From: Jeffrey Delapena
To: Heidi Pozzo
Cc: Oliver Orjiako; Jose Alvarez; Rebecca Messinger
Subject: RE: Comp Plan: Heartwood North
Date: Wednesday, September 30, 2026 3:24:00 PM
Attachments: 13 Traffic Study.pdf

Hello Heidi,

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

Best,

Jeff Delapena
Program Assistant
COMMUNITY PLANNING

564.397.4558

NOTICE OF PUBLIC DISCLOSURE: This e-mail account is public domain. Any correspondence from or to this e-mail account may be a public record. Accordingly, this email, in whole or in part may be subject to disclosure pursuant to RCW 42.56, regardless of any claim of confidentiality or privilege asserted by an external party.

-----Original Message-----
From: Heidi Pozzo <hcpheidi@yahoo.com>
Sent: Wednesday, September 30, 2026 3:07 PM
To: Jeffrey Delapena <Jeffrey.Delapena@clark.wa.gov>
Cc: Oliver Orjiako <Oliver.Orjiako@clark.wa.gov>; Jose Alvarez <Jose.Alvarez@clark.wa.gov>
Subject: Comp Plan: Heartwood North

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

Dear Jeff,

Please find attached the write up I did for Heartwood North for inclusion in the Comp Plan. I've just uploaded the traffic study that goes with it to the link you gave me at ~ 3:00 today, Sept. 30.

Thank you,

Heidi

Transportation Concurrency Analysis

Heartwood North Subdivision — PLD-2025-00114

Public Hearing: June 11, 2026 — Hearing Examiner Daniel Kearns

I. Summary

Heartwood North should be denied. Clark County's concurrency regulations, CCC 40.350.020, were written to stop development from being approved onto roads that can no longer carry it. Rather than apply that code as written, staff have built a mechanism that keeps approving development on corridors that already fail. The reasons for denial include:

- Three concurrency corridor segments exceed the mandatory 0.90 V/C standard in (G)(1)(a) at 2029 buildout — NE 119th Street (eastbound 1.10) and NE 99th Street (eastbound 0.99, westbound 0.97).
- The study omitted regionally significant corridors within the required two-mile radius that Exhibit A documents as failing — SR 503 (V/C 0.928–1.066, evaluated only at its intersections), NE 152nd Avenue (0.93), and NE 76th Street (1.034–1.06) — none evaluated as concurrency corridors, as (D) and (G)(1)(a) require.
- Two unsignalized intersections fail their applicable (G)(1)(c) standard — signal warrants are met, so the standard is LOS D, and both report LOS E or F.
- The compliance finding rests on two devices found nowhere in the code — an intersection-LOS substitution and an (F)(9)/HCM capacity adjustment — neither of which can move the (G)(1)(a) capacity threshold.
- No County improvement in place or financially committed within six years under (F)(6) brings any failing segment below 0.90, so (E)(3) requires denial.

Many of these same issues arose in the 174th Street Subdivision hearing; relevant documents from that proceeding are attached as further explanation of the issues here.

What the Traffic Study Evaluated

The diagram below visually depicts the combined effect of the failing road segments and the intersections between them as indicated in the Heartwood North Subdivision Transportation Impact Analysis (Kittelson & Associates, Inc., February 12, 2026) (the "TIA"). This is the situation residents face every day: full roads, and long waits at the intersections.

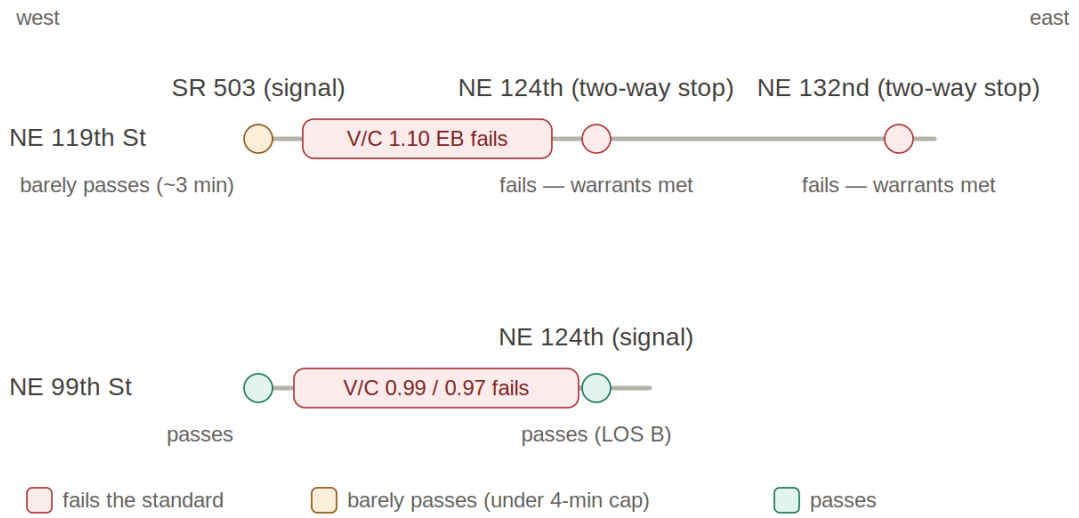


Figure 1. The NE 119th and NE 99th corridors at 2029 buildout — two failing segments, held together by intersections that pass, barely pass, or fail.

Three corridor segments exceed the mandatory 0.90 V/C standard in (G)(1)(a)in 2029 PM peak traffic:

Segment (2029 PM, total traffic)	Dir.	V/C
NE 119th St, SR 503 to NE 124th Ave	EB	1.10
NE 99th St, SR 503 to NE 124th Ave	EB	0.99
NE 99th St, SR 503 to NE 124th Ave	WB	0.97

The Two-Mile Study Area the Code Required

The corridors and intersections a concurrency study must evaluate are set by code, not by selection. Under (D), the study area is sized by the development's peak-period trips — two miles for 51 to 250 units— and within that radius the study must analyze all affected corridors and intersections of regional significance and account for trips on all collector and arterial roadways; (G)(1)(a) requires that corridor measurements also be made for state highways of regional significance. The study does not apply what the code requires — it set scope "based on a review of existing travel patterns and consistency with the scope of analysis prepared for the approved Heartwood Subdivision to the south," with intersections "identified in collaboration with Clark County staff" — a discretionary selection, not the trip-based radius the code requires.

The sixteen studied intersections trace a narrow band along NE 99th and NE 119th Streets, not a two-mile radius. Figure 2 plots an estimated two-mile radius centered on the site as the study locates it — south of NE 119th Street between NE 137th and NE 143rd Avenues — against those intersections. The studied band falls well inside the required circle in every direction and is shallowest to the north. The boundaries shown are approximated.

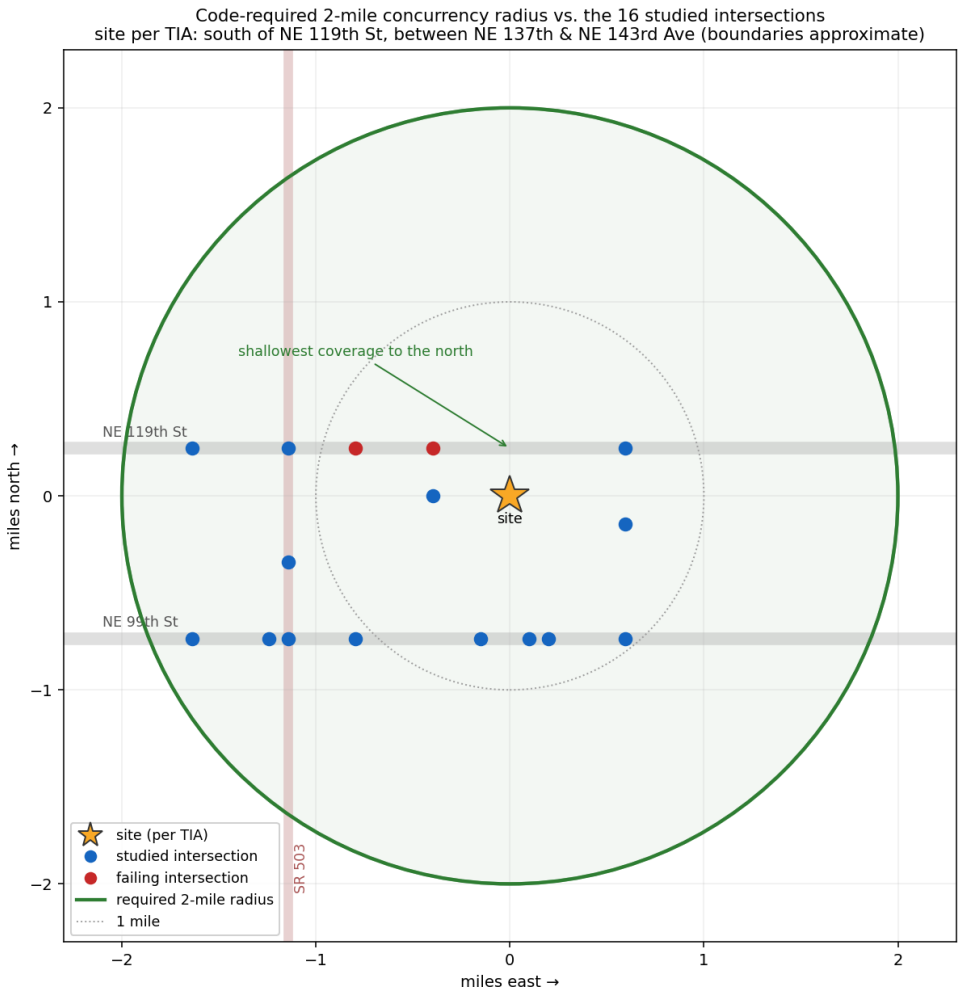


Figure 2. Estimated two-mile concurrency radius under CCC 40.350.020(D), against the sixteen studied intersections.

The gap is not theoretical. Exhibit A — the Failing Corridor Evaluation Memorandum (PLS Engineering, Daniel Stumpf, PE) — reports regionally significant corridors operating above 0.90 within roughly two miles of the site that the study did not evaluate as corridors — among them SR 503 (the state highway the development's trips feed, scored only at its intersections), NE 152nd Avenue, and NE 76th Street. A study drawn to the required radius would have had to account for them.

What the Study Should Have Evaluated

A study covering the two-mile radius the code requires would have captured the regionally significant corridors around the site. Exhibit A reports each of the following operating above the 0.90 standard within roughly two miles of the site (the two-mile boundary is approximate):

Corridor	Class.	Capacity (vph)	Segment	V/C	Peak
SR 503	State Hwy (Pa-4b)	2,000	UGA north boundary to NE 65th St	0.928–1.066	AM & PM
NE 119th St	M-2cb	900	SR 503 to NE 152nd Ave	0.97–1.10	PM

NE 99th St	M-2cb	900	SR 503 to NE 124th Ave	0.92–1.01	AM & PM
NE 152nd Ave	C-2b	800	NE 99th St to NE Padden Pkwy	0.93	PM
NE 76th St	C-2cb	900	SR 503 to NE 130th Ave	1.034–1.06	PM

Leveraging the findings in Exhibit A and the two mile radius, the following shows a significantly more impacted view of road segments around the development site:

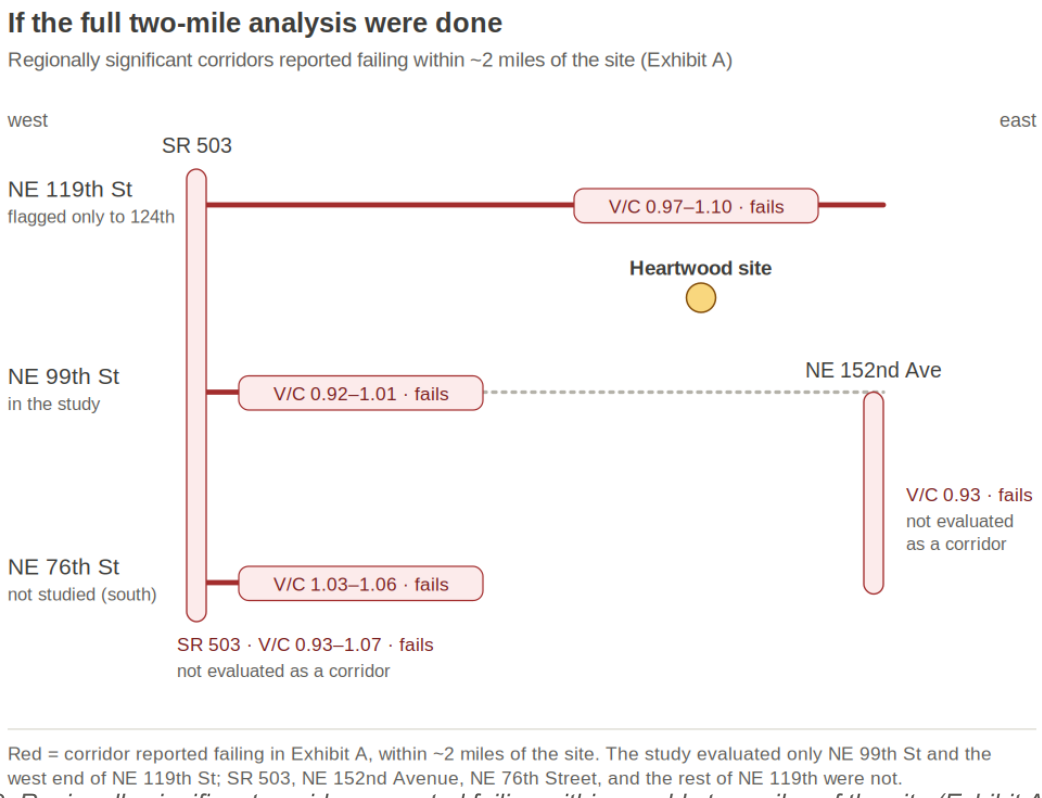


Figure 3. Regionally significant corridors reported failing within roughly two miles of the site (Exhibit A) — the network a full two-mile analysis would evaluate.

II. The Intersection Performance Relied Upon Does Not Hold Up

At buildout, three of the four intersections bounding the two failing segments identified in the traffic study operate at LOS E or F, and the figures the report calls acceptable are intersection-wide averages that mask approaches a full grade worse. The figures below are from the developer-commissioned study's own Synchro worksheets for year 2029 total (buildout) conditions.

Intersection (segment end it bounds)	Control	Overall LOS / delay PM / AM	Approach LOS / delay (2029 buildout)	Oversaturated movements (V/C > 1)
NE 117th Ave (SR 503) / NE 119th St — west end of NE 119th (V/C 1.10) segment	Signalized	PM: F, 83.3 s AM: E, 74.4 s	PM: EB 121.1 (F), WB 100.9 (F), NB 67.4 (E), SB 66.2 (E) — all four E/F. AM: WB 162.6 (F)	EBL 1.18, SBL 1.17 (PM)
NE 124th Ave / NE 119th St — east end of NE 119th segment	Stop-controlled	—	NB approach LOS E (both peaks); signal warrants met, so applicable standard is D — fails	—
NE 117th Ave (SR 503) / NE 99th St — west end of NE 99th (V/C 0.99 EB / 0.97 WB) segment	Signalized	PM: E, 59.1 s AM: E, 65.1 s	WB approach LOS F: 112.9 s (PM), 136.8 s (AM) — a full grade worse than the average	WBL 1.21 (PM) / 1.29 (AM); NBT 1.01
NE 124th Ave / NE 99th St — east end of NE 99th segment	Signalized	PM: B, 16.6 s AM: —	Approaches A through C	—

NE 119th Street (V/C 1.10), bounded by NE 117th Avenue (SR 503) and NE 124th Avenue. At NE 117th Avenue (SR 503) / NE 119th Street, signalized, the PM peak operates at overall LOS F (83.3 seconds) with all four approaches at LOS E or F — eastbound 121.1 (F), westbound 100.9 (F), northbound 67.4 (E), southbound 66.2 (E) — and oversaturated movements (eastbound left V/C 1.18, southbound left 1.17). The AM peak is overall LOS E (74.4 seconds) with the westbound approach at LOS F (162.6 seconds). At the other end, NE 124th Avenue / NE 119th Street is stop-controlled, with its northbound approach at LOS E in both peaks and signal warrants met (addressed in the next section). Both intersections bounding the worst failing segment operate at LOS E or F.

NE 99th Street (V/C 0.99 eastbound / 0.97 westbound), bounded by NE 117th Avenue (SR 503) and NE 124th Avenue. NE 117th Avenue (SR 503) / NE 99th Street, signalized, operates at overall LOS E in both peaks (59.1 seconds PM, 65.1 seconds AM), but its westbound approach is LOS F — 112.9 seconds PM and 136.8 seconds AM — a full grade worse than the average, with the westbound left movement oversaturated (V/C 1.21 PM, 1.29 AM) and the northbound through over capacity (1.01). The report calls this acceptable; it contains a failing approach. The east end, NE 124th Avenue / NE 99th Street, is the one genuinely acceptable intersection of the four — overall LOS B (16.6 seconds), approaches A through C.

III. The Unsignalized Intersections Do Not Meet Their Applicable Standard

Under (G)(1)(c), an unsignalized intersection of regional significance must achieve LOS E or better if warrants are not met, and LOS D or better if warrants are met. Where a warrant is met, LOS E is already a failure.

NE 124th Ave / NE 119th St, a two-way stop with NE 119th uncontrolled. The study reports LOS E in both peaks and states that “signal warrants are met.” With warrants met, the

applicable standard is D, so LOS E does not meet it. The intersection draws a concurrency pass only through the separate (G)(1)(c)(1) mitigation trigger — the development adds fewer than five peak-hour trips to the failing northbound approach — which excuses the developer from mitigating but does not make the intersection compliant.

NE 132nd Ave / NE 119th St, a two-way stop with NE 119th uncontrolled. The northbound approach is LOS F in both peaks; Signal Warrant 2 (four-hour) is met. The applicant volunteered a northbound left-turn lane, but the study's own Table 8 shows the mitigated approach remains LOS F in both AM and PM (PM delay improves only from 82.7 to 73.4 seconds). The study frames the mitigation as restoring the approach to "better than pre-development background conditions" — offsetting the development's increment, not achieving the standard.

IV. The Concurrency Standard the Code Requires

Study scope — (D)(2)(b), (D)(4), (D)(5). The study must account for trips assigned to all collector and arterial roadways and analyze all affected corridors and intersections of regional significance within the applicable radius. The radius is set by the development's peak-period trips: one mile for 50 or fewer, two miles for 51–250, and three miles for 251 or more. An intersection of regional significance is one with at least three collector or arterial legs.

Approval gate — (E)(1) and (E)(3). No development may be approved until the Public Works Director issues a concurrency approval (E)(1). The Director issues that approval only where the development's impacts do not cause the operating levels for the transportation corridors, signalized intersections, and unsignalized intersections to fall below the (G) standards (E)(3). All three categories are stated conjunctively.

Volunteered-mitigation path — (E)(5). The Director may approve and condition mitigation, if volunteered, where it offsets the development's impact "such that the operating levels will not further deteriorate" — or where meeting the standard would cause significant SEPA impacts. This is the only alternative to (E)(3).

Volume inputs — (F), including (F)(9). Section (F) governs the volume side of the ratio; (F)(9) lets the Director consider "any other factors" affecting operating levels. It is a volume input and cannot move the (G) capacity threshold.

Improvement credit — (F)(6). Only County improvements in place or financially committed within six years count toward capacity.

Corridor standard — (G)(1)(a). The V/C ratio for each roadway segment shall not exceed 0.90 in each direction. Measurements shall be made for all collector and arterial segments in the Vancouver UGA outside the City, and also for state highways of regional significance. Capacity comes from the figures adopted in Table 40.350.020-1.

Interpretation through the manual — (G)(2). The LOS standards are "applied and interpreted as stated in the administrative manual" ((G)(2)).

Code controls over the manual — (N)(5). The administrative manual "shall be consistent with and implement the provisions of this section," and "to the extent the provisions of the manual are inconsistent with the provisions of this section, the provisions of this section shall control" ((N)(5)).

V. The Recommended Approval Rests on Two Override Devices the Code Does Not Authorize

The compliance finding rests on two distinct devices. The first is the intersection-mobility override: the staff report concludes that the reported V/C over the NE 119th and NE 99th corridors "does not represent roadway deficiencies, rather corridor mobility facilitated with good intersection LOS," and that no additional analysis or mitigation is required. The second is a capacity-adjustment rationale built on the (F)(9) "real-world influences," set out in the report's "Concurrency Corridors" section and addressed in Section VI. Both devices are deployed only where a segment already exceeds 0.90 — in response to a failure, never as part of routine analysis.

Neither device is found in the code. The corridor standard in (G)(1)(a) is a volume-to-capacity limit; nothing in (G) authorizes substituting intersection performance for it, and nothing in (F), including (F)(9), moves the (G) capacity threshold. The capacities are fixed by the code: (G)(1)(a) draws them from the figures adopted in Table 40.350.020-1, and the "real-world influences" the report invokes are not inputs the code permits to be substituted for those figures. The (F)(9) capacity-adjustment rationale is also recent in writing — it appears in the Heartwood concurrency report dated May 21, 2026 in the same multi-paragraph form as the reissued 174th Street concurrency report of the identical date (Exhibit C) and the Traffic Engineering Section Manager's letter of the same date (Exhibit D), the day the 174th report was reissued, after the April 23 hearing at which the override's absence from the code was raised. The original 174th Street concurrency report, which denied that subdivision (Exhibit B), did not contain this rationale; it was added when the report was reissued as an approval (Exhibit C) on the last day of the open record. Both are attached, and the difference between them is the added (F)(9) and Highway Capacity Manual capacity language and the Director attribution, rather than a change in the underlying corridor analysis.

The override sentence itself is not site-specific. The identical operative language appears in unrelated County concurrency reports across the Salmon Creek / Fairgrounds and SR 503 areas — the reissued 174th Street report, Three Creeks East, and Four Creeks North among them — reproduced by different developer-commissioned engineers before different examiners. That repetition is the mark of a standardized device, not site-specific engineering judgment. In the 174th proceeding, Hearing Examiner Turner observed from the bench that the controlling provision, (G)(1)(a), "doesn't say anything about level of service at either end" of a corridor; the applicant's attorney there acknowledged the override is not literally in the code; and several development-side parties have asked the County Council to change the code rather than defend it as written. (Exhibit E)

VI. The Report Embeds the (F)(9) Theory as Standing Policy

The Heartwood report adds a "Concurrency Corridors" section that invokes (F)(9) and a five-factor Highway Capacity Manual list — lane width, shoulders, heavy vehicles, grades, and intersection spacing — to conclude that acceptable intersection LOS "allow[s]" an affirmative finding of compliance with CCC 40.350.020(G)(1)(a) for a corridor that exceeds 0.90. The same language, including the same five-factor list, is reproduced nearly verbatim from the Traffic Engineering Section Manager's letter in the 174th Street record (Exhibit D) — fixed policy text in an unrelated project's report, not site-specific analysis. But the Highway Capacity Manual does not set the capacities for this test; (G)(1)(a) takes them from Table 40.350.020-1, where an HCM field capacity has no place. The County advanced these as two separate threads in the 174th Street record: the volume-to-capacity override in the Traffic Engineering Section Manager's letter (Exhibit D), and the capacity-side argument — that real-world conditions justify departing from the figures adopted in Table 40.350.020-1 — in the Transportation Division Manager's letter (Exhibit F). Responses to both are attached: to the v/c override (Exhibit G) and to the capacity methodology (Exhibit H).

VII. CCC 40.350.020(F)(9) Does Not Authorize the Override

Section (F) governs the volume side of the ratio; (G) sets the capacity and the 0.90 line. A factor under (F)(9) operates before the ratio is computed and cannot convert a completed (G)(1)(a) exceedance into compliance. Had the HCM factors actually been applied, they would have adjusted the capacity inputs and produced a recalculated V/C to test against 0.90 — but the report performs no such calculation and presents no recalculated V/C; the factors are cited, not applied. What the report substitutes instead is acceptable intersection performance, prompted by the very fact that a segment exceeded 0.90. Using (F)(9) and an intersection-focused "additional analysis" to call a corridor compliant at 0.90 while it stands at 1.10 leaves (E)(3) with no corridor standard to enforce.

Even read as administrative interpretation, the override fails. The LOS standards are "applied and interpreted as stated in the administrative manual" ((G)(2)), but (N)(5) caps that authority: the manual "shall be consistent with and implement the provisions of this section," and where inconsistent "the provisions of this section shall control." An interpretation that sets aside the 0.90 corridor standard is inconsistent with the section, and the section governs. Counsel for one of the party's of record noted this concern in the 174th Street Subdivision hearing as well (Exhibit I)

VIII. The Corridor V/C Standard Is Binding, Not Discretionary

The staff report treats the 0.90 ratio as advisory — "a key engineering indicator" — and finds a segment compliant on acceptable intersection performance even where the ratio exceeds 0.90. The standard is not advisory. The Comprehensive Plan's transportation element (Exhibit K) adopts the corridor level-of-service standard "in terms of volume to capacity ratio for each segment during the peak period" (Transportation Element, p. 140) and looks to CCC 40.350.020 for the figure; the GMA requires the County to enforce that adopted standard (RCW

36.70A.070(6)(b)). Treating the ratio as a non-binding indicator leaves the ordinance failing to implement the standard the plan adopts.

The plan keeps the corridor and intersection standards separate, as the code does — a corridor segment V/C, a separate signalized-intersection standard, and a separate unsignalized standard — and confers discretion only over whether to signalize an unsignalized intersection, the plan's counterpart to (G)(1)(c) (Transportation Element, p. 140). Nothing in the element lets acceptable intersection LOS stand in for a failing corridor, and the plan defines a "deficient" roadway as one that exceeds the adopted LOS standard (id.). A segment over 0.90 is, by the plan's own definition, a deficiency.

Countywide Planning Policy 5.0.5 commits the County to consistent, adopted level-of-service standards and methodologies (Transportation Element, p. 151) — the opposite of a compliance result set road-by-road at staff's discretion. The legislative record is consistent: the Legislative Intent Analysis (Exhibit J) shows the 2014 adoption describing intersection LOS as an additional, protective floor, not a substitute for the corridor result, and the record contains no Council action adopting an intersection-LOS override. Where an implementing ordinance is read to conflict with the plan, the plan controls (Land Use Element, p. 25); only the reading that enforces the corridor standard is consistent with the plan and the GMA.

IX. CCC 40.350.020(E)(3) Requires Denial of the Corridor Failures

The approval architecture is straightforward. Under (C) the review authority may approve, condition, or deny; under (E)(1) it may not approve until a concurrency approval issues; and under (E)(3) the Director issues that approval only where the operating levels for corridors, signalized intersections, and unsignalized intersections do not fall below the (G) standards. Three corridor segments fall below (G)(1)(a). (E)(3) is therefore not satisfied.

The override has no textual home. The only discretion for falling short of a standard is in (G)(1)(c), confined to unsignalized intersections — and it speaks to whether the County must build control there, not to corridors. The corridor standard in (G)(1)(a) carries no discretion clause, no de-minimis threshold, and no causation carve-out; the intersection-level discretion cannot be borrowed to excuse a corridor V/C failure.

The chain is therefore complete: the corridor segments fail (G)(1)(a); (E)(3) is not met; and nothing in (G) authorizes an override. A concurrency approval cannot issue for these corridors, and under (E)(1) and (C) the development must be denied.

X. No Funded Improvements Resolve the Corridor Failures Within Six Years

The study recommends "a more detailed operational analysis" before any major investment decision and observes that NE 99th "appears to be constructed to its planned ultimate 3-lane configuration" so that "it is unclear what, if any, additional capacity can be provided." A subdivision approval is such a decision, and the analysis the study calls for was not performed. Under (F)(6), only a County improvement in place or financially committed within six years creates capacity; the record establishes none that brings any failing segment below 0.90.

XI. The Legislative Track Is the Place to Change the Standard

The County Council is considering a change to the concurrency standard pending the outcome of the 174th Street Subdivision and this hearing. In the June 10th meeting, a work session was requested to review LOS Standards. That effort originates in the dialogue at the 174th Street Subdivision hearing, where the override's absence from the code was raised. That a legislative change is being pursued at all confirms the override is not in the code today. The standard governing this application on June 11 is the code as adopted, and the Hearing Examiner should apply (G)(1)(a) and (E)(3) as written. The timeline of events is outlined in Exhibit L.

XII. Conclusion and Request

Three Heartwood North corridor segments exceed the mandatory 0.90 V/C standard in the 2029 buildout year, and the analysis is incomplete because SR 503 was not evaluated as a corridor though the code requires it and it is documented as failing. The compliance finding rests on an intersection-LOS override that the code does not authorize and that does not hold up at the approach level, and (E)(3) does not permit approval where the corridor standard is not met. On this record the concurrency determination should not be sustained. The application should be denied for failure to meet the corridor concurrency standard, or at a minimum remanded for a concurrency analysis that applies the 0.90 corridor standard, evaluates all affected corridors and intersections of regional significance within the applicable radius — including SR 503 — and performs, rather than cites, any HCM capacity adjustment relied upon.

Respectfully submitted,

Heidi Pozzo
13023 NE Highway 99, Ste. 7-298
Vancouver, WA 98686

Exhibits

Exhibit A — Failing Corridor Evaluation Memorandum, PLS Engineering (Daniel Stumpf, PE) — 174th Street record, Ex. 100, May 12, 2026

Exhibit B — Original Concurrency Staff Report, 174th Street Subdivision (PLD-2026-00002), April 21, 2026 (denial) — 174th Street record, Ex. 52

Exhibit C — Reissued Concurrency Staff Report, 174th Street Subdivision (PLD-2026-00002), May 21, 2026 (approval) — 174th Street record, Ex. 140

Exhibit D — Letter of David Jardin, Traffic Engineering Section Manager, May 21, 2026 — 174th Street record, Ex. 136

Exhibit E — 174th Street Subdivision hearing transcript (PLD-2026-00002) — 174th Street record, Ex. 78

Exhibit F — Letter of Steve Gallup, Transportation Division Manager (roadway capacity), May 21, 2026 — 174th Street record, Ex. 135

Exhibit G — Response to the Jardin letter (Heidi Pozzo), June 4, 2026 — 174th Street record, Ex. 148

Exhibit H — Response to the Gallup letter (Heidi Pozzo), June 4, 2026 — 174th Street record, Ex. 149

Exhibit I — Response Comments of Bryan Telegin, Telegin Law PLLC, on behalf of Dean Hergesheimer — 174th Street record, Ex. 154, June 4, 2026

Exhibit J — Legislative Intent Analysis of CCC 40.350.020(G)(1) (Heidi Pozzo) — 174th Street record, Ex. 88

- **J-A** — Development and Engineering Advisory Board (DEAB) Adopted Meeting Minutes, May 1, 2014 (174th Ex. 89)
- **J-B** — Clark County Public Works / Community Planning, “Transportation Concurrency and the Capital Facilities Plan (CFP) Update,” Planning Commission Presentation, June 5, 2014 (174th Ex. 90)
- **J-C** — Revised Staff Report to the Planning Commission, Concurrency: Proposed changes to the Title 40 development code and Capital Facilities Plan (Oliver Orjiako, Community Planning Director; prepared by Laurie Lebowsky, Transportation Planner), June 25, 2014, including proposed text of CCC 40.350.020 and Draft CFP 2014–2033 (174th Ex. 91)
- **J-D** — Clark County Planning Commission Hearing Minutes, July 17, 2014, Case No. CPZ2014-00009 (Concurrency Code & Capital Facilities Plan Updates) (174th Ex. 92)
- **J-E** — Ordinance 2016-08-12, “An emergency interim zoning ordinance relating to land use, suspending exemptions to the Concurrency Standards under CCC 40.350.020,” adopted August 30, 2016 (174th Ex. 84)
- **J-F** — Ordinance 2016-10-11, extending Ord. 2016-08-12, with accompanying Public Works staff report dated October 25, 2016 (174th Ex. 87)

J-G — Clark County Department of Community Planning, Revised Staff Report to the Planning Commission (Oliver Orjiako, Community Planning Director; Matt Hermen, Transportation Planner), "Concurrency: Proposed changes to the Title 40 development code (Amended)," March 16, 2017 (174th Ex. 86)

J-H — Clark County Public Works Transportation, "Clark County Code Language: Concurrency – 40.350.020(G)(1)(c)," March 2, 2017 (slides presented at DEAB) (174th Ex. 85)

J-I — Clark County Development and Engineering Advisory Board, April 13, 2017 Meeting Packet, including (1) DEAB Adopted Minutes of March 2, 2017 (incorporated for adoption at the April 13 meeting) and (2) Clark County Public Works, "Clark County 2018–2023 Transportation Improvement Program (TIP) Project Evaluation System" presentation by Susan Wilson and Michael Derleth (174th Ex. 80)

J-J — Board of County Councilors, Minutes of April 25, 2017 (174th Ex. 83)

J-K — Ordinance 2017-04-13, "An ordinance concerning concurrency standards and amending Clark County Code (CCC) Section 40.350.020 Transportation Concurrency Management System," adopted April 25, 2017 (the operative code text now in effect) (174th Ex. 82)

J-L — Clark County Planning Commission, Minutes of Public Hearing, Thursday, March 16, 2017 (concurrency code amendments) (174th Ex. 81)

Exhibit K — Clark County 2015–2035 Comprehensive Plan, Chapter 5 (Transportation Element) excerpt

Exhibit L — Timeline: the 174th Street override challenge (Heidi Pozzo) — 174th Street record, Ex. 151

13. Traffic Study

KITTELSON & ASSOCIATES
851 SW 6th AVENUE, SUITE 600
PORTLAND, OR 97204
P 503.228.5230 F 503.273.8169

MEMORANDUM

Date:	February 12, 2026	Project #: 31137
To:	Craig Kathol and David Jardin – Clark County Department of Public Works	
Cc:	Greg Kubicek – GHK Enterprises, Inc. Colin Shackelford, PE – AKS Engineering & Forestry, LLC	
From:	Kristine Connolly, PE, Russ Doubleday, AICP, Jorge Diaz-Gutierrez, PhD, and Chris Brehmer, PE	
Project:	Heartwood North (PAC-2024-00336)	
Subject:	Transportation Impact Analysis	



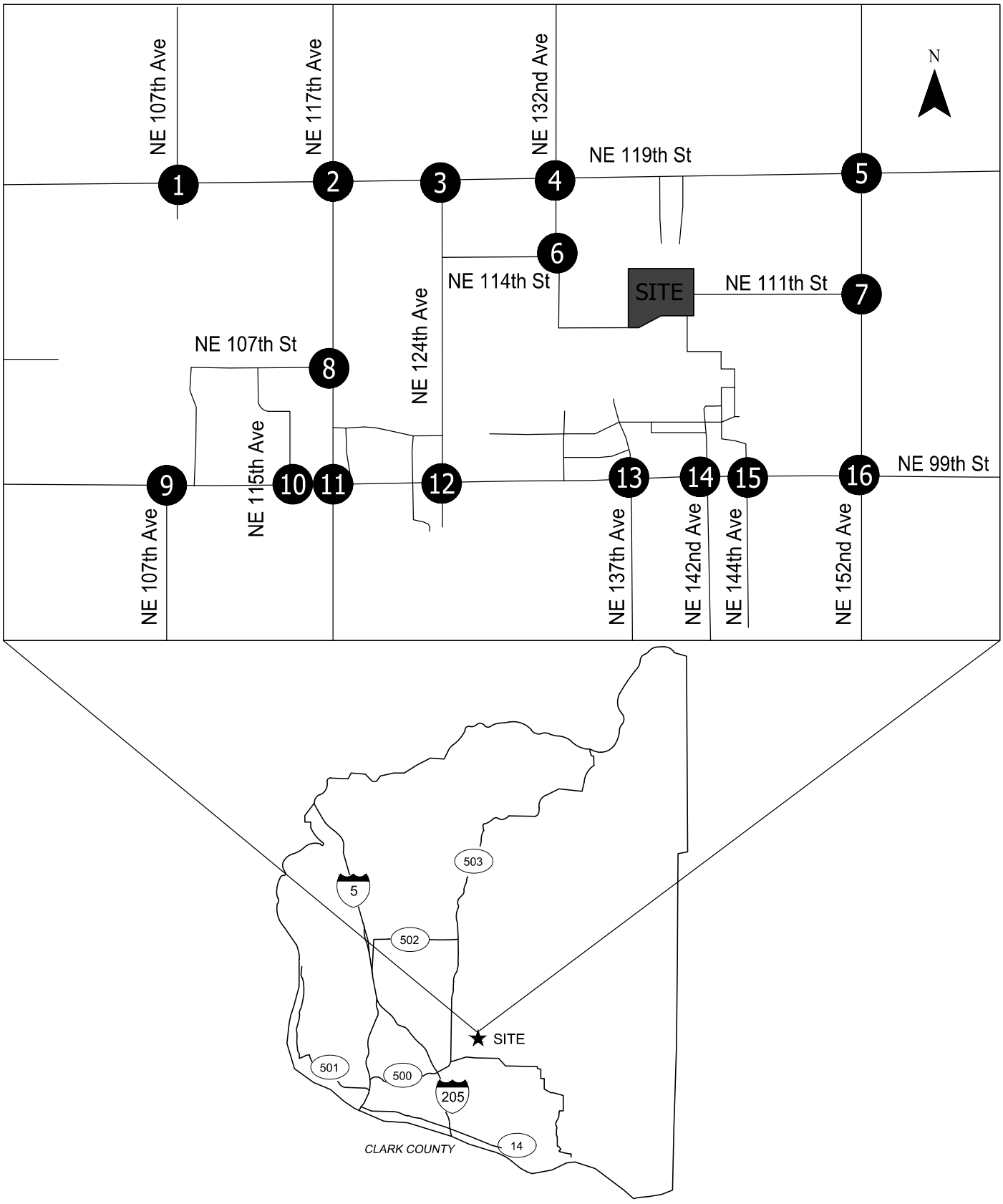
This letter documents the transportation impact analysis (TIA) prepared for the proposed Heartwood North development located south of NE 119th Street between NE 137th Avenue and NE 143rd Avenue. Based on the analysis provided and documented herein, the proposed development can be constructed while complying with Clark County concurrency requirements with the following recommendations:

- Widen the northbound NE 132nd Avenue approach at NE 119th Street within the existing public right-of-way to provide a northbound left-turn lane with at least 150 feet of storage and a shared through/right-turn lane.
- Above-ground utilities, monuments, fencing, and vegetation be appropriately located and maintained on-site to preserve adequate intersection sight lines per Clark County Standards.

The methodology of our analysis, pertinent findings, and further details regarding study recommendations are documented herein.

INTRODUCTION

GHK Enterprises, Inc., proposes to develop up to 146 single-family homes on approximately 33.12 acres located south of NE 119th Street between NE 137th Avenue and NE 143rd Avenue. Figure 1 shows the site vicinity map and Figure 2 shows the proposed site plan. The proposed site will provide vehicular and pedestrian connections between the existing Plateau Manor, approved Heartwood Subdivision, and existing Fieldstone Estates developments. Vehicular access to the site is proposed via the eastern terminus of NE 109th Street, northern terminus of NE 142nd Avenue and the western terminus of NE 111th Street.

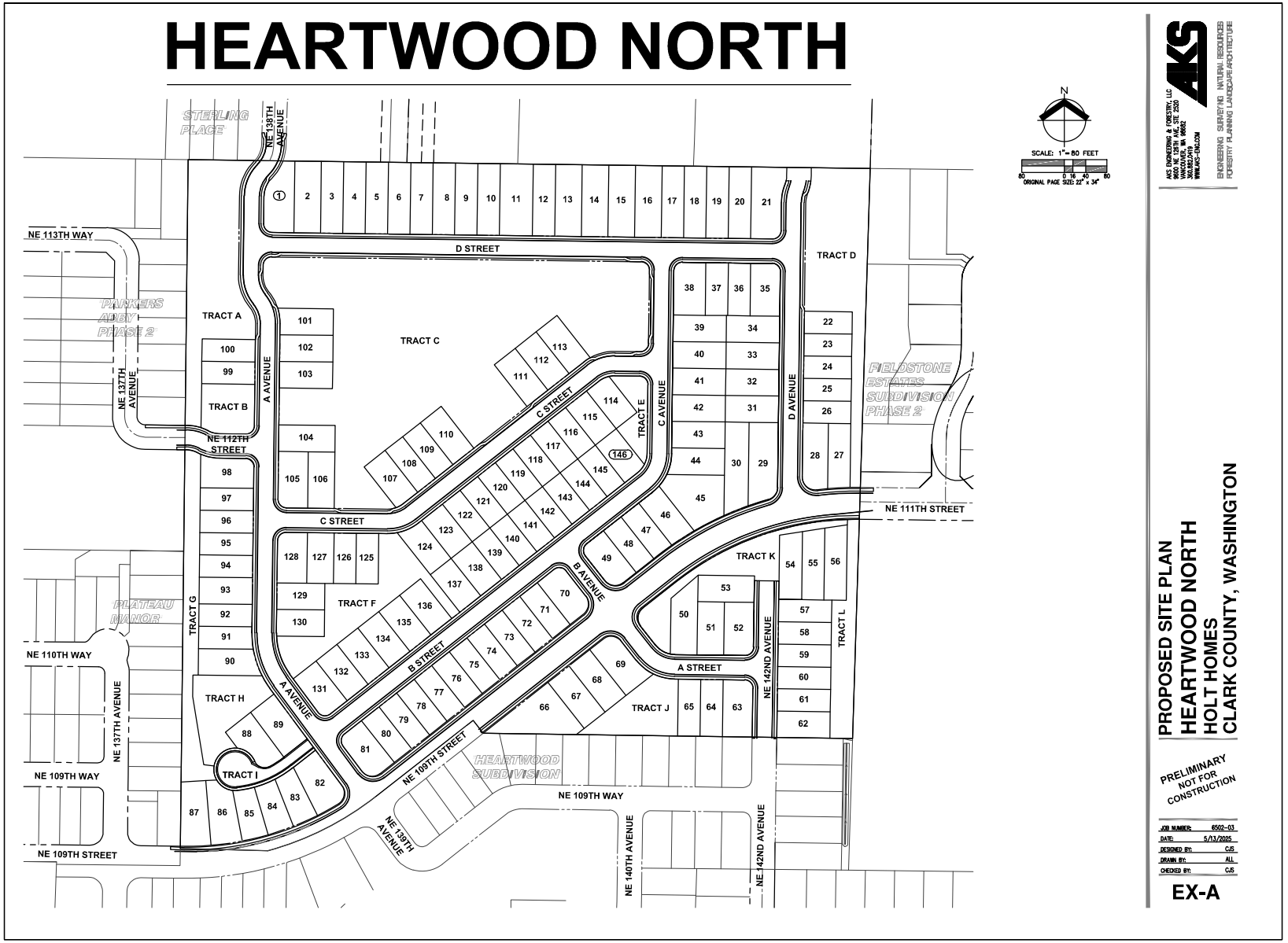


Site Vicinity Map
Clark County, Washington

Figure
1

H:\31\31137 - Heartwood North\report\figs\31137_Figures.dwg Feb 04, 2026 - 4:42pm - rdoubleday Layout Tab: Site Vicinity Map

KITTELSON & ASSOCIATES



RECEIVED FROM AKS Engineering & Forestry, LLC : 5/15/2025

Proposed Site Plan
Clark County, Washington

Figure
2

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SCOPE OF THE REPORT

This analysis identifies the transportation-related impacts associated with the proposed development and was prepared in accordance with Clark County's transportation impact analysis requirements. The study scope and overall study area for this project were determined based on a review of existing travel patterns and consistency with the scope of analysis prepared for the approved Heartwood Subdivision to the south. As required under Clark County Code 40.350.020, Transportation Concurrency Management, the analysis was prepared to address the following transportation issues:

- Existing land use and transportation system conditions within the site vicinity during the weekday AM and PM peak hours.
- Planned developments and transportation improvements in the study area.
- Future year 2029 background traffic conditions (without site development) during the weekday AM and PM peak hours.
- Trip distribution estimates for the proposed development, including assignment of weekday AM and PM peak hour trips to key concurrency corridor intersections.
- Future year 2029 total traffic conditions (with full buildout and occupancy of the proposed development) during the weekday AM and PM peak hours.
- Volume-to-capacity ratios for applicable concurrency segments.

Study Intersections

The study intersections were identified in collaboration with Clark County staff. Figure 1 illustrates the location of the study intersections that are listed below.

1. NE 119th Street/NE 107th Avenue
2. NE 119th Street/NE 117th Avenue (SR 503)
3. NE 119th Street/NE 124th Avenue
4. NE 119th Street/NE 132nd Avenue
5. NE 119th Street/NE 152nd Avenue
6. NE 114th Street/NE 132nd Avenue
7. NE 111th Street/NE 152nd Avenue
8. NE 107th Street/NE 117th Avenue (SR 503)
9. NE 99th Street/NE 107th Avenue
10. NE 99th Street/NE 115th Avenue
11. NE 99th Street/NE 117th Avenue (SR 503)
12. NE 99th Street/NE 124th Avenue
13. NE 99th Street/NE 137th Avenue
14. NE 99th Street/NE 142nd Avenue
15. NE 99th Street/NE 144th Avenue
16. NE 99th Street/NE 152nd Avenue

ANALYSIS METHODOLOGY

Performance Measures

Per Clark County standards, the level-of-service (LOS) performance measure was used to evaluate traffic operations at the study intersections. The volume-to-capacity (v/c) ratio was used to evaluate roadway segments for the concurrency analyses.

All operations analyses described in this report were performed in accordance with the procedures stated in the 7th *Edition Highway Capacity Manual* (HCM 7th Edition – Reference 1) using Synchro 12 software. There are exceptions at three intersections:

- The NE 114th Street and NE 132nd Avenue intersection (Study Intersection #6) was analyzed using *2000 Highway Capacity Manual* (HCM 2000 – Reference 2) as Synchro does not support the lane configurations of this stop-controlled intersection under HCM 7th Edition.
- The NE 119th Street and NE 152nd Avenue (Study Intersection #5) and NE 99th Street and NE 107th Avenue (Study Intersection #9) roundabouts were analyzed using the Sidra Standard Roundabout Capacity Model in SIDRA 9.1 software in accordance with the Washington State Department of Transportation (WSDOT) Sidra Policy Settings (Reference 3).

All intersection level-of-service analyses used a peak 15-minute flow rate during the weekday AM and PM peak hours.

Facility Performance Standards

Clark County Operating Standards

Clark County Code (CCC) Section 40.350.020.G defines the County's LOS standards for roadway segments as well as signalized and unsignalized intersections.

Roadway Segments

Per CCC Section 40.350.020.G.1.a: *"The maximum volume to capacity ratio for each roadway segment shall not exceed nine-tenths (0.9), when measured independently for each direction of travel."*

Signalized Intersections

Per CCC Section 40.350.020.G.1.b: *"Individual movements at each signalized intersection of regional significance in the unincorporated county shall not exceed an average of two (2) cycle lengths or two hundred forty (240) seconds of delay (whichever is less)."*

Unsignalized Intersections

Per CCC Section 40.350.020.G.1.c: *"All unsignalized intersections of regional significance in the unincorporated county shall achieve LOS E standards or better (if warrants are not met). If warrants are met, unsignalized intersections of regional significance shall achieve LOS D standards or better. Intersection control or mitigation of unsignalized intersections shall be at the discretion of the Public Works Director and shall not obligate the County to meet this LOS standard. However, proposed developments shall not be required to mitigate their impacts in order to obtain a concurrency approval unless:*

(1) The proposed development adds at least five (5) peak hour trips to a failing intersection approach; and

(2) The worst movement on the failing approach is worsened by the proposed development. In determining whether the movement is worsened, the Public Works Director shall consider trip volume, delay, and any other relevant factors."

WSDOT Operating Standards

The study intersections along SR 503 (NE 117th Avenue) are operated and maintained by WSDOT; however, WSDOT does not designate SR 503 as being a highway of statewide significance[1]. Accordingly, County performance requirements apply at the study intersections along SR 503.

EXISTING CONDITIONS

The existing conditions analysis identifies the site conditions and the current operational and geometric characteristics of roadways within the study area. These conditions will be compared with future conditions later in this report. Kittelson & Associates, Inc. (KAI) staff visited and inventoried the proposed development site and surrounding area in June 2024 to observe site conditions, adjacent land uses, existing traffic operations, and transportation facilities in the study area.

Site Conditions and Adjacent Land Uses

The study site is currently undeveloped. The majority of nearby land uses are residential, with commercial uses to the west along NE 117th Avenue.

Transportation Facilities

Table 2 summarizes the existing transportation facilities and roadways in the study area.

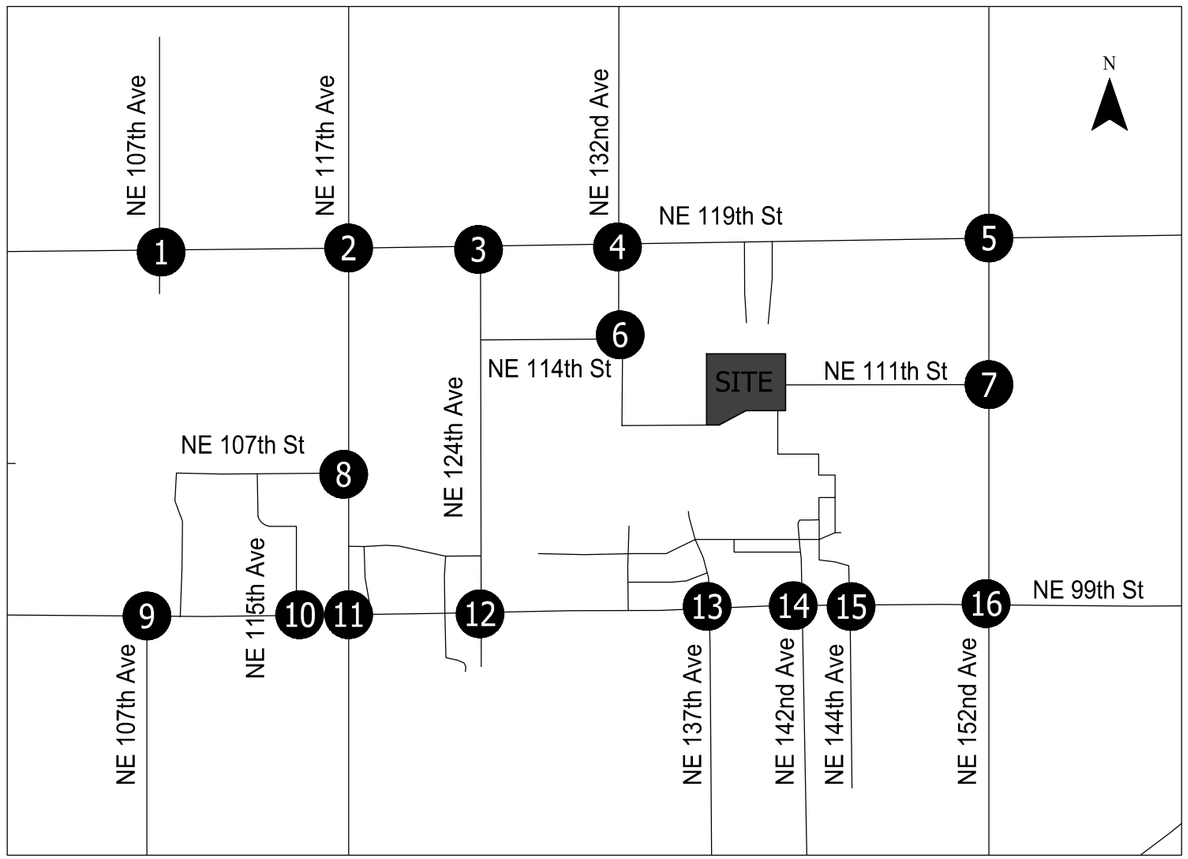
[1] WSDOT - Highways of Statewide Significance | WSDOT Geospatial Open Data Portal

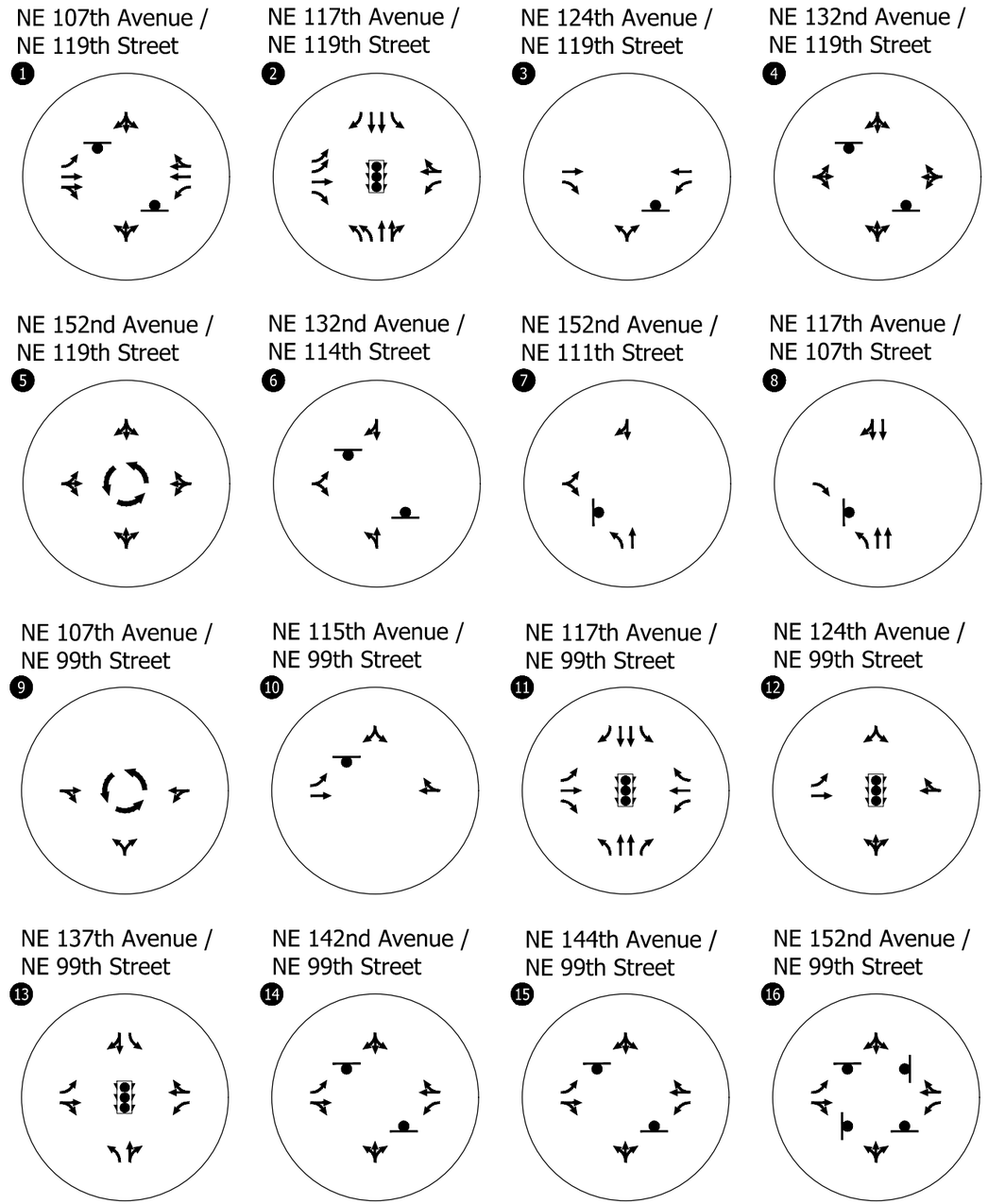
Table 2: Existing Roadway Facilities

Roadway	Classification[1]	Cross Section	Speed Limit (mph)	Sidewalks?	Bicycle Lanes?	Raised Median?	On-Street Parking?
NE 99th Street	Urban Minor Arterial (M-2cb)	2/3-lane	35-40	Partial[2]	Partial[2]	No	No
NE 107th Street	Urban Collector (C-2)	2-lane	25	Yes	No	No	Yes
NE 111th Street	Local Road	2-lane	25	Partial[3]	No	No	No
NE 114th Street	Local Road	2-lane	25	Partial[4]	No	No	No
NE 119th Street	Urban Minor Arterial (M-4cb west of NE 117th Avenue, M-2cb east of NE 117th Avenue)	2-4/5 lanes	45	Partial	Partial[5]	No	No
NE 107th Avenue	Urban Collector (C-2)	2-lane	30	No	No	No	No
NE 115th Avenue	Minor Road	2-lane	25	Yes	No	No	Yes
NE 117th Avenue	State Route	4/5-lane	40	Yes	No	Yes	No
NE 124th Avenue	Urban Collector (C-2)	2-lane	30	Partial	No	No	No
NE 132nd Avenue	Urban Minor Arterial (M-2cb)	2-lane	25	Partial[6]	No	No	Partial[6]
NE 137th Avenue	Urban Minor Arterial (M-2cb)	2/3-lane	35	Yes	Yes	Yes	No
NE 142nd Avenue	Minor Road	2-lane	25	Yes	No	No	Yes
NE 144th Avenue	Minor Road	2-lane	25	Yes	No	No	Yes
NE 152nd Avenue	Urban Collector (C-2)	2-lane	35	Partial	No	No	No

[1] Based on the Clark County *Arterial Atlas* (Reference 5)
[2] Sidewalks and bike lanes are provided in both directions from NE 117th Avenue to NE 142nd Avenue. East of 142nd Avenue, bike lanes are discontinued and sidewalks are provided on the north side only to NE 147th Avenue.
[3] Sidewalks are provided on the north side only to NE 143rd Avenue.
[4] Sidewalks are provided on the north side only to NE 127th Court.
[5] Sidewalks and bike lanes are provided in both directions west of NE 117th Avenue.
[6] There is a complete sidewalk and on-street parking network between NE 114th Street and north of NE 116th Way. Sidewalks are provided on the west side only to NE 119th Street, and on the east side only to NE 109th Street.

Figure 3 illustrates the location of the study intersections, as well as existing lane configurations and traffic control devices associated with these intersections.





* SOUTH APPROACH IS A PRIVATE ONE-WAY NORTHBOUND ONLY DRIVEWAY

Stop Sign
Traffic Signal
Roundabout

Existing Lane Configurations & Traffic Control Devices
Clark County, Washington

Figure 3

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Transit Facilities

C-TRAN provides transit services within Clark County. Per C-Tran's online schedule, (Reference 6) bus service is provided by C-Tran Route 7 (Battle Ground) along NE 117th Avenue and C-Tran loop Route 72 (Orchards), along NE 99th Street. Additionally, Route 47 operates along NE 117th Avenue, yet, with limited services. The route offers only one trip during the AM peak, one at midday, and one during the PM peak period.

Route 7 connects the Van Mall Transit Center to Southeast Grace Avenue and Southeast Rasmussen Boulevard in Battle Ground and operates on weekdays from approximately 5:45 AM to 10:00 PM, with 30-minute headways for most of the day. On weekends, the route operates from approximately 6:45 AM to 9:30 PM, with 60-minute headways throughout the day. The bus stop closest to the site is located on NE 117th Avenue, approximately 800 feet south of NE 119th Street.

Route 72 connects the Van Mall Transit Center to NE 117th Avenue and NE 99th Street and operates on weekdays from approximately 5:00 AM to 9:00 PM, with 30-minute headways for most of the day. On weekends, the route operates from approximately 7:15 AM to 8:00 PM, with 60-minute headways throughout the day. The bus stop closest to the site is located at the southwest corner of NE 144th Avenue on NE 99th Street.

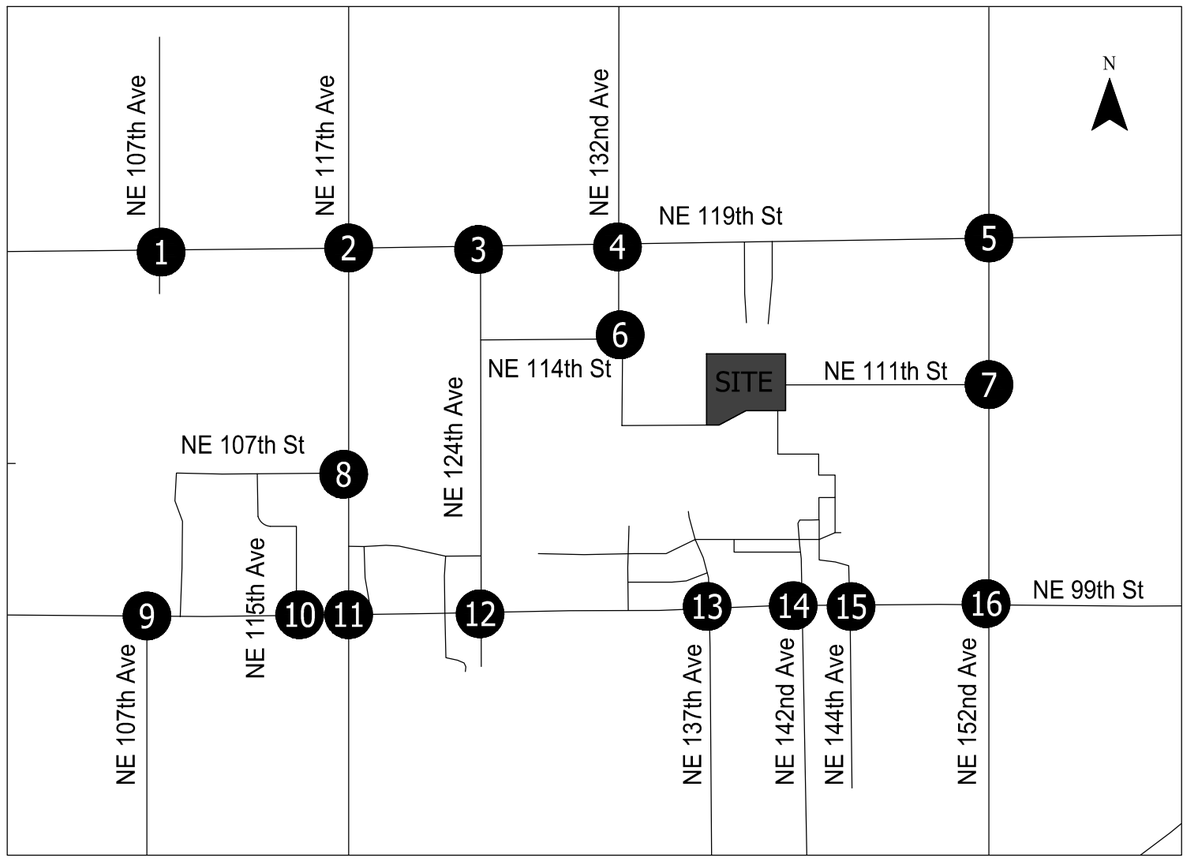
Traffic Volumes and Peak Hour Operations

Traffic counts were collected on a mid-week day in December 2025 while local schools were in session during the morning (7:00 - 9:00 AM) and evening (4:00 - 6:00 PM) peak periods at the remaining study intersections.

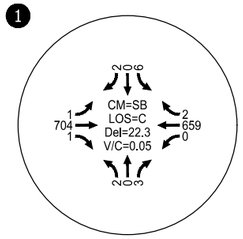
The heavy vehicle percentages in the traffic counts, shown in Appendix "A," included Federal Highway Administration Class 4 (buses) and Class 5 (two-axle, six-tire, single-unit vehicles) as heavy vehicles. Video analysis indicates that the Class 4 and Class 5 vehicle types exceed the number of large freight vehicles (such as Class 9 five-axle semitrailers) during the weekday PM peak period. Additional studies in the area by others show lower heavy vehicle percentages, likely counting only these larger freight vehicles. Our own analysis suggests that up to half of the heavy vehicles in these traffic counts are Class 4 and Class 5 vehicles. Therefore, the heavy vehicle percentage has been reduced by half across all intersections for the existing, background, and total traffic PM peak hour (except where reducing the percentage would split one heavy vehicle trip in half).

Existing Intersection Operations

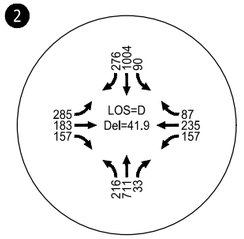
Figures 4 and 5 summarize the traffic volumes and analysis results for the study intersections under existing weekday AM and PM peak hour traffic conditions, respectively. As shown in the figures, the study intersections currently operate acceptably per the County's adopted standards as specified in CCC Section 40.350.020.G. *Appendix "B" includes the existing conditions level-of-service worksheets.*



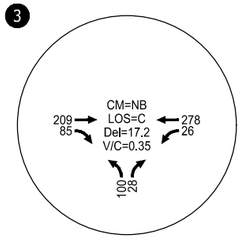
NE 107th Avenue / NE 119th Street



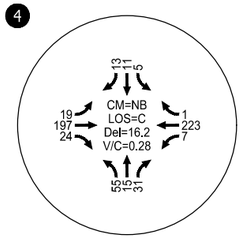
NE 117th Avenue / NE 119th Street



NE 124th Avenue / NE 119th Street



NE 132nd Avenue / NE 119th Street



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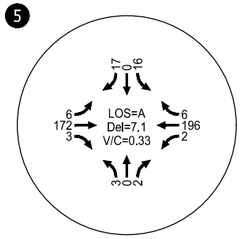
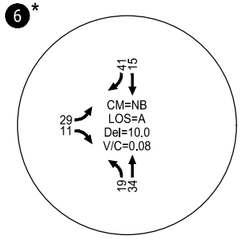


NE 132nd Avenue / NE 114th Street*



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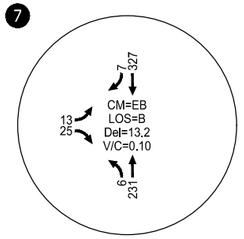

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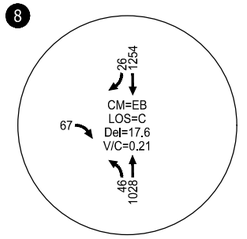
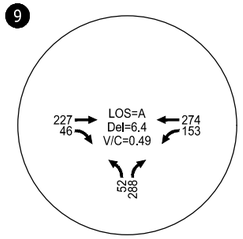


NE 107th Avenue / NE 99th Street



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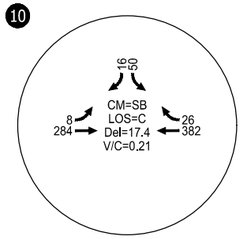

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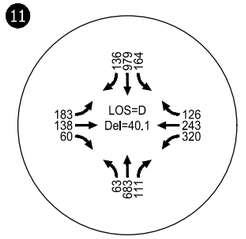

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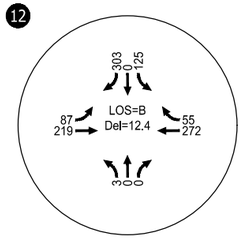

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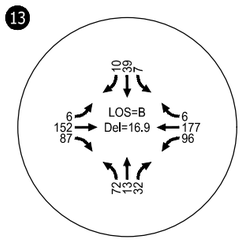

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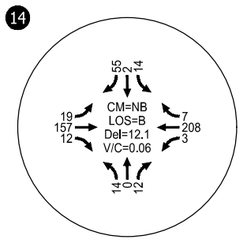

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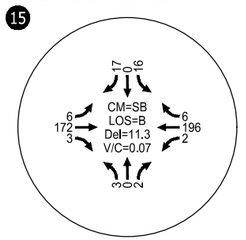

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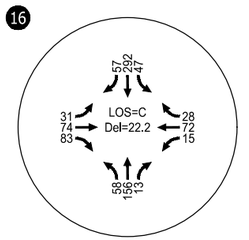

* The lane configuration at this intersection is not compatible with the HCM 7th Edition. As a result, the intersection operations are shown using HCM 2000.

CM = CRITICAL MOVEMENT (TWSC/ROUNDABOUT)
LOS = CRITICAL MOVEMENT LEVEL OF SERVICE (TWSC/ROUNDABOUT) / INTERSECTION LEVEL OF SERVICE (AWSC/SIGNAL)
Del = CRITICAL MOVEMENT CONTROL DELAY (TWSC/ROUNDABOUT) / INTERSECTION CONTROL DELAY (AWSC/SIGNAL)
V/C = CRITICAL VOLUME-TO-CAPACITY RATIO (TWSC/ROUNDABOUT)

Year 2025 Existing Traffic Volumes
Weekday AM Peak Hour
Clark County, Washington

Figure 4

KITTELSON & ASSOCIATES

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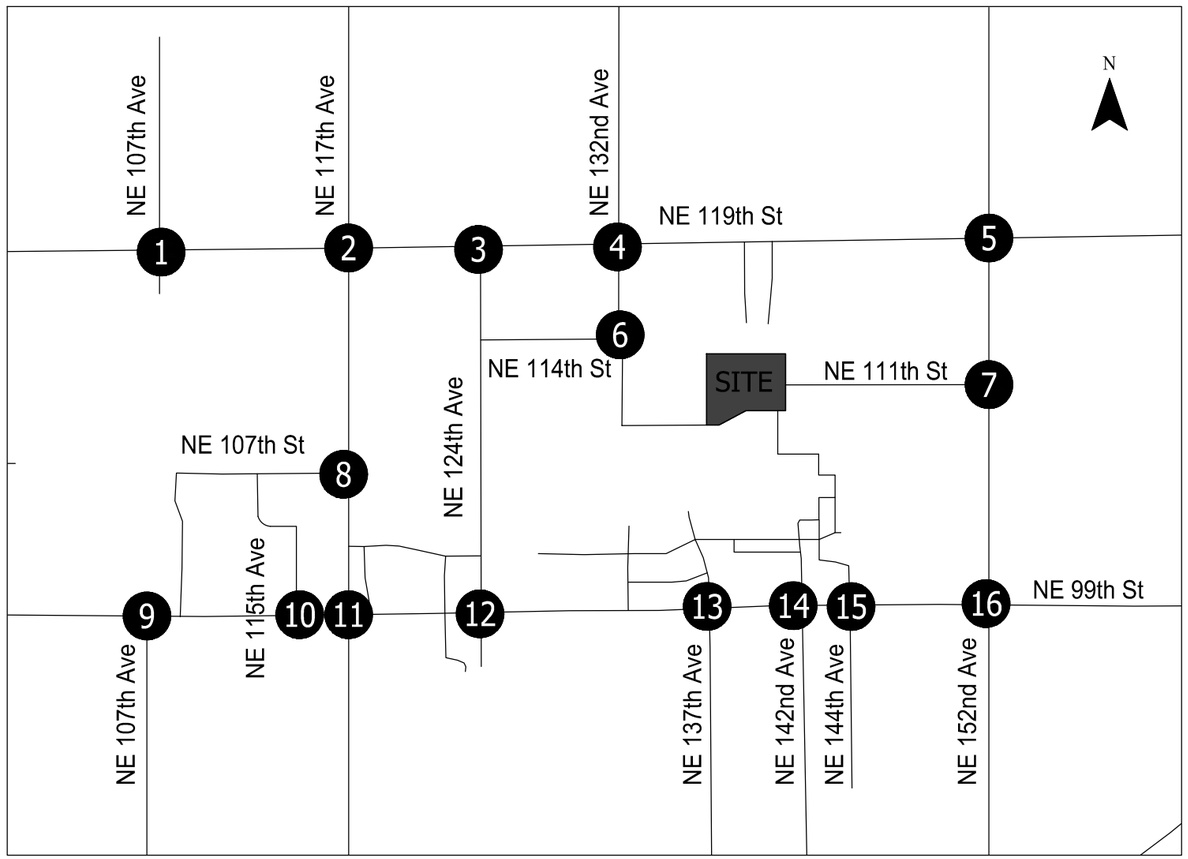

NE 107th Avenue / NE 119th Street

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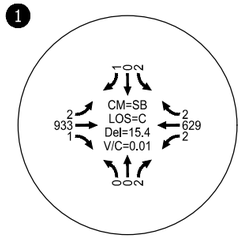

NE 117th Avenue / NE 119th Street

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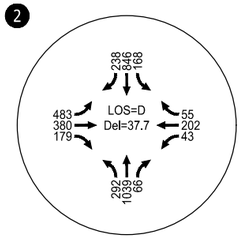

NE 124th Avenue / NE 119th Street

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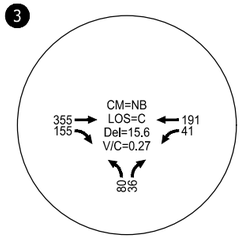

NE 132nd Avenue / NE 119th Street

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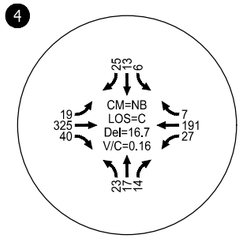

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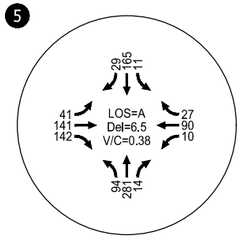

NE 132nd Avenue / NE 114th Street

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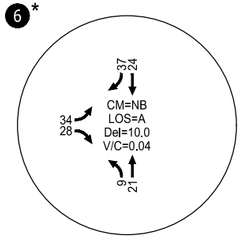

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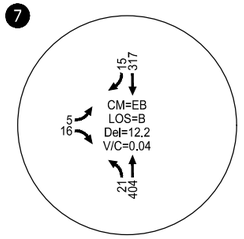

NE 117th Avenue / NE 107th Street

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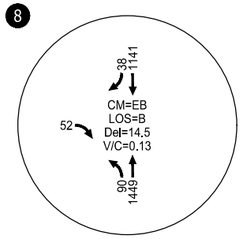

NE 107th Avenue / NE 99th Street

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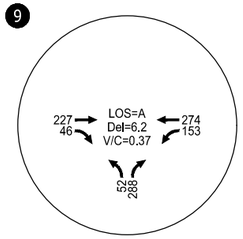

NE 115th Avenue / NE 99th Street

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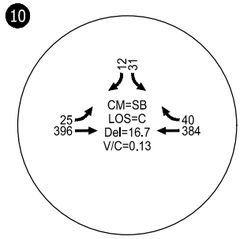

NE 117th Avenue / NE 99th Street

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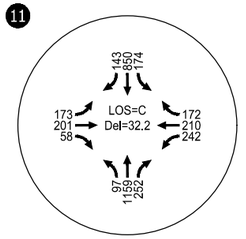

NE 124th Avenue / NE 99th Street

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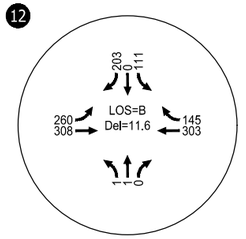
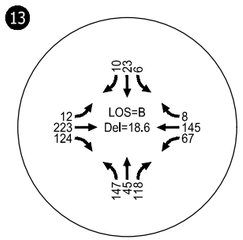


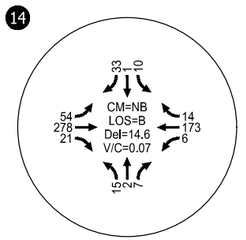
NE 137th Avenue / NE 99th Street

13



NE 142nd Avenue / NE 99th Street

14



NE 144th Avenue / NE 99th Street

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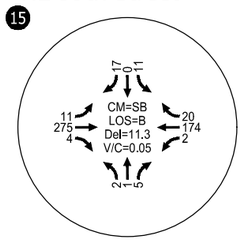

NE 152nd Avenue / NE 99th Street

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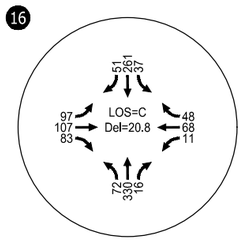

* The lane configuration at this intersection is not compatible with the HCM 7th Edition. As a result, the intersection operations are shown using HCM 2000.

CM = CRITICAL MOVEMENT (TWSC/ROUNDABOUT)
LOS = CRITICAL MOVEMENT LEVEL OF SERVICE (TWSC/ROUNDABOUT) / INTERSECTION LEVEL OF SERVICE (AWSC/SIGNAL)
Del = CRITICAL MOVEMENT CONTROL DELAY (TWSC/ROUNDABOUT) / INTERSECTION CONTROL DELAY (AWSC/SIGNAL)
V/C = CRITICAL VOLUME-TO-CAPACITY RATIO (TWSC/ROUNDABOUT)

Year 2025 Existing Traffic Volumes
Weekday PM Peak Hour
Clark County, Washington

Figure 5

KITTELSON & ASSOCIATES

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Concurrency Corridor V/C Ratios

Existing traffic volumes were compared with adopted Clark County capacity thresholds for corridor segments to assess compliance with concurrency requirements. Table 3 summarizes the existing bi-direction traffic volumes along the study area roadways during the weekday PM peak hour and reports the V/C ratio along with the single direction roadway capacity as specified under Clark County Code 40.350.020 Transportation Concurrency Management and Table 40.350.020-1. As shown in Table 3, all corridor segments operate below the County's 0.90 V/C standard under existing conditions.

Table 3: Existing Traffic Volumes and Roadway Capacities

Count Location	Classification[1]	Single Direction Capacity/Hour[2]	PM Volume (vph)[3]	V/C Ratio
NE 119th Street between				
NE 107th Avenue and NE 117th Avenue (EB)	Urban Minor Arterial (M-4cb)	1800	1042	0.58
NE 117th Avenue and NE 107th Avenue (WB)			732	0.41
NE 119th Street between				
NE 117th Avenue and NE 124th Avenue (EB)	Urban Minor Arterial (M-2cb)	900	614	0.68
NE 124th Avenue and NE 117th Avenue (WB)			300	0.33
NE 119th Street between				
NE 124th Avenue and NE 132nd Avenue (EB)	Urban Minor Arterial (M-2cb)	900	391	0.43
NE 132nd Avenue and NE 124th Avenue (WB)			239	0.27
NE 119th Street between				
NE 132nd Avenue and NE 152nd Avenue (EB)	Urban Minor Arterial (M-2cb)	700	345	0.49
NE 152nd Avenue and NE 132nd Avenue (WB)			225	0.32
NE 124th Avenue between				
NE 99th Street and NE 119th Street (NB)	Urban Collector (C-2)	700	406	0.45
NE 119th Street and NE 99th Street (SB)			314	0.45
NE 132nd Avenue between				
NE 114th Street and NE 119th Street (NB)	Urban Minor Arterial (M-2cb)	900	55	0.06
NE 119th Street and NE 114th Street (SB)			80	0.09
NE 152nd Avenue between				
NE 111th Street and NE 119th Street (NB)	Urban Collector (C-2)	700	409	0.58
NE 119th Street and NE 111th Street (SB)			332	0.47
NE 152nd Avenue between				
NE 99th Street and NE 111th Street (NB)	Urban Collector (C-2)	700	475	0.68
NE 111th Street and NE 99th Street (SB)			349	0.50
NE 99th Street between				
NE 107th Street and NE 115th Street (EB)	Urban Minor Arterial (M-2cb)	900	515	0.57
NE 115th Street and NE 107th Street (WB)			427	0.47
NE 99th Street between				
NE 115th Street and NE 117th Street (EB)	Urban Minor Arterial (M-2cb)	900	432	0.48
NE 117th Street and NE 115th Street (WB)			450	0.50
NE 99th Street between				
NE 117th Avenue and NE 124th Avenue (EB)	Urban Minor Arterial (M-2cb)	900	627	0.70
NE 124th Avenue and NE 117th Avenue (WB)			624	0.69
NE 99th Street between				
NE 124th Avenue and NE 137th Avenue (EB)	Urban Minor Arterial (M-2cb)	900	419	0.47
NE 137th Avenue and NE 124th Avenue (WB)			448	0.50
NE 99th Street between				
NE 137th Avenue and NE 142nd Avenue (EB)	Urban Minor Arterial (M-2cb)	900	353	0.39
NE 142nd Avenue and NE 137th Avenue (WB)			221	0.25
NE 99th Street between				
NE 142nd Avenue and NE 144th Avenue (EB)	Urban Minor Arterial (M-2cb)	900	295	0.33
NE 144th Avenue and NE 142nd Avenue (WB)			193	0.21
NE 99th Street between				
NE 144th Avenue and NE 152nd Avenue (EB)	Urban Minor Arterial (M-2cb)	700	291	0.42
NE 152nd Avenue and NE 144th Avenue (WB)			196	0.28

Bold text and shading indicate corridor segments with V/C ratios >0.90.

[1] Source: Clark County Arterial Atlas (Reference 5)

[2] Per CCC Section 40.350.020.G.1.a: In determining the capacity for roadways built-out to county standards, the capacity shall be based on the factors described in Table 40.350.020-1, Roadway Capacities. For roadways not fully built-out to county standards, the capacity shall be determined based on the current roadway condition. For roadways with lane widths twelve (12) feet and greater, and with paved shoulder widths two (2) feet and greater, the lane capacity shall be eight hundred (800) vehicles per hour. For roadways with lane widths between eleven (11) and twelve (12) feet and with paved shoulder widths two (2) feet and greater, the lane capacity shall be seven hundred (700) vehicles per hour. For roadways with lane widths less than eleven (11) feet, the lane capacity shall be six hundred (600) vehicles per hour.

[3] vph: vehicles per hour

Traffic Safety

The study intersection collision history was obtained from WSDOT for the period from January 1, 2020 to December 31, 2024. The data was reviewed in an effort to identify potential safety issues. Table 4 provides a summary of the crash rate experienced at the regionally significant study intersections in terms of crashes per million entering vehicles (MEV) over the five-year analysis period. Clark County generally considers a crash rate greater than 1.0 crashes/MEV to be an indicator that a potential geometric or operational issue may exist and that further evaluations should be considered.

Table 4: Crash Data Summary (January 1, 2020 to December 31, 2024)

Intersection		Crash Severity			Crash Type						Total Crashes	Crash Rate[2]
		Fatality	Injury	PDO[1]	Rear-End	Angle	Turning	Fixed Object	Bike/ Ped	Other		
1	NE 119th Street/NE 107th Avenue	0	0	0	0	0	0	0	0	0	0	0.00
2	NE 119th Street/NE 117th Avenue	0	9	21	14	11	1	2	0	2	30	0.41
3	NE 119th Street/NE 124th Avenue	0	2	5	2	4	0	0	0	1	7	0.45
4	NE 119th Street/NE 132nd Avenue	0	1	2	0	3	0	0	0	0	3	0.23
5	NE 119th Street/NE 152nd Avenue	0	8	10	0	8	10	0	0	0	18	0.94
6	NE 114th Street/NE 132nd Avenue	0	0	0	0	0	0	0	0	0	0	0.00
7	NE 111th Street/NE 152nd Avenue	0	0	0	0	0	0	0	0	0	0	0.00
8	NE 107th Street/NE 117th Avenue	0	2	4	0	0	2	2	1[3]	1	6	0.12
9	NE 99th Street/NE 107th Avenue	0	0	0	0	0	0	0	0	0	0	0.00
10	NE 99th Street/NE 115th Avenue	0	0	0	0	0	0	0	0	0	0	0.00
11	NE 99th Street/NE 117th Avenue	2	26	47	21	6	40	1	2	5	75	***1.10***
12	NE 99th Street/NE 124th Avenue	0	2	7	5	0	2	2	0	0	9	0.37
13	NE 99th Street/NE 137th Avenue	1[4]	1	5	1	3	1	2	0	0	7	0.41
14	NE 99th Street/NE 142nd Avenue	0	1	1	0	2	0	0	0	0	2	0.18
15	NE 99th Street/NE 144th Avenue	0	0	0	0	0	0	0	0	0	0	0.00
16	NE 99th Street/NE 152nd Avenue	0	2	3	0	5	0	0	0	0	5	0.23

[1] Property Damage Only
[2] Per million entering vehicles. ADT volume estimated using PM peak hour total entering volume.
[3] The crash involved a bicyclist struck by an eastbound right-turning vehicle. Per the crash records, the driver failed to grant right-of-way to the bicyclist.
[4] The fatal crash reported at this intersection involved a motorcyclist. The crash report indicates that the motorcyclist was speeding and disregarded the traffic signal. This is the only crash reported during the analysis period which may have occurred after the north leg was constructed in 2020.

Table 4 indicates that, throughout the analysis period, the NE 99th Street/NE 117th Avenue (SR 503) study intersection exhibited a crash rate exceeding the 1.0 crashes per MEV threshold. *Appendix "C" includes the crash data provided for each of the study intersections.*

NE 99th Street/NE 117th Street (SR 503)

In addition to being the location of two reported fatal crashes, the NE 99th Street/NE 117th Avenue intersection experienced a crash rate greater than 1.0 crashes per million entering vehicles (i.e., the metric used by the County to assess whether further analyses are warranted).

Of the 75 reported crashes at the intersection:

- 18 involved rear-end crashes along the northbound and southbound NE 117th Avenue approaches.
- 17 involved northbound left-turns and southbound through movements. Of these, 8 occurred between 3:00 and 6:00 PM with another 5 in the subsequent 6:00-7:00 PM hour.
- 13 involved southbound left-turns and northbound through movements. Of these, 7 occurred between 3:00 and 6:00 PM.

There were two fatal crashes at this intersection. The first fatal crash happened in November 2022 when a southbound pick-up turning left collided with a northbound pick-up, resulting in a death after hospitalization. The second occurred in July 2024, involving a motorcycle overtaking at high speed and a car making a left turn; both drivers made unsafe maneuvers, leading to a fatality at the hospital.

There were two pedestrian crashes reported at this intersection. The first crash involved a pedestrian struck by a westbound left-turning vehicle. Per the crash records, the pedestrian ignored the traffic signal. The second incident concerned a pedestrian being hit by a vehicle turning right, which did not yield the right of way to the pedestrian during the turn.

The NE 99th Street/NE 117th Avenue Street intersection was reconstructed around 2017 at which time the eastbound and westbound approaches were expanded from one travel lane to provide separate left-turn, through, and right-turn lanes and a separate southbound right-turn lane was constructed. In addition, bicycle lanes were added to NE 99th Street west of NE 117th Avenue and protected/permissive left-turn signal control was provided on all approaches. It appears the intersection has operated with protected/permissive on all approaches throughout the five-year crash data review period.

As noted above, approximately 41 percent of the reported crashes at the intersection involved northbound and southbound left-turn movements. WSDOT changed the traffic signal phasing in February 2025 to operate protected only southbound left-turn phasing from 6:00 AM until 7:00 PM. Additionally, northbound left-turn phasing is protected only from 9:00 AM until 7:00 PM. Outside of the given time frames, the signals continue to run protected-permissive left turns.

Given the change in left-turn traffic control occurred after the crash reporting period, no crash trends requiring mitigation were identified at this intersection through the crash data review.

TRANSPORTATION IMPACT ANALYSIS

The transportation impact analysis identifies how the study area's transportation system will operate in the year 2029, which corresponds to the three-year concurrency modeling period.

Year 2029 Background Traffic Conditions

The year 2029 background traffic conditions analysis identifies how the study intersections are projected to operate prior to construction of the proposed Heartwood North development. This analysis includes traffic attributed to planned developments and growth within the study area but does not include traffic from the proposed development.

Planned Transportation Improvements

The 2026-2031 Clark County Transportation Improvement Program (Reference 7) includes Project #301022 (NE 152nd Avenue – Padden Parkway to NE 99th Street). The County project includes the installation of a traffic signal and the addition of northbound and southbound left-turn lanes at the intersection of NE 152nd Avenue and NE 99th Street (Study Intersection #16). The project is funded and scheduled for completion in 2027. As such, the new traffic signal can be assumed to be completed under Year 2029 background traffic conditions for transportation concurrency purposes.

Regional Growth

The year 2029 background analysis reflects a two percent annual growth rate applied to existing traffic volumes to account for general regional growth.

Planned Developments

Kittelson reviewed the in-process developments provided by Clark County staff and identified/included in-process trips that impact the study intersections. Table 5 summarizes the planned developments and provides an assessment of the expected trip generation associated with each development and the status of each development in terms of percent complete or occupied. *Figures illustrating the total projected AM and PM peak hour in-process traffic volumes are provided in Appendix "D".*

Table 5. In-Process Trips, Weekday AM and PM Peak Hours

Planned Development	Trip Generation			Percent Complete/Occupied
	Daily	Weekday AM	Weekday PM	
117th Avenue Mixed-Use TIA	3,703	193	360	All homes are built 0% of retail is built
119th Street PUD	3,131	232	312	0%
Ankenbauer Subdivision	373	21	27	0%
Bowyer Marketplace	9,090	397	889	75%
Cluen Corner	203	13	23	0%
Cody Property Subdivision	2,320	172	231	0%
Four Corners Plaza	2,798	249	182	0%
Heartwood Subdivision	953	77	103	0%
NE 117th Street PUD	3,500	82	134	Phase 1 Complete
Nielsen Industrial Subdivision	1,122	141	142	14%
Orchards Business Park	6,862	493	317	0%
Parkers Landing Subdivision	576	45	60	40%
Provision Warehouses	518	88	103	0%
Rachel's Ranch Subdivision	934	73	99	5%
Stone's Throw PUD	1,441	108	142	80%
Villagio Mixed-Use	2,003	137	153	All homes are built 0% of retail is built

Traffic Operations

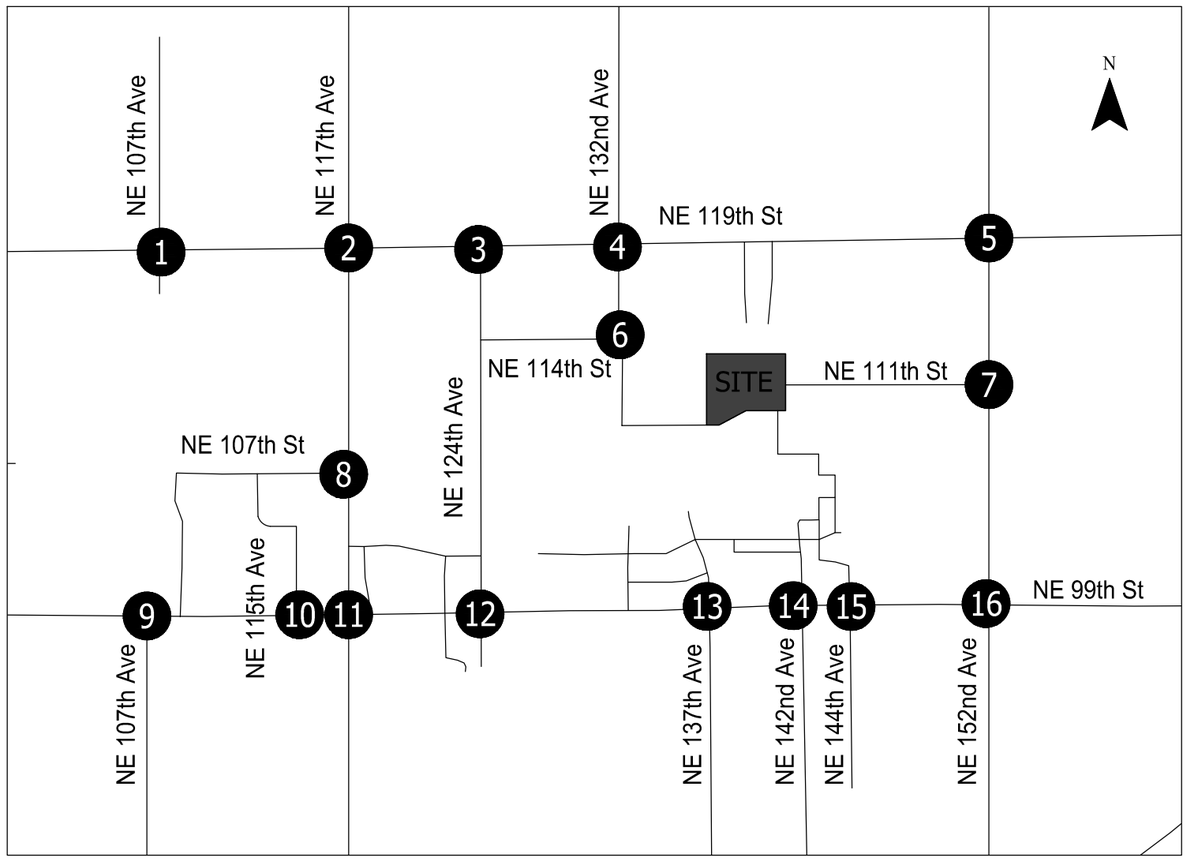
Figures 6 and 7 summarize the traffic volumes and analysis results for the study intersections under year 2029 background traffic conditions during weekday AM and PM peak hours, respectively. Signal timing was optimized at NE 99th Street/NE 117th Avenue to reflect the addition of in-process traffic. *Appendix "E" contains the year 2029 background traffic conditions worksheets.*

As shown in the figures, all but two study intersections are projected to operate acceptably per the County's adopted standards as specified in CCC Section 40.350.020.G. The NE 117th Avenue/NE 119th Street intersection is projected to operate at an overall LOS F during the PM peak hour; however, all individual movements satisfy the County's delay performance standard of an average of two (2) cycle lengths or 240 seconds of delay (whichever is less).

The two intersections that do not meet county operating standards are discussed below.

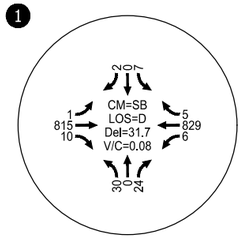
NE 124th Avenue/NE 119th Street

Forecast delay for the northbound stop-controlled intersection approach results in LOS E operations during the weekday AM and PM peak hours with V/C ratios under 1.0 indicating that capacity remains available. Preliminary traffic signal warrants indicate that signalization is warranted based on four hour and eight-hour volumes. We note that the in-process trips are adding a total of 334 AM peak hour trips (a 46 percent increase over the existing total entering vehicles) and 451 PM peak hour trips (a 53 percent increase over the existing total entering vehicles). *Appendix "F" contains the signal warrants.*



NE 107th Avenue / NE 119th Street

1



NE 117th Avenue / NE 119th Street

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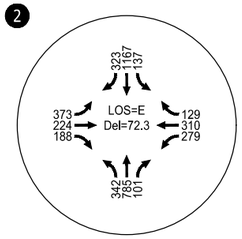

NE 124th Avenue / NE 119th Street

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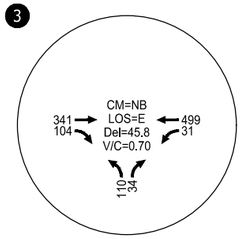
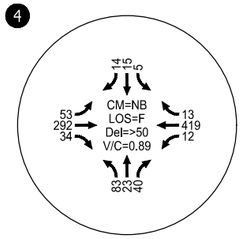


NE 132nd Avenue / NE 119th Street

4



NE 152nd Avenue / NE 119th Street

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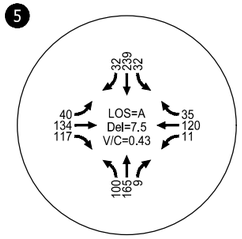
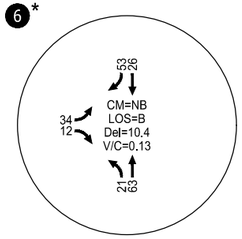


NE 132nd Avenue / NE 114th Street

6*



NE 152nd Avenue / NE 111th Street

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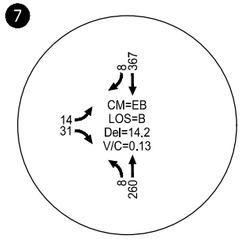

NE 117th Avenue / NE 107th Street

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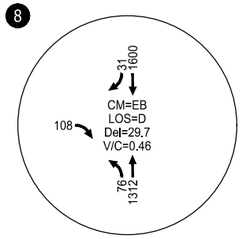

NE 107th Avenue / NE 99th Street

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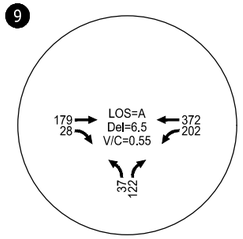

NE 115th Avenue / NE 99th Street

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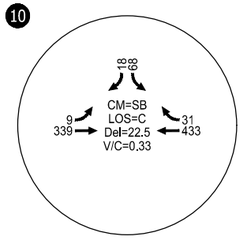

NE 117th Avenue / NE 99th Street

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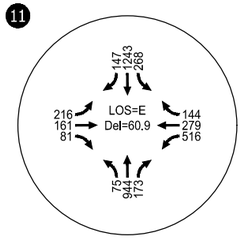

NE 124th Avenue / NE 99th Street

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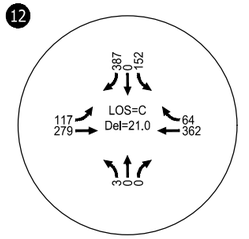

NE 137th Avenue / NE 99th Street

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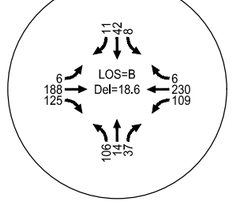

NE 142nd Avenue / NE 99th Street

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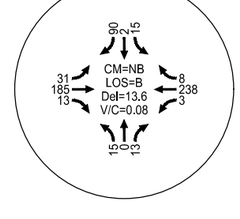

NE 144th Avenue / NE 99th Street

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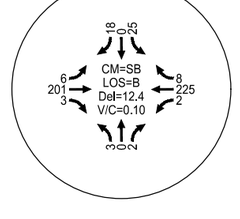
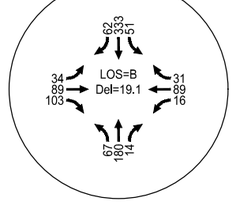


NE 152nd Avenue / NE 99th Street

16**



* The lane configuration at this intersection is not compatible with the HCM 7th Edition. As a result, the intersection operations are shown using HCM 2000.
** This intersection is assumed to be signalized by the year 2027.

CM = CRITICAL MOVEMENT (TWSC/ROUNDABOUT)
LOS = CRITICAL MOVEMENT LEVEL OF SERVICE (TWSC/ROUNDABOUT) / INTERSECTION LEVEL OF SERVICE (AWSC/SIGNAL)
Del = CRITICAL MOVEMENT CONTROL DELAY (TWSC/ROUNDABOUT) / INTERSECTION CONTROL DELAY (AWSC/SIGNAL)
V/C = CRITICAL VOLUME-TO-CAPACITY RATIO (TWSC/ROUNDABOUT)

Year 2029 Background Traffic Volumes
Weekday AM Peak Hour
Clark County, Washington

Figure 6

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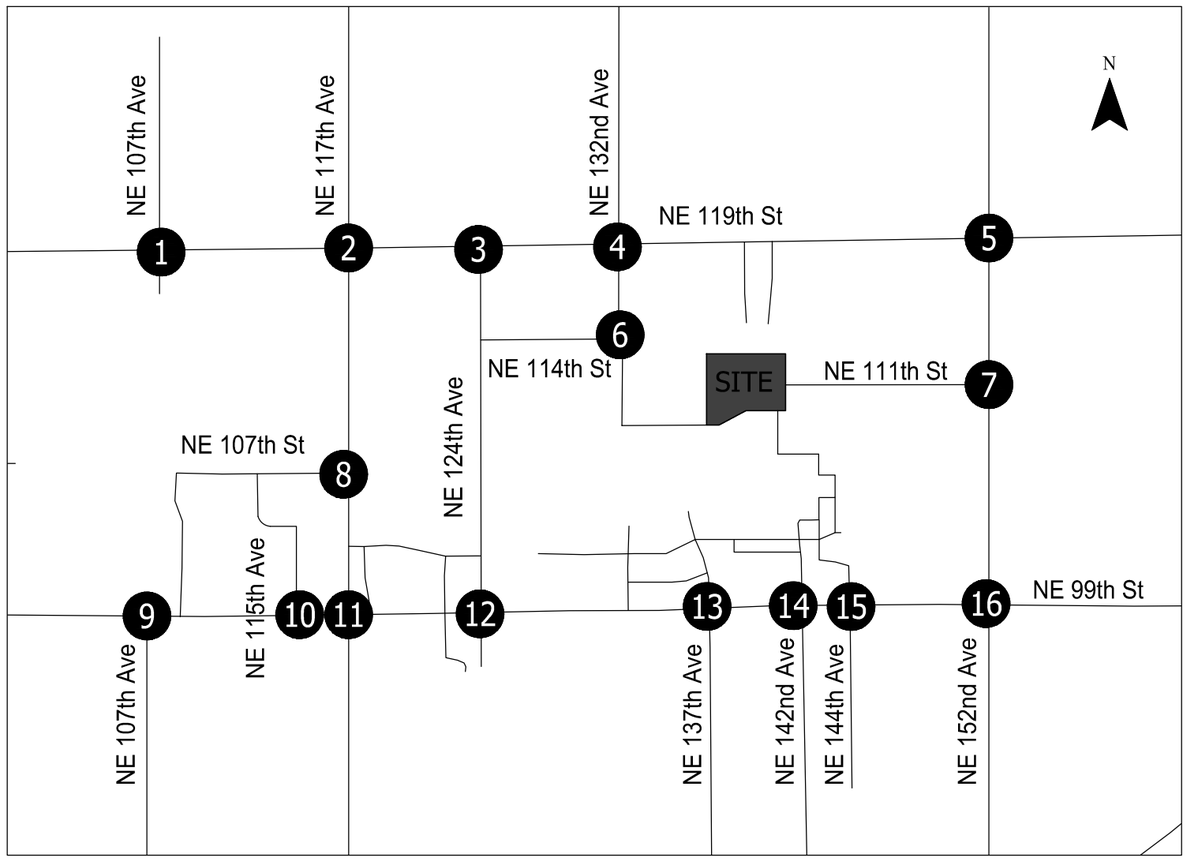

NE 107th Avenue / NE 119th Street
1
CM=NB
LOS=C
Del=23.7
V/C=0.16
1 0 5
2 1104 32
3 819 19
19 0 17

NE 117th Avenue / NE 119th Street
2
LOS=F
Del=82.0
324 1041 300
584 476 215
84 262 123
425 1130 201

NE 124th Avenue / NE 119th Street
3
CM=NB
LOS=E
Del=39.6
V/C=0.59
666 185
347 49
89 44

NE 132nd Avenue / NE 119th Street
4
CM=NB
LOS=F
Del=>50
V/C=0.72
28 23 26
64 570 68
13 335 36
41 24 19

NE 152nd Avenue / NE 119th Street
5
LOS=A
Del=6.9
V/C=0.44
33 183 12
48 181 163
32 126 11
111 308 15

NE 132nd Avenue / NE 114th Street
6*
CM=EB
LOS=B
Del=10.6
V/C=0.08
47 55
49 30
10 41

NE 152nd Avenue / NE 111th Street
7
CM=EB
LOS=B
Del=12.7
V/C=0.06
16 356
5 20
27 450

NE 117th Avenue / NE 107th Street
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CM=NB
LOS=C
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V/C=0.43
51 1469
77
170 1814

NE 107th Avenue / NE 99th Street
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LOS=A
Del=6.3
V/C=0.42
268 50
317 169
56 316

NE 115th Avenue / NE 99th Street
10
CM=SB
LOS=C
Del=20.8
V/C=0.21
14 43
28 457
53 444

NE 117th Avenue / NE 99th Street
11
LOS=E
Del=56.8
156 1103 262
199 232 74
196 249 403
120 1557 365

NE 124th Avenue / NE 99th Street
12
LOS=B
Del=16.1
273 0 142
339 388
172 383

NE 137th Avenue / NE 99th Street
13
LOS=C
Del=20.2
11 25 26
13 286 159
9 190 76
192 49 134

NE 142nd Avenue / NE 99th Street
14
CM=NB
LOS=C
Del=17.9
V/C=0.09
56 1 11
93 317 23
15 203 6
16 2 28

NE 144th Avenue / NE 99th Street
15
CM=SB
LOS=B
Del=12.5
V/C=0.08
20 0 17
12 314 4
30 204 2
2 15

NE 152nd Avenue / NE 99th Street
16**
LOS=B
Del=17.6
55 238 41
105 127 100
52 86 12
90 374 17

* The lane configuration at this intersection is not compatible with the HCM 7th Edition. As a result, the intersection operations are shown using HCM 2000.
** This intersection is assumed to be signalized by the year 2027.

CM = CRITICAL MOVEMENT (TWSC/ROUNDABOUT)
LOS = CRITICAL MOVEMENT LEVEL OF SERVICE (TWSC/ROUNDABOUT) / INTERSECTION LEVEL OF SERVICE (AWSC/SIGNAL)
Del = CRITICAL MOVEMENT CONTROL DELAY (TWSC/ROUNDABOUT) / INTERSECTION CONTROL DELAY (AWSC/SIGNAL)
V/C = CRITICAL VOLUME-TO-CAPACITY RATIO (TWSC/ROUNDABOUT)

Year 2029 Background Traffic Volumes
Weekday PM Peak Hour
Clark County, Washington

Figure 7

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NE 132nd Avenue/NE 119th Street

Forecast delay for the northbound stop-controlled intersection approach results in LOS F operations during the weekday AM and PM peak hours with V/C ratios under 1.0 indicating that capacity remains available. The projected peak hour volumes suggest that Signal Warrant 1 (Eight-Hour volumes) is not met while Signal Warrant 2 (Four-Hour volumes) is met. Similar to the NE 124th Avenue/NE 119th Street intersection, total in-process trips include 334 weekday AM peak hour trips (a 59 percent increase over the existing total entering vehicles), and a total of 462 PM peak hour trips were added (a 65 percent increase over the existing total entering vehicles). *Appendix "F" contains the signal warrants.*

Concurrency Corridor V/C Ratios

Year 2029 background traffic volumes were compared with adopted Clark County capacity thresholds by roadway segment as shown in Table 6.

Table 6: Year 2029 Background Traffic Volumes and Roadway Capacities

Count Location	Road Classification[1]	Single Direction Capacity/Hour[2]	PM Volume (vph)[3]	V/C Ratio
NE 119th Street between				
NE 107th Avenue and NE 117th Avenue (EB)	Urban Minor Arterial (M-4cb)	1800	1275	0.71
NE 117th Avenue and NE 107th Avenue (WB)			1011	0.56
NE 119th Street between				
NE 117th Avenue and NE 124th Avenue (EB)	Urban Minor Arterial (M-2cb)	900	977	**1.09**
NE 124th Avenue and NE 117th Avenue (WB)			469	0.52
NE 119th Street between				
NE 124th Avenue and NE 132nd Avenue (EB)	Urban Minor Arterial (M-2cb)	900	710	0.79
NE 132nd Avenue and NE 124th Avenue (WB)			404	0.45
NE 119th Street between				
NE 132nd Avenue and NE 152nd Avenue (EB)	Urban Minor Arterial (M-2cb)	700	595	0.85
NE 152nd Avenue and NE 132nd Avenue (WB)			384	0.55
NE 124th Avenue between				
NE 99th Street and NE 119th Street (NB)	Urban Collector (C-2)	700	512	0.73
NE 119th Street and NE 99th Street (SB)			415	0.59
NE 132nd Avenue between				
NE 114th Street and NE 119th Street (NB)	Urban Minor Arterial (M-2cb)	900	90	0.10
NE 119th Street and NE 114th Street (SB)			127	0.14
NE 152nd Avenue between				
NE 111th Street and NE 119th Street (NB)	Urban Collector (C-2)	700	455	0.65
NE 119th Street and NE 111th Street (SB)			372	0.53
NE 152nd Avenue between				
NE 99th Street and NE 111th Street (NB)	Urban Collector (C-2)	700	531	0.76
NE 111th Street and NE 99th Street (SB)			394	0.56
NE 99th Street between				
NE 107th Street and NE 115th Street (EB)	Urban Minor Arterial (M-2cb)	900	584	0.65
NE 115th Street and NE 107th Street (WB)			486	0.54
NE 99th Street between				
NE 115th Street and NE 117th Street (EB)	Urban Minor Arterial (M-2cb)	900	505	0.56
NE 117th Street and NE 115th Street (WB)			525	0.58
NE 99th Street between				
NE 117th Avenue and NE 124th Avenue (EB)	Urban Minor Arterial (M-2cb)	900	859	**0.95**
NE 124th Avenue and NE 117th Avenue (WB)			848	**0.94**
NE 99th Street between				
NE 124th Avenue and NE 137th Avenue (EB)	Urban Minor Arterial (M-2cb)	900	531	0.59
NE 137th Avenue and NE 124th Avenue (WB)			556	0.62
NE 99th Street between				
NE 137th Avenue and NE 142nd Avenue (EB)	Urban Minor Arterial (M-2cb)	900	433	0.48
NE 142nd Avenue and NE 137th Avenue (WB)			275	0.31
NE 99th Street between				
NE 142nd Avenue and NE 144th Avenue (EB)	Urban Minor Arterial (M-2cb)	900	336	0.37
NE 144th Avenue and NE 142nd Avenue (WB)			226	0.25
NE 99th Street between				
NE 144th Avenue and NE 152nd Avenue (EB)	Urban Minor Arterial (M-2cb)	700	336	0.48
NE 152nd Avenue and NE 144th Avenue (WB)			236	0.34

Bold text and shading indicate corridor segments with V/C ratios >0.90.

[1] Source: Clark County Arterial Atlas (Reference 5)

[2] Per CCC Section 40.350.020.G.1.a: In determining the capacity for roadways built-out to county standards, the capacity shall be based on the factors described in Table 40.350.020-1, Roadway Capacities. For roadways not fully built-out to county standards, the capacity shall be determined based on the current roadway condition. For roadways with lane widths twelve (12) feet and greater, and with paved shoulder widths two (2) feet and greater, the lane capacity shall be eight hundred (800) vehicles per hour. For roadways with lane widths between eleven (11) and twelve (12) feet and with paved shoulder widths two (2) feet and greater, the lane capacity shall be seven hundred (700) vehicles per hour. For roadways with lane widths less than eleven (11) feet, the lane capacity shall be six hundred (600) vehicles per hour.

[3] vph: vehicles per hour

As shown in Table 6, most corridor segments operate within the County's 0.90 V/C standard under year 2029 background traffic conditions. However, three segments exceed this standard. The eastbound segment of NE 119th Street between NE 117th Avenue and NE 124th Avenue is projected to operate at a

V/C ratio of 1.09, with the segment east of NE 124th Avenue operating below 0.90. We note NE 119th Street has separate eastbound through and right-turn lanes at NE 122nd Avenue (local) and NE 124th Avenue (regionally significant collector), increasing the theoretical eastbound carrying capacity at those two public street intersections.

Similarly, both eastbound and westbound directions on NE 99th Street between NE 117th Avenue and NE 124th Avenue are projected to experience V/C ratios above the 0.90 threshold, at 0.94 and 0.95, respectively.

Year 2029 Total Traffic Conditions

The year 2029 total traffic conditions analysis forecasts how the study area's transportation system will operate with the traffic generated by the proposed development.

Proposed Development Plan

GHK Enterprises, Inc., proposes to develop up to 146 single-family homes on the study site. The proposed site will provide vehicular and pedestrian connections between the existing Plateau Manor, approved Heartwood Subdivision, and existing Fieldstone Estates developments. As previously shown in Figure 2, vehicular access to the site is proposed via the eastern terminus of NE 109th Street, northern terminus of NE 142nd Avenue and the western terminus of NE 111th Street. Driveway access to individual residential homes will then be provided via the roadway network serving the property.

Trip Generation

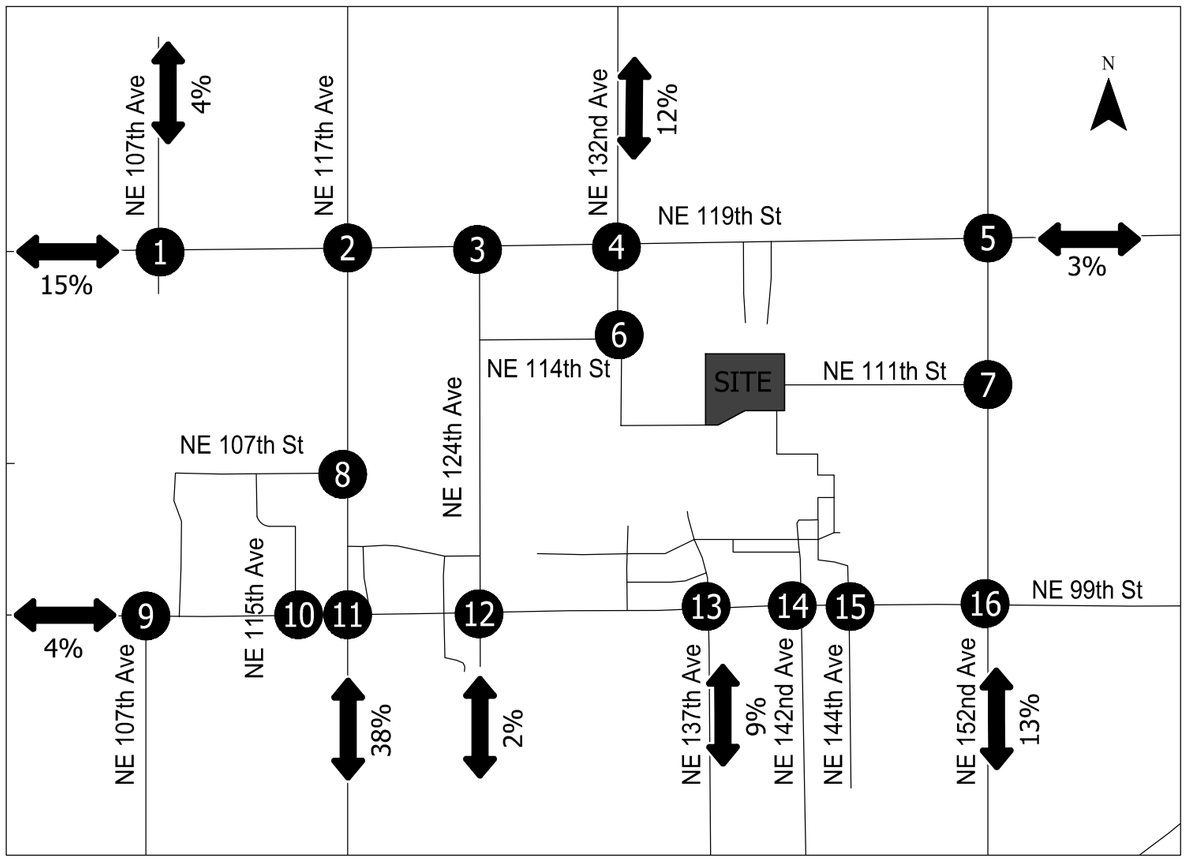
Trips for the proposed subdivision were estimated using trip rates obtained from *Trip Generation Manual, 12th Edition* (Reference 8), as shown in Table 7. The daily trips were estimated using the average trip rate while the weekday AM and PM peak hour trip rates were estimated using fitted equations.

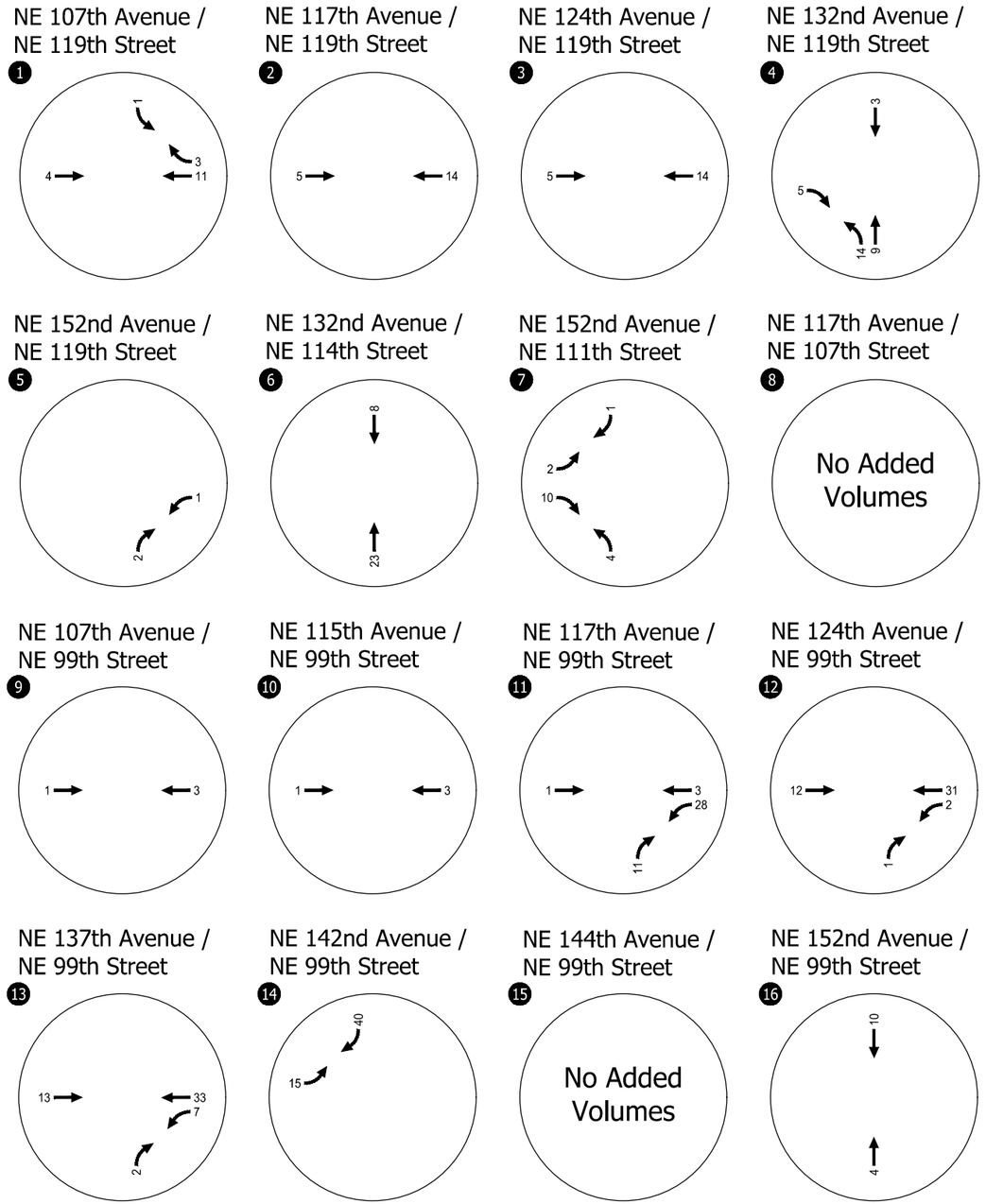
Table 7: Trip Generation Estimate

Land Use	ITE Code	Size (Units)	Average Daily Trips	Weekday AM Peak Hour			Weekday PM Peak Hour		
				Total	In	Out	Total	In	Out
Single Family Detached Housing	210	146	1,327	103	28	75	136	85	51

Trip Distribution/Assignment

The site-generated trips shown in Table 7 were distributed to the study area roadways based on a trip distribution pattern previously determined for the adjacent Heartwood Subdivision development, derived from the Southwest Washington Regional Transportation Council travel demand model (select zone analysis of Transportation Analysis Zone 540) as well as existing travel patterns in the site vicinity. Figures 8 and 9 illustrate the estimated trip distribution pattern and assignment of the new site-generated trips at the study intersections during the weekday AM and PM peak hours, respectively.





XX% - Trip Distribution Percentage

Site-Generated Trips and Trip Distribution
Weekday AM Peak Hour
Clark County, Washington

Figure
8

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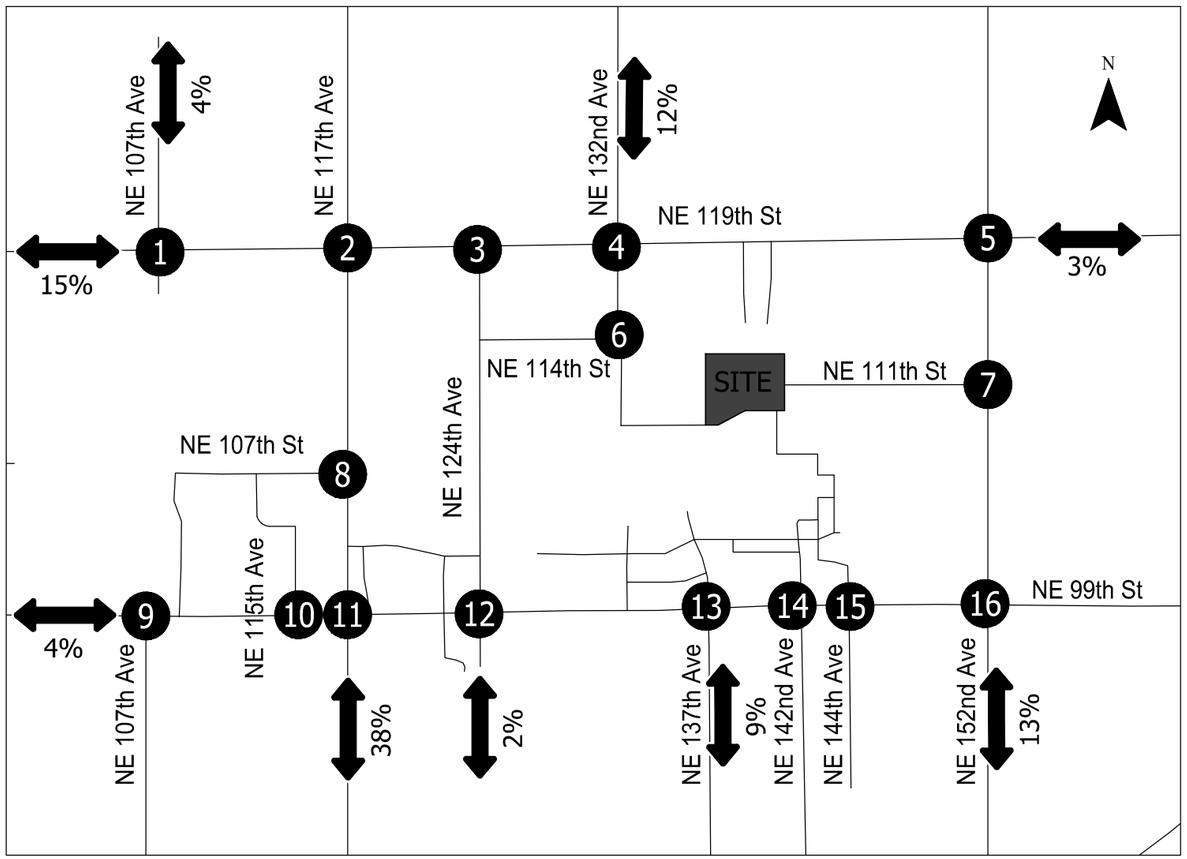

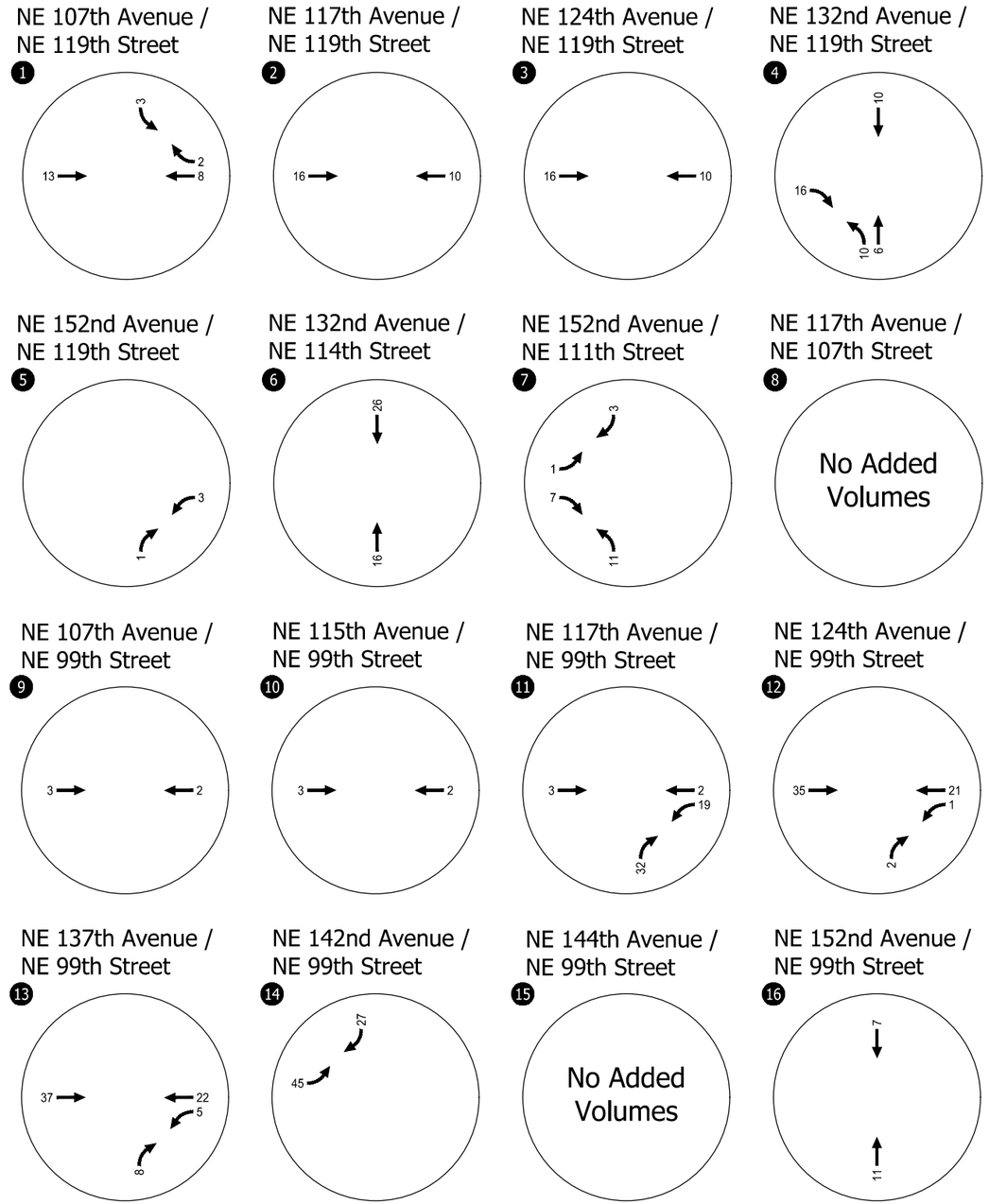

XX% - Trip Distribution Percentage

Site-Generated Trips and Trip Distribution
Weekday PM Peak Hour
Clark County, Washington

Figure 9

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Traffic Operations

The year 2029 background traffic volumes for the weekday AM and PM peak hours (shown in Figures 6 and 7) were added to the site-generated traffic (shown in Figures 8 and 9) to arrive at the year 2029 total traffic volumes. The weekday AM and PM peak-hour turning-movement volumes shown in Figures 10 and 11, respectively, were used to conduct an operational analysis at the study intersections to determine the year 2029 total traffic operations.

Consistent with background traffic conditions, all but two study intersections are projected to operate per the County's adopted standards as specified in CCC Section 40.350.020.G. The same two intersections that do not meet county operating standards under background conditions are forecast to continue to experience long delays as discussed below. The NE 117th Avenue/NE 119th Street intersection is projected to operate at an overall LOS F during the PM peak hour; however, all individual movements satisfy the County's delay performance standard of an average of two (2) cycle lengths or 240 seconds of delay (whichever is less). *Appendix "G" contains the year 2029 total traffic conditions worksheets.*

NE 124th Avenue/NE 119th Street

Consistent with background conditions, stop-controlled side street delay on the northbound approach is projected to continue to result in LOS E conditions during the weekday AM and PM peak hours (LOS E with a V/C ratio under 1.0) and the projected traffic volumes satisfy preliminary traffic signal warrants. Major street turning and through movements are projected to operate at LOS B or better during both peak hour analysis periods. The proposed site development is not expected to add any weekday AM or PM peak hour trips to the stop-controlled northbound approach. Accordingly, no mitigation is recommended in conjunction with the proposed site development per CCC Section 40.350.020.G.1.c.1 (the proposed development adds fewer than five (5) peak hour trips to the failing intersection approach).

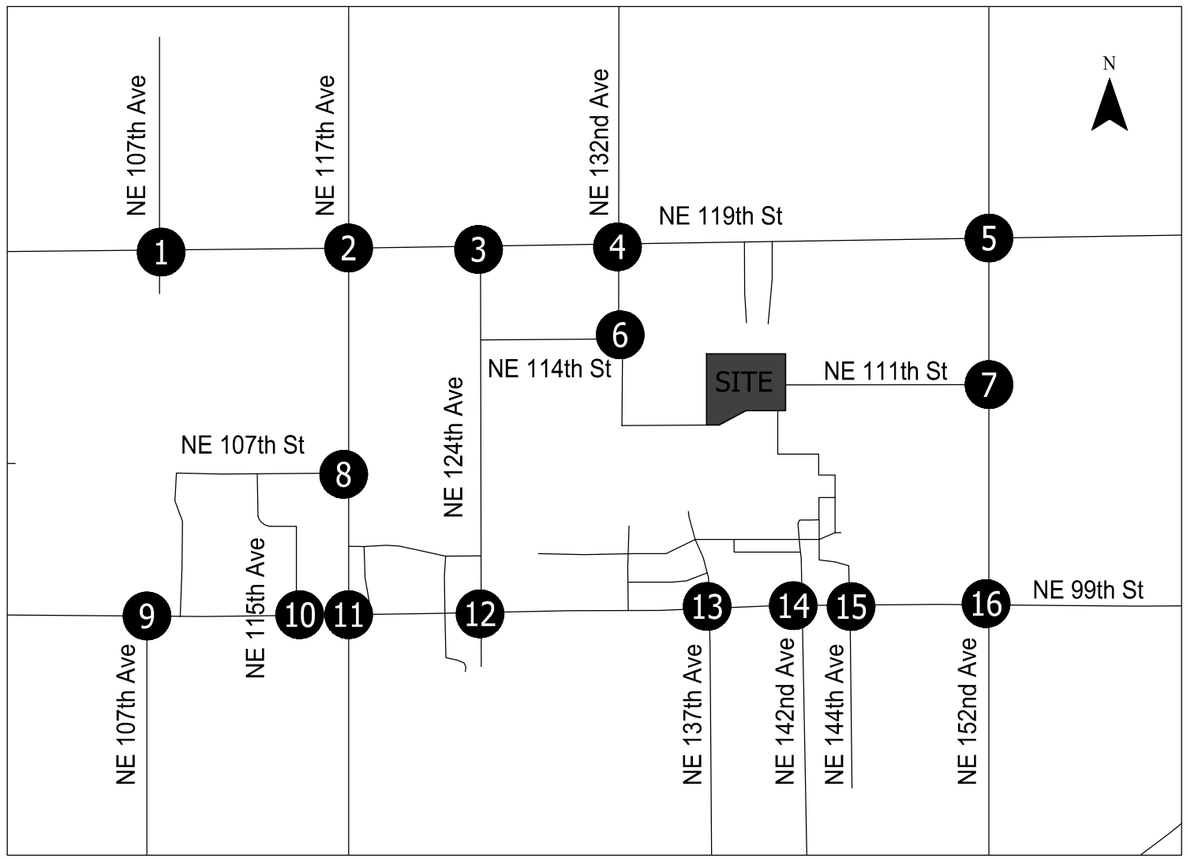
NE 132nd Avenue/NE 119th Street

Consistent with background conditions, stop-controlled side street delay on the northbound approach is projected to result in LOS F conditions during the weekday AM and PM peak hours (LOS F with a V/C ratio above 1.0 under weekday AM conditions and below 1.0 under weekday PM conditions).

We recommend the proposed development widen the northbound NE 132nd Avenue approach within the existing public right-of-way to provide a northbound left-turn lane with at least 150 feet of storage and a shared through/right-turn lane to mitigate the site-generated trip impacts. Table 8 below summarizes the mitigated performance results restore the northbound intersection approach to better than pre-development background conditions. *Appendix "H" contains the 2029 mitigated total traffic conditions worksheets for the NE 132nd Avenue/NE 119th Street intersection.*

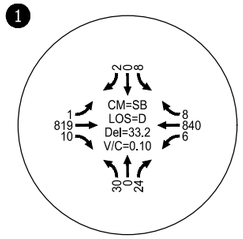
Table 8. Mitigated NE 132nd Avenue/NE 119th Street Intersection Year 2029 Total Traffic Operations

Performance Measure	AM Peak Hour		PM Peak Hour	
	Background Traffic	Total Traffic (with Northbound Left-Turn Lane)	Background Traffic	Total Traffic (with Northbound Left-Turn Lane)
Approach Level of Service	F	F	F	F
Approach Delay	85.5 seconds	60.0 seconds	82.7 seconds	73.4 seconds
V/C Ratio	0.89	0.81 (NBL)	0.72	0.68 (NBL)
95th Percentile Queue Length (Rounded Up to Nearest 25 Feet)				
Northbound Left-Turn Lane	175 feet (single lane)	150 feet	100 feet (single lane)	100 feet
Northbound Through/Right Lane		50 feet		50 feet



NE 107th Avenue / NE 119th Street

1



NE 117th Avenue / NE 119th Street

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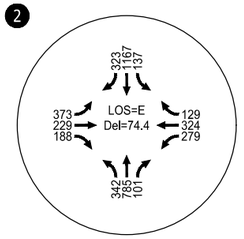
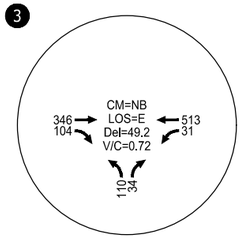


NE 124th Avenue / NE 119th Street

3



NE 132nd Avenue / NE 119th Street

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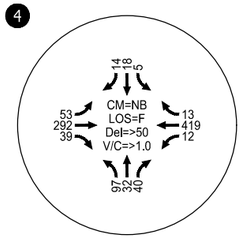

NE 152nd Avenue / NE 119th Street

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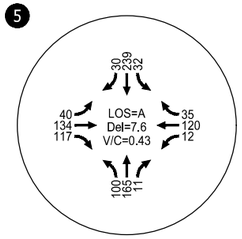
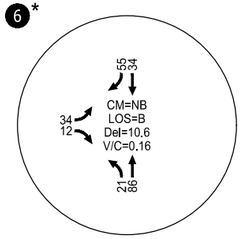


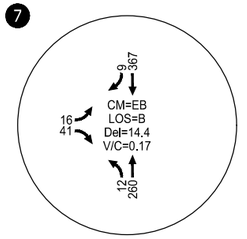
NE 132nd Avenue / NE 114th Street

6*



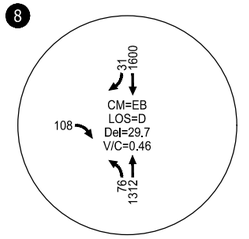
NE 152nd Avenue / NE 111th Street

7



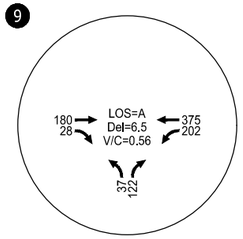
NE 117th Avenue / NE 107th Street

8



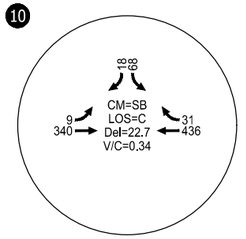
NE 107th Avenue / NE 99th Street

9



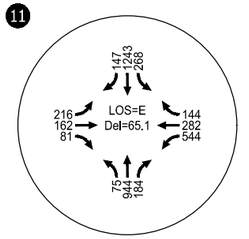
NE 115th Avenue / NE 99th Street

10



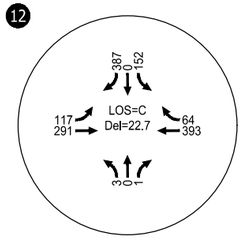
NE 117th Avenue / NE 99th Street

11



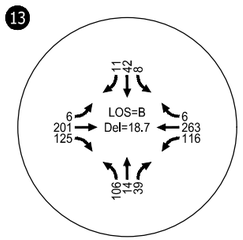
NE 124th Avenue / NE 99th Street

12



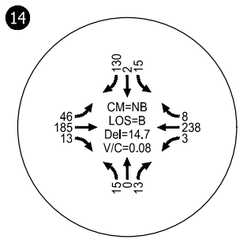
NE 137th Avenue / NE 99th Street

13



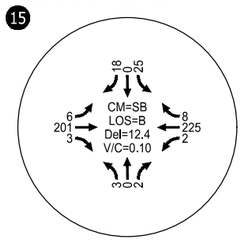
NE 142nd Avenue / NE 99th Street

14



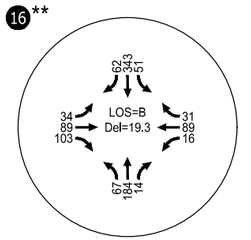
NE 144th Avenue / NE 99th Street

15



NE 152nd Avenue / NE 99th Street

16**



* The lane configuration at this intersection is not compatible with the HCM 7th Edition. As a result, the intersection operations are shown using HCM 2000.
** This intersection is assumed to be signalized by the year 2027.

CM = CRITICAL MOVEMENT (TWSC/ROUNDABOUT)
LOS = CRITICAL MOVEMENT LEVEL OF SERVICE (TWSC/ROUNDABOUT) / INTERSECTION LEVEL OF SERVICE (AWSC/SIGNAL)
Del = CRITICAL MOVEMENT CONTROL DELAY (TWSC/ROUNDABOUT) / INTERSECTION CONTROL DELAY (AWSC/SIGNAL)
V/C = CRITICAL VOLUME-TO-CAPACITY RATIO (TWSC/ROUNDABOUT)

Year 2029 Total Traffic Volumes
Weekday AM Peak Hour
Clark County, Washington

Figure 10

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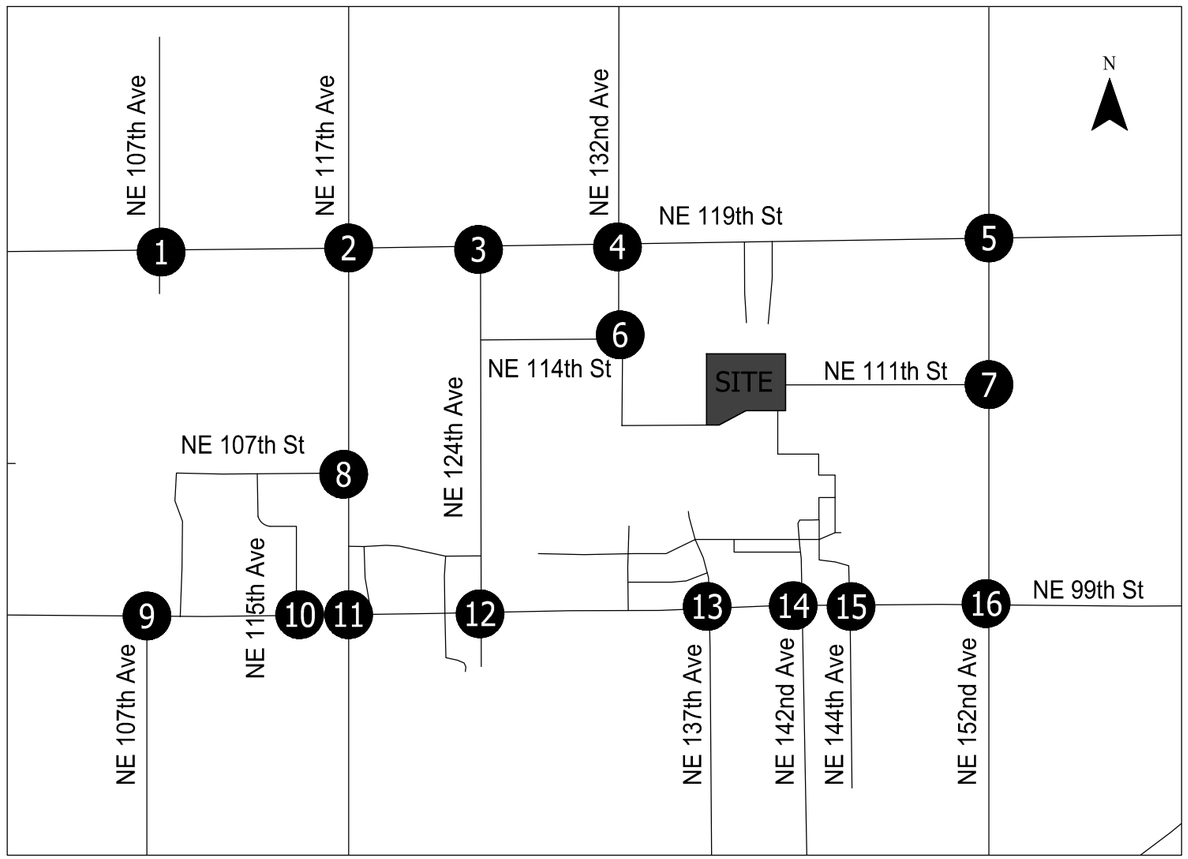

NE 107th Avenue / NE 119th Street
1
CM=NB
LOS=C
Del=24.1
V/C=0.17
1 0 8
2 1117 32
5 827 19
19 0 17

NE 117th Avenue / NE 119th Street
2
LOS=F
Del=83.3
324 1041 300
584 492 215
84 272 123
425 1130 201

NE 124th Avenue / NE 119th Street
3
CM=NB
LOS=E
Del=42.4
V/C=0.61
682 185
357 49
89 44

NE 132nd Avenue / NE 119th Street
4
CM=NB
LOS=F
Del=>50
V/C=0.97
28 33 36
64 570 84
13 335 36
51 30 19

NE 152nd Avenue / NE 119th Street
5
LOS=A
Del=6.5
V/C=0.38
29 165 11
41 141 142
27 90 10
94 281 14

NE 132nd Avenue / NE 114th Street
6*
CM=NB
LOS=B
Del=10.8
V/C=0.11
47 81
49 30
10 57

NE 152nd Avenue / NE 111th Street
7
CM=EB
LOS=B
Del=12.2
V/C=0.04
15 317
5 16
21 404

NE 117th Avenue / NE 107th Street
8
CM=NB
LOS=C
Del=20.0
V/C=0.43
51 1469
77
170 1814

NE 107th Avenue / NE 99th Street
9
LOS=A
Del=6.3
V/C=0.42
271 50
319 169
56 316

NE 115th Avenue / NE 99th Street
10
CM=SB
LOS=C
Del=21.0
V/C=0.21
14 43
28 460
53 446

NE 117th Avenue / NE 99th Street
11
LOS=E
Del=59.1
156 1103 262
199 235 74
196 251 422
120 1557 397

NE 124th Avenue / NE 99th Street
12
LOS=B
Del=16.6
273 0 142
339 423
172 404
1 1 3

NE 137th Avenue / NE 99th Street
13
LOS=C
Del=20.8
11 25 26
13 323 159
9 212 81
192 49 142

NE 142nd Avenue / NE 99th Street
14
CM=NB
LOS=C
Del=21.2
V/C=0.12
83 1 11
138 317 23
15 203 6
16 12 28

NE 144th Avenue / NE 99th Street
15
CM=SB
LOS=B
Del=12.5
V/C=0.08
20 0 17
12 314 4
30 204 2
2 1 5

NE 152nd Avenue / NE 99th Street
16**
LOS=B
Del=17.7
55 305 41
105 127 100
52 86 12
90 385 17

* The lane configuration at this intersection is not compatible with the HCM 7th Edition. As a result, the intersection operations are shown using HCM 2000.
** This intersection is assumed to be signalized by the year 2027.

CM = CRITICAL MOVEMENT (TWSC/ROUNDABOUT)
LOS = CRITICAL MOVEMENT LEVEL OF SERVICE (TWSC/ROUNDABOUT) / INTERSECTION LEVEL OF SERVICE (AWSC/SIGNAL)
Del = CRITICAL MOVEMENT CONTROL DELAY (TWSC/ROUNDABOUT) / INTERSECTION CONTROL DELAY (AWSC/SIGNAL)
V/C = CRITICAL VOLUME-TO-CAPACITY RATIO (TWSC/ROUNDABOUT)

Year 2029 Total Traffic Volumes
Weekday PM Peak Hour
Clark County, Washington

Figure 11

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Concurrency Corridor V/C Ratios

Year 2029 total traffic volumes were compared with adopted Clark County capacity thresholds by roadway segment as shown in Table 9.

Table 9: Year 2029 Total Traffic Volumes and Roadway Capacities

Count Location	Road Classification[1]	Single Direction Capacity/Hour[2]	PM Volume (vph)[3]	V/C Ratio
NE 119th Street between				
NE 107th Avenue and NE 117th Avenue (EB)	Urban Minor Arterial (M-4cb)	1800	1291	0.72
NE 117th Avenue and NE 107th Avenue (WB)			1021	0.57
NE 119th Street between				
NE 117th Avenue and NE 124th Avenue (EB)	Urban Minor Arterial (M-2cb)	900	993	**1.10**
NE 124th Avenue and NE 117th Avenue (WB)			479	0.53
NE 119th Street between				
NE 124th Avenue and NE 132nd Avenue (EB)	Urban Minor Arterial (M-2cb)	900	726	0.81
NE 132nd Avenue and NE 124th Avenue (WB)			414	0.46
NE 119th Street between				
NE 132nd Avenue and NE 152nd Avenue (EB)	Urban Minor Arterial (M-2cb)	700	595	0.85
NE 152nd Avenue and NE 132nd Avenue (WB)			384	0.55
NE 124th Avenue between				
NE 99th Street and NE 119th Street (NB)	Urban Collector (C-2)	700	512	0.73
NE 119th Street and NE 99th Street (SB)			415	0.59
NE 132nd Avenue between				
NE 114th Street and NE 119th Street (NB)	Urban Minor Arterial (M-2cb)	900	106	0.12
NE 119th Street and NE 114th Street (SB)			153	0.17
NE 152nd Avenue between				
NE 111th Street and NE 119th Street (NB)	Urban Collector (C-2)	700	409	0.58
NE 119th Street and NE 111th Street (SB)			332	0.47
NE 152nd Avenue between				
NE 99th Street and NE 111th Street (NB)	Urban Collector (C-2)	700	542	0.77
NE 111th Street and NE 99th Street (SB)			401	0.57
NE 99th Street between				
NE 107th Street and NE 115th Street (EB)	Urban Minor Arterial (M-2cb)	900	587	0.65
NE 115th Street and NE 107th Street (WB)			488	0.54
NE 99th Street between				
NE 115th Street and NE 117th Street (EB)	Urban Minor Arterial (M-2cb)	900	508	0.56
NE 117th Street and NE 115th Street (WB)			527	0.59
NE 99th Street between				
NE 117th Avenue and NE 124th Avenue (EB)	Urban Minor Arterial (M-2cb)	900	894	**0.99**
NE 124th Avenue and NE 117th Avenue (WB)			869	**0.97**
NE 99th Street between				
NE 124th Avenue and NE 137th Avenue (EB)	Urban Minor Arterial (M-2cb)	900	568	0.63
NE 137th Avenue and NE 124th Avenue (WB)			578	0.64
NE 99th Street between				
NE 137th Avenue and NE 142nd Avenue (EB)	Urban Minor Arterial (M-2cb)	900	478	0.53
NE 142nd Avenue and NE 137th Avenue (WB)			302	0.34
NE 99th Street between				
NE 142nd Avenue and NE 144th Avenue (EB)	Urban Minor Arterial (M-2cb)	900	336	0.37
NE 144th Avenue and NE 142nd Avenue (WB)			226	0.25
NE 99th Street between				
NE 144th Avenue and NE 152nd Avenue (EB)	Urban Minor Arterial (M-2cb)	700	336	0.48
NE 152nd Avenue and NE 144th Avenue (WB)			236	0.34

Bold text and shading indicate corridor segments with V/C ratios >0.90.

[1] Source: Clark County Arterial Atlas (Reference 5)

[2] Per CCC Section 40.350.020.G.1.a: In determining the capacity for roadways built-out to county standards, the capacity shall be based on the factors described in Table 40.350.020-1, Roadway Capacities. For roadways not fully built-out to county standards, the capacity shall be determined based on the current roadway condition. For roadways with lane widths twelve (12) feet and greater, and with paved shoulder widths two (2) feet and greater, the lane capacity shall be eight hundred (800) vehicles per hour. For roadways with lane widths between eleven (11) and twelve (12) feet and with paved shoulder widths two (2) feet and greater, the lane capacity shall be seven hundred (700) vehicles per hour. For roadways with lane widths less than eleven (11) feet, the lane capacity shall be six hundred (600) vehicles per hour.

[3] vph: vehicles per hour

As shown in Table 9, three of the study concurrency corridor segments are projected to exceed the 0.90 V/C ratio criteria under year 2029 PM peak hour total traffic conditions.

The eastbound segment of NE 119th Street between NE 117th Avenue and NE 124th Avenue is projected to operate at a V/C ratio of 1.10 (compared to 1.09 under background traffic conditions). The proposed development is estimated to add 16 PM peak hour trips to this segment. We note NE 119th Street has separate eastbound through and right-turn lanes at NE 122nd Avenue (local) and NE 124th Avenue (regionally significant collector), increasing the theoretical eastbound carrying capacity at those two public street intersections. The projected eastbound V/C ratio is less than 0.90 east of NE 124th Avenue. A more detailed operational analysis should be performed before the County makes any major design, reconstruction or investment decisions for this corridor or future development fronting the roadway segment.

Consistent with background conditions, the NE 99th Street segment between NE 117th Avenue and NE 124th Avenue is projected to continue to operate at a V/C ratio over 0.90 with a forecast V/C ratio of 0.99 and 0.97 for the eastbound and westbound directions, respectively. The proposed development is estimated to add 35 eastbound weekday PM peak hour trips and 21 westbound weekday PM peak hour trips to this segment. The segment does not exceed a V/C of 1.00, meaning there is still capacity on the roadway. The intersections of NE 124th Avenue/NE 99th Street and NE 117th Avenue/NE 99th Street are expected to operate at an acceptable LOS and delay. Therefore, the over-capacity V/C ratio does not represent a roadway deficiency, rather corridor mobility facilitated with acceptable signalized intersection LOS. The NE 99th Street corridor segment appears to be constructed to its planned ultimate 3-lane configuration and it is unclear what, if any, additional capacity can be provided along the corridor. A more detailed operational analysis should be performed before the County makes any major design, reconstruction or investment decisions for this corridor.

SITE ACCESS CONSIDERATIONS

This section covers various site access considerations for the Heartwood North development.

NE 132nd Avenue & NE 114th Street Intersection Traffic Control Considerations

The *Clark County Arterial Atlas* (Reference 5) identifies a planned north/south minor arterial (M-2cb) connection from the current southern terminus of NE 132nd Avenue south to NE 99th Street at NE 137th Avenue. When this connection is constructed by others in the future, it is anticipated that the eastbound and westbound approaches to the NE 132nd Avenue & NE 114th Street intersection will be stop-controlled, and NE 132nd Avenue will operate as a free-flow major street movement. Future widening and reconfiguration of the existing intersection approaches by others is anticipated as half-street improvements are completed and the intersection evolves to its planned ultimate configuration.

Sight Distance Review

Sight distance was not analyzed as the site access will be an extension of existing NE 109th Street and NE 111th Street. On-site and off-site landscaping and any above ground utilities at the individual residential driveways and along internal roadways should be installed and maintained to provide adequate sight distance per Clark County requirements.

FINDINGS AND RECOMMENDATIONS

The results of this transportation impact study indicate that the proposed Heartwood North development can be developed while complying with Clark County concurrency requirements. The findings of this analysis and our recommendations are discussed below.

Findings

- All study intersections operate acceptably during the weekday AM and weekday PM peak hours under existing conditions.
- Historical crash data for the study area intersections indicate no patterns or trends that require mitigation associated with the proposed Heartwood North development.
- All but two study intersections are projected to operate acceptably during the 2029 weekday AM and PM peak hours background traffic conditions:
    - The NE 124th Avenue/NE 119th Street intersection is projected to operate at LOS E under both AM and PM peak hour periods, and signal warrants are met.
    - The NE 132nd Avenue/NE 119th Street intersection is projected to operate at LOS F under both AM and PM peak hour periods, and Signal Warrant 1 (Eight-Hour) is not met while Signal Warrant 2 (Four-Hour) is met.
- All but three study corridor segments operate within the County's 0.90 V/C standard under year 2029 background traffic conditions. The three segments that exceed this standard are:
    - The eastbound segment of NE 119th Street between NE 117th Avenue and NE 124th Avenue with a projected V/C ratio of 1.09.
    - Both eastbound and westbound directions on NE 99th Street between NE 117th Avenue and NE 124th Avenue with projected V/C ratios at 0.94 and 0.95, respectively.
- All but two study intersections are projected to operate acceptably during the 2029 weekday AM and PM peak hours total traffic conditions with the addition of site-generated trips.
    - The northbound NE 124th Avenue/NE 119th Street intersection approach is projected to operate at LOS E under both AM and PM peak hour periods, and signal warrants

are met. The proposed development is only projected to add vehicle trips to the eastbound and westbound through movements and not to the northbound approach that is operating at LOS E. Accordingly, no mitigation is recommended in conjunction with the proposed site development per CCC Section 40.350.020.G.1.c.1 (the proposed development adds fewer than five (5) peak hour trips to the failing intersection approach).

- The northbound approach to the NE 132nd Avenue/NE 119th Street intersection is projected to operate at LOS F under both AM and PM peak hour periods. The site-generated trip impact can be mitigated in conjunction with the proposed development by widening the northbound NE 132nd Avenue approach within the existing public right-of-way to provide a northbound left-turn lane with at least 150 feet of storage and a shared through/right-turn lane.

- The same three concurrency corridor segments that exceed the County's 0.90 V/C standard under year 2029 background traffic conditions also do so under total traffic conditions as follows.
  - The eastbound segment of NE 119th Street between NE 117th Avenue and NE 124th Avenue is projected to operate at a V/C ratio of 1.10.
  - The segment NE 99th Street between NE 117th Avenue and NE 124th Avenue is projected to operate at a V/C ratio of 0.99 and 0.97 for the eastbound and westbound directions, respectively.

Recommendations

Based on the traffic operations analysis findings, we recommend the following in conjunction with the proposed site development.

- The project widens the northbound NE 132nd Avenue approach within the existing public right-of-way to provide a northbound left-turn lane with at least 150 feet of storage and a shared through/right-turn lane.
- Above-ground utilities, monuments, fencing, and vegetation be appropriately located and maintained on-site to preserve adequate intersection sight lines per Clark County Standards.

We trust this transportation impact study adequately addresses the traffic impacts associated with the proposed Heartwood North development. Please contact us if you have any questions or comments regarding the contents of this report or the analyses performed.

REFERENCES

1. Transportation Research Board. *Highway Capacity Manual, 7th Edition*. 2022.

2. Transportation Research Board. *2000 Highway Capacity Manual*. 2000.

3. Washington State Department of Transportation. *WSDOT Sidra Policy Settings*. Available online at https://wsdot.wa.gov/sites/default/files/2021-03/TrafficOps-WSDOTSidraPolicyAndSettings.pdf

4. Washington State Department of Transportation. *2007-2026 Highway System Plan*. December 2007.

5. Clark County, Washington. *Arterial Atlas.* https://clark.wa.gov/sites/default/files/dept/files/public-works/Traffic/ArterialAtlasMap.pdf accessed January 2024.

6. C-Tran. *www.c-tran.com* accessed January 2025.

7. Clark County, Washington. *2026-2031 Clark County Transportation Improvement Program (TIP).* November 2023.

8. Institute of Transportation Engineers. *Trip Generation, 12th Edition*. 2025.

APPENDICES

A. Traffic Counts
B. Existing Conditions Traffic Analysis Worksheets
C. Crash Data
D. In-Process Trips
E. Year 2029 Background Traffic Analysis Worksheets
F. Signal Warrant Analysis Sheets
G. Year 2029 Total Traffic Analysis Worksheets
H. Year 2029 Mitigated Total Traffic Analysis Worksheets

Appendix A Traffic Counts

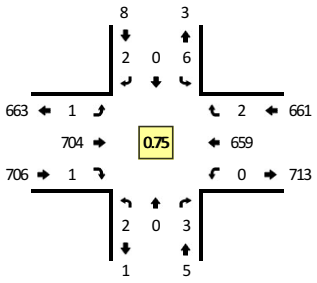
Type of peak hour being reported: Intersection Peak

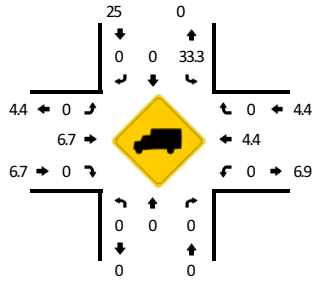
Method for determining peak hour: Total Entering Volume

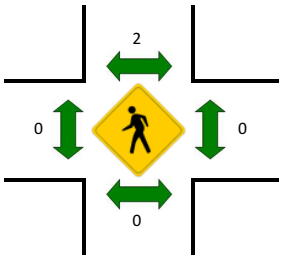
LOCATION: NE 107th Ave -- NE 119th St
CITY/STATE: Five Corners, WA

QC JOB #: 17374601
DATE: Thu, Dec 11 2025

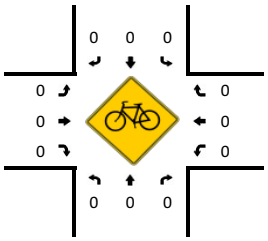
Peak-Hour: 7:15 AM -- 8:15 AM
Peak 15-Min: 7:40 AM -- 7:55 AM

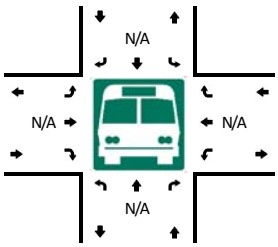


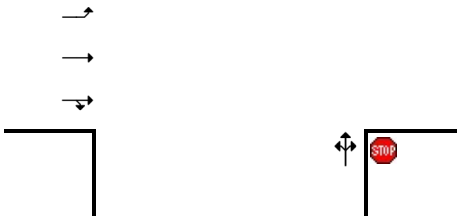


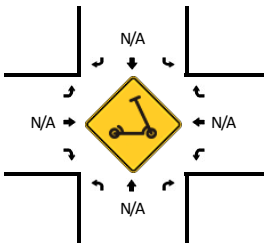












R* = RTOR

5-Min Count Period Beginning At	NE 107th Ave (Northbound)					NE 107th Ave (Southbound)					NE 119th St (Eastbound)					NE 119th St (Westbound)					Total	Hourly Totals
	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*		
7:00 AM	0	0	0	0	0	0	0	1	0	0	0	37	0	0	0	0	36	0	0	0	74	
7:05 AM	0	0	0	0	0	0	0	0	0	0	0	29	0	0	0	0	48	0	0	0	77	
7:10 AM	0	0	0	0	0	1	0	0	0	0	0	32	0	0	0	0	49	0	0	0	82	
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	34	0	0	0	0	62	0	0	0	96	
7:20 AM	0	0	2	0	0	0	0	0	0	0	0	43	0	0	0	0	54	0	0	0	99	
7:25 AM	1	0	0	0	0	0	0	0	0	0	0	66	0	0	0	0	51	0	0	0	118	
7:30 AM	0	0	0	0	0	0	0	1	0	0	0	66	0	0	0	0	36	0	0	0	103	
7:35 AM	0	0	0	0	0	1	0	0	0	0	0	73	0	0	0	0	51	0	0	0	125	
7:40 AM	0	0	0	0	0	1	0	0	0	0	0	79	0	0	0	0	73	0	0	0	153	
7:45 AM	0	0	1	0	0	1	0	0	0	0	0	85	0	0	0	0	62	0	0	0	149	
7:50 AM	0	0	0	0	0	0	0	0	0	0	0	72	0	0	0	0	88	1	0	0	161	
7:55 AM	1	0	0	0	0	1	0	0	0	0	0	40	0	0	0	0	60	0	0	0	102	1339
8:00 AM	0	0	0	0	0	1	0	0	0	0	0	61	0	0	0	0	35	0	0	0	97	1362
8:05 AM	0	0	0	0	0	0	0	1	0	0	0	54	1	0	0	0	37	0	0	0	93	1378
8:10 AM	0	0	0	0	0	1	0	0	0	0	1	31	0	0	0	0	50	1	0	0	84	1380
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	25	0	0	0	0	39	0	0	0	64	1348
8:20 AM	0	0	0	0	0	0	0	0	0	0	0	42	0	0	0	2	55	0	0	0	99	1348
8:25 AM	0	0	0	0	0	0	0	0	0	0	0	38	0	0	0	0	37	0	0	0	75	1305
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	36	0	0	0	0	47	0	0	0	83	1285
8:35 AM	0	0	0	0	0	1	0	2	0	0	0	33	0	0	0	0	40	0	0	0	76	1236
8:40 AM	0	0	0	0	0	0	0	0	0	0	0	41	1	0	0	0	48	0	0	0	90	1173
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	34	0	0	0	0	48	2	0	0	84	1108
8:50 AM	0	0	0	0	0	0	0	1	0	0	0	43	0	0	0	0	47	0	0	0	91	1038
8:55 AM	1	0	0	0	0	0	0	0	0	0	1	45	0	0	0	0	43	1	0	0	91	1027

Peak 15-Min Flowrates	Northbound					Southbound					Eastbound					Westbound					Total
	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	
All Vehicles	0	0	4	0	0	8	0	0	0	0	0	944	0	0	0	0	892	4	0	0	1852
Heavy Trucks	0	0	0			4	0	0			0	56	0			0	24	0			84
Buses																					
Pedestrians		0					8					0					0				8
Bicycles	0	0	0			0	0	0			0	0	0			0	0	0			0
Scooters																					

Comments:

Report generated on 12/18/2025 11:13 AM

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

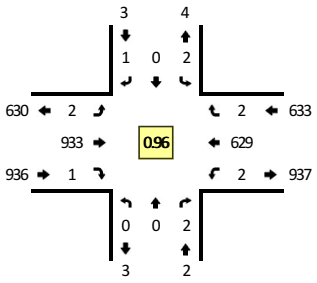
Type of peak hour being reported: Intersection Peak

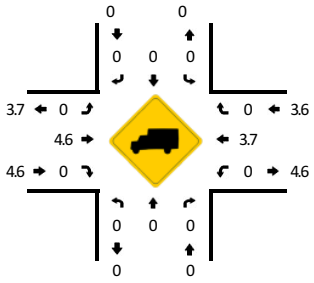
Method for determining peak hour: Total Entering Volume

LOCATION: NE 107th Ave -- NE 119th St
CITY/STATE: Five Corners, WA

QC JOB #: 17374602
DATE: Thu, Dec 11 2025

Peak-Hour: 4:00 PM -- 5:00 PM
Peak 15-Min: 4:30 PM -- 4:45 PM





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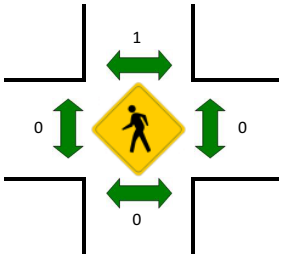
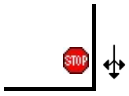
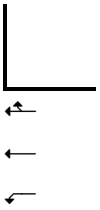
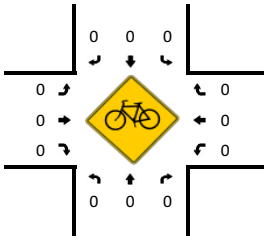
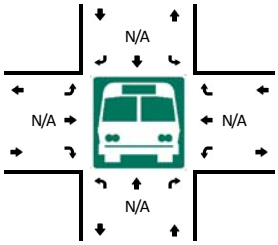
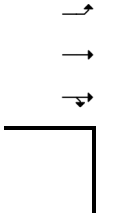


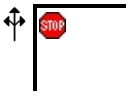


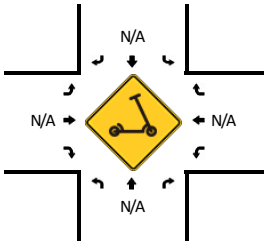












R* = RTOR

5-Min Count Period Beginning At	NE 107th Ave (Northbound)					NE 107th Ave (Southbound)					NE 119th St (Eastbound)					NE 119th St (Westbound)					Total	Hourly Totals
	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*		
4:00 PM	0	0	0	0	0	1	0	0	0	0	0	78	0	0	0	0	47	1	0	0	127	
4:05 PM	0	0	0	0	0	0	0	1	0	0	0	74	0	0	0	0	43	0	0	0	118	
4:10 PM	0	0	1	0	0	1	0	0	0	0	0	79	1	0	0	1	55	0	0	0	138	
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	71	0	0	0	0	54	1	0	0	126	
4:20 PM	0	0	0	0	0	0	0	0	0	0	0	78	0	0	0	0	50	0	0	0	128	
4:25 PM	0	0	0	0	0	0	0	0	0	0	0	81	0	0	0	0	58	0	0	0	139	
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	77	0	0	0	0	53	0	0	0	130	
4:35 PM	0	0	0	0	0	0	0	0	0	0	0	88	0	0	0	0	46	0	0	0	134	
4:40 PM	0	0	1	0	0	0	0	0	0	0	0	80	0	0	0	1	66	0	0	0	148	
4:45 PM	0	0	0	0	0	0	0	0	0	0	1	64	0	0	0	0	49	0	0	0	114	
4:50 PM	0	0	0	0	0	0	0	0	0	0	1	78	0	0	0	0	53	0	0	0	132	
4:55 PM	0	0	0	0	0	0	0	0	0	0	0	85	0	0	0	0	55	0	0	0	140	1574
5:00 PM	1	0	0	0	0	0	0	0	0	0	1	75	0	0	0	0	41	0	0	0	118	1565
5:05 PM	0	0	0	0	0	0	0	0	0	0	0	68	0	0	0	0	48	0	0	0	116	1563
5:10 PM	0	0	0	0	0	1	0	0	0	0	0	82	0	0	0	0	50	0	0	0	133	1558
5:15 PM	0	0	0	0	0	0	0	1	0	0	0	77	0	0	0	0	39	2	0	0	119	1551
5:20 PM	0	0	0	0	0	0	0	0	0	0	0	85	1	0	0	0	52	0	0	0	138	1561
5:25 PM	0	0	0	0	0	0	0	0	0	0	0	55	0	0	0	0	56	2	0	0	113	1535
5:30 PM	0	0	1	0	0	1	0	1	0	0	0	85	0	0	0	0	49	0	0	0	137	1542
5:35 PM	0	0	0	0	0	0	0	0	0	0	0	69	0	0	0	0	46	1	0	0	116	1524
5:40 PM	0	0	0	0	0	0	0	1	0	0	0	66	0	0	0	0	49	0	0	0	116	1492
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	73	0	0	0	0	48	0	0	0	121	1499
5:50 PM	0	1	0	0	0	2	0	0	0	0	1	54	0	0	0	0	58	0	0	0	116	1483
5:55 PM	0	0	0	0	0	2	0	0	0	0	0	46	0	0	0	0	37	0	0	0	85	1428

Peak 15-Min Flowrates	Northbound					Southbound					Eastbound					Westbound					Total
	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	
All Vehicles	0	0	4	0	0	0	0	0	0	0	0	980	0	0	0	4	660	0	0	0	1648
Heavy Trucks	0	0	0			0	0	0			0	36	0			0	16	0			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 12/18/2025 11:13 AM

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

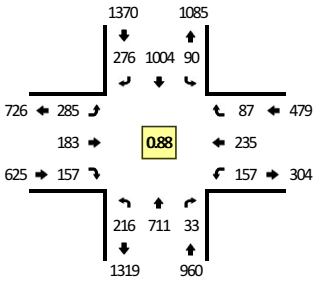
Type of peak hour being reported: Intersection Peak

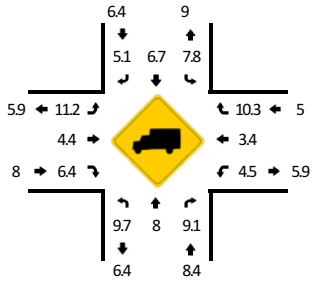
Method for determining peak hour: Total Entering Volume

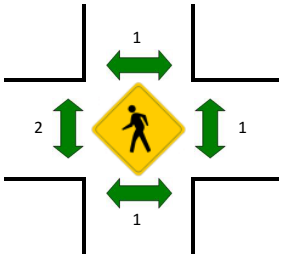
LOCATION: NE 117th Ave (SR 503) -- NE 119th St
CITY/STATE: Brush Prairie, WA

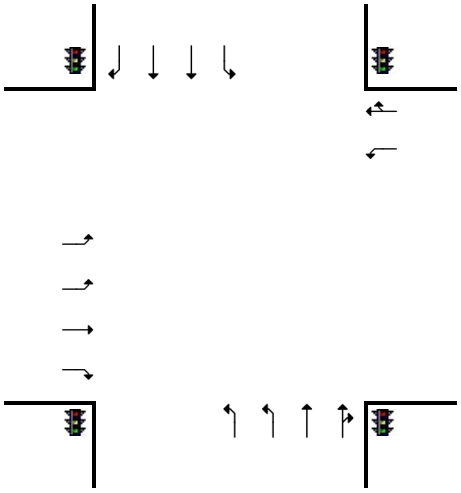
QC JOB #: 17374603
DATE: Thu, Dec 11 2025

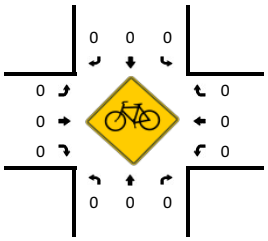
Peak-Hour: 7:15 AM -- 8:15 AM
Peak 15-Min: 7:45 AM -- 8:00 AM

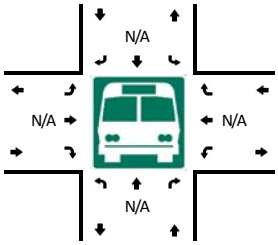


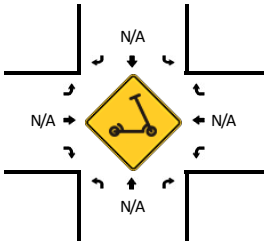












R* = RTOR

5-Min Count Period Beginning At	NE 117th Ave (SR 503) (Northbound)					NE 117th Ave (SR 503) (Southbound)					NE 119th St (Eastbound)					NE 119th St (Westbound)					Total	Hourly Totals
	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*		
7:00 AM	8	35	5	0	1	4	62	16	0	4	11	11	4	0	4	8	22	3	0	0	198	
7:05 AM	9	41	2	0	0	6	102	19	0	5	8	5	3	0	2	6	16	3	0	1	228	
7:10 AM	15	65	2	0	0	3	80	18	0	7	15	3	4	0	2	7	17	5	0	0	243	
7:15 AM	11	40	0	0	0	4	87	25	0	2	19	13	2	0	5	13	24	9	0	0	254	
7:20 AM	30	56	4	0	0	3	64	14	0	5	13	14	4	0	3	7	22	7	0	0	246	
7:25 AM	18	50	3	0	0	4	96	16	1	7	22	12	4	0	4	13	21	7	0	0	278	
7:30 AM	15	78	4	0	0	8	83	16	0	6	17	15	14	0	2	13	23	5	0	0	299	
7:35 AM	19	56	2	0	1	7	98	17	0	7	22	13	11	0	2	17	21	8	0	0	301	
7:40 AM	22	44	0	0	0	8	75	26	0	9	34	16	10	0	10	13	19	8	0	0	294	
7:45 AM	30	67	1	0	0	12	88	21	0	2	24	13	18	0	1	17	25	6	0	1	326	
7:50 AM	21	84	4	1	0	5	101	26	0	7	29	12	9	0	3	21	15	11	0	0	349	
7:55 AM	17	62	0	0	0	7	81	13	1	2	33	21	10	0	4	21	22	12	0	0	306	3322
8:00 AM	13	70	3	0	0	8	73	11	0	2	24	24	6	0	2	4	12	4	0	0	256	3380
8:05 AM	8	66	7	0	0	11	78	15	0	4	23	12	2	0	6	9	13	6	0	0	260	3412
8:10 AM	11	38	4	0	0	11	80	18	0	5	25	18	19	0	6	9	18	3	0	0	265	3434
8:15 AM	8	34	2	0	0	12	85	5	1	8	14	11	4	0	2	10	21	5	0	1	223	3403
8:20 AM	16	46	1	0	2	10	106	19	2	10	11	10	9	0	4	5	20	2	0	0	273	3430
8:25 AM	7	51	5	0	0	9	118	21	0	2	11	10	7	0	2	0	14	4	0	0	261	3413
8:30 AM	17	53	2	0	0	9	58	11	0	4	15	18	2	0	1	8	11	7	0	4	220	3334
8:35 AM	10	46	3	0	0	5	53	10	0	10	20	13	13	0	0	10	24	8	0	1	226	3259
8:40 AM	25	56	1	0	0	7	65	14	0	3	14	12	7	0	3	4	22	7	0	1	241	3206
8:45 AM	24	64	8	0	0	11	85	18	0	3	19	14	10	0	4	2	14	10	0	1	287	3167
8:50 AM	9	76	1	0	0	12	97	3	0	6	15	15	7	0	5	6	16	11	0	0	279	3097
8:55 AM	22	61	2	0	1	10	69	9	0	7	10	13	5	0	4	7	21	13	0	0	254	3045

Peak 15-Min Flowrates	Northbound					Southbound					Eastbound					Westbound					Total
	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	
All Vehicles	272	852	20	4	0	96	1080	284	4	44	344	184	180	0	32	236	248	120	0	4	4004
Heavy Trucks	36	68	0			0	60	12			48	12	8			4	12	20			280
Buses																					
Pedestrians		0					0					0					0				0
Bicycles	0	0	0			0	0	0			0	0	0			0	0	0			0
Scooters																					

Comments:

Report generated on 12/18/2025 11:13 AM

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

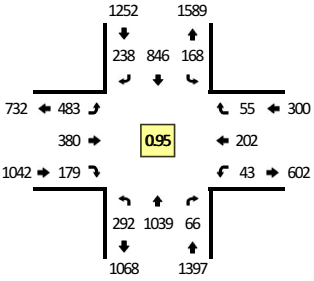
Type of peak hour being reported: Intersection Peak

Method for determining peak hour: Total Entering Volume

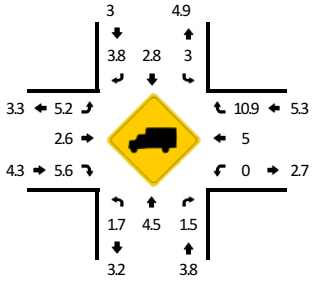
LOCATION: NE 117th Ave (SR 503) -- NE 119th St
CITY/STATE: Brush Prairie, WA

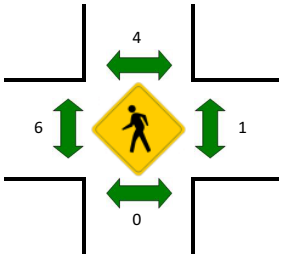
QC JOB #: 17374604
DATE: Thu, Dec 11 2025

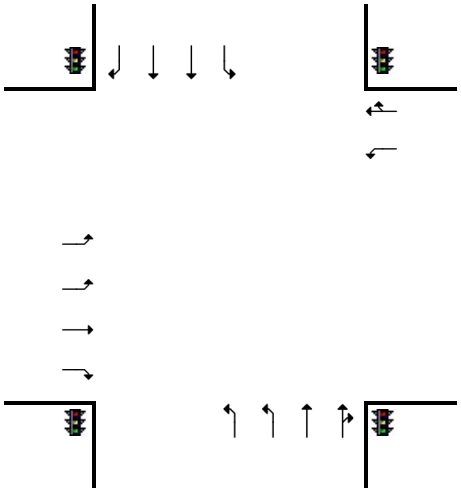
Peak-Hour: 4:00 PM -- 5:00 PM
Peak 15-Min: 4:15 PM -- 4:30 PM

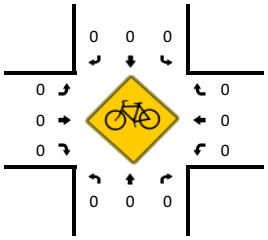


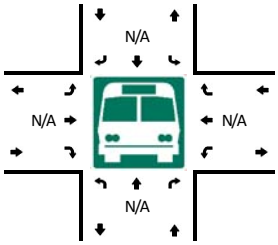


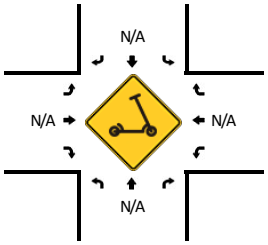












R* = RTOR

5-Min Count Period Beginning At	NE 117th Ave (SR 503) (Northbound)					NE 117th Ave (SR 503) (Southbound)					NE 119th St (Eastbound)					NE 119th St (Westbound)					Total	Hourly Totals
	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*		
4:00 PM	10	95	4	0	1	2	75	15	0	0	47	33	11	0	7	2	13	3	0	1	319	
4:05 PM	20	101	8	0	0	20	87	18	0	9	22	19	9	0	5	3	15	6	0	0	342	
4:10 PM	22	78	5	0	1	14	70	10	3	11	34	41	19	0	4	2	13	5	0	0	332	
4:15 PM	17	88	5	0	0	10	76	15	2	8	52	50	5	0	2	2	25	1	0	0	358	
4:20 PM	28	99	6	0	0	18	77	19	3	0	42	24	12	0	3	4	10	4	0	0	349	
4:25 PM	29	97	3	0	0	15	60	18	1	4	34	33	11	0	1	5	27	2	0	2	342	
4:30 PM	30	55	7	0	1	10	35	8	1	5	51	28	10	0	3	4	18	6	0	0	272	
4:35 PM	21	114	1	0	0	10	76	15	1	1	34	29	12	0	3	4	19	5	0	0	345	
4:40 PM	25	74	10	0	0	17	73	25	1	2	37	36	10	0	7	0	10	3	0	1	331	
4:45 PM	32	83	4	0	0	19	81	18	0	3	45	25	6	0	1	8	16	3	0	0	344	
4:50 PM	31	61	5	0	0	13	51	14	0	3	46	32	16	0	2	3	20	9	0	3	309	
4:55 PM	27	94	4	0	1	8	85	13	0	4	39	30	15	0	5	6	16	1	0	0	348	3991
5:00 PM	36	91	6	0	0	8	53	15	0	2	15	19	18	0	9	7	22	3	0	1	305	3977
5:05 PM	35	59	6	0	0	12	57	7	0	4	36	43	8	0	4	7	24	5	0	0	307	3942
5:10 PM	27	75	6	0	0	21	66	14	1	4	27	33	8	0	4	3	20	10	0	0	319	3929
5:15 PM	11	93	7	0	0	11	71	11	0	5	41	34	11	0	3	6	23	6	0	0	333	3904
5:20 PM	25	103	6	0	1	13	89	24	0	3	49	17	9	0	4	7	12	0	0	0	362	3917
5:25 PM	28	102	7	0	0	12	78	17	0	1	31	19	16	0	4	5	17	5	0	1	343	3918
5:30 PM	19	67	5	0	1	18	54	19	0	3	25	33	10	0	5	2	25	3	0	1	290	3936
5:35 PM	14	76	4	0	0	11	59	7	0	3	49	32	6	0	6	6	19	5	0	0	297	3888
5:40 PM	32	90	14	0	1	21	80	17	0	3	42	22	9	0	3	3	6	1	0	0	344	3901
5:45 PM	37	80	4	0	0	18	73	6	0	4	11	21	8	0	2	4	28	4	0	1	301	3858
5:50 PM	21	64	6	0	0	13	64	19	0	1	45	41	8	0	4	3	24	5	0	0	318	3867
5:55 PM	14	68	5	0	3	9	48	11	0	0	33	24	3	0	7	3	26	4	0	0	258	3777

Peak 15-Min Flowrates	Northbound					Southbound					Eastbound					Westbound					Total
	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	
All Vehicles	296	1136	56	0	0	172	852	256	24	48	512	428	136	0	24	44	248	36	0	8	4276
Heavy Trucks	0	68	0			4	16	12			24	8	12			0	20	8			172
Buses																					
Pedestrians		0					8					8					0				16
Bicycles	0	0	0			0	0	0			0	0	0			0	0	0			0
Scooters																					

Comments:

Report generated on 12/18/2025 11:13 AM

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

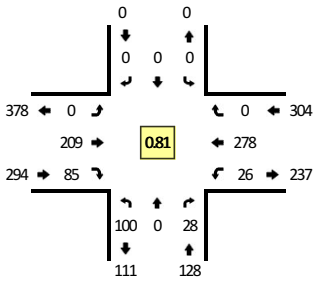
Type of peak hour being reported: Intersection Peak

Method for determining peak hour: Total Entering Volume

LOCATION: NE 124th Ave -- NE 119th St
CITY/STATE: Orchards, WA

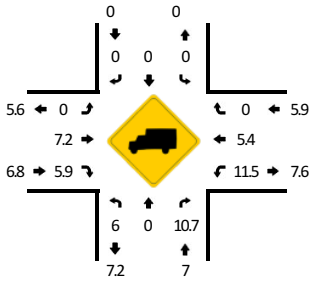
QC JOB #: 17374605
DATE: Thu, Dec 11 2025

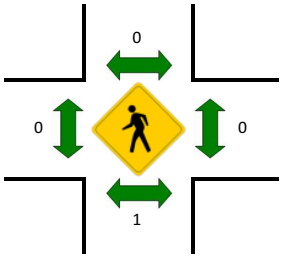
Peak-Hour: 7:15 AM -- 8:15 AM
Peak 15-Min: 7:35 AM -- 7:50 AM



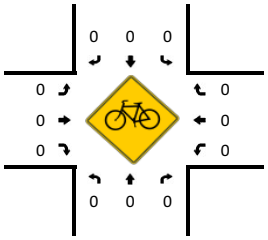


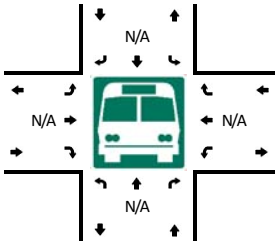
TRUE DATA TO IMPROVE MOBILITY



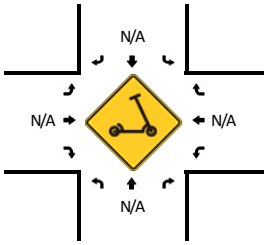












R* = RTOR

5-Min Count Period Beginning At	NE 124th Ave (Northbound)					NE 124th Ave (Southbound)					NE 119th St (Eastbound)					NE 119th St (Westbound)					Total	Hourly Totals
	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*		
7:00 AM	3	0	5	0	0	0	0	0	0	0	0	10	5	0	0	1	8	0	0	0	32	
7:05 AM	8	0	4	0	0	0	0	0	0	0	0	10	3	0	0	1	8	0	0	0	34	
7:10 AM	4	0	2	0	0	0	0	0	0	0	0	6	2	0	0	0	16	0	0	0	30	
7:15 AM	8	0	1	0	0	0	0	0	0	0	0	12	5	0	0	3	19	0	0	0	48	
7:20 AM	7	0	2	0	0	0	0	0	0	0	0	13	6	0	0	1	17	0	0	0	46	
7:25 AM	12	0	4	0	0	0	0	0	0	0	0	10	6	0	0	1	26	0	0	0	59	
7:30 AM	5	0	1	0	0	0	0	0	0	0	0	20	6	0	0	2	25	0	0	0	59	
7:35 AM	11	0	1	0	0	0	0	0	0	0	0	19	5	0	0	3	22	0	0	0	61	
7:40 AM	14	0	2	0	0	0	0	0	0	0	0	15	5	0	0	2	42	0	0	0	80	
7:45 AM	15	0	7	0	0	0	0	0	0	0	0	16	6	0	0	4	36	0	0	0	84	
7:50 AM	6	0	3	0	0	0	0	0	0	0	0	16	9	0	0	3	20	0	0	0	57	
7:55 AM	6	0	1	0	0	0	0	0	0	0	0	21	8	0	0	3	24	0	0	0	63	653
8:00 AM	5	0	5	0	0	0	0	0	0	0	0	27	10	0	0	0	12	0	0	0	59	680
8:05 AM	6	0	1	0	0	0	0	0	0	0	0	18	11	0	0	2	15	0	0	0	53	699
8:10 AM	5	0	0	0	0	0	0	0	0	0	0	22	8	0	0	2	20	0	0	0	57	726
8:15 AM	6	0	0	0	0	0	0	0	0	0	0	15	7	0	0	2	18	0	0	0	48	726
8:20 AM	9	0	1	0	0	0	0	0	0	0	0	13	9	0	0	0	9	0	0	0	41	721
8:25 AM	7	0	1	0	0	0	0	0	0	0	0	18	6	0	0	1	13	0	0	0	46	708
8:30 AM	9	0	3	0	0	0	0	0	0	0	0	25	8	0	0	1	12	0	0	0	58	707
8:35 AM	6	0	0	0	0	0	0	0	0	0	0	13	7	0	0	2	22	0	0	0	50	696
8:40 AM	12	0	1	0	0	0	0	0	0	0	0	17	3	0	0	1	12	0	0	0	46	662
8:45 AM	13	0	1	0	0	0	0	0	0	0	0	19	7	0	0	1	19	0	0	0	60	638
8:50 AM	18	0	1	0	0	0	0	0	0	0	0	17	8	0	0	2	16	0	0	0	62	643
8:55 AM	5	0	5	0	0	0	0	0	0	0	0	18	6	0	0	2	16	0	0	0	52	632

Peak 15-Min Flowrates	Northbound					Southbound					Eastbound					Westbound					Total
	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	
All Vehicles	160	0	40	0	0	0	0	0	0	0	0	200	64	0	0	36	400	0	0	0	900
Heavy Trucks	24	0	4			0	0	0			0	12	4			4	24	0			72
Buses																					
Pedestrians		0					0					0					0				0
Bicycles	0	0	0			0	0	0			0	0	0			0	0	0			0
Scooters																					

Comments:

Report generated on 12/18/2025 11:13 AM

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

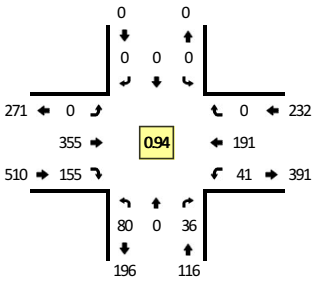
Type of peak hour being reported: Intersection Peak

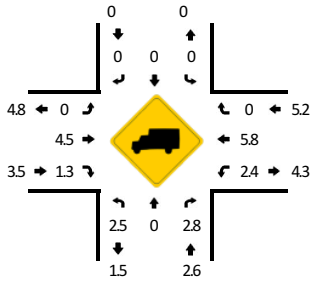
Method for determining peak hour: Total Entering Volume

LOCATION: NE 124th Ave -- NE 119th St
CITY/STATE: Orchards, WA

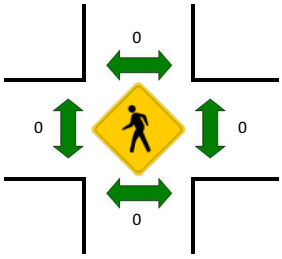
QC JOB #: 17374606
DATE: Thu, Dec 11 2025

Peak-Hour: 4:20 PM -- 5:20 PM
Peak 15-Min: 4:45 PM -- 5:00 PM

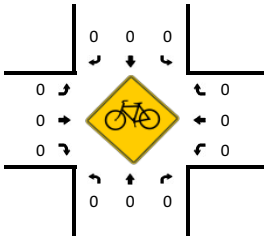


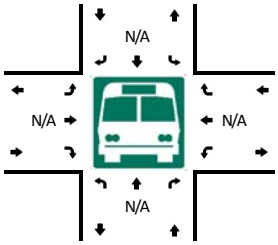


TRUE DATA TO IMPROVE MOBILITY

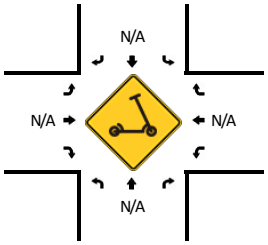












R* = RTOR

5-Min Count Period Beginning At	NE 124th Ave (Northbound)					NE 124th Ave (Southbound)					NE 119th St (Eastbound)					NE 119th St (Westbound)					Total	Hourly Totals
	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*		
4:00 PM	5	0	6	0	0	0	0	0	0	0	0	14	14	0	0	2	16	0	0	0	57	
4:05 PM	4	0	1	0	0	0	0	0	0	0	0	26	13	0	0	1	16	0	0	0	61	
4:10 PM	7	0	2	0	0	0	0	0	0	0	0	41	14	0	0	5	16	0	0	0	85	
4:15 PM	9	0	2	0	0	0	0	0	0	0	0	30	14	0	0	2	8	0	0	0	65	
4:20 PM	8	0	1	0	0	0	0	0	0	0	0	40	13	0	0	5	13	0	0	0	80	
4:25 PM	6	0	5	0	0	0	0	0	0	0	0	28	18	0	0	4	15	0	0	0	76	
4:30 PM	1	0	3	0	0	0	0	0	0	0	0	29	7	0	0	4	13	0	0	0	57	
4:35 PM	9	0	2	0	0	0	0	0	0	0	0	23	10	0	0	5	13	0	0	0	62	
4:40 PM	7	0	0	0	0	0	0	0	0	0	0	37	16	0	0	1	15	0	0	0	76	
4:45 PM	6	0	2	0	0	0	0	0	0	0	0	34	13	0	0	4	18	0	0	0	77	
4:50 PM	8	0	3	0	0	0	0	0	0	0	0	28	9	0	0	1	21	0	0	0	70	
4:55 PM	6	0	4	0	0	0	0	0	0	0	0	28	9	0	0	5	28	0	0	0	80	846
5:00 PM	8	0	3	0	0	0	0	0	0	0	0	26	12	0	0	2	10	0	0	0	61	850
5:05 PM	7	0	5	0	0	0	0	0	0	0	0	30	12	0	0	3	10	0	0	0	67	856
5:10 PM	6	0	7	0	0	0	0	0	0	0	0	25	19	0	0	4	17	0	0	0	78	849
5:15 PM	8	0	1	0	0	0	0	0	0	0	0	27	17	0	0	3	18	0	0	0	74	858
5:20 PM	1	0	2	0	0	0	0	0	0	0	0	25	14	0	0	1	10	0	0	0	53	831
5:25 PM	15	0	2	0	0	0	0	0	0	0	0	21	13	0	0	1	13	0	0	0	65	820
5:30 PM	5	0	6	0	0	0	0	0	0	0	0	24	11	0	0	3	19	0	0	0	68	831
5:35 PM	5	0	3	0	0	0	0	0	0	0	0	17	17	0	0	2	18	0	0	0	62	831
5:40 PM	4	0	7	0	0	0	0	0	0	0	0	30	23	0	0	5	20	0	0	0	89	844
5:45 PM	8	0	2	0	0	0	0	0	0	0	0	25	16	0	0	3	14	0	0	0	68	835
5:50 PM	17	0	2	0	0	0	0	0	0	0	0	31	15	0	0	3	7	0	0	0	75	840
5:55 PM	3	0	0	0	0	0	0	0	0	0	0	20	8	0	0	0	19	0	0	0	50	810

Peak 15-Min Flowrates	Northbound					Southbound					Eastbound					Westbound					Total
	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	
All Vehicles	80	0	36	0	0	0	0	0	0	0	0	360	124	0	0	40	268	0	0	0	908
Heavy Trucks	4	0	0			0	0	0			0	20	4			4	16	0			48
Buses																					
Pedestrians		0					0					0					0				0
Bicycles	0	0	0			0	0	0			0	0	0			0	0	0			0
Scooters																					

Comments:

Report generated on 12/18/2025 11:13 AM

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

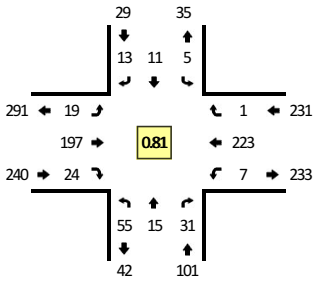
Type of peak hour being reported: Intersection Peak

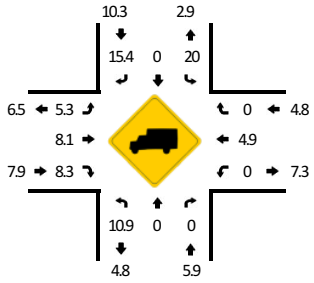
Method for determining peak hour: Total Entering Volume

LOCATION: NE 132nd Ave -- NE 119th St
CITY/STATE: Orchards, WA

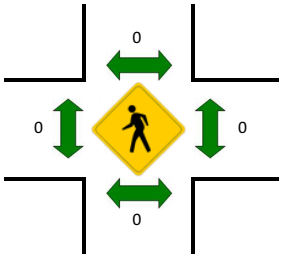
QC JOB #: 17374607
DATE: Thu, Dec 11 2025

Peak-Hour: 7:20 AM -- 8:20 AM
Peak 15-Min: 7:35 AM -- 7:50 AM

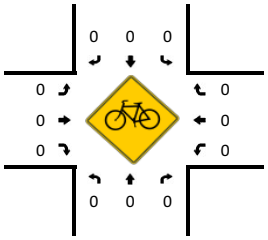


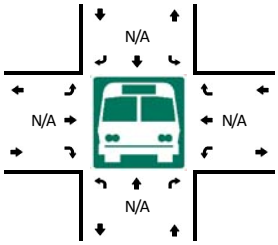


TRUE DATA TO IMPROVE MOBILITY

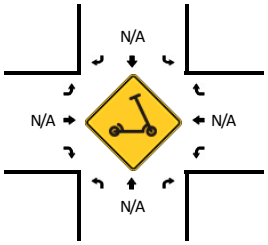












R* = RTOR

5-Min Count Period Beginning At	NE 132nd Ave (Northbound)					NE 132nd Ave (Southbound)					NE 119th St (Eastbound)					NE 119th St (Westbound)					Total	Hourly Totals
	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*		
7:00 AM	3	0	1	0	0	0	0	1	0	0	0	9	1	0	0	1	8	0	0	0	24	
7:05 AM	4	0	5	0	0	1	0	1	0	0	1	7	3	0	0	3	10	0	0	0	35	
7:10 AM	5	0	1	0	0	0	1	1	0	0	0	9	0	0	0	0	19	1	0	0	37	
7:15 AM	2	1	3	0	0	1	0	2	0	0	0	11	0	0	0	1	11	0	0	0	32	
7:20 AM	5	1	3	0	0	0	2	1	0	0	0	10	1	0	0	0	16	0	0	0	39	
7:25 AM	5	2	6	0	0	1	0	0	0	0	2	12	2	0	0	0	20	0	0	0	50	
7:30 AM	3	3	3	0	0	0	2	0	0	0	1	24	2	0	0	0	21	0	0	0	59	
7:35 AM	4	0	2	0	0	1	1	3	0	0	3	16	1	0	0	0	19	0	0	0	50	
7:40 AM	9	2	3	0	0	0	1	4	0	0	1	18	1	0	0	0	31	0	0	0	70	
7:45 AM	7	1	6	0	0	0	1	2	0	0	3	12	2	0	0	1	31	0	0	0	66	
7:50 AM	4	4	3	0	0	1	1	1	0	0	3	14	1	0	0	2	11	1	0	0	46	
7:55 AM	4	0	3	0	0	0	1	0	0	0	3	22	3	0	0	2	22	0	0	0	60	568
8:00 AM	2	1	0	0	0	0	1	1	0	0	2	21	5	0	0	0	10	0	0	0	43	587
8:05 AM	3	0	0	0	0	2	0	1	0	0	0	17	1	0	0	0	12	0	0	0	36	588
8:10 AM	6	1	2	0	0	0	0	0	0	0	1	18	2	0	0	1	13	0	0	0	44	595
8:15 AM	3	0	0	0	0	0	1	0	0	0	0	13	3	0	0	1	17	0	0	0	38	601
8:20 AM	3	0	2	0	0	0	1	2	0	0	0	10	2	0	0	0	8	0	0	0	28	590
8:25 AM	2	0	4	0	0	0	1	0	0	0	1	17	1	0	0	0	10	0	0	0	36	576
8:30 AM	4	1	1	0	0	1	0	0	0	0	1	22	5	0	0	0	8	0	0	0	43	560
8:35 AM	9	4	0	0	0	0	1	2	0	0	1	13	2	0	0	0	14	0	0	0	46	556
8:40 AM	2	2	0	0	0	0	0	1	0	0	0	14	1	0	0	0	9	0	0	0	29	515
8:45 AM	2	0	3	0	0	0	1	2	0	0	0	18	1	0	0	1	15	0	0	0	43	492
8:50 AM	1	2	0	0	0	0	2	0	0	0	1	16	1	0	0	0	18	0	0	0	41	487
8:55 AM	1	3	1	0	0	0	0	1	0	0	1	21	2	0	0	1	12	0	0	0	43	470

Peak 15-Min Flowrates	Northbound					Southbound					Eastbound					Westbound					Total
	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	
All Vehicles	80	12	44	0	0	4	12	36	0	0	28	184	16	0	0	4	324	0	0	0	744
Heavy Trucks	8	0	0			0	0	4			0	4	4			0	24	0			44
Buses																					
Pedestrians		0					0					0					0				0
Bicycles	0	0	0			0	0	0			0	0	0			0	0	0			0
Scooters																					

Comments:

Report generated on 12/18/2025 11:13 AM

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

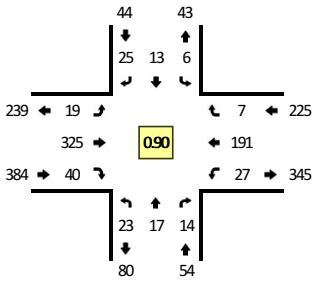
Type of peak hour being reported: Intersection Peak

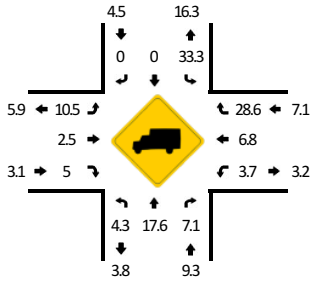
Method for determining peak hour: Total Entering Volume

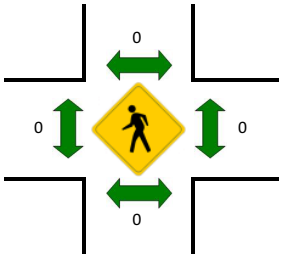
LOCATION: NE 132nd Ave -- NE 119th St
CITY/STATE: Orchards, WA

QC JOB #: 17374608
DATE: Thu, Dec 11 2025

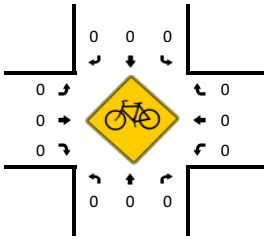
Peak-Hour: 4:20 PM -- 5:20 PM
Peak 15-Min: 4:45 PM -- 5:00 PM

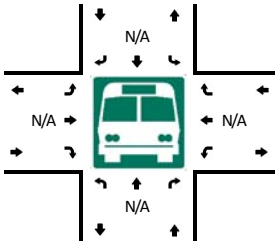




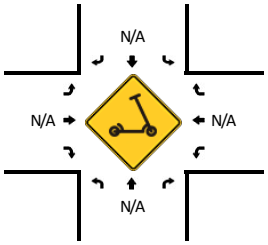












R* = RTOR

5-Min Count Period Beginning At	NE 132nd Ave (Northbound)					NE 132nd Ave (Southbound)					NE 119th St (Eastbound)					NE 119th St (Westbound)					Total	Hourly Totals
	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*		
4:00 PM	2	0	0	0	0	3	3	1	0	0	1	15	5	0	0	2	11	0	0	0	43	
4:05 PM	3	2	3	0	0	0	1	0	0	0	1	26	0	0	0	2	13	1	0	0	52	
4:10 PM	0	2	1	0	0	0	0	1	0	0	4	31	4	0	0	2	19	1	0	0	65	
4:15 PM	0	0	1	0	0	0	0	2	0	0	5	21	5	0	0	4	11	1	0	0	50	
4:20 PM	2	3	1	0	0	0	1	0	0	0	0	43	3	0	0	1	14	0	0	0	68	
4:25 PM	1	0	1	0	0	0	0	3	0	0	3	24	4	0	0	4	13	1	0	0	54	
4:30 PM	3	2	1	0	0	1	1	2	0	0	0	21	6	0	0	3	16	0	0	0	56	
4:35 PM	1	1	1	0	0	0	2	2	0	0	2	23	4	0	0	2	8	1	0	0	47	
4:40 PM	0	3	1	0	0	2	0	3	0	0	0	29	5	0	0	0	18	2	0	0	63	
4:45 PM	1	1	2	0	0	0	1	4	0	0	1	31	2	0	0	1	12	1	0	0	57	
4:50 PM	2	0	2	0	0	1	2	0	0	0	1	24	2	0	0	3	24	1	0	0	62	
4:55 PM	6	3	2	0	0	2	3	5	0	0	4	26	4	0	0	2	21	0	0	0	78	695
5:00 PM	2	0	2	0	0	0	1	2	0	0	3	25	1	0	0	2	11	0	0	0	49	701
5:05 PM	3	2	0	0	0	0	0	2	0	0	2	25	4	0	0	4	13	0	0	0	55	704
5:10 PM	2	0	1	0	0	0	2	1	0	0	2	21	1	0	0	3	26	1	0	0	60	699
5:15 PM	0	2	0	0	0	0	0	1	0	0	1	33	4	0	0	2	15	0	0	0	58	707
5:20 PM	4	1	0	0	0	0	0	1	0	0	2	23	2	0	0	1	12	0	0	0	46	685
5:25 PM	1	1	3	0	0	0	0	1	0	0	0	19	3	0	0	1	16	1	0	0	46	677
5:30 PM	3	0	0	0	0	0	1	0	0	0	1	26	4	0	0	5	15	0	0	0	55	676
5:35 PM	2	1	2	0	0	0	1	2	0	0	0	12	1	0	0	0	18	0	0	0	39	668
5:40 PM	1	0	1	0	0	0	0	0	0	0	1	30	3	0	0	1	21	0	0	0	58	663
5:45 PM	1	0	2	0	0	0	0	0	0	0	1	18	5	0	0	5	22	1	0	0	55	661
5:50 PM	0	1	2	0	0	1	0	1	0	0	1	27	4	0	0	2	8	0	0	0	47	646
5:55 PM	2	4	1	0	0	0	0	0	0	0	0	14	2	0	0	1	13	1	0	0	38	606

Peak 15-Min Flowrates	Northbound					Southbound					Eastbound					Westbound					Total
	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	
All Vehicles	36	16	24	0	0	12	24	36	0	0	24	324	32	0	0	24	228	8	0	0	788
Heavy Trucks	0	4	4			4	0	0			4	8	4			0	12	4			44
Buses																					
Pedestrians		0					0					0					0				0
Bicycles	0	0	0			0	0	0			0	0	0			0	0	0			0
Scooters																					

Comments:

Report generated on 12/18/2025 11:13 AM

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

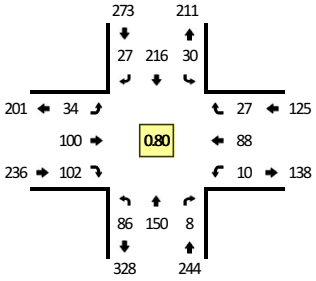
Type of peak hour being reported: Intersection Peak

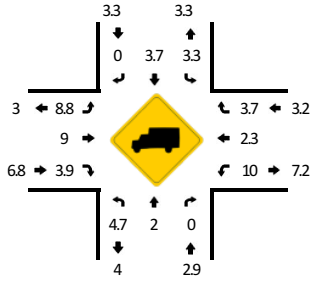
Method for determining peak hour: Total Entering Volume

LOCATION: NE 152nd Ave -- NE 119th St
CITY/STATE: Orchards, WA

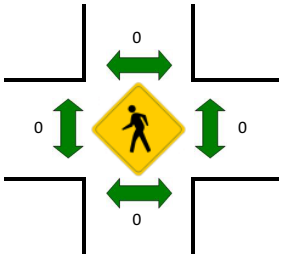
QC JOB #: 17374609
DATE: Thu, Dec 11 2025

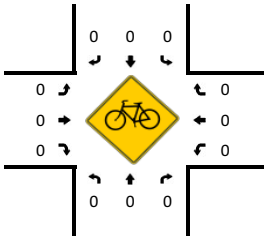
Peak-Hour: 7:20 AM -- 8:20 AM
Peak 15-Min: 7:35 AM -- 7:50 AM

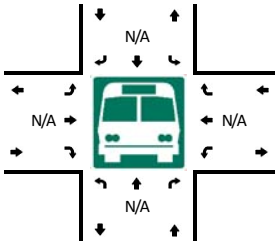


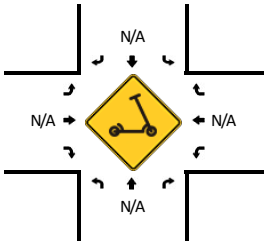


TRUE DATA TO IMPROVE MOBILITY









R* = RTOR

5-Min Count Period Beginning At	NE 152nd Ave (Northbound)					NE 152nd Ave (Southbound)					NE 119th St (Eastbound)					NE 119th St (Westbound)					Total	Hourly Totals
	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*		
7:00 AM	2	5	1	0	0	1	10	1	0	0	3	4	3	0	0	2	4	2	0	0	38	
7:05 AM	4	7	1	0	0	1	9	2	0	0	2	1	12	0	0	1	4	0	0	0	44	
7:10 AM	8	6	1	0	0	2	19	5	0	0	1	4	4	0	0	0	5	2	0	0	57	
7:15 AM	3	11	1	0	0	3	13	5	0	0	0	5	9	0	0	1	1	0	0	0	52	
7:20 AM	3	12	1	0	0	4	15	1	0	0	3	6	6	0	0	4	8	5	0	0	68	
7:25 AM	6	7	0	0	0	1	13	3	0	0	4	6	9	0	0	0	15	3	0	0	67	
7:30 AM	5	14	1	0	0	4	12	3	0	0	4	13	9	0	0	0	5	1	0	0	71	
7:35 AM	10	19	0	0	0	1	22	1	0	0	2	12	9	0	0	0	8	1	0	0	85	
7:40 AM	15	14	2	0	0	3	27	6	0	0	0	9	15	0	0	0	7	2	0	0	100	
7:45 AM	10	12	0	0	0	2	28	4	0	0	6	12	6	0	0	0	8	3	0	0	91	
7:50 AM	6	16	2	0	0	2	19	1	0	0	3	6	14	0	0	2	7	3	0	0	81	
7:55 AM	9	17	1	0	0	3	12	1	0	0	3	10	9	0	0	1	7	2	0	0	75	829
8:00 AM	5	10	1	0	0	6	16	0	0	0	1	6	6	0	0	3	4	2	0	0	60	851
8:05 AM	8	10	0	0	0	1	15	0	0	0	4	6	8	0	0	0	6	2	0	0	60	867
8:10 AM	3	15	0	0	0	1	20	5	0	0	3	6	7	0	0	0	7	0	0	0	67	877
8:15 AM	6	4	0	0	0	2	17	2	0	0	1	8	4	0	0	0	6	3	0	0	53	878
8:20 AM	3	7	1	0	0	2	15	0	0	0	2	2	11	0	0	0	3	0	0	0	46	856
8:25 AM	4	7	0	0	0	5	16	2	0	0	3	6	11	0	0	2	4	2	0	0	62	851
8:30 AM	3	10	1	0	0	2	14	1	0	0	2	8	11	0	0	0	4	1	0	0	57	837
8:35 AM	5	14	3	0	0	2	17	1	0	0	2	9	7	0	0	1	7	0	0	0	68	820
8:40 AM	2	13	0	0	0	1	22	0	0	0	4	3	7	0	0	0	6	2	0	0	60	780
8:45 AM	6	5	1	0	0	0	9	1	0	0	2	2	9	0	0	0	8	3	0	0	46	735
8:50 AM	5	14	2	0	0	0	14	5	0	0	2	8	8	0	0	1	6	4	0	0	69	723
8:55 AM	8	5	2	0	0	2	14	4	0	0	5	10	7	0	0	1	8	1	0	0	67	715

Peak 15-Min Flowrates	Northbound					Southbound					Eastbound					Westbound					Total
	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	
All Vehicles	140	180	8	0	0	24	308	44	0	0	32	132	120	0	0	0	92	24	0	0	1104
Heavy Trucks	4	0	0			0	8	0			0	12	0			0	4	4			32
Buses																					
Pedestrians		0					0					0					0				0
Bicycles	0	0	0			0	0	0			0	0	0			0	0	0			0
Scooters																					

Comments:

Report generated on 12/18/2025 11:13 AM

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

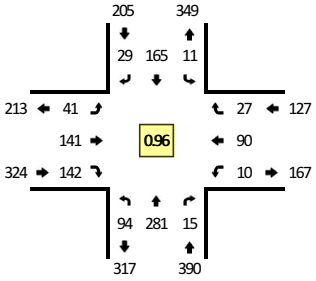
Type of peak hour being reported: Intersection Peak

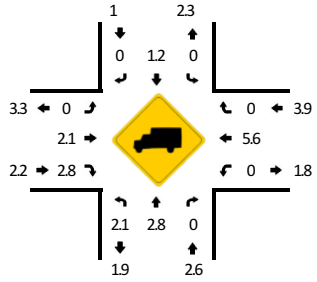
Method for determining peak hour: Total Entering Volume

LOCATION: NE 152nd Ave -- NE 119th St
CITY/STATE: Orchards, WA

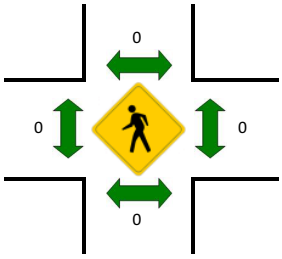
QC JOB #: 17374610
DATE: Thu, Dec 11 2025

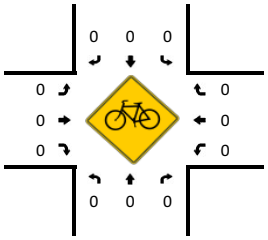
Peak-Hour: 4:20 PM -- 5:20 PM
Peak 15-Min: 5:05 PM -- 5:20 PM

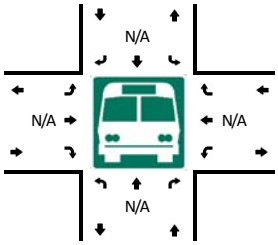


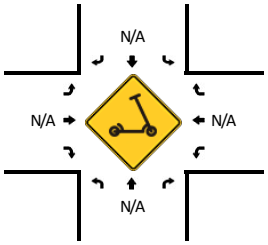


TRUE DATA TO IMPROVE MOBILITY









R* = RTOR

5-Min Count Period Beginning At	NE 152nd Ave (Northbound)					NE 152nd Ave (Southbound)					NE 119th St (Eastbound)					NE 119th St (Westbound)					Total	Hourly Totals
	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*		
4:00 PM	5	24	0	0	0	0	13	1	0	0	3	14	6	0	0	0	3	2	0	0	71	
4:05 PM	4	20	1	0	0	2	13	3	0	0	1	4	12	0	0	2	8	3	0	0	73	
4:10 PM	11	27	1	0	0	2	22	4	0	0	5	9	18	0	0	2	8	2	0	0	111	
4:15 PM	6	18	2	0	0	0	11	0	0	0	1	13	12	0	0	0	5	3	0	0	71	
4:20 PM	6	23	1	0	0	0	15	3	0	0	4	14	9	0	0	0	6	3	0	0	84	
4:25 PM	10	29	2	0	0	0	11	3	0	0	1	9	11	0	0	1	7	4	0	0	88	
4:30 PM	9	21	3	0	0	1	11	3	0	0	3	14	14	0	0	0	7	0	0	0	86	
4:35 PM	6	25	0	0	0	4	12	0	0	0	2	11	9	0	0	1	3	4	0	0	77	
4:40 PM	7	25	2	0	0	0	15	1	0	0	3	10	14	0	0	0	10	2	0	0	89	
4:45 PM	8	21	2	0	0	0	14	3	0	0	3	15	12	0	0	2	9	0	0	0	89	
4:50 PM	10	28	1	0	0	1	17	3	0	0	5	11	10	0	0	0	5	2	0	0	93	
4:55 PM	5	21	0	0	1	0	11	1	0	0	4	17	11	0	0	0	12	3	0	0	86	1018
5:00 PM	11	25	0	0	0	1	9	3	0	0	3	9	12	0	0	5	2	1	0	0	81	1028
5:05 PM	8	26	0	0	0	0	13	2	0	0	4	8	8	0	0	1	7	1	0	0	78	1033
5:10 PM	10	18	2	0	0	2	22	4	0	0	5	12	15	0	0	0	15	4	0	0	109	1031
5:15 PM	4	19	1	0	0	2	15	3	0	0	4	11	17	0	0	0	7	3	0	0	86	1046
5:20 PM	4	23	2	0	0	0	16	3	0	0	3	8	6	0	0	0	6	3	0	0	74	1036
5:25 PM	9	21	1	0	0	4	13	2	0	0	4	6	6	0	0	0	7	2	0	0	75	1023
5:30 PM	10	23	2	0	0	2	12	0	0	0	1	10	10	0	0	2	7	3	0	0	82	1019
5:35 PM	4	20	1	0	0	1	12	2	0	0	4	7	10	0	0	0	8	0	0	0	69	1011
5:40 PM	9	24	0	0	0	0	16	2	0	0	4	9	7	0	0	0	12	1	0	0	84	1006
5:45 PM	6	16	0	0	0	0	8	2	0	0	2	8	10	0	0	0	5	1	0	0	58	975
5:50 PM	10	22	0	0	0	1	4	1	0	0	6	9	10	0	0	0	1	1	0	0	65	947
5:55 PM	4	9	0	0	0	0	13	2	0	0	3	9	12	0	0	1	7	2	0	0	62	923

Peak 15-Min Flowrates	Northbound					Southbound					Eastbound					Westbound					Total
	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	
All Vehicles	88	252	12	0	0	16	200	36	0	0	52	124	160	0	0	4	116	32	0	0	1092
Heavy Trucks	0	0	0			0	0	0			0	8	4			0	4	0			16
Buses																					
Pedestrians		0					0					0					0				0
Bicycles	0	0	0			0	0	0			0	0	0			0	0	0			0
Scooters																					

Comments:

Report generated on 12/18/2025 11:13 AM

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

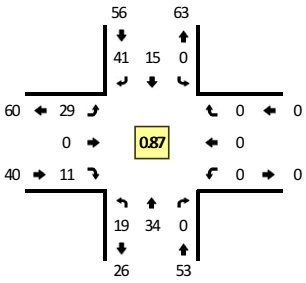
Type of peak hour being reported: Intersection Peak

Method for determining peak hour: Total Entering Volume

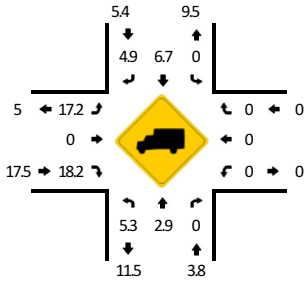
LOCATION: NE 132nd Ave -- NE 114th St
CITY/STATE: Orchards, WA

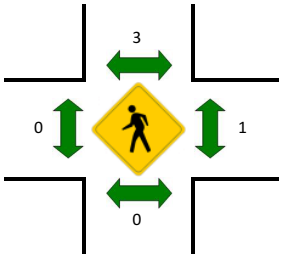
QC JOB #: 17374611
DATE: Thu, Dec 11 2025

Peak-Hour: 7:10 AM -- 8:10 AM
Peak 15-Min: 7:35 AM -- 7:50 AM

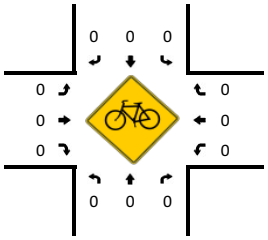


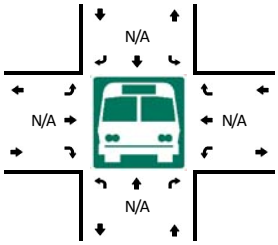




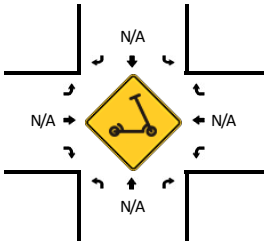












R* = RTOR

5-Min Count Period Beginning At	NE 132nd Ave (Northbound)					NE 132nd Ave (Southbound)					NE 114th St (Eastbound)					NE 114th St (Westbound)					Total	Hourly Totals
	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*		
7:00 AM	1	1	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	4	
7:05 AM	0	3	0	0	0	0	2	5	0	0	0	0	0	0	0	0	0	0	0	0	10	
7:10 AM	0	1	0	0	0	0	0	5	0	0	2	0	1	0	0	0	0	0	0	0	9	
7:15 AM	1	3	0	0	0	0	1	4	0	0	1	0	1	0	0	0	0	0	0	0	11	
7:20 AM	1	2	0	0	0	0	1	7	0	0	2	0	2	0	0	0	0	0	0	0	15	
7:25 AM	0	6	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	9	
7:30 AM	5	3	0	0	0	0	1	3	0	0	2	0	1	0	0	0	0	0	0	0	15	
7:35 AM	3	3	0	0	0	0	2	2	0	0	4	0	1	0	0	0	0	0	0	0	15	
7:40 AM	1	5	0	0	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	10	
7:45 AM	2	3	0	0	0	0	3	5	0	0	3	0	2	0	0	0	0	0	0	0	18	
7:50 AM	3	3	0	0	0	0	0	2	0	0	6	0	0	0	0	0	0	0	0	0	14	
7:55 AM	0	1	0	0	0	0	4	4	0	0	1	0	1	0	0	0	0	0	0	0	11	141
8:00 AM	1	2	0	0	0	0	1	3	0	0	3	0	0	0	0	0	0	0	0	0	10	147
8:05 AM	2	2	0	0	0	0	2	2	0	0	2	0	2	0	0	0	0	0	0	0	12	149
8:10 AM	0	0	0	0	0	0	1	1	0	0	1	0	0	0	0	0	0	0	0	0	3	143
8:15 AM	2	0	0	0	0	0	4	6	0	0	0	0	0	0	0	0	0	0	0	0	12	144
8:20 AM	0	2	0	0	0	0	1	1	0	0	5	0	2	0	0	0	0	0	0	0	11	140
8:25 AM	1	1	0	0	0	0	0	1	0	0	4	0	0	0	0	0	0	0	0	0	7	138
8:30 AM	4	3	0	0	0	0	3	6	0	0	1	0	2	0	0	0	0	0	0	0	19	142
8:35 AM	2	4	0	0	0	0	2	0	0	0	2	0	0	0	0	0	0	0	0	0	10	137
8:40 AM	0	1	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	3	130
8:45 AM	0	5	0	0	0	0	0	1	0	0	4	0	1	0	0	0	0	0	0	0	11	123
8:50 AM	0	0	0	0	0	0	1	4	0	0	2	0	0	0	0	0	0	0	0	0	7	116
8:55 AM	1	2	0	0	0	0	2	2	0	0	1	0	1	0	0	0	0	0	0	0	9	114

Peak 15-Min Flowrates	Northbound					Southbound					Eastbound					Westbound					Total
	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	
All Vehicles	24	44	0	0	0	0	20	44	0	0	28	0	12	0	0	0	0	0	0	0	172
Heavy Trucks	4	0	0			0	4	8			4	0	0			0	0	0			20
Buses																					
Pedestrians		0					0					0					4				4
Bicycles	0	0	0			0	0	0			0	0	0			0	0	0			0
Scooters																					

Comments:

Report generated on 12/18/2025 11:13 AM

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

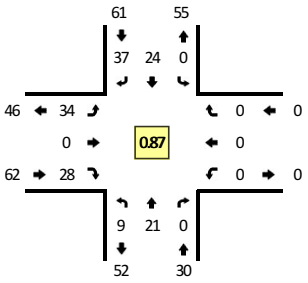
Type of peak hour being reported: Intersection Peak

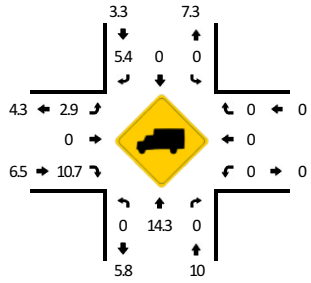
Method for determining peak hour: Total Entering Volume

LOCATION: NE 132nd Ave -- NE 114th St
CITY/STATE: Orchards, WA

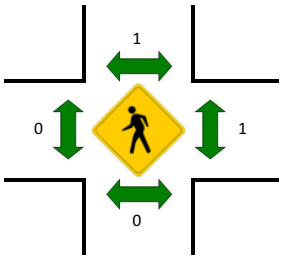
QC JOB #: 17374612
DATE: Thu, Dec 11 2025

Peak-Hour: 4:35 PM -- 5:35 PM
Peak 15-Min: 5:05 PM -- 5:20 PM

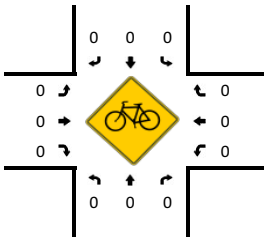


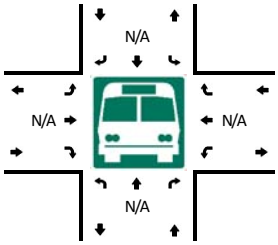


TRUE DATA TO IMPROVE MOBILITY

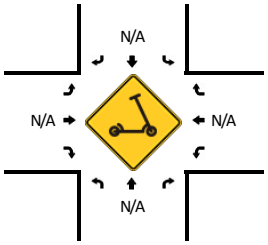












R* = RTOR

5-Min Count Period Beginning At	NE 132nd Ave (Northbound)					NE 132nd Ave (Southbound)					NE 114th St (Eastbound)					NE 114th St (Westbound)					Total	Hourly Totals
	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*		
4:00 PM	1	1	0	0	0	0	2	2	0	0	1	0	2	0	0	0	0	0	0	0	9	
4:05 PM	1	2	0	0	0	0	0	1	0	0	2	0	3	0	0	0	0	0	0	0	9	
4:10 PM	3	0	0	0	0	0	3	1	0	0	2	0	0	0	0	0	0	0	0	0	9	
4:15 PM	0	0	0	0	0	0	2	0	0	0	1	0	2	0	0	0	0	0	0	0	5	
4:20 PM	0	3	0	0	0	0	4	2	0	0	3	0	1	0	0	0	0	0	0	0	13	
4:25 PM	2	1	0	0	0	0	2	2	0	0	4	0	2	0	0	0	0	0	0	0	13	
4:30 PM	0	3	0	0	0	0	1	3	0	0	2	0	0	0	0	0	0	0	0	0	9	
4:35 PM	1	1	0	0	0	0	2	3	0	0	4	0	2	0	0	0	0	0	0	0	13	
4:40 PM	1	1	0	0	0	0	0	2	0	0	4	0	1	0	0	0	0	0	0	0	9	
4:45 PM	1	1	0	0	0	0	2	2	0	0	2	0	2	0	0	0	0	0	0	0	10	
4:50 PM	0	1	0	0	0	0	2	0	0	0	4	0	4	0	0	0	0	0	0	0	11	
4:55 PM	1	4	0	0	0	0	4	1	0	0	3	0	3	0	0	0	0	0	0	0	16	126
5:00 PM	2	2	0	0	0	0	1	5	0	0	2	0	2	0	0	0	0	0	0	0	14	131
5:05 PM	0	3	0	0	0	0	2	4	0	0	2	0	2	0	0	0	0	0	0	0	13	135
5:10 PM	0	0	0	0	0	0	1	7	0	0	2	0	4	0	0	0	0	0	0	0	14	140
5:15 PM	2	2	0	0	0	0	5	3	0	0	2	0	3	0	0	0	0	0	0	0	17	152
5:20 PM	1	3	0	0	0	0	0	5	0	0	3	0	1	0	0	0	0	0	0	0	13	152
5:25 PM	0	0	0	0	0	0	2	3	0	0	3	0	2	0	0	0	0	0	0	0	10	149
5:30 PM	0	3	0	0	0	0	3	2	0	0	3	0	2	0	0	0	0	0	0	0	13	153
5:35 PM	1	3	0	0	0	0	2	1	0	0	1	0	3	0	0	0	0	0	0	0	11	151
5:40 PM	0	0	0	0	0	0	2	1	0	0	1	0	1	0	0	0	0	0	0	0	5	147
5:45 PM	1	0	0	0	0	0	3	3	0	0	4	0	2	0	0	0	0	0	0	0	13	150
5:50 PM	0	0	0	0	0	0	2	3	0	0	2	0	1	0	0	0	0	0	0	0	8	147
5:55 PM	2	1	0	0	0	0	3	2	0	0	4	0	1	0	0	0	0	0	0	0	13	144

Peak 15-Min Flowrates	Northbound					Southbound					Eastbound					Westbound					Total
	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	
All Vehicles	8	20	0	0	0	0	32	56	0	0	24	0	36	0	0	0	0	0	0	0	176
Heavy Trucks	0	0	0			0	0	0			0	0	0			0	0	0			0
Buses																					
Pedestrians		0					0					0					0				0
Bicycles	0	0	0			0	0	0			0	0	0			0	0	0			0
Scooters																					

Comments:

Report generated on 12/18/2025 11:13 AM

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

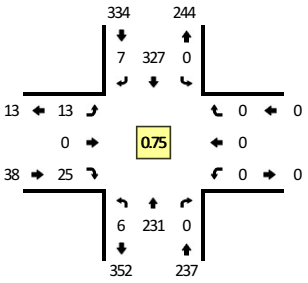
Type of peak hour being reported: Intersection Peak

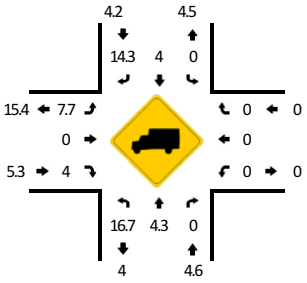
Method for determining peak hour: Total Entering Volume

LOCATION: NE 152nd Ave -- NE 111th St
CITY/STATE: Orchards, WA

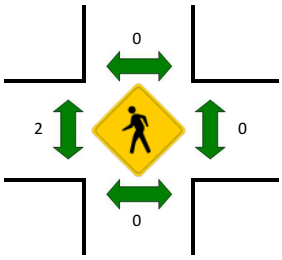
QC JOB #: 17374613
DATE: Thu, Dec 11 2025

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

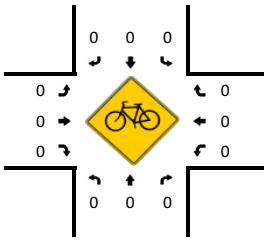


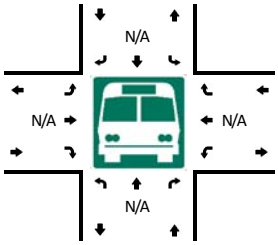


TRUE DATA TO IMPROVE MOBILITY

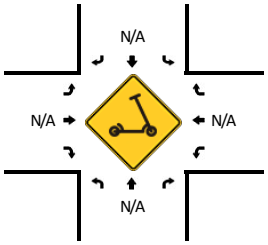












R* = RTOR

5-Min Count Period Beginning At	NE 152nd Ave (Northbound)					NE 152nd Ave (Southbound)					NE 111th St (Eastbound)					NE 111th St (Westbound)					Total	Hourly Totals
	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*		
7:00 AM	0	8	0	0	0	0	14	1	0	0	0	0	3	0	0	0	0	0	0	0	26	
7:05 AM	0	12	0	0	0	0	24	0	0	0	3	0	3	0	0	0	0	0	0	0	42	
7:10 AM	0	11	0	0	0	0	25	0	0	0	0	0	2	0	0	0	0	0	0	0	38	
7:15 AM	1	14	0	0	0	0	21	1	0	0	0	0	2	0	0	0	0	0	0	0	39	
7:20 AM	0	16	0	0	0	0	27	1	0	0	2	0	0	0	0	0	0	0	0	0	46	
7:25 AM	0	9	0	0	0	0	20	1	0	0	0	0	4	0	0	0	0	0	0	0	34	
7:30 AM	1	19	0	0	0	0	22	1	0	0	1	0	3	0	0	0	0	0	0	0	47	
7:35 AM	0	32	0	0	0	0	31	0	0	0	0	0	2	0	0	0	0	0	0	0	65	
7:40 AM	1	27	0	0	0	0	39	0	0	0	2	0	6	0	0	0	0	0	0	0	75	
7:45 AM	0	22	0	0	0	0	38	0	0	0	1	0	1	0	0	0	0	0	0	0	62	
7:50 AM	1	19	0	0	0	0	35	0	0	0	3	0	0	0	0	0	0	0	0	0	58	
7:55 AM	0	30	0	0	0	0	22	0	0	0	0	0	4	0	0	0	0	0	0	0	56	588
8:00 AM	0	10	0	0	0	0	24	1	0	0	1	0	1	0	0	0	0	0	0	0	37	599
8:05 AM	1	22	0	0	0	0	22	2	0	0	2	0	1	0	0	0	0	0	0	0	50	607
8:10 AM	1	11	0	0	0	0	26	0	0	0	1	0	1	0	0	0	0	0	0	0	40	609
8:15 AM	1	10	0	0	0	0	19	1	0	0	0	0	3	0	0	0	0	0	0	0	34	604
8:20 AM	1	13	0	0	0	0	27	2	0	0	0	0	1	0	0	0	0	0	0	0	44	602
8:25 AM	0	9	0	0	0	0	24	1	0	0	0	0	4	0	0	0	0	0	0	0	38	606
8:30 AM	0	15	0	0	0	0	30	0	0	0	0	0	1	0	0	0	0	0	0	0	46	605
8:35 AM	1	19	0	0	0	0	25	1	0	0	2	0	2	0	0	0	0	0	0	0	50	590
8:40 AM	2	13	0	0	0	0	30	0	0	0	3	0	2	0	0	0	0	0	0	0	50	565
8:45 AM	1	14	0	0	0	0	19	0	0	0	1	0	1	0	0	0	0	0	0	0	36	539
8:50 AM	0	13	0	0	0	0	20	2	0	0	3	0	0	0	0	0	0	0	0	0	38	519
8:55 AM	1	15	0	0	0	0	21	1	0	0	2	0	1	0	0	0	0	0	0	0	41	504

Peak 15-Min Flowrates	Northbound					Southbound					Eastbound					Westbound					Total
	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	
All Vehicles	4	324	0	0	0	0	432	0	0	0	12	0	36	0	0	0	0	0	0	0	808
Heavy Trucks	0	8	0			0	12	0			0	0	0			0	0	0			20
Buses																					
Pedestrians		0					0					0					0				0
Bicycles	0	0	0			0	0	0			0	0	0			0	0	0			0
Scooters																					

Comments:

Report generated on 12/18/2025 11:13 AM

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

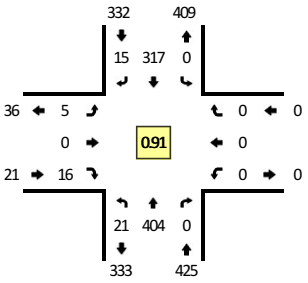
Type of peak hour being reported: Intersection Peak

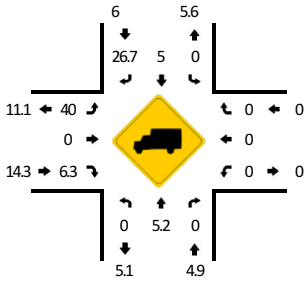
Method for determining peak hour: Total Entering Volume

LOCATION: NE 152nd Ave -- NE 111th St
CITY/STATE: Orchards, WA

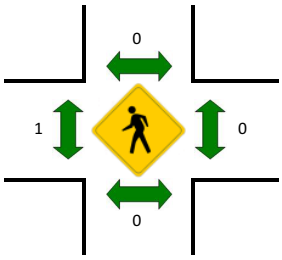
QC JOB #: 17374614
DATE: Thu, Dec 11 2025

Peak-Hour: 4:10 PM -- 5:10 PM
Peak 15-Min: 4:40 PM -- 4:55 PM

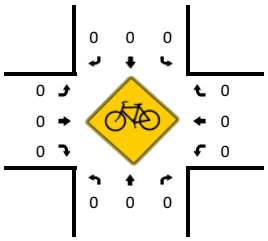


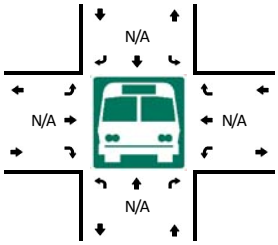


TRUE DATA TO IMPROVE MOBILITY

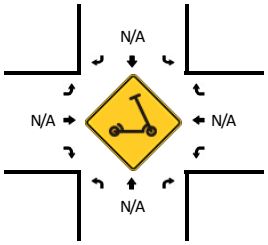












R* = RTOR

5-Min Count Period Beginning At	NE 152nd Ave (Northbound)					NE 152nd Ave (Southbound)					NE 111th St (Eastbound)					NE 111th St (Westbound)					Total	Hourly Totals
	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*		
4:00 PM	2	28	0	0	0	0	17	0	0	0	0	0	1	0	0	0	0	0	0	0	48	
4:05 PM	3	27	0	0	0	0	26	0	0	0	2	0	0	0	0	0	0	0	0	0	58	
4:10 PM	2	35	0	0	0	0	38	3	0	0	0	0	2	0	0	0	0	0	0	0	80	
4:15 PM	1	31	0	0	0	0	21	0	0	0	0	0	1	0	0	0	0	0	0	0	54	
4:20 PM	1	30	0	0	0	0	28	0	0	0	0	0	1	0	0	0	0	0	0	0	60	
4:25 PM	1	37	0	0	0	0	22	2	0	0	0	0	0	0	0	0	0	0	0	0	62	
4:30 PM	1	36	0	0	0	0	25	1	0	0	0	0	1	0	0	0	0	0	0	0	64	
4:35 PM	0	32	0	0	0	0	21	1	0	0	0	0	2	0	0	0	0	0	0	0	56	
4:40 PM	3	34	0	0	0	0	26	0	0	0	1	0	0	0	0	0	0	0	0	0	64	
4:45 PM	3	35	0	0	0	0	35	1	0	0	0	0	0	0	0	0	0	0	0	0	74	
4:50 PM	4	41	0	0	0	0	23	5	0	0	1	0	1	0	0	0	0	0	0	0	75	
4:55 PM	4	25	0	0	0	0	29	2	0	0	1	0	2	0	0	0	0	0	0	0	63	758
5:00 PM	0	36	0	0	0	0	24	0	0	0	2	0	4	0	0	0	0	0	0	0	66	776
5:05 PM	1	32	0	0	0	0	25	0	0	0	0	0	2	0	0	0	0	0	0	0	60	778
5:10 PM	1	27	0	0	0	0	37	1	0	0	0	0	2	0	0	0	0	0	0	0	68	766
5:15 PM	2	28	0	0	0	0	26	2	0	0	0	0	1	0	0	0	0	0	0	0	59	771
5:20 PM	3	27	0	0	0	0	25	0	0	0	1	0	3	0	0	0	0	0	0	0	59	770
5:25 PM	3	33	0	0	0	0	22	0	0	0	0	0	0	0	0	0	0	0	0	0	58	766
5:30 PM	4	31	0	0	0	0	23	0	0	0	1	0	3	0	0	0	0	0	0	0	62	764
5:35 PM	0	30	0	0	0	0	19	0	0	0	0	0	0	0	0	0	0	0	0	0	49	757
5:40 PM	1	29	0	0	0	0	26	1	0	0	0	0	2	0	0	0	0	0	0	0	59	752
5:45 PM	2	28	0	0	0	0	17	1	0	0	0	0	1	0	0	0	0	0	0	0	49	727
5:50 PM	0	24	0	0	0	0	14	0	0	0	1	0	0	0	0	0	0	0	0	0	39	691
5:55 PM	2	18	0	0	0	0	22	1	0	0	0	0	0	0	0	0	0	0	0	0	43	671

Peak 15-Min Flowrates	Northbound					Southbound					Eastbound					Westbound					Total
	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	
All Vehicles	40	440	0	0	0	0	336	24	0	0	8	0	4	0	0	0	0	0	0	0	852
Heavy Trucks	0	28	0			0	12	4			0	0	0			0	0	0			44
Buses																					
Pedestrians		0					0					0					0				0
Bicycles	0	0	0			0	0	0			0	0	0			0	0	0			0
Scooters																					

Comments:

Report generated on 12/18/2025 11:13 AM

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

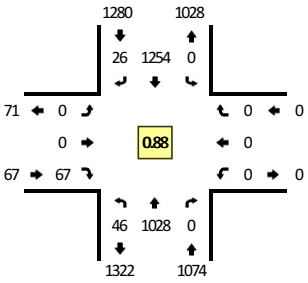
Type of peak hour being reported: Intersection Peak

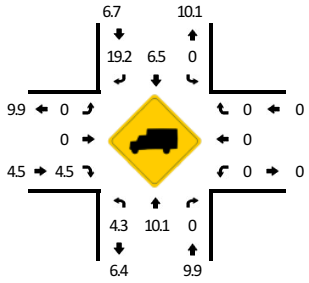
Method for determining peak hour: Total Entering Volume

LOCATION: NE 117th Ave (SR 503) -- NE 107th St
CITY/STATE: Five Corners, WA

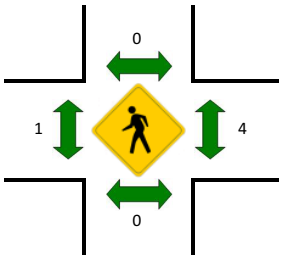
QC JOB #: 17374615
DATE: Thu, Dec 11 2025

Peak-Hour: 7:05 AM -- 8:05 AM
Peak 15-Min: 7:40 AM -- 7:55 AM

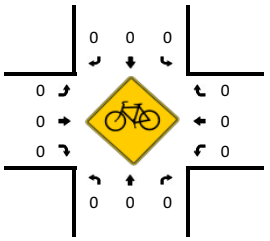


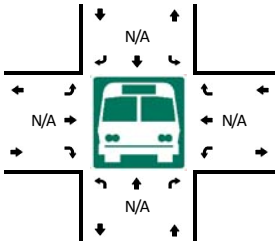


TRUE DATA TO IMPROVE MOBILITY

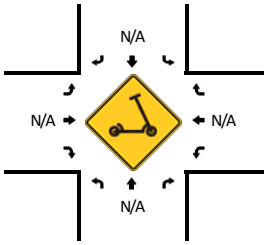












R* = RTOR

5-Min Count Period Beginning At	NE 117th Ave (SR 503) (Northbound)					NE 117th Ave (SR 503) (Southbound)					NE 107th St (Eastbound)					NE 107th St (Westbound)					Total	Hourly Totals
	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*		
7:00 AM	2	47	0	0	0	0	88	1	0	0	0	0	1	0	0	0	0	0	0	0	139	
7:05 AM	0	68	0	0	0	0	91	1	0	0	0	0	8	0	0	0	0	0	0	0	168	
7:10 AM	1	88	0	0	0	0	102	1	0	0	0	0	5	0	0	0	0	0	0	0	197	
7:15 AM	0	64	0	0	0	0	132	1	0	0	0	0	2	0	0	0	0	0	0	0	199	
7:20 AM	3	76	0	0	0	0	84	1	0	0	0	0	6	0	0	0	0	0	0	0	170	
7:25 AM	4	104	0	0	0	0	113	3	0	0	0	0	3	0	0	0	0	0	0	0	227	
7:30 AM	4	76	0	0	0	0	89	4	0	0	0	0	9	0	0	0	0	0	0	0	182	
7:35 AM	5	83	0	0	0	0	116	3	0	0	0	0	8	0	0	0	0	0	0	0	215	
7:40 AM	9	99	0	0	0	0	100	3	0	0	0	0	13	0	0	0	0	0	0	0	224	
7:45 AM	6	102	0	0	0	0	110	3	0	0	0	0	5	0	0	0	0	0	0	0	226	
7:50 AM	7	89	0	1	0	0	132	2	0	0	0	0	3	0	0	0	0	0	0	0	234	
7:55 AM	0	93	0	0	0	0	96	2	0	0	0	0	2	0	0	0	0	0	0	0	193	2374
8:00 AM	6	86	0	0	0	0	89	2	0	0	0	0	3	0	0	0	0	0	0	0	186	2421
8:05 AM	3	61	0	0	0	0	95	0	0	0	0	0	4	0	0	0	0	0	0	0	163	2416
8:10 AM	2	54	0	0	0	0	116	5	0	0	0	0	4	0	0	0	0	0	0	0	181	2400
8:15 AM	4	60	0	0	0	0	112	3	0	0	0	0	6	0	0	0	0	0	0	0	185	2386
8:20 AM	9	63	0	0	0	0	120	3	0	0	0	0	9	0	0	0	0	0	0	0	204	2420
8:25 AM	10	56	0	1	0	0	109	1	0	0	0	0	7	0	0	0	0	0	0	0	184	2377
8:30 AM	6	86	0	0	0	0	72	1	0	0	0	0	4	0	0	0	0	0	0	0	169	2364
8:35 AM	2	64	0	0	0	0	90	2	0	0	0	0	9	0	0	0	0	0	0	0	167	2316
8:40 AM	1	88	0	0	0	0	87	1	0	0	0	0	3	0	0	0	0	0	0	0	180	2272
8:45 AM	1	92	0	0	0	0	100	4	0	0	0	0	6	0	0	0	0	0	0	0	203	2249
8:50 AM	5	87	0	1	0	0	98	1	0	0	0	0	6	0	0	0	0	0	0	0	198	2213
8:55 AM	1	72	0	0	0	0	86	4	0	0	0	0	3	0	0	0	0	0	0	0	166	2186

Peak 15-Min Flowrates	Northbound					Southbound					Eastbound					Westbound					Total
	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	
All Vehicles	88	1160	0	4	0	0	1368	32	0	0	0	0	84	0	0	0	0	0	0	0	2736
Heavy Trucks	4	112	0			0	100	0			0	0	4			0	0	0			220
Buses																					
Pedestrians		0					0					4					4				8
Bicycles	0	0	0			0	0	0			0	0	0			0	0	0			0
Scooters																					

Comments:

Report generated on 12/18/2025 11:13 AM

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 117th Ave (SR 503) -- NE 107th St

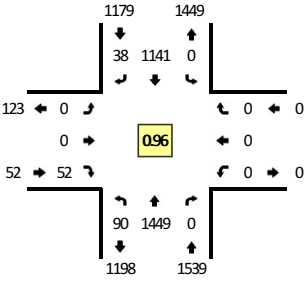
CITY/STATE: Five Corners, WA

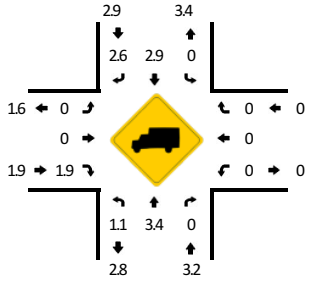
QC JOB #: 17374616

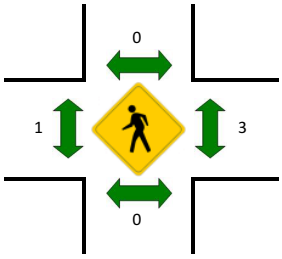
DATE: Thu, Dec 11 2025

Peak-Hour: 4:45 PM -- 5:45 PM

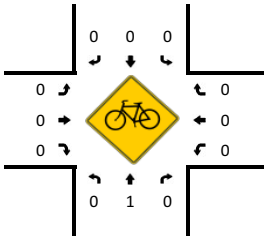
Peak 15-Min: 5:10 PM -- 5:25 PM

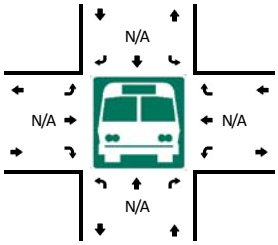


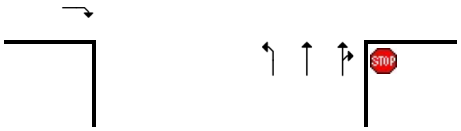


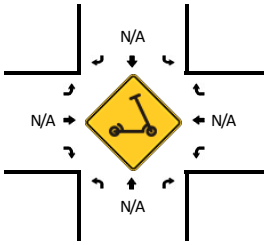












R* = RTOR

5-Min Count Period Beginning At	NE 117th Ave (SR 503) (Northbound)					NE 117th Ave (SR 503) (Southbound)					NE 107th St (Eastbound)					NE 107th St (Westbound)					Total	Hourly Totals
	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*		
4:00 PM	6	119	0	0	0	0	90	5	0	0	0	0	3	0	0	0	0	0	0	0	223	
4:05 PM	8	122	0	0	0	0	78	2	0	0	0	0	6	0	0	0	0	0	0	0	216	
4:10 PM	6	112	0	0	0	0	107	1	0	0	0	0	2	0	0	0	0	0	0	0	228	
4:15 PM	0	124	0	1	0	0	125	3	0	0	0	0	3	0	0	0	0	0	0	0	256	
4:20 PM	4	113	0	0	0	0	83	0	0	0	0	0	8	0	0	0	0	0	0	0	208	
4:25 PM	5	123	1	0	0	0	65	2	0	0	0	0	1	0	0	0	0	0	0	0	197	
4:30 PM	4	132	0	0	0	0	84	3	0	0	0	0	3	0	0	0	0	0	0	0	226	
4:35 PM	8	122	0	0	0	0	98	2	0	0	0	0	2	0	0	0	0	0	0	0	232	
4:40 PM	7	120	0	0	0	0	85	2	0	0	0	0	1	0	0	0	0	0	0	0	215	
4:45 PM	8	120	0	0	0	0	85	2	0	0	0	0	4	0	0	0	0	0	0	0	219	
4:50 PM	6	125	0	1	0	0	108	2	0	0	0	0	3	0	0	0	0	0	0	0	245	
4:55 PM	3	113	0	1	0	0	92	0	0	0	0	0	3	0	0	0	0	0	0	0	212	2677
5:00 PM	10	110	0	0	0	0	99	3	0	0	0	0	3	0	0	0	0	0	0	0	225	2679
5:05 PM	2	135	0	1	0	0	87	3	0	0	0	0	9	0	0	0	0	0	0	0	237	2700
5:10 PM	13	116	0	0	0	0	104	3	0	0	0	0	4	0	0	0	0	0	0	0	240	2712
5:15 PM	11	130	0	0	0	0	86	5	0	0	0	0	2	0	0	0	0	0	0	0	234	2690
5:20 PM	5	123	0	1	0	0	108	6	0	0	0	0	2	0	0	0	0	0	0	0	245	2727
5:25 PM	9	115	0	0	0	0	87	4	0	0	0	0	5	0	0	0	0	0	0	0	220	2750
5:30 PM	3	114	0	0	0	0	96	2	0	0	0	0	4	0	0	0	0	0	0	0	219	2743
5:35 PM	5	134	0	1	0	0	91	3	0	0	0	0	7	0	0	0	0	0	0	0	241	2752
5:40 PM	10	114	0	0	0	0	98	5	0	0	0	0	6	0	0	0	0	0	0	0	233	2770
5:45 PM	7	120	0	0	0	0	76	1	0	0	0	0	4	0	0	0	0	0	0	0	208	2759
5:50 PM	6	90	0	0	0	0	84	4	0	0	0	0	2	0	0	0	0	0	0	0	186	2700
5:55 PM	8	107	0	1	0	0	88	3	0	0	0	0	3	0	0	0	0	0	0	0	210	2698

Peak 15-Min Flowrates	Northbound					Southbound					Eastbound					Westbound					Total
	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	
All Vehicles	116	1476	0	4	0	0	1192	56	0	0	0	0	32	0	0	0	0	0	0	0	2876
Heavy Trucks	0	44	0			0	44	0			0	0	0			0	0	0			88
Buses																					
Pedestrians		0					0					0					4				4
Bicycles	0	4	0			0	0	0			0	0	0			0	0	0			4
Scooters																					

Comments:

Report generated on 12/18/2025 11:13 AM

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

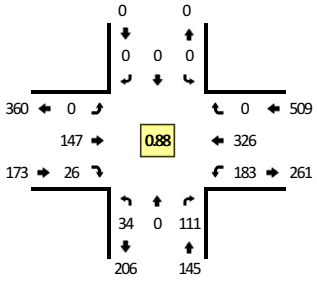
Type of peak hour being reported: Intersection Peak

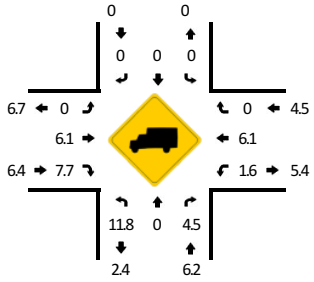
Method for determining peak hour: Total Entering Volume

LOCATION: NE 107th Ave -- NE 99th St
CITY/STATE: Five Corners, WA

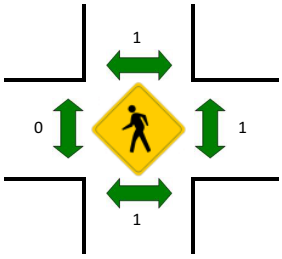
QC JOB #: 17374617
DATE: Thu, Dec 11 2025

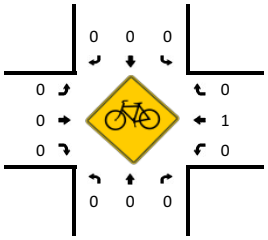
Peak-Hour: 7:25 AM -- 8:25 AM
Peak 15-Min: 7:40 AM -- 7:55 AM

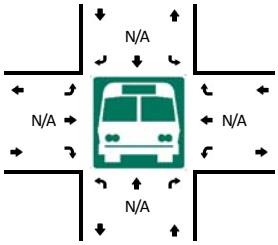


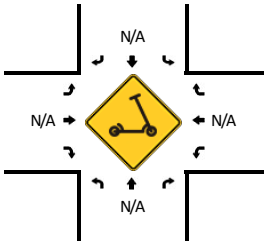


TRUE DATA TO IMPROVE MOBILITY









R* = RTOR

5-Min Count Period Beginning At	NE 107th Ave (Northbound)					NE 107th Ave (Southbound)					NE 99th St (Eastbound)					NE 99th St (Westbound)					Total	Hourly Totals
	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*		
7:00 AM	0	0	7	0	0	0	0	0	0	0	0	8	3	0	0	2	15	0	0	0	35	
7:05 AM	1	0	5	0	0	0	0	0	0	0	0	7	0	0	0	6	17	0	0	0	36	
7:10 AM	3	0	4	0	0	0	0	0	0	0	0	7	0	0	0	9	25	0	0	0	48	
7:15 AM	2	0	11	0	0	0	0	0	0	0	0	5	1	0	0	8	24	0	0	0	51	
7:20 AM	1	0	7	0	0	0	0	0	0	0	0	10	1	0	0	10	24	0	0	0	53	
7:25 AM	3	0	3	0	0	0	0	0	0	0	0	12	4	0	0	15	23	0	0	0	60	
7:30 AM	3	0	12	0	0	0	0	0	0	0	0	14	2	0	0	9	33	0	1	0	74	
7:35 AM	5	0	6	0	0	0	0	0	0	0	0	11	4	0	0	16	24	0	0	0	66	
7:40 AM	2	0	8	0	0	0	0	0	0	0	0	16	4	0	0	23	33	0	0	0	86	
7:45 AM	1	0	10	0	0	0	0	0	0	0	0	13	5	0	0	23	27	0	0	0	79	
7:50 AM	1	0	9	0	0	0	0	0	0	0	0	11	0	0	0	15	33	0	0	0	69	
7:55 AM	4	0	12	0	0	0	0	0	0	0	0	10	1	0	0	11	36	0	0	0	74	731
8:00 AM	4	0	12	0	0	0	0	0	0	0	0	10	1	0	0	16	21	0	0	0	64	760
8:05 AM	4	0	7	0	0	0	0	0	0	0	0	11	2	0	0	10	26	0	0	0	60	784
8:10 AM	2	0	9	0	0	0	0	0	0	0	0	17	2	0	0	9	25	0	2	0	66	802
8:15 AM	2	0	7	0	0	0	0	0	0	0	0	13	1	0	0	16	19	0	0	0	58	809
8:20 AM	3	0	16	0	0	0	0	0	0	0	0	9	0	0	0	17	26	0	0	0	71	827
8:25 AM	2	0	5	0	0	0	0	0	0	0	0	16	3	0	0	7	23	0	0	0	56	823
8:30 AM	3	0	6	0	0	0	0	0	0	0	0	11	1	0	0	11	18	0	0	0	50	799
8:35 AM	2	0	7	0	0	0	0	0	0	0	0	11	1	0	0	5	20	0	1	0	47	780
8:40 AM	2	0	5	0	0	0	0	0	0	0	0	9	4	0	0	16	22	0	0	0	58	752
8:45 AM	2	0	7	0	0	0	0	0	0	0	0	8	2	0	0	20	23	0	0	0	62	735
8:50 AM	1	0	9	0	0	0	0	0	0	0	0	16	2	0	0	11	24	0	0	0	63	729
8:55 AM	2	0	4	0	0	0	0	0	0	0	0	15	1	0	0	9	14	0	0	0	45	700

Peak 15-Min Flowrates	Northbound					Southbound					Eastbound					Westbound					Total
	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	
All Vehicles	16	0	108	0	0	0	0	0	0	0	0	160	36	0	0	244	372	0	0	0	936
Heavy Trucks	4	0	0			0	0	0			0	12	4			8	32	0			60
Buses																					
Pedestrians		0					0					0					0				0
Bicycles	0	0	0			0	0	0			0	0	0			0	0	0			0
Scooters																					

Comments:

Report generated on 12/18/2025 11:13 AM

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

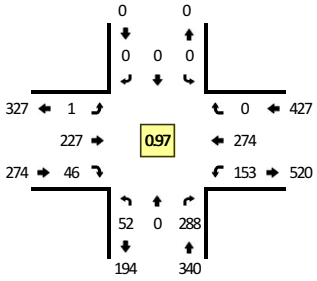
Type of peak hour being reported: Intersection Peak

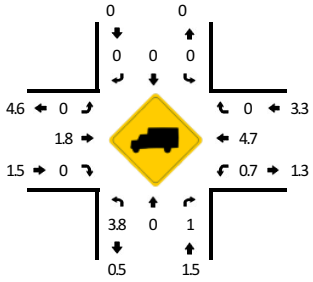
Method for determining peak hour: Total Entering Volume

LOCATION: NE 107th Ave -- NE 99th St
CITY/STATE: Five Corners, WA

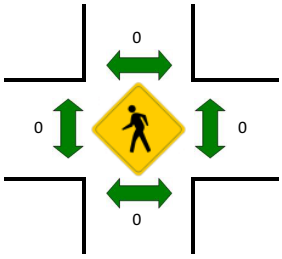
QC JOB #: 17374618
DATE: Thu, Dec 11 2025

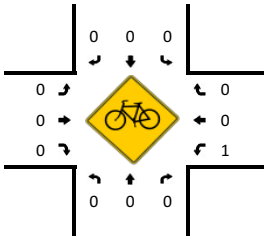
Peak-Hour: 4:30 PM -- 5:30 PM
Peak 15-Min: 5:15 PM -- 5:30 PM

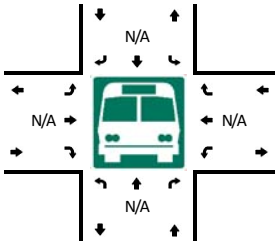


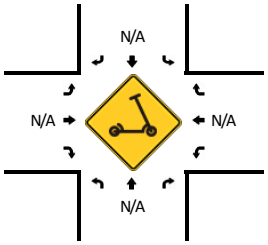


TRUE DATA TO IMPROVE MOBILITY









R* = RTOR

5-Min Count Period Beginning At	NE 107th Ave (Northbound)					NE 107th Ave (Southbound)					NE 99th St (Eastbound)					NE 99th St (Westbound)					Total	Hourly Totals
	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*		
4:00 PM	3	0	24	0	0	0	0	0	0	0	0	24	3	0	0	15	18	0	1	0	88	
4:05 PM	3	0	18	0	0	0	0	0	0	0	0	22	1	0	0	13	19	0	0	0	76	
4:10 PM	2	0	22	0	0	0	0	0	0	0	0	17	2	0	0	11	25	0	1	0	80	
4:15 PM	6	0	17	0	0	0	0	0	0	0	0	18	4	0	0	12	25	0	0	0	82	
4:20 PM	5	0	16	0	0	0	0	0	0	0	0	15	5	0	0	16	14	0	0	0	71	
4:25 PM	4	0	10	0	0	0	0	0	0	0	0	17	4	0	0	8	18	0	0	0	61	
4:30 PM	9	0	34	0	0	0	0	0	0	0	0	22	6	0	0	5	21	0	0	0	97	
4:35 PM	4	0	18	0	0	0	0	0	0	0	0	18	1	0	0	15	33	0	0	0	89	
4:40 PM	2	0	21	0	0	0	0	0	0	0	0	21	6	0	0	11	21	0	0	0	82	
4:45 PM	1	0	20	0	0	0	0	0	0	0	0	16	4	0	0	11	14	0	1	0	67	
4:50 PM	7	0	26	0	0	0	0	0	0	0	0	22	1	0	0	16	18	0	0	0	90	
4:55 PM	5	0	18	0	0	0	0	0	0	0	0	17	7	0	0	18	20	0	0	0	85	968
5:00 PM	4	0	16	0	0	0	0	0	0	0	0	20	2	0	0	17	25	0	1	0	85	965
5:05 PM	5	0	20	0	0	0	0	0	0	0	0	23	4	0	0	16	22	0	2	0	92	981
5:10 PM	3	0	18	0	0	0	0	0	0	0	0	16	5	0	0	15	27	0	1	0	85	986
5:15 PM	3	0	32	0	0	0	0	0	0	0	0	20	6	0	0	9	19	0	0	0	89	993
5:20 PM	4	0	31	0	0	0	0	0	0	0	0	13	0	0	0	6	27	0	0	0	81	1003
5:25 PM	5	0	34	0	0	0	0	0	0	0	0	19	4	1	0	9	27	0	0	0	99	1041
5:30 PM	2	0	29	0	0	0	0	0	0	0	0	15	3	0	0	9	30	0	0	0	88	1032
5:35 PM	10	0	15	0	0	0	0	0	0	0	0	22	1	1	0	11	12	0	0	0	72	1015
5:40 PM	4	0	20	0	0	0	0	0	0	0	0	17	3	0	0	8	17	0	0	0	69	1002
5:45 PM	4	0	17	1	0	0	0	0	0	0	0	11	3	0	0	10	19	0	0	0	65	1000
5:50 PM	0	0	11	0	0	0	0	0	0	0	0	13	0	0	0	4	17	0	1	0	46	956
5:55 PM	0	0	19	0	0	0	0	0	0	0	0	21	0	0	0	10	18	0	0	0	68	939

Peak 15-Min Flowrates	Northbound					Southbound					Eastbound					Westbound					Total
	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	
All Vehicles	48	0	388	0	0	0	0	0	0	0	0	208	40	4	0	96	292	0	0	0	1076
Heavy Trucks	4	0	0			0	0	0			0	0	0			0	12	0			16
Buses																					
Pedestrians		0					0					0					0				0
Bicycles	0	0	0			0	0	0			0	0	0			4	0	0			4
Scooters																					

Comments:

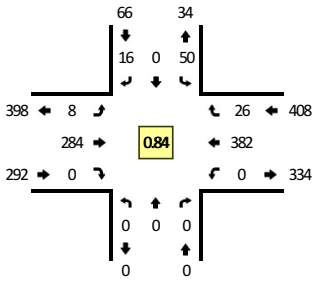
Report generated on 12/18/2025 11:13 AM

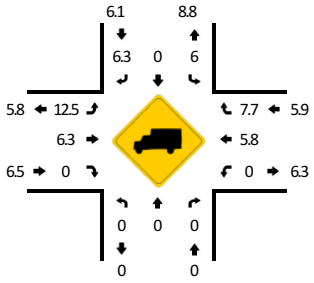
SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

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

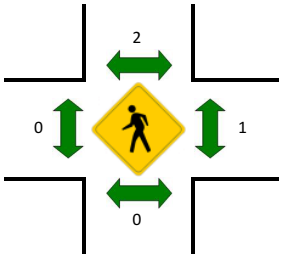
LOCATION: NE 115th Ave -- NE 99th St | **QC JOB #:** 17374619
CITY/STATE: Five Corners, WA | **DATE:** Thu, Dec 11 2025

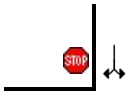
Peak-Hour: 7:25 AM -- 8:25 AM
Peak 15-Min: 7:45 AM -- 8:00 AM

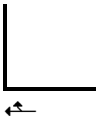


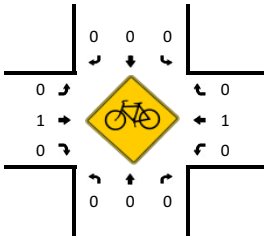


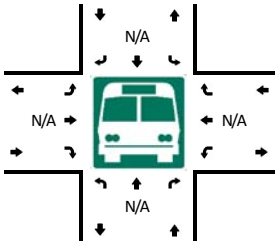
TRUE DATA TO IMPROVE MOBILITY

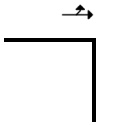




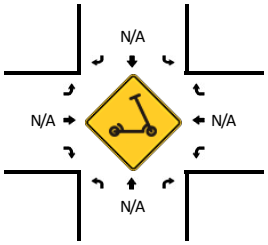












R* = RTOR

5-Min Count Period Beginning At	NE 115th Ave (Northbound)					NE 115th Ave (Southbound)					NE 99th St (Eastbound)					NE 99th St (Westbound)					Total	Hourly Totals
	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*		
7:00 AM	0	0	0	0	0	3	0	2	0	0	1	13	0	0	0	0	13	0	0	0	32	
7:05 AM	0	0	0	0	0	3	0	1	0	0	0	15	0	0	0	0	16	0	0	0	35	
7:10 AM	0	0	0	0	0	5	0	1	0	0	0	19	0	0	0	0	28	2	0	0	55	
7:15 AM	0	0	0	0	0	2	0	1	0	0	0	21	0	0	0	0	21	2	0	0	47	
7:20 AM	0	0	0	0	0	3	0	4	0	0	0	17	0	0	0	0	17	1	0	0	42	
7:25 AM	0	0	0	0	0	1	0	0	0	0	0	24	0	0	0	0	25	3	0	0	53	
7:30 AM	0	0	0	0	0	4	0	1	0	0	0	26	0	0	0	0	30	2	0	0	63	
7:35 AM	0	0	0	0	0	4	0	2	0	0	1	22	0	0	0	0	37	1	0	0	67	
7:40 AM	0	0	0	0	0	5	0	2	0	0	0	23	0	0	0	0	39	2	0	0	71	
7:45 AM	0	0	0	0	0	6	0	5	0	0	1	34	0	0	0	0	33	1	0	0	80	
7:50 AM	0	0	0	0	0	2	0	1	0	0	2	26	0	0	0	0	43	2	0	0	76	
7:55 AM	0	0	0	0	0	3	0	1	0	0	2	29	0	0	0	0	33	4	0	0	72	693
8:00 AM	0	0	0	0	0	8	0	1	0	0	1	24	0	0	0	0	31	2	0	0	67	728
8:05 AM	0	0	0	0	0	4	0	1	0	0	0	19	0	0	0	0	34	2	0	0	60	753
8:10 AM	0	0	0	0	0	6	0	1	0	0	0	21	0	0	0	0	22	4	0	0	54	752
8:15 AM	0	0	0	0	0	5	0	0	0	0	1	12	0	0	0	0	24	2	0	0	44	749
8:20 AM	0	0	0	0	0	2	0	1	0	0	0	24	0	0	0	0	31	1	0	0	59	766
8:25 AM	0	0	0	0	0	1	0	0	0	0	1	17	0	0	0	0	22	5	0	0	46	759
8:30 AM	0	0	0	0	0	3	0	0	0	0	0	21	0	0	0	0	18	1	0	0	43	739
8:35 AM	0	0	0	0	0	5	0	0	0	0	1	21	0	0	0	0	23	0	0	0	50	722
8:40 AM	0	0	0	0	0	4	0	7	0	0	0	14	0	0	0	0	24	2	0	0	51	702
8:45 AM	0	0	0	0	0	3	0	1	0	0	0	15	0	0	0	0	32	4	0	0	55	677
8:50 AM	0	0	0	0	0	1	0	1	0	0	1	27	0	0	0	0	21	2	0	0	53	654
8:55 AM	0	0	0	0	0	2	0	2	0	0	1	17	0	0	0	0	14	1	0	0	37	619

Peak 15-Min Flowrates	Northbound					Southbound					Eastbound					Westbound					Total
	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	
All Vehicles	0	0	0	0	0	44	0	28	0	0	20	356	0	0	0	0	436	28	0	0	912
Heavy Trucks	0	0	0			0	0	4			4	12	0			0	32	4			56
Buses																					
Pedestrians		0					0					0					0				0
Bicycles	0	0	0			0	0	0			0	0	0			0	0	0			0
Scooters																					

Comments:

Report generated on 12/18/2025 11:13 AM | SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

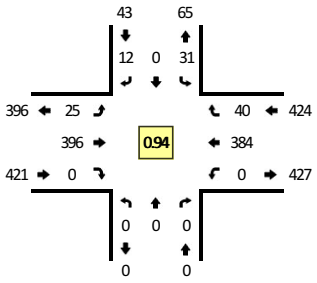
Type of peak hour being reported: Intersection Peak

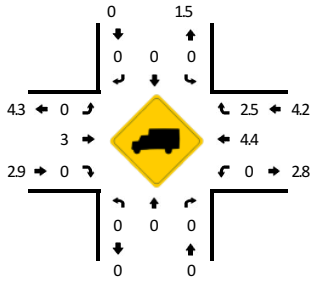
Method for determining peak hour: Total Entering Volume

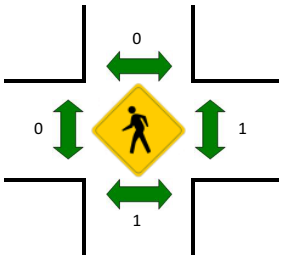
LOCATION: NE 115th Ave -- NE 99th St
CITY/STATE: Five Corners, WA

QC JOB #: 17374620
DATE: Thu, Dec 11 2025

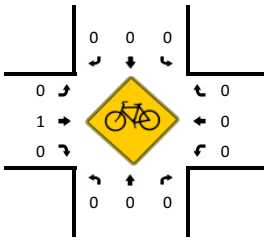
Peak-Hour: 4:30 PM -- 5:30 PM
Peak 15-Min: 4:30 PM -- 4:45 PM

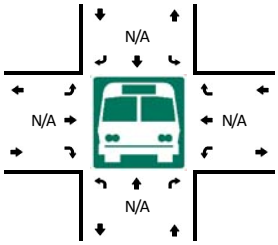




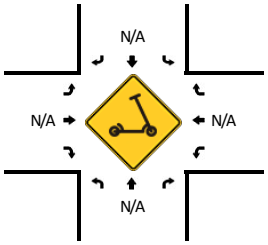












R* = RTOR

5-Min Count Period Beginning At	NE 115th Ave (Northbound)					NE 115th Ave (Southbound)					NE 99th St (Eastbound)					NE 99th St (Westbound)					Total	Hourly Totals
	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*		
4:00 PM	0	0	0	0	0	2	0	1	0	0	1	30	0	0	0	0	36	3	0	0	73	
4:05 PM	0	0	0	0	0	4	0	6	0	0	2	42	0	0	0	0	26	4	0	0	84	
4:10 PM	0	0	0	0	0	0	0	2	0	0	1	36	0	0	0	0	38	2	0	0	79	
4:15 PM	0	0	0	0	0	4	0	0	0	0	0	33	0	0	0	0	25	5	0	0	67	
4:20 PM	0	0	0	0	0	4	0	3	0	0	0	24	0	0	0	0	19	3	0	0	53	
4:25 PM	0	0	0	0	0	3	0	3	0	0	1	12	0	0	0	0	27	2	0	0	48	
4:30 PM	0	0	0	0	0	0	0	1	0	0	2	48	0	0	0	0	31	1	0	0	83	
4:35 PM	0	0	0	0	0	2	0	3	0	0	0	31	0	0	0	0	41	2	0	0	79	
4:40 PM	0	0	0	0	0	4	0	0	0	0	3	37	0	0	0	0	28	3	0	0	75	
4:45 PM	0	0	0	0	0	4	0	2	0	0	2	32	0	0	0	0	26	6	0	0	72	
4:50 PM	0	0	0	0	0	2	0	1	0	0	2	38	0	0	0	0	32	1	0	0	76	
4:55 PM	0	0	0	0	0	2	0	0	0	0	0	29	0	0	0	0	26	4	0	0	61	850
5:00 PM	0	0	0	0	0	2	0	0	0	0	5	30	0	0	0	0	39	3	0	0	79	856
5:05 PM	0	0	0	0	0	3	0	0	0	0	3	28	0	0	0	0	33	8	0	0	75	847
5:10 PM	0	0	0	0	0	3	0	1	0	0	0	27	0	0	0	0	29	2	0	0	62	830
5:15 PM	0	0	0	0	0	2	0	1	0	0	4	38	0	0	0	0	35	4	0	0	84	847
5:20 PM	0	0	0	0	0	5	0	2	0	0	2	30	0	0	0	0	35	3	0	0	77	871
5:25 PM	0	0	0	0	0	2	0	1	0	0	2	28	0	0	0	0	29	3	0	0	65	888
5:30 PM	0	0	0	0	0	2	0	1	0	0	5	31	0	0	0	0	28	5	0	0	72	877
5:35 PM	0	0	0	0	0	4	0	1	0	0	0	27	0	0	0	0	16	1	0	0	49	847
5:40 PM	0	0	0	0	0	3	0	0	0	0	0	28	0	0	0	0	24	2	0	0	57	829
5:45 PM	0	0	0	0	0	2	0	1	0	0	2	25	0	0	0	0	22	6	0	0	58	815
5:50 PM	0	0	0	0	0	4	0	2	0	0	0	21	0	0	0	0	25	7	0	0	59	798
5:55 PM	0	0	0	0	0	2	0	1	0	0	2	25	0	0	0	0	19	8	0	0	57	794

Peak 15-Min Flowrates	Northbound					Southbound					Eastbound					Westbound					Total
	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	
All Vehicles	0	0	0	0	0	24	0	16	0	0	20	464	0	0	0	0	400	24	0	0	948
Heavy Trucks	0	0	0			0	0	0			0	8	0			0	12	0			20
Buses																					
Pedestrians		4					0					0					4				8
Bicycles	0	0	0			0	0	0			0	4	0			0	0	0			4
Scooters																					

Comments:

Report generated on 12/18/2025 11:13 AM

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

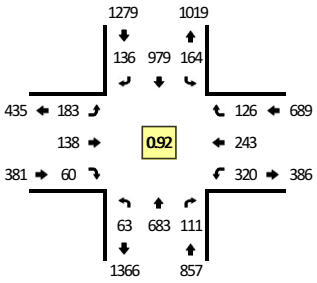
Type of peak hour being reported: Intersection Peak

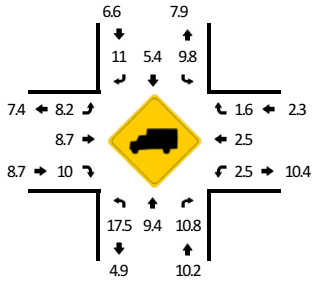
Method for determining peak hour: Total Entering Volume

LOCATION: NE 117th Ave (SR 503) -- NE 99th St
CITY/STATE: Five Corners, WA

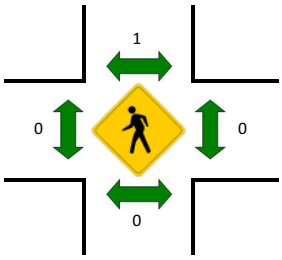
QC JOB #: 17374621
DATE: Thu, Dec 11 2025

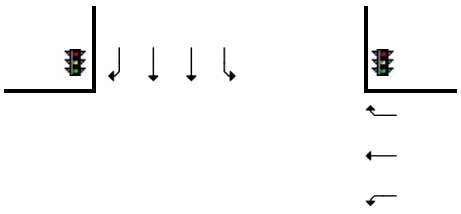
Peak-Hour: 7:10 AM -- 8:10 AM
Peak 15-Min: 7:45 AM -- 8:00 AM

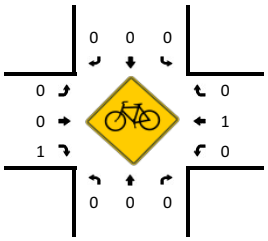


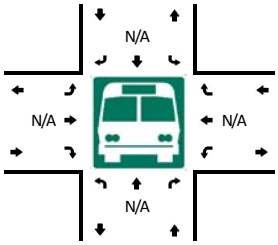


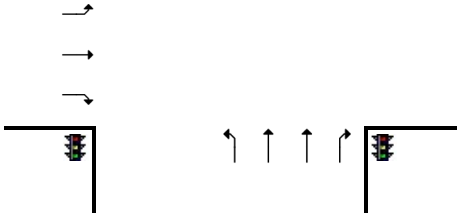
TRUE DATA TO IMPROVE MOBILITY

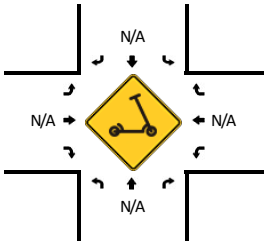












R* = RTOR

5-Min Count Period Beginning At	NE 117th Ave (SR 503) (Northbound)					NE 117th Ave (SR 503) (Southbound)					NE 99th St (Eastbound)					NE 99th St (Westbound)					Total	Hourly Totals
	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*		
7:00 AM	2	43	3	0	1	8	74	3	0	2	8	8	1	0	1	22	9	1	0	4	190	
7:05 AM	2	50	5	0	1	4	93	2	1	4	14	1	3	0	4	24	13	1	0	2	224	
7:10 AM	4	46	8	0	2	11	95	6	4	2	17	7	2	0	2	25	16	4	0	9	260	
7:15 AM	5	40	9	0	4	5	82	6	2	0	18	8	3	0	2	30	17	1	0	6	238	
7:20 AM	4	78	13	0	3	16	87	4	0	2	8	5	1	0	2	22	10	1	0	9	265	
7:25 AM	5	70	4	3	4	6	80	10	1	1	9	8	1	0	3	25	14	9	0	7	260	
7:30 AM	3	37	6	0	2	12	76	4	4	3	23	14	7	0	2	32	25	3	0	3	256	
7:35 AM	6	62	6	0	4	10	74	7	2	4	12	10	4	0	3	32	27	4	0	10	277	
7:40 AM	4	67	2	0	3	13	110	9	3	5	15	4	4	0	0	25	18	8	0	4	294	
7:45 AM	4	57	6	1	4	12	82	11	2	6	23	13	1	0	6	33	18	7	0	6	292	
7:50 AM	6	55	8	0	2	13	60	9	1	8	14	21	0	0	0	27	38	9	0	3	274	
7:55 AM	5	82	3	0	0	13	106	7	5	5	16	15	2	0	5	16	16	3	0	5	304	3134
8:00 AM	5	49	5	2	4	21	61	9	3	5	17	14	2	0	6	21	17	2	0	4	247	3191
8:05 AM	5	40	3	1	6	5	66	7	0	6	11	19	1	0	1	32	27	5	0	4	239	3206
8:10 AM	5	52	7	2	5	16	71	4	1	5	13	11	0	0	2	18	16	1	0	6	235	3181
8:15 AM	5	42	5	1	2	17	100	6	1	6	7	10	4	0	1	18	16	7	0	5	253	3196
8:20 AM	2	46	4	0	1	13	81	4	2	8	9	17	2	0	4	29	16	0	0	4	242	3173
8:25 AM	12	63	0	0	6	9	98	7	1	5	9	12	1	0	0	22	12	3	0	4	264	3177
8:30 AM	6	54	12	0	4	7	97	3	2	1	7	8	5	0	1	25	12	1	0	6	251	3172
8:35 AM	1	38	6	0	1	9	61	5	3	6	17	18	1	0	0	34	14	9	0	4	227	3122
8:40 AM	6	74	8	3	7	10	55	4	0	2	10	6	1	0	5	33	16	4	0	6	250	3078
8:45 AM	7	64	3	1	2	11	109	8	2	4	12	8	0	0	3	16	17	5	0	6	278	3064
8:50 AM	6	56	5	0	6	18	81	9	2	1	15	8	2	0	2	28	8	5	0	6	258	3048
8:55 AM	5	49	6	1	4	12	57	3	1	4	9	14	0	0	2	20	10	4	0	9	210	2954

Peak 15-Min Flowrates	Northbound					Southbound					Eastbound					Westbound					Total
	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	
All Vehicles	60	776	92	4	24	152	992	184	32	76	212	196	56	0	44	304	288	132	0	56	3680
Heavy Trucks	24	88	8			20	48	20			12	12	0			8	8	4			252
Buses																					
Pedestrians		0					0					0					0				0
Bicycles	0	0	0			0	0	0			0	0	0			0	0	0			0
Scooters																					

Comments:

Report generated on 12/18/2025 11:13 AM

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 117th Ave (SR 503) -- NE 99th St

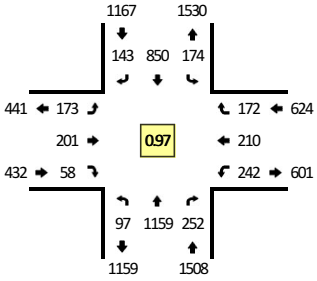
CITY/STATE: Five Corners, WA

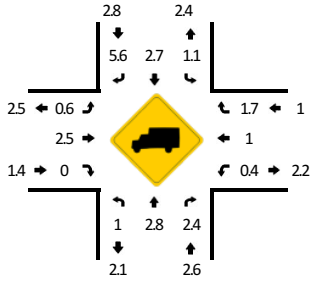
QC JOB #: 17374622

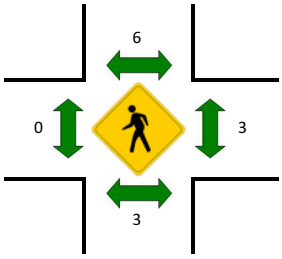
DATE: Thu, Dec 11 2025

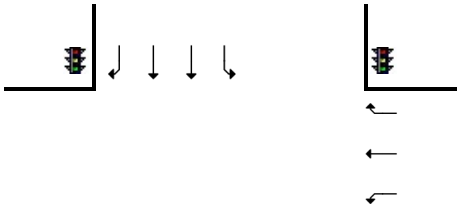
Peak-Hour: 4:35 PM -- 5:35 PM

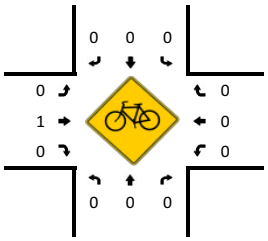
Peak 15-Min: 5:00 PM -- 5:15 PM

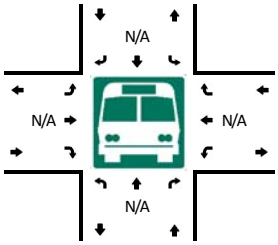


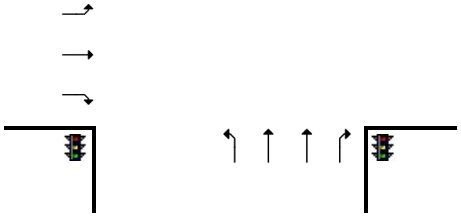


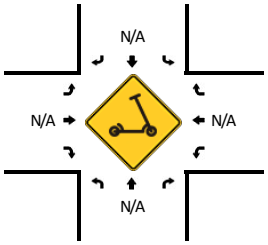












R* = RTOR

5-Min Count Period Beginning At	NE 117th Ave (SR 503) (Northbound)					NE 117th Ave (SR 503) (Southbound)					NE 99th St (Eastbound)					NE 99th St (Westbound)					Total	Hourly Totals
	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*		
4:00 PM	3	85	14	4	1	17	47	8	0	7	22	16	0	0	4	14	16	8	0	3	269	
4:05 PM	10	96	10	0	3	15	67	7	0	2	16	19	0	0	5	23	17	4	0	5	299	
4:10 PM	6	88	13	2	0	18	71	5	2	2	15	19	0	0	3	22	23	8	0	5	302	
4:15 PM	9	89	14	0	1	13	92	11	2	4	16	15	0	0	4	16	11	7	0	6	310	
4:20 PM	9	109	26	2	0	11	87	4	2	1	11	18	0	0	1	17	8	10	0	4	320	
4:25 PM	5	110	18	0	0	12	59	6	1	2	13	5	0	0	2	12	15	5	0	3	268	
4:30 PM	9	105	16	0	0	16	54	6	1	3	11	16	2	0	3	18	18	6	0	3	287	
4:35 PM	7	91	18	2	0	8	61	12	1	7	21	16	4	0	2	28	21	7	0	5	311	
4:40 PM	8	84	19	0	5	7	72	6	1	2	15	29	1	0	5	15	23	15	0	7	314	
4:45 PM	10	100	24	1	1	6	68	9	2	4	13	21	2	0	2	18	12	4	0	3	300	
4:50 PM	5	96	21	1	1	18	78	6	3	3	13	20	0	0	4	15	17	14	0	6	321	
4:55 PM	10	113	20	2	1	17	60	9	3	2	15	13	1	0	5	19	10	7	0	4	311	3612
5:00 PM	10	94	16	0	0	12	74	8	2	6	12	11	2	0	0	25	24	8	0	6	310	3653
5:05 PM	7	104	15	0	1	14	78	8	1	2	15	11	3	0	2	22	25	4	0	9	321	3675
5:10 PM	7	90	30	0	3	10	81	10	5	3	17	12	2	0	8	31	12	1	0	7	329	3702
5:15 PM	8	100	15	1	0	13	43	9	4	3	14	21	0	0	2	23	21	13	0	8	298	3690
5:20 PM	4	87	23	0	2	16	75	6	2	2	16	19	1	0	7	14	19	11	0	6	310	3680
5:25 PM	3	94	14	2	3	13	85	11	2	4	12	13	0	0	1	14	11	10	0	6	298	3710
5:30 PM	9	106	19	0	1	14	75	10	0	1	10	15	1	0	3	18	15	7	0	4	308	3731
5:35 PM	6	106	18	2	0	9	74	6	0	1	17	14	3	0	4	12	10	9	0	5	296	3716
5:40 PM	11	91	20	0	3	11	56	5	6	5	9	17	3	0	1	14	7	11	0	10	280	3682
5:45 PM	11	94	15	0	3	9	71	5	1	3	16	19	0	0	2	25	13	7	0	1	295	3677
5:50 PM	13	69	14	0	4	5	58	7	1	1	11	11	1	0	2	17	12	10	0	4	240	3596
5:55 PM	9	95	19	0	2	12	52	1	3	3	8	22	1	0	2	22	11	5	0	7	274	3559

Peak 15-Min Flowrates	Northbound					Southbound					Eastbound					Westbound					Total
	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	
All Vehicles	96	1152	260	0	16	144	932	148	32	44	176	136	68	0	40	312	244	140	0	88	4028
Heavy Trucks	4	24	8			0	32	12			0	4	0			0	4	0			88
Buses																					
Pedestrians		8					12					0					4				24
Bicycles	0	0	0			0	0	0			0	0	0			0	0	0			0
Scooters																					

Comments:

Report generated on 12/18/2025 11:13 AM

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

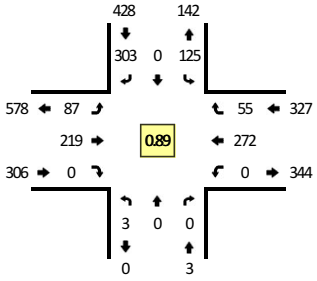
Type of peak hour being reported: Intersection Peak

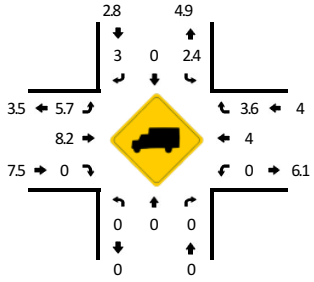
Method for determining peak hour: Total Entering Volume

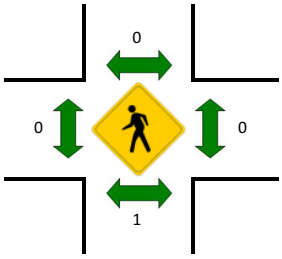
LOCATION: NE 124th Ave -- NE 99th St
CITY/STATE: Orchards, WA

QC JOB #: 17374623
DATE: Thu, Dec 11 2025

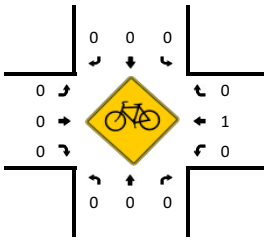
Peak-Hour: 7:35 AM -- 8:35 AM
Peak 15-Min: 7:40 AM -- 7:55 AM

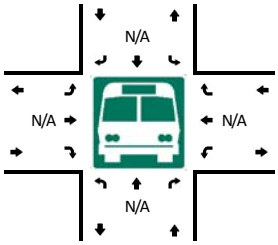




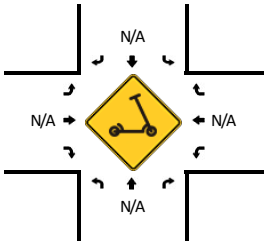












R* = RTOR

5-Min Count Period Beginning At	NE 124th Ave (Northbound)					NE 124th Ave (Southbound)					NE 99th St (Eastbound)					NE 99th St (Westbound)					Total	Hourly Totals
	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*		
7:00 AM	0	0	0	0	1	8	0	16	0	7	4	14	0	0	0	0	14	1	0	1	66	
7:05 AM	0	0	0	0	0	7	0	30	0	3	5	6	0	0	0	0	17	0	0	1	69	
7:10 AM	0	0	0	0	0	7	0	13	0	7	2	11	0	0	0	0	23	1	0	0	64	
7:15 AM	0	0	0	0	0	10	0	18	0	6	8	9	0	0	0	0	15	2	0	1	69	
7:20 AM	1	0	0	0	0	4	0	14	0	10	5	19	0	0	0	0	27	1	0	1	82	
7:25 AM	0	0	0	0	0	13	0	25	0	5	5	10	0	0	0	0	20	2	0	2	82	
7:30 AM	0	0	0	0	0	7	0	14	0	13	7	16	0	0	0	0	28	3	0	0	88	
7:35 AM	1	0	0	0	0	15	0	19	0	6	6	15	0	0	0	0	29	3	0	2	96	
7:40 AM	2	0	0	0	0	15	0	25	0	3	6	17	0	0	0	0	28	3	0	1	100	
7:45 AM	0	0	0	0	0	14	0	30	0	3	4	11	0	0	0	0	29	4	0	0	95	
7:50 AM	0	0	0	0	0	6	0	24	0	11	5	21	0	0	0	0	30	6	0	0	103	
7:55 AM	0	0	0	0	0	15	0	19	0	3	10	19	0	0	0	0	18	3	0	1	88	1002
8:00 AM	0	0	0	0	0	5	0	13	0	5	11	15	0	0	0	0	21	2	0	0	72	1008
8:05 AM	0	0	0	0	0	11	0	19	0	7	7	21	0	0	0	0	22	6	0	1	94	1033
8:10 AM	0	0	0	0	0	7	0	12	0	6	8	23	0	0	0	0	15	8	0	0	79	1048
8:15 AM	0	0	0	0	0	9	0	18	0	7	7	16	0	0	0	0	23	1	0	0	81	1060
8:20 AM	0	0	0	0	0	7	0	14	0	11	7	22	0	0	0	0	18	4	0	0	83	1061
8:25 AM	0	0	0	0	0	11	0	15	0	4	6	16	0	0	0	0	25	2	0	1	80	1059
8:30 AM	0	0	0	0	0	10	0	21	0	8	10	23	0	0	0	0	14	5	0	2	93	1064
8:35 AM	0	0	0	0	0	8	0	17	0	4	2	24	0	0	0	0	21	4	0	0	80	1048
8:40 AM	2	0	0	0	0	9	0	19	0	5	7	12	0	0	0	0	21	4	0	0	79	1027
8:45 AM	0	0	0	0	0	6	0	8	0	8	9	20	0	0	0	0	27	3	0	1	82	1014
8:50 AM	0	0	0	0	0	8	0	15	0	13	7	22	0	0	0	0	13	2	0	0	80	991
8:55 AM	0	0	0	0	0	7	0	7	0	9	5	18	0	0	0	0	23	3	0	0	72	975

Peak 15-Min Flowrates	Northbound					Southbound					Eastbound					Westbound					Total
	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	
All Vehicles	8	0	0	0	0	140	0	384	0	68	60	196	0	0	0	0	348	56	0	4	1264
Heavy Trucks	0	0	0			4	0	12			4	16	0			0	12	4			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 12/18/2025 11:13 AM

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

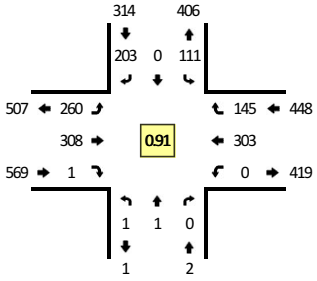
Type of peak hour being reported: Intersection Peak

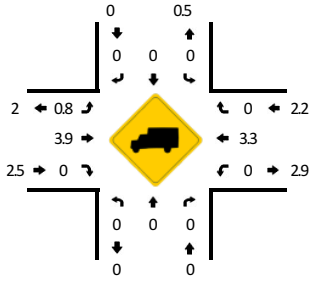
Method for determining peak hour: Total Entering Volume

LOCATION: NE 124th Ave -- NE 99th St
CITY/STATE: Orchards, WA

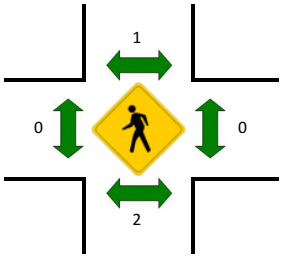
QC JOB #: 17374624
DATE: Thu, Dec 11 2025

Peak-Hour: 4:30 PM -- 5:30 PM
Peak 15-Min: 4:50 PM -- 5:05 PM

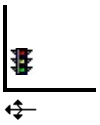


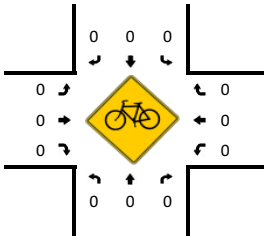


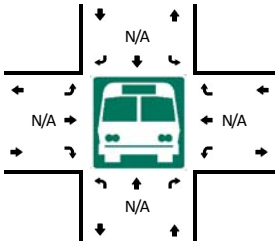
TRUE DATA TO IMPROVE MOBILITY

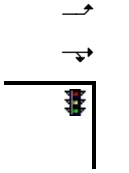


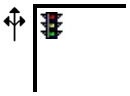


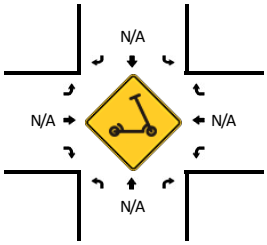












R* = RTOR

5-Min Count Period Beginning At	NE 124th Ave (Northbound)					NE 124th Ave (Southbound)					NE 99th St (Eastbound)					NE 99th St (Westbound)					Total	Hourly Totals
	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*		
4:00 PM	0	0	0	0	0	6	0	10	0	7	15	26	0	0	0	0	16	14	0	2	96	
4:05 PM	0	0	0	0	0	5	0	8	0	10	13	25	0	0	0	0	27	8	0	0	96	
4:10 PM	0	0	0	0	2	7	0	12	0	8	11	29	0	0	0	0	28	7	0	0	104	
4:15 PM	0	0	0	0	0	11	0	13	0	2	21	20	0	0	0	0	22	12	0	3	104	
4:20 PM	0	0	0	0	0	6	0	8	0	5	26	31	0	0	0	0	21	14	0	3	114	
4:25 PM	0	0	0	0	0	13	0	12	0	3	15	19	0	0	0	0	19	7	0	0	88	
4:30 PM	0	0	0	0	0	4	0	11	0	5	15	26	0	0	0	0	28	14	0	1	104	
4:35 PM	1	0	0	0	0	7	0	15	0	5	24	22	0	0	0	0	29	4	0	2	109	
4:40 PM	0	0	0	0	0	6	0	14	0	4	28	26	0	0	0	0	28	14	0	1	121	
4:45 PM	0	1	0	0	0	11	0	16	0	0	16	16	0	0	0	0	19	7	0	1	87	
4:50 PM	0	0	0	0	0	6	0	12	0	8	40	34	0	0	0	0	22	13	0	0	135	
4:55 PM	0	0	0	0	0	11	0	13	0	4	15	36	0	0	0	0	22	8	0	1	110	1268
5:00 PM	0	0	0	0	0	13	0	19	0	7	13	26	0	0	0	0	33	8	0	1	120	1292
5:05 PM	0	0	0	0	0	13	0	12	0	9	15	27	0	0	0	0	14	13	0	0	103	1299
5:10 PM	0	0	0	0	0	13	0	12	0	6	25	19	0	0	0	0	22	17	0	3	117	1312
5:15 PM	0	0	0	0	0	5	0	10	0	4	22	25	1	0	0	0	35	8	0	1	111	1319
5:20 PM	0	0	0	0	0	12	0	6	0	4	19	30	0	0	0	0	24	13	0	0	108	1313
5:25 PM	0	0	0	0	0	10	0	4	0	3	28	21	0	0	0	0	27	14	0	1	108	1333
5:30 PM	0	0	0	0	0	7	0	17	0	3	15	19	0	0	0	0	18	9	0	1	89	1318
5:35 PM	0	0	0	0	0	4	0	5	0	9	22	27	0	0	0	0	21	10	0	0	98	1307
5:40 PM	0	0	0	0	0	8	0	11	0	8	22	28	0	0	0	0	25	9	0	2	113	1299
5:45 PM	0	0	0	0	0	13	0	10	0	5	23	23	0	0	0	0	27	8	0	1	110	1322
5:50 PM	1	0	0	0	0	15	0	10	0	4	14	23	1	0	0	0	16	13	0	2	99	1286
5:55 PM	0	0	0	0	0	12	0	14	0	8	21	29	0	0	0	0	21	9	0	3	117	1293

Peak 15-Min Flowrates	Northbound					Southbound					Eastbound					Westbound					Total
	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	
All Vehicles	0	0	0	0	0	120	0	252	0	76	272	384	0	0	0	0	308	124	0	8	1544
Heavy Trucks	0	0	0			0	0	0			4	0	0			0	4	0			8
Buses																					
Pedestrians		4					0					0					0				4
Bicycles	0	0	0			0	0	0			0	0	0			0	0	0			0
Scooters																					

Comments:

Report generated on 12/18/2025 11:13 AM

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

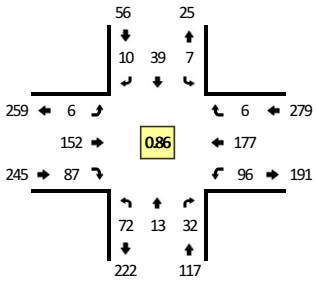
Type of peak hour being reported: Intersection Peak

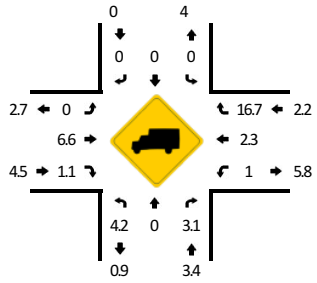
Method for determining peak hour: Total Entering Volume

LOCATION: NE 137th Ave -- NE 99th St
CITY/STATE: Orchards, WA

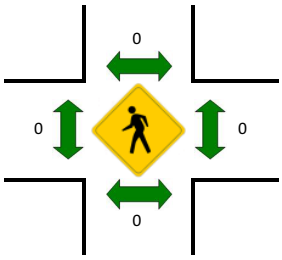
QC JOB #: 17374625
DATE: Thu, Dec 11 2025

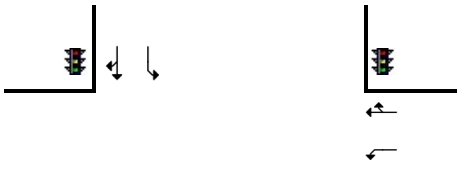
Peak-Hour: 7:25 AM -- 8:25 AM
Peak 15-Min: 7:35 AM -- 7:50 AM

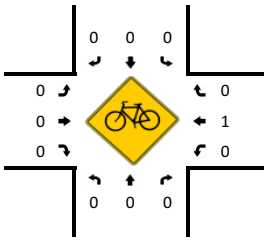


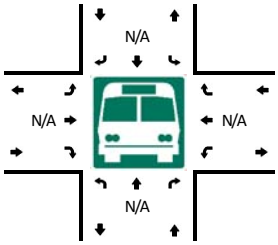


TRUE DATA TO IMPROVE MOBILITY

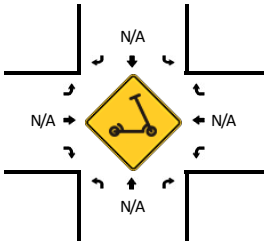












R* = RTOR

5-Min Count Period Beginning At	NE 137th Ave (Northbound)					NE 137th Ave (Southbound)					NE 99th St (Eastbound)					NE 99th St (Westbound)					Total	Hourly Totals
	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*		
7:00 AM	1	2	0	0	0	0	0	0	0	0	0	5	2	0	0	5	9	0	0	0	24	
7:05 AM	7	0	1	0	0	2	2	2	0	0	0	7	4	0	1	4	12	0	0	0	42	
7:10 AM	4	0	1	0	1	0	1	0	0	0	0	7	2	0	0	6	13	0	0	0	35	
7:15 AM	6	1	0	0	0	1	3	1	0	2	0	6	4	0	2	4	8	0	0	0	38	
7:20 AM	8	0	0	0	1	0	2	0	0	1	1	12	3	0	1	5	11	0	0	0	45	
7:25 AM	2	1	1	0	1	1	4	0	0	0	0	7	11	0	0	10	15	1	0	0	54	
7:30 AM	7	1	2	0	0	0	3	0	0	0	1	18	6	0	1	6	15	0	0	0	60	
7:35 AM	5	1	2	0	1	0	8	0	0	0	2	18	9	0	2	11	14	0	0	0	73	
7:40 AM	8	0	0	0	2	1	3	1	0	1	0	13	7	0	0	9	18	0	0	1	64	
7:45 AM	7	1	1	0	3	1	3	2	0	0	0	14	5	0	4	9	16	0	0	0	66	
7:50 AM	6	1	1	0	0	2	1	0	0	1	0	9	9	0	1	10	26	0	0	1	68	
7:55 AM	5	1	1	0	3	0	0	0	0	1	1	8	7	0	0	8	19	1	0	0	55	624
8:00 AM	7	0	0	0	1	1	2	1	0	0	0	11	5	0	0	8	12	0	0	0	48	648
8:05 AM	9	2	2	0	2	1	5	1	0	1	0	18	5	0	0	7	8	1	0	0	62	668
8:10 AM	8	3	2	0	0	0	4	0	0	1	1	9	1	0	1	3	8	0	0	0	41	674
8:15 AM	5	1	4	0	2	0	4	0	0	0	0	15	9	0	1	7	11	0	0	0	59	695
8:20 AM	3	1	1	0	0	0	2	0	0	0	1	12	2	0	1	8	15	1	0	0	47	697
8:25 AM	8	2	4	0	0	0	1	2	0	1	1	7	9	0	0	4	10	0	0	0	49	692
8:30 AM	7	2	0	0	4	0	1	1	0	1	0	4	9	0	1	1	12	0	0	0	43	675
8:35 AM	7	3	3	0	1	1	4	1	0	0	0	11	1	0	2	6	13	0	0	0	53	655
8:40 AM	8	1	0	0	1	0	1	0	0	2	0	13	8	0	1	4	10	1	0	0	50	641
8:45 AM	11	4	4	0	0	0	4	0	0	0	1	5	6	0	1	1	10	0	0	1	48	623
8:50 AM	5	0	0	0	1	1	1	1	0	0	0	8	7	0	1	2	13	0	0	0	40	595
8:55 AM	8	2	0	0	2	0	4	0	0	1	0	11	10	0	1	7	11	1	0	0	58	598

Peak 15-Min Flowrates	Northbound					Southbound					Eastbound					Westbound					Total
	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	
All Vehicles	80	8	36	0	24	8	56	16	0	4	8	180	108	0	24	116	192	4	0	4	868
Heavy Trucks	0	0	0			0	0	0			0	16	4			0	4	0			24
Buses																					
Pedestrians		0					0					0					0				0
Bicycles	0	0	0			0	0	0			0	0	0			0	0	0			0
Scooters																					

Comments:

Report generated on 12/18/2025 11:13 AM

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

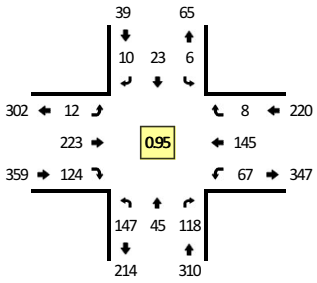
Type of peak hour being reported: Intersection Peak

Method for determining peak hour: Total Entering Volume

LOCATION: NE 137th Ave -- NE 99th St
CITY/STATE: Orchards, WA

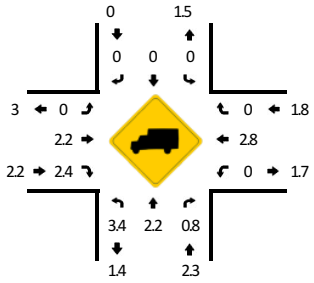
QC JOB #: 17374626
DATE: Thu, Dec 11 2025

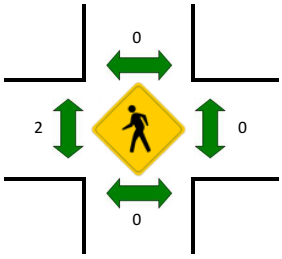
Peak-Hour: 4:30 PM -- 5:30 PM
Peak 15-Min: 4:35 PM -- 4:50 PM

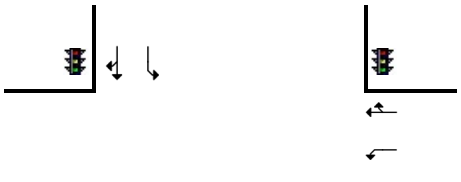


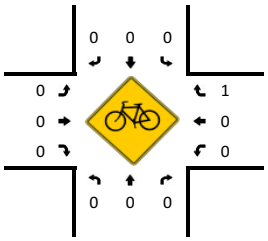


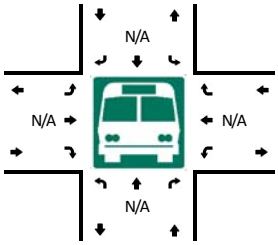
TRUE DATA TO IMPROVE MOBILITY



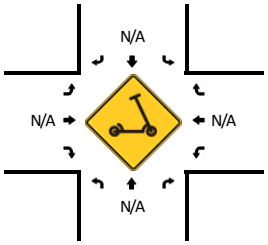












R* = RTOR

5-Min Count Period Beginning At	NE 137th Ave (Northbound)					NE 137th Ave (Southbound)					NE 99th St (Eastbound)					NE 99th St (Westbound)					Total	Hourly Totals
	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*		
4:00 PM	11	6	9	0	4	0	0	0	0	0	4	18	5	0	2	2	11	0	0	0	72	
4:05 PM	15	3	7	0	4	1	0	0	0	0	0	20	10	0	0	2	16	3	0	0	81	
4:10 PM	4	2	9	0	1	0	2	3	0	0	1	16	12	0	1	5	10	0	0	0	66	
4:15 PM	11	4	4	0	7	1	0	0	0	0	0	21	11	0	1	12	14	0	0	0	86	
4:20 PM	11	4	8	0	4	0	4	0	0	0	1	12	8	0	2	0	17	0	0	2	73	
4:25 PM	13	4	6	0	5	2	1	1	0	0	1	16	6	0	1	4	14	0	0	0	74	
4:30 PM	16	4	6	0	1	0	2	0	0	1	0	15	3	0	2	8	15	1	0	0	74	
4:35 PM	15	3	7	0	4	0	4	0	0	0	3	23	10	0	1	5	18	1	0	0	94	
4:40 PM	9	4	3	0	6	0	2	0	0	0	0	13	9	0	2	5	12	0	0	0	65	
4:45 PM	10	6	11	0	1	0	3	0	0	1	1	20	10	0	3	9	9	0	0	0	84	
4:50 PM	10	4	2	0	2	0	2	2	0	1	2	24	6	0	0	4	11	0	0	0	70	
4:55 PM	13	2	7	0	1	0	0	0	0	3	0	26	7	0	1	5	12	0	0	0	77	916
5:00 PM	10	4	8	0	1	0	1	0	0	0	1	23	13	0	0	2	14	1	0	0	78	922
5:05 PM	9	5	3	0	6	2	3	0	0	0	1	16	13	0	1	9	5	1	0	0	74	915
5:10 PM	13	1	10	0	4	1	2	0	0	1	1	12	11	0	1	3	9	0	0	0	69	918
5:15 PM	16	6	5	0	6	2	0	0	0	1	1	21	10	0	1	8	15	2	0	0	94	926
5:20 PM	12	3	11	0	3	0	1	0	0	0	0	14	6	0	1	3	12	0	0	0	66	919
5:25 PM	14	3	9	0	1	1	3	0	0	0	2	16	9	0	4	6	13	2	0	0	83	928
5:30 PM	12	5	5	0	4	0	1	0	0	0	0	15	8	0	0	5	15	0	0	0	70	924
5:35 PM	12	6	8	0	2	1	0	1	0	0	3	15	3	0	1	5	12	1	0	0	70	900
5:40 PM	14	4	4	0	2	1	1	0	0	3	0	18	2	0	2	4	18	2	0	0	75	910
5:45 PM	11	3	4	0	1	0	3	0	0	0	1	16	9	0	0	2	11	0	0	0	61	887
5:50 PM	16	1	3	0	3	0	1	1	0	1	0	13	8	0	1	3	11	0	0	0	62	879
5:55 PM	10	2	9	0	4	2	4	0	0	0	2	11	6	0	2	5	9	1	0	0	67	869

Peak 15-Min Flowrates	Northbound					Southbound					Eastbound					Westbound					Total
	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	
All Vehicles	136	52	128	0	44	0	36	4	0	4	16	224	140	0	24	76	156	4	0	0	1044
Heavy Trucks	0	0	0			0	0	0			0	8	12			0	8	0			28
Buses																					
Pedestrians		0					0					0					0				0
Bicycles	0	0	0			0	0	0			0	0	0			0	0	4			4
Scooters																					

Comments:

Report generated on 12/18/2025 11:13 AM

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

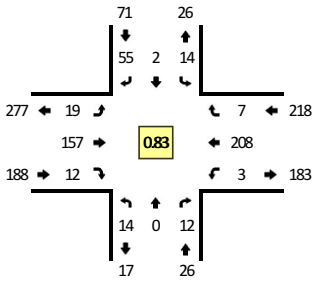
Type of peak hour being reported: Intersection Peak

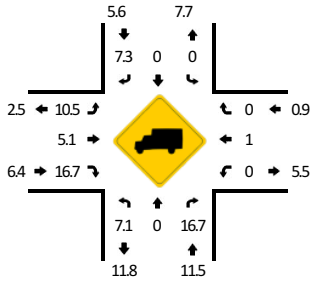
Method for determining peak hour: Total Entering Volume

LOCATION: NE 142nd Ave -- NE 99th St
CITY/STATE: Orchards, WA

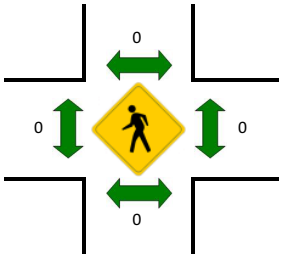
QC JOB #: 17374627
DATE: Thu, Dec 11 2025

Peak-Hour: 7:25 AM -- 8:25 AM
Peak 15-Min: 7:40 AM -- 7:55 AM

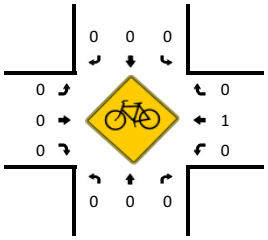


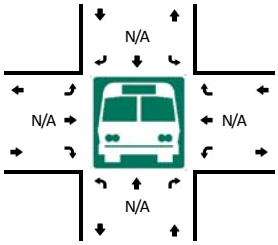


TRUE DATA TO IMPROVE MOBILITY

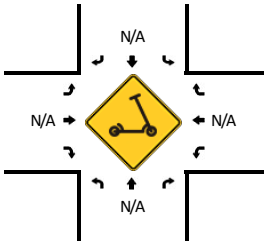












R* = RTOR

5-Min Count Period Beginning At	NE 142nd Ave (Northbound)					NE 142nd Ave (Southbound)					NE 99th St (Eastbound)					NE 99th St (Westbound)					Total	Hourly Totals
	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*		
7:00 AM	0	0	0	0	0	0	0	4	0	0	0	8	0	0	0	0	8	0	0	0	20	
7:05 AM	2	0	1	0	0	0	0	1	0	0	1	7	0	0	0	0	13	0	0	0	25	
7:10 AM	1	0	0	0	0	1	1	6	0	0	2	8	0	0	0	1	14	0	0	0	34	
7:15 AM	2	0	0	0	0	0	0	3	0	0	0	4	1	0	0	0	8	0	0	0	18	
7:20 AM	1	0	0	0	0	1	0	3	0	0	1	14	0	0	0	0	11	1	0	0	32	
7:25 AM	2	0	1	0	0	1	0	5	0	0	0	8	1	0	0	0	16	0	0	0	34	
7:30 AM	0	0	0	0	0	0	0	3	0	0	1	15	2	0	0	0	20	0	0	0	41	
7:35 AM	2	0	0	0	0	5	2	6	0	0	1	20	1	0	0	0	16	0	0	0	53	
7:40 AM	3	0	2	0	0	1	0	6	0	0	1	17	0	0	0	0	19	0	0	0	49	
7:45 AM	0	0	1	0	0	0	0	4	0	0	1	14	2	0	0	1	21	2	0	0	46	
7:50 AM	3	0	2	0	0	2	0	6	0	0	1	8	3	0	0	0	30	1	0	0	56	
7:55 AM	0	0	0	0	0	0	0	5	0	0	1	10	0	0	0	0	21	0	0	0	37	445
8:00 AM	0	0	2	0	0	1	0	5	0	0	3	11	0	0	0	0	14	0	0	0	36	461
8:05 AM	0	0	1	0	0	1	0	5	0	0	2	19	1	0	0	0	12	0	0	0	41	477
8:10 AM	1	0	1	0	0	0	0	3	0	0	1	9	0	0	0	1	9	3	0	0	28	471
8:15 AM	0	0	1	0	0	1	0	4	0	0	4	16	1	0	0	0	15	1	0	0	43	496
8:20 AM	3	0	1	0	0	2	0	3	0	0	3	10	1	0	0	1	15	0	0	0	39	503
8:25 AM	2	0	0	0	0	0	0	3	0	0	3	8	0	0	0	0	9	0	0	0	25	494
8:30 AM	2	0	0	0	0	2	0	1	0	0	1	7	1	0	0	1	14	1	0	0	30	483
8:35 AM	0	0	0	0	0	1	0	6	0	0	1	14	1	0	0	0	12	1	0	0	36	466
8:40 AM	0	0	0	0	0	0	0	3	0	0	0	13	1	0	0	1	10	1	0	0	29	446
8:45 AM	2	0	0	0	0	0	0	0	0	0	1	7	0	0	0	1	11	2	0	0	24	424
8:50 AM	1	0	0	0	0	0	0	3	0	0	2	7	0	0	0	0	12	1	0	0	26	394
8:55 AM	1	0	0	0	0	1	0	5	0	0	3	9	1	0	0	0	17	0	0	0	37	394

Peak 15-Min Flowrates	Northbound					Southbound					Eastbound					Westbound					Total
	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	
All Vehicles	24	0	20	0	0	12	0	64	0	0	12	156	20	0	0	4	280	12	0	0	604
Heavy Trucks	0	0	4			0	0	4			4	8	4			0	0	0			24
Buses																					
Pedestrians		0					0					0					0				0
Bicycles	0	0	0			0	0	0			0	0	0			0	0	0			0
Scooters																					

Comments:

Report generated on 12/18/2025 11:13 AM

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

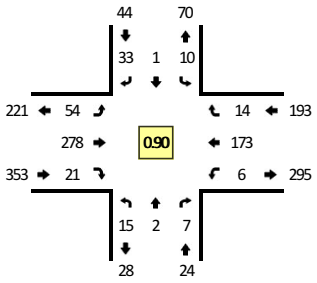
Type of peak hour being reported: Intersection Peak

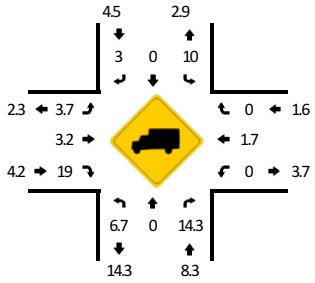
Method for determining peak hour: Total Entering Volume

LOCATION: NE 142nd Ave -- NE 99th St
CITY/STATE: Orchards, WA

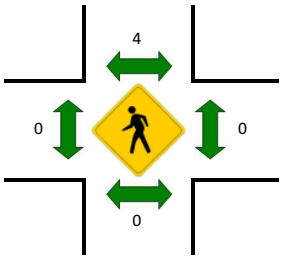
QC JOB #: 17374628
DATE: Thu, Dec 11 2025

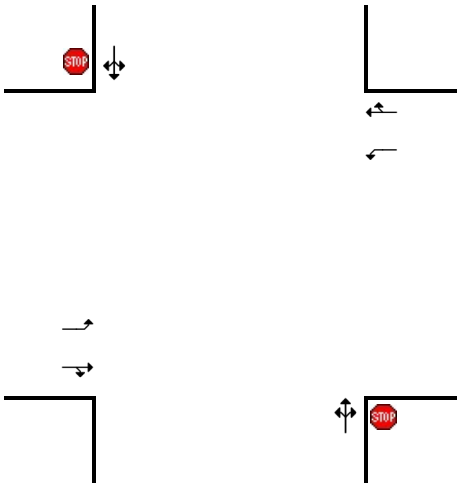
Peak-Hour: 4:05 PM -- 5:05 PM
Peak 15-Min: 4:15 PM -- 4:30 PM

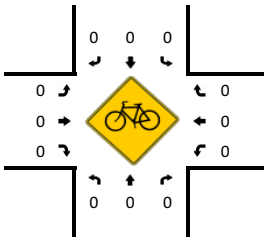


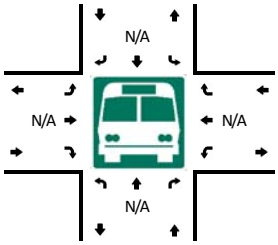


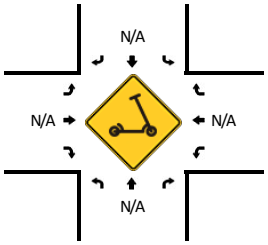
TRUE DATA TO IMPROVE MOBILITY











R* = RTOR

5-Min Count Period Beginning At	NE 142nd Ave (Northbound)					NE 142nd Ave (Southbound)					NE 99th St (Eastbound)					NE 99th St (Westbound)					Total	Hourly Totals
	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*		
4:00 PM	2	0	0	0	0	0	0	1	0	0	4	20	3	0	0	1	10	1	0	0	42	
4:05 PM	1	0	1	0	0	2	0	2	0	0	7	25	4	0	0	0	20	0	0	0	62	
4:10 PM	2	1	0	0	0	1	1	1	0	0	5	20	2	0	0	0	14	0	0	0	47	
4:15 PM	0	0	0	0	0	1	0	0	0	0	6	22	1	0	0	0	21	1	0	0	52	
4:20 PM	1	0	1	0	0	2	0	2	0	0	4	21	2	0	0	1	16	3	0	0	53	
4:25 PM	1	0	2	0	0	0	0	8	0	0	6	27	1	0	0	0	16	4	0	0	65	
4:30 PM	1	1	2	0	0	0	0	2	0	0	6	15	1	0	0	1	14	1	0	0	44	
4:35 PM	2	0	0	0	0	0	0	4	0	0	2	27	0	0	0	1	18	0	0	0	54	
4:40 PM	0	0	0	0	0	0	0	3	0	0	3	20	4	0	0	0	11	2	0	0	43	
4:45 PM	1	0	0	0	0	3	0	1	0	0	5	25	0	0	0	1	12	0	0	0	48	
4:50 PM	1	0	0	0	0	0	0	5	0	0	1	25	0	0	0	0	9	2	0	0	43	
4:55 PM	2	0	1	0	0	0	0	3	0	0	3	30	4	0	0	1	13	0	0	0	57	610
5:00 PM	3	0	0	0	0	1	0	2	0	0	6	21	2	0	0	1	9	1	0	0	46	614
5:05 PM	0	0	1	0	0	0	0	3	0	0	10	19	1	0	0	0	14	0	0	0	48	600
5:10 PM	0	0	2	0	0	2	0	1	0	0	6	21	0	0	0	0	12	1	0	0	45	598
5:15 PM	0	0	0	0	0	1	0	8	0	0	5	28	0	0	0	1	20	0	0	0	63	609
5:20 PM	2	0	1	0	0	0	0	2	0	0	4	23	1	0	0	0	12	0	0	0	45	601
5:25 PM	3	0	0	0	0	0	0	1	0	0	6	18	1	0	0	0	17	0	0	0	46	582
5:30 PM	0	0	0	0	0	0	0	4	0	0	2	20	3	0	0	0	18	3	0	0	50	588
5:35 PM	2	0	2	0	0	0	0	1	0	0	5	16	4	0	0	0	15	0	0	0	45	579
5:40 PM	2	0	4	0	0	0	1	5	0	0	4	19	0	0	0	3	24	2	0	0	64	600
5:45 PM	0	0	0	0	0	0	0	3	0	0	5	18	0	0	0	0	10	1	0	0	37	589
5:50 PM	0	0	0	0	0	1	0	4	0	0	6	14	0	0	0	2	11	1	0	0	39	585
5:55 PM	1	0	0	0	0	2	0	3	0	0	5	20	0	0	0	1	8	0	0	0	40	568

Peak 15-Min Flowrates	Northbound					Southbound					Eastbound					Westbound					Total
	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	
All Vehicles	8	0	12	0	0	12	0	40	0	0	64	280	16	0	0	4	212	32	0	0	680
Heavy Trucks	0	0	0			0	0	4			0	12	0			0	8	0			24
Buses																					
Pedestrians		0					4					0					0				4
Bicycles	0	0	0			0	0	0			0	0	0			0	0	0			0
Scooters																					

Comments:

Report generated on 12/18/2025 11:13 AM

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

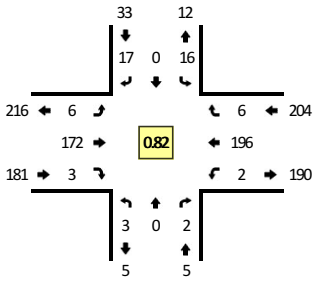
Type of peak hour being reported: Intersection Peak

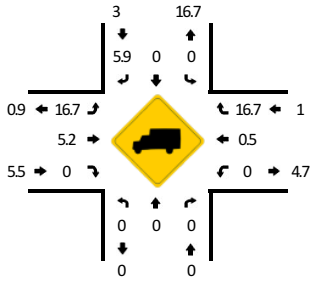
Method for determining peak hour: Total Entering Volume

LOCATION: NE 144th Ave -- NE 99th St
CITY/STATE: Orchards, WA

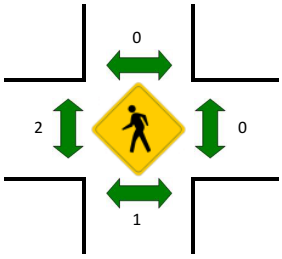
QC JOB #: 17374629
DATE: Thu, Dec 11 2025

Peak-Hour: 7:25 AM -- 8:25 AM
Peak 15-Min: 7:40 AM -- 7:55 AM

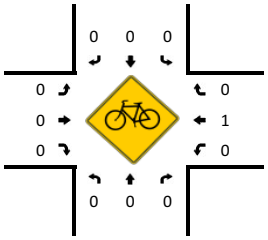


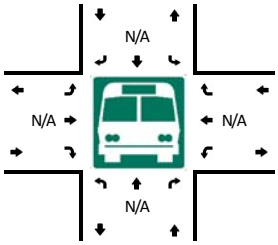


TRUE DATA TO IMPROVE MOBILITY

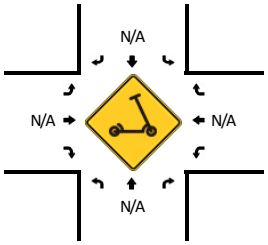












R* = RTOR

5-Min Count Period Beginning At	NE 144th Ave (Northbound)					NE 144th Ave (Southbound)					NE 99th St (Eastbound)					NE 99th St (Westbound)					Total	Hourly Totals
	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*		
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	7	0	0	0	0	8	0	0	0	15	
7:05 AM	1	0	0	0	0	2	0	1	0	0	0	8	0	0	0	0	10	1	0	0	23	
7:10 AM	0	0	0	0	0	2	0	1	0	0	0	9	0	0	0	0	16	0	0	0	28	
7:15 AM	0	0	0	0	0	2	0	0	0	0	0	4	0	0	0	0	6	1	0	0	13	
7:20 AM	0	0	0	0	0	0	0	3	0	0	0	14	1	0	0	0	9	0	0	0	27	
7:25 AM	1	0	0	0	0	1	0	4	0	0	0	9	1	0	0	0	12	1	0	0	29	
7:30 AM	1	0	1	0	0	1	0	3	0	0	0	15	0	0	0	0	14	0	0	0	35	
7:35 AM	0	0	0	0	0	1	0	3	0	0	0	25	0	0	0	0	13	0	0	0	42	
7:40 AM	0	0	0	0	0	3	0	1	0	0	0	17	0	0	0	0	19	0	0	0	40	
7:45 AM	0	0	0	0	0	0	0	1	0	0	0	17	0	0	0	2	24	1	0	0	45	
7:50 AM	0	0	0	0	0	3	0	1	0	0	0	12	0	0	0	0	28	0	0	0	44	
7:55 AM	0	0	0	0	0	1	0	0	0	0	2	8	0	0	0	0	20	1	0	0	32	373
8:00 AM	0	0	0	0	0	1	0	1	0	0	0	15	0	0	0	0	14	1	0	0	32	390
8:05 AM	0	0	0	0	0	1	0	0	0	0	3	17	1	0	0	0	13	2	0	0	37	404
8:10 AM	1	0	0	0	0	1	0	1	0	0	0	9	1	0	0	0	9	0	0	0	22	398
8:15 AM	0	0	0	0	0	1	0	1	0	0	0	16	0	0	0	0	15	0	0	0	33	418
8:20 AM	0	0	1	0	0	2	0	1	0	0	1	12	0	0	0	0	15	0	0	0	32	423
8:25 AM	0	0	0	0	0	0	0	1	0	0	0	10	0	0	0	0	8	2	0	0	21	415
8:30 AM	0	0	0	0	0	2	0	0	0	0	0	8	0	0	0	0	14	0	0	0	24	404
8:35 AM	0	0	0	0	0	0	0	3	0	0	0	16	0	0	0	0	10	1	0	0	30	392
8:40 AM	0	0	0	0	0	1	0	1	0	0	1	9	1	0	0	0	11	1	0	0	25	377
8:45 AM	1	0	0	0	0	0	0	0	0	0	0	9	0	0	0	0	13	0	0	0	23	355
8:50 AM	0	0	0	0	0	1	0	1	0	0	0	7	0	0	0	0	13	0	0	0	22	333
8:55 AM	0	0	0	0	0	1	0	2	0	0	0	8	1	0	0	0	13	0	0	0	25	326

Peak 15-Min Flowrates	Northbound					Southbound					Eastbound					Westbound					Total
	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	
All Vehicles	0	0	0	0	0	24	0	12	0	0	0	184	0	0	0	8	284	4	0	0	516
Heavy Trucks	0	0	0			0	0	0			0	12	0			0	0	0			12
Buses																					
Pedestrians		0					0					0					0				0
Bicycles	0	0	0			0	0	0			0	0	0			0	0	0			0
Scooters																					

Comments:

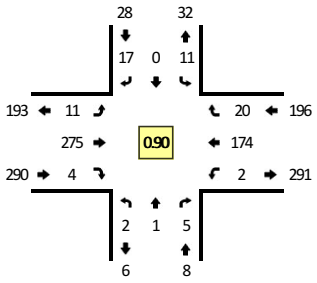
Report generated on 12/18/2025 11:13 AM

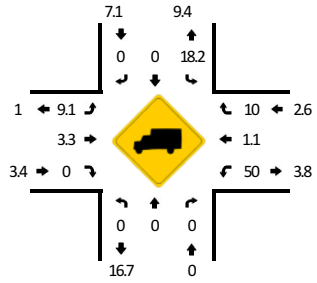
SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

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

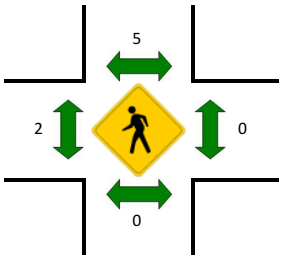
LOCATION: NE 144th Ave -- NE 99th St | **QC JOB #:** 17374630
CITY/STATE: Orchards, WA | **DATE:** Thu, Dec 11 2025

Peak-Hour: 4:05 PM -- 5:05 PM
Peak 15-Min: 4:15 PM -- 4:30 PM

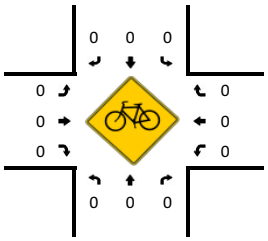


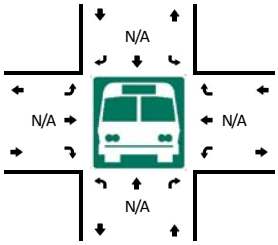


TRUE DATA TO IMPROVE MOBILITY

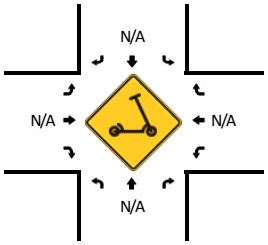












R* = RTOR

5-Min Count Period Beginning At	NE 144th Ave (Northbound)					NE 144th Ave (Southbound)					NE 99th St (Eastbound)					NE 99th St (Westbound)					Total	Hourly Totals
	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*		
4:00 PM	1	0	0	0	0	0	1	1	0	0	4	17	0	0	0	0	9	0	0	0	33	
4:05 PM	0	0	1	0	0	4	0	0	0	0	4	21	0	0	0	0	20	2	0	0	52	
4:10 PM	0	0	0	0	0	0	0	2	0	0	2	22	0	0	0	0	14	4	0	0	44	
4:15 PM	1	0	0	0	0	1	0	3	0	0	0	22	0	0	0	0	16	3	0	0	46	
4:20 PM	1	0	0	0	0	0	0	0	0	0	0	23	2	0	0	1	20	2	0	0	49	
4:25 PM	0	1	0	0	0	1	0	1	0	0	1	27	0	0	0	0	17	2	0	0	50	
4:30 PM	0	0	0	0	0	2	0	3	0	0	0	17	1	0	0	0	13	2	0	0	38	
4:35 PM	0	0	1	0	0	1	0	5	0	0	1	25	0	0	0	0	14	1	0	0	48	
4:40 PM	0	0	0	0	0	1	0	1	0	0	1	18	1	0	0	0	12	0	0	0	34	
4:45 PM	0	0	1	0	0	0	0	0	0	0	1	25	0	0	0	0	11	0	0	0	38	
4:50 PM	0	0	0	0	0	1	0	1	0	0	0	24	0	0	0	0	10	0	0	0	36	
4:55 PM	0	0	1	0	0	0	0	1	0	0	1	32	0	0	0	0	15	2	0	0	52	520
5:00 PM	0	0	1	0	0	0	0	0	0	0	0	19	0	0	0	1	12	2	0	0	35	522
5:05 PM	1	0	0	0	0	1	0	2	0	0	1	21	0	0	0	0	11	1	0	0	38	508
5:10 PM	0	0	0	0	0	3	0	1	0	0	2	21	0	0	0	2	14	1	0	0	44	508
5:15 PM	0	0	0	0	0	2	0	1	0	0	4	21	3	0	0	0	16	1	0	0	48	510
5:20 PM	1	0	1	0	0	0	0	0	0	0	5	16	1	0	0	0	9	1	0	0	34	495
5:25 PM	0	0	0	0	0	1	0	1	0	0	2	17	1	0	0	0	16	2	0	0	40	485
5:30 PM	0	0	1	0	0	1	0	3	0	0	1	18	1	0	0	0	18	0	0	0	43	490
5:35 PM	0	0	0	0	0	0	0	2	0	0	1	12	1	0	0	1	13	4	0	0	34	476
5:40 PM	0	0	0	0	0	1	0	3	0	0	2	21	1	0	0	0	23	0	0	0	51	493
5:45 PM	1	0	0	0	0	0	0	1	0	0	3	16	0	0	0	0	8	1	0	0	30	485
5:50 PM	0	0	1	0	0	1	0	0	0	0	1	15	0	0	0	0	11	4	0	0	33	482
5:55 PM	0	0	0	0	0	0	0	1	0	0	1	17	3	0	0	0	8	2	0	0	32	462

Peak 15-Min Flowrates	Northbound					Southbound					Eastbound					Westbound					Total
	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	
All Vehicles	8	4	0	0	0	8	0	16	0	0	4	288	8	0	0	4	212	28	0	0	580
Heavy Trucks	0	0	0			4	0	0			4	8	0			0	4	4			24
Buses																					
Pedestrians		0					12					8					0				20
Bicycles	0	0	0			0	0	0			0	0	0			0	0	0			0
Scooters																					

Comments:

Report generated on 12/18/2025 11:13 AM | SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

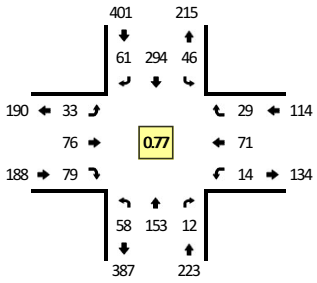
Type of peak hour being reported: Intersection Peak

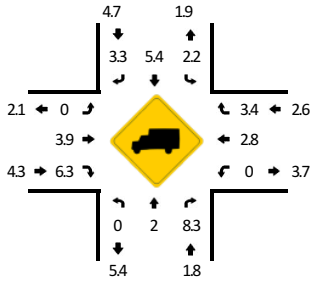
Method for determining peak hour: Total Entering Volume

LOCATION: NE 152nd Ave -- NE 99th St
CITY/STATE: Orchards, WA

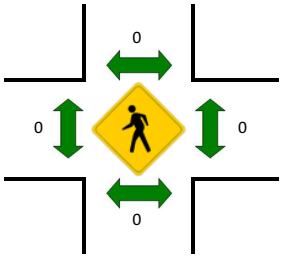
QC JOB #: 17374631
DATE: Thu, Dec 11 2025

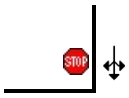
Peak-Hour: 7:25 AM -- 8:25 AM
Peak 15-Min: 7:40 AM -- 7:55 AM

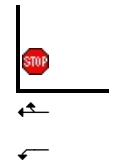


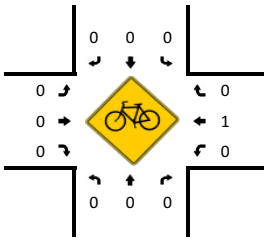


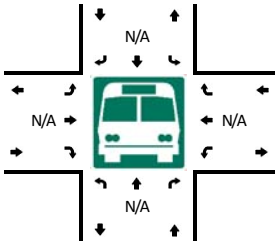
TRUE DATA TO IMPROVE MOBILITY

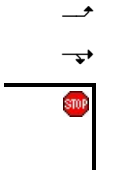


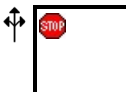


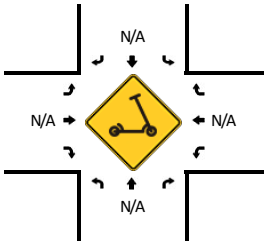












R* = RTOR

5-Min Count Period Beginning At	NE 152nd Ave (Northbound)					NE 152nd Ave (Southbound)					NE 99th St (Eastbound)					NE 99th St (Westbound)					Total	Hourly Totals
	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*		
7:00 AM	2	6	0	0	0	0	25	2	0	0	1	1	2	0	0	1	6	0	0	0	46	
7:05 AM	1	9	0	0	0	3	18	4	0	0	4	5	5	0	0	0	5	2	0	0	56	
7:10 AM	5	10	1	0	0	0	27	6	0	0	2	5	4	0	0	0	4	4	0	0	68	
7:15 AM	2	10	0	0	0	0	22	2	0	0	1	1	3	0	0	2	2	3	0	0	48	
7:20 AM	3	9	0	0	0	0	24	2	0	0	2	5	7	0	0	1	3	2	0	0	58	
7:25 AM	4	8	0	0	0	1	27	5	0	0	4	6	3	0	0	2	4	1	0	0	65	
7:30 AM	3	10	2	0	0	1	24	4	0	0	2	7	9	0	0	0	6	2	0	0	70	
7:35 AM	2	19	1	0	0	0	26	5	0	0	3	6	13	0	0	1	3	7	0	0	86	
7:40 AM	5	10	1	0	0	6	30	7	0	0	5	7	7	0	0	2	8	2	0	0	90	
7:45 AM	13	10	3	0	0	6	36	7	0	0	2	7	7	0	0	3	6	4	0	0	104	
7:50 AM	13	21	2	0	0	9	28	9	0	0	4	4	7	0	0	2	5	3	0	0	107	
7:55 AM	4	24	1	0	0	4	20	7	0	0	2	6	2	0	0	1	6	1	0	0	78	876
8:00 AM	3	12	1	0	0	5	25	2	0	0	1	11	5	0	0	1	9	1	0	0	76	906
8:05 AM	2	17	0	0	0	4	14	4	0	0	3	6	7	0	0	0	8	4	0	0	69	919
8:10 AM	4	4	1	0	0	4	18	1	0	0	2	4	6	0	0	1	5	1	0	0	51	902
8:15 AM	1	8	0	0	0	3	26	4	0	0	2	5	8	0	0	1	8	2	0	0	68	922
8:20 AM	4	10	0	0	0	3	20	6	0	0	3	7	5	0	0	0	3	1	0	0	62	926
8:25 AM	4	11	1	0	0	2	25	1	0	0	2	4	7	0	0	3	5	0	0	0	65	926
8:30 AM	5	6	0	0	0	1	24	2	0	0	3	6	4	0	0	1	5	6	0	0	63	919
8:35 AM	1	6	0	0	0	0	34	4	0	0	5	1	4	0	0	1	4	7	0	0	67	900
8:40 AM	5	8	4	0	0	1	27	3	0	0	1	6	5	0	0	0	7	4	0	0	71	881
8:45 AM	1	10	3	0	0	2	15	2	0	0	2	6	1	0	0	0	5	4	0	0	51	828
8:50 AM	1	9	1	0	0	1	23	2	0	0	1	3	4	0	0	1	9	4	0	0	59	780
8:55 AM	2	12	0	0	0	2	19	7	0	0	1	4	3	0	0	1	4	1	0	0	56	758

Peak 15-Min Flowrates	Northbound					Southbound					Eastbound					Westbound					Total
	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	
All Vehicles	124	164	24	0	0	84	376	92	0	0	44	72	84	0	0	28	76	36	0	0	1204
Heavy Trucks	0	4	0			4	20	0			0	4	8			0	8	0			48
Buses																					
Pedestrians		0					0					0					0				0
Bicycles	0	0	0			0	0	0			0	0	0			0	0	0			0
Scooters																					

Comments:

Report generated on 12/18/2025 11:13 AM

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

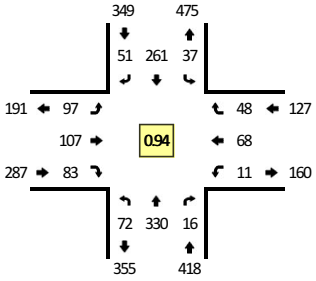
Type of peak hour being reported: Intersection Peak

Method for determining peak hour: Total Entering Volume

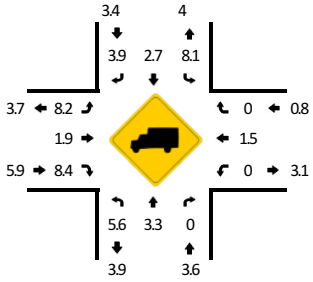
LOCATION: NE 152nd Ave -- NE 99th St
CITY/STATE: Orchards, WA

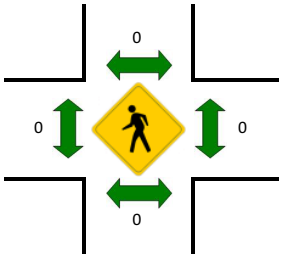
QC JOB #: 17374632
DATE: Thu, Dec 11 2025

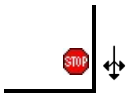
Peak-Hour: 4:05 PM -- 5:05 PM
Peak 15-Min: 4:10 PM -- 4:25 PM

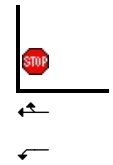


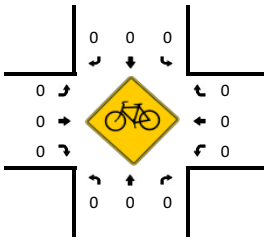


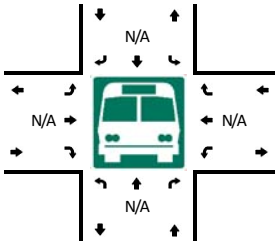


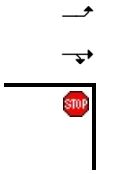


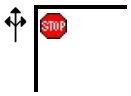


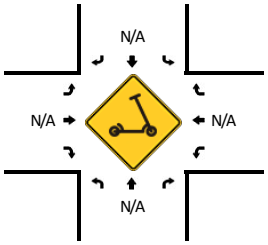












R* = RTOR

5-Min Count Period Beginning At	NE 152nd Ave (Northbound)					NE 152nd Ave (Southbound)					NE 99th St (Eastbound)					NE 99th St (Westbound)					Total	Hourly Totals
	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*		
4:00 PM	6	25	1	0	0	3	29	1	0	0	5	5	8	0	0	2	4	2	0	0	91	
4:05 PM	3	28	3	0	0	3	15	5	0	0	9	7	6	0	0	0	13	2	0	0	94	
4:10 PM	10	31	1	0	0	3	21	7	0	0	3	10	8	0	0	1	5	6	0	0	106	
4:15 PM	5	25	1	0	0	5	22	7	0	0	12	7	7	0	0	1	7	4	0	0	103	
4:20 PM	9	23	1	0	0	1	32	2	0	0	6	11	3	0	0	0	10	6	0	0	104	
4:25 PM	12	26	1	0	0	2	16	3	0	0	10	6	6	0	0	1	4	2	0	0	89	
4:30 PM	5	28	2	0	0	5	25	2	0	0	10	10	6	0	0	1	4	1	0	0	99	
4:35 PM	5	27	2	0	0	2	17	5	0	0	9	16	3	0	0	3	4	2	0	0	95	
4:40 PM	8	29	0	0	0	3	28	4	0	0	8	5	5	0	0	1	4	1	0	0	96	
4:45 PM	2	39	1	0	0	1	26	5	0	0	9	8	7	0	0	2	2	5	0	0	107	
4:50 PM	4	26	1	0	0	3	18	2	0	0	9	8	10	0	0	1	4	7	0	0	93	
4:55 PM	8	24	1	0	0	6	23	3	0	0	7	11	10	0	0	0	5	4	0	0	102	1179
5:00 PM	1	24	2	0	0	3	18	6	0	0	5	8	12	0	0	0	6	8	0	0	93	1181
5:05 PM	2	28	1	0	0	2	26	3	0	0	8	6	9	0	0	0	6	2	0	0	93	1180
5:10 PM	6	24	2	0	0	3	22	5	0	0	7	7	12	0	0	3	10	5	0	0	106	1180
5:15 PM	4	22	2	0	0	4	32	5	0	0	10	5	7	0	0	3	5	2	0	0	101	1178
5:20 PM	9	30	0	0	0	3	25	2	0	0	2	10	3	0	0	1	3	3	0	0	91	1165
5:25 PM	11	31	1	0	0	1	20	4	0	0	8	11	3	0	0	0	5	5	0	0	100	1176
5:30 PM	6	33	2	0	0	2	26	4	0	0	7	3	6	0	0	1	6	1	0	0	97	1174
5:35 PM	5	21	3	0	0	2	16	1	0	0	4	7	2	0	0	0	8	3	0	0	72	1151
5:40 PM	9	28	3	0	0	1	21	8	0	0	6	5	5	0	0	1	11	2	0	0	100	1155
5:45 PM	4	25	0	0	0	4	16	1	0	0	5	6	9	0	0	2	4	5	0	0	81	1129
5:50 PM	6	21	1	0	0	2	14	2	0	0	4	6	7	0	0	4	8	0	0	0	75	1111
5:55 PM	5	19	2	0	0	3	18	0	0	0	5	4	9	0	0	0	5	2	0	0	72	1081

Peak 15-Min Flowrates	Northbound					Southbound					Eastbound					Westbound					Total
	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	
All Vehicles	96	316	12	0	0	36	300	64	0	0	84	112	72	0	0	8	88	64	0	0	1252
Heavy Trucks	4	12	0			12	4	4			16	0	4			0	4	0			60
Buses																					
Pedestrians		0					0					0					0				0
Bicycles	0	0	0			0	0	0			0	0	0			0	0	0			0
Scooters																					

Comments:

Report generated on 12/18/2025 11:13 AM

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

Appendix B Existing Conditions Traffic Analysis Worksheets

Intersection	
Int Delay, s/veh	0.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	1	704	1	0	659	2	2	0	3	6	0	2
Future Vol, veh/h	1	704	1	0	659	2	2	0	3	6	0	2
Conflicting Peds, #/hr	2	0	0	0	0	2	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	150	-	-	150	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	1	-	-	1	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	75	75	75	75	75	75	75	75	75	75	75	75
Heavy Vehicles, %	0	7	0	0	4	0	0	0	0	33	0	0
Mvmt Flow	1	939	1	0	879	3	3	0	4	8	0	3

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	883	0	0	940	0	0	1381	1825	470	1354	1825	443
Stage 1	-	-	-	-	-	-	942	942	-	882	882	-
Stage 2	-	-	-	-	-	-	439	883	-	472	943	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.5	6.5	6.9	8.16	6.5	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-	6.5	5.5	-	7.16	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.5	5.5	-	7.16	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.83	4	3.3
Pot Cap-1 Maneuver	774	-	-	737	-	-	105	78	545	82	78	568
Stage 1	-	-	-	-	-	-	287	344	-	251	367	-
Stage 2	-	-	-	-	-	-	572	366	-	468	344	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	773	-	-	737	-	-	104	78	545	82	78	567
Mov Cap-2 Maneuver	-	-	-	-	-	-	214	197	-	181	197	-
Stage 1	-	-	-	-	-	-	286	344	-	250	366	-
Stage 2	-	-	-	-	-	-	569	366	-	463	343	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	0.01	0	15.89	22.33
HCM LOS			C	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	337	773	-	-	737	-	-	218
HCM Lane V/C Ratio	0.02	0.002	-	-	-	-	-	0.049
HCM Ctrl Dly (s/v)	15.9	9.7	-	-	0	-	-	22.3
HCM Lane LOS	C	A	-	-	A	-	-	C
HCM 95th %tile Q(veh)	0.1	0	-	-	0	-	-	0.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	285	183	157	157	235	87	216	711	33	90	1004	276
Future Volume (veh/h)	285	183	157	157	235	87	216	711	33	90	1004	276
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1737	1841	1811	1841	1856	1752	1752	1781	1767	1781	1796	1826
Adj Flow Rate, veh/h	324	208	123	178	267	98	245	808	37	102	1141	248
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	11	4	6	4	3	10	10	8	9	8	7	5
Cap, veh/h	396	432	504	213	302	111	316	1465	67	132	1449	841
Arrive On Green	0.12	0.23	0.23	0.12	0.23	0.23	0.10	0.44	0.44	0.08	0.42	0.42
Sat Flow, veh/h	3209	1841	1533	1753	1294	475	3237	3295	151	1697	3413	1545
Grp Volume(v), veh/h	324	208	123	178	0	365	245	415	430	102	1141	248
Grp Sat Flow(s),veh/h/ln	1605	1841	1533	1753	0	1769	1618	1692	1754	1697	1706	1545
Q Serve(g_s), s	13.0	12.9	7.7	13.1	0.0	26.3	9.7	23.8	23.8	7.8	38.1	11.5
Cycle Q Clear(g_c), s	13.0	12.9	7.7	13.1	0.0	26.3	9.7	23.8	23.8	7.8	38.1	11.5
Prop In Lane	1.00		1.00	1.00		0.27	1.00		0.09	1.00		1.00
Lane Grp Cap(c), veh/h	396	432	504	213	0	412	316	753	780	132	1449	841
V/C Ratio(X)	0.82	0.48	0.24	0.84	0.00	0.89	0.77	0.55	0.55	0.77	0.79	0.29
Avail Cap(c_a), veh/h	620	502	562	538	0	483	626	911	944	328	1837	1017
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	56.4	43.5	32.3	56.7	0.0	49.0	58.1	26.9	27.0	59.7	32.8	16.3
Incr Delay (d2), s/veh	4.9	1.0	0.3	8.3	0.0	16.3	4.1	0.9	0.9	9.3	2.1	0.3
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	9.2	9.8	5.1	10.2	0.0	19.1	7.4	14.6	15.0	6.6	22.1	7.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	61.2	44.5	32.6	65.0	0.0	65.4	62.1	27.8	27.9	69.0	35.0	16.6
LnGrp LOS	E	D	C	E		E	E	C	C	E	C	B
Approach Vol, veh/h		655			543			1090			1491	
Approach Delay, s/veh		50.6			65.2			35.6			34.2	
Approach LOS		D			E			D			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	14.2	62.7	20.0	35.0	16.9	60.0	20.3	34.7
Change Period (Y+Rc), s	4.5	5.0	4.5	5.0	4.5	5.0	4.5	5.0
Max Green Setting (Gmax), s	25.0	70.0	40.0	35.0	25.0	70.0	25.0	35.0
Max Q Clear Time (g_c+I1), s	9.8	25.8	15.1	14.9	11.7	40.1	15.0	28.3
Green Ext Time (p_c), s	0.2	8.9	0.5	1.7	0.7	14.9	0.8	1.3

Intersection Summary	
HCM 7th Control Delay, s/veh	41.9
HCM 7th LOS	D

Intersection	
Int Delay, s/veh	3.3

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	209	85	26	278	100	28
Future Vol, veh/h	209	85	26	278	100	28
Conflicting Peds, #/hr	0	1	1	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	250	100	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	81	81	81	81	81	81
Heavy Vehicles, %	7	6	12	5	6	11
Mvmt Flow	258	105	32	343	123	35

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	364	0	666	259
Stage 1	-	-	-	-	259	-
Stage 2	-	-	-	-	407	-
Critical Hdwy	-	-	4.22	-	6.46	6.31
Critical Hdwy Stg 1	-	-	-	-	5.46	-
Critical Hdwy Stg 2	-	-	-	-	5.46	-
Follow-up Hdwy	-	-	2.308	-	3.554	3.399
Pot Cap-1 Maneuver	-	-	1141	-	418	758
Stage 1	-	-	-	-	775	-
Stage 2	-	-	-	-	663	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1140	-	406	758
Mov Cap-2 Maneuver	-	-	-	-	406	-
Stage 1	-	-	-	-	774	-
Stage 2	-	-	-	-	645	-

Approach	EB	WB	NB
HCM Ctrl Dly, s/v	0	0.71	17.19
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	452	-	-	1140	-
HCM Lane V/C Ratio	0.35	-	-	0.028	-
HCM Ctrl Dly (s/v)	17.2	-	-	8.2	-
HCM Lane LOS	C	-	-	A	-
HCM 95th %tile Q(veh)	1.5	-	-	0.1	-

Intersection	
Int Delay, s/veh	3.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	19	197	24	7	223	1	55	15	31	5	11	13
Future Vol, veh/h	19	197	24	7	223	1	55	15	31	5	11	13
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	81	81	81	81	81	81	81	81	81	81	81	81
Heavy Vehicles, %	5	8	8	0	5	0	11	0	0	20	0	15
Mvmt Flow	23	243	30	9	275	1	68	19	38	6	14	16

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	277	0	0	273	0	0	604	599	258	593	613	276
Stage 1	-	-	-	-	-	-	305	305	-	293	293	-
Stage 2	-	-	-	-	-	-	299	294	-	299	320	-
Critical Hdwy	4.15	-	-	4.1	-	-	7.21	6.5	6.2	7.3	6.5	6.35
Critical Hdwy Stg 1	-	-	-	-	-	-	6.21	5.5	-	6.3	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.21	5.5	-	6.3	5.5	-
Follow-up Hdwy	2.245	-	-	2.2	-	-	3.599	4	3.3	3.68	4	3.435
Pot Cap-1 Maneuver	1269	-	-	1302	-	-	397	418	786	392	410	733
Stage 1	-	-	-	-	-	-	686	666	-	678	674	-
Stage 2	-	-	-	-	-	-	691	673	-	672	656	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1269	-	-	1302	-	-	365	406	786	346	398	733
Mov Cap-2 Maneuver	-	-	-	-	-	-	365	406	-	346	398	-
Stage 1	-	-	-	-	-	-	671	651	-	672	669	-
Stage 2	-	-	-	-	-	-	657	668	-	608	642	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	0.62	0.24	16.23	13.02
HCM LOS			C	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	444	139	-	-	54	-	-	485
HCM Lane V/C Ratio	0.281	0.018	-	-	0.007	-	-	0.074
HCM Ctrl Dly (s/v)	16.2	7.9	0	-	7.8	0	-	13
HCM Lane LOS	C	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	1.1	0.1	-	-	0	-	-	0.2

MOVEMENT SUMMARY

Site: 5 [NE 119th St and NE 152nd Ave - Existing AM (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Existing AM
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] ft	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed mph
South: NE 152nd Ave															
3	L2	All MCs	108	5.0	108	5.0	0.296	10.7	LOS B	1.7	42.8	0.45	0.57	0.45	33.4
8	T1	All MCs	188	2.0	188	2.0	0.296	5.6	LOS A	1.7	42.8	0.45	0.57	0.45	34.1
18	R2	All MCs	10	0.0	10	0.0	0.296	5.4	LOS A	1.7	42.8	0.45	0.57	0.45	33.9
Approach			305	3.0	305	3.0	0.296	7.4	LOS A	1.7	42.8	0.45	0.57	0.45	33.9
East: NE 119th St															
1	L2	All MCs	13	10.0	13	10.0	0.169	11.5	LOS B	0.9	21.8	0.49	0.58	0.49	33.5
6	T1	All MCs	110	2.0	110	2.0	0.169	6.4	LOS A	0.9	21.8	0.49	0.58	0.49	34.5
16	R2	All MCs	34	4.0	34	4.0	0.169	6.2	LOS A	0.9	21.8	0.49	0.58	0.49	34.1
Approach			156	3.1	156	3.1	0.169	6.7	LOS A	0.9	21.8	0.49	0.58	0.49	34.3
North: NE 152nd Ave															
7	L2	All MCs	38	3.0	38	3.0	0.333	11.0	LOS B	2.1	53.4	0.50	0.55	0.50	33.6
4	T1	All MCs	270	4.0	270	4.0	0.333	6.3	LOS A	2.1	53.4	0.50	0.55	0.50	34.3
14	R2	All MCs	34	0.0	34	0.0	0.333	5.9	LOS A	2.1	53.4	0.50	0.55	0.50	34.1
Approach			341	3.5	341	3.5	0.333	6.7	LOS A	2.1	53.4	0.50	0.55	0.50	34.2
West: NE 119th St															
5	L2	All MCs	43	9.0	43	9.0	0.332	11.7	LOS B	1.9	50.3	0.56	0.61	0.56	33.4
2	T1	All MCs	125	9.0	125	9.0	0.332	6.7	LOS A	1.9	50.3	0.56	0.61	0.56	34.2
12	R2	All MCs	128	4.0	128	4.0	0.332	6.4	LOS A	1.9	50.3	0.56	0.61	0.56	34.0
Approach			295	6.8	295	6.8	0.332	7.3	LOS A	1.9	50.3	0.56	0.61	0.56	34.0
All Vehicles			1098	4.2	1098	4.2	0.333	7.1	LOS A	2.1	53.4	0.50	0.58	0.50	34.1

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

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Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	29	11	19	34	15	41
Future Volume (Veh/h)	29	11	19	34	15	41
Sign Control	Free			Stop	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Hourly flow rate (vph)	33	13	22	39	17	47
Pedestrians					3	
Lane Width (ft)					12.0	
Walking Speed (ft/s)					3.5	
Percent Blockage					0	
Right turn flare (veh)						
Median type	None					
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	3		128	76	82	3
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	3		128	76	82	3
tC, single (s)	4.3		7.2	6.5	6.6	6.2
tC, 2 stage (s)						
tF (s)	2.4		3.5	4.0	4.1	3.3
p0 queue free %	98		97	95	98	96
cM capacity (veh/h)	1522		773	793	779	1069

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	46	61	64
Volume Left	33	22	0
Volume Right	13	0	47
cSH	1522	786	973
Volume to Capacity	0.02	0.08	0.07
Queue Length 95th (ft)	2	6	5
Control Delay (s/veh)	5.4	10.0	9.0
Lane LOS	A	A	A
Approach Delay (s/veh)	5.4	10.0	9.0
Approach LOS		A	A

Intersection Summary			
Average Delay	8.4		
Intersection Capacity Utilization	19.5%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection	
Int Delay, s/veh	0.9

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	13	25	6	231	327	7
Future Vol, veh/h	13	25	6	231	327	7
Conflicting Peds, #/hr	0	0	2	0	0	2
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	75	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	75	75	75	75	75	75
Heavy Vehicles, %	8	4	17	4	4	14
Mvmt Flow	17	33	8	308	436	9

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	767	443	447	0	-	0
Stage 1	443	-	-	-	-	-
Stage 2	324	-	-	-	-	-
Critical Hdwy	6.48	6.24	4.27	-	-	-
Critical Hdwy Stg 1	5.48	-	-	-	-	-
Critical Hdwy Stg 2	5.48	-	-	-	-	-
Follow-up Hdwy	3.572	3.336	2.353	-	-	-
Pot Cap-1 Maneuver	362	611	1038	-	-	-
Stage 1	635	-	-	-	-	-
Stage 2	720	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	359	610	1036	-	-	-
Mov Cap-2 Maneuver	359	-	-	-	-	-
Stage 1	629	-	-	-	-	-
Stage 2	720	-	-	-	-	-

Approach	EB	NB	SB
HCM Ctrl Dly, s/v	13.16	0.22	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1036	-	492	-	-
HCM Lane V/C Ratio	0.008	-	0.103	-	-
HCM Ctrl Dly (s/v)	8.5	-	13.2	-	-
HCM Lane LOS	A	-	B	-	-
HCM 95th %tile Q(veh)	0	-	0.3	-	-

Intersection	
Int Delay, s/veh	0.8

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	67	46	1028	1254	26
Future Vol, veh/h	0	67	46	1028	1254	26
Conflicting Peds, #/hr	0	0	1	0	0	1
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	550	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	0	4	4	10	6	19
Mvmt Flow	0	76	52	1168	1425	30

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	-	728	1456	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.98	4.18	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.34	2.24	-	-	-
Pot Cap-1 Maneuver	0	361	451	-	-	-
Stage 1	0	-	-	-	-	-
Stage 2	0	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	-	361	450	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Ctrl Dly, s/v	17.62	0.6	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	450	-	361	-	-
HCM Lane V/C Ratio	0.116	-	0.211	-	-
HCM Ctrl Dly (s/v)	14	-	17.6	-	-
HCM Lane LOS	B	-	C	-	-
HCM 95th %tile Q(veh)	0.4	-	0.8	-	-

MOVEMENT SUMMARY

Site: 9 [NE 99th St and NE 107th Ave - Existing AM (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Existing AM
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] ft	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed mph
South: NE 107th Ave															
3	L2	All MCs	39	12.0	39	12.0	0.159	10.4	LOS B	0.8	20.7	0.36	0.56	0.36	33.8
18	R2	All MCs	126	5.0	126	5.0	0.159	5.2	LOS A	0.8	20.7	0.36	0.56	0.36	34.4
Approach			165	6.6	165	6.6	0.159	6.4	LOS A	0.8	20.7	0.36	0.56	0.36	34.3
East: NE 99th St															
1	L2	All MCs	208	2.0	208	2.0	0.488	9.6	LOS A	3.6	94.5	0.25	0.50	0.25	33.9
6	T1	All MCs	370	6.0	370	6.0	0.488	4.8	LOS A	3.6	94.5	0.25	0.50	0.25	34.5
Approach			578	4.6	578	4.6	0.488	6.6	LOS A	3.6	94.5	0.25	0.50	0.25	34.2
West: NE 99th St															
2	T1	All MCs	167	6.0	167	6.0	0.194	5.6	LOS A	1.0	25.0	0.39	0.50	0.39	34.9
12	R2	All MCs	30	8.0	30	8.0	0.194	5.6	LOS A	1.0	25.0	0.39	0.50	0.39	34.5
Approach			197	6.3	197	6.3	0.194	5.6	LOS A	1.0	25.0	0.39	0.50	0.39	34.8
All Vehicles			940	5.3	940	5.3	0.488	6.4	LOS A	3.6	94.5	0.30	0.51	0.30	34.4

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

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Intersection	
Int Delay, s/veh	1.6

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	8	284	382	26	50	16
Future Vol, veh/h	8	284	382	26	50	16
Conflicting Peds, #/hr	2	0	0	2	1	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	75	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	84	84	84	84	84	84
Heavy Vehicles, %	12	6	6	8	6	6
Mvmt Flow	10	338	455	31	60	19

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	488	0	-	0	830	472
Stage 1	-	-	-	-	472	-
Stage 2	-	-	-	-	358	-
Critical Hdwy	4.22	-	-	-	6.46	6.26
Critical Hdwy Stg 1	-	-	-	-	5.46	-
Critical Hdwy Stg 2	-	-	-	-	5.46	-
Follow-up Hdwy	2.308	-	-	-	3.554	3.354
Pot Cap-1 Maneuver	1025	-	-	-	334	584
Stage 1	-	-	-	-	619	-
Stage 2	-	-	-	-	699	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1023	-	-	-	330	583
Mov Cap-2 Maneuver	-	-	-	-	330	-
Stage 1	-	-	-	-	612	-
Stage 2	-	-	-	-	698	-

Approach	EB	WB	SB
HCM Ctrl Dly, s/v	0.23	0	17.37
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1023	-	-	-	369
HCM Lane V/C Ratio	0.009	-	-	-	0.213
HCM Ctrl Dly (s/v)	8.6	-	-	-	17.4
HCM Lane LOS	A	-	-	-	C
HCM 95th %tile Q(veh)	0	-	-	-	0.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	183	138	60	320	243	126	63	683	111	164	979	136
Future Volume (veh/h)	183	138	60	320	243	126	63	683	111	164	979	136
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1781	1767	1752	1856	1870	1870	1648	1767	1737	1752	1826	1737
Adj Flow Rate, veh/h	199	150	30	348	264	61	68	742	80	178	1064	97
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	8	9	10	3	2	2	17	9	11	10	5	11
Cap, veh/h	301	281	593	395	328	441	443	1583	894	284	1166	671
Arrive On Green	0.12	0.16	0.16	0.14	0.18	0.18	0.32	0.63	0.63	0.11	0.34	0.34
Sat Flow, veh/h	1697	1767	1482	1767	1870	1561	1570	3357	1472	1668	3469	1472
Grp Volume(v), veh/h	199	150	30	348	264	61	68	742	80	178	1064	97
Grp Sat Flow(s),veh/h/ln	1697	1767	1482	1767	1870	1561	1570	1678	1472	1668	1735	1472
Q Serve(g_s), s	12.0	9.8	0.4	17.0	16.9	3.7	0.0	14.6	2.0	10.2	36.7	1.8
Cycle Q Clear(g_c), s	12.0	9.8	0.4	17.0	16.9	3.7	0.0	14.6	2.0	10.2	36.7	1.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	301	281	593	395	328	441	443	1583	894	284	1166	671
V/C Ratio(X)	0.66	0.53	0.05	0.88	0.80	0.14	0.15	0.47	0.09	0.63	0.91	0.14
Avail Cap(c_a), veh/h	301	438	725	395	494	579	443	1583	894	362	1166	671
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.33	1.33	1.33	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	37.9	48.3	9.9	41.5	49.5	33.6	32.1	15.0	7.1	33.9	39.7	7.4
Incr Delay (d2), s/veh	5.3	1.9	0.0	20.1	6.6	0.2	0.2	1.0	0.2	0.8	12.3	0.5
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	9.2	7.9	0.5	8.1	13.2	2.5	2.6	8.5	1.2	7.4	23.9	1.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	43.2	50.2	9.9	61.5	56.0	33.8	32.3	16.0	7.3	34.7	52.1	7.8
LnGrp LOS	D	D	A	E	E	C	C	B	A	C	D	A
Approach Vol, veh/h		379			673			890			1339	
Approach Delay, s/veh		43.3			56.8			16.5			46.5	
Approach LOS		D			E			B			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	34.1	46.0	19.0	25.9	17.2	62.9	21.0	23.9
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Max Green Setting (Gmax), s	18.0	41.0	14.0	32.0	18.0	41.0	16.0	30.0
Max Q Clear Time (g_c+I1), s	2.0	38.7	14.0	18.9	12.2	16.6	19.0	11.8
Green Ext Time (p_c), s	0.1	1.6	0.0	1.6	0.0	6.5	0.0	0.9

Intersection Summary	
HCM 7th Control Delay, s/veh	40.1
HCM 7th LOS	D

The HCM Platoon Ratio setting has been adjusted from 1.00 (random arrivals, also classified as arrival type 3) to 1.33 (favorable progression, also classified as arrival type 4) for northbound traffic, reflecting the coordinated signal system on NE 117th Avenue (SR 503).

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	87	219	0	0	272	55	3	0	0	125	0	303
Future Volume (veh/h)	87	219	0	0	272	55	3	0	0	125	0	303
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.98	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1811	1781	0	0	1841	1841	1900	1900	1900	1870	1900	1856
Adj Flow Rate, veh/h	98	246	0	0	306	53	3	0	0	140	0	257
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	6	8	0	0	4	4	0	0	0	2	0	3
Cap, veh/h	372	883	0	0	432	75	459	0	0	259	29	342
Arrive On Green	0.13	0.50	0.00	0.00	0.28	0.25	0.30	0.00	0.00	0.30	0.00	0.30
Sat Flow, veh/h	1725	1781	0	0	1523	264	956	0	0	467	86	1015
Grp Volume(v), veh/h	98	246	0	0	0	359	3	0	0	397	0	0
Grp Sat Flow(s),veh/h/ln	1725	1781	0	0	0	1786	956	0	0	1568	0	0
Q Serve(g_s), s	4.5	3.9	0.0	0.0	0.0	8.6	0.0	0.0	0.0	9.2	0.0	0.0
Cycle Q Clear(g_c), s	4.5	3.9	0.0	0.0	0.0	8.6	0.1	0.0	0.0	11.2	0.0	0.0
Prop In Lane	1.00		0.00	0.00		0.15	1.00		0.00	0.35		0.65
Lane Grp Cap(c), veh/h	0	883	0	0	0	507	441	0	0	578	0	0
V/C Ratio(X)	0.00	0.28	0.00	0.00	0.00	0.71	0.01	0.00	0.00	0.69	0.00	0.00
Avail Cap(c_a), veh/h	0	1901	0	0	0	1346	501	0	0	898	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	0.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	7.0	0.0	0.0	0.0	15.4	11.3	0.0	0.0	14.9	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.1	0.0	0.0	0.0	0.7	0.0	0.0	0.0	0.5	0.0	0.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.0	2.0	0.0	0.0	0.0	5.6	0.0	0.0	0.0	6.6	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	0.0	7.1	0.0	0.0	0.0	16.1	11.3	0.0	0.0	15.4	0.0	0.0
LnGrp LOS		A				B	B			B		
Approach Vol, veh/h		344			359			3			397	
Approach Delay, s/veh		5.1			16.1			11.3			15.4	
Approach LOS		A			B			B			B	

Timer - Assigned Phs	1	2		4		6		8				
Phs Duration (G+Y+Rc), s	10.1	17.6		20.1		27.7		20.1				
Change Period (Y+Rc), s	5.4	5.5		5.6		* 5.4		* 5.6				
Max Green Setting (Gmax), s	9.6	34.5		24.4		* 50		* 17				
Max Q Clear Time (g_c+I1), s	6.5	10.6		13.2		5.9		2.1				
Green Ext Time (p_c), s	0.0	1.4		1.3		1.0		0.0				

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

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 7th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	6	152	87	96	177	6	72	13	32	7	39	10
Future Volume (veh/h)	6	152	87	96	177	6	72	13	32	7	39	10
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.98	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1796	1885	1885	1870	1648	1841	1900	1856	1900	1900	1900
Adj Flow Rate, veh/h	7	177	88	112	206	5	84	15	20	8	45	6
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Percent Heavy Veh, %	0	7	1	1	2	17	4	0	3	0	0	0
Cap, veh/h	500	254	126	362	314	8	376	76	102	351	131	17
Arrive On Green	0.14	0.22	0.22	0.09	0.17	0.17	0.07	0.10	0.10	0.05	0.08	0.08
Sat Flow, veh/h	1810	1132	563	1795	1817	44	1753	738	984	1810	1642	219
Grp Volume(v), veh/h	7	0	265	112	0	211	84	0	35	8	0	51
Grp Sat Flow(s),veh/h/ln	1810	0	1695	1795	0	1861	1753	0	1723	1810	0	1861
Q Serve(g_s), s	0.0	0.0	6.0	0.0	0.0	4.4	0.0	0.0	0.8	0.0	0.0	1.1
Cycle Q Clear(g_c), s	0.0	0.0	6.0	0.0	0.0	4.4	0.0	0.0	0.8	0.0	0.0	1.1
Prop In Lane	1.00		0.33	1.00		0.02	1.00		0.57	1.00		0.12
Lane Grp Cap(c), veh/h	500	0	380	362	0	321	376	0	178	351	0	148
V/C Ratio(X)	0.01	0.00	0.70	0.31	0.00	0.66	0.22	0.00	0.20	0.02	0.00	0.34
Avail Cap(c_a), veh/h	666	0	1411	612	0	1545	852	0	804	885	0	868
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	13.3	0.0	14.8	17.1	0.0	16.1	16.8	0.0	17.1	16.5	0.0	18.1
Incr Delay (d2), s/veh	0.0	0.0	1.7	0.2	0.0	0.9	0.1	0.0	0.2	0.0	0.0	0.5
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.1	0.0	3.8	1.6	0.0	3.0	1.2	0.0	0.5	0.1	0.0	0.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	13.3	0.0	16.5	17.3	0.0	16.9	17.0	0.0	17.3	16.5	0.0	18.6
LnGrp LOS	B		B	B		B	B		B	B		B
Approach Vol, veh/h		272			323			119			59	
Approach Delay, s/veh		16.5			17.1			17.0			18.3	
Approach LOS		B			B			B			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	11.3	12.7	8.7	8.9	9.2	14.7	7.7	9.9
Change Period (Y+Rc), s	5.6	* 5.5	5.6	5.6	* 5.6	5.4	5.6	5.6
Max Green Setting (Gmax), s	9.5	* 35	14.4	19.4	* 9.4	34.6	14.4	19.4
Max Q Clear Time (g_c+I1), s	2.0	6.4	2.0	3.1	2.0	8.0	2.0	2.8
Green Ext Time (p_c), s	0.0	0.8	0.1	0.1	0.1	1.3	0.0	0.1

Intersection Summary	
HCM 7th Control Delay, s/veh	16.9
HCM 7th LOS	B

Notes

* HCM 7th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	2.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	19	157	12	3	208	7	14	0	12	14	2	55
Future Vol, veh/h	19	157	12	3	208	7	14	0	12	14	2	55
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	100	-	-	100	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	83	83	83	83	83	83	83	83	83	83	83	83
Heavy Vehicles, %	11	5	17	0	1	0	7	0	17	0	0	7
Mvmt Flow	23	189	14	4	251	8	17	0	14	17	2	66

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	259	0	0	204	0	0	501	508	196	497	511	255
Stage 1	-	-	-	-	-	-	242	242	-	262	262	-
Stage 2	-	-	-	-	-	-	259	266	-	235	249	-
Critical Hdwy	4.21	-	-	4.1	-	-	7.17	6.5	6.37	7.1	6.5	6.27
Critical Hdwy Stg 1	-	-	-	-	-	-	6.17	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.17	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.299	-	-	2.2	-	-	3.563	4	3.453	3.5	4	3.363
Pot Cap-1 Maneuver	1255	-	-	1380	-	-	472	470	808	487	469	772
Stage 1	-	-	-	-	-	-	750	709	-	747	695	-
Stage 2	-	-	-	-	-	-	735	692	-	773	704	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1255	-	-	1380	-	-	421	461	808	468	459	772
Mov Cap-2 Maneuver	-	-	-	-	-	-	421	461	-	468	459	-
Stage 1	-	-	-	-	-	-	737	696	-	745	693	-
Stage 2	-	-	-	-	-	-	668	690	-	745	691	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	0.8	0.1	12.07	11.13
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	540	1255	-	-	1380	-	-	673
HCM Lane V/C Ratio	0.058	0.018	-	-	0.003	-	-	0.127
HCM Ctrl Dly (s/v)	12.1	7.9	-	-	7.6	-	-	11.1
HCM Lane LOS	B	A	-	-	A	-	-	B
HCM 95th %tile Q(veh)	0.2	0.1	-	-	0	-	-	0.4

Intersection	
Int Delay, s/veh	1.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	6	172	3	2	196	6	3	0	2	16	0	17
Future Vol, veh/h	6	172	3	2	196	6	3	0	2	16	0	17
Conflicting Peds, #/hr	0	0	1	1	0	0	2	0	0	0	0	2
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	100	-	-	75	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	82	82	82	82	82	82	82	82	82	82	82	82
Heavy Vehicles, %	17	5	0	0	1	17	0	0	0	0	0	6
Mvmt Flow	7	210	4	2	239	7	4	0	2	20	0	21

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	246	0	0	214	0	0	473	478	213	472	477	245
Stage 1	-	-	-	-	-	-	227	227	-	248	248	-
Stage 2	-	-	-	-	-	-	246	251	-	224	229	-
Critical Hdwy	4.27	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.26
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.353	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.354
Pot Cap-1 Maneuver	1237	-	-	1368	-	-	505	489	833	506	490	784
Stage 1	-	-	-	-	-	-	780	720	-	761	705	-
Stage 2	-	-	-	-	-	-	762	703	-	783	718	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1237	-	-	1366	-	-	486	485	832	500	486	783
Mov Cap-2 Maneuver	-	-	-	-	-	-	486	485	-	500	486	-
Stage 1	-	-	-	-	-	-	775	715	-	759	704	-
Stage 2	-	-	-	-	-	-	739	701	-	776	713	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	0.26	0.07	11.24	11.27
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	583	1237	-	-	1366	-	-	615
HCM Lane V/C Ratio	0.01	0.006	-	-	0.002	-	-	0.065
HCM Ctrl Dly (s/v)	11.2	7.9	-	-	7.6	-	-	11.3
HCM Lane LOS	B	A	-	-	A	-	-	B
HCM 95th %tile Q(veh)	0	0	-	-	0	-	-	0.2

Intersection	
Intersection Delay, s/veh	22.2
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	31	74	83	15	72	28	58	156	13	47	292	57
Future Vol, veh/h	31	74	83	15	72	28	58	156	13	47	292	57
Peak Hour Factor	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77
Heavy Vehicles, %	0	4	6	0	4	4	0	3	8	4	5	2
Mvmt Flow	40	96	108	19	94	36	75	203	17	61	379	74
Number of Lanes	1	1	0	1	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	2	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	2	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	2	2
HCM Control Delay, s/veh	13.8	12.7	16	32.5
HCM LOS	B	B	C	D

Lane	NBLn1	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1
Vol Left, %	26%	100%	0%	100%	0%	12%
Vol Thru, %	69%	0%	47%	0%	72%	74%
Vol Right, %	6%	0%	53%	0%	28%	14%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	227	31	157	15	100	396
LT Vol	58	31	0	15	0	47
Through Vol	156	0	74	0	72	292
RT Vol	13	0	83	0	28	57
Lane Flow Rate	295	40	204	19	130	514
Geometry Grp	2	5	5	5	5	2
Degree of Util (X)	0.517	0.088	0.397	0.044	0.268	0.841
Departure Headway (Hd)	6.317	7.84	7.013	8.08	7.432	5.89
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	569	457	512	442	482	612
Service Time	4.37	5.595	4.768	5.844	5.195	3.934
HCM Lane V/C Ratio	0.518	0.088	0.398	0.043	0.27	0.84
HCM Control Delay, s/veh	16	11.4	14.3	11.2	12.9	32.5
HCM Lane LOS	C	B	B	B	B	D
HCM 95th-tile Q	3	0.3	1.9	0.1	1.1	9.1

Intersection	
Int Delay, s/veh	0.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	2	933	1	2	629	2	0	0	2	2	0	1
Future Vol, veh/h	2	933	1	2	629	2	0	0	2	2	0	1
Conflicting Peds, #/hr	1	0	0	0	0	1	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	150	-	-	150	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	1	-	-	1	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	96	96	96	96	96	96	96	96	96	96	96	96
Heavy Vehicles, %	0	2	0	0	2	0	0	0	0	0	0	0
Mvmt Flow	2	972	1	2	655	2	0	0	2	2	0	1

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	658	0	0	973	0	0	1308	1639	486	1152	1639	330
Stage 1	-	-	-	-	-	-	977	977	-	661	661	-
Stage 2	-	-	-	-	-	-	332	662	-	490	977	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.5	6.5	6.9	7.5	6.5	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-	6.5	5.5	-	6.5	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.5	5.5	-	6.5	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	939	-	-	717	-	-	119	101	532	155	101	672
Stage 1	-	-	-	-	-	-	273	332	-	422	463	-
Stage 2	-	-	-	-	-	-	661	462	-	534	332	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	938	-	-	717	-	-	118	101	532	154	101	671
Mov Cap-2 Maneuver	-	-	-	-	-	-	217	220	-	283	219	-
Stage 1	-	-	-	-	-	-	273	331	-	421	461	-
Stage 2	-	-	-	-	-	-	658	460	-	530	331	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	0.02	0.03	11.79	15.37
HCM LOS			B	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	532	938	-	-	717	-	-	350
HCM Lane V/C Ratio	0.004	0.002	-	-	0.003	-	-	0.009
HCM Ctrl Dly (s/v)	11.8	8.8	-	-	10	-	-	15.4
HCM Lane LOS	B	A	-	-	B	-	-	C
HCM 95th %tile Q(veh)	0	0	-	-	0	-	-	0

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	483	380	179	43	202	55	292	1039	66	168	846	238
Future Volume (veh/h)	483	380	179	43	202	55	292	1039	66	168	846	238
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	1.00		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1885	1856	1900	1870	1826	1885	1870	1885	1885	1885	1870
Adj Flow Rate, veh/h	508	400	143	45	213	51	307	1094	65	177	891	198
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	1	3	0	2	5	1	2	1	1	1	2
Cap, veh/h	584	605	672	66	274	66	389	1348	80	213	1443	897
Arrive On Green	0.22	0.43	0.42	0.04	0.19	0.18	0.15	0.53	0.52	0.12	0.40	0.40
Sat Flow, veh/h	3456	1885	1567	1810	1456	349	3483	3407	202	1795	3582	1578
Grp Volume(v), veh/h	508	400	143	45	0	264	307	570	589	177	891	198
Grp Sat Flow(s),veh/h/ln	1728	1885	1567	1810	0	1805	1742	1777	1832	1795	1791	1578
Q Serve(g_s), s	17.7	21.2	6.3	3.1	0.0	17.4	10.6	33.1	33.2	12.0	24.7	7.7
Cycle Q Clear(g_c), s	17.7	21.2	6.3	3.1	0.0	17.4	10.6	33.1	33.2	12.0	24.7	7.7
Prop In Lane	1.00		1.00	1.00		0.19	1.00		0.11	1.00		1.00
Lane Grp Cap(c), veh/h	584	605	672	66	0	340	389	703	725	213	1443	897
V/C Ratio(X)	0.87	0.66	0.21	0.68	0.00	0.78	0.79	0.81	0.81	0.83	0.62	0.22
Avail Cap(c_a), veh/h	706	605	672	587	0	520	711	1010	1042	367	2036	1159
HCM Platoon Ratio	1.33	1.33	1.33	1.00	1.00	1.00	1.33	1.33	1.33	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	47.1	30.4	18.8	59.4	0.0	48.3	51.8	25.7	25.8	53.8	29.6	13.3
Incr Delay (d2), s/veh	9.9	2.8	0.2	11.5	0.0	4.8	3.6	4.2	4.1	8.1	0.6	0.2
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	12.4	13.8	3.9	2.9	0.0	12.7	8.1	18.6	19.1	9.8	15.7	4.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	56.9	33.2	19.0	70.9	0.0	53.0	55.4	29.9	29.9	61.9	30.3	13.5
LnGrp LOS	E	C	B	E		D	E	C	C	E	C	B
Approach Vol, veh/h		1051			309			1466			1266	
Approach Delay, s/veh		42.8			55.6			35.2			32.1	
Approach LOS		D			E			D			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	18.8	53.4	8.6	44.1	17.9	54.3	25.1	27.5
Change Period (Y+Rc), s	4.5	5.0	4.5	5.0	4.5	5.0	4.5	5.0
Max Green Setting (Gmax), s	25.0	70.0	40.0	35.0	25.0	70.0	25.0	35.0
Max Q Clear Time (g_c+I1), s	14.0	35.2	5.1	23.2	12.6	26.7	19.7	19.4
Green Ext Time (p_c), s	0.3	13.2	0.1	2.5	0.8	12.2	0.9	1.4

Intersection Summary	
HCM 7th Control Delay, s/veh	37.7
HCM 7th LOS	D

A recent site visit confirmed that there are vehicle platoons at this intersection during the PM peak hour in the northbound and eastbound directions. The arrival type has been updated from 3 to 4 for these approach volumes.

Intersection	
Int Delay, s/veh	2.5

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	355	155	41	191	80	36
Future Vol, veh/h	355	155	41	191	80	36
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	250	100	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	2	1	1	3	1	1
Mvmt Flow	378	165	44	203	85	38

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	543	0	668	378
Stage 1	-	-	-	-	378	-
Stage 2	-	-	-	-	290	-
Critical Hdwy	-	-	4.11	-	6.41	6.21
Critical Hdwy Stg 1	-	-	-	-	5.41	-
Critical Hdwy Stg 2	-	-	-	-	5.41	-
Follow-up Hdwy	-	-	2.209	-	3.509	3.309
Pot Cap-1 Maneuver	-	-	1031	-	425	671
Stage 1	-	-	-	-	695	-
Stage 2	-	-	-	-	761	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1031	-	407	671
Mov Cap-2 Maneuver	-	-	-	-	407	-
Stage 1	-	-	-	-	695	-
Stage 2	-	-	-	-	729	-

Approach	EB	WB	NB
HCM Ctrl Dly, s/v	0	1.53	15.56
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	464	-	-	1031	-
HCM Lane V/C Ratio	0.266	-	-	0.042	-
HCM Ctrl Dly (s/v)	15.6	-	-	8.6	-
HCM Lane LOS	C	-	-	A	-
HCM 95th %tile Q(veh)	1.1	-	-	0.1	-

Intersection	
Int Delay, s/veh	2.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	19	325	40	27	191	7	23	17	14	6	13	25
Future Vol, veh/h	19	325	40	27	191	7	23	17	14	6	13	25
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	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	5	1	2	2	3	14	2	9	7	16	0	0
Mvmt Flow	21	361	44	30	212	8	26	19	16	7	14	28

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	220	0	0	406	0	0	705	706	383	689	724	216
Stage 1	-	-	-	-	-	-	426	426	-	276	276	-
Stage 2	-	-	-	-	-	-	279	280	-	413	448	-
Critical Hdwy	4.15	-	-	4.12	-	-	7.12	6.59	6.27	7.26	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.59	-	6.26	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.59	-	6.26	5.5	-
Follow-up Hdwy	2.245	-	-	2.218	-	-	3.518	4.081	3.363	3.644	4	3.3
Pot Cap-1 Maneuver	1332	-	-	1153	-	-	351	352	653	342	355	829
Stage 1	-	-	-	-	-	-	607	574	-	701	685	-
Stage 2	-	-	-	-	-	-	727	667	-	590	576	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1332	-	-	1153	-	-	309	335	653	300	337	829
Mov Cap-2 Maneuver	-	-	-	-	-	-	309	335	-	300	337	-
Stage 1	-	-	-	-	-	-	594	562	-	680	665	-
Stage 2	-	-	-	-	-	-	667	647	-	545	565	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	0.38	0.98	16.66	13.05
HCM LOS			C	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	368	87	-	-	214	-	-	496
HCM Lane V/C Ratio	0.163	0.016	-	-	0.026	-	-	0.099
HCM Ctrl Dly (s/v)	16.7	7.7	0	-	8.2	0	-	13.1
HCM Lane LOS	C	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	0.6	0	-	-	0.1	-	-	0.3

MOVEMENT SUMMARY

Site: 5 [NE 119th St and NE 152nd Ave - Existing PM (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Existing PM
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] ft	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed mph
South: NE 152nd Ave															
3	L2	All MCs	98	1.0	98	1.0	0.378	10.6	LOS B	2.3	57.8	0.45	0.55	0.45	33.7
8	T1	All MCs	293	1.0	293	1.0	0.378	5.6	LOS A	2.3	57.8	0.45	0.55	0.45	34.3
18	R2	All MCs	15	0.0	15	0.0	0.378	5.4	LOS A	2.3	57.8	0.45	0.55	0.45	34.1
Approach			405	1.0	405	1.0	0.378	6.8	LOS A	2.3	57.8	0.45	0.55	0.45	34.2
East: NE 119th St															
1	L2	All MCs	10	0.0	10	0.0	0.152	11.5	LOS B	0.8	19.7	0.54	0.61	0.54	33.7
6	T1	All MCs	94	3.0	94	3.0	0.152	6.9	LOS A	0.8	19.7	0.54	0.61	0.54	34.3
16	R2	All MCs	28	0.0	28	0.0	0.152	6.4	LOS A	0.8	19.7	0.54	0.61	0.54	34.1
Approach			132	2.1	132	2.1	0.152	7.2	LOS A	0.8	19.7	0.54	0.61	0.54	34.2
North: NE 152nd Ave															
7	L2	All MCs	11	0.0	11	0.0	0.197	10.5	LOS B	1.1	27.8	0.42	0.51	0.42	34.1
4	T1	All MCs	172	1.0	172	1.0	0.197	5.7	LOS A	1.1	27.8	0.42	0.51	0.42	34.7
14	R2	All MCs	30	0.0	30	0.0	0.197	5.5	LOS A	1.1	27.8	0.42	0.51	0.42	34.4
Approach			214	0.8	214	0.8	0.197	6.0	LOS A	1.1	27.8	0.42	0.51	0.42	34.6
West: NE 119th St															
5	L2	All MCs	43	0.0	43	0.0	0.316	10.4	LOS B	1.8	45.3	0.42	0.54	0.42	34.1
2	T1	All MCs	147	1.0	147	1.0	0.316	5.5	LOS A	1.8	45.3	0.42	0.54	0.42	34.8
12	R2	All MCs	148	1.0	148	1.0	0.316	5.4	LOS A	1.8	45.3	0.42	0.54	0.42	34.5
Approach			338	0.9	338	0.9	0.316	6.1	LOS A	1.8	45.3	0.42	0.54	0.42	34.6
All Vehicles			1089	1.0	1089	1.0	0.378	6.5	LOS A	2.3	57.8	0.45	0.54	0.45	34.4

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



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	34	28	9	21	24	37
Future Volume (Veh/h)	34	28	9	21	24	37
Sign Control	Free			Stop	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Hourly flow rate (vph)	39	32	10	24	28	43
Pedestrians					1	
Lane Width (ft)					12.0	
Walking Speed (ft/s)					3.5	
Percent Blockage					0	
Right turn flare (veh)						
Median type	None					
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1		151	95	111	1
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1		151	95	111	1
tC, single (s)	4.1		7.1	6.6	6.5	6.2
tC, 2 stage (s)						
tF (s)	2.2		3.5	4.1	4.0	3.3
p0 queue free %	98		99	97	96	96
cM capacity (veh/h)	1627		752	761	763	1083

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	71	34	71
Volume Left	39	10	0
Volume Right	32	0	43
cSH	1627	758	929
Volume to Capacity	0.02	0.04	0.08
Queue Length 95th (ft)	2	4	6
Control Delay (s/veh)	4.1	10.0	9.2
Lane LOS	A	A	A
Approach Delay (s/veh)	4.1	10.0	9.2
Approach LOS		A	A

Intersection Summary			
Average Delay	7.3		
Intersection Capacity Utilization	18.5%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection	
Int Delay, s/veh	0.5

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	5	16	21	404	317	15
Future Vol, veh/h	5	16	21	404	317	15
Conflicting Peds, #/hr	0	0	1	0	0	1
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	75	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	20	6	0	2	2	13
Mvmt Flow	5	18	23	444	348	16

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	848	358	366	0	-	0
Stage 1	358	-	-	-	-	-
Stage 2	490	-	-	-	-	-
Critical Hdwy	6.6	6.26	4.1	-	-	-
Critical Hdwy Stg 1	5.6	-	-	-	-	-
Critical Hdwy Stg 2	5.6	-	-	-	-	-
Follow-up Hdwy	3.68	3.354	2.2	-	-	-
Pot Cap-1 Maneuver	309	678	1204	-	-	-
Stage 1	670	-	-	-	-	-
Stage 2	580	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	303	677	1203	-	-	-
Mov Cap-2 Maneuver	303	-	-	-	-	-
Stage 1	656	-	-	-	-	-
Stage 2	580	-	-	-	-	-

Approach	EB	NB	SB
HCM Ctrl Dly, s/v	12.2	0.4	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1203	-	523	-	-
HCM Lane V/C Ratio	0.019	-	0.044	-	-
HCM Ctrl Dly (s/v)	8.1	-	12.2	-	-
HCM Lane LOS	A	-	B	-	-
HCM 95th %tile Q(veh)	0.1	-	0.1	-	-

Intersection	
Int Delay, s/veh	0.7

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	52	90	1449	1141	38
Future Vol, veh/h	0	52	90	1449	1141	38
Conflicting Peds, #/hr	0	0	1	0	0	1
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	550	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	0	2	1	1	1	3
Mvmt Flow	0	54	94	1509	1189	40

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	-	615	1229	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.94	4.12	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.32	2.21	-	-	-
Pot Cap-1 Maneuver	0	434	568	-	-	-
Stage 1	0	-	-	-	-	-
Stage 2	0	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	-	434	568	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Ctrl Dly, s/v	14.48	0.74	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	568	-	434	-	-
HCM Lane V/C Ratio	0.165	-	0.125	-	-
HCM Ctrl Dly (s/v)	12.6	-	14.5	-	-
HCM Lane LOS	B	-	B	-	-
HCM 95th %tile Q(veh)	0.6	-	0.4	-	-

MOVEMENT SUMMARY

Site: 9 [NE 99th St and NE 107th Ave - Existing PM (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Existing PM
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] ft	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed mph
South: NE 107th Ave															
3	L2	All MCs	54	2.0	54	2.0	0.336	10.7	LOS B	1.9	48.6	0.46	0.58	0.46	34.1
18	R2	All MCs	297	1.0	297	1.0	0.336	5.7	LOS A	1.9	48.6	0.46	0.58	0.46	34.5
Approach			351	1.2	351	1.2	0.336	6.5	LOS A	1.9	48.6	0.46	0.58	0.46	34.4
East: NE 99th St															
1	L2	All MCs	158	1.0	158	1.0	0.367	9.6	LOS A	2.3	59.4	0.24	0.51	0.24	34.0
6	T1	All MCs	282	2.0	282	2.0	0.367	4.8	LOS A	2.3	59.4	0.24	0.51	0.24	34.6
Approach			440	1.6	440	1.6	0.367	6.5	LOS A	2.3	59.4	0.24	0.51	0.24	34.4
West: NE 99th St															
2	T1	All MCs	234	1.0	234	1.0	0.253	5.3	LOS A	1.3	32.9	0.35	0.48	0.35	35.1
12	R2	All MCs	47	0.0	47	0.0	0.253	5.1	LOS A	1.3	32.9	0.35	0.48	0.35	34.8
Approach			281	0.8	281	0.8	0.253	5.3	LOS A	1.3	32.9	0.35	0.48	0.35	35.1
All Vehicles			1072	1.3	1072	1.3	0.367	6.2	LOS A	2.3	59.4	0.34	0.52	0.34	34.6

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

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Intersection	
Int Delay, s/veh	1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	25	396	384	40	31	12
Future Vol, veh/h	25	396	384	40	31	12
Conflicting Peds, #/hr	0	0	0	0	1	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	75	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	0	1	2	2	0	0
Mvmt Flow	27	421	409	43	33	13

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	451	0	-	0	905	430
Stage 1	-	-	-	-	430	-
Stage 2	-	-	-	-	475	-
Critical Hdwy	4.1	-	-	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	2.2	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	1120	-	-	-	309	630
Stage 1	-	-	-	-	660	-
Stage 2	-	-	-	-	630	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1120	-	-	-	302	630
Mov Cap-2 Maneuver	-	-	-	-	302	-
Stage 1	-	-	-	-	645	-
Stage 2	-	-	-	-	630	-

Approach	EB	WB	SB
HCM Ctrl Dly, s/v	0.49	0	16.7
HCM LOS			C

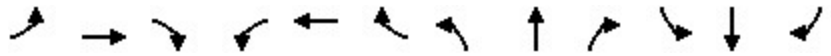
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1120	-	-	-	353
HCM Lane V/C Ratio	0.024	-	-	-	0.129
HCM Ctrl Dly (s/v)	8.3	-	-	-	16.7
HCM Lane LOS	A	-	-	-	C
HCM 95th %tile Q(veh)	0.1	-	-	-	0.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	173	201	58	242	210	172	97	1159	252	174	850	143
Future Volume (veh/h)	173	201	58	242	210	172	97	1159	252	174	850	143
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	0.99		0.97	0.99		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1885	1900	1900	1885	1885	1885	1885	1885	1885	1885	1856
Adj Flow Rate, veh/h	178	207	18	249	216	104	100	1195	241	179	876	107
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	1	1	0	0	1	1	1	1	1	1	1	3
Cap, veh/h	311	280	584	341	337	425	541	1871	1045	243	1409	779
Arrive On Green	0.10	0.15	0.15	0.13	0.18	0.18	0.29	0.69	0.69	0.09	0.39	0.39
Sat Flow, veh/h	1795	1885	1569	1810	1885	1582	1795	3582	1593	1795	3582	1566
Grp Volume(v), veh/h	178	207	18	249	216	104	100	1195	241	179	876	107
Grp Sat Flow(s),veh/h/ln	1795	1885	1569	1810	1885	1582	1795	1791	1593	1795	1791	1566
Q Serve(g_s), s	12.3	15.8	0.3	16.9	15.9	7.7	0.0	27.5	6.3	10.3	29.5	2.2
Cycle Q Clear(g_c), s	12.3	15.8	0.3	16.9	15.9	7.7	0.0	27.5	6.3	10.3	29.5	2.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	311	280	584	341	337	425	541	1871	1045	243	1409	779
V/C Ratio(X)	0.57	0.74	0.03	0.73	0.64	0.24	0.18	0.64	0.23	0.74	0.62	0.14
Avail Cap(c_a), veh/h	364	390	675	364	415	490	541	1871	1045	347	1409	779
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.33	1.33	1.33	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	47.1	61.1	14.7	44.5	57.1	43.1	29.6	15.1	6.4	37.0	36.5	7.7
Incr Delay (d2), s/veh	1.7	5.3	0.0	6.9	2.7	0.4	0.2	0.8	0.1	2.2	2.1	0.4
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	9.6	12.6	0.5	12.9	12.4	5.6	4.3	14.1	3.5	8.1	19.1	1.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	48.8	66.4	14.8	51.4	59.9	43.4	29.8	15.9	6.5	39.2	38.6	8.1
LnGrp LOS	D	E	B	D	E	D	C	B	A	D	D	A
Approach Vol, veh/h		403			569			1536			1162	
Approach Delay, s/veh		56.3			53.1			15.3			35.9	
Approach LOS		E			D			B			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	36.7	63.0	19.5	30.8	17.3	82.3	24.0	26.3
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Max Green Setting (Gmax), s	21.0	58.0	19.0	32.0	21.0	58.0	21.0	30.0
Max Q Clear Time (g_c+I1), s	2.0	31.5	14.3	17.9	12.3	29.5	18.9	17.8
Green Ext Time (p_c), s	0.2	8.1	0.2	1.5	0.0	13.0	0.2	1.0

Intersection Summary	
HCM 7th Control Delay, s/veh	32.2
HCM 7th LOS	C

The HCM Platoon Ratio setting has been adjusted from 1.00 (random arrivals, also classified as arrival type 3) to 1.33 (favorable progression, also classified as arrival type 4) for northbound traffic, reflecting the coordinated signal system on NE 117th Avenue (SR 503).



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	260	308	1	0	303	145	1	1	0	111	0	203
Future Volume (veh/h)	260	308	1	0	303	145	1	1	0	111	0	203
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1870	1900	0	1885	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	286	338	1	0	333	146	1	1	0	122	0	158
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	1	2	0	0	1	0	0	0	0	0	0	0
Cap, veh/h	479	1136	3	0	426	187	241	217	0	239	21	217
Arrive On Green	0.20	0.61	0.58	0.00	0.34	0.32	0.22	0.24	0.00	0.22	0.00	0.22
Sat Flow, veh/h	1795	1864	6	0	1242	544	617	920	0	591	85	876
Grp Volume(v), veh/h	286	0	339	0	0	479	2	0	0	280	0	0
Grp Sat Flow(s),veh/h/ln	1795	0	1869	0	0	1786	1537	0	0	1553	0	0
Q Serve(g_s), s	17.8	0.0	4.9	0.0	0.0	13.6	0.0	0.0	0.0	8.2	0.0	0.0
Cycle Q Clear(g_c), s	17.8	0.0	4.9	0.0	0.0	13.6	0.0	0.0	0.0	9.6	0.0	0.0
Prop In Lane	1.00		0.00	0.00		0.30	0.50		0.00	0.44		0.56
Lane Grp Cap(c), veh/h	0	0	1140	0	0	613	434	0	0	433	0	0
V/C Ratio(X)	0.00	0.00	0.30	0.00	0.00	0.78	0.00	0.00	0.00	0.65	0.00	0.00
Avail Cap(c_a), veh/h	0	0	2359	0	0	1777	558	0	0	760	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	0.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	0.0	5.2	0.0	0.0	16.8	16.6	0.0	0.0	20.2	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.0	0.1	0.0	0.0	0.8	0.0	0.0	0.0	0.6	0.0	0.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.0	0.0	2.4	0.0	0.0	8.7	0.0	0.0	0.0	6.1	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	0.0	0.0	5.3	0.0	0.0	17.6	16.6	0.0	0.0	20.8	0.0	0.0
LnGrp LOS			A			B	B			C		
Approach Vol, veh/h		625			479			2			280	
Approach Delay, s/veh		2.9			17.6			16.6			20.8	
Approach LOS		A			B			B			C	

Timer - Assigned Phs	1	2	4	6	8
Phs Duration (G+Y+Rc), s	15.0	23.3	18.0	38.3	18.0
Change Period (Y+Rc), s	5.4	5.5	5.6	* 5.4	* 5.6
Max Green Setting (Gmax), s	9.6	54.5	24.4	* 70	* 17
Max Q Clear Time (g_c+I1), s	19.8	15.6	11.6	6.9	2.0
Green Ext Time (p_c), s	0.0	2.2	0.9	1.4	0.0

Intersection Summary	
HCM 7th Control Delay, s/veh	11.6
HCM 7th LOS	B

Notes

* HCM 7th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	12	223	124	67	145	8	147	45	118	6	23	10
Future Volume (veh/h)	12	223	124	67	145	8	147	45	118	6	23	10
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	0.99		0.99	0.99		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1885	1885	1900	1885	1900	1885	1885	1885	1900	1900	1900
Adj Flow Rate, veh/h	13	235	113	71	153	8	155	47	86	6	24	3
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	1	1	0	1	0	1	1	1	0	0	0
Cap, veh/h	511	316	152	271	244	13	445	77	142	309	170	21
Arrive On Green	0.19	0.26	0.26	0.06	0.14	0.14	0.09	0.13	0.13	0.07	0.10	0.10
Sat Flow, veh/h	1810	1203	578	1810	1776	93	1795	594	1086	1810	1654	207
Grp Volume(v), veh/h	13	0	348	71	0	161	155	0	133	6	0	27
Grp Sat Flow(s),veh/h/ln	1810	0	1781	1810	0	1868	1795	0	1680	1810	0	1860
Q Serve(g_s), s	0.0	0.0	8.3	0.0	0.0	3.8	0.0	0.0	3.5	0.0	0.0	0.6
Cycle Q Clear(g_c), s	0.0	0.0	8.3	0.0	0.0	3.8	0.0	0.0	3.5	0.0	0.0	0.6
Prop In Lane	1.00		0.32	1.00		0.05	1.00		0.65	1.00		0.11
Lane Grp Cap(c), veh/h	511	0	468	271	0	256	445	0	219	309	0	192
V/C Ratio(X)	0.03	0.00	0.74	0.26	0.00	0.63	0.35	0.00	0.61	0.02	0.00	0.14
Avail Cap(c_a), veh/h	540	0	1705	520	0	1785	1219	0	700	1138	0	775
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	15.0	0.0	15.7	20.4	0.0	19.0	17.5	0.0	19.1	19.2	0.0	19.0
Incr Delay (d2), s/veh	0.0	0.0	1.8	0.2	0.0	0.9	0.2	0.0	1.0	0.0	0.0	0.1
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.2	0.0	5.6	1.2	0.0	2.7	2.4	0.0	2.3	0.1	0.0	0.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	15.0	0.0	17.5	20.6	0.0	19.9	17.7	0.0	20.1	19.2	0.0	19.1
LnGrp LOS	B		B	C		B	B		C	B		B
Approach Vol, veh/h		361			232			288			33	
Approach Delay, s/veh		17.4			20.1			18.8			19.2	
Approach LOS		B			C			B			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	14.4	11.9	9.9	10.4	8.6	17.7	8.7	11.7
Change Period (Y+Rc), s	5.6	* 5.5	5.6	5.6	* 5.6	5.4	5.6	5.6
Max Green Setting (Gmax), s	9.5	* 45	24.4	19.4	* 9.4	44.6	24.4	19.4
Max Q Clear Time (g_c+I1), s	12.0	5.8	2.0	2.6	2.0	10.3	2.0	5.5
Green Ext Time (p_c), s	0.0	0.6	0.2	0.0	0.0	1.9	0.0	0.4

Intersection Summary	
HCM 7th Control Delay, s/veh	18.6
HCM 7th LOS	B

Notes

* HCM 7th computational engine requires equal clearance times for the phases crossing the barrier.

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	54	278	21	6	173	14	15	2	7	10	1	33
Future Vol, veh/h	54	278	21	6	173	14	15	2	7	10	1	33
Conflicting Peds, #/hr	4	0	0	0	0	4	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	100	-	-	100	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	1	9	0	1	0	7	0	14	10	0	3
Mvmt Flow	60	309	23	7	192	16	17	2	8	11	1	37

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	212	0	0	332	0	0	647	666	321	647	670	204
Stage 1	-	-	-	-	-	-	441	441	-	217	217	-
Stage 2	-	-	-	-	-	-	206	225	-	430	452	-
Critical Hdwy	4.12	-	-	4.1	-	-	7.17	6.5	6.34	7.2	6.5	6.23
Critical Hdwy Stg 1	-	-	-	-	-	-	6.17	5.5	-	6.2	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.17	5.5	-	6.2	5.5	-
Follow-up Hdwy	2.218	-	-	2.2	-	-	3.563	4	3.426	3.59	4	3.327
Pot Cap-1 Maneuver	1359	-	-	1239	-	-	377	383	693	373	381	834
Stage 1	-	-	-	-	-	-	586	581	-	767	727	-
Stage 2	-	-	-	-	-	-	785	721	-	588	574	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1353	-	-	1239	-	-	342	363	693	347	361	831
Mov Cap-2 Maneuver	-	-	-	-	-	-	342	363	-	347	361	-
Stage 1	-	-	-	-	-	-	560	555	-	760	720	-
Stage 2	-	-	-	-	-	-	745	715	-	553	548	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	1.19	0.25	14.55	11.33
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	403	1353	-	-	1239	-	-	617
HCM Lane V/C Ratio	0.066	0.044	-	-	0.005	-	-	0.079
HCM Ctrl Dly (s/v)	14.6	7.8	-	-	7.9	-	-	11.3
HCM Lane LOS	B	A	-	-	A	-	-	B
HCM 95th %tile Q(veh)	0.2	0.1	-	-	0	-	-	0.3

Intersection	
Int Delay, s/veh	1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	11	275	4	2	174	20	2	1	5	11	0	17
Future Vol, veh/h	11	275	4	2	174	20	2	1	5	11	0	17
Conflicting Peds, #/hr	5	0	0	0	0	5	2	0	0	0	0	2
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	100	-	-	75	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	9	1	0	50	1	5	0	0	0	9	0	0
Mvmt Flow	12	306	4	2	193	22	2	1	6	12	0	19

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	221	0	0	310	0	0	532	557	308	544	548	211
Stage 1	-	-	-	-	-	-	332	332	-	214	214	-
Stage 2	-	-	-	-	-	-	200	225	-	331	334	-
Critical Hdwy	4.19	-	-	4.6	-	-	7.1	6.5	6.2	7.19	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.19	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.19	5.5	-
Follow-up Hdwy	2.281	-	-	2.65	-	-	3.5	4	3.3	3.581	4	3.3
Pot Cap-1 Maneuver	1308	-	-	1022	-	-	461	441	737	439	447	834
Stage 1	-	-	-	-	-	-	685	648	-	773	729	-
Stage 2	-	-	-	-	-	-	807	721	-	668	646	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1302	-	-	1022	-	-	445	434	737	427	439	828
Mov Cap-2 Maneuver	-	-	-	-	-	-	445	434	-	427	439	-
Stage 1	-	-	-	-	-	-	679	642	-	767	724	-
Stage 2	-	-	-	-	-	-	785	716	-	656	640	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	0.3	0.09	11.21	11.27
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	589	1302	-	-	1022	-	-	605
HCM Lane V/C Ratio	0.015	0.009	-	-	0.002	-	-	0.051
HCM Ctrl Dly (s/v)	11.2	7.8	-	-	8.5	-	-	11.3
HCM Lane LOS	B	A	-	-	A	-	-	B
HCM 95th %tile Q(veh)	0	0	-	-	0	-	-	0.2

Intersection	
Intersection Delay, s/veh	20.8
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	97	107	83	11	68	48	72	330	16	37	261	51
Future Vol, veh/h	97	107	83	11	68	48	72	330	16	37	261	51
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles, %	4	1	4	0	1	0	3	1	0	5	1	2
Mvmt Flow	103	114	88	12	72	51	77	351	17	39	278	54
Number of Lanes	1	1	0	1	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	2	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	2	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	2	2
HCM Control Delay, s/veh	14	12.9	27.7	20.9
HCM LOS	B	B	D	C

Lane	NBLn1	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1
Vol Left, %	17%	100%	0%	100%	0%	11%
Vol Thru, %	79%	0%	56%	0%	59%	75%
Vol Right, %	4%	0%	44%	0%	41%	15%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	418	97	190	11	116	349
LT Vol	72	97	0	11	0	37
Through Vol	330	0	107	0	68	261
RT Vol	16	0	83	0	48	51
Lane Flow Rate	445	103	202	12	123	371
Geometry Grp	2	5	5	5	5	2
Degree of Util (X)	0.774	0.229	0.398	0.027	0.259	0.657
Departure Headway (Hd)	6.263	7.975	7.092	8.345	7.545	6.372
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	578	449	505	428	474	564
Service Time	4.319	5.742	4.858	6.122	5.322	4.432
HCM Lane V/C Ratio	0.77	0.229	0.4	0.028	0.259	0.658
HCM Control Delay, s/veh	27.7	13.1	14.5	11.4	13	20.9
HCM Lane LOS	D	B	B	B	B	C
HCM 95th-tile Q	7.1	0.9	1.9	0.1	1	4.8

Appendix C Crash Data

CRYSTA REPORTED CRASHES THAT OCCURRED AT MAJOR/MAJOR INTERSECTIONS IN CLARK COUNTY

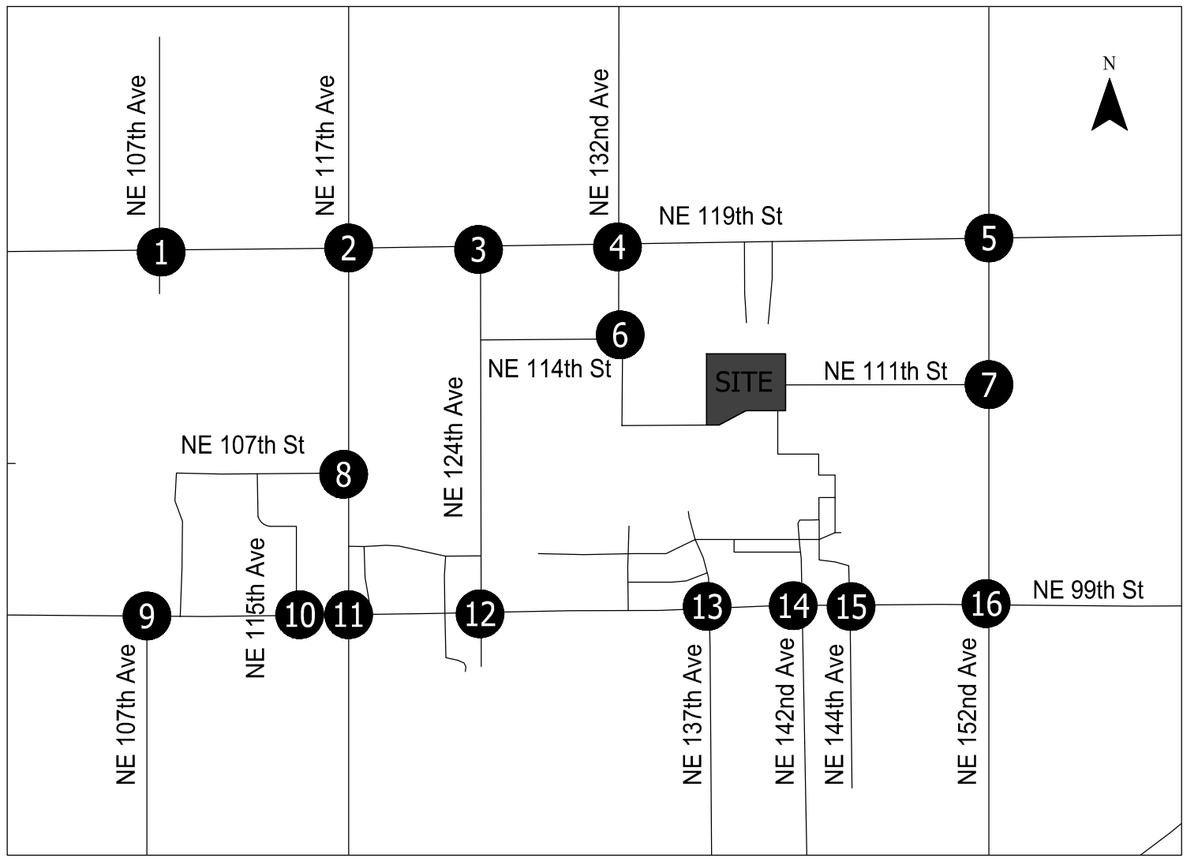
01/01/2018 - 12/31/2023 *See 2nd tab below for road information*

Under 39 U.S. Code § 409 and 23 U.S. Code § 407, neither 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 traffic reports shall be 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.

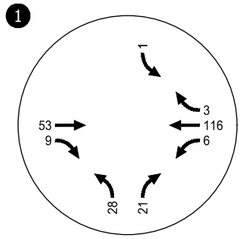
Individual Crash	CRASH ID	CITY	Intersecting Road Name	Intersecting Road Type	ROUTE	INTERSEC TED ROUTE	CO-ONLY Intersecting County Road	ROAD SYSTEM	ROAD SYSTEM QUALIFIER	ROAD SYSTEM REFERENCE POINT	ROAD SYSTEM DIRECTION	ROAD SYSTEM MILEPOST	DATE	CRASH DATE - MM-DD-YYYY	CRASH TIME	VEHICLE 1 TYPE	VEHICLE 2 TYPE	JUNCTION RELATIONSHIP	WEATHER	ROADWAY SURFACE CONDITION	LIGHTING CONDITION	FIRST CD/SOE/EN TYPE 1 (VEHICLE 1) CRASH	VEHICLE 1 ACTION	VEHICLE 2 ACTION	VEHICLE 1 COMPASS DIRECTION	VEHICLE 2 COMPASS DIRECTION	VEHICLE 2 COMPASS DIRECTION	MV DRIVER CONTRIBUTING CIRCUMSTANCE 1	MV DRIVER CONTRIBUTING CIRCUMSTANCE 2 - (LEAVE BLANK IF...	MV DRIVER CONTRIBUTING CIRCUMSTANCE 3 - (LEAVE BLANK IF...	MV DRIVER CONTRIBUTING CIRCUMSTANCE 4 - (LEAVE BLANK IF...	BICYCLIST CONTRIBUTING CIRCUMSTANCE 1 - (LEAVE BLANK IF...	BICYCLIST CONTRIBUTING CIRCUMSTANCE 2 - (LEAVE BLANK IF...	BICYCLIST CONTRIBUTING CIRCUMSTANCE 3 - (LEAVE BLANK IF...	BICYCLIST CONTRIBUTING CIRCUMSTANCE 4 - (LEAVE BLANK IF...	PEDESTRIAN CONTRIBUTING CIRCUMSTANCE 1 - (LEAVE BLANK IF...	PEDESTRIAN CONTRIBUTING CIRCUMSTANCE 2 - (LEAVE BLANK IF...	FIRST INJNPOLT LOCATION (City, County & Misc Text Descriptions)	MM_STATE PLANE SOUTH - (NAD 1983)	MM_STATE PLANE SOUTH - (NAD 1983)
County Road	5664		5664				5664					4.7858	07/01/2021	07/01/2021	1800	Passenger Car	Passenger Car	At Intersection and Related	Right Turning on Straight	Dry	Dark-Street Lights On	Other	Making a Right Turn	Going Straight Ahead	South	West		Other Contributing Circ Not Listed										Lane of Primary Trafficway	1569784.0	1569784.0
County Road	5664		5664				5664					4.7858	07/01/2021	07/01/2021	1800	Passenger Car	Passenger Car	Driveway Related	Clear or Partly Cloudy	Dry	Dark-Street Lights On	Other	Making a Left Turn	Going Straight Ahead	East	North		None										Lane of Primary Trafficway	1569784.0	1569784.0
County Road	5664		5664				5664					4.7858	07/01/2021	07/01/2021	1800	Passenger Car	Passenger Car	At Intersection and Related	Clear or Partly Cloudy	Dry	Dark-Street Lights On	Other	Making a Left Turn	Going Straight Ahead	West	East		Driver Inattention (Other Than Driving)	Exceeding Posted Speed Limit	Disregard Traffic Signs and Signals								Lane of Primary Trafficway	1569784.0	1569784.0
County Road	5664		5664				5664					4.7858	07/01/2021	07/01/2021	1800	Passenger Car	Passenger Car	At Intersection and Related	Clear or Partly Cloudy	Dry	Dark-Street Lights On	Other	Making a Left Turn	Going Straight Ahead	East	North	West											Crossing Traffic Lane	1569784.0	1569784.0
County Road	5664		5664				5664					4.7858	07/01/2021	07/01/2021	1800	Passenger Car	Passenger Car	At Intersection and Related	Clear or Partly Cloudy	Dry	Dark-Street Lights On	Other	Making a Left Turn	Going Straight Ahead	East	North	West											Lane of Primary Trafficway

COUNTY ROAD INTERSECTIONS
99th St (Co Rd # 23940, mp 0.980 – 1.020) @ 152nd Ave (Co Rd # 24190, mp 0.980 – 1.020)
99th St (Co Rd # 23940, mp 1.350 – 1.390) @ 144th Ave (Co Rd # 24123, mp 0.000 – 0.020) / 144th Ct (Co Rd # 24121, mp 0.000 – 0.020) – *No Reported Crashes*
99th St (Co Rd # 23940, mp 1.480 – 1.520) @ 142nd Ave (Co Rd # 24150, mp 1.100 – 1.140)
99th St (Co Rd # 23940, mp 2.360 – 2.400) @ 124th Ave (Co Rd # 23910, mp 1.350 – 1.370)
99th St (Co Rd # 23940, mp 2.860 – 2.900) @ 115th Ave (Co Rd # 23531, mp 0.000 – 0.020)
99th St (Co Rd # 23940, mp 3.240 – 3.280) @ 107th Ave (Co Rd # 23230, mp 0.000 – 0.020)
111th St (Co Rd # 24247, mp 0.000 – 0.020) @ 152nd Ave (Co Rd # 24190, mp 0.340 – 0.380) – *No Reported Crashes*
114th St (Co Rd # 23910, mp 0.230 – 0.270) @ 132nd Ave (Co Rd # 23963, mp 0.000 – 0.020) – *No Reported Crashes*
119th St (Co Rd # 94100, mp 3.830 – 3.870) @ 107th Ave (Co Rd # 50050, mp 0.000 – 0.020) – *No Reported Crashes*
119th St (Co Rd # 94100, mp 4.690 – 4.730) @ 124th Ave (Co Rd # 51351, mp 0.000 – 0.020)
119th St (Co Rd # 94100, mp 5.080 – 5.120) @ 132nd Ave (Co Rd # 51350, mp 0.000 – 0.020 – North Leg & Co Rd # 23910, mp 0.000 – 0.020 – South Leg)
119th St (Co Rd # 94100, mp 6.090 – 6.130) @ 152nd Ave (Co Rd # 51390, mp 0.000 – 0.020 – North Leg & Co Rd # 24190, mp 0.000 – 0.020 – South Leg)
STATE ROUTE INTERSECTIONS
SR 503 (aka NE 117th Ave, mp 2.75 – 2.88) @ 119th St (Co Rd # 94100, mp 4.330 – 4.370)
SR 503 (aka NE 117th Ave, mp 2.12 – 2.20) @ 107th St (Co Rd # 23246, mp 0.000 – 0.020)
SR 503 (aka NE 117th Ave, mp 1.71 – 1.88) @ 99th St (Co Rd # 23940, mp 2.740 – 2.780)

Appendix D In-Process Trips



NE 107th Avenue / NE 119th Street



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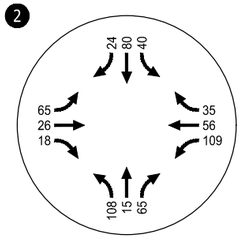

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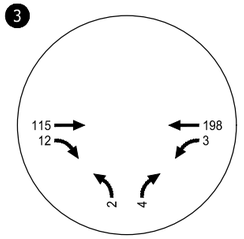

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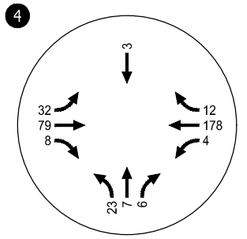

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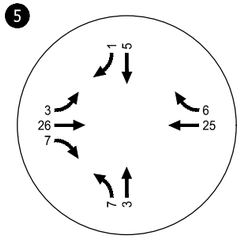
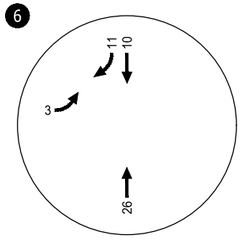
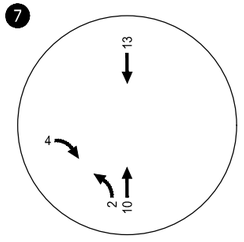


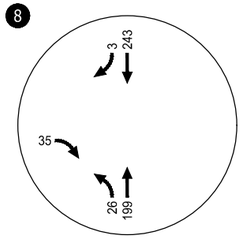
NE 132nd Avenue / NE 114th Street



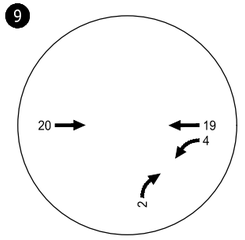
NE 152nd Avenue / NE 111th Street



NE 117th Avenue / NE 107th Street



NE 107th Avenue / NE 99th Street



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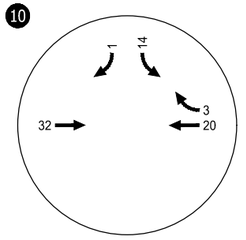

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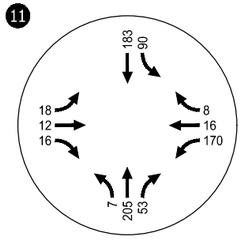
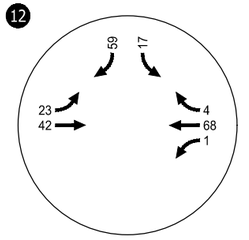
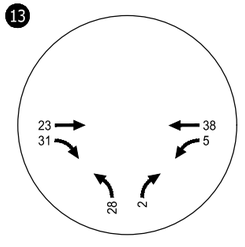


NE 124th Avenue / NE 99th Street



NE 137th Avenue / NE 99th Street



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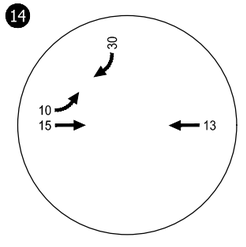

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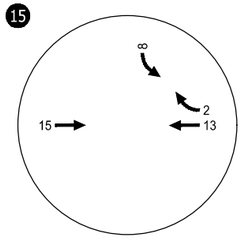

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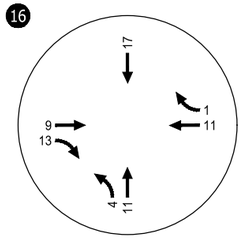

In-Process Traffic Volumes
Weekday AM Peak Hour
Clark County, Washington

Figure
D-1

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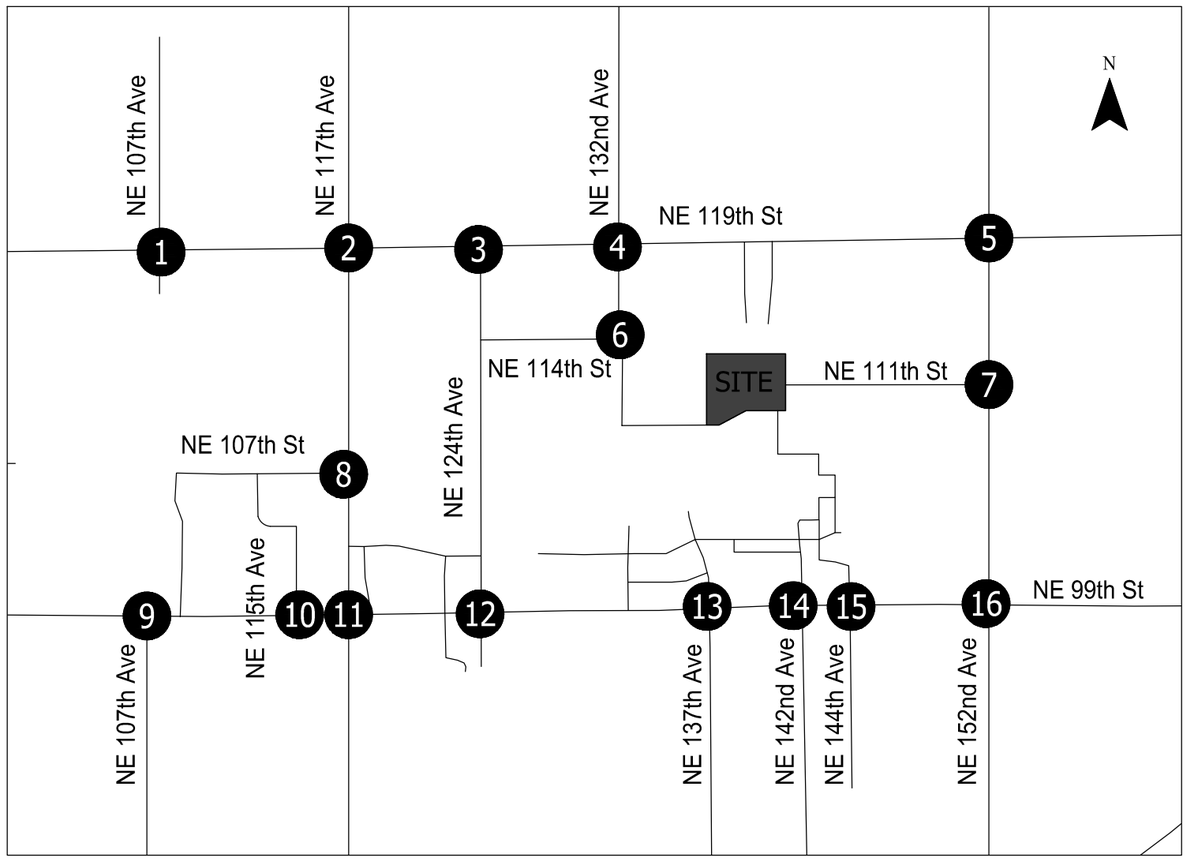

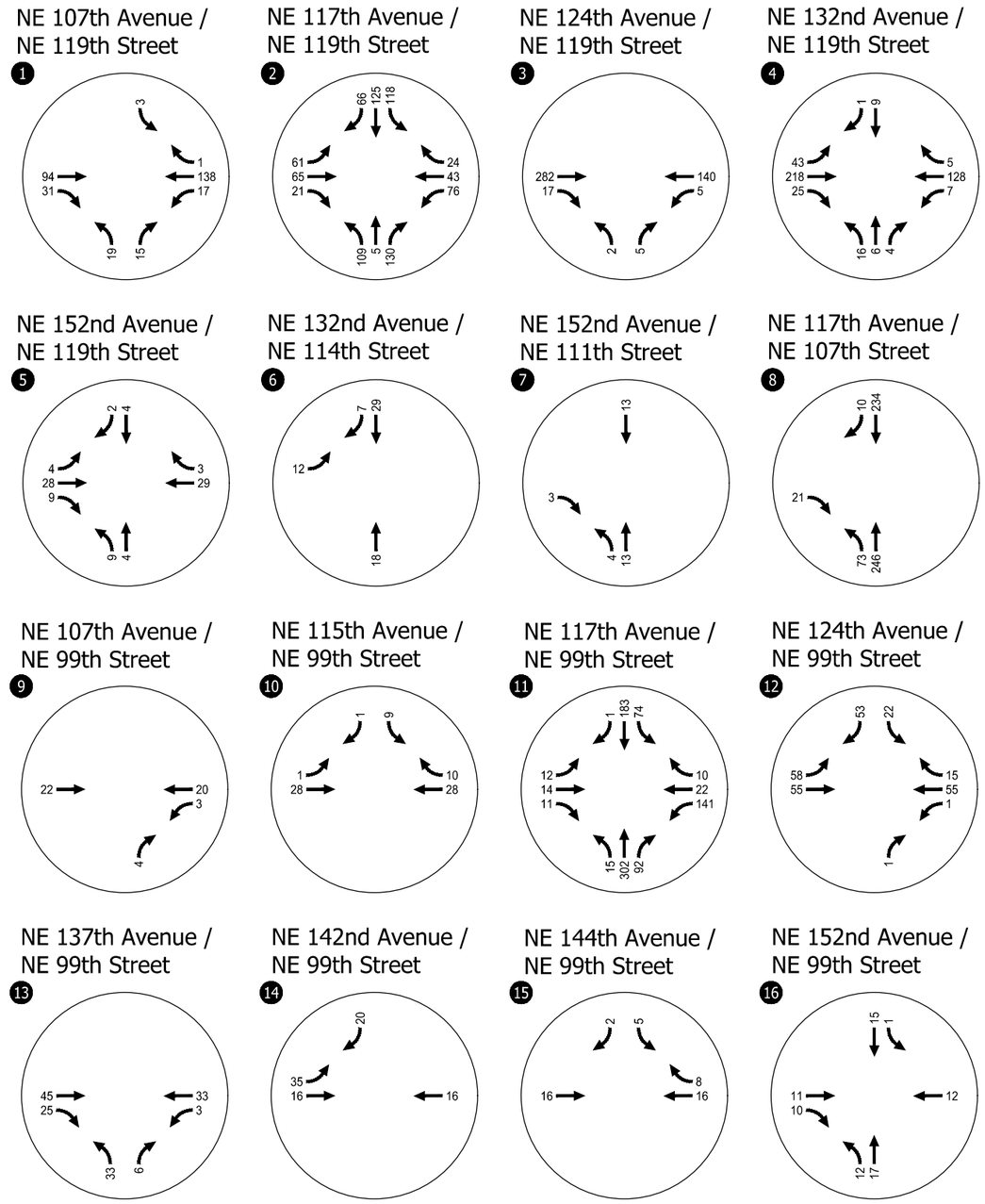

In-Process Traffic Volumes
Weekday PM Peak Hour
Clark County, Washington

Figure
D-2

H:\31\31137 - Heartwood North\report\figs\31137_Figures.dwg Feb 04, 2026 - 4:53pm - rdouldeday Layout Tab: In-Process PM

Appendix E Year 2029 Background Traffic Analysis Worksheets

Intersection	
Int Delay, s/veh	1.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	1	815	10	6	829	5	30	0	24	7	0	2
Future Vol, veh/h	1	815	10	6	829	5	30	0	24	7	0	2
Conflicting Peds, #/hr	2	0	0	0	0	2	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	150	-	-	150	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	1	-	-	1	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	75	75	75	75	75	75	75	75	75	75	75	75
Heavy Vehicles, %	0	7	0	0	4	0	0	0	0	33	0	0
Mvmt Flow	1	1087	13	8	1105	7	40	0	32	9	0	3

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1114	0	0	1100	0	0	1665	2226	550	1673	2229	558
Stage 1	-	-	-	-	-	-	1096	1096	-	1127	1127	-
Stage 2	-	-	-	-	-	-	569	1130	-	546	1103	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.5	6.5	6.9	8.16	6.5	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-	6.5	5.5	-	7.16	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.5	5.5	-	7.16	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.83	4	3.3
Pot Cap-1 Maneuver	634	-	-	642	-	-	65	44	484	45	43	478
Stage 1	-	-	-	-	-	-	231	292	-	172	282	-
Stage 2	-	-	-	-	-	-	480	281	-	418	290	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	633	-	-	642	-	-	63	43	484	42	43	477
Mov Cap-2 Maneuver	-	-	-	-	-	-	166	149	-	123	147	-
Stage 1	-	-	-	-	-	-	231	291	-	169	278	-
Stage 2	-	-	-	-	-	-	471	277	-	390	289	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	0.01	0.08	27.01	31.67
HCM LOS			D	D

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	234	633	-	-	642	-	-	147
HCM Lane V/C Ratio	0.307	0.002	-	-	0.012	-	-	0.082
HCM Ctrl Dly (s/v)	27	10.7	-	-	10.7	-	-	31.7
HCM Lane LOS	D	B	-	-	B	-	-	D
HCM 95th %tile Q(veh)	1.3	0	-	-	0	-	-	0.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	373	224	188	279	310	129	342	785	101	137	1167	323
Future Volume (veh/h)	373	224	188	279	310	129	342	785	101	137	1167	323
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1737	1841	1811	1841	1856	1752	1752	1781	1767	1781	1796	1826
Adj Flow Rate, veh/h	405	243	152	303	337	139	372	853	109	149	1268	288
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	11	4	6	4	3	10	10	8	9	8	7	5
Cap, veh/h	454	314	458	330	271	112	425	1333	170	174	1410	853
Arrive On Green	0.14	0.17	0.17	0.19	0.22	0.21	0.13	0.44	0.44	0.10	0.41	0.41
Sat Flow, veh/h	3209	1841	1532	1753	1248	515	3237	3018	386	1697	3413	1545
Grp Volume(v), veh/h	405	243	152	303	0	476	372	478	484	149	1268	288
Grp Sat Flow(s),veh/h/ln	1605	1841	1532	1753	0	1762	1618	1692	1711	1697	1706	1545
Q Serve(g_s), s	20.5	20.9	12.8	28.1	0.0	36.0	18.7	36.4	36.5	14.3	57.4	17.0
Cycle Q Clear(g_c), s	20.5	20.9	12.8	28.1	0.0	36.0	18.7	36.4	36.5	14.3	57.4	17.0
Prop In Lane	1.00		1.00	1.00		0.29	1.00		0.23	1.00		1.00
Lane Grp Cap(c), veh/h	454	314	458	330	0	383	425	748	756	174	1410	853
V/C Ratio(X)	0.89	0.77	0.33	0.92	0.00	1.24	0.88	0.64	0.64	0.85	0.90	0.34
Avail Cap(c_a), veh/h	494	400	530	429	0	383	499	748	756	261	1464	877
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	69.8	65.6	45.2	65.9	0.0	64.9	70.6	36.0	36.1	73.0	45.3	20.5
Incr Delay (d2), s/veh	17.3	7.7	0.5	20.9	0.0	129.3	14.3	2.1	2.1	15.9	7.9	0.3
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	14.4	15.6	8.5	20.5	0.0	43.2	13.3	21.8	22.0	11.3	33.7	10.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	87.2	73.3	45.7	86.8	0.0	194.2	84.9	38.1	38.2	89.0	53.3	20.8
LnGrp LOS	F	E	D	F		F	F	D	D	F	D	C
Approach Vol, veh/h		800			779			1334			1705	
Approach Delay, s/veh		75.1			152.4			51.2			50.9	
Approach LOS		E			F			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	21.0	77.1	35.2	32.2	25.7	72.4	27.4	40.0
Change Period (Y+Rc), s	4.5	5.0	4.5	5.0	4.5	5.0	4.5	5.0
Max Green Setting (Gmax), s	25.0	70.0	40.0	35.0	25.0	70.0	25.0	35.0
Max Q Clear Time (g_c+I1), s	16.3	38.5	30.1	22.9	20.7	59.4	22.5	38.0
Green Ext Time (p_c), s	0.2	10.0	0.6	1.7	0.6	8.0	0.4	0.0

Intersection Summary	
HCM 7th Control Delay, s/veh	72.3
HCM 7th LOS	E

The Peak Hour Factor has been adjusted from 0.88 under existing conditions to 0.92, reflecting an additional 641 in-process trips at this intersection. Node 11 along the SR 503 corridor has a peak hour factor of 0.92.

Intersection	
Int Delay, s/veh	6.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	341	104	31	499	110	34
Future Vol, veh/h	341	104	31	499	110	34
Conflicting Peds, #/hr	0	1	1	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	250	100	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	81	81	81	81	81	81
Heavy Vehicles, %	7	6	12	5	6	11
Mvmt Flow	421	128	38	616	136	42

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	550	0	1115	422
Stage 1	-	-	-	-	422	-
Stage 2	-	-	-	-	693	-
Critical Hdwy	-	-	4.22	-	6.46	6.31
Critical Hdwy Stg 1	-	-	-	-	5.46	-
Critical Hdwy Stg 2	-	-	-	-	5.46	-
Follow-up Hdwy	-	-	2.308	-	3.554	3.399
Pot Cap-1 Maneuver	-	-	971	-	226	613
Stage 1	-	-	-	-	653	-
Stage 2	-	-	-	-	489	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	970	-	217	612
Mov Cap-2 Maneuver	-	-	-	-	217	-
Stage 1	-	-	-	-	652	-
Stage 2	-	-	-	-	470	-

Approach	EB	WB	NB
HCM Ctrl Dly, s/v	0	0.52	45.84
HCM LOS			E

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	256	-	-	970	-
HCM Lane V/C Ratio	0.695	-	-	0.039	-
HCM Ctrl Dly (s/v)	45.8	-	-	8.9	-
HCM Lane LOS	E	-	-	A	-
HCM 95th %tile Q(veh)	4.6	-	-	0.1	-

Intersection	
Int Delay, s/veh	13.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	53	292	34	12	419	13	83	23	40	5	15	14
Future Vol, veh/h	53	292	34	12	419	13	83	23	40	5	15	14
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	81	81	81	81	81	81	81	81	81	81	81	81
Heavy Vehicles, %	5	8	8	0	5	0	11	0	0	20	0	15
Mvmt Flow	65	360	42	15	517	16	102	28	49	6	19	17

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	533	0	0	402	0	0	1069	1075	381	1060	1088	525
Stage 1	-	-	-	-	-	-	512	512	-	555	555	-
Stage 2	-	-	-	-	-	-	556	563	-	506	533	-
Critical Hdwy	4.15	-	-	4.1	-	-	7.21	6.5	6.2	7.3	6.5	6.35
Critical Hdwy Stg 1	-	-	-	-	-	-	6.21	5.5	-	6.3	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.21	5.5	-	6.3	5.5	-
Follow-up Hdwy	2.245	-	-	2.2	-	-	3.599	4	3.3	3.68	4	3.435
Pot Cap-1 Maneuver	1019	-	-	1167	-	-	192	221	670	187	217	528
Stage 1	-	-	-	-	-	-	528	540	-	485	517	-
Stage 2	-	-	-	-	-	-	500	512	-	517	528	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1019	-	-	1167	-	-	152	199	670	135	196	528
Mov Cap-2 Maneuver	-	-	-	-	-	-	152	199	-	135	196	-
Stage 1	-	-	-	-	-	-	484	495	-	477	507	-
Stage 2	-	-	-	-	-	-	457	503	-	414	484	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	1.23	0.22	85.53	22.91
HCM LOS			F	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	203	247	-	-	48	-	-	243
HCM Lane V/C Ratio	0.888	0.064	-	-	0.013	-	-	0.173
HCM Ctrl Dly (s/v)	85.5	8.8	0	-	8.1	0	-	22.9
HCM Lane LOS	F	A	A	-	A	A	-	C
HCM 95th %tile Q(veh)	6.9	0.2	-	-	0	-	-	0.6

MOVEMENT SUMMARY

Site: 5 [NE 119th St and NE 152nd Ave - Background AM (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Existing AM
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] ft	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed mph
South: NE 152nd Ave															
3	L2	All MCs	125	5.0	125	5.0	0.350	11.1	LOS B	2.1	53.7	0.53	0.60	0.53	33.1
8	T1	All MCs	206	2.0	206	2.0	0.350	6.1	LOS A	2.1	53.7	0.53	0.60	0.53	33.9
18	R2	All MCs	11	0.0	11	0.0	0.350	5.8	LOS A	2.1	53.7	0.53	0.60	0.53	33.7
Approach			343	3.0	343	3.0	0.350	7.9	LOS A	2.1	53.7	0.53	0.60	0.53	33.6
East: NE 119th St															
1	L2	All MCs	14	10.0	14	10.0	0.235	11.9	LOS B	1.3	32.2	0.55	0.60	0.55	33.4
6	T1	All MCs	150	2.0	150	2.0	0.235	6.7	LOS A	1.3	32.2	0.55	0.60	0.55	34.3
16	R2	All MCs	44	4.0	44	4.0	0.235	6.6	LOS A	1.3	32.2	0.55	0.60	0.55	34.0
Approach			208	3.0	208	3.0	0.235	7.1	LOS A	1.3	32.2	0.55	0.60	0.55	34.2
North: NE 152nd Ave															
7	L2	All MCs	40	3.0	40	3.0	0.388	11.6	LOS B	2.5	65.2	0.58	0.59	0.58	33.4
4	T1	All MCs	299	4.0	299	4.0	0.388	6.8	LOS A	2.5	65.2	0.58	0.59	0.58	34.0
14	R2	All MCs	38	0.0	38	0.0	0.388	6.4	LOS A	2.5	65.2	0.58	0.59	0.58	33.8
Approach			376	3.5	376	3.5	0.388	7.3	LOS A	2.5	65.2	0.58	0.59	0.58	33.9
West: NE 119th St															
5	L2	All MCs	50	9.0	50	9.0	0.426	12.2	LOS B	2.7	70.5	0.63	0.64	0.63	33.2
2	T1	All MCs	168	9.0	168	9.0	0.426	7.2	LOS A	2.7	70.5	0.63	0.64	0.63	34.0
12	R2	All MCs	146	4.0	146	4.0	0.426	6.8	LOS A	2.7	70.5	0.63	0.64	0.63	33.7
Approach			364	7.0	364	7.0	0.426	7.7	LOS A	2.7	70.5	0.63	0.64	0.63	33.8
All Vehicles			1290	4.3	1290	4.3	0.426	7.5	LOS A	2.7	70.5	0.58	0.61	0.58	33.8

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



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	34	12	21	63	26	55
Future Volume (Veh/h)	34	12	21	63	26	55
Sign Control	Free			Stop	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Hourly flow rate (vph)	39	14	24	72	30	63
Pedestrians					3	
Lane Width (ft)					12.0	
Walking Speed (ft/s)					3.5	
Percent Blockage					0	
Right turn flare (veh)						
Median type	None					
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	3		163	88	95	3
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	3		163	88	95	3
tC, single (s)	4.3		7.2	6.5	6.6	6.2
tC, 2 stage (s)						
tF (s)	2.4		3.5	4.0	4.1	3.3
p0 queue free %	97		97	91	96	94
cM capacity (veh/h)	1522		710	777	763	1069

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	53	96	93
Volume Left	39	24	0
Volume Right	14	0	63
cSH	1522	759	947
Volume to Capacity	0.03	0.13	0.10
Queue Length 95th (ft)	2	11	8
Control Delay (s/veh)	5.5	10.4	9.2
Lane LOS	A	B	A
Approach Delay (s/veh)	5.5	10.4	9.2
Approach LOS		B	A

Intersection Summary			
Average Delay	8.9		
Intersection Capacity Utilization	21.1%	ICU Level of Service	A
Analysis Period (min)	15		

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Intersection	
Int Delay, s/veh	1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	14	31	8	260	367	8
Future Vol, veh/h	14	31	8	260	367	8
Conflicting Peds, #/hr	0	0	2	0	0	2
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	75	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	75	75	75	75	75	75
Heavy Vehicles, %	8	4	17	4	4	14
Mvmt Flow	19	41	11	347	489	11

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	865	497	502	0	-	0
Stage 1	497	-	-	-	-	-
Stage 2	368	-	-	-	-	-
Critical Hdwy	6.48	6.24	4.27	-	-	-
Critical Hdwy Stg 1	5.48	-	-	-	-	-
Critical Hdwy Stg 2	5.48	-	-	-	-	-
Follow-up Hdwy	3.572	3.336	2.353	-	-	-
Pot Cap-1 Maneuver	317	569	989	-	-	-
Stage 1	599	-	-	-	-	-
Stage 2	687	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	312	568	988	-	-	-
Mov Cap-2 Maneuver	312	-	-	-	-	-
Stage 1	592	-	-	-	-	-
Stage 2	686	-	-	-	-	-

Approach	EB	NB	SB
HCM Ctrl Dly, s/v	14.17	0.26	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	988	-	453	-	-
HCM Lane V/C Ratio	0.011	-	0.133	-	-
HCM Ctrl Dly (s/v)	8.7	-	14.2	-	-
HCM Lane LOS	A	-	B	-	-
HCM 95th %tile Q(veh)	0	-	0.5	-	-

Intersection	
Int Delay, s/veh	1.5

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	108	76	1312	1600	31
Future Vol, veh/h	0	108	76	1312	1600	31
Conflicting Peds, #/hr	0	0	1	0	0	1
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	550	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	0	4	4	10	6	19
Mvmt Flow	0	123	86	1491	1818	35

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	-	928	1854	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.98	4.18	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.34	2.24	-	-	-
Pot Cap-1 Maneuver	0	266	315	-	-	-
Stage 1	0	-	-	-	-	-
Stage 2	0	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	-	266	314	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Ctrl Dly, s/v	29.65	1.14	0
HCM LOS	D		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	314	-	266	-	-
HCM Lane V/C Ratio	0.275	-	0.462	-	-
HCM Ctrl Dly (s/v)	20.7	-	29.7	-	-
HCM Lane LOS	C	-	D	-	-
HCM 95th %tile Q(veh)	1.1	-	2.3	-	-

MOVEMENT SUMMARY

Site: 9 [NE 99th St and NE 107th Ave - Background AM (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Existing AM
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] ft	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed mph
South: NE 107th Ave															
3	L2	All MCs	42	12.0	42	12.0	0.182	10.7	LOS B	0.9	24.2	0.40	0.58	0.40	33.7
18	R2	All MCs	139	5.0	139	5.0	0.182	5.5	LOS A	0.9	24.2	0.40	0.58	0.40	34.3
Approach			181	6.6	181	6.6	0.182	6.7	LOS A	0.9	24.2	0.40	0.58	0.40	34.2
East: NE 99th St															
1	L2	All MCs	230	2.0	230	2.0	0.553	9.7	LOS A	4.7	121.8	0.30	0.50	0.30	33.8
6	T1	All MCs	423	6.0	423	6.0	0.553	4.9	LOS A	4.7	121.8	0.30	0.50	0.30	34.4
Approach			652	4.6	652	4.6	0.553	6.6	LOS A	4.7	121.8	0.30	0.50	0.30	34.2
West: NE 99th St															
2	T1	All MCs	203	6.0	203	6.0	0.238	5.8	LOS A	1.2	32.2	0.43	0.52	0.43	34.7
12	R2	All MCs	32	8.0	32	8.0	0.238	5.8	LOS A	1.2	32.2	0.43	0.52	0.43	34.3
Approach			235	6.3	235	6.3	0.238	5.8	LOS A	1.2	32.2	0.43	0.52	0.43	34.7
All Vehicles			1068	5.3	1068	5.3	0.553	6.5	LOS A	4.7	121.8	0.34	0.51	0.34	34.3

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

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Intersection	
Int Delay, s/veh	2.2

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	9	339	433	31	68	18
Future Vol, veh/h	9	339	433	31	68	18
Conflicting Peds, #/hr	2	0	0	2	1	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	75	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	84	84	84	84	84	84
Heavy Vehicles, %	12	6	6	8	6	6
Mvmt Flow	11	404	515	37	81	21

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	554	0	-	0	962	536
Stage 1	-	-	-	-	536	-
Stage 2	-	-	-	-	426	-
Critical Hdwy	4.22	-	-	-	6.46	6.26
Critical Hdwy Stg 1	-	-	-	-	5.46	-
Critical Hdwy Stg 2	-	-	-	-	5.46	-
Follow-up Hdwy	2.308	-	-	-	3.554	3.354
Pot Cap-1 Maneuver	968	-	-	-	279	537
Stage 1	-	-	-	-	579	-
Stage 2	-	-	-	-	650	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	966	-	-	-	275	536
Mov Cap-2 Maneuver	-	-	-	-	275	-
Stage 1	-	-	-	-	571	-
Stage 2	-	-	-	-	649	-

Approach	EB	WB	SB
HCM Ctrl Dly, s/v	0.23	0	22.54
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	966	-	-	-	306
HCM Lane V/C Ratio	0.011	-	-	-	0.334
HCM Ctrl Dly (s/v)	8.8	-	-	-	22.5
HCM Lane LOS	A	-	-	-	C
HCM 95th %tile Q(veh)	0	-	-	-	1.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	216	161	81	516	279	144	75	944	173	268	1243	147
Future Volume (veh/h)	216	161	81	516	279	144	75	944	173	268	1243	147
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1781	1767	1752	1856	1870	1870	1648	1767	1737	1752	1826	1737
Adj Flow Rate, veh/h	235	175	53	561	303	81	82	1026	147	291	1351	109
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	8	9	10	3	2	2	17	9	11	10	5	11
Cap, veh/h	327	223	366	460	377	572	253	1313	890	319	1503	842
Arrive On Green	0.14	0.13	0.13	0.21	0.20	0.20	0.16	0.52	0.52	0.16	0.43	0.43
Sat Flow, veh/h	1697	1767	1481	1767	1870	1562	1570	3357	1472	1668	3469	1472
Grp Volume(v), veh/h	235	175	53	561	303	81	82	1026	147	291	1351	109
Grp Sat Flow(s),veh/h/ln	1697	1767	1481	1767	1870	1562	1570	1678	1472	1668	1735	1472
Q Serve(g_s), s	17.7	14.4	1.3	32.0	23.2	5.2	0.4	37.1	5.4	21.3	54.2	2.7
Cycle Q Clear(g_c), s	17.7	14.4	1.3	32.0	23.2	5.2	0.4	37.1	5.4	21.3	54.2	2.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	327	223	366	460	377	572	253	1313	890	319	1503	842
V/C Ratio(X)	0.72	0.78	0.14	1.22	0.80	0.14	0.32	0.78	0.17	0.91	0.90	0.13
Avail Cap(c_a), veh/h	330	365	485	460	524	695	253	1313	890	326	1503	842
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.33	1.33	1.33	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	47.7	63.5	20.2	44.5	57.1	32.0	54.7	30.8	10.1	45.5	39.4	5.6
Incr Delay (d2), s/veh	7.2	7.1	0.2	117.4	6.9	0.1	0.7	4.7	0.4	27.8	8.9	0.3
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	12.8	11.2	1.6	43.1	17.2	3.6	4.8	20.5	3.2	19.1	32.4	2.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	54.9	70.6	20.4	161.9	63.9	32.2	55.4	35.4	10.5	73.3	48.3	5.9
LnGrp LOS	D	E	C	F	E	C	E	D	B	E	D	A
Approach Vol, veh/h		463			945			1255			1751	
Approach Delay, s/veh		56.9			119.4			33.8			49.8	
Approach LOS		E			F			C			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	22.0	69.0	24.8	34.2	28.3	62.7	36.0	23.0
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Max Green Setting (Gmax), s	5.0	64.0	20.0	41.0	24.0	45.0	31.0	30.0
Max Q Clear Time (g_c+I1), s	2.4	56.2	19.7	25.2	23.3	39.1	34.0	16.4
Green Ext Time (p_c), s	0.0	5.7	0.0	2.1	0.0	3.8	0.0	1.0

Intersection Summary	
HCM 7th Control Delay, s/veh	60.9
HCM 7th LOS	E

The HCM Platoon Ratio setting has been adjusted from 1.00 (random arrivals, also classified as arrival type 3) to 1.33 (favorable progression, also classified as arrival type 4) for northbound traffic, reflecting the coordinated signal system on NE 117th Avenue (SR 503).



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	117	279	0	1	362	64	3	0	0	152	0	387
Future Volume (veh/h)	117	279	0	1	362	64	3	0	0	152	0	387
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.98	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1811	1781	0	1900	1841	1841	1900	1900	1900	1870	1900	1856
Adj Flow Rate, veh/h	131	313	0	1	407	63	3	0	0	171	0	352
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	6	8	0	0	4	4	0	0	0	2	0	3
Cap, veh/h	420	908	0	52	502	78	361	0	0	244	17	394
Arrive On Green	0.13	0.51	0.00	0.30	0.32	0.30	0.35	0.00	0.00	0.35	0.00	0.35
Sat Flow, veh/h	1725	1781	0	1	1550	239	705	0	0	466	44	1051
Grp Volume(v), veh/h	131	313	0	471	0	0	3	0	0	523	0	0
Grp Sat Flow(s),veh/h/ln	1725	1781	0	1791	0	0	705	0	0	1562	0	0
Q Serve(g_s), s	6.1	7.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	20.6	0.0	0.0
Cycle Q Clear(g_c), s	6.1	7.2	0.0	17.2	0.0	0.0	0.2	0.0	0.0	22.6	0.0	0.0
Prop In Lane	1.00		0.00	0.00		0.13	1.00		0.00	0.33		0.67
Lane Grp Cap(c), veh/h	0	908	0	593	0	0	352	0	0	619	0	0
V/C Ratio(X)	0.00	0.34	0.00	0.79	0.00	0.00	0.01	0.00	0.00	0.85	0.00	0.00
Avail Cap(c_a), veh/h	0	1311	0	943	0	0	352	0	0	619	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	10.1	0.0	21.7	0.0	0.0	14.3	0.0	0.0	21.3	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.1	0.0	0.9	0.0	0.0	0.0	0.0	0.0	9.9	0.0	0.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.0	4.5	0.0	11.3	0.0	0.0	0.1	0.0	0.0	14.7	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	0.0	10.2	0.0	22.7	0.0	0.0	14.3	0.0	0.0	31.2	0.0	0.0
LnGrp LOS		B		C			B			C		
Approach Vol, veh/h		444			471			3			523	
Approach Delay, s/veh		7.2			22.7			14.3			31.2	
Approach LOS		A			C			B			C	

Timer - Assigned Phs	1	2		4		6		8				
Phs Duration (G+Y+Rc), s	12.9	26.5		30.0		39.3		30.0				
Change Period (Y+Rc), s	5.4	5.5		5.6		* 5.4		* 5.6				
Max Green Setting (Gmax), s	9.6	34.5		24.4		* 50		* 17				
Max Q Clear Time (g_c+I1), s	8.1	19.2		24.6		9.2		2.2				
Green Ext Time (p_c), s	0.0	1.8		0.0		1.3		0.0				

Intersection Summary	
HCM 7th Control Delay, s/veh	21.0
HCM 7th LOS	C

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 7th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	6	188	125	109	230	6	106	14	37	8	42	11
Future Volume (veh/h)	6	188	125	109	230	6	106	14	37	8	42	11
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.98	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1796	1885	1885	1870	1648	1841	1900	1856	1900	1900	1900
Adj Flow Rate, veh/h	7	219	132	127	267	5	123	16	26	9	49	7
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Percent Heavy Veh, %	0	7	1	1	2	17	4	0	3	0	0	0
Cap, veh/h	510	287	173	319	368	7	372	66	107	351	130	19
Arrive On Green	0.16	0.27	0.27	0.09	0.20	0.20	0.09	0.10	0.10	0.06	0.08	0.08
Sat Flow, veh/h	1810	1050	633	1795	1829	34	1753	651	1058	1810	1626	232
Grp Volume(v), veh/h	7	0	351	127	0	272	123	0	42	9	0	56
Grp Sat Flow(s),veh/h/ln	1810	0	1682	1795	0	1863	1753	0	1710	1810	0	1858
Q Serve(g_s), s	0.0	0.0	9.0	0.0	0.0	6.4	0.0	0.0	1.1	0.0	0.0	1.3
Cycle Q Clear(g_c), s	0.0	0.0	9.0	0.0	0.0	6.4	0.0	0.0	1.1	0.0	0.0	1.3
Prop In Lane	1.00		0.38	1.00		0.02	1.00		0.62	1.00		0.13
Lane Grp Cap(c), veh/h	510	0	460	319	0	375	372	0	172	351	0	149
V/C Ratio(X)	0.01	0.00	0.76	0.40	0.00	0.73	0.33	0.00	0.24	0.03	0.00	0.38
Avail Cap(c_a), veh/h	594	0	1244	525	0	1374	762	0	709	791	0	770
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	14.3	0.0	15.6	19.5	0.0	17.5	18.9	0.0	19.4	18.1	0.0	20.4
Incr Delay (d2), s/veh	0.0	0.0	2.0	0.3	0.0	1.0	0.2	0.0	0.3	0.0	0.0	0.6
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.1	0.0	5.7	2.1	0.0	4.5	2.0	0.0	0.7	0.1	0.0	1.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	14.3	0.0	17.6	19.8	0.0	18.5	19.1	0.0	19.7	18.2	0.0	21.0
LnGrp LOS	B		B	B		B	B		B	B		C
Approach Vol, veh/h		358			399			165			65	
Approach Delay, s/veh		17.5			18.9			19.2			20.6	
Approach LOS		B			B			B			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	12.9	14.9	9.6	9.4	9.6	18.2	8.6	10.3
Change Period (Y+Rc), s	5.6	* 5.5	5.6	5.6	* 5.6	5.4	5.6	5.6
Max Green Setting (Gmax), s	9.5	* 35	14.4	19.4	* 9.4	34.6	14.4	19.4
Max Q Clear Time (g_c+I1), s	2.0	8.4	2.0	3.3	2.0	11.0	2.0	3.1
Green Ext Time (p_c), s	0.0	1.0	0.1	0.1	0.1	1.8	0.0	0.1

Intersection Summary	
HCM 7th Control Delay, s/veh	18.6
HCM 7th LOS	B

Notes

* HCM 7th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	3.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	31	185	13	3	238	8	15	0	13	15	2	90
Future Vol, veh/h	31	185	13	3	238	8	15	0	13	15	2	90
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	100	-	-	100	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	83	83	83	83	83	83	83	83	83	83	83	83
Heavy Vehicles, %	11	5	17	0	1	0	7	0	17	0	0	7
Mvmt Flow	37	223	16	4	287	10	18	0	16	18	2	108

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	296	0	0	239	0	0	601	609	231	596	612	292
Stage 1	-	-	-	-	-	-	305	305	-	299	299	-
Stage 2	-	-	-	-	-	-	295	304	-	298	313	-
Critical Hdwy	4.21	-	-	4.1	-	-	7.17	6.5	6.37	7.1	6.5	6.27
Critical Hdwy Stg 1	-	-	-	-	-	-	6.17	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.17	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.299	-	-	2.2	-	-	3.563	4	3.453	3.5	4	3.363
Pot Cap-1 Maneuver	1215	-	-	1340	-	-	405	412	773	418	411	736
Stage 1	-	-	-	-	-	-	694	666	-	714	670	-
Stage 2	-	-	-	-	-	-	703	667	-	715	660	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1215	-	-	1340	-	-	332	399	773	396	397	736
Mov Cap-2 Maneuver	-	-	-	-	-	-	332	399	-	396	397	-
Stage 1	-	-	-	-	-	-	672	645	-	712	668	-
Stage 2	-	-	-	-	-	-	595	665	-	679	640	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	1.09	0.09	13.61	11.93
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	452	1215	-	-	1340	-	-	648
HCM Lane V/C Ratio	0.075	0.031	-	-	0.003	-	-	0.199
HCM Ctrl Dly (s/v)	13.6	8.1	-	-	7.7	-	-	11.9
HCM Lane LOS	B	A	-	-	A	-	-	B
HCM 95th %tile Q(veh)	0.2	0.1	-	-	0	-	-	0.7

Intersection	
Int Delay, s/veh	1.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	6	201	3	2	225	8	3	0	2	25	0	18
Future Vol, veh/h	6	201	3	2	225	8	3	0	2	25	0	18
Conflicting Peds, #/hr	0	0	1	1	0	0	2	0	0	0	0	2
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	100	-	-	75	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	82	82	82	82	82	82	82	82	82	82	82	82
Heavy Vehicles, %	17	5	0	0	1	17	0	0	0	0	0	6
Mvmt Flow	7	245	4	2	274	10	4	0	2	30	0	22

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	284	0	0	250	0	0	544	552	248	544	549	281
Stage 1	-	-	-	-	-	-	263	263	-	284	284	-
Stage 2	-	-	-	-	-	-	281	289	-	260	264	-
Critical Hdwy	4.27	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.26
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.353	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.354
Pot Cap-1 Maneuver	1197	-	-	1328	-	-	453	445	796	453	446	748
Stage 1	-	-	-	-	-	-	747	695	-	727	680	-
Stage 2	-	-	-	-	-	-	730	677	-	749	693	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1197	-	-	1326	-	-	435	441	795	448	442	747
Mov Cap-2 Maneuver	-	-	-	-	-	-	435	441	-	448	442	-
Stage 1	-	-	-	-	-	-	742	690	-	726	679	-
Stage 2	-	-	-	-	-	-	706	675	-	743	689	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	0.23	0.07	11.86	12.41
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	531	1197	-	-	1326	-	-	538
HCM Lane V/C Ratio	0.011	0.006	-	-	0.002	-	-	0.097
HCM Ctrl Dly (s/v)	11.9	8	-	-	7.7	-	-	12.4
HCM Lane LOS	B	A	-	-	A	-	-	B
HCM 95th %tile Q(veh)	0	0	-	-	0	-	-	0.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	34	89	103	16	89	31	67	180	14	51	333	62
Future Volume (veh/h)	34	89	103	16	89	31	67	180	14	51	333	62
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	0.99		0.99	0.99		0.97	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1841	1811	1900	1841	1841	1900	1856	1781	1841	1826	1870
Adj Flow Rate, veh/h	44	116	134	21	116	40	87	234	18	66	432	81
Peak Hour Factor	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77
Percent Heavy Veh, %	0	4	6	0	4	4	0	3	8	4	5	2
Cap, veh/h	326	155	179	232	237	82	299	591	45	487	507	95
Arrive On Green	0.04	0.20	0.20	0.02	0.18	0.18	0.06	0.35	0.35	0.06	0.34	0.34
Sat Flow, veh/h	1810	774	895	1810	1296	447	1810	1701	131	1753	1495	280
Grp Volume(v), veh/h	44	0	250	21	0	156	87	0	252	66	0	513
Grp Sat Flow(s),veh/h/ln	1810	0	1669	1810	0	1742	1810	0	1832	1753	0	1775
Q Serve(g_s), s	1.2	0.0	8.4	0.6	0.0	4.8	1.8	0.0	6.2	1.4	0.0	16.1
Cycle Q Clear(g_c), s	1.2	0.0	8.4	0.6	0.0	4.8	1.8	0.0	6.2	1.4	0.0	16.1
Prop In Lane	1.00		0.54	1.00		0.26	1.00		0.07	1.00		0.16
Lane Grp Cap(c), veh/h	326	0	334	232	0	319	299	0	636	487	0	602
V/C Ratio(X)	0.13	0.00	0.75	0.09	0.00	0.49	0.29	0.00	0.40	0.14	0.00	0.85
Avail Cap(c_a), veh/h	474	0	1187	411	0	1236	498	0	2122	606	0	1968
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	18.6	0.0	22.5	19.5	0.0	21.9	13.6	0.0	14.8	11.7	0.0	18.4
Incr Delay (d2), s/veh	0.1	0.0	1.3	0.1	0.0	0.4	0.2	0.0	0.1	0.0	0.0	1.4
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.8	0.0	5.7	0.4	0.0	3.4	1.1	0.0	4.1	0.9	0.0	9.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	18.6	0.0	23.8	19.5	0.0	22.4	13.8	0.0	14.9	11.7	0.0	19.8
LnGrp LOS	B		C	B		C	B		B	B		B
Approach Vol, veh/h		294			177			339			579	
Approach Delay, s/veh		23.0			22.0			14.7			18.8	
Approach LOS		C			C			B			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.1	16.5	9.4	25.9	7.1	17.5	8.9	26.4
Change Period (Y+Rc), s	5.5	5.5	5.6	5.6	5.6	* 5.5	5.6	5.6
Max Green Setting (Gmax), s	7.5	42.5	10.4	66.4	7.4	* 43	7.4	69.4
Max Q Clear Time (g_c+I1), s	3.2	6.8	3.8	18.1	2.6	10.4	3.4	8.2
Green Ext Time (p_c), s	0.0	0.6	0.0	2.2	0.0	1.1	0.0	0.9

Intersection Summary	
HCM 7th Control Delay, s/veh	19.1
HCM 7th LOS	B

Notes

* HCM 7th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	0.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	2	1104	32	19	819	3	19	0	17	5	0	1
Future Vol, veh/h	2	1104	32	19	819	3	19	0	17	5	0	1
Conflicting Peds, #/hr	1	0	0	0	0	1	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	150	-	-	150	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	1	-	-	1	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	96	96	96	96	96	96	96	96	96	96	96	96
Heavy Vehicles, %	0	2	0	0	2	0	0	0	0	0	0	0
Mvmt Flow	2	1150	33	20	853	3	20	0	18	5	0	1

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	857	0	0	1183	0	0	1637	2068	592	1474	2083	429
Stage 1	-	-	-	-	-	-	1171	1171	-	895	895	-
Stage 2	-	-	-	-	-	-	466	897	-	579	1188	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.5	6.5	6.9	7.5	6.5	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-	6.5	5.5	-	6.5	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.5	5.5	-	6.5	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	792	-	-	597	-	-	68	55	455	90	54	580
Stage 1	-	-	-	-	-	-	208	269	-	306	362	-
Stage 2	-	-	-	-	-	-	551	361	-	473	264	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	791	-	-	597	-	-	65	53	455	83	52	579
Mov Cap-2 Maneuver	-	-	-	-	-	-	159	162	-	197	154	-
Stage 1	-	-	-	-	-	-	207	268	-	295	349	-
Stage 2	-	-	-	-	-	-	532	349	-	453	263	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	0.02	0.25	23.73	21.78
HCM LOS			C	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	229	791	-	-	597	-	-	221
HCM Lane V/C Ratio	0.163	0.003	-	-	0.033	-	-	0.028
HCM Ctrl Dly (s/v)	23.7	9.6	-	-	11.2	-	-	21.8
HCM Lane LOS	C	A	-	-	B	-	-	C
HCM 95th %tile Q(veh)	0.6	0	-	-	0.1	-	-	0.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	584	476	215	123	262	84	425	1130	201	300	1041	324
Future Volume (veh/h)	584	476	215	123	262	84	425	1130	201	300	1041	324
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	1.00		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1885	1856	1900	1870	1826	1885	1870	1885	1885	1885	1870
Adj Flow Rate, veh/h	602	491	178	127	270	80	438	1165	203	309	1073	282
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	1	3	0	2	5	1	2	1	1	1	2
Cap, veh/h	509	509	637	154	288	85	485	1225	212	264	1480	881
Arrive On Green	0.20	0.36	0.36	0.09	0.21	0.20	0.19	0.54	0.53	0.15	0.41	0.41
Sat Flow, veh/h	3456	1885	1565	1810	1384	410	3483	3024	524	1795	3582	1578
Grp Volume(v), veh/h	602	491	178	127	0	350	438	682	686	309	1073	282
Grp Sat Flow(s),veh/h/ln	1728	1885	1565	1810	0	1794	1742	1777	1771	1795	1791	1578
Q Serve(g_s), s	25.5	44.2	12.1	12.0	0.0	33.3	21.3	62.6	63.8	25.5	43.5	16.7
Cycle Q Clear(g_c), s	25.5	44.2	12.1	12.0	0.0	33.3	21.3	62.6	63.8	25.5	43.5	16.7
Prop In Lane	1.00		1.00	1.00		0.23	1.00		0.30	1.00		1.00
Lane Grp Cap(c), veh/h	509	509	637	154	0	373	485	720	718	264	1480	881
V/C Ratio(X)	1.18	0.96	0.28	0.82	0.00	0.94	0.90	0.95	0.96	1.17	0.73	0.32
Avail Cap(c_a), veh/h	509	509	637	423	0	373	513	729	726	264	1480	881
HCM Platoon Ratio	1.33	1.33	1.33	1.00	1.00	1.00	1.33	1.33	1.33	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	69.6	54.7	30.0	77.9	0.0	67.6	69.4	38.2	38.6	73.8	42.6	20.6
Incr Delay (d2), s/veh	101.0	30.9	0.3	10.5	0.0	31.4	18.7	21.5	23.1	108.8	2.0	0.3
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	26.8	32.0	7.8	10.0	0.0	25.3	15.7	37.9	38.7	29.0	26.7	10.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	170.6	85.6	30.3	88.5	0.0	99.0	88.1	59.7	61.8	182.6	44.5	20.9
LnGrp LOS	F	F	C	F		F	F	E	E	F	D	C
Approach Vol, veh/h		1271			477			1806			1664	
Approach Delay, s/veh		118.1			96.2			67.4			66.2	
Approach LOS		F			F			E			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	29.5	74.2	18.7	50.8	28.1	75.5	29.5	40.0
Change Period (Y+Rc), s	4.5	5.0	4.5	5.0	4.5	5.0	4.5	5.0
Max Green Setting (Gmax), s	25.0	70.0	40.0	35.0	25.0	70.0	25.0	35.0
Max Q Clear Time (g_c+I1), s	27.5	65.8	14.0	46.2	23.3	45.5	27.5	35.3
Green Ext Time (p_c), s	0.0	3.4	0.3	0.0	0.3	12.7	0.0	0.0

Intersection Summary	
HCM 7th Control Delay, s/veh	82.0
HCM 7th LOS	F

The Peak Hour Factor has been adjusted from 0.95 under existing conditions to 0.97, reflecting an additional 843 in-process trips at this intersection. Node 11 along the SR 503 corridor has a peak hour factor of 0.97.

A recent site visit confirmed that there are vehicle platoons at this intersection during the PM peak hour in the northbound and eastbound directions. The arrival type has been updated from 3 to 4 for these approach volumes.

Intersection	
Int Delay, s/veh	4.2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	666	185	49	347	89	44
Future Vol, veh/h	666	185	49	347	89	44
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	250	100	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	2	1	1	3	1	1
Mvmt Flow	709	197	52	369	95	47

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	905	0	1182	709
Stage 1	-	-	-	-	709	-
Stage 2	-	-	-	-	473	-
Critical Hdwy	-	-	4.11	-	6.41	6.21
Critical Hdwy Stg 1	-	-	-	-	5.41	-
Critical Hdwy Stg 2	-	-	-	-	5.41	-
Follow-up Hdwy	-	-	2.209	-	3.509	3.309
Pot Cap-1 Maneuver	-	-	756	-	211	436
Stage 1	-	-	-	-	490	-
Stage 2	-	-	-	-	629	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	756	-	196	436
Mov Cap-2 Maneuver	-	-	-	-	196	-
Stage 1	-	-	-	-	490	-
Stage 2	-	-	-	-	585	-

Approach	EB	WB	NB
HCM Ctrl Dly, s/v	0	1.25	39.56
HCM LOS			E

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	240	-	-	756	-
HCM Lane V/C Ratio	0.59	-	-	0.069	-
HCM Ctrl Dly (s/v)	39.6	-	-	10.1	-
HCM Lane LOS	E	-	-	B	-
HCM 95th %tile Q(veh)	3.4	-	-	0.2	-

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	64	570	68	36	335	13	41	24	19	6	23	28
Future Vol, veh/h	64	570	68	36	335	13	41	24	19	6	23	28
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	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	5	1	2	2	3	14	2	9	7	16	0	0
Mvmt Flow	71	633	76	40	372	14	46	27	21	7	26	31

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	387	0	0	709	0	0	1278	1280	671	1248	1311	379
Stage 1	-	-	-	-	-	-	813	813	-	459	459	-
Stage 2	-	-	-	-	-	-	465	467	-	789	851	-
Critical Hdwy	4.15	-	-	4.12	-	-	7.12	6.59	6.27	7.26	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.59	-	6.26	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.59	-	6.26	5.5	-
Follow-up Hdwy	2.245	-	-	2.218	-	-	3.518	4.081	3.363	3.644	4	3.3
Pot Cap-1 Maneuver	1156	-	-	890	-	-	143	161	448	140	160	672
Stage 1	-	-	-	-	-	-	372	382	-	556	570	-
Stage 2	-	-	-	-	-	-	578	550	-	364	379	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1156	-	-	890	-	-	96	136	448	94	136	672
Mov Cap-2 Maneuver	-	-	-	-	-	-	96	136	-	94	136	-
Stage 1	-	-	-	-	-	-	334	343	-	524	537	-
Stage 2	-	-	-	-	-	-	495	519	-	287	340	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	0.76	0.87	82.69	29.87
HCM LOS			F	D

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	130	161	-	-	167	-	-	207
HCM Lane V/C Ratio	0.716	0.062	-	-	0.045	-	-	0.306
HCM Ctrl Dly (s/v)	82.7	8.3	0	-	9.2	0	-	29.9
HCM Lane LOS	F	A	A	-	A	A	-	D
HCM 95th %tile Q(veh)	4	0.2	-	-	0.1	-	-	1.2

MOVEMENT SUMMARY

Site: 5 [NE 119th St and NE 152nd Ave - Background PM (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Existing PM
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] ft	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed mph
South: NE 152nd Ave															
3	L2	All MCs	116	1.0	116	1.0	0.440	11.0	LOS B	2.9	71.9	0.54	0.58	0.54	33.4
8	T1	All MCs	321	1.0	321	1.0	0.440	6.1	LOS A	2.9	71.9	0.54	0.58	0.54	34.1
18	R2	All MCs	16	0.0	16	0.0	0.440	5.8	LOS A	2.9	71.9	0.54	0.58	0.54	33.8
Approach			452	1.0	452	1.0	0.440	7.3	LOS A	2.9	71.9	0.54	0.58	0.54	33.9
East: NE 119th St															
1	L2	All MCs	11	0.0	11	0.0	0.214	11.9	LOS B	1.2	29.7	0.60	0.63	0.60	33.5
6	T1	All MCs	131	3.0	131	3.0	0.214	7.4	LOS A	1.2	29.7	0.60	0.63	0.60	34.1
16	R2	All MCs	33	0.0	33	0.0	0.214	6.9	LOS A	1.2	29.7	0.60	0.63	0.60	33.9
Approach			176	2.2	176	2.2	0.214	7.6	LOS A	1.2	29.7	0.60	0.63	0.60	34.0
North: NE 152nd Ave															
7	L2	All MCs	13	0.0	13	0.0	0.230	10.9	LOS B	1.3	33.7	0.49	0.54	0.49	33.9
4	T1	All MCs	191	1.0	191	1.0	0.230	6.1	LOS A	1.3	33.7	0.49	0.54	0.49	34.5
14	R2	All MCs	34	0.0	34	0.0	0.230	5.9	LOS A	1.3	33.7	0.49	0.54	0.49	34.3
Approach			238	0.8	238	0.8	0.230	6.3	LOS A	1.3	33.7	0.49	0.54	0.49	34.4
West: NE 119th St															
5	L2	All MCs	50	0.0	50	0.0	0.390	10.7	LOS B	2.4	60.8	0.48	0.55	0.48	34.0
2	T1	All MCs	189	1.0	189	1.0	0.390	5.8	LOS A	2.4	60.8	0.48	0.55	0.48	34.6
12	R2	All MCs	170	1.0	170	1.0	0.390	5.6	LOS A	2.4	60.8	0.48	0.55	0.48	34.3
Approach			408	0.9	408	0.9	0.390	6.3	LOS A	2.4	60.8	0.48	0.55	0.48	34.4
All Vehicles			1274	1.1	1274	1.1	0.440	6.9	LOS A	2.9	71.9	0.52	0.57	0.52	34.2

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



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	49	30	10	41	55	47
Future Volume (Veh/h)	49	30	10	41	55	47
Sign Control	Free			Stop	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Hourly flow rate (vph)	56	34	11	47	63	54
Pedestrians					1	
Lane Width (ft)					12.0	
Walking Speed (ft/s)					3.5	
Percent Blockage					0	
Right turn flare (veh)						
Median type	None					
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1		215	130	147	1
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1		215	130	147	1
tC, single (s)	4.1		7.1	6.6	6.5	6.2
tC, 2 stage (s)						
tF (s)	2.2		3.5	4.1	4.0	3.3
p0 queue free %	97		98	93	91	95
cM capacity (veh/h)	1627		644	720	722	1083

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	90	58	117
Volume Left	56	11	0
Volume Right	34	0	54
cSH	1627	704	853
Volume to Capacity	0.03	0.08	0.14
Queue Length 95th (ft)	3	7	12
Control Delay (s/veh)	4.6	10.6	9.9
Lane LOS	A	B	A
Approach Delay (s/veh)	4.6	10.6	9.9
Approach LOS		B	A

Intersection Summary			
Average Delay	8.3		
Intersection Capacity Utilization	20.6%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection	
Int Delay, s/veh	0.6

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	5	20	27	450	356	16
Future Vol, veh/h	5	20	27	450	356	16
Conflicting Peds, #/hr	0	0	1	0	0	1
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	75	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	20	6	0	2	2	13
Mvmt Flow	5	22	30	495	391	18

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	955	401	410	0	-	0
Stage 1	401	-	-	-	-	-
Stage 2	554	-	-	-	-	-
Critical Hdwy	6.6	6.26	4.1	-	-	-
Critical Hdwy Stg 1	5.6	-	-	-	-	-
Critical Hdwy Stg 2	5.6	-	-	-	-	-
Follow-up Hdwy	3.68	3.354	2.2	-	-	-
Pot Cap-1 Maneuver	266	640	1160	-	-	-
Stage 1	639	-	-	-	-	-
Stage 2	541	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	259	640	1159	-	-	-
Mov Cap-2 Maneuver	259	-	-	-	-	-
Stage 1	622	-	-	-	-	-
Stage 2	541	-	-	-	-	-

Approach	EB	NB	SB
HCM Ctrl Dly, s/v	12.71	0.46	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1159	-	494	-	-
HCM Lane V/C Ratio	0.026	-	0.056	-	-
HCM Ctrl Dly (s/v)	8.2	-	12.7	-	-
HCM Lane LOS	A	-	B	-	-
HCM 95th %tile Q(veh)	0.1	-	0.2	-	-

Intersection	
Int Delay, s/veh	1.4

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	77	170	1814	1469	51
Future Vol, veh/h	0	77	170	1814	1469	51
Conflicting Peds, #/hr	0	0	1	0	0	1
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	550	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	0	2	1	1	1	3
Mvmt Flow	0	80	177	1890	1530	53

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	-	793	1584	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.94	4.12	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.32	2.21	-	-	-
Pot Cap-1 Maneuver	0	332	416	-	-	-
Stage 1	0	-	-	-	-	-
Stage 2	0	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	-	331	415	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Ctrl Dly, s/v	19.3	1.71	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	415	-	331	-	-
HCM Lane V/C Ratio	0.427	-	0.242	-	-
HCM Ctrl Dly (s/v)	20	-	19.3	-	-
HCM Lane LOS	C	-	C	-	-
HCM 95th %tile Q(veh)	2.1	-	0.9	-	-

MOVEMENT SUMMARY

Site: 9 [NE 99th St and NE 107th Ave - Background PM (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Existing PM
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] ft	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed mph
South: NE 107th Ave															
3	L2	All MCs	58	2.0	58	2.0	0.383	11.1	LOS B	2.3	58.1	0.52	0.60	0.52	33.9
18	R2	All MCs	326	1.0	326	1.0	0.383	6.0	LOS A	2.3	58.1	0.52	0.60	0.52	34.3
Approach			384	1.2	384	1.2	0.383	6.8	LOS A	2.3	58.1	0.52	0.60	0.52	34.3
East: NE 99th St															
1	L2	All MCs	174	1.0	174	1.0	0.420	9.7	LOS A	3.0	74.7	0.28	0.50	0.28	33.9
6	T1	All MCs	327	2.0	327	2.0	0.420	4.9	LOS A	3.0	74.7	0.28	0.50	0.28	34.5
Approach			501	1.7	501	1.7	0.420	6.5	LOS A	3.0	74.7	0.28	0.50	0.28	34.3
West: NE 99th St															
2	T1	All MCs	276	1.0	276	1.0	0.300	5.4	LOS A	1.6	41.3	0.38	0.49	0.38	35.0
12	R2	All MCs	52	0.0	52	0.0	0.300	5.2	LOS A	1.6	41.3	0.38	0.49	0.38	34.7
Approach			328	0.8	328	0.8	0.300	5.4	LOS A	1.6	41.3	0.38	0.49	0.38	34.9
All Vehicles			1212	1.3	1212	1.3	0.420	6.3	LOS A	3.0	74.7	0.38	0.53	0.38	34.5

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

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Intersection	
Int Delay, s/veh	1.4

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	28	457	444	53	43	14
Future Vol, veh/h	28	457	444	53	43	14
Conflicting Peds, #/hr	0	0	0	0	1	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	75	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	0	1	2	2	0	0
Mvmt Flow	30	486	472	56	46	15

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	529	0	-	0	1047	501
Stage 1	-	-	-	-	501	-
Stage 2	-	-	-	-	547	-
Critical Hdwy	4.1	-	-	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	2.2	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	1049	-	-	-	255	574
Stage 1	-	-	-	-	613	-
Stage 2	-	-	-	-	584	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1049	-	-	-	248	574
Mov Cap-2 Maneuver	-	-	-	-	248	-
Stage 1	-	-	-	-	596	-
Stage 2	-	-	-	-	584	-

Approach	EB	WB	SB
HCM Ctrl Dly, s/v	0.49	0	20.82
HCM LOS			C

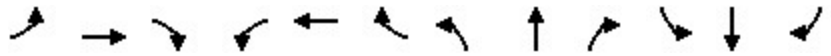
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1049	-	-	-	288
HCM Lane V/C Ratio	0.028	-	-	-	0.211
HCM Ctrl Dly (s/v)	8.5	-	-	-	20.8
HCM Lane LOS	A	-	-	-	C
HCM 95th %tile Q(veh)	0.1	-	-	-	0.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	199	232	74	403	249	196	120	1557	365	262	1103	156
Future Volume (veh/h)	199	232	74	403	249	196	120	1557	365	262	1103	156
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1885	1900	1900	1885	1885	1885	1885	1885	1885	1885	1856
Adj Flow Rate, veh/h	205	239	34	415	257	129	124	1605	357	270	1137	121
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	1	1	0	0	1	1	1	1	1	1	1	3
Cap, veh/h	321	306	563	359	367	533	432	1590	941	301	1409	796
Arrive On Green	0.11	0.16	0.16	0.15	0.19	0.19	0.25	0.59	0.59	0.14	0.39	0.39
Sat Flow, veh/h	1795	1885	1571	1810	1885	1583	1795	3582	1592	1795	3582	1566
Grp Volume(v), veh/h	205	239	34	415	257	129	124	1605	357	270	1137	121
Grp Sat Flow(s),veh/h/ln	1795	1885	1571	1810	1885	1583	1795	1791	1592	1795	1791	1566
Q Serve(g_s), s	14.0	18.2	0.6	22.0	19.1	8.8	0.4	66.6	14.5	18.1	42.3	2.7
Cycle Q Clear(g_c), s	14.0	18.2	0.6	22.0	19.1	8.8	0.4	66.6	14.5	18.1	42.3	2.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	321	306	563	359	367	533	432	1590	941	301	1409	796
V/C Ratio(X)	0.64	0.78	0.06	1.16	0.70	0.24	0.29	1.01	0.38	0.90	0.81	0.15
Avail Cap(c_a), veh/h	355	390	633	359	415	573	432	1590	941	311	1409	796
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.33	1.33	1.33	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	45.2	60.3	15.2	47.0	56.4	36.1	43.0	30.7	11.4	45.0	40.4	7.4
Incr Delay (d2), s/veh	3.3	8.4	0.1	97.6	4.9	0.3	0.4	24.9	0.3	25.6	5.0	0.4
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	10.7	14.4	0.9	19.5	14.6	6.3	6.3	39.3	7.9	15.3	26.4	2.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	48.5	68.7	15.3	144.6	61.2	36.4	43.4	55.6	11.7	70.6	45.5	7.8
LnGrp LOS	D	E	B	F	E	D	D	F	B	E	D	A
Approach Vol, veh/h		478			801			2086			1528	
Approach Delay, s/veh		56.2			100.4			47.4			46.9	
Approach LOS		E			F			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	32.7	63.0	21.1	33.2	25.1	70.6	26.0	28.3
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Max Green Setting (Gmax), s	21.0	58.0	19.0	32.0	21.0	58.0	21.0	30.0
Max Q Clear Time (g_c+I1), s	2.4	44.3	16.0	21.1	20.1	68.6	24.0	20.2
Green Ext Time (p_c), s	0.3	7.7	0.2	1.7	0.0	0.0	0.0	1.1

Intersection Summary	
HCM 7th Control Delay, s/veh	56.8
HCM 7th LOS	E

The HCM Platoon Ratio setting has been adjusted from 1.00 (random arrivals, also classified as arrival type 3) to 1.33 (favorable progression, also classified as arrival type 4) for northbound traffic, reflecting the coordinated signal system on NE 117th Avenue (SR 503).



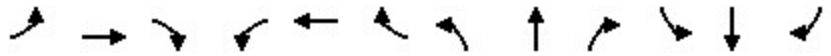
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	339	388	1	1	383	172	1	1	1	142	0	273
Future Volume (veh/h)	339	388	1	1	383	172	1	1	1	142	0	273
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1870	1900	1900	1885	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	373	426	1	1	421	176	1	1	1	156	0	235
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	1	2	0	0	1	0	0	0	0	0	0	0
Cap, veh/h	447	1109	3	48	500	209	172	174	141	238	14	279
Arrive On Green	0.15	0.59	0.58	0.38	0.40	0.38	0.28	0.29	0.28	0.28	0.00	0.28
Sat Flow, veh/h	1795	1865	4	0	1262	526	375	599	487	571	46	931
Grp Volume(v), veh/h	373	0	427	598	0	0	3	0	0	391	0	0
Grp Sat Flow(s),veh/h/ln	1795	0	1870	1788	0	0	1460	0	0	1549	0	0
Q Serve(g_s), s	24.6	0.0	9.1	0.0	0.0	0.0	0.0	0.0	0.0	17.0	0.0	0.0
Cycle Q Clear(g_c), s	24.6	0.0	9.1	23.6	0.0	0.0	0.1	0.0	0.0	18.4	0.0	0.0
Prop In Lane	1.00		0.00	0.00		0.29	0.33		0.33	0.40		0.60
Lane Grp Cap(c), veh/h	0	0	1112	721	0	0	470	0	0	498	0	0
V/C Ratio(X)	0.00	0.00	0.38	0.83	0.00	0.00	0.01	0.00	0.00	0.79	0.00	0.00
Avail Cap(c_a), veh/h	0	0	1755	1335	0	0	470	0	0	566	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	0.0	8.1	21.1	0.0	0.0	19.3	0.0	0.0	25.7	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.0	0.1	1.0	0.0	0.0	0.0	0.0	0.0	5.4	0.0	0.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.0	0.0	5.7	14.6	0.0	0.0	0.1	0.0	0.0	11.9	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	0.0	0.0	8.1	22.1	0.0	0.0	19.3	0.0	0.0	31.1	0.0	0.0
LnGrp LOS			A	C			B			C		
Approach Vol, veh/h		800			598			3			391	
Approach Delay, s/veh		4.3			22.1			19.3			31.1	
Approach LOS		A			C			B			C	

Timer - Assigned Phs	1	2		4		6		8				
Phs Duration (G+Y+Rc), s	15.0	34.0		26.7		49.0		26.7				
Change Period (Y+Rc), s	5.4	5.5		5.6		* 5.4		* 5.6				
Max Green Setting (Gmax), s	9.6	54.5		24.4		* 70		* 17				
Max Q Clear Time (g_c+I1), s	26.6	25.6		20.4		11.1		2.1				
Green Ext Time (p_c), s	0.0	2.9		0.7		1.8		0.0				

Intersection Summary	
HCM 7th Control Delay, s/veh	16.1
HCM 7th LOS	B

Notes

* HCM 7th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	13	286	159	76	190	9	192	49	134	6	25	11
Future Volume (veh/h)	13	286	159	76	190	9	192	49	134	6	25	11
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	0.99		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1885	1885	1900	1885	1900	1885	1885	1885	1900	1900	1900
Adj Flow Rate, veh/h	14	301	149	80	200	9	202	52	103	6	26	4
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	1	1	0	1	0	1	1	1	0	0	0
Cap, veh/h	556	376	186	258	285	13	418	79	156	241	158	24
Arrive On Green	0.22	0.32	0.32	0.07	0.16	0.16	0.09	0.14	0.14	0.05	0.10	0.10
Sat Flow, veh/h	1810	1190	589	1810	1790	81	1795	562	1113	1810	1606	247
Grp Volume(v), veh/h	14	0	450	80	0	209	202	0	155	6	0	30
Grp Sat Flow(s),veh/h/ln	1810	0	1779	1810	0	1871	1795	0	1675	1810	0	1853
Q Serve(g_s), s	0.0	0.0	12.0	0.0	0.0	5.5	0.0	0.0	4.5	0.0	0.0	0.8
Cycle Q Clear(g_c), s	0.0	0.0	12.0	0.0	0.0	5.5	0.0	0.0	4.5	0.0	0.0	0.8
Prop In Lane	1.00		0.33	1.00		0.04	1.00		0.66	1.00		0.13
Lane Grp Cap(c), veh/h	556	0	562	258	0	298	418	0	235	241	0	182
V/C Ratio(X)	0.03	0.00	0.80	0.31	0.00	0.70	0.48	0.00	0.66	0.02	0.00	0.16
Avail Cap(c_a), veh/h	556	0	1188	467	0	1245	753	0	627	655	0	694
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	15.3	0.0	16.2	22.6	0.0	20.6	20.2	0.0	21.1	23.0	0.0	21.4
Incr Delay (d2), s/veh	0.0	0.0	2.0	0.3	0.0	1.1	0.3	0.0	1.2	0.0	0.0	0.2
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.2	0.0	8.0	1.6	0.0	4.1	3.8	0.0	3.1	0.1	0.0	0.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	15.3	0.0	18.2	22.9	0.0	21.8	20.5	0.0	22.3	23.0	0.0	21.6
LnGrp LOS	B		B	C		C	C		C	C		C
Approach Vol, veh/h		464			289			357			36	
Approach Delay, s/veh		18.1			22.1			21.3			21.8	
Approach LOS		B			C			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	17.1	13.7	10.3	10.7	9.0	21.8	8.2	12.9
Change Period (Y+Rc), s	5.6	* 5.5	5.6	5.6	* 5.6	5.4	5.6	5.6
Max Green Setting (Gmax), s	9.5	* 35	14.4	19.4	* 9.4	34.6	14.4	19.4
Max Q Clear Time (g_c+I1), s	12.0	7.5	2.0	2.8	2.0	14.0	2.0	6.5
Green Ext Time (p_c), s	0.0	0.8	0.2	0.0	0.0	2.4	0.0	0.4

Intersection Summary	
HCM 7th Control Delay, s/veh	20.2
HCM 7th LOS	C

Notes

* HCM 7th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	2.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	93	317	23	6	203	15	16	2	8	11	1	56
Future Vol, veh/h	93	317	23	6	203	15	16	2	8	11	1	56
Conflicting Peds, #/hr	4	0	0	0	0	4	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	100	-	-	100	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	1	9	0	1	0	7	0	14	10	0	3
Mvmt Flow	103	352	26	7	226	17	18	2	9	12	1	62

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	246	0	0	378	0	0	811	831	365	811	836	238
Stage 1	-	-	-	-	-	-	572	572	-	251	251	-
Stage 2	-	-	-	-	-	-	239	260	-	560	584	-
Critical Hdwy	4.12	-	-	4.1	-	-	7.17	6.5	6.34	7.2	6.5	6.23
Critical Hdwy Stg 1	-	-	-	-	-	-	6.17	5.5	-	6.2	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.17	5.5	-	6.2	5.5	-
Follow-up Hdwy	2.218	-	-	2.2	-	-	3.563	4	3.426	3.59	4	3.327
Pot Cap-1 Maneuver	1320	-	-	1192	-	-	292	307	654	289	306	799
Stage 1	-	-	-	-	-	-	497	508	-	735	703	-
Stage 2	-	-	-	-	-	-	753	697	-	499	501	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1315	-	-	1192	-	-	246	281	654	258	279	796
Mov Cap-2 Maneuver	-	-	-	-	-	-	246	281	-	258	279	-
Stage 1	-	-	-	-	-	-	458	468	-	729	696	-
Stage 2	-	-	-	-	-	-	689	690	-	451	462	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	1.71	0.22	17.9	12.09
HCM LOS			C	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	308	1315	-	-	1192	-	-	583
HCM Lane V/C Ratio	0.094	0.079	-	-	0.006	-	-	0.13
HCM Ctrl Dly (s/v)	17.9	8	-	-	8	-	-	12.1
HCM Lane LOS	C	A	-	-	A	-	-	B
HCM 95th %tile Q(veh)	0.3	0.3	-	-	0	-	-	0.4

Intersection	
Int Delay, s/veh	1.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	12	314	4	2	204	30	2	1	5	17	0	20
Future Vol, veh/h	12	314	4	2	204	30	2	1	5	17	0	20
Conflicting Peds, #/hr	5	0	0	0	0	5	2	0	0	0	0	2
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	100	-	-	75	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	9	1	0	50	1	5	0	0	0	9	0	0
Mvmt Flow	13	349	4	2	227	33	2	1	6	19	0	22

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	265	0	0	353	0	0	611	647	351	629	633	250
Stage 1	-	-	-	-	-	-	378	378	-	253	253	-
Stage 2	-	-	-	-	-	-	233	269	-	376	380	-
Critical Hdwy	4.19	-	-	4.6	-	-	7.1	6.5	6.2	7.19	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.19	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.19	5.5	-
Follow-up Hdwy	2.281	-	-	2.65	-	-	3.5	4	3.3	3.581	4	3.3
Pot Cap-1 Maneuver	1259	-	-	982	-	-	409	392	697	385	400	793
Stage 1	-	-	-	-	-	-	648	619	-	736	702	-
Stage 2	-	-	-	-	-	-	774	690	-	631	617	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1253	-	-	982	-	-	391	385	697	374	393	788
Mov Cap-2 Maneuver	-	-	-	-	-	-	391	385	-	374	393	-
Stage 1	-	-	-	-	-	-	641	612	-	731	697	-
Stage 2	-	-	-	-	-	-	749	685	-	618	611	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	0.29	0.07	11.81	12.48
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	538	1253	-	-	982	-	-	523
HCM Lane V/C Ratio	0.017	0.011	-	-	0.002	-	-	0.079
HCM Ctrl Dly (s/v)	11.8	7.9	-	-	8.7	-	-	12.5
HCM Lane LOS	B	A	-	-	A	-	-	B
HCM 95th %tile Q(veh)	0.1	0	-	-	0	-	-	0.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	105	127	100	12	86	52	90	374	17	41	298	55
Future Volume (veh/h)	105	127	100	12	86	52	90	374	17	41	298	55
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1841	1885	1841	1900	1885	1900	1856	1885	1900	1826	1885	1870
Adj Flow Rate, veh/h	112	135	106	13	91	55	96	398	18	44	317	59
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	4	1	4	0	1	0	3	1	0	5	1	2
Cap, veh/h	351	187	147	249	143	86	349	517	23	309	403	75
Arrive On Green	0.08	0.19	0.19	0.02	0.13	0.13	0.07	0.29	0.29	0.05	0.26	0.26
Sat Flow, veh/h	1753	979	768	1810	1100	665	1767	1790	81	1739	1546	288
Grp Volume(v), veh/h	112	0	241	13	0	146	96	0	416	44	0	376
Grp Sat Flow(s),veh/h/ln	1753	0	1747	1810	0	1765	1767	0	1871	1739	0	1833
Q Serve(g_s), s	2.6	0.0	6.3	0.3	0.0	3.8	1.9	0.0	9.9	0.9	0.0	9.3
Cycle Q Clear(g_c), s	2.6	0.0	6.3	0.3	0.0	3.8	1.9	0.0	9.9	0.9	0.0	9.3
Prop In Lane	1.00		0.44	1.00		0.38	1.00		0.04	1.00		0.16
Lane Grp Cap(c), veh/h	351	0	334	249	0	229	349	0	541	309	0	477
V/C Ratio(X)	0.32	0.00	0.72	0.05	0.00	0.64	0.28	0.00	0.77	0.14	0.00	0.79
Avail Cap(c_a), veh/h	480	0	1096	419	0	1032	522	0	1396	421	0	1256
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	16.4	0.0	18.5	18.0	0.0	20.1	12.4	0.0	15.9	12.8	0.0	16.8
Incr Delay (d2), s/veh	0.2	0.0	1.1	0.0	0.0	1.1	0.2	0.0	0.9	0.1	0.0	1.1
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	1.7	0.0	4.2	0.2	0.0	2.7	1.1	0.0	6.5	0.5	0.0	6.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	16.6	0.0	19.6	18.0	0.0	21.2	12.5	0.0	16.7	12.9	0.0	17.9
LnGrp LOS	B		B	B		C	B		B	B		B
Approach Vol, veh/h		353			159			512			420	
Approach Delay, s/veh		18.7			21.0			15.9			17.4	
Approach LOS		B			C			B			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.4	11.8	9.2	18.3	6.4	14.8	7.8	19.7
Change Period (Y+Rc), s	5.5	5.5	5.6	5.6	5.6	* 5.5	5.6	5.6
Max Green Setting (Gmax), s	7.5	28.5	8.4	33.4	5.4	* 31	5.4	36.4
Max Q Clear Time (g_c+I1), s	4.6	5.8	3.9	11.3	2.3	8.3	2.9	11.9
Green Ext Time (p_c), s	0.0	0.5	0.0	1.4	0.0	0.9	0.0	1.6

Intersection Summary	
HCM 7th Control Delay, s/veh	17.6
HCM 7th LOS	B

Notes

* HCM 7th computational engine requires equal clearance times for the phases crossing the barrier.

Appendix F Signal Warrants

KITTELSON & ASSOCIATES

Project #:	31137
Project Name:	Heartwood North Subdivision
Analyst:	JDG
Analysis Date:	2/12/2026
File:	H:\31\31137 - Heartwood North\analysis\Operations Reports\Signal warrant\[Signal-Warrant-Analysis_Intersection3BG_without50pRTOR.xlsm]Dat
Intersection:	NE 124th Ave & NE 119th St
Scenario:	2029 Background Conditions
Data Date:	12/11/2025

Warrant Summary

Warrant	Name	Analyzed?	Met?
#1	Eight-Hour Vehicular Volume	Yes	Yes
#2	Four-Hour Vehicular volume	Yes	Yes
#3	Peak Hour	No	-
#4	Pedestrian Volume	No	-
#5	School Crossing	No	-
#6	Coordinated Signal System	No	-
#7	Crash Experience	No	-
#8	Roadway Network	No	-
#9	Intersection Near a Grade Crossing	No	-

Analysis Traffic Volumes

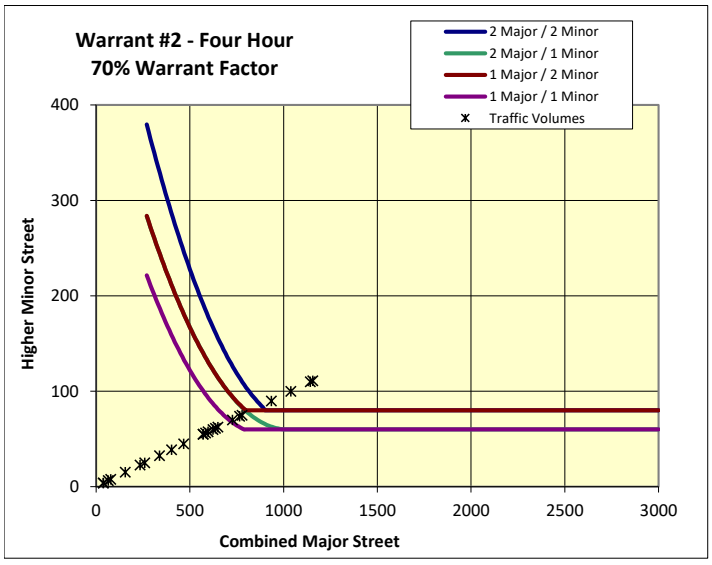
Hour		Major Street		Minor Street	
Begin	End	EB	WB	NB	SB
4:20 PM	5:20 PM	759	396	111	0
2nd Highest Hour		750	392	110	0
3rd Highest Hour		682	356	100	0
4th Highest Hour		614	320	90	0
5th Highest Hour		512	267	75	0
6th Highest Hour		503	263	74	0
7th Highest Hour		478	249	70	0
8th Highest Hour		426	222	62	0
9th Highest Hour		418	218	61	0
10th Highest Hour		409	214	60	0
11th Highest Hour		392	205	57	0
12th Highest Hour		384	200	56	0
13th Highest Hour		375	196	55	0
14th Highest Hour		375	196	55	0
15th Highest Hour		307	160	45	0
16th Highest Hour		264	138	39	0
17th Highest Hour		222	116	32	0
18th Highest Hour		171	89	25	0
19th Highest Hour		154	80	22	0
20th Highest Hour		102	53	15	0
21st Highest Hour		51	27	7	0
22nd Highest Hour		43	22	6	0
23rd Highest Hour		26	13	4	0
24th Highest Hour		26	13	4	0

Input Parameters

Volume Adjustment Factor =	1.0
North-South Approach =	Minor
East-West Approach =	Major
Major Street Thru Lanes =	1
Minor Street Thru Lanes =	1
Speed > 40 mph?	Yes
Population < 10,000?	No
Warrant Factor	70%
Peak Hour or Daily Count?	Peak Hour
Major Street: 4th-Highest Hour / Peak Hour	81%
Major Street: 8th-Highest Hour / Peak Hour	56%
Minor Street: 4th-Highest Hour / Peak Hour	81%
Minor Street: 8th-Highest Hour / Peak Hour	56%

Warrant #1 - Eight Hour

Warrant Factor	Condition	Major Street Requirement	Minor Street Requirement	Hours That Condition Is Met	Condition for Warrant Factor Met?	Signal Warrant Met?
100%	A	500	150	0	No	**No**
	B	750	75	5	No	
80%	A	400	120	0	No	**Yes**
	B	600	60	10	Yes	
70%	A	350	105	2	No	**Yes**
	B	525	53	14	Yes	
56%	A	280	84	4	No	**Yes**
	B	420	42	15	Yes	



KITTELSON & ASSOCIATES

Project #: 31137
Project Name: Heartwood North Subdivision
Analyst: JDG
Analysis Date: 2/12/2026
File: H:\31\31137 - Heartwood North\analysis\Operations Reports\Signal warrant\[Signal-Warrant-Analysis_Intersection3TT_without50nRTOR.xlsm]Dat
Intersection: NE 124th Ave & NE 119th St
Scenario: 2029 Total Conditions
Data Date: 12/11/2025

Analysis Traffic Volumes

Hour		Major Street		Minor Street	
Begin	End	EB	WB	NB	SB
4:20 PM	5:20 PM	775	406	111	0
2nd Highest Hour		766	401	110	0
3rd Highest Hour		697	365	100	0
4th Highest Hour		627	328	90	0
5th Highest Hour		522	274	75	0
6th Highest Hour		514	269	74	0
7th Highest Hour		488	255	70	0
8th Highest Hour		435	228	62	0
9th Highest Hour		427	224	61	0
10th Highest Hour		418	219	60	0
11th Highest Hour		401	210	57	0
12th Highest Hour		392	205	56	0
13th Highest Hour		383	201	55	0
14th Highest Hour		383	201	55	0
15th Highest Hour		313	164	45	0
16th Highest Hour		270	141	39	0
17th Highest Hour		226	119	32	0
18th Highest Hour		174	91	25	0
19th Highest Hour		157	82	22	0
20th Highest Hour		104	55	15	0
21st Highest Hour		52	27	7	0
22nd Highest Hour		44	23	6	0
23rd Highest Hour		26	14	4	0
24th Highest Hour		26	14	4	0

Warrant Summary

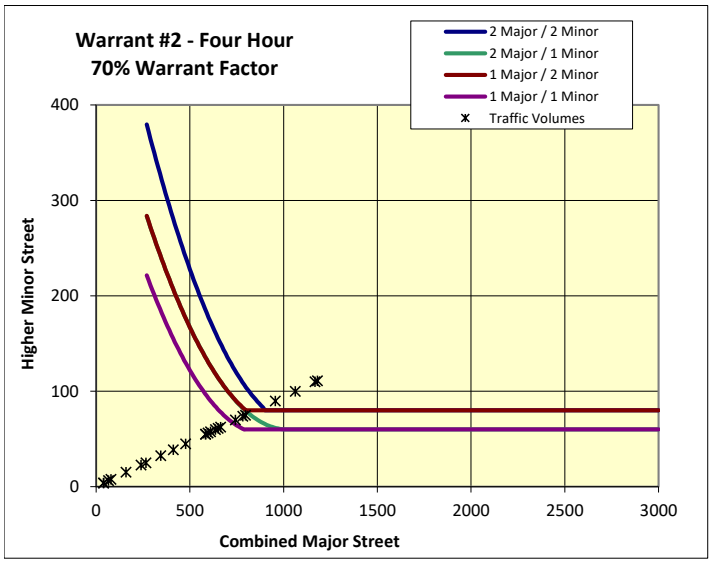
Warrant	Name	Analyzed?	Met?
#1	Eight-Hour Vehicular Volume	Yes	Yes
#2	Four-Hour Vehicular volume	Yes	Yes
#3	Peak Hour	No	-
#4	Pedestrian Volume	No	-
#5	School Crossing	No	-
#6	Coordinated Signal System	No	-
#7	Crash Experience	No	-
#8	Roadway Network	No	-
#9	Intersection Near a Grade Crossing	No	-

Input Parameters

Volume Adjustment Factor =	1.0
North-South Approach =	Minor
East-West Approach =	Major
Major Street Thru Lanes =	1
Minor Street Thru Lanes =	1
Speed > 40 mph?	Yes
Population < 10,000?	No
Warrant Factor	70%
Peak Hour or Daily Count?	Peak Hour
Major Street: 4th-Highest Hour / Peak Hour	81%
Major Street: 8th-Highest Hour / Peak Hour	56%
Minor Street: 4th-Highest Hour / Peak Hour	81%
Minor Street: 8th-Highest Hour / Peak Hour	56%

Warrant #1 - Eight Hour

Warrant Factor	Condition	Major Street Requirement	Minor Street Requirement	Hours That Condition Is Met	Condition for Warrant Factor Met?	Signal Warrant Met?
100%	A	500	150	0	No	**No**
	B	750	75	5	No	
80%	A	400	120	0	No	**Yes**
	B	600	60	10	Yes	
70%	A	350	105	2	No	**Yes**
	B	525	53	14	Yes	
56%	A	280	84	4	No	**Yes**
	B	420	42	15	Yes	



KITTELSON & ASSOCIATES

Project #: 31137
Project Name: Heartwood North Subdivision
Analyst: JDG
Analysis Date: 2/12/2026
File: H:\31\31137 - Heartwood North\analysis\Operations Reports\Signal warrant\[Signal-Warrant-Analysis_Intersection4BG_without50pRTOR.xlsm]Dat
Intersection: NE 132nd Ave & NE 119th St
Scenario: 2029 Background Conditions
Data Date: 12/11/2025

Analysis Traffic Volumes

Hour		Major Street		Minor Street	
Begin	End	EB	WB	NB	SB
4:20 PM	5:20 PM	668	378	75	43
2nd Highest Hour		660	374	74	43
3rd Highest Hour		600	340	67	39
4th Highest Hour		540	306	61	35
5th Highest Hour		450	255	51	29
6th Highest Hour		443	251	50	29
7th Highest Hour		420	238	47	27
8th Highest Hour		375	212	42	24
9th Highest Hour		368	208	41	24
10th Highest Hour		360	204	40	23
11th Highest Hour		345	195	39	22
12th Highest Hour		338	191	38	22
13th Highest Hour		330	187	37	21
14th Highest Hour		330	187	37	21
15th Highest Hour		270	153	30	17
16th Highest Hour		233	132	26	15
17th Highest Hour		195	110	22	13
18th Highest Hour		150	85	17	10
19th Highest Hour		135	76	15	9
20th Highest Hour		90	51	10	6
21st Highest Hour		45	25	5	3
22nd Highest Hour		38	21	4	2
23rd Highest Hour		23	13	3	1
24th Highest Hour		23	13	3	1

Warrant Summary

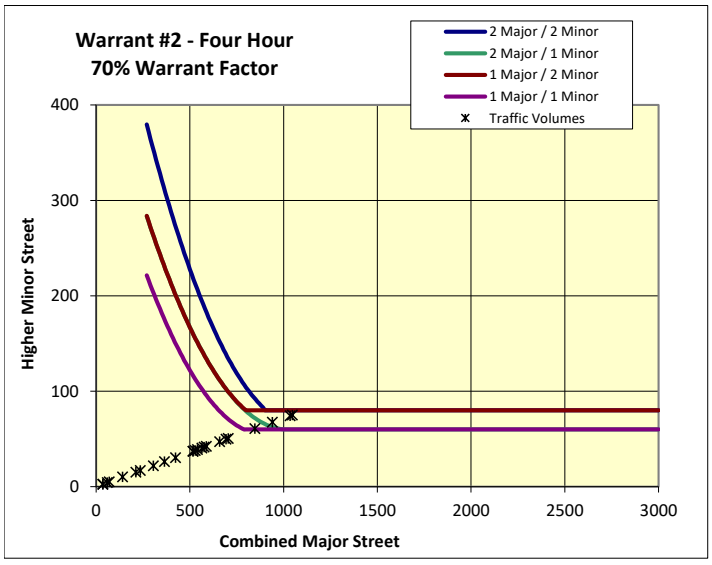
Warrant	Name	Analyzed?	Met?
#1	Eight-Hour Vehicular Volume	Yes	No
#2	Four-Hour Vehicular volume	Yes	Yes
#3	Peak Hour	No	-
#4	Pedestrian Volume	No	-
#5	School Crossing	No	-
#6	Coordinated Signal System	No	-
#7	Crash Experience	No	-
#8	Roadway Network	No	-
#9	Intersection Near a Grade Crossing	No	-

Input Parameters

Volume Adjustment Factor =	1.0
North-South Approach =	Minor
East-West Approach =	Major
Major Street Thru Lanes =	1
Minor Street Thru Lanes =	1
Speed > 40 mph?	Yes
Population < 10,000?	No
Warrant Factor	70%
Peak Hour or Daily Count?	Peak Hour
Major Street: 4th-Highest Hour / Peak Hour	81%
Major Street: 8th-Highest Hour / Peak Hour	56%
Minor Street: 4th-Highest Hour / Peak Hour	81%
Minor Street: 8th-Highest Hour / Peak Hour	56%

Warrant #1 - Eight Hour

Warrant Factor	Condition	Major Street Requirement	Minor Street Requirement	Hours That Condition Is Met	Condition for Warrant Factor Met?	Signal Warrant Met?
100%	A	500	150	0	No	**No**
	B	750	75	2	No	
80%	A	400	120	0	No	**No**
	B	600	60	4	No	
70%	A	350	105	0	No	**No**
	B	525	53	4	No	
56%	A	280	84	0	No	**Yes**
	B	420	42	9	Yes	



KITTELSON & ASSOCIATES

Project #: 31137
Project Name: Heartwood North Subdivision
Analyst: JDG
Analysis Date: 2/12/2026
File: H:\31\31137 - Heartwood North\analysis\Operations Reports\Signal warrant\[Signal-Warrant-Analysis_Intersection4TT_without50pRTOR.xlsm]Dat
Intersection: NE 132nd Ave & NE 119th St
Scenario: 2029 Total Conditions
Data Date: 12/11/2025

Analysis Traffic Volumes

Hour		Major Street		Minor Street	
Begin	End	EB	WB	NB	SB
4:20 AM	5:20 AM	676	378	91	53
2nd Highest Hour		668	374	90	52
3rd Highest Hour		608	340	82	48
4th Highest Hour		547	306	74	43
5th Highest Hour		456	255	61	36
6th Highest Hour		448	251	60	35
7th Highest Hour		425	238	57	33
8th Highest Hour		380	212	51	30
9th Highest Hour		372	208	50	29
10th Highest Hour		365	204	49	29
11th Highest Hour		349	195	47	27
12th Highest Hour		342	191	46	27
13th Highest Hour		334	187	45	26
14th Highest Hour		334	187	45	26
15th Highest Hour		273	153	37	21
16th Highest Hour		235	132	32	18
17th Highest Hour		197	110	27	15
18th Highest Hour		152	85	20	12
19th Highest Hour		137	76	18	11
20th Highest Hour		91	51	12	7
21st Highest Hour		46	25	6	4
22nd Highest Hour		38	21	5	3
23rd Highest Hour		23	13	3	2
24th Highest Hour		23	13	3	2

Warrant Summary

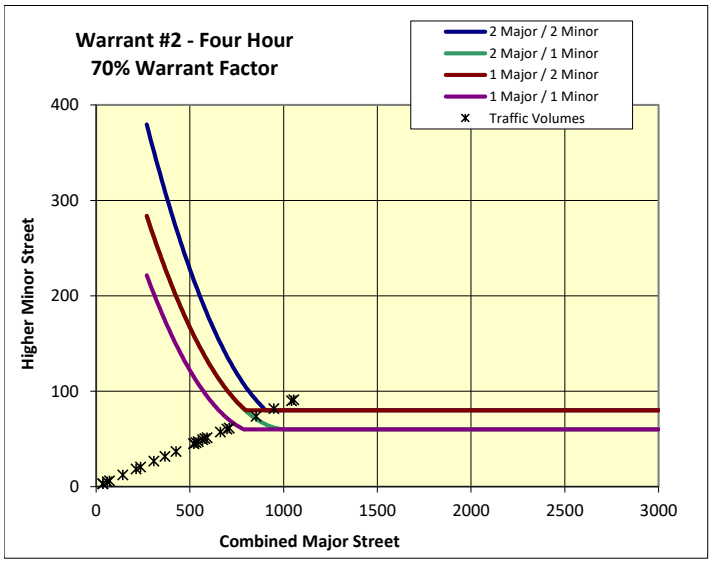
Warrant	Name	Analyzed?	Met?
#1	Eight-Hour Vehicular Volume	Yes	No
#2	Four-Hour Vehicular volume	Yes	Yes
#3	Peak Hour	No	-
#4	Pedestrian Volume	No	-
#5	School Crossing	No	-
#6	Coordinated Signal System	No	-
#7	Crash Experience	No	-
#8	Roadway Network	No	-
#9	Intersection Near a Grade Crossing	No	-

Input Parameters

Volume Adjustment Factor =	1.0
North-South Approach =	Minor
East-West Approach =	Major
Major Street Thru Lanes =	1
Minor Street Thru Lanes =	1
Speed > 40 mph?	Yes
Population < 10,000?	No
Warrant Factor	70%
Peak Hour or Daily Count?	Peak Hour
Major Street: 4th-Highest Hour / Peak Hour	81%
Major Street: 8th-Highest Hour / Peak Hour	56%
Minor Street: 4th-Highest Hour / Peak Hour	81%
Minor Street: 8th-Highest Hour / Peak Hour	56%

Warrant #1 - Eight Hour

Warrant Factor	Condition	Major Street Requirement	Minor Street Requirement	Hours That Condition Is Met	Condition for Warrant Factor Met?	Signal Warrant Met?
100%	A	500	150	0	No	**No**
	B	750	75	3	No	
80%	A	400	120	0	No	**No**
	B	600	60	6	No	
70%	A	350	105	0	No	**No**
	B	525	53	7	No	
56%	A	280	84	2	No	**Yes**
	B	420	42	14	Yes	



Appendix G Year 2029 Total Traffic Analysis Worksheets

Intersection	
Int Delay, s/veh	1.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	1	819	10	6	840	8	30	0	24	8	0	2
Future Vol, veh/h	1	819	10	6	840	8	30	0	24	8	0	2
Conflicting Peds, #/hr	2	0	0	0	0	2	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	150	-	-	150	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	1	-	-	1	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	75	75	75	75	75	75	75	75	75	75	75	75
Heavy Vehicles, %	0	7	0	0	4	0	0	0	0	33	0	0
Mvmt Flow	1	1092	13	8	1120	11	40	0	32	11	0	3

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1133	0	0	1105	0	0	1677	2250	553	1692	2251	567
Stage 1	-	-	-	-	-	-	1101	1101	-	1143	1143	-
Stage 2	-	-	-	-	-	-	576	1149	-	549	1108	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.5	6.5	6.9	8.16	6.5	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-	6.5	5.5	-	7.16	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.5	5.5	-	7.16	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.83	4	3.3
Pot Cap-1 Maneuver	624	-	-	639	-	-	63	42	482	44	42	472
Stage 1	-	-	-	-	-	-	229	290	-	167	277	-
Stage 2	-	-	-	-	-	-	475	276	-	417	288	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	623	-	-	639	-	-	62	41	482	40	41	471
Mov Cap-2 Maneuver	-	-	-	-	-	-	164	146	-	120	145	-
Stage 1	-	-	-	-	-	-	229	289	-	165	273	-
Stage 2	-	-	-	-	-	-	466	272	-	388	287	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	0.01	0.08	27.29	33.2
HCM LOS			D	D

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	232	623	-	-	639	-	-	141
HCM Lane V/C Ratio	0.31	0.002	-	-	0.013	-	-	0.095
HCM Ctrl Dly (s/v)	27.3	10.8	-	-	10.7	-	-	33.2
HCM Lane LOS	D	B	-	-	B	-	-	D
HCM 95th %tile Q(veh)	1.3	0	-	-	0	-	-	0.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	373	229	188	279	324	129	342	785	101	137	1167	323
Future Volume (veh/h)	373	229	188	279	324	129	342	785	101	137	1167	323
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1737	1841	1811	1841	1856	1752	1752	1781	1767	1781	1796	1826
Adj Flow Rate, veh/h	405	249	152	303	352	139	372	853	109	149	1268	288
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	11	4	6	4	3	10	10	8	9	8	7	5
Cap, veh/h	454	314	458	330	275	109	425	1333	170	174	1410	853
Arrive On Green	0.14	0.17	0.17	0.19	0.22	0.21	0.13	0.44	0.44	0.10	0.41	0.41
Sat Flow, veh/h	3209	1841	1532	1753	1265	500	3237	3018	386	1697	3413	1545
Grp Volume(v), veh/h	405	249	152	303	0	491	372	478	484	149	1268	288
Grp Sat Flow(s),veh/h/ln	1605	1841	1532	1753	0	1765	1618	1692	1711	1697	1706	1545
Q Serve(g_s), s	20.5	21.5	12.8	28.1	0.0	36.0	18.7	36.4	36.5	14.3	57.4	17.0
Cycle Q Clear(g_c), s	20.5	21.5	12.8	28.1	0.0	36.0	18.7	36.4	36.5	14.3	57.4	17.0
Prop In Lane	1.00		1.00	1.00		0.28	1.00		0.23	1.00		1.00
Lane Grp Cap(c), veh/h	454	314	458	330	0	384	425	748	756	174	1410	853
V/C Ratio(X)	0.89	0.79	0.33	0.92	0.00	1.28	0.88	0.64	0.64	0.85	0.90	0.34
Avail Cap(c_a), veh/h	494	400	530	429	0	384	499	748	756	261	1464	877
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	69.8	65.9	45.2	65.9	0.0	64.9	70.6	36.0	36.1	73.0	45.3	20.5
Incr Delay (d2), s/veh	17.3	8.9	0.5	20.9	0.0	144.4	14.3	2.1	2.1	15.9	7.9	0.3
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	14.4	16.1	8.5	20.5	0.0	45.9	13.3	21.8	22.0	11.3	33.7	10.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	87.2	74.7	45.7	86.8	0.0	209.3	84.9	38.1	38.2	89.0	53.3	20.8
LnGrp LOS	F	E	D	F		F	F	D	D	F	D	C
Approach Vol, veh/h		806			794			1334			1705	
Approach Delay, s/veh		75.5			162.6			51.2			50.9	
Approach LOS		E			F			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	21.0	77.1	35.2	32.2	25.7	72.4	27.4	40.0
Change Period (Y+Rc), s	4.5	5.0	4.5	5.0	4.5	5.0	4.5	5.0
Max Green Setting (Gmax), s	25.0	70.0	40.0	35.0	25.0	70.0	25.0	35.0
Max Q Clear Time (g_c+I1), s	16.3	38.5	30.1	23.5	20.7	59.4	22.5	38.0
Green Ext Time (p_c), s	0.2	10.0	0.6	1.7	0.6	8.0	0.4	0.0

Intersection Summary	
HCM 7th Control Delay, s/veh	74.4
HCM 7th LOS	E

The Peak Hour Factor has been adjusted from 0.88 under existing conditions to 0.92, reflecting an additional 641 in-process trips at this intersection. Node 11 along the SR 503 corridor has a peak hour factor of 0.92.

Intersection	
Int Delay, s/veh	6.5

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	346	104	31	513	110	34
Future Vol, veh/h	346	104	31	513	110	34
Conflicting Peds, #/hr	0	1	1	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	250	100	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	81	81	81	81	81	81
Heavy Vehicles, %	7	6	12	5	6	11
Mvmt Flow	427	128	38	633	136	42

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	557	0	1138	428
Stage 1	-	-	-	-	428	-
Stage 2	-	-	-	-	710	-
Critical Hdwy	-	-	4.22	-	6.46	6.31
Critical Hdwy Stg 1	-	-	-	-	5.46	-
Critical Hdwy Stg 2	-	-	-	-	5.46	-
Follow-up Hdwy	-	-	2.308	-	3.554	3.399
Pot Cap-1 Maneuver	-	-	966	-	219	608
Stage 1	-	-	-	-	649	-
Stage 2	-	-	-	-	480	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	965	-	210	607
Mov Cap-2 Maneuver	-	-	-	-	210	-
Stage 1	-	-	-	-	648	-
Stage 2	-	-	-	-	461	-

Approach	EB	WB	NB
HCM Ctrl Dly, s/v	0	0.51	49.17
HCM LOS			E

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	248	-	-	965	-
HCM Lane V/C Ratio	0.716	-	-	0.04	-
HCM Ctrl Dly (s/v)	49.2	-	-	8.9	-
HCM Lane LOS	E	-	-	A	-
HCM 95th %tile Q(veh)	4.9	-	-	0.1	-

Intersection	
Int Delay, s/veh	24.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	53	292	39	12	419	13	97	32	40	5	18	14
Future Vol, veh/h	53	292	39	12	419	13	97	32	40	5	18	14
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	81	81	81	81	81	81	81	81	81	81	81	81
Heavy Vehicles, %	5	8	8	0	5	0	11	0	0	20	0	15
Mvmt Flow	65	360	48	15	517	16	120	40	49	6	22	17

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	533	0	0	409	0	0	1073	1078	385	1066	1094	525
Stage 1	-	-	-	-	-	-	515	515	-	555	555	-
Stage 2	-	-	-	-	-	-	558	563	-	511	540	-
Critical Hdwy	4.15	-	-	4.1	-	-	7.21	6.5	6.2	7.3	6.5	6.35
Critical Hdwy Stg 1	-	-	-	-	-	-	6.21	5.5	-	6.3	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.21	5.5	-	6.3	5.5	-
Follow-up Hdwy	2.245	-	-	2.2	-	-	3.599	4	3.3	3.68	4	3.435
Pot Cap-1 Maneuver	1019	-	-	1161	-	-	190	220	668	185	216	528
Stage 1	-	-	-	-	-	-	526	538	-	485	517	-
Stage 2	-	-	-	-	-	-	498	512	-	513	525	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1019	-	-	1161	-	-	148	198	668	126	194	528
Mov Cap-2 Maneuver	-	-	-	-	-	-	148	198	-	126	194	-
Stage 1	-	-	-	-	-	-	482	493	-	477	507	-
Stage 2	-	-	-	-	-	-	453	503	-	401	481	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	1.21	0.22	139.11	24.22
HCM LOS			F	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	193	243	-	-	48	-	-	233
HCM Lane V/C Ratio	1.082	0.064	-	-	0.013	-	-	0.196
HCM Ctrl Dly (s/v)	139.1	8.8	0	-	8.1	0	-	24.2
HCM Lane LOS	F	A	A	-	A	A	-	C
HCM 95th %tile Q(veh)	9.9	0.2	-	-	0	-	-	0.7

MOVEMENT SUMMARY

Site: 5 [NE 119th St and NE 152nd Ave - Total AM (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Existing AM
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] ft	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed mph
South: NE 152nd Ave															
3	L2	All MCs	125	5.0	125	5.0	0.353	11.1	LOS B	2.1	54.2	0.53	0.60	0.53	33.1
8	T1	All MCs	206	2.0	206	2.0	0.353	6.1	LOS A	2.1	54.2	0.53	0.60	0.53	33.9
18	R2	All MCs	14	0.0	14	0.0	0.353	5.8	LOS A	2.1	54.2	0.53	0.60	0.53	33.7
Approach			345	3.0	345	3.0	0.353	7.9	LOS A	2.1	54.2	0.53	0.60	0.53	33.6
East: NE 119th St															
1	L2	All MCs	15	10.0	15	10.0	0.236	11.9	LOS B	1.3	32.5	0.55	0.60	0.55	33.4
6	T1	All MCs	150	2.0	150	2.0	0.236	6.8	LOS A	1.3	32.5	0.55	0.60	0.55	34.3
16	R2	All MCs	44	4.0	44	4.0	0.236	6.6	LOS A	1.3	32.5	0.55	0.60	0.55	34.0
Approach			209	3.0	209	3.0	0.236	7.1	LOS A	1.3	32.5	0.55	0.60	0.55	34.1
North: NE 152nd Ave															
7	L2	All MCs	40	3.0	40	3.0	0.388	11.6	LOS B	2.5	65.3	0.59	0.59	0.59	33.4
4	T1	All MCs	299	4.0	299	4.0	0.388	6.8	LOS A	2.5	65.3	0.59	0.59	0.59	34.0
14	R2	All MCs	38	0.0	38	0.0	0.388	6.4	LOS A	2.5	65.3	0.59	0.59	0.59	33.8
Approach			376	3.5	376	3.5	0.388	7.3	LOS A	2.5	65.3	0.59	0.59	0.59	33.9
West: NE 119th St															
5	L2	All MCs	50	9.0	50	9.0	0.426	12.2	LOS B	2.7	70.6	0.64	0.64	0.64	33.2
2	T1	All MCs	168	9.0	168	9.0	0.426	7.2	LOS A	2.7	70.6	0.64	0.64	0.64	34.0
12	R2	All MCs	146	4.0	146	4.0	0.426	6.8	LOS A	2.7	70.6	0.64	0.64	0.64	33.7
Approach			364	7.0	364	7.0	0.426	7.8	LOS A	2.7	70.6	0.64	0.64	0.64	33.8
All Vehicles			1294	4.3	1294	4.3	0.426	7.6	LOS A	2.7	70.6	0.58	0.61	0.58	33.8

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



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	34	12	21	86	34	55
Future Volume (Veh/h)	34	12	21	86	34	55
Sign Control	Free			Stop	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Hourly flow rate (vph)	39	14	24	99	39	63
Pedestrians					3	
Lane Width (ft)					12.0	
Walking Speed (ft/s)					3.5	
Percent Blockage					0	
Right turn flare (veh)						
Median type	None					
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	3		168	88	95	3
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	3		168	88	95	3
tC, single (s)	4.3		7.2	6.5	6.6	6.2
tC, 2 stage (s)						
tF (s)	2.4		3.5	4.0	4.1	3.3
p0 queue free %	97		97	87	95	94
cM capacity (veh/h)	1522		699	777	763	1069

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	53	123	102
Volume Left	39	24	0
Volume Right	14	0	63
cSH	1522	761	927
Volume to Capacity	0.03	0.16	0.11
Queue Length 95th (ft)	2	14	9
Control Delay (s/veh)	5.5	10.6	9.4
Lane LOS	A	B	A
Approach Delay (s/veh)	5.5	10.6	9.4
Approach LOS		B	A

Intersection Summary			
Average Delay	9.2		
Intersection Capacity Utilization	22.4%	ICU Level of Service	A
Analysis Period (min)	15		

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Intersection	
Int Delay, s/veh	1.3

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	16	41	12	260	367	9
Future Vol, veh/h	16	41	12	260	367	9
Conflicting Peds, #/hr	0	0	2	0	0	2
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	75	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	75	75	75	75	75	75
Heavy Vehicles, %	8	4	17	4	4	14
Mvmt Flow	21	55	16	347	489	12

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	876	497	503	0	-	0
Stage 1	497	-	-	-	-	-
Stage 2	379	-	-	-	-	-
Critical Hdwy	6.48	6.24	4.27	-	-	-
Critical Hdwy Stg 1	5.48	-	-	-	-	-
Critical Hdwy Stg 2	5.48	-	-	-	-	-
Follow-up Hdwy	3.572	3.336	2.353	-	-	-
Pot Cap-1 Maneuver	312	569	988	-	-	-
Stage 1	599	-	-	-	-	-
Stage 2	679	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	305	568	986	-	-	-
Mov Cap-2 Maneuver	305	-	-	-	-	-
Stage 1	588	-	-	-	-	-
Stage 2	678	-	-	-	-	-

Approach	EB	NB	SB
HCM Ctrl Dly, s/v	14.43	0.38	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	986	-	457	-	-
HCM Lane V/C Ratio	0.016	-	0.166	-	-
HCM Ctrl Dly (s/v)	8.7	-	14.4	-	-
HCM Lane LOS	A	-	B	-	-
HCM 95th %tile Q(veh)	0	-	0.6	-	-

Intersection	
Int Delay, s/veh	1.5

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	108	76	1312	1600	31
Future Vol, veh/h	0	108	76	1312	1600	31
Conflicting Peds, #/hr	0	0	1	0	0	1
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	550	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	0	4	4	10	6	19
Mvmt Flow	0	123	86	1491	1818	35

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	-	928	1854	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.98	4.18	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.34	2.24	-	-	-
Pot Cap-1 Maneuver	0	266	315	-	-	-
Stage 1	0	-	-	-	-	-
Stage 2	0	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	-	266	314	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Ctrl Dly, s/v	29.65	1.14	0
HCM LOS	D		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	314	-	266	-	-
HCM Lane V/C Ratio	0.275	-	0.462	-	-
HCM Ctrl Dly (s/v)	20.7	-	29.7	-	-
HCM Lane LOS	C	-	D	-	-
HCM 95th %tile Q(veh)	1.1	-	2.3	-	-

MOVEMENT SUMMARY

Site: 9 [NE 99th St and NE 107th Ave - Total AM (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Existing AM
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] ft	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed mph
South: NE 107th Ave															
3	L2	All MCs	42	12.0	42	12.0	0.182	10.7	LOS B	0.9	24.2	0.40	0.58	0.40	33.7
18	R2	All MCs	139	5.0	139	5.0	0.182	5.5	LOS A	0.9	24.2	0.40	0.58	0.40	34.3
Approach			181	6.6	181	6.6	0.182	6.7	LOS A	0.9	24.2	0.40	0.58	0.40	34.2
East: NE 99th St															
1	L2	All MCs	230	2.0	230	2.0	0.556	9.7	LOS A	4.7	123.1	0.30	0.50	0.30	33.8
6	T1	All MCs	426	6.0	426	6.0	0.556	4.9	LOS A	4.7	123.1	0.30	0.50	0.30	34.4
Approach			656	4.6	656	4.6	0.556	6.6	LOS A	4.7	123.1	0.30	0.50	0.30	34.2
West: NE 99th St															
2	T1	All MCs	205	6.0	205	6.0	0.239	5.8	LOS A	1.2	32.4	0.43	0.52	0.43	34.7
12	R2	All MCs	32	8.0	32	8.0	0.239	5.8	LOS A	1.2	32.4	0.43	0.52	0.43	34.3
Approach			236	6.3	236	6.3	0.239	5.8	LOS A	1.2	32.4	0.43	0.52	0.43	34.7
All Vehicles			1073	5.3	1073	5.3	0.556	6.5	LOS A	4.7	123.1	0.34	0.51	0.34	34.3

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

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Intersection	
Int Delay, s/veh	2.3

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	9	340	436	31	68	18
Future Vol, veh/h	9	340	436	31	68	18
Conflicting Peds, #/hr	2	0	0	2	1	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	75	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	84	84	84	84	84	84
Heavy Vehicles, %	12	6	6	8	6	6
Mvmt Flow	11	405	519	37	81	21

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	558	0	-	0	967	540
Stage 1	-	-	-	-	540	-
Stage 2	-	-	-	-	427	-
Critical Hdwy	4.22	-	-	-	6.46	6.26
Critical Hdwy Stg 1	-	-	-	-	5.46	-
Critical Hdwy Stg 2	-	-	-	-	5.46	-
Follow-up Hdwy	2.308	-	-	-	3.554	3.354
Pot Cap-1 Maneuver	965	-	-	-	277	534
Stage 1	-	-	-	-	576	-
Stage 2	-	-	-	-	649	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	963	-	-	-	273	533
Mov Cap-2 Maneuver	-	-	-	-	273	-
Stage 1	-	-	-	-	569	-
Stage 2	-	-	-	-	648	-

Approach	EB	WB	SB
HCM Ctrl Dly, s/v	0.23	0	22.71
HCM LOS			C

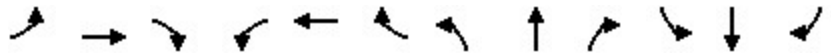
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	963	-	-	-	304
HCM Lane V/C Ratio	0.011	-	-	-	0.336
HCM Ctrl Dly (s/v)	8.8	-	-	-	22.7
HCM Lane LOS	A	-	-	-	C
HCM 95th %tile Q(veh)	0	-	-	-	1.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	216	162	81	544	282	144	75	944	184	268	1243	147
Future Volume (veh/h)	216	162	81	544	282	144	75	944	184	268	1243	147
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1781	1767	1752	1856	1870	1870	1648	1767	1737	1752	1826	1737
Adj Flow Rate, veh/h	235	176	53	591	307	81	82	1026	159	291	1351	109
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	8	9	10	3	2	2	17	9	11	10	5	11
Cap, veh/h	326	224	366	460	378	573	252	1312	889	319	1503	841
Arrive On Green	0.14	0.13	0.13	0.21	0.20	0.20	0.16	0.52	0.52	0.16	0.43	0.43
Sat Flow, veh/h	1697	1767	1481	1767	1870	1562	1570	3357	1472	1668	3469	1472
Grp Volume(v), veh/h	235	176	53	591	307	81	82	1026	159	291	1351	109
Grp Sat Flow(s),veh/h/ln	1697	1767	1481	1767	1870	1562	1570	1678	1472	1668	1735	1472
Q Serve(g_s), s	17.7	14.5	1.3	32.0	23.5	5.2	0.4	37.1	5.9	21.3	54.2	2.7
Cycle Q Clear(g_c), s	17.7	14.5	1.3	32.0	23.5	5.2	0.4	37.1	5.9	21.3	54.2	2.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	326	224	366	460	378	573	252	1312	889	319	1503	841
V/C Ratio(X)	0.72	0.78	0.14	1.29	0.81	0.14	0.32	0.78	0.18	0.91	0.90	0.13
Avail Cap(c_a), veh/h	329	365	484	460	524	695	252	1312	889	326	1503	841
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.33	1.33	1.33	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	47.7	63.5	20.2	44.4	57.1	32.0	54.7	30.9	10.2	45.5	39.4	5.6
Incr Delay (d2), s/veh	7.5	7.1	0.2	144.2	7.4	0.1	0.7	4.7	0.4	27.8	8.9	0.3
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	12.9	11.3	1.6	48.5	17.5	3.6	4.8	20.5	3.5	19.1	32.4	2.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	55.2	70.6	20.4	188.7	64.5	32.1	55.5	35.6	10.6	73.3	48.3	5.9
LnGrp LOS	E	E	C	F	E	C	E	D	B	E	D	A
Approach Vol, veh/h		464			979			1267			1751	
Approach Delay, s/veh		57.0			136.8			33.7			49.8	
Approach LOS		E			F			C			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	21.9	69.0	24.7	34.3	28.3	62.6	36.0	23.1
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Max Green Setting (Gmax), s	5.0	64.0	20.0	41.0	24.0	45.0	31.0	30.0
Max Q Clear Time (g_c+I1), s	2.4	56.2	19.7	25.5	23.3	39.1	34.0	16.5
Green Ext Time (p_c), s	0.0	5.7	0.0	2.1	0.0	3.8	0.0	1.0

Intersection Summary	
HCM 7th Control Delay, s/veh	65.1
HCM 7th LOS	E

The HCM Platoon Ratio setting has been adjusted from 1.00 (random arrivals, also classified as arrival type 3) to 1.33 (favorable progression, also classified as arrival type 4) for northbound traffic, reflecting the coordinated signal system on NE 117th Avenue (SR 503).



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	117	291	0	3	393	64	3	0	1	152	0	387
Future Volume (veh/h)	117	291	0	3	393	64	3	0	1	152	0	387
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.98	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1811	1781	0	1900	1841	1841	1900	1900	1900	1870	1900	1856
Adj Flow Rate, veh/h	131	327	0	3	442	63	3	0	1	171	0	352
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	6	8	0	0	4	4	0	0	0	2	0	3
Cap, veh/h	411	932	0	52	537	76	300	13	75	238	15	383
Arrive On Green	0.12	0.52	0.00	0.32	0.34	0.32	0.34	0.00	0.34	0.34	0.00	0.34
Sat Flow, veh/h	1725	1781	0	2	1568	222	595	37	211	469	41	1050
Grp Volume(v), veh/h	131	327	0	508	0	0	4	0	0	523	0	0
Grp Sat Flow(s),veh/h/ln	1725	1781	0	1793	0	0	843	0	0	1561	0	0
Q Serve(g_s), s	6.1	7.6	0.0	1.2	0.0	0.0	0.0	0.0	0.0	21.8	0.0	0.0
Cycle Q Clear(g_c), s	6.1	7.6	0.0	19.0	0.0	0.0	0.1	0.0	0.0	23.6	0.0	0.0
Prop In Lane	1.00		0.00	0.01		0.12	0.75		0.25	0.33		0.67
Lane Grp Cap(c), veh/h	0	932	0	627	0	0	377	0	0	601	0	0
V/C Ratio(X)	0.00	0.35	0.00	0.81	0.00	0.00	0.01	0.00	0.00	0.87	0.00	0.00
Avail Cap(c_a), veh/h	0	1274	0	917	0	0	377	0	0	601	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	9.9	0.0	21.8	0.0	0.0	15.2	0.0	0.0	22.6	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.1	0.0	2.2	0.0	0.0	0.0	0.0	0.0	12.6	0.0	0.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.0	4.8	0.0	12.6	0.0	0.0	0.1	0.0	0.0	15.7	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	0.0	10.0	0.0	23.9	0.0	0.0	15.2	0.0	0.0	35.2	0.0	0.0
LnGrp LOS		B		C			B			D		
Approach Vol, veh/h		458			508			4			523	
Approach Delay, s/veh		7.1			23.9			15.2			35.2	
Approach LOS		A			C			B			D	

Timer - Assigned Phs	1	2		4		6		8				
Phs Duration (G+Y+Rc), s	12.9	28.4		30.0		41.3		30.0				
Change Period (Y+Rc), s	5.4	5.5		5.6		* 5.4		* 5.6				
Max Green Setting (Gmax), s	9.6	34.5		24.4		* 50		* 17				
Max Q Clear Time (g_c+I1), s	8.1	21.0		25.6		9.6		2.1				
Green Ext Time (p_c), s	0.0	1.9		0.0		1.3		0.0				

Intersection Summary	
HCM 7th Control Delay, s/veh	22.7
HCM 7th LOS	C

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 7th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	6	201	125	116	263	6	106	14	39	8	42	11
Future Volume (veh/h)	6	201	125	116	263	6	106	14	39	8	42	11
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.98	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1796	1885	1885	1870	1648	1841	1900	1856	1900	1900	1900
Adj Flow Rate, veh/h	7	234	132	135	306	5	123	16	28	9	49	7
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Percent Heavy Veh, %	0	7	1	1	2	17	4	0	3	0	0	0
Cap, veh/h	485	304	171	332	408	7	368	62	108	347	130	19
Arrive On Green	0.14	0.28	0.28	0.09	0.22	0.22	0.08	0.10	0.10	0.07	0.08	0.08
Sat Flow, veh/h	1810	1078	608	1795	1834	30	1753	620	1085	1810	1626	232
Grp Volume(v), veh/h	7	0	366	135	0	311	123	0	44	9	0	56
Grp Sat Flow(s),veh/h/ln	1810	0	1687	1795	0	1864	1753	0	1705	1810	0	1858
Q Serve(g_s), s	0.0	0.0	9.5	0.0	0.0	7.4	0.0	0.0	1.1	0.0	0.0	1.4
Cycle Q Clear(g_c), s	0.0	0.0	9.5	0.0	0.0	7.4	0.0	0.0	1.1	0.0	0.0	1.4
Prop In Lane	1.00		0.36	1.00		0.02	1.00		0.64	1.00		0.13
Lane Grp Cap(c), veh/h	485	0	475	332	0	415	368	0	170	347	0	149
V/C Ratio(X)	0.01	0.00	0.77	0.41	0.00	0.75	0.33	0.00	0.26	0.03	0.00	0.38
Avail Cap(c_a), veh/h	585	0	1226	530	0	1351	750	0	695	777	0	757
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	14.9	0.0	15.7	19.7	0.0	17.3	19.3	0.0	19.8	18.5	0.0	20.8
Incr Delay (d2), s/veh	0.0	0.0	2.0	0.3	0.0	1.0	0.2	0.0	0.3	0.0	0.0	0.6
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.1	0.0	6.0	2.3	0.0	5.2	2.1	0.0	0.8	0.1	0.0	1.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	14.9	0.0	17.7	20.0	0.0	18.3	19.5	0.0	20.1	18.5	0.0	21.3
LnGrp LOS	B		B	C		B	B		C	B		C
Approach Vol, veh/h		373			446			167			65	
Approach Delay, s/veh		17.6			18.8			19.6			21.0	
Approach LOS		B			B			B			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	12.5	16.1	9.6	9.4	9.8	18.8	8.7	10.3
Change Period (Y+Rc), s	5.6	* 5.5	5.6	5.6	* 5.6	5.4	5.6	5.6
Max Green Setting (Gmax), s	6.9	* 35	14.4	19.4	* 9.4	34.6	14.4	19.4
Max Q Clear Time (g_c+I1), s	2.0	9.4	2.0	3.4	2.0	11.5	2.0	3.1
Green Ext Time (p_c), s	0.0	1.2	0.1	0.1	0.1	1.9	0.0	0.1

Intersection Summary	
HCM 7th Control Delay, s/veh	18.7
HCM 7th LOS	B

Notes

* HCM 7th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	3.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	46	185	13	3	238	8	15	0	13	15	2	130
Future Vol, veh/h	46	185	13	3	238	8	15	0	13	15	2	130
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	100	-	-	100	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	83	83	83	83	83	83	83	83	83	83	83	83
Heavy Vehicles, %	11	5	17	0	1	0	7	0	17	0	0	7
Mvmt Flow	55	223	16	4	287	10	18	0	16	18	2	157

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	296	0	0	239	0	0	637	645	231	633	648	292
Stage 1	-	-	-	-	-	-	342	342	-	299	299	-
Stage 2	-	-	-	-	-	-	295	304	-	334	349	-
Critical Hdwy	4.21	-	-	4.1	-	-	7.17	6.5	6.37	7.1	6.5	6.27
Critical Hdwy Stg 1	-	-	-	-	-	-	6.17	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.17	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.299	-	-	2.2	-	-	3.563	4	3.453	3.5	4	3.363
Pot Cap-1 Maneuver	1215	-	-	1340	-	-	383	393	773	396	392	736
Stage 1	-	-	-	-	-	-	663	642	-	714	670	-
Stage 2	-	-	-	-	-	-	703	667	-	684	637	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1215	-	-	1340	-	-	285	374	773	369	373	736
Mov Cap-2 Maneuver	-	-	-	-	-	-	285	374	-	369	373	-
Stage 1	-	-	-	-	-	-	633	613	-	712	668	-
Stage 2	-	-	-	-	-	-	550	665	-	640	608	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	1.53	0.09	14.73	12.44
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	403	1215	-	-	1340	-	-	660
HCM Lane V/C Ratio	0.084	0.046	-	-	0.003	-	-	0.268
HCM Ctrl Dly (s/v)	14.7	8.1	-	-	7.7	-	-	12.4
HCM Lane LOS	B	A	-	-	A	-	-	B
HCM 95th %tile Q(veh)	0.3	0.1	-	-	0	-	-	1.1

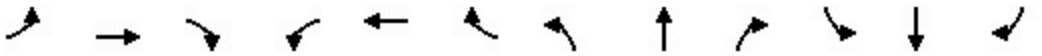
Intersection	
Int Delay, s/veh	1.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	6	201	3	2	225	8	3	0	2	25	0	18
Future Vol, veh/h	6	201	3	2	225	8	3	0	2	25	0	18
Conflicting Peds, #/hr	0	0	1	1	0	0	2	0	0	0	0	2
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	100	-	-	75	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	82	82	82	82	82	82	82	82	82	82	82	82
Heavy Vehicles, %	17	5	0	0	1	17	0	0	0	0	0	6
Mvmt Flow	7	245	4	2	274	10	4	0	2	30	0	22

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	284	0	0	250	0	0	544	552	248	544	549	281
Stage 1	-	-	-	-	-	-	263	263	-	284	284	-
Stage 2	-	-	-	-	-	-	281	289	-	260	264	-
Critical Hdwy	4.27	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.26
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.353	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.354
Pot Cap-1 Maneuver	1197	-	-	1328	-	-	453	445	796	453	446	748
Stage 1	-	-	-	-	-	-	747	695	-	727	680	-
Stage 2	-	-	-	-	-	-	730	677	-	749	693	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1197	-	-	1326	-	-	435	441	795	448	442	747
Mov Cap-2 Maneuver	-	-	-	-	-	-	435	441	-	448	442	-
Stage 1	-	-	-	-	-	-	742	690	-	726	679	-
Stage 2	-	-	-	-	-	-	706	675	-	743	689	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	0.23	0.07	11.86	12.41
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	531	1197	-	-	1326	-	-	538
HCM Lane V/C Ratio	0.011	0.006	-	-	0.002	-	-	0.097
HCM Ctrl Dly (s/v)	11.9	8	-	-	7.7	-	-	12.4
HCM Lane LOS	B	A	-	-	A	-	-	B
HCM 95th %tile Q(veh)	0	0	-	-	0	-	-	0.3



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	34	89	103	16	89	31	67	184	14	51	343	62
Future Volume (veh/h)	34	89	103	16	89	31	67	184	14	51	343	62
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	0.99		0.99	0.99		0.97	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1841	1811	1900	1841	1841	1900	1856	1781	1841	1826	1870
Adj Flow Rate, veh/h	44	116	134	21	116	40	87	239	18	66	445	81
Peak Hour Factor	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77
Percent Heavy Veh, %	0	4	6	0	4	4	0	3	8	4	5	2
Cap, veh/h	323	154	178	230	236	82	296	603	45	490	520	95
Arrive On Green	0.04	0.20	0.20	0.02	0.18	0.18	0.06	0.35	0.35	0.06	0.35	0.35
Sat Flow, veh/h	1810	774	895	1810	1296	447	1810	1704	128	1753	1503	274
Grp Volume(v), veh/h	44	0	250	21	0	156	87	0	257	66	0	526
Grp Sat Flow(s),veh/h/ln	1810	0	1669	1810	0	1742	1810	0	1832	1753	0	1776
Q Serve(g_s), s	1.2	0.0	8.6	0.6	0.0	4.9	1.8	0.0	6.4	1.4	0.0	16.7
Cycle Q Clear(g_c), s	1.2	0.0	8.6	0.6	0.0	4.9	1.8	0.0	6.4	1.4	0.0	16.7
Prop In Lane	1.00		0.54	1.00		0.26	1.00		0.07	1.00		0.15
Lane Grp Cap(c), veh/h	323	0	333	230	0	318	296	0	648	490	0	614
V/C Ratio(X)	0.14	0.00	0.75	0.09	0.00	0.49	0.29	0.00	0.40	0.13	0.00	0.86
Avail Cap(c_a), veh/h	469	0	1170	405	0	1218	491	0	2092	606	0	1941
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	18.9	0.0	22.9	19.8	0.0	22.3	13.7	0.0	14.8	11.6	0.0	18.5
Incr Delay (d2), s/veh	0.1	0.0	1.3	0.1	0.0	0.4	0.2	0.0	0.1	0.0	0.0	1.4
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.8	0.0	5.8	0.4	0.0	3.4	1.2	0.0	4.2	0.9	0.0	10.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	19.0	0.0	24.2	19.9	0.0	22.7	13.9	0.0	14.9	11.7	0.0	19.9
LnGrp LOS	B		C	B		C	B		B	B		B
Approach Vol, veh/h		294			177			344			592	
Approach Delay, s/veh		23.4			22.4			14.7			18.9	
Approach LOS		C			C			B			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.1	16.6	9.4	26.6	7.1	17.6	9.0	27.1
Change Period (Y+Rc), s	5.5	5.5	5.6	5.6	5.6	* 5.5	5.6	5.6
Max Green Setting (Gmax), s	7.5	42.5	10.4	66.4	7.4	* 43	7.4	69.4
Max Q Clear Time (g_c+I1), s	3.2	6.9	3.8	18.7	2.6	10.6	3.4	8.4
Green Ext Time (p_c), s	0.0	0.6	0.0	2.3	0.0	1.1	0.0	1.0

Intersection Summary	
HCM 7th Control Delay, s/veh	19.3
HCM 7th LOS	B

Notes

* HCM 7th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	0.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	2	1117	32	19	827	5	19	0	17	8	0	1
Future Vol, veh/h	2	1117	32	19	827	5	19	0	17	8	0	1
Conflicting Peds, #/hr	1	0	0	0	0	1	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	150	-	-	150	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	1	-	-	1	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	96	96	96	96	96	96	96	96	96	96	96	96
Heavy Vehicles, %	0	2	0	0	2	0	0	0	0	0	0	0
Mvmt Flow	2	1164	33	20	861	5	20	0	18	8	0	1

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	868	0	0	1197	0	0	1655	2092	598	1491	2106	434
Stage 1	-	-	-	-	-	-	1184	1184	-	905	905	-
Stage 2	-	-	-	-	-	-	470	907	-	586	1201	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.5	6.5	6.9	7.5	6.5	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-	6.5	5.5	-	6.5	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.5	5.5	-	6.5	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	785	-	-	590	-	-	66	53	450	87	52	575
Stage 1	-	-	-	-	-	-	204	265	-	302	358	-
Stage 2	-	-	-	-	-	-	548	357	-	468	260	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	784	-	-	590	-	-	63	51	450	81	50	575
Mov Cap-2 Maneuver	-	-	-	-	-	-	156	159	-	194	151	-
Stage 1	-	-	-	-	-	-	204	264	-	292	346	-
Stage 2	-	-	-	-	-	-	529	345	-	449	260	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	0.02	0.25	24.1	23.04
HCM LOS			C	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	226	784	-	-	590	-	-	209
HCM Lane V/C Ratio	0.166	0.003	-	-	0.034	-	-	0.045
HCM Ctrl Dly (s/v)	24.1	9.6	-	-	11.3	-	-	23
HCM Lane LOS	C	A	-	-	B	-	-	C
HCM 95th %tile Q(veh)	0.6	0	-	-	0.1	-	-	0.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	584	492	215	123	272	84	425	1130	201	300	1041	324
Future Volume (veh/h)	584	492	215	123	272	84	425	1130	201	300	1041	324
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	1.00		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1885	1856	1900	1870	1826	1885	1870	1885	1885	1885	1870
Adj Flow Rate, veh/h	602	507	178	127	280	80	438	1165	203	309	1073	282
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	1	3	0	2	5	1	2	1	1	1	2
Cap, veh/h	509	509	637	154	290	83	485	1225	212	264	1480	881
Arrive On Green	0.20	0.36	0.36	0.09	0.21	0.20	0.19	0.54	0.53	0.15	0.41	0.41
Sat Flow, veh/h	3456	1885	1565	1810	1397	399	3483	3024	524	1795	3582	1578
Grp Volume(v), veh/h	602	507	178	127	0	360	438	682	686	309	1073	282
Grp Sat Flow(s),veh/h/ln	1728	1885	1565	1810	0	1796	1742	1777	1771	1795	1791	1578
Q Serve(g_s), s	25.5	46.5	12.1	12.0	0.0	34.4	21.3	62.6	63.8	25.5	43.5	16.7
Cycle Q Clear(g_c), s	25.5	46.5	12.1	12.0	0.0	34.4	21.3	62.6	63.8	25.5	43.5	16.7
Prop In Lane	1.00		1.00	1.00		0.22	1.00		0.30	1.00		1.00
Lane Grp Cap(c), veh/h	509	509	637	154	0	373	485	720	718	264	1480	881
V/C Ratio(X)	1.18	1.00	0.28	0.82	0.00	0.96	0.90	0.95	0.96	1.17	0.73	0.32
Avail Cap(c_a), veh/h	509	509	637	423	0	373	513	729	726	264	1480	881
HCM Platoon Ratio	1.33	1.33	1.33	1.00	1.00	1.00	1.33	1.33	1.33	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	69.6	55.4	30.0	77.9	0.0	68.1	69.4	38.2	38.6	73.8	42.6	20.6
Incr Delay (d2), s/veh	101.0	38.7	0.3	10.5	0.0	37.2	18.7	21.5	23.1	108.8	2.0	0.3
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	26.8	34.4	7.8	10.0	0.0	26.6	15.7	37.9	38.7	29.0	26.7	10.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	170.6	94.1	30.3	88.5	0.0	105.3	88.1	59.7	61.8	182.6	44.5	20.9
LnGrp LOS	F	F	C	F		F	F	E	E	F	D	C
Approach Vol, veh/h		1287			487			1806			1664	
Approach Delay, s/veh		121.1			100.9			67.4			66.2	
Approach LOS		F			F			E			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	29.5	74.2	18.7	50.8	28.1	75.5	29.5	40.0
Change Period (Y+Rc), s	4.5	5.0	4.5	5.0	4.5	5.0	4.5	5.0
Max Green Setting (Gmax), s	25.0	70.0	40.0	35.0	25.0	70.0	25.0	35.0
Max Q Clear Time (g_c+I1), s	27.5	65.8	14.0	48.5	23.3	45.5	27.5	36.4
Green Ext Time (p_c), s	0.0	3.4	0.3	0.0	0.3	12.7	0.0	0.0

Intersection Summary	
HCM 7th Control Delay, s/veh	83.3
HCM 7th LOS	F

The Peak Hour Factor has been adjusted from 0.95 under existing conditions to 0.97, reflecting an additional 843 in-process trips at this intersection. Node 11 along the SR 503 corridor has a peak hour factor of 0.97.

A recent site visit confirmed that there are vehicle platoons at this intersection during the PM peak hour in the northbound and eastbound directions. The arrival type has been updated from 3 to 4 for these approach volumes.

Intersection	
Int Delay, s/veh	4.4

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	682	185	49	357	89	44
Future Vol, veh/h	682	185	49	357	89	44
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	250	100	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	2	1	1	3	1	1
Mvmt Flow	726	197	52	380	95	47

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	922	0	1210	726
Stage 1	-	-	-	-	726	-
Stage 2	-	-	-	-	484	-
Critical Hdwy	-	-	4.11	-	6.41	6.21
Critical Hdwy Stg 1	-	-	-	-	5.41	-
Critical Hdwy Stg 2	-	-	-	-	5.41	-
Follow-up Hdwy	-	-	2.209	-	3.509	3.309
Pot Cap-1 Maneuver	-	-	745	-	203	426
Stage 1	-	-	-	-	481	-
Stage 2	-	-	-	-	622	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	745	-	189	426
Mov Cap-2 Maneuver	-	-	-	-	189	-
Stage 1	-	-	-	-	481	-
Stage 2	-	-	-	-	578	-

Approach	EB	WB	NB
HCM Ctrl Dly, s/v	0	1.23	42.4
HCM LOS			E

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	231	-	-	745	-
HCM Lane V/C Ratio	0.612	-	-	0.07	-
HCM Ctrl Dly (s/v)	42.4	-	-	10.2	-
HCM Lane LOS	E	-	-	B	-
HCM 95th %tile Q(veh)	3.6	-	-	0.2	-

Intersection	
Int Delay, s/veh	14.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	64	570	84	36	335	13	51	30	19	6	33	28
Future Vol, veh/h	64	570	84	36	335	13	51	30	19	6	33	28
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	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	5	1	2	2	3	14	2	9	7	16	0	0
Mvmt Flow	71	633	93	40	372	14	57	33	21	7	37	31

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	387	0	0	727	0	0	1293	1289	680	1252	1328	379
Stage 1	-	-	-	-	-	-	822	822	-	459	459	-
Stage 2	-	-	-	-	-	-	471	467	-	792	869	-
Critical Hdwy	4.15	-	-	4.12	-	-	7.12	6.59	6.27	7.26	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.59	-	6.26	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.59	-	6.26	5.5	-
Follow-up Hdwy	2.245	-	-	2.218	-	-	3.518	4.081	3.363	3.644	4	3.3
Pot Cap-1 Maneuver	1156	-	-	877	-	-	140	159	442	140	156	672
Stage 1	-	-	-	-	-	-	368	378	-	556	570	-
Stage 2	-	-	-	-	-	-	574	550	-	362	372	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1156	-	-	877	-	-	85	134	442	88	132	672
Mov Cap-2 Maneuver	-	-	-	-	-	-	85	134	-	88	132	-
Stage 1	-	-	-	-	-	-	329	339	-	523	536	-
Stage 2	-	-	-	-	-	-	480	518	-	278	333	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	0.74	0.87	145.26	36.74
HCM LOS			F	E

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	115	156	-	-	167	-	-	186
HCM Lane V/C Ratio	0.965	0.062	-	-	0.046	-	-	0.4
HCM Ctrl Dly (s/v)	145.3	8.3	0	-	9.3	0	-	36.7
HCM Lane LOS	F	A	A	-	A	A	-	E
HCM 95th %tile Q(veh)	6.2	0.2	-	-	0.1	-	-	1.8

MOVEMENT SUMMARY

Site: 5 [NE 119th St and NE 152nd Ave - Total PM (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Existing PM
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] ft	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed mph
South: NE 152nd Ave															
3	L2	All MCs	98	1.0	98	1.0	0.378	10.6	LOS B	2.3	57.8	0.45	0.55	0.45	33.7
8	T1	All MCs	293	1.0	293	1.0	0.378	5.6	LOS A	2.3	57.8	0.45	0.55	0.45	34.3
18	R2	All MCs	15	0.0	15	0.0	0.378	5.4	LOS A	2.3	57.8	0.45	0.55	0.45	34.1
Approach			405	1.0	405	1.0	0.378	6.8	LOS A	2.3	57.8	0.45	0.55	0.45	34.2
East: NE 119th St															
1	L2	All MCs	10	0.0	10	0.0	0.152	11.5	LOS B	0.8	19.7	0.54	0.61	0.54	33.7
6	T1	All MCs	94	3.0	94	3.0	0.152	6.9	LOS A	0.8	19.7	0.54	0.61	0.54	34.3
16	R2	All MCs	28	0.0	28	0.0	0.152	6.4	LOS A	0.8	19.7	0.54	0.61	0.54	34.1
Approach			132	2.1	132	2.1	0.152	7.2	LOS A	0.8	19.7	0.54	0.61	0.54	34.2
North: NE 152nd Ave															
7	L2	All MCs	11	0.0	11	0.0	0.197	10.5	LOS B	1.1	27.8	0.42	0.51	0.42	34.1
4	T1	All MCs	172	1.0	172	1.0	0.197	5.7	LOS A	1.1	27.8	0.42	0.51	0.42	34.7
14	R2	All MCs	30	0.0	30	0.0	0.197	5.5	LOS A	1.1	27.8	0.42	0.51	0.42	34.4
Approach			214	0.8	214	0.8	0.197	6.0	LOS A	1.1	27.8	0.42	0.51	0.42	34.6
West: NE 119th St															
5	L2	All MCs	43	0.0	43	0.0	0.316	10.4	LOS B	1.8	45.3	0.42	0.54	0.42	34.1
2	T1	All MCs	147	1.0	147	1.0	0.316	5.5	LOS A	1.8	45.3	0.42	0.54	0.42	34.8
12	R2	All MCs	148	1.0	148	1.0	0.316	5.4	LOS A	1.8	45.3	0.42	0.54	0.42	34.5
Approach			338	0.9	338	0.9	0.316	6.1	LOS A	1.8	45.3	0.42	0.54	0.42	34.6
All Vehicles			1089	1.0	1089	1.0	0.378	6.5	LOS A	2.3	57.8	0.45	0.54	0.45	34.4

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



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	49	30	10	57	81	47
Future Volume (Veh/h)	49	30	10	57	81	47
Sign Control	Free			Stop	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Hourly flow rate (vph)	56	34	11	66	93	54
Pedestrians					1	
Lane Width (ft)					12.0	
Walking Speed (ft/s)					3.5	
Percent Blockage					0	
Right turn flare (veh)						
Median type	None					
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1		230	130	147	1
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1		230	130	147	1
tC, single (s)	4.1		7.1	6.6	6.5	6.2
tC, 2 stage (s)						
tF (s)	2.2		3.5	4.1	4.0	3.3
p0 queue free %	97		98	91	87	95
cM capacity (veh/h)	1627		608	720	722	1083

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	90	77	147
Volume Left	56	11	0
Volume Right	34	0	54
cSH	1627	701	822
Volume to Capacity	0.03	0.11	0.18
Queue Length 95th (ft)	3	9	16
Control Delay (s/veh)	4.6	10.8	10.3
Lane LOS	A	B	B
Approach Delay (s/veh)	4.6	10.8	10.3
Approach LOS		B	B

Intersection Summary			
Average Delay	8.8		
Intersection Capacity Utilization	22.7%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection	
Int Delay, s/veh	0.5

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	5	16	21	404	317	15
Future Vol, veh/h	5	16	21	404	317	15
Conflicting Peds, #/hr	0	0	1	0	0	1
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	75	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	20	6	0	2	2	13
Mvmt Flow	5	18	23	444	348	16

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	848	358	366	0	-	0
Stage 1	358	-	-	-	-	-
Stage 2	490	-	-	-	-	-
Critical Hdwy	6.6	6.26	4.1	-	-	-
Critical Hdwy Stg 1	5.6	-	-	-	-	-
Critical Hdwy Stg 2	5.6	-	-	-	-	-
Follow-up Hdwy	3.68	3.354	2.2	-	-	-
Pot Cap-1 Maneuver	309	678	1204	-	-	-
Stage 1	670	-	-	-	-	-
Stage 2	580	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	303	677	1203	-	-	-
Mov Cap-2 Maneuver	303	-	-	-	-	-
Stage 1	656	-	-	-	-	-
Stage 2	580	-	-	-	-	-

Approach	EB	NB	SB
HCM Ctrl Dly, s/v	12.2	0.4	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1203	-	523	-	-
HCM Lane V/C Ratio	0.019	-	0.044	-	-
HCM Ctrl Dly (s/v)	8.1	-	12.2	-	-
HCM Lane LOS	A	-	B	-	-
HCM 95th %tile Q(veh)	0.1	-	0.1	-	-

Intersection	
Int Delay, s/veh	1.4

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	77	170	1814	1469	51
Future Vol, veh/h	0	77	170	1814	1469	51
Conflicting Peds, #/hr	0	0	1	0	0	1
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	550	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	0	2	1	1	1	3
Mvmt Flow	0	80	177	1890	1530	53

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	-	793	1584	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.94	4.12	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.32	2.21	-	-	-
Pot Cap-1 Maneuver	0	332	416	-	-	-
Stage 1	0	-	-	-	-	-
Stage 2	0	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	-	331	415	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Ctrl Dly, s/v	19.3	1.71	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	415	-	331	-	-
HCM Lane V/C Ratio	0.427	-	0.242	-	-
HCM Ctrl Dly (s/v)	20	-	19.3	-	-
HCM Lane LOS	C	-	C	-	-
HCM 95th %tile Q(veh)	2.1	-	0.9	-	-

MOVEMENT SUMMARY

Site: 9 [NE 99th St and NE 107th Ave - Total PM (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Existing PM
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] ft	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed mph
South: NE 107th Ave															
3	L2	All MCs	58	2.0	58	2.0	0.384	11.1	LOS B	2.3	58.3	0.53	0.60	0.53	33.9
18	R2	All MCs	326	1.0	326	1.0	0.384	6.0	LOS A	2.3	58.3	0.53	0.60	0.53	34.3
Approach			384	1.2	384	1.2	0.384	6.8	LOS A	2.3	58.3	0.53	0.60	0.53	34.3
East: NE 99th St															
1	L2	All MCs	174	1.0	174	1.0	0.422	9.7	LOS A	3.0	75.3	0.28	0.50	0.28	33.9
6	T1	All MCs	329	2.0	329	2.0	0.422	4.9	LOS A	3.0	75.3	0.28	0.50	0.28	34.5
Approach			503	1.7	503	1.7	0.422	6.5	LOS A	3.0	75.3	0.28	0.50	0.28	34.3
West: NE 99th St															
2	T1	All MCs	279	1.0	279	1.0	0.302	5.4	LOS A	1.7	41.8	0.39	0.49	0.39	35.0
12	R2	All MCs	52	0.0	52	0.0	0.302	5.2	LOS A	1.7	41.8	0.39	0.49	0.39	34.7
Approach			331	0.8	331	0.8	0.302	5.4	LOS A	1.7	41.8	0.39	0.49	0.39	34.9
All Vehicles			1218	1.3	1218	1.3	0.422	6.3	LOS A	3.0	75.3	0.38	0.53	0.38	34.5

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

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Intersection	
Int Delay, s/veh	1.4

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	28	460	446	53	43	14
Future Vol, veh/h	28	460	446	53	43	14
Conflicting Peds, #/hr	0	0	0	0	1	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	75	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	0	1	2	2	0	0
Mvmt Flow	30	489	474	56	46	15

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	531	0	-	0	1053	503
Stage 1	-	-	-	-	503	-
Stage 2	-	-	-	-	550	-
Critical Hdwy	4.1	-	-	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	2.2	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	1047	-	-	-	253	573
Stage 1	-	-	-	-	612	-
Stage 2	-	-	-	-	582	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1047	-	-	-	246	573
Mov Cap-2 Maneuver	-	-	-	-	246	-
Stage 1	-	-	-	-	594	-
Stage 2	-	-	-	-	582	-

Approach	EB	WB	SB
HCM Ctrl Dly, s/v	0.49	0	20.96
HCM LOS			C

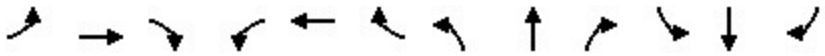
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1047	-	-	-	286
HCM Lane V/C Ratio	0.028	-	-	-	0.212
HCM Ctrl Dly (s/v)	8.5	-	-	-	21
HCM Lane LOS	A	-	-	-	C
HCM 95th %tile Q(veh)	0.1	-	-	-	0.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	199	235	74	422	251	196	120	1557	397	262	1103	156
Future Volume (veh/h)	199	235	74	422	251	196	120	1557	397	262	1103	156
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1885	1900	1900	1885	1885	1885	1885	1885	1885	1885	1856
Adj Flow Rate, veh/h	205	242	34	435	259	129	124	1605	390	270	1137	121
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	1	1	0	0	1	1	1	1	1	1	1	3
Cap, veh/h	321	308	563	358	369	535	430	1586	939	301	1409	796
Arrive On Green	0.11	0.16	0.16	0.15	0.20	0.20	0.25	0.59	0.59	0.14	0.39	0.39
Sat Flow, veh/h	1795	1885	1571	1810	1885	1583	1795	3582	1592	1795	3582	1566
Grp Volume(v), veh/h	205	242	34	435	259	129	124	1605	390	270	1137	121
Grp Sat Flow(s),veh/h/ln	1795	1885	1571	1810	1885	1583	1795	1791	1592	1795	1791	1566
Q Serve(g_s), s	14.0	18.5	0.6	22.0	19.2	8.8	0.4	66.4	16.5	18.1	42.3	2.7
Cycle Q Clear(g_c), s	14.0	18.5	0.6	22.0	19.2	8.8	0.4	66.4	16.5	18.1	42.3	2.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	321	308	563	358	369	535	430	1586	939	301	1409	796
V/C Ratio(X)	0.64	0.79	0.06	1.21	0.70	0.24	0.29	1.01	0.42	0.90	0.81	0.15
Avail Cap(c_a), veh/h	355	390	631	358	415	573	430	1586	939	311	1409	796
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.33	1.33	1.33	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	45.1	60.2	15.2	46.8	56.2	35.9	43.2	30.8	11.8	45.0	40.4	7.4
Incr Delay (d2), s/veh	3.3	8.7	0.1	119.6	4.9	0.3	0.4	25.7	0.4	25.6	5.0	0.4
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	10.7	14.6	0.9	22.8	14.7	6.3	6.3	39.5	8.7	15.3	26.4	2.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	48.4	68.9	15.3	166.5	61.2	36.2	43.5	56.5	12.2	70.6	45.5	7.8
LnGrp LOS	D	E	B	F	E	D	D	F	B	E	D	A
Approach Vol, veh/h		481			823			2119			1528	
Approach Delay, s/veh		56.4			112.9			47.6			46.9	
Approach LOS		E			F			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	32.5	63.0	21.1	33.4	25.1	70.4	26.0	28.5
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Max Green Setting (Gmax), s	21.0	58.0	19.0	32.0	21.0	58.0	21.0	30.0
Max Q Clear Time (g_c+I1), s	2.4	44.3	16.0	21.2	20.1	68.4	24.0	20.5
Green Ext Time (p_c), s	0.3	7.7	0.2	1.7	0.0	0.0	0.0	1.1

Intersection Summary	
HCM 7th Control Delay, s/veh	59.1
HCM 7th LOS	E

The HCM Platoon Ratio setting has been adjusted from 1.00 (random arrivals, also classified as arrival type 3) to 1.33 (favorable progression, also classified as arrival type 4) for northbound traffic, reflecting the coordinated signal system on NE 117th Avenue (SR 503).



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	339	423	1	2	404	172	1	1	3	142	0	273
Future Volume (veh/h)	339	423	1	2	404	172	1	1	3	142	0	273
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1870	1900	1900	1885	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	373	465	1	2	444	176	1	1	3	156	0	235
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	1	2	0	0	1	0	0	0	0	0	0	0
Cap, veh/h	435	1119	2	47	523	207	115	127	280	235	13	277
Arrive On Green	0.14	0.60	0.58	0.39	0.41	0.39	0.28	0.29	0.28	0.28	0.00	0.28
Sat Flow, veh/h	1795	1866	4	1	1283	507	208	439	971	573	44	930
Grp Volume(v), veh/h	373	0	466	622	0	0	5	0	0	391	0	0
Grp Sat Flow(s),veh/h/ln	1795	0	1870	1791	0	0	1618	0	0	1547	0	0
Q Serve(g_s), s	24.6	0.0	10.4	0.4	0.0	0.0	0.0	0.0	0.0	17.6	0.0	0.0
Cycle Q Clear(g_c), s	24.6	0.0	10.4	25.3	0.0	0.0	0.2	0.0	0.0	19.0	0.0	0.0
Prop In Lane	1.00		0.00	0.00		0.28	0.20		0.60	0.40		0.60
Lane Grp Cap(c), veh/h	0	0	1121	742	0	0	504	0	0	493	0	0
V/C Ratio(X)	0.00	0.00	0.42	0.84	0.00	0.00	0.01	0.00	0.00	0.79	0.00	0.00
Avail Cap(c_a), veh/h	0	0	1702	1297	0	0	504	0	0	548	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	0.0	8.3	21.4	0.0	0.0	20.0	0.0	0.0	26.6	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.0	0.1	1.0	0.0	0.0	0.0	0.0	0.0	6.2	0.0	0.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.0	0.0	6.5	15.5	0.0	0.0	0.1	0.0	0.0	12.3	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	0.0	0.0	8.4	22.4	0.0	0.0	20.1	0.0	0.0	32.8	0.0	0.0
LnGrp LOS			A	C			C			C		
Approach Vol, veh/h		839			622			5			391	
Approach Delay, s/veh		4.7			22.4			20.1			32.8	
Approach LOS		A			C			C			C	

Timer - Assigned Phs	1	2		4		6		8				
Phs Duration (G+Y+Rc), s	15.0	35.8		27.2		50.8		27.2				
Change Period (Y+Rc), s	5.4	5.5		5.6		* 5.4		* 5.6				
Max Green Setting (Gmax), s	9.6	54.5		24.4		* 70		* 17				
Max Q Clear Time (g_c+I1), s	26.6	27.3		21.0		12.4		2.2				
Green Ext Time (p_c), s	0.0	3.0		0.6		2.0		0.0				

Intersection Summary	
HCM 7th Control Delay, s/veh	16.6
HCM 7th LOS	B

Notes

* HCM 7th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	13	323	159	81	212	9	192	49	142	6	25	11
Future Volume (veh/h)	13	323	159	81	212	9	192	49	142	6	25	11
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	0.99		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1885	1885	1900	1885	1900	1885	1885	1885	1900	1900	1900
Adj Flow Rate, veh/h	14	340	149	85	223	9	202	52	111	6	26	4
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	1	1	0	1	0	1	1	1	0	0	0
Cap, veh/h	569	417	183	255	307	12	405	77	164	212	154	24
Arrive On Green	0.23	0.34	0.34	0.07	0.17	0.17	0.09	0.14	0.14	0.04	0.10	0.10
Sat Flow, veh/h	1810	1243	545	1810	1799	73	1795	533	1138	1810	1605	247
Grp Volume(v), veh/h	14	0	489	85	0	232	202	0	163	6	0	30
Grp Sat Flow(s),veh/h/ln	1810	0	1787	1810	0	1872	1795	0	1671	1810	0	1852
Q Serve(g_s), s	0.0	0.0	13.5	0.0	0.0	6.3	0.0	0.0	5.0	0.0	0.0	0.8
Cycle Q Clear(g_c), s	0.0	0.0	13.5	0.0	0.0	6.3	0.0	0.0	5.0	0.0	0.0	0.8
Prop In Lane	1.00		0.30	1.00		0.04	1.00		0.68	1.00		0.13
Lane Grp Cap(c), veh/h	569	0	600	255	0	319	405	0	240	212	0	178
V/C Ratio(X)	0.02	0.00	0.82	0.33	0.00	0.73	0.50	0.00	0.68	0.03	0.00	0.17
Avail Cap(c_a), veh/h	569	0	1150	450	0	1202	727	0	603	623	0	669
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	15.5	0.0	16.3	23.4	0.0	21.1	21.1	0.0	21.8	24.6	0.0	22.3
Incr Delay (d2), s/veh	0.0	0.0	2.1	0.3	0.0	1.2	0.4	0.0	1.3	0.0	0.0	0.2
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.2	0.0	8.8	1.7	0.0	4.7	4.0	0.0	3.4	0.1	0.0	0.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	15.5	0.0	18.4	23.7	0.0	22.3	21.5	0.0	23.1	24.7	0.0	22.5
LnGrp LOS	B		B	C		C	C		C	C		C
Approach Vol, veh/h		503			317			365			36	
Approach Delay, s/veh		18.3			22.7			22.2			22.8	
Approach LOS		B			C			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.0	14.7	10.4	10.8	9.2	23.4	7.8	13.3
Change Period (Y+Rc), s	5.6	* 5.5	5.6	5.6	* 5.6	5.4	5.6	5.6
Max Green Setting (Gmax), s	9.5	* 35	14.4	19.4	* 9.4	34.6	14.4	19.4
Max Q Clear Time (g_c+I1), s	2.0	8.3	2.0	2.8	2.0	15.5	2.0	7.0
Green Ext Time (p_c), s	0.0	0.9	0.2	0.0	0.0	2.6	0.0	0.5

Intersection Summary	
HCM 7th Control Delay, s/veh	20.8
HCM 7th LOS	C

Notes

* HCM 7th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	3.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	138	317	23	6	203	15	16	2	8	11	1	83
Future Vol, veh/h	138	317	23	6	203	15	16	2	8	11	1	83
Conflicting Peds, #/hr	4	0	0	0	0	4	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	100	-	-	100	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	1	9	0	1	0	7	0	14	10	0	3
Mvmt Flow	153	352	26	7	226	17	18	2	9	12	1	92

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	246	0	0	378	0	0	911	931	365	911	936	238
Stage 1	-	-	-	-	-	-	672	672	-	251	251	-
Stage 2	-	-	-	-	-	-	239	260	-	660	684	-
Critical Hdwy	4.12	-	-	4.1	-	-	7.17	6.5	6.34	7.2	6.5	6.23
Critical Hdwy Stg 1	-	-	-	-	-	-	6.17	5.5	-	6.2	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.17	5.5	-	6.2	5.5	-
Follow-up Hdwy	2.218	-	-	2.2	-	-	3.563	4	3.426	3.59	4	3.327
Pot Cap-1 Maneuver	1320	-	-	1192	-	-	250	269	654	247	267	799
Stage 1	-	-	-	-	-	-	437	458	-	735	703	-
Stage 2	-	-	-	-	-	-	753	697	-	439	452	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1315	-	-	1192	-	-	193	235	654	211	234	796
Mov Cap-2 Maneuver	-	-	-	-	-	-	193	235	-	211	234	-
Stage 1	-	-	-	-	-	-	386	404	-	729	696	-
Stage 2	-	-	-	-	-	-	661	690	-	381	399	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	2.34	0.22	21.19	12.41
HCM LOS			C	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	251	1315	-	-	1192	-	-	591
HCM Lane V/C Ratio	0.115	0.117	-	-	0.006	-	-	0.179
HCM Ctrl Dly (s/v)	21.2	8.1	-	-	8	-	-	12.4
HCM Lane LOS	C	A	-	-	A	-	-	B
HCM 95th %tile Q(veh)	0.4	0.4	-	-	0	-	-	0.6

Intersection	
Int Delay, s/veh	1.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	12	314	4	2	204	30	2	1	5	17	0	20
Future Vol, veh/h	12	314	4	2	204	30	2	1	5	17	0	20
Conflicting Peds, #/hr	5	0	0	0	0	5	2	0	0	0	0	2
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	100	-	-	75	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	9	1	0	50	1	5	0	0	0	9	0	0
Mvmt Flow	13	349	4	2	227	33	2	1	6	19	0	22

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	265	0	0	353	0	0	611	647	351	629	633	250
Stage 1	-	-	-	-	-	-	378	378	-	253	253	-
Stage 2	-	-	-	-	-	-	233	269	-	376	380	-
Critical Hdwy	4.19	-	-	4.6	-	-	7.1	6.5	6.2	7.19	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.19	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.19	5.5	-
Follow-up Hdwy	2.281	-	-	2.65	-	-	3.5	4	3.3	3.581	4	3.3
Pot Cap-1 Maneuver	1259	-	-	982	-	-	409	392	697	385	400	793
Stage 1	-	-	-	-	-	-	648	619	-	736	702	-
Stage 2	-	-	-	-	-	-	774	690	-	631	617	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1253	-	-	982	-	-	391	385	697	374	393	788
Mov Cap-2 Maneuver	-	-	-	-	-	-	391	385	-	374	393	-
Stage 1	-	-	-	-	-	-	641	612	-	731	697	-
Stage 2	-	-	-	-	-	-	749	685	-	618	611	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	0.29	0.07	11.81	12.48
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	538	1253	-	-	982	-	-	523
HCM Lane V/C Ratio	0.017	0.011	-	-	0.002	-	-	0.079
HCM Ctrl Dly (s/v)	11.8	7.9	-	-	8.7	-	-	12.5
HCM Lane LOS	B	A	-	-	A	-	-	B
HCM 95th %tile Q(veh)	0.1	0	-	-	0	-	-	0.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	105	127	100	12	86	52	90	385	17	41	305	55
Future Volume (veh/h)	105	127	100	12	86	52	90	385	17	41	305	55
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1841	1885	1841	1900	1885	1900	1856	1885	1900	1826	1885	1870
Adj Flow Rate, veh/h	112	135	106	13	91	55	96	410	18	44	324	59
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	4	1	4	0	1	0	3	1	0	5	1	2
Cap, veh/h	349	186	146	247	142	86	347	524	23	304	410	75
Arrive On Green	0.08	0.19	0.19	0.02	0.13	0.13	0.07	0.29	0.29	0.05	0.26	0.26
Sat Flow, veh/h	1753	979	768	1810	1100	665	1767	1792	79	1739	1552	283
Grp Volume(v), veh/h	112	0	241	13	0	146	96	0	428	44	0	383
Grp Sat Flow(s),veh/h/ln	1753	0	1747	1810	0	1765	1767	0	1871	1739	0	1834
Q Serve(g_s), s	2.6	0.0	6.4	0.3	0.0	3.9	1.9	0.0	10.3	0.9	0.0	9.5
Cycle Q Clear(g_c), s	2.6	0.0	6.4	0.3	0.0	3.9	1.9	0.0	10.3	0.9	0.0	9.5
Prop In Lane	1.00		0.44	1.00		0.38	1.00		0.04	1.00		0.15
Lane Grp Cap(c), veh/h	349	0	333	247	0	228	347	0	547	304	0	484
V/C Ratio(X)	0.32	0.00	0.72	0.05	0.00	0.64	0.28	0.00	0.78	0.14	0.00	0.79
Avail Cap(c_a), veh/h	477	0	1089	417	0	1026	519	0	1388	415	0	1249
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	16.6	0.0	18.6	18.1	0.0	20.3	12.4	0.0	15.9	12.8	0.0	16.8
Incr Delay (d2), s/veh	0.2	0.0	1.1	0.0	0.0	1.1	0.2	0.0	0.9	0.1	0.0	1.1
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	1.7	0.0	4.3	0.2	0.0	2.7	1.1	0.0	6.8	0.5	0.0	6.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	16.8	0.0	19.8	18.2	0.0	21.4	12.5	0.0	16.9	12.9	0.0	17.9
LnGrp LOS	B		B	B		C	B		B	B		B
Approach Vol, veh/h		353			159			524			427	
Approach Delay, s/veh		18.8			21.1			16.1			17.4	
Approach LOS		B			C			B			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.4	11.8	9.2	18.6	6.4	14.9	7.9	19.9
Change Period (Y+Rc), s	5.5	5.5	5.6	5.6	5.6	* 5.5	5.6	5.6
Max Green Setting (Gmax), s	7.5	28.5	8.4	33.4	5.4	* 31	5.4	36.4
Max Q Clear Time (g_c+I1), s	4.6	5.9	3.9	11.5	2.3	8.4	2.9	12.3
Green Ext Time (p_c), s	0.0	0.5	0.0	1.4	0.0	0.9	0.0	1.6

Intersection Summary	
HCM 7th Control Delay, s/veh	17.7
HCM 7th LOS	B

Notes

* HCM 7th computational engine requires equal clearance times for the phases crossing the barrier.

Appendix H Year 2029 Mitigated Total Traffic Analysis Worksheets

Intersection	
Int Delay, s/veh	11.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	53	292	39	12	419	13	97	32	40	5	18	14
Future Vol, veh/h	53	292	39	12	419	13	97	32	40	5	18	14
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	-	-	-	-	-	-	0	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	81	81	81	81	81	81	81	81	81	81	81	81
Heavy Vehicles, %	5	8	8	0	5	0	11	0	0	20	0	15
Mvmt Flow	65	360	48	15	517	16	120	40	49	6	22	17

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	533	0	0	409	0	0	1073	1078	385	1066	1094	525
Stage 1	-	-	-	-	-	-	515	515	-	555	555	-
Stage 2	-	-	-	-	-	-	558	563	-	511	540	-
Critical Hdwy	4.15	-	-	4.1	-	-	7.21	6.5	6.2	7.3	6.5	6.35
Critical Hdwy Stg 1	-	-	-	-	-	-	6.21	5.5	-	6.3	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.21	5.5	-	6.3	5.5	-
Follow-up Hdwy	2.245	-	-	2.2	-	-	3.599	4	3.3	3.68	4	3.435
Pot Cap-1 Maneuver	1019	-	-	1161	-	-	190	220	668	185	216	528
Stage 1	-	-	-	-	-	-	526	538	-	485	517	-
Stage 2	-	-	-	-	-	-	498	512	-	513	525	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1019	-	-	1161	-	-	148	198	668	126	194	528
Mov Cap-2 Maneuver	-	-	-	-	-	-	148	198	-	126	194	-
Stage 1	-	-	-	-	-	-	482	493	-	477	507	-
Stage 2	-	-	-	-	-	-	453	503	-	401	481	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	1.21	0.22	60.04	24.22
HCM LOS			F	C

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	148	325	243	-	-	48	-	-	233
HCM Lane V/C Ratio	0.808	0.273	0.064	-	-	0.013	-	-	0.196
HCM Ctrl Dly (s/v)	89.6	20.2	8.8	0	-	8.1	0	-	24.2
HCM Lane LOS	F	C	A	A	-	A	A	-	C
HCM 95th %tile Q(veh)	5.2	1.1	0.2	-	-	0	-	-	0.7

Intersection	
Int Delay, s/veh	8.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	64	570	84	36	335	13	51	30	19	6	33	28
Future Vol, veh/h	64	570	84	36	335	13	51	30	19	6	33	28
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	-	-	-	-	-	-	0	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	11	2	5	4	7	29	4	18	7	33	0	0
Mvmt Flow	71	633	93	40	372	14	57	33	21	7	37	31

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	387	0	0	727	0	0	1293	1289	680	1252	1328	379
Stage 1	-	-	-	-	-	-	822	822	-	459	459	-
Stage 2	-	-	-	-	-	-	471	467	-	792	869	-
Critical Hdwy	4.21	-	-	4.14	-	-	7.14	6.68	6.27	7.43	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.14	5.68	-	6.43	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.14	5.68	-	6.43	5.5	-
Follow-up Hdwy	2.299	-	-	2.236	-	-	3.536	4.162	3.363	3.797	4	3.3
Pot Cap-1 Maneuver	1124	-	-	867	-	-	138	152	442	129	156	672
Stage 1	-	-	-	-	-	-	365	366	-	527	570	-
Stage 2	-	-	-	-	-	-	570	536	-	340	372	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1124	-	-	867	-	-	84	128	442	80	131	672
Mov Cap-2 Maneuver	-	-	-	-	-	-	84	128	-	80	131	-
Stage 1	-	-	-	-	-	-	326	327	-	496	536	-
Stage 2	-	-	-	-	-	-	476	504	-	259	332	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	0.75	0.88	73.44	37.86
HCM LOS			F	E

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	84	176	156	-	-	167	-	-	182
HCM Lane V/C Ratio	0.678	0.309	0.063	-	-	0.046	-	-	0.409
HCM Ctrl Dly (s/v)	111.1	34.3	8.4	0	-	9.4	0	-	37.9
HCM Lane LOS	F	D	A	A	-	A	A	-	E
HCM 95th %tile Q(veh)	3.2	1.2	0.2	-	-	0.1	-	-	1.8