and at the intersection of 179th Street/29th Avenue, there are still some road closures and atypical traffic conditions in the area. The most recent set of count data we have at the intersections of 179th Street/29th Street and 179th Street/50th Street that reflect normal traffic conditions are dated August 5, 2025. We are still in the 12-month period where these counts are still valid for use, but in the event our application is not deemed fully complete by early August would it be acceptable to continue utilizing these counts in our application's traffic study if roadway closures continue beyond this date?

Thanks,

Daniel

Daniel Stumpf, PE
Transportation Engineer
604 W. Evergreen Blvd, Vancouver, WA 98660
O: 360.944.6519 | **D**: 360.977.5509

From: Daniel Stumpf
Sent: Friday, March 20, 2026 9:17 AM
To: Craig Kathol <craig.kathol@clark.wa.gov>
Cc: David Jardin <david.jardin@clark.wa.gov>; Chad Stewart <chad@ginngrp.com>; Morgan Chadwick <morgan@ginngrp.com>; Jayson Taylor <jayson@plsengineering.com>
Subject: Mill Creek Estates - Traffic Scoping Memo

Good morning Craig,

Happy Friday! I'm forwarding you a traffic study scoping memo for a proposed 96-lot subdivision (Mill Creek Estates) that will be located on five properties (assessor parcels 181755000, 181674000, 181754000, 181753000 and 181698000) addressed at/near 3707

NE 174th Street. This project hasn't gone to pre-app yet, but the applicant team is planning to submit for pre-app next week. We wanted to get this memo to you ahead of time, hopefully it'll prove useful for reference and possibly expedite preparation of the traffic study on our end.

Let us know if you have any questions or if you need any additional info.

Thanks and have good upcoming weekend!

Daniel

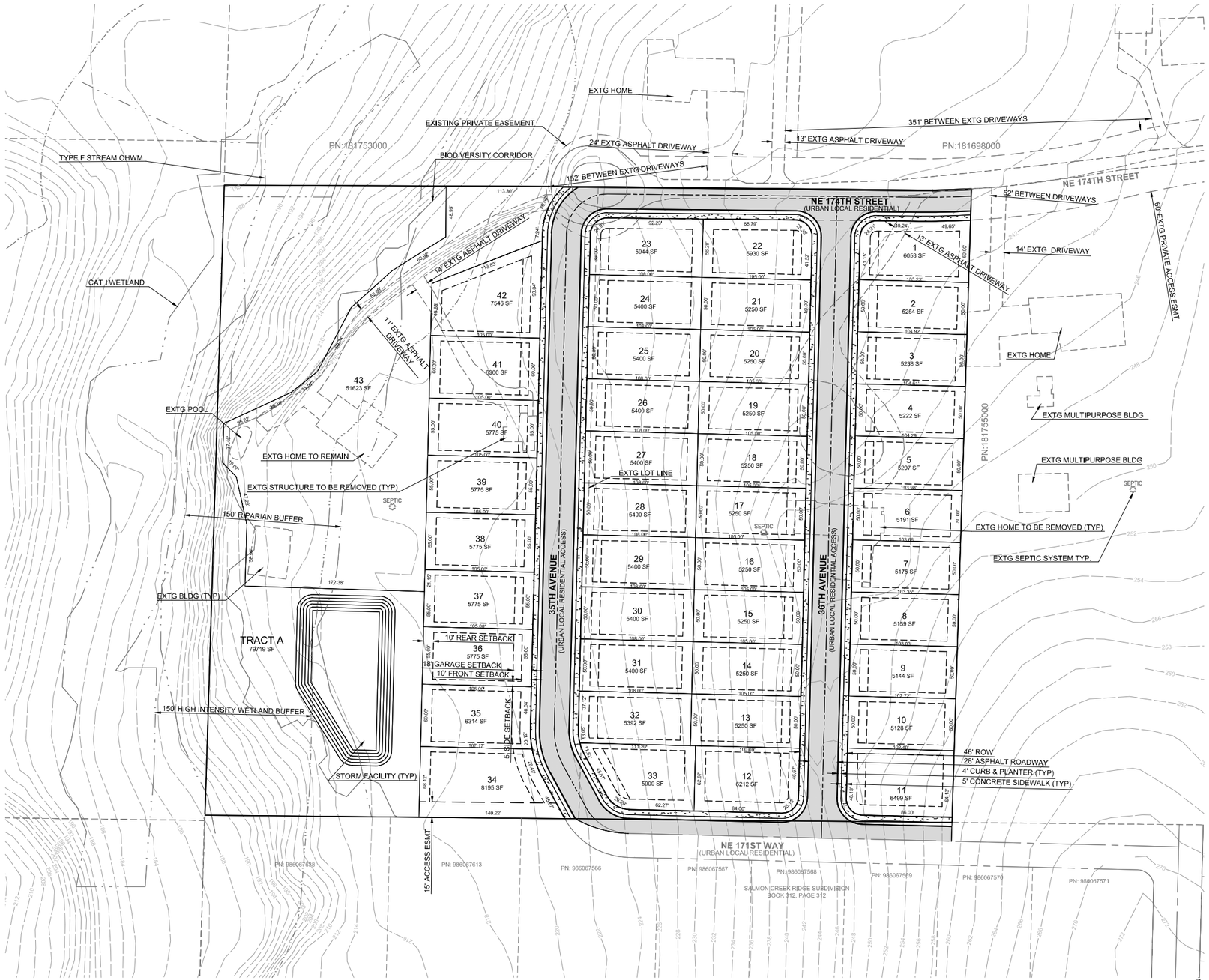
Daniel Stumpf, PE
Transportation Engineer
604 W. Evergreen Blvd, Vancouver, WA 98660
O: 360.944.6519 | **D**: 360.977.5509

APPENDIX B – SITE PLAN

Site Plan

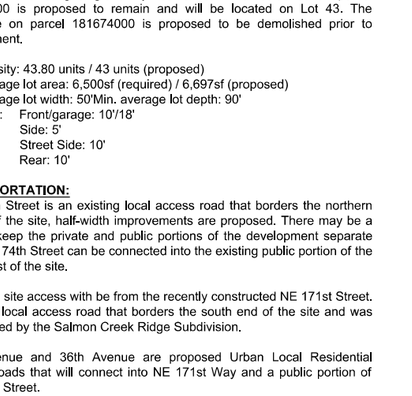
Mill Creek Estates Subdivision

Located in the NE ¼ of Section 13, T3N, R1E, WM
in Clark County, Washington



Scale 1" = 50'

50 25 0 50



VICINITY MAP
NOT TO SCALE

GENERAL NOTES:

Applicant:
Ginn Group, LLC
Contact: Chad Stewart
502 NE 72nd St
Vancouver, WA 98665
(360) 608-6026
Chad@ginngrp.com

Contact:
PLS Engineering
Contact: Jayson Taylor
604 W Evergreen Blvd
Vancouver, WA 98660
(360) 944-6519
pm@plsengineering.com

Owners:
Jerry G. and Katheryn G.
Thompson Trustees
3511 NE 174th St
Vancouver, WA 98686

Jonathan V. Watt and
Ebigale L. Watt
3619 NE 174th St
Vancouver, WA 98686

SITE ADDRESS:
PINS: 181754-000 & 181674-000
3511 & 3619 NE 174TH St,
VANCOUVER, WA 98686

PROPOSAL:

The applicant proposes to subdivide approximately 10 acres into 43 single-family detached lots. A concurrent rezone is included with this proposal. The site is currently zoned R1-10, and the applicant is requesting a rezone to R1-7.5. The site also falls within the Mill Creek Overlay.

The project area consists of two parcels (181754000 and 181674000) and contains two existing single-family residences. The residence on parcel 181754000 is proposed to remain and will be located on Lot 43. The residence on parcel 181674000 is proposed to be demolished prior to development.

Max Density: 43.80 units / 43 units (proposed)
Min. average lot area: 6,500sf (required) / 6,697sf (proposed)
Min. average lot width: 50'Min. average lot depth: 90'
Setbacks: Front/garage: 10'/18'
Side: 5'
Street Side: 10'
Rear: 10'

TRANSPORTATION:

NE 174th Street is an existing local access road that borders the northern portion of the site, half-width improvements are proposed. There may be a need to keep the private and public portions of the development separate until NE 174th Street can be connected into the existing public portion of the street east of the site.

The main site access with be from the recently constructed NE 171st Street. This is a local access road that borders the south end of the site and was constructed by the Salmon Creek Ridge Subdivision.

35th Avenue and 36th Avenue are proposed Urban Local Residential Access roads that will connect into NE 171st Way and a public portion of NE 174th Street.

There are no transit routes within 1/4 mile of the site.

UTILITIES:

There are no known wells onsite. There are 2 septic systems located onsite, which will be removed prior to development.

Stormwater runoff from the site will be collected, treated, and will likely be routed to a storm facility located in the SW corner of the site.

CPU is the public water purveyor and CRWWD is the sanitary sewer purveyor for the site with likely connection points within NE 171st Street.

CRITICAL AREAS:

A Wetland and Habitat Determination Report (WHR-2025-00330) has been completed for the site. The site contains a Category I Wetland located adjacent to the onsite creek located on the west end of the site. This wetland requires a 150-foot high-intensity wetland buffer. A Type F stream runs along the western portion of the site, requiring a 150-foot riparian buffer.

Legend	
Proposed Asphalt	
Proposed Concrete	

PLS ENGINEERING

A Conceptual Plan For:
Mill Creek Estates Subdivision
A Subdivision Located in Clark County, Washington

Engineering - Surveying - Planning | 604 W. Evergreen Blvd., Vancouver, WA 98660 | PH (360) 944-6519 | Fax (360) 944-6539

Revisions						
	1	2	3	4	5	6
12/08/2025						

Project No.	3842
SCALE:	H: 1"= 50' V: N/A
DESIGNED BY:	JMT
DRAFTED BY:	CHD
REVIEWED BY:	JMT

01
01

APPENDIX C – SITE TRIPS

Trip Generation Calculations

Trip Generation Calculations

Source: Institute of Transportation Engineers (ITE) Trip Generation Manual, 12th Edition

Analysis Scenario: Existing Conditions
Land Use Code: 210, Single-Family Detached Housing
Subcategory: All Sites
Setting/Location General Urban/Suburban
Trip Type: Vehicle
Formula Type: Rate
Variable Type & Quanity: 2 Dwelling Units

Scenario	Trip Rate	Enter (*Percentage Split*)		Exit (*Percentage Split*)		Total
AM Peak Hour	0.70	0	*27%*	1	*73%*	1
PM Peak Hour	0.93	1	*62%*	1	*38%*	2
Weekday	9.09	9	*50%*	9	*50%*	18

Analysis Scenario: Proposed Conditions
Land Use Code: 210, Single-Family Detached Housing
Subcategory: All Sites
Setting/Location General Urban/Suburban
Trip Type: Vehicle
Formula Type: Rate
Variable Type & Quanity: 43 Dwelling Units

Scenario	Trip Rate	Enter (*Percentage Split*)		Exit (*Percentage Split*)		Total
AM Peak Hour	0.70	8	*27%*	22	*73%*	30
PM Peak Hour	0.93	25	*62%*	15	*38%*	40
Weekday	9.09	196	*50%*	195	*50%*	391

APPENDIX D – TRAFFIC VOLUMES

Traffic Count Data
In-Process Development
Rerouted Trips

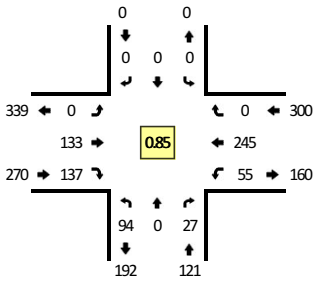
Type of peak hour being reported: Intersection Peak

Method for determining peak hour: Total Entering Volume

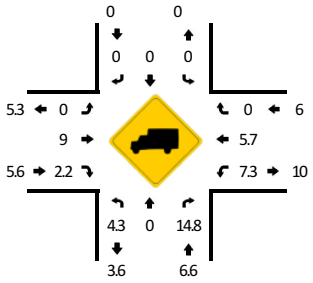
LOCATION: 7. NE 15th Ave -- NE 179th St
CITY/STATE: Mount Vista, WA

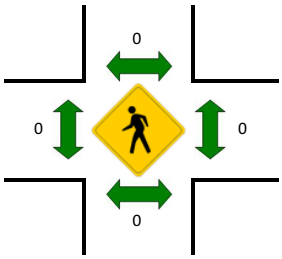
QC JOB #: 17363013
DATE: Thu, Dec 4 2025

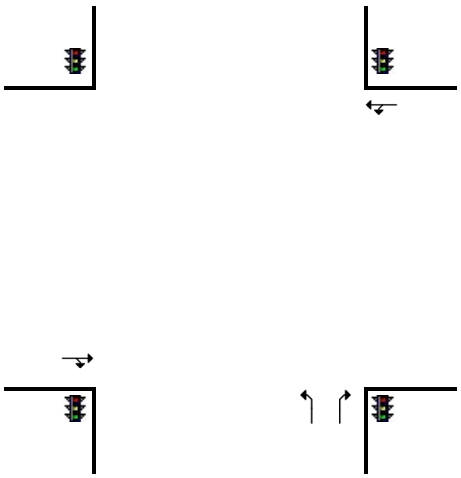
Peak-Hour: 7:25 AM -- 8:25 AM
Peak 15-Min: 7:35 AM -- 7:50 AM

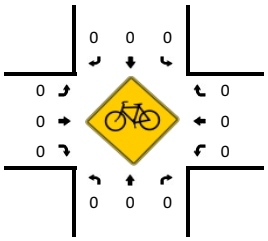


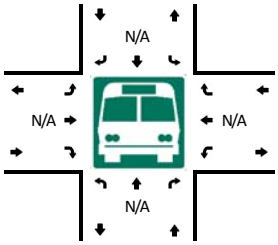


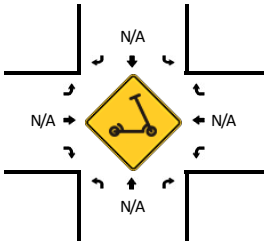












5-Min Count Period Beginning At	7. NE 15th Ave (Northbound)				7. NE 15th Ave (Southbound)				NE 179th St (Eastbound)				NE 179th St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	5	0	0	0	0	0	0	0	0	8	4	0	2	12	0	0	31	
7:05 AM	9	0	1	0	0	0	0	0	0	9	5	0	4	13	0	0	41	
7:10 AM	8	0	1	0	0	0	0	0	0	5	8	0	3	17	0	0	42	
7:15 AM	10	0	4	0	0	0	0	0	0	8	8	0	3	28	0	0	61	
7:20 AM	7	0	1	0	0	0	0	0	0	7	4	0	5	12	0	0	36	
7:25 AM	10	0	2	0	0	0	0	0	0	11	10	0	3	23	0	0	59	
7:30 AM	9	0	1	0	0	0	0	0	0	4	9	0	3	26	0	0	52	
7:35 AM	18	0	2	0	0	0	0	0	0	6	13	0	7	23	0	0	69	
7:40 AM	7	0	0	0	0	0	0	0	0	14	8	0	8	28	0	0	65	
7:45 AM	9	0	6	0	0	0	0	0	0	8	18	0	5	24	0	0	70	
7:50 AM	9	0	2	0	0	0	0	0	0	9	15	0	5	22	0	0	62	
7:55 AM	7	0	3	0	0	0	0	0	0	14	16	0	4	19	0	0	63	651
8:00 AM	5	0	2	0	0	0	0	0	0	20	10	0	3	5	0	0	45	665
8:05 AM	6	0	0	0	0	0	0	0	0	6	14	0	5	16	0	0	47	671
8:10 AM	4	0	3	0	0	0	0	0	0	14	5	0	3	18	0	0	47	676
8:15 AM	7	0	2	0	0	0	0	0	0	14	8	0	8	21	0	0	60	675
8:20 AM	3	0	4	0	0	0	0	0	0	13	11	0	1	20	0	0	52	691
8:25 AM	9	0	3	0	0	0	0	0	0	7	10	0	3	25	0	0	57	689
8:30 AM	13	0	1	0	0	0	0	0	0	6	10	0	2	21	0	0	53	690
8:35 AM	14	0	3	0	0	0	0	0	0	8	6	0	5	18	0	0	54	675
8:40 AM	15	0	1	0	0	0	0	0	0	9	9	0	8	21	0	0	63	673
8:45 AM	14	0	4	0	0	0	0	0	0	11	8	0	2	14	0	0	53	656
8:50 AM	7	0	5	0	0	0	0	0	0	11	17	0	4	20	0	0	64	658
8:55 AM	13	0	4	0	0	0	0	0	0	10	21	0	2	19	0	0	69	664

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	136	0	32	0	0	0	0	0	0	112	156	0	80	300	0	0	816
Heavy Trucks	4	0	4		0	0	0		0	8	0		8	20	0		44
Buses																	
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

Comments:

Report generated on 12/10/2025 2:13 PM

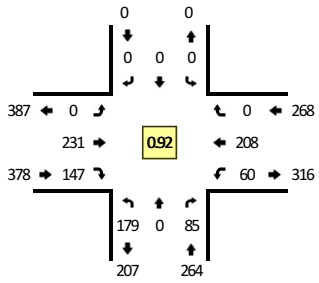
SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

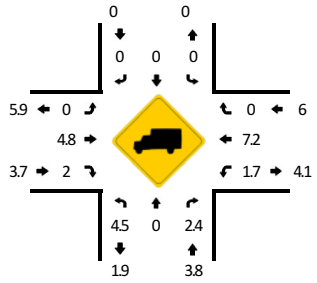
Type of peak hour being reported: Intersection Peak | Method for determining peak hour: Total Entering Volume

LOCATION: 7. NE 15th Ave -- NE 179th St
CITY/STATE: Mount Vista, WA

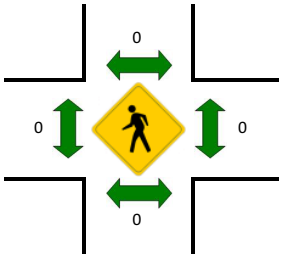
QC JOB #: 17363014
DATE: Thu, Dec 4 2025

Peak-Hour: 4:05 PM -- 5:05 PM
Peak 15-Min: 4:05 PM -- 4:20 PM

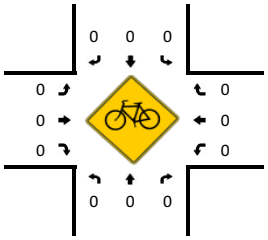


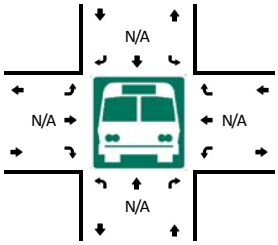


TRUE DATA TO IMPROVE MOBILITY

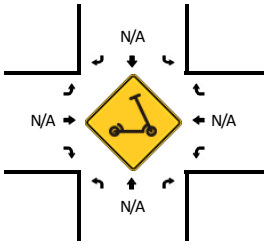












5-Min Count Period Beginning At	7. NE 15th Ave (Northbound)				7. NE 15th Ave (Southbound)				NE 179th St (Eastbound)				NE 179th St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	10	0	6	0	0	0	0	0	0	20	10	0	4	16	0	0	66	
4:05 PM	17	0	9	0	0	0	0	0	0	17	23	0	10	27	0	0	103	
4:10 PM	21	0	8	0	0	0	0	0	0	12	16	0	4	19	0	0	80	
4:15 PM	7	0	3	0	0	0	0	0	0	22	7	0	6	18	0	0	63	
4:20 PM	15	0	9	0	0	0	0	0	0	12	14	0	7	12	0	0	69	
4:25 PM	15	0	5	0	0	0	0	0	0	21	15	0	3	17	0	0	76	
4:30 PM	14	0	6	0	0	0	0	0	0	21	9	0	6	19	0	0	75	
4:35 PM	17	0	5	0	0	0	0	0	0	27	9	0	3	20	0	0	81	
4:40 PM	11	0	9	0	0	0	0	0	0	19	9	0	5	12	0	0	65	
4:45 PM	15	0	10	0	0	0	0	0	0	18	10	0	3	18	0	0	74	
4:50 PM	14	0	8	0	0	0	0	0	0	19	9	0	4	12	0	0	66	
4:55 PM	18	0	6	0	0	0	0	0	0	20	16	0	5	17	0	0	82	900
5:00 PM	15	0	7	0	0	0	0	0	0	23	10	0	4	17	0	0	76	910
5:05 PM	12	0	4	0	0	0	0	0	0	25	8	0	2	16	0	0	67	874
5:10 PM	17	0	10	0	0	0	0	0	0	28	10	0	7	12	0	0	84	878
5:15 PM	13	0	10	0	0	0	0	0	0	17	12	0	1	11	0	0	64	879
5:20 PM	12	0	9	0	0	0	0	0	0	24	16	0	5	17	0	0	83	893
5:25 PM	12	0	10	0	0	0	0	0	0	21	13	0	5	16	0	0	77	894
5:30 PM	6	0	7	0	0	0	0	0	0	16	9	0	2	12	0	0	52	871
5:35 PM	22	0	11	0	0	0	0	0	0	13	9	0	5	22	0	0	82	872
5:40 PM	12	0	10	0	0	0	0	0	0	21	15	0	3	17	0	0	78	885
5:45 PM	11	0	4	0	0	0	0	0	0	14	12	0	6	15	0	0	62	873
5:50 PM	9	0	7	0	0	0	0	0	0	20	3	0	0	13	0	0	52	859
5:55 PM	6	0	8	0	0	0	0	0	0	18	5	0	2	11	0	0	50	827

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	180	0	80	0	0	0	0	0	0	204	184	0	80	256	0	0	984
Heavy Trucks	12	0	4		0	0	0		0	20	0		4	20	0		60
Buses																	
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

Comments:

Report generated on 12/10/2025 2:13 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

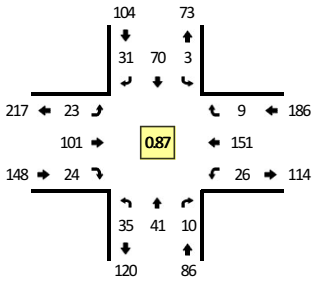
Type of peak hour being reported: Intersection Peak

Method for determining peak hour: Total Entering Volume

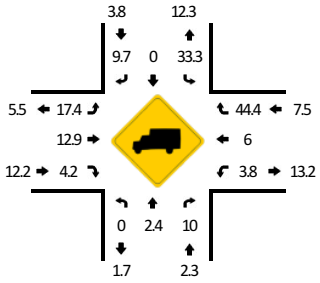
LOCATION: NE 29th Ave -- NE 179th St
CITY/STATE: Vancouver, WA

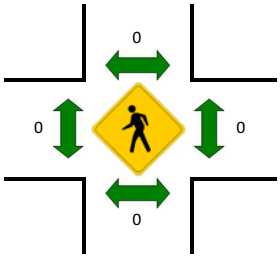
QC JOB #: 17179801
DATE: Wed, Aug 6 2025

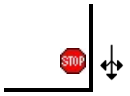
Peak-Hour: 8:00 AM -- 9:00 AM
Peak 15-Min: 8:35 AM -- 8:50 AM

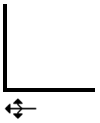


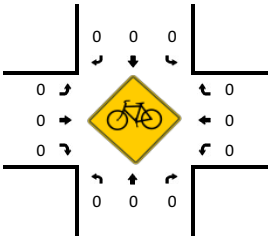


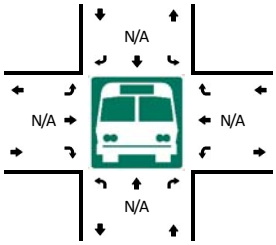


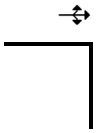


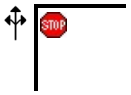


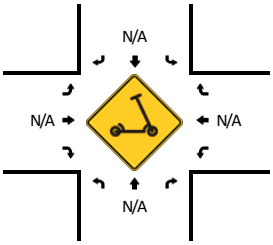












5-Min Count Period Beginning At	NE 29th Ave (Northbound)				NE 29th Ave (Southbound)				NE 179th St (Eastbound)				NE 179th St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	1	1	1	0	0	3	3	0	2	7	2	0	3	6	0	0	29	
7:05 AM	3	4	0	0	2	1	1	0	2	6	1	0	0	13	0	0	33	
7:10 AM	0	4	0	0	0	10	1	0	2	10	0	0	1	6	0	0	34	
7:15 AM	2	2	4	0	1	11	3	0	1	4	0	0	1	6	1	0	36	
7:20 AM	0	3	2	0	0	6	4	0	3	11	1	0	3	18	0	0	51	
7:25 AM	2	4	1	0	0	6	2	0	2	13	1	0	2	9	2	0	44	
7:30 AM	1	1	3	0	0	7	2	0	0	2	2	0	1	14	0	0	33	
7:35 AM	5	6	0	0	0	5	1	0	5	11	4	0	3	15	0	0	55	
7:40 AM	1	2	4	0	0	10	3	0	2	5	0	0	0	11	0	0	38	
7:45 AM	1	1	2	0	0	8	9	0	1	6	0	0	4	12	0	0	44	
7:50 AM	2	4	0	0	0	11	0	0	5	5	1	0	0	19	0	0	47	
7:55 AM	1	1	2	0	3	3	3	0	2	8	2	0	2	11	1	0	39	483
8:00 AM	4	5	0	0	0	7	3	0	1	12	2	0	2	11	1	0	48	502
8:05 AM	2	4	1	0	1	6	1	0	4	6	1	0	1	13	0	0	40	509
8:10 AM	6	2	0	0	0	7	0	0	2	8	1	0	2	16	0	0	44	519
8:15 AM	3	4	0	0	0	3	3	0	2	6	4	0	0	12	0	0	37	520
8:20 AM	4	5	0	0	0	5	5	0	1	12	2	0	2	8	0	0	44	513
8:25 AM	1	1	0	0	0	5	2	0	3	5	0	0	2	6	0	0	25	494
8:30 AM	3	2	1	0	0	6	5	0	4	4	2	0	4	14	0	0	45	506
8:35 AM	5	3	1	0	0	5	1	0	2	10	1	0	1	13	3	0	45	496
8:40 AM	3	4	3	0	0	7	3	0	1	11	2	0	5	18	0	0	57	515
8:45 AM	1	4	0	0	1	8	3	0	0	9	4	0	2	14	2	0	48	519
8:50 AM	0	5	1	0	0	7	4	0	1	9	2	0	3	12	0	0	44	516
8:55 AM	3	2	3	0	1	4	1	0	2	9	3	0	2	14	3	0	47	524

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	36	44	16	0	4	80	28	0	12	120	28	0	32	180	20	0	600
Heavy Trucks	0	0	0		0	0	0		4	12	0		0	4	12		32
Buses																	
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

Comments:

Report generated on 8/12/2025 2:49 PM

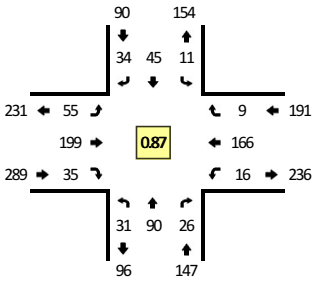
SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

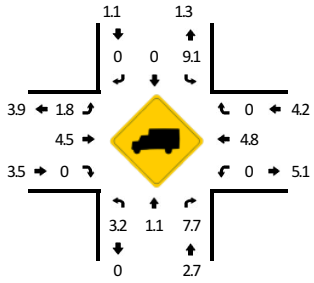
Type of peak hour being reported: Intersection Peak | Method for determining peak hour: Total Entering Volume

LOCATION: NE 29th Ave -- NE 179th St
CITY/STATE: Vancouver, WA

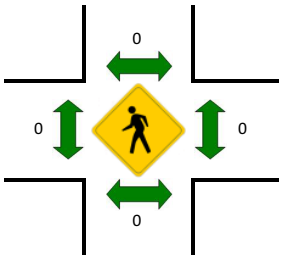
QC JOB #: 17179802
DATE: Tue, Aug 5 2025

Peak-Hour: 4:15 PM -- 5:15 PM
Peak 15-Min: 4:15 PM -- 4:30 PM

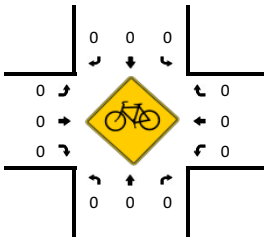


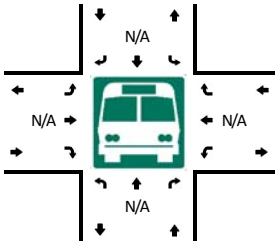


TRUE DATA TO IMPROVE MOBILITY

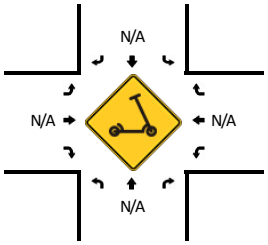












5-Min Count Period Beginning At	NE 29th Ave (Northbound)				NE 29th Ave (Southbound)				NE 179th St (Eastbound)				NE 179th St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	2	6	3	0	1	5	3	0	5	17	5	0	0	12	2	0	61	
4:05 PM	1	2	1	0	1	6	6	0	2	11	10	0	0	10	0	0	50	
4:10 PM	1	2	2	0	2	6	3	0	5	12	2	0	3	15	1	0	54	
4:15 PM	4	15	3	0	0	2	4	0	7	17	1	0	2	15	0	0	70	
4:20 PM	0	7	1	0	0	2	7	0	7	25	2	0	2	19	0	0	72	
4:25 PM	3	8	3	0	0	5	6	0	3	17	5	0	1	11	1	0	63	
4:30 PM	1	7	4	0	1	3	3	0	5	21	3	0	3	7	0	0	58	
4:35 PM	0	9	3	0	1	3	4	0	2	17	5	0	0	13	0	0	57	
4:40 PM	5	7	1	0	0	7	1	0	5	11	2	0	0	15	0	0	54	
4:45 PM	5	8	1	0	2	1	1	0	2	16	3	0	2	15	1	0	57	
4:50 PM	3	8	1	0	1	4	3	0	5	15	4	0	2	14	0	0	60	
4:55 PM	2	5	2	0	2	3	0	0	6	7	4	0	1	10	3	0	45	701
5:00 PM	1	5	2	0	0	4	0	0	7	16	2	0	1	13	2	0	53	693
5:05 PM	4	3	3	0	3	4	3	0	3	14	1	0	1	13	2	0	54	697
5:10 PM	3	8	2	0	1	7	2	0	3	23	3	0	1	21	0	0	74	717
5:15 PM	2	4	3	0	2	7	1	0	9	20	3	0	0	14	0	0	65	712
5:20 PM	1	12	2	0	1	4	5	0	3	14	7	0	1	13	1	0	64	704
5:25 PM	4	5	1	0	1	9	4	0	7	14	7	0	1	11	1	0	65	706
5:30 PM	1	7	4	0	1	5	5	0	7	15	2	0	2	15	0	0	64	712
5:35 PM	1	9	3	0	1	2	1	0	3	19	2	0	2	9	1	0	53	708
5:40 PM	4	8	4	0	0	4	2	0	4	19	5	0	1	9	0	0	60	714
5:45 PM	0	5	2	0	0	5	3	0	3	17	2	0	2	13	0	0	52	709
5:50 PM	0	2	5	0	1	7	4	0	2	19	3	0	3	12	1	0	59	708
5:55 PM	3	2	1	0	0	2	2	0	2	8	5	0	1	19	1	0	46	709

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	28	120	28	0	0	36	68	0	68	236	32	0	20	180	4	0	820
Heavy Trucks	4	0	0		0	0	0		0	12	0		0	4	0		20
Buses																	
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

Comments:

Report generated on 8/12/2025 2:49 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

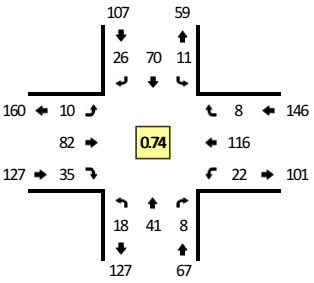
Type of peak hour being reported: Intersection Peak

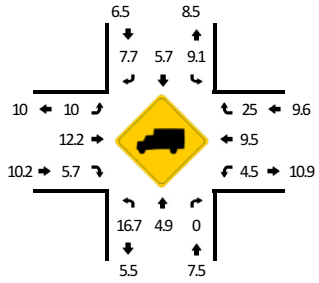
Method for determining peak hour: Total Entering Volume

LOCATION: NE 50th Ave -- NE 179th St
CITY/STATE: Vancouver, WA

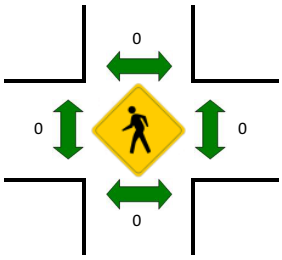
QC JOB #: 17179803
DATE: Wed, Aug 6 2025

Peak-Hour: 8:00 AM -- 9:00 AM
Peak 15-Min: 8:45 AM -- 9:00 AM

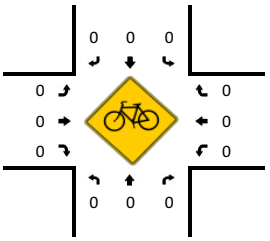


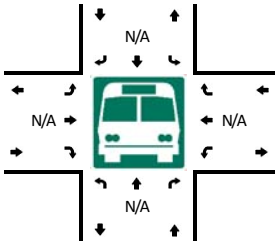


TRUE DATA TO IMPROVE MOBILITY

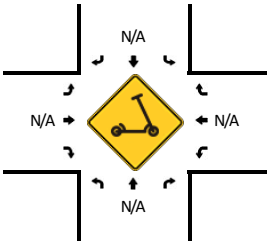












5-Min Count Period Beginning At	NE 50th Ave (Northbound)				NE 50th Ave (Southbound)				NE 179th St (Eastbound)				NE 179th St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	4	4	0	0	0	1	2	0	0	3	2	0	2	5	1	0	24	
7:05 AM	2	1	0	0	1	3	1	0	0	6	2	0	0	7	0	0	23	
7:10 AM	0	3	0	0	0	5	1	0	2	5	1	0	0	6	0	0	23	
7:15 AM	0	1	1	0	2	4	3	0	0	5	1	0	1	8	1	0	27	
7:20 AM	4	1	0	0	0	3	2	0	3	9	1	0	1	16	0	0	40	
7:25 AM	2	3	1	0	2	4	2	0	1	7	3	0	1	5	1	0	32	
7:30 AM	2	4	1	0	1	3	2	0	2	5	1	0	1	10	0	0	32	
7:35 AM	2	4	1	0	3	6	1	0	2	7	1	0	3	10	0	0	40	
7:40 AM	3	3	0	0	4	10	2	0	0	6	2	0	2	7	0	0	39	
7:45 AM	0	7	2	0	0	11	0	0	0	3	1	0	3	13	0	0	40	
7:50 AM	1	2	1	0	2	2	1	0	4	9	1	0	0	10	1	0	34	
7:55 AM	5	4	0	0	1	5	0	0	0	7	2	0	3	12	0	0	39	393
8:00 AM	1	3	0	0	0	0	4	0	0	8	2	0	2	8	0	0	28	397
8:05 AM	0	3	0	0	0	7	1	0	0	9	2	0	0	10	0	0	32	406
8:10 AM	0	3	0	0	2	5	2	0	0	5	3	0	1	11	0	0	32	415
8:15 AM	2	2	0	0	2	5	1	0	0	7	4	0	3	7	2	0	35	423
8:20 AM	0	3	1	0	1	4	2	0	2	6	2	0	2	2	1	0	26	409
8:25 AM	2	1	1	0	2	7	4	0	1	4	2	0	1	9	0	0	34	411
8:30 AM	2	3	0	0	0	4	2	0	0	1	3	0	3	8	0	0	26	405
8:35 AM	3	5	1	0	1	5	3	0	2	6	3	0	2	8	0	0	39	404
8:40 AM	2	4	1	0	0	2	4	0	0	10	4	0	0	15	1	0	43	408
8:45 AM	2	1	0	0	2	9	0	0	1	11	3	0	1	7	3	0	40	408
8:50 AM	2	5	2	0	0	9	1	0	1	6	4	0	4	15	1	0	50	424
8:55 AM	2	8	2	0	1	13	2	0	3	9	3	0	3	16	0	0	62	447

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	24	56	16	0	12	124	12	0	20	104	40	0	32	152	16	0	608
Heavy Trucks	4	4	0		0	8	0		0	20	0		0	8	4		48
Buses																	
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

Comments:

Report generated on 8/12/2025 2:49 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

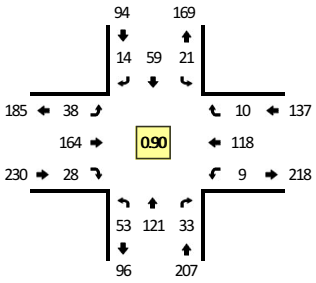
Type of peak hour being reported: Intersection Peak

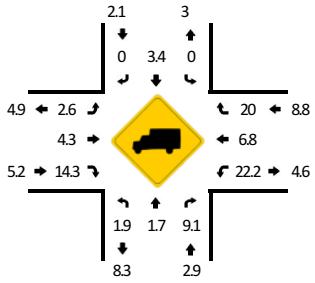
Method for determining peak hour: Total Entering Volume

LOCATION: NE 50th Ave -- NE 179th St
CITY/STATE: Vancouver, WA

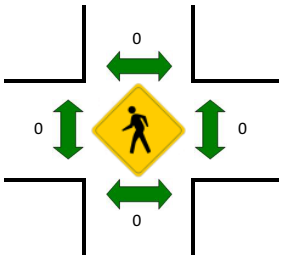
QC JOB #: 17179804
DATE: Tue, Aug 5 2025

Peak-Hour: 4:45 PM -- 5:45 PM
Peak 15-Min: 5:10 PM -- 5:25 PM

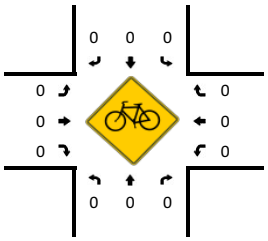


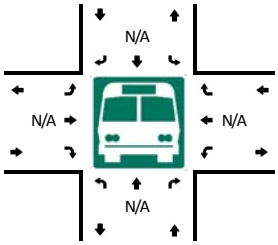


TRUE DATA TO IMPROVE MOBILITY

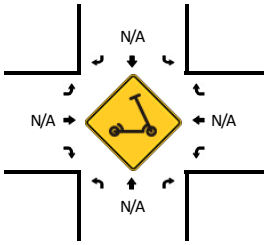












5-Min Count Period Beginning At	NE 50th Ave (Northbound)				NE 50th Ave (Southbound)				NE 179th St (Eastbound)				NE 179th St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	1	7	2	0	1	4	2	0	6	16	3	0	2	8	1	0	53	
4:05 PM	1	4	1	0	1	7	5	0	3	11	4	0	1	9	1	0	48	
4:10 PM	6	5	1	0	1	5	0	0	3	9	3	0	4	8	3	0	48	
4:15 PM	7	7	1	0	3	5	3	0	4	9	2	0	1	13	3	0	58	
4:20 PM	4	7	1	0	0	7	3	0	3	15	3	0	1	13	2	0	59	
4:25 PM	1	9	0	0	0	5	0	0	4	16	4	0	0	13	3	0	55	
4:30 PM	4	8	1	0	0	2	0	0	1	14	2	0	2	7	2	0	43	
4:35 PM	0	10	3	0	2	1	1	0	2	18	3	0	0	5	2	0	47	
4:40 PM	6	7	4	0	0	2	4	0	2	6	2	0	0	10	1	0	44	
4:45 PM	5	6	4	0	3	6	0	0	2	13	4	0	1	12	1	0	57	
4:50 PM	4	18	3	0	2	4	0	0	0	8	4	0	2	14	0	0	59	
4:55 PM	3	9	3	0	4	5	0	0	4	6	6	0	2	11	0	0	53	624
5:00 PM	6	13	3	0	1	7	1	0	4	12	2	0	2	9	0	0	60	631
5:05 PM	4	11	1	0	0	7	1	0	2	11	0	0	0	8	1	0	46	629
5:10 PM	5	12	1	0	4	5	2	0	3	20	1	0	1	13	0	0	67	648
5:15 PM	4	10	2	0	2	6	2	0	6	24	3	0	0	11	2	0	72	662
5:20 PM	4	13	1	0	2	4	0	0	3	14	0	0	0	5	1	0	47	650
5:25 PM	6	10	5	0	1	4	2	0	2	7	2	0	1	9	0	0	49	644
5:30 PM	4	6	3	0	0	5	3	0	2	17	2	0	0	14	1	0	57	658
5:35 PM	5	6	4	0	1	3	1	0	3	18	2	0	0	5	0	0	48	659
5:40 PM	3	7	3	0	1	3	2	0	7	14	2	0	0	7	4	0	53	668
5:45 PM	3	6	3	0	0	3	2	0	5	9	4	0	0	9	2	0	46	657
5:50 PM	1	5	1	0	2	4	1	0	6	9	4	0	1	13	1	0	48	646
5:55 PM	1	5	1	0	1	3	1	0	1	4	1	0	1	14	0	0	33	626

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	52	140	16	0	32	60	16	0	48	232	16	0	4	116	12	0	744
Heavy Trucks	4	8	4		0	4	0		0	8	0		0	20	0		48
Buses																	
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

Comments:

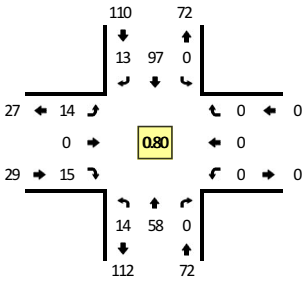
Report generated on 8/12/2025 2:49 PM

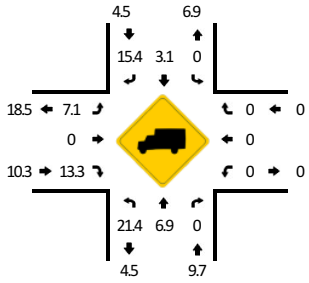
SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

Type of peak hour being reported: Intersection Peak | Method for determining peak hour: Total Entering Volume

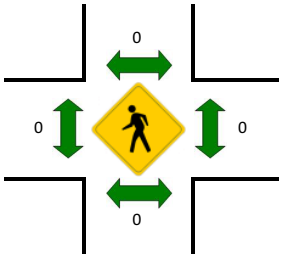
LOCATION: 4. NE 50th Ave -- NE 174th St | **QC JOB #:** 17157907
CITY/STATE: Mount Vista, WA | **DATE:** Tue, Jul 15 2025

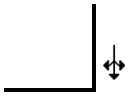
Peak-Hour: 8:00 AM -- 9:00 AM
Peak 15-Min: 8:45 AM -- 9:00 AM

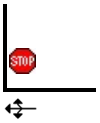


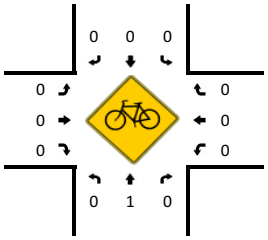


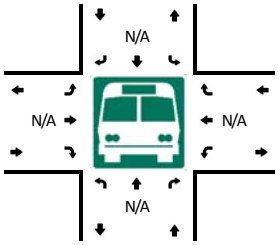
TRUE DATA TO IMPROVE MOBILITY

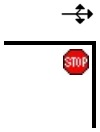


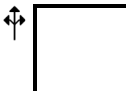


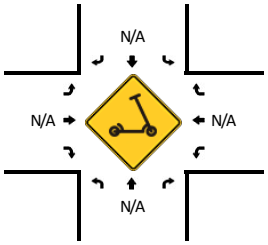












5-Min Count Period Beginning At	4. NE 50th Ave (Northbound)				4. NE 50th Ave (Southbound)				NE 174th St (Eastbound)				NE 174th St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	2	4	0	0	0	3	2	0	1	0	0	0	0	0	0	0	12	
7:05 AM	1	5	0	0	0	1	0	0	0	0	2	0	0	0	0	0	9	
7:10 AM	2	4	0	0	0	7	1	0	0	0	0	0	0	0	0	0	14	
7:15 AM	0	2	0	0	0	9	1	0	0	0	1	0	1	0	0	0	14	
7:20 AM	0	3	0	0	0	5	1	0	0	0	0	0	0	0	0	0	9	
7:25 AM	2	3	0	0	0	8	1	0	1	0	2	0	0	0	0	0	17	
7:30 AM	2	7	0	0	0	4	0	0	1	0	1	0	0	0	0	0	15	
7:35 AM	0	6	0	0	0	8	1	0	0	0	1	0	0	0	0	0	16	
7:40 AM	1	2	0	0	0	9	0	0	0	0	1	0	0	0	0	0	13	
7:45 AM	0	3	0	0	0	9	0	0	0	0	0	0	0	0	0	0	12	
7:50 AM	2	4	0	0	0	11	1	0	0	0	1	0	0	0	0	0	19	
7:55 AM	0	7	0	0	0	7	0	0	0	0	1	0	0	0	0	0	15	165
8:00 AM	4	1	0	0	0	10	1	0	0	0	1	0	0	0	0	0	17	170
8:05 AM	0	5	0	0	0	4	3	0	2	0	3	0	0	0	0	0	17	178
8:10 AM	0	7	0	0	0	8	2	0	0	0	3	0	0	0	0	0	20	184
8:15 AM	1	6	0	0	0	7	1	0	0	0	3	0	0	0	0	0	18	188
8:20 AM	0	0	0	0	0	8	0	0	1	0	1	0	0	0	0	0	10	189
8:25 AM	2	4	0	0	0	12	0	0	4	0	2	0	0	0	0	0	24	196
8:30 AM	1	8	0	0	0	5	1	0	2	0	0	0	0	0	0	0	17	198
8:35 AM	0	5	0	0	0	4	0	0	1	0	0	0	0	0	0	0	10	192
8:40 AM	0	5	0	0	0	5	2	0	0	0	0	0	0	0	0	0	12	191
8:45 AM	2	4	0	0	0	12	0	0	2	0	0	0	0	0	0	0	20	199
8:50 AM	2	7	0	0	0	12	3	0	1	0	0	0	0	0	0	0	25	205
8:55 AM	2	6	0	0	0	10	0	0	1	0	2	0	0	0	0	0	21	211

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	24	68	0	0	0	136	12	0	16	0	8	0	0	0	0	0	264
Heavy Trucks	8	0	0		0	4	0		4	0	0		0	0	0		16
Buses																	
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

Comments:

Report generated on 7/22/2025 2:26 PM | SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

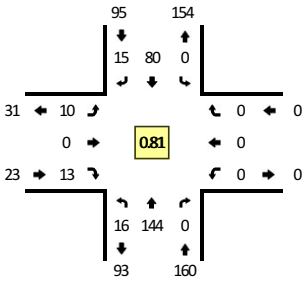
Type of peak hour being reported: Intersection Peak

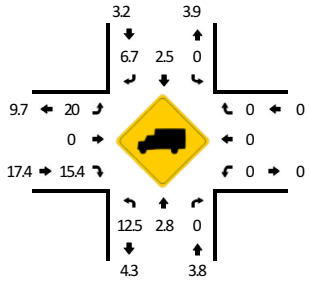
Method for determining peak hour: Total Entering Volume

LOCATION: 4. NE 50th Ave -- NE 174th St
CITY/STATE: Mount Vista, WA

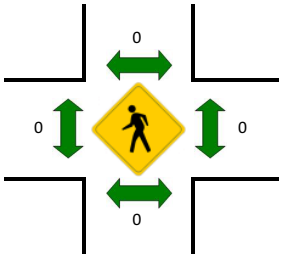
QC JOB #: 17157908
DATE: Tue, Jul 15 2025

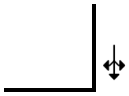
Peak-Hour: 4:00 PM -- 5:00 PM
Peak 15-Min: 4:35 PM -- 4:50 PM

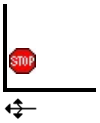


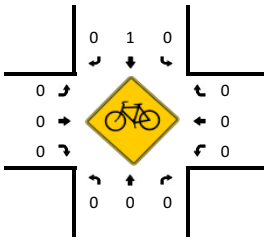


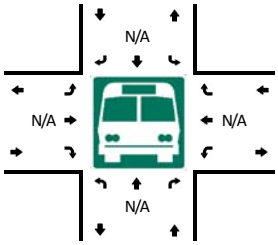
TRUE DATA TO IMPROVE MOBILITY

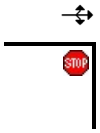


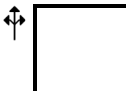


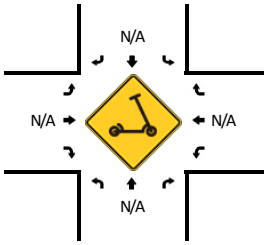












5-Min Count Period Beginning At	4. NE 50th Ave (Northbound)				4. NE 50th Ave (Southbound)				NE 174th St (Eastbound)				NE 174th St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	1	12	0	0	0	6	1	0	1	0	2	0	0	0	0	0	23	
4:05 PM	0	12	0	0	0	5	2	0	1	0	3	0	0	0	0	0	23	
4:10 PM	2	14	0	0	0	8	0	0	2	0	0	0	0	0	0	0	26	
4:15 PM	1	11	0	0	0	9	2	0	2	0	0	0	0	0	0	0	25	
4:20 PM	1	13	0	0	0	9	0	0	1	0	1	0	0	0	0	0	25	
4:25 PM	0	15	0	0	0	5	1	0	1	0	0	0	0	0	0	0	22	
4:30 PM	0	8	0	0	0	6	1	0	1	0	1	0	0	0	0	0	17	
4:35 PM	3	11	0	0	0	9	2	0	0	0	2	0	0	0	0	0	27	
4:40 PM	3	17	0	0	0	11	1	0	0	0	2	0	0	0	0	0	34	
4:45 PM	2	14	0	0	0	4	5	0	0	0	0	0	0	0	0	0	25	
4:50 PM	1	7	0	0	0	5	0	0	1	0	1	0	0	0	0	0	15	
4:55 PM	2	10	0	0	0	3	0	0	0	0	1	0	0	0	0	0	16	278
5:00 PM	1	16	0	0	0	3	0	0	0	0	1	0	0	0	0	0	21	276
5:05 PM	0	11	0	0	0	10	1	0	0	0	0	0	0	0	0	0	22	275
5:10 PM	4	7	0	0	0	6	0	0	2	0	3	0	0	0	0	0	22	271
5:15 PM	3	14	0	0	0	4	1	0	1	0	0	0	0	0	0	0	23	269
5:20 PM	3	15	0	0	0	3	3	0	1	0	1	0	0	0	0	0	26	270
5:25 PM	0	7	0	0	0	5	1	0	1	0	2	0	0	0	0	0	16	264
5:30 PM	0	11	0	0	0	5	1	0	1	0	1	0	0	0	0	0	19	266
5:35 PM	1	18	0	0	0	9	1	0	4	0	2	0	0	0	0	0	35	274
5:40 PM	0	6	0	0	0	4	2	0	0	0	1	0	0	0	0	0	13	253
5:45 PM	0	8	0	0	0	5	1	0	0	0	0	0	0	0	0	0	14	242
5:50 PM	1	14	0	0	0	11	0	0	1	0	2	0	0	0	0	0	29	256
5:55 PM	0	7	0	0	0	3	0	0	1	0	0	0	0	0	0	0	11	251

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	32	168	0	0	0	96	32	0	0	0	16	0	0	0	0	0	344
Heavy Trucks	4	4	0		0	4	4		0	0	0		0	0	0		16
Buses																	
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

Comments:

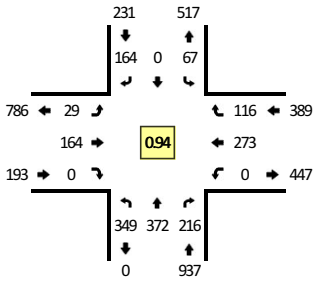
Report generated on 7/22/2025 2:26 PM

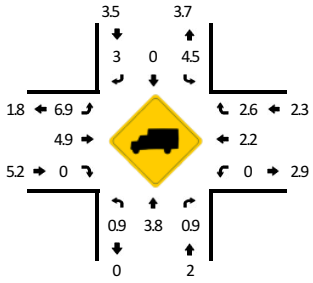
SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

Type of peak hour being reported: Intersection Peak | Method for determining peak hour: Total Entering Volume

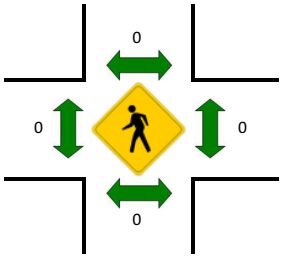
LOCATION: 6. NE 10th Ave/I-5 NB Off-Ramp -- NE 179th St | **QC JOB #:** 17363012
CITY/STATE: Clark, WA | **DATE:** Thu, Dec 4 2025

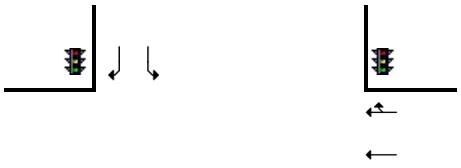
Peak-Hour: 4:25 PM -- 5:25 PM
Peak 15-Min: 4:50 PM -- 5:05 PM

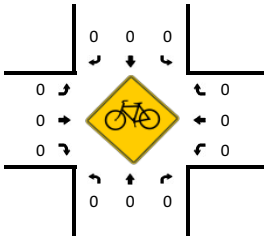


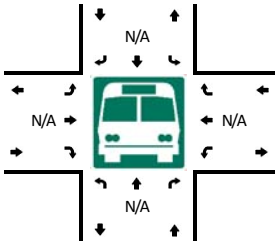


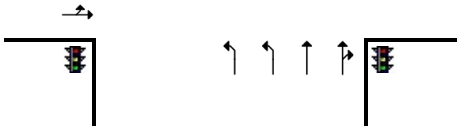
TRUE DATA TO IMPROVE MOBILITY

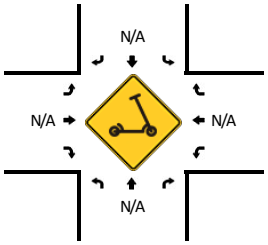












5-Min Count Period Beginning At	6. NE 10th Ave/I-5 NB Off-Ramp (Northbound)				6. NE 10th Ave/I-5 NB Off-Ramp (Southbound)				NE 179th St (Eastbound)				NE 179th St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	26	20	13	0	7	0	15	0	5	14	0	0	0	23	4	0	127	
4:05 PM	28	20	9	0	6	0	12	0	2	30	0	0	0	30	10	0	147	
4:10 PM	12	29	14	0	6	0	22	0	4	13	0	0	0	29	10	0	139	
4:15 PM	20	39	17	0	4	0	12	0	6	10	0	0	0	18	9	0	135	
4:20 PM	27	36	8	0	5	0	11	0	2	12	0	0	0	18	9	0	128	
4:25 PM	34	30	18	0	9	0	17	0	1	12	0	0	0	23	10	0	154	
4:30 PM	22	26	12	0	7	0	12	0	1	13	0	0	0	26	8	0	127	
4:35 PM	27	30	21	0	3	0	17	0	0	14	0	0	0	24	11	0	147	
4:40 PM	24	33	13	0	7	0	17	0	2	17	0	0	0	15	13	0	141	
4:45 PM	27	23	16	0	8	0	13	0	1	10	0	0	0	25	7	0	130	
4:50 PM	42	30	16	0	7	0	19	0	2	11	0	0	0	19	14	0	160	
4:55 PM	39	31	16	0	7	0	4	0	6	14	0	0	0	25	11	0	153	1688
5:00 PM	28	33	27	0	2	0	11	0	3	13	0	0	0	27	7	0	151	1712
5:05 PM	21	36	18	0	1	0	16	0	4	22	0	0	0	24	10	0	152	1717
5:10 PM	24	32	17	0	5	0	14	0	3	16	0	0	0	21	11	0	143	1721
5:15 PM	32	32	19	0	8	0	17	0	2	7	0	0	0	21	5	0	143	1729
5:20 PM	29	36	23	0	3	0	7	0	4	15	0	0	0	23	9	0	149	1750
5:25 PM	29	30	16	0	6	0	5	0	4	20	0	0	0	17	12	0	139	1735
5:30 PM	33	30	14	0	1	0	18	0	5	9	0	0	0	21	5	0	136	1744
5:35 PM	21	21	10	0	2	0	9	0	2	16	0	0	0	21	12	0	114	1711
5:40 PM	23	26	14	0	3	0	10	0	2	18	0	0	0	28	11	0	135	1705
5:45 PM	30	32	15	0	4	0	9	0	5	13	0	0	0	24	11	0	143	1718
5:50 PM	17	22	15	0	0	0	7	0	2	14	0	0	0	16	5	0	98	1656
5:55 PM	27	27	11	0	1	0	8	0	0	10	0	0	0	20	6	0	110	1613

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	436	376	236	0	64	0	136	0	44	152	0	0	0	284	128	0	1856
Heavy Trucks	8	28	8		4	0	4		4	8	0		0	4	0		68
Buses																	
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

Comments:

Report generated on 12/10/2025 2:13 PM | SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

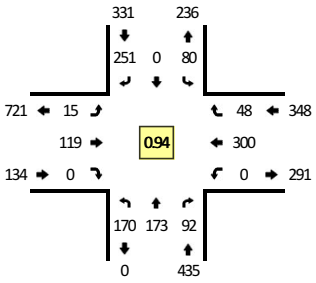
Type of peak hour being reported: Intersection Peak

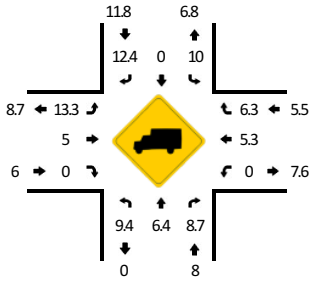
Method for determining peak hour: Total Entering Volume

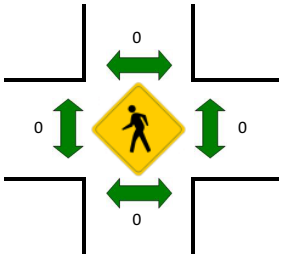
LOCATION: 6. NE 10th Ave/I-5 NB Off-Ramp -- NE 179th St
CITY/STATE: Clark, WA

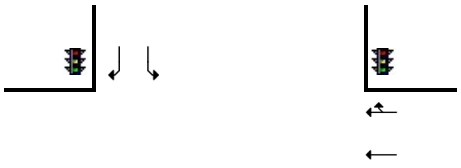
QC JOB #: 17363011
DATE: Thu, Dec 4 2025

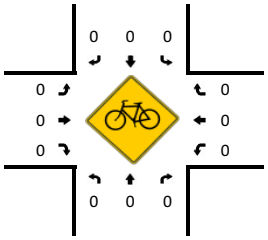
Peak-Hour: 7:35 AM -- 8:35 AM
Peak 15-Min: 7:40 AM -- 7:55 AM

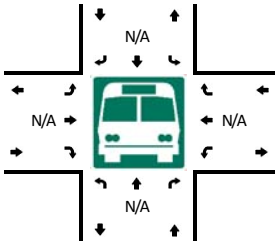


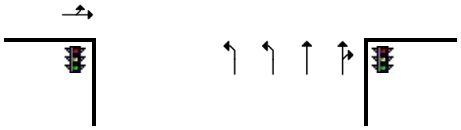


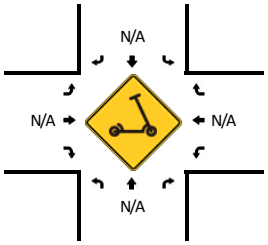












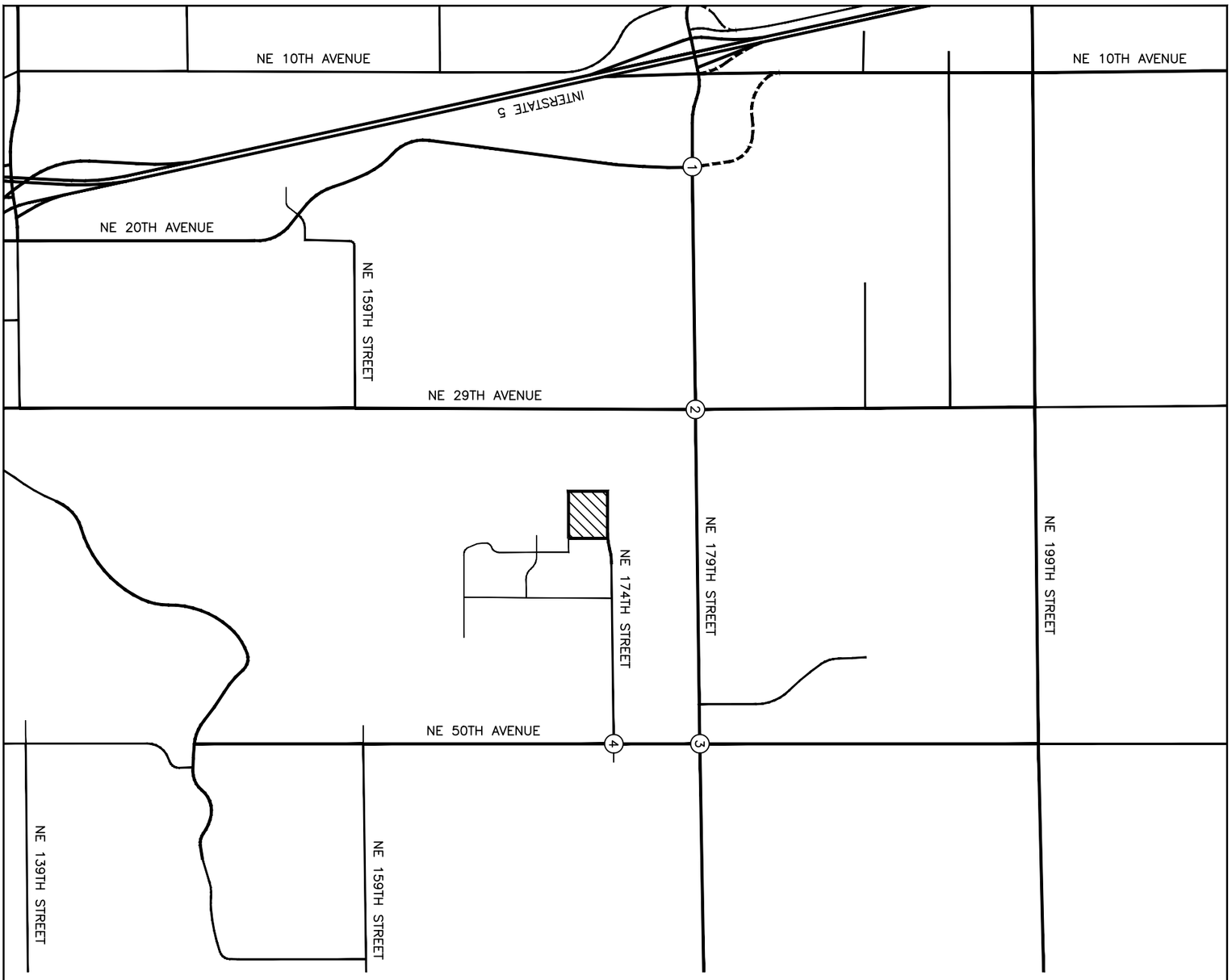
5-Min Count Period Beginning At	6. NE 10th Ave/I-5 NB Off-Ramp (Northbound)				6. NE 10th Ave/I-5 NB Off-Ramp (Southbound)				NE 179th St (Eastbound)				NE 179th St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	14	3	5	0	1	0	15	0	0	7	0	0	0	22	3	0	70	
7:05 AM	12	7	3	0	1	0	9	0	1	10	0	0	0	19	5	0	67	
7:10 AM	10	11	5	0	4	0	21	0	2	6	0	0	0	28	3	0	90	
7:15 AM	20	19	3	0	2	0	15	0	1	10	0	0	0	27	9	0	106	
7:20 AM	21	17	3	0	4	0	19	0	2	11	0	0	0	28	3	0	108	
7:25 AM	13	11	7	0	4	0	10	0	1	8	0	0	0	30	6	0	90	
7:30 AM	16	15	2	0	4	0	13	0	1	8	0	0	0	30	7	0	96	
7:35 AM	14	12	3	0	5	0	19	0	4	8	0	0	0	36	7	0	108	
7:40 AM	20	17	9	0	7	0	21	0	1	6	0	0	0	26	7	0	114	
7:45 AM	11	17	4	0	6	0	14	0	0	19	0	0	0	29	5	0	105	
7:50 AM	7	16	6	0	10	0	28	0	0	12	0	0	0	31	3	0	113	
7:55 AM	15	11	11	0	9	0	22	0	1	15	0	0	0	20	2	0	106	1173
8:00 AM	18	11	11	0	11	0	19	0	1	6	0	0	0	12	1	0	90	1193
8:05 AM	13	9	7	0	6	0	14	0	2	11	0	0	0	18	4	0	84	1210
8:10 AM	14	17	13	0	2	0	21	0	2	11	0	0	0	27	2	0	109	1229
8:15 AM	9	21	7	0	5	0	15	0	0	10	0	0	0	27	3	0	97	1220
8:20 AM	19	11	11	0	7	0	24	0	2	6	0	0	0	17	3	0	100	1212
8:25 AM	15	16	4	0	5	0	33	0	1	12	0	0	0	26	3	0	115	1237
8:30 AM	15	15	6	0	7	0	21	0	1	3	0	0	0	31	8	0	107	1248
8:35 AM	14	7	8	0	7	0	23	0	3	5	0	0	0	27	7	0	101	1241
8:40 AM	23	11	8	0	4	0	22	0	1	6	0	0	0	32	6	0	113	1240
8:45 AM	10	12	8	0	7	0	19	0	1	6	0	0	0	27	6	0	96	1231
8:50 AM	11	12	10	0	15	0	14	0	0	11	0	0	0	25	3	0	101	1219
8:55 AM	16	14	7	0	10	0	15	0	1	10	0	0	0	26	5	0	104	1217

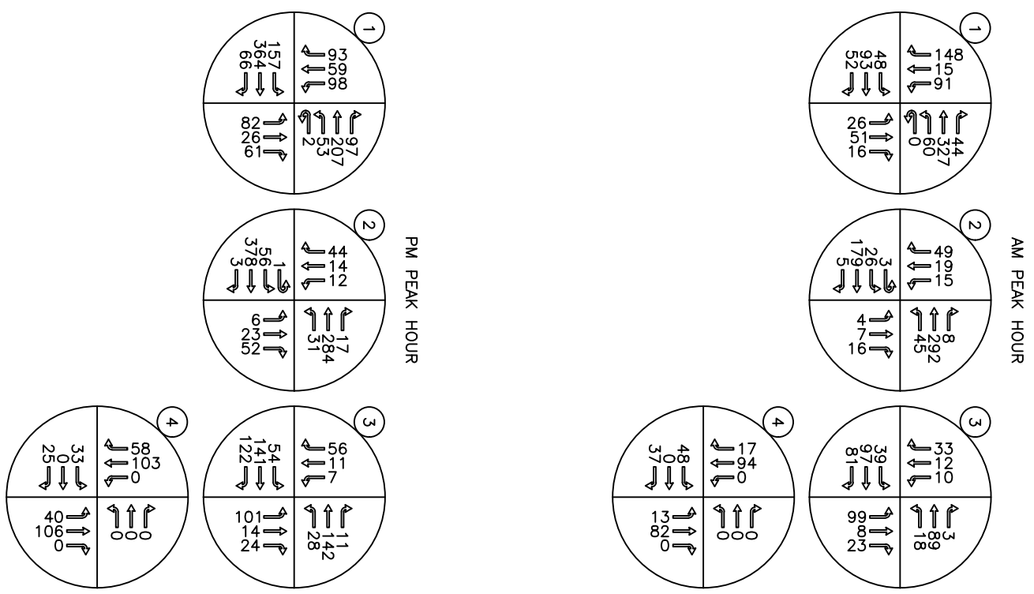
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	152	200	76	0	92	0	252	0	4	148	0	0	0	344	60	0	1328
Heavy Trucks	4	8	4		12	0	24		0	0	0		0	12	4		68
Buses																	
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

Comments:

Report generated on 12/10/2025 2:13 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212





NOT TO SCALE

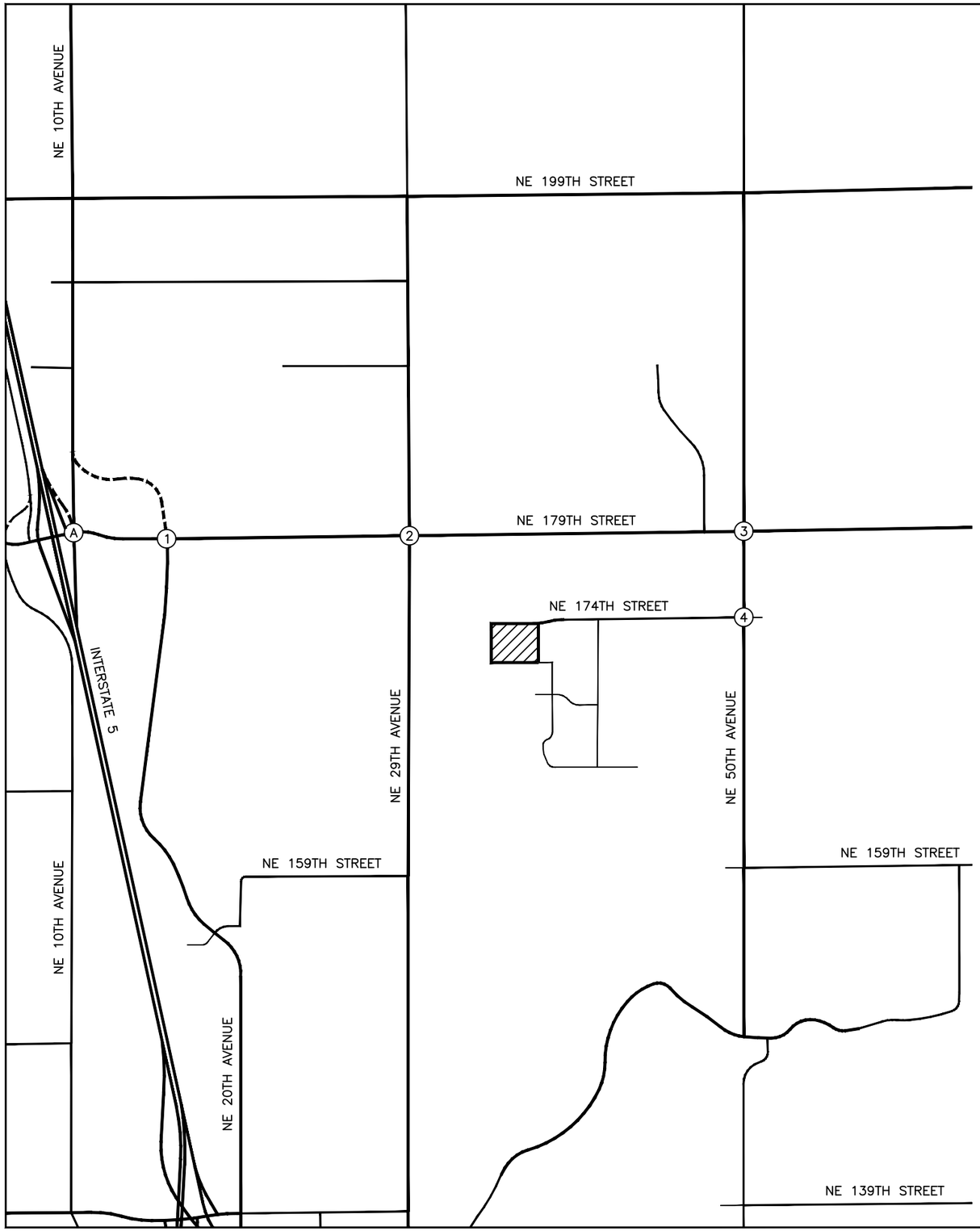
PLS ENGINEERING

IN-PROCESS DEVELOPMENT TRIPS

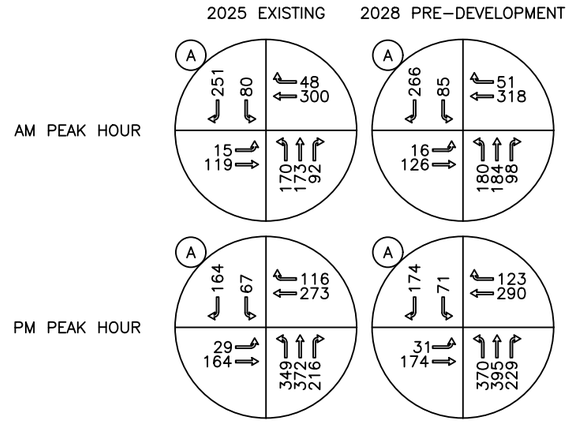
AM & PM PEAK HOURS

FIGURE A

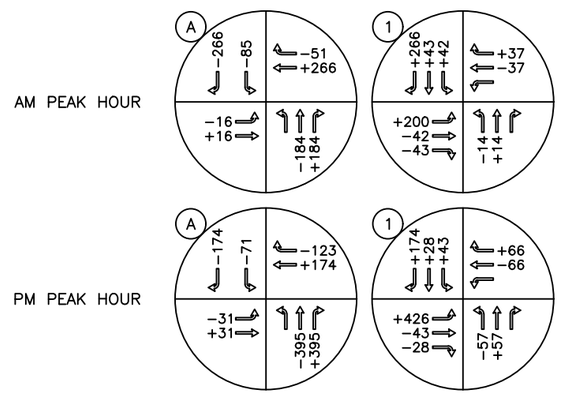
MILL CREEK ESTATES



NE 179TH STREET AT NE 10TH AVENUE/I-5 OFF-RAMP INTERSECTION VOLUMES



NE 10TH AVENUE REALIGNMENT – REROUTED VOLUMES



NOT TO SCALE

FIGURE B

MILL CREEK ESTATES

REROUTED TRAFFIC VOLUMES

AM & PM PEAK HOURS

PLS ENGINEERING

APPENDIX E – OPERATION ANALYSIS

Level of Service Descriptions
Synchro Capacity Results
Sidra Capacity Results

LEVEL OF SERVICE

Intersection Level of Service (LOS) is a qualitative measure used to evaluate the performance of intersections and roadways based on the traffic flow, average control delay, and overall operations. The Highway Capacity Manual (HCM) defines LOS for signalized and unsignalized intersections as a function of the average vehicle control delay. LOS may be calculated per movement or per approach for any intersection configuration, but LOS for the intersection as a whole is generally defined for signalized, roundabout, and all-way stop configurations.

The LOS metric is categorized using a graded scale from A to F. Descriptions of these LOS grade levels are provided below:

LOS Grade	Description	Control Delay Per Vehicle	
		Signalized & Roundabout Intersections	**Unsignalized Intersections**
A	Indicative of relatively freeflow traffic conditions with minimal delays and high comfort for drivers. Low intersection delays and clearing of vehicles occur in a single cycle at signalized intersections.	≤ 10 seconds	≤ 10 seconds
B	Representative of reasonably free flow conditions, where speeds are maintained but maneuverability is slightly restricted. Slightly higher delays at intersections are observed.	10-20 seconds	10-15 seconds
C	Indicative of stable flow, where maneuverability is noticeably restricted, and lane changes require more driver awareness. Moderate delays at intersections may be observed, and the occasional queued vehicle may not clear in a single cycle length.	20-35 seconds	15-25 seconds
D	Signifies approaching unstable flow, with significant delays and reduced comfort. Longer delays and congestion may be apparent at an intersection. More than one cycle length at a signalized intersection may be necessary to service queued vehicles.	35-55 seconds	25-35 seconds
E	Representative of unstable flow, where traffic is at or nearing capacity, leading to long delays. High delays at an intersection are expected, and extended queuing may be observed. Cycle failures at signalized intersections are expected to occur.	55-80 seconds	35-50 seconds
F	Indicative of forced flow, where traffic demand exceeds capacity, resulting in severe congestion and delays. Very high delays and significant queues are common at intersections. Frequent cycle failures are expected to occur at signalized intersections.	>80 seconds	>50 seconds



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	136	140	56	250	96	28
Future Volume (vph)	136	140	56	250	96	28
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0			4.0	4.0	4.0
Lane Util. Factor	1.00			1.00	1.00	1.00
Frt	0.93			1.00	1.00	0.85
Flt Protected	1.00			0.99	0.95	1.00
Satd. Flow (prot)	1670			1776	1687	1509
Flt Permitted	1.00			0.90	0.95	1.00
Satd. Flow (perm)	1670			1616	1687	1509
Peak-hour factor, PHF	0.85	0.85	0.85	0.85	0.85	0.85
Adj. Flow (vph)	160	165	66	294	113	33
RTOR Reduction (vph)	54	0	0	0	0	27
Lane Group Flow (vph)	271	0	0	360	113	6
Heavy Vehicles (%)	6%	6%	6%	6%	7%	7%
Turn Type	NA		Perm	NA	Perm	Perm
Protected Phases	4			8		
Permitted Phases			8		2	2
Actuated Green, G (s)	19.9			19.9	6.4	6.4
Effective Green, g (s)	19.9			19.9	6.4	6.4
Actuated g/C Ratio	0.58			0.58	0.19	0.19
Clearance Time (s)	4.0			4.0	4.0	4.0
Vehicle Extension (s)	3.0			3.0	3.0	3.0
Lane Grp Cap (vph)	968			937	314	281
v/s Ratio Prot	0.16					
v/s Ratio Perm				c0.22	c0.07	0.00
v/c Ratio	0.28			0.38	0.36	0.02
Uniform Delay, d1	3.6			3.9	12.2	11.4
Progression Factor	1.00			1.00	1.00	1.00
Incremental Delay, d2	0.2			0.3	0.7	0.0
Delay (s)	3.8			4.2	12.9	11.4
Level of Service	A			A	B	B
Approach Delay (s/veh)	3.8			4.2	12.5	
Approach LOS	A			A	B	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	5.5	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.38		
Actuated Cycle Length (s)	34.3	Sum of lost time (s)	8.0
Intersection Capacity Utilization	47.3%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Intersection	
Intersection Delay, s/veh	9.4
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	23	103	24	27	154	9	36	42	10	3	71	32
Future Vol, veh/h	23	103	24	27	154	9	36	42	10	3	71	32
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Heavy Vehicles, %	12	12	12	8	8	8	2	2	2	4	4	4
Mvmt Flow	26	118	28	31	177	10	41	48	11	3	82	37
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay, s/veh	9.4	9.8	9	8.9
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	41%	15%	14%	3%
Vol Thru, %	48%	69%	81%	67%
Vol Right, %	11%	16%	5%	30%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	88	150	190	106
LT Vol	36	23	27	3
Through Vol	42	103	154	71
RT Vol	10	24	9	32
Lane Flow Rate	101	172	218	122
Geometry Grp	1	1	1	1
Degree of Util (X)	0.142	0.233	0.291	0.165
Departure Headway (Hd)	5.051	4.859	4.8	4.871
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	705	734	745	732
Service Time	3.114	2.913	2.853	2.932
HCM Lane V/C Ratio	0.143	0.234	0.293	0.167
HCM Control Delay, s/veh	9	9.4	9.8	8.9
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.5	0.9	1.2	0.6

Intersection	
Intersection Delay, s/veh	9.3
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	10	84	36	22	118	8	18	42	8	11	71	27
Future Vol, veh/h	10	84	36	22	118	8	18	42	8	11	71	27
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
Heavy Vehicles, %	10	10	10	10	10	10	8	8	8	7	7	7
Mvmt Flow	13	105	45	28	148	10	23	53	10	14	89	34
Number of Lanes	1	1	0	1	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	2	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	2	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	2	2
HCM Control Delay, s/veh	9.4	9.6	8.8	9.1
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1
Vol Left, %	26%	100%	0%	100%	0%	10%
Vol Thru, %	62%	0%	70%	0%	94%	65%
Vol Right, %	12%	0%	30%	0%	6%	25%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	68	10	120	22	126	109
LT Vol	18	10	0	22	0	11
Through Vol	42	0	84	0	118	71
RT Vol	8	0	36	0	8	27
Lane Flow Rate	85	13	150	28	158	136
Geometry Grp	2	5	5	5	5	2
Degree of Util (X)	0.12	0.021	0.217	0.045	0.234	0.185
Departure Headway (Hd)	5.09	5.92	5.205	5.89	5.342	4.894
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	700	602	687	606	669	730
Service Time	3.148	3.679	2.963	3.646	3.098	2.946
HCM Lane V/C Ratio	0.121	0.022	0.218	0.046	0.236	0.186
HCM Control Delay, s/veh	8.8	8.8	9.4	8.9	9.7	9.1
HCM Lane LOS	A	A	A	A	A	A
HCM 95th-tile Q	0.4	0.1	0.8	0.1	0.9	0.7

Intersection	
Int Delay, s/veh	1.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		⇕			⇕			⇕			⇕	
Traffic Vol, veh/h	14	0	15	0	0	0	14	59	0	0	99	13
Future Vol, veh/h	14	0	15	0	0	0	14	59	0	0	99	13
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	-	-	-	-	-	-	-	-	-	-	-	-
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, %	10	10	10	0	0	0	10	10	10	5	5	5
Mvmt Flow	18	0	19	0	0	0	18	74	0	0	124	16

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	241	241	132	233	249	74	140	0	0	74	0	0
Stage 1	132	132	-	109	109	-	-	-	-	-	-	-
Stage 2	109	109	-	124	140	-	-	-	-	-	-	-
Critical Hdwy	7.2	6.6	6.3	7.1	6.5	6.2	4.2	-	-	4.15	-	-
Critical Hdwy Stg 1	6.2	5.6	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.2	5.6	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.59	4.09	3.39	3.5	4	3.3	2.29	-	-	2.245	-	-
Pot Cap-1 Maneuver	697	647	897	727	657	994	1395	-	-	1507	-	-
Stage 1	853	772	-	901	809	-	-	-	-	-	-	-
Stage 2	877	790	-	885	785	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	688	639	897	702	649	994	1395	-	-	1507	-	-
Mov Cap-2 Maneuver	688	639	-	702	649	-	-	-	-	-	-	-
Stage 1	853	772	-	890	799	-	-	-	-	-	-	-
Stage 2	866	780	-	867	785	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	9.83	0	1.46	0
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	345	-	-	782	-	1507	-	-
HCM Lane V/C Ratio	0.013	-	-	0.046	-	-	-	-
HCM Ctrl Dly (s/v)	7.6	0	-	9.8	0	0	-	-
HCM Lane LOS	A	A	-	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.1	-	0	-	-

Intersection	
Intersection Delay, s/veh	14.4
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	49	184	118	41	212	11	118	52	31	21	86	61
Future Vol, veh/h	49	184	118	41	212	11	118	52	31	21	86	61
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
Heavy Vehicles, %	10	10	10	10	10	10	8	8	8	7	7	7
Mvmt Flow	53	200	128	45	230	12	128	57	34	23	93	66
Number of Lanes	1	1	0	1	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	2	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	2	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	2	2
HCM Control Delay, s/veh	15.9	14.1	13.7	12.4
HCM LOS	C	B	B	B

Lane	NBLn1	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1
Vol Left, %	59%	100%	0%	100%	0%	13%
Vol Thru, %	26%	0%	61%	0%	95%	51%
Vol Right, %	15%	0%	39%	0%	5%	36%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	201	49	302	41	223	168
LT Vol	118	49	0	41	0	21
Through Vol	52	0	184	0	212	86
RT Vol	31	0	118	0	11	61
Lane Flow Rate	218	53	328	45	242	183
Geometry Grp	2	5	5	5	5	2
Degree of Util (X)	0.395	0.103	0.563	0.089	0.448	0.323
Departure Headway (Hd)	6.505	7.084	6.294	7.2	6.654	6.371
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	555	509	578	500	543	566
Service Time	4.518	4.784	3.994	4.916	4.37	4.396
HCM Lane V/C Ratio	0.393	0.104	0.567	0.09	0.446	0.323
HCM Control Delay, s/veh	13.7	10.6	16.8	10.6	14.7	12.4
HCM Lane LOS	B	B	C	B	B	B
HCM 95th-tile Q	1.9	0.3	3.5	0.3	2.3	1.4

Intersection	
Int Delay, s/veh	3.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	63	0	53	0	0	0	28	143	0	0	197	31
Future Vol, veh/h	63	0	53	0	0	0	28	143	0	0	197	31
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	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	10	10	10	0	0	0	10	10	10	5	5	5
Mvmt Flow	68	0	58	0	0	0	30	155	0	0	214	34

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	447	447	231	430	464	155	248	0	0	155	0	0
Stage 1	231	231	-	216	216	-	-	-	-	-	-	-
Stage 2	216	216	-	214	248	-	-	-	-	-	-	-
Critical Hdwy	7.2	6.6	6.3	7.1	6.5	6.2	4.2	-	-	4.15	-	-
Critical Hdwy Stg 1	6.2	5.6	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.2	5.6	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.59	4.09	3.39	3.5	4	3.3	2.29	-	-	2.245	-	-
Pot Cap-1 Maneuver	508	494	789	539	498	896	1273	-	-	1407	-	-
Stage 1	754	699	-	791	728	-	-	-	-	-	-	-
Stage 2	768	709	-	793	705	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	496	483	789	487	486	896	1273	-	-	1407	-	-
Mov Cap-2 Maneuver	496	483	-	487	486	-	-	-	-	-	-	-
Stage 1	754	699	-	772	710	-	-	-	-	-	-	-
Stage 2	750	692	-	735	705	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	12.63	0	1.29	0
HCM LOS	B	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1273	-	-	597	-	1407	-	-
HCM Lane V/C Ratio	0.024	-	-	0.211	-	-	-	-
HCM Ctrl Dly (s/v)	7.9	-	-	12.6	0	0	-	-
HCM Lane LOS	A	-	-	B	A	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	0.8	-	0	-	-

Intersection	
Intersection Delay, s/veh	14.8
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	49	184	121	42	212	11	126	53	34	21	86	61
Future Vol, veh/h	49	184	121	42	212	11	126	53	34	21	86	61
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
Heavy Vehicles, %	10	10	10	10	10	10	8	8	8	7	7	7
Mvmt Flow	53	200	132	46	230	12	137	58	37	23	93	66
Number of Lanes	1	1	0	1	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	2	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	2	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	2	2
HCM Control Delay, s/veh	16.7	14.2	14.3	12.6
HCM LOS	C	B	B	B

Lane	NBLn1	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1
Vol Left, %	59%	100%	0%	100%	0%	13%
Vol Thru, %	25%	0%	60%	0%	95%	51%
Vol Right, %	16%	0%	40%	0%	5%	36%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	213	49	305	42	223	168
LT Vol	126	49	0	42	0	21
Through Vol	53	0	184	0	212	86
RT Vol	34	0	121	0	11	61
Lane Flow Rate	232	53	332	46	242	183
Geometry Grp	2	5	5	5	5	2
Degree of Util (X)	0.42	0.106	0.586	0.092	0.452	0.327
Departure Headway (Hd)	6.529	7.152	6.358	7.264	6.717	6.443
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	551	504	570	494	536	557
Service Time	4.574	4.852	4.058	5.007	4.46	4.491
HCM Lane V/C Ratio	0.421	0.105	0.582	0.093	0.451	0.329
HCM Control Delay, s/veh	14.3	10.7	17.7	10.7	14.9	12.6
HCM Lane LOS	B	B	C	B	B	B
HCM 95th-tile Q	2.1	0.4	3.8	0.3	2.3	1.4

Intersection	
Int Delay, s/veh	3.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	75	0	62	0	0	0	32	143	0	0	197	35
Future Vol, veh/h	75	0	62	0	0	0	32	143	0	0	197	35
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	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	10	10	10	0	0	0	10	10	10	5	5	5
Mvmt Flow	82	0	67	0	0	0	35	155	0	0	214	38

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	458	458	233	439	477	155	252	0	0	155	0	0
Stage 1	233	233	-	225	225	-	-	-	-	-	-	-
Stage 2	225	225	-	214	252	-	-	-	-	-	-	-
Critical Hdwy	7.2	6.6	6.3	7.1	6.5	6.2	4.2	-	-	4.15	-	-
Critical Hdwy Stg 1	6.2	5.6	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.2	5.6	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.59	4.09	3.39	3.5	4	3.3	2.29	-	-	2.245	-	-
Pot Cap-1 Maneuver	500	487	787	532	490	896	1268	-	-	1407	-	-
Stage 1	752	697	-	782	721	-	-	-	-	-	-	-
Stage 2	760	703	-	793	702	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	486	474	787	473	476	896	1268	-	-	1407	-	-
Mov Cap-2 Maneuver	486	474	-	473	476	-	-	-	-	-	-	-
Stage 1	752	697	-	761	702	-	-	-	-	-	-	-
Stage 2	739	684	-	725	702	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	13.19	0	1.45	0
HCM LOS	B	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1268	-	-	588	-	1407	-	-
HCM Lane V/C Ratio	0.027	-	-	0.253	-	-	-	-
HCM Ctrl Dly (s/v)	7.9	-	-	13.2	0	0	-	-
HCM Lane LOS	A	-	-	B	A	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	1	-	0	-	-



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	236	150	61	212	183	87
Future Volume (vph)	236	150	61	212	183	87
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0			4.0	4.0	4.0
Lane Util. Factor	1.00			1.00	1.00	1.00
Frt	0.95			1.00	1.00	0.85
Flt Protected	1.00			0.99	0.95	1.00
Satd. Flow (prot)	1731			1773	1736	1553
Flt Permitted	1.00			0.86	0.95	1.00
Satd. Flow (perm)	1731			1538	1736	1553
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	257	163	66	230	199	95
RTOR Reduction (vph)	37	0	0	0	0	72
Lane Group Flow (vph)	383	0	0	296	199	23
Heavy Vehicles (%)	4%	4%	6%	6%	4%	4%
Turn Type	NA		Perm	NA	Perm	Perm
Protected Phases	4			8		
Permitted Phases			8		2	2
Actuated Green, G (s)	15.8			15.8	7.6	7.6
Effective Green, g (s)	15.8			15.8	7.6	7.6
Actuated g/C Ratio	0.50			0.50	0.24	0.24
Clearance Time (s)	4.0			4.0	4.0	4.0
Vehicle Extension (s)	3.0			3.0	3.0	3.0
Lane Grp Cap (vph)	871			773	420	375
v/s Ratio Prot	c0.22					
v/s Ratio Perm				0.19	c0.11	0.01
v/c Ratio	0.44			0.38	0.47	0.06
Uniform Delay, d1	5.0			4.8	10.2	9.2
Progression Factor	1.00			1.00	1.00	1.00
Incremental Delay, d2	0.4			0.3	0.8	0.1
Delay (s)	5.3			5.1	11.0	9.2
Level of Service	A			A	B	A
Approach Delay (s/veh)	5.3			5.1	10.4	
Approach LOS	A			A	B	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	6.8	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.45		
Actuated Cycle Length (s)	31.4	Sum of lost time (s)	8.0
Intersection Capacity Utilization	56.2%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Intersection	
Intersection Delay, s/veh	11.4
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	56	203	36	16	169	9	32	92	27	11	46	35
Future Vol, veh/h	56	203	36	16	169	9	32	92	27	11	46	35
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Heavy Vehicles, %	4	4	4	4	4	4	3	3	3	1	1	1
Mvmt Flow	64	233	41	18	194	10	37	106	31	13	53	40
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay, s/veh	12.7	10.8	10.6	9.6
HCM LOS	B	B	B	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	21%	19%	8%	12%
Vol Thru, %	61%	69%	87%	50%
Vol Right, %	18%	12%	5%	38%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	151	295	194	92
LT Vol	32	56	16	11
Through Vol	92	203	169	46
RT Vol	27	36	9	35
Lane Flow Rate	174	339	223	106
Geometry Grp	1	1	1	1
Degree of Util (X)	0.266	0.479	0.325	0.161
Departure Headway (Hd)	5.527	5.085	5.239	5.486
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	649	712	687	652
Service Time	3.569	3.085	3.273	3.532
HCM Lane V/C Ratio	0.268	0.476	0.325	0.163
HCM Control Delay, s/veh	10.6	12.7	10.8	9.6
HCM Lane LOS	B	B	B	A
HCM 95th-tile Q	1.1	2.6	1.4	0.6

Intersection	
Intersection Delay, s/veh	10.7
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	39	167	29	9	120	10	54	123	34	21	60	14
Future Vol, veh/h	39	167	29	9	120	10	54	123	34	21	60	14
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles, %	5	5	5	9	9	9	3	3	3	2	2	2
Mvmt Flow	43	186	32	10	133	11	60	137	38	23	67	16
Number of Lanes	1	1	0	1	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	2	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	2	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	2	2
HCM Control Delay, s/veh	11	10.4	11	9.5
HCM LOS	B	B	B	A

Lane	NBLn1	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1
Vol Left, %	26%	100%	0%	100%	0%	22%
Vol Thru, %	58%	0%	85%	0%	92%	63%
Vol Right, %	16%	0%	15%	0%	8%	15%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	211	39	196	9	130	95
LT Vol	54	39	0	9	0	21
Through Vol	123	0	167	0	120	60
RT Vol	34	0	29	0	10	14
Lane Flow Rate	234	43	218	10	144	106
Geometry Grp	2	5	5	5	5	2
Degree of Util (X)	0.343	0.075	0.341	0.018	0.237	0.16
Departure Headway (Hd)	5.267	6.256	5.645	6.466	5.904	5.443
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	687	573	638	554	608	659
Service Time	3.267	3.985	3.373	4.198	3.636	3.475
HCM Lane V/C Ratio	0.341	0.075	0.342	0.018	0.237	0.161
HCM Control Delay, s/veh	11	9.5	11.3	9.3	10.5	9.5
HCM Lane LOS	B	A	B	A	B	A
HCM 95th-tile Q	1.5	0.2	1.5	0.1	0.9	0.6

Intersection	
Int Delay, s/veh	1.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		⇕			⇕			⇕			⇕	
Traffic Vol, veh/h	10	0	13	0	0	0	16	147	0	0	82	15
Future Vol, veh/h	10	0	13	0	0	0	16	147	0	0	82	15
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	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	81	81	81	81	81	81	81	81	81	81	81	81
Heavy Vehicles, %	17	17	17	0	0	0	4	4	4	3	3	3
Mvmt Flow	12	0	16	0	0	0	20	181	0	0	101	19

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	331	331	110	322	341	181	120	0	0	181	0	0
Stage 1	110	110	-	221	221	-	-	-	-	-	-	-
Stage 2	221	221	-	101	120	-	-	-	-	-	-	-
Critical Hdwy	7.27	6.67	6.37	7.1	6.5	6.2	4.14	-	-	4.13	-	-
Critical Hdwy Stg 1	6.27	5.67	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.27	5.67	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.653	4.153	3.453	3.5	4	3.3	2.236	-	-	2.227	-	-
Pot Cap-1 Maneuver	594	564	904	635	584	866	1456	-	-	1388	-	-
Stage 1	859	776	-	786	724	-	-	-	-	-	-	-
Stage 2	749	693	-	910	800	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	585	556	904	614	576	866	1456	-	-	1388	-	-
Mov Cap-2 Maneuver	585	556	-	614	576	-	-	-	-	-	-	-
Stage 1	859	776	-	774	713	-	-	-	-	-	-	-
Stage 2	737	683	-	894	800	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	10.13	0	0.74	0
HCM LOS	B	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	177	-	-	731	-	1388	-	-
HCM Lane V/C Ratio	0.014	-	-	0.039	-	-	-	-
HCM Ctrl Dly (s/v)	7.5	0	-	10.1	0	0	-	-
HCM Lane LOS	A	A	-	B	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.1	-	0	-	-

Intersection	
Intersection Delay, s/veh	33.6
Intersection LOS	D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	95	315	152	37	267	21	157	142	59	29	73	71
Future Vol, veh/h	95	315	152	37	267	21	157	142	59	29	73	71
Peak Hour 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
Heavy Vehicles, %	5	5	5	9	9	9	3	3	3	2	2	2
Mvmt Flow	95	315	152	37	267	21	157	142	59	29	73	71
Number of Lanes	1	1	0	1	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	2	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	2	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	2	2
HCM Control Delay, s/veh	48.2	22.7	29	16
HCM LOS	E	C	D	C

Lane	NBLn1	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1
Vol Left, %	44%	100%	0%	100%	0%	17%
Vol Thru, %	40%	0%	67%	0%	93%	42%
Vol Right, %	16%	0%	33%	0%	7%	41%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	358	95	467	37	288	173
LT Vol	157	95	0	37	0	29
Through Vol	142	0	315	0	267	73
RT Vol	59	0	152	0	21	71
Lane Flow Rate	358	95	467	37	288	173
Geometry Grp	2	5	5	5	5	2
Degree of Util (X)	0.741	0.212	0.947	0.088	0.64	0.384
Departure Headway (Hd)	7.447	8.052	7.301	8.568	7.997	7.985
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	483	446	495	418	452	450
Service Time	5.505	5.809	5.058	6.333	5.762	6.061
HCM Lane V/C Ratio	0.741	0.213	0.943	0.089	0.637	0.384
HCM Control Delay, s/veh	29	13	55.4	12.2	24	16
HCM Lane LOS	D	B	F	B	C	C
HCM 95th-tile Q	6.1	0.8	11.7	0.3	4.4	1.8

Intersection	
Int Delay, s/veh	2.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	43	0	39	0	0	0	57	259	0	0	188	74
Future Vol, veh/h	43	0	39	0	0	0	57	259	0	0	188	74
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	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	17	17	17	0	0	0	4	4	4	3	3	3
Mvmt Flow	47	0	42	0	0	0	62	282	0	0	204	80

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	650	650	245	610	690	282	285	0	0	282	0	0
Stage 1	245	245	-	405	405	-	-	-	-	-	-	-
Stage 2	405	405	-	204	285	-	-	-	-	-	-	-
Critical Hdwy	7.27	6.67	6.37	7.1	6.5	6.2	4.14	-	-	4.13	-	-
Critical Hdwy Stg 1	6.27	5.67	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.27	5.67	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.653	4.153	3.453	3.5	4	3.3	2.236	-	-	2.227	-	-
Pot Cap-1 Maneuver	362	370	759	410	371	762	1266	-	-	1275	-	-
Stage 1	727	677	-	626	602	-	-	-	-	-	-	-
Stage 2	593	573	-	802	679	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	344	351	759	368	353	762	1266	-	-	1275	-	-
Mov Cap-2 Maneuver	344	351	-	368	353	-	-	-	-	-	-	-
Stage 1	727	677	-	595	572	-	-	-	-	-	-	-
Stage 2	564	545	-	757	679	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	14.56	0	1.44	0
HCM LOS	B	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1266	-	-	465	-	1275	-	-
HCM Lane V/C Ratio	0.049	-	-	0.192	-	-	-	-
HCM Ctrl Dly (s/v)	8	-	-	14.6	0	0	-	-
HCM Lane LOS	A	-	-	B	A	A	-	-
HCM 95th %tile Q(veh)	0.2	-	-	0.7	-	0	-	-

Intersection	
Intersection Delay, s/veh	36.6
Intersection LOS	E

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	95	315	161	41	267	21	162	143	61	29	74	71
Future Vol, veh/h	95	315	161	41	267	21	162	143	61	29	74	71
Peak Hour 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
Heavy Vehicles, %	5	5	5	9	9	9	3	3	3	2	2	2
Mvmt Flow	95	315	161	41	267	21	162	143	61	29	74	71
Number of Lanes	1	1	0	1	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	2	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	2	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	2	2
HCM Control Delay, s/veh	53.9	23.2	31.2	16.4
HCM LOS	F	C	D	C

Lane	NBLn1	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1
Vol Left, %	44%	100%	0%	100%	0%	17%
Vol Thru, %	39%	0%	66%	0%	93%	43%
Vol Right, %	17%	0%	34%	0%	7%	41%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	366	95	476	41	288	174
LT Vol	162	95	0	41	0	29
Through Vol	143	0	315	0	267	74
RT Vol	61	0	161	0	21	71
Lane Flow Rate	366	95	476	41	288	174
Geometry Grp	2	5	5	5	5	2
Degree of Util (X)	0.765	0.215	0.976	0.099	0.648	0.392
Departure Headway (Hd)	7.525	8.138	7.378	8.677	8.106	8.114
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	479	441	490	412	444	442
Service Time	5.587	5.898	5.136	6.444	5.872	6.195
HCM Lane V/C Ratio	0.764	0.215	0.971	0.1	0.649	0.394
HCM Control Delay, s/veh	31.2	13.1	62.1	12.4	24.7	16.4
HCM Lane LOS	D	B	F	B	C	C
HCM 95th-tile Q	6.6	0.8	12.6	0.3	4.5	1.8

Intersection	
Int Delay, s/veh	2.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	51	0	45	0	0	0	67	259	0	0	188	88
Future Vol, veh/h	51	0	45	0	0	0	67	259	0	0	188	88
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	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	17	17	17	0	0	0	4	4	4	3	3	3
Mvmt Flow	55	0	49	0	0	0	73	282	0	0	204	96

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	679	679	252	632	727	282	300	0	0	282	0	0
Stage 1	252	252	-	427	427	-	-	-	-	-	-	-
Stage 2	427	427	-	204	300	-	-	-	-	-	-	-
Critical Hdwy	7.27	6.67	6.37	7.1	6.5	6.2	4.14	-	-	4.13	-	-
Critical Hdwy Stg 1	6.27	5.67	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.27	5.67	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.653	4.153	3.453	3.5	4	3.3	2.236	-	-	2.227	-	-
Pot Cap-1 Maneuver	346	355	751	396	353	762	1250	-	-	1275	-	-
Stage 1	720	672	-	609	589	-	-	-	-	-	-	-
Stage 2	577	560	-	802	669	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	326	334	751	349	332	762	1250	-	-	1275	-	-
Mov Cap-2 Maneuver	326	334	-	349	332	-	-	-	-	-	-	-
Stage 1	720	672	-	574	554	-	-	-	-	-	-	-
Stage 2	543	528	-	750	669	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	15.6	0	1.66	0
HCM LOS	C	A		

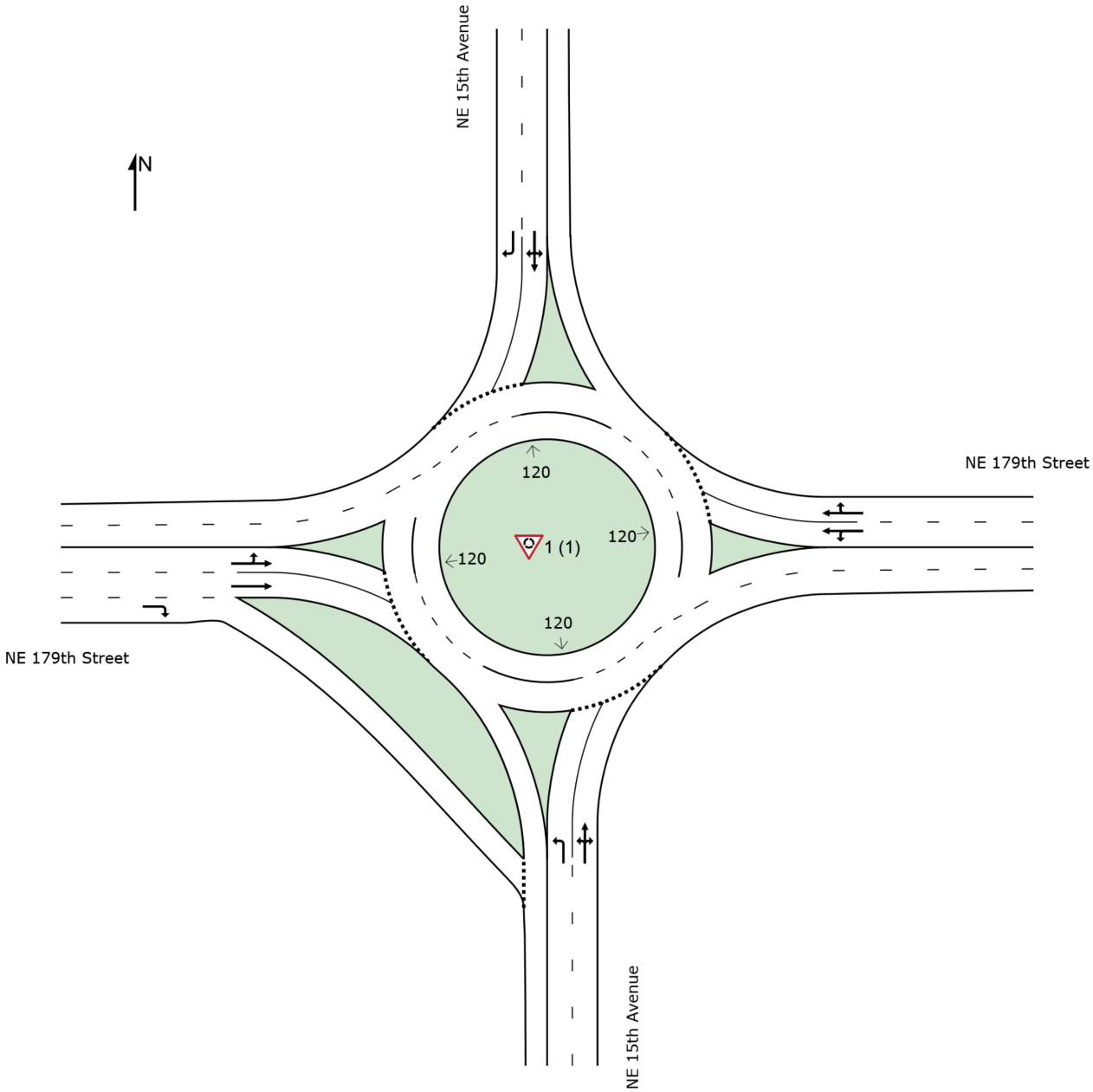
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1250	-	-	444	-	1275	-	-
HCM Lane V/C Ratio	0.058	-	-	0.235	-	-	-	-
HCM Ctrl Dly (s/v)	8.1	-	-	15.6	0	0	-	-
HCM Lane LOS	A	-	-	C	A	A	-	-
HCM 95th %tile Q(veh)	0.2	-	-	0.9	-	0	-	-

SITE LAYOUT

Site: [1 (1)] 2028 Pre-Development - AM Peak Hour (1. NE 179th Street at NE 15th Avenue)

NE 179th Street at NE 15th Avenue
2028 Pre-Development - AM Peak Hour
Roundabout
Site Scenario: 1 | Local Volumes

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



MOVEMENT SUMMARY

Site: [1 (1)] 2028 Pre-Development - AM Peak Hour (1. NE 179th Street at NE 15th Avenue)

Output produced by SIDRA INTERSECTION Version: 11.0.2

NE 179th Street at NE 15th Avenue
2028 Pre-Development - AM Peak Hour
Roundabout
Site Scenario: 1 | Local Volumes

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] ft	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed mph
South: NE 15th Avenue															
3	L2	All MCs	122	6.6	122	6.6	0.125	12.1	LOS B	0.5	13.2	0.50	0.72	0.50	32.1
8	T1	All MCs	71	6.6	71	6.6	0.125	5.3	LOS A	0.5	13.2	0.49	0.56	0.49	35.0
18	R2	All MCs	49	6.6	49	6.6	0.125	5.5	LOS A	0.5	13.2	0.49	0.56	0.49	34.6
Approach			241	6.6	241	6.6	0.125	8.8	LOS A	0.5	13.2	0.50	0.64	0.50	33.3
East: NE 179th Street															
1	L2	All MCs	128	6.0	128	6.0	0.381	12.2	LOS B	1.8	46.8	0.53	0.62	0.53	33.4
6	T1	All MCs	598	6.0	598	6.0	0.381	5.5	LOS A	1.9	48.5	0.52	0.56	0.52	34.7
16	R2	All MCs	88	6.0	88	6.0	0.381	5.5	LOS A	1.9	48.5	0.51	0.52	0.51	34.7
Approach			814	6.0	814	6.0	0.381	6.5	LOS A	1.9	48.5	0.52	0.56	0.52	34.4
North: NE 15th Avenue															
7	L2	All MCs	145	11.8	145	11.8	0.415	14.3	LOS B	1.9	53.1	0.67	0.82	0.76	32.2
4	T1	All MCs	63	11.8	63	11.8	0.415	7.9	LOS A	1.9	53.1	0.67	0.82	0.76	33.0
14	R2	All MCs	450	11.8	450	11.8	0.415	7.1	LOS A	2.1	56.5	0.66	0.76	0.73	34.1
Approach			658	11.8	658	11.8	0.415	8.8	LOS A	2.1	56.5	0.66	0.78	0.74	33.5
West: NE 179th Street															
5	L2	All MCs	270	5.6	270	5.6	0.183	11.1	LOS B	1.0	25.4	0.43	0.64	0.43	32.0
2	T1	All MCs	209	5.6	209	5.6	0.182	5.0	LOS A	0.9	23.3	0.45	0.47	0.45	35.2
12	R2	All MCs	168	5.6	168	5.6	0.105	4.3	LOS A	0.5	12.4	0.29	0.46	0.29	35.6
Approach			647	5.6	647	5.6	0.183	7.3	LOS A	1.0	25.4	0.40	0.54	0.40	33.9
All Vehicles			2360	7.6	2360	7.6	0.415	7.6	LOS A	2.1	56.5	0.53	0.62	0.55	33.9

Site Level of Service (LOS) Method: Delay & Degree of Saturation (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
Intersection and Approach LOS values are based on average delay for all movements (v/c not used).
Roundabout Capacity Model: SIDRA HCM.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

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MOVEMENT SUMMARY

Site: [1 (2)] 2028 Post-Development - AM Peak Hour (1. NE 179th Street at NE 15th Avenue)

Output produced by SIDRA INTERSECTION Version: 11.0.2

NE 179th Street at NE 15th Avenue
2028 Post-Development - AM Peak Hour
Roundabout
Site Scenario: 1 | Local Volumes

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] ft	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed mph
South: NE 15th Avenue															
3	L2	All MCs	122	6.6	122	6.6	0.125	12.2	LOS B	0.5	13.2	0.50	0.72	0.50	32.1
8	T1	All MCs	71	6.6	71	6.6	0.125	5.3	LOS A	0.5	13.2	0.49	0.56	0.49	34.9
18	R2	All MCs	49	6.6	49	6.6	0.125	5.5	LOS A	0.5	13.2	0.49	0.56	0.49	34.6
Approach			241	6.6	241	6.6	0.125	8.8	LOS A	0.5	13.2	0.50	0.64	0.50	33.3
East: NE 179th Street															
1	L2	All MCs	128	6.0	128	6.0	0.385	12.2	LOS B	1.8	47.4	0.53	0.62	0.53	33.4
6	T1	All MCs	605	6.0	605	6.0	0.385	5.5	LOS A	1.9	49.2	0.52	0.56	0.52	34.7
16	R2	All MCs	89	6.0	89	6.0	0.385	5.5	LOS A	1.9	49.2	0.52	0.52	0.52	34.7
Approach			823	6.0	823	6.0	0.385	6.5	LOS A	1.9	49.2	0.52	0.56	0.52	34.4
North: NE 15th Avenue															
7	L2	All MCs	145	11.8	145	11.8	0.417	14.4	LOS B	2.0	53.5	0.67	0.83	0.76	32.2
4	T1	All MCs	63	11.8	63	11.8	0.417	7.9	LOS A	2.0	53.5	0.67	0.83	0.76	33.0
14	R2	All MCs	450	11.8	450	11.8	0.417	7.2	LOS A	2.1	57.0	0.66	0.76	0.73	34.1
Approach			658	11.8	658	11.8	0.417	8.8	LOS A	2.1	57.0	0.67	0.78	0.74	33.5
West: NE 179th Street															
5	L2	All MCs	270	5.6	270	5.6	0.184	11.1	LOS B	1.0	25.5	0.43	0.64	0.43	32.0
2	T1	All MCs	212	5.6	212	5.6	0.184	5.0	LOS A	1.0	25.5	0.45	0.47	0.45	35.2
12	R2	All MCs	168	5.6	168	5.6	0.105	4.3	LOS A	0.5	12.4	0.29	0.46	0.29	35.6
Approach			650	5.6	650	5.6	0.184	7.3	LOS A	1.0	25.5	0.40	0.54	0.40	33.9
All Vehicles			2372	7.6	2372	7.6	0.417	7.6	LOS A	2.1	57.0	0.53	0.62	0.55	33.9

Site Level of Service (LOS) Method: Delay & Degree of Saturation (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
Intersection and Approach LOS values are based on average delay for all movements (v/c not used).
Roundabout Capacity Model: SIDRA HCM.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

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MOVEMENT SUMMARY

Site: [1 (3)] 2028 Pre-Development - PM Peak Hour (1. NE 179th Street at NE 15th Avenue)

Output produced by SIDRA INTERSECTION Version: 11.0.2

NE 179th Street at NE 15th Avenue
2028 Pre-Development - PM Peak Hour
Roundabout
Site Scenario: 1 | Local Volumes

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] ft	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed mph
South: NE 15th Avenue															
3	L2	All MCs	215	3.8	215	3.8	0.315	14.6	LOS B	1.6	41.8	0.74	0.86	0.76	31.3
8	T1	All MCs	83	3.8	83	3.8	0.315	7.0	LOS A	1.6	41.8	0.74	0.74	0.74	34.3
18	R2	All MCs	152	3.8	152	3.8	0.315	7.2	LOS A	1.6	41.8	0.74	0.74	0.74	34.0
Approach			450	3.8	450	3.8	0.315	10.7	LOS B	1.6	41.8	0.74	0.80	0.75	32.7
East: NE 179th Street															
1u	U	All MCs	2	6.0	2	6.0	0.388	16.9	LOS B	2.0	52.1	0.70	0.79	0.76	32.5
1	L2	All MCs	116	6.0	116	6.0	0.388	14.3	LOS B	2.0	52.1	0.70	0.79	0.76	32.5
6	T1	All MCs	362	6.0	362	6.0	0.388	7.3	LOS A	2.1	55.6	0.70	0.73	0.74	33.9
16	R2	All MCs	163	6.0	163	6.0	0.388	7.0	LOS A	2.1	55.6	0.69	0.68	0.72	34.2
Approach			643	6.0	643	6.0	0.388	8.5	LOS A	2.1	55.6	0.70	0.73	0.74	33.7
North: NE 15th Avenue															
7	L2	All MCs	141	3.5	141	3.5	0.263	12.4	LOS B	1.2	29.9	0.58	0.70	0.58	32.7
4	T1	All MCs	87	3.5	87	3.5	0.263	6.0	LOS A	1.2	29.9	0.58	0.70	0.58	33.4
14	R2	All MCs	267	3.5	267	3.5	0.252	5.7	LOS A	1.2	30.2	0.57	0.64	0.57	34.9
Approach			495	3.5	495	3.5	0.263	7.7	LOS A	1.2	30.2	0.58	0.67	0.58	34.0
West: NE 179th Street															
5	L2	All MCs	583	3.7	583	3.7	0.426	11.3	LOS B	2.8	70.8	0.51	0.64	0.51	32.2
2	T1	All MCs	567	3.7	567	3.7	0.426	5.2	LOS A	2.8	70.8	0.53	0.51	0.53	34.7
12	R2	All MCs	194	3.7	194	3.7	0.119	4.3	LOS A	0.6	14.4	0.30	0.46	0.30	35.6
Approach			1344	3.7	1344	3.7	0.426	7.7	LOS A	2.8	70.8	0.49	0.56	0.49	33.7
All Vehicles			2932	4.2	2932	4.2	0.426	8.3	LOS A	2.8	70.8	0.59	0.65	0.60	33.6

Site Level of Service (LOS) Method: Delay & Degree of Saturation (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
Intersection and Approach LOS values are based on average delay for all movements (v/c not used).
Roundabout Capacity Model: SIDRA HCM.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

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MOVEMENT SUMMARY

Site: [1 (4)] 2028 Post-Development - PM Peak Hour (1. NE 179th Street at NE 15th Avenue)

Output produced by SIDRA INTERSECTION Version: 11.0.2

NE 179th Street at NE 15th Avenue
2028 Post-Development - PM Peak Hour
Roundabout
Site Scenario: 1 | Local Volumes

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] ft	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed mph
South: NE 15th Avenue															
3	L2	All MCs	215	3.8	215	3.8	0.317	14.6	LOS B	1.6	42.2	0.74	0.86	0.77	31.3
8	T1	All MCs	83	3.8	83	3.8	0.317	7.0	LOS A	1.6	42.2	0.75	0.75	0.75	34.3
18	R2	All MCs	152	3.8	152	3.8	0.317	7.2	LOS A	1.6	42.2	0.75	0.75	0.75	34.0
Approach			450	3.8	450	3.8	0.317	10.7	LOS B	1.6	42.2	0.75	0.80	0.76	32.7
East: NE 179th Street															
1u	U	All MCs	2	6.0	2	6.0	0.391	16.9	LOS B	2.0	52.8	0.70	0.79	0.76	32.5
1	L2	All MCs	116	6.0	116	6.0	0.391	14.3	LOS B	2.0	52.8	0.70	0.79	0.76	32.5
6	T1	All MCs	367	6.0	367	6.0	0.391	7.3	LOS A	2.2	56.3	0.70	0.73	0.74	33.9
16	R2	All MCs	163	6.0	163	6.0	0.391	7.0	LOS A	2.2	56.3	0.70	0.69	0.73	34.1
Approach			648	6.0	648	6.0	0.391	8.5	LOS A	2.2	56.3	0.70	0.73	0.74	33.7
North: NE 15th Avenue															
7	L2	All MCs	142	3.5	142	3.5	0.265	12.5	LOS B	1.2	30.2	0.59	0.71	0.59	32.7
4	T1	All MCs	87	3.5	87	3.5	0.265	6.1	LOS A	1.2	30.2	0.59	0.71	0.59	33.4
14	R2	All MCs	267	3.5	267	3.5	0.252	5.7	LOS A	1.2	30.3	0.57	0.64	0.57	34.9
Approach			496	3.5	496	3.5	0.265	7.7	LOS A	1.2	30.3	0.58	0.67	0.58	33.9
West: NE 179th Street															
5	L2	All MCs	583	3.7	583	3.7	0.429	11.3	LOS B	2.8	71.6	0.51	0.64	0.51	32.2
2	T1	All MCs	575	3.7	575	3.7	0.429	5.3	LOS A	2.8	71.6	0.54	0.51	0.54	34.7
12	R2	All MCs	194	3.7	194	3.7	0.119	4.3	LOS A	0.6	14.5	0.30	0.46	0.30	35.6
Approach			1352	3.7	1352	3.7	0.429	7.7	LOS A	2.8	71.6	0.49	0.56	0.49	33.7
All Vehicles			2946	4.2	2946	4.2	0.429	8.3	LOS A	2.8	71.6	0.59	0.65	0.60	33.6

Site Level of Service (LOS) Method: Delay & Degree of Saturation (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
Intersection and Approach LOS values are based on average delay for all movements (v/c not used).
Roundabout Capacity Model: SIDRA HCM.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

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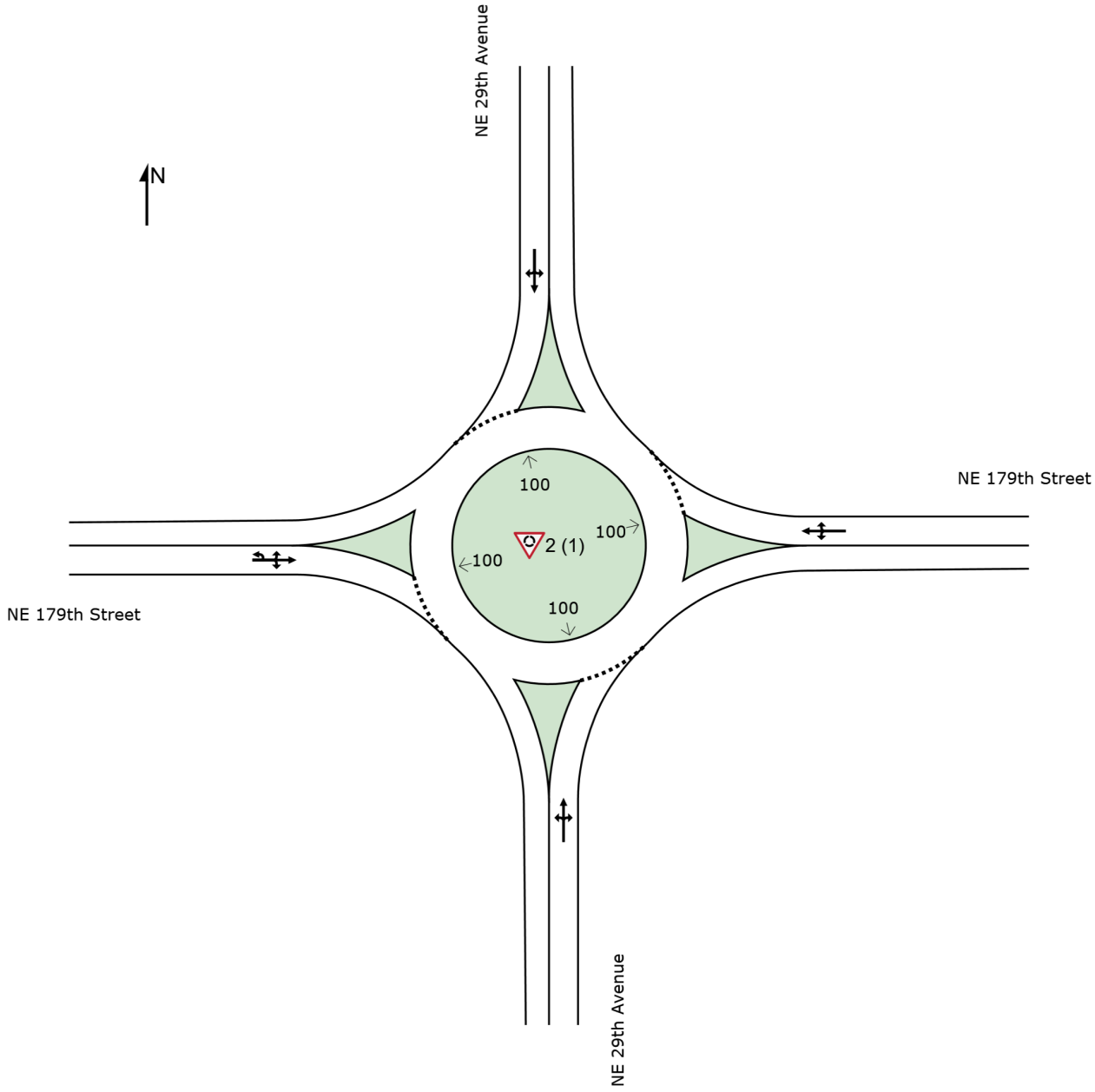
SITE LAYOUT

Site: [2 (1)] 2028 Pre-Development - AM Peak Hour (2. NE 179th Street at NE 29th Avenue)

NE 179th Street at NE 29th Avenue
2028 Pre-Development - AM Peak Hour
Roundabout
Site Scenario: 1 | Local Volumes

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



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MOVEMENT SUMMARY

Site: [2 (1)] 2028 Pre-Development - AM Peak Hour (2. NE 179th Street at NE 29th Avenue)

Output produced by SIDRA INTERSECTION Version: 11.0.2

NE 179th Street at NE 29th Avenue
2028 Pre-Development - AM Peak Hour
Roundabout
Site Scenario: 1 | Local Volumes

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] ft	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed mph
South: NE 29th Avenue															
3	L2	All MCs	45	2.3	45	2.3	0.123	11.5	LOS B	0.6	16.4	0.52	0.61	0.52	33.6
8	T1	All MCs	55	2.3	55	2.3	0.123	5.6	LOS A	0.6	16.4	0.52	0.61	0.52	34.3
18	R2	All MCs	28	2.3	28	2.3	0.123	5.6	LOS A	0.6	16.4	0.52	0.61	0.52	34.0
Approach			128	2.3	128	2.3	0.123	7.7	LOS A	0.6	16.4	0.52	0.61	0.52	34.0
East: NE 179th Street															
1	L2	All MCs	79	7.5	79	7.5	0.493	11.0	LOS B	3.4	90.4	0.45	0.49	0.45	34.0
6	T1	All MCs	491	7.5	491	7.5	0.493	5.0	LOS A	3.4	90.4	0.45	0.49	0.45	34.8
16	R2	All MCs	18	7.5	18	7.5	0.493	5.1	LOS A	3.4	90.4	0.45	0.49	0.45	34.5
Approach			589	7.5	589	7.5	0.493	5.8	LOS A	3.4	90.4	0.45	0.49	0.45	34.7
North: NE 29th Avenue															
7	L2	All MCs	20	3.8	20	3.8	0.247	13.3	LOS B	1.5	38.3	0.70	0.66	0.70	33.5
4	T1	All MCs	101	3.8	101	3.8	0.247	7.3	LOS A	1.5	38.3	0.70	0.66	0.70	34.3
14	R2	All MCs	89	3.8	89	3.8	0.247	7.4	LOS A	1.5	38.3	0.70	0.66	0.70	33.9
Approach			210	3.8	210	3.8	0.247	7.9	LOS A	1.5	38.3	0.70	0.66	0.70	34.0
West: NE 179th Street															
5u	U	All MCs	3	12.2	3	12.2	0.369	13.6	LOS B	2.2	60.3	0.45	0.51	0.45	33.8
5	L2	All MCs	54	12.2	54	12.2	0.369	11.2	LOS B	2.2	60.3	0.45	0.51	0.45	33.8
2	T1	All MCs	311	12.2	311	12.2	0.369	5.2	LOS A	2.2	60.3	0.45	0.51	0.45	34.7
12	R2	All MCs	33	12.2	33	12.2	0.369	5.3	LOS A	2.2	60.3	0.45	0.51	0.45	34.3
Approach			401	12.2	401	12.2	0.369	6.1	LOS A	2.2	60.3	0.45	0.51	0.45	34.5
All Vehicles			1328	7.8	1328	7.8	0.493	6.4	LOS A	3.4	90.4	0.50	0.53	0.50	34.5

Site Level of Service (LOS) Method: Delay & Degree of Saturation (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
Intersection and Approach LOS values are based on average delay for all movements (v/c not used).
Roundabout Capacity Model: SIDRA HCM.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

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MOVEMENT SUMMARY

Site: [2 (2)] 2028 Post-Development - AM Peak Hour (2. NE 179th Street at NE 29th Avenue)

Output produced by SIDRA INTERSECTION Version: 11.0.2

NE 179th Street at NE 29th Avenue
2028 Post-Development - AM Peak Hour
Roundabout
Site Scenario: 1 | Local Volumes

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] ft	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed mph
South: NE 29th Avenue															
3	L2	All MCs	45	2.3	45	2.3	0.123	11.5	LOS B	0.6	16.5	0.52	0.61	0.52	33.5
8	T1	All MCs	55	2.3	55	2.3	0.123	5.6	LOS A	0.6	16.5	0.52	0.61	0.52	34.3
18	R2	All MCs	28	2.3	28	2.3	0.123	5.7	LOS A	0.6	16.5	0.52	0.61	0.52	34.0
Approach			128	2.3	128	2.3	0.123	7.7	LOS A	0.6	16.5	0.52	0.61	0.52	34.0
East: NE 179th Street															
1	L2	All MCs	79	7.5	79	7.5	0.500	11.0	LOS B	3.5	92.7	0.46	0.49	0.46	34.0
6	T1	All MCs	500	7.5	500	7.5	0.500	5.0	LOS A	3.5	92.7	0.46	0.49	0.46	34.8
16	R2	All MCs	18	7.5	18	7.5	0.500	5.1	LOS A	3.5	92.7	0.46	0.49	0.46	34.4
Approach			598	7.5	598	7.5	0.500	5.8	LOS A	3.5	92.7	0.46	0.49	0.46	34.7
North: NE 29th Avenue															
7	L2	All MCs	20	3.8	20	3.8	0.249	13.3	LOS B	1.5	38.9	0.70	0.67	0.70	33.5
4	T1	All MCs	101	3.8	101	3.8	0.249	7.4	LOS A	1.5	38.9	0.70	0.67	0.70	34.2
14	R2	All MCs	89	3.8	89	3.8	0.249	7.5	LOS A	1.5	38.9	0.70	0.67	0.70	33.9
Approach			210	3.8	210	3.8	0.249	8.0	LOS A	1.5	38.9	0.70	0.67	0.70	34.0
West: NE 179th Street															
5u	U	All MCs	3	12.2	3	12.2	0.372	13.6	LOS B	2.2	61.1	0.46	0.51	0.46	33.8
5	L2	All MCs	54	12.2	54	12.2	0.372	11.2	LOS B	2.2	61.1	0.46	0.51	0.46	33.8
2	T1	All MCs	314	12.2	314	12.2	0.372	5.2	LOS A	2.2	61.1	0.46	0.51	0.46	34.7
12	R2	All MCs	33	12.2	33	12.2	0.372	5.3	LOS A	2.2	61.1	0.46	0.51	0.46	34.3
Approach			404	12.2	404	12.2	0.372	6.1	LOS A	2.2	61.1	0.46	0.51	0.46	34.5
All Vehicles			1340	7.8	1340	7.8	0.500	6.4	LOS A	3.5	92.7	0.50	0.53	0.50	34.5

Site Level of Service (LOS) Method: Delay & Degree of Saturation (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
Intersection and Approach LOS values are based on average delay for all movements (v/c not used).
Roundabout Capacity Model: SIDRA HCM.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

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MOVEMENT SUMMARY

Site: [2 (3)] 2028 Pre-Development - PM Peak Hour (2. NE 179th Street at NE 29th Avenue)

Output produced by SIDRA INTERSECTION Version: 11.0.2

NE 179th Street at NE 29th Avenue
2028 Pre-Development - PM Peak Hour
Roundabout
Site Scenario: 1 | Local Volumes

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] ft	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed mph
South: NE 29th Avenue															
3	L2	All MCs	42	2.7	42	2.7	0.355	14.8	LOS B	2.5	62.7	0.84	0.74	0.84	32.7
8	T1	All MCs	129	2.7	129	2.7	0.355	8.9	LOS A	2.5	62.7	0.84	0.74	0.84	33.5
18	R2	All MCs	87	2.7	87	2.7	0.355	8.9	LOS A	2.5	62.7	0.84	0.74	0.84	33.2
Approach			259	2.7	259	2.7	0.355	9.9	LOS A	2.5	62.7	0.84	0.74	0.84	33.2
East: NE 179th Street															
1	L2	All MCs	52	4.2	52	4.2	0.522	11.7	LOS B	3.8	96.9	0.61	0.57	0.61	33.7
6	T1	All MCs	500	4.2	500	4.2	0.522	5.8	LOS A	3.8	96.9	0.61	0.57	0.61	34.5
16	R2	All MCs	28	4.2	28	4.2	0.522	5.8	LOS A	3.8	96.9	0.61	0.57	0.61	34.1
Approach			580	4.2	580	4.2	0.522	6.3	LOS A	3.8	96.9	0.61	0.57	0.61	34.4
North: NE 29th Avenue															
7	L2	All MCs	25	1.1	25	1.1	0.200	12.6	LOS B	1.2	31.0	0.68	0.65	0.68	33.7
4	T1	All MCs	67	1.1	67	1.1	0.200	6.7	LOS A	1.2	31.0	0.68	0.65	0.68	34.4
14	R2	All MCs	87	1.1	87	1.1	0.200	6.8	LOS A	1.2	31.0	0.68	0.65	0.68	34.1
Approach			179	1.1	179	1.1	0.200	7.6	LOS A	1.2	31.0	0.68	0.65	0.68	34.1
West: NE 179th Street															
5u	U	All MCs	1	3.5	1	3.5	0.639	13.4	LOS B	5.8	148.2	0.54	0.50	0.54	33.8
5	L2	All MCs	124	3.5	124	3.5	0.639	11.0	LOS B	5.8	148.2	0.54	0.50	0.54	33.8
2	T1	All MCs	640	3.5	640	3.5	0.639	5.0	LOS A	5.8	148.2	0.54	0.50	0.54	34.6
12	R2	All MCs	43	3.5	43	3.5	0.639	5.1	LOS A	5.8	148.2	0.54	0.50	0.54	34.3
Approach			809	3.5	809	3.5	0.639	6.0	LOS A	5.8	148.2	0.54	0.50	0.54	34.5
All Vehicles			1827	3.4	1827	3.4	0.639	6.8	LOS A	5.8	148.2	0.62	0.57	0.62	34.2

Site Level of Service (LOS) Method: Delay & Degree of Saturation (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
Intersection and Approach LOS values are based on average delay for all movements (v/c not used).
Roundabout Capacity Model: SIDRA HCM.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

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MOVEMENT SUMMARY

Site: [2 (4)] 2028 Post-Development - PM Peak Hour (2. NE 179th Street at NE 29th Avenue)

Output produced by SIDRA INTERSECTION Version: 11.0.2

NE 179th Street at NE 29th Avenue
2028 Post-Development - PM Peak Hour
Roundabout
Site Scenario: 1 | Local Volumes

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] ft	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed mph
South: NE 29th Avenue															
3	L2	All MCs	42	2.7	42	2.7	0.360	14.9	LOS B	2.5	64.0	0.84	0.74	0.84	32.7
8	T1	All MCs	129	2.7	129	2.7	0.360	9.0	LOS A	2.5	64.0	0.84	0.74	0.84	33.4
18	R2	All MCs	87	2.7	87	2.7	0.360	9.1	LOS A	2.5	64.0	0.84	0.74	0.84	33.1
Approach			259	2.7	259	2.7	0.360	10.0	LOS A	2.5	64.0	0.84	0.74	0.84	33.2
East: NE 179th Street															
1	L2	All MCs	52	4.2	52	4.2	0.527	11.7	LOS B	3.8	98.5	0.62	0.57	0.62	33.7
6	T1	All MCs	505	4.2	505	4.2	0.527	5.8	LOS A	3.8	98.5	0.62	0.57	0.62	34.5
16	R2	All MCs	28	4.2	28	4.2	0.527	5.9	LOS A	3.8	98.5	0.62	0.57	0.62	34.1
Approach			586	4.2	586	4.2	0.527	6.3	LOS A	3.8	98.5	0.62	0.57	0.62	34.4
North: NE 29th Avenue															
7	L2	All MCs	25	1.1	25	1.1	0.201	12.7	LOS B	1.2	31.3	0.68	0.66	0.68	33.7
4	T1	All MCs	67	1.1	67	1.1	0.201	6.7	LOS A	1.2	31.3	0.68	0.66	0.68	34.4
14	R2	All MCs	87	1.1	87	1.1	0.201	6.8	LOS A	1.2	31.3	0.68	0.66	0.68	34.1
Approach			179	1.1	179	1.1	0.201	7.6	LOS A	1.2	31.3	0.68	0.66	0.68	34.1
West: NE 179th Street															
5u	U	All MCs	1	3.5	1	3.5	0.647	13.4	LOS B	5.9	152.1	0.54	0.50	0.54	33.8
5	L2	All MCs	124	3.5	124	3.5	0.647	11.0	LOS B	5.9	152.1	0.54	0.50	0.54	33.8
2	T1	All MCs	650	3.5	650	3.5	0.647	5.1	LOS A	5.9	152.1	0.54	0.50	0.54	34.6
12	R2	All MCs	43	3.5	43	3.5	0.647	5.1	LOS A	5.9	152.1	0.54	0.50	0.54	34.3
Approach			818	3.5	818	3.5	0.647	6.0	LOS A	5.9	152.1	0.54	0.50	0.54	34.5
All Vehicles			1842	3.4	1842	3.4	0.647	6.8	LOS A	5.9	152.1	0.62	0.57	0.62	34.2

Site Level of Service (LOS) Method: Delay & Degree of Saturation (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
Intersection and Approach LOS values are based on average delay for all movements (v/c not used).
Roundabout Capacity Model: SIDRA HCM.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

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APPENDIX F – SAFETY ANALYSIS

Crash History Reports

OFFICER REPORTED CRASHES THAT OCCURRED AT MULTIPLE INTERSECTIONS IN CLARK COUNTY

INTERSECTIONS

179TH ST (CO RD #94360, MP 0.260 - 0.300) @ 15TH AVE (CO RD #43110, MP 2.490 - 2.510)

01/01/2021 - 12/31/2025 *See 2nd tab below for road information*

Under 23 U.S. Code § 148 and 23 U.S. Code § 407, safety data, reports, surveys, schedules, lists compiled or collected for the purpose of identifying, evaluating, or planning the safety enhancement of potential crash sites, hazardous roadway conditions, or railway-highway crossings are not subject to discovery or admitted into evidence in a Federal or State court proceeding or considered for other purposes in any action for damages arising from any occurrence at a location mentioned or addressed in such reports, surveys, schedules, lists, or data.

JURISDICTION	COUNTY	CITY	PRIMARY TRAFFICWAY	MILEPOST	A / B	BLOCK NUMBER	INTERSECTING TRAFFICWAY	CO ONLY Intersecting County Road MP	DIST FROM REF POINT	MI or FT	COMP DIR FROM REF POINT	REFERENCE POINT NAME	SR ONLY ACCUMULATIVE ROUTE MILEPOST (ARM)	SR ONLY HISTORY / SUSPENSE IND	REPORT NUMBER	DATE	TIME	MOST SEVERE INJURY TYPE	# INJ	# FAT	# VEH	# PEDS	# BIKES	VEHICLE 1 TYPE	VEHICLE 2 TYPE	JUNCTION RELATIONSHIP	WEATHER
County Road	Clark		94360	0.280			43110	2.510						No	EE68818	03/23/2024	18:02	No Apparent Injury	0	0	2	0	0	Passenger Car	Pickup,Panel Truck or Vanette under 10,000 lb	At Intersection and Related	Raining
County Road	Clark		94360	0.280			43110	2.510						No	EC80219	08/15/2022	12:02	No Apparent Injury	0	0	2	0	0	Truck (Flatbad,Van,etc)	Pickup,Panel Truck or Vanette under 10,000 lb	At Intersection and Related	Clear or Partly Cloudy
County Road	Clark		94360	0.280			43110	2.510						No	ED88656	06/02/2023	07:30	No Apparent Injury	0	0	2	0	0	Truck (Flatbad,Van,etc)	Passenger Car	At Intersection and Related	Clear or Partly Cloudy
County Road	Clark		94360	0.280			43110	2.510						No	EC07748	01/02/2022	12:41	Possible Injury	1	0	2	0	0	Passenger Car	Passenger Car	At Intersection and Related	Overcast

OFFICER REPORTED CRASHES THAT OCCURRED AT MULTIPLE INTERSECTIONS IN CLARK COUNTY

INTERSECTIONS

179TH ST (CO RD #94360, MP 0.260 - 0.300) @ 15TH AVE (CO RD #43110, MP 2.490 - 2.510)

01/01/2021 - 12/31/2025 *See 2nd tab below for road information*

Under 23 U.S. Code § 148 and 23 U.S. Code § 407, safety data, reports, surveys, schedules, lists compiled or collected for the purpose of identifying, evaluating, or planning the safety enhancement of potential crash sites, hazardous roadway conditions, or railway-highway crossings are not subject to discovery or admitted into evidence in a Federal or State court proceeding or considered for other purposes in any action for damages arising from any occurrence at a location mentioned or addressed in such reports, surveys, schedules, lists, or data.

ROADWAY SURFACE CONDITION	LIGHTING CONDITION	FIRST COLLISION TYPE / OBJECT STRUCK	VEHICLE 1 ACTION	VEHICLE 2 ACTION	VEHICLE 1 COMPASS DIRECTION FROM	VEHICLE 1 COMPASS DIRECTION TO	VEHICLE 2 COMPASS DIRECTION FROM	VEHICLE 2 COMPASS DIRECTION TO	MV DRIVER CONTRIBUTING CIRCUMSTANCE 1 (UNIT 1)	MV DRIVER CONTRIBUTING CIRCUMSTANCE 2 (UNIT 1)	MV DRIVER CONTRIBUTING CIRCUMSTANCE 3 (UNIT 1)	MV DRIVER CONTRIBUTING CIRCUMSTANCE 1 (UNIT 2)	MV DRIVER CONTRIBUTING CIRCUMSTANCE 2 (UNIT 2)	MV DRIVER CONTRIBUTING CIRCUMSTANCE 3 (UNIT 2)	FIRST IMPACT LOCATION (City, County & Misc Trafficways - 2010 forward)	WA STATE PLANE SOUTH - X 2010 - FORWARD	WA STATE PLANE SOUTH - Y 2010 - FORWARD
Wet	Daylight	From opposite direction - one left turn - one straight	Making Left Turn	Going Straight Ahead	East	South	West	East	Other Distractions			None			Lane of Primary Trafficway	1090128.54	159720.94
Dry	Daylight	Entering at angle	Going Straight Ahead	Making Left Turn	West	East	South	West	Did Not Grant RW to Vehicle			None			Lane of Primary Trafficway	1090128.54	159720.94
Dry	Daylight	Entering at angle	Going Straight Ahead	Making Left Turn	West	East	South	West	Disregard Traffic Sign and Signals			None			Lane of Primary Trafficway	1090128.54	159720.94
Dry	Daylight	Entering at angle	Making Right Turn	Going Straight Ahead	South	East	East	West	Exceeding Reas. Safe Speed			None			Lane of Primary Trafficway	1090128.54	159720.94

OFFICER REPORTED CRASHES THAT OCCURRED AT MULTIPLE INTERSECTIONS IN CLARK COUNTY

INTERSECTIONS

179TH ST (CO RD #94360, MP 0.970 - 1.010) @ 29TH AVE (CO RD #43330, MP 2.240 - 2.280)

01/01/2021 - 12/31/2025 *See 2nd tab below for road information*

Under 23 U.S. Code § 148 and 23 U.S. Code § 407, safety data, reports, surveys, schedules, lists compiled or collected for the purpose of identifying, evaluating, or planning the safety enhancement of potential crash sites, hazardous roadway conditions, or railway-highway crossings are not subject to discovery or admitted into evidence in a Federal or State court proceeding or considered for other purposes in any action for damages arising from any occurrence at a location mentioned or addressed in such reports, surveys, schedules, lists, or data.

JURISDICTION	COUNTY	CITY	PRIMARY TRAFFICWAY	MILEPOST	A / B	BLOCK NUMBER	INTERSECTING TRAFFICWAY	CO ONLY Intersecting County Road MP	DIST FROM REF POINT	MI or FT	COMP DIR FROM REF POINT	REFERENCE POINT NAME	SR ONLY ACCUMULATIVE ROUTE MILEPOST (ARM)	SR ONLY HISTORY / SUSPENSE IND	REPORT NUMBER	DATE	TIME	MOST SEVERE INJURY TYPE	# INJ	# FAT	# VEH	# PEDS	# BIKES	VEHICLE 1 TYPE	VEHICLE 2 TYPE	JUNCTION RELATIONSHIP	WEATHER
County Road	Clark		43330	2.260			94360	0.990						No	ED16740	12/18/2022	14:53	Suspected Minor Injury	1	0	2	0	0	Pickup,Panel Truck or Vanette under 10,000 lb	Pickup,Panel Truck or Vanette under 10,000 lb	At Intersection and Related	Clear
County Road	Clark		94360	0.990			43330	2.260						No	EF80764	03/21/2025	19:42	Suspected Serious Injury	1	0	2	0	0	Passenger Car	Passenger Car	At Intersection and Related	Raining
County Road	Clark		94360	0.990			43330	2.260						No	EE25446	10/31/2023	07:26	No Apparent Injury	0	0	2	0	0	Pickup,Panel Truck or Vanette under 10,000 lb	Passenger Car	At Intersection and Related	Clear
County Road	Clark		94360	0.990			43330	2.260						No	EC53355	05/25/2022	19:43	No Apparent Injury	0	0	2	0	0	Pickup,Panel Truck or Vanette under 10,000 lb	Pickup,Panel Truck or Vanette under 10,000 lb	Entering Roundabout	Clear
County Road	Clark		94360	0.990			43330	2.260						No	ED10607	11/28/2022	17:28	Possible Injury	1	0	3	0	0	Pickup,Panel Truck or Vanette under 10,000 lb	Passenger Car	At Intersection and Related	Fog or Smog or Smoke
County Road	Clark		94360	0.990			43330	2.260						No	EG07041	06/20/2025	10:29	No Apparent Injury	0	0	2	0	0	Passenger Car	Passenger Car	At Intersection and Related	Raining
County Road	Clark		94360	0.990			43330	2.260						No	EC19856	02/07/2022	13:33	Possible Injury	1	0	2	0	0	Truck (Flatbad,Van,etc)	Pickup,Panel Truck or Vanette under 10,000 lb	At Intersection and Related	Clear or Partly Cloudy
County Road	Clark		94360	0.990			43330	2.260						No	EC37890	03/25/2022	15:22	No Apparent Injury	0	0	2	0	0	Pickup,Panel Truck or Vanette under 10,000 lb	Pickup,Panel Truck or Vanette under 10,000 lb	At Intersection and Related	Clear or Partly Cloudy
County Road	Clark		94360	0.990			43330	2.260						No	ED57928	05/02/2023	14:25	Possible Injury	1	0	2	0	0	Passenger Car	Passenger Car	At Intersection and Related	Clear or Partly Cloudy

OFFICER REPORTED CRASHES THAT OCCURRED AT MULTIPLE INTERSECTIONS IN CLARK COUNTY

INTERSECTIONS

179TH ST (CO RD #94360, MP 0.970 - 1.010) @ 29TH AVE (CO RD #43330, MP 2.240 - 2.280)

01/01/2021 - 12/31/2025 *See 2nd tab below for road information*

Under 23 U.S. Code § 148 and 23 U.S. Code § 407, safety data, reports, surveys, schedules, lists compiled or collected for the purpose of identifying, evaluating, or planning the safety enhancement of potential crash sites, hazardous roadway conditions, or railway-highway crossings are not subject to discovery or admitted into evidence in a Federal or State court proceeding or considered for other purposes in any action for damages arising from any occurrence at a location mentioned or addressed in such reports, surveys, schedules, lists, or data.

ROADWAY SURFACE CONDITION	LIGHTING CONDITION	FIRST COLLISION TYPE / OBJECT STRUCK	VEHICLE 1 ACTION	VEHICLE 2 ACTION	VEHICLE 1 COMPASS DIRECTION FROM	VEHICLE 1 COMPASS DIRECTION TO	VEHICLE 2 COMPASS DIRECTION FROM	VEHICLE 2 COMPASS DIRECTION TO	MV DRIVER CONTRIBUTING CIRCUMSTANCE 1 (UNIT 1)	MV DRIVER CONTRIBUTING CIRCUMSTANCE 2 (UNIT 1)	MV DRIVER CONTRIBUTING CIRCUMSTANCE 3 (UNIT 1)	MV DRIVER CONTRIBUTING CIRCUMSTANCE 1 (UNIT 2)	MV DRIVER CONTRIBUTING CIRCUMSTANCE 2 (UNIT 2)	MV DRIVER CONTRIBUTING CIRCUMSTANCE 3 (UNIT 2)	FIRST IMPACT LOCATION (City, County & Misc Trafficways - 2010 forward)	WA STATE PLANE SOUTH - X 2010 - FORWARD	WA STATE PLANE SOUTH - Y 2010 - FORWARD
Wet	Daylight	Entering at angle	Going Straight Ahead	Going Straight Ahead	West	East	North	South	Disregard Traffic Sign and Signals			None			Lane of Primary Trafficway	1093914.19	159640.78
Wet	Dark-No Street Lights	Entering at angle	Making Left Turn	Going Straight Ahead	South	West	East	West	Did Not Grant RW to Vehicle			Did Not Grant RW to Vehicle			Lane of Primary Trafficway	1093914.19	159640.78
Dry	Dark - Unknown Lightin	Entering at angle	Going Straight Ahead	Going Straight Ahead	South	North	West	East	Disregard Traffic Sign and Signals			None			Lane of Primary Trafficway	1093914.19	159640.78
Dry	Daylight	Entering at angle	Going Straight Ahead	Going Straight Ahead	East	West	North	South	Distracted by Other Occupant			None			Lane of Primary Trafficway	1131730.85	119503.08
Wet	Dark-No Street Lights	Entering at angle	Going Straight Ahead	Going Straight Ahead	East	West	South	North	Disregard Traffic Sign and Signals			None			Lane of Primary Trafficway	1093914.19	159640.78
Wet	Daylight	Entering at angle	Starting in Traffic Lane	Starting in Traffic Lane	South	North	West	East	Did Not Grant RW to Vehicle			None			Lane of Primary Trafficway	1093914.19	159640.78
Dry	Daylight	Entering at angle	Going Straight Ahead	Going Straight Ahead	East	West	South	North	Disregard Traffic Sign and Signals			None			Lane of Primary Trafficway	1093914.19	159640.78
Dry	Daylight	Entering at angle	Making Left Turn	Going Straight Ahead	East	South	South	Vehicle Stopped	Distracted by Adjusting Vehicle Cntrls			None			Intersecting Trafficway	1078172.95	159926.58
Dry	Daylight	Entering at angle	Going Straight Ahead	Making Left Turn	West	East	North	South	Disregard Traffic Sign and Signals			None			Lane of Primary Trafficway	1093914.19	159640.78

OFFICER REPORTED CRASHES THAT OCCURRED AT MULTIPLE INTERSECTIONS IN CLARK COUNTY

INTERSECTIONS

179TH ST (CO RD #94360, MP 0.970 - 1.010) @ 29TH AVE (CO RD #43330, MP 2.240 - 2.280)

01/01/2021 - 12/31/2025 *See 2nd tab below for road information*

Under 23 U.S. Code § 148 and 23 U.S. Code § 407, safety data, reports, surveys, schedules, lists compiled or collected for the purpose of identifying, evaluating, or planning the safety enhancement of potential crash sites, hazardous roadway conditions, or railway-highway crossings are not subject to discovery or admitted into evidence in a Federal or State court proceeding or considered for other purposes in any action for damages arising from any occurrence at a location mentioned or addressed in such reports, surveys, schedules, lists, or data.

JURISDICTION	COUNTY	CITY	PRIMARY TRAFFICWAY	MILEPOST	A / B	BLOCK NUMBER	INTERSECTING TRAFFICWAY	CO ONLY Intersecting County Road MP	DIST FROM REF POINT	MI or FT	COMP DIR FROM REF POINT	REFERENCE POINT NAME	SR ONLY ACCUMULATIVE ROUTE MILEPOST (ARM)	SR ONLY HISTORY / SUSPENSE IND	REPORT NUMBER	DATE	TIME	MOST SEVERE INJURY TYPE	# INJ	# FAT	# VEH	# PEDS	# BIKES	VEHICLE 1 TYPE	VEHICLE 2 TYPE	JUNCTION RELATIONSHIP	WEATHER
County Road	Clark		94360	0.990			43330	2.260						No	ED48528	03/28/2023	21:40	No Apparent Injury	0	0	2	0	0	Pickup,Panel Truck or Vanette under 10,000 lb	Pickup,Panel Truck or Vanette under 10,000 lb	At Intersection and Related	Raining
County Road	Clark		94360	0.990			43330	2.260						No	ED31158	01/23/2023	16:32	No Apparent Injury	0	0	2	0	0	Passenger Car	Pickup,Panel Truck or Vanette under 10,000 lb	At Intersection and Related	Clear
County Road	Clark		94360	0.990			43330	2.260						No	EB76046	09/10/2021	17:42	Possible Injury	2	0	2	0	0	Passenger Car	Passenger Car	At Intersection and Related	Clear or Partly Cloudy
County Road	Clark		94360	0.990			43330	2.260						No	EE95856	07/14/2024	22:23	No Apparent Injury	0	0	2	0	0	Pickup,Panel Truck or Vanette under 10,000 lb	Pickup,Panel Truck or Vanette under 10,000 lb	At Intersection and Related	Clear

OFFICER REPORTED CRASHES THAT OCCURRED AT MULTIPLE INTERSECTIONS IN CLARK COUNTY

INTERSECTIONS

179TH ST (CO RD #94360, MP 0.970 - 1.010) @ 29TH AVE (CO RD #43330, MP 2.240 - 2.280)

01/01/2021 - 12/31/2025 *See 2nd tab below for road information*

Under 23 U.S. Code § 148 and 23 U.S. Code § 407, safety data, reports, surveys, schedules, lists compiled or collected for the purpose of identifying, evaluating, or planning the safety enhancement of potential crash sites, hazardous roadway conditions, or railway-highway crossings are not subject to discovery or admitted into evidence in a Federal or State court proceeding or considered for other purposes in any action for damages arising from any occurrence at a location mentioned or addressed in such reports, surveys, schedules, lists, or data.

ROADWAY SURFACE CONDITION	LIGHTING CONDITION	FIRST COLLISION TYPE / OBJECT STRUCK	VEHICLE 1 ACTION	VEHICLE 2 ACTION	VEHICLE 1 COMPASS DIRECTION FROM	VEHICLE 1 COMPASS DIRECTION TO	VEHICLE 2 COMPASS DIRECTION FROM	VEHICLE 2 COMPASS DIRECTION TO	MV DRIVER CONTRIBUTING CIRCUMSTANCE 1 (UNIT 1)	MV DRIVER CONTRIBUTING CIRCUMSTANCE 2 (UNIT 1)	MV DRIVER CONTRIBUTING CIRCUMSTANCE 3 (UNIT 1)	MV DRIVER CONTRIBUTING CIRCUMSTANCE 1 (UNIT 2)	MV DRIVER CONTRIBUTING CIRCUMSTANCE 2 (UNIT 2)	MV DRIVER CONTRIBUTING CIRCUMSTANCE 3 (UNIT 2)	FIRST IMPACT LOCATION (City, County & Misc Trafficways - 2010 forward)	WA STATE PLANE SOUTH - X 2010 - FORWARD	WA STATE PLANE SOUTH - Y 2010 - FORWARD
Wet	Dark-No Street Lights	Entering at angle	Going Straight Ahead	Starting in Traffic Lane	West	East	South	North	Disregard Traffic Sign and Signals			None			Lane of Primary Trafficway	1093914.19	159640.78
Dry	Dusk	Entering at angle	Going Straight Ahead	Starting in Traffic Lane	West	East	South	North	Unknown Distraction			Unknown Distraction			Lane of Primary Trafficway	1093914.19	159640.78
Dry	Daylight	From opposite direction - one left turn - one straight	Going Straight Ahead	Making Left Turn	West	East	East	South	Disregard Traffic Sign and Signals			None			Lane of Primary Trafficway	1093914.19	159640.78
Dry	Dark-No Street Lights	Entering at angle	Going Straight Ahead	Going Straight Ahead	South	North	West	East	Under Influence of Alcohol	Unknown Distraction		None			Lane of Primary Trafficway	1093914.19	159640.78

OFFICER REPORTED CRASHES THAT OCCURRED AT MULTIPLE INTERSECTIONS IN CLARK COUNTY

INTERSECTIONS

179TH ST (CO RD #94360, MP 1.960 - 2.000) @ 50TH AVE (CO RD #44390, MP 3.970 - 4.010)

01/01/2021 - 12/31/2025 *See 2nd tab below for road information*

Under 23 U.S. Code § 148 and 23 U.S. Code § 407, safety data, reports, surveys, schedules, lists compiled or collected for the purpose of identifying, evaluating, or planning the safety enhancement of potential crash sites, hazardous roadway conditions, or railway-highway crossings are not subject to discovery or admitted into evidence in a Federal or State court proceeding or considered for other purposes in any action for damages arising from any occurrence at a location mentioned or addressed in such reports, surveys, schedules, lists, or data.

JURISDICTION	COUNTY	CITY	PRIMARY TRAFFICWAY	MILEPOST	A / B	BLOCK NUMBER	INTERSECTING TRAFFICWAY	CO ONLY Intersecting County Road MP	DIST FROM REF POINT	MI or FT	COMP DIR FROM REF POINT	REFERENCE POINT NAME	SR ONLY ACCUMULATIVE ROUTE MILEPOST (ARM)	SR ONLY HISTORY / SUSPENSE IND	REPORT NUMBER	DATE	TIME	MOST SEVERE INJURY TYPE	# INJ	# FAT	# VEH	# PEDS	# BIKES	VEHICLE 1 TYPE	VEHICLE 2 TYPE	JUNCTION RELATIONSHIP	WEATHER
County Road	Clark		44390	3.990			94360	1.980						No	ED57814	05/03/2023	12:39	No Apparent Injury	0	0	2	0	0	Passenger Car	Pickup,Panel Truck or Vanette under 10,000 lb	Intersection Related but Not at Intersection	Clear or Partly Cloudy
County Road	Clark		94360	1.980			44390	3.990						No	EF56938	01/08/2025	11:37	No Apparent Injury	0	0	2	0	0	Pickup,Panel Truck or Vanette under 10,000 lb	Passenger Car	At Intersection and Related	Clear
County Road	Clark		94360	1.980			44390	3.990						No	EE30428	12/05/2023	06:15	No Apparent Injury	0	0	2	0	0	Pickup,Panel Truck or Vanette under 10,000 lb	Pickup,Panel Truck or Vanette under 10,000 lb	At Intersection and Related	Raining

OFFICER REPORTED CRASHES THAT OCCURRED AT MULTIPLE INTERSECTIONS IN CLARK COUNTY

INTERSECTIONS

179TH ST (CO RD #94360, MP 1.960 - 2.000) @ 50TH AVE (CO RD #44390, MP 3.970 - 4.010)

01/01/2021 - 12/31/2025 *See 2nd tab below for road information*

Under 23 U.S. Code § 148 and 23 U.S. Code § 407, safety data, reports, surveys, schedules, lists compiled or collected for the purpose of identifying, evaluating, or planning the safety enhancement of potential crash sites, hazardous roadway conditions, or railway-highway crossings are not subject to discovery or admitted into evidence in a Federal or State court proceeding or considered for other purposes in any action for damages arising from any occurrence at a location mentioned or addressed in such reports, surveys, schedules, lists, or data.

ROADWAY SURFACE CONDITION	LIGHTING CONDITION	FIRST COLLISION TYPE / OBJECT STRUCK	VEHICLE 1 ACTION	VEHICLE 2 ACTION	VEHICLE 1 COMPASS DIRECTION FROM	VEHICLE 1 COMPASS DIRECTION TO	VEHICLE 2 COMPASS DIRECTION FROM	VEHICLE 2 COMPASS DIRECTION TO	MV DRIVER CONTRIBUTING CIRCUMSTANCE 1 (UNIT 1)	MV DRIVER CONTRIBUTING CIRCUMSTANCE 2 (UNIT 1)	MV DRIVER CONTRIBUTING CIRCUMSTANCE 3 (UNIT 1)	MV DRIVER CONTRIBUTING CIRCUMSTANCE 1 (UNIT 2)	MV DRIVER CONTRIBUTING CIRCUMSTANCE 2 (UNIT 2)	MV DRIVER CONTRIBUTING CIRCUMSTANCE 3 (UNIT 2)	FIRST IMPACT LOCATION (City, County & Misc Trafficways - 2010 forward)	WA STATE PLANE SOUTH - X 2010 - FORWARD	WA STATE PLANE SOUTH - Y 2010 - FORWARD
Dry	Daylight	From same direction - both going straight - both moving - rear-end	Going Straight Ahead	Slowing	North	South	North	South	Operating Handheld Cell Phone	Follow Too Closely		None			Lane of Primary Trafficway	1099144.5	159629.66
Dry	Daylight	Entering at angle	Going Straight Ahead	Starting in Traffic Lane	West	East	North	South	Disregard Traffic Sign and Signals			None			Lane of Primary Trafficway	1099143.63	159574.99
Wet	Dark-No Street Lights	Entering at angle	Going Straight Ahead	Going Straight Ahead	East	West	South	North	Disregard Traffic Sign and Signals			None			Lane of Primary Trafficway	1099143.63	159574.99

OFFICER REPORTED CRASHES THAT OCCURRED AT MULTIPLE INTERSECTIONS IN CLARK COUNTY

INTERSECTIONS

174TH ST (CO RD #44580, MP 0.000 - 0.020) @ 50TH AVE (CO RD #44390, MP 4.220 - 4.260)

01/01/2021 - 12/31/2025 *See 2nd tab below for road information*

Under 23 U.S. Code § 148 and 23 U.S. Code § 407, safety data, reports, surveys, schedules, lists compiled or collected for the purpose of identifying, evaluating, or planning the safety enhancement of potential crash sites, hazardous roadway conditions, or railway-highway crossings are not subject to discovery or admitted into evidence in a Federal or State court proceeding or considered for other purposes in any action for damages arising from any occurrence at a location mentioned or addressed in such reports, surveys, schedules, lists, or data.

JURISDICTION	COUNTY	CITY	PRIMARY TRAFFICWAY	MILEPOST	A / B	BLOCK NUMBER	INTERSECTING TRAFFICWAY	CO ONLY Intersecting County Road MP	DIST FROM REF POINT	MI or FT	COMP DIR FROM REF POINT	REFERENCE POINT NAME	SR ONLY ACCUMULATIVE ROUTE MILEPOST (ARM)	SR ONLY HISTORY / SUSPENSE IND	REPORT NUMBER	DATE	TIME	MOST SEVERE INJURY TYPE	# INJ	# FAT	# VEH	# PEDS	# BIKES	VEHICLE 1 TYPE	VEHICLE 2 TYPE	JUNCTION RELATIONSHIP	WEATHER

OFFICER REPORTED CRASHES THAT OCCURRED AT MULTIPLE INTERSECTIONS IN CLARK COUNTY

INTERSECTIONS

174TH ST (CO RD #44580, MP 0.000 - 0.020) @ 50TH AVE (CO RD #44390, MP 4.220 - 4.260)

01/01/2021 - 12/31/2025 *See 2nd tab below for road information*

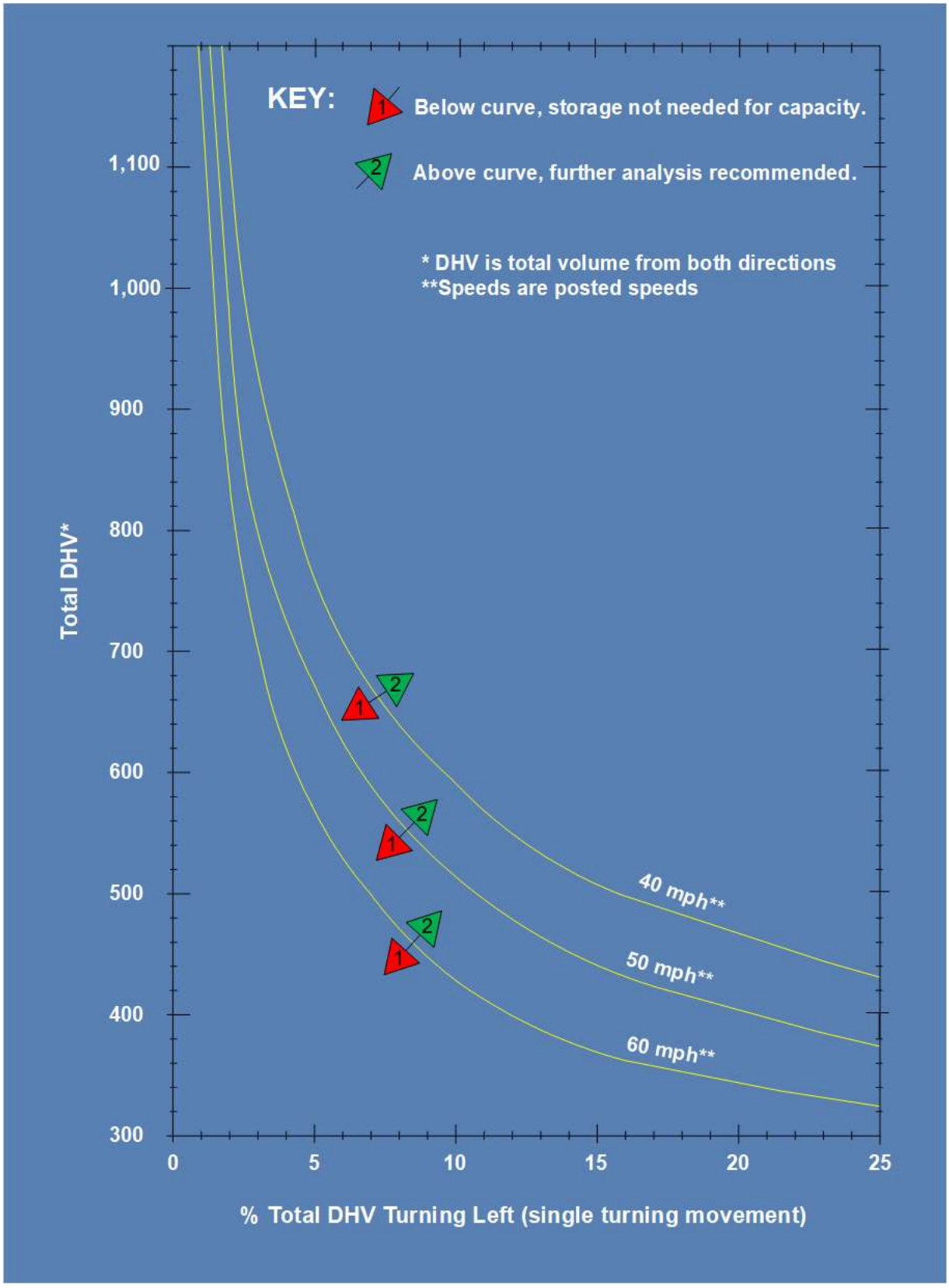
Under 23 U.S. Code § 148 and 23 U.S. Code § 407, safety data, reports, surveys, schedules, lists compiled or collected for the purpose of identifying, evaluating, or planning the safety enhancement of potential crash sites, hazardous roadway conditions, or railway-highway crossings are not subject to discovery or admitted into evidence in a Federal or State court proceeding or considered for other purposes in any action for damages arising from any occurrence at a location mentioned or addressed in such reports, surveys, schedules, lists, or data.

ROADWAY SURFACE CONDITION	LIGHTING CONDITION	FIRST COLLISION TYPE / OBJECT STRUCK	VEHICLE 1 ACTION	VEHICLE 2 ACTION	VEHICLE 1 COMPASS DIRECTION FROM	VEHICLE 1 COMPASS DIRECTION TO	VEHICLE 2 COMPASS DIRECTION FROM	VEHICLE 2 COMPASS DIRECTION TO	MV DRIVER CONTRIBUTING CIRCUMSTANCE 1 (UNIT 1)	MV DRIVER CONTRIBUTING CIRCUMSTANCE 2 (UNIT 1)	MV DRIVER CONTRIBUTING CIRCUMSTANCE 3 (UNIT 1)	MV DRIVER CONTRIBUTING CIRCUMSTANCE 1 (UNIT 2)	MV DRIVER CONTRIBUTING CIRCUMSTANCE 2 (UNIT 2)	MV DRIVER CONTRIBUTING CIRCUMSTANCE 3 (UNIT 2)	FIRST IMPACT LOCATION (City, County & Misc Trafficways - 2010 forward)	WA STATE PLANE SOUTH - X 2010 - FORWARD	WA STATE PLANE SOUTH - Y 2010 - FORWARD

APPENDIX G – WARRANT ANALYSIS

WSDOT Exhibit 1310-9
Preliminary Signal Warrant Calculations

Exhibit 1310-9 Left-Turn Storage Guidelines: Two-Lane, Unsignalized



Preliminary Traffic Signal Warrants

Manual on Uniform Traffic Control Devices (MUTCD) 11th Edition

Project Name: Mill Creek Estates
Date: 6/9/2026
Intersection: NE 179th Street at NE 50th Avenue
Analysis Scenario: 2028 Post-Development

Cross-Street	Number of Lanes	Volumes			
		AM Peak Hour	PM Peak Hour	8th Highest Hr	4th Highest Hr
Major Street	2	619	900	509	705
Minor Street	2	205	351	198	275

Warrants Evaluated?	100%

Notes: *8th highest hour volumes assumed to reflect approximately 5.65% of the AADT through the intersection. The AADT is assumed to be ten times the PM peak hour.*
4th highest hour volumes assumed to be the midpoint, or average, of the PM peak hour and 8th highest hour volumes.
A 30% reduction on the minor street right-turn volumes was assumed to account for right-turns on red.

Warrant 1, Eight-Hour Vehicular Volume (Table 4C-1)

Number of Approach Lanes (Major/Minor)		Condition A				Condition B				Combination A/B*							
		100%		70%		100%		70%		Condition A 80%		Condition B 80%		Condition A 56%		Condition B 56%	
		Major	Minor	Major	Minor	Major	Minor	Major	Minor	Major	Minor	Major	Minor	Major	Minor	Major	Minor
1 / 1		500	150	350	105	750	75	525	53	400	120	600	60	280	84	420	42
2+ / 1		600	150	420	105	900	75	630	53	480	120	720	60	336	84	504	42
2+ / 2+	X	600	200	420	140	900	100	630	70	480	160	720	80	336	112	504	56
1 / 2+		500	200	350	140	750	100	525	70	400	160	600	80	280	112	420	56
Threshold Volume		600	200			900	100										
8th Highest Hour Volume		509	198			509	198										
Warrant Met?		**No**				**No**											

Notes: *100% warrants represent the basic minimum hourly volumes.*
70% warrants may be used when major street speeds exceed 40 mph or in an isolated community with a population of less than 10,000.
** The combination of Conditions A and B is intended for application at locations where Condition A is not satisfied and Condition B is not satisfied. The combination warrants should be applied only after an adequate trial of other alternatives that could cause less delay and inconvenience to traffic has failed to solve the traffic problems (i.e., the combination warrants should generally only be used if an operational issue is present at the intersection).*
80% combination warrants represent the basic minimum hourly volumes.
56% combination warrants may be used when major street speeds exceed 40 mph or in an isolated community with a population of less than 10,000.

Project Name: Mill Creek Estates
Date: 6/9/2026
Intersection: NE 179th Street at NE 50th Avenue
Analysis Scenario: 2028 Post-Development

Warrant 2, Four-Hour Vehicular Volume (Figures 4C-1 & 4C-2 plus accompanying Tables)														
Number of Approach Lanes (Major/Minor)			**Volumes**											
100%	1 / 1		Major	1400	1300	1200	1100	1000	900	800	700	600	500	400
			Minor	80	80	80	80	100	120	150	180	220	260	310
	2+ / 1		Major	1400	1300	1200	1100	1000	900	800	700	600	500	400
			Minor	80	90	100	120	150	175	200	250	290	340	390
	2+ / 2+	X	Major	1400	1300	1200	1100	1000	900	800	700	600	500	400
			Minor	115	115	145	165	200	240	275	340	390	460	-
	1 / 2+		Major	1400	1300	1200	1100	1000	900	800	700	600	500	400
			Minor	115	115	115	120	150	175	200	250	290	340	390
70%	1 / 1		Major	1000	900	800	700	600	500	400	300	-	-	-
			Minor	60	60	60	70	90	125	160	205	-	-	-
	2+ / 1		Major	1000	900	800	700	600	500	400	300	-	-	-
			Minor	60	65	80	100	130	165	215	265	-	-	-
	2+ / 2+		Major	1000	900	800	700	600	500	400	300	-	-	-
			Minor	80	80	105	140	175	225	290	-	-	-	-
	1 / 2+		Major	1000	900	800	700	600	500	400	300	-	-	-
			Minor	80	80	80	100	130	165	215	265	-	-	-
Threshold Volume			Major	1400	1300	1200	1100	1000	900	800	700	600	500	400
			Minor	115	115	145	165	200	240	275	340	390	460	-
4th Highest Hour Volume			Major	705	705	705	705	705	705	705	705	705	705	705
			Minor	275	275	275	275	275	275	275	275	275	275	275
Warrant Met?			Major	No	No	No	No	No	No	No	Yes	Yes	Yes	Yes
			Minor	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	#VALUE!
			Overall	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**#VALUE!**

Notes: *100% warrants represent the basic minimum hourly volumes.*
70% warrants may be used when major street speeds exceed 40 mph or in an isolated community with a population of less than 10,000.

TRANSPORTATION IMPACT STUDY

Avery Drive

Clark County, Washington

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6/18/2026



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Prepared: June 18, 2026

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Executive Summary

1. The proposed Avery Drive project will include the construction of a residential subdivision on a single property located at 3504 NE 184th Street in unincorporated Clark County, Washington. The proposal will include the construction of a 20 single-family detached housing development. As part of this proposal one existing house will be maintained, whereby a net of 19 houses will be constructed. Access to the site will be provided via a planned north/south roadway (i.e., NE 35th Avenue) that will be constructed between the project site and NE 179th Street as part of the in-process Mill Creek Terrace Subdivision.
2. The proposed subdivision is projected to generate 13 net new AM peak hour trips, 18 net new PM peak hour trips, and 173 net new average weekday trips.
3. All study intersections are currently operating acceptably per Clark County standards and are projected to continue operating acceptably through the 2028 development year of the site. No operational mitigation is necessary or recommended at the study intersections as part of the proposed development application.
4. The roadway segment of NE 10th Avenue between NE 179th Street and NE 189th Street is projected to exceed Clark County's roadway segment v/c ratio threshold under year 2028 conditions during the PM peak hour. However, no mitigation as part of the proposed development application is recommended for the following reasons:
    a. The proposed development is projected to add 0 PM peak hour trips to the high demand travel direction of the roadway segment, and therefore, will not impact or increase the v/c ratio along NE 10th Avenue.
    b. The study intersection of NE 179th Street at NE 15th Avenue is projected to operate at LOS A during the AM and PM peak hours under year 2028 post-development conditions. The high roadway v/c ratio is not expected to create operational issues at the relevant/applicable study intersections.
    c. Two-lane roadways generally have a base single-direction capacity of 1,700 pcphpl. The single-direction capacities detailed in Table 40.350.020-1 of the Clark County code utilize a similar single-direction capacity but may take into consideration how signalized intersections or other traffic controls along a corridor influence traffic flow/capacity along a roadway. When reviewing the corridor alone using this base 1,700 pcphpl, no capacity issues are expected along NE 10th Avenue.

5. All other relevant roadway segments are projected to operate acceptably per Clark County standards through the 2028 development year of the site during both the AM and PM peak hours. No roadway capacity-related mitigation is necessary or recommended as part of the proposed development application.
6. No significant trends or crash patterns were identified at any of the study intersections beyond the intersection of NE 179th Street at NE 29th Avenue that are indicative of safety concerns. The intersection of NE 179th Street at NE 29th Avenue is currently being reconstructed as a roundabout, which is expected to reduce the overall number of recurring crashes at the intersection. No other crash-related mitigation is necessary or recommended as part of the Avery Drive application.
7. Based on traffic volumes alone, an eastbound left-turn lane is projected to be warranted at the intersection of NE 179th Street at NE 35th Avenue during the PM peak hour under year 2028 pre-development conditions. Although a left-turn lane is warranted based on volumes, installation of this turn lane is not necessary or recommended at the intersection based on the following:
    a. The segment of NE 179th Street between NE 15th Avenue and NE 50th Avenue will be widened with raised medians installed near year 2031, approximately three years after the proposed development is constructed and occupied. Installation of a temporary turn lane is not expected to have a long-term benefit that outweighs the time and cost of installation.
    b. In addition to evaluating traffic volumes WSDOT also considers other factors on whether a left-turn lane should be installed at an unsignalized intersection. The following suggest a left-turn lane is unnecessary at the intersection:
        i. The intersection is projected to operate acceptably at LOS C without the turn lane installed.
        ii. Limited to no crashes are expected to occur at the intersection of NE 179th Street at NE 35th Avenue.
    c. There are currently no left-turn lanes installed along the NE 179th Street corridor between NE Union and NE 47th Avenue
    d. When considering the above, an eastbound left-turn lane was determined to be unnecessary with approval of the Mill Creek Terrace project. It is reasonable to conclude such a determination would be appropriate to apply to the proposed Avery Drive subdivision.

8. The installation of a raised median at the intersection of NE 179th Street at NE 35th Avenue is not necessary for the roadway in the immediate future to operate safely or within acceptable levels of capacity per Clark County standards. Therefore, the County may approve the proposed development without the installation of a raised median through this intersection.
9. Although block perimeter and length standards are currently not met for the existing block which surrounds the site, the proposed development will be constructing site internal public streets which will improve connectivity and promote a completed street network in the vicinity. Block perimeter standards can be met in the future; however, this is contingent on additional development of lower density/undeveloped properties in the area. Since the Avery Drive project will be expanding the public street network and does not introduce a street layout which precludes future blocks from meeting required length or perimeter standards, no further mitigation or improvements to the transportation system with respect to cross-circulation standards are necessary or recommended.

Section A – Project Description

Introduction

The proposed Avery Drive project will include the construction of a residential subdivision on a single property located at 3504 NE 184th Street in unincorporated Clark County, Washington. The proposal will include the construction of a 20 single-family detached housing development. As part of this proposal one existing house will be maintained, whereby a net of 19 houses will be constructed. Access to the site will be provided via a planned north/south roadway (i.e., NE 35th Avenue) that will be constructed between the project site and NE 179th Street as part of the in-process Mill Creek Terrace Subdivision.

Based on correspondence with Clark County staff, the report conducts safety and capacity/level of service analyses at the following intersections:

1. NE 179th Street at NE 15th Avenue
2. NE 179th Street at NE 29th Avenue
3. NE 179th Street at NE 35th Avenue (Site Access)

The purpose of this study is to determine whether the transportation system within the vicinity of the site is capable of safely and efficiently supporting the surrounding existing and proposed uses, and to determine any mitigation that may be necessary to do so. Detailed information on traffic counts, trip generation calculations, safety analyses, and level of service calculations is included in the appendix to this report.

Location Description

The project site is located north of NE 179th Street, south of NE 199th Street, east of NE 29th Avenue, and west of NE 50th Avenue in unincorporated Clark County, Washington. Located within a developing residential area of the County, the site is immediately surrounded by the under construction Mill Creek Terrace development to the south, and low density residential uses in all other directions.

The site consists of a single property (assessor parcel 181513000) which encompasses an approximate total of 6.14 acres. A single-family detached house and ancillary storage structures are currently built on-site. The existing house will be maintained while all other structures will be removed following site redevelopment. The site is currently served by a single shared driveway (i.e., NE 37th Place) along NE 179th Street.

Figure 1 presents an aerial image of the nearby vicinity with the project site outlined in yellow.



Figure 1 – Aerial Photo of Site Vicinity (Image from Google Earth)

Vicinity Streets

The study area is composed of three roadways near the site. Table 1 provides a description of each vicinity roadway.

Table 1 – Vicinity Roadway Descriptions

Street Name	Jurisdiction	Functional Classification	Speed (MPH)	On-Street Parking	Curbs & Sidewalks	Bicycle Lanes
NE 179th Street	Clark County	Principal Arterial	40/50	Not Permitted	Partial Both Sides	None
NE 15th Avenue	Clark County	Minor Arterial	40	Not Permitted	Both Sides	Both Sides
NE 29th Avenue	Clark County	Minor Arterial	35/40	Partially Permitted	Partial Both Sides	None

Table Notes: Functional classification based on Clark County's MapsOnline GIS website.

Study Intersections

Based on correspondence with agency staff, an analysis of two existing intersections of significance was conducted. A summarized description of these study intersections under their existing lane configurations is provided in Table 2.

Table 2 – Study Intersection Descriptions

Number	Intersection	Geometry	Traffic Control	Phasing/Stopped Approaches
1	NE 179th Street at NE 15th Avenue	Three-Legged	Traffic Signal	Permitted NB Left-Turn Lane
2	NE 179th Street at NE 29th Avenue	Four-Legged	Stop-Controlled	All-Way Stop-Controlled

A vicinity map showing the project site, vicinity streets, and study intersection configurations are shown in Figure 2.

FIGURE 2

AVERY DRIVE

VICINITY MAP

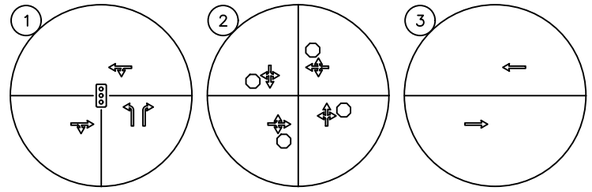
INTERSECTION LANE & TRAFFIC CONTROL CONFIGURATIONS



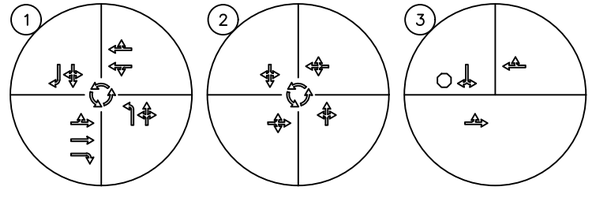
LEGEND

STUDY INTERSECTION	PROJECT SITE
STOP SIGN	ARTERIAL STREET
ROUNDABOUT	COLLECTOR STREET
TRAFFIC SIGNAL	LOCAL STREET

EXISTING INTERSECTION CONFIGURATIONS



PLANNED INTERSECTION CONFIGURATIONS



NOT TO SCALE

PLS ENGINEERING

Section B – Site Trips

Trip Generation

The proposed Avery Drive subdivision project will include the construction of 20 single-family detached houses while maintaining one existing house for a total of 19 houses. To estimate the number of trips generated by the existing and proposed uses, trip rates from the ITE *Trip Generation Manual, 12th Edition*[1] were used. Data from land use code 210, Single-Family Detached Housing, was used to estimate site trip generation based on the number of dwelling units.

The trip generation calculations show that the proposed subdivision is projected to generate 13 net new AM peak hour trips, 18 net new PM peak hour trips, and 173 net new average weekday trips. The trip generation estimates are summarized in Table 3. Detailed trip generation calculations are included in the technical appendix.

Table 3 – Site Trip Generation Summary

ITE Land Use Code		Variable	AM Peak Hour			PM Peak Hour			Weekday Total
			Enter	Exit	Total	Enter	Exit	Total	
Existing Conditions									
210	Single-Family Detached Housing	1 units	0	1	1	1	0	1	9
Proposed Conditions									
210	Single-Family Detached Housing	20 units	4	10	14	12	7	19	182
Net Change In Site Trip Generation									
Net New Trips			**4**	**9**	**13**	**11**	**7**	**18**	**173**

[1] Institute of Transportation Engineers. (2025). *Trip Generation Manual* (12th ed.). Institute of Transportation Engineers.

Trip Distribution

The trip distribution and assignment assumptions used for the proposed development were referenced from the *Mill Creek PUD Transportation Impact Analysis* (TIA), dated March 2018, which was prepared for the Woodbrook Subdivision, as well as the *Mill Creek Terrace Subdivision TIA*, dated November 2023. According to the TIA, the trip distribution was derived using the Southwest Washington Regional Transportation Council (RTC) transportation system model. The Woodbrook Subdivision, Mill Creek Terrace Subdivision, and the project site are all located in Transportation Analysis Zone (TAZ) #1982 (formerly #547), for which a select zone analysis was run to determine the distribution of site trips entering and exiting the zone. The following trip distribution is projected:

The following trip distribution is estimated:

- Approximately 44% of site trips will travel to/from the west along NE 179th Street, west of NE 15th Avenue.
- Approximately 22% of site trips will travel to/from the south along NE 29th Avenue, south of NE 179th Street.
- Approximately 13% of site trips will travel to/from the east along NE 179th Street, east of NE 50th Avenue.
- Approximately 7% of site trips will travel to/from the north along NE 50th Avenue, north of NE 199th Street.
- Approximately 5% of site trips will travel to/from the east along NE 199th Street, east of NE 50th Avenue.
- Approximately 3% of site trips will travel to/from the west along NE 199th Street, west of NE 29th Street.
- Approximately 2% of site trips will travel to/from the north along NE 29th Avenue, north of NE 199th Street.
- Approximately 2% of site trips will travel to/from the south along NE 50th Avenue, south of NE 159th Street.
- Approximately 1% of site trips will travel to/from the north along NE 10th Avenue (realigned opposite NE 15th Avenue), north of NE 179th Street.
- Approximately 1% of site trips will travel to/from the south along NE 15th Avenue, south of NE 179th Street.

Although generally located within a one-mile radius of the site, several regionally significant intersections were determined as not requiring analysis based on limited site trip impacts. The following intersections were determined as not requiring analysis with explanation for removal provided:

The following intersections will either experience no site trip impacts or will be impacted by less than five peak hour trips. Therefore, no mitigation can be required as part of the application per Clark County Unified Development Code 40.350.020.G.1.c., not-with-standing safety improvements which may be necessary per section 40.350.030(B)(6):

A. NE 199th Street at NE 29th Avenue – 0 AM and 1 PM peak hour trips

B. NE 194th Street at NE 29th Avenue – 0 AM and 1 PM peak hour trips

C. NE 189th Street at NE 29th Avenue – 0 AM and 1 PM peak hour trips

E. NE 199th Street at NE 50th Avenue – 2 AM and 2 PM peak hour trips

G. NE 174th Street at NE 50th Avenue – 0 AM and 1 PM peak hour trips

Although the following intersections will be impacted by more than five peak hour trips, none of the stop-controlled intersection approaches will experience an increase of five or more AM or PM peak hour trips. Therefore, no mitigation can be required at these intersections as part of the application per Clark County Unified Development Code 40.350.020.G.1.c., not-with-standing safety improvements which may be necessary per section 40.350.030(B)(6):

D. NE 179th Street at NE 47th Avenue – 4 AM and 5 PM peak hour trips

F. NE 179th Street at NE 50th Avenue – 4 AM and 5 PM peak hour trips

The trip distribution and assignment for the site trips generated during the AM and PM peak hours are shown in Figure 3. Trip assignment is depicted for both the study intersections and the seven aforementioned intersections.

NET NEW SITE TRIP GENERATION			
ANALYSIS SCENARIO	PRIMARY TRIPS		TOTAL
	ENTER	EXIT	
AM PEAK HOUR	4	9	13
PM PEAK HOUR	11	7	18

AM PEAK HOUR

PM PEAK HOUR

NOT TO SCALE

FIGURE 3

AVERY DRIVE

SITE TRIP ASSIGNMENT

AM & PM PEAK HOURS

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Section C – Traffic Volumes

2025 Existing Volumes

Traffic counts were conducted at the study intersections on the following dates from 7:00 AM to 9:00 AM and from 4:00 PM to 6:00 PM:

- Tuesday, August 5, 2025.
- Wednesday, August 6, 2025.
- Thursday, December 4, 2025.

Data was used from each intersection's respective AM and PM peak hours.

In addition to collecting traffic counts at the study intersections, data was also collected at the intersection of NE 179th Street at NE 10th Avenue/Interstate 5 Off-Ramp on Thursday, December 4, 2025. The intent of collecting traffic counts at the intersection was to take into consideration the planned future realignment of NE 10th Avenue to a location opposite of NE 15th Avenue. Details regarding this realignment project are discussed in the *2028 Pre-Development Volumes* section below. The existing year traffic counts are shown in Figure B in the technical appendix to this report.

To estimate traffic volumes at the planned site access intersection of NE 179th Street at NE 35th Avenue, major street volumes were balanced with those recorded at the intersection of NE 179th Street at NE 29th Avenue.

Figure 4 shows the 2025 existing year traffic volumes at the study intersections during the AM and PM peak hours.

2028 Pre-Development Volumes

Volume Growth

An estimate of future traffic volumes is required to provide analysis of the proposed development impacts to the nearby transportation system. To approximate the future year 2028 traffic volumes at the study intersections, a compounding growth rate of two percent per year for over a three-year period was applied to the year 2025 existing traffic volumes.

In-Process Development Data

In addition to the traffic volume growth described above, there are several in-process developments that are currently approved/proposed for construction within the site vicinity that are expected to impact nearby study intersections. These in-process developments include the following:

- 174th Street Subdivision
- Four Creeks North Subdivision
- Kozy Manor Estates
- M&H Subdivision (25% built, 75% in-process)
- Mill Creek Meadows
- Mill Creek Terrace
- Mountain Estates Cluster Subdivision
- Mountain View Ridge PUD
- Mt Vista Logistics
- NE 29th Avenue Subdivision
- South Ridge Central Apartments
- Three Creeks North Phase 1 & 2
- Three Creeks East Subdivision
- Viers Subdivision
- Woodbrook Subdivision (aka Mill Creek PUD, 40% built, 60% in-process)

The in-process developments are not currently/fully contributing trips to the transportation system but may potentially be by the assumed 2028 development year of the site. Additional trips corresponding to each in-process development were added to the existing year traffic volumes in addition to the three years of traffic growth at each of the applicable study intersections. To maintain a conservative analysis of operation at the study intersections, all in-process developments were assumed to be constructed by year 2028. Figure A in the technical appendix shows the in-process development trips at the study intersections during the AM and PM peak hours.

Clark County staff had initially requested that in-process trips associated with the Washington State University (WSU) Master Plan be considered when developing the future traffic volume projections. Upon reviewing two Development Agreement (DA) documents associated with this Master Plan, dated December 11, 1998, and October 31, 2008, both indicate that the terms of the DA would end at the end of calendar year 2025. This expiration of the DA includes the vesting of trips associated with the Master Plan; therefore, in-process trips associated with the WSU Master Plan were not considered.

Planned Transportation Infrastructure Revisions

Several planned transportation improvement projects were incorporated in the future year analysis scenarios. According to the Clark County's *Northeast 179th Street Corridor Improvements* project website[2], the Washington Department of Transportation's (WSDOT) *I-5 – 179th Street Interchange – Interchange Improvements* project website[3], and the 2026-2031 Transportation Improvement Program (TIP), these projects include the following:

- NE 10th Avenue, just north of NE 179th Street and opposite of the Interstate 5 northbound off-ramp, will be closed and reconstructed at a location opposite of NE 15th Avenue along NE 179th Street (2026-2031 TIP Project C). Clark County's *179th Street Circulation and Access Management Plan*, dated July 2023, and 2026-2031 TIP Project E indicate the intersection of NE 179th Street at NE 15th Avenue will be reconstructed as a roundabout. The anticipated lane configuration of the intersection was referenced from a WSDOT concept design for the NE 179th Street interchange improvement project. Construction is estimated to occur between 2028 and 2030.
- The intersection of NE 179th Street at NE 29th Avenue will be reconstructed as a roundabout (2026-2031 TIP Project F). The initial design will include a single circulating lane but will be sized to be expandable as a multilane roundabout once NE 179th Street is widened to four lanes. Construction is currently underway.
- NE 179th Street will be widened to accommodate two eastbound travel lanes, two westbound travel lanes, and a center median/turn lane. This roadway widening project will occur in phases:
    - Between NE 10th Avenue and NE 15th Avenue (2026-2031 TIP Project A). The project will be constructed in collaboration with WSDOT as part of the Interstate 5 interchange improvement project. Construction is estimated to occur sometime between 2028 and 2029.
    - Between NE 15th Avenue and NE 26th Avenue (2026-2031 TIP Project E). Construction is estimated to occur sometime between 2028 and 2030.
    - Between NE 29th Avenue and NE 50th Avenue (2026-2031 TIP Project 2). Construction is estimated to occur approximately around year 2031.
- There are currently no left-turn lanes installed along the NE 179th Street corridor between NE Union and NE 47th Avenue.

[2] Clark County Public Works. (n.d.). *Northeast 179th Street Corridor Improvements*. Clark County. https://clark.wa.gov/public-works/northeast-179th-street-corridor-improvements.

[3] Washington State Department of Transportation. (n.d.). *I-5 – 179th St. Interchange – Interchange Improvements*. Washington State Department of Transportation. https://wsdot.wa.gov/construction-planning/search-projects/i-5-179th-st-interchange-interchange-improvements.

It is assumed that the future year 2028 conditions would only reflect realigning NE 10th Avenue opposite of NE 15th Avenue, reconstructing the intersection of NE 179th Street at NE 15th Avenue as a roundabout, and reconstructing the intersection of NE 179th Street at NE 29th Avenue as a single-lane roundabout. Rerouted peak hour traffic volumes associated with the relocation of NE 10th Avenue are shown in Figure B in the technical appendix. Note that Figure B shows the rerouted 2028 volumes after applying the annual two percent per year growth rates over a three year period to the existing year traffic volumes.

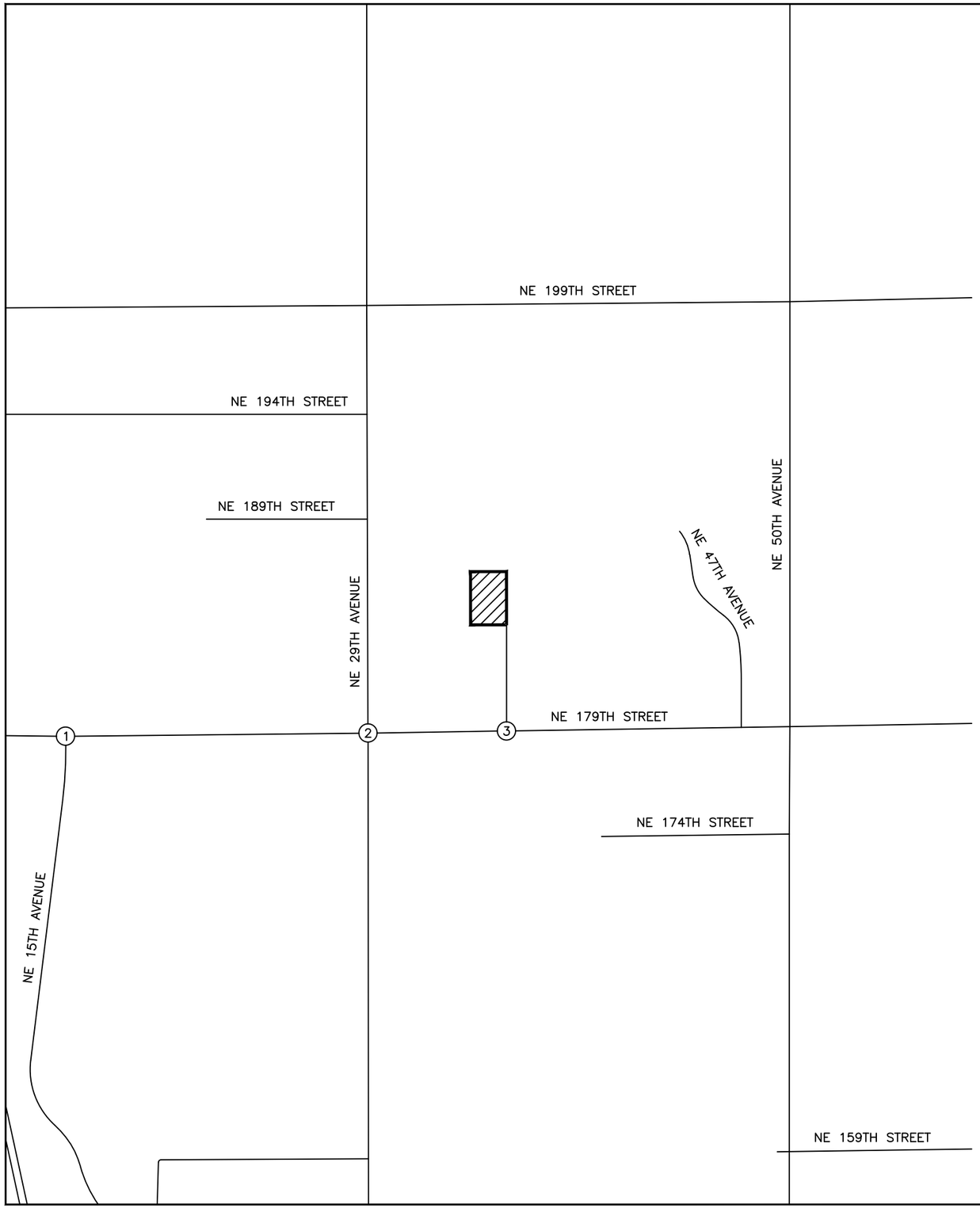
Figure 2 presents the future planned intersection configurations. Figure 5 shows the projected year 2028 pre-development traffic volumes at the study intersections during the AM and PM peak hours.

2028 Post-Development Volumes

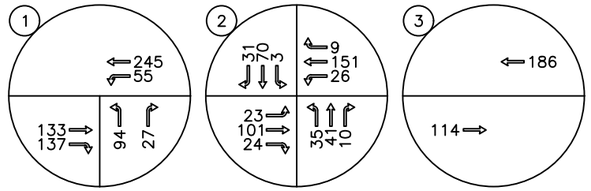
Peak hour trips calculated to be generated by the proposed development, as described earlier in Section B of this report, were added to the year 2028 pre-development traffic volumes to estimate future traffic conditions with the proposed development in place.

In addition to the above, site trips generated by the existing on-site single-family house will reroute from an existing shared driveway along NE 179th Street to utilize NE 35th Avenue once the proposed development is completed. These trips were reassigned to the appropriate intersection legs of NE 179th Street at NE 35th Avenue in a manner consistent with the trip generation and distribution methodologies described in Section B. The rerouted AM and PM peak hour trips are presented in Figure B in the technical appendix.

Figure 6 shows the year 2028 post-development traffic volumes at the study intersections during the AM and PM peak hours.



AM PEAK HOUR



PM PEAK HOUR

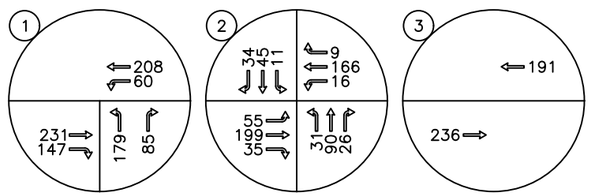


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FIGURE 4

AVERY DRIVE

2025 EXISTING VOLUMES

AM & PM PEAK HOURS

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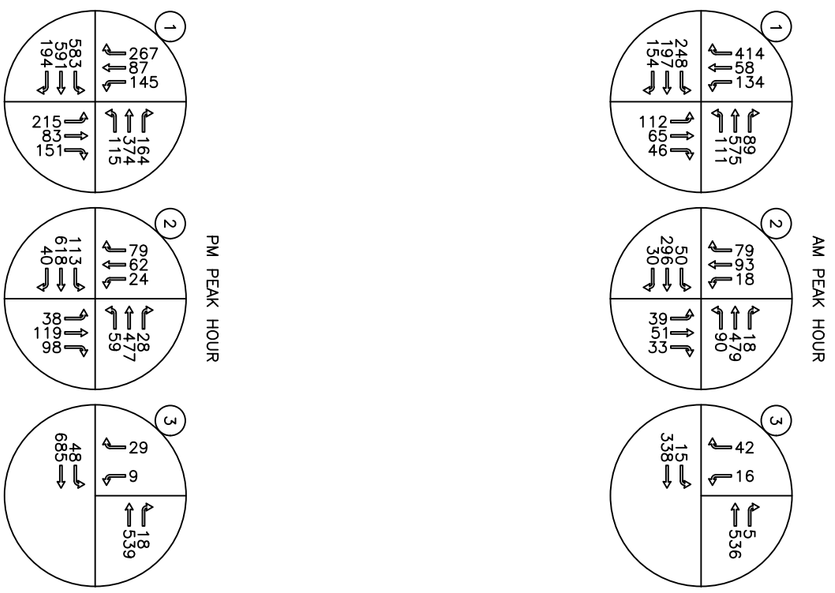

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PLS ENGINEERING

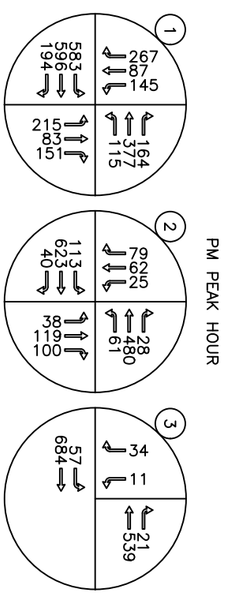
2028 PRE-DEVELOPMENT VOLUMES

AM & PM PEAK HOURS

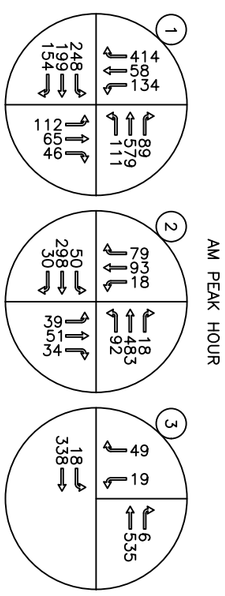
FIGURE 5

AVERY DRIVE





PM PEAK HOUR



AM PEAK HOUR

NOT TO SCALE

2028 POST-DEVELOPMENT VOLUMES

AM & PM PEAK HOURS

FIGURE 6

AVERY DRIVE

Section D – Operations Analysis

Intersection Capacity Analysis

A capacity and delay analysis were conducted for the study intersections per the signalized and unsignalized intersection analysis methodologies in the *Highway Capacity Manual* (HCM)[4]. Intersections are generally evaluated based on the average control delay experienced by vehicles and are assigned a grade according to their operation. The Level of Service (LOS) is a qualitative measure of traffic operational conditions, and can range from LOS A, which indicates little or no delay experienced by vehicles, to LOS F, which indicates a high degree of congestion and delay. The volume-to-capacity (v/c) ratio is a measure that compares the traffic volumes (demand) against the available capacity of an intersection or roadway.

Performance Standards

According to Clark County's Unified Development Code, *Title 40.350 – Transportation and Circulation*, Clark County's performance standards require unsignalized intersections to operate at LOS E or better unless traffic signal warrants are met. If traffic signal warrants are met, the intersection is required to operate at LOS D or better. Individual movements at signalized intersections of regional significance are to operate with average delays of less than two cycle lengths or 240 seconds, whichever is less.

Delay and Capacity Analysis

The study intersections were analyzed utilizing methodologies and parameters detailed in the *WSDOT Synchro & SimTraffic Protocol* document. Of specific note, the following peak hour factors (PHF) were incorporated in the analysis models:

- For existing year conditions, a PHF of no less than 0.80 was applied to each study intersection.
- For future year conditions, for study intersections where count data recorded a PHF of 0.90 or greater, the PHF was increased to 1.0.
- To better avoid showing a future year scenario with lower delays than under existing conditions, for study intersections where count data recorded a PHF of 0.89 or less the PHF was increased to 0.92.

Due to the lane configuration at the signalized study intersection of NE 179th Street at NE 15th Avenue (i.e., non-NEMA phasing), the HCM 7th Edition methodology utilizing Trafficware's Synchro 12 software does not provide capacity outputs for this intersection under existing conditions. Therefore, the reported results at this intersection are based on HCM 2000 methodologies.

[4] Transportation Research Board. (2022). *Highway Capacity Manual: A Guide for Multimodal Mobility Analysis* (7th ed.). Transportation Research Board.

For future year 2028 conditions, the intersections of NE 179th Street at NE 15th Avenue and NE 179th Street at NE 29th Avenue were modeled as roundabouts. In accordance with the *WSDOT Synchro & SimTraffic Protocol* and *WSDOT Sidra Policy Settings* documents, these roundabout study intersections were modeled using Sidra Intersection 11 software.

The LOS, delay, and v/c results of the capacity analysis are shown in Table 4 for the AM and PM peak hours. Detailed capacity calculations as well as the LOS grading descriptions and corresponding delays are included in the appendix to this report.

Table 4 – Intersection Capacity Analysis Summary

Analysis Scenario	AM Peak Hour			PM Peak Hour		
	LOS	Delay (s)	v/c	LOS	Delay (s)	v/c
1. NE 179th Street at NE 15th Avenue						
2025/2026 Existing Conditions	A	5	0.37	A	6	0.41
2028 Pre-Development Conditions[1]	A	8	0.42	A	8	0.49
2028 Post-Development Conditions[1]	A	8	0.42	A	8	0.49
2. NE 179th Street at NE 29th Avenue						
2025/2026 Existing Conditions	A	9	0.29	B	11	0.46
2028 Pre-Development Conditions[1]	A	7	0.53	A	7	0.67
2028 Post-Development Conditions[1]	A	7	0.54	A	7	0.68
3. Site Access at NE 179th Street						
2028 Pre-Development Conditions	C	15	0.15	C	19	0.14
2028 Post-Development Conditions	C	16	0.18	C	20	0.17

Table Notes: ***BOLDED*** *text indicates intersection operation above jurisdictional standards.*

[1] *Intersection analyzed as a roundabout.*

Based on the results of the operational analysis, all study intersections are currently operating acceptably per Clark County standards and are projected to continue operating acceptably through the 2028 development year of the site. No operational mitigation is necessary or recommended at the study intersections as part of the proposed development application.

Roadway Capacity Analysis

In accordance with Clark County Code Section *40.350.020(G) – Level of Service Standards*, a capacity analysis was conducted for roadway segments within the analysis area of the site. The code section requires all Collector and Arterial roadway segments located within the Vancouver Urban Growth Area, but outside Vancouver city limits, as well as state highways of regional significance to have a maximum v/c ratio no greater than 0.90, measured independently for each direction of travel. Roadway volumes were determined utilizing the 2028 post-development volumes during the AM and PM peak hours. Roadway capacities were referenced from Table 40.350.020-1 of the Clark County code based on the County roadway designation and classification.

The results of the roadway capacity analysis for the projected year 2028 post-development traffic volumes are shown in Table 5. The maximum calculated v/c ratio along each roadway segment is reported for both the AM and PM peak hours.

Table 5 – Roadway Capacity Analysis Summary

Roadway	From	To	Classification	Capacity (veh/hr)	V/C			
					AM		PM	
NE 179th Street	NE 10th Avenue	NE 15th Avenue	Pr-4cb	1,800	0.334	EB	0.763	EB
					0.614	WB	0.477	WB
	NE 15th Avenue	NE 23rd Avenue	Pr-4cb	1,800	0.211	EB	0.496	EB
					0.433	WB	0.364	WB
	NE 23rd Avenue	NE 29th Avenue	Pr-4cb	1,800	0.210	EB	0.431	EB
					0.334	WB	0.332	WB
	NE 29th Avenue	NE 47th Avenue	Pr-4cb	1,800	0.198	EB	0.416	EB
					0.329	WB	0.318	WB
NE 10th Avenue	NE 189th Street	NE 179th Street	M-2cb	900	0.447	NB	**0.922**	NB
					0.673	SB	0.554	SB
NE 15th Avenue	NE 179th Street	NE 173rd Street	M-2cb	900	0.248	NB	0.499	NB
					0.359	SB	0.440	SB
NE 29th Avenue	NE 189th Street	NE 179th Street	M-4cb	1,800	0.066	NB	0.144	NB
					0.106	SB	0.092	SB
	NE 179th Street	NE 159th Street	M-2cb	900	0.138	NB	0.286	NB
					0.239	SB	0.181	SB

Table Notes: ***BOLDED*** *text indicates a roadway capacity in excess of 0.90.*

Based on the results of the roadway capacity analysis, the roadway segment of NE 10th Avenue between NE 179th Street and NE 189th Street is projected to exceed Clark County's roadway segment v/c ratio threshold under year 2028 conditions. Although projected to operate with a v/c ratio in excess of 0.90 during the PM peak hour, no mitigation as part of the proposed development application is recommended for the following reasons:

- During the PM peak hour, the northbound travel direction of the roadway segment operates with a v/c ratio of 0.922 and the southbound direction operates with an acceptable v/c ratio of 0.554. The proposed development is projected to add 0 PM peak hour trips to the northbound travel direction of the roadway segment. Therefore, the proposed development will not impact or increase the v/c ratio of the high demand travel direction of NE 10th Avenue. Since no nexus of impact from the proposed development to the high demand travel direction on the NE 10th Avenue corridor can be established, no mitigation can be required as part of the proposed development application per the Nollan-Dolan test.
- The study intersection of NE 179th Street at NE 15th Avenue is projected to operate at LOS A during the AM and PM peak hours under year 2028 post-development conditions. Therefore, the high roadway v/c ratio is not expected to create operational issues at the relevant/applicable study intersections.
- According to the HCM 7th Edition, two-lane roadways generally have a base single-direction capacity of 1,700 passenger cars per hour per lane (pcphpl), though this capacity can vary depending on other factors such as roadway geometry, traffic characteristics, etc. The single-direction capacities detailed in Table 40.350.020-1 of the Clark County code utilize a similar single-direction capacity but may take into consideration how signalized intersections or other traffic controls along a corridor influence traffic flow/capacity along a roadway, as described in the Federal Highway Administration's (FHWA) *Simplified Highway Capacity Calculation Method for the Highway Performance Monitoring System*[5]. Therefore, when reviewing the corridor alone using this base 1,700 pcphpl without the influence of intermittent signalized intersections, no capacity issues are expected along NE 10th Avenue.

All other relevant roadway segments are projected to operate acceptably per Clark County standards through the 2028 development year of the site during both the AM and PM peak hours. No roadway capacity-related mitigation is necessary or recommended as part of the proposed development application.

[5] Federal Highway Administration. (2017). *Simplified Highway Capacity Calculation Method for the Highway Performance Monitoring System* (Report No. PL-18-003). U.S. Department of Transportation. https://www.fhwa.dot.gov/policyinformation/pubs/pl18003/hpms_cap.pdf.

Section E – Safety Analysis

Crash History Review

Using data obtained from the Washington Department of Transportation (WSDOT) Crash Data and Reporting Branch, a review of the most recent available five to six years of crash history (January 2020 through late June 2025) at the study intersections was performed. The crash data was evaluated based on the number of crashes, the type of collisions, the severity of the collisions, and the resulting crash rate for the intersection.

Crash rates provide the ability to compare safety risks at different intersections by accounting for both the number of crashes that have occurred during the analysis period and the number of vehicles that typically travel through the intersection. Crash rates were calculated using the common assumption that traffic counted during the PM peak hour represents approximately 10 percent of the annual average daily traffic (AADT) at the intersection. Crash rates in excess of 1.00 crashes per million entering vehicles (CMEV) may be indicative of design deficiencies and therefore require a need for further investigation and possible mitigation.

Regarding crash severity, WSDOT classifies crashes in the following categories:

- No Apparent Injury (NA)
- Possible Injury (P)
- Suspected Minor Injury (SM)
- Suspected Serious Injury (SS)
- Fatality or Fatal Injury

Table 6 provides a summary of crash types while Table 7 summarizes crash severities and rates for each of the applicable study intersections. Crash data is included in the technical appendix to this report.

Table 6 – Crash Type Summary

No.	Intersection	Crash Type						Total
		Rear End	Turn/ Angle	Fixed Object	Side swipe	Ped/ Bike	Other	
1	NE 179th Street at NE 15th Avenue	0	5	0	0	0	0	5
2	NE 179th Street at NE 29th Avenue	1	14	0	0	0	0	15

Table 7 – Crash Severity and Rate Summary

No.	Intersection	Crash Severity						Total Crashes	AADT	Crash Rate
		NA	P	SM	SS	Fatal	Unknown			
1	NE 179th Street at NE 15th Avenue	4	1	0	0	0	0	5	9,100	0.27
2	NE 179th Street at NE 29th Avenue	9	4	1	1	0	0	15	7,170	**1.04**

Table Notes: ***BOLDED*** *text indicates a crash rate in excess of 1.00 CMEV.*

Per Table 7, the intersection of NE 179th Street at NE 29th Avenue had one reported crash that was classified as *Suspected Serious Injury*. The crash occurred when the driver of a northbound left-turning passenger car failed to yield right-of-way to a westbound passenger car. One person involved in the collision was reported to have sustained injuries.

Additionally, the intersection of NE 179th Street at NE 29th Avenue was found to have a crash rate in excess of 1.00 CMEV. All but one of the reported collisions at the intersection were either turning movement or angle type crashes. The intersection is currently undergoing reconstruction as a roundabout. Per WSDOT's Traffic Safety Methods website[6] roundabouts often reduce the overall number of recurring crashes at signalized and stop-controlled intersections by approximately 37 percent. Therefore, the overall crash rate at the intersection is expected to decrease to approximately 0.66 CMEV after this intersection improvement has been constructed. No additional mitigation is necessary or recommended.

Based on a review of the crash data, no significant trends or crash patterns were identified at any of the study intersections beyond the intersection of NE 179th Street at NE 29th Avenue that are indicative of safety concerns. The intersection of NE 179th Street at NE 29th Avenue is currently being reconstructed as a roundabout, which is expected to reduce the overall number of recurring crashes at the intersection. No other crash-related mitigation is necessary or recommended as part of the Avery Drive application.

[6] Washington State Department of Transportation. (n.d.). *Roundabouts*. Washington State Department of Transportation. https://wsdot.wa.gov/travel/traffic-safety-methods/roundabouts.

Section F – Warrant Analysis

Left-turn lane warrants were examined for the site access intersection of NE 179th Street at NE 35th Avenue. A left-turn refuge lane is primarily a safety consideration for the major street, removing left-turning vehicles from the through traffic stream. To evaluate left-turn lane warrants, section *1310.02(13) Left-Turn Lanes and Turn Radii* and *Exhibit 1310-9 Left-Turn Storage Guidelines: Two-Lane, Unsignalized* from the WSDOT Design Manual were referenced. Turn lane warrants were evaluated based on the number of advancing and opposing vehicles, the number of turning vehicles, the travel speed, and the number of through lanes.

Based on traffic volumes alone, an eastbound left-turn lane is projected to be warranted at the intersection of NE 179th Street at NE 35th Avenue during the PM peak hour under year 2028 pre-development conditions. Although a left-turn lane is warranted based on volumes, installation of this turn lane is not necessary or recommended based on the following:

- According to the *Northeast 179th Street Corridor Improvements* project, the segment of NE 179th Street between NE 15th Avenue and NE 50th Avenue will be widened to a four to five-lane cross-section with raised medians installed as needed. This will subsequently restrict access to/from NE 35th Avenue to right-turns only. Based on correspondence with Clark County staff, this widening project is expected to occur near year 2031, approximately three years after the proposed development is expected to be constructed and occupied. Considering this short time period between installing a left-turn lane relative to the eventual restriction of left-turn movements at the intersection, installation of the temporary turn lane is not expected to have a long-term benefit that outweighs the time and cost of installation.
- According to section 1310.02(13)(a) of the WSDOT Design Manual, in addition to evaluating traffic volumes WSDOT also considers other factors on whether a left-turn lane should be installed at an unsignalized intersection. Some of these factors which suggest a left-turn lane is not required include the following:
    - As described in Section D of this report, the intersection is projected to operate acceptably at LOS C without the turn lane installed.
    - Referring to Section G regarding a safety analysis that was performed to address the Medians and Channelization Policy, limited to no crashes are expected to occur at the intersection of NE 179th Street at NE 35th Avenue.

- Left-turn lane warrants based on volumes alone were found to be met without trip impacts from the Avery Drive development. Instead, the volumes that trigger the need for a left-turn lane are generated by the prior approved Mill Creek Terrace subdivision to the south. When considering the future widening project along NE 179th Street and other criteria related to the installation of a turn lane at the NE 179th Street at NE 35th Avenue intersection, an eastbound left-turn lane was determined to be unnecessary with the Mill Creek Terrace project. It is reasonable to conclude such a determination would be appropriate to apply to the proposed Avery Drive subdivision.

Exhibit 1310-9 from the WSDOT Design Manual is included in the appendix to this report.

Section G – Medians and Channelization Policy

Since NE 179th Street is classified as an Urban Minor Arterial roadway, Clark County's Medians and Channelization Policy requires a raised median be constructed at the intersection of NE 179th Street at NE 35th Avenue (Site Access). Clark County Code Section 40.350.030.B.4.d.(3) states that "*In order to preserve capacity and promote safety, urban arterials shall generally include raised medians to restrict cross traffic movements.*" The code section further states that "*any decision by the county that a raised median will not be installed on an arterial will require a specific determination by the County Engineer that (a) the roadway will operate safely without a raised median and (b) that the roadway will operate at the required capacity without a raised median*."

With regard to restricting cross traffic, NE 179th Street at NE 35th Avenue is a three-legged intersection with no south intersection leg. Therefore, no cross-traffic travel can occur through the intersection in the north/south directions. Subsections (a) and (b) of the Medians and Channelization Policy are further investigated below under the Roadway Safety and Roadway Capacity subheadings, respectively.

Roadway Safety

For addressing subsection (a), to determine the relative safety of the roadway without a raised median an analysis of crash history and sight distance was conducted.

Crash Analysis

To evaluate safety at the intersection of NE 179th Street at NE 35th Avenue without a raised median, crash data from WSDOT's online Crash Data Portal[7] was referenced. Since the intersection has recently been constructed, limited to no crash history is expected to be available at this intersection. Therefore, crash data was evaluated at a comparable three-legged unsignalized intersection without a raised median, specifically the intersection of NE 179th Street at NE 47th Avenue. Crash data at this intersection was reviewed over a three-year period between January 2023 through December 2025, noting the intersection had been constructed between years 2022 and 2023.

According to WSDOT's Crash Data Portal, no crashes were reported to have occurred at the intersection of NE 179th Street at NE 47th Avenue over the three-year analysis period. With respect to crash history, the intersection of NE 179th Street at NE 47th Avenue operates safely, and by comparison the intersection of NE 179th Street at NE 35th Avenue is also expected to operate safely without a raised median.

[7] Washington State Department of Transportation. (n.d.). *Crash Data Portal*. https://remoteapps.wsdot.wa.gov/highwaysafety/collision/data/portal/public/ .

Sight Distance Analysis

The intersection of NE 179th Street at NE 35th Avenue has recently been constructed as part of the Mill Creek Terrace residential development. As part of the preliminary and final land use approval process, the Mill Creek Terrace project would have had to review intersection and stopping sight distances at the intersection of NE 179th Street at NE 35th Avenue and found both to meet minimum standards. Therefore, it is expected that adequate intersection and stopping sight distances are available at the intersection to allow for safe and efficient operation without a raised median.

Safety Analysis Findings

Based on a review of crash history and sight distances at the NE 179th Street at NE 35th Avenue intersection, NE 179th Street is expected to operate safely without a raised median through the intersection. Accordingly, subsection (a) is satisfied.

Roadway Capacity

Regarding subsection (b), to determine operation of the roadway/intersection without a raised median an analysis of intersection and roadway capacity were conducted.

Referring to Section D of this study, under future year 2028 post-development conditions the intersection of NE 179th Street at NE 35th Avenue is projected to operate at LOS C with a v/c ratio of 0.18 or less during the AM and PM peak hours. Based on a roadway capacity analysis, the segment of NE 179th Street, between NE 29th Avenue and NE 47th Avenue, is projected to operate with a v/c ratio of 0.416 or less during the AM and PM peak hours.

Based on the capacity analysis, the intersection of NE 179th Street at NE 35th Avenue is projected to operate within acceptable Clark County standards without a raised median through the intersection. Accordingly, subsection (b) is satisfied.

Other Considerations

Under existing conditions NE 179th Street has a varying two to three-lane cross-section without a raised median for over a one-mile distance to the east and west of the site. Therefore, it is expected that the roadway within the immediate vicinity of the site will operate safely and with sufficient capacity without a raised median.

According to TIP Project 2, NE 179th Street is planned for widening to a four to five-lane cross-section between NE 29th Avenue and NE 50th Avenue with the installation of a raised median as needed. Construction is estimated to occur approximately around year 2031. Once reconstruction of the roadway occurs, it is recommended the County evaluate whether a raised median or a turn lane be installed at the intersection.

Analysis Summary

Based on the findings presented above, the installation of a raised median at the intersection of NE 179th Street at NE 35th Avenue is not necessary for the roadway in the immediate future to operate safely or within acceptable levels of capacity per Clark County standards. Therefore, the County may approve the proposed development without the installation of a raised median through this intersection.

Section H – Circulation Plan

In accordance with Clark County's Unified Development Code section *40.350.030.B.2 Circulation Plan*, a Circulation Plan was prepared to verify if the County's block length/perimeter standards can be met following buildout of the proposed subdivision, and to evaluate the nearby transportation system/facilities within 600 feet of the site.

Per Clark County's code, block lengths shall be between 100 feet to 800 feet, measured between the nearside right-of-way lines between public roadways. The block perimeter shall not exceed 3,200 feet unless an accessway(s) for pedestrian or bicycle circulation is provided where topographic or other physical constraints preclude meeting the perimeter standard.

Based on the existing transportation infrastructure surrounding the project site, block length and perimeter standards were evaluated for the area enclosed by the following roadways:

- NE 179th Street (Urban Principal Arterial)
- NE 199th Street (Urban Minor Arterial)
- NE 29th Avenue (Urban Minor Arterial)
- NE 50th Avenue (Urban Minor Arterial)

Upon reviewing the impacted block area, the current block perimeter was measured to be in excess of 3,200 feet. The current block lengths were measured to be in excess of 800 feet except for the segments of NE 179th Street between NE 44th Avenue and NE 50th Avenue. Although block perimeter and length standards are currently not met for the existing block which surrounds the site, the proposed development will be constructing site internal public streets which will improve connectivity and promote a completed street network in the vicinity. Block perimeter standards can generally be met in the future; however, this is contingent on additional development of lower density/undeveloped properties in the area. Since the Avery Drive project will be expanding the public street network and does not introduce a street layout which precludes development or connectivity for other adjacent properties to the north, south, and east of the site, no further mitigation or improvements to the transportation system with respect to cross-circulation standards are necessary or recommended.

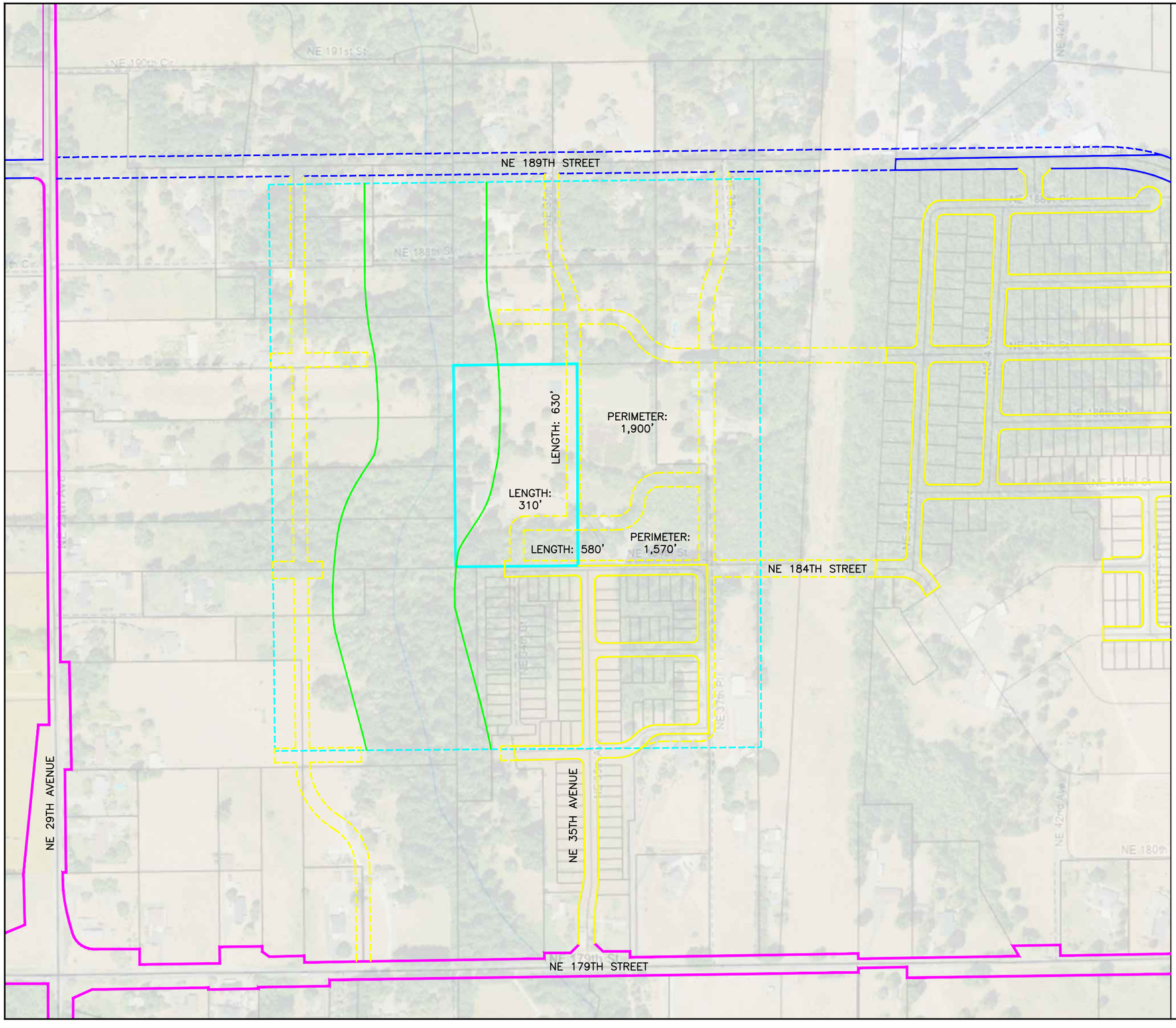
Note that connectivity with properties to the west of the project site cannot reasonably be provided due to an off-site stream and associated buffer areas and steep slopes. These topographic and physical constraints preclude the practical construction of east/west streets across the steam without potentially creating unnecessary environmental impacts and financial costs to future development in the area. A road modification memorandum was prepared and submitted under a separate document which seeks an exception to cross-circulation standards with respect to these adjacent properties to the west.

A circulation plan detailing the nearby transportation system to the project site is shown on the following page.

FIGURE 7

AVERY DRIVE

CIRCULATION PLAN



LEGEND

- PROJECT SITE
- PROJECT BOUNDARY AREA (600')
- EXISTING STREET CONFIGURATION
- PLANNED/POTENTIAL STREET CONFIGURATION
- STREAM BUFFER LINE (200' FROM STREAM)
- COLLECTOR STREET
- ARTERIAL STREET

0' 200' 400' 600'

NOT TO SCALE

PLS ENGINEERING

Conclusions

- All study intersections are currently operating acceptably per Clark County standards and are projected to continue operating acceptably through the 2028 development year of the site. No operational mitigation is necessary or recommended at the study intersections as part of the proposed development application.
- The roadway segment of NE 10th Avenue between NE 179th Street and NE 189th Street is projected to exceed Clark County's roadway segment v/c ratio threshold under year 2028 conditions during the PM peak hour. However, no mitigation as part of the proposed development application is recommended for the following reasons:
    - The proposed development is projected to add 0 PM peak hour trips to the high demand travel direction of the roadway segment, and therefore, will not impact or increase the v/c ratio along NE 10th Avenue.
    - The study intersection of NE 179th Street at NE 15th Avenue is projected to operate at LOS A during the AM and PM peak hours under year 2028 post-development conditions. The high roadway v/c ratio is not expected to create operational issues at the relevant/applicable study intersections.
    - Two-lane roadways generally have a base single-direction capacity of 1,700 pcphpl. The single-direction capacities detailed in Table 40.350.020-1 of the Clark County code utilize a similar single-direction capacity but may take into consideration how signalized intersections or other traffic controls along a corridor influence traffic flow/capacity along a roadway. When reviewing the corridor alone using this base 1,700 pcphpl, no capacity issues are expected along NE 10th Avenue.
- All other relevant roadway segments are projected to operate acceptably per Clark County standards through the 2028 development year of the site during both the AM and PM peak hours. No roadway capacity-related mitigation is necessary or recommended as part of the proposed development application.
- No significant trends or crash patterns were identified at any of the study intersections beyond the intersection of NE 179th Street at NE 29th Avenue that are indicative of safety concerns. The intersection of NE 179th Street at NE 29th Avenue is currently being reconstructed as a roundabout, which is expected to reduce the overall number of recurring crashes at the intersection. No other crash-related mitigation is necessary or recommended as part of the Avery Drive application.

- Based on traffic volumes alone, an eastbound left-turn lane is projected to be warranted at the intersection of NE 179th Street at NE 35th Avenue during the PM peak hour under year 2028 pre-development conditions. Although a left-turn lane is warranted based on volumes, installation of this turn lane is not necessary or recommended at the intersection based on the following:
    - The segment of NE 179th Street between NE 15th Avenue and NE 50th Avenue will be widened with raised medians installed near year 2031, approximately three years after the proposed development is constructed and occupied. The installation of a temporary turn lane is not expected to have a long-term benefit that outweighs the time and cost of installation.
    - In addition to evaluating traffic volumes WSDOT also considers other factors on whether a left-turn lane should be installed at an unsignalized intersection. The following suggest a left-turn lane is unnecessary at the intersection:
        - The intersection is projected to operate acceptably at LOS C without the turn lane installed.
        - Limited to no crashes are expected to occur at the intersection of NE 179th Street at NE 35th Avenue.
    - There are currently no left-turn lanes installed along the NE 179th Street corridor between NE Union and NE 47th Avenue
    - When considering the above, an eastbound left-turn lane was determined to be unnecessary with approval of the Mill Creek Terrace project. It is reasonable to conclude such a determination would be appropriate to apply to the proposed Avery Drive subdivision.
- The installation of a raised median at the intersection of NE 179th Street at NE 35th Avenue is not necessary for the roadway in the immediate future to operate safely or within acceptable levels of capacity per Clark County standards. Therefore, the County may approve the proposed development without the installation of a raised median through this intersection.
- Although block perimeter and length standards are currently not met for the existing block which surrounds the site, the proposed development will be constructing site internal public streets which will improve connectivity and promote a completed street network in the vicinity. Block perimeter standards can be met in the future; however, this is contingent on additional development of lower density/undeveloped properties in the area. Since the Avery Drive project will be expanding the public street network and does not introduce a street layout which precludes future blocks from meeting required length or perimeter standards, no further mitigation or improvements to the transportation system with respect to cross-circulation standards are necessary or recommended.

APPENDIX A – SCOPING MATERIALS

Scoping Memorandum
Scoping Email Response

PLS ENGINEERING
ENGINEERING | SURVEYING | PLANNING
604 W EVERGREEN BLVD, VANCOUVER, WA 98660
P 360.944.6519 | F 360.944.6539 | PLSENGINEERING.COM

To: Craig Kathol, Clark County

From: Daniel Stumpf, PE

Date: 1/6/2026

RE: Avery Drive (PAC-2025-00390)
Transportation Scoping Memorandum

Introduction

This memorandum details a proposed scope of work for a Transportation Impact Study (TIS) related to the Avery Drive subdivision project. The project site is located on a single property (assessor parcel 181513000) addressed at 3504 NE 184th Street in unincorporated Clark County, Washington. The proposal will include the construction of a 23 single-family detached housing development. As part of this proposal one existing house will be maintained, whereby a net of 22 houses will be constructed. Access to the site will be provided via a planned north/south roadway (i.e., NE 35th Avenue) that will be constructed between the project site and NE 179th Street as part of the in-process Mill Creek Terrace Subdivision.

Site Trips

Trip Generation

The proposed Avery Drive subdivision project will include the construction of 22 single-family detached houses while maintaining one existing house for a net total of 23 houses. To estimate the number of trips that are and will be generated by the existing and proposed uses, trip rates from the *Trip Generation Manual, 12th Edition*[1] were used. Data from land use code 210, Single-Family Detached Housing, was used to estimate site trip generation based on the number of dwelling units.

The trip generation calculations show that the proposed subdivision is projected to generate 15 net new AM peak hour trips, 20 net new PM peak hour trips, and 200 net new average weekday trips. The trip generation estimates are summarized in Table 1. Detailed trip generation calculations are included in the technical appendix.

[1] Institute of Transportation Engineers (ITE), *Trip Generation Manual*, 12th Edition, 2025.

Table 1 – Site Trip Generation Summary

ITE Land Use Code		Variable	AM Peak Hour			PM Peak Hour			Weekday Total
			Enter	Exit	Total	Enter	Exit	Total	
Existing Conditions									
210	Single-Family Detached Housing	1 units	0	1	1	1	0	1	9
Proposed Conditions									
210	Single-Family Detached Housing	23 units	4	12	16	13	8	21	209
Net Change In Site Trip Generation									
Net New Trips			**4**	**11**	**15**	**12**	**8**	**20**	**200**

Trip Distribution

The trip distribution used for the proposed development was referenced from the *Mill Creek PUD Transportation Impact Analysis* (TIA), dated March 2018, which was prepared for the Woodbrook Subdivision. According to the TIA, the trip distribution was derived using the Southwest Washington Regional Transportation Council (RTC) transportation system model. Both the Woodbrook Subdivision and the project site are located in Transportation Analysis Zone (TAZ) #1982 (formerly #547), for which a select zone analysis was run to determine the distribution of site trips entering and exiting the zone. The following trip distribution is projected:

The following trip distribution is estimated:

- Approximately 36% of site trips will travel to/from the west along NE 179th Street, west of NE 15th Avenue.
- Approximately 22% of site trips will travel to/from the south along NE 29th Avenue, south of NE 179th Street.
- Approximately 14% of site trips will travel to/from the north along NE 10th Avenue (realigned opposite NE 15th Avenue), north of NE 179th Street.
- Approximately 13% of site trips will travel to/from the east along NE 179th Street, east of NE 50th Avenue.
- Approximately 7% of site trips will travel to/from the north along NE 50th Avenue, north of NE 199th Street.
- Approximately 5% of site trips will travel to/from the east along NE 199th Street, east of NE 50th Avenue.

- Approximately 2% of site trips will travel to/from the south along NE 50th Avenue, south of NE 174th Street.
- Approximately 1% of site trips will travel to/from the south along NE 15th Avenue, south of NE 179th Street.

Figure A in the attachments depicts the site trip distribution and assignment during the AM and PM peak hours.

Proposed Study Intersections

According to the project's Pre-Application Final Report:

> *Any development generating 10 or more peak hour trips is required to complete a transportation impact study. A general outline is provided in the concurrency administrative manual. A traffic impact study shall analyze impacts according to the following:*
>
> *- 50 or less new peak hour trips; one mile from site*
>
> *- 51-250 new peak hour trips; two miles from the site*
>
> *- 251 or more new peak hour trips; three miles from the site*

Based on the projected trips generated, the preliminary trip distribution, and the anticipated impacts to the transportation system, the following study intersections are suggested for analysis (refer to Figure A for the numbering convention of listed intersections):

1. NE 179th Street at NE 15th Avenue
5. NE 179th Street at NE 29th Avenue
6. NE 179th Street at NE 35th Avenue (Site Access)

Although considered higher classification intersections within a one-mile radius of the site, the following regionally significant intersections are not recommended for analysis, with explanations for removal provided:

The following intersections will either experience no site trip impacts or will be impacted by less than 5 peak hour trips. Therefore, no mitigation can be required as part of the application per Clark County Unified Development Code 40.350.020.G.1.c., not-with-standing safety improvements which may be necessary per section 40.350.030(B)(6):

2. NE 199th Street at NE 29th Avenue – No Impact
3. NE 194th Street at NE 29th Avenue – No Impact
4. NE 189th Street at NE 29th Avenue – No Impact
8. NE 199th Street at NE 50th Avenue – 2 AM and 2 PM peak hour trips
10. NE 174th Street at NE 50th Avenue – No Impact

Although the following intersections will be impacted by at least 5 peak hour trips, the minor-street approach will not experience an increase in AM or PM peak hour trips. Therefore, no mitigation can be required at this intersection as part of the application per Clark County Unified Development Code 40.350.020.G.1.c., not-with-standing safety improvements which may be necessary per section 40.350.030(B)(6):

7. NE 179th Street at NE 47th Avenue – 4 AM and 5 PM peak hour trips
9. NE 179th Street at NE 50th Avenue – 4 AM and 5 PM peak hour trips

Other Considerations

Please provide in-process development data which should be incorporated in the TIS. If available, the traffic studies for these projects are requested.

PLS Engineering currently has access to data for the following projects (please let me know if any of the following can be removed):

- 179th Street Commercial Center Phase 1 & 2 (located at/near 17714 NE 14th Avenue)
- DSHS NE 50th Clark County Behavioral Health (PSR-2021-00183)
- Emerald Grove Subdivision (located at/near 15810 NW 11th Avenue)
- M&H Subdivision (25% built, 75% in-process, located at/near 3801 NE 174th Street)
- Majestic Industrial Centre (located at/near 15017 NE 10th Avenue)
- Maletis Distribution Center (located at/near 16101 NE 10th Avenue)
- Martin's Meadow Subdivision (50% built, 50% in-process, located at/near 1114 NW 150th Street)
- Mill Creek Meadows (PLD-2024-00092)
- Mill Creek Terrace (PLD-2024-00015)

- Mountain Estates Cluster Subdivision (PLD-2017-00046)
- Mountain View Ridge PUD (PLD-2023-00053)
- Mt Vista Logistics (PSR-2023-00008)
- NE 29th Avenue Subdivision (located at/near 18216 NE 29th Avenue)
- North Haven Subdivision (90% built, 10% in-process, located at/near 807 NW 179th Street)
- Skyview Station East (PLD-2018-00034)
- South Ridge Central Apartments (PSR-2023-00158)
- The Highlands at Whipple Creek (located at/near 818 NW 173rd Circle)
- Three Creeks North Phase 1 & 2 (located at/near 18701 NE 10th Avenue)
- Trails at Whipple Creek Subdivision (55% built, 45% in-process, located at/near 1214 NW 166th Way)
- Viers Subdivision (assessor parcel 181682000)
- Washington State University Master Plan (located at/near 14204 NE Salmon Creek Avenue)
- Whipple Creek Village Subdivision (95% built, 5% in-process, located at/near 17603 NE 17th Avenue)
- Woodbrook Subdivision (aka Mill Creek PUD, 40% built, 60% in-process, located at/near 4519 NE 183rd Street)

Conclusions

Based on the projected trips generated, the preliminary trip distribution, and the anticipated impacts to the transportation system, the following study intersections are suggested for analysis:

1. NE 179th Street at NE 15th Avenue
5. NE 179th Street at NE 29th Avenue
6. NE 179th Street at NE 35th Avenue (Site Access)

Please confirm if the above study area is sufficient for the TIS. Also, please confirm the following:

- In addition to those listed above, are there any other in-process development projects that should be incorporated in the TIS? If yes, could their traffic studies be provided?

If you have any questions regarding the preparation of this scoping memorandum, please don't hesitate to contact us.

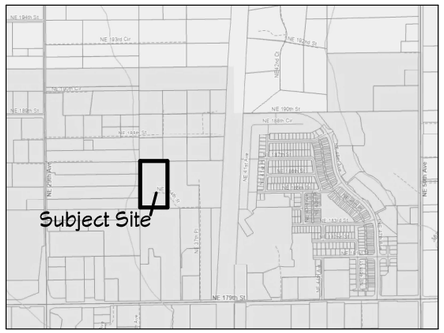
Attachments

- Preliminary Site Plan
- Site Trip Distribution and Assignment (Figure A)
- Trip Generation Calculations
- Woodbrook Subdivision Trip Distribution Figure

Avery Drive

A Subdivision In The
SW ¼ of Section 12, T3N R1E WM
County Parcel #(s): **181513000**
Site Address: **3504 NE 184th Street**
Ridgefield, WA 98642
Site Size: ***+/- 6.17 acres (+/- 268,829sf)***

VICINITY MAP



Plan Checklist
Existing Conditions
Environmental/Critical Areas on site and within 100 fee of the site
- *Topography shown on this plan*
- *Water courses are shown on this plan*
- *There are no known areas designated 100 year flood plan on or within 100 feet of site*
- *There are no known water bodies or known wetlands on or within 100 feet of site*
- *There are no known unstable slopes on or within 100 feet of site*
- *Wildlife habitat is shown on this plan*
- *There are no known historic resources on or within 100 feet of site*

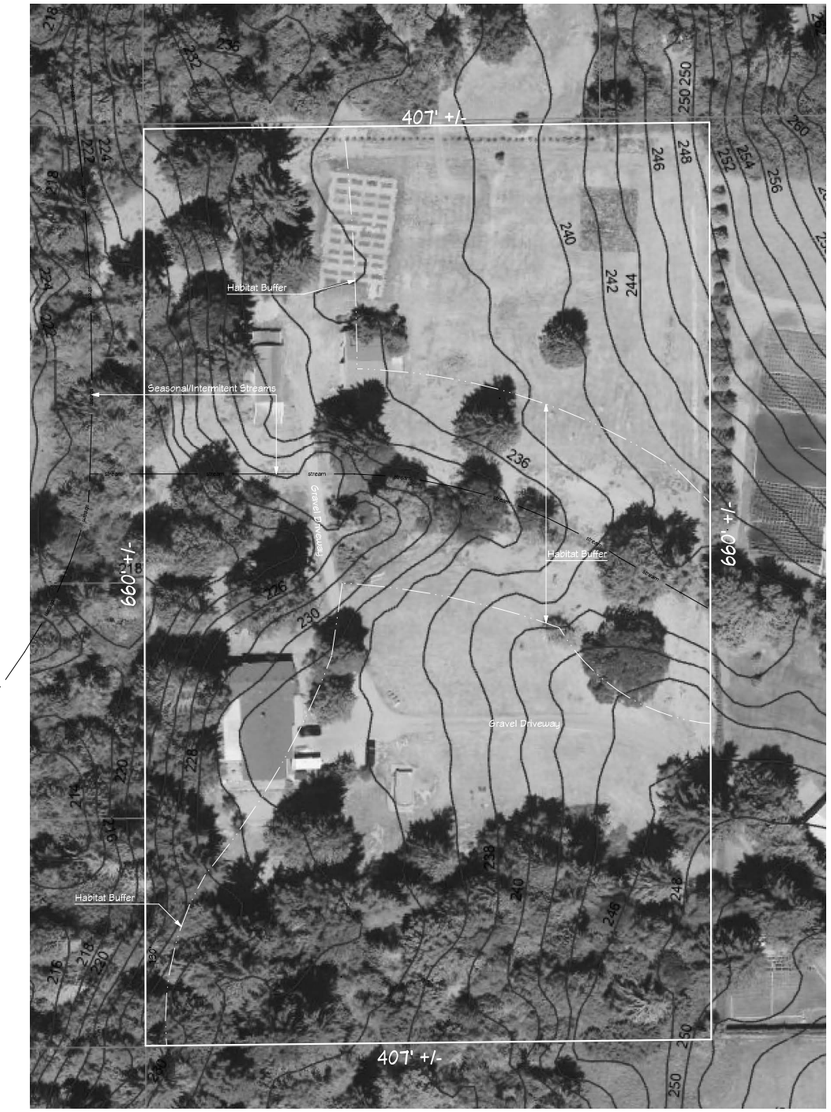
Land Use and Transportation
- *Existing parcels are shown and drawn to scale*
- *Locations of all existing buildings are shown on this plan*
- *Name, location and material of all roadways are shown on this plan*
- *There are no driveway locations across any frontages to be shown on this plan*
- *There are no known pedestrian or bicycle facilities on or within 100 feet of site*
- *There are no known transit stops on or within 1/4 mile feet of site*
- *There is an existing well and septic systems on site. Location unknown at time of application*

Proposed Improvements
Critical Environmental Areas
- There are Critical Environmental areas on site and shown on this plan

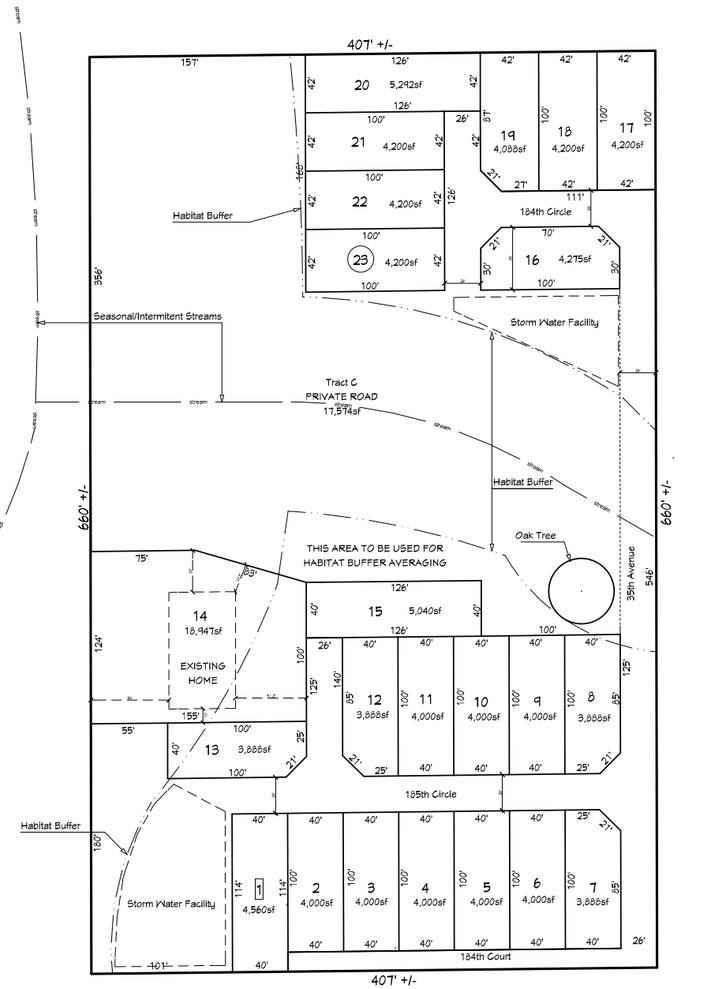
Land Use and Transportation
- This application and plan is designed utilizing the Compact Lot code under CCC. 40.260.072
- Total Gross = +/- 268,829 SF (+/- 6.17 acres)
- Total Net = +/- 110,443 SF (+/- 2.53 acres)
- Total Street Tracts, ROW and Critical Areas = +/- 158,386 SF (+/- 3.63acres
- All proposed easements shown on this plan
- All onsite roadways are proposed as a Private Road with a 26' easement consisting of 20 of paving, 0.5 of curb either side and 5' sidewalk on one side. 184th Court is proposed as a half width completion of what is proposed by the "Mill Creek Terrace" which is an "Urban Local Access" with 46' ROW consisting of; 26' of paving; 1' gutter either side; 0.5' curb either side; 3.5' planterstrip either side; 5' sidewalk either side.
- Easements are shown on this plan
- All lot configurations, dimensions etc., are shown on plan
  - - This plan proposed 23 lots, 1 lot with existing home and 22 new lots
  - - Smallest lot size including easement area is 3,888sf
  - - Largest lot size including easement area is 18,947sf
- The existing home and all existing structures are to remain on proposed lot 14. No other structures are proposed with this plan
- No landscaping, off street parking or loading areas are proposed besides the driveways for each new lot
- There are no septic systems or wells proposed with this plan

Stormwater
- All public and privat storm-water is proposed to be collected, treated, detained and released into existing drainages.

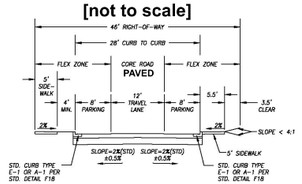
EXISTING CONDITIONS



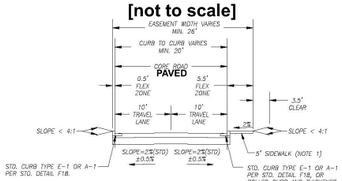
PROPOSED PLAN



DETAIL 1
NE 184th Court
[not to scale]



DETAIL 2
All Interior Roads
[not to scale]



CURRENT OWNERS
John and Sara Steinke
3504 NE 184th Street
Ridgefield, WA 98642
360-553-6120
johnrsteinke@gmail.com

N

0 50 100

DISCLAIMER:
This plan and design is based on available information from Clark County's GIS system. Dimensions, location of existing conditions such as structures, parcels, boundaries, etc., are deemed accurate, but are not guaranteed.

Avery Drive
A Subdivision In The
SW ¼ of Section 12, T3N R1E WM
County Parcel #(s): **181513000**
Site Address: **3504 NE 184th Street**
Ridgefield, WA 98642

Existing Conditions Plan
& Proposed Plan

APPLICANT:
Identity Homes, LLC
PO Box 823356
Vancouver, WA 98682
(360) 241-9915
bryan.identityhomes@gmail.com

CONTACT:
Wolfe Project Management, LLC
Mason Wolfe
2401 W Main Street, Suite 210
Battle Ground, Washington 98604
360-907-9588
mason@wolfepm.com

REVISION TABLE

#	DATE	REVISED BY

ORIGINAL DATE:
10/29/2025

SCALE:
1" = 50'

SHEET:
P-1

NET NEW SITE TRIP GENERATION			
ANALYSIS SCENARIO	PRIMARY TRIPS		TOTAL
	ENTER	EXIT	
AM PEAK HOUR	4	11	15
PM PEAK HOUR	12	8	20

AM PEAK HOUR

PM PEAK HOUR

NOT TO SCALE

FIGURE A

AVERY DRIVE

SITE TRIP ASSIGNMENT

AM & PM PEAK HOURS

PLS ENGINEERING

Trip Generation Calculations

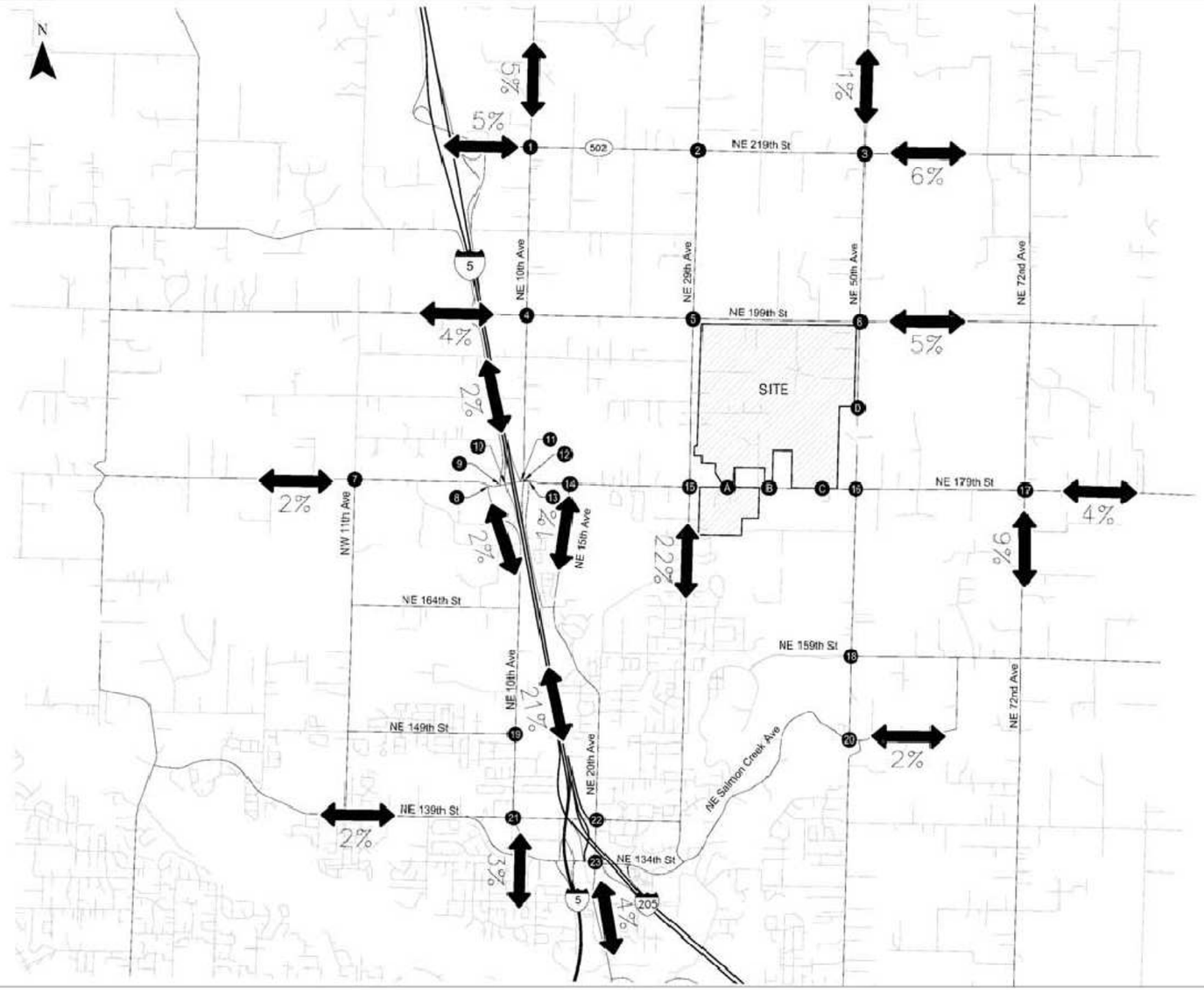
Source: Institute of Transportation Engineers (ITE) Trip Generation Manual, 12th Edition

Analysis Scenario: Existing Conditions
Land Use Code: 210, Single-Family Detached Housing
Subcategory: All Sites
Setting/Location General Urban/Suburban
Trip Type: Vehicle
Formula Type: Rate
Variable Type & Quanity: 1 Dwelling Units

Scenario	Trip Rate	Enter (*Percentage Split*)		Exit (*Percentage Split*)		Total
AM Peak Hour	0.70	0	*27%*	1	*73%*	1
PM Peak Hour	0.93	1	*62%*	0	*38%*	1
Weekday	9.09	5	*50%*	4	*50%*	9

Analysis Scenario: Proposed Conditions
Land Use Code: 210, Single-Family Detached Housing
Subcategory: All Sites
Setting/Location General Urban/Suburban
Trip Type: Vehicle
Formula Type: Rate
Variable Type & Quanity: 23 Dwelling Units

Scenario	Trip Rate	Enter (*Percentage Split*)		Exit (*Percentage Split*)		Total
AM Peak Hour	0.70	4	*27%*	12	*73%*	16
PM Peak Hour	0.93	13	*62%*	8	*38%*	21
Weekday	9.09	105	*50%*	104	*50%*	209



Estimated Trip Distribution Pattern
Clark County, Washington

Figure
10

Outlook

RE: Avery Drive (PAC-2025-00390) - Traffic Study Scoping

From Craig Kathol <Craig.Kathol@clark.wa.gov>
Date Fri 1/23/2026 9:15 AM
To Daniel Stumpf <daniels@plsengineering.com>
Cc David Jardin <David.Jardin@clark.wa.gov>

1 attachment (555 KB)
Three Creeks East trip gen-assign-dist.pdf;

Hi Daniel,

Sorry for the delay. I was actually preparing my response when you asked for a status update.

Please retain the three intersections indicated in your memo for analysis.

Please retain the following intersections for illustrative purposes only for trip assignments/distribution

- NE 199th Street/NE 29th Avenue
- NE 194th Street/NE 29th Avenue
- NE 189th Street/NE 29th Avenue
- NE 199th Street/NE 50th Avenue
- NE 174th Street/NE 50th Avenue
- NE 179th Street/NE 47th Avenue
- NE 179th Street/NE 50th Avenue

For the in-process developments, please use all of the in-process that I suggested for Roots Crossing (see below). There is also one more in-process development that you can add for Avery Drive that was outside of the study radius for Roots Crossing and that is Three Creeks East. I will attach the trip generation, assignment, and distribution for that development.

In-Process

- PLD-2025-00040 Four Creeks North Subdivision
- PLD-2025-00014 Kozy Manor Estates
- PLD-2026-00002 174th Street Subdivision
- M&H Subdivision
- Mill Creek Meadows
- Mill Creek Terrace
- Mountain Estates Cluster Subdivision
- Mountain View Ridge PUD
- Mt Vista Logistics
- NE 29th Avenue Subdivision
- South Ridge Central Apartments
- Three Creeks North Phase 1 & 2

- Viers Subdivision
- WSU Master Plan
- Mill Creek PUD
- **PLD-2025-00077 Three Creeks East Subdivision**

Please let me know if you have any questions.

Thank you,

Craig Kathol, E.I.T.
Transportation Concurrency Engineer
Clark County Public Works

Cell: 360.553.8247

From: Daniel Stumpf <daniels@plsengineering.com>
Sent: Friday, January 23, 2026 8:49 AM
To: Craig Kathol <Craig.Kathol@clark.wa.gov>
Cc: David Jardin <David.Jardin@clark.wa.gov>
Subject: Re: Avery Drive (PAC-2025-00390) - Traffic Study Scoping

EXTERNAL: This email originated from outside of Clark County. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Good morning Craig,

I wanted to check in for a status update on this scoping memo for Avery Drive (PAC-2025-00390). The scoping is similar to the Roots Crossing project, so I suspect your input may be roughly the same as that other project. The main differences are the access intersections we'll need to study and swapping out analysis of the 179th Street/50th Avenue intersection with 179th Street/15th Avenue.

Thanks and let me know if you have any questions.

Daniel

Daniel Stumpf, PE
Transportation Engineer
604 W. Evergreen Blvd, Vancouver, WA 98660
O: 360.944.6519 | **D**: 360.977.5509

From: Daniel Stumpf
Sent: Tuesday, January 6, 2026 1:39 PM
To: Craig Kathol <craig.kathol@clark.wa.gov>
Cc: David Jardin <david.jardin@clark.wa.gov>
Subject: Avery Drive (PAC-2025-00390) - Traffic Study Scoping

Hi Craig,

Here's that other project scoping email. This one is for Avery Drive which will include the development of a 23-lot subdivision at 3504 NE 184th Street. Similar to my last email, attached is a scoping memo for reference.

Please confirm if the following suggested study area is acceptable:

- NE 179th Street at NE 15th Avenue
- NE 179th Street at NE 29th Avenue
- NE 179th Street at NE 35th Avenue (Site Access)

I also placed a request for in-process data, but for simplicity the in-process data request is the same as the one made for Roots Crossing.

Let me know if you have any questions or need anything else.

Thanks!

Daniel

Daniel Stumpf, PE
Transportation Engineer
604 W. Evergreen Blvd, Vancouver, WA 98660
O: 360.944.6519 | **D**: 360.977.5509

APPENDIX B – SITE PLAN

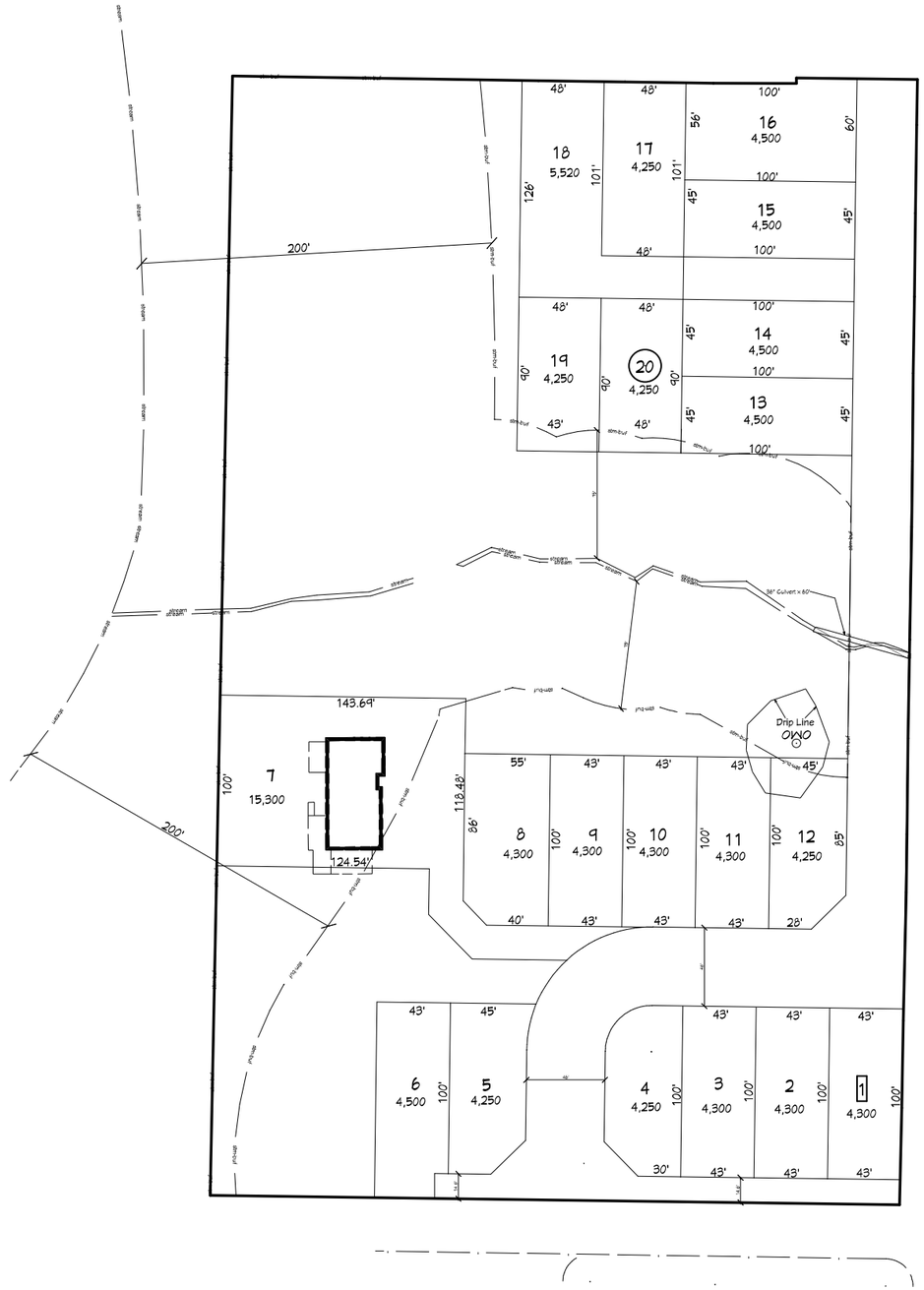
Site Plan

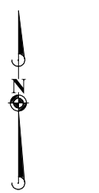
Avery Drive

A Subdivision In The
SW ¼ of Section 12, T3N R1E WM
County Parcel #(s): **181513000**
Site Address: **3504 NE 184th Street**
Ridgefield, WA 98642
Site Size: ***+/- 6.17 acres (+/- 268,829sf)***

VICINITY MAP







DISCLAIMER:
This plan and design is based on available information from Clark County's GIS system and Preliminary Survey performed by Northern Land Surveying, LLC. Dimensions, location of existing conditions such as structures, parcels, boundaries, etc., are deemed accurate, but are not guaranteed.

Avery Drive
A Subdivision In The
SW ¼ of Section 12, T3N R1E WM
County Parcel #(s): **181513000**
Site Address: **3504 NE 184th Street**
Ridgefield, WA 98642

Preliminary Plat

APPLICANT:
Identity Homes, LLC
PO Box 823356
Vancouver, WA 98682
(360) 241-9915
bryan.identityhomes@gmail.com

CONTACT:
Wolfe Project Management, LLC
Mason Wolfe
2401 W Main Street, Suite 210
Battle Ground, Washington 98604
360-907-9588
mason@wolfepm.com

REVISION TABLE		
#	DATE	REVISED BY

ORIGINAL DATE:
04/14/2026

SCALE:
1" = 40'

SHEET:
P-1

APPENDIX C – SITE TRIPS

Trip Generation Calculations
Mill Creek Terrace & Woodbrook Subdivision
Trip Distribution Figure

Trip Generation Calculations

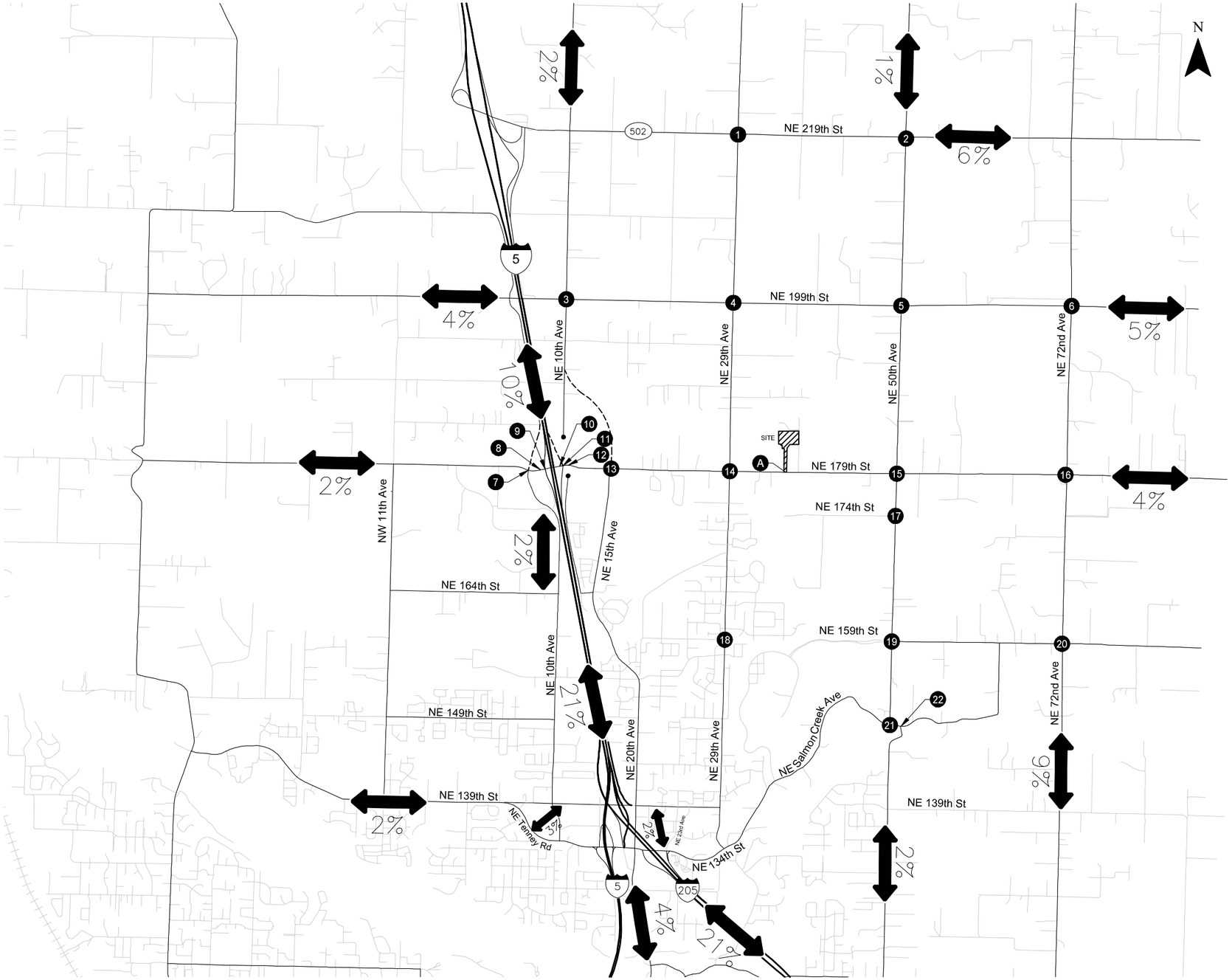
Source: Institute of Transportation Engineers (ITE) Trip Generation Manual, 12th Edition

Analysis Scenario: Existing Conditions
Land Use Code: 210, Single-Family Detached Housing
Subcategory: All Sites
Setting/Location General Urban/Suburban
Trip Type: Vehicle
Formula Type: Rate
Variable Type & Quanity: 1 Dwelling Units

Scenario	Trip Rate	Enter (*Percentage Split*)		Exit (*Percentage Split*)		Total
AM Peak Hour	0.70	0	*27%*	1	*73%*	1
PM Peak Hour	0.93	1	*62%*	0	*38%*	1
Weekday	9.09	5	*50%*	4	*50%*	9

Analysis Scenario: Proposed Conditions
Land Use Code: 210, Single-Family Detached Housing
Subcategory: All Sites
Setting/Location General Urban/Suburban
Trip Type: Vehicle
Formula Type: Rate
Variable Type & Quanity: 20 Dwelling Units

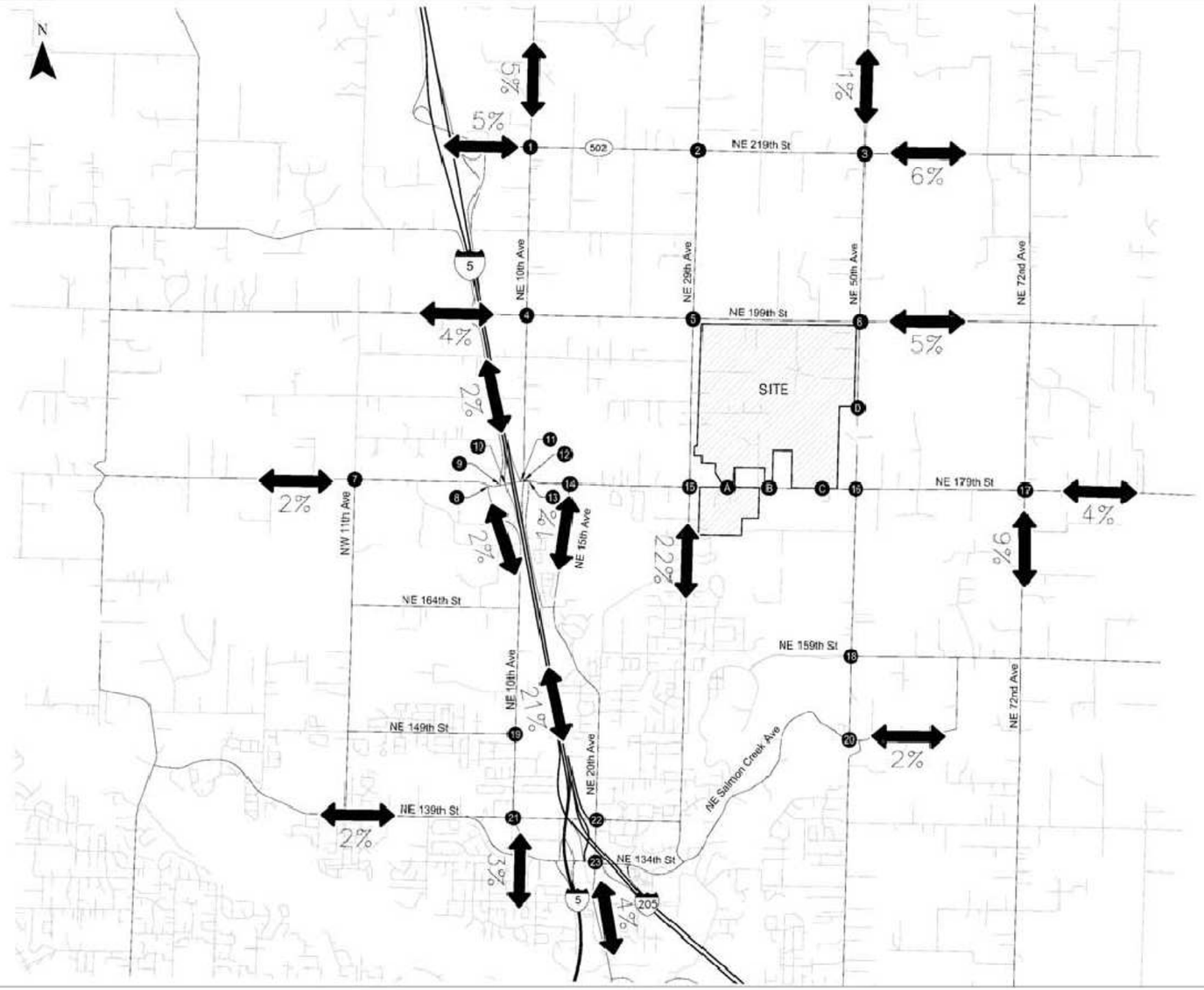
Scenario	Trip Rate	Enter (*Percentage Split*)		Exit (*Percentage Split*)		Total
AM Peak Hour	0.70	4	*27%*	10	*73%*	14
PM Peak Hour	0.93	12	*62%*	7	*38%*	19
Weekday	9.09	91	*50%*	91	*50%*	182



Estimated Trip Distribution Pattern
Clark County, Washington

Figure
9

C:\KAI Applications\Autodesk\TEMP\AcPublish_18140\29530_Mill Creek_Figures_NP_2023-11-13.dwg Nov 13, 2023 - 9:13am - nick Layout Tab: 09



Estimated Trip Distribution Pattern
Clark County, Washington

Figure
10

APPENDIX D – TRAFFIC VOLUMES

Traffic Count Data
In-Process Development
Rerouted Traffic Volumes

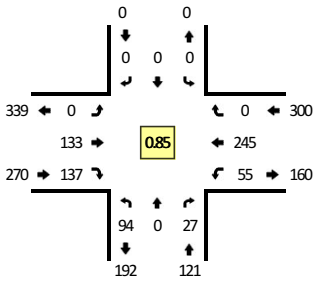
Type of peak hour being reported: Intersection Peak

Method for determining peak hour: Total Entering Volume

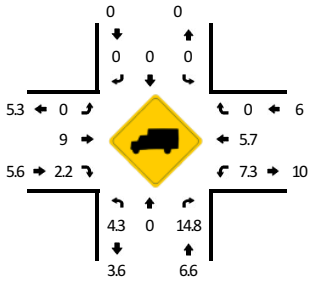
LOCATION: 7. NE 15th Ave -- NE 179th St
CITY/STATE: Mount Vista, WA

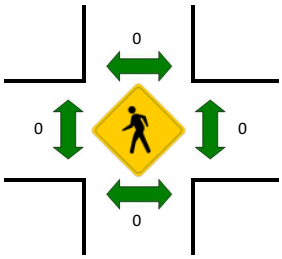
QC JOB #: 17363013
DATE: Thu, Dec 4 2025

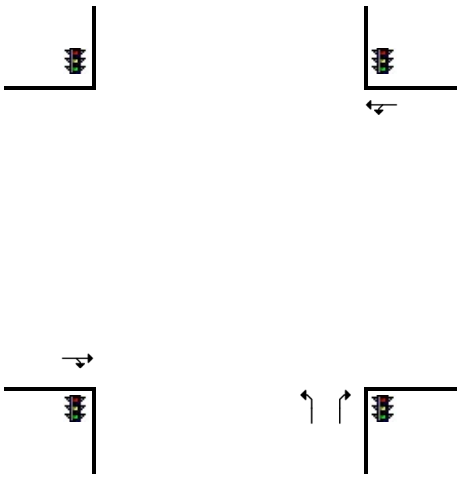
Peak-Hour: 7:25 AM -- 8:25 AM
Peak 15-Min: 7:35 AM -- 7:50 AM

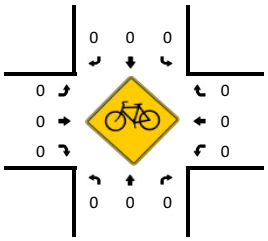


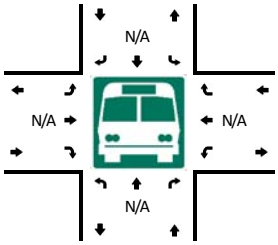


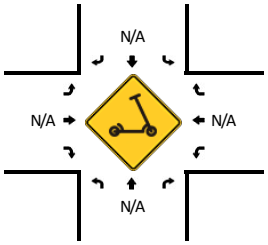












5-Min Count Period Beginning At	7. NE 15th Ave (Northbound)				7. NE 15th Ave (Southbound)				NE 179th St (Eastbound)				NE 179th St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	5	0	0	0	0	0	0	0	0	8	4	0	2	12	0	0	31	
7:05 AM	9	0	1	0	0	0	0	0	0	9	5	0	4	13	0	0	41	
7:10 AM	8	0	1	0	0	0	0	0	0	5	8	0	3	17	0	0	42	
7:15 AM	10	0	4	0	0	0	0	0	0	8	8	0	3	28	0	0	61	
7:20 AM	7	0	1	0	0	0	0	0	0	7	4	0	5	12	0	0	36	
7:25 AM	10	0	2	0	0	0	0	0	0	11	10	0	3	23	0	0	59	
7:30 AM	9	0	1	0	0	0	0	0	0	4	9	0	3	26	0	0	52	
7:35 AM	18	0	2	0	0	0	0	0	0	6	13	0	7	23	0	0	69	
7:40 AM	7	0	0	0	0	0	0	0	0	14	8	0	8	28	0	0	65	
7:45 AM	9	0	6	0	0	0	0	0	0	8	18	0	5	24	0	0	70	
7:50 AM	9	0	2	0	0	0	0	0	0	9	15	0	5	22	0	0	62	
7:55 AM	7	0	3	0	0	0	0	0	0	14	16	0	4	19	0	0	63	651
8:00 AM	5	0	2	0	0	0	0	0	0	20	10	0	3	5	0	0	45	665
8:05 AM	6	0	0	0	0	0	0	0	0	6	14	0	5	16	0	0	47	671
8:10 AM	4	0	3	0	0	0	0	0	0	14	5	0	3	18	0	0	47	676
8:15 AM	7	0	2	0	0	0	0	0	0	14	8	0	8	21	0	0	60	675
8:20 AM	3	0	4	0	0	0	0	0	0	13	11	0	1	20	0	0	52	691
8:25 AM	9	0	3	0	0	0	0	0	0	7	10	0	3	25	0	0	57	689
8:30 AM	13	0	1	0	0	0	0	0	0	6	10	0	2	21	0	0	53	690
8:35 AM	14	0	3	0	0	0	0	0	0	8	6	0	5	18	0	0	54	675
8:40 AM	15	0	1	0	0	0	0	0	0	9	9	0	8	21	0	0	63	673
8:45 AM	14	0	4	0	0	0	0	0	0	11	8	0	2	14	0	0	53	656
8:50 AM	7	0	5	0	0	0	0	0	0	11	17	0	4	20	0	0	64	658
8:55 AM	13	0	4	0	0	0	0	0	0	10	21	0	2	19	0	0	69	664

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	136	0	32	0	0	0	0	0	0	112	156	0	80	300	0	0	816
Heavy Trucks	4	0	4		0	0	0		0	8	0		8	20	0		44
Buses																	
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

Comments:

Report generated on 12/10/2025 2:13 PM

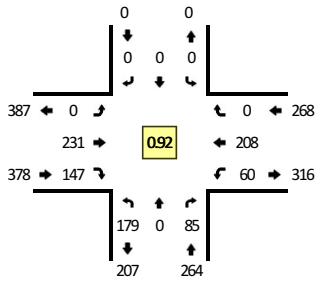
SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

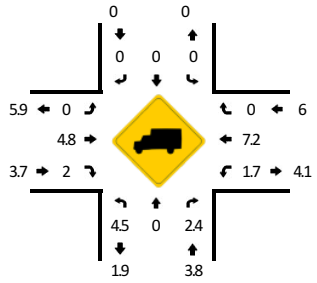
Type of peak hour being reported: Intersection Peak | Method for determining peak hour: Total Entering Volume

LOCATION: 7. NE 15th Ave -- NE 179th St
CITY/STATE: Mount Vista, WA

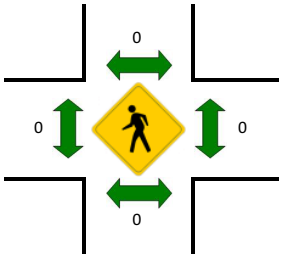
QC JOB #: 17363014
DATE: Thu, Dec 4 2025

Peak-Hour: 4:05 PM -- 5:05 PM
Peak 15-Min: 4:05 PM -- 4:20 PM

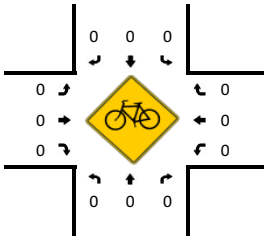


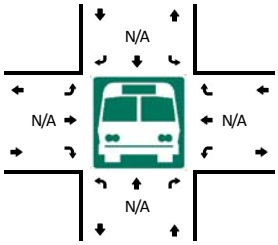


TRUE DATA TO IMPROVE MOBILITY

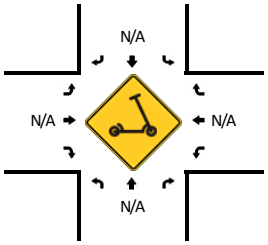












5-Min Count Period Beginning At	7. NE 15th Ave (Northbound)				7. NE 15th Ave (Southbound)				NE 179th St (Eastbound)				NE 179th St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	10	0	6	0	0	0	0	0	0	20	10	0	4	16	0	0	66	
4:05 PM	17	0	9	0	0	0	0	0	0	17	23	0	10	27	0	0	103	
4:10 PM	21	0	8	0	0	0	0	0	0	12	16	0	4	19	0	0	80	
4:15 PM	7	0	3	0	0	0	0	0	0	22	7	0	6	18	0	0	63	
4:20 PM	15	0	9	0	0	0	0	0	0	12	14	0	7	12	0	0	69	
4:25 PM	15	0	5	0	0	0	0	0	0	21	15	0	3	17	0	0	76	
4:30 PM	14	0	6	0	0	0	0	0	0	21	9	0	6	19	0	0	75	
4:35 PM	17	0	5	0	0	0	0	0	0	27	9	0	3	20	0	0	81	
4:40 PM	11	0	9	0	0	0	0	0	0	19	9	0	5	12	0	0	65	
4:45 PM	15	0	10	0	0	0	0	0	0	18	10	0	3	18	0	0	74	
4:50 PM	14	0	8	0	0	0	0	0	0	19	9	0	4	12	0	0	66	
4:55 PM	18	0	6	0	0	0	0	0	0	20	16	0	5	17	0	0	82	900
5:00 PM	15	0	7	0	0	0	0	0	0	23	10	0	4	17	0	0	76	910
5:05 PM	12	0	4	0	0	0	0	0	0	25	8	0	2	16	0	0	67	874
5:10 PM	17	0	10	0	0	0	0	0	0	28	10	0	7	12	0	0	84	878
5:15 PM	13	0	10	0	0	0	0	0	0	17	12	0	1	11	0	0	64	879
5:20 PM	12	0	9	0	0	0	0	0	0	24	16	0	5	17	0	0	83	893
5:25 PM	12	0	10	0	0	0	0	0	0	21	13	0	5	16	0	0	77	894
5:30 PM	6	0	7	0	0	0	0	0	0	16	9	0	2	12	0	0	52	871
5:35 PM	22	0	11	0	0	0	0	0	0	13	9	0	5	22	0	0	82	872
5:40 PM	12	0	10	0	0	0	0	0	0	21	15	0	3	17	0	0	78	885
5:45 PM	11	0	4	0	0	0	0	0	0	14	12	0	6	15	0	0	62	873
5:50 PM	9	0	7	0	0	0	0	0	0	20	3	0	0	13	0	0	52	859
5:55 PM	6	0	8	0	0	0	0	0	0	18	5	0	2	11	0	0	50	827

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	180	0	80	0	0	0	0	0	0	204	184	0	80	256	0	0	984
Heavy Trucks	12	0	4		0	0	0		0	20	0		4	20	0		60
Buses																	
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

Comments:

Report generated on 12/10/2025 2:13 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

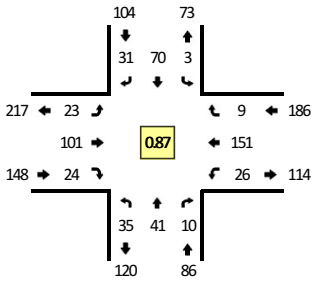
Type of peak hour being reported: Intersection Peak

Method for determining peak hour: Total Entering Volume

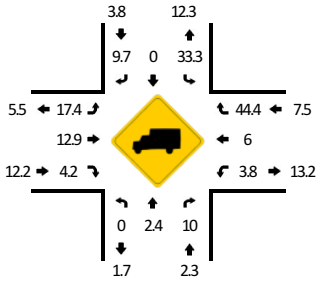
LOCATION: NE 29th Ave -- NE 179th St
CITY/STATE: Vancouver, WA

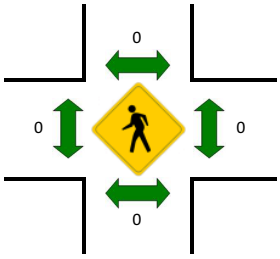
QC JOB #: 17179801
DATE: Wed, Aug 6 2025

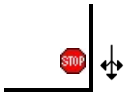
Peak-Hour: 8:00 AM -- 9:00 AM
Peak 15-Min: 8:35 AM -- 8:50 AM

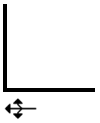


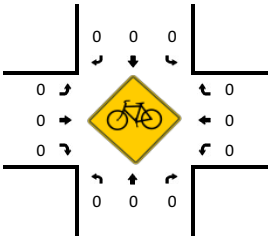


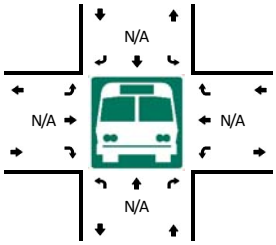


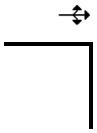


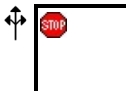


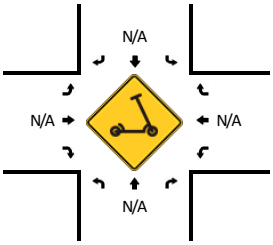












5-Min Count Period Beginning At	NE 29th Ave (Northbound)				NE 29th Ave (Southbound)				NE 179th St (Eastbound)				NE 179th St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	1	1	1	0	0	3	3	0	2	7	2	0	3	6	0	0	29	
7:05 AM	3	4	0	0	2	1	1	0	2	6	1	0	0	13	0	0	33	
7:10 AM	0	4	0	0	0	10	1	0	2	10	0	0	1	6	0	0	34	
7:15 AM	2	2	4	0	1	11	3	0	1	4	0	0	1	6	1	0	36	
7:20 AM	0	3	2	0	0	6	4	0	3	11	1	0	3	18	0	0	51	
7:25 AM	2	4	1	0	0	6	2	0	2	13	1	0	2	9	2	0	44	
7:30 AM	1	1	3	0	0	7	2	0	0	2	2	0	1	14	0	0	33	
7:35 AM	5	6	0	0	0	5	1	0	5	11	4	0	3	15	0	0	55	
7:40 AM	1	2	4	0	0	10	3	0	2	5	0	0	0	11	0	0	38	
7:45 AM	1	1	2	0	0	8	9	0	1	6	0	0	4	12	0	0	44	
7:50 AM	2	4	0	0	0	11	0	0	5	5	1	0	0	19	0	0	47	
7:55 AM	1	1	2	0	3	3	3	0	2	8	2	0	2	11	1	0	39	483
8:00 AM	4	5	0	0	0	7	3	0	1	12	2	0	2	11	1	0	48	502
8:05 AM	2	4	1	0	1	6	1	0	4	6	1	0	1	13	0	0	40	509
8:10 AM	6	2	0	0	0	7	0	0	2	8	1	0	2	16	0	0	44	519
8:15 AM	3	4	0	0	0	3	3	0	2	6	4	0	0	12	0	0	37	520
8:20 AM	4	5	0	0	0	5	5	0	1	12	2	0	2	8	0	0	44	513
8:25 AM	1	1	0	0	0	5	2	0	3	5	0	0	2	6	0	0	25	494
8:30 AM	3	2	1	0	0	6	5	0	4	4	2	0	4	14	0	0	45	506
8:35 AM	5	3	1	0	0	5	1	0	2	10	1	0	1	13	3	0	45	496
8:40 AM	3	4	3	0	0	7	3	0	1	11	2	0	5	18	0	0	57	515
8:45 AM	1	4	0	0	1	8	3	0	0	9	4	0	2	14	2	0	48	519
8:50 AM	0	5	1	0	0	7	4	0	1	9	2	0	3	12	0	0	44	516
8:55 AM	3	2	3	0	1	4	1	0	2	9	3	0	2	14	3	0	47	524

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	36	44	16	0	4	80	28	0	12	120	28	0	32	180	20	0	600
Heavy Trucks	0	0	0		0	0	0		4	12	0		0	4	12		32
Buses																	
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

Comments:

Report generated on 8/12/2025 2:49 PM

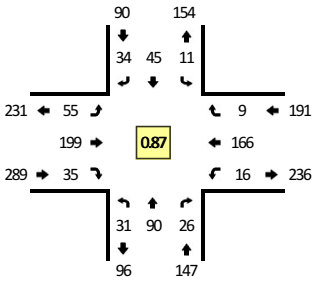
SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

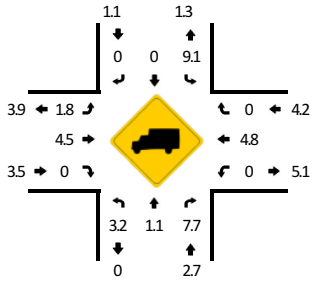
Type of peak hour being reported: Intersection Peak | Method for determining peak hour: Total Entering Volume

LOCATION: NE 29th Ave -- NE 179th St
CITY/STATE: Vancouver, WA

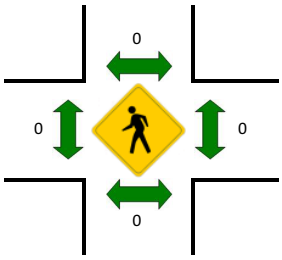
QC JOB #: 17179802
DATE: Tue, Aug 5 2025

Peak-Hour: 4:15 PM -- 5:15 PM
Peak 15-Min: 4:15 PM -- 4:30 PM

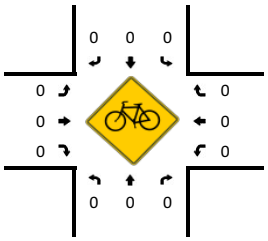


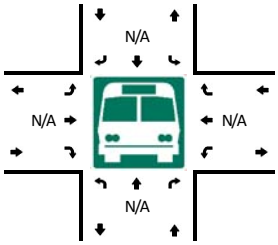


TRUE DATA TO IMPROVE MOBILITY

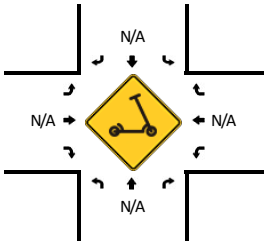












5-Min Count Period Beginning At	NE 29th Ave (Northbound)				NE 29th Ave (Southbound)				NE 179th St (Eastbound)				NE 179th St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	2	6	3	0	1	5	3	0	5	17	5	0	0	12	2	0	61	
4:05 PM	1	2	1	0	1	6	6	0	2	11	10	0	0	10	0	0	50	
4:10 PM	1	2	2	0	2	6	3	0	5	12	2	0	3	15	1	0	54	
4:15 PM	4	15	3	0	0	2	4	0	7	17	1	0	2	15	0	0	70	
4:20 PM	0	7	1	0	0	2	7	0	7	25	2	0	2	19	0	0	72	
4:25 PM	3	8	3	0	0	5	6	0	3	17	5	0	1	11	1	0	63	
4:30 PM	1	7	4	0	1	3	3	0	5	21	3	0	3	7	0	0	58	
4:35 PM	0	9	3	0	1	3	4	0	2	17	5	0	0	13	0	0	57	
4:40 PM	5	7	1	0	0	7	1	0	5	11	2	0	0	15	0	0	54	
4:45 PM	5	8	1	0	2	1	1	0	2	16	3	0	2	15	1	0	57	
4:50 PM	3	8	1	0	1	4	3	0	5	15	4	0	2	14	0	0	60	
4:55 PM	2	5	2	0	2	3	0	0	6	7	4	0	1	10	3	0	45	701
5:00 PM	1	5	2	0	0	4	0	0	7	16	2	0	1	13	2	0	53	693
5:05 PM	4	3	3	0	3	4	3	0	3	14	1	0	1	13	2	0	54	697
5:10 PM	3	8	2	0	1	7	2	0	3	23	3	0	1	21	0	0	74	717
5:15 PM	2	4	3	0	2	7	1	0	9	20	3	0	0	14	0	0	65	712
5:20 PM	1	12	2	0	1	4	5	0	3	14	7	0	1	13	1	0	64	704
5:25 PM	4	5	1	0	1	9	4	0	7	14	7	0	1	11	1	0	65	706
5:30 PM	1	7	4	0	1	5	5	0	7	15	2	0	2	15	0	0	64	712
5:35 PM	1	9	3	0	1	2	1	0	3	19	2	0	2	9	1	0	53	708
5:40 PM	4	8	4	0	0	4	2	0	4	19	5	0	1	9	0	0	60	714
5:45 PM	0	5	2	0	0	5	3	0	3	17	2	0	2	13	0	0	52	709
5:50 PM	0	2	5	0	1	7	4	0	2	19	3	0	3	12	1	0	59	708
5:55 PM	3	2	1	0	0	2	2	0	2	8	5	0	1	19	1	0	46	709

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	28	120	28	0	0	36	68	0	68	236	32	0	20	180	4	0	820
Heavy Trucks	4	0	0		0	0	0		0	12	0		0	4	0		20
Buses																	
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

Comments:

Report generated on 8/12/2025 2:49 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

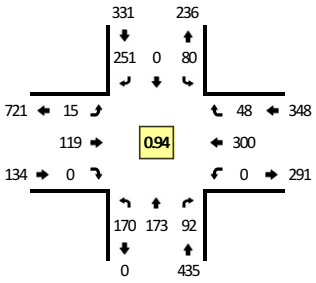
Type of peak hour being reported: Intersection Peak

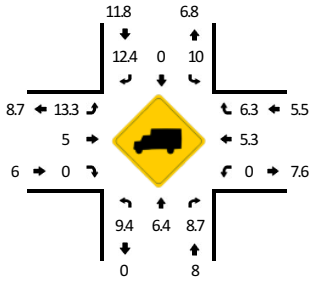
Method for determining peak hour: Total Entering Volume

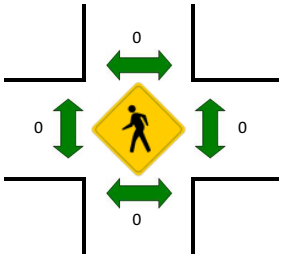
LOCATION: 6. NE 10th Ave/I-5 NB Off-Ramp -- NE 179th St
CITY/STATE: Clark, WA

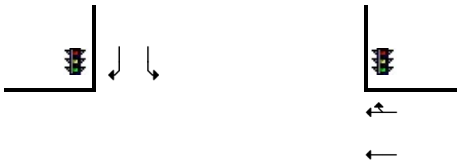
QC JOB #: 17363011
DATE: Thu, Dec 4 2025

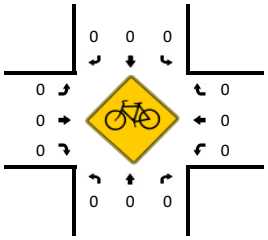
Peak-Hour: 7:35 AM -- 8:35 AM
Peak 15-Min: 7:40 AM -- 7:55 AM

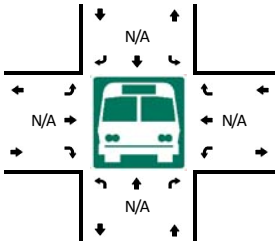


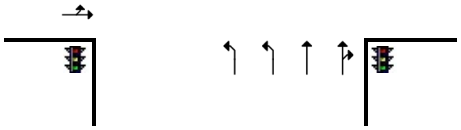


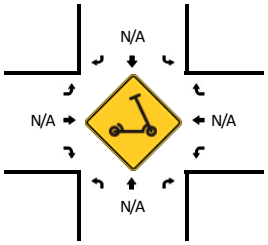












5-Min Count Period Beginning At	6. NE 10th Ave/I-5 NB Off-Ramp (Northbound)				6. NE 10th Ave/I-5 NB Off-Ramp (Southbound)				NE 179th St (Eastbound)				NE 179th St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	14	3	5	0	1	0	15	0	0	7	0	0	0	22	3	0	70	
7:05 AM	12	7	3	0	1	0	9	0	1	10	0	0	0	19	5	0	67	
7:10 AM	10	11	5	0	4	0	21	0	2	6	0	0	0	28	3	0	90	
7:15 AM	20	19	3	0	2	0	15	0	1	10	0	0	0	27	9	0	106	
7:20 AM	21	17	3	0	4	0	19	0	2	11	0	0	0	28	3	0	108	
7:25 AM	13	11	7	0	4	0	10	0	1	8	0	0	0	30	6	0	90	
7:30 AM	16	15	2	0	4	0	13	0	1	8	0	0	0	30	7	0	96	
7:35 AM	14	12	3	0	5	0	19	0	4	8	0	0	0	36	7	0	108	
7:40 AM	20	17	9	0	7	0	21	0	1	6	0	0	0	26	7	0	114	
7:45 AM	11	17	4	0	6	0	14	0	0	19	0	0	0	29	5	0	105	
7:50 AM	7	16	6	0	10	0	28	0	0	12	0	0	0	31	3	0	113	
7:55 AM	15	11	11	0	9	0	22	0	1	15	0	0	0	20	2	0	106	1173
8:00 AM	18	11	11	0	11	0	19	0	1	6	0	0	0	12	1	0	90	1193
8:05 AM	13	9	7	0	6	0	14	0	2	11	0	0	0	18	4	0	84	1210
8:10 AM	14	17	13	0	2	0	21	0	2	11	0	0	0	27	2	0	109	1229
8:15 AM	9	21	7	0	5	0	15	0	0	10	0	0	0	27	3	0	97	1220
8:20 AM	19	11	11	0	7	0	24	0	2	6	0	0	0	17	3	0	100	1212
8:25 AM	15	16	4	0	5	0	33	0	1	12	0	0	0	26	3	0	115	1237
8:30 AM	15	15	6	0	7	0	21	0	1	3	0	0	0	31	8	0	107	1248
8:35 AM	14	7	8	0	7	0	23	0	3	5	0	0	0	27	7	0	101	1241
8:40 AM	23	11	8	0	4	0	22	0	1	6	0	0	0	32	6	0	113	1240
8:45 AM	10	12	8	0	7	0	19	0	1	6	0	0	0	27	6	0	96	1231
8:50 AM	11	12	10	0	15	0	14	0	0	11	0	0	0	25	3	0	101	1219
8:55 AM	16	14	7	0	10	0	15	0	1	10	0	0	0	26	5	0	104	1217

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	152	200	76	0	92	0	252	0	4	148	0	0	0	344	60	0	1328
Heavy Trucks	4	8	4		12	0	24		0	0	0		0	12	4		68
Buses																	
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

Comments:

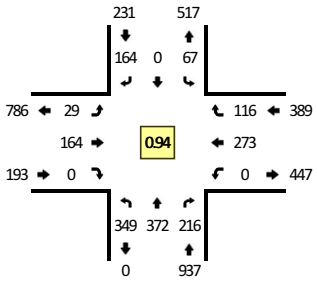
Report generated on 12/10/2025 2:13 PM

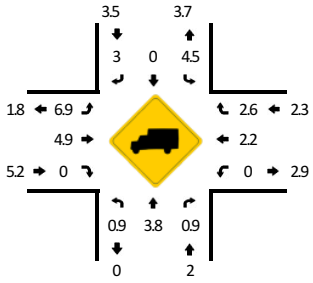
SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

Type of peak hour being reported: Intersection Peak | Method for determining peak hour: Total Entering Volume

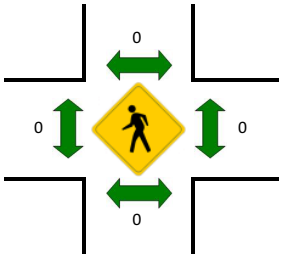
LOCATION: 6. NE 10th Ave/I-5 NB Off-Ramp -- NE 179th St | **QC JOB #:** 17363012
CITY/STATE: Clark, WA | **DATE:** Thu, Dec 4 2025

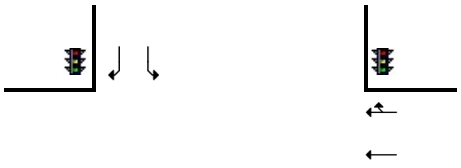
Peak-Hour: 4:25 PM -- 5:25 PM
Peak 15-Min: 4:50 PM -- 5:05 PM

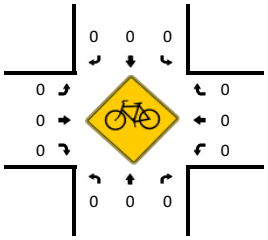


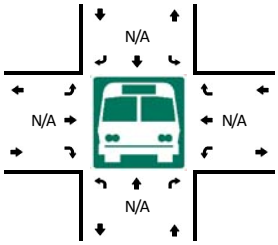


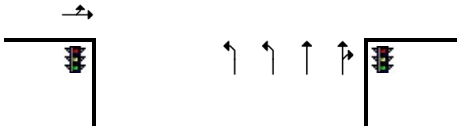
TRUE DATA TO IMPROVE MOBILITY

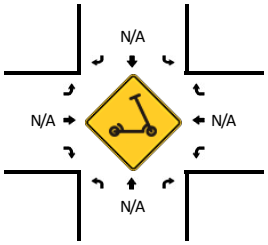












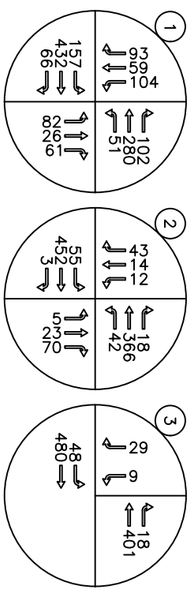
5-Min Count Period Beginning At	6. NE 10th Ave/I-5 NB Off-Ramp (Northbound)				6. NE 10th Ave/I-5 NB Off-Ramp (Southbound)				NE 179th St (Eastbound)				NE 179th St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	26	20	13	0	7	0	15	0	5	14	0	0	0	23	4	0	127	
4:05 PM	28	20	9	0	6	0	12	0	2	30	0	0	0	30	10	0	147	
4:10 PM	12	29	14	0	6	0	22	0	4	13	0	0	0	29	10	0	139	
4:15 PM	20	39	17	0	4	0	12	0	6	10	0	0	0	18	9	0	135	
4:20 PM	27	36	8	0	5	0	11	0	2	12	0	0	0	18	9	0	128	
4:25 PM	34	30	18	0	9	0	17	0	1	12	0	0	0	23	10	0	154	
4:30 PM	22	26	12	0	7	0	12	0	1	13	0	0	0	26	8	0	127	
4:35 PM	27	30	21	0	3	0	17	0	0	14	0	0	0	24	11	0	147	
4:40 PM	24	33	13	0	7	0	17	0	2	17	0	0	0	15	13	0	141	
4:45 PM	27	23	16	0	8	0	13	0	1	10	0	0	0	25	7	0	130	
4:50 PM	42	30	16	0	7	0	19	0	2	11	0	0	0	19	14	0	160	
4:55 PM	39	31	16	0	7	0	4	0	6	14	0	0	0	25	11	0	153	1688
5:00 PM	28	33	27	0	2	0	11	0	3	13	0	0	0	27	7	0	151	1712
5:05 PM	21	36	18	0	1	0	16	0	4	22	0	0	0	24	10	0	152	1717
5:10 PM	24	32	17	0	5	0	14	0	3	16	0	0	0	21	11	0	143	1721
5:15 PM	32	32	19	0	8	0	17	0	2	7	0	0	0	21	5	0	143	1729
5:20 PM	29	36	23	0	3	0	7	0	4	15	0	0	0	23	9	0	149	1750
5:25 PM	29	30	16	0	6	0	5	0	4	20	0	0	0	17	12	0	139	1735
5:30 PM	33	30	14	0	1	0	18	0	5	9	0	0	0	21	5	0	136	1744
5:35 PM	21	21	10	0	2	0	9	0	2	16	0	0	0	21	12	0	114	1711
5:40 PM	23	26	14	0	3	0	10	0	2	18	0	0	0	28	11	0	135	1705
5:45 PM	30	32	15	0	4	0	9	0	5	13	0	0	0	24	11	0	143	1718
5:50 PM	17	22	15	0	0	0	7	0	2	14	0	0	0	16	5	0	98	1656
5:55 PM	27	27	11	0	1	0	8	0	0	10	0	0	0	20	6	0	110	1613

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	436	376	236	0	64	0	136	0	44	152	0	0	0	284	128	0	1856
Heavy Trucks	8	28	8		4	0	4		4	8	0		0	4	0		68
Buses																	
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

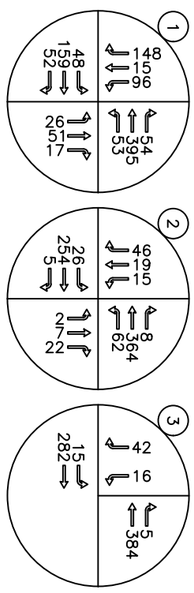
Comments:

Report generated on 12/10/2025 2:13 PM | SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212





PM PEAK HOUR



AM PEAK HOUR

NOT TO SCALE

IN-PROCESS DEVELOPMENT TRIPS

AM & PM PEAK HOURS

FIGURE A

AVERY DRIVE

FIGURE B

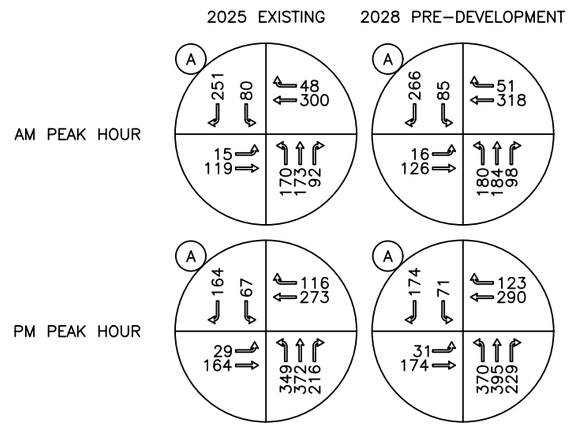
AVERY DRIVE

REROUTED TRAFFIC VOLUMES

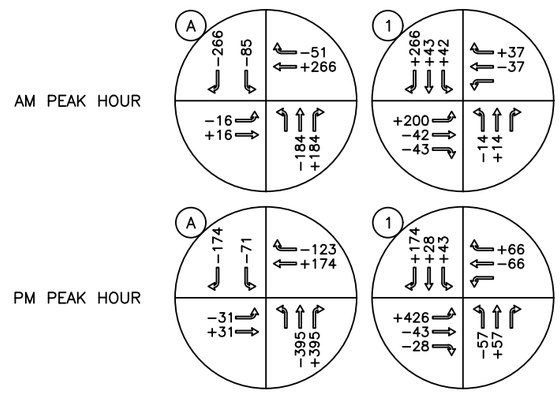
AM & PM PEAK HOURS



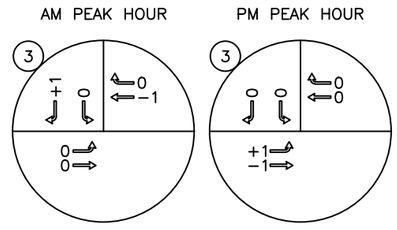
NE 179TH STREET AT NE 10TH AVENUE/I–5 OFF–RAMP INTERSECTION VOLUMES



NE 10TH AVENUE REALIGNMENT – REROUTED VOLUMES



EXISTING SINGLE–FAMILY HOUSE – REROUTED VOLUMES



NOTES: INTERSECTION "A" REFERS TO NE 179TH STREET AT NE 10TH AVENUE/I–5 OFF–RAMP

NOT TO SCALE

PLS ENGINEERING

APPENDIX E – OPERATION ANALYSIS

Level of Service Descriptions
Synchro Capacity Results
Sidra Capacity Results

LEVEL OF SERVICE

Intersection Level of Service (LOS) is a qualitative measure used to evaluate the performance of intersections and roadways based on the traffic flow, average control delay, and overall operations. The Highway Capacity Manual (HCM) defines LOS for signalized and unsignalized intersections as a function of the average vehicle control delay. LOS may be calculated per movement or per approach for any intersection configuration, but LOS for the intersection as a whole is generally defined for signalized, roundabout, and all-way stop configurations.

The LOS metric is categorized using a graded scale from A to F. Descriptions of these LOS grade levels are provided below:

LOS Grade	Description	Control Delay Per Vehicle	
		Signalized & Roundabout Intersections	**Unsignalized Intersections**
A	Indicative of relatively freeflow traffic conditions with minimal delays and high comfort for drivers. Low intersection delays and clearing of vehicles occur in a single cycle at signalized intersections.	≤ 10 seconds	≤ 10 seconds
B	Representative of reasonably free flow conditions, where speeds are maintained but maneuverability is slightly restricted. Slightly higher delays at intersections are observed.	10-20 seconds	10-15 seconds
C	Indicative of stable flow, where maneuverability is noticeably restricted, and lane changes require more driver awareness. Moderate delays at intersections may be observed, and the occasional queued vehicle may not clear in a single cycle length.	20-35 seconds	15-25 seconds
D	Signifies approaching unstable flow, with significant delays and reduced comfort. Longer delays and congestion may be apparent at an intersection. More than one cycle length at a signalized intersection may be necessary to service queued vehicles.	35-55 seconds	25-35 seconds
E	Representative of unstable flow, where traffic is at or nearing capacity, leading to long delays. High delays at an intersection are expected, and extended queuing may be observed. Cycle failures at signalized intersections are expected to occur.	55-80 seconds	35-50 seconds
F	Indicative of forced flow, where traffic demand exceeds capacity, resulting in severe congestion and delays. Very high delays and significant queues are common at intersections. Frequent cycle failures are expected to occur at signalized intersections.	>80 seconds	>50 seconds



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	133	137	55	245	94	27
Future Volume (vph)	133	137	55	245	94	27
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0			4.0	4.0	4.0
Lane Util. Factor	1.00			1.00	1.00	1.00
Frt	0.93			1.00	1.00	0.85
Flt Protected	1.00			0.99	0.95	1.00
Satd. Flow (prot)	1670			1776	1687	1509
Flt Permitted	1.00			0.90	0.95	1.00
Satd. Flow (perm)	1670			1619	1687	1509
Peak-hour factor, PHF	0.85	0.85	0.85	0.85	0.85	0.85
Adj. Flow (vph)	156	161	65	288	111	32
RTOR Reduction (vph)	54	0	0	0	0	26
Lane Group Flow (vph)	263	0	0	353	111	6
Heavy Vehicles (%)	6%	6%	6%	6%	7%	7%
Turn Type	NA		Perm	NA	Perm	Perm
Protected Phases	4			8		
Permitted Phases			8		2	2
Actuated Green, G (s)	19.8			19.8	6.4	6.4
Effective Green, g (s)	19.8			19.8	6.4	6.4
Actuated g/C Ratio	0.58			0.58	0.19	0.19
Clearance Time (s)	4.0			4.0	4.0	4.0
Vehicle Extension (s)	3.0			3.0	3.0	3.0
Lane Grp Cap (vph)	966			937	315	282
v/s Ratio Prot	0.16					
v/s Ratio Perm				c0.22	c0.07	0.00
v/c Ratio	0.27			0.38	0.35	0.02
Uniform Delay, d1	3.6			3.9	12.1	11.3
Progression Factor	1.00			1.00	1.00	1.00
Incremental Delay, d2	0.2			0.3	0.7	0.0
Delay (s)	3.8			4.1	12.8	11.4
Level of Service	A			A	B	B
Approach Delay (s/veh)	3.8			4.1	12.5	
Approach LOS	A			A	B	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	5.4	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.37		
Actuated Cycle Length (s)	34.2	Sum of lost time (s)	8.0
Intersection Capacity Utilization	46.5%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Intersection	
Intersection Delay, s/veh	9.3
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	23	101	24	26	151	9	35	41	10	3	70	31
Future Vol, veh/h	23	101	24	26	151	9	35	41	10	3	70	31
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Heavy Vehicles, %	12	12	12	8	8	8	2	2	2	4	4	4
Mvmt Flow	26	116	28	30	174	10	40	47	11	3	80	36
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay, s/veh	9.3	9.7	8.9	8.8
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	41%	16%	14%	3%
Vol Thru, %	48%	68%	81%	67%
Vol Right, %	12%	16%	5%	30%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	86	148	186	104
LT Vol	35	23	26	3
Through Vol	41	101	151	70
RT Vol	10	24	9	31
Lane Flow Rate	99	170	214	120
Geometry Grp	1	1	1	1
Degree of Util (X)	0.138	0.228	0.284	0.161
Departure Headway (Hd)	5.025	4.835	4.78	4.85
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	710	738	748	735
Service Time	3.085	2.889	2.831	2.907
HCM Lane V/C Ratio	0.139	0.23	0.286	0.163
HCM Control Delay, s/veh	8.9	9.3	9.7	8.8
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.5	0.9	1.2	0.6

Intersection	
Int Delay, s/veh	1.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	15	338	536	5	16	42
Future Vol, veh/h	15	338	536	5	16	42
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	92	92	92	92	92	92
Heavy Vehicles, %	13	13	8	8	2	2
Mvmt Flow	16	367	583	5	17	46

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	588	0	-	0	985	585
Stage 1	-	-	-	-	585	-
Stage 2	-	-	-	-	400	-
Critical Hdwy	4.23	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.317	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	935	-	-	-	275	511
Stage 1	-	-	-	-	557	-
Stage 2	-	-	-	-	677	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	935	-	-	-	269	511
Mov Cap-2 Maneuver	-	-	-	-	269	-
Stage 1	-	-	-	-	544	-
Stage 2	-	-	-	-	677	-

Approach	EB	WB	SB
HCM Ctrl Dly, s/v	0.38	0	15.39
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	76	-	-	-	409
HCM Lane V/C Ratio	0.017	-	-	-	0.154
HCM Ctrl Dly (s/v)	8.9	0	-	-	15.4
HCM Lane LOS	A	A	-	-	C
HCM 95th %tile Q(veh)	0.1	-	-	-	0.5

Intersection	
Int Delay, s/veh	1.3

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	18	338	535	6	19	49
Future Vol, veh/h	18	338	535	6	19	49
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	92	92	92	92	92	92
Heavy Vehicles, %	13	13	8	8	2	2
Mvmt Flow	20	367	582	7	21	53

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	588	0	-	0	991	585
Stage 1	-	-	-	-	585	-
Stage 2	-	-	-	-	407	-
Critical Hdwy	4.23	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.317	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	935	-	-	-	273	511
Stage 1	-	-	-	-	557	-
Stage 2	-	-	-	-	672	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	935	-	-	-	266	511
Mov Cap-2 Maneuver	-	-	-	-	266	-
Stage 1	-	-	-	-	542	-
Stage 2	-	-	-	-	672	-

Approach	EB	WB	SB
HCM Ctrl Dly, s/v	0.45	0	15.83
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	91	-	-	-	406
HCM Lane V/C Ratio	0.021	-	-	-	0.182
HCM Ctrl Dly (s/v)	8.9	0	-	-	15.8
HCM Lane LOS	A	A	-	-	C
HCM 95th %tile Q(veh)	0.1	-	-	-	0.7



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	231	147	60	208	179	85
Future Volume (vph)	231	147	60	208	179	85
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0			4.0	4.0	4.0
Lane Util. Factor	1.00			1.00	1.00	1.00
Frt	0.95			1.00	1.00	0.85
Flt Protected	1.00			0.99	0.95	1.00
Satd. Flow (prot)	1731			1773	1736	1553
Flt Permitted	1.00			0.87	0.95	1.00
Satd. Flow (perm)	1731			1558	1736	1553
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	231	147	60	208	179	85
RTOR Reduction (vph)	37	0	0	0	0	65
Lane Group Flow (vph)	341	0	0	268	179	20
Heavy Vehicles (%)	4%	4%	6%	6%	4%	4%
Turn Type	NA		Perm	NA	Perm	Perm
Protected Phases	4			8		
Permitted Phases			8		2	2
Actuated Green, G (s)	15.0			15.0	7.2	7.2
Effective Green, g (s)	15.0			15.0	7.2	7.2
Actuated g/C Ratio	0.50			0.50	0.24	0.24
Clearance Time (s)	4.0			4.0	4.0	4.0
Vehicle Extension (s)	3.0			3.0	3.0	3.0
Lane Grp Cap (vph)	859			773	413	370
v/s Ratio Prot	c0.20					
v/s Ratio Perm				0.17	c0.10	0.01
v/c Ratio	0.40			0.35	0.43	0.05
Uniform Delay, d1	4.8			4.6	9.8	8.9
Progression Factor	1.00			1.00	1.00	1.00
Incremental Delay, d2	0.3			0.3	0.7	0.1
Delay (s)	5.1			4.9	10.5	8.9
Level of Service	A			A	B	A
Approach Delay (s/veh)	5.1			4.9	10.0	
Approach LOS	A			A	A	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	6.4	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.41		
Actuated Cycle Length (s)	30.2	Sum of lost time (s)	8.0
Intersection Capacity Utilization	55.3%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Intersection	
Intersection Delay, s/veh	11.1
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	55	199	35	16	166	9	31	90	26	11	45	34
Future Vol, veh/h	55	199	35	16	166	9	31	90	26	11	45	34
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Heavy Vehicles, %	4	4	4	4	4	4	3	3	3	1	1	1
Mvmt Flow	63	229	40	18	191	10	36	103	30	13	52	39
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay, s/veh	12.4	10.6	10.4	9.5
HCM LOS	B	B	B	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	21%	19%	8%	12%
Vol Thru, %	61%	69%	87%	50%
Vol Right, %	18%	12%	5%	38%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	147	289	191	90
LT Vol	31	55	16	11
Through Vol	90	199	166	45
RT Vol	26	35	9	34
Lane Flow Rate	169	332	220	103
Geometry Grp	1	1	1	1
Degree of Util (X)	0.258	0.466	0.317	0.156
Departure Headway (Hd)	5.488	5.051	5.2	5.442
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	654	718	692	658
Service Time	3.525	3.051	3.231	3.484
HCM Lane V/C Ratio	0.258	0.462	0.318	0.157
HCM Control Delay, s/veh	10.4	12.4	10.6	9.5
HCM Lane LOS	B	B	B	A
HCM 95th-tile Q	1	2.5	1.4	0.6

Intersection	
Int Delay, s/veh	0.9

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	48	685	539	18	9	29
Future Vol, veh/h	48	685	539	18	9	29
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	92	92	92	92	92	92
Heavy Vehicles, %	5	5	4	4	2	2
Mvmt Flow	52	745	586	20	10	32

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	605	0	-	0	1445	596
Stage 1	-	-	-	-	596	-
Stage 2	-	-	-	-	849	-
Critical Hdwy	4.15	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.245	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	958	-	-	-	145	504
Stage 1	-	-	-	-	551	-
Stage 2	-	-	-	-	419	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	958	-	-	-	132	504
Mov Cap-2 Maneuver	-	-	-	-	132	-
Stage 1	-	-	-	-	499	-
Stage 2	-	-	-	-	419	-

Approach	EB	WB	SB
HCM Ctrl Dly, s/v	0.59	0	18.8
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	118	-	-	-	302
HCM Lane V/C Ratio	0.054	-	-	-	0.137
HCM Ctrl Dly (s/v)	9	0	-	-	18.8
HCM Lane LOS	A	A	-	-	C
HCM 95th %tile Q(veh)	0.2	-	-	-	0.5

Intersection	
Int Delay, s/veh	1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	57	684	539	21	11	34
Future Vol, veh/h	57	684	539	21	11	34
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	92	92	92	92	92	92
Heavy Vehicles, %	5	5	4	4	2	2
Mvmt Flow	62	743	586	23	12	37

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	609	0	-	0	1465	597
Stage 1	-	-	-	-	597	-
Stage 2	-	-	-	-	867	-
Critical Hdwy	4.15	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.245	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	955	-	-	-	141	503
Stage 1	-	-	-	-	550	-
Stage 2	-	-	-	-	411	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	955	-	-	-	126	503
Mov Cap-2 Maneuver	-	-	-	-	126	-
Stage 1	-	-	-	-	489	-
Stage 2	-	-	-	-	411	-

Approach	EB	WB	SB
HCM Ctrl Dly, s/v	0.69	0	19.92
HCM LOS			C

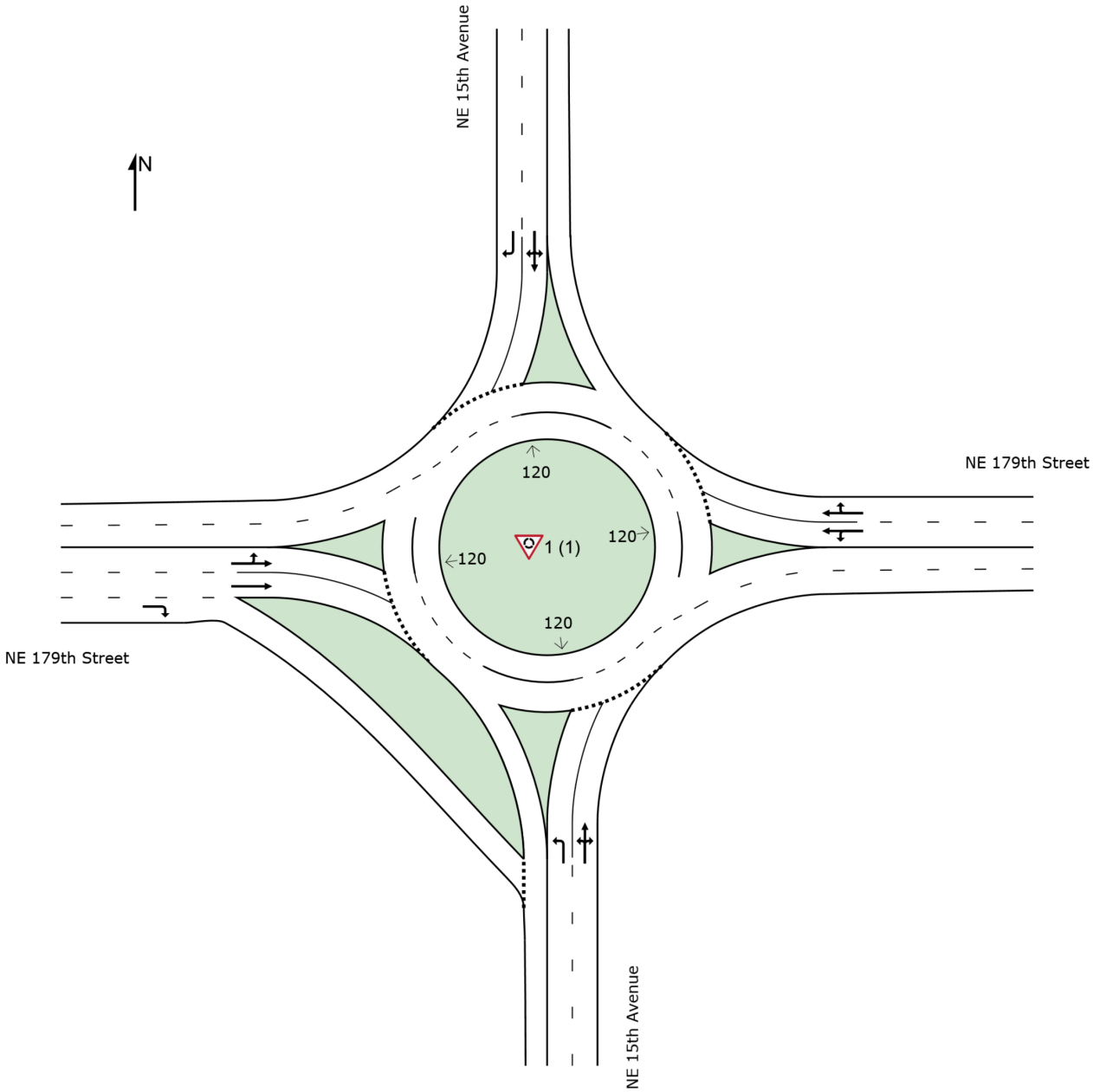
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	138	-	-	-	290
HCM Lane V/C Ratio	0.065	-	-	-	0.169
HCM Ctrl Dly (s/v)	9	0	-	-	19.9
HCM Lane LOS	A	A	-	-	C
HCM 95th %tile Q(veh)	0.2	-	-	-	0.6

SITE LAYOUT

Site: [1 (1)] 2028 Pre-Development - AM Peak Hour (1. NE 179th Street at NE 15th Avenue)

NE 179th Street at NE 15th Avenue
2028 Pre-Development - AM Peak Hour
Roundabout
Site Scenario: 1 | Local Volumes

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



MOVEMENT SUMMARY

Site: [1 (1)] 2028 Pre-Development - AM Peak Hour (1. NE 179th Street at NE 15th Avenue)

Output produced by SIDRA INTERSECTION Version: 11.0.2

NE 179th Street at NE 15th Avenue
2028 Pre-Development - AM Peak Hour
Roundabout
Site Scenario: 1 | Local Volumes

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] ft	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed mph
South: NE 15th Avenue															
3	L2	All MCs	122	6.6	122	6.6	0.126	12.2	LOS B	0.5	13.3	0.51	0.72	0.51	32.0
8	T1	All MCs	71	6.6	71	6.6	0.126	5.3	LOS A	0.5	13.3	0.49	0.56	0.49	35.0
18	R2	All MCs	50	6.6	50	6.6	0.126	5.5	LOS A	0.5	13.3	0.49	0.56	0.49	34.6
Approach			242	6.6	242	6.6	0.126	8.8	LOS A	0.5	13.3	0.50	0.64	0.50	33.3
East: NE 179th Street															
1	L2	All MCs	121	6.0	121	6.0	0.394	12.2	LOS B	1.9	48.9	0.54	0.61	0.54	33.4
6	T1	All MCs	625	6.0	625	6.0	0.394	5.5	LOS A	1.9	50.7	0.53	0.56	0.53	34.7
16	R2	All MCs	97	6.0	97	6.0	0.394	5.5	LOS A	1.9	50.7	0.52	0.52	0.52	34.7
Approach			842	6.0	842	6.0	0.394	6.5	LOS A	1.9	50.7	0.53	0.56	0.53	34.5
North: NE 15th Avenue															
7	L2	All MCs	146	11.8	146	11.8	0.421	14.5	LOS B	2.0	54.3	0.68	0.83	0.77	32.1
4	T1	All MCs	63	11.8	63	11.8	0.421	8.0	LOS A	2.0	54.3	0.68	0.83	0.77	32.9
14	R2	All MCs	450	11.8	450	11.8	0.421	7.2	LOS A	2.1	58.0	0.67	0.77	0.74	34.1
Approach			659	11.8	659	11.8	0.421	8.9	LOS A	2.1	58.0	0.67	0.79	0.75	33.5
West: NE 179th Street															
5	L2	All MCs	270	5.6	270	5.6	0.184	11.0	LOS B	1.0	25.6	0.43	0.63	0.43	32.0
2	T1	All MCs	214	5.6	214	5.6	0.184	5.0	LOS A	1.0	25.6	0.45	0.47	0.45	35.2
12	R2	All MCs	167	5.6	167	5.6	0.104	4.3	LOS A	0.5	12.2	0.28	0.46	0.28	35.6
Approach			651	5.6	651	5.6	0.184	7.3	LOS A	1.0	25.6	0.40	0.53	0.40	33.9
All Vehicles			2395	7.5	2395	7.5	0.421	7.6	LOS A	2.1	58.0	0.53	0.62	0.55	33.9

Site Level of Service (LOS) Method: Delay & Degree of Saturation (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
Intersection and Approach LOS values are based on average delay for all movements (v/c not used).
Roundabout Capacity Model: SIDRA HCM.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

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MOVEMENT SUMMARY

Site: [1 (2)] 2028 Post-Development - AM Peak Hour (1. NE 179th Street at NE 15th Avenue)

Output produced by SIDRA INTERSECTION Version: 11.0.2

NE 179th Street at NE 15th Avenue
2028 Post-Development - AM Peak Hour
Roundabout
Site Scenario: 1 | Local Volumes

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] ft	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed mph
South: NE 15th Avenue															
3	L2	All MCs	122	6.6	122	6.6	0.126	12.2	LOS B	0.5	13.3	0.51	0.72	0.51	32.0
8	T1	All MCs	71	6.6	71	6.6	0.126	5.3	LOS A	0.5	13.3	0.49	0.56	0.49	35.0
18	R2	All MCs	50	6.6	50	6.6	0.126	5.5	LOS A	0.5	13.3	0.49	0.56	0.49	34.6
Approach			242	6.6	242	6.6	0.126	8.8	LOS A	0.5	13.3	0.50	0.64	0.50	33.3
East: NE 179th Street															
1	L2	All MCs	121	6.0	121	6.0	0.396	12.2	LOS B	1.9	49.2	0.54	0.61	0.54	33.4
6	T1	All MCs	629	6.0	629	6.0	0.396	5.5	LOS A	1.9	51.1	0.53	0.56	0.53	34.7
16	R2	All MCs	97	6.0	97	6.0	0.396	5.5	LOS A	1.9	51.1	0.52	0.52	0.52	34.7
Approach			847	6.0	847	6.0	0.396	6.5	LOS A	1.9	51.1	0.53	0.56	0.53	34.5
North: NE 15th Avenue															
7	L2	All MCs	146	11.8	146	11.8	0.422	14.5	LOS B	2.0	54.5	0.68	0.83	0.78	32.1
4	T1	All MCs	63	11.8	63	11.8	0.422	8.0	LOS A	2.0	54.5	0.68	0.83	0.78	32.9
14	R2	All MCs	450	11.8	450	11.8	0.422	7.3	LOS A	2.1	58.3	0.67	0.77	0.74	34.1
Approach			659	11.8	659	11.8	0.422	8.9	LOS A	2.1	58.3	0.67	0.79	0.75	33.5
West: NE 179th Street															
5	L2	All MCs	270	5.6	270	5.6	0.185	11.0	LOS B	1.0	25.7	0.43	0.63	0.43	32.1
2	T1	All MCs	216	5.6	216	5.6	0.185	5.0	LOS A	1.0	25.7	0.45	0.47	0.45	35.2
12	R2	All MCs	167	5.6	167	5.6	0.104	4.3	LOS A	0.5	12.2	0.28	0.46	0.28	35.6
Approach			653	5.6	653	5.6	0.185	7.3	LOS A	1.0	25.7	0.40	0.53	0.40	33.9
All Vehicles			2401	7.5	2401	7.5	0.422	7.6	LOS A	2.1	58.3	0.53	0.62	0.55	33.9

Site Level of Service (LOS) Method: Delay & Degree of Saturation (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
Intersection and Approach LOS values are based on average delay for all movements (v/c not used).
Roundabout Capacity Model: SIDRA HCM.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

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MOVEMENT SUMMARY

Site: [1 (3)] 2028 Pre-Development - PM Peak Hour (1. NE 179th Street at NE 15th Avenue)

Output produced by SIDRA INTERSECTION Version: 11.0.2

NE 179th Street at NE 15th Avenue
2028 Pre-Development - PM Peak Hour
Roundabout
Site Scenario: 1 | Local Volumes

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] ft	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed mph
South: NE 15th Avenue															
3	L2	All MCs	215	3.8	215	3.8	0.311	14.3	LOS B	1.5	39.8	0.73	0.86	0.75	31.4
8	T1	All MCs	83	3.8	83	3.8	0.311	6.7	LOS A	1.5	39.8	0.73	0.74	0.73	34.3
18	R2	All MCs	151	3.8	151	3.8	0.311	6.9	LOS A	1.5	39.8	0.73	0.74	0.73	34.0
Approach			449	3.8	449	3.8	0.311	10.4	LOS B	1.5	39.8	0.73	0.80	0.74	32.8
East: NE 179th Street															
1	L2	All MCs	115	6.0	115	6.0	0.400	14.3	LOS B	2.1	55.0	0.71	0.80	0.78	32.5
6	T1	All MCs	374	6.0	374	6.0	0.400	7.4	LOS A	2.2	58.9	0.71	0.74	0.76	33.9
16	R2	All MCs	164	6.0	164	6.0	0.400	7.1	LOS A	2.2	58.9	0.71	0.69	0.75	34.1
Approach			653	6.0	653	6.0	0.400	8.5	LOS A	2.2	58.9	0.71	0.74	0.76	33.7
North: NE 15th Avenue															
7	L2	All MCs	145	3.5	145	3.5	0.269	12.5	LOS B	1.2	30.8	0.59	0.71	0.59	32.7
4	T1	All MCs	87	3.5	87	3.5	0.269	6.1	LOS A	1.2	30.8	0.59	0.71	0.59	33.4
14	R2	All MCs	267	3.5	267	3.5	0.253	5.7	LOS A	1.2	30.4	0.57	0.64	0.57	34.9
Approach			499	3.5	499	3.5	0.269	7.7	LOS A	1.2	30.8	0.58	0.67	0.58	33.9
West: NE 179th Street															
5	L2	All MCs	583	3.7	583	3.7	0.490	11.8	LOS B	3.1	80.9	0.57	0.67	0.57	31.8
2	T1	All MCs	591	3.7	591	3.7	0.390	4.8	LOS A	2.4	63.0	0.50	0.45	0.50	35.1
12	R2	All MCs	194	3.7	194	3.7	0.119	4.3	LOS A	0.6	14.5	0.30	0.46	0.30	35.6
Approach			1368	3.7	1368	3.7	0.490	7.7	LOS A	3.1	80.9	0.50	0.55	0.50	33.6
All Vehicles			2969	4.2	2969	4.2	0.490	8.3	LOS A	3.1	80.9	0.59	0.65	0.61	33.5

Site Level of Service (LOS) Method: Delay & Degree of Saturation (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
Intersection and Approach LOS values are based on average delay for all movements (v/c not used).
Roundabout Capacity Model: SIDRA HCM.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

MOVEMENT SUMMARY

Site: [1 (4)] 2028 Post-Development - PM Peak Hour (1. NE 179th Street at NE 15th Avenue)

Output produced by SIDRA INTERSECTION Version: 11.0.2

NE 179th Street at NE 15th Avenue
2028 Post-Development - PM Peak Hour
Roundabout
Site Scenario: 1 | Local Volumes

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] ft	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed mph
South: NE 15th Avenue															
3	L2	All MCs	215	3.8	215	3.8	0.312	14.3	LOS B	1.5	39.9	0.73	0.86	0.75	31.4
8	T1	All MCs	83	3.8	83	3.8	0.312	6.7	LOS A	1.5	39.9	0.73	0.74	0.73	34.3
18	R2	All MCs	151	3.8	151	3.8	0.312	6.9	LOS A	1.5	39.9	0.73	0.74	0.73	34.0
Approach			449	3.8	449	3.8	0.312	10.4	LOS B	1.5	39.9	0.73	0.80	0.74	32.8
East: NE 179th Street															
1	L2	All MCs	115	6.0	115	6.0	0.402	14.4	LOS B	2.1	55.4	0.71	0.80	0.78	32.5
6	T1	All MCs	377	6.0	377	6.0	0.402	7.4	LOS A	2.3	59.4	0.71	0.74	0.76	33.9
16	R2	All MCs	164	6.0	164	6.0	0.402	7.1	LOS A	2.3	59.4	0.71	0.70	0.75	34.1
Approach			656	6.0	656	6.0	0.402	8.5	LOS A	2.3	59.4	0.71	0.74	0.76	33.7
North: NE 15th Avenue															
7	L2	All MCs	145	3.5	145	3.5	0.269	12.5	LOS B	1.2	30.8	0.59	0.71	0.59	32.7
4	T1	All MCs	87	3.5	87	3.5	0.269	6.1	LOS A	1.2	30.8	0.59	0.71	0.59	33.4
14	R2	All MCs	267	3.5	267	3.5	0.253	5.7	LOS A	1.2	30.5	0.57	0.65	0.57	34.9
Approach			499	3.5	499	3.5	0.269	7.7	LOS A	1.2	30.8	0.58	0.67	0.58	33.9
West: NE 179th Street															
5	L2	All MCs	583	3.7	583	3.7	0.491	11.8	LOS B	3.1	81.0	0.57	0.67	0.57	31.8
2	T1	All MCs	596	3.7	596	3.7	0.394	4.8	LOS A	2.5	63.7	0.50	0.45	0.50	35.1
12	R2	All MCs	194	3.7	194	3.7	0.119	4.3	LOS A	0.6	14.5	0.30	0.46	0.30	35.6
Approach			1373	3.7	1373	3.7	0.491	7.7	LOS A	3.1	81.0	0.50	0.55	0.50	33.6
All Vehicles			2977	4.2	2977	4.2	0.491	8.3	LOS A	3.1	81.0	0.60	0.65	0.61	33.5

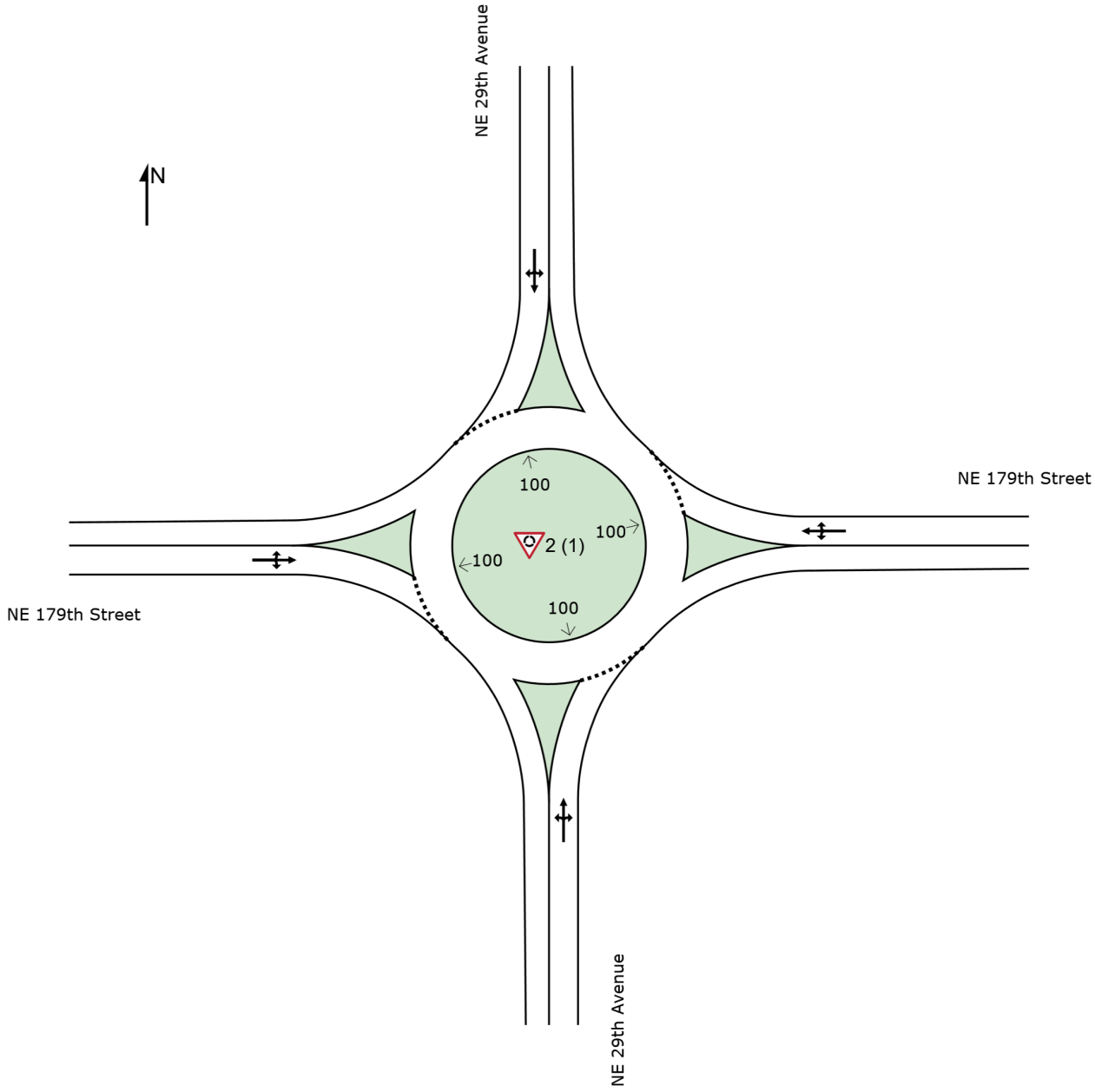
Site Level of Service (LOS) Method: Delay & Degree of Saturation (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
Intersection and Approach LOS values are based on average delay for all movements (v/c not used).
Roundabout Capacity Model: SIDRA HCM.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

SITE LAYOUT

Site: [2 (1)] 2028 Pre-Development - AM Peak Hour (2. NE 179th Street at NE 29th Avenue)

NE 179th Street at NE 29th Avenue
2028 Pre-Development - AM Peak Hour
Roundabout
Site Scenario: 1 | Local Volumes

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



MOVEMENT SUMMARY

Site: [2 (1)] 2028 Pre-Development - AM Peak Hour (2. NE 179th Street at NE 29th Avenue)

Output produced by SIDRA INTERSECTION Version: 11.0.2

NE 179th Street at NE 29th Avenue
2028 Pre-Development - AM Peak Hour
Roundabout
Site Scenario: 1 | Local Volumes

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] ft	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed mph
South: NE 29th Avenue															
3	L2	All MCs	42	2.3	42	2.3	0.129	11.6	LOS B	0.7	17.5	0.53	0.61	0.53	33.6
8	T1	All MCs	55	2.3	55	2.3	0.129	5.6	LOS A	0.7	17.5	0.53	0.61	0.53	34.3
18	R2	All MCs	36	2.3	36	2.3	0.129	5.7	LOS A	0.7	17.5	0.53	0.61	0.53	34.0
Approach			134	2.3	134	2.3	0.129	7.5	LOS A	0.7	17.5	0.53	0.61	0.53	34.0
East: NE 179th Street															
1	L2	All MCs	98	7.5	98	7.5	0.532	11.0	LOS B	3.9	103.3	0.47	0.49	0.47	33.9
6	T1	All MCs	521	7.5	521	7.5	0.532	5.0	LOS A	3.9	103.3	0.47	0.49	0.47	34.7
16	R2	All MCs	20	7.5	20	7.5	0.532	5.1	LOS A	3.9	103.3	0.47	0.49	0.47	34.4
Approach			638	7.5	638	7.5	0.532	5.9	LOS A	3.9	103.3	0.47	0.49	0.47	34.6
North: NE 29th Avenue															
7	L2	All MCs	20	3.8	20	3.8	0.254	13.6	LOS B	1.6	40.5	0.73	0.68	0.73	33.3
4	T1	All MCs	101	3.8	101	3.8	0.254	7.7	LOS A	1.6	40.5	0.73	0.68	0.73	34.1
14	R2	All MCs	86	3.8	86	3.8	0.254	7.8	LOS A	1.6	40.5	0.73	0.68	0.73	33.8
Approach			207	3.8	207	3.8	0.254	8.3	LOS A	1.6	40.5	0.73	0.68	0.73	33.9
West: NE 179th Street															
5	L2	All MCs	54	12.2	54	12.2	0.381	11.3	LOS B	2.3	62.7	0.48	0.52	0.48	33.8
2	T1	All MCs	322	12.2	322	12.2	0.381	5.4	LOS A	2.3	62.7	0.48	0.52	0.48	34.7
12	R2	All MCs	33	12.2	33	12.2	0.381	5.4	LOS A	2.3	62.7	0.48	0.52	0.48	34.3
Approach			409	12.2	409	12.2	0.381	6.2	LOS A	2.3	62.7	0.48	0.52	0.48	34.5
All Vehicles			1387	7.8	1387	7.8	0.532	6.5	LOS A	3.9	103.3	0.52	0.54	0.52	34.4

Site Level of Service (LOS) Method: Delay & Degree of Saturation (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
Intersection and Approach LOS values are based on average delay for all movements (v/c not used).
Roundabout Capacity Model: SIDRA HCM.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

MOVEMENT SUMMARY

Site: [2 (2)] 2028 Post-Development - AM Peak Hour (2. NE 179th Street at NE 29th Avenue)

Output produced by SIDRA INTERSECTION Version: 11.0.2

NE 179th Street at NE 29th Avenue
2028 Post-Development - AM Peak Hour
Roundabout
Site Scenario: 1 | Local Volumes

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] ft	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed mph
South: NE 29th Avenue															
3	L2	All MCs	42	2.3	42	2.3	0.130	11.6	LOS B	0.7	17.7	0.53	0.61	0.53	33.6
8	T1	All MCs	55	2.3	55	2.3	0.130	5.6	LOS A	0.7	17.7	0.53	0.61	0.53	34.3
18	R2	All MCs	37	2.3	37	2.3	0.130	5.7	LOS A	0.7	17.7	0.53	0.61	0.53	34.0
Approach			135	2.3	135	2.3	0.130	7.5	LOS A	0.7	17.7	0.53	0.61	0.53	34.0
East: NE 179th Street															
1	L2	All MCs	100	7.5	100	7.5	0.537	11.0	LOS B	4.0	105.2	0.47	0.50	0.47	33.9
6	T1	All MCs	525	7.5	525	7.5	0.537	5.0	LOS A	4.0	105.2	0.47	0.50	0.47	34.7
16	R2	All MCs	20	7.5	20	7.5	0.537	5.1	LOS A	4.0	105.2	0.47	0.50	0.47	34.4
Approach			645	7.5	645	7.5	0.537	6.0	LOS A	4.0	105.2	0.47	0.50	0.47	34.6
North: NE 29th Avenue															
7	L2	All MCs	20	3.8	20	3.8	0.256	13.7	LOS B	1.6	40.9	0.73	0.68	0.73	33.3
4	T1	All MCs	101	3.8	101	3.8	0.256	7.8	LOS A	1.6	40.9	0.73	0.68	0.73	34.1
14	R2	All MCs	86	3.8	86	3.8	0.256	7.8	LOS A	1.6	40.9	0.73	0.68	0.73	33.8
Approach			207	3.8	207	3.8	0.256	8.3	LOS A	1.6	40.9	0.73	0.68	0.73	33.9
West: NE 179th Street															
5	L2	All MCs	54	12.2	54	12.2	0.384	11.4	LOS B	2.3	63.3	0.48	0.52	0.48	33.7
2	T1	All MCs	324	12.2	324	12.2	0.384	5.4	LOS A	2.3	63.3	0.48	0.52	0.48	34.7
12	R2	All MCs	33	12.2	33	12.2	0.384	5.5	LOS A	2.3	63.3	0.48	0.52	0.48	34.3
Approach			411	12.2	411	12.2	0.384	6.2	LOS A	2.3	63.3	0.48	0.52	0.48	34.5
All Vehicles			1397	7.8	1397	7.8	0.537	6.5	LOS A	4.0	105.2	0.52	0.54	0.52	34.4

Site Level of Service (LOS) Method: Delay & Degree of Saturation (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
Intersection and Approach LOS values are based on average delay for all movements (v/c not used).
Roundabout Capacity Model: SIDRA HCM.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

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MOVEMENT SUMMARY

Site: [2 (3)] 2028 Pre-Development - PM Peak Hour (2. NE 179th Street at NE 29th Avenue)

Output produced by SIDRA INTERSECTION Version: 11.0.2

NE 179th Street at NE 29th Avenue
2028 Pre-Development - PM Peak Hour
Roundabout
Site Scenario: 1 | Local Volumes

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] ft	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed mph
South: NE 29th Avenue															
3	L2	All MCs	41	2.7	41	2.7	0.400	15.5	LOS B	2.9	74.5	0.87	0.76	0.90	32.5
8	T1	All MCs	129	2.7	129	2.7	0.400	9.5	LOS A	2.9	74.5	0.87	0.76	0.90	33.2
18	R2	All MCs	107	2.7	107	2.7	0.400	9.6	LOS A	2.9	74.5	0.87	0.76	0.90	32.9
Approach			277	2.7	277	2.7	0.400	10.4	LOS B	2.9	74.5	0.87	0.76	0.90	33.0
East: NE 179th Street															
1	L2	All MCs	64	4.2	64	4.2	0.551	11.8	LOS B	4.1	106.7	0.63	0.58	0.64	33.6
6	T1	All MCs	518	4.2	518	4.2	0.551	5.8	LOS A	4.1	106.7	0.63	0.58	0.64	34.4
16	R2	All MCs	30	4.2	30	4.2	0.551	5.9	LOS A	4.1	106.7	0.63	0.58	0.64	34.0
Approach			613	4.2	613	4.2	0.551	6.5	LOS A	4.1	106.7	0.63	0.58	0.64	34.3
North: NE 29th Avenue															
7	L2	All MCs	26	1.1	26	1.1	0.206	12.9	LOS B	1.3	32.6	0.70	0.66	0.70	33.6
4	T1	All MCs	67	1.1	67	1.1	0.206	6.9	LOS A	1.3	32.6	0.70	0.66	0.70	34.3
14	R2	All MCs	86	1.1	86	1.1	0.206	7.0	LOS A	1.3	32.6	0.70	0.66	0.70	34.0
Approach			179	1.1	179	1.1	0.206	7.8	LOS A	1.3	32.6	0.70	0.66	0.70	34.0
West: NE 179th Street															
5	L2	All MCs	123	3.5	123	3.5	0.669	11.2	LOS B	6.2	160.5	0.58	0.52	0.58	33.7
2	T1	All MCs	672	3.5	672	3.5	0.669	5.2	LOS A	6.2	160.5	0.58	0.52	0.58	34.5
12	R2	All MCs	43	3.5	43	3.5	0.669	5.3	LOS A	6.2	160.5	0.58	0.52	0.58	34.2
Approach			838	3.5	838	3.5	0.669	6.1	LOS A	6.2	160.5	0.58	0.52	0.58	34.4
All Vehicles			1908	3.4	1908	3.4	0.669	7.0	LOS A	6.2	160.5	0.65	0.59	0.66	34.1

Site Level of Service (LOS) Method: Delay & Degree of Saturation (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
Intersection and Approach LOS values are based on average delay for all movements (v/c not used).
Roundabout Capacity Model: SIDRA HCM.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

MOVEMENT SUMMARY

Site: [2 (4)] 2028 Post-Development - PM Peak Hour (2. NE 179th Street at NE 29th Avenue)

Output produced by SIDRA INTERSECTION Version: 11.0.2

NE 179th Street at NE 29th Avenue
2028 Post-Development - PM Peak Hour
Roundabout
Site Scenario: 1 | Local Volumes

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] ft	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed mph
South: NE 29th Avenue															
3	L2	All MCs	41	2.7	41	2.7	0.407	15.7	LOS B	3.0	77.1	0.88	0.77	0.91	32.4
8	T1	All MCs	129	2.7	129	2.7	0.407	9.7	LOS A	3.0	77.1	0.88	0.77	0.91	33.1
18	R2	All MCs	109	2.7	109	2.7	0.407	9.8	LOS A	3.0	77.1	0.88	0.77	0.91	32.8
Approach			279	2.7	279	2.7	0.407	10.6	LOS B	3.0	77.1	0.88	0.77	0.91	32.9
East: NE 179th Street															
1	L2	All MCs	66	4.2	66	4.2	0.556	11.8	LOS B	4.2	109.1	0.64	0.58	0.64	33.6
6	T1	All MCs	522	4.2	522	4.2	0.556	5.9	LOS A	4.2	109.1	0.64	0.58	0.64	34.3
16	R2	All MCs	30	4.2	30	4.2	0.556	6.0	LOS A	4.2	109.1	0.64	0.58	0.64	34.0
Approach			618	4.2	618	4.2	0.556	6.5	LOS A	4.2	109.1	0.64	0.58	0.64	34.2
North: NE 29th Avenue															
7	L2	All MCs	27	1.1	27	1.1	0.209	12.9	LOS B	1.3	33.2	0.71	0.67	0.71	33.5
4	T1	All MCs	67	1.1	67	1.1	0.209	7.0	LOS A	1.3	33.2	0.71	0.67	0.71	34.3
14	R2	All MCs	86	1.1	86	1.1	0.209	7.0	LOS A	1.3	33.2	0.71	0.67	0.71	34.0
Approach			180	1.1	180	1.1	0.209	7.9	LOS A	1.3	33.2	0.71	0.67	0.71	34.0
West: NE 179th Street															
5	L2	All MCs	123	3.5	123	3.5	0.675	11.2	LOS B	6.3	163.2	0.59	0.52	0.59	33.7
2	T1	All MCs	677	3.5	677	3.5	0.675	5.3	LOS A	6.3	163.2	0.59	0.52	0.59	34.5
12	R2	All MCs	43	3.5	43	3.5	0.675	5.3	LOS A	6.3	163.2	0.59	0.52	0.59	34.1
Approach			843	3.5	843	3.5	0.675	6.1	LOS A	6.3	163.2	0.59	0.52	0.59	34.3
All Vehicles			1922	3.4	1922	3.4	0.675	7.1	LOS A	6.3	163.2	0.66	0.59	0.67	34.1

Site Level of Service (LOS) Method: Delay & Degree of Saturation (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
Intersection and Approach LOS values are based on average delay for all movements (v/c not used).
Roundabout Capacity Model: SIDRA HCM.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

APPENDIX F – SAFETY ANALYSIS

Crash History Reports

OFFICER REPORTED CRASHES THAT OCCURRED AT MULTIPLE INTERSECTIONS IN CLARK COUNTY

INTERSECTIONS

179TH ST (CO RD #94360, MP 0.260 - 0.300) @ 15TH AVE (CO RD #43110, MP 2.490 - 2.510)

01/01/2020 - *available 2025* *See 2nd tab below for road information*

Under 23 U.S. Code § 148 and 23 U.S. Code § 407, safety data, reports, surveys, schedules, lists compiled or collected for the purpose of identifying, evaluating, or planning the safety enhancement of potential crash sites, hazardous roadway conditions, or railway-highway crossings are not subject to discovery or admitted into evidence in a Federal or State court proceeding or considered for other purposes in any action for damages arising from any occurrence at a location mentioned or addressed in such reports, surveys, schedules, lists, or data.

JURISDICTION	COUNTY	CITY	PRIMARY TRAFFICWAY	MILEPOST	A / B	BLOCK NUMBER	INTERSECTING TRAFFICWAY	CO ONLY Intersecting County Road MP	DIST FROM REF POINT	MI or FT	COMP DIR FROM REF POINT	REFERENCE POINT NAME	SR ONLY ACCUMULATIVE ROUTE MILEPOST (ARM)	SR ONLY HISTORY / SUSPENSE IND	REPORT NUMBER	DATE	TIME	MOST SEVERE INJURY TYPE	# INJ	# FAT	# VEH	# PEDS	# BIKES	VEHICLE 1 TYPE	VEHICLE 2 TYPE	JUNCTION RELATIONSHIP	WEATHER
County Road	Clark		94360	0.280			43110	2.510						No	EE68818	03/23/2024	18:02	No Apparent Injury	0	0	2	0	0	Passenger Car	Pickup,Panel Truck or Vanette under 10,000 lb	At Intersection and Related	Raining
County Road	Clark		94360	0.280			43110	2.510						No	EA75716	10/22/2020	16:34	No Apparent Injury	0	0	2	0	0	Passenger Car	Pickup,Panel Truck or Vanette under 10,000 lb	At Intersection and Related	Clear or Partly Cloudy
County Road	Clark		94360	0.280			43110	2.510						No	EC80219	08/15/2022	12:02	No Apparent Injury	0	0	2	0	0	Truck (Flatbad,Van,etc)	Pickup,Panel Truck or Vanette under 10,000 lb	At Intersection and Related	Clear or Partly Cloudy
County Road	Clark		94360	0.280			43110	2.510						No	ED88656	06/02/2023	07:30	No Apparent Injury	0	0	2	0	0	Truck (Flatbad,Van,etc)	Passenger Car	At Intersection and Related	Clear or Partly Cloudy
County Road	Clark		94360	0.280			43110	2.510						No	EC07748	01/02/2022	12:41	Possible Injury	1	0	2	0	0	Passenger Car	Passenger Car	At Intersection and Related	Overcast

OFFICER REPORTED CRASHES THAT OCCURRED AT MULTIPLE INTERSECTIONS IN CLARK COUNTY

INTERSECTIONS

179TH ST (CO RD #94360, MP 0.260 - 0.300) @ 15TH AVE (CO RD #43110, MP 2.490 - 2.510)

01/01/2020 - *available 2025* *See 2nd tab below for road information*

Under 23 U.S. Code § 148 and 23 U.S. Code § 407, safety data, reports, surveys, schedules, lists compiled or collected for the purpose of identifying, evaluating, or planning the safety enhancement of potential crash sites, hazardous roadway conditions, or railway-highway crossings are not subject to discovery or admitted into evidence in a Federal or State court proceeding or considered for other purposes in any action for damages arising from any occurrence at a location mentioned or addressed in such reports, surveys, schedules, lists, or data.

ROADWAY SURFACE CONDITION	LIGHTING CONDITION	FIRST COLLISION TYPE / OBJECT STRUCK	VEHICLE 1 ACTION	VEHICLE 2 ACTION	VEHICLE 1 COMPASS DIRECTION FROM	VEHICLE 1 COMPASS DIRECTION TO	VEHICLE 2 COMPASS DIRECTION FROM	VEHICLE 2 COMPASS DIRECTION TO	MV DRIVER CONTRIBUTING CIRCUMSTANCE 1 (UNIT 1)	MV DRIVER CONTRIBUTING CIRCUMSTANCE 2 (UNIT 1)	MV DRIVER CONTRIBUTING CIRCUMSTANCE 3 (UNIT 1)	MV DRIVER CONTRIBUTING CIRCUMSTANCE 1 (UNIT 2)	MV DRIVER CONTRIBUTING CIRCUMSTANCE 2 (UNIT 2)	MV DRIVER CONTRIBUTING CIRCUMSTANCE 3 (UNIT 2)	FIRST IMPACT LOCATION (City, County & Misc Trafficways - 2010 forward)	WA STATE PLANE SOUTH - X 2010 - FORWARD	WA STATE PLANE SOUTH - Y 2010 - FORWARD
Wet	Daylight	From opposite direction - one left turn - one straight	Making Left Turn	Going Straight Ahead	East	South	West	East	Other Distractions			None			Lane of Primary Trafficway	1090128.54	159720.94
Dry	Daylight	From opposite direction - one left turn - one straight	Making Left Turn	Going Straight Ahead	East	South	West	East	Did Not Grant RW to Vehicle			None			Lane of Primary Trafficway	1090128.54	159720.94
Dry	Daylight	Entering at angle	Going Straight Ahead	Making Left Turn	West	East	South	West	Did Not Grant RW to Vehicle			None			Lane of Primary Trafficway	1090128.54	159720.94
Dry	Daylight	Entering at angle	Going Straight Ahead	Making Left Turn	West	East	South	West	Disregard Traffic Sign and Signals			None			Lane of Primary Trafficway	1090128.54	159720.94
Dry	Daylight	Entering at angle	Making Right Turn	Going Straight Ahead	South	East	East	West	Exceeding Reas. Safe Speed			None			Lane of Primary Trafficway	1090128.54	159720.94

OFFICER REPORTED CRASHES THAT OCCURRED AT MULTIPLE INTERSECTIONS IN CLARK COUNTY

INTERSECTIONS

179TH ST (CO RD #94360, MP 0.970 - 1.010) @ 29TH AVE (CO RD #43330, MP 2.240 - 2.280)

01/01/2020 - *available 2025* *See 2nd tab below for road information*

Under 23 U.S. Code § 148 and 23 U.S. Code § 407, safety data, reports, surveys, schedules, lists compiled or collected for the purpose of identifying, evaluating, or planning the safety enhancement of potential crash sites, hazardous roadway conditions, or railway-highway crossings are not subject to discovery or admitted into evidence in a Federal or State court proceeding or considered for other purposes in any action for damages arising from any occurrence at a location mentioned or addressed in such reports, surveys, schedules, lists, or data.

JURISDICTION	COUNTY	CITY	PRIMARY TRAFFICWAY	MILEPOST	A / B	BLOCK NUMBER	INTERSECTING TRAFFICWAY	CO ONLY Intersecting County Road MP	DIST FROM REF POINT	MI or FT	COMP DIR FROM REF POINT	REFERENCE POINT NAME	SR ONLY ACCUMULATIVE ROUTE MILEPOST (ARM)	SR ONLY HISTORY / SUSPENSE IND	REPORT NUMBER	DATE	TIME	MOST SEVERE INJURY TYPE	# INJ	# FAT	# VEH	# PEDS	# BIKES	VEHICLE 1 TYPE	VEHICLE 2 TYPE	JUNCTION RELATIONSHIP	WEATHER
County Road	Clark		43330	2.260			94360	0.990						No	ED16740	12/18/2022	14:53	Suspected Minor Injury	1	0	2	0	0	Pickup,Panel Truck or Vanette under 10,000 lb	Pickup,Panel Truck or Vanette under 10,000 lb	At Intersection and Related	Clear
County Road	Clark		94360	0.990			43330	2.260						No	EF80764	03/21/2025	19:42	Suspected Serious Injury	1	0	2	0	0	Passenger Car	Passenger Car	At Intersection and Related	Raining
County Road	Clark		94360	0.990			43330	2.260						No	EE25446	10/31/2023	07:26	No Apparent Injury	0	0	2	0	0	Pickup,Panel Truck or Vanette under 10,000 lb	Passenger Car	At Intersection and Related	Clear
County Road	Clark		94360	0.990			43330	2.260						No	EC53355	05/25/2022	19:43	No Apparent Injury	0	0	2	0	0	Pickup,Panel Truck or Vanette under 10,000 lb	Pickup,Panel Truck or Vanette under 10,000 lb	Entering Roundabout	Clear
County Road	Clark		94360	0.990			43330	2.260						No	ED10607	11/28/2022	17:28	Possible Injury	1	0	3	0	0	Pickup,Panel Truck or Vanette under 10,000 lb	Passenger Car	At Intersection and Related	Fog or Smog or Smoke
County Road	Clark		94360	0.990			43330	2.260						No	EG07041	06/20/2025	10:29	No Apparent Injury	0	0	2	0	0	Passenger Car	Passenger Car	At Intersection and Related	Raining
County Road	Clark		94360	0.990			43330	2.260						No	EC19856	02/07/2022	13:33	Possible Injury	1	0	2	0	0	Truck (Flatbad,Van,etc)	Pickup,Panel Truck or Vanette under 10,000 lb	At Intersection and Related	Clear or Partly Cloudy
County Road	Clark		94360	0.990			43330	2.260						No	EA47114	07/07/2020	09:56	No Apparent Injury	0	0	2	0	0	Passenger Car	Pickup,Panel Truck or Vanette under 10,000 lb	At Intersection and Related	Raining
County Road	Clark		94360	0.990			43330	2.260						No	EC37890	03/25/2022	15:22	No Apparent Injury	0	0	2	0	0	Pickup,Panel Truck or Vanette under 10,000 lb	Pickup,Panel Truck or Vanette under 10,000 lb	At Intersection and Related	Clear or Partly Cloudy

OFFICER REPORTED CRASHES THAT OCCURRED AT MULTIPLE INTERSECTIONS IN CLARK COUNTY

INTERSECTIONS

179TH ST (CO RD #94360, MP 0.970 - 1.010) @ 29TH AVE (CO RD #43330, MP 2.240 - 2.280)

01/01/2020 - *available 2025* *See 2nd tab below for road information*

Under 23 U.S. Code § 148 and 23 U.S. Code § 407, safety data, reports, surveys, schedules, lists compiled or collected for the purpose of identifying, evaluating, or planning the safety enhancement of potential crash sites, hazardous roadway conditions, or railway-highway crossings are not subject to discovery or admitted into evidence in a Federal or State court proceeding or considered for other purposes in any action for damages arising from any occurrence at a location mentioned or addressed in such reports, surveys, schedules, lists, or data.

ROADWAY SURFACE CONDITION	LIGHTING CONDITION	FIRST COLLISION TYPE / OBJECT STRUCK	VEHICLE 1 ACTION	VEHICLE 2 ACTION	VEHICLE 1 COMPASS DIRECTION FROM	VEHICLE 1 COMPASS DIRECTION TO	VEHICLE 2 COMPASS DIRECTION FROM	VEHICLE 2 COMPASS DIRECTION TO	MV DRIVER CONTRIBUTING CIRCUMSTANCE 1 (UNIT 1)	MV DRIVER CONTRIBUTING CIRCUMSTANCE 2 (UNIT 1)	MV DRIVER CONTRIBUTING CIRCUMSTANCE 3 (UNIT 1)	MV DRIVER CONTRIBUTING CIRCUMSTANCE 1 (UNIT 2)	MV DRIVER CONTRIBUTING CIRCUMSTANCE 2 (UNIT 2)	MV DRIVER CONTRIBUTING CIRCUMSTANCE 3 (UNIT 2)	FIRST IMPACT LOCATION (City, County & Misc Trafficways - 2010 forward)	WA STATE PLANE SOUTH - X 2010 - FORWARD	WA STATE PLANE SOUTH - Y 2010 - FORWARD
Wet	Daylight	Entering at angle	Going Straight Ahead	Going Straight Ahead	West	East	North	South	Disregard Traffic Sign and Signals			None			Lane of Primary Trafficway	1093914.19	159640.78
Wet	Dark-No Street Lights	Entering at angle	Making Left Turn	Going Straight Ahead	South	West	East	West	Did Not Grant RW to Vehicle			Did Not Grant RW to Vehicle			Lane of Primary Trafficway	1093914.19	159640.78
Dry	Dark - Unknown Lightin	Entering at angle	Going Straight Ahead	Going Straight Ahead	South	North	West	East	Disregard Traffic Sign and Signals			None			Lane of Primary Trafficway	1093914.19	159640.78
Dry	Daylight	Entering at angle	Going Straight Ahead	Going Straight Ahead	East	West	North	South	Distracted by Other Occupant			None			Lane of Primary Trafficway	1131730.85	119503.08
Wet	Dark-No Street Lights	Entering at angle	Going Straight Ahead	Going Straight Ahead	East	West	South	North	Disregard Traffic Sign and Signals			None			Lane of Primary Trafficway	1093914.19	159640.78
Wet	Daylight	Entering at angle	Starting in Traffic Lane	Starting in Traffic Lane	South	North	West	East	Did Not Grant RW to Vehicle			None			Lane of Primary Trafficway	1093914.19	159640.78
Dry	Daylight	Entering at angle	Going Straight Ahead	Going Straight Ahead	East	West	South	North	Disregard Traffic Sign and Signals			None			Lane of Primary Trafficway	1093914.19	159640.78
Wet	Daylight	Entering at angle	Starting in Traffic Lane	Starting in Traffic Lane	East	West	North	South	Did Not Grant RW to Vehicle			None			Lane of Primary Trafficway	1093914.43	159639.32
Dry	Daylight	Entering at angle	Making Left Turn	Going Straight Ahead	East	South	South	Vehicle Stopped	Distracted by Adjusting Vehicle Cntrls			None			Intersecting Trafficway	1078172.95	159926.58

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JURISDICTION	COUNTY	CITY	PRIMARY TRAFFICWAY	MILEPOST	A / B	BLOCK NUMBER	INTERSECTING TRAFFICWAY	CO ONLY Intersecting County Road MP	DIST FROM REF POINT	MI or FT	COMP DIR FROM REF POINT	REFERENCE POINT NAME	SR ONLY ACCUMULATIVE ROUTE MILEPOST (ARM)	SR ONLY HISTORY / SUSPENSE IND	REPORT NUMBER	DATE	TIME	MOST SEVERE INJURY TYPE	# INJ	# FAT	# VEH	# PEDS	# BIKES	VEHICLE 1 TYPE	VEHICLE 2 TYPE	JUNCTION RELATIONSHIP	WEATHER
County Road	Clark		94360	0.990			43330	2.260						No	EA78834	10/30/2020	13:00	No Apparent Injury	0	0	2	0	0	Passenger Car	Pickup,Panel Truck or Vanette under 10,000 lb	At Intersection and Related	Clear or Partly Cloudy
County Road	Clark		94360	0.990			43330	2.260						No	ED57928	05/02/2023	14:25	Possible Injury	1	0	2	0	0	Passenger Car	Passenger Car	At Intersection and Related	Clear or Partly Cloudy
County Road	Clark		94360	0.990			43330	2.260						No	ED48528	03/28/2023	21:40	No Apparent Injury	0	0	2	0	0	Pickup,Panel Truck or Vanette under 10,000 lb	Pickup,Panel Truck or Vanette under 10,000 lb	At Intersection and Related	Raining
County Road	Clark		94360	0.990			43330	2.260						No	ED31158	01/23/2023	16:32	No Apparent Injury	0	0	2	0	0	Passenger Car	Pickup,Panel Truck or Vanette under 10,000 lb	At Intersection and Related	Clear
County Road	Clark		94360	0.990			43330	2.260						No	EB76046	09/10/2021	17:42	Possible Injury	2	0	2	0	0	Passenger Car	Passenger Car	At Intersection and Related	Clear or Partly Cloudy
County Road	Clark		94360	0.990			43330	2.260						No	EE95856	07/14/2024	22:23	No Apparent Injury	0	0	2	0	0	Pickup,Panel Truck or Vanette under 10,000 lb	Pickup,Panel Truck or Vanette under 10,000 lb	At Intersection and Related	Clear

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ROADWAY SURFACE CONDITION	LIGHTING CONDITION	FIRST COLLISION TYPE / OBJECT STRUCK	VEHICLE 1 ACTION	VEHICLE 2 ACTION	VEHICLE 1 COMPASS DIRECTION FROM	VEHICLE 1 COMPASS DIRECTION TO	VEHICLE 2 COMPASS DIRECTION FROM	VEHICLE 2 COMPASS DIRECTION TO	MV DRIVER CONTRIBUTING CIRCUMSTANCE 1 (UNIT 1)	MV DRIVER CONTRIBUTING CIRCUMSTANCE 2 (UNIT 1)	MV DRIVER CONTRIBUTING CIRCUMSTANCE 3 (UNIT 1)	MV DRIVER CONTRIBUTING CIRCUMSTANCE 1 (UNIT 2)	MV DRIVER CONTRIBUTING CIRCUMSTANCE 2 (UNIT 2)	MV DRIVER CONTRIBUTING CIRCUMSTANCE 3 (UNIT 2)	FIRST IMPACT LOCATION (City, County & Misc Trafficways - 2010 forward)	WA STATE PLANE SOUTH - X 2010 - FORWARD	WA STATE PLANE SOUTH - Y 2010 - FORWARD
Dry	Daylight	From same direction - both going straight - one stopped - rear-end	Going Straight Ahead	Stopped at Signal or Stop Sign	East	West	East	West	Unknown Distraction			None			Lane of Primary Trafficway	1093914.19	159640.78
Dry	Daylight	Entering at angle	Going Straight Ahead	Making Left Turn	West	East	North	South	Disregard Traffic Sign and Signals			None			Lane of Primary Trafficway	1093914.19	159640.78
Wet	Dark-No Street Lights	Entering at angle	Going Straight Ahead	Starting in Traffic Lane	West	East	South	North	Disregard Traffic Sign and Signals			None			Lane of Primary Trafficway	1093914.19	159640.78
Dry	Dusk	Entering at angle	Going Straight Ahead	Starting in Traffic Lane	West	East	South	North	Unknown Distraction			Unknown Distraction			Lane of Primary Trafficway	1093914.19	159640.78
Dry	Daylight	From opposite direction - one left turn - one straight	Going Straight Ahead	Making Left Turn	West	East	East	South	Disregard Traffic Sign and Signals			None			Lane of Primary Trafficway	1093914.19	159640.78
Dry	Dark-No Street Lights	Entering at angle	Going Straight Ahead	Going Straight Ahead	South	North	West	East	Under Influence of Alcohol	Unknown Distraction		None			Lane of Primary Trafficway	1093914.19	159640.78

APPENDIX G – WARRANT ANALYSIS

Left-Turn Lane Warrant Calculations

Exhibit 1310-9 Left-Turn Storage Guidelines: Two-Lane, Unsignalized

