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Reserve at Green Mountain

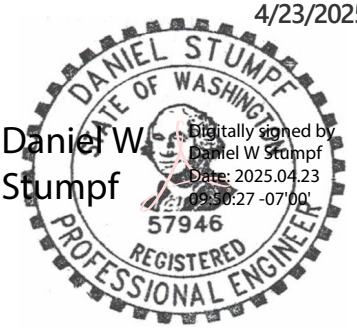
Transportation Impact Study
Camas, Washington

Date:
April 23, 2025

Prepared for:
Nick Edwards
Pacific Lifestyle Homes

Prepared by:
Daniel Stumpf, PE

4/23/2025



Daniel W Stumpf

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Executive Summary

1. The proposed Reserve at Green Mountain project will include the construction of a residential subdivision on a single property addressed at 2625 NE Goodwin Road in Camas, Washington. The proposal will include the construction of 38 single-family detached houses, maintaining 1 existing house for a net increase of 37 homes. Access to the site will be provided via a proposed street connection along NE Goodwin Road.
2. The trip generation calculations show that the proposed subdivision is projected to generate an additional 26 AM peak hour trips, 35 PM peak hour trips, and 348 average weekday trips.
3. The proposed development is projected to impact nine of the transportation facilities where proportionate share fees are being collected by the City of Vancouver. The proposed development application will need to contribute a proportionate share fee of $34,199 toward these transportation improvement projects.
4. No significant trends or crash patterns were identified at any of the study intersections that are indicative of safety concerns. Accordingly, no crash-related mitigation is necessary or recommended as part of the proposed development application.
5. Adequate intersection and stopping sight distances are available at the proposed site access intersection to allow for safe and efficient operation along NE 28th Street. No sight distance related mitigation is necessary or recommended.
6. Left-turn lane, traffic signal, and all-way stop-control warrants are not projected to be met at any of the applicable study intersections under any analysis scenario through the 2027 site buildout year. Accordingly, no new turn lanes or revisions to traffic controls are necessary or recommended as part of the proposed Reserve at Green Mountain project.
7. The proposed development will reconstruct its associated street frontage with NE 28th Street to include pedestrian and bicycle facilities in accordance with City of Camas street standards. Additionally, appropriate pedestrian and bicycle facilities will be constructed within site internal streets to accommodate student pickup/drop-off via school bus. Therefore, adequate pedestrian and bicycle facilities will be available to accommodate students who may reside within the proposed Reserve at Green Mountain subdivision, and no further mitigation to pedestrian and bicycle facilities are necessary and recommended.
8. All study intersections are currently operating acceptably per applicable agency standards and are projected to continue operating acceptably through the 2027 buildout year of the site. Accordingly, no operational mitigation is necessary or recommended at the study intersections as part of the proposed development application.
9. The northeast bound left-turn lane at the intersection of NE Ingle Road at NE Goodwin Road is projected to experience 95th percentile queues which exceed the available striped lane storage. However, this excess queue can be accommodated by the northeast bound through lane without extending back to any other public intersection or driveway along NE Goodwin Road. Limited to no impacts to other intersections, as well as the study intersection itself, are expected to occur due to this queuing. Therefore, no queuing-related mitigation at the intersection is recommended as part of the proposed development.

Project Description

Introduction

The proposed Reserve at Green Mountain project will include the construction of a residential subdivision on a single property addressed at 2625 NE Goodwin Road in Camas, Washington. The proposal will include the construction of 38 single-family detached houses, maintaining 1 existing house for a net increase of 37 homes. Access to the site will be provided via a proposed street connection along NE 28th Street.

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

1. NE Ingle Road at NE Goodwin Road (City of Camas)
2. Site Access at NE 28th Street (City of Camas)
3. NE 232nd Avenue at NE 28th Street (Clark County)
4. NE 242nd Avenue (SR-500) at NE 28th Street (WSDOT)

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 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 south of NE 28th Street, east of NE Ingle Road, and west of NE 232nd Avenue in Camas, Washington. The site consists of a single property (assessor parcel 173192000), which encompasses an approximate total of 11.67 acres. Located within a developing area of the City of Camas, the site is immediately surrounded by low-density residential uses to the east and west, and undeveloped/forested land to the north and south.

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 five 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 Ingle Road	Camas	Collector	40	Not Permitted	Partial East Side	Partial Both Sides
NE Goodwin Road	Camas	Arterial	35/40	Not Permitted	Partial South Side	Partial Both Sides
NE 28th Street	Camas/Clark County	Arterial	40	Not Permitted	Partial North Side	Partial North Side
NE 232nd Avenue	Clark County	Arterial	45	Not Permitted	None	None
SR-500	WSDOT	Regionally Significant Highway	45	Not Permitted	None	None

Table Notes: Functional classification based on City of Camas Functional Classification Map

Study Intersections

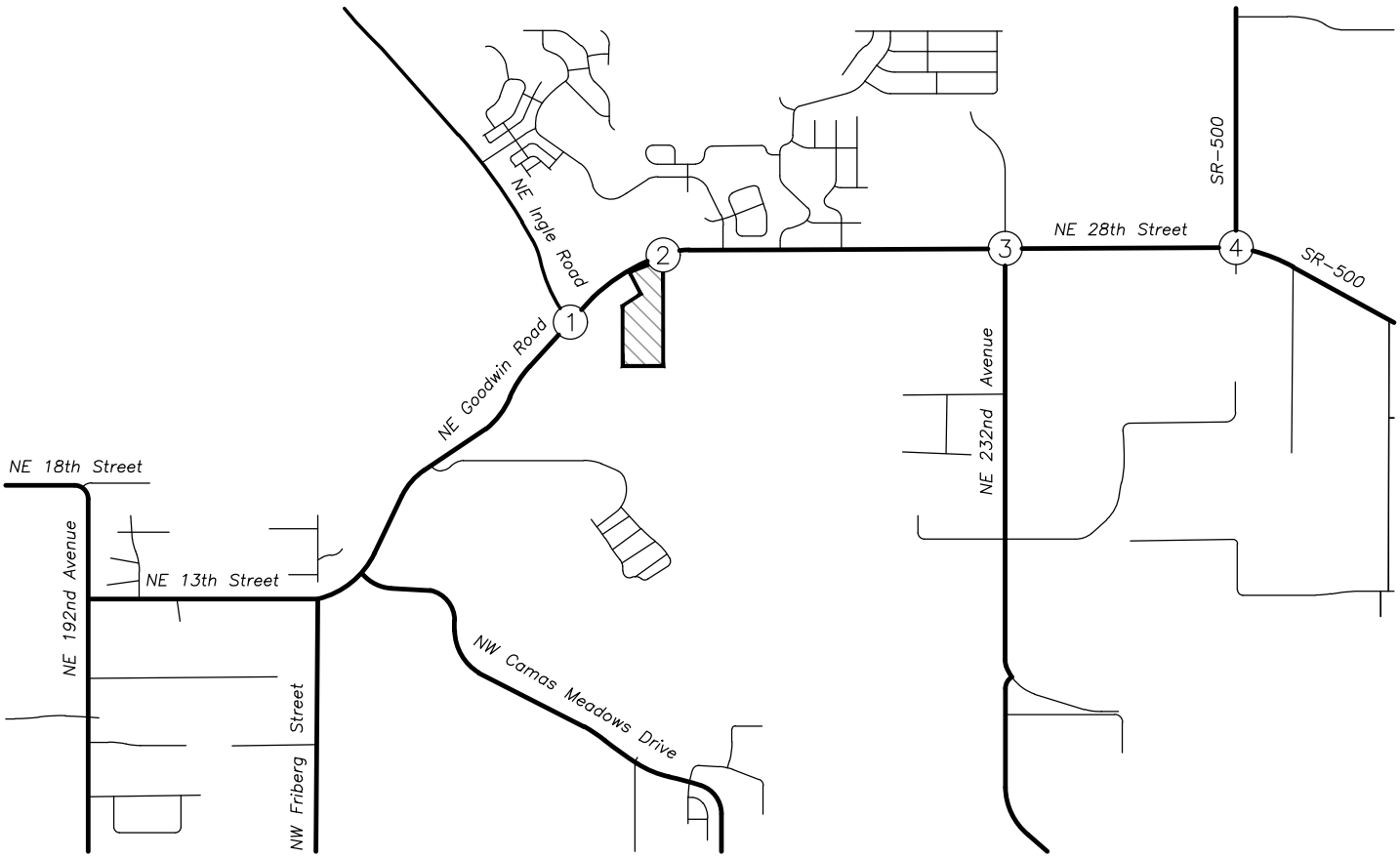
An analysis of four existing nearby intersections of significance was conducted. A summarized description of these study intersections under their existing lane configurations is provided in Table 2.

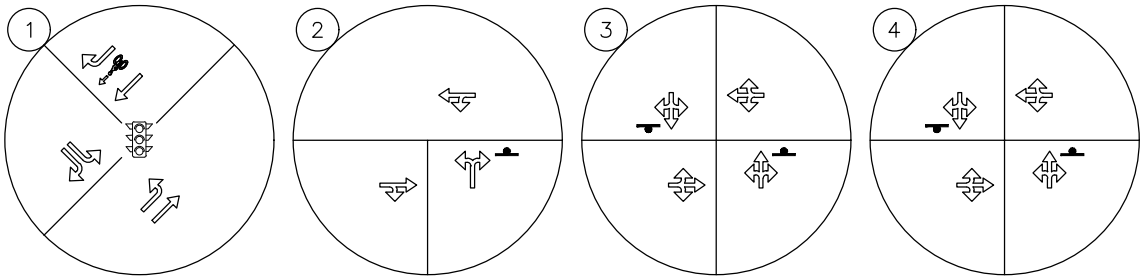
Table 2: Study Intersection Descriptions

Number	Intersection	Geometry	Traffic Control	Phasing/Stopped Approaches
1	NE Ingle Road at NE Goodwin Road	Three-Legged	Signal	FYA NEB Left-turn Lane
2	Site Access at NE 28th Street	Three-Legged	Stop-Controlled	NB Stop-Controlled Approach
3	NE 232nd Avenue at NE 28th Street	Four-Legged	Stop-Controlled	NB/SB Stop-Controlled Approaches
4	SR-500 at NE 28th Street	Four-Legged	Stop-Controlled	NB/SB Stop-Controlled 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.





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VICINITY MAP

Figure 2

Reserve at Green Mountain

4/23/2025

Site Trips

Trip Generation

Site Trip Generation

The proposed Reserve at Green Mountain subdivision will include the construction of 38 single-family detached houses, maintaining 1 existing house for a net increase of 37 homes. 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, 11th Edition*.[1] were used. Data from the 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 an additional 26 AM peak hour trips, 35 PM peak hour trips, and 348 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		Size	Morning Peak Hour			Evening Peak Hour			Weekday Total
			Enter	Exit	Total	Enter	Exit	Total	
Existing Conditions									
210	Single-Family Detached Housing	1 unit	0	1	1	1	0	1	10
Proposed Conditions									
210	Single-Family Detached Housing	38 units	7	20	27	23	13	36	358
Net Change In Site Trip Generation									
Net New Trips		**37 units**	**7**	**19**	**26**	**22**	**13**	**35**	**348**

Assessor Parcels 173206000 and 173173000 – Trip Generation

The proposed site access at NE 28th Street will be located along east side of the project site. The proposed access will replace an existing shared driveway which serves assessor parcels 173206000 and 173173000. Both parcels are developed with single-family detached houses, where two of these houses utilize the shared driveway. To estimate existing site trip generation at the access intersection, data from land use code 210 was referenced. For the purposes of simplicity and to provide an overly conservative evaluation of existing traffic operation at the driveway intersection, trips generated by the existing on-site single family house, as described in Table 3, were consolidated with the trips generated by the two off-site single-family houses.

The trip generation estimates associated with the three existing on-site and off-site houses are summarized in Table 4. Detailed trip generation calculations are included in the technical appendix.

[1] Institute of Transportation Engineers (ITE), *Trip Generation Manual*, 11th Edition, 2021.

Table 4: Existing On and Off-Site Trip Generation

ITE Land Use Code		Size	Morning Peak Hour			Evening Peak Hour			Weekday Total
			Enter	Exit	Total	Enter	Exit	Total	
Existing Site Trip Generation									
210	Single-Family Detached Housing	1 unit	0	1	1	1	0	1	10
Existing Off-Site Trip Generation									
210	Single-Family Detached Housing	2 units	0	1	1	1	1	2	18
Total Existing Trips Generated									
Total Trips		**3 units**	**0**	**2**	**2**	**2**	**1**	**3**	**28**

Trip Distribution

The trip distribution of the project site was derived using the Southwest Washington Regional Transportation Council (RTC) transportation system model. The project site is located in Transportation Analysis Zone (TAZ) #1829, 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:

- Approximately 48% of site trips will travel to/from the southwest along NE Goodwin Road, southwest of NE Ingle Road.
- Approximately 21% of site trips will travel to/from the north along NE Ingle Road, north of NE Goodwin Road.
- Approximately 15% of site trips will travel to/from the south along NE 232nd Avenue, south of NE 28th Street.
- Approximately 9% of site trips will travel to/from the north along SR-500, north of NE 28th Street.
- Approximately 7% of site trips will travel to/from the east along SR-500, east of NE 28th Street.

The trip distribution and assignment for the site trips generated during the AM and PM peak hours are shown in Figure 3.

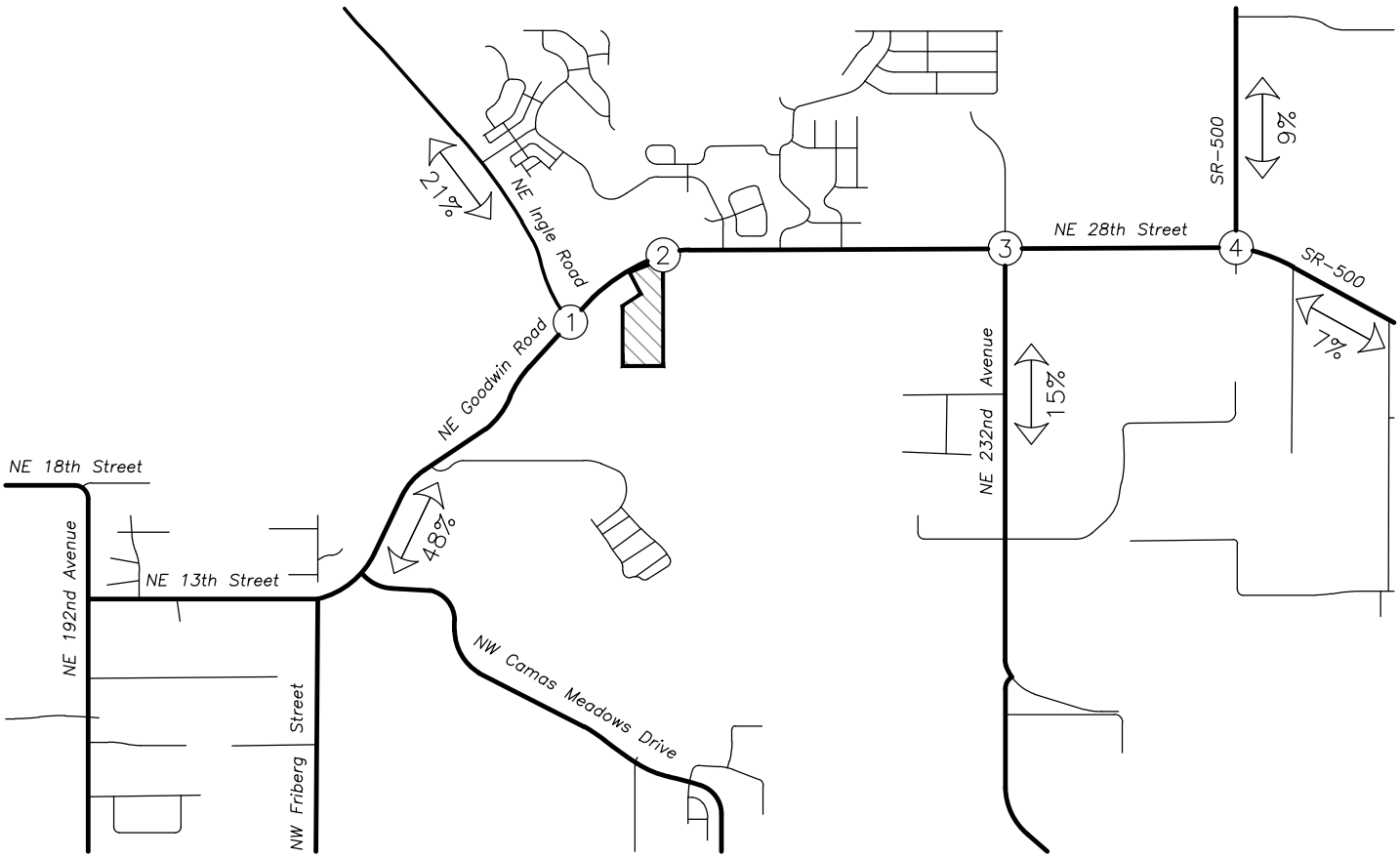
Proportionate Share Contributions

According to the project's Pre-Application Conference Report, proportionate share contributions are being collected for several transportation facilities throughout the City of Vancouver. Table 5 details these transportation improvement projects and the proportionate share fee contributions attributable to the proposed development.

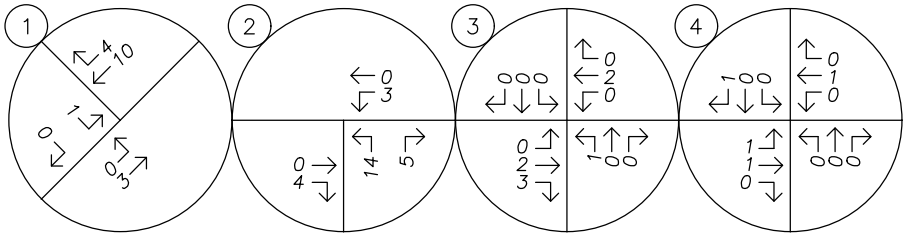
Table 5: Proportionate Share Contributions

Project Location	Unit Cost Per Trip		Percent of Site Trips Generated	Peak Hour Trip Impact		Proportionate Share Contribution
NE 137th Avenue (NE 49th Street to NE Fourth Plain Boulevard)	$3,000	PM	0.00%	0	PM	$0
NE Fourth Plain Boulevard at NE 152nd Avenue (Signal)	$333	PM	9.09%	3	PM	$999
S Lieser Road at MacArthur Boulevard/St Helens Avenue	$2,000	PM	0.00%	0	PM	$0
SE 176th Avenue at SE 20th Street	$400	PM	1.14%	0	PM	$0
NE 192nd Avenue at NE 13th Street	$400	PM	43.18%	15	PM	$6,000
SE 192nd Avenue at SE 34th Street	$150	PM	11.36%	4	PM	$600
SE 192nd Avenue at SR-14 Ramps	$2,000	PM	6.82%	2	PM	$4,000
SE 192nd Avenue at SE Columbia Palisades Drive (east/west legs only)	$830	PM	0.00%	0	PM	$0
MacArthur Boulevard at Andresen Road (Roundabout)	$2,285	PM	0.00%	0	PM	$0
MacArthur Boulevard at N Devine Road (Roundabout)	$2,226	PM	0.00%	0	PM	$0
Grove Street/SR-14 Off-Ramp at Columbia House Boulevard	$600	AM	0.00%	0	AM	$0
NE 172nd Avenue at NE 18th Street	$300	PM	9.09%	3	PM	$900
NE 179th Place at NE 18th Street	$900	PM	11.36%	4	PM	$3,600
NE 187th Avenue at NE 18th Street	$1,200	PM	13.64%	5	PM	$6,000
NE 162nd Avenue at NE 9th Street	$1,500	PM	0.00%	0	PM	$0
NE 172nd Avenue at NE 9th Street	$4,100	PM	0.00%	0	PM	$0
NE 192nd Avenue at NE 9th Street	$1,100	PM	28.41%	10	PM	$11,000
NE 187th Avenue at SE 1st Street	$1,100	PM	3.41%	1	PM	$1,100
Total Proportionate Share Contribution						**$34,199**

Per the RTC distribution modeling data and based on the calculated site trip generation, the proposed development is projected to impact nine of the transportation facilities where proportionate share fees are being collected. The proposed development application will need to contribute a proportionate share fee of $34,199 toward these transportation improvement projects.



AM PEAK HOUR



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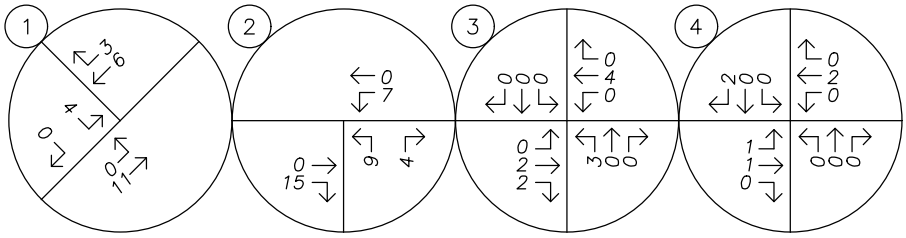

LEGEND

XX% *PERCENT OF PROJECT TRIPS*

NET NEW TRIP GENERATION			
	IN	OUT	TOTAL
AM	7	19	26
PM	22	13	35

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SITE TRIP DISTRIBUTION & ASSIGNMENT

Proposed Development Plan - Site Trips
AM & PM Peak Hours

Figure 3

Reserve at Green Mountain
4/23/2025

Traffic Volumes

Existing Conditions

Traffic counts were conducted at the study intersections on Wednesday, March 12, 2025, from 7:00 AM to 9:00 AM and from 4:00 PM to 6:00 PM. Data was used from each intersection's respective AM and PM peak hours.

To estimate the existing year traffic volumes at the site access intersection, the following were conducted and assumed:

- Minor-street traffic volumes from the one existing on-site single-family detached house and two off-site houses, which currently utilize the driveway, were referenced from Table 4 and assigned to the intersection turning movements in a manner consistent with the methodologies detailed in the *Trip Distribution* section.
- Major-street volumes were balanced with those recorded at the intersection of NE Ingle Road at NE Goodwin Road.

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

Background Conditions

Volume Growth

To provide analysis of the impact of the proposed development on the nearby transportation facilities, an estimate of future traffic volumes is required. In order to approximate the future year 2027 traffic volumes at the study intersections, a compounding growth rate of two percent per year for an assumed buildout condition of two years was applied to the year 2025 existing traffic volumes.

In-Process 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:

- CJ Dens East Subdivision (Approximately 40% Built)
- Green Mountain Estates Phases 1-7 (Approximately 70% Built)
- Monte Verde Subdivision (Approximately 0% Built)
- 18th Avenue Subdivision (Approximately 0% Built)
- Fresenius Kidney Care Medical Office (aka Archery Pad 5, Approximately 0% Built)
- Camas Heights Subdivision (Approximately 0% Built)
- Camas Meadows Subdivision (Approximately 0% Built)
- Camas Woods Subdivision (Approximately 0% Built)
- Valley View Estates (Approximately 40% Built)

- Green Mountain Master Plan (Approximately 75% Built)
- Hood Street Subdivision (Approximately 0% Built)
- McIntosh Subdivision (Approximately 0% Built)
- Village at Camas Meadows (Approximately 50% Built)

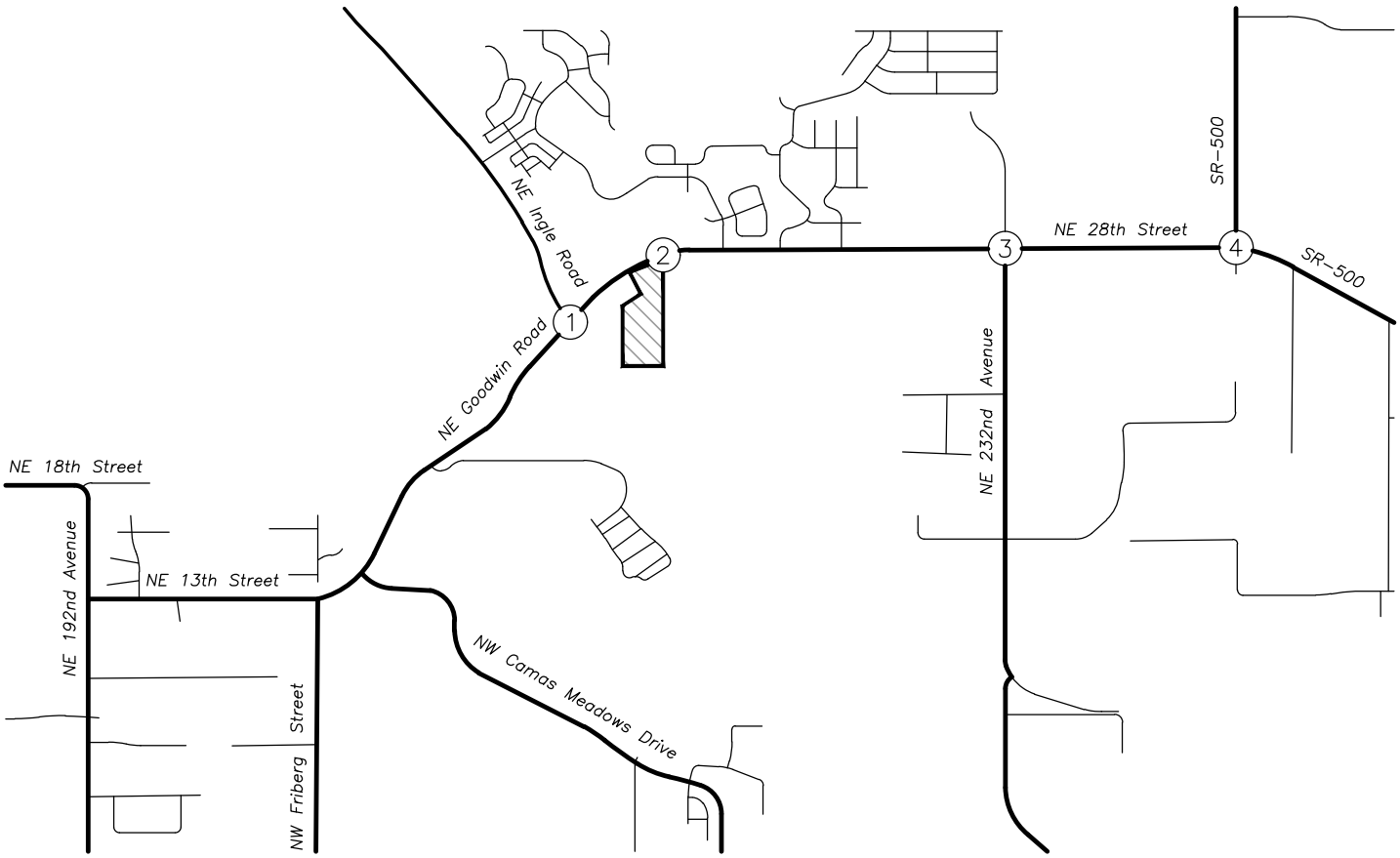
The in-process developments are not currently/fully contributing trips to the transportation system but may potentially be by the assumed 2027 buildout year of the site. Additional trips corresponding to each in-process development were added to the existing year traffic volumes in addition to the two 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 2027. Figure A in the technical appendix shows the in-process development trips at the study intersections during the AM and PM peak hours.

Figure 5 shows the projected year 2027 background traffic volumes at the study intersections during the AM and PM peak hours.

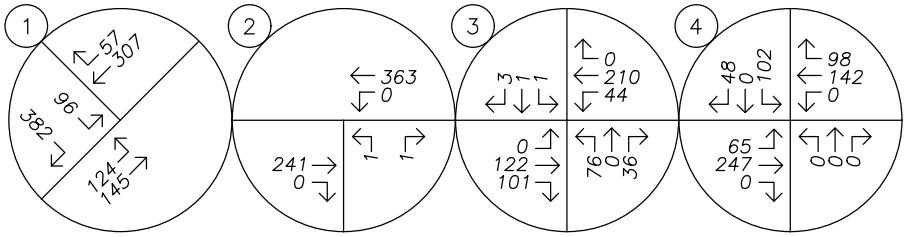
Buildout Conditions

Peak hour trips calculated to be generated by the proposed development, as described earlier within the *Site Trips* section, were added to the projected year 2027 background traffic volumes to obtain the expected 2027 site buildout volumes.

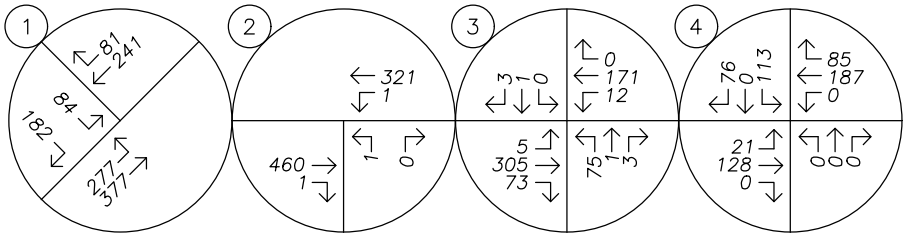
Figure 6 show the year 2027 buildout traffic volumes at the study intersections during the AM and PM peak hours.



AM PEAK HOUR



PM PEAK HOUR



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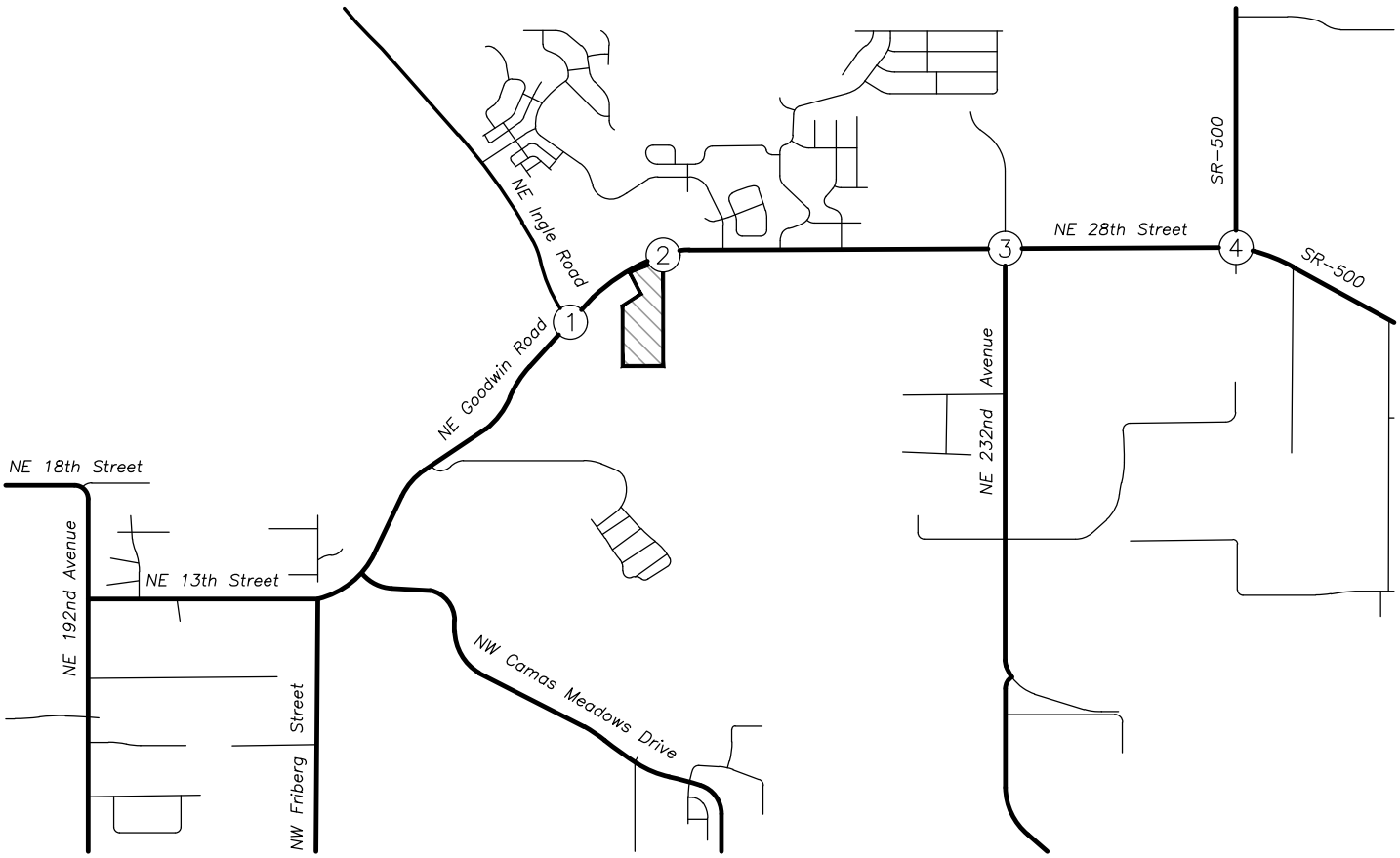
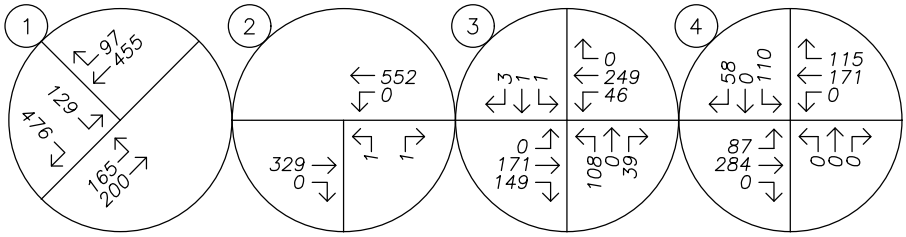
TRAFFIC VOLUMES
Year 2025 Existing Conditions
AM & PM Peak Hours

Figure 4
Reserve at Green Mountain
4/23/2025



AM PEAK HOUR



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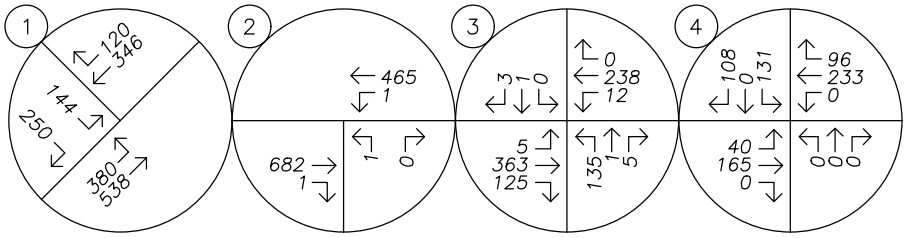

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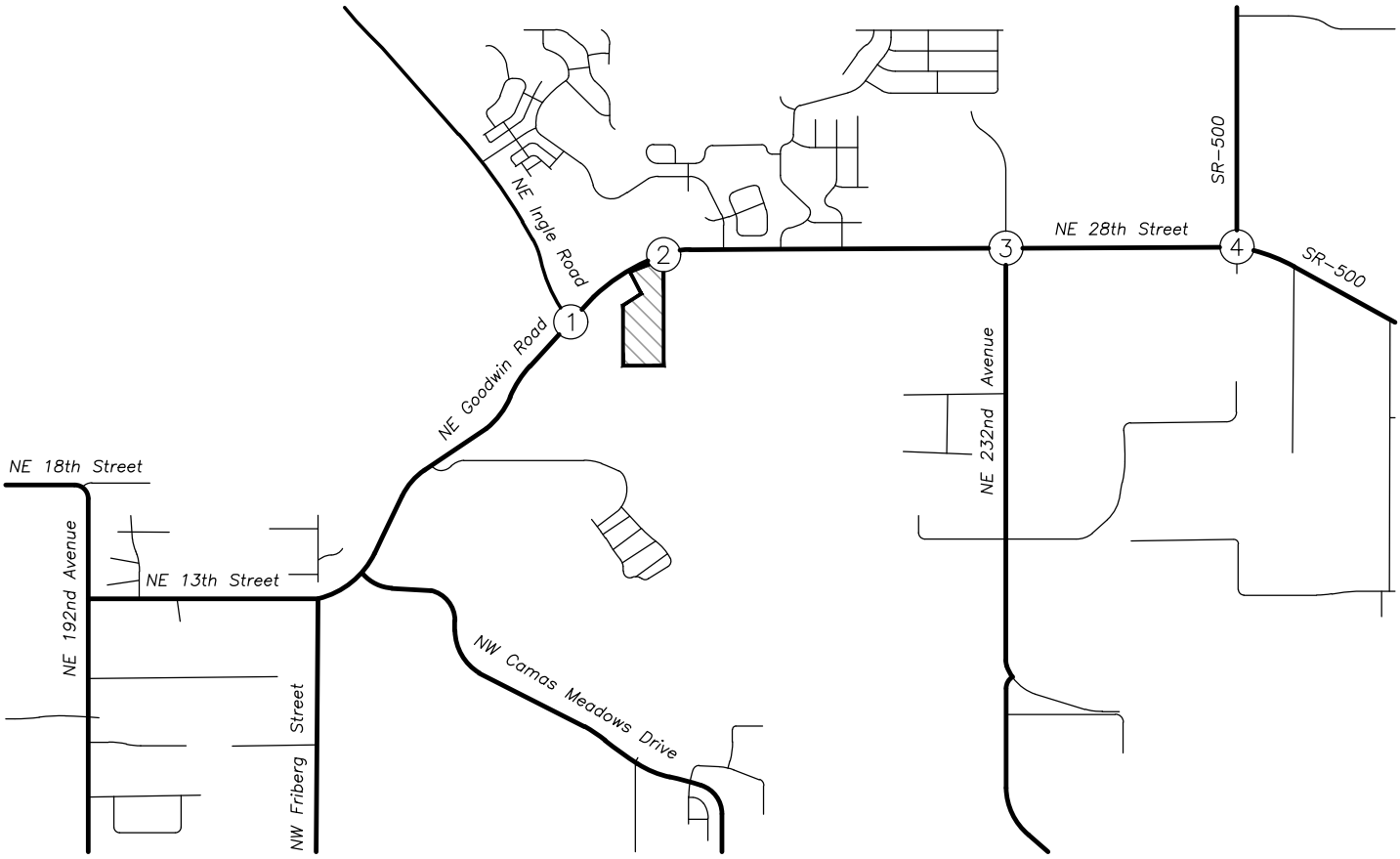
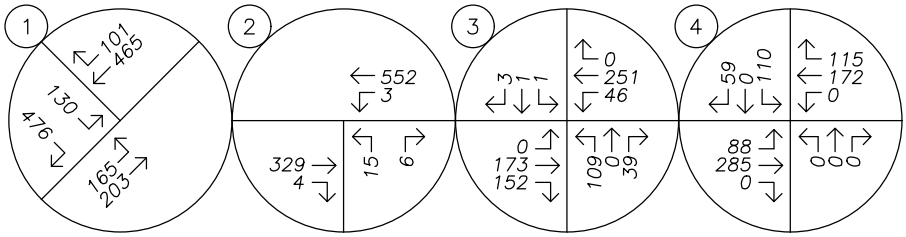
TRAFFIC VOLUMES
Year 2027 Background Conditions
AM & PM Peak Hours

Figure 5
Reserve at Green Mountain
4/23/2025



AM PEAK HOUR



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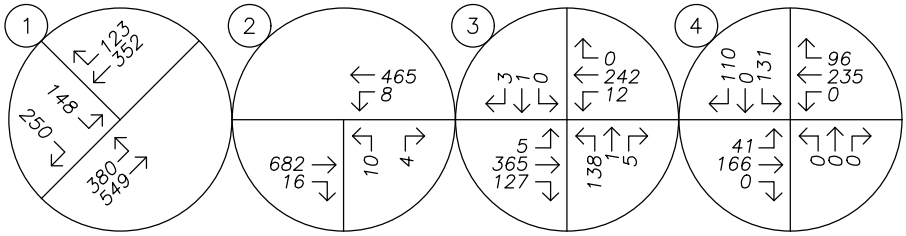

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TRAFFIC VOLUMES
Year 2027 Buildout Conditions
AM & PM Peak Hours

Figure 6
Reserve at Green Mountain
4/23/2025

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 2019 to June 2024) at the non-site access 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 study 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.

With regard to crash severity, WSDOT classifies crashes in the following categories:

- *No Apparent Injury* (NA);
- *Possible Injury* (P);
- *Suspected Minor Injury* (SM);
- *Suspected Serious Injury* (SS); and
- *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 Ingle Road at NE Goodwin Road	0	7	0	0	0	1	0	8
3	NE 232nd Avenue at NE 28th Street	1	6	0	2	0	1	0	10
4	SR-500 at NE 28th Street	0	2	2	0	0	0	0	4

Table 7: Crash Severity and Rate Summary

No.	Intersection	Crash Severity					Total Crashes	AADT	Crash Rate
		NA	P	SM	SS	Unknown			
1	NE Ingle Road at NE Goodwin Road	4	1	3	0	0	8	12,420	0.32
3	NE 232nd Avenue at NE 28th Street	7	1	1	0	1	10	6,490	0.77
4	SR-500 at NE 28th Street	3	1	0	0	0	4	6,100	0.33

Per Table 6, two of the reported crashes at the study intersections involved bicyclists. The crashes include the following:

- One of the crashes occurred at the intersection of NE Ingle Road at NE Goodwin Road. The crash occurred when the driver of a northeast bound left-turning passenger car failed to yield right-of-way to a bicyclist at the intersection. One person involved in the collision was reported to have sustained injuries, where the crash was classified as *Suspected Minor Injury*.
- The second crash occurred at the intersection of NE 232nd Avenue at NE 28th Street. The crash occurred when the bicyclist conducted an improper turn/merge at the intersection and collided with a westbound traveling passenger car. The crash was classified as *No Apparent Injury*.

Based on a review of the crash history data, no significant trends or crash patterns were identified at any of the study intersections that are indicative of safety concerns. Accordingly, no crash-related mitigation is necessary or recommended as part of the proposed development application.

Sight Distance Evaluation

Sight Distance Definitions and Methodologies

Intersection and stopping sight distances were measured at the proposed site access intersection along NE 28th Street. Sight distances were measured and evaluated at the intersection in accordance with standards established in *A Policy of Geometric Design of Highways and Streets*[2].

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 14.5 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.

[2] 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.

Based on a posted speed of 40 mph along NE 28th Street, the following minimum intersection and stopping sight distances are applicable to the proposed site access intersection:

- Intersection Sight Distance (Site Egress Left-turns): 445 feet to the east.
- Intersection Sight Distance (Site Egress Right-turns): 385 feet to the west.
- Stopping Sight Distance: 320 feet to the east, considering the major-street westbound approach grade is approximately 3.4% downhill over a 350-foot distance.
- Stopping Sight Distance: 305 feet to the west, considering the major-street eastbound approach grade is less than 3.0% over a 350-foot distance.

Sight Distance Measurements

Field measurements were conducted at the proposed site access location on Saturday, March 8, 2025. Sight distance to the east of the access location was measured to be in excess of 450 feet, while sight distance to the west was measured to be in excess of 500 feet to the west. 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 28th Street. No sight distance related mitigation is necessary or recommended.

Warrant Analysis

Left-turn lane, preliminary traffic signal, and preliminary all-way stop-control warrants were examined for the study intersections where such treatments would be applicable.

Left-Turn Lane Warrants

Left-turn lane warrants were evaluated at the proposed site access intersection along NE 28th Street. A left-turn refuge lane is primarily a safety consideration for the major-street, removing left-turning vehicles from the through traffic stream. The left-turn lane warrants used were developed from the *National Cooperative Highway Research Project's* (NCHRP) *Report 457*. Turn lane warrants were evaluated based on the number of advancing and opposing vehicles as well as the number of turning vehicles, the travel speed, and the number of through lanes.

Based on the analysis, left-turn lane warrants are not projected to be met at the site access intersection along NE 28th Street under the 2027 site buildout year. Accordingly, no new turn lanes are necessary or recommended as part of the proposed Reserve at Green Mountain project.

Preliminary Traffic Signal Warrants

Preliminary traffic signal warrants were examined for the unsignalized study intersections to determine whether the installation of a new traffic signal will be warranted at the intersections by the 2027 site buildout year. Based on the preliminary analysis following a review of Warrant 1 in the *Manual on Uniform Traffic Control Devices*, or MUTCD, traffic signal warrants are not projected to be met at any of the unsignalized study intersections by the 2027 site buildout year. Therefore, no new traffic signals are necessary or recommended as part of the proposed development application.

All-Way Stop-Control Warrants

To determine whether the installation of all-way stop-controls is warranted or nearing warrants at the applicable study intersections, the *Manual of Uniform Traffic Control Devices for Streets and Highways*[3] (MUTCD) was referenced. According to *Section 2B.12 All-Way Stop Control* of the MUTCD, installation of all-way stop controls may be considered at an intersection based on a review of the following warrants:

A. *All-Way Stop Control Warrant A: Crash Experience (see Section 2B.13)*

B. *All-Way Stop Control Warrant B: Sight Distance (see Section 2B.14)*

C. *All-Way Stop Control Warrant C: Transition to Signal Control or Transition to Yield Control at a Circular Intersection (see Section 2B.15)*

D. *All-Way Stop Control Warrant D: 8-Hour Volume (Vehicles, Pedestrians, Bicycles) (see Section 2B.16)*

E. *All-Way Stop Control Warrant E: Other Factors (see Section 2B.17)*

Note that according to the MUTCD, "[t]*he decision to install all-way stop control on site roadways open to public travel may be based on engineering judgment*" and "[w]*arrants are not a substitute for engineering judgment. The fact that a warrant for a particular traffic control device is met is not conclusive justification to install or not install all-way stop control.*"

Upon reviewing the aforementioned criteria, the following were concluded for each applicable warrant at the applicable unsignalized study intersections:

A. Three or less crashes over a 12-month period that could have been mitigated with the installation of all-way stop-controls were found at the study intersections via WSDOT crash data. Therefore, Warrant A is not met for any of the applicable study intersections.

B. Based on a preliminary review of intersection sight distances, no sight distance issues beyond the potential need to maintain foliage within the public right-of-way of applicable study intersections were found. Therefore, Warrant B is not met for any of the applicable study intersections.

C. Traffic signal warrants are not projected to be met at any of the applicable study intersections, whereby Warrant C is not met.

[3] Federal Highway Administration (FTA), American Traffic Safety Services Association (ATSSA), Institute of Transportation Engineers (ITE), American Association of State Highway and Transportation Officials (AASHTO), *Manual on Uniform Traffic Control Devices for Streets and Highways* (MUTCD), 11th Edition, 2023.

D. Based on a preliminary review of the volume warrant at the applicable study intersections, Warrant D is not projected to be met by the 2027 site buildout year.

E. Neither the need to control left-turn conflicts or further accommodate current pedestrian/bicycle volumes at the study intersections is necessary. Additionally, the study intersections are not composed of two residential neighborhood collector roads of similar design. Therefore, Warrant E is not met for any of the applicable study intersections.

Based on the review of all-way stop-control warrants, the installation of all-way stop-controls at any of the applicable study intersections by the 2027 site buildout year is not necessary or recommended. Therefore, no all-way stop-control mitigation at the study intersections is recommended as part of the proposed development.

Pedestrian and Bicycle Safety

Intermittent sidewalks and bicycle lanes are in place along the site adjacent roadway of NE 28th Street. These facilities are generally provided along segments of the roadway where recent, higher density residential subdivision projects have been developed. As the area continues to redevelop with higher intensive uses, it is expected that segments of area roadways that do not currently have sidewalks or bicycle lanes will be reconstructed with such facilities overtime. Note that construction of these facilities is contingent on private development projects, such as the proposed Reserve at Green Mountain subdivision, which will redeveloped their associated half-street frontages. Since the proposed Reserve at Green Mountain subdivision will reconstruct its street frontage with NE 28th Street, no further mitigation to pedestrian and bicycle facilities are necessary and recommended as part of the development application.

Specific to safety related to students walking/biking between the project site and nearby schools, the nearest schools to the project site include the following:

- Union High School: An approximate 1.5 mile walking/biking distance to the southwest from the project site.
- Lacamas Lake Elementary School: An approximate 2 mile walking/biking distance to the southeast from the project site.
- Illahee Elementary School and Shahala Middle School: An approximately 2 mile walking/biking distance to the southwest from the project site.
- Harmony Elementary School: An approximate 2.5 mile walking/biking distance to the west from the project site.
- Skyridge Middle School: An approximate 2.5 mile walking/biking distance to the south from the project site.

Given the lengthy travel distances between the nearest schools and the project site, it is unlikely that students who reside at the Reserve at Green Mountain subdivision will walk or bike to school. Instead students may either travel to/from school via personal/family vehicles or will take a school bus, noting C-Tran does not currently offer transit services in the immediate site vicinity. School bus service to/from the project site will be coordinated with the applicable school districts. Based on the proposed site layout, school buses have the option of either stopping along NE 28th Street near the proposed site access intersection or enter the project site and circulate within the site internal streets. For either school bus service option, appropriate pedestrian and bicycle facilities will be constructed within site internal streets and along the project site's frontage with NE 28th Street. Therefore, adequate pedestrian and bicycle facilities will be available to accommodate students who may reside within the proposed Reserve at Green Mountain subdivision.

Access Spacing

According to Table 3 of the City of Camas' Engineering Design Standards[4], the minimum and maximum spacing standards for Arterial roadways (i.e. NE 28th Street) are 660 feet and 1,000 feet, respectively. The proposed site access intersection along NE 28th Street will be located approximately 1,330 feet east of the intersection of NE Ingle Road at NE Goodwin Road, and approximately 700 feet west of the intersection of N Boxwood Street at NE 28th Street (measured centerline-to-centerline). Therefore, the proposed site access will meet the City of Camas' access/intersection spacing standards, whereby no access related mitigation is necessary.

[4] City of Camas Washington, *Design Standards Manual*. 10 March 2025, https://www.cityofcamas.us/com-dev/page/camas-design-standards-manual.

Operational Analysis

Intersection Capacity Analysis

A capacity and delay analysis were conducted for each of the study intersections per the signalized and unsignalized intersection analysis methodologies in the *Highway Capacity Manual* (HCM).[5]. 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) of an intersection can range from LOS A, which indicates very 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.

Performance Standards

According to the City of Camas Engineering Design Standards, a minimum LOS C or better on minor and local streets, and LOS D on collector/arterials or better should be maintained for traffic operations.

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.

The study intersection along SR-500 operates under the jurisdiction of WSDOT. According to the Revised Code of Washington (RCW) 47.06.140(2):

> *The department of transportation, in consultation with local governments, shall set level of service standards for state highways and state ferry routes of statewide significance. Although the department shall consult with local governments when setting level of service standards, the department retains authority to make final decisions regarding level of service standards for state highways and state ferry routes of statewide significance. In establishing level of service standards for state highways and state ferry routes of statewide significance, the department shall consider the necessary balance between providing for the free interjurisdictional movement of people and goods and the needs of local communities using these facilities…*

Per WSDOT's online *Level of Service Standard* ArcGIS website.[6], the segment of SR-500 within the analysis area operates with an LOS C or better standard.

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

[6] WSDOT. (n.d.). *WSDOT - Level of Service Standard*. Map Viewer. https://wsdot.maps.arcgis.com/apps/mapviewer/index.html?layers=3f840aeeb1ba481c905270ca103cd1db

Delay & Capacity Analysis

The LOS, delay, and v/c results of the capacity analysis are shown in Table 8 for the AM and PM peak hours. Detailed calculations as well as tables showing the relationship between delay and LOS are included in the appendix to this report.

Table 8: Capacity Analysis Summary

Analysis Scenario	AM Peak Hour			PM Peak Hour		
	LOS	Delay (s)	v/c	LOS	Delay (s)	v/c
1. NE Ingle Road at NE Goodwin Road (City of Camas)						
2025 Existing Conditions	A	9	-	A	7	-
2027 Background Conditions	B	12	-	A	9	-
2027 Buildout Conditions	B	13	-	A	9	-
2. Site Access at NE 28th Street (City of Camas)						
2025 Existing Conditions	B	12	<0.01	C	16	<0.01
2027 Background Conditions	B	14	<0.01	C	25	<0.01
2027 Buildout Conditions	C	17	0.07	C	24	0.08
3. NE 232nd Avenue at NE 28th Street (Clark County)						
2025 Existing Conditions	C	19	0.38	C	15	0.18
2027 Background Conditions	E	37	0.67	C	23	0.42
2027 Buildout Conditions	E	38	0.68	C	23	0.43
4. NE 242nd Avenue (SR-500) at NE 28th Street (WSDOT)						
2025 Existing Conditions	C	16	0.32	C	16	0.40
2027 Background Conditions	C	20	0.43	C	24	0.60
2027 Buildout Conditions	C	21	0.43	C	24	0.61

Based on the results of the operational analysis, all study intersections are currently operating acceptably per applicable agency standards and are projected to continue operating acceptably through the 2027 buildout year of the site. Accordingly, no operational mitigation is necessary or recommended at the study intersections as part of the proposed development application.

Intersection Queuing Analysis

In accordance with the City of Camas Engineering Design Standards, a queuing analysis was conducted at the study intersections to determine whether sufficient storage is available at applicable turning movements to accommodate projected queues.

The queue lengths were projected based on the results of a Synchro/SimTraffic simulation, with the reported values representing the 95th percentile queue length. The 95th percentile queue is a statistical measurement which indicates there is a 5 percent chance that the queue may exceed this length during the analysis period; however, given this is a probability, the 95th percentile queue length may theoretically never be met or observed in the field.

The projected 95th percentile queue lengths reported in the simulation are presented in Table 9 for the AM and PM peak hours. Note the reported queue lengths were rounded up to the nearest five feet. Available lane storages at applicable turning movements were rounded to the nearest five feet. Detailed queuing analysis worksheets are included in the technical appendix to this report.

Table 9: Queuing Analysis Summary

		Available Storage (ft)	AM Peak Hour 95th (ft)	PM Peak Hour 95th (ft)
1. NE Ingle Road at NE Goodwin Road				
2025 Existing Conditions	NEB LT	115	85	115
	NEB Through	-	70	95
	SWB Through	-	155	130
	SWB RT	100	50	60
	SEB LT	110	75	70
	SEB RT	-	140	75
2027 Background Conditions	NEB LT	115	115	**180**
	NEB Through	-	90	155
	SWB Through	-	265	180
	SWB RT	100	60	70
	SEB LT	110	105	110
	SEB RT	-	240	100
2027 Buildout Conditions	NEB LT	115	110	**175**
	NEB Through	-	100	145
	SWB Through	-	245	185
	SWB RT	100	55	70
	SEB LT	110	100	105
	SEB RT	-	230	105

Table Notes: ***BOLDED*** *text indicates queue length exceeds avaialble storage.*

Table 9: Queuing Analysis Summary (Continued)

		Available Storage (ft)	AM Peak Hour	PM Peak Hour
			95th (ft)	95th (ft)
2. Site Access at NE 28th Street				
2025 Existing Conditions	NB Lane	-	10	10
2027 Background Conditions	NB Lane	-	10	10
2027 Buildout Conditions	NB Lane	-	30	25
3. NE 232nd Avenue at NE 28th Street				
2025 Existing Conditions	NB Lane	-	75	65
	SB Lane	-	30	25
2027 Background Conditions	NB Lane	-	105	100
	SB Lane	-	25	35
2027 Buildout Conditions	NB Lane	-	110	90
	SB Lane	-	25	25
4. SR-500 at NE 28th Street				
2025 Existing Conditions	NB Lane	-	0	0
	SB Lane	-	80	90
2027 Background Conditions	NB Lane	-	0	0
	SB Lane	-	100	125
2027 Buildout Conditions	NB Lane	-	0	0
	SB Lane	-	110	130

Based on the queuing analysis, the northeast bound left-turn lane at the intersection of NE Ingle Road at NE Goodwin Road is projected to experience 95th percentile queues which exceed the available striped lane storage. This extended queuing is projected to occur under the year 2027 analysis scenarios during the PM peak hour, with or without buildout of the proposed development. The maximum 95th percentile is projected to be approximately 180 feet, where the available striped storage area is approximately 115 feet. Although the 95th percentile queue may exceed the available striped storage area by approximately 65 feet (i.e., the length of 2 to 3 passenger cars), this excess queue can be accommodated by the northeast bound through lane, which experiences a 95th percentile queue of up to 155 feet for a total of 220 feet of queuing along the through lane. This 220-foot queue will not extend back to any other public intersection or driveway along NE Goodwin Road, whereby limited to no impacts to other intersections, as well as the study intersection itself, are expected to occur. Therefore, no queuing-related mitigation at the intersection is recommended as part of the proposed development.

Conclusions

The proposed development is projected to impact nine of the transportation facilities where proportionate share fees are being collected by the City of Vancouver. The proposed development application will need to contribute a proportionate share fee of $34,199 toward these transportation improvement projects.

No significant trends or crash patterns were identified at any of the study intersections that are indicative of safety concerns. Accordingly, no crash-related mitigation is necessary or recommended as part of the proposed development application.

Adequate intersection and stopping sight distances are available at the proposed site access intersection to allow for safe and efficient operation along NE 28th Street. No sight distance related mitigation is necessary or recommended.

Left-turn lane, traffic signal, and all-way stop-control warrants are not projected to be met at any of the applicable study intersections under any analysis scenario through the 2027 site buildout year. Accordingly, no new turn lanes or revisions to traffic controls are necessary or recommended as part of the proposed Reserve at Green Mountain project.

The proposed development will reconstruct its associated street frontage with NE 28th Street to include pedestrian and bicycle facilities in accordance with City of Camas street standards. Additionally, appropriate pedestrian and bicycle facilities will be constructed within site internal streets to accommodate student pickup/drop-off via school bus. Therefore, adequate pedestrian and bicycle facilities will be available to accommodate students who may reside within the proposed Reserve at Green Mountain subdivision, and no further mitigation to pedestrian and bicycle facilities are necessary and recommended.

All study intersections are currently operating acceptably per applicable agency standards and are projected to continue operating acceptably through the 2027 buildout year of the site. Accordingly, no operational mitigation is necessary or recommended at the study intersections as part of the proposed development application.

The northeast bound left-turn lane at the intersection of NE Ingle Road at NE Goodwin Road is projected to experience 95th percentile queues which exceed the available striped lane storage. However, this excess queue can be accommodated by the northeast bound through lane without extending back to any other public intersection or driveway along NE Goodwin Road. Limited to no impacts to other intersections, as well as the study intersection itself, are expected to occur due to this queuing. Therefore, no queuing-related mitigation at the intersection is recommended as part of the proposed development.

Appendix A – Site Plan

Site Plan

Reserve at Green Mountain

Located in the SW ¼ of Section 21, T2N, R3E, W.M.
Camas, Washington

GENERAL NOTES

APPLICANT:
Pacific Lifestyle Homes
Contact: Nick Edwards
11815 NE 99th St., Ste 1200
Vancouver, WA 98682
(360) 597-7098
NickE@buildplh.com

OWNER:
Marwan Bahu
PO Box 774
San Clemente, CA 98607

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

SITE ADDRESS:
Parcel # 173192000
2625 NE Goodwin Road
Camas, WA 98607

LAND USE:
The applicant is proposing to subdivide approximately 11.67 acres into 38 single family detached lots, retaining the existing home one of the lots. The site is zoned R-7.5 zone with comprehensive plan designation of SFM. The development proposes to utilize density transfer with a request for additional flexibility request for lot area, width, and setbacks.

The applicant request the following minimum lot standards:
Minimum lot area = 4,500 sf
Minimum lot width = 45'
Minimum lot depth = 90'
Setbacks:
Front = 20'
Garage = 20' (same as general front setback)
Rear = 15'
Side = 5'
Street Side = 10'
Maximum building lot coverage = 50%
Maximum building lot coverage = 55% (single level home)

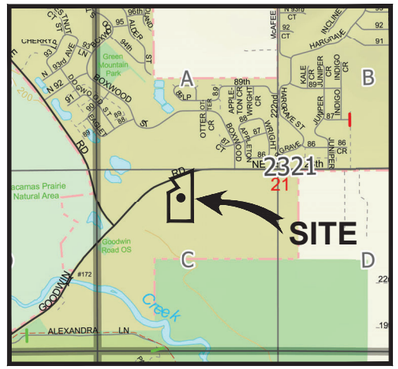
TRANSPORTAION:
Primary access to the site is provided from NE Goodwin Road/NE 28th Street. Frontage improvements along NE 28th Street will include additional right-of-way and pavement to meet the requirements for a 3-Lane Arterial. No lots will have direct vehicular access to NE 28th Street/Goodwin Road.

The internal public streets will be constructed according to standard detail number ST3. These streets will generally provide a 28' wide paved road within a 52' right-of-way with 5' sidewalks and 5' planter strips on each side.

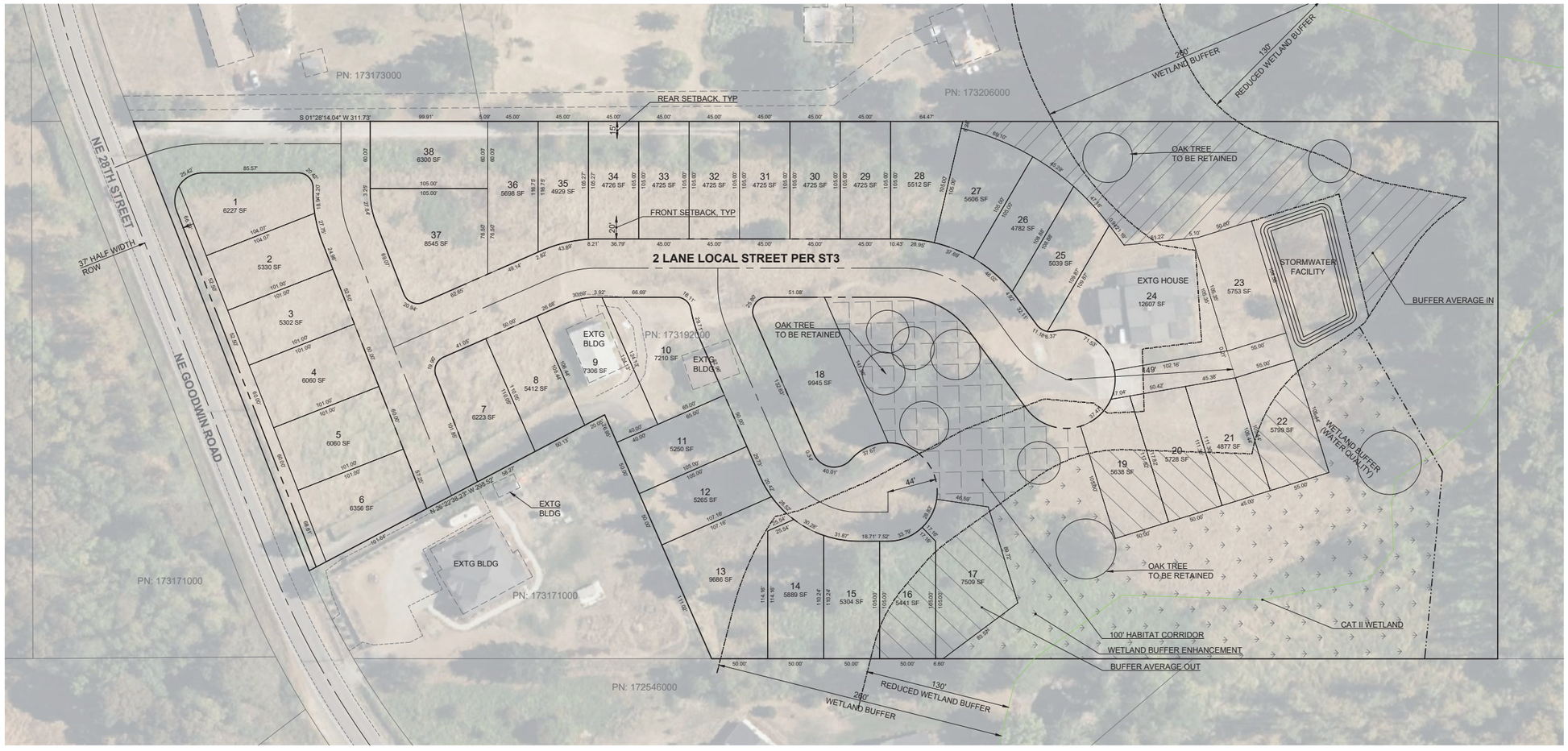
UTILITIES:
The City of Camas is the water and sewer purveyor for the site. Existing water and sewer lines run through NE 28th Street and NE Goodwin Road to the north. The applicant expects to utilize a grinder pump system for sanitary sewer service.

All onsite stormwater runoff will be routed to a stormwater detention facility prior to being released into a wetland to the south of the site. Stormwater from pollution generating surfaces will be treated prior to entering the detention facility.

CRITICAL AREAS:
A category II wetland is located at the south end of the site. An estimated boundary and buffer are shown on the site plan.



VICINITY MAP
NOT TO SCALE



Scale 1" = 50'
50 25 0 50

ENGINEERING
PLS
Conceptual Plat For:
Reserve at Green Mountain
A Site Located in the City of Camas, WA
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

Project No.	3927
SCALE:	H: 1" = 50' V: N/A
DESIGNED BY:	JMT
DRAFTED BY:	JMT
REVIEWED BY:	JMT

01
01

Appendix B – Trip Generation and Distribution

Trip Generation Calculations

RTC TAZ Data

TRIP GENERATION CALCULATIONS
Source: Trip Generation Manual, 11th Edition
Site Trips - Existing Conditions

Land Use:	Single-Family Detached Housing
Land Use Code:	210
Land Use Subcategory:	All Sites
Setting/Location	General Urban/Suburban
Variable:	Dwelling Units
Trip Type:	Vehicle
Formula Type:	Rate
Variable Quantity:	1

WARNING: Variable Quantity is less than Minimum Survey Size for Peak Hours

AM PEAK HOUR

Trip Rate: 0.7

	Enter	Exit	Total
Directional Split	25%	75%	
Trip Ends	0	1	1

PM PEAK HOUR

Trip Rate: 0.94

	Enter	Exit	Total
Directional Split	63%	37%	
Trip Ends	1	0	1

WEEKDAY

Trip Rate: 9.43

	Enter	Exit	Total
Directional Split	50%	50%	
Trip Ends	5	5	10

SATURDAY

Trip Rate: 9.48

	Enter	Exit	Total
Directional Split	50%	50%	
Trip Ends	5	5	10

Source: Trip Generation Manual, 11th Edition

TRIP GENERATION CALCULATIONS
Source: Trip Generation Manual, 11th Edition
Site Trips - Proposed Conditions

Land Use:	Single-Family Detached Housing
Land Use Code:	210
Land Use Subcategory:	All Sites
Setting/Location	General Urban/Suburban
Variable:	Dwelling Units
Trip Type:	Vehicle
Formula Type:	Rate
Variable Quantity:	38

AM PEAK HOUR

Trip Rate: 0.7

	Enter	Exit	Total
Directional Split	25%	75%	
Trip Ends	7	20	27

PM PEAK HOUR

Trip Rate: 0.94

	Enter	Exit	Total
Directional Split	63%	37%	
Trip Ends	23	13	36

WEEKDAY

Trip Rate: 9.43

	Enter	Exit	Total
Directional Split	50%	50%	
Trip Ends	179	179	358

SATURDAY

Trip Rate: 9.48

	Enter	Exit	Total
Directional Split	50%	50%	
Trip Ends	180	180	360

Source: Trip Generation Manual, 11th Edition

TRIP GENERATION CALCULATIONS
Source: Trip Generation Manual, 11th Edition
Parcels 173206000 and 173173000

Land Use:	Single-Family Detached Housing
Land Use Code:	210
Land Use Subcategory:	All Sites
Setting/Location	General Urban/Suburban
Variable:	Dwelling Units
Trip Type:	Vehicle
Formula Type:	Rate
Variable Quantity:	2

WARNING: Variable Quantity is less than Minimum Survey Size for Peak Hours

AM PEAK HOUR

Trip Rate: 0.7

	Enter	Exit	Total
Directional Split	25%	75%	
Trip Ends	0	1	1

PM PEAK HOUR

Trip Rate: 0.94

	Enter	Exit	Total
Directional Split	63%	37%	
Trip Ends	1	1	2

WEEKDAY

Trip Rate: 9.43

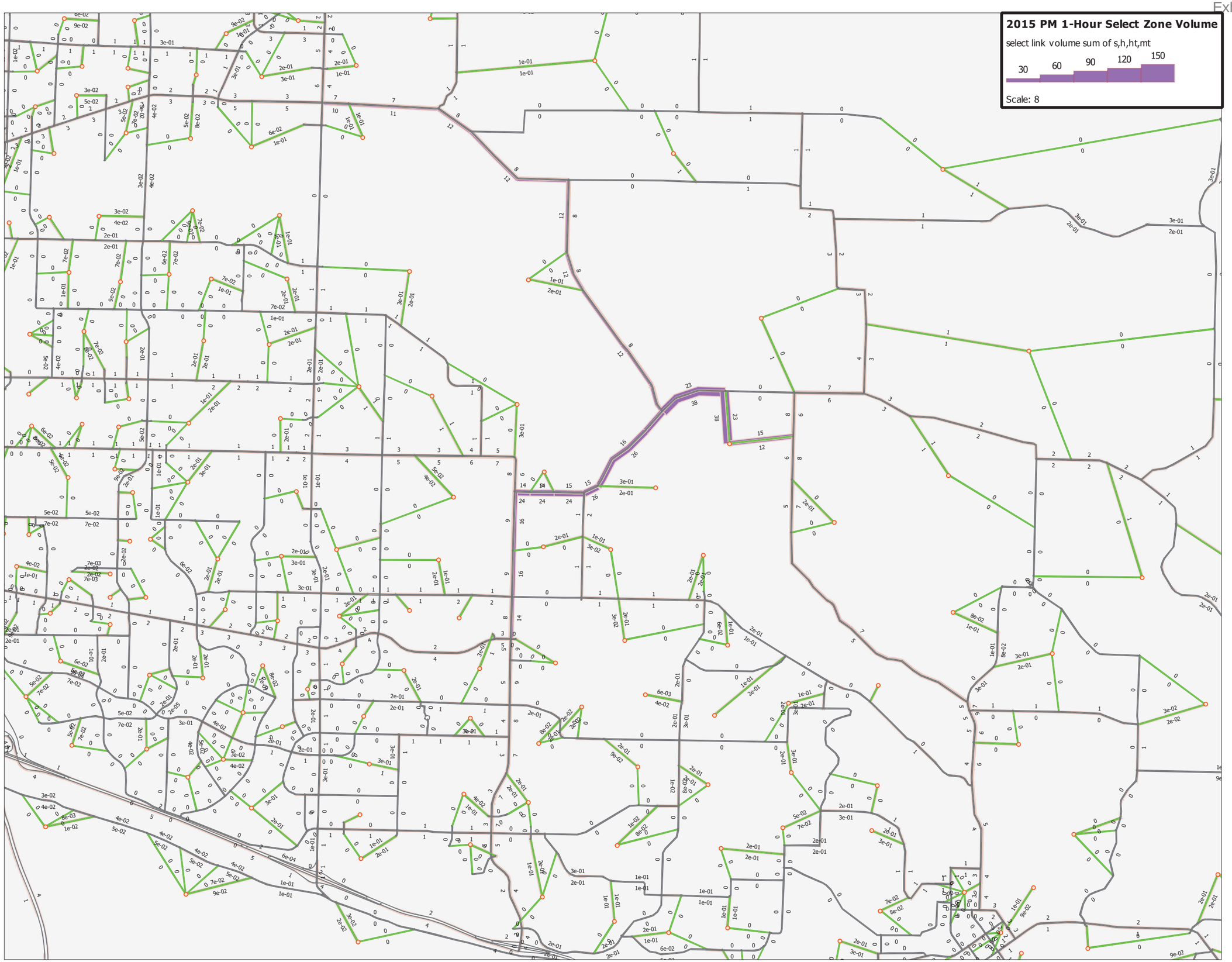
	Enter	Exit	Total
Directional Split	50%	50%	
Trip Ends	9	9	18

SATURDAY

Trip Rate: 9.48

	Enter	Exit	Total
Directional Split	50%	50%	
Trip Ends	9	9	18

Source: Trip Generation Manual, 11th Edition


2015 PM 1-Hour Select Zone Volume
select link volume sum of s,h,ht,mt
30
60
90
120
150
Scale: 8

Appendix C – Traffic Volumes

Traffic Counts

In-Process Trips

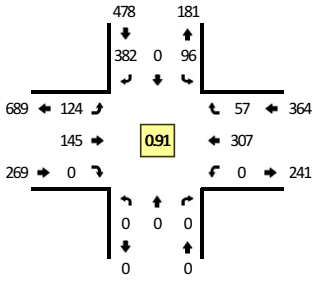
Type of peak hour being reported: Intersection Peak

Method for determining peak hour: Total Entering Volume

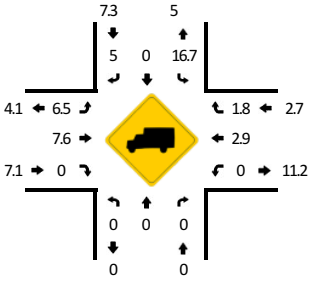
LOCATION: NE Ingle Rd -- NE Goodwin Rd/NE 28th St
CITY/STATE: Camas, WA

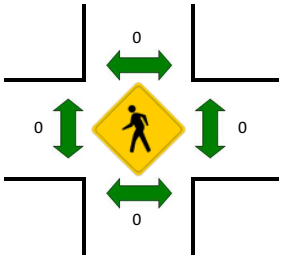
QC JOB #: 16956001
DATE: Wed, Mar 12 2025

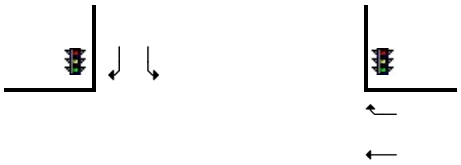
Peak-Hour: 7:50 AM -- 8:50 AM
Peak 15-Min: 8:35 AM -- 8:50 AM

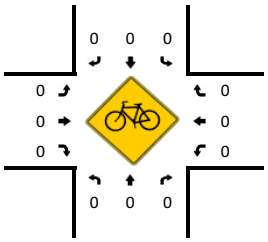


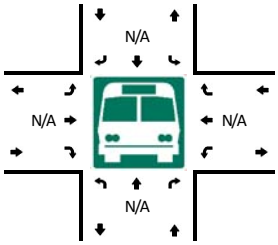
TRUE DATA TO IMPROVE MOBILITY

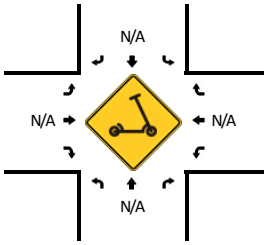












5-Min Count Period Beginning At	NE Ingle Rd (Northbound)				NE Ingle Rd (Southbound)				NE Goodwin Rd/NE 28th St (Eastbound)				NE Goodwin Rd/NE 28th St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	0	0	0	0	9	0	15	0	6	8	0	0	0	10	6	0	54	
7:05 AM	0	0	0	0	3	0	15	0	6	7	0	0	0	12	7	0	50	
7:10 AM	0	0	0	0	9	0	9	0	7	8	0	0	0	20	1	0	54	
7:15 AM	0	0	0	0	3	0	12	0	7	6	0	0	0	15	6	0	49	
7:20 AM	0	0	0	0	6	0	19	0	6	10	0	0	0	14	3	0	58	
7:25 AM	0	0	0	0	9	0	20	0	8	8	0	0	0	20	4	0	69	
7:30 AM	0	0	0	0	7	0	25	0	8	7	0	0	0	19	8	0	74	
7:35 AM	0	0	0	0	11	0	22	0	5	7	0	0	0	35	6	0	86	
7:40 AM	0	0	0	0	6	0	35	0	8	10	0	0	0	24	4	0	87	
7:45 AM	0	0	0	0	12	0	31	0	3	15	0	0	0	33	4	0	98	
7:50 AM	0	0	0	0	8	0	39	0	6	23	0	0	0	23	4	0	103	
7:55 AM	0	0	0	0	5	0	31	0	4	12	0	0	0	24	5	0	81	863
8:00 AM	0	0	0	0	14	0	30	0	7	15	0	0	0	31	7	0	104	913
8:05 AM	0	0	0	0	7	0	25	0	13	12	0	0	0	27	5	0	89	952
8:10 AM	0	0	0	0	5	0	23	0	7	14	0	0	0	24	5	0	78	976
8:15 AM	0	0	0	0	6	0	36	0	4	5	0	0	0	20	4	0	75	1002
8:20 AM	0	0	0	0	6	0	32	0	7	10	0	0	0	23	9	0	87	1031
8:25 AM	0	0	0	0	13	0	45	0	17	7	0	0	0	22	4	0	108	1070
8:30 AM	0	0	0	0	2	0	38	0	10	12	0	0	0	18	1	0	81	1077
8:35 AM	0	0	0	0	9	0	45	0	10	11	0	0	0	37	3	0	115	1106
8:40 AM	0	0	0	0	8	0	20	0	12	9	0	0	0	30	7	0	86	1105
8:45 AM	0	0	0	0	13	0	18	0	27	15	0	0	0	28	3	0	104	1111
8:50 AM	0	0	0	0	5	0	21	0	11	15	0	0	0	25	3	0	80	1088
8:55 AM	0	0	0	0	8	0	13	0	9	12	0	0	0	15	4	0	61	1068

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	0	0	0	0	120	0	332	0	196	140	0	0	0	380	52	0	1220
Heavy Trucks	0	0	0		36	0	12		16	4	0		0	4	4		76
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 3/18/2025 2:00 PM

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

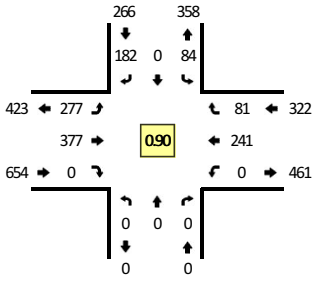
Type of peak hour being reported: Intersection Peak

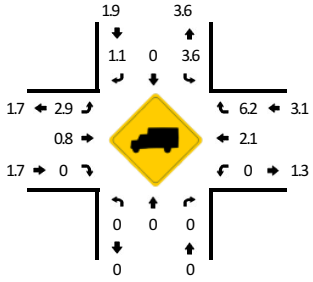
Method for determining peak hour: Total Entering Volume

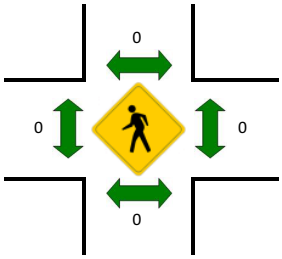
LOCATION: NE Ingle Rd -- NE Goodwin Rd/NE 28th St
CITY/STATE: Camas, WA

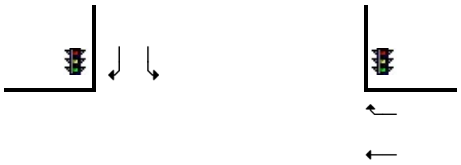
QC JOB #: 16956002
DATE: Wed, Mar 12 2025

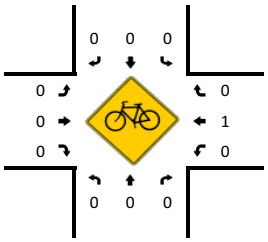
Peak-Hour: 4:30 PM -- 5:30 PM
Peak 15-Min: 5:15 PM -- 5:30 PM

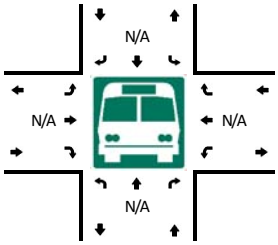


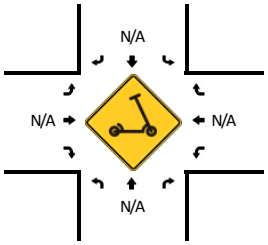












5-Min Count Period Beginning At	NE Ingle Rd (Northbound)				NE Ingle Rd (Southbound)				NE Goodwin Rd/NE 28th St (Eastbound)				NE Goodwin Rd/NE 28th St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	0	0	0	0	10	0	8	0	17	34	0	0	0	11	9	0	89	
4:05 PM	0	0	0	0	12	0	9	0	13	24	0	0	0	17	7	0	82	
4:10 PM	0	0	0	0	10	0	12	0	26	29	0	0	0	21	9	0	107	
4:15 PM	0	0	0	0	6	0	17	0	25	27	0	0	0	15	3	0	93	
4:20 PM	0	0	0	0	12	0	17	0	23	22	0	0	0	15	3	0	92	
4:25 PM	0	0	0	0	7	0	15	0	34	24	0	0	0	16	4	0	100	
4:30 PM	0	0	0	0	5	0	12	0	28	29	0	0	0	18	15	0	107	
4:35 PM	0	0	0	0	4	0	11	0	12	27	0	0	0	23	4	0	81	
4:40 PM	0	0	0	0	7	0	20	0	19	25	0	0	0	26	11	0	108	
4:45 PM	0	0	0	0	4	0	15	0	18	36	0	0	0	22	8	0	103	
4:50 PM	0	0	0	0	6	0	18	0	21	31	0	0	0	23	3	0	102	
4:55 PM	0	0	0	0	11	0	12	0	16	29	0	0	0	15	3	0	86	1150
5:00 PM	0	0	0	0	6	0	10	0	19	50	0	0	0	21	6	0	112	1173
5:05 PM	0	0	0	0	3	0	18	0	29	24	0	0	0	21	4	0	99	1190
5:10 PM	0	0	0	0	9	0	14	0	29	28	0	0	0	13	5	0	98	1181
5:15 PM	0	0	0	0	13	0	21	0	32	36	0	0	0	15	8	0	125	1213
5:20 PM	0	0	0	0	8	0	23	0	23	32	0	0	0	18	7	0	111	1232
5:25 PM	0	0	0	0	8	0	8	0	31	30	0	0	0	26	7	0	110	1242
5:30 PM	0	0	0	0	5	0	17	0	19	18	0	0	0	14	6	0	79	1214
5:35 PM	0	0	0	0	6	0	16	0	27	34	0	0	0	15	8	0	106	1239
5:40 PM	0	0	0	0	10	0	15	0	23	32	0	0	0	18	4	0	102	1233
5:45 PM	0	0	0	0	14	0	11	0	13	31	0	0	0	17	7	0	93	1223
5:50 PM	0	0	0	0	5	0	20	0	19	20	0	0	0	26	3	0	93	1214
5:55 PM	0	0	0	0	9	0	13	0	15	28	0	0	0	20	9	0	94	1222

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	0	0	0	0	116	0	208	0	344	392	0	0	0	236	88	0	1384
Heavy Trucks	0	0	0		4	0	0		0	4	0		0	4	4		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 3/18/2025 2:00 PM

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

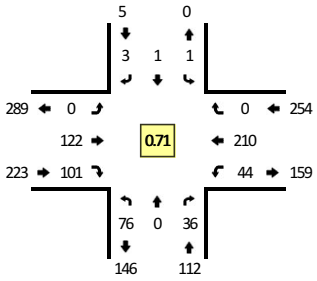
Type of peak hour being reported: Intersection Peak

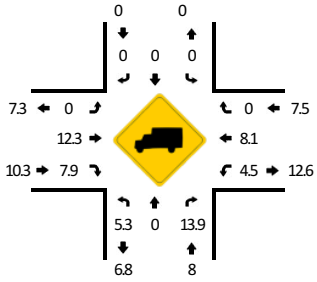
Method for determining peak hour: Total Entering Volume

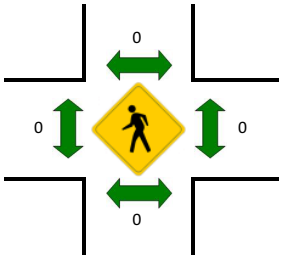
LOCATION: NE 232nd Ave -- NE 28th St
CITY/STATE: Fern Prairie, WA

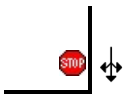
QC JOB #: 16956005
DATE: Wed, Mar 12 2025

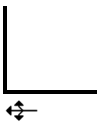
Peak-Hour: 7:45 AM -- 8:45 AM
Peak 15-Min: 7:50 AM -- 8:05 AM

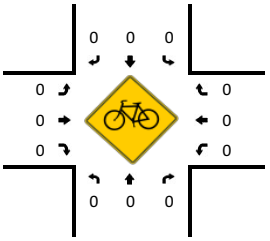


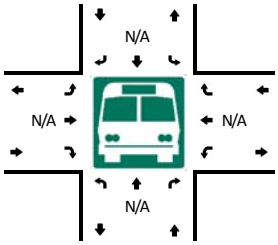


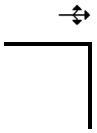


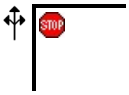


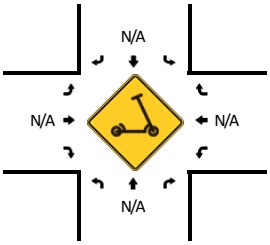












5-Min Count Period Beginning At	NE 232nd Ave (Northbound)				NE 232nd Ave (Southbound)				NE 28th St (Eastbound)				NE 28th St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	2	0	0	0	0	0	0	0	0	7	9	0	1	11	2	0	32	
7:05 AM	2	0	0	0	0	0	0	0	0	6	3	0	0	9	0	0	20	
7:10 AM	3	0	2	0	0	0	0	0	0	8	0	0	1	9	1	0	24	
7:15 AM	1	0	0	0	0	0	0	0	0	5	1	0	0	12	0	0	19	
7:20 AM	2	0	0	0	0	0	0	0	0	8	3	0	2	7	0	0	22	
7:25 AM	1	0	0	0	1	0	1	0	0	7	8	0	2	29	0	0	49	
7:30 AM	5	0	0	0	0	0	0	0	0	8	0	0	1	16	0	0	30	
7:35 AM	1	0	0	0	0	0	0	0	0	2	9	0	7	18	0	0	37	
7:40 AM	2	0	0	0	0	0	0	0	0	11	5	0	6	16	0	0	40	
7:45 AM	4	0	6	0	1	0	0	0	0	9	8	0	6	15	0	0	49	
7:50 AM	4	0	4	0	0	0	0	0	0	10	20	0	18	18	0	0	74	
7:55 AM	14	0	8	0	0	0	0	0	0	15	13	0	7	12	0	0	69	465
8:00 AM	15	0	7	0	0	1	1	0	0	12	14	0	1	16	0	0	67	500
8:05 AM	9	0	6	0	0	0	0	0	0	14	9	0	0	20	0	0	58	538
8:10 AM	5	0	2	0	0	0	0	0	0	10	7	0	0	14	0	0	38	552
8:15 AM	6	0	1	0	0	0	0	0	0	4	5	0	0	18	0	0	34	567
8:20 AM	4	0	1	0	0	0	0	0	0	10	3	0	6	21	0	0	45	590
8:25 AM	1	0	0	0	0	0	0	0	0	10	5	0	3	19	0	0	38	579
8:30 AM	4	0	0	0	0	0	1	0	0	7	5	0	2	14	0	0	33	582
8:35 AM	4	0	1	0	0	0	1	0	0	9	4	0	1	17	0	0	37	582
8:40 AM	6	0	0	0	0	0	0	0	0	12	8	0	0	26	0	0	52	594
8:45 AM	2	0	3	0	0	0	0	0	0	15	5	0	0	16	0	0	41	586
8:50 AM	2	0	0	0	0	0	0	0	0	10	5	0	0	17	0	0	34	546
8:55 AM	3	0	1	0	0	0	0	0	0	11	6	0	0	13	0	0	34	511

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	132	0	76	0	0	4	4	0	0	148	188	0	104	184	0	0	840
Heavy Trucks	8	0	12		0	0	0		0	12	16		0	12	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 3/18/2025 2:00 PM

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

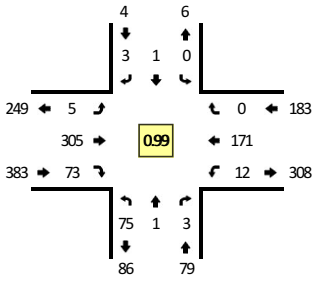
Type of peak hour being reported: Intersection Peak

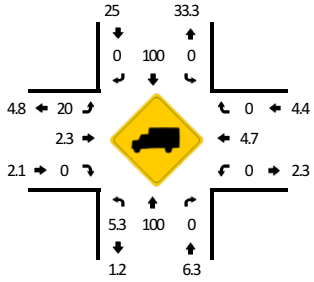
Method for determining peak hour: Total Entering Volume

LOCATION: NE 232nd Ave -- NE 28th St
CITY/STATE: Fern Prairie, WA

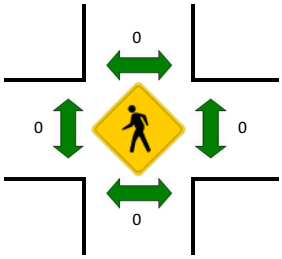
QC JOB #: 16956006
DATE: Wed, Mar 12 2025

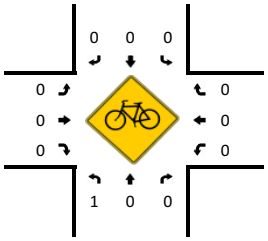
Peak-Hour: 4:25 PM -- 5:25 PM
Peak 15-Min: 4:25 PM -- 4:40 PM

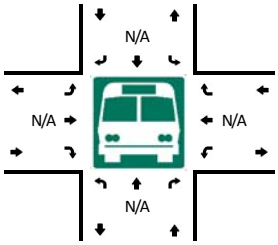


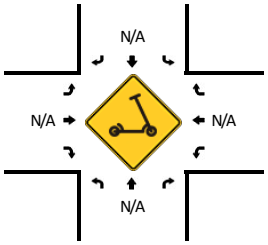


TRUE DATA TO IMPROVE MOBILITY









5-Min Count Period Beginning At	NE 232nd Ave (Northbound)				NE 232nd Ave (Southbound)				NE 28th St (Eastbound)				NE 28th St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	5	0	1	0	0	0	0	0	0	27	8	0	1	8	0	0	50	
4:05 PM	8	0	0	0	0	0	0	0	0	30	6	0	1	14	0	0	59	
4:10 PM	8	0	0	0	0	0	0	0	1	22	7	0	1	15	0	0	54	
4:15 PM	3	0	1	0	0	0	1	0	0	20	6	0	0	13	0	0	44	
4:20 PM	1	0	0	0	0	0	0	0	0	24	6	0	0	11	0	0	42	
4:25 PM	7	1	1	0	0	0	1	0	1	27	6	0	0	9	0	0	53	
4:30 PM	8	0	1	0	0	0	0	0	0	24	7	0	0	18	0	0	58	
4:35 PM	6	0	0	0	0	0	1	0	0	24	3	0	0	19	0	0	53	
4:40 PM	5	0	0	0	0	0	1	0	0	18	6	0	1	18	0	0	49	
4:45 PM	8	0	0	0	0	0	0	0	2	27	4	0	3	17	0	0	61	
4:50 PM	4	0	0	0	0	0	0	0	0	30	3	0	2	10	0	0	49	
4:55 PM	4	0	0	0	0	0	0	0	0	20	7	0	2	13	0	0	46	618
5:00 PM	8	0	1	0	0	0	0	0	0	23	10	0	0	15	0	0	57	625
5:05 PM	6	0	0	0	0	0	0	0	1	36	3	0	0	14	0	0	60	626
5:10 PM	4	0	0	0	0	0	0	0	1	19	9	0	0	8	0	0	41	613
5:15 PM	9	0	0	0	0	1	0	0	0	31	9	0	1	12	0	0	63	632
5:20 PM	6	0	0	0	0	0	0	0	0	26	6	0	3	18	0	0	59	649
5:25 PM	6	0	1	0	0	0	0	0	0	21	8	0	0	12	0	0	48	644
5:30 PM	3	0	0	0	0	0	0	0	0	17	5	0	1	15	0	0	41	627
5:35 PM	5	0	1	0	0	0	0	0	1	30	3	0	0	13	0	0	53	627
5:40 PM	5	0	0	0	0	0	0	0	1	21	8	0	1	11	0	0	47	625
5:45 PM	6	0	0	0	0	0	1	0	0	21	12	0	2	15	0	0	57	621
5:50 PM	7	0	1	0	0	0	0	0	2	18	10	0	0	15	0	0	53	625
5:55 PM	7	0	0	0	0	0	0	0	0	25	0	0	1	11	0	0	44	623

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	84	4	8	0	0	0	8	0	4	300	64	0	0	184	0	0	656
Heavy Trucks	8	4	0		0	0	0		0	8	0		0	12	0		32
Buses																	
Pedestrians		0				0				0				0			0
Bicycles	4	0	0		0	0	0		0	0	0		0	0	0		4
Scooters																	

Comments:

Report generated on 3/18/2025 2:00 PM

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

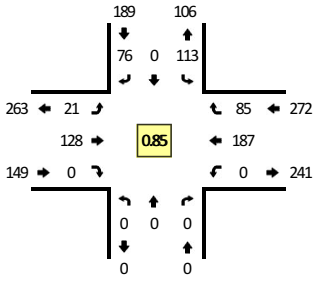
Type of peak hour being reported: Intersection Peak

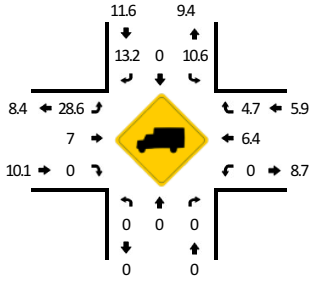
Method for determining peak hour: Total Entering Volume

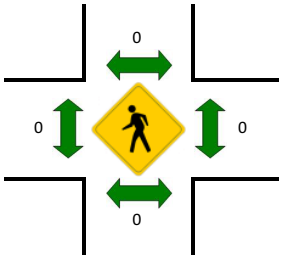
LOCATION: NE 242nd Ave -- NE 28th St
CITY/STATE: Fern Prairie, WA

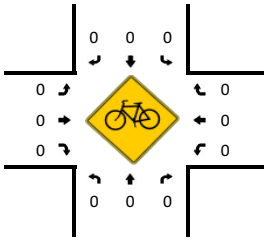
QC JOB #: 16956007
DATE: Wed, Mar 12 2025

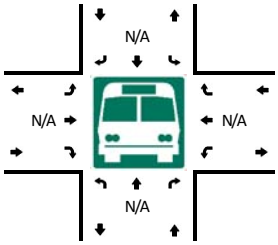
Peak-Hour: 7:25 AM -- 8:25 AM
Peak 15-Min: 7:55 AM -- 8:10 AM

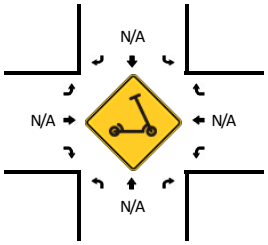












5-Min Count Period Beginning At	NE 242nd Ave (Northbound)				NE 242nd Ave (Southbound)				NE 28th St (Eastbound)				NE 28th St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	0	0	0	0	1	0	3	0	3	4	0	0	0	10	2	0	23	
7:05 AM	0	0	0	0	4	0	3	0	0	6	0	0	0	6	6	0	25	
7:10 AM	0	0	0	0	0	0	3	0	2	8	0	0	0	10	7	0	30	
7:15 AM	0	0	0	0	4	0	5	0	1	4	0	0	0	10	10	0	34	
7:20 AM	0	0	0	0	7	0	3	0	1	7	0	0	0	9	13	0	40	
7:25 AM	0	0	0	0	8	0	8	0	1	7	0	0	0	17	7	0	48	
7:30 AM	0	0	0	0	8	0	7	0	0	8	0	0	0	13	10	0	46	
7:35 AM	0	0	0	0	9	0	5	0	1	0	0	0	0	18	4	0	37	
7:40 AM	0	0	0	0	10	0	11	0	0	13	0	0	0	15	7	0	56	
7:45 AM	0	0	0	0	4	0	10	0	2	12	0	0	0	13	6	0	47	
7:50 AM	0	0	0	0	4	0	14	0	2	14	0	0	0	21	5	0	60	
7:55 AM	0	0	0	0	15	0	6	0	3	19	0	0	0	12	8	0	63	509
8:00 AM	0	0	0	0	12	0	0	0	4	11	0	0	0	17	11	0	55	541
8:05 AM	0	0	0	0	10	0	6	0	3	21	0	0	0	16	6	0	62	578
8:10 AM	0	0	0	0	13	0	3	0	3	10	0	0	0	10	8	0	47	595
8:15 AM	0	0	0	0	12	0	2	0	1	3	0	0	0	16	7	0	41	602
8:20 AM	0	0	0	0	8	0	4	0	1	10	0	0	0	19	6	0	48	610
8:25 AM	0	0	0	0	7	0	6	0	2	5	0	0	0	15	4	0	39	601
8:30 AM	0	0	0	0	7	0	3	0	1	11	0	0	0	9	6	0	37	592
8:35 AM	0	0	0	0	6	0	3	0	3	7	0	0	0	18	10	0	47	602
8:40 AM	0	0	0	0	5	0	6	0	2	9	0	0	0	17	3	0	42	588
8:45 AM	0	0	0	0	10	0	3	0	2	12	0	0	0	16	11	0	54	595
8:50 AM	0	0	0	0	9	0	2	0	1	10	0	0	0	11	4	0	37	572
8:55 AM	0	0	0	0	8	0	3	0	1	10	0	0	0	9	4	0	35	544

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	0	0	0	0	148	0	48	0	40	204	0	0	0	180	100	0	720
Heavy Trucks	0	0	0		12	0	0		12	8	0		0	8	12		52
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 3/18/2025 2:00 PM

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

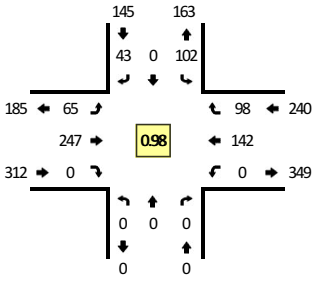
Type of peak hour being reported: Intersection Peak

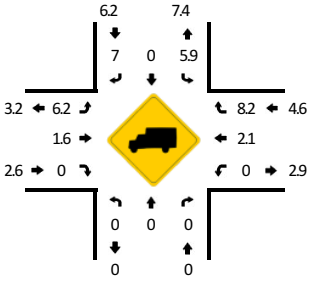
Method for determining peak hour: Total Entering Volume

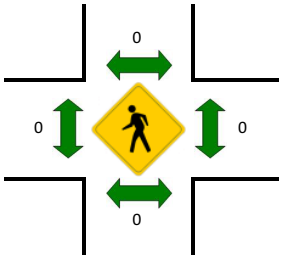
LOCATION: NE 242nd Ave -- NE 28th St
CITY/STATE: Fern Prairie, WA

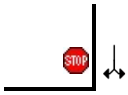
QC JOB #: 16956008
DATE: Wed, Mar 12 2025

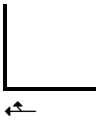
Peak-Hour: 4:25 PM -- 5:25 PM
Peak 15-Min: 5:00 PM -- 5:15 PM

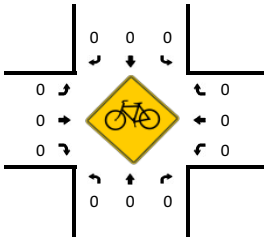


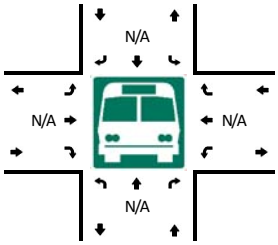


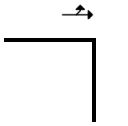


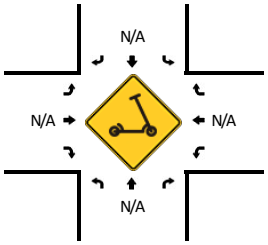












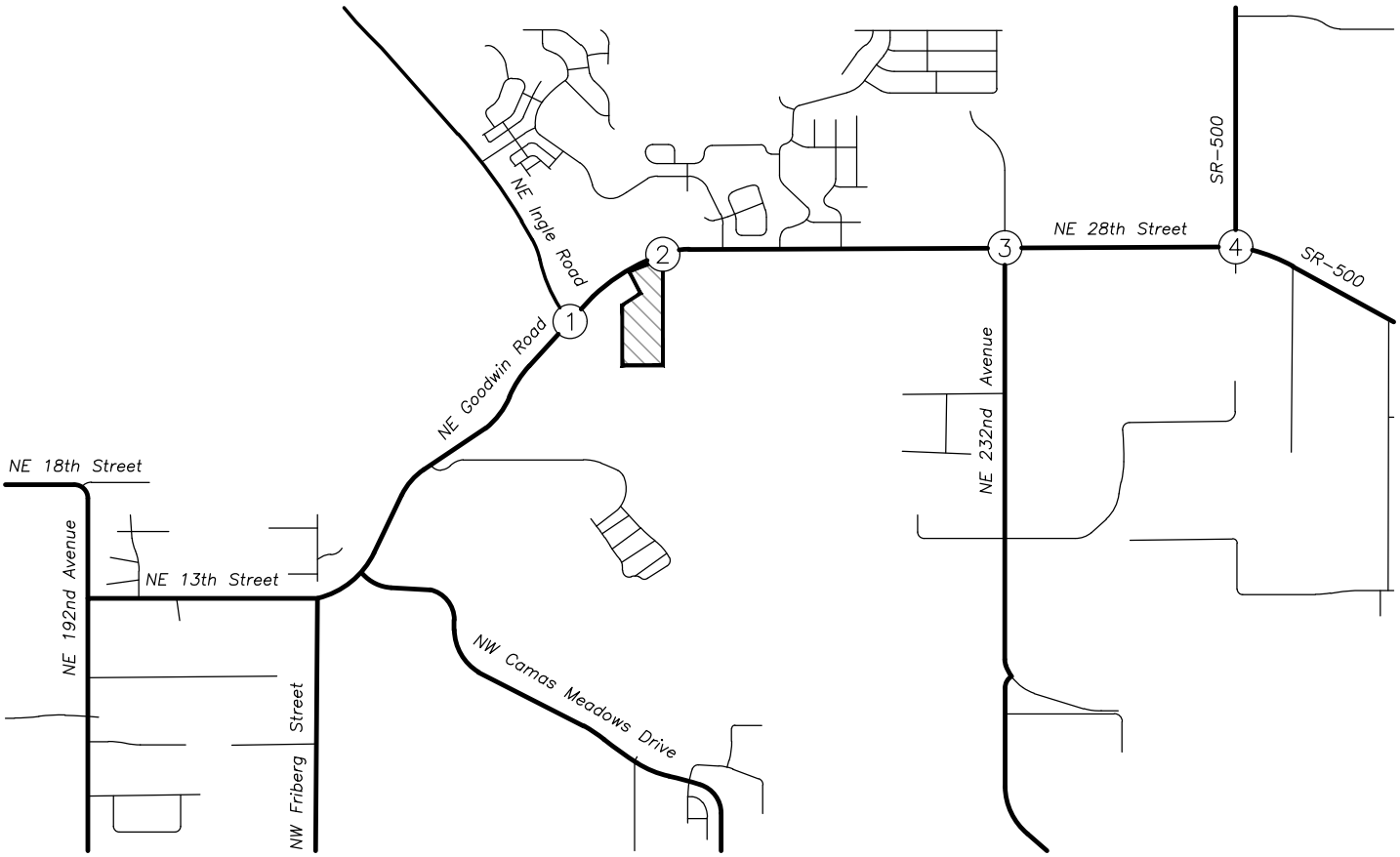
5-Min Count Period Beginning At	NE 242nd Ave (Northbound)				NE 242nd Ave (Southbound)				NE 28th St (Eastbound)				NE 28th St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	0	0	0	0	9	0	1	0	5	18	0	0	0	6	8	0	47	
4:05 PM	0	0	0	0	5	0	3	0	6	29	0	0	0	12	6	0	61	
4:10 PM	0	0	0	0	9	0	6	0	6	14	0	0	0	11	11	0	57	
4:15 PM	0	0	0	0	6	0	1	0	4	19	0	0	0	10	8	0	48	
4:20 PM	0	0	0	0	6	0	3	0	4	18	0	0	0	7	9	0	47	
4:25 PM	0	0	0	0	6	0	4	0	5	26	0	0	0	8	9	0	58	
4:30 PM	0	0	0	0	9	0	5	0	5	21	0	0	0	13	9	0	62	
4:35 PM	0	0	0	0	8	0	1	0	4	17	0	0	0	17	8	0	55	
4:40 PM	0	0	0	0	8	0	8	0	6	12	0	0	0	14	9	0	57	
4:45 PM	0	0	0	0	9	0	3	0	10	19	0	0	0	13	9	0	63	
4:50 PM	0	0	0	0	5	0	2	0	8	24	0	0	0	10	6	0	55	
4:55 PM	0	0	0	0	10	0	4	0	2	13	0	0	0	10	7	0	46	656
5:00 PM	0	0	0	0	12	0	4	0	7	19	0	0	0	13	8	0	63	672
5:05 PM	0	0	0	0	11	0	2	0	10	26	0	0	0	10	7	0	66	677
5:10 PM	0	0	0	0	9	0	2	0	1	20	0	0	0	7	9	0	48	668
5:15 PM	0	0	0	0	4	0	2	0	3	26	0	0	0	13	7	0	55	675
5:20 PM	0	0	0	0	11	0	6	0	4	24	0	0	0	14	10	0	69	697
5:25 PM	0	0	0	0	10	0	5	0	5	18	0	0	0	5	8	0	51	690
5:30 PM	0	0	0	0	6	0	2	0	2	15	0	0	0	16	10	0	51	679
5:35 PM	0	0	0	0	8	0	2	0	8	20	0	0	0	11	7	0	56	680
5:40 PM	0	0	0	0	8	0	3	0	5	14	0	0	0	10	7	0	47	670
5:45 PM	0	0	0	0	11	0	3	0	4	19	0	0	0	11	10	0	58	665
5:50 PM	0	0	0	0	5	0	4	0	6	15	0	0	0	10	7	0	47	657
5:55 PM	0	0	0	0	6	0	1	0	6	16	0	0	0	12	3	0	44	655

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	0	0	0	0	128	0	32	0	72	260	0	0	0	120	96	0	708
Heavy Trucks	0	0	0		0	0	0		4	4	0		0	0	8		16
Buses																	
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

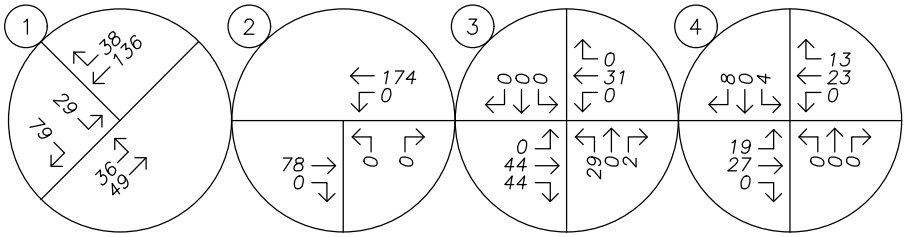
Comments:

Report generated on 3/18/2025 2:00 PM

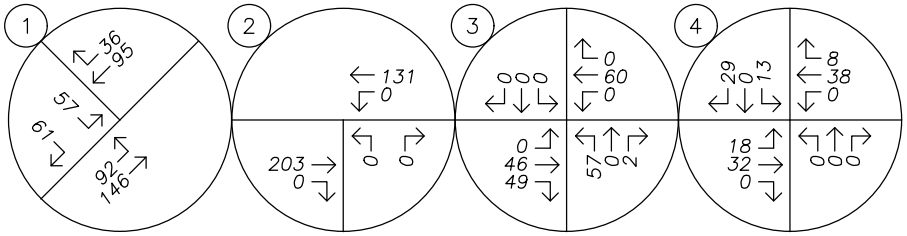
SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212



AM PEAK HOUR



PM PEAK HOUR



no scale

TRAFFIC VOLUMES
In-Process Development Trips
AM & PM Peak Hours

Figure A
Reserve at Green Mountain
3/19/2025

Appendix D – Safety Analysis

Crash History Data

Left-Turn Lane Warrant Analysis

Preliminary Signal Warrant Analysis

Preliminary All-Way Stop-Control Warrant Analysis

OFFICER REPORTED CRASHES THAT OCCURRED *at* OR *in the vicinity of* MULTIPLE INTERSECTIONS IN CLARK COUNTY

CITY STREET INTERSECTIONS

Goodwin Rd @ Ingle Rd

01/01/2019 - 6/30/2024 *See 2nd tab below for road info*

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

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 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	ROADWAY SURFACE CONDITION	LIGHTING CONDITION	FIRST COLLISION TYPE / OBJECT STRUCK	VEHICLE 1 ACTION
City Street	Clark	Camas	NE GOODWIN RD			0	NE INGLE RD						No	EA18227	02/18/2020	15:27	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	Dry	Daylight	From opposite direction - one left turn - one straight	Making Left Turn
City Street	Clark	Camas	NE GOODWIN RD			2456	NE INGLE RD						No	EF36498	11/01/2024	19:53	Suspected Minor Injury	1	0	2	0	0	Passenger Car	Pickup,Panel Truck or Vanette under 10,000 lb	At Intersection and Related	Raining	Wet	Dark-Street Lights On	Entering at angle	Making Right Turn
City Street	Clark	Camas	NE GOODWIN RD			2456	NE INGLE RD						No	EE09429	10/13/2023	13:05	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	Dry	Daylight	Entering at angle	Making Left Turn
City Street	Clark	Camas	NE GOODWIN RD			2456	NE INGLE RD						No	EC98250	10/28/2022	15:07	Suspected Minor Injury	1	0	2	0	0	Pickup,Panel Truck or Vanette under 10,000 lb	Passenger Car	At Intersection and Related	Raining	Wet	Daylight	Entering at angle	Making Left Turn
City Street	Clark	Camas	NE GOODWIN RD			2456	NE INGLE RD						No	ED96903	09/05/2023	11:15	Suspected Minor Injury	1	0	1	0	1	Passenger Car		At Intersection and Related	Clear	Dry	Daylight	Vehicle Strikes Pedalcyclist	Making Left Turn
City Street	Clark	Camas	NE GOODWIN RD			2456	NE INGLE RD						No	EB31078	05/10/2021	08:30	No Apparent Injury	0	0	2	0	0	Passenger Car	Truck (Flatbad,Van,etc)	At Intersection and Related	Clear	Dry	Daylight	Entering at angle	Making Left Turn
City Street	Clark	Camas	NE INGLE RD			2801	NE GOODWIN RD						No	EC42752	05/02/2022	17:00	No Apparent Injury	0	0	2	0	0	Pickup,Panel Truck or Vanette under 10,000 lb	Passenger Car	At Intersection and Related	Clear	Wet	Daylight	Entering at angle	Making Left Turn
City Street	Clark	Camas	NE INGLE RD			0	NE GOODWIN RD						No	E966064	09/20/2019	16:58	Possible Injury	2	0	2	0	0	Passenger Car	Pickup,Panel Truck or Vanette under 10,000 lb	At Intersection and Related	Overcast	Dry	Daylight	Entering at angle	Making Left Turn

OFFICER REPORTED CRASHES THAT OCCURRED *at* OR *in the vicinity of* MULTIPLE INTERSECTIONS IN CLARK COUNTY

CITY STREET INTERSECTIONS

Goodwin Rd @ Ingle Rd

01/01/2019 - 6/30/2024 *See 2nd tab below for road info*

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.

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)	BICYCLIST CONTRIBUTING CIRCUMSTANCE 1 (UNIT 1)	BICYCLIST CONTRIBUTING CIRCUMSTANCE 2 (UNIT 1)	BICYCLIST CONTRIBUTING CIRCUMSTANCE 3 (UNIT 1)	BICYCLIST CONTRIBUTING CIRCUMSTANCE 1 (UNIT 2)	BICYCLIST CONTRIBUTING CIRCUMSTANCE 2 (UNIT 2)	BICYCLIST 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
Going Straight Ahead	West	North	East	West	Distractions Outside Vehicle			None									Lane of Primary Trafficway	1140563.25	118372.87
Going Straight Ahead	Northwest	Southwest	Northeast	Southwest	Did Not Grant RW to Vehicle			None									Intersecting Trafficway	1140562.72	118372.88
Going Straight Ahead	North	East	East	West	Disregard Traffic Sign and Signals			None									Lane of Primary Trafficway	1140562.72	118372.88
Going Straight Ahead	Northwest	Northeast	Northeast	Southwest	Did Not Grant RW to Vehicle			None									Lane of Primary Trafficway	1140562.72	118372.88
	South	West			Did Not Grant R/W to Non Motorist									None			Lane of Primary Trafficway	1140562.72	118372.88
Going Straight Ahead	North	East	East	West	Did Not Grant RW to Vehicle			None									Lane of Primary Trafficway	1140562.72	118372.88
Going Straight Ahead	Northwest	Northeast	Northeast	Southwest	Unknown Distraction			None									Lane of Primary Trafficway	1140562.72	118372.88
Going Straight Ahead	West	North	North	South	Did Not Grant RW to Vehicle			None									Lane of Primary Trafficway	1140563.26	118372.88

OFFICER REPORTED CRASHES THAT OCCURRED *at* OR *in the vicinity of* MULTIPLE INTERSECTIONS IN CLARK COUNTY

COUNTY ROAD INTERSECTIONS

28th St (Co Rd # 93350, mp 3.070 - 3.110) @ 232nd Ave (Co Rd # 30950, mp 2.870 - 2.890)

01/01/2019 - 6/30/2024 *See 2nd tab below for road info*

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

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 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	ROADWAY SURFACE CONDITION	LIGHTING CONDITION	FIRST COLLISION TYPE / OBJECT STRUCK	VEHICLE 1 ACTION
County Road	Clark		30950	2.890			93350	3.090					No	EE81852	05/28/2024	14:30	No Apparent Injury	0	0	1	0	0	Truck & Trailer		At Intersection and Related	Overcast	Dry	Daylight	Utility Pole	Making Right Turn
County Road	Clark		93350	3.090			30950	2.890					No	E923671	05/23/2019	16:54	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	Dry	Daylight	From same direction - one left turn - one straight	Going Straight Ahead
County Road	Clark		93350	3.090			30950	2.890					No	EB42601	06/15/2021	18:31	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	Wet	Daylight	Entering at angle	Making Right Turn
County Road	Clark		93350	3.090			30950	2.890					No	EA02765	12/20/2019	09:12	No Apparent Injury	0	0	2	0	0	Passenger Car	Pickup,Panel Truck or Vanette under 10,000 lb	At Intersection and Related	Raining	Wet	Daylight	From same direction - one left turn - one straight	Going Straight Ahead
County Road	Clark		93350	3.090			30950	2.890					No	EB53840	07/20/2021	15:10	Suspected Minor Injury	3	0	2	0	0	Passenger Car	Pickup,Panel Truck or Vanette under 10,000 lb	At Intersection and Related	Clear	Dry	Daylight	Entering at angle	Making Left Turn
County Road	Clark		93350	3.090			30950	2.890					No	EB10619	02/28/2021	16:35	No Apparent Injury	0	0	1	0	1	Pickup,Panel Truck or Vanette under 10,000 lb		At Intersection and Related	Clear	Dry	Daylight	Vehicle Strikes Pedalcyclist	Going Straight Ahead
County Road	Clark		93350	3.090			30950	2.890					No	EB69640	09/01/2021	11:59	No Apparent Injury	0	0	1	0	0	Pickup,Panel Truck or Vanette under 10,000 lb		At Intersection and Related	Clear	Dry	Daylight	Utility Pole	Going Straight Ahead
County Road	Clark		93350	3.090			30950	2.890					No	EE74231	02/18/2024	15:52	Unknown	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	Overcast	Unknown	Other	Entering at angle	Going Straight Ahead
County Road	Clark		93350	3.090			30950	2.890					No	ED64349	05/21/2023	16:55	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	Overcast	Dry	Daylight	From same direction - one right turn - one straight	Going Straight Ahead
County Road	Clark		93350	3.090									No	EA84265	11/24/2020	15:25	Possible Injury	2	0	2	0	0	Pickup,Panel Truck or Vanette under 10,000 lb	Pickup,Panel Truck or Vanette under 10,000 lb	Driveway Related but Not at Driveway	Overcast	Dry	Daylight	From same direction - both going straight - one stopped - rear-end	Going Straight Ahead

OFFICER REPORTED CRASHES THAT OCCURRED *at* OR *in the vicinity of* MULTIPLE INTERSECTIONS IN CLARK COUNTY

COUNTY ROAD INTERSECTIONS

28th St (Co Rd # 93350, mp 3.070 - 3.110) @ 232nd Ave (Co Rd # 30950, mp 2.870 - 2.890)

01/01/2019 - 6/30/2024 *See 2nd tab below for road info*

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.

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)	BICYCLIST CONTRIBUTING CIRCUMSTANCE 1 (UNIT 1)	BICYCLIST CONTRIBUTING CIRCUMSTANCE 2 (UNIT 1)	BICYCLIST CONTRIBUTING CIRCUMSTANCE 3 (UNIT 1)	BICYCLIST CONTRIBUTING CIRCUMSTANCE 1 (UNIT 2)	BICYCLIST CONTRIBUTING CIRCUMSTANCE 2 (UNIT 2)	BICYCLIST 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
	West	South			None												Past the Outside Shoulder of Primary Trafficway	1145581.94	119082.99
Making Left Turn	East	West	East	South	Inattention	Follow Too Closely		None									Lane of Primary Trafficway	1145581.43	119082.29
Stopped at Signal or Stop Sign	West	South	South	West	Exceeding Reas. Safe Speed			None									Intersecting Trafficway	1145581.94	119082.99
Making Left Turn	East	West	East	South	Follow Too Closely			None									Lane of Primary Trafficway	1145581.43	119082.28
Going Straight Ahead	South	West	East	West	Did Not Grant RW to Vehicle	Unknown Distraction		None									Lane of Primary Trafficway	1145581.94	119082.99
	East	West			None									Improper Turn/Merge			Lane of Primary Trafficway	1145581.94	119082.99
	East	West			Other Contributing Circ Not Listed												Past the Outside Shoulder of Primary Trafficway	1145581.94	119082.99
Making Left Turn	West	East	South	Northwest	None			Unknown Distraction									Lane of Primary Trafficway	1145581.94	119082.99
Making Right Turn	West	East	West	South	Distracted by Adjusting Vehicle Cntrls			None									Lane of Primary Trafficway	1145581.94	119082.99
Stopped for Traffic	East	West	Vehicle Stopped	Vehicle Stopped	Follow Too Closely			None									Lane of Primary Trafficway	1145581.94	119082.99

OFFICER REPORTED CRASHES THAT OCCURRED *at* OR *in the vicinity of* MULTIPLE INTERSECTIONS IN CLARK COUNTY

STATE ROUTE INTERSECTIONS

SR 500 (aka 242nd Ave / Dresser Rd, mp 13.82 - 13.86) @ 28th St (Co Rd # 93350, mp 3.570 - 3.590)

01/01/2019 - 6/30/2024 *See 2nd tab below for road info*

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

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 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	ROADWAY SURFACE CONDITION	LIGHTING CONDITION	FIRST COLLISION TYPE / OBJECT STRUCK	VEHICLE 1 ACTION
State Route	Clark		500	13.84									No	EF31345	10/28/2024	07:59	No Apparent Injury	0	0	2	0	0	Passenger Car	Pickup,Panel Truck or Vanette under 10,000 lb	At Driveway within Major Intersection	Overcast	Wet	Daylight	From opposite direction - one left turn - one straight	Making Left Turn
State Route	Clark		500	13.84									No	E961000	09/04/2019	11:57	Possible Injury	2	0	2	0	0	Passenger Car	Truck Tractor & Semi-Trailer	At Intersection and Related	Clear or Partly Cloudy	Dry	Daylight	Entering at angle	Going Straight Ahead
State Route	Clark		500	13.84									No	EB87073	11/06/2021	15:55	No Apparent Injury	0	0	2	0	0	Passenger Car	Passenger Car	At Driveway within Major Intersection	Raining	Wet	Daylight	Entering at angle	Starting in Traffic Lane
State Route	Clark		500	13.84									No	ED77436	07/04/2023	16:05	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	Dry	Daylight	Entering at angle	Starting in Traffic Lane

OFFICER REPORTED CRASHES THAT OCCURRED *at* OR *in the vicinity of* MULTIPLE INTERSECTIONS IN CLARK COUNTY

STATE ROUTE INTERSECTIONS

SR 500 (aka 242nd Ave / Dresser Rd, mp 13.82 - 13.86) @ 28th St (Co Rd # 93350, mp 3.570 - 3.590)

01/01/2019 - 6/30/2024 *See 2nd tab below for road info*

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.

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)	BICYCLIST CONTRIBUTING CIRCUMSTANCE 1 (UNIT 1)	BICYCLIST CONTRIBUTING CIRCUMSTANCE 2 (UNIT 1)	BICYCLIST CONTRIBUTING CIRCUMSTANCE 3 (UNIT 1)	BICYCLIST CONTRIBUTING CIRCUMSTANCE 1 (UNIT 2)	BICYCLIST CONTRIBUTING CIRCUMSTANCE 2 (UNIT 2)	BICYCLIST 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
Going Straight Ahead	North	East	South	North	Did Not Grant RW to Vehicle			None									Lane 1 Increasing Milepost	1148224.12	119052.38
Going Straight Ahead	North	South	East	West	Under Influence of Drugs			None									Lane 1 Decreasing Milepost	1148229.61	119051.46
Going Straight Ahead	North	South	East	West	Did Not Grant RW to Vehicle			None									Lane 1 Increasing Milepost	1148221.08	119048
Making Left Turn	West	East	West	North	Improper Turn/Merge			None									Lane 1 Increasing Milepost	1148221.08	119048

Left-Turn Lane Warrant Analysis

Project: Reserve at Green Mountain
Intersection: Site Access at NE 28th Street
Date: 3/19/2025
Scenario: 2027 Buildout Conditions - AM Peak Hour (WB)

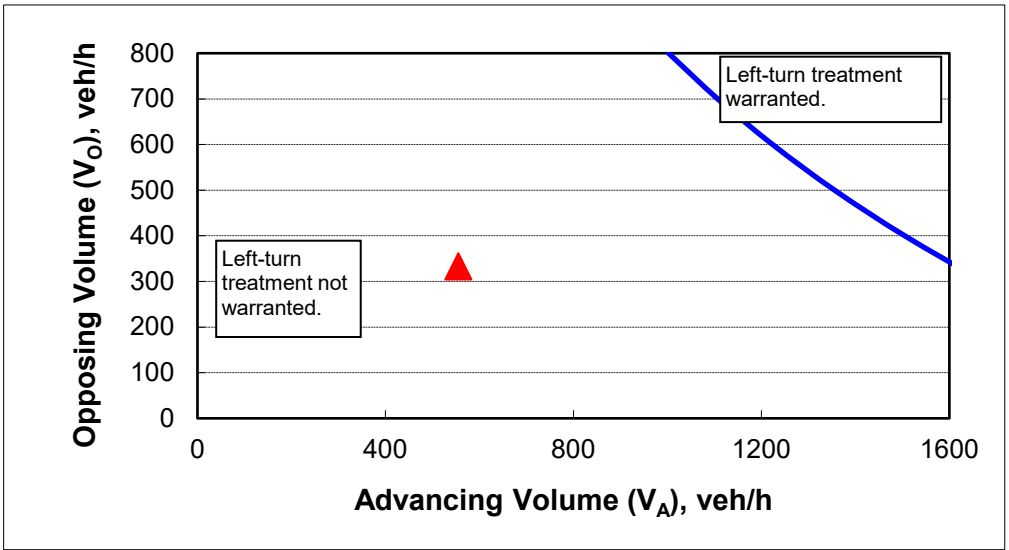
2-lane roadway (English)

INPUT

Variable	Value
85th percentile speed, mph:	40
Percent of left-turns in advancing volume (V_A), %:	1%
Advancing volume (V_A), veh/h:	555
Opposing volume (V_O), veh/h:	333

OUTPUT

Variable	Value
Limiting advancing volume (V_A), veh/h:	1617
Guidance for determining the need for a major-road left-turn bay:	
Left-turn treatment NOT warranted.	



CALIBRATION CONSTANTS

Variable	Value
Average time for making left-turn, s:	3.0
Critical headway, s:	5.0
Average time for left-turn vehicle to clear the advancing lane, s:	1.9

Left-Turn Lane Warrant Analysis

Project: Reserve at Green Mountain
Intersection: Site Access at NE 28th Street
Date: 3/19/2025
Scenario: 2027 Buildout Conditions - PM Peak Hour (WB)

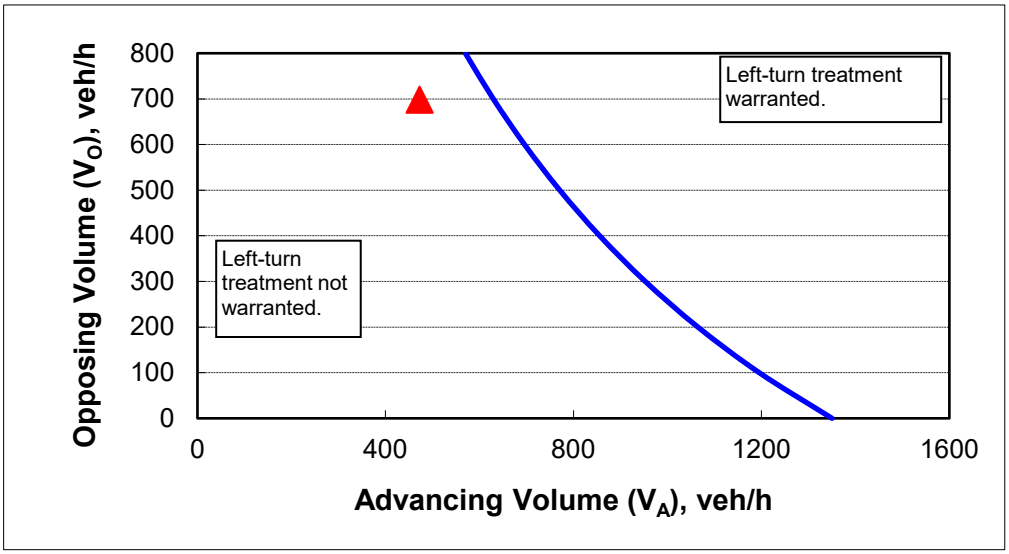
2-lane roadway (English)

INPUT

Variable	Value
85th percentile speed, mph:	40
Percent of left-turns in advancing volume (V_A), %:	2%
Advancing volume (V_A), veh/h:	473
Opposing volume (V_O), veh/h:	698

OUTPUT

Variable	Value
Limiting advancing volume (V_A), veh/h:	631
Guidance for determining the need for a major-road left-turn bay:	
Left-turn treatment NOT warranted.	



CALIBRATION CONSTANTS

Variable	Value
Average time for making left-turn, s:	3.0
Critical headway, s:	5.0
Average time for left-turn vehicle to clear the advancing lane, s:	1.9

Traffic Signal Warrant Analysis

Project: Reserve at Green Mountain
Date: 3/19/2025
Scenario: 2027 Buildout Conditions

Major Street:	NE 28th Street	Minor Street:	Site Access
Number of Lanes:	1	Number of Lanes:	1
PM Peak Hour Volumes:	1171	PM Peak Hour Volumes:	13

Warrant Used:

_____ 100 percent of standard warrants used
X 70 percent of standard warrants used due to 85th percentile speed in excess of 40 mph or isolated community with population less than 10,000.

Number of Lanes for Moving Traffic on Each Approach:		ADT on Major St. (total of both approaches)		ADT on Minor St. (higher-volume approach)	
WARRANT 1, CONDITION A		100%	70%	100%	70%
Major St.	Minor St.	Warrants	Warrants	Warrants	Warrants
1	1	8,850	6,200	2,650	1,850
2 or more	1	10,600	7,400	2,650	1,850
2 or more	2 or more	10,600	7,400	3,550	2,500
1	2 or more	8,850	6,200	3,550	2,500
WARRANT 1, CONDITION B					
1	1	13,300	9,300	1,350	950
2 or more	1	15,900	11,100	1,350	950
2 or more	2 or more	15,900	11,100	1,750	1,250
1	2 or more	13,300	9,300	1,750	1,250

Note: ADT volumes assume 8th highest hour is 5.6% of the daily volume

	Approach Volumes	Minimum Volumes	Is Signal Warrant Met?
Warrant 1			
Condition A: Minimum Vehicular Volume			
Major Street	11,710	6,200	
Minor Street*	130	1,850	**No**
Condition B: Interruption of Continuous Traffic			
Major Street	11,710	9,300	
Minor Street*	130	950	**No**
Combination Warrant			
Major Street	11,710	7,440	
Minor Street*	130	1,480	**No**

* Minor street right-turning traffic volumes reduced by 25%

Traffic Signal Warrant Analysis

Project: Reserve at Green Mountain
Date: 3/19/2025
Scenario: 2027 Buildout Conditions

Major Street:	NE 28th Street	Minor Street:	NE 232nd Avenue
Number of Lanes:	1	Number of Lanes:	1
PM Peak Hour Volumes:	751	PM Peak Hour Volumes:	143

Warrant Used:

_____ 100 percent of standard warrants used
X 70 percent of standard warrants used due to 85th percentile speed in excess of 40 mph or isolated community with population less than 10,000.

Number of Lanes for Moving Traffic on Each Approach:		ADT on Major St. (total of both approaches)		ADT on Minor St. (higher-volume approach)	
WARRANT 1, CONDITION A		100%	70%	100%	70%
Major St.	Minor St.	Warrants	Warrants	Warrants	Warrants
1	1	8,850	6,200	2,650	1,850
2 or more	1	10,600	7,400	2,650	1,850
2 or more	2 or more	10,600	7,400	3,550	2,500
1	2 or more	8,850	6,200	3,550	2,500
WARRANT 1, CONDITION B					
1	1	13,300	9,300	1,350	950
2 or more	1	15,900	11,100	1,350	950
2 or more	2 or more	15,900	11,100	1,750	1,250
1	2 or more	13,300	9,300	1,750	1,250

Note: ADT volumes assume 8th highest hour is 5.6% of the daily volume

	Approach Volumes	Minimum Volumes	Is Signal Warrant Met?
Warrant 1			
Condition A: Minimum Vehicular Volume			
Major Street	7,510	6,200	
Minor Street*	1,430	1,850	**No**
Condition B: Interruption of Continuous Traffic			
Major Street	7,510	9,300	
Minor Street*	1,430	950	**No**
Combination Warrant			
Major Street	7,510	7,440	
Minor Street*	1,430	1,480	**No**

* Minor street right-turning traffic volumes reduced by 25%

Traffic Signal Warrant Analysis

Project: Reserve at Green Mountain
Date: 3/19/2025
Scenario: 2027 Buildout Conditions

Major Street:	NE 28th Street/SR-500	Minor Street:	SR-500 (North Leg)
Number of Lanes:	1	Number of Lanes:	1
PM Peak Hour Volumes:	538	PM Peak Hour Volumes:	214

Warrant Used:

_____ 100 percent of standard warrants used
X 70 percent of standard warrants used due to 85th percentile speed in excess of 40 mph or isolated community with population less than 10,000.

Number of Lanes for Moving Traffic on Each Approach:		ADT on Major St. (total of both approaches)		ADT on Minor St. (higher-volume approach)	
WARRANT 1, CONDITION A		100%	70%	100%	70%
Major St.	Minor St.	Warrants	Warrants	Warrants	Warrants
1	1	8,850	6,200	2,650	1,850
2 or more	1	10,600	7,400	2,650	1,850
2 or more	2 or more	10,600	7,400	3,550	2,500
1	2 or more	8,850	6,200	3,550	2,500
WARRANT 1, CONDITION B					
1	1	13,300	9,300	1,350	950
2 or more	1	15,900	11,100	1,350	950
2 or more	2 or more	15,900	11,100	1,750	1,250
1	2 or more	13,300	9,300	1,750	1,250

Note: ADT volumes assume 8th highest hour is 5.6% of the daily volume

	Approach Volumes	Minimum Volumes	Is Signal Warrant Met?
Warrant 1			
Condition A: Minimum Vehicular Volume			
Major Street	5,380	6,200	
Minor Street*	2,140	1,850	**No**
Condition B: Interruption of Continuous Traffic			
Major Street	5,380	9,300	
Minor Street*	2,140	950	**No**
Combination Warrant			
Major Street	5,380	7,440	
Minor Street*	2,140	1,480	**No**

* Minor street right-turning traffic volumes reduced by 25%

Multi-Way Stop Warrant Analysis

Project:	Reserve at Green Mountain
Date:	3/19/2025
Scenario:	2027 Buildout Conditions

Major Street:	NE 28th Street	Minor Street:	Site Access
PM Peak Hour Volumes:	1172	PM Peak Hour Volumes:	14

Warrant Used:

_____	100 percent of standard warrants used
X	70 percent of standard warrants used due to 85th percentile speed in excess of 40 mph.

ADT on Major St. (total of both approaches)		ADT on Minor St. (total of both approaches)	
100% Warrants	70% Warrants	100% Warrants	70% Warrants
5,310	3,717	3,540	2,478

Note: ADT volumes assume 8th highest hour is 5.6% of the daily volume

	Approach Volumes	Minimum Volumes	Is Multi-Way Stop Warrant Met?
Section 2B.07.C			
Major Street	11,720	3,717	
Minor Street	140	2,478	**No**

Note: Minor Street includes the total of vehicular, pedestrian, and bicycle traffic.

Multi-Way Stop Warrant Analysis

Project: Reserve at Green Mountain
Date: 3/19/2025
Scenario: 2027 Buildout Conditions

Major Street:	NE 28th Street	Minor Street:	NE 232nd Avenue
PM Peak Hour Volumes:	751	PM Peak Hour Volumes:	149

Warrant Used:

	100 percent of standard warrants used
X	70 percent of standard warrants used due to 85th percentile speed in excess of 40 mph.

ADT on Major St. (total of both approaches)		ADT on Minor St. (total of both approaches)	
100% Warrants	70% Warrants	100% Warrants	70% Warrants
5,310	3,717	3,540	2,478

Note: ADT volumes assume 8th highest hour is 5.6% of the daily volume

	Approach Volumes	Minimum Volumes	Is Multi-Way Stop Warrant Met?
Section 2B.07.C			
Major Street	7,510	3,717	
Minor Street	1,490	2,478	**No**

Note: Minor Street includes the total of vehicular, pedestrian, and bicycle traffic.

Multi-Way Stop Warrant Analysis

Project: Reserve at Green Mountain
Date: 3/19/2025
Scenario: 2027 Buildout Conditions

Major Street:	NE 28th Street/SR-500	Minor Street:	SR-500 (North Leg)
PM Peak Hour Volumes:	538	PM Peak Hour Volumes:	241

Warrant Used:

	100 percent of standard warrants used
X	70 percent of standard warrants used due to 85th percentile speed in excess of 40 mph.

ADT on Major St. (total of both approaches)		ADT on Minor St. (total of both approaches)	
100% Warrants	70% Warrants	100% Warrants	70% Warrants
5,310	3,717	3,540	2,478

Note: ADT volumes assume 8th highest hour is 5.6% of the daily volume

	Approach Volumes	Minimum Volumes	Is Multi-Way Stop Warrant Met?
Section 2B.07.C			
Major Street	5,380	3,717	
Minor Street	2,410	2,478	**No**

Note: Minor Street includes the total of vehicular, pedestrian, and bicycle traffic.

Appendix E – Operation Analysis

Level of Service Descriptions

Synchro Capacity Reports

SimTraffic Queuing Reports

LEVEL OF SERVICE

Level of service is used to describe the quality of traffic flow. Levels of service A to C are considered good, and rural roads are usually designed for level of service C. Urban streets and signalized intersections are typically designed for level of service D. Level of service E is considered to be the limit of acceptable delay. For unsignalized intersections, level of service E is generally considered acceptable. Here is a more complete description of levels of service:

Level of service A: Very low delay at intersections, with all traffic signal cycles clearing and no vehicles waiting through more than one signal cycle. On highways, low volume and high speeds, with speeds not restricted by other vehicles.

Level of service B: Operating speeds beginning to be affected by other traffic; short traffic delays at intersections. Higher average intersection delay than for level of service A resulting from more vehicles stopping.

Level of service C: Operating speeds and maneuverability closely controlled by other traffic; higher delays at intersections than for level of service B due to a significant number of vehicles stopping. Not all signal cycles clear the waiting vehicles. This is the recommended design standard for rural highways.

Level of service D: Tolerable operating speeds; long traffic delays occur at intersections. The influence of congestion is noticeable. At traffic signals many vehicles stop, and the proportion of vehicles not stopping declines. The number of signal cycle failures, for which vehicles must wait through more than one signal cycle, are noticeable. This is typically the design level for urban signalized intersections.

Level of service E: Restricted speeds, very long traffic delays at traffic signals, and traffic volumes near capacity. Flow is unstable so that any interruption, no matter how minor, will cause queues to form and service to deteriorate to level of service F. Traffic signal cycle failures are frequent occurrences. For unsignalized intersections, level of service E or better is generally considered acceptable.

Level of service F: Extreme delays, resulting in long queues which may interfere with other traffic movements. There may be stoppages of long duration, and speeds may drop to zero. There may be frequent signal cycle failures. Level of service F will typically result when vehicle arrival rates are greater than capacity. It is considered unacceptable by most drivers.

LEVEL OF SERVICE CRITERIA FOR SIGNALIZED INTERSECTIONS

LEVEL OF SERVICE	CONTROL DELAY PER VEHICLE (Seconds)
A	<10
B	10-20
C	20-35
D	35-55
E	55-80
F	>80

LEVEL OF SERVICE CRITERIA FOR UNSIGNALIZED INTERSECTIONS

LEVEL OF SERVICE	CONTROL DELAY PER VEHICLE (Seconds)
A	<10
B	10-15
C	15-25
D	25-35
E	35-50
F	>50

HCM 7th Signalized Intersection Summary
1: NE 28th Street & NE Ingle Road

04/03/2025

Movement	SEL	SER	NEL	NET	SWT	SWR
Lane Configurations						
Traffic Volume (veh/h)	96	382	124	145	307	57
Future Volume (veh/h)	96	382	124	145	307	57
Initial Q (Qb), veh	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1796	1796	1796	1796	1856	1856
Adj Flow Rate, veh/h	105	94	136	159	337	20
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	7	7	7	7	3	3
Cap, veh/h	236	210	565	991	522	442
Arrive On Green	0.14	0.14	0.11	0.55	0.28	0.28
Sat Flow, veh/h	1711	1522	1711	1796	1856	1572
Grp Volume(v), veh/h	105	94	136	159	337	20
Grp Sat Flow(s),veh/h/ln	1711	1522	1711	1796	1856	1572
Q Serve(g_s), s	1.6	1.6	1.3	1.3	4.6	0.3
Cycle Q Clear(g_c), s	1.6	1.6	1.3	1.3	4.6	0.3
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	236	210	565	991	522	442
V/C Ratio(X)	0.45	0.45	0.24	0.16	0.65	0.05
Avail Cap(c_a), veh/h	1211	1077	752	1891	1249	1058
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	11.5	11.5	5.4	3.2	9.1	7.6
Incr Delay (d2), s/veh	1.3	1.5	0.2	0.1	1.3	0.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	1.5	0.2	0.1	1.2	0.1
Unsig. Movement Delay, s/veh						
LnGrp Delay(d), s/veh	12.8	13.0	5.6	3.3	10.5	7.6
LnGrp LOS	B	B	A	A	B	A
Approach Vol, veh/h	199			295	357	
Approach Delay, s/veh	12.9			4.3	10.3	
Approach LOS	B			A	B	

Timer - Assigned Phs		4		6	7	8
Phs Duration (G+Y+Rc), s		20.5		8.5	7.8	12.7
Change Period (Y+Rc), s		4.5		4.5	4.5	4.5
Max Green Setting (Gmax), s		30.5		20.5	6.5	19.5
Max Q Clear Time (g_c+I1), s		3.3		3.6	3.3	6.6
Green Ext Time (p_c), s		0.8		0.5	0.1	1.5

Intersection Summary	
HCM 7th Control Delay, s/veh	8.8
HCM 7th LOS	A

Intersection	
Int Delay, s/veh	0

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	241	0	0	363	1	1
Future Vol, veh/h	241	0	0	363	1	1
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	91	91	91	91	91	91
Heavy Vehicles, %	11	11	3	3	2	2
Mvmt Flow	265	0	0	399	1	1

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	265	0	664	265
Stage 1	-	-	-	-	265	-
Stage 2	-	-	-	-	399	-
Critical Hdwy	-	-	4.13	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.227	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1293	-	426	774
Stage 1	-	-	-	-	780	-
Stage 2	-	-	-	-	678	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1293	-	426	774
Mov Cap-2 Maneuver	-	-	-	-	426	-
Stage 1	-	-	-	-	780	-
Stage 2	-	-	-	-	678	-

Approach	EB	WB	NB
HCM Ctrl Dly, s/v	0	0	11.58
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	549	-	-	1293	-
HCM Lane V/C Ratio	0.004	-	-	-	-
HCM Ctrl Dly (s/v)	11.6	-	-	0	-
HCM Lane LOS	B	-	-	A	-
HCM 95th %tile Q(veh)	0	-	-	0	-

Intersection	
Int Delay, s/veh	4.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		⇕			⇕			⇕			⇕	
Traffic Vol, veh/h	0	122	101	44	210	0	76	0	36	1	1	3
Future Vol, veh/h	0	122	101	44	210	0	76	0	36	1	1	3
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	71	71	71	71	71	71	71	71	71	71	71	71
Heavy Vehicles, %	10	10	10	8	8	8	8	8	8	0	0	0
Mvmt Flow	0	172	142	62	296	0	107	0	51	1	1	4

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	296	0	0	314	0	0	663	663	243	592	734	296
Stage 1	-	-	-	-	-	-	243	243	-	420	420	-
Stage 2	-	-	-	-	-	-	420	420	-	172	314	-
Critical Hdwy	4.2	-	-	4.18	-	-	7.18	6.58	6.28	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.18	5.58	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.18	5.58	-	6.1	5.5	-
Follow-up Hdwy	2.29	-	-	2.272	-	-	3.572	4.072	3.372	3.5	4	3.3
Pot Cap-1 Maneuver	1221	-	-	1213	-	-	366	374	781	421	350	748
Stage 1	-	-	-	-	-	-	747	694	-	615	593	-
Stage 2	-	-	-	-	-	-	599	579	-	835	660	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1221	-	-	1213	-	-	341	351	781	370	328	748
Mov Cap-2 Maneuver	-	-	-	-	-	-	341	351	-	370	328	-
Stage 1	-	-	-	-	-	-	747	694	-	578	557	-
Stage 2	-	-	-	-	-	-	558	544	-	781	660	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	0	1.41	18.84	12.12
HCM LOS			C	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	416	1221	-	-	312	-	-	512
HCM Lane V/C Ratio	0.379	-	-	-	0.051	-	-	0.014
HCM Ctrl Dly (s/v)	18.8	0	-	-	8.1	0	-	12.1
HCM Lane LOS	C	A	-	-	A	A	-	B
HCM 95th %tile Q(veh)	1.7	0	-	-	0.2	-	-	0

Intersection	
Int Delay, s/veh	4.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	65	247	0	0	142	98	0	0	0	102	0	48
Future Vol, veh/h	65	247	0	0	142	98	0	0	0	102	0	48
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	98	98	98	98	98	98	98	98	98	98	98	98
Heavy Vehicles, %	3	3	3	5	5	5	0	0	0	6	6	6
Mvmt Flow	66	252	0	0	145	100	0	0	0	104	0	49

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	245	0	0	252	0	0	530	630	252	580	580	195
Stage 1	-	-	-	-	-	-	385	385	-	195	195	-
Stage 2	-	-	-	-	-	-	145	245	-	385	385	-
Critical Hdwy	4.13	-	-	4.15	-	-	7.1	6.5	6.2	7.16	6.56	6.26
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.16	5.56	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.16	5.56	-
Follow-up Hdwy	2.227	-	-	2.245	-	-	3.5	4	3.3	3.554	4.054	3.354
Pot Cap-1 Maneuver	1315	-	-	1296	-	-	463	401	792	420	421	836
Stage 1	-	-	-	-	-	-	642	614	-	798	732	-
Stage 2	-	-	-	-	-	-	863	707	-	630	604	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1315	-	-	1296	-	-	410	378	792	395	396	836
Mov Cap-2 Maneuver	-	-	-	-	-	-	410	378	-	395	396	-
Stage 1	-	-	-	-	-	-	605	578	-	798	732	-
Stage 2	-	-	-	-	-	-	812	707	-	593	569	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	1.64	0	0	16.12
HCM LOS			A	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	-	375	-	-	1296	-	-	476
HCM Lane V/C Ratio	-	0.05	-	-	-	-	-	0.322
HCM Ctrl Dly (s/v)	0	7.9	0	-	0	-	-	16.1
HCM Lane LOS	A	A	A	-	A	-	-	C
HCM 95th %tile Q(veh)	-	0.2	-	-	0	-	-	1.4

HCM 7th Signalized Intersection Summary
1: NE 28th Street & NE Ingle Road

04/03/2025

Movement	SEL	SER	NEL	NET	SWT	SWR
Lane Configurations						
Traffic Volume (veh/h)	84	182	277	377	241	81
Future Volume (veh/h)	84	182	277	377	241	81
Initial Q (Qb), veh	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1856	1856
Adj Flow Rate, veh/h	93	29	308	419	268	26
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	3	3
Cap, veh/h	194	172	688	1074	445	369
Arrive On Green	0.11	0.11	0.18	0.57	0.24	0.24
Sat Flow, veh/h	1781	1585	1781	1870	1856	1539
Grp Volume(v), veh/h	93	29	308	419	268	26
Grp Sat Flow(s),veh/h/ln	1781	1585	1781	1870	1856	1539
Q Serve(g_s), s	1.4	0.5	3.1	3.5	3.6	0.4
Cycle Q Clear(g_c), s	1.4	0.5	3.1	3.5	3.6	0.4
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	194	172	688	1074	445	369
V/C Ratio(X)	0.48	0.17	0.45	0.39	0.60	0.07
Avail Cap(c_a), veh/h	1129	1004	1033	2173	1176	975
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	11.9	11.5	5.3	3.3	9.6	8.4
Incr Delay (d2), s/veh	1.8	0.5	0.5	0.2	1.3	0.1
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	0.0	0.3	0.1	1.0	0.1
Unsig. Movement Delay, s/veh						
LnGrp Delay(d), s/veh	13.7	11.9	5.8	3.5	10.9	8.4
LnGrp LOS	B	B	A	A	B	A
Approach Vol, veh/h	122			727	294	
Approach Delay, s/veh	13.3			4.5	10.7	
Approach LOS	B			A	B	

Timer - Assigned Phs			4		6	7	8
Phs Duration (G+Y+Rc), s			20.8		7.6	9.5	11.3
Change Period (Y+Rc), s			4.5		4.5	4.5	4.5
Max Green Setting (Gmax), s			33.0		18.0	10.5	18.0
Max Q Clear Time (g_c+I1), s			5.5		3.4	5.1	5.6
Green Ext Time (p_c), s			2.5		0.2	0.4	1.2

Intersection Summary	
HCM 7th Control Delay, s/veh	7.0
HCM 7th LOS	A

Intersection	
Int Delay, s/veh	0

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	460	1	1	321	1	0
Future Vol, veh/h	460	1	1	321	1	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	1	1	3	3	2	2
Mvmt Flow	511	1	1	357	1	0

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	512	0	871	512
Stage 1	-	-	-	-	512	-
Stage 2	-	-	-	-	359	-
Critical Hdwy	-	-	4.13	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.227	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1048	-	322	562
Stage 1	-	-	-	-	602	-
Stage 2	-	-	-	-	707	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1048	-	321	562
Mov Cap-2 Maneuver	-	-	-	-	321	-
Stage 1	-	-	-	-	602	-
Stage 2	-	-	-	-	706	-

Approach	EB	WB	NB
HCM Ctrl Dly, s/v	0	0.03	16.24
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	321	-	-	6	-
HCM Lane V/C Ratio	0.003	-	-	0.001	-
HCM Ctrl Dly (s/v)	16.2	-	-	8.4	0
HCM Lane LOS	C	-	-	A	A
HCM 95th %tile Q(veh)	0	-	-	0	-

Intersection	
Int Delay, s/veh	2.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	5	305	73	12	171	0	75	1	3	0	1	3
Future Vol, veh/h	5	305	73	12	171	0	75	1	3	0	1	3
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	99	99	99	99	99	99	99	99	99	99	99	99
Heavy Vehicles, %	2	2	2	4	4	4	6	6	6	25	25	25
Mvmt Flow	5	308	74	12	173	0	76	1	3	0	1	3

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	173	0	0	382	0	0	553	552	345	516	589	173
Stage 1	-	-	-	-	-	-	355	355	-	197	197	-
Stage 2	-	-	-	-	-	-	197	197	-	319	392	-
Critical Hdwy	4.12	-	-	4.14	-	-	7.16	6.56	6.26	7.35	6.75	6.45
Critical Hdwy Stg 1	-	-	-	-	-	-	6.16	5.56	-	6.35	5.75	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.16	5.56	-	6.35	5.75	-
Follow-up Hdwy	2.218	-	-	2.236	-	-	3.554	4.054	3.354	3.725	4.225	3.525
Pot Cap-1 Maneuver	1404	-	-	1166	-	-	438	436	689	435	391	815
Stage 1	-	-	-	-	-	-	654	623	-	755	697	-
Stage 2	-	-	-	-	-	-	795	730	-	647	568	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1404	-	-	1166	-	-	428	429	689	425	385	815
Mov Cap-2 Maneuver	-	-	-	-	-	-	428	429	-	425	385	-
Stage 1	-	-	-	-	-	-	651	620	-	746	689	-
Stage 2	-	-	-	-	-	-	782	722	-	640	566	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	0.1	0.53	15.14	10.69
HCM LOS			C	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	434	23	-	-	118	-	-	637
HCM Lane V/C Ratio	0.184	0.004	-	-	0.01	-	-	0.006
HCM Ctrl Dly (s/v)	15.1	7.6	0	-	8.1	0	-	10.7
HCM Lane LOS	C	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	0.7	0	-	-	0	-	-	0

Intersection	
Int Delay, s/veh	5.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		⇕			⇕			⇕			⇕	
Traffic Vol, veh/h	21	128	0	0	187	85	0	0	0	113	0	76
Future Vol, veh/h	21	128	0	0	187	85	0	0	0	113	0	76
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	85	85	85	85	85	85	85	85	85	85	85	85
Heavy Vehicles, %	10	10	10	6	6	6	0	0	0	12	12	12
Mvmt Flow	25	151	0	0	220	100	0	0	0	133	0	89

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	320	0	0	151	0	0	420	520	151	470	470	270
Stage 1	-	-	-	-	-	-	200	200	-	270	270	-
Stage 2	-	-	-	-	-	-	220	320	-	200	200	-
Critical Hdwy	4.2	-	-	4.16	-	-	7.1	6.5	6.2	7.22	6.62	6.32
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.22	5.62	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.22	5.62	-
Follow-up Hdwy	2.29	-	-	2.254	-	-	3.5	4	3.3	3.608	4.108	3.408
Pot Cap-1 Maneuver	1196	-	-	1406	-	-	547	463	901	487	477	745
Stage 1	-	-	-	-	-	-	806	739	-	714	668	-
Stage 2	-	-	-	-	-	-	787	656	-	779	717	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1196	-	-	1406	-	-	471	453	901	476	466	745
Mov Cap-2 Maneuver	-	-	-	-	-	-	471	453	-	476	466	-
Stage 1	-	-	-	-	-	-	788	723	-	714	668	-
Stage 2	-	-	-	-	-	-	693	656	-	762	701	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	1.14	0	0	15.68
HCM LOS			A	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	-	254	-	-	1406	-	-	557
HCM Lane V/C Ratio	-	0.021	-	-	-	-	-	0.399
HCM Ctrl Dly (s/v)	0	8.1	0	-	0	-	-	15.7
HCM Lane LOS	A	A	A	-	A	-	-	C
HCM 95th %tile Q(veh)	-	0.1	-	-	0	-	-	1.9

HCM 7th Signalized Intersection Summary
1: NE 28th Street & NE Ingle Road

04/03/2025

Movement	SEL	SER	NEL	NET	SWT	SWR
Lane Configurations						
Traffic Volume (veh/h)	129	476	165	200	455	97
Future Volume (veh/h)	129	476	165	200	455	97
Initial Q (Qb), veh	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1796	1796	1796	1796	1856	1856
Adj Flow Rate, veh/h	142	235	181	220	500	45
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	7	7	7	7	3	3
Cap, veh/h	365	325	447	1011	637	540
Arrive On Green	0.21	0.21	0.11	0.56	0.34	0.34
Sat Flow, veh/h	1711	1522	1711	1796	1856	1572
Grp Volume(v), veh/h	142	235	181	220	500	45
Grp Sat Flow(s),veh/h/ln	1711	1522	1711	1796	1856	1572
Q Serve(g_s), s	2.9	5.8	2.4	2.5	9.7	0.8
Cycle Q Clear(g_c), s	2.9	5.8	2.4	2.5	9.7	0.8
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	365	325	447	1011	637	540
V/C Ratio(X)	0.39	0.72	0.41	0.22	0.79	0.08
Avail Cap(c_a), veh/h	829	738	539	1406	945	801
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	13.6	14.7	7.8	4.4	11.9	8.9
Incr Delay (d2), s/veh	0.7	3.0	0.6	0.1	2.6	0.1
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	0.3	0.5	0.4	3.2	0.2
Unsig. Movement Delay, s/veh						
LnGrp Delay(d), s/veh	14.2	17.8	8.4	4.5	14.5	9.0
LnGrp LOS	B	B	A	A	B	A
Approach Vol, veh/h	377			401	545	
Approach Delay, s/veh	16.4			6.3	14.1	
Approach LOS	B			A	B	

Timer - Assigned Phs	4	6	7	8
Phs Duration (G+Y+Rc), s	27.1	13.1	8.8	18.3
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	31.5	19.5	6.5	20.5
Max Q Clear Time (g_c+I1), s	4.5	7.8	4.4	11.7
Green Ext Time (p_c), s	1.2	0.9	0.1	2.1

Intersection Summary	
HCM 7th Control Delay, s/veh	12.4
HCM 7th LOS	B

Intersection	
Int Delay, s/veh	0

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	329	0	0	552	1	1
Future Vol, veh/h	329	0	0	552	1	1
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	91	91	91	91	91	91
Heavy Vehicles, %	11	11	3	3	2	2
Mvmt Flow	362	0	0	607	1	1

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	362	0	968	362
Stage 1	-	-	-	-	362	-
Stage 2	-	-	-	-	607	-
Critical Hdwy	-	-	4.13	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.227	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1192	-	282	683
Stage 1	-	-	-	-	705	-
Stage 2	-	-	-	-	544	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1192	-	282	683
Mov Cap-2 Maneuver	-	-	-	-	282	-
Stage 1	-	-	-	-	705	-
Stage 2	-	-	-	-	544	-

Approach	EB	WB	NB
HCM Ctrl Dly, s/v	0	0	14.08
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	399	-	-	1192	-
HCM Lane V/C Ratio	0.006	-	-	-	-
HCM Ctrl Dly (s/v)	14.1	-	-	0	-
HCM Lane LOS	B	-	-	A	-
HCM 95th %tile Q(veh)	0	-	-	0	-

Intersection	
Int Delay, s/veh	7.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		⇕			⇕			⇕			⇕	
Traffic Vol, veh/h	0	171	149	46	249	0	108	0	39	1	1	3
Future Vol, veh/h	0	171	149	46	249	0	108	0	39	1	1	3
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	71	71	71	71	71	71	71	71	71	71	71	71
Heavy Vehicles, %	10	10	10	8	8	8	8	8	8	0	0	0
Mvmt Flow	0	241	210	65	351	0	152	0	55	1	1	4

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	351	0	0	451	0	0	827	826	346	721	931	351
Stage 1	-	-	-	-	-	-	346	346	-	480	480	-
Stage 2	-	-	-	-	-	-	481	480	-	241	451	-
Critical Hdwy	4.2	-	-	4.18	-	-	7.18	6.58	6.28	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.18	5.58	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.18	5.58	-	6.1	5.5	-
Follow-up Hdwy	2.29	-	-	2.272	-	-	3.572	4.072	3.372	3.5	4	3.3
Pot Cap-1 Maneuver	1165	-	-	1079	-	-	284	301	684	345	269	697
Stage 1	-	-	-	-	-	-	658	625	-	571	558	-
Stage 2	-	-	-	-	-	-	555	544	-	767	575	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1165	-	-	1079	-	-	260	278	684	294	249	697
Mov Cap-2 Maneuver	-	-	-	-	-	-	260	278	-	294	249	-
Stage 1	-	-	-	-	-	-	658	625	-	528	516	-
Stage 2	-	-	-	-	-	-	509	504	-	705	575	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	0	1.33	36.89	13.58
HCM LOS			E	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	311	1165	-	-	281	-	-	426
HCM Lane V/C Ratio	0.666	-	-	-	0.06	-	-	0.017
HCM Ctrl Dly (s/v)	36.9	0	-	-	8.6	0	-	13.6
HCM Lane LOS	E	A	-	-	A	A	-	B
HCM 95th %tile Q(veh)	4.5	0	-	-	0.2	-	-	0.1

Intersection	
Int Delay, s/veh	5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	87	284	0	0	171	115	0	0	0	110	0	58
Future Vol, veh/h	87	284	0	0	171	115	0	0	0	110	0	58
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	98	98	98	98	98	98	98	98	98	98	98	98
Heavy Vehicles, %	3	3	3	5	5	5	0	0	0	6	6	6
Mvmt Flow	89	290	0	0	174	117	0	0	0	112	0	59

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	292	0	0	290	0	0	642	759	290	701	701	233
Stage 1	-	-	-	-	-	-	467	467	-	233	233	-
Stage 2	-	-	-	-	-	-	174	292	-	467	467	-
Critical Hdwy	4.13	-	-	4.15	-	-	7.1	6.5	6.2	7.16	6.56	6.26
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.16	5.56	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.16	5.56	-
Follow-up Hdwy	2.227	-	-	2.245	-	-	3.5	4	3.3	3.554	4.054	3.354
Pot Cap-1 Maneuver	1264	-	-	1255	-	-	390	338	754	348	358	796
Stage 1	-	-	-	-	-	-	580	565	-	761	704	-
Stage 2	-	-	-	-	-	-	832	675	-	568	555	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1264	-	-	1255	-	-	331	310	754	319	328	796
Mov Cap-2 Maneuver	-	-	-	-	-	-	331	310	-	319	328	-
Stage 1	-	-	-	-	-	-	531	518	-	761	704	-
Stage 2	-	-	-	-	-	-	770	675	-	521	508	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	1.89	0	0	20.42
HCM LOS			A	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	-	422	-	-	1255	-	-	402
HCM Lane V/C Ratio	-	0.07	-	-	-	-	-	0.426
HCM Ctrl Dly (s/v)	0	8.1	0	-	0	-	-	20.4
HCM Lane LOS	A	A	A	-	A	-	-	C
HCM 95th %tile Q(veh)	-	0.2	-	-	0	-	-	2.1

HCM 7th Signalized Intersection Summary
1: NE 28th Street & NE Ingle Road

04/03/2025

Movement	SEL	SER	NEL	NET	SWT	SWR
Lane Configurations						
Traffic Volume (veh/h)	144	250	380	538	346	120
Future Volume (veh/h)	144	250	380	538	346	120
Initial Q (Qb), veh	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1856	1856
Adj Flow Rate, veh/h	160	57	422	598	384	40
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	3	3
Cap, veh/h	243	216	661	1151	528	438
Arrive On Green	0.14	0.14	0.21	0.62	0.28	0.28
Sat Flow, veh/h	1781	1585	1781	1870	1856	1539
Grp Volume(v), veh/h	160	57	422	598	384	40
Grp Sat Flow(s),veh/h/ln	1781	1585	1781	1870	1856	1539
Q Serve(g_s), s	3.1	1.2	5.1	6.5	6.8	0.7
Cycle Q Clear(g_c), s	3.1	1.2	5.1	6.5	6.8	0.7
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	243	216	661	1151	528	438
V/C Ratio(X)	0.66	0.26	0.64	0.52	0.73	0.09
Avail Cap(c_a), veh/h	885	788	810	1704	922	765
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	14.8	14.0	6.6	3.9	11.7	9.5
Incr Delay (d2), s/veh	3.0	0.6	1.2	0.4	1.9	0.1
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	0.0	0.9	0.6	2.1	0.2
Unsig. Movement Delay, s/veh						
LnGrp Delay(d), s/veh	17.9	14.7	7.8	4.3	13.6	9.6
LnGrp LOS	B	B	A	A	B	A
Approach Vol, veh/h	217			1020	424	
Approach Delay, s/veh	17.0			5.7	13.2	
Approach LOS	B			A	B	

Timer - Assigned Phs			4		6	7	8
Phs Duration (G+Y+Rc), s			26.8		9.4	12.0	14.8
Change Period (Y+Rc), s			4.5		4.5	4.5	4.5
Max Green Setting (Gmax), s			33.0		18.0	10.5	18.0
Max Q Clear Time (g_c+I1), s			8.5		5.1	7.1	8.8
Green Ext Time (p_c), s			3.8		0.5	0.5	1.6

Intersection Summary	
HCM 7th Control Delay, s/veh	9.1
HCM 7th LOS	A

Intersection	
Int Delay, s/veh	0

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	682	1	1	465	1	0
Future Vol, veh/h	682	1	1	465	1	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	1	1	3	3	2	2
Mvmt Flow	758	1	1	517	1	0

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	759	0	1277	758
Stage 1	-	-	-	-	758	-
Stage 2	-	-	-	-	519	-
Critical Hdwy	-	-	4.13	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.227	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	848	-	184	407
Stage 1	-	-	-	-	463	-
Stage 2	-	-	-	-	597	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	848	-	183	407
Mov Cap-2 Maneuver	-	-	-	-	183	-
Stage 1	-	-	-	-	463	-
Stage 2	-	-	-	-	596	-

Approach	EB	WB	NB
HCM Ctrl Dly, s/v	0	0.02	24.76
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	183	-	-	4	-
HCM Lane V/C Ratio	0.006	-	-	0.001	-
HCM Ctrl Dly (s/v)	24.8	-	-	9.3	0
HCM Lane LOS	C	-	-	A	A
HCM 95th %tile Q(veh)	0	-	-	0	-

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	5	363	125	12	238	0	135	1	5	0	1	3
Future Vol, veh/h	5	363	125	12	238	0	135	1	5	0	1	3
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	99	99	99	99	99	99	99	99	99	99	99	99
Heavy Vehicles, %	2	2	2	4	4	4	6	6	6	25	25	25
Mvmt Flow	5	367	126	12	240	0	136	1	5	0	1	3

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	240	0	0	493	0	0	705	705	430	642	768	240
Stage 1	-	-	-	-	-	-	440	440	-	265	265	-
Stage 2	-	-	-	-	-	-	265	265	-	377	503	-
Critical Hdwy	4.12	-	-	4.14	-	-	7.16	6.56	6.26	7.35	6.75	6.45
Critical Hdwy Stg 1	-	-	-	-	-	-	6.16	5.56	-	6.35	5.75	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.16	5.56	-	6.35	5.75	-
Follow-up Hdwy	2.218	-	-	2.236	-	-	3.554	4.054	3.354	3.725	4.225	3.525
Pot Cap-1 Maneuver	1326	-	-	1060	-	-	346	356	617	357	306	745
Stage 1	-	-	-	-	-	-	588	571	-	693	650	-
Stage 2	-	-	-	-	-	-	731	682	-	600	505	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1326	-	-	1060	-	-	337	350	617	346	301	745
Mov Cap-2 Maneuver	-	-	-	-	-	-	337	350	-	346	301	-
Stage 1	-	-	-	-	-	-	585	568	-	684	641	-
Stage 2	-	-	-	-	-	-	718	673	-	591	502	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	0.08	0.4	22.78	11.67
HCM LOS			C	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	343	17	-	-	86	-	-	544
HCM Lane V/C Ratio	0.416	0.004	-	-	0.011	-	-	0.007
HCM Ctrl Dly (s/v)	22.8	7.7	0	-	8.4	0	-	11.7
HCM Lane LOS	C	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	2	0	-	-	0	-	-	0

Intersection	
Int Delay, s/veh	7.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	40	165	0	0	233	96	0	0	0	131	0	108
Future Vol, veh/h	40	165	0	0	233	96	0	0	0	131	0	108
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	85	85	85	85	85	85	85	85	85	85	85	85
Heavy Vehicles, %	10	10	10	6	6	6	0	0	0	12	12	12
Mvmt Flow	47	194	0	0	274	113	0	0	0	154	0	127

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	387	0	0	194	0	0	562	675	194	619	619	331
Stage 1	-	-	-	-	-	-	288	288	-	331	331	-
Stage 2	-	-	-	-	-	-	274	387	-	288	288	-
Critical Hdwy	4.2	-	-	4.16	-	-	7.1	6.5	6.2	7.22	6.62	6.32
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.22	5.62	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.22	5.62	-
Follow-up Hdwy	2.29	-	-	2.254	-	-	3.5	4	3.3	3.608	4.108	3.408
Pot Cap-1 Maneuver	1129	-	-	1355	-	-	440	378	852	387	392	689
Stage 1	-	-	-	-	-	-	724	677	-	662	628	-
Stage 2	-	-	-	-	-	-	736	613	-	698	656	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1129	-	-	1355	-	-	342	360	852	369	373	689
Mov Cap-2 Maneuver	-	-	-	-	-	-	342	360	-	369	373	-
Stage 1	-	-	-	-	-	-	690	646	-	662	628	-
Stage 2	-	-	-	-	-	-	600	613	-	666	625	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	1.62	0	0	23.71
HCM LOS			A	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	-	351	-	-	1355	-	-	467
HCM Lane V/C Ratio	-	0.042	-	-	-	-	-	0.602
HCM Ctrl Dly (s/v)	0	8.3	0	-	0	-	-	23.7
HCM Lane LOS	A	A	A	-	A	-	-	C
HCM 95th %tile Q(veh)	-	0.1	-	-	0	-	-	3.9

HCM 7th Signalized Intersection Summary
1: NE 28th Street & NE Ingle Road

04/03/2025

Movement	SEL	SER	NEL	NET	SWT	SWR
Lane Configurations						
Traffic Volume (veh/h)	130	476	165	203	465	101
Future Volume (veh/h)	130	476	165	203	465	101
Initial Q (Qb), veh	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1796	1796	1796	1796	1856	1856
Adj Flow Rate, veh/h	143	245	181	223	511	47
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	7	7	7	7	3	3
Cap, veh/h	374	333	438	1013	647	549
Arrive On Green	0.22	0.22	0.11	0.56	0.35	0.35
Sat Flow, veh/h	1711	1522	1711	1796	1856	1572
Grp Volume(v), veh/h	143	245	181	223	511	47
Grp Sat Flow(s),veh/h/ln	1711	1522	1711	1796	1856	1572
Q Serve(g_s), s	2.9	6.2	2.4	2.6	10.2	0.8
Cycle Q Clear(g_c), s	2.9	6.2	2.4	2.6	10.2	0.8
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	374	333	438	1013	647	549
V/C Ratio(X)	0.38	0.74	0.41	0.22	0.79	0.09
Avail Cap(c_a), veh/h	783	696	510	1396	966	818
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	13.8	15.0	8.0	4.5	12.1	9.0
Incr Delay (d2), s/veh	0.6	3.2	0.6	0.1	2.7	0.1
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	0.3	0.5	0.5	3.4	0.2
Unsig. Movement Delay, s/veh						
LnGrp Delay(d), s/veh	14.4	18.2	8.6	4.6	14.7	9.1
LnGrp LOS	B	B	A	A	B	A
Approach Vol, veh/h	388			404	558	
Approach Delay, s/veh	16.8			6.4	14.3	
Approach LOS	B			A	B	

Timer - Assigned Phs	4	6	7	8
Phs Duration (G+Y+Rc), s	27.8	13.5	8.9	18.9
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	32.1	18.9	6.1	21.5
Max Q Clear Time (g_c+I1), s	4.6	8.2	4.4	12.2
Green Ext Time (p_c), s	1.2	0.9	0.1	2.2

Intersection Summary	
HCM 7th Control Delay, s/veh	12.6
HCM 7th LOS	B

Intersection	
Int Delay, s/veh	0.4

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	329	4	3	552	15	6
Future Vol, veh/h	329	4	3	552	15	6
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	91	91	91	91	91	91
Heavy Vehicles, %	11	11	3	3	2	2
Mvmt Flow	362	4	3	607	16	7

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	366	0	977	364
Stage 1	-	-	-	-	364	-
Stage 2	-	-	-	-	613	-
Critical Hdwy	-	-	4.13	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.227	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1187	-	278	681
Stage 1	-	-	-	-	703	-
Stage 2	-	-	-	-	540	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1187	-	277	681
Mov Cap-2 Maneuver	-	-	-	-	277	-
Stage 1	-	-	-	-	703	-
Stage 2	-	-	-	-	538	-

Approach	EB	WB	NB
HCM Ctrl Dly, s/v	0	0.04	16.59
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	334	-	-	10	-
HCM Lane V/C Ratio	0.069	-	-	0.003	-
HCM Ctrl Dly (s/v)	16.6	-	-	8	0
HCM Lane LOS	C	-	-	A	A
HCM 95th %tile Q(veh)	0.2	-	-	0	-

Intersection	
Int Delay, s/veh	7.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		⇕			⇕			⇕			⇕	
Traffic Vol, veh/h	0	173	152	46	251	0	109	0	39	1	1	3
Future Vol, veh/h	0	173	152	46	251	0	109	0	39	1	1	3
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	71	71	71	71	71	71	71	71	71	71	71	71
Heavy Vehicles, %	10	10	10	8	8	8	8	8	8	0	0	0
Mvmt Flow	0	244	214	65	354	0	154	0	55	1	1	4

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	354	0	0	458	0	0	835	834	351	727	941	354
Stage 1	-	-	-	-	-	-	351	351	-	483	483	-
Stage 2	-	-	-	-	-	-	484	483	-	244	458	-
Critical Hdwy	4.2	-	-	4.18	-	-	7.18	6.58	6.28	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.18	5.58	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.18	5.58	-	6.1	5.5	-
Follow-up Hdwy	2.29	-	-	2.272	-	-	3.572	4.072	3.372	3.5	4	3.3
Pot Cap-1 Maneuver	1162	-	-	1072	-	-	281	297	679	342	265	695
Stage 1	-	-	-	-	-	-	654	622	-	569	556	-
Stage 2	-	-	-	-	-	-	553	543	-	764	571	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1162	-	-	1072	-	-	257	275	679	291	245	695
Mov Cap-2 Maneuver	-	-	-	-	-	-	257	275	-	291	245	-
Stage 1	-	-	-	-	-	-	654	622	-	526	514	-
Stage 2	-	-	-	-	-	-	507	502	-	703	571	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	0	1.33	38.35	13.66
HCM LOS			E	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	307	1162	-	-	279	-	-	423
HCM Lane V/C Ratio	0.679	-	-	-	0.06	-	-	0.017
HCM Ctrl Dly (s/v)	38.3	0	-	-	8.6	0	-	13.7
HCM Lane LOS	E	A	-	-	A	A	-	B
HCM 95th %tile Q(veh)	4.6	0	-	-	0.2	-	-	0.1

Intersection	
Int Delay, s/veh	5.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	88	285	0	0	172	115	0	0	0	110	0	59
Future Vol, veh/h	88	285	0	0	172	115	0	0	0	110	0	59
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	98	98	98	98	98	98	98	98	98	98	98	98
Heavy Vehicles, %	3	3	3	5	5	5	0	0	0	6	6	6
Mvmt Flow	90	291	0	0	176	117	0	0	0	112	0	60

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	293	0	0	291	0	0	646	763	291	705	705	234
Stage 1	-	-	-	-	-	-	470	470	-	234	234	-
Stage 2	-	-	-	-	-	-	176	293	-	470	470	-
Critical Hdwy	4.13	-	-	4.15	-	-	7.1	6.5	6.2	7.16	6.56	6.26
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.16	5.56	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.16	5.56	-
Follow-up Hdwy	2.227	-	-	2.245	-	-	3.5	4	3.3	3.554	4.054	3.354
Pot Cap-1 Maneuver	1263	-	-	1254	-	-	387	336	753	346	356	795
Stage 1	-	-	-	-	-	-	578	563	-	760	704	-
Stage 2	-	-	-	-	-	-	831	674	-	566	553	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1263	-	-	1254	-	-	328	308	753	317	326	795
Mov Cap-2 Maneuver	-	-	-	-	-	-	328	308	-	317	326	-
Stage 1	-	-	-	-	-	-	529	515	-	760	704	-
Stage 2	-	-	-	-	-	-	768	674	-	518	506	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	1.9	0	0	20.58
HCM LOS			A	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	-	425	-	-	1254	-	-	401
HCM Lane V/C Ratio	-	0.071	-	-	-	-	-	0.43
HCM Ctrl Dly (s/v)	0	8.1	0	-	0	-	-	20.6
HCM Lane LOS	A	A	A	-	A	-	-	C
HCM 95th %tile Q(veh)	-	0.2	-	-	0	-	-	2.1

HCM 7th Signalized Intersection Summary
1: NE 28th Street & NE Ingle Road

04/03/2025

Movement	SEL	SER	NEL	NET	SWT	SWR
Lane Configurations						
Traffic Volume (veh/h)	148	250	380	549	352	123
Future Volume (veh/h)	148	250	380	549	352	123
Initial Q (Qb), veh	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1856	1856
Adj Flow Rate, veh/h	164	57	422	610	391	41
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	3	3
Cap, veh/h	247	220	655	1151	534	443
Arrive On Green	0.14	0.14	0.21	0.62	0.29	0.29
Sat Flow, veh/h	1781	1585	1781	1870	1856	1539
Grp Volume(v), veh/h	164	57	422	610	391	41
Grp Sat Flow(s),veh/h/ln	1781	1585	1781	1870	1856	1539
Q Serve(g_s), s	3.2	1.2	5.1	6.8	7.0	0.7
Cycle Q Clear(g_c), s	3.2	1.2	5.1	6.8	7.0	0.7
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	247	220	655	1151	534	443
V/C Ratio(X)	0.66	0.26	0.64	0.53	0.73	0.09
Avail Cap(c_a), veh/h	875	779	800	1685	912	756
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	15.0	14.1	6.7	4.0	11.8	9.6
Incr Delay (d2), s/veh	3.0	0.6	1.3	0.4	2.0	0.1
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.2	0.0	0.9	0.6	2.2	0.2
Unsig. Movement Delay, s/veh						
LnGrp Delay(d), s/veh	18.0	14.7	7.9	4.4	13.7	9.6
LnGrp LOS	B	B	A	A	B	A
Approach Vol, veh/h	221			1032	432	
Approach Delay, s/veh	17.2			5.8	13.4	
Approach LOS	B			A	B	

Timer - Assigned Phs				4		6	7	8
Phs Duration (G+Y+Rc), s				27.1		9.6	12.0	15.0
Change Period (Y+Rc), s				4.5		4.5	4.5	4.5
Max Green Setting (Gmax), s				33.0		18.0	10.5	18.0
Max Q Clear Time (g_c+I1), s				8.8		5.2	7.1	9.0
Green Ext Time (p_c), s				3.9		0.5	0.5	1.6

Intersection Summary	
HCM 7th Control Delay, s/veh	9.3
HCM 7th LOS	A

Intersection	
Int Delay, s/veh	0.3

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	682	16	8	465	10	4
Future Vol, veh/h	682	16	8	465	10	4
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	90	90	90	90	90	90
Heavy Vehicles, %	1	1	3	3	2	2
Mvmt Flow	758	18	9	517	11	4

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	776	0	1301	767
Stage 1	-	-	-	-	767	-
Stage 2	-	-	-	-	534	-
Critical Hdwy	-	-	4.13	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.227	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	836	-	178	402
Stage 1	-	-	-	-	458	-
Stage 2	-	-	-	-	588	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	836	-	175	402
Mov Cap-2 Maneuver	-	-	-	-	175	-
Stage 1	-	-	-	-	458	-
Stage 2	-	-	-	-	579	-

Approach	EB	WB	NB
HCM Ctrl Dly, s/v	0	0.16	23.64
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	209	-	-	30	-
HCM Lane V/C Ratio	0.075	-	-	0.011	-
HCM Ctrl Dly (s/v)	23.6	-	-	9.4	0
HCM Lane LOS	C	-	-	A	A
HCM 95th %tile Q(veh)	0.2	-	-	0	-

Intersection	
Int Delay, s/veh	4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	5	365	127	12	242	0	138	1	5	0	1	3
Future Vol, veh/h	5	365	127	12	242	0	138	1	5	0	1	3
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	99	99	99	99	99	99	99	99	99	99	99	99
Heavy Vehicles, %	2	2	2	4	4	4	6	6	6	25	25	25
Mvmt Flow	5	369	128	12	244	0	139	1	5	0	1	3

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	244	0	0	497	0	0	712	712	433	648	776	244
Stage 1	-	-	-	-	-	-	443	443	-	269	269	-
Stage 2	-	-	-	-	-	-	269	269	-	379	507	-
Critical Hdwy	4.12	-	-	4.14	-	-	7.16	6.56	6.26	7.35	6.75	6.45
Critical Hdwy Stg 1	-	-	-	-	-	-	6.16	5.56	-	6.35	5.75	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.16	5.56	-	6.35	5.75	-
Follow-up Hdwy	2.218	-	-	2.236	-	-	3.554	4.054	3.354	3.725	4.225	3.525
Pot Cap-1 Maneuver	1322	-	-	1057	-	-	342	353	614	353	303	741
Stage 1	-	-	-	-	-	-	586	569	-	689	647	-
Stage 2	-	-	-	-	-	-	728	680	-	598	503	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1322	-	-	1057	-	-	333	346	614	343	297	741
Mov Cap-2 Maneuver	-	-	-	-	-	-	333	346	-	343	297	-
Stage 1	-	-	-	-	-	-	583	566	-	680	638	-
Stage 2	-	-	-	-	-	-	714	671	-	589	500	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	0.08	0.4	23.39	11.72
HCM LOS			C	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	339	17	-	-	85	-	-	540
HCM Lane V/C Ratio	0.429	0.004	-	-	0.011	-	-	0.007
HCM Ctrl Dly (s/v)	23.4	7.7	0	-	8.4	0	-	11.7
HCM Lane LOS	C	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	2.1	0	-	-	0	-	-	0

Intersection	
Int Delay, s/veh	7.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	41	166	0	0	235	96	0	0	0	131	0	110
Future Vol, veh/h	41	166	0	0	235	96	0	0	0	131	0	110
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	85	85	85	85	85	85	85	85	85	85	85	85
Heavy Vehicles, %	10	10	10	6	6	6	0	0	0	12	12	12
Mvmt Flow	48	195	0	0	276	113	0	0	0	154	0	129

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	389	0	0	195	0	0	568	681	195	625	625	333
Stage 1	-	-	-	-	-	-	292	292	-	333	333	-
Stage 2	-	-	-	-	-	-	276	389	-	292	292	-
Critical Hdwy	4.2	-	-	4.16	-	-	7.1	6.5	6.2	7.22	6.62	6.32
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.22	5.62	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.22	5.62	-
Follow-up Hdwy	2.29	-	-	2.254	-	-	3.5	4	3.3	3.608	4.108	3.408
Pot Cap-1 Maneuver	1127	-	-	1354	-	-	436	375	851	384	389	686
Stage 1	-	-	-	-	-	-	721	675	-	660	626	-
Stage 2	-	-	-	-	-	-	734	612	-	695	653	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1127	-	-	1354	-	-	337	357	851	365	370	686
Mov Cap-2 Maneuver	-	-	-	-	-	-	337	357	-	365	370	-
Stage 1	-	-	-	-	-	-	686	642	-	660	626	-
Stage 2	-	-	-	-	-	-	596	612	-	662	622	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	1.65	0	0	24.17
HCM LOS			A	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	-	357	-	-	1354	-	-	464
HCM Lane V/C Ratio	-	0.043	-	-	-	-	-	0.611
HCM Ctrl Dly (s/v)	0	8.3	0	-	0	-	-	24.2
HCM Lane LOS	A	A	A	-	A	-	-	C
HCM 95th %tile Q(veh)	-	0.1	-	-	0	-	-	4

Queuing and Blocking Report
2025 Existing Conditions - AM Peak Hour 04/03/2025

Intersection: 1: NE 28th Street & NE Ingle Road

Movement	SE	SE	NE	NE	SW	SW
Directions Served	L	R	L	T	T	R
Maximum Queue (ft)	89	165	105	83	184	62
Average Queue (ft)	36	78	46	32	89	22
95th Queue (ft)	72	137	85	68	155	50
Link Distance (ft)	627	627	636	636	1260	1260
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)						
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 2: Site Access & NE 28th Street

Movement	NB
Directions Served	LR
Maximum Queue (ft)	19
Average Queue (ft)	1
95th Queue (ft)	9
Link Distance (ft)	662
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 3: NE 232nd Avenue/Driveway & NE 28th Street

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	16	80	96	31
Average Queue (ft)	1	13	38	6
95th Queue (ft)	11	51	72	27
Link Distance (ft)	1506	2563	694	478
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Queuing and Blocking Report
2025 Existing Conditions - AM Peak Hour 04/03/2025

Intersection: 4: Driveway & NE 28th Street & SR-500

Movement	EB	WB	SB
Directions Served	LTR	LTR	LTR
Maximum Queue (ft)	62	4	97
Average Queue (ft)	16	0	44
95th Queue (ft)	49	3	76
Link Distance (ft)	2563	927	567
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Zone Summary

Zone wide Queuing Penalty: 0

Queuing and Blocking Report
2025 Existing Conditions - PM Peak Hour 04/03/2025

Intersection: 1: NE 28th Street & NE Ingle Road

Movement	SE	SE	NE	NE	SW	SW
Directions Served	L	R	L	T	T	R
Maximum Queue (ft)	84	98	145	123	155	63
Average Queue (ft)	34	40	66	49	67	27
95th Queue (ft)	67	73	113	94	126	56
Link Distance (ft)	627	627	636	636	1260	1260
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)						
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 2: Site Access & NE 28th Street

Movement	WB	NB
Directions Served	LT	LR
Maximum Queue (ft)	11	16
Average Queue (ft)	0	1
95th Queue (ft)	6	7
Link Distance (ft)	1320	662
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 3: NE 232nd Avenue/Driveway & NE 28th Street

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	22	44	79	46
Average Queue (ft)	1	4	34	4
95th Queue (ft)	10	24	61	25
Link Distance (ft)	1506	2563	694	478
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Queuing and Blocking Report
2025 Existing Conditions - PM Peak Hour 04/03/2025

Intersection: 4: Driveway & NE 28th Street & SR-500

Movement	EB	SB
Directions Served	LTR	LTR
Maximum Queue (ft)	63	113
Average Queue (ft)	7	52
95th Queue (ft)	35	88
Link Distance (ft)	2563	567
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Zone Summary

Zone wide Queuing Penalty: 0

Queuing and Blocking Report
2027 Background Conditions - AM Peak Hour 04/03/2025

Intersection: 1: NE 28th Street & NE Ingle Road

Movement	SE	SE	NE	NE	SW	SW
Directions Served	L	R	L	T	T	R
Maximum Queue (ft)	138	293	140	107	304	71
Average Queue (ft)	52	137	66	44	158	29
95th Queue (ft)	103	239	113	88	261	60
Link Distance (ft)	627	627	636	636	1260	1260
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)						
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 2: Site Access & NE 28th Street

Movement	NB
Directions Served	LR
Maximum Queue (ft)	16
Average Queue (ft)	1
95th Queue (ft)	8
Link Distance (ft)	662
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 3: NE 232nd Avenue/Driveway & NE 28th Street

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	4	99	160	31
Average Queue (ft)	0	19	51	5
95th Queue (ft)	4	59	103	24
Link Distance (ft)	1506	2563	694	478
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Queuing and Blocking Report
2027 Background Conditions - AM Peak Hour 04/03/2025

Intersection: 4: Driveway & NE 28th Street & SR-500

Movement	EB	WB	SB
Directions Served	LTR	LTR	LTR
Maximum Queue (ft)	126	9	126
Average Queue (ft)	29	0	53
95th Queue (ft)	80	4	96
Link Distance (ft)	2563	927	567
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Zone Summary

Zone wide Queuing Penalty: 0

Queuing and Blocking Report
2027 Background Conditions - PM Peak Hour 04/03/2025

Intersection: 1: NE 28th Street & NE Ingle Road

Movement	SE	SE	NE	NE	SW	SW
Directions Served	L	R	L	T	T	R
Maximum Queue (ft)	133	119	216	190	216	77
Average Queue (ft)	59	55	105	80	108	38
95th Queue (ft)	107	96	178	151	180	69
Link Distance (ft)	627	627	636	636	1260	1260
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)						
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 2: Site Access & NE 28th Street

Movement	WB	NB
Directions Served	LT	LR
Maximum Queue (ft)	40	14
Average Queue (ft)	1	1
95th Queue (ft)	15	6
Link Distance (ft)	1320	662
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 3: NE 232nd Avenue/Driveway & NE 28th Street

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	21	56	132	53
Average Queue (ft)	1	5	53	6
95th Queue (ft)	12	28	98	31
Link Distance (ft)	1506	2563	694	478
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Queuing and Blocking Report
2027 Background Conditions - PM Peak Hour 04/03/2025

Intersection: 4: Driveway & NE 28th Street & SR-500

Movement	EB	WB	SB
Directions Served	LTR	LTR	LTR
Maximum Queue (ft)	88	11	154
Average Queue (ft)	18	0	69
95th Queue (ft)	59	7	122
Link Distance (ft)	2563	927	567
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Zone Summary

Zone wide Queuing Penalty: 0

Queuing and Blocking Report
2027 Buildout Conditions - AM Peak Hour 04/03/2025

Intersection: 1: NE 28th Street & NE Ingle Road

Movement	SE	SE	NE	NE	SW	SW
Directions Served	L	R	L	T	T	R
Maximum Queue (ft)	117	277	124	121	283	63
Average Queue (ft)	51	132	63	47	145	28
95th Queue (ft)	100	228	108	99	241	54
Link Distance (ft)	627	627	636	636	1260	1260
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)						
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 2: Site Access & NE 28th Street

Movement	WB	NB
Directions Served	LT	LR
Maximum Queue (ft)	22	44
Average Queue (ft)	1	11
95th Queue (ft)	11	30
Link Distance (ft)	1320	662
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 3: NE 232nd Avenue/Driveway & NE 28th Street

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	8	80	150	31
Average Queue (ft)	0	18	55	5
95th Queue (ft)	6	60	109	23
Link Distance (ft)	1506	2563	694	478
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 4: Driveway & NE 28th Street & SR-500

Movement	EB	WB	SB
Directions Served	LTR	LTR	LTR
Maximum Queue (ft)	72	4	146
Average Queue (ft)	23	0	53
95th Queue (ft)	61	3	109
Link Distance (ft)	2563	927	567
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Zone Summary

Zone wide Queuing Penalty: 0

Queuing and Blocking Report
2027 Buildout Conditions - PM Peak Hour 04/03/2025

Intersection: 1: NE 28th Street & NE Ingle Road

Movement	SE	SE	NE	NE	SW	SW
Directions Served	L	R	L	T	T	R
Maximum Queue (ft)	130	123	210	173	208	88
Average Queue (ft)	58	57	103	79	112	37
95th Queue (ft)	105	101	175	144	181	69
Link Distance (ft)	627	627	636	636	1260	1260
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)						
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 2: Site Access & NE 28th Street

Movement	WB	NB
Directions Served	LT	LR
Maximum Queue (ft)	66	30
Average Queue (ft)	5	8
95th Queue (ft)	30	25
Link Distance (ft)	1320	662
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 3: NE 232nd Avenue/Driveway & NE 28th Street

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	38	45	110	45
Average Queue (ft)	2	4	51	5
95th Queue (ft)	20	24	88	25
Link Distance (ft)	1506	2563	694	478
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Queuing and Blocking Report
2027 Buildout Conditions - PM Peak Hour 04/03/2025

Intersection: 4: Driveway & NE 28th Street & SR-500

Movement	EB	WB	SB
Directions Served	LTR	LTR	LTR
Maximum Queue (ft)	65	10	168
Average Queue (ft)	13	0	70
95th Queue (ft)	47	7	127
Link Distance (ft)	2563	927	567
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Zone Summary

Zone wide Queuing Penalty: 0