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TRANSPORTATION IMPACT ANALYSIS

To
Clark County, Washington

For
MAJ Development Corporation
Rezone at NE 139th Street
and NE 10th Avenue

Submitted
October 3, 2014

Project Number
2130389.08

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Since 1960

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I. EXECUTIVE SUMMARY

Mackenzie presents this Transportation Impact Analysis (TIA) to address the potential impacts to intersections and corridors in the vicinity of the NE 139th Street/NE 10th Avenue intersection most affected by a proposed rezone and comprehensive plan amendment for 20.84 acres located at the intersection's northeast corner. The analysis results are contained within this report.

The site proposed for rezoning is comprised of five contiguous parcels. The two northern parcels containing 8.12 acres are zoned Residential (R-18) and are designated Urban Medium Density Residential (UM) on the Clark County comprehensive plan. The three southern parcels containing 12.72 acres are zoned Light Industrial (IL) and are designated Industrial (I) on the County's comprehensive plan. Figure 2 presents the current parcel configuration. All five parcels are proposed to be zoned Highway Commercial (CH) with comprehensive plan designations of General Commercial (GC).

Future roadway conditions are estimated based on the following inputs:

- September 2014 traffic data collected in the site vicinity, including volumes and travel times along the newly-connected NE 139th Street and its new interchange ramps with Interstate 5.
- Planned roadway improvement projects, including the NE 10th Avenue extension from NE 149th Street to NE 164th Street, but excluding Phase II of the Salmon Creek Interchange Project.
- Anticipated traffic volume increases from approved in-process projects identified in the Clark County TRAFFIX concurrency model.
- Anticipated traffic volume increases from general background growth, calculated from RTC regional transportation models as an average of 2.0% per year.

The selected analysis year is 2035 to match the current MTP for Clark County. Figure 8 presents the 2035 base intersection volumes without the site trips, and Figure 9 presents the anticipated 2035 intersection traffic controls and lane configurations.

Transportation impacts of the proposed rezone are evaluated for the weekday PM peak hour based on the reasonable maximum development density and trip generation potential for both the current and proposed zoning conditions. In both cases, site access is assumed to be available to both NE 10th Avenue (across from NE 141st Street) and NE 16th Avenue (north of the new NE 139th Street overpass).

- Current zoning, with a blend of residential and industrial uses, could generate 462 trips, all of them primary trips due to the land use characteristics. Analysis of the 2035 With Current Zoning scenario conservatively assumes all 462 site trips added to the roadway network; no reductions are made for the site trips generated by the existing land uses. Figure 10 presents the site trips based on current zoning.

- Proposed zoning, with ITE Shopping Center uses assumed at 25% lot coverage, could generate 1,038 trips (353 pass-by trips + 685 primary trips). Analysis of the 2035 With Proposed Zoning scenario adds these trips to the roadway network in place of the 462 trips possible under current zoning. Figure 14 presents the total site trips based on proposed zoning.

The proposed rezone could generate 223 net new (primary) trips over the current zoning. Figure 15 presents the proposed rezone's net trip impact of 576 trips (353 pass-by trips + 223 primary trips) added to the roadway network.

Intersection performance is evaluated for comparison to the WSDOT and Clark County standards based on HCM 2000 methodology or, for roundabouts, HCM 2010 methodology. Findings include:

- The high rate of background growth applied to the 2014 count volumes leads to over-capacity conditions at two study area intersections: NE 139th Street/NE 10th Avenue and NE 134th Street/Interstate 205 Northbound Off Ramp – NE 23rd Avenue.

- In many cases the background growth leads to higher intersection volumes than found in the RTC model projections for 2035, suggesting this TIA presents a more conservative analysis than regional modeling anticipates.

- The proposed rezone does not cause any intersection or lane group to exceed the applicable performance standard. The rezone does exacerbate over-capacity conditions at the two over-capacity intersections noted above.

- Mitigation measures are recommended for the intersections with performance deficiencies in the 2035 With Proposed Zone scenario.

Corridor performance is evaluated for comparison to the Clark County standards based on correlation between travel time measurements and HCM intersection delay. Findings include:

- NE 139th Street travel speeds averaged 21 mph westbound and 20 mph eastbound in 2014.

- With full development under current site zoning, these speeds are estimated to decrease to 15 mph westbound and 19 mph eastbound in 2035.

- With full development with the proposed rezone, these speeds are estimated to decrease to 13 mph westbound and 17 mph eastbound. With the intersection mitigations described below, these speeds are estimated to range between 15 and 17 mph westbound, and between 14 and 15 mph eastbound. In all cases, the 13 mph County minimum is met or exceeded.

Based on the TIA findings, the proposed rezone and comprehensive plan amendment can meet agency standards and/or mitigate its impacts if the following (or similar) mitigation measures are provided:

- Install a westbound right turn lane on NE 139th Street at NE 10th Avenue with an overlap phase.

- Modify the southbound NE 10th Avenue approach to NE 139th Street to provide either:
  - a second southbound left turn lane, or
  - a shared through-left center lane and split phasing with the northbound approach.

- Modify the southbound NE 23rd Avenue approach to NE 134th Street to provide either:
  - a shared left-right lane with the existing exclusive right turn lane, or
  - an overlap phase for the existing right turn lane.

- Install a traffic control device at the site access to NE 10th Avenue, opposite NE 141st Street: either a traffic signal or a roundabout.

II. INTRODUCTION

Site Location

The 20.84-acre site is comprised of five separate parcels in the southwest ¼ of Section 23, Township 3 North, Range 1 East, of the Willamette Meridian. Figure 1 is a vicinity map indicting the subject site location. The following table provides the property data based on the Clark County GIS MapsOnline tool.

TABLE 1 – SUBJECT SITE PARCELS

Owner	Parcel Number	Lot	Address*	Area (acres)	Current Zone	Current Comprehensive Plan
Meyer Clan LLC	185672000	19	13914 NE 16th Avenue	2.95	Light Industrial (IL)	Industrial (I)
T&J Meyer LLC	185700000	54	14002 NE 16th Avenue	5.75	Residential (R-18)	Urban Medium Density Residential (UM)
HAG LLC	185726000	82	14019 NE 10th Avenue	2.37	Residential (R-18)	Urban Medium Density Residential (UM)
T & S Family Properties LLC	185727000	83	13909 NE 10th Avenue	6.82	Light Industrial (IL)	Industrial (I)
Meyer, Thomas F & Jean L	185796000	152	none	2.95	Light Industrial (IL)	Industrial (I)

* All parcels lie within the 98685 ZIP code for Vancouver, Washington

The site is bounded by NE 139th Street to the south, NE 10th Avenue to the west, the Mobile Retreat Residential Community to the north, and the NE 16th Avenue/Interstate 5 right-of-way to the east. Figure 2 presents the current parcel configuration.

Project Description

As noted in the table above, among the five parcels comprising the site, the two northern parcels currently are zoned Residential (R-18) and designated Urban Medium Density Residential (UM) in the comprehensive plan. The three southern parcels along NE 139th Street currently are zoned Light Industrial (IL) and designated Industrial (I) in the comprehensive plan.

The proposed zone for all five parcels is Highway Commercial (CH), and the proposed comprehensive plan designation is General Commercial (GC).

This TIA addresses the impact of the site's increased trip generation potential based on the proposed rezone.

Scope of Analysis

This TIA analyzes the transportation system performance in 2035, the future plan year of the current *Metropolitan Transportation Plan for Clark County* (2011 Update, prepared by Southwest Washington Regional Transportation Council). Two (2) future analysis scenarios both assume full development of the subject site, one (1) with the current zoning and one (1) with the proposed zoning. Weekday PM peak hour analyses are presented for the following scenarios:

- 2035 With Current Zone
- 2035 With Proposed Zone

This TIA addresses Clark County standards for transportation impact studies identified in Clark County Code (CCC) 40.350.020.D. Intersection analyses are presented for the following intersections.

- NE 149th Street/NE 10th Avenue
- NE 141st Street – Site Access/NE 10th Avenue
- NE 139th Street/NE Tenney Road
- NE 139th Street/NE 10th Avenue
- NE 139th Street/Interstate 5 Southbound On Ramp
- NE 139th Street/Interstate 5 Northbound Off Ramp
- NE 139th Street/Interstate 5 Northbound On Ramp
- NE 139th Street/NE 20th Avenue
- NE 136th Street – Driveways/NE 10th Avenue
- NE Tenney Road – NE 134th Street/NE 10th Avenue
- NE 134th Street/Interstate 5 Southbound On Ramp
- NE 134th Street/Interstate 5 Northbound Off Ramp
- NE 134th Street/Interstate 205 Southbound Off Ramp – NE Highway 99
- NE 134th Street/NE 20th Avenue
- NE 134th Street/Interstate 205 Southbound On Ramp
- NE 134th Street/Interstate 205 Northbound Off Ramp – NE 23rd Avenue

The geographic scope of this analysis does not represent the maximum extent possible under CCC 40.350.020.D.5 because this is a long-range planning level exercise rather than a project-specific concurrency analysis. The latter would not analyze 2035 impacts but typically would analyze only a five-year period. In order to better analyze the comparative impacts of the current and proposed zoning for long-range planning purposes, this report analyzes the locations likely to experience the greatest potential impacts from the proposed changes over the course of the twenty year planning horizon.

Travel time/roadway speed analyses are presented for the following corridors of regional significance.

- NE 139th Street, from NE 3rd Court to NE 29th Avenue
- NE Tenney Road – NE 134th Street, from NE 3rd Court to NE 23rd Avenue

As with the intersection study area, the geographic scope of this analysis does not represent the maximum possible extent for concurrency analysis. These corridors are selected for analysis because they are likely to experience the greatest potential impacts from the proposed changes over the course of the twenty year planning horizon.

III. CURRENT ZONING AND ROADWAY CONDITIONS

Recent construction activities have provided a significantly updated interchange from 2010 conditions, including widened roadways; enhanced intersection controls; new sidewalks and curbs; new freeway ramps; a new NE 139th Street overpass crossing the freeways; and a relocated transit park-and-ride facility. Roadways were opened to vehicle traffic in August 2014, and the following review addresses these recently improved conditions.

Site Conditions

The subject site is comprised of five contiguous parcels located at the northeast corner of the NE 139th Street/NE 10th Avenue intersection. Portions of the site are developed to varying degrees:

- Lot 19 is partially developed with a veterinary hospital and associated paved parking.
- Lots 54 and 82 are partially developed with single-family residences and ancillary outbuildings.
- Lot 83 is fully developed as a contractor's yard, shop, and office, plus one (1) single-family residence.
- Lot 152 is entirely undeveloped.

The parcels currently access NE 10th Avenue and NE 16th Avenue.

Intersection Lane Geometry and Signal Timing

Most the study area intersections operate with signal control; exceptions are listed below:

- NE 149th Street/NE 10th Avenue: two-way stop control; minor approach (eastbound NE 149th Street) right turn permitted without stopping
- NE 141st Street – Site Access/NE 10th Avenue: two-way stop control
- NE 139th Street/Interstate 5 Northbound On Ramp: yield control
- NE 136th Street – Driveways/NE 10th Avenue: single-lane roundabout
- NE 134th Street/Interstate 205 Southbound On Ramp: yield control

Figure 3 presents current intersection traffic controls and lane configurations.

Current Traffic Volumes

Turning movement count data were collected at study area intersections during the PM peak period (4:00-6:00 PM) on September 23, 2014. The system peak hour was identified as 4:40 – 5:40 PM for this analysis. Figure 4 presents a summary of the current traffic volumes during the system peak hour. Copies of the data reports are provided in the Appendix.

Trip Generation, Distribution, and Assignment

Overall, the site is under-developed based on current zoning conditions. Trips generated by the current uses (veterinary hospital, single-family residences, and contractor's yard) are included in the current traffic volume counts in their current distribution patterns.

IV. FUTURE VOLUMES AND ROADWAY CONDITIONS

Study area transportation system characteristics, including volumes and intersection/roadway geometry, are estimated as part of the future year conditions analyses. Year 2035 analyses are presented to match the plan year of the regional transportation model and *Metropolitan Transportation Plan for Clark County* (2011 Update) prepared by Southwest Washington RTC.

Future Traffic Volumes

Traffic volume projections for 2035 are estimated with both general long-range increases in traffic volumes, referred to as background growth, and with increases to specific traffic movements from specific approved development projects, referred to as in-process volumes.

Background Growth

Traffic volumes within the study area are estimated to increase at an average annual rate of 2.0%. This growth rate is developed from the RTC regional transportation models, which indicate traffic volumes on nearby roadways will increase, on average, at a compounded rate of approximately 2.0% per year from the base model year (2010) to the future plan year (2035) after in-process trips (see below) are subtracted. The selected 2.0% growth rate, compounded annually, is applied to all intersection movement volumes to calculate the general increases in study area volumes. Figure 5 presents a summary of the background growth volumes. Background growth rate calculations are presented in the Appendix.

In-Process Volumes

Specific traffic volume increases due to nearby site developments that are approved, but not yet fully occupied are defined as in-process traffic for intersection analysis. Clark County uses a TRAFFIX software model to track PM peak hour trips associated with these projects for concurrency purposes. For this TIA the TRAFFIX database was refined to (a) remove the trip assignments for projects complete or expired; (b) reduce proportionally the trip assignments for projects partially complete; and (c) confirm incomplete or unoccupied developments. The remaining in-process trip assignments were added to the analysis volumes. The trip assignments for the recently approved Salmon Creek Retail project (FSR2014-00005) were also added to the in-process volumes because it is not included in the concurrency model.

Figure 6 presents a summary of the applicable in-process volumes.

Planned Improvements

Planned improvements to the study area transportation system are identified in Appendix B of the RTC *Metropolitan Transportation Plan*, 2011 Update, and in the Clark County *2014-2019 Transportation Improvement Program (TIP)*. Specifically:

- RTC Tables B-3 and B-4 identify projects fully funded for completion in the near term.
- RTC Tables B-5 and B-6 identify projects programmed (regardless of funding) for completion within the planning horizon, i.e., by 2035.
- The County TIP identifies project status and funding levels.

The following table identifies the projects within the study area and indicates whether or not they were included in the 2035 analysis scenarios.

TABLE 2 – PLANNED IMPROVEMENTS BY 2035

Facility	Cross Streets	Project Description	Jurisdiction/ Agency	Project Notes	How Addressed in this Analysis
I-5	The Salmon Creek Interchange Project (SCIP) at 134th/139th Streets	Construct NE 139th St. from NE 20th Ave. to NE 10th Ave. Reconstruct interchange with ramps added at 139th St. Add auxiliary lanes on I-5 from 134th St. to 179th St. Improve NE 10th Ave. from 134th to 149th St. with turn lanes.	WSDOT & Clark County	This project is nearly complete. The new roadways opened to vehicle traffic on August 27, 2014.	This project is fully addressed in this TIA.
I-5 / I-205	Salmon Creek Interchange Project (SCIP) Phase II	Improve access to I-205 with flyover from 134th St to I-205 southbound.	WSDOT	County staff indicated while programmed, may not carry forward the specific elements anticipated in early design phases. No funds or schedule are identified for the project.	Given the uncertainty surrounding the essential project elements, this project is not addressed in this TIA.
NE 10th Avenue	NE 141st Street to NE 149th Street	Improve to provide one lane in each direction, with continuous center turn lane, bike lanes, and sidewalks.	Clark County	This project is complete.	This project is fully addressed in this TIA.
NE 10th Avenue	NE 149th Street to NE 154th Street	Improve to provide one lane in each direction, with continuous center turn lane, bike lanes, and sidewalks.	Clark County	Funding is less than 5% complete. Design is at 50%.	This project is fully addressed in this TIA.
NE 10th Avenue	NE 154th Street to NE 164th Street	Improve to provide one lane in each direction, with continuous center turn lane, bike lanes, and sidewalks. Construct new bridge.	Clark County	This project will connect NE 10th Ave. across Whipple Creek. Funding is approximately 95% complete. Design and permitting are underway. Construction could begin in 2017.	This project is fully addressed in this TIA.

As noted in the table, the projects improving and extending NE 10th Avenue from NE 141st Street to NE 164th Street are addressed and included in this TIA, while Phase II of the SCIP is not due to the uncertainty surrounding its essential design elements.

Traffic Volume Adjustments

The NE 10th Avenue extension project noted above will complete a north-south roadway link parallel to Interstate 5 between the interchanges at NE 134th/139th Streets and NE 179th Street. It is anticipated some drivers would choose NE 10th Avenue where currently they choose Interstate 5, and some drivers traveling to and from the north on I-5 would use the 179th Street interchange instead of the Salmon Creek interchange. The 2035 future intersection volumes are adjusted based on the RTC model volume splits between NE 10th Avenue and Interstate 5. Figure 7 presents a summary of the traffic volume adjustments resulting from planned future improvements.

Figure 8 presents the 2035 base intersection volumes or the sum of current volumes, background growth volumes, in-process volumes, and traffic volume adjustments for planned improvements. Site trips are added to these base volumes for the current zoning and proposed zoning, respectively, to generate the 2035 analysis scenarios.

Intersection Lane Geometry and Signal Timing

Following the planned improvements identified above, most the study area intersections will operate with signal control in 2035; exceptions are listed below.

- ***NE 149th Street/NE 10th Avenue:*** two-way stop control; southbound stop on NE 10th Avenue removed; eastbound right-turn permitted without stopping also removed
- ***NE 141st Street – Site Access/NE 10th Avenue:*** two-way stop control
- ***NE 139th Street/Interstate 5 Northbound On Ramp:*** yield control
- ***NE 136th Street – Driveways/NE 10th Avenue:*** single-lane roundabout
- ***NE 134th Street/Interstate 205 Southbound on Ramp:*** yield control (Note: this intersection could be converted, removed, or relocated with the SCIP Phase II project)

Figure 9 presents future intersection traffic controls and lane configurations.

Site Conditions

For 2035 With Current Zone analysis, a reasonable maximum development density and trip generation potential are estimated for the subject site under current zoning conditions. Based on the prior consultants' efforts, industrial park uses (at 25% lot coverage) are assumed for the three parcels (12.92 acres) zoned Light Industrial (IL), and residential apartment uses (at 18 units per acre) are assumed for the two parcels (8.12 acres) zoned Residential (R-18). For purposes of this analysis it is assumed the developments would share accesses to NE 10th Avenue and NE 16th Avenue.

Trip Generation, Distribution, and Assignment

As part of a prior rezone application (Clark County Case File No. CPZ2008-00022), Hopper Dennis Jellison (HDJ) evaluated the site's maximum trip generation potential based on current zoning conditions. The application received County approval contingent upon the site generating no more trips with the rezone than would be generated by development(s) under current zoning. As identified in Condition 2a of the November 18, 2008, draft Concomitant Rezone Agreement, the site could generate up to 462 trips during the weekday PM peak hour under current zoning.

The residential and light industrial land uses allowed under the current zoning generate only primary trips; pass-by trips are not assumed for either industrial or residential uses. Thus the 462 trips projected with the current zoning are assumed to be the net new site trips to the transportation system for the current zoning. Based on the relative areas of the current zones and the trip characteristics of each zone, entering trips are estimated to represent approximately 34% of the total trips or 157 trips, and exiting trips are estimated to represent approximately 66% of the total trips or 305 trips, during the weekday PM peak hour.

As a conservative estimate, all 462 site trips are added to the future roadway network. No reductions are made for the current site trips generated by the existing land uses.

For this analysis, volumes at the study area intersections are estimated based on the following distribution, based on the select zone assignment patterns for TAZ 95 in the 2035 RTC model:

- 11% to/from NE 10th Avenue north of NE 149th Street
- 11% to/from NE 149th Street west of NE 10th Avenue
- 6% to/from NE 139th Street west of NE Tenney Road
- 22% to/from Interstate 5 south (16% via NE 139th Street + 6% via NE 134th Street)
- 8% to/from NE Highway 99 south of NE 134th Street
- 18% to/from Interstate 205 south via NE 134th Street
- 0% to/from NE 134th Street east of NE 23rd Avenue
- 7% to/from NE 139th Street east of NE 20th Avenue
- 2% to/from NE 20th Avenue north of NE 139th Street
- 15% to/from Interstate 5 north of NE 139th Street

Figure 10 presents the site trip distribution patterns and assignments based on the site's current zoning. RTC model outputs are provided in the Appendix.

Current Zone Future Analysis Scenario

Traffic volumes for the 2035 With Current Zone analysis scenario represent the sum of current volumes, background growth volumes, in-process volumes, and traffic volume adjustments for planned improvements, plus 462 site trips at the site access intersections. Figure 11 presents the 2035 With Current Zone traffic volumes during the weekday PM peak hour.

V. PROPOSED ZONING CONDITIONS

The proposed rezone is anticipated to increase the site's maximum trip generation potential based on the allowed development densities and the typical traffic characteristics of the assumed land uses. The following discussion reviews the potential changes.

Site Conditions

For 2035 With Proposed Zone analysis, a reasonable maximum development density and trip generation potential are assumed for the subject site under the proposed zoning. Based on our experience with similar development projects, general retail uses at 25% lot coverage are assumed for the five parcels (20.84 acres) zoned Highway Commercial (CH). This maximum development is assumed to include a variety of sizes and types of retail tenants housed in several buildings. This development pattern accommodates tenant flexibility without giving way to "big box" developments (any one retailer occupying over 100,000 SF of floor area) prohibited in Condition 2b of the November 18, 2008, draft Concomitant Rezone Agreement. It is further assumed the development would access NE 10th Avenue and NE 16th Avenue, consistent with the current zone assumptions. These assumptions seem reasonable given the proposed contiguous commercial zoning and the potential for unified site development patterns.

Rezone Site Trips

Trip Generation

The maximum trip generation with proposed zoning is calculated based on the development assumptions described above in the Site Conditions section. For the proposed Highway Commercial (CH) zone, trip generation characteristics are calculated based on Land Use Code 820 – Shopping Center in the Institute of Transportation Engineers' (ITE) *Trip Generation Manual*, 9th Edition (2012). This land use category covers a wide variety of possible retail uses and sizes. The following table presents a summary of the proposed trip generation characteristics.

TABLE 3 – PROPOSED TRIP GENERATION – WEEKDAY PM PEAK HOUR

Zone Designation	Site Area	Lot Coverage	Total Floor Area	Land Use (ITE Code)	Trip Equation	Trips
Highway Commercial (CH)	20.84 acres	0.25	227,000 SF	Shopping Center (820)	Ln(T) = 0.67 * Ln(X) + 3.31	1,038

Trip Types

The calculations in the above table address total site trips, including all external trip types: pass-by, diverted linked, and primary trips (the Shopping Center land use model inherently accounts for internal trips between individual retail users, so no reductions are made for internal/shared trips). For purposes of this analysis, the following apply.

- Pass-by trips are drawn from traffic flows on NE 10th Avenue and NE 139th Street. Trip distribution patterns are addressed below.

- Diverted linked trips could be drawn from traffic flows on Tenney Road-NE 134th Street, Highway 99-NE 20th Avenue, Interstate 5, and/or Interstate 205. Given the study area for this TIA, diverted linked trip movements could appear similar to those of primary trips. For simplicity, diverted linked trips are modeled as primary trips.
- Primary trips are drawn from origins outside the study area. Trip distribution patterns are addressed below.

Table F.9 in the ITE *Trip Generation Handbook*, 3rd Edition (2014), indicates pass-by trips at a Shopping Center use comprise approximately 34% of external site trips during the weekday PM peak hour. In this calculation, ITE refers to diverted linked trips and primary trips together as "non-pass-by" trips. As noted above, for this TIA, all non-pass-by trips are treated the same as primary trips. The following table provides a summary of the trip types under the proposed zone.

TABLE 4 – PROPOSED TRIP GENERATION TYPES – WEEKDAY PM PEAK HOUR

Zone Designation	Land Use (ITE Code)	Trips		
		Total	Pass-By (ITE rate)	Non-Pass-By/Primary (ITE rate)
Highway Commercial (CH)	Shopping Center (820)	1,038	353 (34%)	685 (66%)

Net Trip Impact

The numeric trip impact of the proposed rezone is evaluated as the net increase in trip generation potential from the current zoning to the proposed zone. The maximum trip generation with current zoning, as noted above in the Future Volumes and Roadway Conditions section, is 462 trips during the weekday PM peak hour. The residential and light industrial land uses allowed under the current site zoning generate only primary trips, so all 462 trips are assumed to be primary trips.

The retail uses allowed under the proposed zoning are anticipated to generate 353 pass-by trips in addition to 685 primary trips.

The following table presents a summary of the net trip generation calculations, accounting separately for each trip type.

TABLE 5 – NET TRIP GENERATION – WEEKDAY PM PEAK HOUR

Zone Designation	Trips		
	Total	Pass-By	Primary
Proposed: Highway Commercial (CH)	1,038	353	685
Current: Light Industrial (IL) & Residential (R-18)	462	n/a	462
Net Total Trips	**576**	**353**	**223**

The proposed rezone is anticipated to generate 576 more total weekday PM peak hour trips than allowed under current zoning. These include 353 pass-by trips and 223 primary trips. Note that although the primary trips are treated as equivalent between the current and proposed zoning conditions,

primary trips to/from industrial and residential uses tend to be of greater length than those to/from retail uses. Thus, although the retail uses may generate a greater number of trips, the trips tend to be shorter and generate less system impact than industrial or residential trips.

Trip Distribution and Assignment

For a Shopping Center land use, ITE indicates 48% of trips enter a site and 52% exit a site during the weekday PM peak hour. Further trip distribution is addressed separately according to trip type.

Pass-By Trips

The pass-by trips are distributed based on the proportions of traffic traveling in each direction through the NE 139th Street/NE 10th Avenue intersection, as indicated in the September 2014 counts.

The weekday PM peak hour trip distributions are estimated as follows:

- 28% from eastbound NE 139th Street
- 34% from westbound NE 139th Street
- 18% from northbound NE 10th Avenue
- 20% from southbound NE 10th Avenue

Figure 12 presents the pass-by trip distributions and assignments for the weekday PM peak hour. Negative values identify movements from which trips have been rerouted.

Primary Trips

The distribution pattern for the net primary trips is estimated based on the select zone assignment patterns for TAZ 90 and TAZ 236 in the 2035 RTC regional transportation model. Both zones encompass existing retail sites various tenant types and sizes; consequently, they are anticipated to exhibit trip distribution characteristics more in keeping with the proposed commercial site zoning and modeled retail uses than would the characteristics of the current industrial site zoning or its subject select zone (TAZ 95) in the 2035 RTC model. RTC model outputs are provided in the Appendix.

The resulting trip distribution pattern is as follows.

- 4% to/from NE 10th Avenue north of NE 149th Street
- 4% to/from NE 149th Street west of NE 10th Avenue
- 15% to/from NE 139th Street west of NE Tenney Road
- 22% to/from Interstate 5 south (15% via NE 139th Street + 7% via NE 134th Street)
- 10% to/from NE Highway 99 south of NE 134th Street
- 15% to/from Interstate 205 south via NE 134th Street
- 5% to/from NE 134th Street east of NE 23rd Avenue
- 7% to/from NE 139th Street east of NE 20th Avenue
- 8% to/from NE 20th Avenue north of NE 139th Street
- 10% to/from Interstate 5 north of NE 139th Street

The above distribution pattern is applied to the 685 primary trips to estimate the primary trip assignment. Figure 13 presents the primary site trip distribution patterns and assignments throughout the study area.

Total Trips

Figure 14 presents the total rezone site trips or the sum of pass-by and primary trips. Figure 15 presents the net trip impact resulting from the rezone or the difference between the proposed zone trips and the current zone trips.

Proposed Zone Future Analysis Scenario

Traffic volumes for the 2035 With Proposed Zone analysis scenario represent the sum of current volumes, background growth volumes, in-process volumes, and traffic volume adjustments for planned improvements, plus the site trips for the proposed zone. Figure 16 presents the 2035 With Proposed Zone traffic volumes during the weekday PM peak hour.

VI. INTERSECTION PERFORMANCE ANALYSIS

Intersection analyses are presented for the weekday PM peak hour under the following two scenarios.

- 2035 With Current Zone
- 2035 With Proposed Zone

Methodology, Assumptions, and Inputs

Intersection operations analyses are presented for the weekday PM peak hour according to the Transportation Research Board's *Highway Capacity Manual*, 2000 Edition (HCM 2000), methodologies for signalized and unsignalized intersections, and according to the HCM 2010 Edition for roundabouts. Trafficware's Synchro software, Version 8, was used to implement the HCM methodologies and to report the results.

The following assumptions are input to the analysis models.

Peak hour factors (PHF) are applied by intersection as the greater of 2014 existing values or

- 0.95 for freeway ramps, principal arterials (Highway 99) minor arterials (NE 139th Street, NE 134th Street, NE 20th Avenue)
- 0.92 for collector arterials (NE 149th Street, NE 10th Avenue)

Heavy vehicle percentages are applied by movement as the greater of 2014 existing values or 2%.

Traffic signals in the study area are owned and maintained by Clark County. Copies of the current signal plans and timings were obtained from County staff to inform the basic signal inputs to the analyses. The current signal timing parameters were input to the base Synchro model, and were refined to provide simplified assumptions for this long-range analysis. Coordinated timing plans and offsets were optimized for both 2035 scenarios. The optimization yielded 150-second cycles (and some 75-second half-cycles) for the 2035 With Current Zone scenario and 154-second cycles (and some 77-second half-cycles) for the 2035 with Proposed Zone scenario.

Performance Standards

HCM generally assesses intersection capacity characteristics by three measures of effectiveness (MOEs): volume-to-capacity (v/c) ratio, level of service (LOS), and control delay per vehicle (delay). The applicable performance standards are as follows.

- For ramp terminal intersections subject to Washington State Department of Transportation (WSDOT) jurisdiction: the level of service (LOS) standard for state highways of regional significance (HSS) in urban portions of Clark County is "D."
- For all other intersections subject to Clark County jurisdiction.
    - CCC 40.350.020.G.b provides "Within the designated transportation corridors, individual movements at each signalized intersection of regional significance shall not exceed an average of two (2) cycle lengths or two hundred forty (240) seconds of delay (whichever is less)."

- CCC 40.350.020.G.c provides "Outside of designated transportation corridors, all signalized intersections of regional significance shall achieve LOS D standards or better…."
- CCC 40.350.020.G.d provides "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." Based on conversations with County staff, this standard is understood to apply at the NE 136th Street-Driveways/NE 10th Avenue roundabout intersection.

Analysis Results

The following table presents the intersection performance analysis results. The intersection numbers correspond with those found on the figures and on the Synchro reports. The reported results are determined by intersection control as follows.

- At signalized study area intersections, the v/c ratio, LOS, and delay are reported for the overall intersection. Additionally, the highest delayed lane group is reported for comparison to Clark County's delay standards.
- At unsignalized intersections the v/c ratio, LOS, and delay are reported for the critical lane.
- At roundabouts the LOS and delay are reported for the overall intersection. Additionally, the v/c ratio, LOS, and delay are reported for the critical approach.

The Synchro reports are provided in the Appendix.

TABLE 6 – 2035 INTERSECTION CAPACITY ANALYSIS – WEEKDAY PM PEAK HOUR

Intersection		Intersection Lane Group	Applicable Standard	With Current Zoning	With Proposed Zoning
1	NE 139th Street / NE Tenney Road	Intersection	n/a	0.61-B-14.9	0.62-B-16.1
		EB Th	<150	21.8 sec/veh	22.0 sec/veh
2	NE 139th Street / NE 10th Avenue	Intersection	n/a	**1.02-E-70.1**	**1.19-F-114.0**
		EB Lt	<240	120.0 sec/veh	212.5 sec/veh
3	NE 139th Street / I-5 SB On-Ramp	Intersection	LOS D	0.44-A-9.6	0.49-B-11.7
		WB Lt	<240	62.7 sec/veh	80.2 sec/veh
4	NE 139th Street / I-5 NB Off-Ramp	Intersection	LOS D	0.59-C-28.9	0.62-C-23.1
		NB Lt	<240	47.6 sec/veh	47.5 sec/veh
5	NE 139th Street / I-5 NB On-Ramp	EB Lt	LOS D	**0.74-E-39.6**	**0.76-E-43.0**
6	NE 139th Street / NE 20th Avenue	Intersection	n/a	0.80-D-50.2	0.82-D-52.7
		SB Lt	<240	82.4 sec/veh	83.5 sec/veh

TABLE 6 – 2035 INTERSECTION CAPACITY ANALYSIS – WEEKDAY PM PEAK HOUR					
Intersection		Intersection Lane Group	Applicable Standard	With Current Zoning	With Proposed Zoning
7	NE 136th Street-Fred Meyer Driveway / NE Tenney Road	Intersection	n/a	0.59-B-13.7	0.58-B-18.8
		EB Lt	<150	54.1 sec/veh	55.0 sec/veh
8	NE Tenney Road-NE 134th Street / NE 10th Avenue	Intersection	n/a	0.83-C-20.1	0.74-C-25.1
		SB Lt-Rt	<150	40.5 sec/veh	76.2 sec/veh
9	NE 134th Street / I-5 SB On-Ramp	Intersection	LOS D	0.67-B-13.4	0.67-B-10.9
		WB Lt	<240	54.7 sec/veh	57.8 sec/veh
10	NE 134th Street / I-5 NB Off-Ramp	Intersection	LOS D	0.77-C-24.1	0.78-C-25.3
		NB Rt	<240	75.2 sec/veh	77.0 sec/veh
11	NE 134th Street / I-205 SB Off-Ramp-NE Highway 99	Intersection	LOS D	0.56-B-19.3	0.57-B-19.6
		SB Th	<240	93.0 sec/veh	94.7 sec/veh
12	NE 134th Street / NE 20th Avenue	Intersection	n/a	0.97-E-55.7	0.97-D-54.8
		NB Lt	<240	110.1 sec/veh	106.1 sec/veh
13	NE 134th Street / I-205 SB On-Ramp	WB Lt	LOS D	0.88-D-30.3	0.90-D-32.7
14	NE 134th Street / I-205 NB Off-Ramp-NE 23rd Avenue	Intersection	LOS D	**1.17-F-108.0**	**1.18-F-110.9**
		SB Rt	<240	**202.4 sec/veh**	**205.2 sec/veh**
15	NE 149th Street / NE 10th Avenue	EB Lt	LOS E	0.39-B-14.7	0.39-B-14.2
16	NE 141st Street-Site Access / NE 10th Avenue	WB Lt	LOS D*	**1.36-F-249.7**	**3.36-F-Error**
17	NE 136th Street-Driveways / NE 10th Avenue	Intersection	LOS E	n/a-B-10.3	n/a-B-11.1
		SB		0.60-B-12.4	0.62-B-13.2

Note: Results are reported as v/c-LOS-Delay. Results formatted in **BOLD** font either exceed the applicable standard or exceed available capacity.

* The high volume of minor approach traffic meets traffic signal warrants, so this intersection is subject to a LOS D standard. Signal warrant charts are provided in the Appendix.

As presented in the above table, performance results at four study area intersections exceed the applicable standard or the available capacity. Mitigation measures for three of these locations are addressed below in the Mitigation section. Mitigation measures not recommended at the NE 139th Street/Interstate 5 Northbound On Ramp intersection because the rezone has only a minor impact on critical delay, because the intersection was recently improved, because the conflicting westbound analysis volumes are higher than projected in the RTC model, and because few mitigation measures are likely available.

VII. CORRIDOR PERFORMANCE ANALYSIS

Study area corridor analyses are presented for the weekday PM peak hour under the following three scenarios:

1. 2014 Existing Conditions (for reference)
2. 2035 With Current Zone
3. 2035 With Proposed Zone

Methodology, Assumptions, and Inputs

Corridor travel time/roadway speed analyses are presented for the weekday PM peak hour as correlated calculations associated to the movement delay at the intermediate intersections. Travel time/roadway speed measurements were collected for the new NE 139th Street corridor to form the basis of this analysis.

Performance Standards

CCC Table 40.350.020-1 provides the applicable minimum performance standards as follows.

- NW/NE 139th Street – Tenney Road – NE 134th Street, from Seward Road to I-5: 17 mph
- NE 134th Street – Salmon Creek Avenue, from I-5 to Ne 50th Avenue: 13 mph

The NE 139th Street corridor was recently connected between NE 10th Avenue and NE 20th Avenue. Clark County has not adopted standards for this new segment, but they are assumed to match those previously adopted and noted above for the NW/NE 139th Street-Tenney Road-NE 134th Street-Salmon Creek Avenue corridor.

Analysis Results

Travel time runs on the new NE 139th Street corridor between NE 3rd Court and NE 29th Avenue were conducted the same day as counts at the study area intersections. The average travel times were found to be 3 minutes 47 seconds westbound, and 3 minutes 52 seconds eastbound. Based on the distance between the reference points, if traffic were flowing freely at the posted 35 mph speed limit, the travel time would be approximately 2 minutes 13 seconds. Instead, based on the average travel times observed, the average travel speeds were calculated as 21 mph westbound, and 20 mph eastbound during the PM peak hour. The travel time data are provided in the Appendix.

These existing roadway speed results were correlated with the average lane group delay (calculated according to HCM 2000 methodology) at study area intersections along the NE 139th Street corridor under existing conditions. Synchro reports are provided in the Appendix. For westbound travel, the existing lane group delays sum to 1 minute 34 seconds; for eastbound travel they sum to 1 minute 57 seconds. The following table presents the existing average travel times and corresponding lane group delays for each intersection.

TABLE 7 - EXISTING CORRIDOR TRAVEL TIME AND LANE GROUP DELAY								
Direction	Average Travel Time	Average Speed	Signalized Lane Group Delay (seconds per vehicle)					
			Tenney	10th Ave	I-5 SB	I-5 NB	20th Ave	Total
Westbound	227 sec	21 mph	47.8	11.3	0.1	9.0	25.9	94.1
Eastbound	232 sec	20 mph	62.9	13.6	2.4	13.8	24.2	116.9

Delays for the 2035 With Current Zone scenario are estimated to total 170 seconds westbound and 114 seconds eastbound, corresponding to travel speeds of 15 mph and 19 mph, respectively.

Delays for the 2035 With Proposed Zone scenario are estimated to total 231 seconds westbound and 138 seconds eastbound, corresponding to travel speeds of 13 mph and 17 mph, respectively. These values meet the travel speed minimum standard of 13 mph, so no mitigation is recommended.

With the intersection mitigations recommended at NE 10th Avenue, corridor travel speeds are estimated to range between 15 and 17 mph westbound and between 14 and 15 mph eastbound. Again, these values exceed the travel speed minimum of 13 mph, so no mitigation is recommended.

VIII. MITIGATION

Three intersections are identified above as having correctable performance deficiencies. The following discussion addresses possible mitigation measures at these locations and offers recommendations. The goal of the mitigation measures, at a minimum, is to restore 2035 With Proposed Zone intersection operations to performance levels equal or better than those in the 2035 With Current Zone scenario. In this way, the proposed rezone can be shown to have no adverse effect as compared to current zone conditions. Synchro reports with the mitigation measures in place are provided in the Appendix.

NE 139th Street/NE 10th Avenue

In the 2035 With Current Zone scenario volumes are anticipated to exceed the overall intersection capacity, and three lane groups are also anticipated to exceed their available capacity. With the additional volume added in the 2035 With Proposed Zone scenario these conditions are anticipated to degrade, and one additional lane group is anticipated to exceed its available capacity. Note, however, in neither scenario is any lane group anticipated to exceed the Clark County maximum of 240 seconds of delay per vehicle.

Mitigation is recommended to address two over-capacity movements where site trips in general, and the proposed rezone trips in particular are anticipated to add significant volumes: the westbound right and the southbound left. First, it is recommended to provide an exclusive westbound right turn lane with an overlap signal phase. With right turn movements comprising 45% (With Current Zone) to 54% (With Proposed Zone) of the lane group volume, the right-hand lane is likely to operate as a *de facto* right turn lane already. Providing a dedicated right turn lane would extract the right turn movements from the through lanes, and provide reserve capacity to the through movements. The overlap signal phase would match the phasing of the two existing right turn lanes at the intersection, and would complement the heavy southbound left turn volume.

Second, it is recommended to provide a second lane for southbound left turn movements; either in a second exclusive southbound left turn lane (with the current protected signal phase) or in a shared southbound left-through lane (converted from the current exclusive southbound through lane). With the latter option, the signal would be modified to convert the northbound and southbound intersection approaches to split phasing. Either measure would provide reserve capacity to the southbound left movement.

In combination, the exclusive westbound right turn lane (with overlap phase) and the second southbound left turn lane (either as a second exclusive lane or as a shared left-through lane) would allow the intersection to operate within its available capacity. Additional right-of-way for the additional lanes could be obtained by dedications from the rezone site frontage. The following table presents a summary of the HCM results, as reported by Synchro, for the mitigations.

TABLE 8 – NE 139TH STREET/NE 10TH AVENUE MITIGATION EVALUATION				
Intersection		With Proposed Zoning		
Lane Group	With Current Zoning	Without Mitigation	With WB RT & 2 SB LT Lanes	With WB RT & Shared SB LT-TH & Split Phasing
Intersection	**1.02-E-70.1**	**1.19-F-114.0**	0.86-D-51.9	0.95-E-65.6
EB Lt	**1.03-F-120.0**	**1.30-F-212.5**	0.95-F-84.2	0.98-F-94.2
WB Th	**1.04-E-78.4**	**1.18-F-137.4**	0.68-D-54.9	0.93-F-81.9
WB Rt			0.80-D-41.7	0.80-D-39.6
NB Th	0.92-F-93.8	**1.01-F-117.3**	0.92-F-88.5	0.98-F-105.4
SB Lt	**1.06-F-117.6**	**1.27-F-195.5**	0.70-E-56.5	0.92-E-74.0
SB Th	0.59-D-41.1	0.60-D-41.4	0.59-D-41.1	0.91-E-71.2

Note: Results are reported as v/c-LOS-Delay. Results formatted in **BOLD** font either exceed the applicable standard or exceed available capacity.

Based on the results, the second exclusive southbound left turn lane would provide greater benefits to both the lane group and to the overall intersection.

NE 134th Street/Interstate 205 Northbound Off Ramp – NE 23rd Avenue

In the 2035 With Current Zone scenario intersection delay is anticipated to exceed the LOS F threshold, exceeding the WSDOT LOS D standard; furthermore, volumes are anticipated to exceed the overall intersection capacity, with four lane groups anticipated to exceed their available capacity, and one lane group is anticipated to exceed the Clark County maximum of 240 seconds of delay per vehicle. With the additional volume added in the 2035 With Proposed Zone scenario these conditions are anticipated to continue or to degrade.

At this intersection it is relevant to note the intersection analyses presented in this TIA conservatively overestimate 2035 traffic volume. In this location, for example, the total intersection volume estimated in the 2035 With Current Zone scenario is 33% higher than projected in the RTC regional transportation model. It is unlikely volumes will grow by 2% per year for the next 21 years in their current intersection movement patterns. With that said, mitigation of the proposed rezone's impacts, as analyzed, may be straightforward. Two options are presented below.

Nearly 90% of vehicles approaching the intersection southbound are anticipated to make a right turn movement from the existing exclusive lane. However, this lane group is anticipated to exceed the Clark County maximum of 240 seconds of delay per vehicle. It is recommended to provide additional capacity to the southbound right turn movement, either by implementation of a signal overlap phase or by restriping the existing underutilized southbound left turn lane to a shared left-right lane. The shared lane configuration is accommodated by the existing split signal phasing for northbound and southbound approaches.

While the options presented would not restore full operating capacity to the intersection or to over-capacity lane groups, either method of adding southbound right turn capacity would effectively mitigate

the proposed rezone's impacts. The following table presents a summary of the HCM results, as reported by Synchro, for the mitigations.

TABLE 9 - NE 134TH STREET/I-205 NORTHBOUND OFF RAMP NE 23RD AVENUE MITIGATION EVALUATION				
Intersection		With Proposed Zoning		
Lane Group	With Current Zoning	Without Mitigation	With SB RT Overlap	With Shared SB LT-RT Lane
Intersection	**1.17-F-108.0**	**1.18-F-110.9**	**1.14-F-94.3**	**1.01-E-72.5**
EB Lt	**1.15-F-164.7**	**1.17-F-174.2**	**0.97-F-103.41**	**0.97-F-102.81**
WB Th-Rt	**1.07-F-105.9**	**1.10-F-115.4**	**1.10-F-118.7**	**1.04-F-95.7**
NB Lt	**1.19-F-149.5**	**1.19-F-150.1**	**1.08-F-102.3**	**1.01-E-79.8**
SB Lt	0.16-D-47.4	0.16-D-48.5	0.20-D-53.6	**0.96-F-114.11**
SB Rt	**1.27-F-202.4**	**1.28-F-205.2**	**1.26-F-193.9**	**0.93-F-108.51**

Note: Results are reported as v/c-LOS-Delay. Results formatted in **BOLD** font either exceed the applicable standard or exceed available capacity.

Based on the results, the shared southbound left-right lane would provide greater benefits to both the lane group and to the overall intersection.

NE 141st Street – Site Access/NE 10th Avenue

In the 2035 With Current Zone scenario the westbound left turn lane is anticipated to exceed its available capacity, and delay is anticipated to exceed the LOS F threshold. The westbound minor approach volume meets traffic signal warrant minimums, so the applicable Clark County standard is LOS D (traffic signal warrant charts are provided in the Appendix). With the additional volume added in the 2035 With Proposed Zone scenario these conditions are anticipated to degrade significantly. The need for enhanced traffic control at this location is clear.

The heaviest volumes at this intersection are anticipated on the northbound and southbound through movements, and on the westbound left turn movement. It is recommended to install either a traffic signal or a roundabout to control the traffic flows. Either control measure could operate within performance standards with certain provisions, for example if certain auxiliary lanes are provided to accommodate high volume movements. Both control measures would demand a great deal of refinement before a final layout could be confirmed; the analyses presented in this TIA serve only as examples of feasible configurations. With either a signal or a roundabout, additional right-of-way could be obtained by dedications from the rezone site frontage. The following table presents a summary of the HCM results, as reported by Synchro, for the mitigations.

TABLE 10 – NE 141ST STREET-SITE ACCESS / NE 10TH AVENUE MITIGATION EVALUATION				
Intersection		With Proposed Zoning		
Lane Group	With Current Zoning	Without Mitigation	With Signal	With Roundabout
Intersection	n/a	n/a	0.83-C-28.6	n/a-C-16.8
EB Lt-Th-Rt	0.14-C-20.3	0.14-C-20.5	0.02-D-40.7	0.10-B-10.1
WB Lt	1.36-F-249.7	3.36-F-Error	0.86-D-54.0	0.64-C-24.6
WB Lt-Th-Rt	0.24-C-20.5 (Th-Rt)	0.27-C-24.8 (Th-Rt)	0.60-C-34.5	0.57-C-21.2
NB Lt	0.05-A-9.9	0.04-A-9.8	0.95-F-167.1	0.86-C-24.3
NB Th	(free)	(free)	0.86-C-24.6	
NB Rt			0.32-B-11.5	(free)
SB Lt	0.06-B-11.0	0.13-B-13.9	0.82-F-89.0	0.57-B-13.6 (Lt-Th)
SB Th-Rt	(free)	(free)	0.82-C-21.0	0.62-C-15.1

Note: Results are reported as v/c-LOS-Delay. Results formatted in **BOLD** font either exceed the applicable standard or exceed available capacity.

Based on the Synchro models, either a traffic signal or a roundabout could mitigate the proposed rezone's impacts and could operate within performance standards. Important considerations in refining either configuration would include lane assignments, lane alignments, queuing, and compatibility with the mitigation measures implemented at the nearby NE 139th Street/NE 10th Avenue signalized intersection. Given the preliminary nature of this analysis, and the consideration of a reasonable worst case trip generation scenario, the actual mitigation measure should be determined at the time of a development application.

Corridor Travel Speeds

With the proposed mitigation measures noted above for the NE 139th Street/NE 10th Avenue intersection, the corridor travel speeds would range between 15 and 17 mph westbound and between 14 and 15 mph eastbound. These speeds exceed the County's minimum threshold of 13 mph for concurrency corridors.

IX. SUMMARY AND RECOMMENDATIONS

This TIA supports the proposed rezone and comprehensive plan amendment for 20.84 acres located at the northeast corner of the NE 139th Street/NE 10th Avenue intersection. The site is comprised of five contiguous parcels; the two northern parcels covering 8.12 acres are zoned Residential (R-18) and designated Urban Medium Density Residential (UM); and the three southern parcels covering 12.72 acres are zoned Light Industrial (IL) and designated Industrial (I). Figure 2 presents the current parcel configuration. All five parcels are proposed to be zoned Highway Commercial (CH) and designated General Commercial (GC).

Future roadway traffic volumes were estimated by adding in-process traffic, background growth and rerouted traffic for the NE 10th Avenue extension to existing traffic counts from September 2014. In general, these estimates for 2035 conditions exceed the volumes presented in RTC's 2035 model, especially at NE 134th Street east of NE 20th Avenue.

Transportation impacts of the proposed rezone are evaluated for the weekday PM peak hour based on the reasonable maximum development density and trip generation potential for both the current and proposed zoning conditions.

- Current zoning, with a blend of residential and industrial uses, could generate up to 462 trips, all of them primary trips due to the land use characteristics. Analysis of the 2035 With Current Zoning scenario conservatively assumes all 462 site trips added to the roadway network; no reductions are made for the site trips generated by the existing land uses. Figure 10 presents the site trips based on current zoning.

- Proposed zoning, with ITE Shopping Center uses assumed at 25% lot coverage, could generate up to 1,038 trips (353 pass-by trips + 685 primary trips). Analysis of the 2035 With Proposed Zoning scenario adds these trips to the roadway network in place of the 462 trips possible under current zoning. Figure 14 presents the total site trips based on proposed zoning.

Intersection performance is evaluated for comparison to the WSDOT and Clark County standards based on HCM 2000 methodology or, for roundabouts, HCM 2010 methodology. Findings include:

- The high rate of background growth applied to the 2014 count volumes leads to over-capacity conditions at two study area intersections: NE 139th Street/NE 10th Avenue and NE 134th Street/Interstate 205 Northbound Off Ramp – NE 23rd Avenue.

- In many cases the background growth leads to higher intersection volumes than found in the RTC model projections for 2035, suggesting this TIA presents a more conservative analysis than regional modeling anticipates.

- The proposed rezone does not cause any intersection or lane group to exceed the applicable performance standard. The rezone does exacerbate over-capacity conditions at the two over-capacity intersections noted above.

- Mitigation measures are recommended for the intersections with performance deficiencies in the 2035 With Proposed Zone scenario.

Corridor performance is evaluated for comparison to the Clark County standards based on correlation between travel time measurements and HCM intersection delay. Findings include:

- NE 139th Street travel speeds averaged 21 mph westbound and 20 mph eastbound in 2014.
- With full development under current site zoning, these speeds are estimated to decrease to 15 mph westbound and 19 mph eastbound in 2035.
- With full development with the proposed rezone, these speeds are estimated to decrease to 13 mph westbound and 17 mph eastbound. With the mitigation measures identified below, the speeds are estimated to range between 15 and 17 mph westbound and between 14 and 15 mph eastbound. In all cases, the 13 mph County minimum is met or exceeded.

Recommended Mitigations

Based on the TIA findings, the proposed rezone and comprehensive plan amendment can meet agency standards and/or mitigate its impacts if the following (or similar) mitigation measures are provided:

- Install a westbound right turn lane on NE 139th Street at NE 10th Avenue with an overlap phase.
- Modify the southbound NE 10th Avenue approach to NE 139th Street to provide either:
  - a second southbound left turn lane, or
  - a shared through-left center lane and split phasing with the northbound approach.
- Modify the southbound NE 23rd Avenue to NE 134th Street approach to provide either:
  - a shared left-right lane with the existing exclusive right turn lane, or
  - an overlap phase for the existing right turn lane.
- Install a traffic control device at the site access to NE 10th Avenue, opposite NE 141st Street, either:
  - a traffic signal, or
  - a roundabout.

X. APPENDIX

A. Figures

B. Traffic Count Summaries

C. Background Growth Rate Calculations

D. RTC Model Outputs

E. Synchro Reports With Current Zoning

F. Synchro Reports With Proposed Zoning

G. Synchro Reports With Proposed Zoning + Mitigation

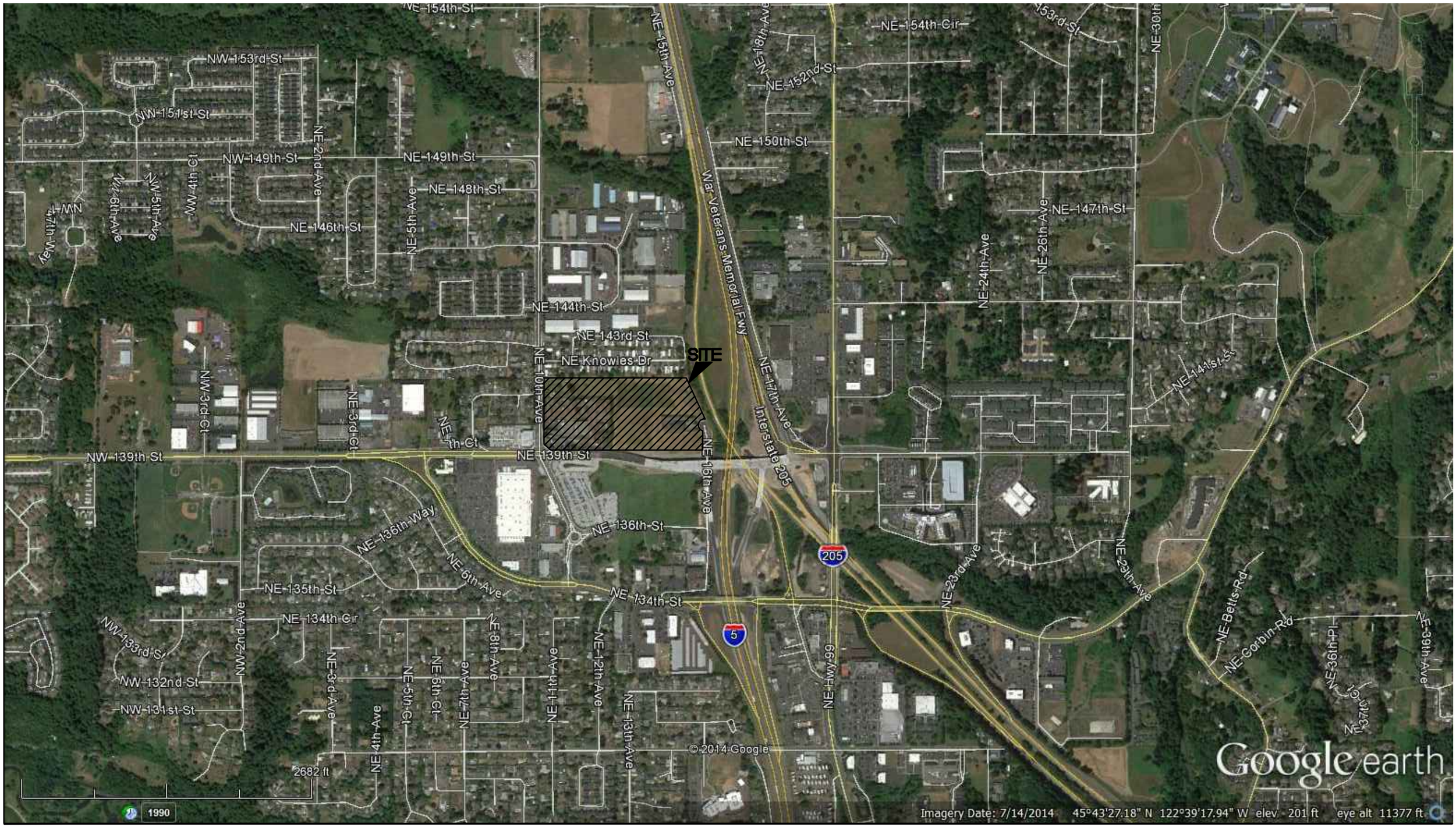
H. Corridor Travel Time Data

I. Synchro Reports – NE 139th Street Existing Conditions

J. Signal Warrants

APPENDIX A

FIGURES



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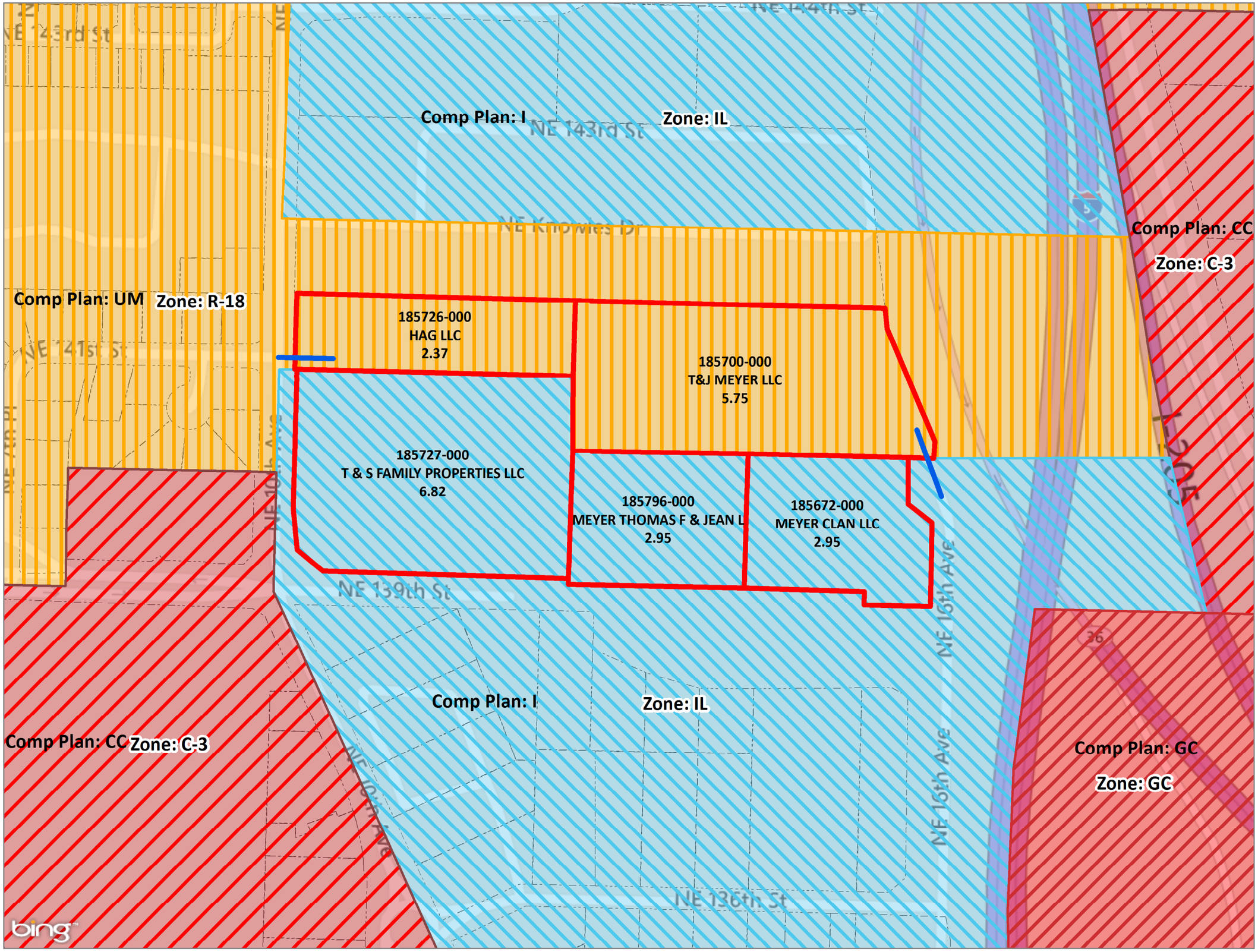
VICINITY MAP

REZONE AT NE 139TH ST/NE 10TH AVE
CLARK COUNTY, WASHINGTON

FIGURE 1

SALMON CREEK REZONE
FIGURE 2
Current Parcel Configuration



LEGEND

- Tax Lots
- Subject Site Tax Lots
- Assumed Future Access Points

COMP PLAN

- CC
- GC
- I
- UM

ZONING

- C-3
- GC
- IL
- R-18

0 100 200 400 Feet

1 inch = 200 feet

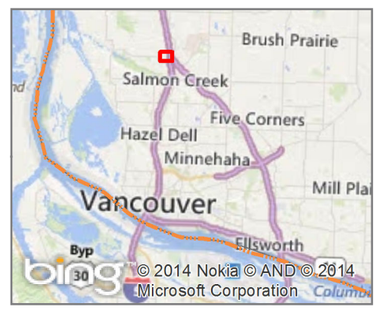
N

SOURCE DATA:
Clark County GIS Base Data, January 2014

GEOGRAPHIC PROJECTION:
NAD 83 HARN, Washington South Lambert Conformal Conic

Date: 10/1/2014
File: Tax Lots Zone Comp Plan

Map Created By: SHS
Project No: 2130389.08



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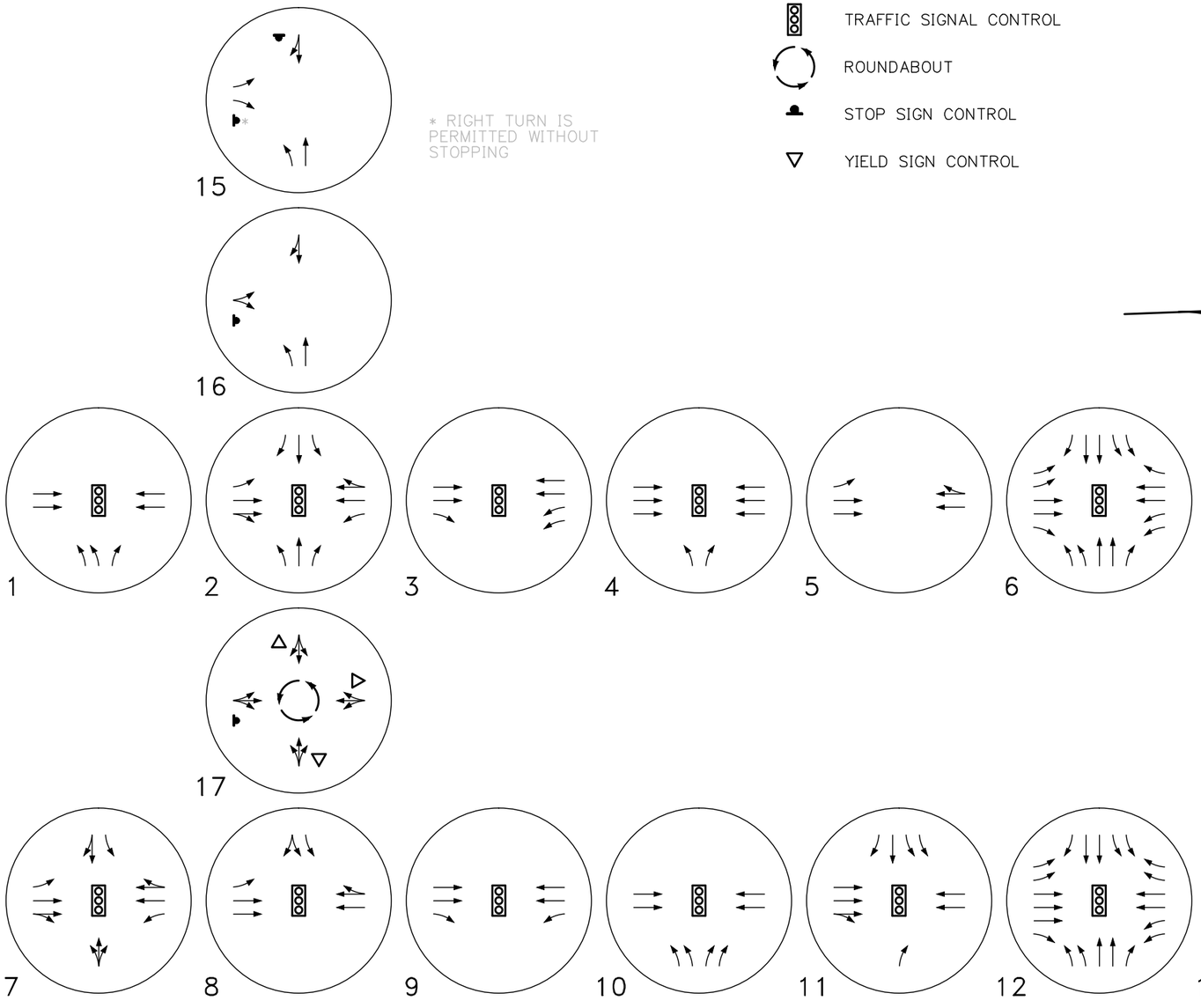
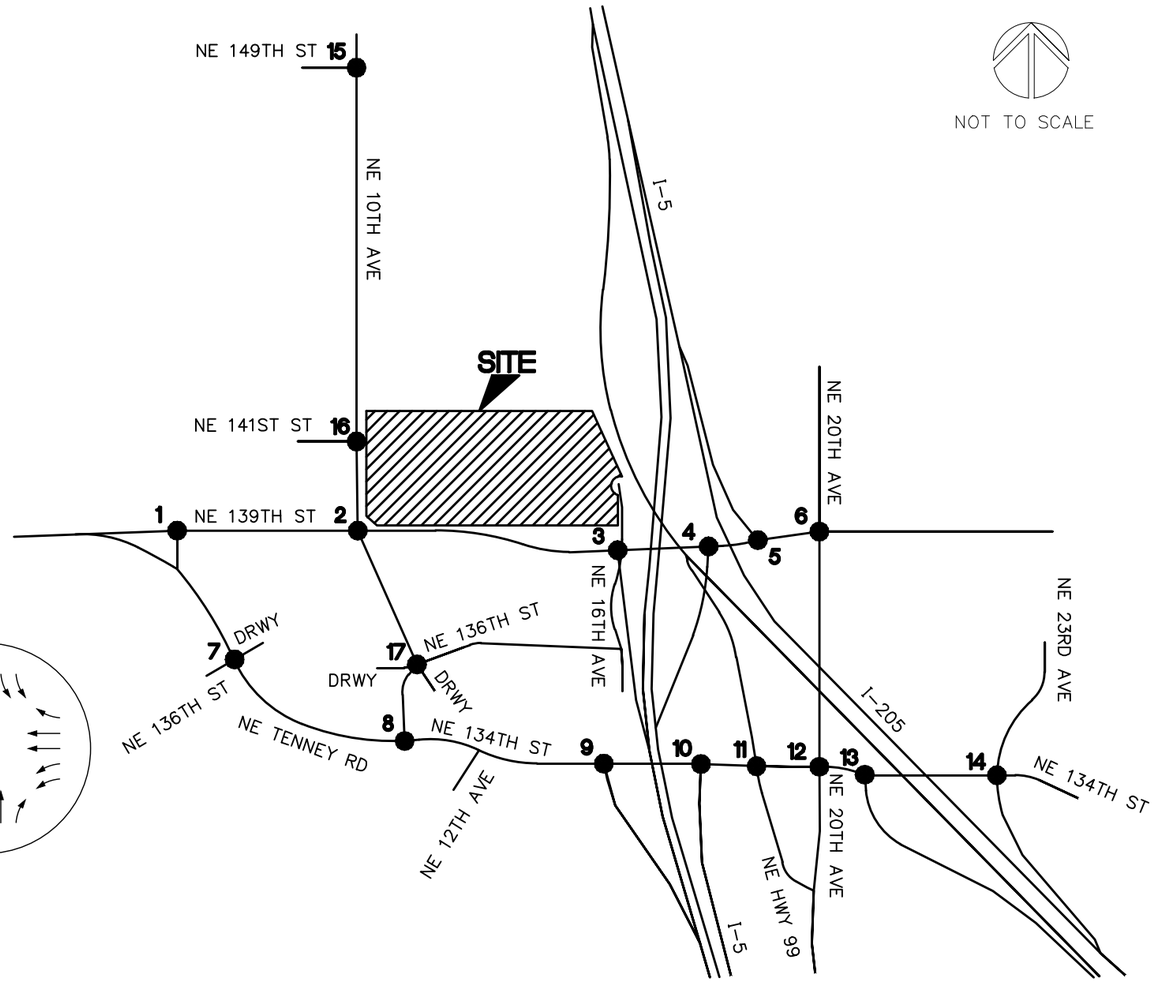
LEGEND

- LANES/MOVEMENTS
- TRAFFIC SIGNAL CONTROL
- ROUNDABOUT
- STOP SIGN CONTROL
- YIELD SIGN CONTROL

* RIGHT TURN IS PERMITTED WITHOUT STOPPING





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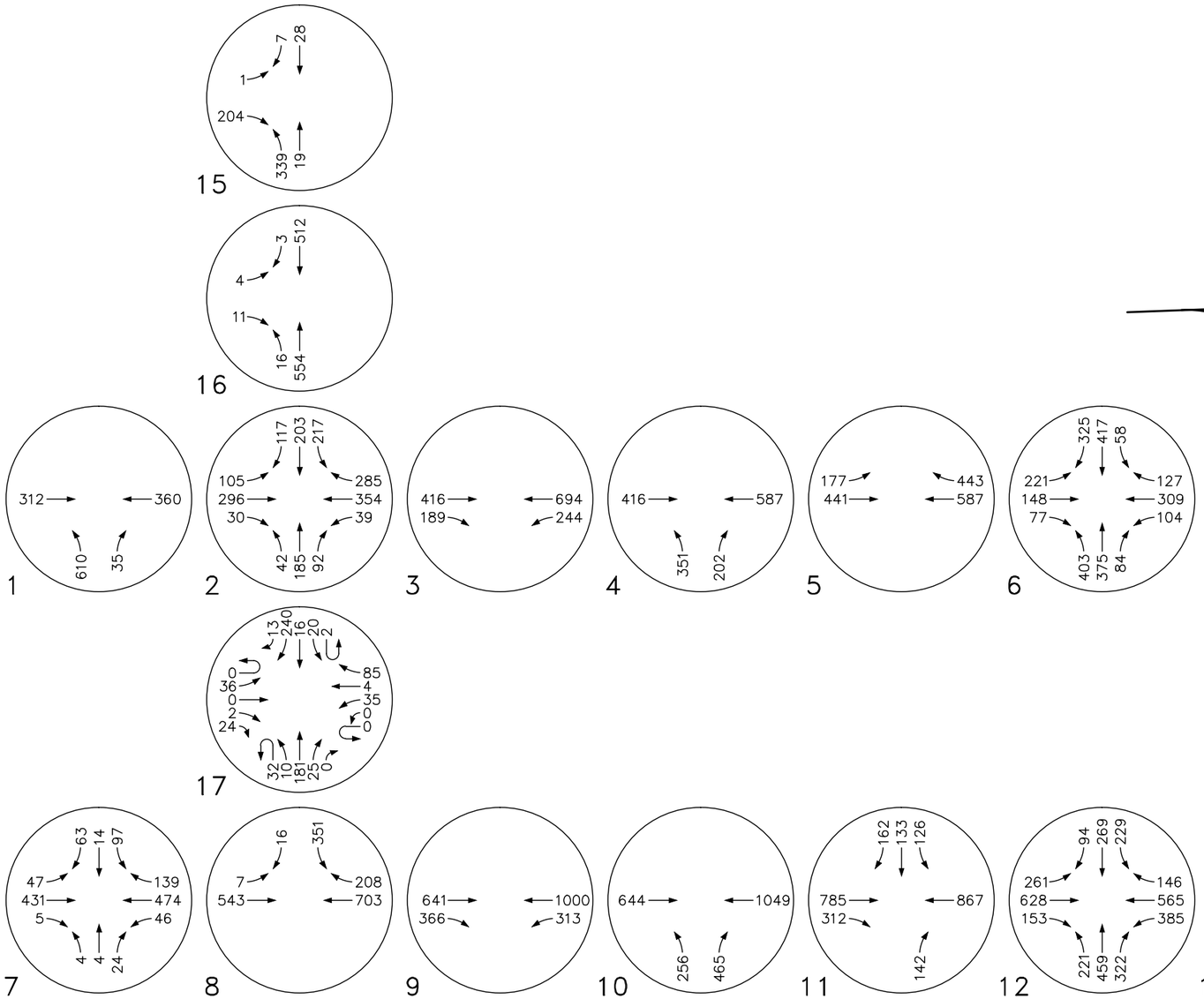
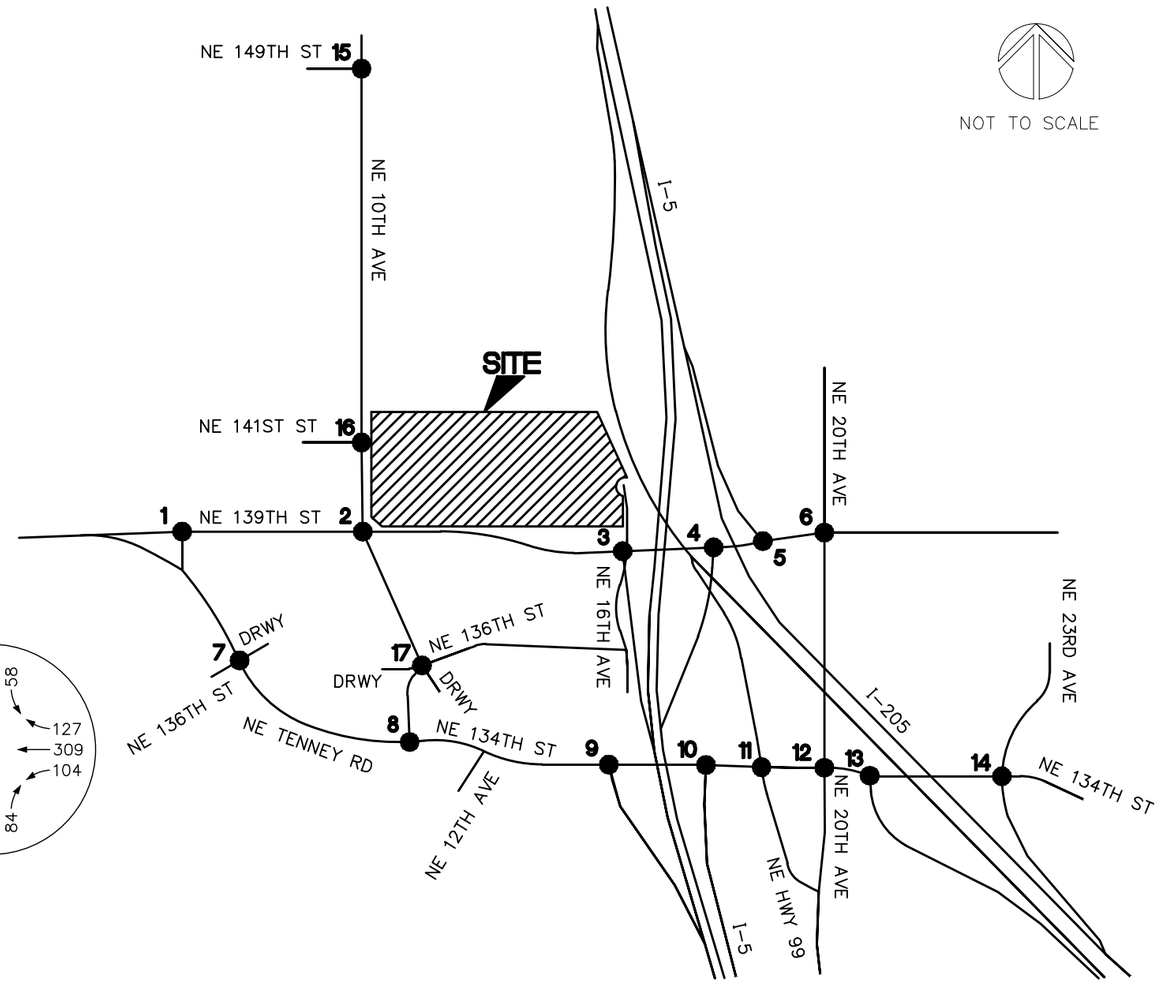
EXISTING TRAFFIC CONTROL AND LANE CONFIGURATIONS

REZONE AT NE 139TH ST/NE 10TH AVE
CLARK COUNTY, WASHINGTON

FIGURE 3





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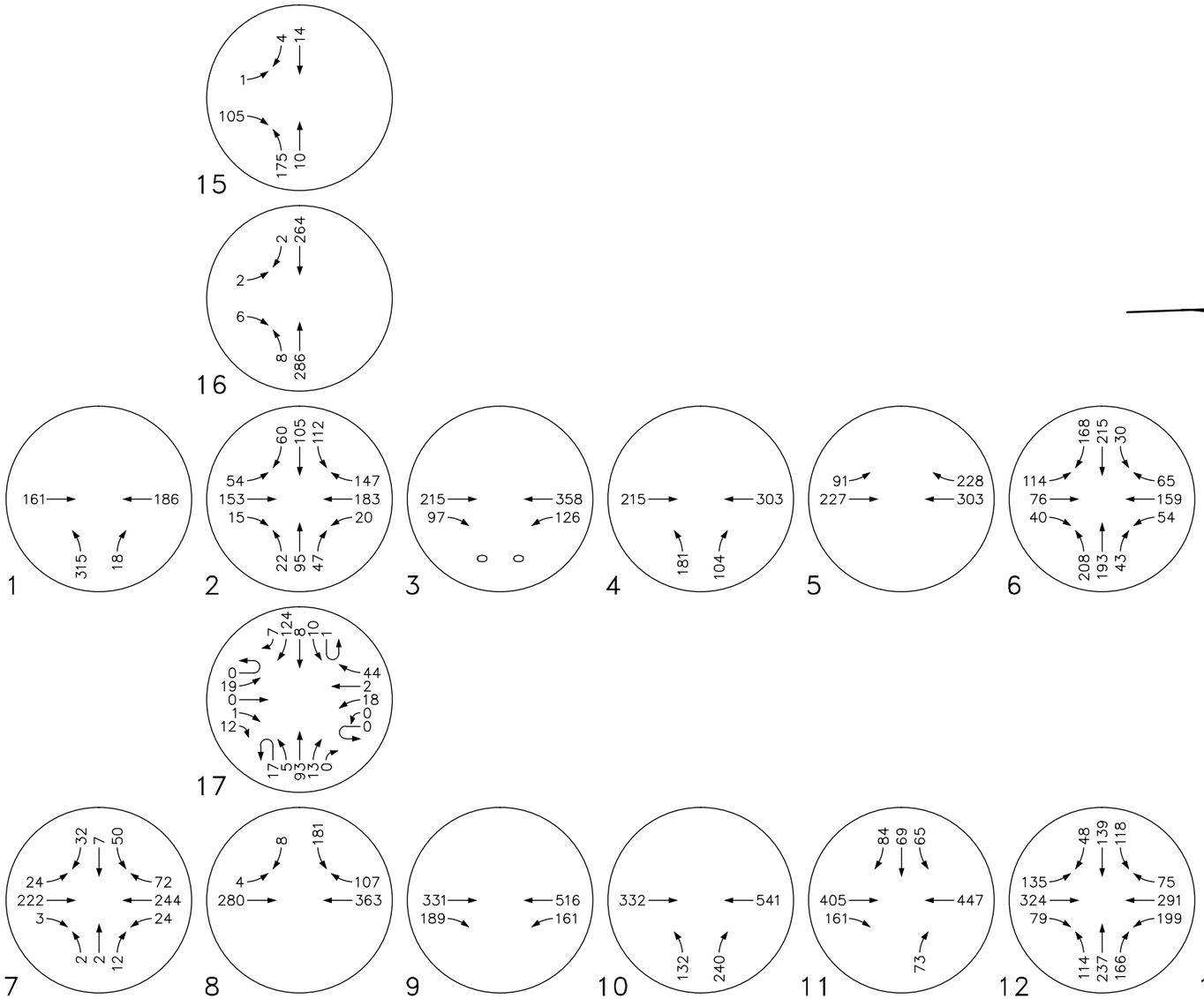
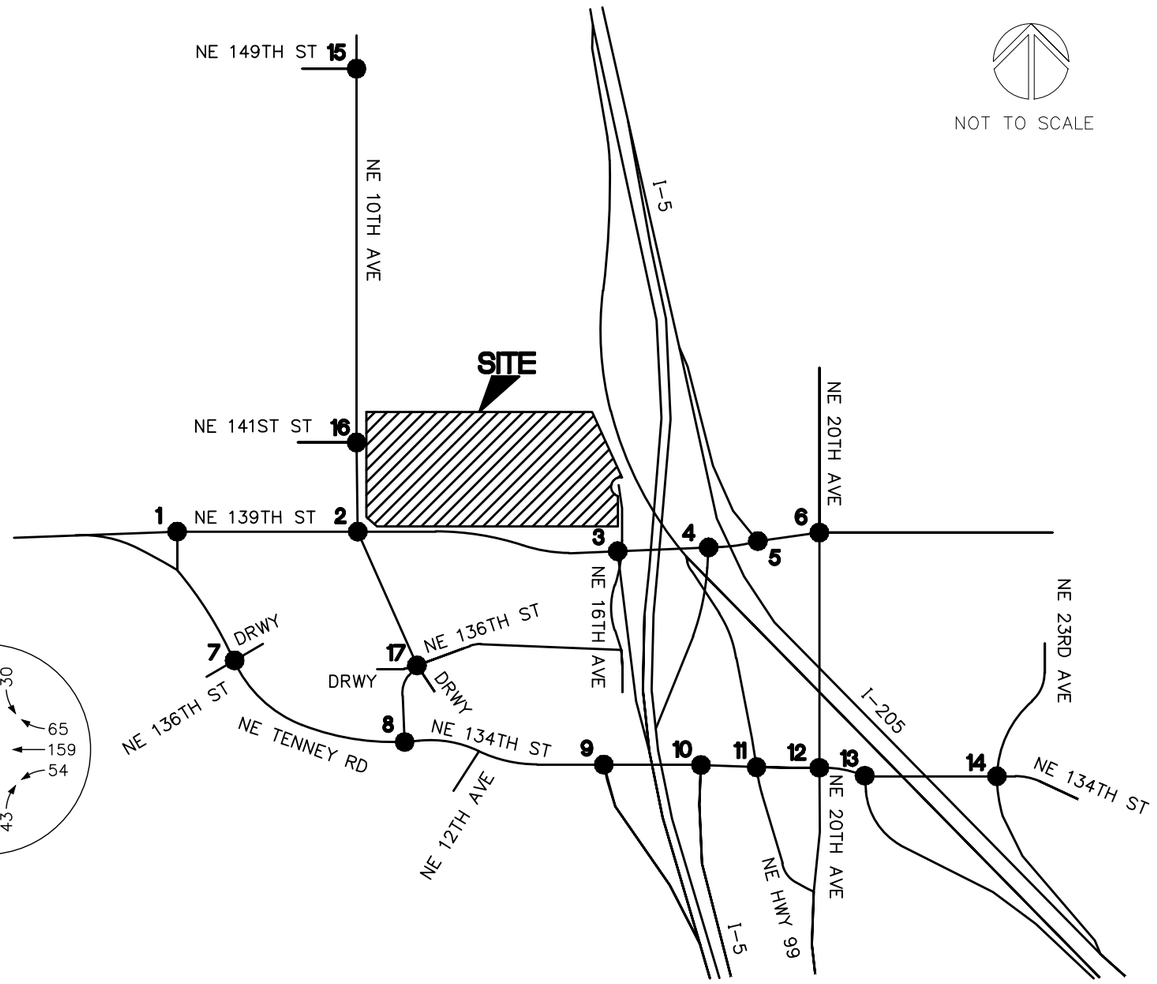
EXISTING TRAFFIC VOLUMES - WEEKDAY PM PEAK HOUR

REZONE AT NE 139TH ST/NE 10TH AVE
CLARK COUNTY, WASHINGTON

FIGURE 4





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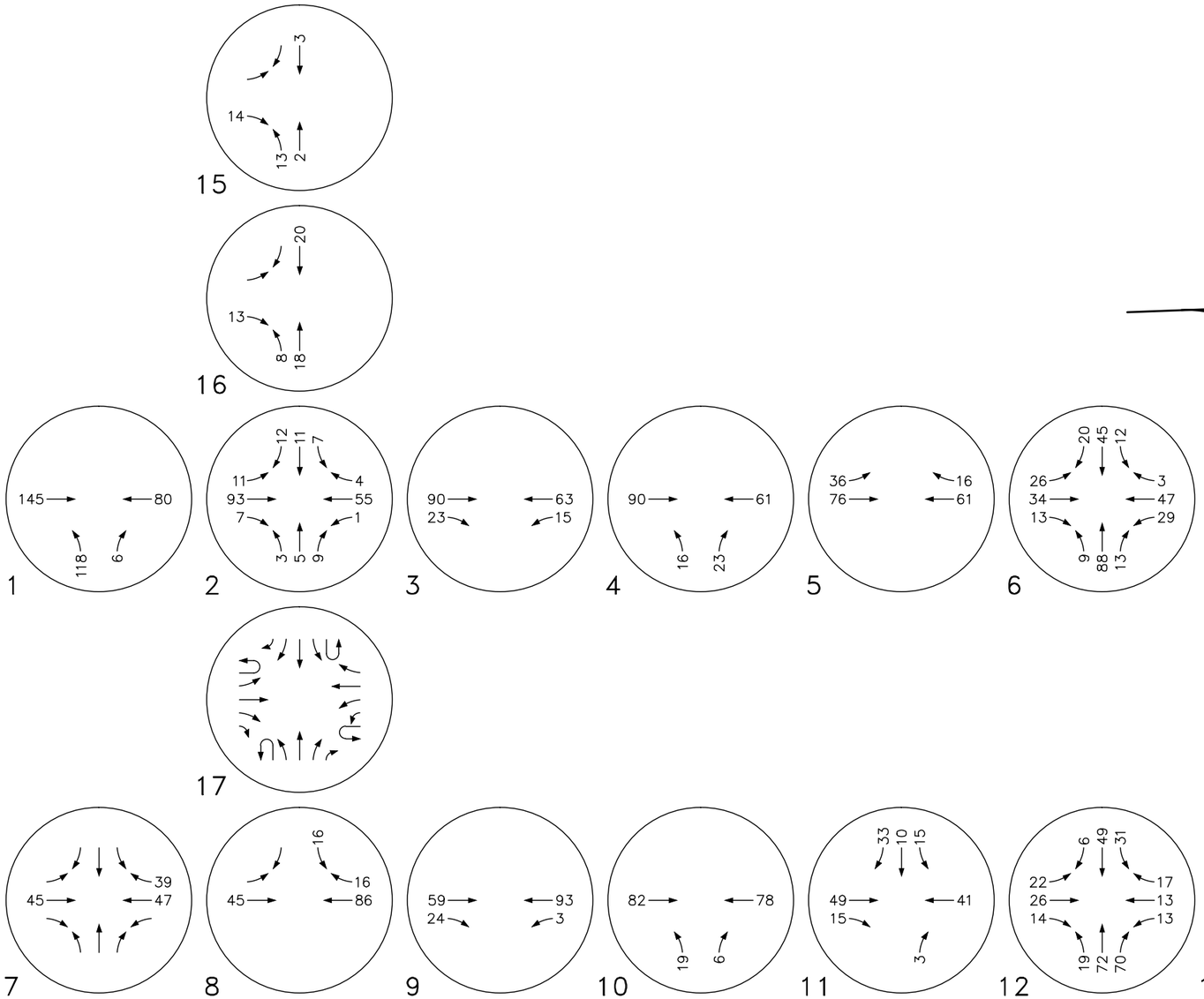
BACKGROUND GROWTH - 21 YEARS AT 2% PER YEAR

REZONE AT NE 139TH ST/NE 10TH AVE
CLARK COUNTY, WASHINGTON

FIGURE 5



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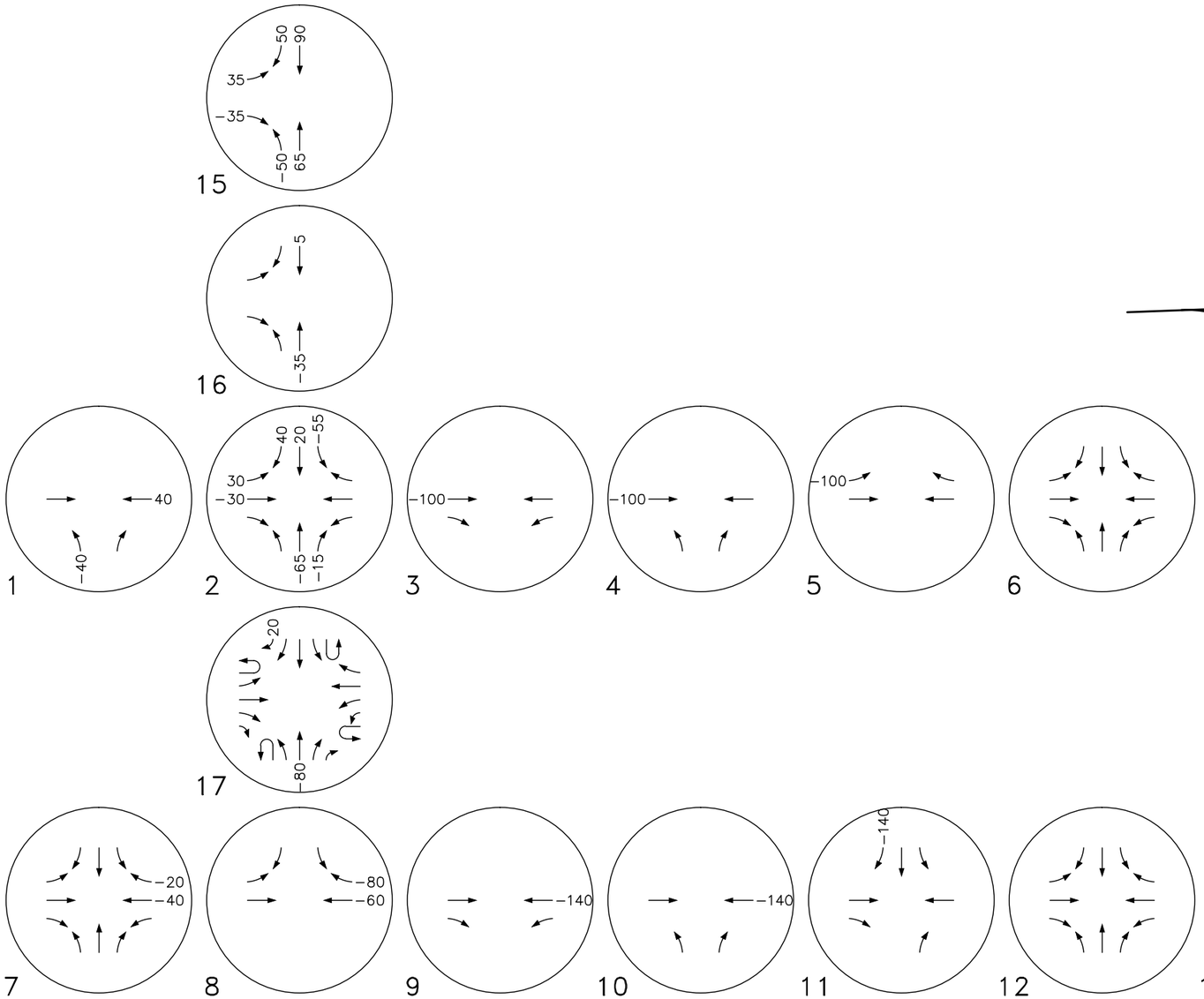
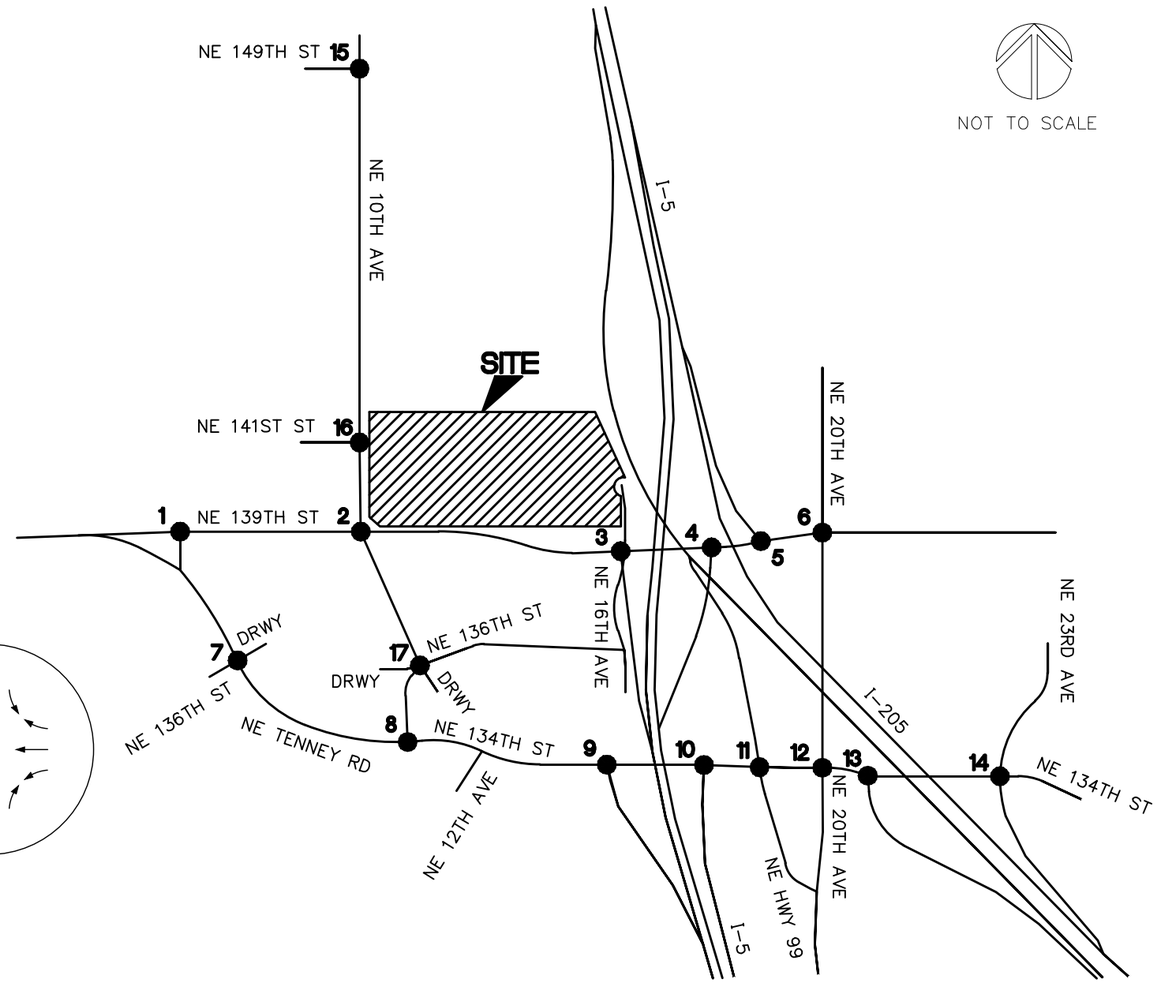
IN-PROCESS TRIPS - WEEKDAY PM PEAK HOUR

REZONE AT NE 139TH ST/NE 10TH AVE
CLARK COUNTY, WASHINGTON

FIGURE 6





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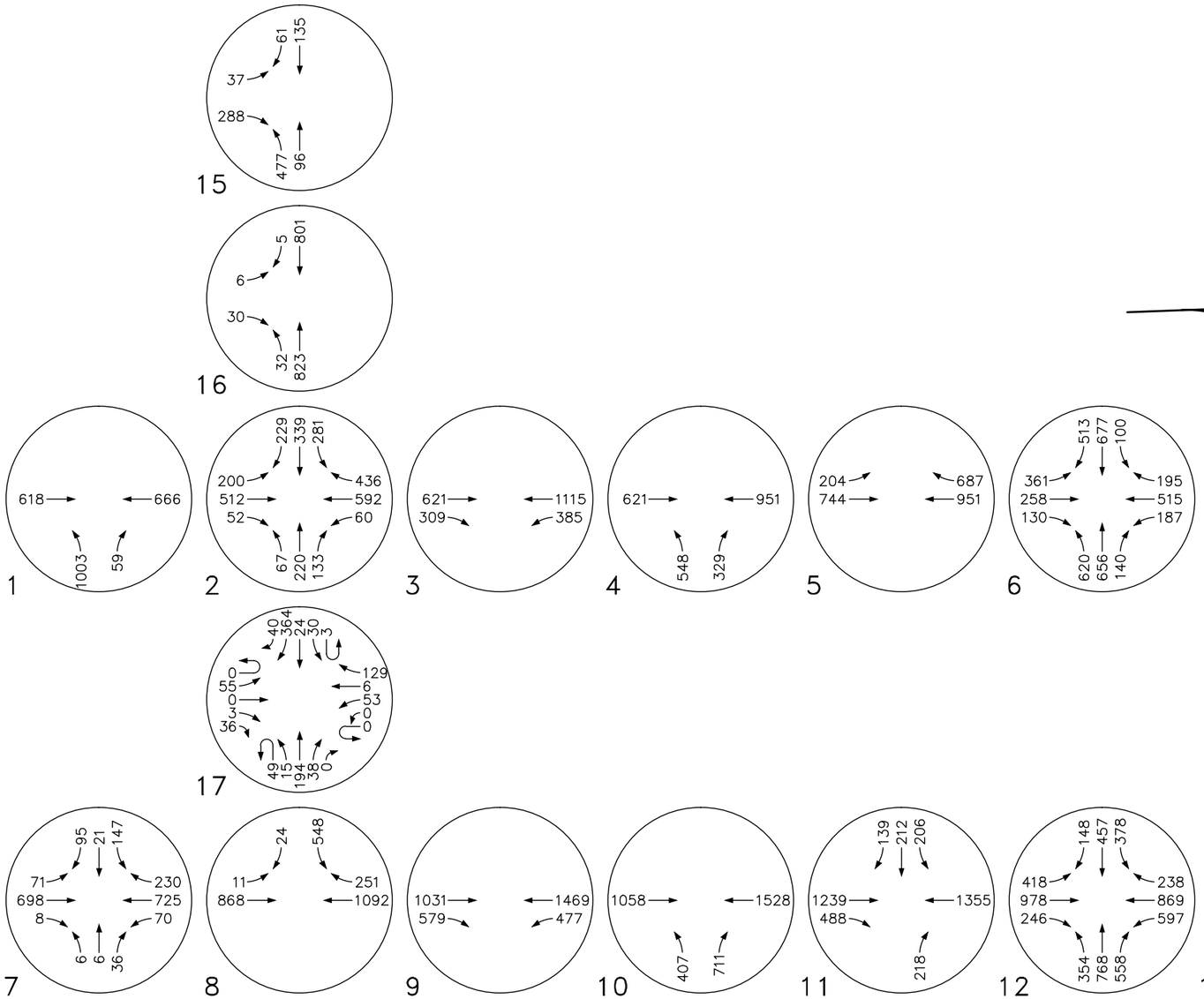
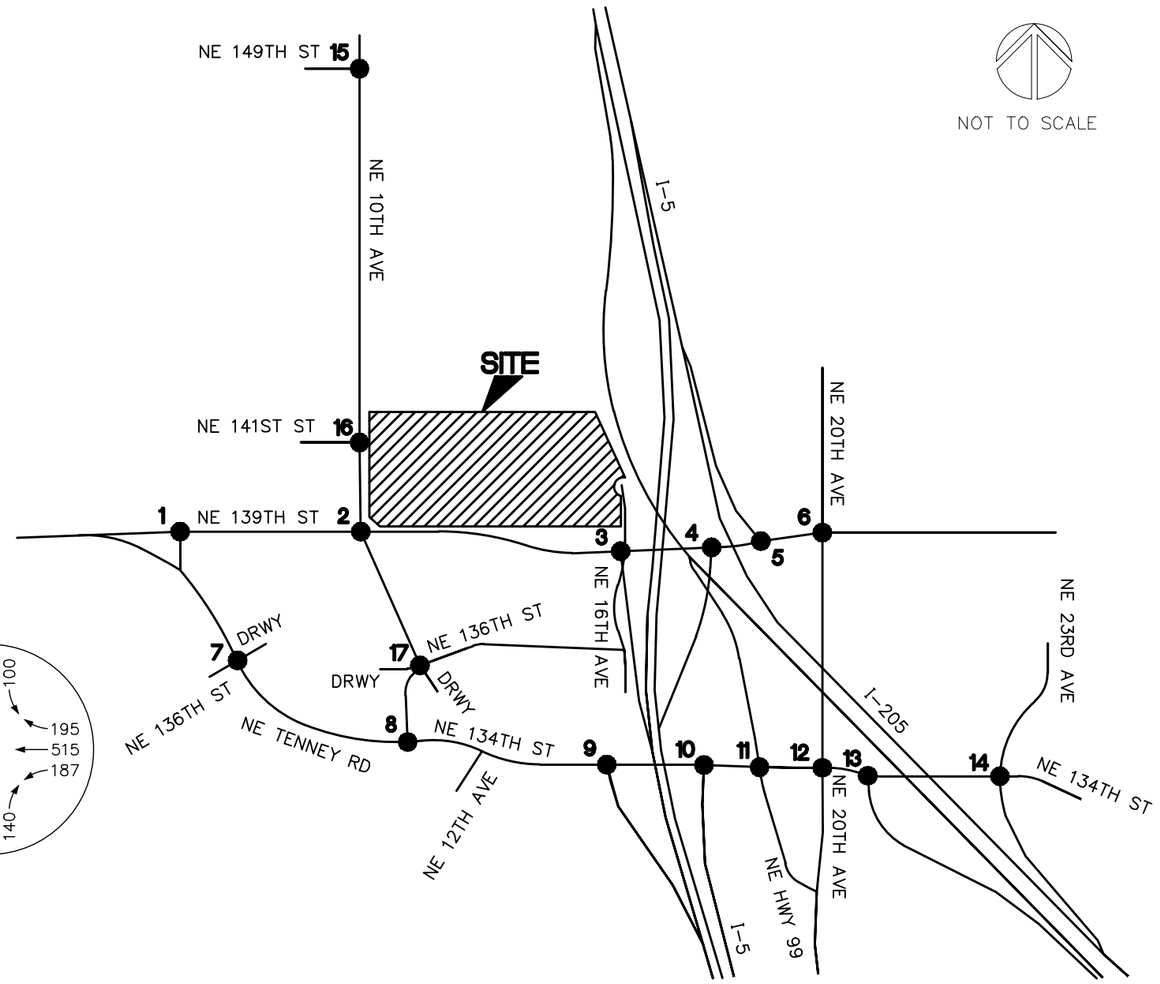
REROUTE - WEEKDAY PM PEAK HOUR

REZONE AT NE 139TH ST/NE 10TH AVE
CLARK COUNTY, WASHINGTON

FIGURE 7





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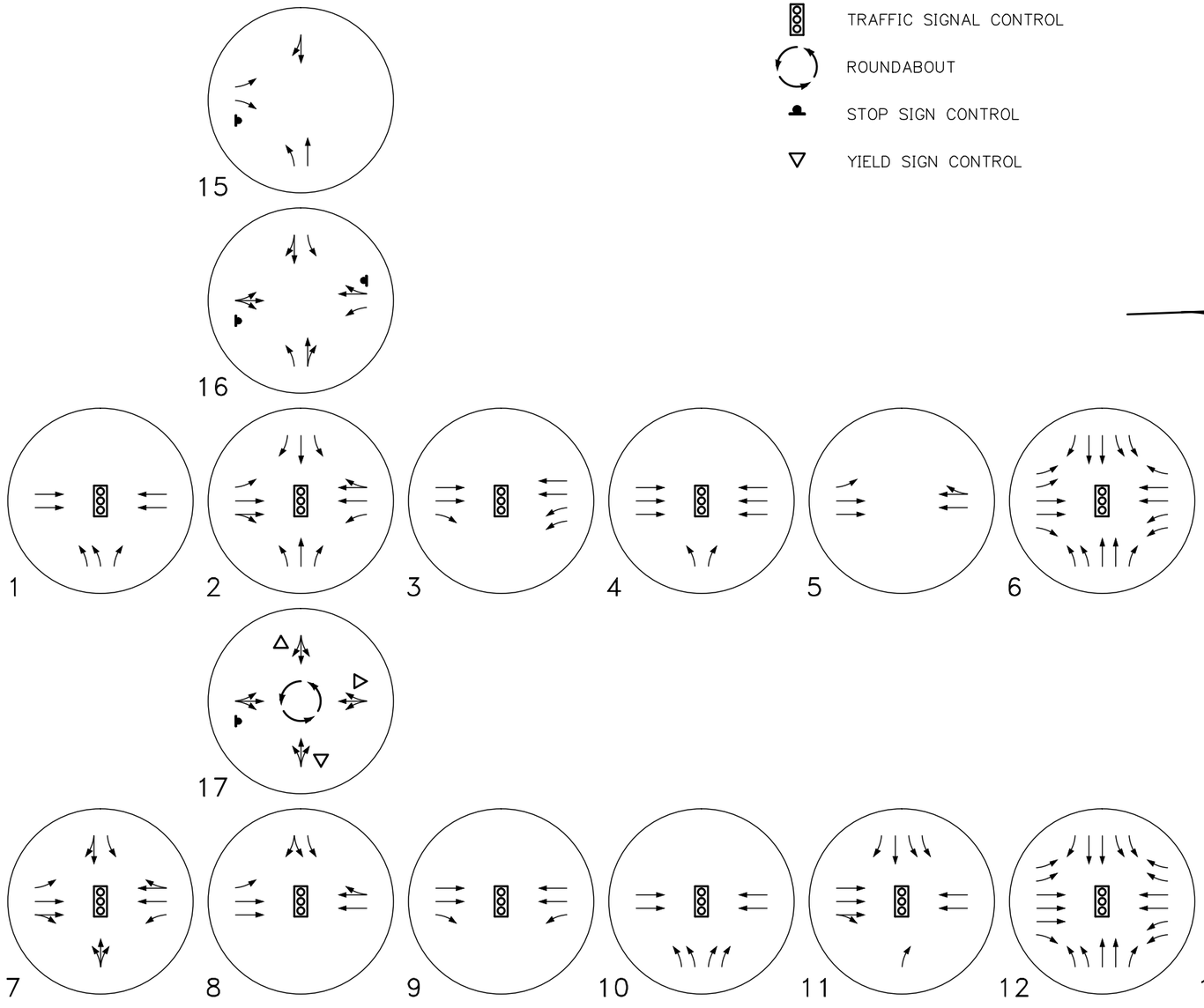
2035 BASE VOLUMES - WEEKDAY PM PEAK HOUR

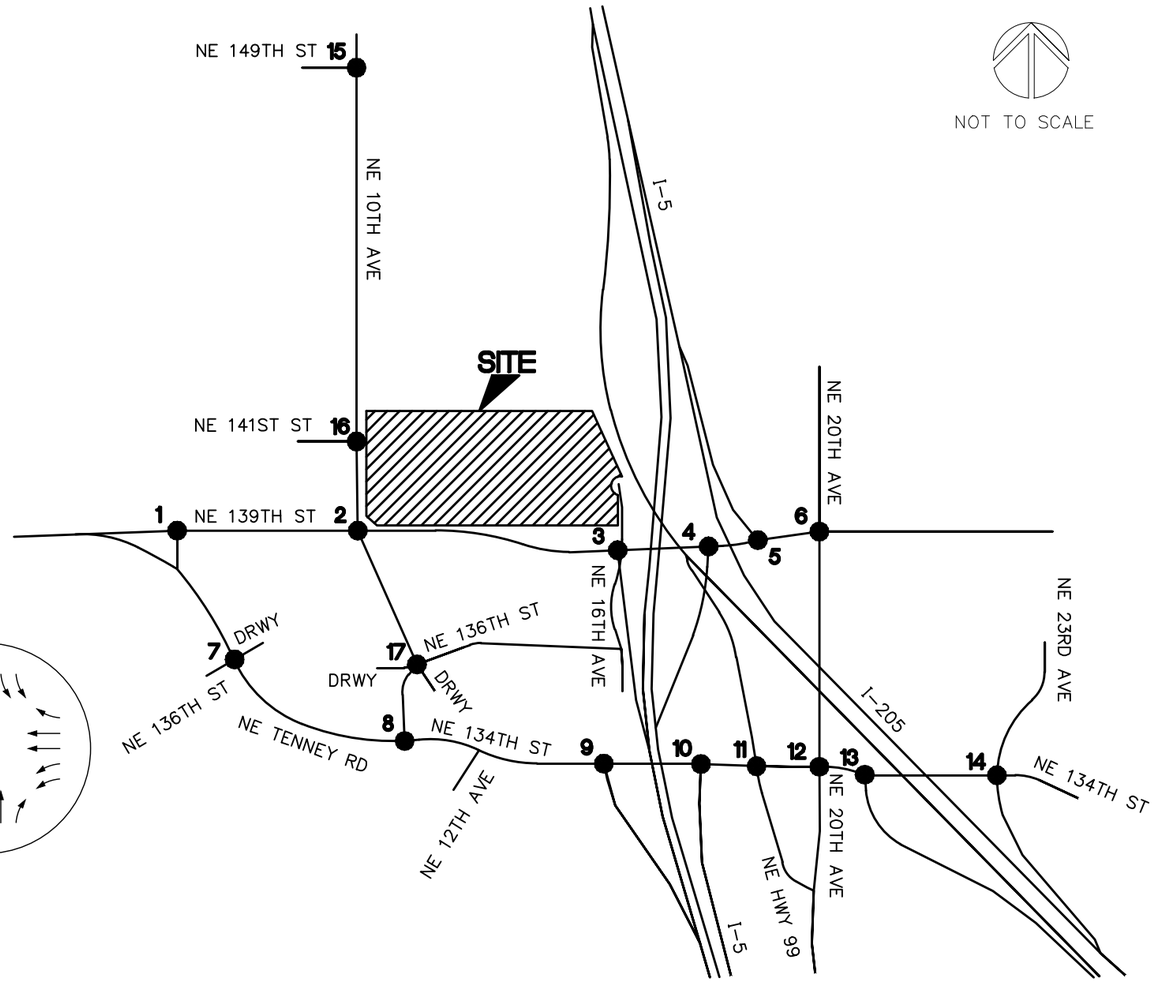
REZONE AT NE 139TH ST/NE 10TH AVE
CLARK COUNTY, WASHINGTON

FIGURE 8

LEGEND

- FUTURE LANES/MOVEMENTS
- TRAFFIC SIGNAL CONTROL
- ROUNDABOUT
- STOP SIGN CONTROL
- YIELD SIGN CONTROL





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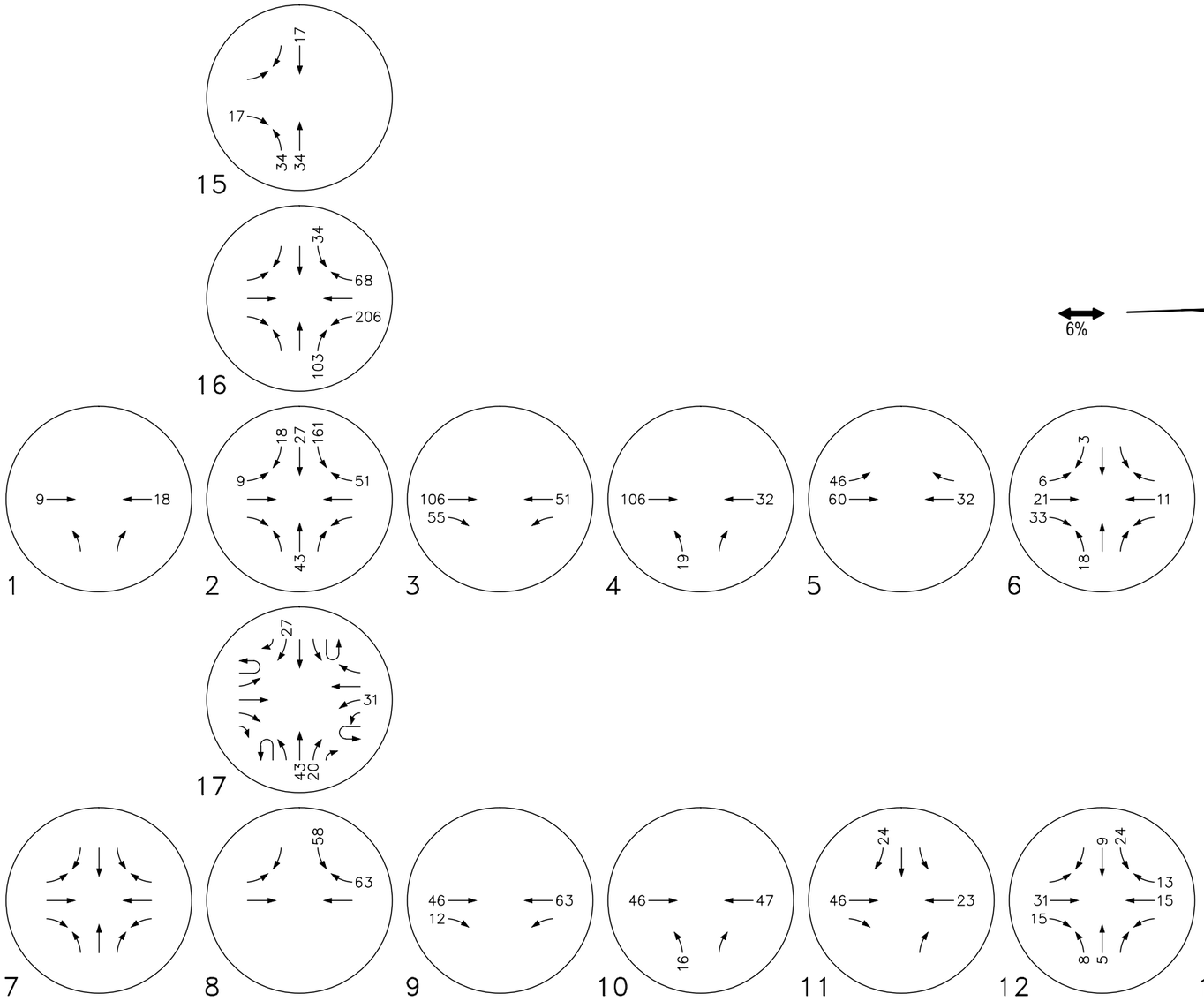
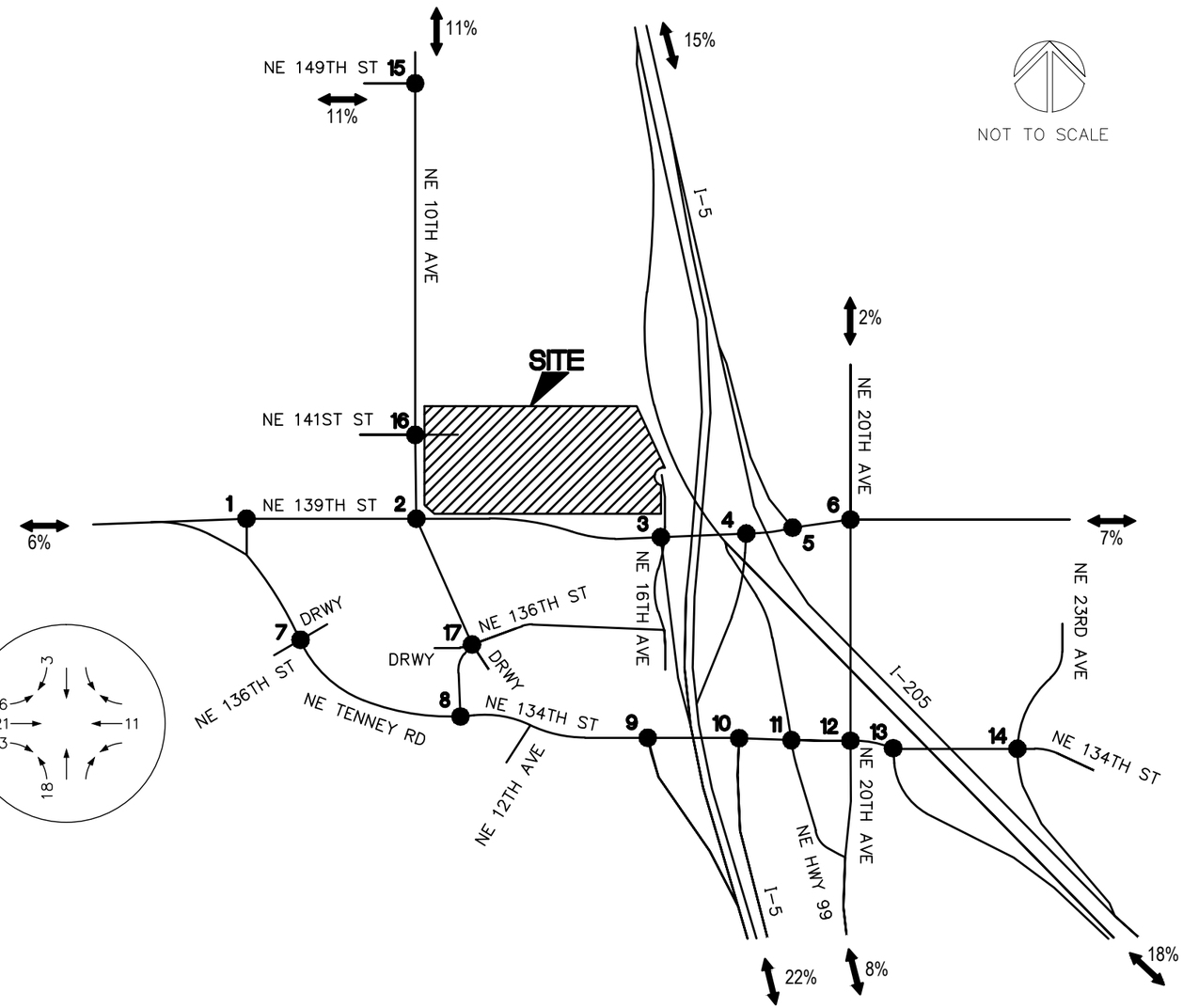
PLANNED TRAFFIC CONTROL AND LANE CONFIGURATIONS

REZONE AT NE 139TH ST/NE 10TH AVE
CLARK COUNTY, WASHINGTON

FIGURE 9





WEEKDAY PM PEAK HOUR
TOTAL SITE TRIPS
WITH CURRENT ZONING

ENTER = 157
EXIT = 305

TOTAL = 462

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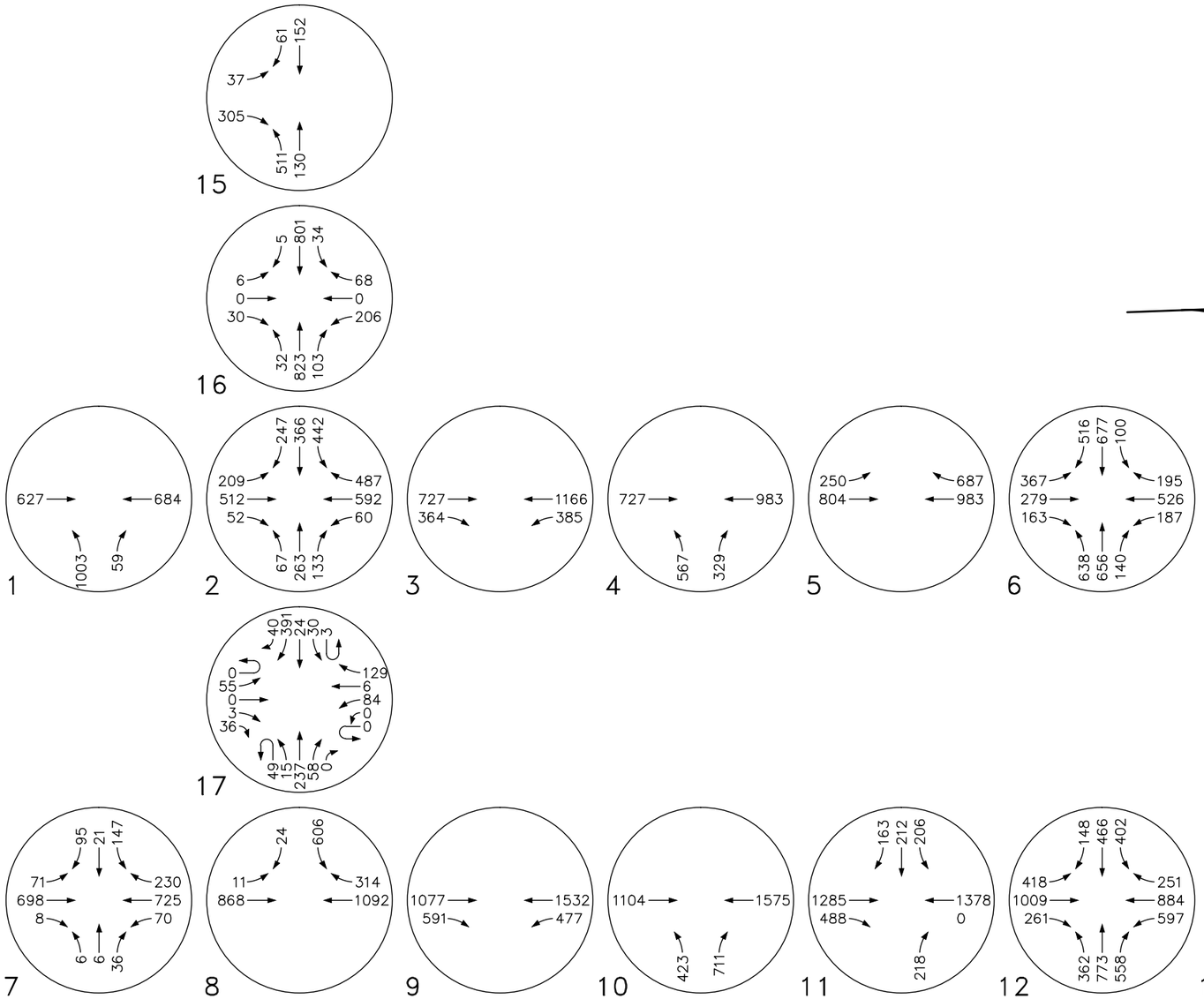
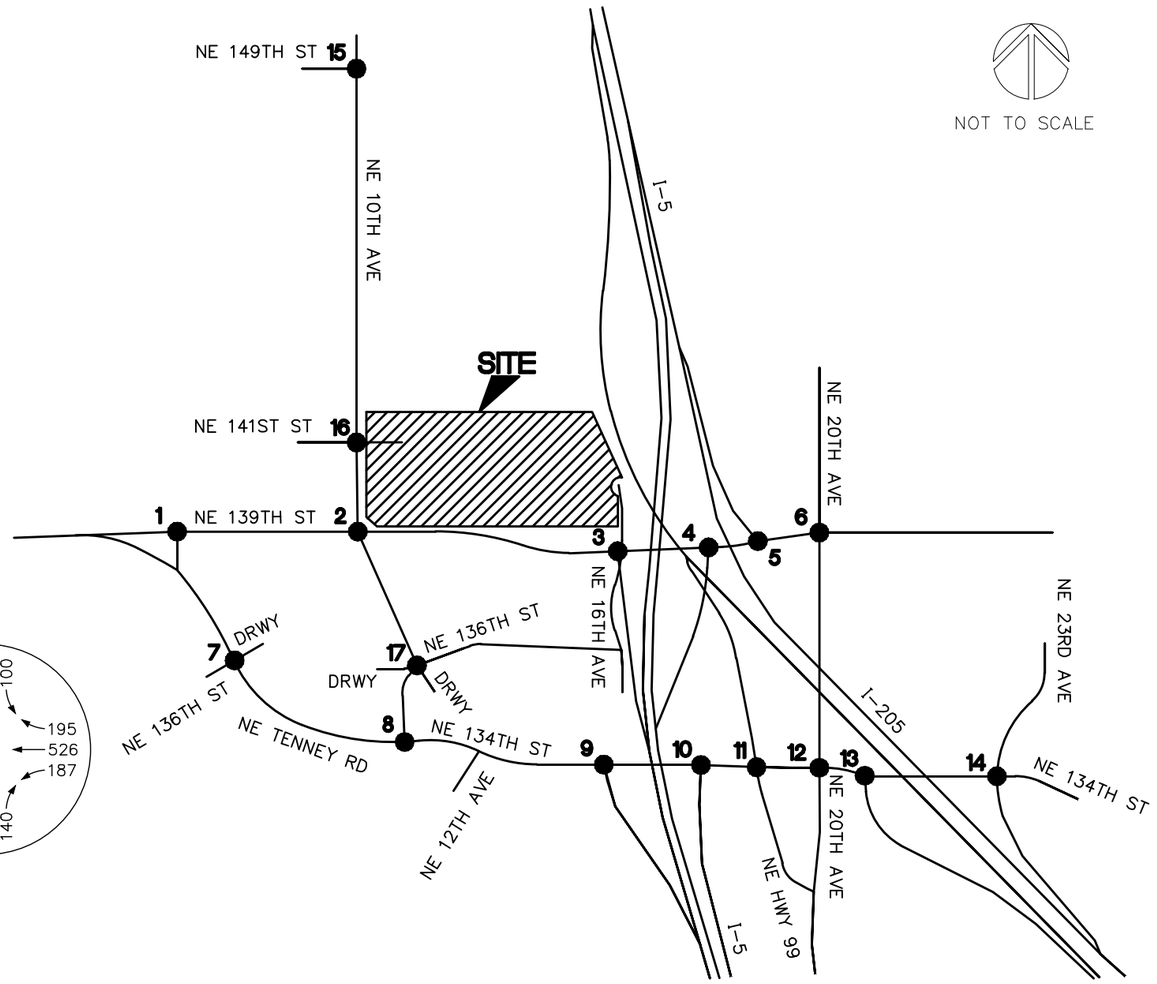
CURRENT ZONE PRIMARY TRIP ASSIGNMENT - WEEKDAY PM PEAK HOUR

REZONE AT NE 139TH ST/NE 10TH AVE
CLARK COUNTY, WASHINGTON

FIGURE 10





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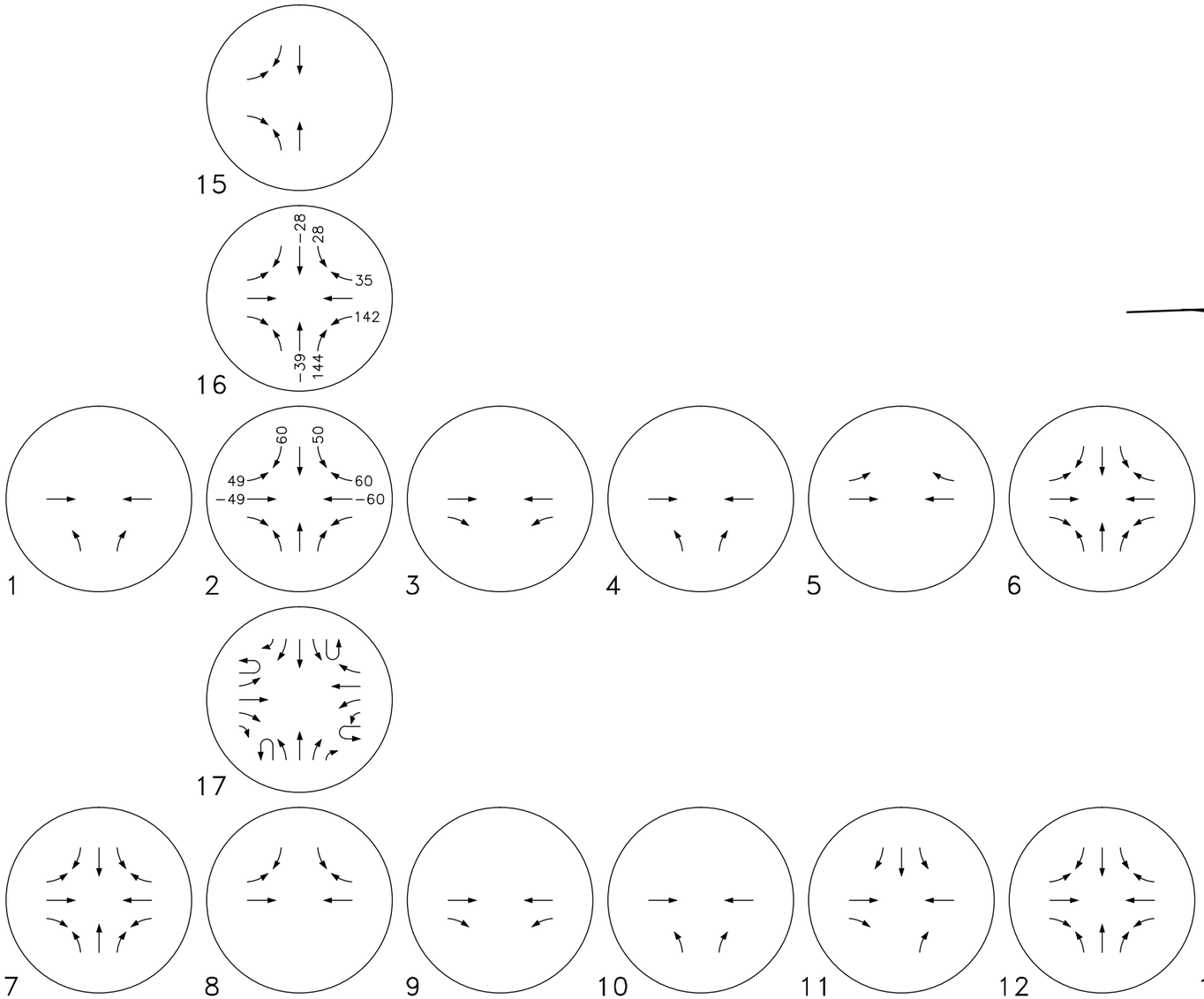
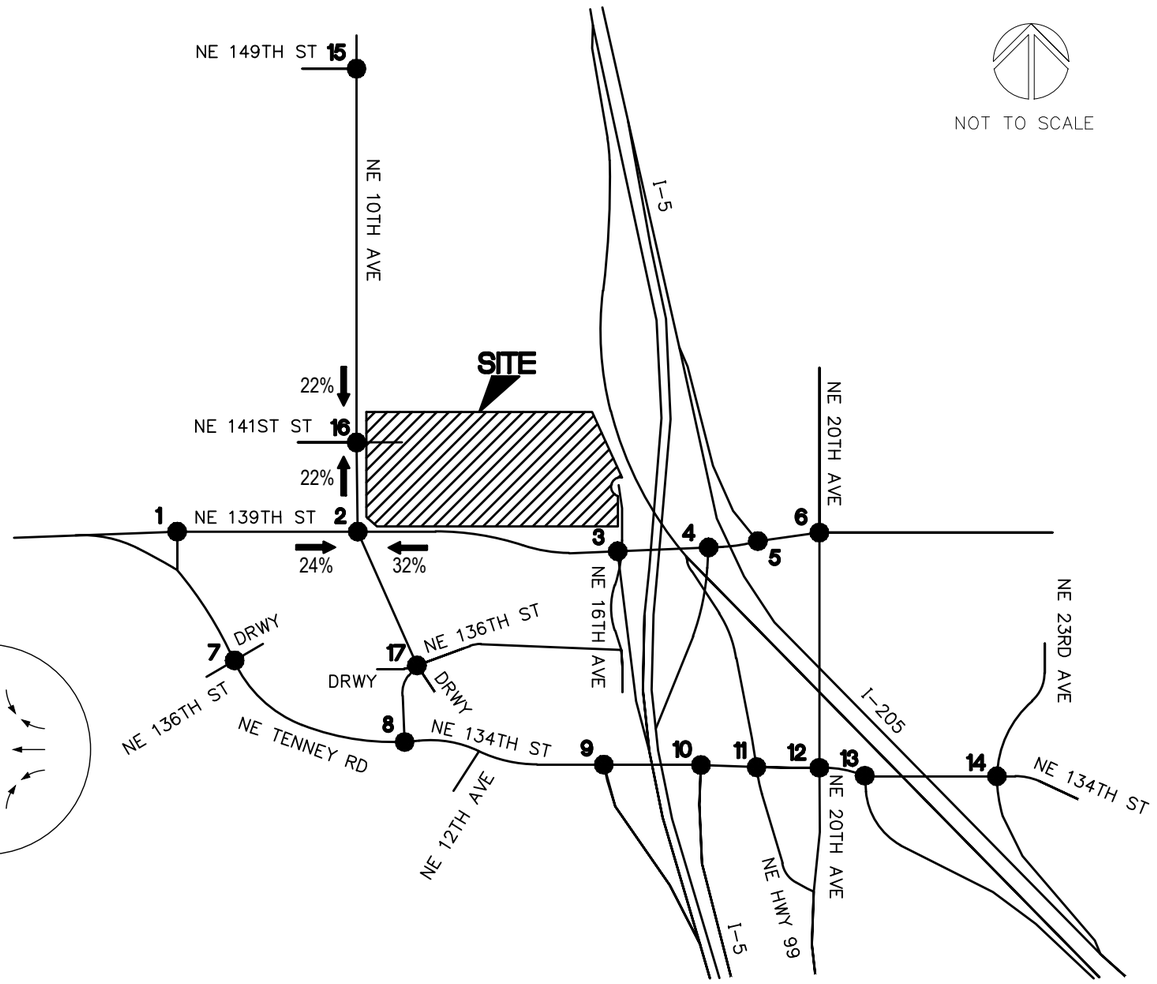
2035 POST DEVELOPMENT WITH CURRENT ZONING - WEEKDAY PM PEAK HOUR

REZONE AT NE 139TH ST/NE 10TH AVE
CLARK COUNTY, WASHINGTON

FIGURE 11





WEEKDAY PM PEAK HOUR
PASS-BY SITE TRIPS
WITH PROPOSED ZONING

ENTER = 176
EXIT = 177
TOTAL = 353

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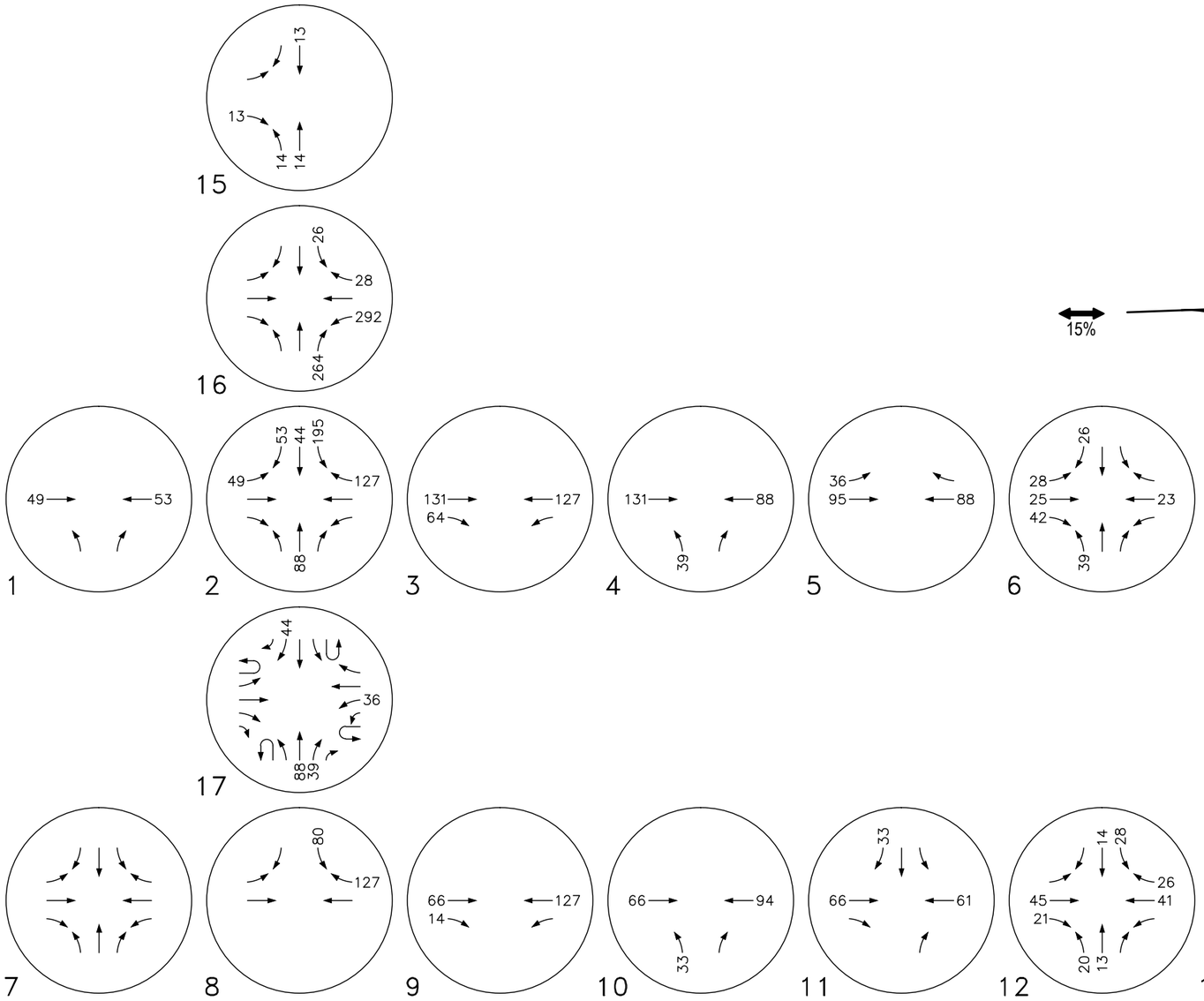
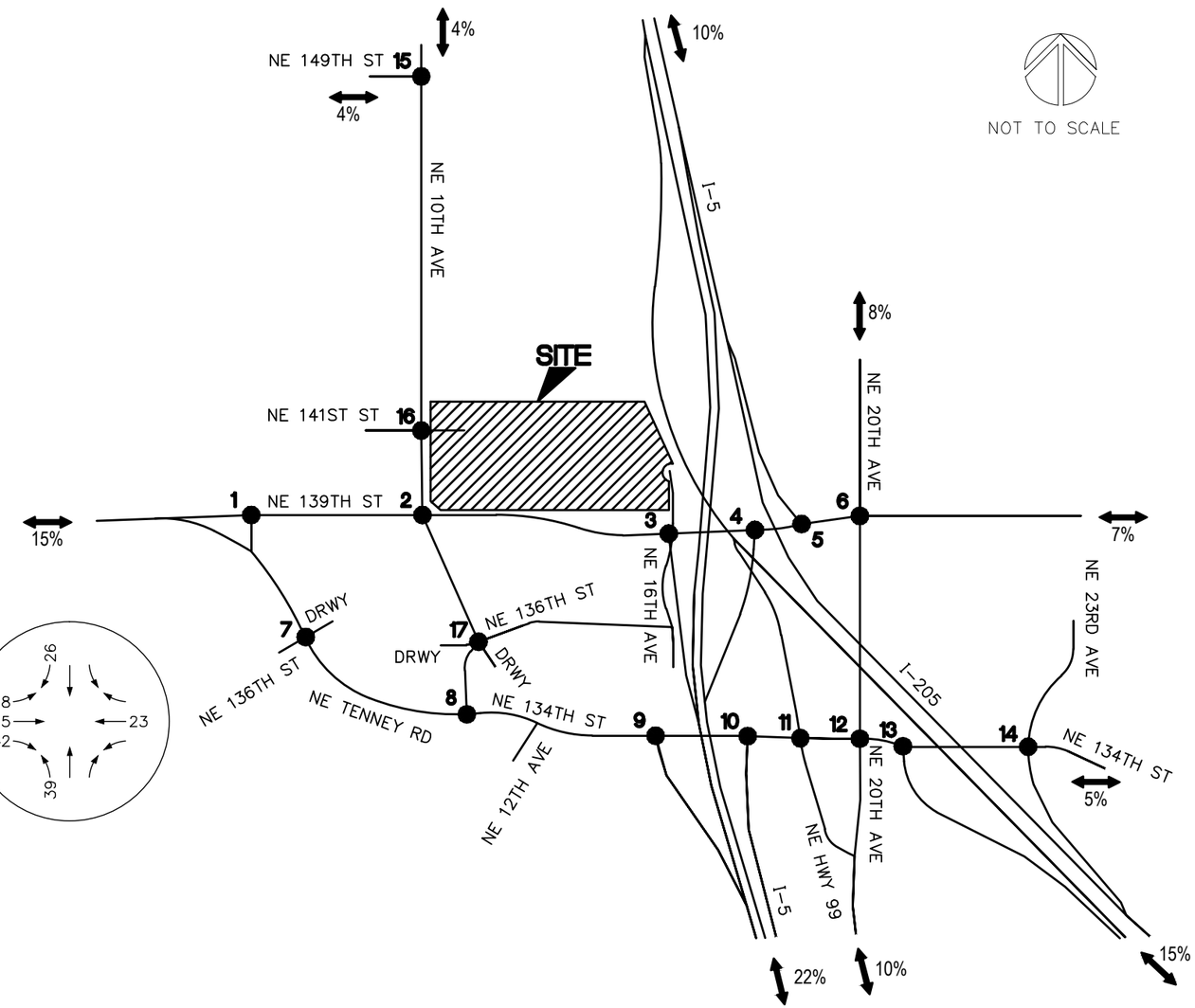
PROPOSED ZONE PASS-BY TRIP ASSIGNMENT - WEEKDAY PM PEAK HOUR

REZONE AT NE 139TH ST/NE 10TH AVE
CLARK COUNTY, WASHINGTON

FIGURE
12





WEEKDAY PM PEAK HOUR
PRIMARY SITE TRIPS
WITH PROPOSED ZONING

ENTER = 329
EXIT = 356
TOTAL = 685

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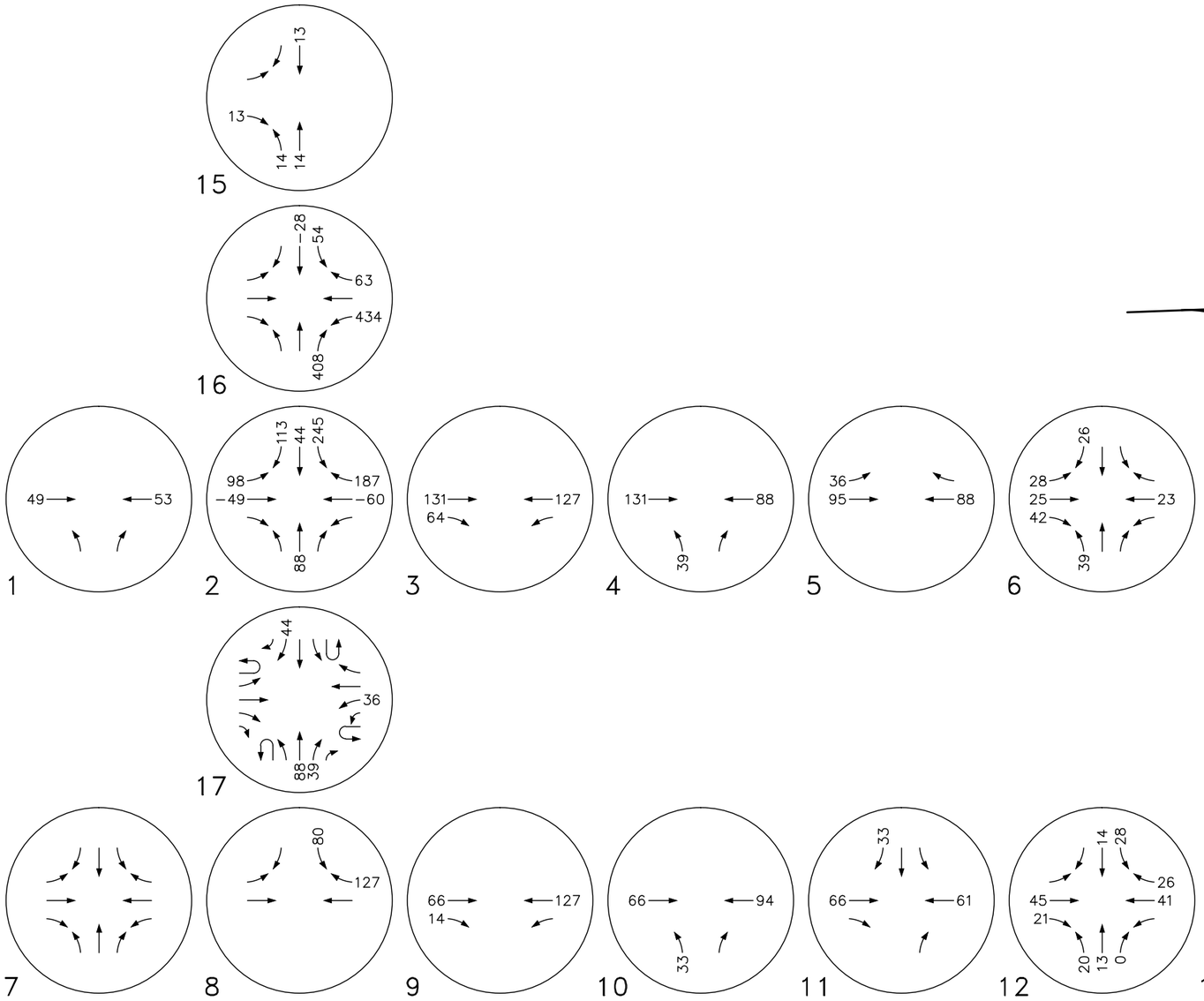
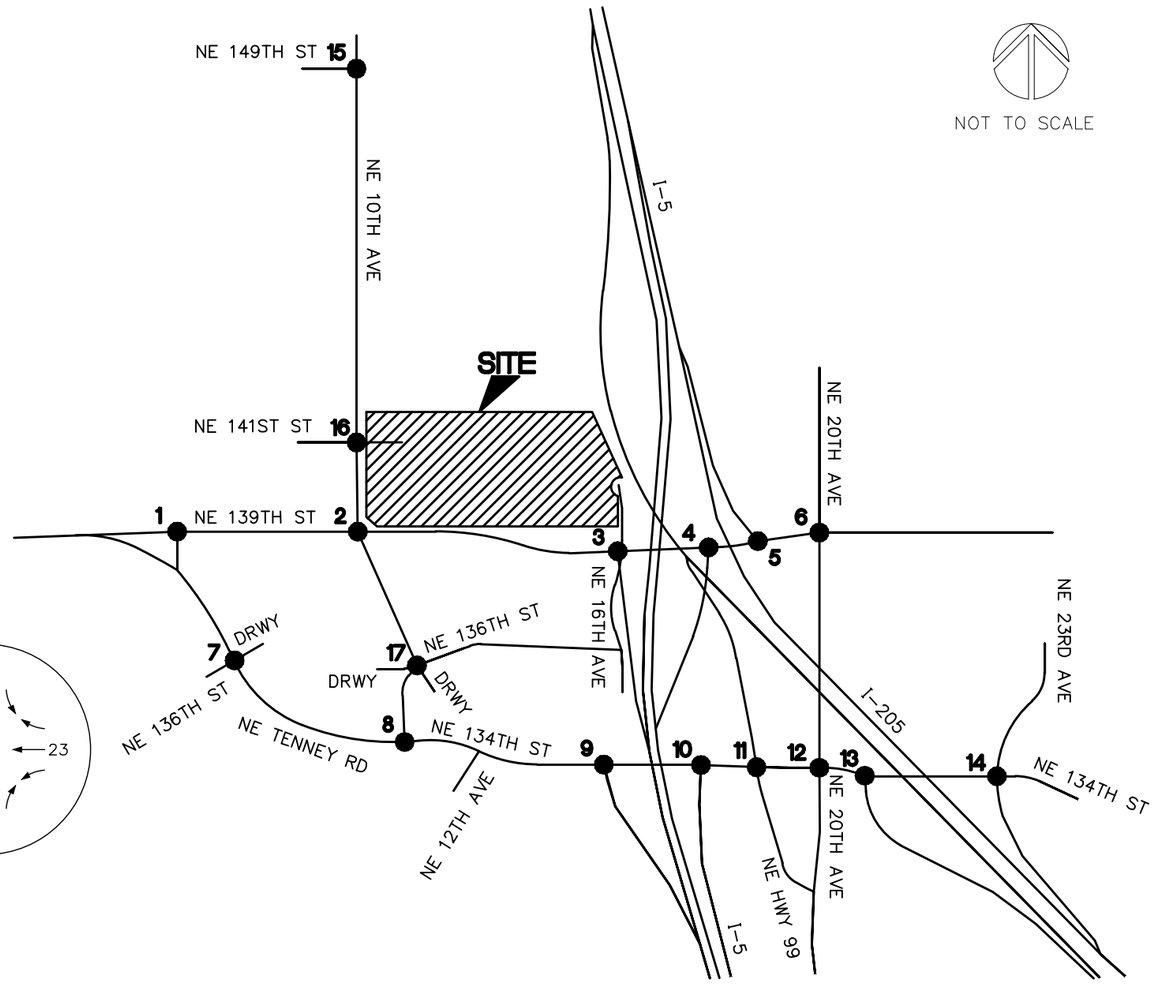
PROPOSED ZONE PRIMARY TRIP ASSIGNMENT - WEEKDAY PM PEAK HOUR

REZONE AT NE 139TH ST/NE 10TH AVE
CLARK COUNTY, WASHINGTON

FIGURE
13





WEEKDAY PM PEAK HOUR
TOTAL SITE TRIPS
WITH PROPOSED ZONING

ENTER = 505
EXIT = 533
TOTAL = 1,038

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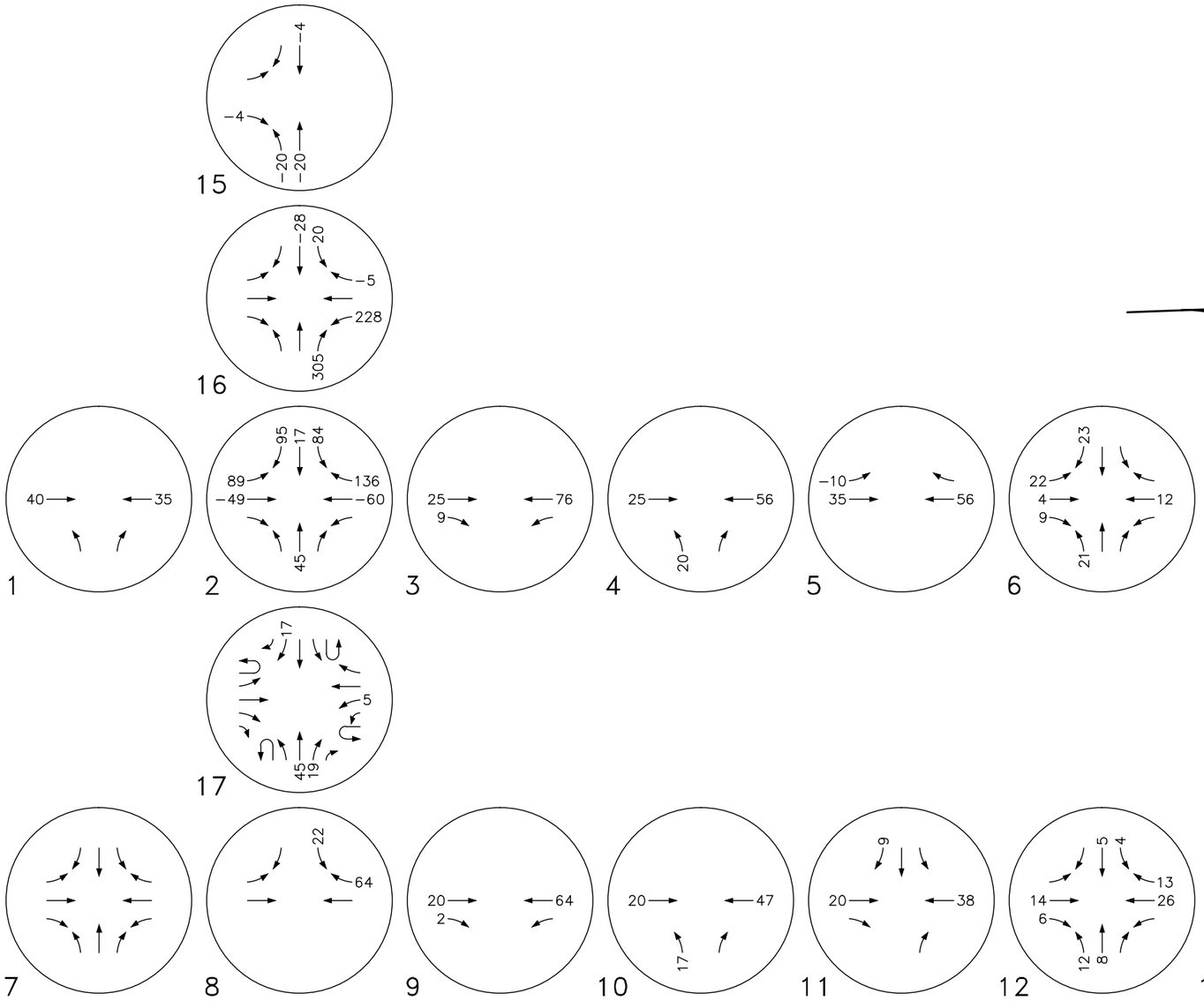
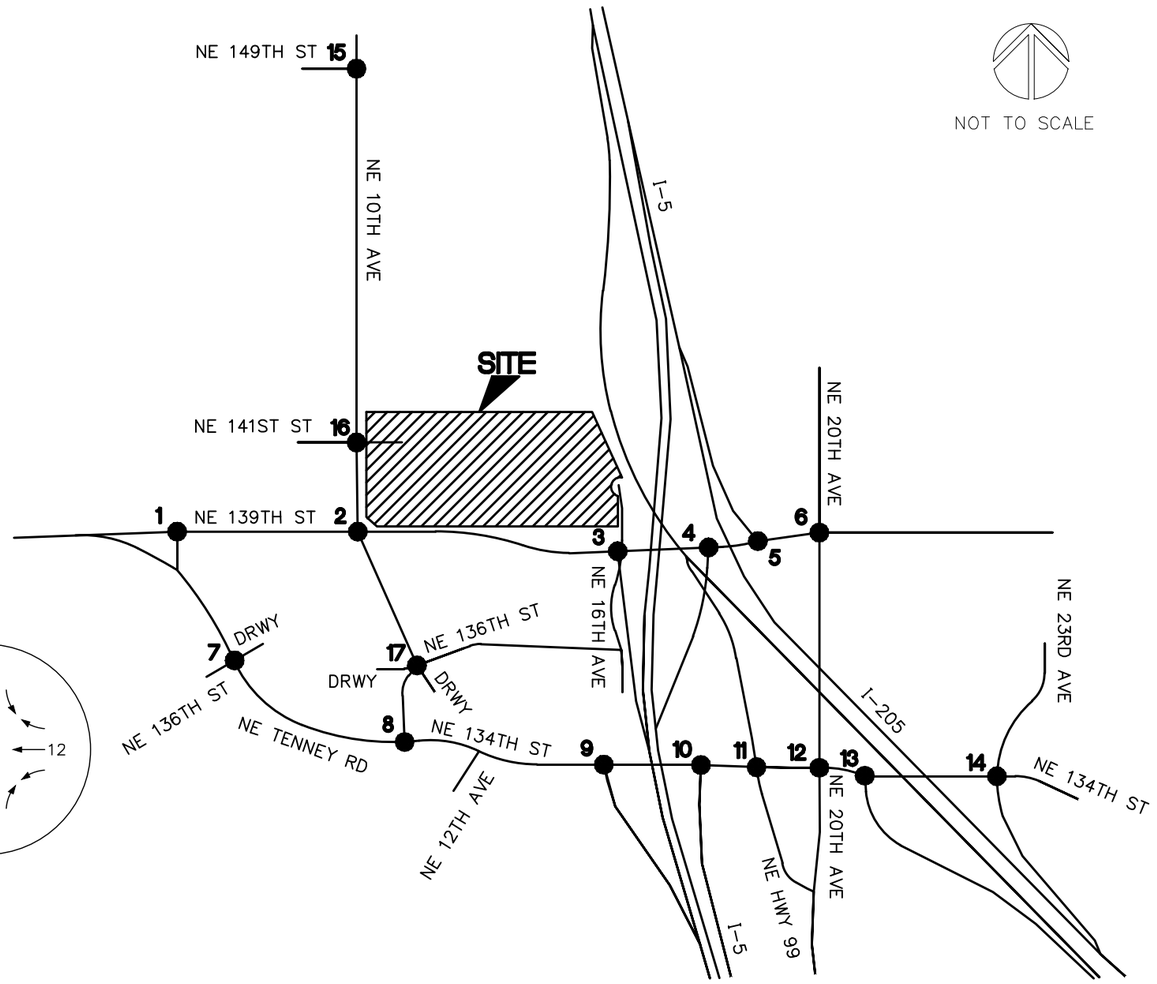
PROPOSED ZONE TOTAL TRIP ASSIGNMENT - WEEKDAY PM PEAK HOUR

REZONE AT NE 139TH ST/NE 10TH AVE
CLARK COUNTY, WASHINGTON

FIGURE
14





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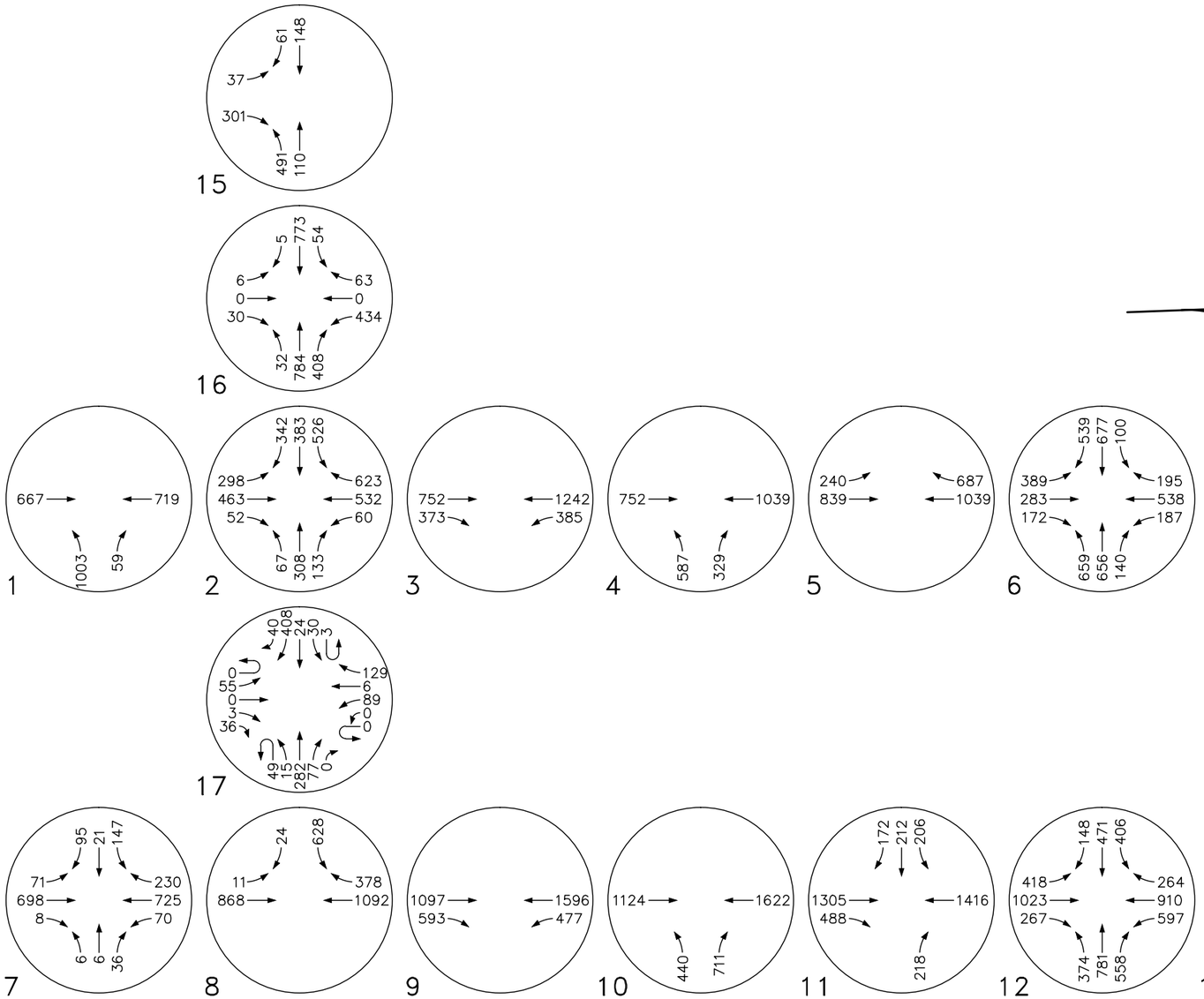
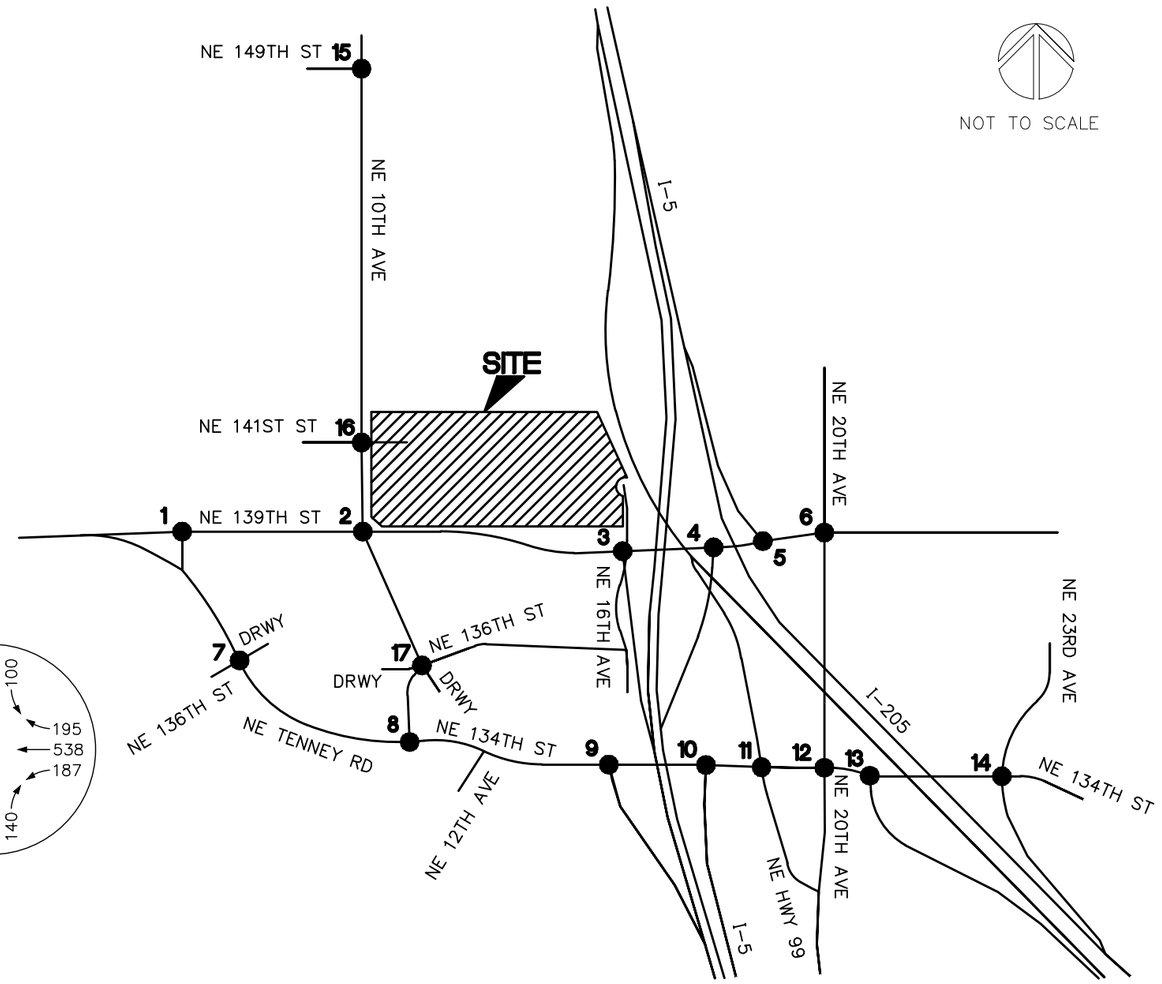
NET TRIP IMPACT FROM REZONE - WEEKDAY PM PEAK HOUR

REZONE AT NE 139TH ST/NE 10TH AVE
CLARK COUNTY, WASHINGTON

FIGURE 15





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2035 POST DEVELOPMENT WITH PROPOSED ZONING - WEEKDAY PM PEAK HOUR

REZONE AT NE 139TH ST/NE 10TH AVE
CLARK COUNTY, WASHINGTON

FIGURE 16

APPENDIX B

TRAFFIC COUNT SUMMARIES

Type of peak hour being reported: User-Defined

Method for determining peak hour: Total Entering Volume

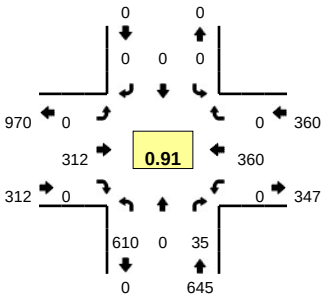
LOCATION: NE Tenney Rd -- NE 139th St

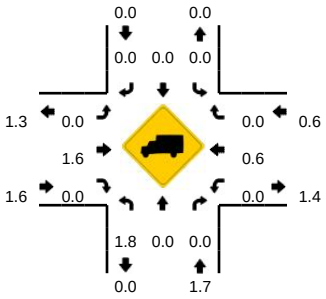
QC JOB #: 13002107

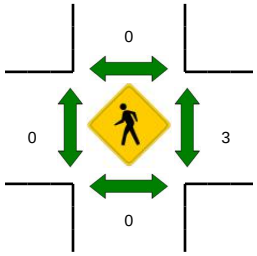
CITY/STATE: Salmon Creek, WA

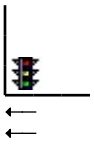
DATE: Tue, Sep 23 2014

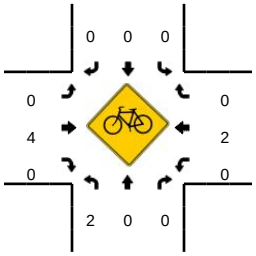
Peak-Hour: 4:40 PM -- 5:40 PM
Peak 15-Min: 5:10 PM -- 5:25 PM

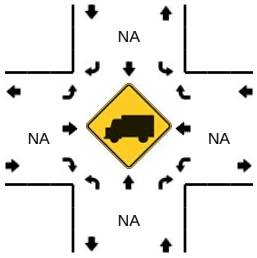


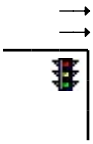


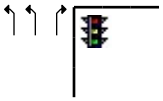


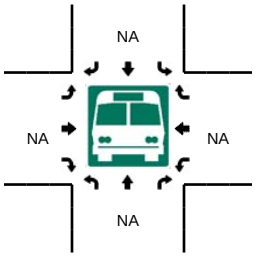












5-Min Count Period Beginning At	NE Tenney Rd (Northbound)				NE Tenney Rd (Southbound)				NE 139th St (Eastbound)				NE 139th St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	43	0	5	0	0	0	0	0	0	19	0	0	0	19	0	0	86	
4:05 PM	43	0	7	0	0	0	0	0	0	27	0	0	0	13	0	0	90	
4:10 PM	53	0	5	0	0	0	0	0	0	12	0	0	0	24	0	0	94	
4:15 PM	46	0	1	0	0	0	0	0	0	18	0	0	0	17	0	0	82	
4:20 PM	36	0	1	0	0	0	0	0	0	21	0	0	0	29	0	0	87	
4:25 PM	43	0	4	0	0	0	0	0	0	21	0	0	0	17	0	0	85	
4:30 PM	42	0	1	0	0	0	0	0	0	18	0	0	0	23	0	0	84	
4:35 PM	40	0	0	0	0	0	0	0	0	17	0	0	0	21	0	0	78	
4:40 PM	59	0	0	0	0	0	0	0	0	26	0	0	0	28	0	0	113	
4:45 PM	44	0	2	0	0	0	0	0	0	17	0	0	0	37	0	0	100	
4:50 PM	55	0	2	0	0	0	0	0	0	26	0	0	0	30	0	0	113	
4:55 PM	47	0	4	0	0	0	0	0	0	17	0	0	0	32	0	0	100	1112
5:00 PM	48	0	2	0	0	0	0	0	0	23	0	0	0	27	0	0	100	1126
5:05 PM	34	0	4	0	0	0	0	0	0	29	0	0	0	30	0	0	97	1133
5:10 PM	51	0	5	0	0	0	0	0	0	35	0	0	0	26	0	0	117	1156
5:15 PM	59	0	4	0	0	0	0	0	0	25	0	0	0	40	0	0	128	1202
5:20 PM	47	0	3	0	0	0	0	0	0	29	0	0	0	39	0	0	118	1233
5:25 PM	57	0	2	0	0	0	0	0	0	27	0	0	0	26	0	0	112	1260
5:30 PM	52	0	6	0	0	0	0	0	0	23	0	0	0	17	0	0	98	1274
5:35 PM	57	0	1	0	0	0	0	0	0	35	0	0	0	28	0	0	121	1317
5:40 PM	52	0	4	0	0	0	0	0	0	21	0	0	0	24	0	0	101	1305
5:45 PM	46	0	4	0	0	0	0	0	0	20	0	0	0	23	0	0	93	1298
5:50 PM	59	0	1	0	0	0	0	0	0	24	0	0	0	21	0	0	105	1290
5:55 PM	56	0	2	0	0	0	0	0	0	14	0	0	0	23	0	0	95	1285

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	628	0	48	0	0	0	0	0	0	356	0	0	0	420	0	0	1452
Heavy Trucks	16	0	0		0	0	0		0	8	0		0	0	0		24
Pedestrians		0				0				0				0			0
Bicycles	2	0	0		0	0	0		0	0	0		0	2	0		4
Railroad																	
Stopped Buses																	

Comments:

Report generated on 9/30/2014 2:05 PM

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

Type of peak hour being reported: User-Defined

Method for determining peak hour: Total Entering Volume

LOCATION: NE 10th Ave -- NE 139th St

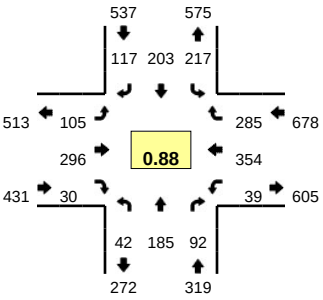
CITY/STATE: Salmon Creek, WA

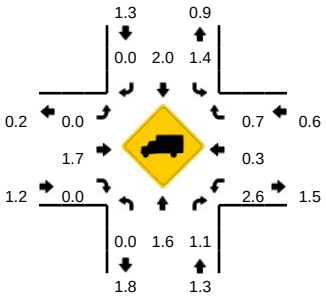
QC JOB #: 13002106

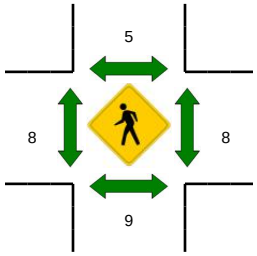
DATE: Tue, Sep 23 2014

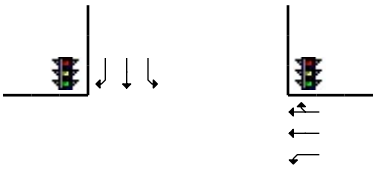
Peak-Hour: 4:40 PM -- 5:40 PM

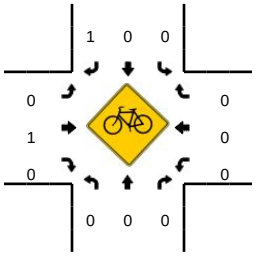
Peak 15-Min: 5:10 PM -- 5:25 PM

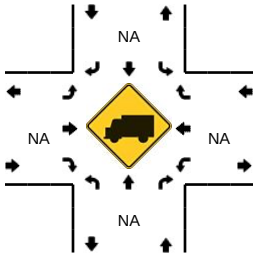


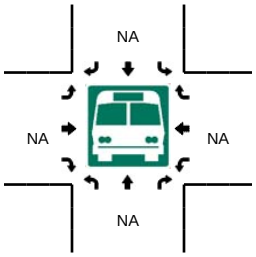












5-Min Count Period Beginning At	NE 10th Ave (Northbound)				NE 10th Ave (Southbound)				NE 139th St (Eastbound)				NE 139th St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	8	14	5	0	19	17	9	0	6	19	1	0	0	17	15	0	130	
4:05 PM	0	11	6	0	16	18	5	0	9	26	5	0	4	19	15	0	134	
4:10 PM	4	6	18	0	18	12	2	0	14	15	1	0	0	25	17	0	132	
4:15 PM	0	10	12	0	14	15	5	0	8	19	2	0	6	20	22	0	133	
4:20 PM	1	12	2	0	13	6	7	0	2	23	0	0	6	27	28	0	127	
4:25 PM	1	13	6	0	12	4	6	0	9	19	2	0	4	17	24	0	117	
4:30 PM	1	17	4	0	12	18	12	0	11	15	4	0	3	24	22	0	143	
4:35 PM	1	20	17	0	13	12	3	0	4	24	2	0	3	18	14	0	131	
4:40 PM	6	12	3	0	16	16	13	0	9	16	3	0	4	34	22	0	154	
4:45 PM	3	14	5	0	12	10	11	0	4	11	3	0	4	29	16	0	122	
4:50 PM	4	17	7	0	23	22	7	0	8	34	3	0	2	22	21	0	170	
4:55 PM	3	20	3	0	18	15	7	0	7	20	2	0	3	31	25	0	154	1647
5:00 PM	3	26	3	0	23	18	13	0	9	16	4	0	5	23	22	0	165	1682
5:05 PM	3	7	9	0	22	25	10	0	11	29	1	0	2	27	21	0	167	1715
5:10 PM	3	16	7	0	26	16	11	0	7	42	1	0	4	28	26	0	187	1770
5:15 PM	3	16	12	0	17	16	14	0	7	20	3	0	3	39	39	0	189	1826
5:20 PM	8	12	16	0	11	14	2	0	17	32	4	0	3	41	21	0	181	1880
5:25 PM	3	21	9	0	16	17	9	0	2	27	1	0	6	24	28	0	163	1926
5:30 PM	3	13	12	0	15	20	6	0	5	23	3	0	2	29	25	0	156	1939
5:35 PM	0	11	6	0	18	14	14	0	19	26	2	0	1	27	19	0	157	1965
5:40 PM	1	12	15	0	13	19	4	0	8	8	3	0	8	28	21	0	140	1951
5:45 PM	4	13	9	0	16	9	8	0	6	28	2	0	0	26	14	0	135	1964
5:50 PM	1	12	5	0	12	7	12	0	13	17	2	0	2	23	24	0	130	1924
5:55 PM	0	15	6	0	12	12	5	0	10	17	3	0	2	27	30	0	139	1909

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	56	176	140	0	216	184	108	0	124	376	32	0	40	432	344	0	2228
Heavy Trucks	0	0	4		4	4	0		0	12	0		0	0	0		24
Pedestrians		16				8				12				12			48
Bicycles	0	0	0		0	0	1		0	0	0		0	0	0		1
Railroad																	
Stopped Buses																	

Comments:

Report generated on 9/30/2014 2:05 PM

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

Type of peak hour being reported: User-Defined

Method for determining peak hour: Total Entering Volume

LOCATION: I-5 SB On Ramp -- NE 139th St

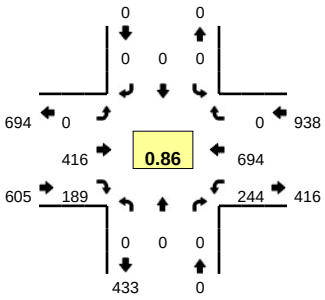
CITY/STATE: Salmon Creek, WA

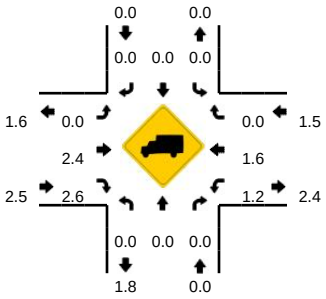
QC JOB #: 13002117

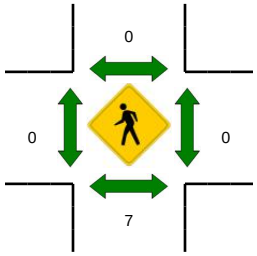
DATE: Tue, Sep 23 2014

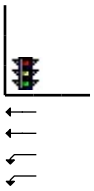
Peak-Hour: 4:40 PM -- 5:40 PM

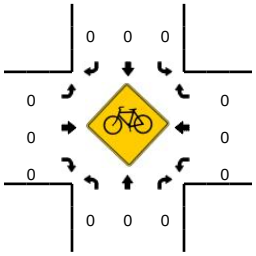
Peak 15-Min: 5:10 PM -- 5:25 PM

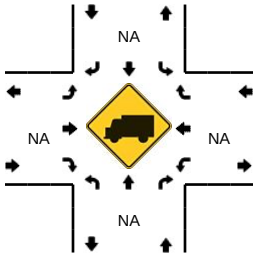


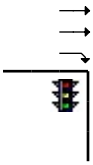


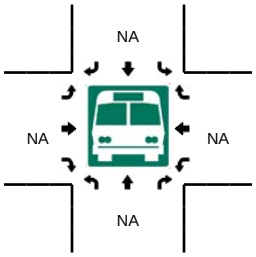












5-Min Count Period Beginning At	I-5 SB On Ramp (Northbound)				I-5 SB On Ramp (Southbound)				NE 139th St (Eastbound)				NE 139th St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	0	0	0	0	0	0	0	0	0	28	10	0	20	28	0	0	86	
4:05 PM	0	0	0	0	0	0	0	0	0	33	9	0	13	36	0	0	91	
4:10 PM	0	0	0	0	0	0	0	0	0	38	17	0	14	46	0	0	115	
4:15 PM	0	0	0	0	0	0	0	0	0	37	9	0	15	46	0	0	107	
4:20 PM	0	0	0	0	0	0	0	0	0	23	17	0	22	57	0	0	119	
4:25 PM	0	0	0	0	0	0	0	0	0	21	15	0	11	46	0	0	93	
4:30 PM	0	0	0	0	0	0	0	0	0	20	13	0	20	50	0	0	103	
4:35 PM	0	0	0	0	0	0	0	0	0	37	12	0	20	35	0	0	104	
4:40 PM	0	0	0	0	0	0	0	0	0	24	17	0	7	61	0	0	109	
4:45 PM	0	0	0	0	0	0	0	0	0	23	7	0	27	49	0	0	106	
4:50 PM	0	0	0	0	0	0	0	0	0	37	11	0	13	45	0	0	106	
4:55 PM	0	0	0	0	0	0	0	0	0	36	14	0	19	65	0	0	134	1273
5:00 PM	0	0	0	0	0	0	0	0	0	23	12	0	27	50	0	0	112	1299
5:05 PM	0	0	0	0	0	0	0	0	0	47	20	0	19	55	0	0	141	1349
5:10 PM	0	0	0	0	0	0	0	0	0	50	21	0	21	59	0	0	151	1385
5:15 PM	0	0	0	0	0	0	0	0	0	29	19	0	24	73	0	0	145	1423
5:20 PM	0	0	0	0	0	0	0	0	0	43	18	0	23	70	0	0	154	1458
5:25 PM	0	0	0	0	0	0	0	0	0	36	16	0	24	55	0	0	131	1496
5:30 PM	0	0	0	0	0	0	0	0	0	38	15	0	26	62	0	0	141	1534
5:35 PM	0	0	0	0	0	0	0	0	0	30	19	0	14	50	0	0	113	1543
5:40 PM	0	0	0	0	0	0	0	0	0	23	16	0	21	58	0	0	118	1552
5:45 PM	0	0	0	0	0	0	0	0	0	35	13	0	16	41	0	0	105	1551
5:50 PM	0	0	0	0	0	0	0	0	0	28	18	0	17	47	0	0	110	1555
5:55 PM	0	0	0	0	0	0	0	0	0	26	11	0	12	60	0	0	109	1530

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	0	0	0	0	0	0	0	0	0	488	232	0	272	808	0	0	1800
Heavy Trucks	0	0	0		0	0	0		0	20	8		0	12	0		40
Pedestrians		12				0				0				0			12
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Railroad																	
Stopped Buses																	

Comments:

Report generated on 9/30/2014 2:05 PM

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

Type of peak hour being reported: User-Defined

Method for determining peak hour: Total Entering Volume

LOCATION: I-5 NB Off Ramp -- NE 139th St

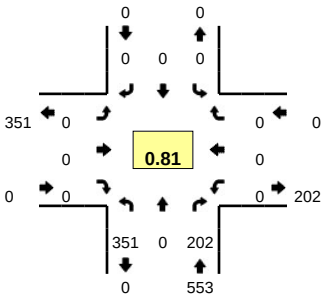
CITY/STATE: Mount Vista, WA

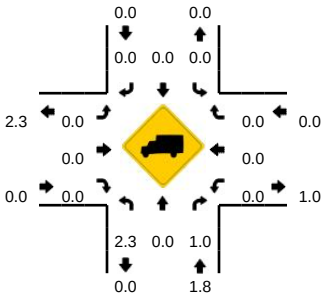
QC JOB #: 13002116

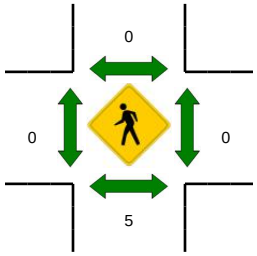
DATE: Tue, Sep 23 2014

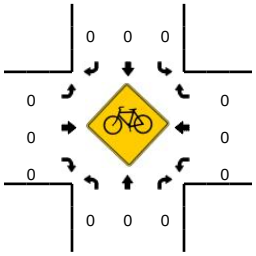
Peak-Hour: 4:40 PM -- 5:40 PM

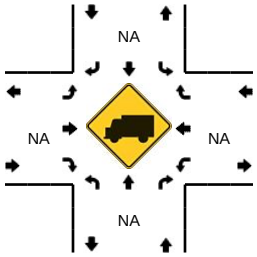
Peak 15-Min: 5:10 PM -- 5:25 PM

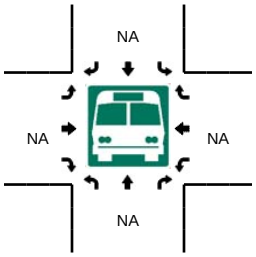












5-Min Count Period Beginning At	I-5 NB Off Ramp (Northbound)				I-5 NB Off Ramp (Southbound)				NE 139th St (Eastbound)				NE 139th St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	11	0	7	0	0	0	0	0	0	0	0	0	0	0	0	0	18	
4:05 PM	14	0	9	0	0	0	0	0	0	0	0	0	0	0	0	0	23	
4:10 PM	25	0	21	0	0	0	0	0	0	0	0	0	0	0	0	0	46	
4:15 PM	25	0	17	0	0	0	0	0	0	0	0	0	0	0	0	0	42	
4:20 PM	27	0	21	0	0	0	0	0	0	0	0	0	0	0	0	0	48	
4:25 PM	21	0	17	0	0	0	0	0	0	0	0	0	0	0	0	0	38	
4:30 PM	28	0	17	0	0	0	0	0	0	0	0	0	0	0	0	0	45	
4:35 PM	20	0	9	0	0	0	0	0	0	0	0	0	0	0	0	0	29	
4:40 PM	24	0	21	0	0	0	0	0	0	0	0	0	0	0	0	0	45	
4:45 PM	23	0	15	0	0	0	0	0	0	0	0	0	0	0	0	0	38	
4:50 PM	29	0	19	0	0	0	0	0	0	0	0	0	0	0	0	0	48	
4:55 PM	40	0	16	0	0	0	0	0	0	0	0	0	0	0	0	0	56	476
5:00 PM	29	0	11	0	0	0	0	0	0	0	0	0	0	0	0	0	40	498
5:05 PM	24	0	8	0	0	0	0	0	0	0	0	0	0	0	0	0	32	507
5:10 PM	25	0	19	0	0	0	0	0	0	0	0	0	0	0	0	0	44	505
5:15 PM	47	0	26	0	0	0	0	0	0	0	0	0	0	0	0	0	73	536
5:20 PM	34	0	20	0	0	0	0	0	0	0	0	0	0	0	0	0	54	542
5:25 PM	23	0	16	0	0	0	0	0	0	0	0	0	0	0	0	0	39	543
5:30 PM	35	0	13	0	0	0	0	0	0	0	0	0	0	0	0	0	48	546
5:35 PM	18	0	18	0	0	0	0	0	0	0	0	0	0	0	0	0	36	553
5:40 PM	27	0	19	0	0	0	0	0	0	0	0	0	0	0	0	0	46	554
5:45 PM	22	0	17	0	0	0	0	0	0	0	0	0	0	0	0	0	39	555
5:50 PM	24	0	16	0	0	0	0	0	0	0	0	0	0	0	0	0	40	547
5:55 PM	28	0	16	0	0	0	0	0	0	0	0	0	0	0	0	0	44	535

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	424	0	260	0	0	0	0	0	0	0	0	0	0	0	0	0	684
Heavy Trucks	12	0	4		0	0	0		0	0	0		0	0	0		16
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Railroad																	
Stopped Buses																	

Comments:

Report generated on 9/30/2014 2:05 PM

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

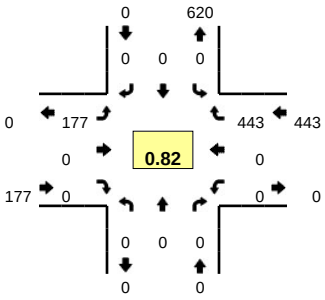
Type of peak hour being reported: User-Defined

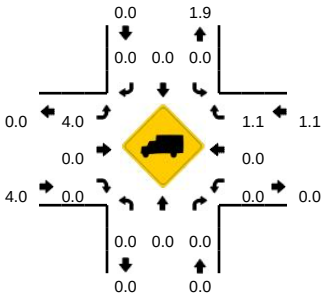
Method for determining peak hour: Total Entering Volume

LOCATION: I-205 NB On Ramp -- NE 139th St
CITY/STATE: Mount Vista, WA

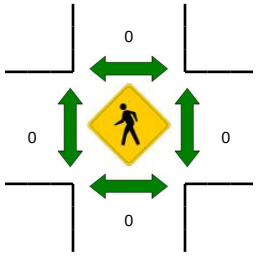
QC JOB #: 13002115
DATE: Tue, Sep 23 2014

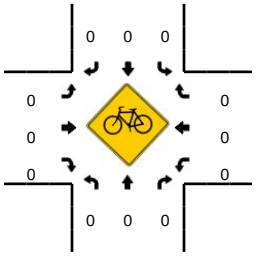
Peak-Hour: 4:40 PM -- 5:40 PM
Peak 15-Min: 5:05 PM -- 5:20 PM

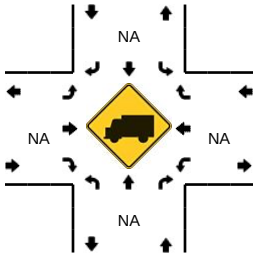


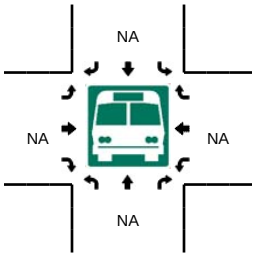


Quality Counts
TRANSPORTATION DATA COLLECTION SERVICES









5-Min Count Period Beginning At	I-205 NB On Ramp (Northbound)				I-205 NB On Ramp (Southbound)				NE 139th St (Eastbound)				NE 139th St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	0	0	0	0	0	0	0	0	8	0	0	0	0	0	44	0	52	
4:05 PM	0	0	0	0	0	0	0	0	19	0	0	0	0	0	29	0	48	
4:10 PM	0	0	0	0	0	0	0	0	18	0	0	0	0	0	41	0	59	
4:15 PM	0	0	0	0	0	0	0	0	18	0	0	0	0	0	38	0	56	
4:20 PM	0	0	0	0	0	0	0	0	4	0	0	0	0	0	31	0	35	
4:25 PM	0	0	0	0	0	0	0	0	6	0	0	0	0	0	40	0	46	
4:30 PM	0	0	0	0	0	0	0	0	8	0	0	0	0	0	28	0	36	
4:35 PM	0	0	0	0	0	0	0	0	14	0	0	0	0	0	33	0	47	
4:40 PM	0	0	0	0	0	0	0	0	11	0	0	0	0	0	42	0	53	
4:45 PM	0	0	0	0	0	0	0	0	7	0	0	0	0	0	35	0	42	
4:50 PM	0	0	0	0	0	0	0	0	15	0	0	0	0	0	30	0	45	
4:55 PM	0	0	0	0	0	0	0	0	20	0	0	0	0	0	27	0	47	566
5:00 PM	0	0	0	0	0	0	0	0	10	0	0	0	0	0	34	0	44	558
5:05 PM	0	0	0	0	0	0	0	0	16	0	0	0	0	0	49	0	65	575
5:10 PM	0	0	0	0	0	0	0	0	20	0	0	0	0	0	48	0	68	584
5:15 PM	0	0	0	0	0	0	0	0	15	0	0	0	0	0	42	0	57	585
5:20 PM	0	0	0	0	0	0	0	0	20	0	0	0	0	0	37	0	57	607
5:25 PM	0	0	0	0	0	0	0	0	16	0	0	0	0	0	24	0	40	601
5:30 PM	0	0	0	0	0	0	0	0	16	0	0	0	0	0	48	0	64	629
5:35 PM	0	0	0	0	0	0	0	0	11	0	0	0	0	0	27	0	38	620
5:40 PM	0	0	0	0	0	0	0	0	6	0	0	0	0	0	49	0	55	622
5:45 PM	0	0	0	0	0	0	0	0	12	0	0	0	0	0	19	0	31	611
5:50 PM	0	0	0	0	0	0	0	0	8	0	0	0	0	0	41	0	49	615
5:55 PM	0	0	0	0	0	0	0	0	4	0	0	0	0	0	37	0	41	609

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	0	0	0	0	0	0	0	0	204	0	0	0	0	0	556	0	760
Heavy Trucks	0	0	0		0	0	0		4	0	0		0	0	12		16
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Railroad																	
Stopped Buses																	

Comments:

Report generated on 9/30/2014 2:05 PM

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

Type of peak hour being reported: User-Defined

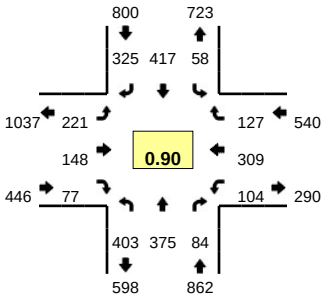
Method for determining peak hour: Total Entering Volume

LOCATION: NE 20th Ave -- NE 139th St

CITY/STATE: Mount Vista, WA

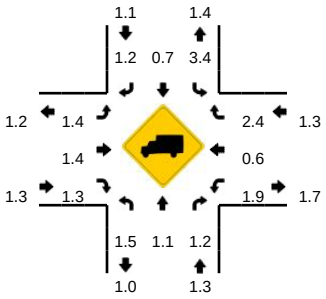
QC JOB #: 13002105

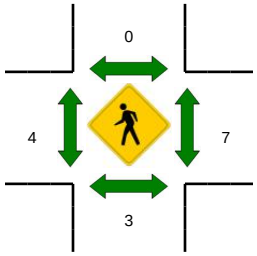
DATE: Tue, Sep 23 2014

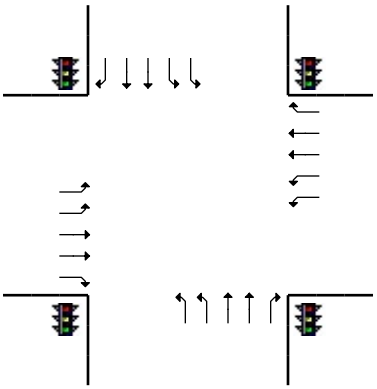


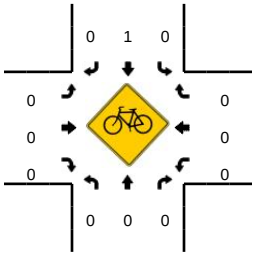
Peak-Hour: 4:40 PM -- 5:40 PM

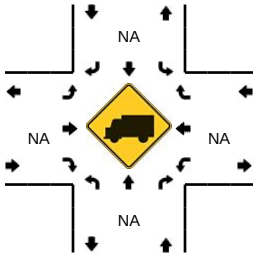
Peak 15-Min: 5:10 PM -- 5:25 PM

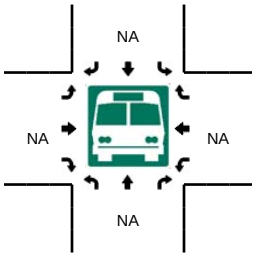












5-Min Count Period Beginning At	NE 20th Ave (Northbound)				NE 20th Ave (Southbound)				NE 139th St (Eastbound)				NE 139th St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	28	50	10	0	5	33	23	0	6	12	3	0	5	26	14	0	215	
4:05 PM	33	36	7	0	2	28	18	0	13	8	6	0	8	21	11	0	191	
4:10 PM	38	42	6	0	5	33	16	0	23	13	3	0	4	16	5	0	204	
4:15 PM	28	38	8	0	4	35	25	0	13	10	4	0	11	25	12	0	213	
4:20 PM	26	38	7	0	3	26	26	0	24	14	9	0	11	26	8	0	218	
4:25 PM	39	32	7	0	5	38	17	0	17	9	5	0	3	24	16	0	212	
4:30 PM	26	35	6	0	6	23	17	0	17	4	5	0	3	25	12	0	179	
4:35 PM	23	38	7	0	6	40	16	0	15	11	9	0	0	27	8	0	200	
4:40 PM	41	27	11	0	3	37	24	0	22	11	4	0	9	31	12	0	232	
4:45 PM	30	33	6	0	5	28	33	0	19	12	2	0	6	15	8	0	197	
4:50 PM	26	40	13	0	9	40	19	0	15	16	8	0	3	20	11	0	220	
4:55 PM	17	24	3	0	1	38	29	0	18	9	8	0	8	23	11	0	189	2470
5:00 PM	40	28	8	0	5	34	38	0	13	3	9	0	6	15	14	0	213	2468
5:05 PM	42	37	6	0	3	31	21	0	12	11	6	0	11	33	7	0	220	2497
5:10 PM	44	36	7	0	5	31	22	0	24	15	5	0	15	39	15	0	258	2551
5:15 PM	38	29	2	0	8	36	29	0	30	12	7	0	12	25	14	0	242	2580
5:20 PM	31	29	11	0	3	36	39	0	22	16	6	0	10	28	6	0	237	2599
5:25 PM	32	28	7	0	5	43	27	0	19	13	6	0	8	25	7	0	220	2607
5:30 PM	35	39	6	0	6	36	24	0	22	12	9	0	11	25	12	0	237	2665
5:35 PM	27	25	4	0	5	27	20	0	5	18	7	0	5	30	10	0	183	2648
5:40 PM	34	34	7	0	5	25	23	0	31	10	5	0	12	35	8	0	229	2645
5:45 PM	17	33	4	0	10	29	17	0	18	11	5	0	2	21	5	0	172	2620
5:50 PM	44	29	5	0	3	36	21	0	22	18	4	0	1	20	6	0	209	2609
5:55 PM	39	39	11	0	2	23	22	0	15	5	6	0	4	15	10	0	191	2611

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	452	376	80	0	64	412	360	0	304	172	72	0	148	368	140	0	2948
Heavy Trucks	8	8	4		4	4	4		0	4	0		0	0	4		40
Pedestrians		4				0				4				4			12
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Railroad																	
Stopped Buses																	

Comments:

Report generated on 9/30/2014 2:05 PM

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

Type of peak hour being reported: User-Defined

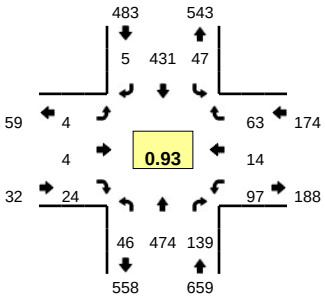
Method for determining peak hour: Total Entering Volume

LOCATION: NE Tenney Rd -- NE 136th St/FM Dwy

QC JOB #: 13002104

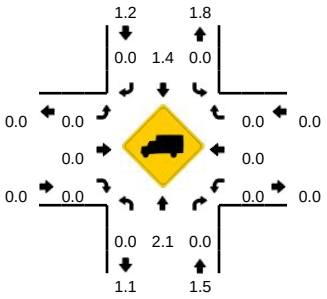
CITY/STATE: Salmon Creek, WA

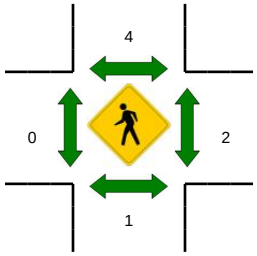
DATE: Tue, Sep 23 2014

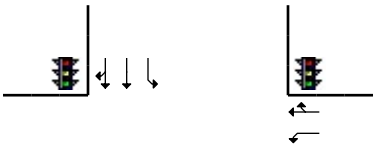


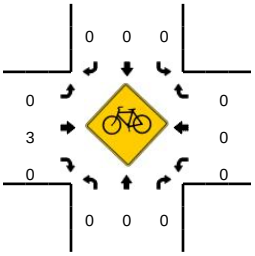
Peak-Hour: 4:40 PM -- 5:40 PM

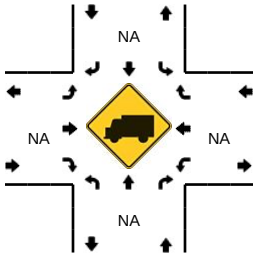
Peak 15-Min: 5:25 PM -- 5:40 PM

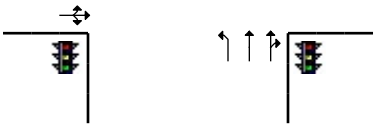


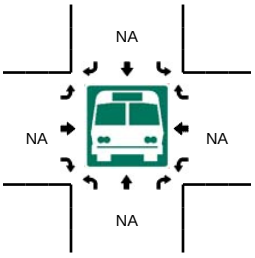












5-Min Count Period Beginning At	NE Tenney Rd (Northbound)				NE Tenney Rd (Southbound)				NE 136th St/FM Dwy (Eastbound)				NE 136th St/FM Dwy (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	4	39	7	0	8	27	0	0	0	1	1	0	13	0	8	0	108	
4:05 PM	2	30	10	0	8	24	0	0	1	2	5	0	17	0	9	0	108	
4:10 PM	2	42	9	0	4	30	1	0	0	0	1	0	12	0	6	0	107	
4:15 PM	5	27	13	2	1	33	1	0	0	0	3	0	7	1	1	0	94	
4:20 PM	3	28	14	1	1	33	0	0	1	0	4	0	10	0	6	0	101	
4:25 PM	6	42	12	0	5	22	0	0	0	1	3	0	4	1	5	0	101	
4:30 PM	3	30	10	0	7	28	0	0	0	0	2	0	16	0	6	0	102	
4:35 PM	2	43	14	0	2	42	0	0	0	2	0	0	15	2	4	0	126	
4:40 PM	2	42	11	1	3	25	0	0	0	1	3	0	3	1	4	0	96	
4:45 PM	5	41	15	0	5	36	0	0	0	0	3	0	8	2	2	0	117	
4:50 PM	3	33	13	2	3	42	0	0	1	0	2	0	6	1	6	0	112	
4:55 PM	4	35	15	0	3	25	0	0	0	0	2	0	6	1	2	0	93	1265
5:00 PM	3	36	6	0	2	44	0	0	0	1	1	0	10	2	4	0	109	1266
5:05 PM	2	30	13	0	3	35	1	0	1	1	2	0	7	2	6	0	103	1261
5:10 PM	4	35	14	1	6	43	1	0	1	0	3	0	10	0	4	0	122	1276
5:15 PM	7	51	12	0	6	32	1	0	0	1	3	0	10	1	7	0	131	1313
5:20 PM	0	43	7	0	3	30	1	0	1	0	0	0	7	1	8	0	101	1313
5:25 PM	6	47	10	1	3	44	0	1	0	0	1	0	10	2	5	0	130	1342
5:30 PM	2	38	13	1	6	43	1	1	0	0	3	0	9	0	8	0	125	1365
5:35 PM	2	43	10	0	2	32	0	0	0	0	1	0	11	1	7	0	109	1348
5:40 PM	5	41	13	0	3	25	0	0	0	0	2	0	10	0	3	0	102	1354
5:45 PM	2	41	7	0	4	25	0	0	0	0	5	0	8	0	8	0	100	1337
5:50 PM	1	48	7	1	3	22	0	0	0	1	1	0	8	0	7	0	99	1324
5:55 PM	2	34	9	0	1	18	0	0	1	1	0	0	9	0	5	0	80	1311

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	40	512	132	8	44	476	4	8	0	0	20	0	120	12	80	0	1456
Heavy Trucks	0	8	0		0	4	0		0	0	0		0	0	0		12
Pedestrians		0				8				0				4			12
Bicycles	0	0	0		0	0	0		0	1	0		0	0	0		1
Railroad																	
Stopped Buses																	

Comments:

Report generated on 10/1/2014 2:15 AM

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

Type of peak hour being reported: User-Defined

Method for determining peak hour: Total Entering Volume

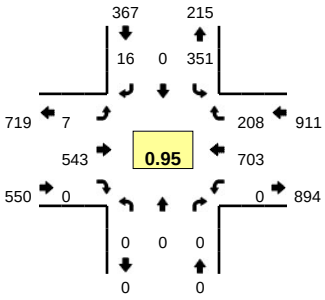
LOCATION: NE 10th Ave -- NE Tenney Rd

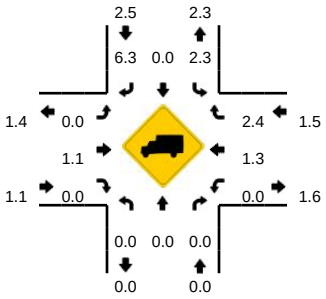
QC JOB #: 13002103

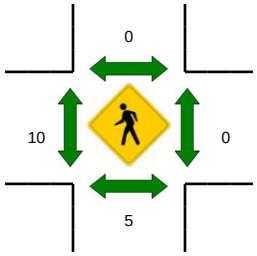
CITY/STATE: Salmon Creek, WA

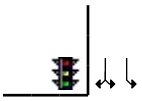
DATE: Tue, Sep 23 2014

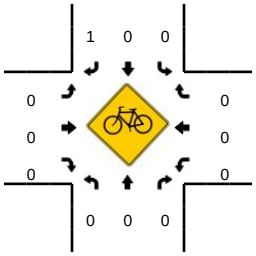
Peak-Hour: 4:40 PM -- 5:40 PM
Peak 15-Min: 5:05 PM -- 5:20 PM

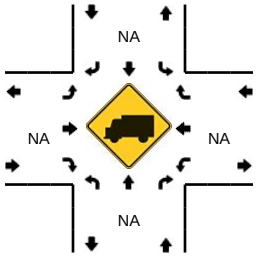


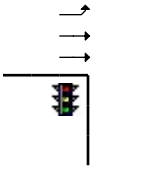


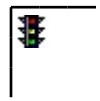


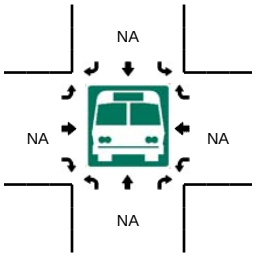












5-Min Count Period Beginning At	NE 10th Ave (Northbound)				NE 10th Ave (Southbound)				NE Tenney Rd (Eastbound)				NE Tenney Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	0	0	0	0	24	0	0	0	3	36	0	0	0	59	20	0	142	
4:05 PM	0	0	0	0	34	0	1	0	2	42	0	0	0	52	7	0	138	
4:10 PM	0	0	0	0	22	0	0	0	0	41	0	0	0	53	14	0	130	
4:15 PM	0	0	0	0	35	0	1	0	1	47	0	0	0	53	11	0	148	
4:20 PM	0	0	0	0	26	0	3	0	3	45	0	0	0	51	20	0	148	
4:25 PM	0	0	0	0	14	0	3	0	1	28	0	0	0	69	20	0	135	
4:30 PM	0	0	0	0	25	0	0	0	1	45	0	0	0	45	26	0	142	
4:35 PM	0	0	0	0	32	0	4	0	2	56	0	0	0	63	14	0	171	
4:40 PM	0	0	0	0	32	0	1	0	0	31	0	0	0	65	23	0	152	
4:45 PM	0	0	0	0	27	0	0	0	1	42	0	0	0	64	22	0	156	
4:50 PM	0	0	0	0	31	0	1	0	0	53	0	0	0	55	16	0	156	
4:55 PM	0	0	0	0	19	0	2	0	0	32	0	0	0	54	15	0	122	1740
5:00 PM	0	0	0	0	30	0	1	0	0	48	0	0	0	42	15	0	136	1734
5:05 PM	0	0	0	0	37	0	4	0	1	48	0	0	0	49	12	0	151	1747
5:10 PM	0	0	0	0	28	0	2	0	3	55	0	0	0	59	25	0	172	1789
5:15 PM	0	0	0	0	31	0	1	0	0	41	0	0	0	69	17	0	159	1800
5:20 PM	0	0	0	0	32	0	0	0	0	35	0	0	0	63	14	0	144	1796
5:25 PM	0	0	0	0	27	0	3	0	0	60	0	0	0	63	18	0	171	1832
5:30 PM	0	0	0	0	37	0	0	0	0	55	0	0	0	58	14	0	164	1854
5:35 PM	0	0	0	0	20	0	1	0	2	43	0	0	0	62	17	0	145	1828
5:40 PM	0	0	0	0	28	0	1	0	0	37	0	0	0	62	12	0	140	1816
5:45 PM	0	0	0	0	31	0	2	0	3	38	0	0	0	56	20	0	150	1810
5:50 PM	0	0	0	0	23	0	1	0	3	23	0	0	0	67	17	0	134	1788
5:55 PM	0	0	0	0	25	0	2	0	1	25	0	0	0	46	18	0	117	1783

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	0	0	0	0	384	0	28	0	16	576	0	0	0	708	216	0	1928
Heavy Trucks	0	0	0		8	0	0		0	16	0		0	12	4		40
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Railroad																	
Stopped Buses																	

Comments:

Report generated on 9/30/2014 2:05 PM

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

Type of peak hour being reported: User-Defined

Method for determining peak hour: Total Entering Volume

LOCATION: I-5 SB On Ramp -- NE 134th St

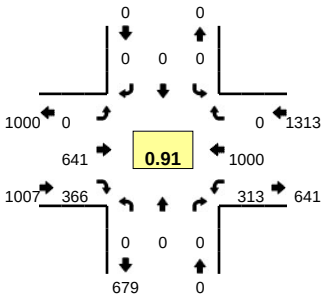
CITY/STATE: Salmon Creek, WA

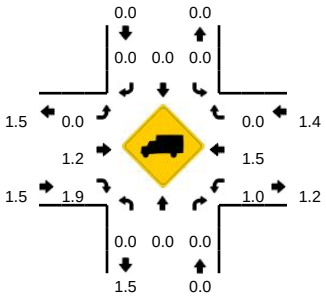
QC JOB #: 13002110

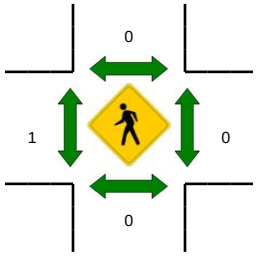
DATE: Tue, Sep 23 2014

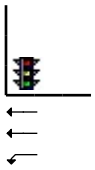
Peak-Hour: 4:40 PM -- 5:40 PM

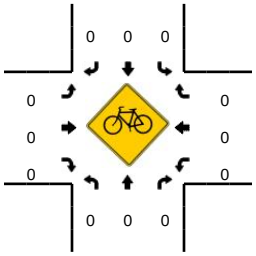
Peak 15-Min: 5:10 PM -- 5:25 PM

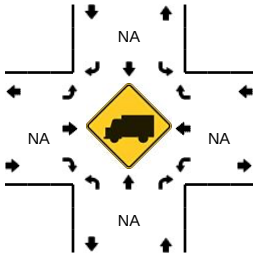


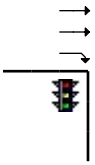


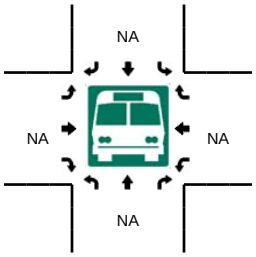












5-Min Count Period Beginning At	I-5 SB On Ramp (Northbound)				I-5 SB On Ramp (Southbound)				NE 134th St (Eastbound)				NE 134th St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	0	0	0	0	0	0	0	0	0	49	10	0	27	85	0	0	171	
4:05 PM	0	0	0	0	0	0	0	0	0	59	17	0	30	72	0	0	178	
4:10 PM	0	0	0	0	0	0	0	0	0	47	34	0	34	82	0	0	197	
4:15 PM	0	0	0	0	0	0	0	0	0	55	32	0	24	63	0	0	174	
4:20 PM	0	0	0	0	0	0	0	0	0	54	26	0	28	81	0	0	189	
4:25 PM	0	0	0	0	0	0	0	0	0	40	17	0	23	88	0	0	168	
4:30 PM	0	0	0	0	0	0	0	0	0	42	23	0	25	76	0	0	166	
4:35 PM	0	0	0	0	0	0	0	0	0	71	31	0	19	80	0	0	201	
4:40 PM	0	0	0	0	0	0	0	0	0	47	20	0	24	98	0	0	189	
4:45 PM	0	0	0	0	0	0	0	0	0	47	28	0	22	94	0	0	191	
4:50 PM	0	0	0	0	0	0	0	0	0	59	33	0	21	75	0	0	188	
4:55 PM	0	0	0	0	0	0	0	0	0	36	25	0	36	82	0	0	179	2191
5:00 PM	0	0	0	0	0	0	0	0	0	59	37	0	22	67	0	0	185	2205
5:05 PM	0	0	0	0	0	0	0	0	0	62	31	0	24	71	0	0	188	2215
5:10 PM	0	0	0	0	0	0	0	0	0	73	36	0	26	97	0	0	232	2250
5:15 PM	0	0	0	0	0	0	0	0	0	60	32	0	33	91	0	0	216	2292
5:20 PM	0	0	0	0	0	0	0	0	0	44	31	0	29	88	0	0	192	2295
5:25 PM	0	0	0	0	0	0	0	0	0	56	34	0	21	84	0	0	195	2322
5:30 PM	0	0	0	0	0	0	0	0	0	52	33	0	29	75	0	0	189	2345
5:35 PM	0	0	0	0	0	0	0	0	0	46	26	0	26	78	0	0	176	2320
5:40 PM	0	0	0	0	0	0	0	0	0	49	19	0	19	82	0	0	169	2300
5:45 PM	0	0	0	0	0	0	0	0	0	52	23	0	31	73	0	0	179	2288
5:50 PM	0	0	0	0	0	0	0	0	0	40	16	0	19	76	0	0	151	2251
5:55 PM	0	0	0	0	0	0	0	0	0	37	19	0	27	70	0	0	153	2225

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	0	0	0	0	0	0	0	0	0	708	396	0	352	1104	0	0	2560
Heavy Trucks	0	0	0		0	0	0		0	12	8		4	16	0		40
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Railroad																	
Stopped Buses																	

Comments:

Report generated on 9/30/2014 2:05 PM

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

Type of peak hour being reported: User-Defined

Method for determining peak hour: Total Entering Volume

LOCATION: I-5 NB Off Ramp -- NE 134th St

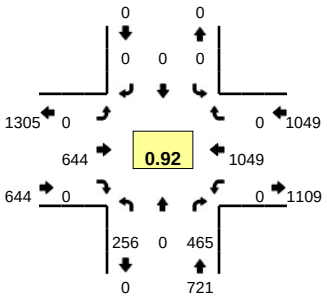
CITY/STATE: Salmon Creek, WA

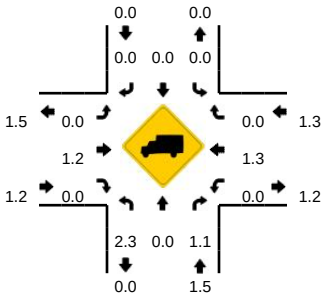
QC JOB #: 13002114

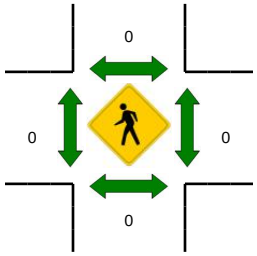
DATE: Tue, Sep 23 2014

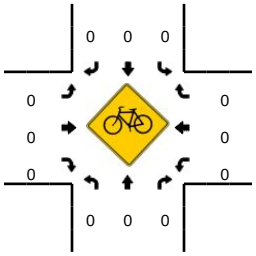
Peak-Hour: 4:40 PM -- 5:40 PM

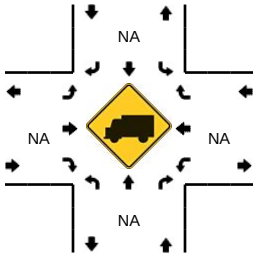
Peak 15-Min: 5:10 PM -- 5:25 PM

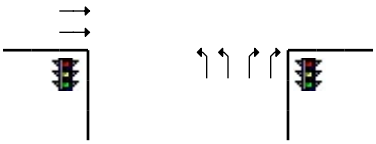


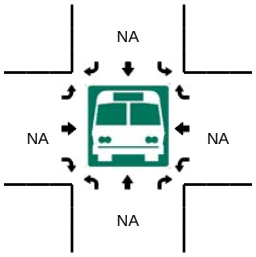












5-Min Count Period Beginning At	I-5 NB Off Ramp (Northbound)				I-5 NB Off Ramp (Southbound)				NE 134th St (Eastbound)				NE 134th St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	18	0	38	0	0	0	0	0	0	50	0	0	0	87	0	0	193	
4:05 PM	28	0	34	0	0	0	0	0	0	58	0	0	0	79	0	1	200	
4:10 PM	17	0	49	0	0	0	0	0	0	47	0	0	0	93	0	0	206	
4:15 PM	18	0	30	0	0	0	0	0	0	55	0	0	0	64	0	0	167	
4:20 PM	36	0	31	0	0	0	0	0	0	51	0	0	0	91	0	0	209	
4:25 PM	19	0	37	0	0	0	0	0	0	38	0	0	0	88	0	0	182	
4:30 PM	21	0	30	0	0	0	0	0	0	46	0	0	0	81	0	0	178	
4:35 PM	21	0	40	0	0	0	0	0	0	71	0	0	0	88	0	0	220	
4:40 PM	22	0	44	0	0	0	0	0	0	48	0	0	0	86	0	0	200	
4:45 PM	27	0	34	0	0	0	0	0	0	48	0	0	0	97	0	0	206	
4:50 PM	23	0	28	0	0	0	0	0	0	58	0	0	0	78	0	0	187	
4:55 PM	18	0	44	0	0	0	0	0	0	36	0	0	0	88	0	0	186	2334
5:00 PM	13	0	30	0	0	0	0	0	0	60	0	0	0	86	0	0	189	2330
5:05 PM	16	0	33	0	0	0	0	0	0	60	0	0	0	79	0	0	188	2318
5:10 PM	29	0	40	0	0	0	0	0	0	77	0	0	0	100	0	0	246	2358
5:15 PM	19	0	45	0	0	0	0	0	0	57	0	0	0	79	0	0	200	2391
5:20 PM	20	0	41	0	0	0	0	0	0	45	0	0	0	106	0	0	212	2394
5:25 PM	15	0	41	0	0	0	0	0	0	59	0	0	0	90	0	0	205	2417
5:30 PM	34	0	37	0	0	0	0	0	0	53	0	0	0	84	0	0	208	2447
5:35 PM	20	0	48	0	0	0	0	0	0	43	0	0	0	76	0	0	187	2414
5:40 PM	19	0	33	0	0	0	0	0	0	48	0	0	0	87	0	0	187	2401
5:45 PM	15	0	35	0	0	0	0	0	0	54	0	0	0	63	0	0	167	2362
5:50 PM	17	0	27	0	0	0	0	0	0	40	0	0	0	94	0	0	178	2353
5:55 PM	16	0	32	0	0	0	0	0	0	37	0	0	0	75	0	0	160	2327

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	272	0	504	0	0	0	0	0	0	716	0	0	0	1140	0	0	2632
Heavy Trucks	4	0	8		0	0	0		0	12	0		0	16	0		40
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Railroad																	
Stopped Buses																	

Comments:

Report generated on 9/30/2014 2:05 PM

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

Type of peak hour being reported: User-Defined

Method for determining peak hour: Total Entering Volume

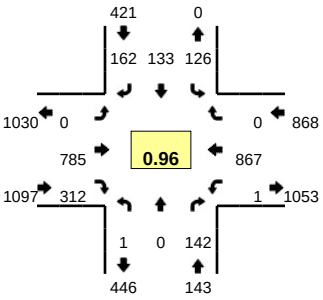
LOCATION: I-205 SB Off Ramp/NE Hwy 99 -- NE 134th St

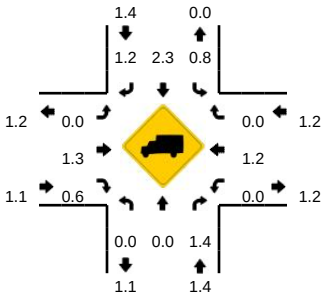
QC JOB #: 13002111

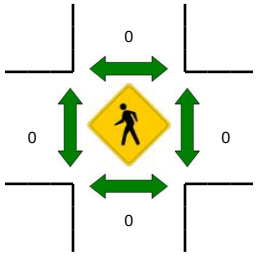
CITY/STATE: Salmon Creek, WA

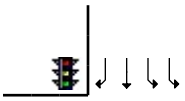
DATE: Tue, Sep 23 2014

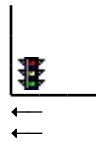
Peak-Hour: 4:40 PM -- 5:40 PM
Peak 15-Min: 5:05 PM -- 5:20 PM

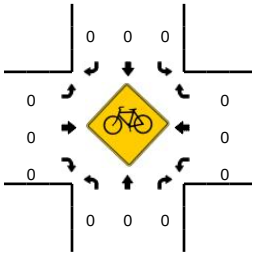


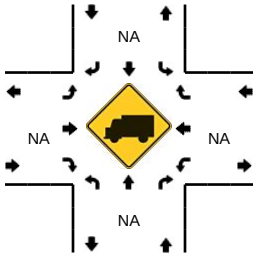


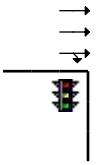


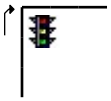


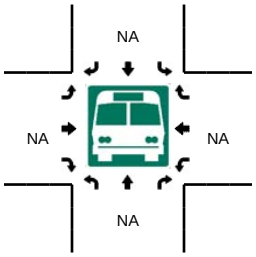












5-Min Count Period Beginning At	I-205 SB Off Ramp/NE Hwy 99 (Northbound)				I-205 SB Off Ramp/NE Hwy 99 (Southbound)				NE 134th St (Eastbound)				NE 134th St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	0	0	5	0	11	7	9	0	0	64	24	0	0	74	0	0	194	
4:05 PM	0	0	14	0	12	16	15	0	0	62	31	0	0	72	0	1	223	
4:10 PM	0	0	12	0	10	15	8	0	0	66	32	0	0	77	0	0	220	
4:15 PM	0	0	10	0	12	11	8	0	0	61	25	0	0	57	0	0	184	
4:20 PM	0	0	10	0	7	7	12	0	0	53	27	0	0	82	0	0	198	
4:25 PM	0	0	4	0	5	13	17	0	0	50	25	0	0	73	0	0	187	
4:30 PM	0	0	14	0	5	11	10	0	0	56	17	0	0	70	0	0	183	
4:35 PM	0	0	7	0	8	9	18	0	0	81	31	0	0	67	0	0	221	
4:40 PM	0	0	12	0	21	15	16	0	0	60	30	0	0	68	0	0	222	
4:45 PM	0	0	12	0	14	12	15	0	0	57	24	0	0	77	0	0	211	
4:50 PM	0	0	11	0	10	12	10	0	0	64	23	0	0	68	0	0	198	
4:55 PM	0	0	21	0	7	8	10	0	0	49	31	0	0	79	0	0	205	2446
5:00 PM	0	0	13	0	3	7	16	0	0	64	25	0	0	71	0	0	199	2451
5:05 PM	0	0	16	0	6	14	11	0	0	68	22	0	0	67	0	0	204	2432
5:10 PM	0	0	5	0	11	10	16	0	0	95	23	0	0	86	0	0	246	2458
5:15 PM	0	0	9	0	7	13	19	0	0	72	24	0	0	66	0	0	210	2484
5:20 PM	0	0	8	0	9	9	11	0	0	61	26	0	0	72	0	0	196	2482
5:25 PM	0	0	8	0	11	13	18	0	0	74	24	0	1	74	0	0	223	2518
5:30 PM	1	0	16	0	12	11	11	0	0	62	25	0	0	67	0	0	205	2540
5:35 PM	0	0	11	0	15	9	9	0	0	59	35	0	0	72	0	0	210	2529
5:40 PM	0	0	10	0	7	17	15	0	0	57	22	0	0	65	0	0	193	2500
5:45 PM	0	0	13	0	14	11	14	0	0	61	31	0	0	56	0	0	200	2489
5:50 PM	0	0	12	0	7	9	17	0	0	42	26	0	0	73	0	0	186	2477
5:55 PM	0	0	8	0	11	8	10	0	0	49	19	0	0	69	0	1	175	2447

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	0	0	120	0	96	148	184	0	0	940	276	0	0	876	0	0	2640
Heavy Trucks	0	0	0		4	4	4		0	16	4		0	4	0		36
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Railroad																	
Stopped Buses																	

Comments:

Report generated on 9/30/2014 2:05 PM

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

Type of peak hour being reported: User-Defined

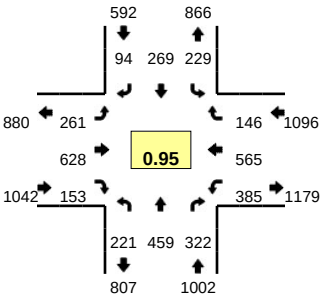
Method for determining peak hour: Total Entering Volume

LOCATION: NE 20th Ave/NE Hwy 99 -- NE 134th St

QC JOB #: 13002102

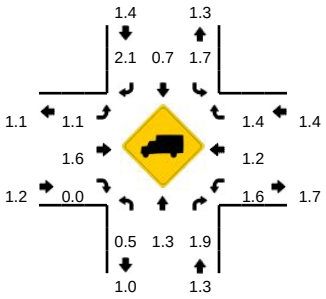
CITY/STATE: Salmon Creek, WA

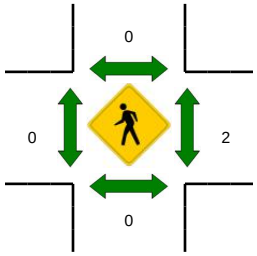
DATE: Tue, Sep 23 2014

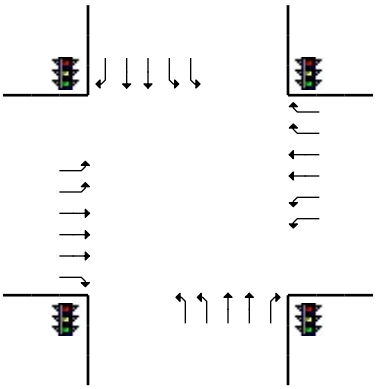


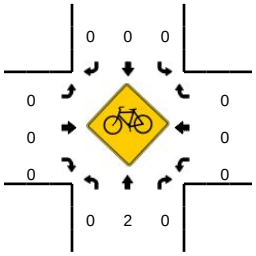
Peak-Hour: 4:40 PM -- 5:40 PM

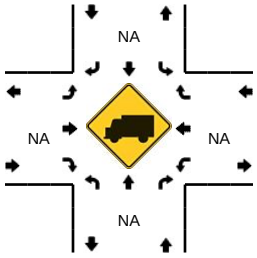
Peak 15-Min: 5:10 PM -- 5:25 PM

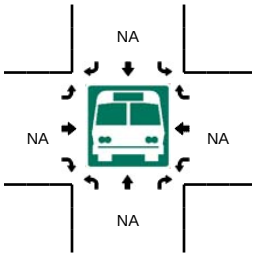












5-Min Count Period Beginning At	NE 20th Ave/NE Hwy 99 (Northbound)				NE 20th Ave/NE Hwy 99 (Southbound)				NE 134th St (Eastbound)				NE 134th St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	25	34	27	0	19	14	5	0	30	58	6	0	30	49	13	0	310	
4:05 PM	16	41	43	0	15	21	7	0	21	42	13	0	39	44	24	0	326	
4:10 PM	27	39	25	0	21	20	6	0	29	50	19	0	30	46	14	0	326	
4:15 PM	15	39	36	0	15	24	4	0	24	38	11	0	35	36	18	0	295	
4:20 PM	16	36	26	0	20	21	8	0	18	47	9	0	32	59	20	0	312	
4:25 PM	17	39	19	0	22	21	4	0	18	39	10	0	34	49	17	0	289	
4:30 PM	20	38	29	0	13	23	3	0	18	41	7	0	35	49	7	0	283	
4:35 PM	21	26	20	0	22	19	6	0	24	60	14	0	34	42	15	0	303	
4:40 PM	14	42	31	0	18	33	8	0	36	43	14	0	31	39	11	0	320	
4:45 PM	18	41	26	0	14	17	8	0	23	45	13	0	31	58	11	0	305	
4:50 PM	28	49	34	0	13	25	10	0	18	51	12	0	26	33	10	0	309	
4:55 PM	19	25	14	0	11	20	11	0	15	45	14	0	26	52	10	0	262	3640
5:00 PM	17	31	35	0	21	22	7	0	17	48	5	0	37	44	12	0	296	3626
5:05 PM	18	44	25	0	18	21	10	0	26	55	7	0	32	38	18	0	312	3612
5:10 PM	18	44	26	0	22	21	6	0	20	74	17	0	30	57	16	0	351	3637
5:15 PM	15	33	39	0	19	16	8	0	30	34	14	0	31	37	11	0	287	3629
5:20 PM	24	32	24	0	24	27	2	0	12	75	11	0	35	72	11	0	349	3666
5:25 PM	20	47	23	0	20	26	8	0	23	51	11	0	43	47	15	0	334	3711
5:30 PM	18	36	20	0	24	20	10	0	17	57	15	0	30	39	15	0	301	3729
5:35 PM	12	35	25	0	25	21	6	0	24	50	20	0	33	49	6	0	306	3732
5:40 PM	10	40	28	0	24	23	5	0	16	42	11	0	35	54	13	0	301	3713
5:45 PM	15	39	27	0	17	21	7	0	22	46	10	0	32	28	12	0	276	3684
5:50 PM	21	40	14	0	18	14	3	0	20	42	9	0	25	55	13	0	274	3649
5:55 PM	22	42	25	0	17	21	6	0	23	37	11	0	19	41	15	0	279	3666

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	228	436	356	0	260	256	64	0	248	732	168	0	384	664	152	0	3948
Heavy Trucks	0	8	4		4	0	0		8	20	0		4	12	4		64
Pedestrians		0				0				0				4			4
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Railroad																	
Stopped Buses																	

Comments:

Report generated on 9/30/2014 2:05 PM

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

Type of peak hour being reported: User-Defined

Method for determining peak hour: Total Entering Volume

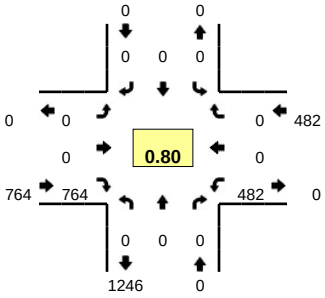
LOCATION: I-205 SB On Ramp -- NE 134th St

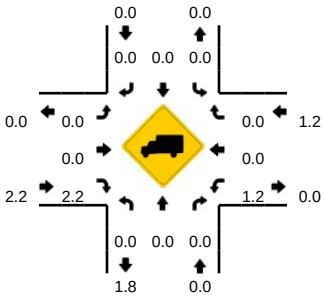
QC JOB #: 13002112

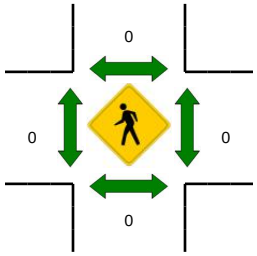
CITY/STATE: Salmon Creek, WA

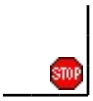
DATE: Tue, Sep 23 2014

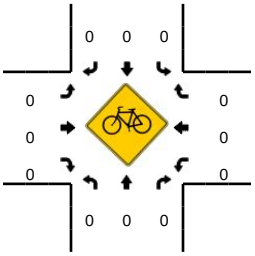
Peak-Hour: 4:40 PM -- 5:40 PM
Peak 15-Min: 5:05 PM -- 5:20 PM

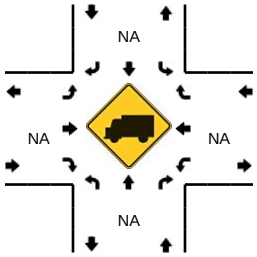


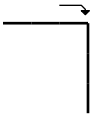


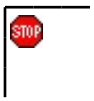


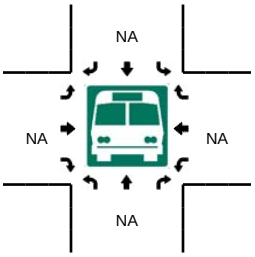












5-Min Count Period Beginning At	I-205 SB On Ramp (Northbound)				I-205 SB On Ramp (Southbound)				NE 134th St (Eastbound)				NE 134th St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	0	0	0	0	0	0	0	0	0	0	74	0	52	0	0	0	126	
4:05 PM	0	0	0	0	0	0	0	0	0	0	63	0	44	0	0	0	107	
4:10 PM	0	0	0	0	0	0	0	0	0	0	67	0	38	0	0	0	105	
4:15 PM	0	0	0	0	0	0	0	0	0	0	68	0	44	0	0	0	112	
4:20 PM	0	0	0	0	0	0	0	0	0	0	61	0	34	0	0	0	95	
4:25 PM	0	0	0	0	0	0	0	0	0	0	45	0	42	0	0	0	87	
4:30 PM	0	0	0	0	0	0	0	0	0	0	57	0	31	0	0	0	88	
4:35 PM	0	0	0	0	0	0	0	0	0	0	70	0	43	0	0	0	113	
4:40 PM	0	0	0	0	0	0	0	0	0	0	61	0	40	0	0	0	101	
4:45 PM	0	0	0	0	0	0	0	0	0	0	57	0	39	0	0	0	96	
4:50 PM	0	0	0	0	0	0	0	0	0	0	64	0	31	0	0	0	95	
4:55 PM	0	0	0	0	0	0	0	0	0	0	35	0	45	0	0	0	80	1205
5:00 PM	0	0	0	0	0	0	0	0	0	0	81	0	33	0	0	0	114	1193
5:05 PM	0	0	0	0	0	0	0	0	0	0	79	0	55	0	0	0	134	1220
5:10 PM	0	0	0	0	0	0	0	0	0	0	82	0	56	0	0	0	138	1253
5:15 PM	0	0	0	0	0	0	0	0	0	0	70	0	47	0	0	0	117	1258
5:20 PM	0	0	0	0	0	0	0	0	0	0	65	0	33	0	0	0	98	1261
5:25 PM	0	0	0	0	0	0	0	0	0	0	58	0	30	0	0	0	88	1262
5:30 PM	0	0	0	0	0	0	0	0	0	0	53	0	22	0	0	0	75	1249
5:35 PM	0	0	0	0	0	0	0	0	0	0	59	0	51	0	0	0	110	1246
5:40 PM	0	0	0	0	0	0	0	0	0	0	66	0	35	0	0	0	101	1246
5:45 PM	0	0	0	0	0	0	0	0	0	0	66	0	28	0	0	0	94	1244
5:50 PM	0	0	0	0	0	0	0	0	0	0	46	0	26	0	0	0	72	1221
5:55 PM	0	0	0	0	0	0	0	0	0	0	47	0	20	0	0	0	67	1208

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	0	0	0	0	0	0	0	0	0	0	924	0	632	0	0	0	1556
Heavy Trucks	0	0	0		0	0	0		0	0	20		4	0	0		24
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Railroad																	
Stopped Buses																	

Comments:

Report generated on 9/30/2014 2:05 PM

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

Type of peak hour being reported: User-Defined

Method for determining peak hour: Total Entering Volume

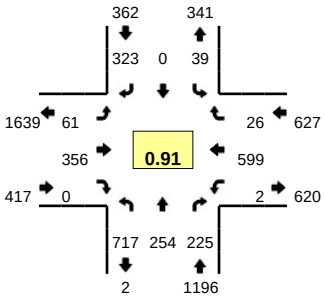
LOCATION: I-205 NB Off Ramp/NE 23rd Ave -- NE 13th St

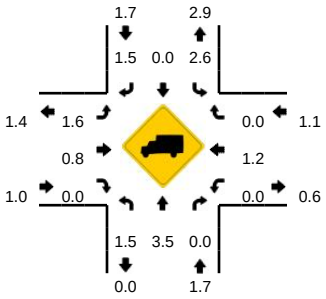
QC JOB #: 13002113

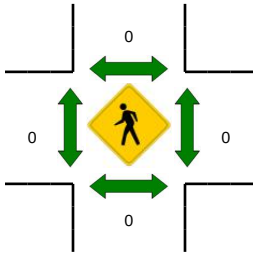
CITY/STATE: Mount Vista, WA

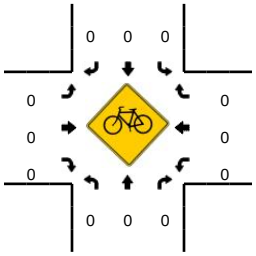
DATE: Tue, Sep 23 2014

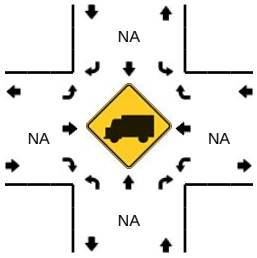
Peak-Hour: 4:40 PM -- 5:40 PM
Peak 15-Min: 5:10 PM -- 5:25 PM

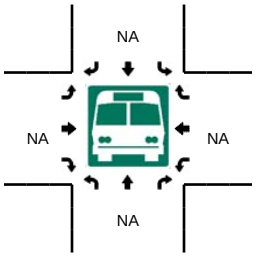












5-Min Count Period Beginning At	I-205 NB Off Ramp/NE 23rd Ave (Northbound)				I-205 NB Off Ramp/NE 23rd Ave (Southbound)				NE 13th St (Eastbound)				NE 13th St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	52	18	25	0	3	0	25	0	5	20	0	0	1	64	1	0	214	
4:05 PM	44	8	13	0	7	0	28	0	9	33	0	0	0	78	2	0	222	
4:10 PM	59	16	15	0	2	0	21	0	4	28	0	0	0	49	0	0	194	
4:15 PM	38	16	16	0	0	0	16	0	4	25	0	0	0	95	6	0	216	
4:20 PM	64	27	17	0	1	0	29	0	5	18	0	0	0	47	2	0	210	
4:25 PM	43	19	9	0	1	0	29	0	4	27	0	0	0	62	4	0	198	
4:30 PM	63	18	5	0	1	0	20	0	5	24	0	0	1	47	5	0	189	
4:35 PM	60	19	12	0	3	0	29	0	3	22	0	0	0	36	1	0	185	
4:40 PM	53	24	14	0	4	0	27	0	5	33	0	0	0	47	0	0	207	
4:45 PM	53	22	17	0	0	0	28	0	6	22	0	0	0	43	4	0	195	
4:50 PM	58	30	14	0	6	0	28	0	6	32	0	0	0	35	1	0	210	
4:55 PM	56	24	11	0	3	0	28	0	5	16	0	0	0	47	2	0	192	2432
5:00 PM	61	24	8	0	2	0	27	0	5	26	0	0	0	54	0	0	207	2425
5:05 PM	58	12	24	0	2	0	22	0	2	20	0	0	0	61	3	0	204	2407
5:10 PM	70	21	27	0	6	0	36	0	6	26	0	0	1	66	1	0	260	2473
5:15 PM	68	15	28	0	2	0	27	0	3	27	0	0	0	57	3	0	230	2487
5:20 PM	67	12	21	0	3	0	24	0	4	43	0	0	0	47	3	0	224	2501
5:25 PM	49	13	20	0	4	0	17	0	9	35	0	0	1	62	5	0	215	2518
5:30 PM	52	26	26	0	4	0	30	0	6	41	0	0	0	40	1	0	226	2555
5:35 PM	72	31	15	0	3	0	29	0	4	35	0	0	0	40	3	0	232	2602
5:40 PM	51	15	27	0	1	0	19	0	3	36	0	0	1	65	3	0	221	2616
5:45 PM	45	15	25	0	4	0	15	0	7	24	0	0	0	36	0	0	171	2592
5:50 PM	49	17	19	0	0	0	9	0	5	15	0	0	0	44	2	0	160	2542
5:55 PM	54	25	18	0	1	0	15	0	5	25	0	0	0	32	2	0	177	2527

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	820	192	304	0	44	0	348	0	52	384	0	0	4	680	28	0	2856
Heavy Trucks	12	4	0		4	0	8		0	4	0		0	8	0		40
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Railroad																	
Stopped Buses																	

Comments:

Report generated on 9/30/2014 2:05 PM

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

Type of peak hour being reported: User-Defined

Method for determining peak hour: Total Entering Volume

LOCATION: NE 10th Ave -- NE 149th St

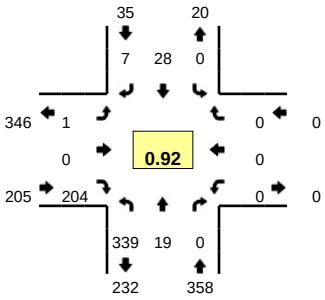
CITY/STATE: Vancouver, WA

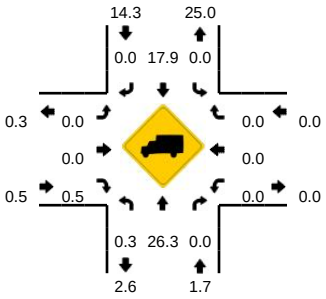
QC JOB #: 13002109

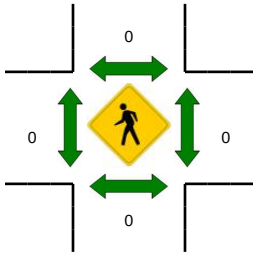
DATE: Tue, Sep 23 2014

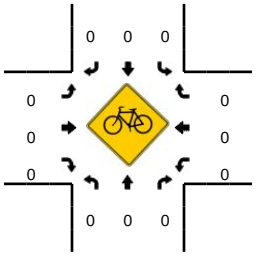
Peak-Hour: 4:40 PM -- 5:40 PM

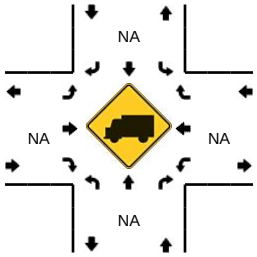
Peak 15-Min: 4:45 PM -- 5:00 PM

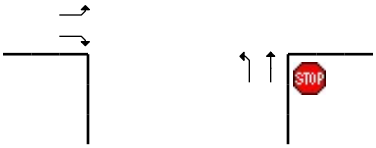


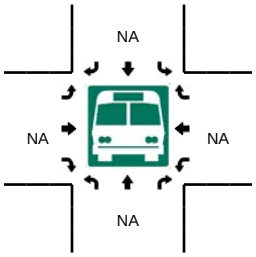












5-Min Count Period Beginning At	NE 10th Ave (Northbound)				NE 10th Ave (Southbound)				NE 149th St (Eastbound)				NE 149th St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	22	3	0	0	0	6	1	0	0	0	19	0	0	0	0	0	51	
4:05 PM	12	3	0	1	0	4	0	0	0	0	10	0	0	0	0	0	30	
4:10 PM	22	1	0	0	0	1	1	0	1	0	9	0	0	0	0	0	35	
4:15 PM	18	0	0	0	0	4	1	0	2	0	13	0	0	0	0	0	38	
4:20 PM	17	4	0	0	0	1	0	0	0	0	13	0	0	0	0	0	35	
4:25 PM	19	2	0	0	0	1	0	0	1	0	14	0	0	0	0	0	37	
4:30 PM	22	3	0	0	0	1	1	0	0	0	16	0	0	0	0	0	43	
4:35 PM	26	4	0	0	0	1	2	0	0	0	20	0	0	0	0	0	53	
4:40 PM	13	2	0	0	0	2	1	0	0	0	19	0	0	0	0	0	37	
4:45 PM	24	4	0	0	0	5	0	0	1	0	24	0	0	0	0	0	58	
4:50 PM	25	1	0	0	0	2	0	0	0	0	22	0	0	0	0	0	50	
4:55 PM	32	1	0	0	0	3	3	0	0	0	16	0	0	0	0	0	55	522
5:00 PM	34	3	0	0	0	5	2	0	0	0	14	0	0	0	0	0	58	529
5:05 PM	24	1	0	0	0	2	0	0	0	0	16	0	0	0	0	0	43	542
5:10 PM	25	2	0	0	0	5	0	0	0	0	20	0	0	0	0	0	52	559
5:15 PM	42	0	0	0	0	1	1	0	0	0	14	0	0	0	0	0	58	579
5:20 PM	28	1	0	0	0	0	0	0	0	0	5	0	0	0	0	0	34	578
5:25 PM	27	1	0	0	0	1	0	0	0	0	24	0	0	0	0	0	53	594
5:30 PM	30	2	0	0	0	1	0	0	0	0	17	0	0	0	0	0	50	601
5:35 PM	35	1	0	0	0	1	0	0	0	0	13	0	0	0	0	0	50	598
5:40 PM	25	0	0	0	0	3	0	0	0	0	17	0	0	0	0	0	45	606
5:45 PM	17	2	0	0	0	1	0	0	0	0	20	0	0	0	0	0	40	588
5:50 PM	24	4	0	0	0	2	0	0	0	0	17	0	0	0	0	0	47	585
5:55 PM	29	4	0	0	0	1	1	0	0	0	20	0	0	0	0	0	55	585

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	324	24	0	0	0	40	12	0	4	0	248	0	0	0	0	0	652
Heavy Trucks	0	8	0		0	12	0		0	0	0		0	0	0		20
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Railroad																	
Stopped Buses																	

Comments:

Report generated on 9/30/2014 2:05 PM

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

Type of peak hour being reported: User-Defined

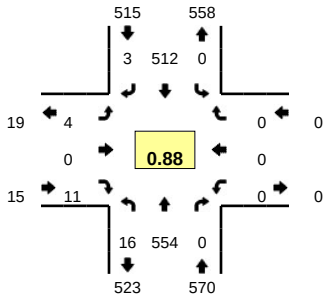
Method for determining peak hour: Total Entering Volume

LOCATION: NE 10th Ave -- NE 141st St/Site Dwy

QC JOB #: 13002108

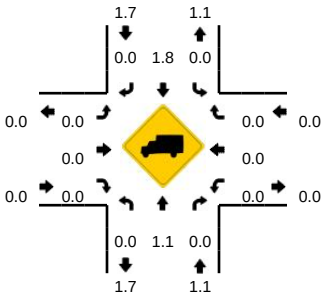
CITY/STATE: Salmon Creek, WA

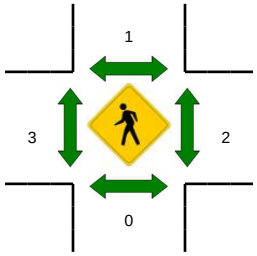
DATE: Tue, Sep 23 2014

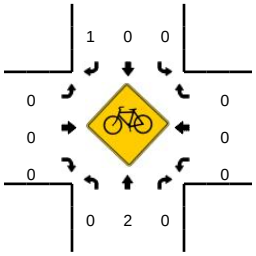


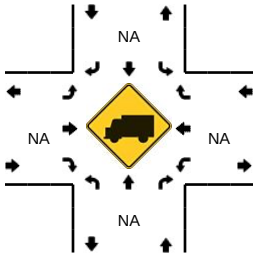
Peak-Hour: 4:40 PM -- 5:40 PM

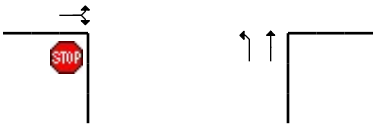
Peak 15-Min: 5:00 PM -- 5:15 PM

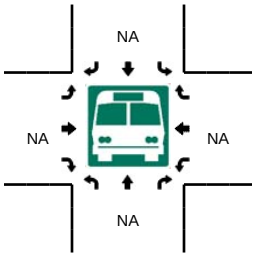












5-Min Count Period Beginning At	NE 10th Ave (Northbound)				NE 10th Ave (Southbound)				NE 141st St/Site Dwy (Eastbound)				NE 141st St/Site Dwy (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	2	42	0	0	0	42	0	0	0	0	2	0	0	0	0	0	88	
4:05 PM	1	30	0	0	0	37	1	1	0	0	2	0	0	0	0	0	72	
4:10 PM	2	37	0	0	0	31	0	0	0	0	1	0	0	0	0	0	71	
4:15 PM	0	34	0	0	0	33	0	0	0	0	0	0	0	0	0	0	67	
4:20 PM	3	44	0	0	0	26	0	0	0	0	0	0	0	0	0	0	73	
4:25 PM	0	46	0	0	0	20	0	0	0	0	1	0	0	0	0	0	67	
4:30 PM	0	45	0	0	0	37	0	0	0	0	2	0	0	0	0	0	84	
4:35 PM	1	43	0	0	0	26	0	0	0	0	2	0	0	0	0	0	72	
4:40 PM	4	31	0	0	0	40	0	0	0	0	1	0	0	0	0	0	76	
4:45 PM	1	38	0	0	0	36	0	0	0	0	0	0	0	0	0	0	75	
4:50 PM	0	38	0	0	0	51	1	0	1	0	0	0	0	0	0	0	91	
4:55 PM	1	53	0	0	0	39	0	0	0	0	0	0	0	0	0	0	93	929
5:00 PM	4	54	0	0	0	51	0	0	0	0	1	0	0	0	0	0	110	951
5:05 PM	0	40	0	0	0	58	0	0	0	0	0	0	0	0	0	0	98	977
5:10 PM	2	48	0	0	0	50	0	0	1	0	3	0	0	0	0	0	104	1010
5:15 PM	0	56	0	0	0	44	1	0	1	0	2	0	0	0	0	0	104	1047
5:20 PM	1	46	0	0	0	26	1	0	0	0	0	0	0	0	0	0	74	1048
5:25 PM	1	56	0	0	0	35	0	0	0	0	3	0	0	0	0	0	95	1076
5:30 PM	0	47	0	0	0	39	0	0	0	0	0	0	0	0	0	0	86	1078
5:35 PM	2	47	0	0	0	43	0	0	1	0	1	0	0	0	0	0	94	1100
5:40 PM	0	42	0	0	0	35	0	0	0	0	0	0	0	0	0	0	77	1101
5:45 PM	0	33	0	0	0	32	0	0	0	0	0	0	0	0	0	0	65	1091
5:50 PM	1	49	0	0	0	29	0	0	0	0	1	0	0	0	0	0	80	1080
5:55 PM	0	51	0	0	0	28	0	0	0	0	1	0	0	0	0	0	80	1067

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	24	568	0	0	0	636	0	0	4	0	16	0	0	0	0	0	1248
Heavy Trucks	0	8	0		0	12	0		0	0	0		0	0	0		20
Pedestrians		0				0				0				4			4
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Railroad																	
Stopped Buses																	

Comments:

Report generated on 9/30/2014 2:05 PM

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

Quality Counts
TRANSPORTATION DATA COLLECTION SERVICES

7409 SW Tech Center Dr, Ste B150
Tigard, OR 97224
503-620-4242
www.qualitycounts.net

Site Code: 13002101
Location: NE 10th Ave & NE 136th St
Date: 9/23/2014

System Peak Hour: 4:40 PM - 5:40 PM
Peak 15-minutes: 5:10 PM - 5:25 PM
Peak Hour Factor: 0.843

	NE 10th Ave (Southbound)					NE 136th St (Westbound)					NE 10th Ave (Northbound)					NE 136th St (Eastbound)							
	U-Turns	Right	Thru	Left to Parking Lot	Left	U-Turns	Right	Thru	Left	Left to Parking Lot	U-Turns	Right to Parking Lot	Right	Thru	Left	U-Turns	Right	Right to Parking Lot	Thru	Left	Interval Totals	Hourly Totals	15-minute Totals
4:00 PM	0	1	13	0	2	0	2	0	1	0	4	0	2	21	1	0	6	0	0	2	55		
4:05 PM	0	3	24	1	2	0	2	0	2	0	1	0	0	8	0	0	0	1	0	3	47		
4:10 PM	2	1	13	0	0	0	15	0	7	0	4	0	1	11	2	0	1	0	0	2	59		161
4:15 PM	2	3	17	0	1	0	8	0	2	0	3	0	1	7	1	0	1	0	0	0	46		152
4:20 PM	0	0	14	1	0	0	2	1	2	0	4	0	1	18	0	0	4	0	0	3	50		155
4:25 PM	0	1	7	0	1	0	2	0	0	0	4	0	2	16	0	0	3	0	0	4	40		136
4:30 PM	3	1	20	2	3	0	1	0	1	0	3	0	5	19	1	0	3	0	0	1	63		153
4:35 PM	0	1	16	0	0	0	23	1	11	1	3	0	4	12	1	0	1	0	0	1	75		178
4:40 PM	0	2	18	2	3	0	6	0	2	0	6	0	2	16	3	0	1	0	0	2	63		201
4:45 PM	0	1	16	2	3	0	8	0	8	0	1	0	3	21	0	0	2	0	0	0	65		203
4:50 PM	0	1	17	3	1	0	11	0	2	0	3	0	2	11	0	0	1	0	0	5	57		185
4:55 PM	0	2	11	0	1	0	0	0	3	0	1	0	1	18	0	0	1	0	0	3	41	661	163
5:00 PM	0	1	24	1	4	0	6	0	1	0	2	0	3	13	1	0	3	1	0	1	61	667	159
5:05 PM	1	0	26	2	0	0	3	0	0	0	2	0	2	10	0	0	0	0	0	4	50	670	152
5:10 PM	0	0	26	2	4	0	7	1	5	0	8	0	4	16	1	0	0	0	0	2	76	687	187
5:15 PM	0	1	17	1	0	0	12	0	2	0	3	0	1	18	2	0	4	1	0	3	65	706	191
5:20 PM	0	1	22	0	1	0	25	2	3	0	1	0	1	11	2	0	3	0	0	2	74	730	215
5:25 PM	0	2	19	1	0	0	5	1	4	0	2	0	2	18	0	0	4	0	0	6	64	754	203
5:30 PM	0	1	25	2	2	0	1	0	2	0	2	0	2	12	0	0	5	0	0	6	60	751	198
5:35 PM	1	1	19	0	1	0	1	0	3	0	1	0	2	17	1	0	0	0	0	2	49	725	173
5:40 PM	0	1	22	1	0	0	12	1	8	0	3	0	0	10	0	0	3	0	0	3	64	726	173
5:45 PM	2	1	19	3	0	0	9	3	8	0	3	1	3	17	3	0	2	0	0	3	77	738	190
5:50 PM	1	2	9	1	0	0	0	0	2	0	6	0	3	16	0	0	4	0	2	0	46	727	187
5:55 PM	0	1	11	0	1	0	4	0	6	0	5	0	2	17	1	0	1	0	0	1	50	736	173
Totals	12	29	425	25	30	0	165	10	85	1	75	1	49	353	20	0	53	3	2	59			
Peak Hour	2	13	240	16	20	0	85	4	35	0	32	0	25	181	10	0	24	2	0	36			

Quality Counts
TRANSPORTATION DATA COLLECTION SERVICES

7409 SW Tech Center Dr, Ste B150
Tigard, OR 97224
503-620-4242
www.qualitycounts.net

Site Code: 13002101
Location: NE 10th Ave & NE 136th St
Date: 9/23/2014

	NE 10th Ave (Southbound)					NE 136th St (Westbound)					NE 10th Ave (Northbound)					NE 136th St (Eastbound)						
	U-Turns	Right	Thru	Left	Left to Parking Lot	U-Turns	Right	Thru	Left	Left to Parking Lot	U-Turns	Right to Parking Lot	Right	Thru	Left	U-Turns	Right	Right to Parking Lot	Thru	Left	Interval Totals	Hourly Totals
4:00 PM	0	0	13	2	0	0	2	0	1	0	4	0	2	20	1	0	6	0	0	2	53	
4:05 PM	0	3	23	2	1	0	2	0	2	0	1	0	0	8	0	0	0	1	0	3	46	
4:10 PM	2	1	13	0	0	0	15	0	7	0	4	0	1	10	2	0	1	0	0	2	58	
4:15 PM	2	3	16	1	0	0	8	0	2	0	3	0	1	7	1	0	1	0	0	0	45	
4:20 PM	0	0	14	0	1	0	2	1	1	0	4	0	1	16	0	0	4	0	0	3	47	
4:25 PM	0	1	6	1	0	0	2	0	0	0	4	0	2	16	0	0	3	0	0	4	39	
4:30 PM	3	1	20	2	2	0	1	0	1	0	3	0	5	19	1	0	3	0	0	1	62	
4:35 PM	0	1	16	0	0	0	23	1	11	1	3	0	4	12	1	0	1	0	0	1	75	
4:40 PM	0	2	18	3	2	0	6	0	2	0	6	0	2	14	3	0	1	0	0	2	61	
4:45 PM	0	1	13	3	2	0	8	0	8	0	1	0	2	21	0	0	2	0	0	0	61	
4:50 PM	0	1	17	1	3	0	11	0	2	0	3	0	2	11	0	0	1	0	0	5	57	
4:55 PM	0	2	11	1	0	0	0	0	3	0	1	0	1	18	0	0	1	0	0	3	41	645
5:00 PM	0	1	23	4	1	0	6	0	1	0	2	0	3	12	1	0	3	1	0	1	59	651
5:05 PM	1	0	24	0	2	0	3	0	0	0	2	0	2	10	0	0	0	0	0	4	48	653
5:10 PM	0	0	26	4	2	0	7	1	5	0	8	0	4	16	0	0	0	0	0	2	75	670
5:15 PM	0	1	17	0	1	0	11	0	2	0	3	0	1	18	2	0	4	1	0	3	64	689
5:20 PM	0	1	21	1	0	0	25	2	3	0	1	0	1	11	2	0	3	0	0	2	73	715
5:25 PM	0	2	18	0	1	0	5	1	4	0	2	0	2	18	0	0	3	0	0	6	62	738
5:30 PM	0	1	25	2	2	0	1	0	2	0	2	0	2	12	0	0	5	0	0	6	60	736
5:35 PM	1	1	19	1	0	0	1	0	3	0	1	0	2	17	1	0	0	0	0	2	49	710
5:40 PM	0	1	22	0	1	0	12	1	8	0	3	0	0	10	0	0	3	0	0	3	64	713
5:45 PM	2	1	19	0	3	0	9	3	8	0	3	1	3	16	3	0	2	0	0	3	76	728
5:50 PM	1	2	9	0	1	0	0	0	2	0	6	0	2	15	0	0	4	0	2	0	44	715
5:55 PM	0	1	11	1	0	0	4	0	6	0	5	0	2	17	1	0	1	0	0	1	50	724
Totals	12	28	414	29	25	0	164	10	84	1	75	1	47	344	19	0	52	3	2	59		

Quality Counts
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Location: NE 10th Ave & NE 136th St
Date: 9/23/2014

	NE 10th Ave (Southbound)					NE 136th St (Westbound)					NE 10th Ave (Northbound)					NE 136th St (Eastbound)						
		Right	Thru	Left	Left to Parking Lot		Right	Thru	Left	Left to Parking Lot		Right to Parking Lot	Right	Thru	Left		Right	Right to Parking Lot	Thru	Left	Interval Totals	Hourly Totals
4:00 PM		1	0	0	0		0	0	0	0		0	0	1	0		0	0	0	0	2	
4:05 PM		0	1	0	0		0	0	0	0		0	0	0	0		0	0	0	0	1	
4:10 PM		0	0	0	0		0	0	0	0		0	0	1	0		0	0	0	0	1	
4:15 PM		0	1	0	0		0	0	0	0		0	0	0	0		0	0	0	0	1	
4:20 PM		0	0	0	0		0	0	1	0		0	0	2	0		0	0	0	0	3	
4:25 PM		0	1	0	0		0	0	0	0		0	0	0	0		0	0	0	0	1	
4:30 PM		0	0	1	0		0	0	0	0		0	0	0	0		0	0	0	0	1	
4:35 PM		0	0	0	0		0	0	0	0		0	0	0	0		0	0	0	0	0	
4:40 PM		0	0	0	0		0	0	0	0		0	0	2	0		0	0	0	0	2	
4:45 PM		0	3	0	0		0	0	0	0		0	1	0	0		0	0	0	0	4	
4:50 PM		0	0	0	0		0	0	0	0		0	0	0	0		0	0	0	0	0	
4:55 PM		0	0	0	0		0	0	0	0		0	0	0	0		0	0	0	0	0	16
5:00 PM		0	1	0	0		0	0	0	0		0	0	1	0		0	0	0	0	2	16
5:05 PM		0	2	0	0		0	0	0	0		0	0	0	0		0	0	0	0	2	17
5:10 PM		0	0	0	0		0	0	0	0		0	0	0	1		0	0	0	0	1	17
5:15 PM		0	0	0	0		1	0	0	0		0	0	0	0		0	0	0	0	1	17
5:20 PM		0	1	0	0		0	0	0	0		0	0	0	0		0	0	0	0	1	15
5:25 PM		0	1	0	0		0	0	0	0		0	0	0	0		1	0	0	0	2	16
5:30 PM		0	0	0	0		0	0	0	0		0	0	0	0		0	0	0	0	0	15
5:35 PM		0	0	0	0		0	0	0	0		0	0	0	0		0	0	0	0	0	15
5:40 PM		0	0	0	0		0	0	0	0		0	0	0	0		0	0	0	0	0	13
5:45 PM		0	0	0	0		0	0	0	0		0	0	1	0		0	0	0	0	1	10
5:50 PM		0	0	0	0		0	0	0	0		0	1	1	0		0	0	0	0	2	12
5:55 PM		0	0	0	0		0	0	0	0		0	0	0	0		0	0	0	0	0	12
Totals		1	11	1	0		1	0	1	0		0	2	9	1		1	0	0	0		
		0%	3%	0%	0%	#####	1%	0%	0%	#DIV/0!	0%	#DIV/0!	4%	2%	10%	#####	4%	0%	#DIV/0!	0%		

7409 SW Tech Center Dr, Ste B150
Tigard, OR 97224
503-620-4242
www.qualitycounts.net

Site Code: 13002101
Location: NE 10th Ave & NE 136th St
Date: 9/23/2014

	NE 10th Ave (Southbound)					NE 136th St (Westbound)					NE 10th Ave (Northbound)					NE 136th St (Eastbound)					Interval Totals	Hourly Totals
	Peds	Right	Thru	Left	Left to Parking Lot	Peds	Right	Thru	Left	Left to Parking Lot	Peds	Right to Parking Lot	Right	Thru	Left	Peds	Right	Right to Parking Lot	Thru	Left		
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
4:05 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
4:10 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
4:20 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
4:25 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
4:35 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	
4:40 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
4:50 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	
4:55 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
5:05 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
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5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	4
5:35 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	4
5:40 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4
5:50 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
5:55 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
Totals	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	0		

APPENDIX C

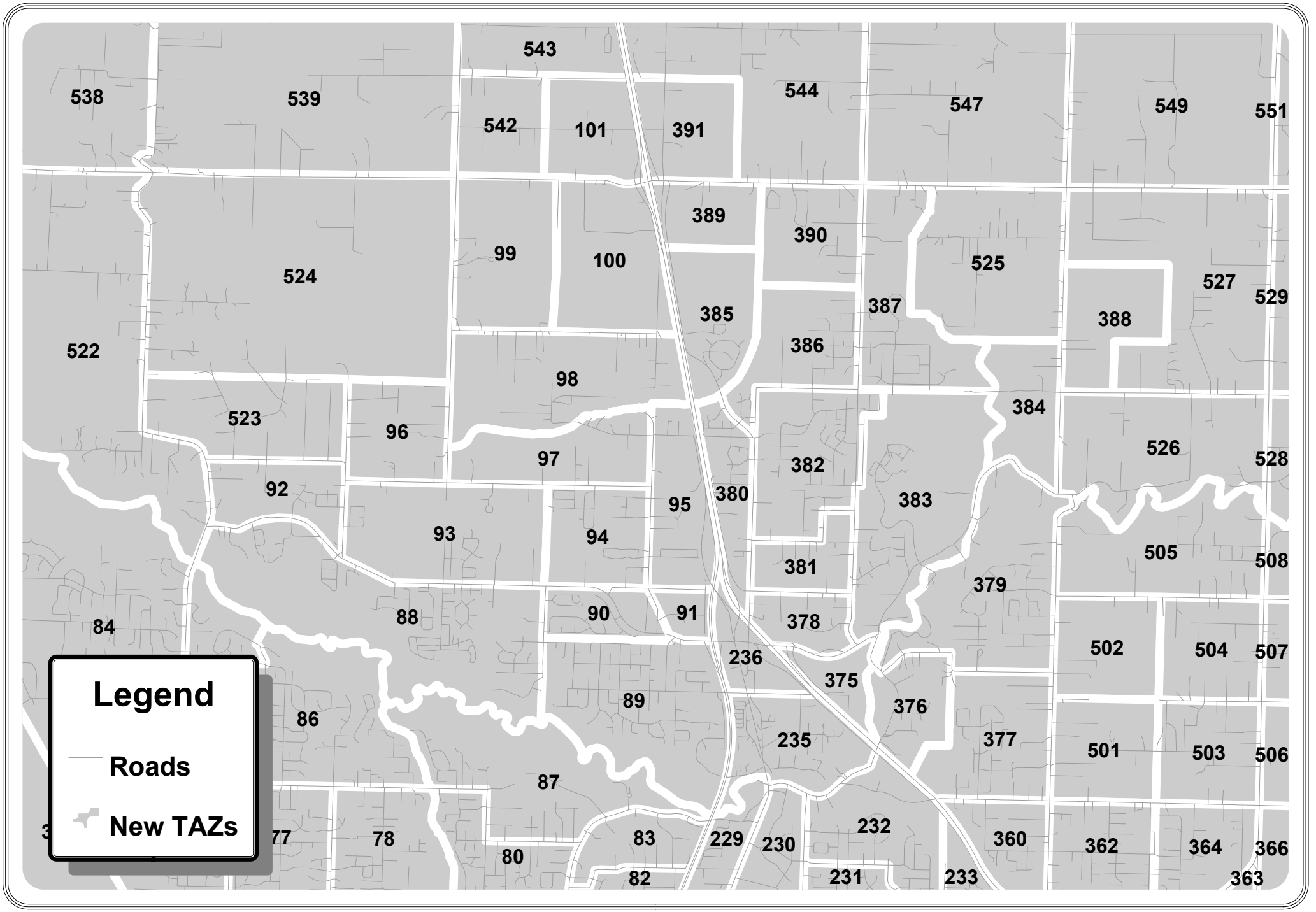
BACKGROUND GROWTH RATE CACULATIONS

Background Growth Rate Calculations, Accounting for In-Process Trips									
Location		2010			2035			In-Process Volume	Annual Growth (geometric)
Roadway	Reference	EB/NB	WB/SB	Total	EB/NB	WB/SB	Total		
139th	W of Tenney	218	478	696	524	1,019	1,543	379	2.08%
134th	E of 23rd	357	189	546	607	907	1,514	568	2.22%
Hwy 99	S of 134th	998	970	1,968	1,351	1,134	2,485	394	0.24%
I-5	S of 134th	3,144	1,918	5,062	5,545	3,764	9,309	188	2.38%
I-205	S of 134th	2,909	2,501	5,410	4,872	4,139	9,011	269	1.94%
20th	N of 139th	513	365	878	1,327	538	1,865	214	2.56%
10th	N of 139th	474	452	926	1,109	563	1,672	59	2.24%
I-5	N of 139th	4,960	3,431	8,391	8,189	5,908	14,097	143	2.06%
								Average	**1.97%**

APPENDIX D

RTC MODEL OUTPUTS

TAZ MAP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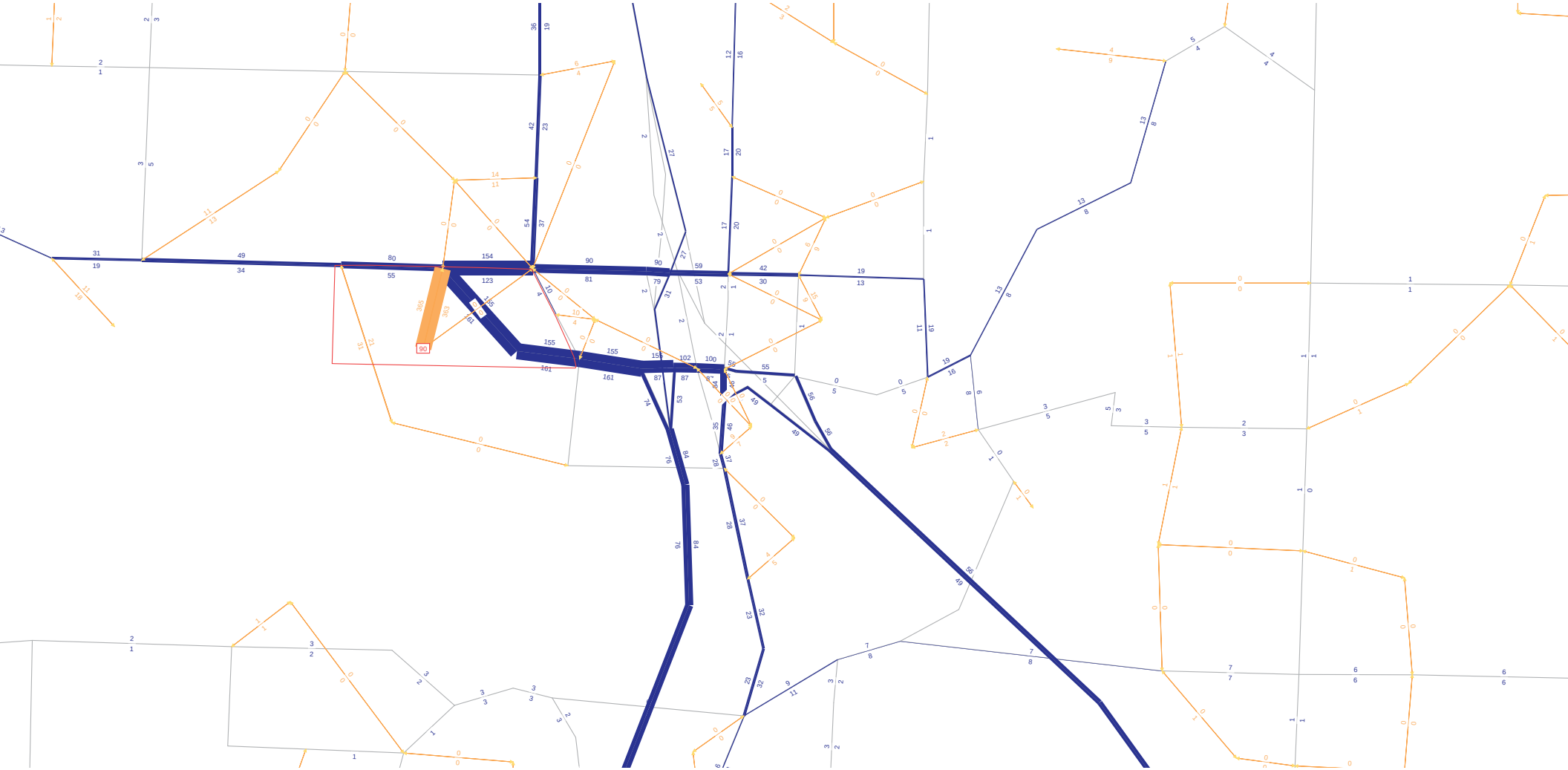
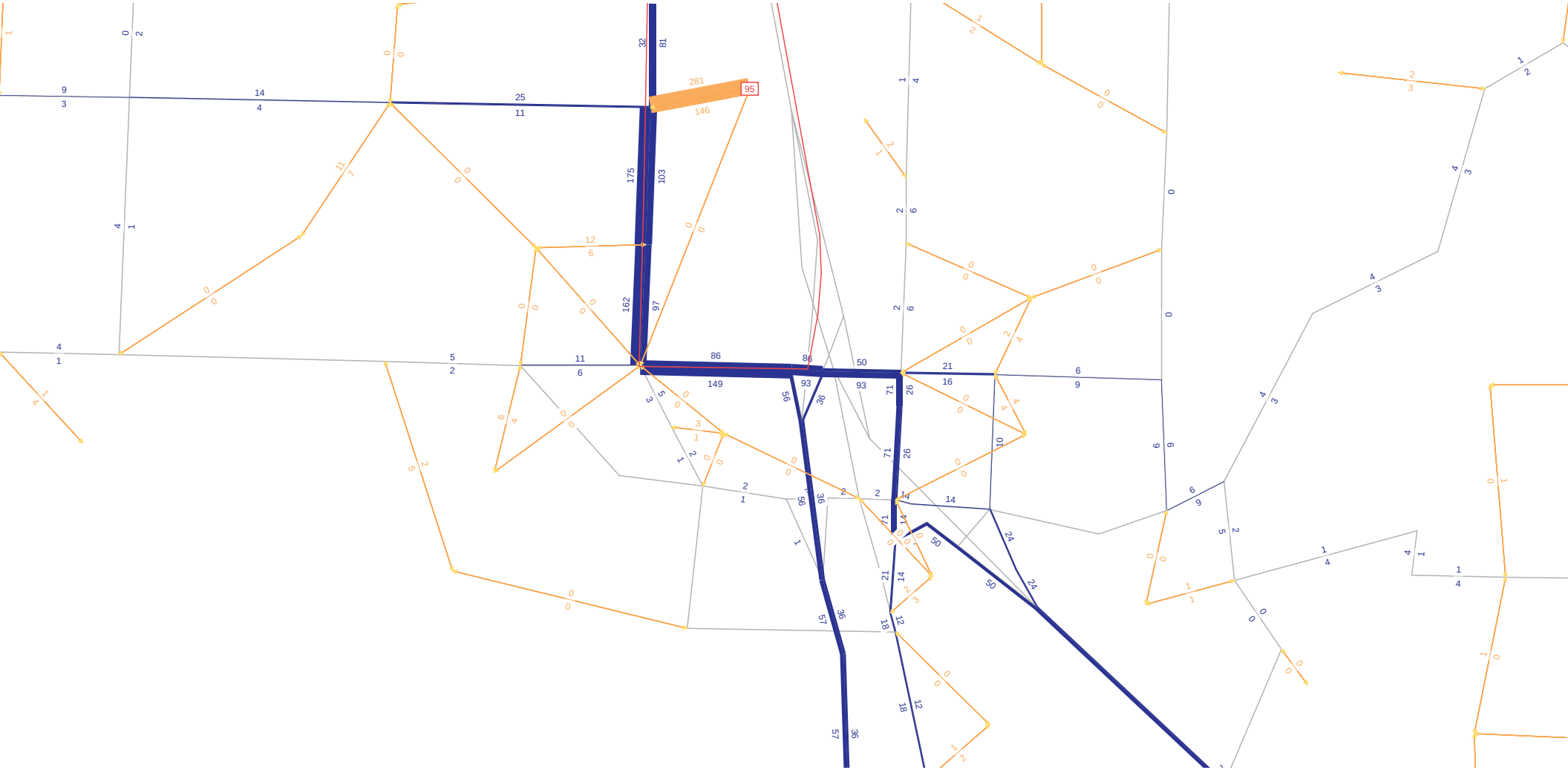
233
363
Legend
Roads
New TAZs



2035 PM Peak
Select Zone 90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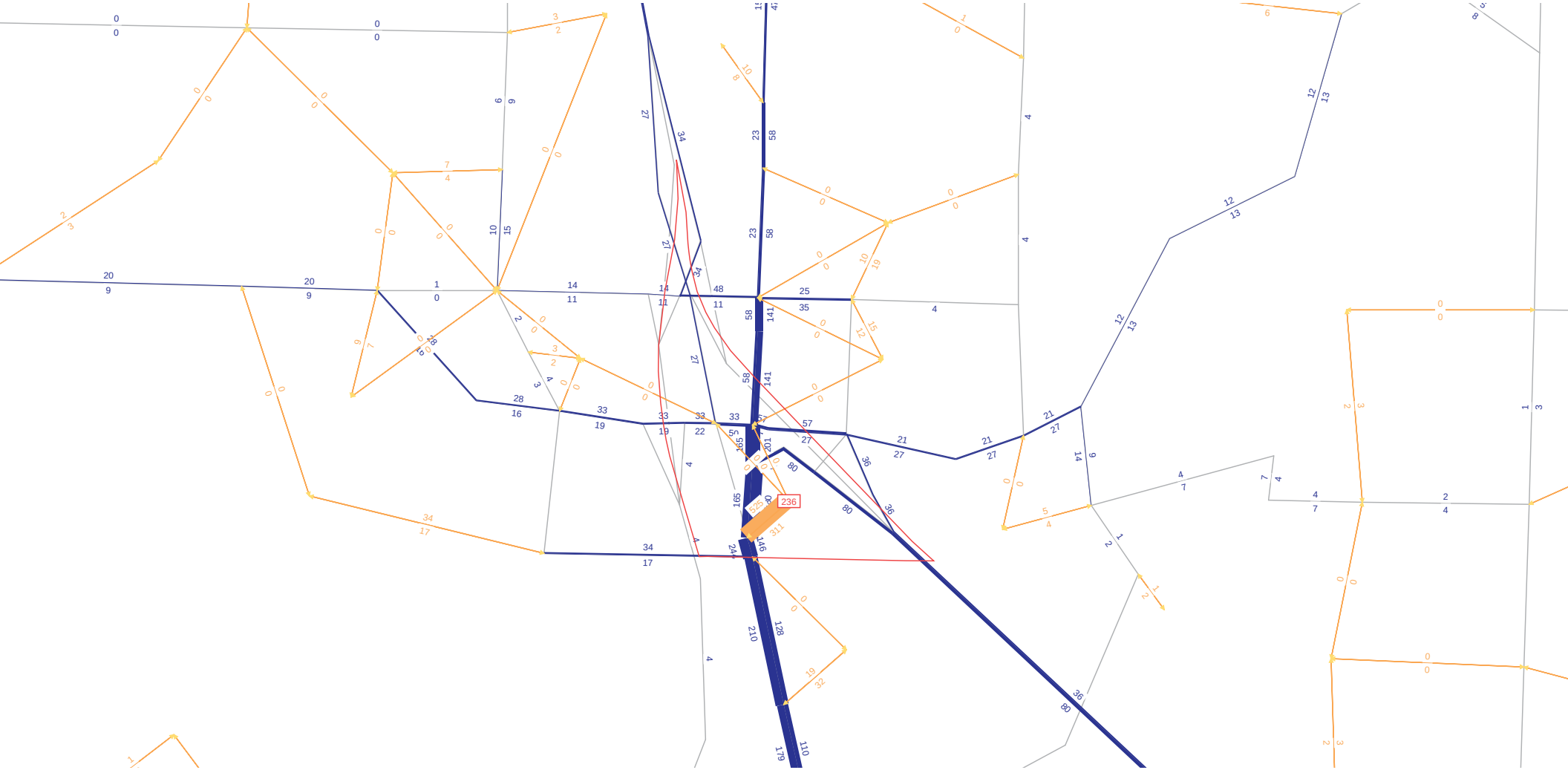
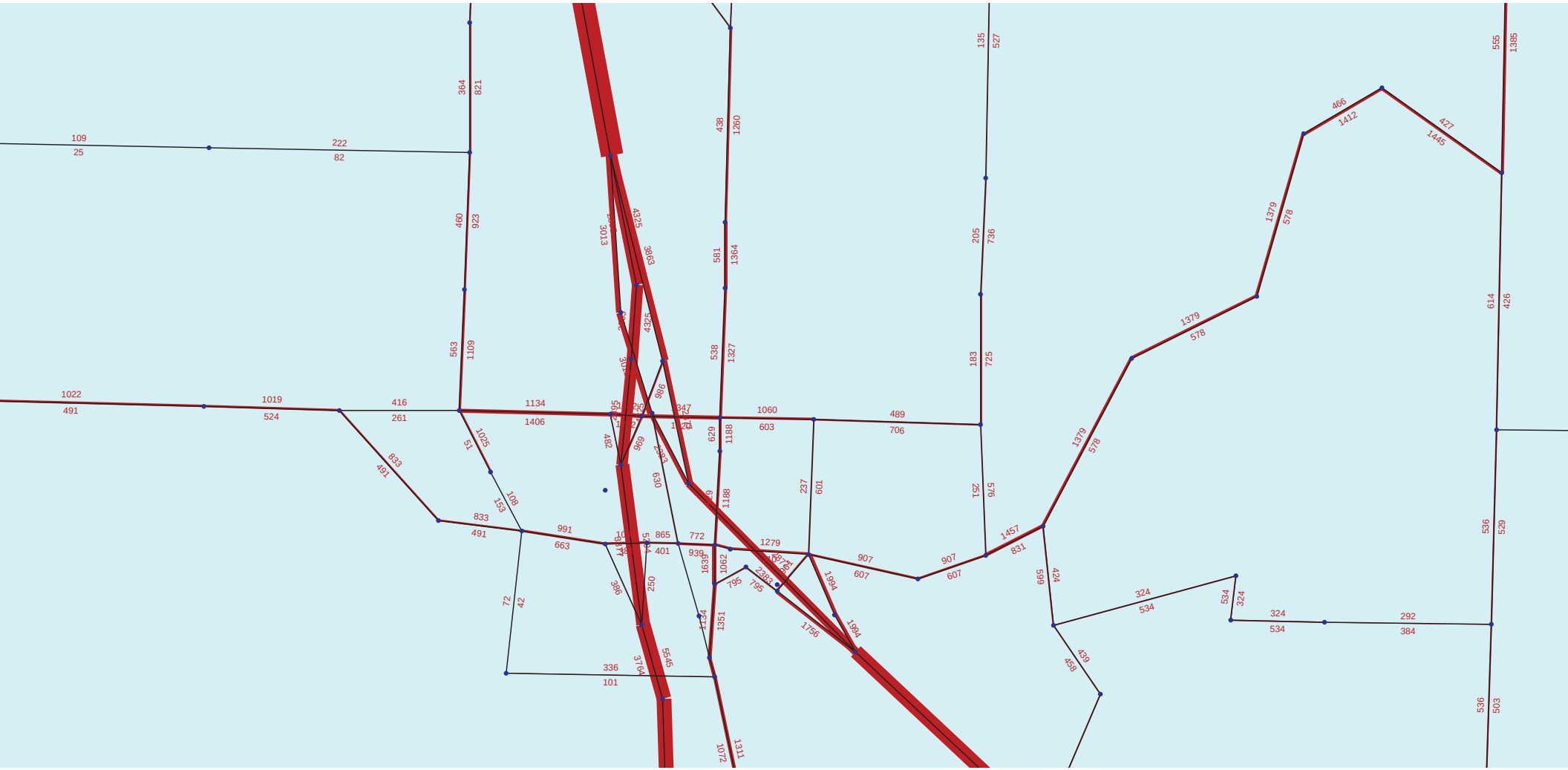
2035 PM Peak
Select Zone 95



2035 PM Peak
Select Zone 236

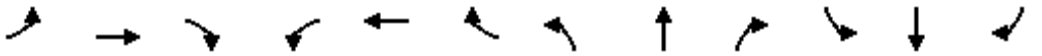

2035 PM Peak
Total Volumes

APPENDIX E

SYNCHRO REPORTS WITH CURRENT ZONING

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	627	0	0	684	1003	59
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.1			6.1	6.5	6.5
Lane Util. Factor	0.95			0.95	0.97	1.00
Frt	1.00			1.00	1.00	0.85
Flt Protected	1.00			1.00	0.95	1.00
Satd. Flow (prot)	3539			3539	3433	1583
Flt Permitted	1.00			1.00	0.95	1.00
Satd. Flow (perm)	3539			3539	3433	1583
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	660	0	0	720	1056	62
RTOR Reduction (vph)	0	0	0	0	0	26
Lane Group Flow (vph)	660	0	0	720	1056	36
Turn Type	NA			NA	Prot	Perm
Protected Phases	2			6	8	
Permitted Phases						8
Actuated Green, G (s)	24.8			24.8	38.6	38.6
Effective Green, g (s)	24.3			24.3	38.1	38.1
Actuated g/C Ratio	0.32			0.32	0.51	0.51
Clearance Time (s)	5.6			5.6	6.0	6.0
Vehicle Extension (s)	3.0			3.0	2.0	2.0
Lane Grp Cap (vph)	1146			1146	1743	804
v/s Ratio Prot	0.19			c0.20	c0.31	
v/s Ratio Perm						0.02
v/c Ratio	0.58			0.63	0.61	0.04
Uniform Delay, d1	21.1			21.5	13.1	9.3
Progression Factor	1.00			0.88	0.52	0.07
Incremental Delay, d2	0.7			0.6	1.5	0.1
Delay (s)	21.8			19.5	8.3	0.8
Level of Service	C			B	A	A
Approach Delay (s)	21.8			19.5	7.9	
Approach LOS	C			B	A	

Intersection Summary			
HCM 2000 Control Delay	14.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	75.0	Sum of lost time (s)	12.6
Intersection Capacity Utilization	58.0%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	209	512	52	60	592	487	67	263	133	442	366	247
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.9	6.7		5.9	6.7		5.9	6.3	5.9	5.9	6.6	5.9
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.99		1.00	0.93		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3490		1752	3299		1770	1863	1583	1770	1863	1583
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1770	3490		1752	3299		1770	1863	1583	1770	1863	1583
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	220	539	55	63	623	513	71	277	140	465	385	260
RTOR Reduction (vph)	0	5	0	0	97	0	0	0	110	0	0	72
Lane Group Flow (vph)	220	589	0	63	1039	0	71	277	30	465	385	188
Heavy Vehicles (%)	2%	2%	2%	3%	2%	2%	2%	2%	2%	2%	2%	2%
Turn Type	Prot	NA		Prot	NA		Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	5	2		1	6		3	8	1	7	4	5
Permitted Phases									8			4
Actuated Green, G (s)	18.7	56.4		8.4	46.1		8.9	24.8	33.2	37.6	53.2	71.9
Effective Green, g (s)	18.2	55.9		7.9	45.6		8.4	24.3	32.2	37.1	52.7	70.9
Actuated g/C Ratio	0.12	0.37		0.05	0.30		0.06	0.16	0.21	0.25	0.35	0.47
Clearance Time (s)	5.4	6.2		5.4	6.2		5.4	5.8	5.4	5.4	6.1	5.4
Vehicle Extension (s)	1.7	1.7		1.7	1.7		1.7	3.0	1.7	1.7	3.0	1.7
Lane Grp Cap (vph)	214	1300		92	1002		99	301	339	437	654	748
v/s Ratio Prot	c0.12	0.17		0.04	c0.31		0.04	c0.15	0.00	c0.26	0.21	0.03
v/s Ratio Perm									0.01			0.09
v/c Ratio	1.03	0.45		0.68	1.04		0.72	0.92	0.09	1.06	0.59	0.25
Uniform Delay, d1	65.9	35.5		69.8	52.2		69.6	61.9	47.2	56.5	39.8	23.7
Progression Factor	0.81	0.75		1.09	0.78		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	66.5	1.1		14.8	37.7		18.5	31.9	0.0	61.1	1.4	0.1
Delay (s)	120.0	27.6		90.8	78.4		88.1	93.8	47.2	117.6	41.1	23.7
Level of Service	F	C		F	E		F	F	D	F	D	C
Approach Delay (s)		52.6			79.1			79.6			69.1	
Approach LOS		D			E			E			E	

Intersection Summary			
HCM 2000 Control Delay	70.1	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.02		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	25.1
Intersection Capacity Utilization	102.6%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

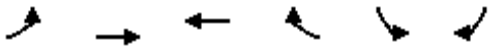
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	727	364	385	1166	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.6	5.6	6.6	5.9		
Lane Util. Factor	0.95	1.00	0.97	0.95		
Frt	1.00	0.85	1.00	1.00		
Flt Protected	1.00	1.00	0.95	1.00		
Satd. Flow (prot)	3539	1568	3433	3539		
Flt Permitted	1.00	1.00	0.95	1.00		
Satd. Flow (perm)	3539	1568	3433	3539		
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	765	383	405	1227	0	0
RTOR Reduction (vph)	0	46	0	0	0	0
Lane Group Flow (vph)	765	337	405	1227	0	0
Heavy Vehicles (%)	2%	3%	2%	2%	2%	2%
Turn Type	NA	Perm	Prot	NA		
Protected Phases	2		1	6		
Permitted Phases		2				
Actuated Green, G (s)	117.6	117.6	21.2	150.0		
Effective Green, g (s)	117.1	117.1	20.7	150.0		
Actuated g/C Ratio	0.78	0.78	0.14	1.00		
Clearance Time (s)	5.1	5.1	6.1	5.4		
Vehicle Extension (s)	2.0	2.0	2.0	2.0		
Lane Grp Cap (vph)	2762	1224	473	3539		
v/s Ratio Prot	0.22		c0.12	c0.35		
v/s Ratio Perm		0.21				
v/c Ratio	0.28	0.28	0.86	0.35		
Uniform Delay, d1	4.6	4.6	63.2	0.0		
Progression Factor	0.18	0.02	0.80	1.00		
Incremental Delay, d2	0.2	0.4	12.5	0.2		
Delay (s)	1.0	0.5	62.7	0.2		
Level of Service	A	A	E	A		
Approach Delay (s)	0.8			15.7	0.0	
Approach LOS	A			B	A	

Intersection Summary			
HCM 2000 Control Delay	9.6	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.44		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	12.2
Intersection Capacity Utilization	88.2%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	727	0	0	983	567	329
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.3			6.2	6.5	6.5
Lane Util. Factor	0.91			0.91	1.00	1.00
Frt	1.00			1.00	1.00	0.85
Flt Protected	1.00			1.00	0.95	1.00
Satd. Flow (prot)	5085			5085	1770	1583
Flt Permitted	1.00			1.00	0.95	1.00
Satd. Flow (perm)	5085			5085	1770	1583
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	765	0	0	1035	597	346
RTOR Reduction (vph)	0	0	0	0	0	33
Lane Group Flow (vph)	765	0	0	1035	597	313
Turn Type	NA			NA	Prot	Perm
Protected Phases	2			6	8	
Permitted Phases						8
Actuated Green, G (s)	76.7			76.8	61.5	61.5
Effective Green, g (s)	76.2			76.3	61.0	61.0
Actuated g/C Ratio	0.51			0.51	0.41	0.41
Clearance Time (s)	5.8			5.7	6.0	6.0
Vehicle Extension (s)	2.0			2.0	2.0	2.0
Lane Grp Cap (vph)	2583			2586	719	643
v/s Ratio Prot	0.15			c0.20	c0.34	
v/s Ratio Perm						0.20
v/c Ratio	0.30			0.40	0.83	0.49
Uniform Delay, d1	21.4			22.7	39.9	32.9
Progression Factor	1.03			0.94	1.00	1.00
Incremental Delay, d2	0.3			0.3	7.7	0.2
Delay (s)	22.3			21.7	47.6	33.1
Level of Service	C			C	D	C
Approach Delay (s)	22.3			21.7	42.3	
Approach LOS	C			C	D	

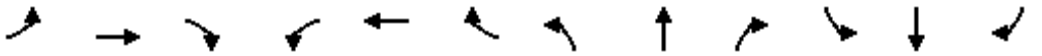
Intersection Summary			
HCM 2000 Control Delay	28.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	12.8
Intersection Capacity Utilization	88.2%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	250	804	983	687	0	0
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	263	846	1035	723	0	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)		275	368			
pX, platoon unblocked	0.87				0.91	0.87
vC, conflicting volume	1758				2346	879
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1566				1844	552
tC, single (s)	4.2				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	26				100	100
cM capacity (veh/h)	354				15	414

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2
Volume Total	263	423	423	690	1068
Volume Left	263	0	0	0	0
Volume Right	0	0	0	0	723
cSH	354	1700	1700	1700	1700
Volume to Capacity	0.74	0.25	0.25	0.41	0.63
Queue Length 95th (ft)	144	0	0	0	0
Control Delay (s)	39.6	0.0	0.0	0.0	0.0
Lane LOS	E				
Approach Delay (s)	9.4			0.0	
Approach LOS					

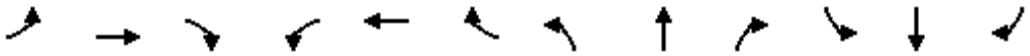
Intersection Summary			
Average Delay	3.6		
Intersection Capacity Utilization	70.5%	ICU Level of Service	C
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	367	279	163	187	526	195	638	656	140	100	677	516
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.4	6.4	6.0	6.5	6.0	6.0	7.0	6.0	6.0	6.6	6.6
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	3539	1583	3433	3539	1583	3433	3539	1583	3400	3539	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	3539	1583	3433	3539	1583	3433	3539	1583	3400	3539	1583
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	386	294	172	197	554	205	672	691	147	105	713	543
RTOR Reduction (vph)	0	0	138	0	0	75	0	0	58	0	0	239
Lane Group Flow (vph)	386	294	34	197	554	130	672	691	89	105	713	304
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	3%	2%	2%
Turn Type	Prot	NA	Perm	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	Perm
Protected Phases	5	2		1	6	7	3	8	1	7	4	
Permitted Phases			2			6			8			4
Actuated Green, G (s)	19.4	29.8	29.8	30.7	41.0	48.1	32.1	59.0	89.7	7.1	34.4	34.4
Effective Green, g (s)	18.9	29.3	29.3	30.2	40.5	47.1	31.6	58.5	88.7	6.6	33.9	33.9
Actuated g/C Ratio	0.13	0.20	0.20	0.20	0.27	0.31	0.21	0.39	0.59	0.04	0.23	0.23
Clearance Time (s)	5.5	5.9	5.9	5.5	6.0	5.5	5.5	6.5	5.5	5.5	6.1	6.1
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lane Grp Cap (vph)	432	691	309	691	955	497	723	1380	936	149	799	357
v/s Ratio Prot	c0.11	0.08		0.06	c0.16	0.01	c0.20	0.20	0.02	0.03	c0.20	
v/s Ratio Perm			0.02			0.07			0.04			0.19
v/c Ratio	0.89	0.43	0.11	0.29	0.58	0.26	0.93	0.50	0.10	0.70	0.89	0.85
Uniform Delay, d1	64.6	53.0	49.6	50.8	47.4	38.4	58.1	34.7	13.3	70.7	56.3	55.6
Progression Factor	0.76	0.74	1.38	1.00	1.00	1.00	0.57	0.36	1.16	1.00	1.00	1.00
Incremental Delay, d2	19.3	1.8	0.7	0.1	2.6	0.1	13.7	0.1	0.0	11.7	12.0	16.8
Delay (s)	68.2	40.9	69.0	50.8	50.0	38.5	47.0	12.7	15.4	82.4	68.3	72.4
Level of Service	E	D	E	D	D	D	D	B	B	F	E	E
Approach Delay (s)		58.9			47.7			28.2			71.0	
Approach LOS		E			D			C			E	

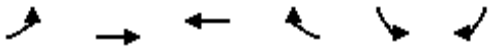
Intersection Summary			
HCM 2000 Control Delay	50.2	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.80		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	25.5
Intersection Capacity Utilization	82.8%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	71	698	8	70	725	230	6	6	36	147	21	95
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.7	6.2		5.7	6.1			6.6		6.6	6.6	
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00		1.00	1.00	
Frt	1.00	1.00		1.00	0.96			0.90		1.00	0.88	
Flt Protected	0.95	1.00		0.95	1.00			0.99		0.95	1.00	
Satd. Flow (prot)	1770	3533		1770	3411			1662		1770	1634	
Flt Permitted	0.95	1.00		0.95	1.00			0.95		0.72	1.00	
Satd. Flow (perm)	1770	3533		1770	3411			1589		1349	1634	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	75	735	8	74	763	242	6	6	38	155	22	100
RTOR Reduction (vph)	0	1	0	0	28	0	0	33	0	0	86	0
Lane Group Flow (vph)	75	742	0	74	977	0	0	17	0	155	36	0
Turn Type	Prot	NA		Prot	NA		Perm	NA		Perm	NA	
Protected Phases	1	6		5	2			4			8	
Permitted Phases							4			8		
Actuated Green, G (s)	4.9	41.4		5.3	41.9			11.3		11.3	11.3	
Effective Green, g (s)	4.4	40.9		4.8	41.4			10.8		10.8	10.8	
Actuated g/C Ratio	0.06	0.55		0.06	0.55			0.14		0.14	0.14	
Clearance Time (s)	5.2	5.7		5.2	5.6			6.1		6.1	6.1	
Vehicle Extension (s)	1.0	1.0		1.0	1.0			1.0		1.0	1.0	
Lane Grp Cap (vph)	103	1926		113	1882			228		194	235	
v/s Ratio Prot	c0.04	0.21		0.04	c0.29						0.02	
v/s Ratio Perm								0.01		c0.11		
v/c Ratio	0.73	0.39		0.65	0.52			0.08		0.80	0.15	
Uniform Delay, d1	34.7	9.8		34.3	10.5			27.8		31.0	28.1	
Progression Factor	1.00	1.00		1.11	0.20			1.00		1.00	1.00	
Incremental Delay, d2	19.4	0.6		6.9	0.7			0.1		18.9	0.1	
Delay (s)	54.1	10.4		45.0	2.8			27.8		50.0	28.2	
Level of Service	D	B		D	A			C		D	C	
Approach Delay (s)		14.4			5.7			27.8			40.4	
Approach LOS		B			A			C			D	

Intersection Summary			
HCM 2000 Control Delay	13.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	75.0	Sum of lost time (s)	18.5
Intersection Capacity Utilization	61.7%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	11	868	1092	314	606	24
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.7	5.7	5.7		6.0	
Lane Util. Factor	1.00	0.95	0.95		0.97	
Frt	1.00	1.00	0.97		0.99	
Flt Protected	0.95	1.00	1.00		0.95	
Satd. Flow (prot)	1770	3539	3420		3423	
Flt Permitted	0.09	1.00	1.00		0.95	
Satd. Flow (perm)	160	3539	3420		3423	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	12	914	1149	331	638	25
RTOR Reduction (vph)	0	0	31	0	4	0
Lane Group Flow (vph)	12	914	1449	0	659	0
Heavy Vehicles (%)	2%	2%	2%	2%	2%	6%
Turn Type	pm+pt	NA	NA		Prot	
Protected Phases	5	2	6		8	
Permitted Phases	2					
Actuated Green, G (s)	47.5	47.5	41.3		16.8	
Effective Green, g (s)	47.0	47.0	40.8		16.3	
Actuated g/C Ratio	0.63	0.63	0.54		0.22	
Clearance Time (s)	5.2	5.2	5.2		5.5	
Vehicle Extension (s)	2.0	2.0	2.0		1.5	
Lane Grp Cap (vph)	111	2217	1860		743	
v/s Ratio Prot	0.00	c0.26	c0.42		c0.19	
v/s Ratio Perm	0.07					
v/c Ratio	0.11	0.41	0.78		0.89	
Uniform Delay, d1	10.0	7.0	13.5		28.5	
Progression Factor	0.46	0.66	1.28		1.00	
Incremental Delay, d2	0.1	0.5	3.0		12.1	
Delay (s)	4.8	5.2	20.3		40.5	
Level of Service	A	A	C		D	
Approach Delay (s)		5.2	20.3		40.5	
Approach LOS		A	C		D	

Intersection Summary			
HCM 2000 Control Delay	20.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.83		
Actuated Cycle Length (s)	75.0	Sum of lost time (s)	17.4
Intersection Capacity Utilization	68.0%	ICU Level of Service	C
Analysis Period (min)	15		

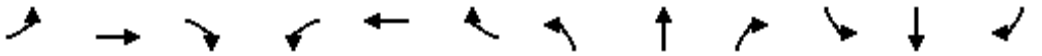
c Critical Lane Group

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	1077	591	477	1532	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.7	5.7	5.7	5.7		
Lane Util. Factor	0.95	1.00	1.00	0.95		
Frt	1.00	0.85	1.00	1.00		
Flt Protected	1.00	1.00	0.95	1.00		
Satd. Flow (prot)	3539	1583	1770	3539		
Flt Permitted	1.00	1.00	0.95	1.00		
Satd. Flow (perm)	3539	1583	1770	3539		
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	1134	622	502	1613	0	0
RTOR Reduction (vph)	0	88	0	0	0	0
Lane Group Flow (vph)	1134	534	502	1613	0	0
Turn Type	NA	Perm	Prot	NA		
Protected Phases	6		5	2		
Permitted Phases		6				
Actuated Green, G (s)	92.0	92.0	47.6	150.0		
Effective Green, g (s)	91.5	91.5	47.1	150.0		
Actuated g/C Ratio	0.61	0.61	0.31	1.00		
Clearance Time (s)	5.2	5.2	5.2	5.2		
Vehicle Extension (s)	2.0	2.0	2.0	2.0		
Lane Grp Cap (vph)	2158	965	555	3539		
v/s Ratio Prot	0.32		c0.28	0.46		
v/s Ratio Perm		c0.34				
v/c Ratio	0.53	0.55	0.90	0.46		
Uniform Delay, d1	16.8	17.2	49.3	0.0		
Progression Factor	0.78	0.66	0.82	1.00		
Incremental Delay, d2	0.8	2.0	14.4	0.3		
Delay (s)	13.9	13.4	54.7	0.3		
Level of Service	B	B	D	A		
Approach Delay (s)	13.7			13.2	0.0	
Approach LOS	B			B	A	

Intersection Summary			
HCM 2000 Control Delay	13.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.67		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	11.4
Intersection Capacity Utilization	72.5%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

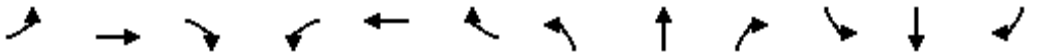
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	1104	0	0	1575	423	711
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0			6.4	7.6	7.6
Lane Util. Factor	0.95			0.95	0.97	0.88
Frt	1.00			1.00	1.00	0.85
Flt Protected	1.00			1.00	0.95	1.00
Satd. Flow (prot)	3539			3539	3433	2787
Flt Permitted	1.00			1.00	0.95	1.00
Satd. Flow (perm)	3539			3539	3433	2787
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	1162	0	0	1658	445	748
RTOR Reduction (vph)	0	0	0	0	0	109
Lane Group Flow (vph)	1162	0	0	1658	445	639
Turn Type	NA			NA	Prot	Prot
Protected Phases	2			6	4	4
Permitted Phases						
Actuated Green, G (s)	100.1			99.7	37.3	37.3
Effective Green, g (s)	99.6			99.2	36.8	36.8
Actuated g/C Ratio	0.66			0.66	0.25	0.25
Clearance Time (s)	5.5			5.9	7.1	7.1
Vehicle Extension (s)	2.0			1.0	1.0	1.0
Lane Grp Cap (vph)	2349			2340	842	683
v/s Ratio Prot	0.33			c0.47	0.13	c0.23
v/s Ratio Perm						
v/c Ratio	0.49			0.71	0.53	0.93
Uniform Delay, d1	12.6			16.2	49.1	55.4
Progression Factor	0.04			0.54	1.00	1.00
Incremental Delay, d2	0.7			1.7	0.3	19.8
Delay (s)	1.1			10.5	49.4	75.2
Level of Service	A			B	D	E
Approach Delay (s)	1.1			10.5	65.6	
Approach LOS	A			B	E	

Intersection Summary			
HCM 2000 Control Delay	24.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.77		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	72.5%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	1285	488	0	1378	0	0	0	218	206	212	163
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5			4.5				4.5	4.5	4.5	4.5
Lane Util. Factor		0.91			0.95				1.00	0.97	1.00	1.00
Frt		0.96			1.00				0.86	1.00	1.00	0.85
Flt Protected		1.00			1.00				1.00	0.95	1.00	1.00
Satd. Flow (prot)		4875			3539				1611	3433	1863	1583
Flt Permitted		1.00			1.00				1.00	0.95	1.00	1.00
Satd. Flow (perm)		4875			3539				1611	3433	1863	1583
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	0	1339	508	0	1435	0	0	0	227	215	221	170
RTOR Reduction (vph)	0	28	0	0	0	0	0	0	69	0	0	57
Lane Group Flow (vph)	0	1819	0	0	1435	0	0	0	158	215	221	113
Turn Type		NA			NA				Perm	Split	NA	Prot
Protected Phases		6			2					8	8	8
Permitted Phases									8			
Actuated Green, G (s)		121.4			121.4				20.6	20.6	20.6	20.6
Effective Green, g (s)		120.9			120.9				20.1	20.1	20.1	20.1
Actuated g/C Ratio		0.81			0.81				0.13	0.13	0.13	0.13
Clearance Time (s)		4.0			4.0				4.0	4.0	4.0	4.0
Vehicle Extension (s)		2.5			2.5				2.5	2.5	2.5	2.5
Lane Grp Cap (vph)		3929			2852				215	460	249	212
v/s Ratio Prot		0.37			c0.41					0.06	c0.12	0.07
v/s Ratio Perm									0.10			
v/c Ratio		0.46			0.50				0.73	0.47	0.89	0.53
Uniform Delay, d1		4.5			4.7				62.4	60.0	63.8	60.6
Progression Factor		1.13			1.16				1.00	1.00	1.00	1.00
Incremental Delay, d2		0.3			0.3				11.5	0.5	29.1	2.0
Delay (s)		5.4			5.8				73.9	60.6	93.0	62.6
Level of Service		A			A				E	E	F	E
Approach Delay (s)		5.4			5.8			73.9			72.9	
Approach LOS		A			A			E			E	

Intersection Summary			
HCM 2000 Control Delay	19.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.56		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	66.4%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



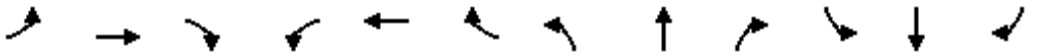
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	418	1009	261	597	884	251	362	773	558	402	466	148
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	7.0	7.8	7.8	6.9	7.8	7.8	7.4	7.8	7.8	7.4	3.5
Lane Util. Factor	0.97	0.91	1.00	0.97	0.95	0.88	0.97	0.95	1.00	0.97	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	5085	1583	3433	3539	2787	3433	3539	1583	3433	3539	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	5085	1583	3433	3539	2787	3433	3539	1583	3433	3539	1583
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	440	1062	275	628	931	264	381	814	587	423	491	156
RTOR Reduction (vph)	0	0	120	0	0	77	0	0	45	0	0	70
Lane Group Flow (vph)	440	1062	155	628	931	187	381	814	542	423	491	86
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	1	6	7	5	2	3	7	4	5	3	8	1
Permitted Phases			6			2			4			8
Actuated Green, G (s)	24.5	34.0	51.3	28.6	42.5	64.9	17.3	37.0	65.6	22.4	42.1	66.6
Effective Green, g (s)	24.0	33.5	50.3	28.1	42.0	63.9	16.8	36.5	64.6	21.9	41.6	65.6
Actuated g/C Ratio	0.16	0.22	0.34	0.19	0.28	0.43	0.11	0.24	0.43	0.15	0.28	0.44
Clearance Time (s)	3.0	6.5	7.3	7.3	6.4	7.3	7.3	6.9	7.3	7.3	6.9	3.0
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lane Grp Cap (vph)	549	1135	530	643	990	1332	384	861	764	501	981	692
v/s Ratio Prot	0.13	0.21	0.03	c0.18	c0.26	0.02	0.11	c0.23	0.13	c0.12	0.14	0.02
v/s Ratio Perm			0.07			0.05			0.21			0.03
v/c Ratio	0.80	0.94	0.29	0.98	0.94	0.14	0.99	0.95	0.71	0.84	0.50	0.12
Uniform Delay, d1	60.7	57.2	36.7	60.6	52.8	26.3	66.5	55.8	35.0	62.4	45.5	25.1
Progression Factor	1.10	0.96	1.58	0.73	0.86	0.73	1.00	1.00	1.00	0.62	0.46	0.32
Incremental Delay, d2	7.2	14.2	0.1	6.3	2.4	0.0	43.6	18.4	2.5	9.7	0.1	0.0
Delay (s)	74.2	68.8	58.1	50.4	47.8	19.2	110.1	74.2	37.5	48.3	21.0	8.2
Level of Service	E	E	E	D	D	B	F	E	D	D	C	A
Approach Delay (s)		68.5			44.6			69.8			29.9	
Approach LOS		E			D			E			C	

Intersection Summary			
HCM 2000 Control Delay	55.7	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.97		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	30.0
Intersection Capacity Utilization	94.4%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	671	1259	742	1735	0	0
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	706	1325	781	1826	0	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)	254			750		
pX, platoon unblocked					0.74	
vC, conflicting volume			706		3182	353
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			706		3246	353
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			12		100	100
cM capacity (veh/h)			888		1	643

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3
Volume Total	353	353	1325	781	913	913
Volume Left	0	0	0	781	0	0
Volume Right	0	0	1325	0	0	0
cSH	1700	1700	1700	888	1700	1700
Volume to Capacity	0.21	0.21	0.78	0.88	0.54	0.54
Queue Length 95th (ft)	0	0	0	292	0	0
Control Delay (s)	0.0	0.0	0.0	30.3	0.0	0.0
Lane LOS				D		
Approach Delay (s)	0.0			9.1		
Approach LOS						

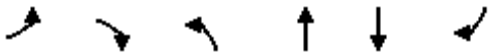
Intersection Summary			
Average Delay	5.1		
Intersection Capacity Utilization	126.6%	ICU Level of Service	H
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	97	576	0	0	929	39	1137	398	361	59	0	500
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.4	6.3			6.6		6.1	6.1	6.1	6.0		6.0
Lane Util. Factor	1.00	0.95			0.95		0.97	1.00	1.00	1.00		1.00
Frt	1.00	1.00			0.99		1.00	1.00	0.85	1.00		0.85
Flt Protected	0.95	1.00			1.00		0.95	1.00	1.00	0.95		1.00
Satd. Flow (prot)	1770	3539			3518		3433	1827	1583	1752		1583
Flt Permitted	0.95	1.00			1.00		0.95	1.00	1.00	0.95		1.00
Satd. Flow (perm)	1770	3539			3518		3433	1827	1583	1752		1583
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	102	606	0	0	978	41	1197	419	380	62	0	526
RTOR Reduction (vph)	0	0	0	0	2	0	0	0	269	0	0	83
Lane Group Flow (vph)	102	606	0	0	1017	0	1197	419	111	62	0	443
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	4%	2%	3%	2%	2%
Turn Type	Prot	NA			NA		Split	NA	Perm	Prot		Prot
Protected Phases	1	6			2		7	7		8		8
Permitted Phases					2				7			
Actuated Green, G (s)	8.1	55.2			40.9		44.4	44.4	44.4	33.5		33.5
Effective Green, g (s)	7.6	54.7			40.4		43.9	43.9	43.9	33.0		33.0
Actuated g/C Ratio	0.05	0.36			0.27		0.29	0.29	0.29	0.22		0.22
Clearance Time (s)	5.9	5.8			6.1		5.6	5.6	5.6	5.5		5.5
Vehicle Extension (s)	2.0	2.0			2.0		2.0	2.0	2.0	2.0		2.0
Lane Grp Cap (vph)	89	1290			947		1004	534	463	385		348
v/s Ratio Prot	c0.06	0.17			c0.29		c0.35	0.23		0.04		c0.28
v/s Ratio Perm									0.07			
v/c Ratio	1.15	0.47			1.07		1.19	0.78	0.24	0.16		1.27
Uniform Delay, d1	71.2	36.5			54.8		53.0	48.7	40.4	47.3		58.5
Progression Factor	0.72	0.60			1.00		1.00	1.00	1.00	1.00		1.00
Incremental Delay, d2	113.5	0.6			51.1		96.5	6.9	0.1	0.1		143.9
Delay (s)	164.7	22.7			105.9		149.5	55.6	40.5	47.4		202.4
Level of Service	F	C			F		F	E	D	D		F
Approach Delay (s)		43.1			105.9			109.0			186.0	
Approach LOS		D			F			F			F	

Intersection Summary			
HCM 2000 Control Delay	108.0	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.17		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	25.1
Intersection Capacity Utilization	105.9%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	37	305	511	130	152	61
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	40	332	555	141	165	66
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)		3				
Median type				TWLTL	TWLTL	
Median storage veh)				2	2	
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1451	198	232			
vC1, stage 1 conf vol	198					
vC2, stage 2 conf vol	1252					
vCu, unblocked vol	1451	198	232			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)	5.4					
tF (s)	3.5	3.3	2.2			
p0 queue free %	74	61	58			
cM capacity (veh/h)	153	843	1336			

Direction, Lane #	EB 1	NB 1	NB 2	SB 1
Volume Total	372	555	141	232
Volume Left	40	555	0	0
Volume Right	332	0	0	66
cSH	945	1336	1700	1700
Volume to Capacity	0.39	0.42	0.08	0.14
Queue Length 95th (ft)	47	52	0	0
Control Delay (s)	14.7	9.6	0.0	0.0
Lane LOS	B	A		
Approach Delay (s)	14.7	7.7		0.0
Approach LOS	B			

Intersection Summary			
Average Delay	8.3		
Intersection Capacity Utilization	54.6%	ICU Level of Service	A
Analysis Period (min)	15		

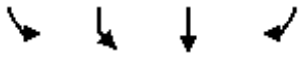
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	6	0	30	206	0	68	32	823	103	34	801	5
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	7	0	33	224	0	74	35	895	112	37	871	5
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								TWLTL			TWLTL	
Median storage veh)								2			2	
Upstream signal (ft)								513				
pX, platoon unblocked	0.86	0.86		0.86	0.86	0.86				0.86		
vC, conflicting volume	1985	2023	873	1997	1970	951	876			1007		
vC1, stage 1 conf vol	947	947		1020	1020							
vC2, stage 2 conf vol	1038	1076		977	950							
vCu, unblocked vol	2067	2112	873	2081	2050	858	876			923		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)	6.1	5.5		6.1	5.5							
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	95	100	91	0	100	76	95			94		
cM capacity (veh/h)	133	181	349	164	197	305	771			633		

Direction, Lane #	EB 1	WB 1	WB 2	NB 1	NB 2	SB 1	SB 2
Volume Total	39	224	74	35	1007	37	876
Volume Left	7	224	0	35	0	37	0
Volume Right	33	0	74	0	112	0	5
cSH	275	164	305	771	1700	633	1700
Volume to Capacity	0.14	1.36	0.24	0.05	0.59	0.06	0.52
Queue Length 95th (ft)	12	340	23	4	0	5	0
Control Delay (s)	20.3	249.7	20.5	9.9	0.0	11.0	0.0
Lane LOS	C	F	C	A		B	
Approach Delay (s)	20.3	192.8		0.3		0.4	
Approach LOS	C	F					

Intersection Summary				
Average Delay	25.7			
Intersection Capacity Utilization	75.1%	ICU Level of Service	D	
Analysis Period (min)	15			

Movement	EBL	EBT	EBR	EBR2	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU
Right Turn Channelized												
Volume (veh/h)	55	0	3	36	84	6	129	49	15	254	58	3
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
Hourly flow rate (vph)	60	0	3	39	91	7	140	53	16	276	63	3
Approach Volume (veh/h)		102				238				409		
Crossing Volume (veh/h)		652				409				125		
High Capacity (veh/h)		826				1004				1256		
High v/c (veh/h)		0.12				0.24				0.33		
Low Capacity (veh/h)		660				817				1044		
Low v/c (veh/h)		0.15				0.29				0.39		

Intersection Summary					
Maximum v/c High		0.45			
Maximum v/c Low		0.55			
Intersection Capacity Utilization		54.2%	ICU Level of Service		A



Movement	SBL2	SBL	SBT	SBR
Right Turn Channelized				
Volume (veh/h)	30	24	410	40
Peak Hour Factor	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	33	26	446	43
Approach Volume (veh/h)			551	
Crossing Volume (veh/h)			167	
High Capacity (veh/h)			1215	
High v/c (veh/h)			0.45	
Low Capacity (veh/h)			1007	
Low v/c (veh/h)			0.55	

Intersection Summary

Intersection	
Intersection Delay, s/veh	10.3
Intersection LOS	B

Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	102	238	408	551
Demand Flow Rate, veh/h	105	243	420	567
Vehicles Circulating, veh/h	670	418	128	172
Vehicles Exiting, veh/h	69	100	647	489
Follow-Up Headway, s	3.186	3.186	3.186	3.186
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	8.7	9.0	8.5	12.4
Approach LOS	A	A	A	B

Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Critical Headway, s	5.193	5.193	5.193	5.193
Entry Flow, veh/h	105	243	420	567
Cap Entry Lane, veh/h	578	744	994	951
Entry HV Adj Factor	0.971	0.979	0.972	0.972
Flow Entry, veh/h	102	238	408	551
Cap Entry, veh/h	562	728	967	924
V/C Ratio	0.182	0.327	0.422	0.596
Control Delay, s/veh	8.7	9.0	8.5	12.4
LOS	A	A	A	B
95th %tile Queue, veh	1	1	2	4

Intersection	
Intersection Delay, s/veh	
Intersection LOS	

Approach	NW
Entry Lanes	0
Conflicting Circle Lanes	1
Adj Approach Flow, veh/h	0
Demand Flow Rate, veh/h	0
Vehicles Circulating, veh/h	518
Vehicles Exiting, veh/h	30
Follow-Up Headway, s	3.186
Ped Vol Crossing Leg, #/h	0
Ped Cap Adj	1.000
Approach Delay, s/veh	0.0
Approach LOS	-

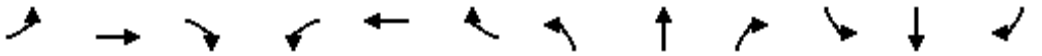
Lane	
Designated Moves	
Assumed Moves	
RT Channelized	
Lane Util	
Critical Headway, s	
Entry Flow, veh/h	
Cap Entry Lane, veh/h	
Entry HV Adj Factor	
Flow Entry, veh/h	
Cap Entry, veh/h	
V/C Ratio	
Control Delay, s/veh	
LOS	
95th %tile Queue, veh	

APPENDIX F

SYNCHRO REPORTS WITH PROPOSED ZONING

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	667	0	0	719	1003	59
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.1			6.1	6.5	6.5
Lane Util. Factor	0.95			0.95	0.97	1.00
Frt	1.00			1.00	1.00	0.85
Flt Protected	1.00			1.00	0.95	1.00
Satd. Flow (prot)	3539			3539	3433	1583
Flt Permitted	1.00			1.00	0.95	1.00
Satd. Flow (perm)	3539			3539	3433	1583
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	702	0	0	757	1056	62
RTOR Reduction (vph)	0	0	0	0	0	26
Lane Group Flow (vph)	702	0	0	757	1056	36
Turn Type	NA			NA	Prot	Perm
Protected Phases	2			6	8	
Permitted Phases						8
Actuated Green, G (s)	26.3			26.3	39.1	39.1
Effective Green, g (s)	25.8			25.8	38.6	38.6
Actuated g/C Ratio	0.34			0.34	0.50	0.50
Clearance Time (s)	5.6			5.6	6.0	6.0
Vehicle Extension (s)	3.0			3.0	2.0	2.0
Lane Grp Cap (vph)	1185			1185	1720	793
v/s Ratio Prot	0.20			c0.21	c0.31	
v/s Ratio Perm						0.02
v/c Ratio	0.59			0.64	0.61	0.05
Uniform Delay, d1	21.2			21.7	13.8	9.8
Progression Factor	1.00			0.92	0.60	0.09
Incremental Delay, d2	0.8			0.6	1.6	0.1
Delay (s)	22.0			20.6	9.9	1.0
Level of Service	C			C	A	A
Approach Delay (s)	22.0			20.6	9.4	
Approach LOS	C			C	A	

Intersection Summary			
HCM 2000 Control Delay	16.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	77.0	Sum of lost time (s)	12.6
Intersection Capacity Utilization	59.0%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	298	463	52	60	532	623	67	308	133	526	383	342
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.9	6.7		5.9	6.7		5.9	6.3	5.9	5.9	6.6	5.9
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.98		1.00	0.92		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3485		1752	3253		1770	1863	1583	1770	1863	1583
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1770	3485		1752	3253		1770	1863	1583	1770	1863	1583
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	314	487	55	63	560	656	71	324	140	554	403	360
RTOR Reduction (vph)	0	7	0	0	137	0	0	0	66	0	0	75
Lane Group Flow (vph)	314	535	0	63	1079	0	71	324	74	554	403	285
Heavy Vehicles (%)	2%	2%	2%	3%	2%	2%	2%	2%	2%	2%	2%	2%
Turn Type	Prot	NA		Prot	NA		Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	5	2		1	6		3	8	1	7	4	5
Permitted Phases									8			4
Actuated Green, G (s)	21.6	26.9		38.7	44.0		9.0	27.0	65.7	38.6	56.3	77.9
Effective Green, g (s)	21.1	26.4		38.2	43.5		8.5	26.5	64.7	38.1	55.8	76.9
Actuated g/C Ratio	0.14	0.17		0.25	0.28		0.06	0.17	0.42	0.25	0.36	0.50
Clearance Time (s)	5.4	6.2		5.4	6.2		5.4	5.8	5.4	5.4	6.1	5.4
Vehicle Extension (s)	1.7	1.7		1.7	1.7		1.7	3.0	1.7	1.7	3.0	1.7
Lane Grp Cap (vph)	242	597		434	918		97	320	725	437	675	790
v/s Ratio Prot	c0.18	0.15		0.04	c0.33		0.04	c0.17	0.03	c0.31	0.22	0.05
v/s Ratio Perm									0.02			0.13
v/c Ratio	1.30	0.90		0.15	1.18		0.73	1.01	0.10	1.27	0.60	0.36
Uniform Delay, d1	66.5	62.5		45.2	55.2		71.6	63.8	27.0	58.0	40.0	23.5
Progression Factor	0.81	0.80		0.91	0.86		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	158.7	17.3		0.1	89.8		21.5	53.5	0.0	137.6	1.4	0.1
Delay (s)	212.5	67.1		41.1	137.4		93.1	117.3	27.1	195.5	41.4	23.6
Level of Service	F	E		D	F		F	F	C	F	D	C
Approach Delay (s)		120.4			132.7			90.5			101.4	
Approach LOS		F			F			F			F	

Intersection Summary			
HCM 2000 Control Delay	114.0	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.19		
Actuated Cycle Length (s)	154.0	Sum of lost time (s)	25.1
Intersection Capacity Utilization	117.3%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

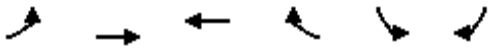
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	752	373	385	1242	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.6	5.6	6.6	5.9		
Lane Util. Factor	0.95	1.00	0.97	0.95		
Frt	1.00	0.85	1.00	1.00		
Flt Protected	1.00	1.00	0.95	1.00		
Satd. Flow (prot)	3539	1568	3433	3539		
Flt Permitted	1.00	1.00	0.95	1.00		
Satd. Flow (perm)	3539	1568	3433	3539		
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	792	393	405	1307	0	0
RTOR Reduction (vph)	0	45	0	0	0	0
Lane Group Flow (vph)	792	348	405	1307	0	0
Heavy Vehicles (%)	2%	3%	2%	2%	2%	2%
Turn Type	NA	Perm	Prot	NA		
Protected Phases	2		1	6		
Permitted Phases		2				
Actuated Green, G (s)	121.1	121.1	21.7	154.0		
Effective Green, g (s)	120.6	120.6	21.2	154.0		
Actuated g/C Ratio	0.78	0.78	0.14	1.00		
Clearance Time (s)	5.1	5.1	6.1	5.4		
Vehicle Extension (s)	2.0	2.0	2.0	2.0		
Lane Grp Cap (vph)	2771	1227	472	3539		
v/s Ratio Prot	0.22		c0.12	c0.37		
v/s Ratio Perm		0.22				
v/c Ratio	0.29	0.28	0.86	0.37		
Uniform Delay, d1	4.7	4.7	64.9	0.0		
Progression Factor	0.19	0.03	1.04	1.00		
Incremental Delay, d2	0.1	0.3	12.4	0.3		
Delay (s)	1.0	0.5	80.2	0.3		
Level of Service	A	A	F	A		
Approach Delay (s)	0.8			19.2	0.0	
Approach LOS	A			B	A	

Intersection Summary			
HCM 2000 Control Delay	11.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.46		
Actuated Cycle Length (s)	154.0	Sum of lost time (s)	12.2
Intersection Capacity Utilization	90.9%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	752	0	0	1039	587	329
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.3			6.2	6.5	6.5
Lane Util. Factor	0.91			0.91	1.00	1.00
Frt	1.00			1.00	1.00	0.85
Flt Protected	1.00			1.00	0.95	1.00
Satd. Flow (prot)	5085			5085	1770	1583
Flt Permitted	1.00			1.00	0.95	1.00
Satd. Flow (perm)	5085			5085	1770	1583
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	792	0	0	1094	618	346
RTOR Reduction (vph)	0	0	0	0	0	30
Lane Group Flow (vph)	792	0	0	1094	618	316
Turn Type	NA			NA	Prot	Perm
Protected Phases	2			6	8	
Permitted Phases						8
Actuated Green, G (s)	77.1			77.2	65.1	65.1
Effective Green, g (s)	76.6			76.7	64.6	64.6
Actuated g/C Ratio	0.50			0.50	0.42	0.42
Clearance Time (s)	5.8			5.7	6.0	6.0
Vehicle Extension (s)	2.0			2.0	2.0	2.0
Lane Grp Cap (vph)	2529			2532	742	664
v/s Ratio Prot	0.16			c0.22	c0.35	
v/s Ratio Perm						0.20
v/c Ratio	0.31			0.43	0.83	0.48
Uniform Delay, d1	23.0			24.7	39.9	32.4
Progression Factor	0.16			0.79	1.00	1.00
Incremental Delay, d2	0.3			0.3	7.6	0.2
Delay (s)	4.1			19.9	47.5	32.6
Level of Service	A			B	D	C
Approach Delay (s)	4.1			19.9	42.2	
Approach LOS	A			B	D	

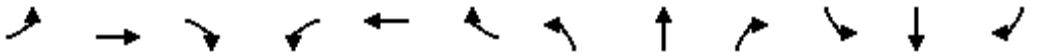
Intersection Summary			
HCM 2000 Control Delay	23.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	154.0	Sum of lost time (s)	12.8
Intersection Capacity Utilization	90.9%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	240	839	1039	687	0	0
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	253	883	1094	723	0	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)		275	368			
pX, platoon unblocked	0.86				0.91	0.86
vC, conflicting volume	1817				2402	908
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1626				1872	571
tC, single (s)	4.2				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	24				100	100
cM capacity (veh/h)	333				14	399

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2
Volume Total	253	442	442	729	1088
Volume Left	253	0	0	0	0
Volume Right	0	0	0	0	723
cSH	333	1700	1700	1700	1700
Volume to Capacity	0.76	0.26	0.26	0.43	0.64
Queue Length 95th (ft)	148	0	0	0	0
Control Delay (s)	43.0	0.0	0.0	0.0	0.0
Lane LOS	E				
Approach Delay (s)	9.6			0.0	
Approach LOS					

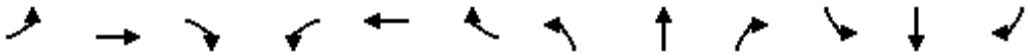
Intersection Summary			
Average Delay	3.7		
Intersection Capacity Utilization	71.5%	ICU Level of Service	C
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	389	283	172	187	538	195	659	656	140	100	677	539
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.4	6.4	6.0	6.5	6.0	6.0	7.0	6.0	6.0	6.6	6.6
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	3539	1583	3433	3539	1583	3433	3539	1583	3400	3539	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	3539	1583	3433	3539	1583	3433	3539	1583	3400	3539	1583
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	409	298	181	197	566	205	694	691	147	105	713	567
RTOR Reduction (vph)	0	0	147	0	0	74	0	0	55	0	0	241
Lane Group Flow (vph)	409	298	34	197	566	131	694	691	92	105	713	326
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	3%	2%	2%
Turn Type	Prot	NA	Perm	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	Perm
Protected Phases	5	2		1	6	7	3	8	1	7	4	
Permitted Phases			2			6			8			4
Actuated Green, G (s)	20.5	29.1	29.1	32.2	40.7	48.0	33.5	62.0	94.2	7.3	36.2	36.2
Effective Green, g (s)	20.0	28.6	28.6	31.7	40.2	47.0	33.0	61.5	93.2	6.8	35.7	35.7
Actuated g/C Ratio	0.13	0.19	0.19	0.21	0.26	0.31	0.21	0.40	0.61	0.04	0.23	0.23
Clearance Time (s)	5.5	5.9	5.9	5.5	6.0	5.5	5.5	6.5	5.5	5.5	6.1	6.1
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lane Grp Cap (vph)	445	657	293	706	923	483	735	1413	958	150	820	366
v/s Ratio Prot	c0.12	0.08		0.06	c0.16	0.01	c0.20	0.20	0.02	0.03	0.20	
v/s Ratio Perm			0.02			0.07			0.04			c0.21
v/c Ratio	0.92	0.45	0.11	0.28	0.61	0.27	0.94	0.49	0.10	0.70	0.87	0.89
Uniform Delay, d1	66.2	55.8	52.2	51.5	50.1	40.5	59.6	34.5	12.7	72.6	56.9	57.3
Progression Factor	0.89	0.75	0.87	1.00	1.00	1.00	0.60	0.33	1.87	1.00	1.00	1.00
Incremental Delay, d2	22.8	2.2	0.8	0.1	3.0	0.1	15.6	0.1	0.0	10.9	9.4	22.1
Delay (s)	81.6	43.7	46.2	51.6	53.1	40.6	51.2	11.6	23.8	83.5	66.3	79.3
Level of Service	F	D	D	D	D	D	D	B	C	F	E	E
Approach Delay (s)		61.7			50.2			30.7			73.0	
Approach LOS		E			D			C			E	

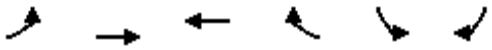
Intersection Summary			
HCM 2000 Control Delay	52.7	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.82		
Actuated Cycle Length (s)	154.0	Sum of lost time (s)	25.5
Intersection Capacity Utilization	84.4%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	71	698	8	70	725	230	6	6	36	147	21	95
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.7	6.2		5.7	6.1			6.6		6.6	6.6	
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00		1.00	1.00	
Frt	1.00	1.00		1.00	0.96			0.90		1.00	0.88	
Flt Protected	0.95	1.00		0.95	1.00			0.99		0.95	1.00	
Satd. Flow (prot)	1770	3533		1770	3411			1662		1770	1634	
Flt Permitted	0.95	1.00		0.95	1.00			0.95		0.72	1.00	
Satd. Flow (perm)	1770	3533		1770	3411			1589		1349	1634	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	75	735	8	74	763	242	6	6	38	155	22	100
RTOR Reduction (vph)	0	1	0	0	27	0	0	33	0	0	86	0
Lane Group Flow (vph)	75	742	0	74	978	0	0	17	0	155	36	0
Turn Type	Prot	NA		Prot	NA		Perm	NA		Perm	NA	
Protected Phases	1	6		5	2			4			8	
Permitted Phases							4			8		
Actuated Green, G (s)	5.0	43.2		5.3	43.6			11.5		11.5	11.5	
Effective Green, g (s)	4.5	42.7		4.8	43.1			11.0		11.0	11.0	
Actuated g/C Ratio	0.06	0.55		0.06	0.56			0.14		0.14	0.14	
Clearance Time (s)	5.2	5.7		5.2	5.6			6.1		6.1	6.1	
Vehicle Extension (s)	1.0	1.0		1.0	1.0			1.0		1.0	1.0	
Lane Grp Cap (vph)	103	1959		110	1909			227		192	233	
v/s Ratio Prot	c0.04	0.21		0.04	c0.29						0.02	
v/s Ratio Perm								0.01		c0.11		
v/c Ratio	0.73	0.38		0.67	0.51			0.08		0.81	0.16	
Uniform Delay, d1	35.6	9.7		35.3	10.5			28.6		32.0	28.9	
Progression Factor	1.00	1.00		1.06	1.22			1.00		1.00	1.00	
Incremental Delay, d2	19.4	0.6		9.1	0.7			0.1		20.4	0.1	
Delay (s)	55.0	10.2		46.5	13.5			28.7		52.3	29.0	
Level of Service	E	B		D	B			C		D	C	
Approach Delay (s)		14.3			15.8			28.7			42.1	
Approach LOS		B			B			C			D	

Intersection Summary			
HCM 2000 Control Delay	18.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.58		
Actuated Cycle Length (s)	77.0	Sum of lost time (s)	18.5
Intersection Capacity Utilization	61.7%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	11	868	1092	378	628	24
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.7	5.7	5.7		6.0	
Lane Util. Factor	1.00	0.95	0.95		0.97	
Frt	1.00	1.00	0.96		0.99	
Flt Protected	0.95	1.00	1.00		0.95	
Satd. Flow (prot)	1770	3539	3403		3424	
Flt Permitted	0.10	1.00	1.00		0.95	
Satd. Flow (perm)	184	3539	3403		3424	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	12	914	1149	398	661	25
RTOR Reduction (vph)	0	0	18	0	2	0
Lane Group Flow (vph)	12	914	1529	0	684	0
Heavy Vehicles (%)	2%	2%	2%	2%	2%	6%
Turn Type	pm+pt	NA	NA		Prot	
Protected Phases	5	2	6		8	
Permitted Phases	2					
Actuated Green, G (s)	109.5	109.5	102.3		33.8	
Effective Green, g (s)	109.0	109.0	101.8		33.3	
Actuated g/C Ratio	0.71	0.71	0.66		0.22	
Clearance Time (s)	5.2	5.2	5.2		5.5	
Vehicle Extension (s)	2.0	2.0	2.0		1.5	
Lane Grp Cap (vph)	145	2504	2249		740	
v/s Ratio Prot	0.00	c0.26	c0.45		c0.20	
v/s Ratio Perm	0.06					
v/c Ratio	0.08	0.37	0.68		0.92	
Uniform Delay, d1	12.9	8.9	16.1		59.1	
Progression Factor	0.65	0.68	0.76		1.00	
Incremental Delay, d2	0.1	0.4	1.5		17.0	
Delay (s)	8.4	6.4	13.7		76.2	
Level of Service	A	A	B		E	
Approach Delay (s)		6.5	13.7		76.2	
Approach LOS		A	B		E	

Intersection Summary			
HCM 2000 Control Delay	25.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	154.0	Sum of lost time (s)	17.4
Intersection Capacity Utilization	70.7%	ICU Level of Service	C
Analysis Period (min)	15		

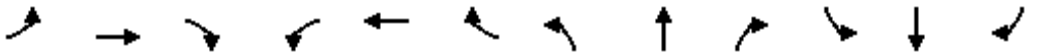
c Critical Lane Group

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	1097	593	477	1596	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.7	5.7	5.7	5.7		
Lane Util. Factor	0.95	1.00	1.00	0.95		
Frt	1.00	0.85	1.00	1.00		
Flt Protected	1.00	1.00	0.95	1.00		
Satd. Flow (prot)	3539	1583	1770	3539		
Flt Permitted	1.00	1.00	0.95	1.00		
Satd. Flow (perm)	3539	1583	1770	3539		
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	1155	624	502	1680	0	0
RTOR Reduction (vph)	0	88	0	0	0	0
Lane Group Flow (vph)	1155	536	502	1680	0	0
Turn Type	NA	Perm	Prot	NA		
Protected Phases	6		5	2		
Permitted Phases		6				
Actuated Green, G (s)	94.7	94.7	48.9	154.0		
Effective Green, g (s)	94.2	94.2	48.4	154.0		
Actuated g/C Ratio	0.61	0.61	0.31	1.00		
Clearance Time (s)	5.2	5.2	5.2	5.2		
Vehicle Extension (s)	2.0	2.0	2.0	2.0		
Lane Grp Cap (vph)	2164	968	556	3539		
v/s Ratio Prot	0.33		c0.28	0.47		
v/s Ratio Perm		c0.34				
v/c Ratio	0.53	0.55	0.90	0.47		
Uniform Delay, d1	17.2	17.6	50.5	0.0		
Progression Factor	0.45	0.21	0.87	1.00		
Incremental Delay, d2	0.9	2.1	13.9	0.3		
Delay (s)	8.6	5.8	57.8	0.3		
Level of Service	A	A	E	A		
Approach Delay (s)	7.6			13.6	0.0	
Approach LOS	A			B	A	

Intersection Summary			
HCM 2000 Control Delay	10.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.67		
Actuated Cycle Length (s)	154.0	Sum of lost time (s)	11.4
Intersection Capacity Utilization	72.6%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

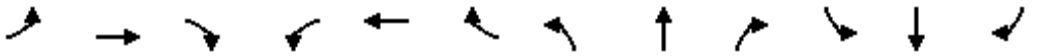
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	1124	0	0	1622	440	711
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0			6.4	7.6	7.6
Lane Util. Factor	0.95			0.95	0.97	0.88
Frt	1.00			1.00	1.00	0.85
Flt Protected	1.00			1.00	0.95	1.00
Satd. Flow (prot)	3539			3539	3433	2787
Flt Permitted	1.00			1.00	0.95	1.00
Satd. Flow (perm)	3539			3539	3433	2787
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	1183	0	0	1707	463	748
RTOR Reduction (vph)	0	0	0	0	0	107
Lane Group Flow (vph)	1183	0	0	1707	463	641
Turn Type	NA			NA	Prot	Prot
Protected Phases	2			6	4	4
Permitted Phases						
Actuated Green, G (s)	103.1			102.7	38.3	38.3
Effective Green, g (s)	102.6			102.2	37.8	37.8
Actuated g/C Ratio	0.67			0.66	0.25	0.25
Clearance Time (s)	5.5			5.9	7.1	7.1
Vehicle Extension (s)	2.0			1.0	1.0	1.0
Lane Grp Cap (vph)	2357			2348	842	684
v/s Ratio Prot	0.33			c0.48	0.13	c0.23
v/s Ratio Perm						
v/c Ratio	0.50			0.73	0.55	0.94
Uniform Delay, d1	12.9			16.8	50.7	56.9
Progression Factor	0.05			0.63	1.00	1.00
Incremental Delay, d2	0.7			1.8	0.4	20.0
Delay (s)	1.3			12.4	51.1	77.0
Level of Service	A			B	D	E
Approach Delay (s)	1.3			12.4	67.1	
Approach LOS	A			B	E	

Intersection Summary			
HCM 2000 Control Delay	25.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.78		
Actuated Cycle Length (s)	154.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	72.6%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	1305	488	0	1416	0	0	0	218	206	212	172
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5			4.5				4.5	4.5	4.5	4.5
Lane Util. Factor		0.91			0.95				1.00	0.97	1.00	1.00
Frt		0.96			1.00				0.86	1.00	1.00	0.85
Flt Protected		1.00			1.00				1.00	0.95	1.00	1.00
Satd. Flow (prot)		4878			3539				1611	3433	1863	1583
Flt Permitted		1.00			1.00				1.00	0.95	1.00	1.00
Satd. Flow (perm)		4878			3539				1611	3433	1863	1583
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	0	1359	508	0	1475	0	0	0	227	215	221	179
RTOR Reduction (vph)	0	27	0	0	0	0	0	0	68	0	0	53
Lane Group Flow (vph)	0	1840	0	0	1475	0	0	0	159	215	221	126
Turn Type		NA			NA				Perm	Split	NA	Prot
Protected Phases		6			2					8	8	8
Permitted Phases									8			
Actuated Green, G (s)		124.9			124.9				21.1	21.1	21.1	21.1
Effective Green, g (s)		124.4			124.4				20.6	20.6	20.6	20.6
Actuated g/C Ratio		0.81			0.81				0.13	0.13	0.13	0.13
Clearance Time (s)		4.0			4.0				4.0	4.0	4.0	4.0
Vehicle Extension (s)		2.5			2.5				2.5	2.5	2.5	2.5
Lane Grp Cap (vph)		3940			2858				215	459	249	211
v/s Ratio Prot		0.38			c0.42					0.06	c0.12	0.08
v/s Ratio Perm									0.10			
v/c Ratio		0.47			0.52				0.74	0.47	0.89	0.60
Uniform Delay, d1		4.6			4.9				64.1	61.6	65.6	62.8
Progression Factor		1.04			1.16				1.00	1.00	1.00	1.00
Incremental Delay, d2		0.3			0.3				12.3	0.6	29.1	3.8
Delay (s)		5.1			6.0				76.4	62.2	94.7	66.6
Level of Service		A			A				E	E	F	E
Approach Delay (s)		5.1			6.0			76.4			75.1	
Approach LOS		A			A			E			E	

Intersection Summary			
HCM 2000 Control Delay	19.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.57		
Actuated Cycle Length (s)	154.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	66.7%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



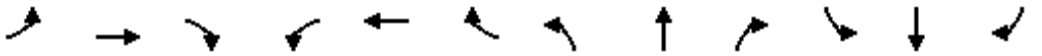
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	418	1023	267	597	910	264	374	781	558	406	471	148
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	7.0	7.8	7.8	6.9	7.8	7.8	7.4	7.8	7.8	7.4	3.5
Lane Util. Factor	0.97	0.91	1.00	0.97	0.95	0.88	0.97	0.95	1.00	0.97	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	5085	1583	3433	3539	2787	3433	3539	1583	3433	3539	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	5085	1583	3433	3539	2787	3433	3539	1583	3433	3539	1583
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	440	1077	281	628	958	278	394	822	587	427	496	156
RTOR Reduction (vph)	0	0	115	0	0	75	0	0	44	0	0	70
Lane Group Flow (vph)	440	1077	166	628	958	203	394	822	543	427	496	86
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	1	6	7	5	2	3	7	4	5	3	8	1
Permitted Phases			6			2			4			8
Actuated Green, G (s)	24.9	35.9	54.5	29.8	45.2	67.4	18.6	38.1	67.9	22.2	41.7	66.6
Effective Green, g (s)	24.4	35.4	53.5	29.3	44.7	66.4	18.1	37.6	66.9	21.7	41.2	65.6
Actuated g/C Ratio	0.16	0.23	0.35	0.19	0.29	0.43	0.12	0.24	0.43	0.14	0.27	0.43
Clearance Time (s)	3.0	6.5	7.3	7.3	6.4	7.3	7.3	6.9	7.3	7.3	6.9	3.0
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lane Grp Cap (vph)	543	1168	549	653	1027	1342	403	864	767	483	946	674
v/s Ratio Prot	0.13	0.21	0.04	c0.18	c0.27	0.02	0.11	c0.23	0.13	c0.12	0.14	0.02
v/s Ratio Perm			0.07			0.05			0.21			0.03
v/c Ratio	0.81	0.92	0.30	0.96	0.93	0.15	0.98	0.95	0.71	0.88	0.52	0.13
Uniform Delay, d1	62.6	58.0	36.6	61.8	53.2	26.7	67.7	57.3	35.6	64.9	48.1	26.8
Progression Factor	1.12	0.88	1.33	0.75	0.85	0.71	1.00	1.00	1.00	0.57	0.41	0.16
Incremental Delay, d2	7.8	12.3	0.1	4.6	2.1	0.0	38.4	19.6	2.5	14.2	0.2	0.0
Delay (s)	77.8	63.6	48.7	50.8	47.3	19.0	106.1	76.9	38.0	50.9	19.9	4.4
Level of Service	E	E	D	D	D	B	F	E	D	D	B	A
Approach Delay (s)		64.7			44.2			70.6			29.9	
Approach LOS		E			D			E			C	

Intersection Summary			
HCM 2000 Control Delay	54.8	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.97		
Actuated Cycle Length (s)	154.0	Sum of lost time (s)	30.0
Intersection Capacity Utilization	95.0%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	691	1257	742	1774	0	0
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	727	1323	781	1867	0	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)	254			750		
pX, platoon unblocked					0.73	
vC, conflicting volume			727		3223	364
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			727		3304	364
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			10		100	100
cM capacity (veh/h)			872		0	633

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3
Volume Total	364	364	1323	781	934	934
Volume Left	0	0	0	781	0	0
Volume Right	0	0	1323	0	0	0
cSH	1700	1700	1700	872	1700	1700
Volume to Capacity	0.21	0.21	0.78	0.90	0.55	0.55
Queue Length 95th (ft)	0	0	0	309	0	0
Control Delay (s)	0.0	0.0	0.0	32.7	0.0	0.0
Lane LOS				D		
Approach Delay (s)	0.0			9.7		
Approach LOS						

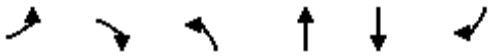
Intersection Summary			
Average Delay	5.4		
Intersection Capacity Utilization	126.4%	ICU Level of Service	H
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	97	596	0	0	947	39	1158	398	361	59	0	500
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.4	6.3			6.6		6.1	6.1	6.1	6.0		6.0
Lane Util. Factor	1.00	0.95			0.95		0.97	1.00	1.00	1.00		1.00
Frt	1.00	1.00			0.99		1.00	1.00	0.85	1.00		0.85
Flt Protected	0.95	1.00			1.00		0.95	1.00	1.00	0.95		1.00
Satd. Flow (prot)	1770	3539			3518		3433	1827	1583	1752		1583
Flt Permitted	0.95	1.00			1.00		0.95	1.00	1.00	0.95		1.00
Satd. Flow (perm)	1770	3539			3518		3433	1827	1583	1752		1583
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	102	627	0	0	997	41	1219	419	380	62	0	526
RTOR Reduction (vph)	0	0	0	0	2	0	0	0	264	0	0	80
Lane Group Flow (vph)	102	627	0	0	1036	0	1219	419	116	62	0	446
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	4%	2%	3%	2%	2%
Turn Type	Prot	NA			NA		Split	NA	Perm	Prot		Prot
Protected Phases	1	6			2		7	7		8		8
Permitted Phases					2				7			8
Actuated Green, G (s)	8.1	56.2			41.9		46.4	46.4	46.4	34.5		34.5
Effective Green, g (s)	7.6	55.7			41.4		45.9	45.9	45.9	34.0		34.0
Actuated g/C Ratio	0.05	0.36			0.27		0.30	0.30	0.30	0.22		0.22
Clearance Time (s)	5.9	5.8			6.1		5.6	5.6	5.6	5.5		5.5
Vehicle Extension (s)	2.0	2.0			2.0		2.0	2.0	2.0	2.0		2.0
Lane Grp Cap (vph)	87	1280			945		1023	544	471	386		349
v/s Ratio Prot	c0.06	0.18			c0.29		c0.36	0.23		0.04		c0.28
v/s Ratio Perm									0.07			
v/c Ratio	1.17	0.49			1.10		1.19	0.77	0.25	0.16		1.28
Uniform Delay, d1	73.2	38.1			56.3		54.1	49.2	40.9	48.5		60.0
Progression Factor	0.72	0.60			1.00		1.00	1.00	1.00	1.00		1.00
Incremental Delay, d2	121.7	0.7			59.1		96.0	6.1	0.1	0.1		145.2
Delay (s)	174.2	23.4			115.4		150.1	55.3	41.0	48.5		205.2
Level of Service	F	C			F		F	E	D	D		F
Approach Delay (s)		44.5			115.4			109.9			188.6	
Approach LOS		D			F			F			F	

Intersection Summary			
HCM 2000 Control Delay	110.9	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.18		
Actuated Cycle Length (s)	154.0	Sum of lost time (s)	25.1
Intersection Capacity Utilization	107.0%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	37	301	491	110	148	61
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	40	327	534	120	161	66
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)		3				
Median type				TWLTL	TWLTL	
Median storage veh)				2	2	
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1381	194	227			
vC1, stage 1 conf vol	194					
vC2, stage 2 conf vol	1187					
vCu, unblocked vol	1381	194	227			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)	5.4					
tF (s)	3.5	3.3	2.2			
p0 queue free %	76	61	60			
cM capacity (veh/h)	169	847	1341			

Direction, Lane #	EB 1	NB 1	NB 2	SB 1
Volume Total	367	534	120	227
Volume Left	40	534	0	0
Volume Right	327	0	0	66
cSH	952	1341	1700	1700
Volume to Capacity	0.39	0.40	0.07	0.13
Queue Length 95th (ft)	46	49	0	0
Control Delay (s)	14.2	9.4	0.0	0.0
Lane LOS	B	A		
Approach Delay (s)	14.2	7.7		0.0
Approach LOS	B			

Intersection Summary			
Average Delay	8.2		
Intersection Capacity Utilization	53.3%	ICU Level of Service	A
Analysis Period (min)	15		

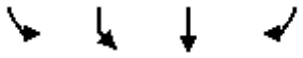
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	6	0	30	434	0	63	32	784	408	54	773	5
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	7	0	33	472	0	68	35	852	443	59	840	5
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								TWLTL			TWLTL	
Median storage veh)								2			2	
Upstream signal (ft)								513				
pX, platoon unblocked	0.83	0.83		0.83	0.83	0.83				0.83		
vC, conflicting volume	1951	2326	843	2134	2107	1074	846			1296		
vC1, stage 1 conf vol	960	960		1143	1143							
vC2, stage 2 conf vol	990	1365		990	963							
vCu, unblocked vol	2042	2492	843	2262	2229	988	846			1254		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)	6.1	5.5		6.1	5.5							
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	95	100	91	0	100	73	96			87		
cM capacity (veh/h)	119	107	364	141	170	250	791			461		

Direction, Lane #	EB 1	WB 1	WB 2	NB 1	NB 2	SB 1	SB 2
Volume Total	39	472	68	35	1296	59	846
Volume Left	7	472	0	35	0	59	0
Volume Right	33	0	68	0	443	0	5
cSH	271	141	250	791	1700	461	1700
Volume to Capacity	0.14	3.36	0.27	0.04	0.76	0.13	0.50
Queue Length 95th (ft)	12	Err	27	3	0	11	0
Control Delay (s)	20.5	Err	24.8	9.8	0.0	13.9	0.0
Lane LOS	C	F	C	A		B	
Approach Delay (s)	20.5	8734.7		0.3		0.9	
Approach LOS	C	F					

Intersection Summary				
Average Delay	1677.5			
Intersection Capacity Utilization	104.3%	ICU Level of Service	G	
Analysis Period (min)	15			

Movement	EBL	EBT	EBR	EBR2	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU
Right Turn Channelized												
Volume (veh/h)	55	0	3	36	89	6	129	49	15	299	77	3
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
Hourly flow rate (vph)	60	0	3	39	97	7	140	53	16	325	84	3
Approach Volume (veh/h)		102				243				478		
Crossing Volume (veh/h)		676				458				125		
High Capacity (veh/h)		810				966				1256		
High v/c (veh/h)		0.13				0.25				0.38		
Low Capacity (veh/h)		646				783				1044		
Low v/c (veh/h)		0.16				0.31				0.46		

Intersection Summary					
Maximum v/c High		0.47			
Maximum v/c Low		0.57			
Intersection Capacity Utilization		56.8%	ICU Level of Service		B



Movement	SBL2	SBL	SBT	SBR
Right Turn Channelized				
Volume (veh/h)	30	24	427	40
Peak Hour Factor	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	33	26	464	43
Approach Volume (veh/h)			570	
Crossing Volume (veh/h)			173	
High Capacity (veh/h)			1210	
High v/c (veh/h)			0.47	
Low Capacity (veh/h)			1002	
Low v/c (veh/h)			0.57	

Intersection Summary

Intersection	
Intersection Delay, s/veh	11.1
Intersection LOS	B

Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	102	244	478	569
Demand Flow Rate, veh/h	105	249	491	586
Vehicles Circulating, veh/h	695	467	128	178
Vehicles Exiting, veh/h	69	121	672	538
Follow-Up Headway, s	3.186	3.186	3.186	3.186
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	9.0	9.7	9.8	13.2
Approach LOS	A	A	A	B

Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Critical Headway, s	5.193	5.193	5.193	5.193
Entry Flow, veh/h	105	249	491	586
Cap Entry Lane, veh/h	564	708	994	946
Entry HV Adj Factor	0.971	0.979	0.974	0.972
Flow Entry, veh/h	102	244	478	569
Cap Entry, veh/h	548	694	969	919
V/C Ratio	0.186	0.352	0.494	0.620
Control Delay, s/veh	9.0	9.7	9.8	13.2
LOS	A	A	A	B
95th %tile Queue, veh	1	2	3	4

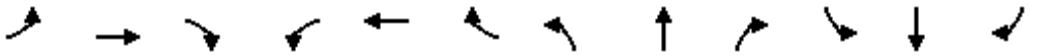
Intersection	
Intersection Delay, s/veh	
Intersection LOS	

Approach	NW
Entry Lanes	0
Conflicting Circle Lanes	1
Adj Approach Flow, veh/h	0
Demand Flow Rate, veh/h	0
Vehicles Circulating, veh/h	588
Vehicles Exiting, veh/h	30
Follow-Up Headway, s	3.186
Ped Vol Crossing Leg, #/h	0
Ped Cap Adj	1.000
Approach Delay, s/veh	0.0
Approach LOS	-

Lane
Designated Moves
Assumed Moves
RT Channelized
Lane Util
Critical Headway, s
Entry Flow, veh/h
Cap Entry Lane, veh/h
Entry HV Adj Factor
Flow Entry, veh/h
Cap Entry, veh/h
V/C Ratio
Control Delay, s/veh
LOS
95th %tile Queue, veh

APPENDIX G

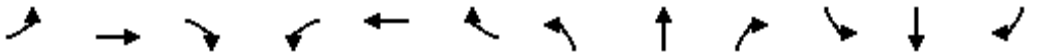
SYNCHRO REPORTS WITH PROPOSED ZONING + MITIGATION



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	298	463	52	60	532	623	67	308	133	526	383	342
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.9	6.7		5.9	6.7	6.6	6.3	6.3	5.9	6.6	6.6	5.9
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00	1.00	1.00	1.00	0.95	0.95	1.00
Frt	1.00	0.98		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.99	1.00
Satd. Flow (prot)	1770	3485		1752	3539	1583	1770	1863	1583	1681	1755	1583
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.99	1.00
Satd. Flow (perm)	1770	3485		1752	3539	1583	1770	1863	1583	1681	1755	1583
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	314	487	55	63	560	656	71	324	140	554	403	360
RTOR Reduction (vph)	0	7	0	0	0	53	0	0	67	0	0	101
Lane Group Flow (vph)	314	535	0	63	560	603	71	324	73	471	486	259
Heavy Vehicles (%)	2%	2%	2%	3%	2%	2%	2%	2%	2%	2%	2%	2%
Turn Type	Prot	NA		Prot	NA	pm+ov	Split	NA	pm+ov	Split	NA	pm+ov
Protected Phases	5	2		1	6	4	8	8	1	4	4	5
Permitted Phases						6			8			4
Actuated Green, G (s)	28.3	26.8		28.3	26.8	74.2	28.0	28.0	56.3	47.4	47.4	75.7
Effective Green, g (s)	27.8	26.3		27.8	26.3	73.2	27.5	27.5	55.3	46.9	46.9	74.7
Actuated g/C Ratio	0.18	0.17		0.18	0.17	0.48	0.18	0.18	0.36	0.30	0.30	0.49
Clearance Time (s)	5.4	6.2		5.4	6.2	6.1	5.8	5.8	5.4	6.1	6.1	5.4
Vehicle Extension (s)	1.7	1.7		1.7	1.7	3.0	3.0	3.0	1.7	3.0	3.0	1.7
Lane Grp Cap (vph)	319	595		316	604	752	316	332	568	511	534	767
v/s Ratio Prot	c0.18	0.15		0.04	c0.16	0.24	0.04	c0.17	0.02	c0.28	0.28	0.06
v/s Ratio Perm						0.14			0.02			0.10
v/c Ratio	0.98	0.90		0.20	0.93	0.80	0.22	0.98	0.13	0.92	0.91	0.34
Uniform Delay, d1	62.9	62.6		53.6	62.9	34.3	54.1	62.9	33.2	51.8	51.5	24.4
Progression Factor	0.81	0.78		0.97	0.96	0.98	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	43.4	17.7		0.1	21.6	5.8	0.4	42.5	0.0	22.2	19.7	0.1
Delay (s)	94.2	66.4		52.1	81.9	39.6	54.5	105.4	33.2	74.0	71.2	24.5
Level of Service	F	E		D	F	D	D	F	C	E	E	C
Approach Delay (s)		76.6			58.7			79.8			59.4	
Approach LOS		E			E			E			E	

Intersection Summary			
HCM 2000 Control Delay	65.6	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.95		
Actuated Cycle Length (s)	154.0	Sum of lost time (s)	25.5
Intersection Capacity Utilization	93.3%	ICU Level of Service	F
Analysis Period (min)	15		

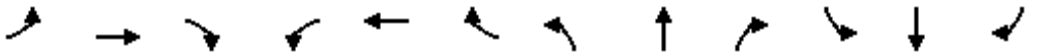
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	298	463	52	60	532	623	67	308	133	526	383	342
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.9	6.7		5.9	6.7	5.9	5.9	6.3	5.9	5.9	6.6	5.9
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00	1.00	1.00	1.00	0.97	1.00	1.00
Frt	1.00	0.98		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3485		1752	3539	1583	1770	1863	1583	3433	1863	1583
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1770	3485		1752	3539	1583	1770	1863	1583	3433	1863	1583
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	314	487	55	63	560	656	71	324	140	554	403	360
RTOR Reduction (vph)	0	6	0	0	0	72	0	0	64	0	0	62
Lane Group Flow (vph)	314	536	0	63	560	584	71	324	76	554	403	298
Heavy Vehicles (%)	2%	2%	2%	3%	2%	2%	2%	2%	2%	2%	2%	2%
Turn Type	Prot	NA		Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	5	2		1	6	7	3	8	1	7	4	5
Permitted Phases						6			8			4
Actuated Green, G (s)	29.2	34.3		31.0	36.1	72.2	9.0	29.8	60.8	36.1	56.6	85.8
Effective Green, g (s)	28.7	33.8		30.5	35.6	71.2	8.5	29.3	59.8	35.6	56.1	84.8
Actuated g/C Ratio	0.19	0.22		0.20	0.23	0.46	0.06	0.19	0.39	0.23	0.36	0.55
Clearance Time (s)	5.4	6.2		5.4	6.2	5.4	5.4	5.8	5.4	5.4	6.1	5.4
Vehicle Extension (s)	1.7	1.7		1.7	1.7	1.7	1.7	3.0	1.7	1.7	3.0	1.7
Lane Grp Cap (vph)	329	764		346	818	731	97	354	675	793	678	871
v/s Ratio Prot	c0.18	0.15		0.04	0.16	c0.18	0.04	c0.17	0.02	0.16	0.22	0.06
v/s Ratio Perm						0.18			0.03			0.12
v/c Ratio	0.95	0.70		0.18	0.68	0.80	0.73	0.92	0.11	0.70	0.59	0.34
Uniform Delay, d1	62.0	55.4		51.4	54.1	35.3	71.6	61.1	30.1	54.3	39.7	19.2
Progression Factor	0.79	0.75		0.93	0.93	1.03	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	35.0	4.8		0.1	4.4	5.4	21.5	27.4	0.0	2.2	1.4	0.1
Delay (s)	84.2	46.3		47.7	54.9	41.7	93.1	88.5	30.2	56.5	41.1	19.2
Level of Service	F	D		D	D	D	F	F	C	E	D	B
Approach Delay (s)		60.2			47.8			73.8			41.6	
Approach LOS		E			D			E			D	

Intersection Summary			
HCM 2000 Control Delay	51.9	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.86		
Actuated Cycle Length (s)	154.0	Sum of lost time (s)	25.1
Intersection Capacity Utilization	86.4%	ICU Level of Service	E
Analysis Period (min)	15		

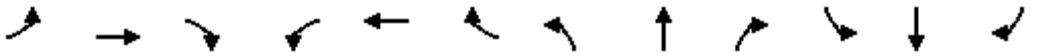
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	97	596	0	0	947	39	1158	398	361	59	0	500
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.4	6.3			6.6		6.1	6.1	6.1	6.0		6.0
Lane Util. Factor	1.00	0.95			0.95		0.97	1.00	1.00	1.00		1.00
Frt	1.00	1.00			0.99		1.00	1.00	0.85	1.00		0.85
Flt Protected	0.95	1.00			1.00		0.95	1.00	1.00	0.95		1.00
Satd. Flow (prot)	1770	3539			3518		3433	1827	1583	1752		1583
Flt Permitted	0.95	1.00			1.00		0.95	1.00	1.00	0.95		1.00
Satd. Flow (perm)	1770	3539			3518		3433	1827	1583	1752		1583
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	102	627	0	0	997	41	1219	419	380	62	0	526
RTOR Reduction (vph)	0	0	0	0	2	0	0	0	219	0	0	47
Lane Group Flow (vph)	102	627	0	0	1036	0	1219	419	161	62	0	479
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	4%	2%	3%	2%	2%
Turn Type	Prot	NA			NA		Split	NA	Perm	Prot		pt+ov
Protected Phases	1	6			2		7	7		8		8 1
Permitted Phases					2				7			
Actuated Green, G (s)	9.7	57.5			41.6		51.2	51.2	51.2	28.4		44.0
Effective Green, g (s)	9.2	57.0			41.1		50.7	50.7	50.7	27.9		37.1
Actuated g/C Ratio	0.06	0.37			0.27		0.33	0.33	0.33	0.18		0.24
Clearance Time (s)	5.9	5.8			6.1		5.6	5.6	5.6	5.5		
Vehicle Extension (s)	2.0	2.0			2.0		2.0	2.0	2.0	2.0		
Lane Grp Cap (vph)	105	1309			938		1130	601	521	317		381
v/s Ratio Prot	0.06	0.18			c0.29		c0.36	0.23		0.04		c0.30
v/s Ratio Perm									0.10			
v/c Ratio	0.97	0.48			1.10		1.08	0.70	0.31	0.20		1.26
Uniform Delay, d1	72.3	37.1			56.5		51.6	45.0	38.6	53.5		58.5
Progression Factor	0.70	0.57			1.00		1.00	1.00	1.00	1.00		1.00
Incremental Delay, d2	53.0	0.6			62.2		50.7	2.9	0.1	0.1		135.4
Delay (s)	103.4	21.8			118.7		102.3	47.8	38.7	53.6		193.9
Level of Service	F	C			F		F	D	D	D		F
Approach Delay (s)		33.2			118.7			79.0			179.1	
Approach LOS		C			F			E			F	

Intersection Summary			
HCM 2000 Control Delay	94.3	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.14		
Actuated Cycle Length (s)	154.0	Sum of lost time (s)	25.1
Intersection Capacity Utilization	107.0%	ICU Level of Service	G
Analysis Period (min)	15		

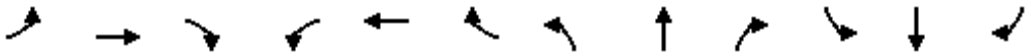
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	97	596	0	0	947	39	1158	398	361	59	0	500
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.4	6.3			6.6		6.1	6.1	6.1		6.6	6.6
Lane Util. Factor	1.00	0.95			0.95		0.97	1.00	1.00		0.95	0.95
Frt	1.00	1.00			0.99		1.00	1.00	0.85		0.88	0.85
Flt Protected	0.95	1.00			1.00		0.95	1.00	1.00		0.99	1.00
Satd. Flow (prot)	1770	3539			3518		3433	1827	1583		1540	1504
Flt Permitted	0.95	1.00			1.00		0.95	1.00	1.00		0.99	1.00
Satd. Flow (perm)	1770	3539			3518		3433	1827	1583		1540	1504
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	102	627	0	0	997	41	1219	419	380	62	0	526
RTOR Reduction (vph)	0	0	0	0	2	0	0	0	194	0	91	92
Lane Group Flow (vph)	102	627	0	0	1036	0	1219	419	186	0	208	197
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	4%	2%	3%	2%	2%
Turn Type	Prot	NA			NA		Split	NA	Perm	Split	NA	Prot
Protected Phases	1	6			2		7	7		8	8	8
Permitted Phases					2				7			
Actuated Green, G (s)	9.7	59.9			44.0		54.4	54.4	54.4		22.2	22.2
Effective Green, g (s)	9.2	59.4			43.5		53.9	53.9	53.9		21.7	21.7
Actuated g/C Ratio	0.06	0.39			0.28		0.35	0.35	0.35		0.14	0.14
Clearance Time (s)	5.9	5.8			6.1		5.6	5.6	5.6		6.1	6.1
Vehicle Extension (s)	2.0	2.0			2.0		2.0	2.0	2.0		2.0	2.0
Lane Grp Cap (vph)	105	1365			993		1201	639	554		217	211
v/s Ratio Prot	c0.06	0.18			c0.29		c0.36	0.23			c0.14	0.13
v/s Ratio Perm									0.12			
v/c Ratio	0.97	0.46			1.04		1.01	0.66	0.34		0.96	0.93
Uniform Delay, d1	72.3	35.3			55.2		50.0	42.2	36.9		65.7	65.4
Progression Factor	0.69	0.53			1.00		1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	53.0	0.6			40.5		29.8	1.9	0.1		48.4	43.1
Delay (s)	102.8	19.2			95.7		79.8	44.1	37.0		114.1	108.5
Level of Service	F	B			F		E	D	D		F	F
Approach Delay (s)		30.9			95.7			64.3			111.4	
Approach LOS		C			F			E			F	

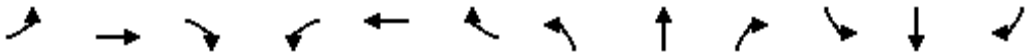
Intersection Summary			
HCM 2000 Control Delay	72.5	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.01		
Actuated Cycle Length (s)	154.0	Sum of lost time (s)	25.7
Intersection Capacity Utilization	100.8%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	6	0	30	434	0	63	32	784	408	54	773	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5		4.5	4.5		4.5	4.5	4.5	4.5	4.5	
Lane Util. Factor		1.00		0.95	0.95		1.00	1.00	1.00	1.00	1.00	
Frt		0.89		1.00	0.96		1.00	1.00	0.85	1.00	1.00	
Flt Protected		0.99		0.95	0.96		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1641		1681	1641		1770	1863	1583	1770	1861	
Flt Permitted		0.99		0.95	0.96		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)		1641		1681	1641		1770	1863	1583	1770	1861	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	7	0	33	472	0	68	35	852	443	59	840	5
RTOR Reduction (vph)	0	39	0	0	79	0	0	0	170	0	0	0
Lane Group Flow (vph)	0	1	0	274	187	0	35	852	273	59	845	0
Turn Type	Split	NA		Split	NA		Prot	NA	Perm	Prot	NA	
Protected Phases	8	8		4	4		1	6		5	2	
Permitted Phases									6			
Actuated Green, G (s)		2.8		16.7	16.7		2.3	46.1	46.1	4.0	47.8	
Effective Green, g (s)		2.3		16.2	16.2		1.8	45.6	45.6	3.5	47.3	
Actuated g/C Ratio		0.03		0.19	0.19		0.02	0.53	0.53	0.04	0.55	
Clearance Time (s)		4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	
Vehicle Extension (s)		2.5		2.5	2.5		2.5	2.5	2.5	2.5	2.5	
Lane Grp Cap (vph)		44		318	310		37	992	843	72	1028	
v/s Ratio Prot		c0.00		c0.16	0.11		0.02	c0.46		c0.03	0.45	
v/s Ratio Perm									0.17			
v/c Ratio		0.02		0.86	0.60		0.95	0.86	0.32	0.82	0.82	
Uniform Delay, d1		40.6		33.6	31.7		41.9	17.2	11.3	40.7	15.7	
Progression Factor		1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2		0.2		20.4	2.8		125.2	7.4	0.2	48.3	5.3	
Delay (s)		40.7		54.0	34.5		167.1	24.6	11.5	89.0	21.0	
Level of Service		D		D	C		F	C	B	F	C	
Approach Delay (s)		40.7			44.4			24.0			25.4	
Approach LOS		D			D			C			C	

Intersection Summary			
HCM 2000 Control Delay	28.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.83		
Actuated Cycle Length (s)	85.6	Sum of lost time (s)	18.0
Intersection Capacity Utilization	73.0%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Right Turn Channelized									Yes			
Volume (veh/h)	6	0	30	434	0	63	32	784	408	54	773	5
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
Hourly flow rate (vph)	7	0	33	472	0	68	35	852	443	59	840	5
Approach Volume (veh/h)		39			540			887			904	
Crossing Volume (veh/h)		1371#			893			65			507	
High Capacity (veh/h)		458			679			1316			929	
High v/c (veh/h)		0.09			0.80			0.67			0.97	
Low Capacity (veh/h)		343			532			1099			750	
Low v/c (veh/h)		0.11			1.02			0.81			1.21	

Intersection Summary					
Maximum v/c High	0.97				
Maximum v/c Low	1.21				
Intersection Capacity Utilization	95.3%	ICU Level of Service		F	

Crossing flow exceeds 1200, method is not applicable

Intersection	
Intersection Delay, s/veh	16.8
Intersection LOS	C

Approach	EB	WB	NB	SB
Entry Lanes	1	2	1	2
Conflicting Circle Lanes	2	1	1	2
Adj Approach Flow, veh/h	40	540	1330	904
Demand Flow Rate, veh/h	41	550	1357	922
Vehicles Circulating, veh/h	1398	912	67	517
Vehicles Exiting, veh/h	41	60	1372	945
Follow-Up Headway, s	3.186	3.186	3.186	3.186
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	10.1	23.0	16.2	14.4
Approach LOS	B	C	C	B

Lane	Left	Left	Right	Left	Bypass	Left	Right
Designated Moves	LTR	L	LTR	LT	R	LT	TR
Assumed Moves	LTR	L	LTR	LT	R	LT	TR
RT Channelized					Free		
Lane Util	1.000	0.529	0.471	1.000		0.470	0.530
Critical Headway, s	4.113	5.193	5.193	5.193		4.293	4.113
Entry Flow, veh/h	41	291	259	905	452	433	489
Cap Entry Lane, veh/h	425	454	454	1057	1938	767	787
Entry HV Adj Factor	0.976	0.984	0.980	0.980	0.980	0.981	0.980
Flow Entry, veh/h	40	286	254	887	443	425	479
Cap Entry, veh/h	414	446	445	1036	1900	753	771
V/C Ratio	0.097	0.641	0.571	0.856	0.233	0.565	0.621
Control Delay, s/veh	10.1	24.6	21.2	24.3	0.0	13.6	15.1
LOS	B	C	C	C	A	B	C
95th %tile Queue, veh	0	4	3	11	1	4	4

APPENDIX H

CORRIDOR TRAVEL TIME DATA

NE 139th Street Corridor (New I-5 Overpass) Time Survey
Site Location: Salmon Creek
Date: September 23, 2014 (Tuesday)
Time: 4:00 PM - 6:00 PM
Methodology:

Timing will begin and end either at the eastern stop bar at NE 3rd Court and at the western crosswalk at NE 29th Avenue. Trial runs will occur approximately every 15 minutes in each direction. Average top speeds during all tests were between 35 mph and 40 mph, depending on the flow of traffic.

Data is reported for all trial runs; the average travel time duration is reported for the systemwide peak hour, which occurred from 4:40 PM to 5:40 PM.

Start/Stop Locations	Trial Run	Start Time	Travel Time (min:sec)
NE 29th Avenue to NE 3rd Court (WB)	1	4:10 PM	2:20
	2	4:27 PM	3:02
	3	4:40 PM	4:11
	4	4:56 PM	2:53
	5	5:11 PM	5:05
	6	5:26 PM	3:02
	7	5:40 PM	5:10
	8	5:56 PM	4:19
Average (WB) During Peak Hour			**3:47**

NE 3rd Court to NE 29th Avenue (EB)	1	4:05 PM	2:59
	2	4:20 PM	4:05
	3	4:35 PM	3:05
	4	4:50 PM	4:04
	5	5:05 PM	4:10
	6	5:20 PM	3:28
	7	5:35 PM	3:47
	8	5:50 PM	4:14
Average (EB) During Peak Hour			**3:52**

Notes:

The weather was raining, which may have possibly created slower driving conditions. With minimal number of stops the shortest travel time recorded was 2 minutes and 20 seconds. The maximum travel time recorded was 5 minutes and 10 seconds.

NE 139th Street Corridor Speed and Travel Time Estimates
Site Location: Salmon Creek
Weekday PM Peak Hour: 4:40 PM - 5:40 PM

Methodology:
Distance between the eastern stop bar at NE 3rd Court and at the western crosswalk at NE 29th Avenue is approximately 6830 feet. The average travel times are compared to the free-flow travel time at the posted speed limit (35 mph) to calculate the corridor delay.

					Signalized WB TH Lane Group Delay (mm:ss.s)					
Segment	**Scenario**	**Speed**	**Delay (mm:ss.s)**	**Travel Time (mm:ss.s)**	**Tenney**	**10th Ave**	**I-5 SB**	**I-5 NB**	**20th Ave**	**Total**
NE 29th Avenue to NE 3rd Court (Westbound)	Free-Flow	35 mph	00:00.0	02:13.0	00:00.0	00:00.0	00:00.0	00:00.0	00:00.0	00:00.0
	2014 Existing	21 mph	01:34.0	03:47.0	00:47.8	00:11.3	00:00.1	00:09.0	00:25.9	01:34.1
	2035 With Current Zoning	15 mph	02:49.8	05:02.8	00:19.5	01:18.4	00:00.2	00:21.7	00:50.0	02:49.8
	2035 With Proposed Zoning	13 mph	03:51.3	06:04.3	00:20.6	02:17.4	00:00.3	00:19.9	00:53.1	03:51.3
Distance	2035 With Proposed Zoning + Mitigation @ 10th: 2 SB LT Lanes & 1 WB RT Lane	17 mph	02:28.8	04:41.8	00:20.6	00:54.9	00:00.3	00:19.9	00:53.1	02:28.8
6830 ft	2035 With Proposed Zoning + Mitigation @ 10th: Shared SB LT-TH Lane, Split Phasing NB/SB, 1 WB RT Lane	15 mph	02:55.8	05:08.8	00:20.6	01:21.9	00:00.3	00:19.9	00:53.1	02:55.8

					Signalized EB TH Lane Group Delay (mm:ss.s)					
Segment	**Scenario**	**Speed**	**Delay**	**Travel Time**	**Tenney**	**10th Ave**	**I-5 SB**	**I-5 NB**	**20th Ave**	**Total**
NE 3rd Court to NE 29th Avenue (Eastbound)	Free-Flow	35 mph	00:00.0	02:13.0	00:00.0	00:00.0	00:00.0	00:00.0	00:00.0	00:00.0
	2014 Existing	20 mph	01:39.0	03:52.0	01:02.9	00:13.6	00:02.4	00:13.8	00:24.2	01:56.9
	2035 With Current Zoning	19 mph	01:53.6	04:06.6	00:21.8	00:27.6	00:01.0	00:22.3	00:40.9	01:53.6
	2035 With Proposed Zoning	17 mph	02:17.9	04:30.9	00:43.7	00:04.1	00:01.0	01:07.1	00:22.0	02:17.9
Distance	2035 With Proposed Zoning + Mitigation @ 10th: 2 SB LT Lanes & 1 WB RT Lane	15 mph	03:00.1	05:13.1	00:43.7	00:46.3	00:01.0	01:07.1	00:22.0	03:00.1
6830 ft	2035 With Proposed Zoning + Mitigation @ 10th: Shared SB LT-TH Lane, Split Phasing NB/SB, 1 WB RT Lane	14 mph	03:20.2	05:33.2	00:43.7	01:06.4	00:01.0	01:07.1	00:22.0	03:20.2

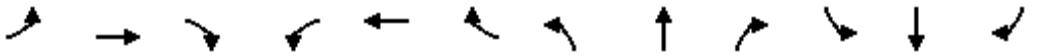
APPENDIX I

SYNCHRO REPORTS – NE 139TH STREET EXISTING CONDITIONS

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	312	0	0	360	610	35
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.1			6.1	6.5	6.5
Lane Util. Factor	0.95			0.95	0.97	1.00
Frt	1.00			1.00	1.00	0.85
Flt Protected	1.00			1.00	0.95	1.00
Satd. Flow (prot)	3539			3574	3433	1615
Flt Permitted	1.00			1.00	0.95	1.00
Satd. Flow (perm)	3539			3574	3433	1615
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	343	0	0	396	670	38
RTOR Reduction (vph)	0	0	0	0	0	7
Lane Group Flow (vph)	343	0	0	396	670	31
Heavy Vehicles (%)	2%	0%	0%	1%	2%	0%
Turn Type	NA			NA	Prot	Perm
Protected Phases	2			6	8	
Permitted Phases						8
Actuated Green, G (s)	22.9			22.9	115.5	115.5
Effective Green, g (s)	22.4			22.4	115.0	115.0
Actuated g/C Ratio	0.15			0.15	0.77	0.77
Clearance Time (s)	5.6			5.6	6.0	6.0
Vehicle Extension (s)	3.0			3.0	2.0	2.0
Lane Grp Cap (vph)	528			533	2631	1238
v/s Ratio Prot	0.10			c0.11	c0.20	
v/s Ratio Perm						0.02
v/c Ratio	0.65			0.74	0.25	0.03
Uniform Delay, d1	60.1			61.0	5.1	4.2
Progression Factor	1.00			0.70	1.00	1.00
Incremental Delay, d2	2.8			5.2	0.2	0.0
Delay (s)	62.9			47.8	5.3	4.2
Level of Service	E			D	A	A
Approach Delay (s)	62.9			47.8	5.2	
Approach LOS	E			D	A	

Intersection Summary			
HCM 2000 Control Delay	30.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.33		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	12.6
Intersection Capacity Utilization	37.9%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	105	296	30	39	354	285	42	185	92	217	203	117
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.9	6.7		5.9	6.7		5.9	6.3	5.9	5.9	6.6	5.9
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.99		1.00	0.93		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1805	3497		1752	3353		1805	1863	1599	1787	1863	1615
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1805	3497		1752	3353		1805	1863	1599	1787	1863	1615
Peak-hour factor, PHF	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	119	336	34	44	402	324	48	210	105	247	231	133
RTOR Reduction (vph)	0	4	0	0	75	0	0	0	86	0	0	88
Lane Group Flow (vph)	119	366	0	44	651	0	48	210	19	247	231	45
Heavy Vehicles (%)	0%	2%	0%	3%	0%	1%	0%	2%	1%	1%	2%	0%
Turn Type	Prot	NA		Prot	NA		Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	5	2		1	6		3	8	1	7	4	5
Permitted Phases									8			4
Actuated Green, G (s)	12.7	74.7		6.9	68.9		6.1	21.9	28.8	23.7	39.2	51.9
Effective Green, g (s)	12.2	74.2		6.4	68.4		5.6	21.4	27.8	23.2	38.7	50.9
Actuated g/C Ratio	0.08	0.49		0.04	0.46		0.04	0.14	0.19	0.15	0.26	0.34
Clearance Time (s)	5.4	6.2		5.4	6.2		5.4	5.8	5.4	5.4	6.1	5.4
Vehicle Extension (s)	1.7	1.7		1.7	1.7		1.7	3.0	1.7	1.7	3.0	1.7
Lane Grp Cap (vph)	146	1729		74	1528		67	265	296	276	480	548
v/s Ratio Prot	c0.07	0.10		0.03	c0.19		0.03	c0.11	0.00	c0.14	0.12	0.01
v/s Ratio Perm									0.01			0.02
v/c Ratio	0.82	0.21		0.59	0.43		0.72	0.79	0.07	0.89	0.48	0.08
Uniform Delay, d1	67.8	21.4		70.5	27.6		71.4	62.2	50.4	62.2	47.1	33.7
Progression Factor	0.51	0.62		1.14	0.38		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	26.8	0.3		8.1	0.9		25.9	14.9	0.0	28.0	0.8	0.0
Delay (s)	61.0	13.6		88.4	11.3		97.4	77.0	50.4	90.2	47.9	33.7
Level of Service	E	B		F	B		F	E	D	F	D	C
Approach Delay (s)		25.1			15.7			72.0			61.9	
Approach LOS		C			B			E			E	

Intersection Summary			
HCM 2000 Control Delay	39.6	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	25.1
Intersection Capacity Utilization	67.2%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	416	189	244	694	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.6	5.6	6.6	5.9		
Lane Util. Factor	0.95	1.00	0.97	0.95		
Frt	1.00	0.85	1.00	1.00		
Flt Protected	1.00	1.00	0.95	1.00		
Satd. Flow (prot)	3539	1568	3467	3539		
Flt Permitted	1.00	1.00	0.95	1.00		
Satd. Flow (perm)	3539	1568	3467	3539		
Peak-hour factor, PHF	0.86	0.86	0.86	0.86	0.86	0.86
Adj. Flow (vph)	484	220	284	807	0	0
RTOR Reduction (vph)	0	40	0	0	0	0
Lane Group Flow (vph)	484	180	284	807	0	0
Heavy Vehicles (%)	2%	3%	1%	2%	0%	0%
Turn Type	NA	Perm	Prot	NA		
Protected Phases	2		1	6		
Permitted Phases		2				
Actuated Green, G (s)	123.2	123.2	15.6	150.0		
Effective Green, g (s)	122.7	122.7	15.1	150.0		
Actuated g/C Ratio	0.82	0.82	0.10	1.00		
Clearance Time (s)	5.1	5.1	6.1	5.4		
Vehicle Extension (s)	2.0	2.0	2.0	2.0		
Lane Grp Cap (vph)	2894	1282	349	3539		
v/s Ratio Prot	0.14		c0.08	c0.23		
v/s Ratio Perm		0.11				
v/c Ratio	0.17	0.14	0.81	0.23		
Uniform Delay, d1	2.9	2.8	66.1	0.0		
Progression Factor	0.78	1.87	0.67	1.00		
Incremental Delay, d2	0.1	0.2	12.6	0.1		
Delay (s)	2.4	5.5	56.6	0.1		
Level of Service	A	A	E	A		
Approach Delay (s)	3.3			14.8	0.0	
Approach LOS	A			B	A	

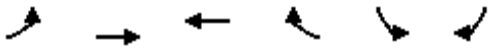
Intersection Summary			
HCM 2000 Control Delay	10.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.30		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	12.2
Intersection Capacity Utilization	57.7%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	416	0	0	587	351	202
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.3			6.2	6.5	6.5
Lane Util. Factor	0.91			0.91	1.00	1.00
Frt	1.00			1.00	1.00	0.85
Flt Protected	1.00			1.00	0.95	1.00
Satd. Flow (prot)	5085			5085	1770	1599
Flt Permitted	1.00			1.00	0.95	1.00
Satd. Flow (perm)	5085			5085	1770	1599
Peak-hour factor, PHF	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	473	0	0	667	399	230
RTOR Reduction (vph)	0	0	0	0	0	132
Lane Group Flow (vph)	473	0	0	667	399	98
Heavy Vehicles (%)	2%	0%	0%	2%	2%	1%
Turn Type	NA			NA	Prot	Perm
Protected Phases	2			6	8	
Permitted Phases						8
Actuated Green, G (s)	97.4			97.5	40.8	40.8
Effective Green, g (s)	96.9			97.0	40.3	40.3
Actuated g/C Ratio	0.65			0.65	0.27	0.27
Clearance Time (s)	5.8			5.7	6.0	6.0
Vehicle Extension (s)	2.0			2.0	2.0	2.0
Lane Grp Cap (vph)	3284			3288	475	429
v/s Ratio Prot	0.09			c0.13	c0.23	
v/s Ratio Perm						0.06
v/c Ratio	0.14			0.20	0.84	0.23
Uniform Delay, d1	10.4			10.8	51.8	42.7
Progression Factor	1.33			0.83	1.00	1.00
Incremental Delay, d2	0.1			0.1	11.9	0.1
Delay (s)	13.8			9.0	63.7	42.8
Level of Service	B			A	E	D
Approach Delay (s)	13.8			9.0	56.0	
Approach LOS	B			A	E	

Intersection Summary			
HCM 2000 Control Delay	27.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.39		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	12.8
Intersection Capacity Utilization	57.7%	ICU Level of Service	B
Analysis Period (min)	15		

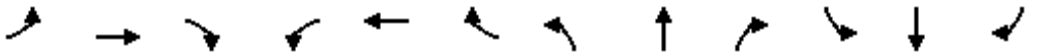
c Critical Lane Group



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	177	441	587	443	0	0
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Hourly flow rate (vph)	201	501	667	503	0	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)		275	368			
pX, platoon unblocked	0.94				0.96	0.94
vC, conflicting volume	1170				1572	585
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1062				1354	441
tC, single (s)	4.2				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	67				100	100
cM capacity (veh/h)	604				92	537

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2
Volume Total	201	251	251	445	726
Volume Left	201	0	0	0	0
Volume Right	0	0	0	0	503
cSH	604	1700	1700	1700	1700
Volume to Capacity	0.33	0.15	0.15	0.26	0.43
Queue Length 95th (ft)	36	0	0	0	0
Control Delay (s)	13.9	0.0	0.0	0.0	0.0
Lane LOS	B				
Approach Delay (s)	4.0			0.0	
Approach LOS					

Intersection Summary			
Average Delay	1.5		
Intersection Capacity Utilization	47.7%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	221	148	77	104	309	127	403	375	84	58	417	325
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.4	6.4	6.0	6.5	6.0	6.0	7.0	6.0	6.0	6.6	6.6
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3467	3574	1599	3433	3574	1583	3433	3574	1599	3400	3574	1599
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3467	3574	1599	3433	3574	1583	3433	3574	1599	3400	3574	1599
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	246	164	86	116	343	141	448	417	93	64	463	361
RTOR Reduction (vph)	0	0	44	0	0	73	0	0	64	0	0	260
Lane Group Flow (vph)	246	164	42	116	343	68	448	417	29	64	463	101
Heavy Vehicles (%)	1%	1%	1%	2%	1%	2%	2%	1%	1%	3%	1%	1%
Turn Type	Prot	NA	Perm	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	Perm
Protected Phases	5	2		1	6	7	3	8	1	7	4	
Permitted Phases			2			6			8			4
Actuated Green, G (s)	13.7	72.9	72.9	8.1	67.2	72.9	23.0	39.9	48.0	5.7	23.0	23.0
Effective Green, g (s)	13.2	72.4	72.4	7.6	66.7	71.9	22.5	39.4	47.0	5.2	22.5	22.5
Actuated g/C Ratio	0.09	0.48	0.48	0.05	0.44	0.48	0.15	0.26	0.31	0.03	0.15	0.15
Clearance Time (s)	5.5	5.9	5.9	5.5	6.0	5.5	5.5	6.5	5.5	5.5	6.1	6.1
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lane Grp Cap (vph)	305	1725	771	173	1589	758	514	938	501	117	536	239
v/s Ratio Prot	c0.07	c0.05		0.03	c0.10	0.00	c0.13	0.12	0.00	0.02	c0.13	
v/s Ratio Perm			0.03			0.04			0.02			0.06
v/c Ratio	0.81	0.10	0.05	0.67	0.22	0.09	0.87	0.44	0.06	0.55	0.86	0.42
Uniform Delay, d1	67.1	21.0	20.6	70.0	25.6	21.2	62.3	46.2	36.0	71.2	62.3	57.9
Progression Factor	0.83	1.15	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	13.5	0.1	0.1	7.8	0.3	0.0	14.5	0.1	0.0	2.8	13.1	0.4
Delay (s)	69.4	24.2	20.7	77.7	25.9	21.3	76.9	46.3	36.0	74.0	75.4	58.3
Level of Service	E	C	C	E	C	C	E	D	D	E	E	E
Approach Delay (s)		46.0			34.8			59.6			68.3	
Approach LOS		D			C			E			E	

Intersection Summary			
HCM 2000 Control Delay	54.9	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.50		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	25.5
Intersection Capacity Utilization	58.8%	ICU Level of Service	B
Analysis Period (min)	15		

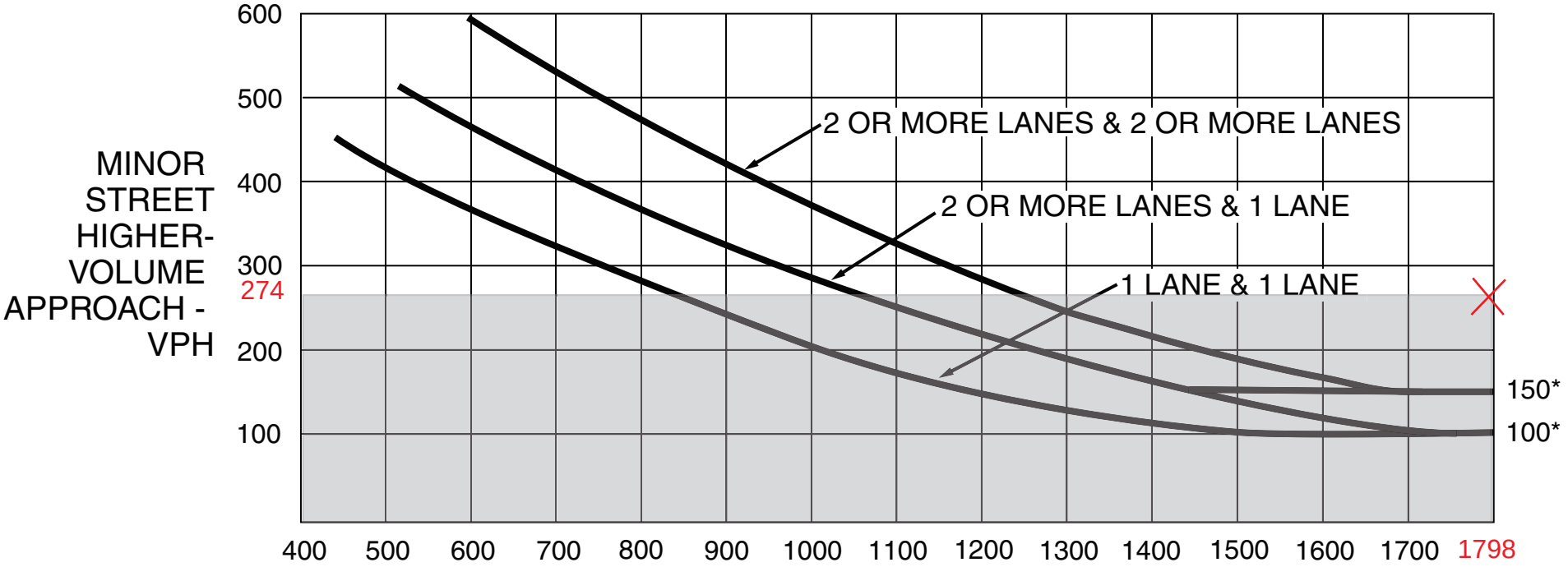
c Critical Lane Group

APPENDIX J

SIGNAL WARRANTS

NE 10th Ave/NE 141st Street-Site Access
2035 Current Zoning Post Development
PM Peak Hour

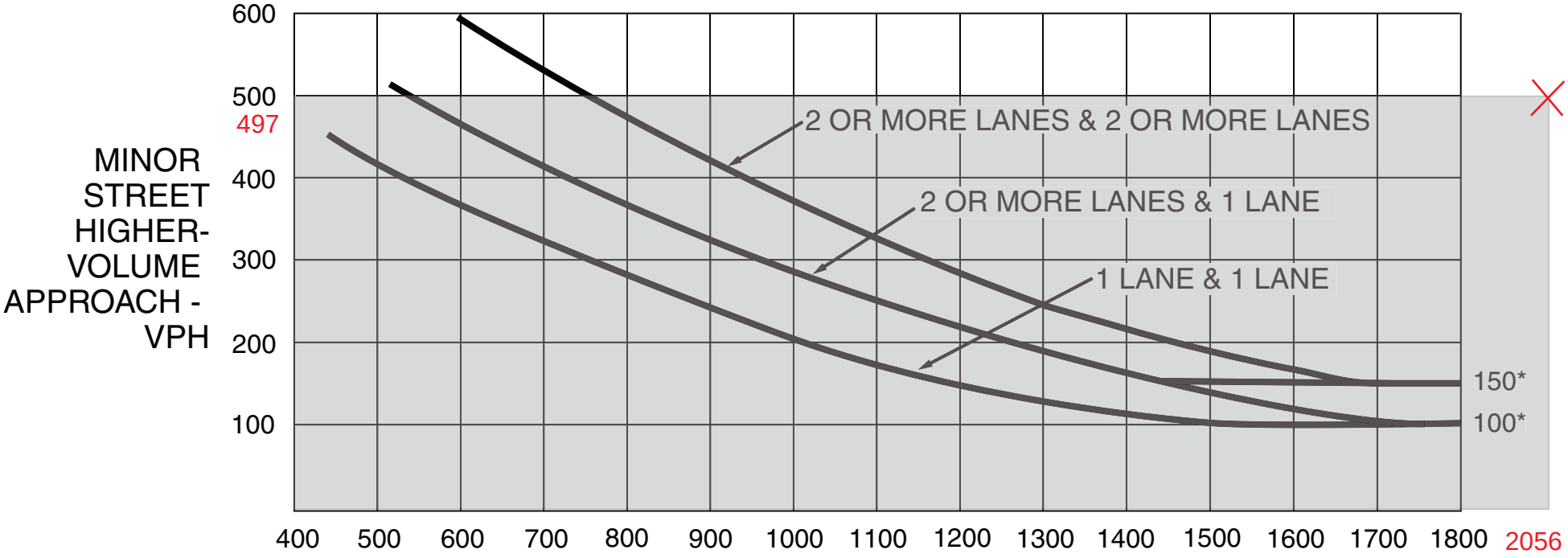
Figure 4C-3. Warrant 3, Peak Hour



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

NE 10th Ave/NE 141st Street-Site Access
2035 Proposed Zoning Post Development
PM Peak Hour

Figure 4C-3. Warrant 3, Peak Hour



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.