# **Appendix C: Traffic Technical Report**

# EXIT 4A – Traffic and Transportation Technical Report

# I-93 Exit 4A Supplemental Draft Environmental Impact Statement

Prepared for:

Town of Derry Town of Londonderry New Hampshire Department of Transportation

Prepared by:

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**Final Version** 

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#### 1.0 Introduction

The Interstate 93 (I-93) Exit 4A Project (the "Project") involves a new diamond interchange between Interstate 93 Exits 4 and 5 in the Town of Londonderry, approximately one mile north of Exit 4. The new diamond interchange would provide access to the east side of I-93 only. A 1-mile connector roadway would be built on new alignment from the interchange to Folsom Road, near the intersection of North High Street and Madden Road, in the Town of Derry. Folsom Road, and subsequently Tsienneto Road, would be upgraded, and the intersections would be improved.

The Project was the subject of a Draft Environmental Impact Statement (DEIS) in 2007 (FHWA, 2007). Due to the amount of time that has elapsed since the 2007 DEIS, the FHWA has requested the preparation of updated studies that will be documented in a Supplemental Draft Environmental Impact Statement (SDEIS) in accordance with the National Environmental Policy Act (NEPA). The SDEIS will provide an up-to-date assessment of the environmental effects of the Project and the evaluation of reasonable alternatives that will consider updated information including, but not limited to, traffic, socioeconomic projections, land development proposals in the project area, and changes in environmental resources and regulatory requirements.

The purpose of this report is to document the development of traffic projections and operational analyses for the Project as part of the SDEIS. This report is a compilation of previous memoranda issued as the project proceeded as well as to present the findings of the analyses of the various alternatives.

The traffic analysis tasks described in this report includes the following:

- Collection of traffic count data at various roadways and intersections in the Exit 4A study area to develop 2015 Average Weekday Traffic (AWDT) volumes.
- Use of these 2015 counts to calibrate the Southern New Hampshire Planning Commission (SNHPC)'s regional traffic model to be viable to project future traffic volumes in the 2040 design year with and without the proposed Exit 4A.
- Preparation of land use and socioeconomic projections (conducted concurrently by the Land Use Working Group) for the SNHPC model area and allocated to the Traffic Analysis Zone (TAZ) level for each alternative scenario to be used as the basis for traffic generation and trip assignments to the regional roadway network.
- Development of 2040 No-Build (without Exit 4A) and Build (with Exit 4A) traffic volume assignments on key roadway segments and intersections in the study area network.
- Derivation of AM and PM peak hour traffic volumes on the mainline I-93 and interchange ramps as well as key segments and intersections in the study area for the various Exit 4A alternative layouts for analysis purposes (see Figure 1).
- Analysis of interstate operations using the 2010 Highway Capacity Manual (TRB, 2010) Freeway Facilities methodologies for the existing 2015 and all 2040 No-Build and Build scenarios. Analysis of signalized and unsignalized intersection operations of the existing 2015 and all 2040 scenarios using HCM methodologies and emulated in the SYNCHRO/Sim-Traffic (Trafficware, 2016)software for

derivation of Level of Service and estimated queue lengths for conceptual design purposes.

In addition to the traffic data collection, Project Team specialists and the Land Use Working Group conducted interviews and compiled socioeconomic (e.g., population and employment) projections that were used by the SNHPC to allocate these trip-generation characteristics to their traffic zone system to generate traffic assignments to the roadway network under both No-Build (without 4A) and the Build alternatives that were included in the DEIS from 2007. A separate Land Use Scenario Technical Report was prepared that documents the land use and socioeconomic forecasting efforts that were used in conjunction with the traffic modeling. (Louis Berger, 2017).

#### 2.0 Purpose and Need for the Project

The Purpose and Need for the Project, as described in the 2007 DEIS, is as follows:

- Providing for transportation improvements that will promote the safe and efficient movement of people, goods, and services between I-93 and the towns served by NH Route 102, specifically Derry and Londonderry, that are immediately adjacent to I-93 Exit 4;
- Providing an alternative route to the Interstate system for traffic using NH Route 102 to and from the east, thus removing a large volume of through traffic from the heavily congested downtown Derry street network;
- Providing improved Interstate access for commercially and industrially zoned lands near NH Routes 28 and 102 in both Derry and Londonderry, thus allowing for the planned and orderly development of such lands to further locally-defined economic development goals and tax base diversification; and
- Enhancing and promoting the economic vitality of the downtown Derry area, presently characterized by traffic congestion and decreasing vehicular and pedestrian safety, by separating local destination-oriented traffic from throughtraffic destined for the Interstate system.

For purposes of this project, the downtown Derry area has been defined as NH Route 102 easterly from its intersection with Fordway to the NH 28 (Crystal Avenue/Birch Street) intersection (CLD|Fuss & O'Neill, 2018). This is also consistent with the defined Central Business District zoning map for the Town of Derry (Town of Derry, 2015).

#### 3.0 Traffic Data Collection

The study area for the Project was established and agreed upon as part of the 2007 DEIS document, and encompasses the expected extent of the roadway network that would likely be influenced by the introduction of a new I-93 interchange and associated connector roadways. An updated inventory of the key area roadways and intersections was conducted to ensure that the traffic modeling and subsequent analyses reflect existing conditions.

The various contracts for the I-93 widening project affecting the study area also needed to be considered. The Exit 5 improvements are already in place, and the Exit 4 interchange is being reconstructed now as part of Contract 14633-D. The widening of the mainline I-93 to four lanes between Exits 4 and 5 under Contracts 'D' and 'I' is also underway.

#### 3.1 Traffic Counts

The traffic counting program was developed for the project, based on the key roadway segments and intersections in the study area, to assist in the development of 2015 base Average Annual Weekday Traffic (AAWDT) volumes for use in the traffic model calibration. Most of these locations were counted in 2005 as part of the preparation of the original 2007 DEIS document. This effort was coordinated with the annual traffic counting programs conducted by both the NHDOT and SNHPC within the study area, and the new data collected in May and June of 2016 while school was still in session. Some of these locations had already been counted in 2014 or 2015 (NHDOT, 2016a, 2016b, 2016c), so all data was evaluated and subsequently adjusted to reflect 2015 AAWDT conditions.

The Automatic Traffic Recorder (ATR) counts were taken for a 3-5 day period. A listing of the locations is included below and shown in Figure 2.

#### **Interstate Locations (15)**

I-93 NB and SB, south of Exit 4 (NHDOT permanent recorder)

I-93 Exit 4 - NB and SB on- and off-ramps (5)

I-93 Exit 5 – NB and SB on- and off-ramps (4)

I-93 NB and SB between Exits 4 and 5 (2)

I-93 NB and SB north of Exit 5 (2)

#### State Highways/Local Streets (22)

Crystal Avenue (NH Route 28), south of Tsienneto Road

Folsom Road, west of NH Route 28

Pinkerton Street, east of Tsienneto Road

Tsienneto Road, east of Pinkerton Street

Chester Road (NH Route 102), east of NH Route 28 Bypass (Sylvestri Circle)

North Main Street (NH Route 28 Bypass), north of Pinkerton Street (Academy Drive)

North Main Street (NH Route 28 Bypass), north of Tsienneto Road

South Main Street (NH Route 28 Bypass), south of Thornton Street

Tsienneto Road, west of NH Route 102

NH Route 102, at Derry Town line

NH Route 28, at Derry/Londonderry Town line

Gilcreast Road, north of NH Route 102

NH Route 102, west of Abbot Street

NH Route 102, east of Griffin Street

Fordway, over Beaver Brook

Franklin Street, north of Folsom Road Ash Street at Londonderry Town line Ash Street, east of Londonderry Road NH Route 28, east of Perkins Road NH Route 28, south of Rollins Street NH Route 28, north of Liberty Drive NH Route 102, east of Hampton Drive

#### <u>Intersection Turning Movement Counts (TMCs) – AM and PM Peak Periods (19)</u>

The intersection counts were taken in groups of intersections within five general groups or 'zones' in close proximity to each other to facilitate ease of data collection and to minimize significant differences between locations, even if there were intervening roadways or driveways that would not allow balancing between sites. These groups of intersections were numbered as follows and shown in Figure 3:

2	Zone 1	<u>-</u>		Zone 2	
7	<del>‡</del> 3	Exit 5 SB r	amps	#1	Exit 4 SB ramps
7	<del>‡</del> 4	Exit 5 NB 1	ramps	#2	Exit 4 NB ramps
4	Zone 3	<u> </u>			
#	<del>‡</del> 5	NH	Route 102/Londonderry	Road/St	. Charles Street
7	<del>‡</del> 6	NH	Route 102 (Broadway)/F	ordway	/Madden Hill Road
7	<del>‡</del> 7	NH	Routes 102/28 (Crystal A	venue/]	Broadway/Birch Street)
7	<del>4</del> 8	Nor	th High Street/Ash Street	Extensi	ion
7	<del>4</del> 9	Nor	th High Street/Madden R	oad	
7	<del>‡</del> 10	Nor	th High Street/Folsom Ro	ad/Fran	aklin Street/Franklin Street Extension
4	Zone 4	<u>-</u>			
7	<del>‡</del> 11	NH	Route 28/Folsom Road/T	siennet	o Road (Ross' Corner)
7	<del>‡</del> 12	Tsie	enneto Road/Pinkerton Sta	reet	
7	<del>‡</del> 13	NH	Route 28/Linlew Drive		
7	<b>#</b> 14	NH	Route 28/Ashleigh Drive	:	
7	<del>‡</del> 15	NH	Route 28/Scobie Pond Ro	oad	
4	Zone 5	<u> </u>			
7	<del>‡</del> 16	NH	Routes 102/28 Bypass/Ea	ast Derr	y Road (traffic circle)
7	<del>1</del> 17	NH	Route 28 Bypass/Pinkert	on Stree	et/Nesmith Street
7	<del>‡</del> 18	NH	Route 28 Bypass/Tsienne	eto Road	d
7	<del>1</del> 19	NH	Route 102/Tsienneto Roa	ad	

Copies of the relevant raw traffic count data are included in Appendix A.

Other new intersections that would be created by some of the Exit 4A alternatives will also need to be evaluated and analyzed. In addition, it was determined as the study progressed that additional intersections at the east end of the study area should be

collected, since they will be influenced by any improvements at the NH Route 102/Tsienneto Road intersection. These intersections were at NH Route 102/North Shore Road (#26) and at NH Route 102/English Range Road (#27). This data is also included in Appendix A.

#### Adjustment Factors used for Data Reduction

Because of the nature of the regional roadway network, there are several different adjustment factors that need to be applied to the raw counts to derive AWDT. In general, there are <u>seasonal</u> factors, <u>annual growth</u> factors, and <u>axle correction</u> factors, based on the type of roadway being considered. NHDOT develops these factors for various roadway types based on their evaluation of permanent traffic recorder stations across the state. NHDOT differentiates between Rural and Urban Interstates (called Groups 1 and 3, respectively), as well as Rural and Urban Highways (Groups 2 and 4, respectively), for which there is a wealth of short-term and long-term factors that are developed annually by NHDOT as part of their normal practice (NHDOT, 2016d). Appendix B includes the tables showing the various seasonal, annual and axle correction factors applied to the raw traffic counts in this report.

#### Seasonal Factors

In this study area, there are Interstate roadways (I-93) as well as state highways and local streets in an urbanized area, so the Group 3 and 4 seasonal factors in Appendix B were applied here. Since counts were taken on specific dates in May, the 2015 seasonal adjustment factors were applied to each count separately based on the date of the count and the type of roadway.

#### Annual Growth Factors

Annual growth factors are also applied because of the different years that the counts were taken. There is an NHDOT permanent traffic recorder in the immediate study area on I-93 just south of Exit 4 at the Derry/Windham town line, but it may not be indicative of growth on the local street network because the interstate is more prone to fluctuations in regional traffic. A comparison of May 2015 to May 2016 traffic counts on I-93 indicates a 1.1% growth rate on the Interstate system. It should be noted that this counter is located north of the current construction area, so it should not have been influenced by drivers trying to avoid construction-related delays. This 1.1% annual growth rate was applied to the 2016 mainline I-93 traffic data only to adjust the data downward to the 2015 base year AWDT.

Another permanent recorder is located on NH Route 28 in Windham south of the study area that should be more representative of the urbanized roadways within the Derry/Londonderry area. A comparison of May 2015 to May 2016 traffic counts at the NH Route 28 location indicates a 2.5% growth rate, which was then applied to the rest of the study area roadway system to derive the 2015 AWDT.

There are also ramp volume counts at Exits 4 and 5 that need to be seasonally adjusted. In discussions with the NHDOT Bureau of Traffic (NHDOT, 2016e), it was agreed that these ramp volumes would exhibit characteristics more in line with the local street network as opposed to seasonal variations in Interstate traffic. As such, the 2.5% growth rate was also applied to the ramp volumes to derive the 2015 AWDT.

#### **Axle Correction Factors**

Axle correction factors are also applied to adjust for differences in vehicle classification on various types of roadways to derive a total number of actual vehicles. It is essentially a correction for the assumed number of two-axle vehicles gathered by the field-counting apparatus (such as road tubes) to account for multi-axle vehicles in the traffic stream, based on the FHWA 13-tiered classification system. These factors are developed by NHDOT based on vehicle classification information collected on the various functional classifications of roadways in the state.

Each of the major roadways in the study area has already been functionally classified based on its overall role in the regional roadway network. Since this is an urbanized area, the classifications that are applied here are urban interstate (FC 11), urban principle arterials (FC 14), urban minor arterials (FC 16), collector roadways (FC 17), and local streets (FC 19). The 2015 axle correction factors table is also provided in Appendix B.

#### Development of 2015 AAWDT Base Volumes

Table 1 shows a summary of the adjusted 2015 AAWDT volumes derived from applying the various adjustment factors to the 2015 and 2016 raw traffic counts. In some cases, such as for the 2014 counts, the NHDOT has already developed the AAWDT for locations of interest in the study area, which only need to be annually adjusted upward to 2015. This adjustment factor has also been applied to the AM and PM peak hour volumes and 'k' factors (the percentage of AAWDT during each peak hour for each movement) calculated for comparison to the intersection TMCs for future analysis purposes.

Derry

L-derry

TABLE 1
ATR Count Summary - Adjusted 2015 AAWDT and Peak Hour Volumes

Count Location         Month/Yr         AAWDT         AAWDT         Volume         Volume         AAWDT         Volume         AAWDT         Volume         Volume         Volume         Volume         AAWDT         Volume         Volume         Volume         Volume         Volume         AAWDT         Volume         Volume         Volume         Volume         Volume         AAWDT         Volume         Volume         Volume         AAWDT         AAWDT         Volume         Volume         AAWDT	M Pk as % of AWDT 9.15% 9.98% 9.54% 9.29% 10.04%
Count   Coun	% of AAWDT  9.15% 9.98% 9.54% 9.29% 10.04%
Count Location   Month/Yr   AAWDT   AAWDT   Volume   Volume   AAWDT   Volume   AAWDT   Volume   Volume   Volume   AAWDT   Volume   AAWDT   Volume   AAWDT   Volume   Volume   AAWDT   Volume   AAWDT   Volume   Volume   AAWDT   Volu	% of AAWDT  9.15% 9.98% 9.54% 9.29% 10.04%
Crystal Ave (NH Route 28), S of Tisienneto	9.15% 9.98% 9.54% 9.29% 10.04%
Tsienneto   May-16   15885   15195   836   803   5.28%   1418   1390	9.98% 9.54% 9.29% 10.04%
Folsom Rd W of NH Route 28 Pinkerton St E of Tsienneto May-16 Pinkerton St E of Tsienneto Rd, W of NH Route 102 Pisienneto Rd, W of NH Route 102 Pisienneto Rd E of Pinkerton NH Route 102, E of NH Route 28 Pypass May-16 Port M	9.98% 9.54% 9.29% 10.04%
Pinkerton St E of Tsienneto         May-16         10722         10454         695         667         6.38%         1017         997           Tsienneto Rd, W of NH Route 102         May-16         5532         5394         483         464         8.60%         511         501           Tsienneto Rd E of Pinkerton         May-16         15012         14637         1113         1068         7.30%         1499         1469           NH Route 102, E of NH Route 28         May-16         7456         7270         595         571         7.85%         661         648           NH Route 28 Byp, N of Academy Dr         May-16         8615         8400         756         726         8.64%         881         863           NH Route 28 Byp, N of Tsienneto Rd         May-16         12250         11944         997         957         8.01%         1201         1177           NH Route 28 Byp, S of Thornton Rd         May-16         14341         13982         1110         1066         7.62%         1392         1364           NH Route 102 E of Griffin St         Apr-14         16000         16400         1054         1012         6.17%         1224         1212           NH Route 102 W of Abbot St         Apr-14	9.54% 9.29% 10.04%
Tsienneto Rd, W of NH Route 102 May-16 5532 5394 483 464 8.60% 511 501 Tsienneto Rd E of Pinkerton May-16 15012 14637 1113 1068 7.30% 1499 1469 NH Route 102, E of NH Route 28 Bypass May-16 7456 7270 595 571 7.85% 661 648 NH Route 28 Byp, N of Academy Dr May-16 8615 8400 756 726 8.64% 881 863 NH Route 28 Byp, N of Tsienneto Rd May-16 12250 11944 997 957 8.01% 1201 1177 NH Route 28 Byp, S of Thornton Rd May-16 14341 13982 1110 1066 7.62% 1392 1364 NH Route 102 E of Griffin St Apr-14 16000 16400 1054 1012 6.17% 1224 1212 NH Route 102 W of Abbot St Apr-14 14000 14350 1020 979 6.82% 1148 1137 Fordway over Beaver Brook Apr-14 5200 5330 410 394 7.39% 481 476 Franklin St Ext, N. of Folsom Rd Apr-14 1800 1845 99 95 5.15% 171 169 Ash St at Londonderry town line Apr-14 6600 6765 410 394 5.82% 722 715 Crystal Av (NH Route 28), S of Rollins Way-16 13000 13000 819 786 6.05% 1174 1104 average  y NH Route 102, E of Hampton Dr NH Route 28 at Derry Town line May-16 22656 22090 1718 1649 7.46% 1796 1760 NH Route 28 N of Liberty Dr Sep-15 13000 13000 1176 1117 8.59% 1054 1022	9.29% 10.04%
Tsienneto Rd E of Pinkerton NH Route 102, E of NH Route 28 Bypass Bypass NH Route 28 Byp, N of Academy Dr May-16 M	10.04%
NH Route 102, E of NH Route 28 Bypass	
NH Route 28 Byp, N of Academy Dr May-16 May-16 NH Route 28 Byp, N of Tsienneto Rd May-16 NH Route 28 Byp, N of Tsienneto Rd May-16 NH Route 28 Byp, S of Thornton Rd May-16 NH Route 102 E of Griffin St Apr-14 NH Route 102 E of Griffin St Apr-14 NH Route 102 W of Abbot St Apr-14 NH Route 102 W of Abbot St Fordway over Beaver Brook Franklin St Ext, N. of Folsom Rd Apr-14 Ash St at Londonderry town line Crystal Av (NH Route 28), S of Rollins  Jun-15 NH Route 102 E of Hampton Dr NH Route 102 E of Hampton Dr NH Route 102 E of Griffin St Apr-14 Average  May-16  Ay-14 Ay-	
NH Route 28 Byp, N of Tsienneto Rd May-16 12250 11944 997 957 8.01% 1201 1177 NH Route 28 Byp, S of Thornton Rd May-16 14341 13982 1110 1066 7.62% 1392 1364 NH Route 102 E of Griffin St Apr-14 16000 16400 1054 1012 6.17% 1224 1212 NH Route 102 W of Abbot St Apr-14 14000 14350 1020 979 6.82% 1148 1137 Fordway over Beaver Brook Apr-14 5200 5330 410 394 7.39% 481 476 Franklin St Ext, N. of Folsom Rd Apr-14 1800 1845 99 95 5.15% 171 169 Ash St at Londonderry town line Apr-14 6600 6765 410 394 5.82% 722 715 Crystal Av (NH Route 28), S of Rollins Jun-15 13000 13000 819 786 6.05% 1174 1104  average  y NH Route 102, E of Hampton Dr NH Route 102 at Derry Town line May-16 22656 22090 1718 1649 7.46% 1796 1760 NH Route 28 at Derry Town line May-16 17324 16891 1279 1228 7.27% 1682 1648 NH Route 28 N of Liberty Dr Sep-15 13000 13000 1176 1117 8.59% 1054 1022	8.91%
NH Route 28 Byp, S of Thornton Rd May-16 14341 13982 1110 1066 7.62% 1392 1364 NH Route 102 E of Griffin St Apr-14 16000 16400 1054 1012 6.17% 1224 1212 NH Route 102 W of Abbot St Apr-14 14000 14350 1020 979 6.82% 1148 1137 Fordway over Beaver Brook Apr-14 5200 5330 410 394 7.39% 481 476 Franklin St Ext, N. of Folsom Rd Apr-14 1800 1845 99 95 5.15% 171 169 Ash St at Londonderry town line Apr-14 6600 6765 410 394 5.82% 722 715 Crystal Av (NH Route 28), S of Rollins Jun-15 13000 13000 819 786 6.05% 1174 1104   average  NH Route 102, E of Hampton Dr Jul-15 32000 32000 2478 2577 8.05% 2842 2728 NH Route 102 at Derry Town line May-16 22656 22090 1718 1649 7.46% 1796 1760 NH Route 28 at Derry Town line May-16 17324 16891 1279 1228 7.27% 1682 1648 NH Route 28 N of Liberty Dr Sep-15 13000 13000 1176 1117 8.59% 1054	10.27%
NH Route 102 E of Griffin St	9.85%
NH Route 102 W of Abbot St	9.76%
Fordway over Beaver Brook	7.39%
Franklin St Ext, N. of Folsom Rd Apr-14 1800 1845 99 95 5.15% 171 169 Ash St at Londonderry town line Apr-14 6600 6765 410 394 5.82% 722 715 Crystal Av (NH Route 28), S of Rollins Jun-15 13000 13000 819 786 6.05% 1174 1104   y NH Route 102, E of Hampton Dr NH Route 102 at Derry Town line May-16 22656 22090 1718 1649 7.46% 1796 1760 NH Route 28 at Derry Town line May-16 17324 16891 1279 1228 7.27% 1682 1648 NH Route 28 N of Liberty Dr Sep-15 13000 13000 1176 1117 8.59% 1054 1022	7.92%
Ash St at Londonderry town line	8.93%
Crystal Av (NH Route 28), S of Rollins    Jun-15   13000   13000   819   786   6.05%   1174   1104	9.16%
average 6.90%  y NH Route 102, E of Hampton Dr Jul-15 32000 32000 2478 2577 8.05% 2842 2728  NH Route 102 at Derry Town line May-16 22656 22090 1718 1649 7.46% 1796 1760  NH Route 28 at Derry Town line May-16 17324 16891 1279 1228 7.27% 1682 1648  NH Route 28 N of Liberty Dr Sep-15 13000 13000 1176 1117 8.59% 1054 1022	10.57%
y NH Route 102, E of Hampton Dr Jul-15 32000 32000 2478 2577 8.05% 2842 2728 NH Route 102 at Derry Town line May-16 22656 22090 1718 1649 7.46% 1796 1760 NH Route 28 at Derry Town line May-16 17324 16891 1279 1228 7.27% 1682 1648 NH Route 28 N of Liberty Dr Sep-15 13000 13000 1176 1117 8.59% 1054 1022	8.49%
NH Route 102 at Derry Town         line       May-16       22656       22090       1718       1649       7.46%       1796       1760         NH Route 28 at Derry Town line       May-16       17324       16891       1279       1228       7.27%       1682       1648         NH Route 28 N of Liberty Dr       Sep-15       13000       13000       1176       1117       8.59%       1054       1022	9.28%
NH Route 28 at Derry Town line       May-16       17324       16891       1279       1228       7.27%       1682       1648         NH Route 28 N of Liberty Dr       Sep-15       13000       13000       1176       1117       8.59%       1054       1022	8.53%
NH Route 28 N of Liberty Dr Sep-15 13000 13000 1176 1117 8.59% 1054 1022	7.97%
	9.76%
Gilcreast Rd N of NH Route 107 May-16 10070 9818 1 697 669 6.81% 1 1008 988	7.86%
	10.06%
Ash St E of Londonderry Rd Jun-15 6900 6900 427 410 5.94% 723 680	9.86%
average 7.36% 700-	9.00%
800am 400-500pm	
Exit 4 NB Off-ramp May-16 10249 9993 435 418 4.18% 1223 1199	12.00%
Exit 4 NB On-ramp May-16 10303 10045 1079 1036 10.31% 812 796	7.92%
Exit 4 SB Off-ramp May-16 9862 9615 753 723 7.52% 952 933	9.70%
Exit 4 SB On-ramp - EB to SB May-16 5310 5177 673 646 12.48% 311 305	5.89%
Exit 4 SB On-ramp - WB to SB May-16 4767 4648 537 516 11.10% 244 239	5.14%
average 9.12%	8.13%
Exit 5 NB Off-ramp May-16 5745 5601 400 384 6.86% 472 463	8.27%
Exit 5 NB On-ramp May-16 9580 9341 992 952 10.19% 793 777	8.32%
Exit 5 SB Off-ramp May-16 9520 9282 781 750 8.08% 939 920	9.91%
Exit 5 SB On-ramp May-16 5645 5504 519 498 9.05% 427 418 average 8.54%	7.59%

Note - Exit 5 SB off-ramp AM peak volume does not include one count that appears anomalous when compared to other counts in same hour Red counts are from NHDOT Town summary data - 2014-2015

#### 3.2 Existing Signal Information – Timing and Phasing

Information about the current signal timing and phasing plans at each of the signalized intersections was compiled from records available from the entity with current maintenance responsibility, which is either the NHDOT Bureau of Traffic or the Town of Derry (none of the signals in Londonderry are under their jurisdiction). Current records for one of the locations (NH Route 102/Fordway) were not readily available, so the required information was gathered in the field by observation. This information, combined with the current lane use at each location, was compiled into a data file in the SYNCHRO signal analysis program, which emulates the procedures in Volume 3 (Interrupted Flow) of the *Highway Capacity Manual* 2000 (*HCM*) (TRB, 2000) analysis procedures, for use in future analysis. The HCM 2000 procedures are being used for signalized intersections because these procedures can analyze non-standard timing and phasing parameters, since as leading pedestrian start times, which were found in the field, and to be consistent with the analyses in the Interstate Justification Report (Louis Berger, 2018).

#### 3.3 Crash Data – 2010-2014 – Data Reduction and Summary

Data compiled by the NH Department of Safety for the last five full calendar years was made available by the NHDOT for the two study area towns. Since the crash records are identified by State Plane coordinates, this data search was narrowed further to include only those crashes located within the limits of the study area, roughly bounded by I-93 to the west, NH Route 102 to the south, NH Routes 28 and 28 Bypass north of Tsienneto Road to the north, and the Tsienneto Road/NH Route 102 intersection to the east. The records were assigned to specific roadway segments or individual intersections if sufficient locational information was available. In some cases these identifiers overlapped, so the sum of the segment and intersection crashes is more than the total.

The findings are summarized in Table 2 below. A total of 716 crashes were identified within the project area within the five-year time span, with only one fatality (a single-car incident in 2014 on NH Route 102 in Londonderry). About 24% of the crashes were injury or fatality, with almost 87% of these being on the major roadways in the study area. NH Routes 102 and 28 combined accounted for about 2/3 of the total reported crashes, averaging 48 per year, with the Interstate only accounting for 19%, or 25 per year. The traffic circle at NH Route 28 Bypass and NH Route 102 had the most reported crashes of any intersection during this period, averaging almost 5 per year.

Although there was a consistent number of crashes during three of the five years that data was compiled (between 182 and 185 per year), the other two years show wide fluctuations within this period (115 and 52 crashes). Almost 80% of the crashes involved another motor vehicle, with another 13% involving a crash with a fixed object. Seven of the crashes involved a bicyclist or pedestrian, while another six involved a crash with an animal.

TABLE 2 EXIT 4A STUDY AREA CRASH SUMMARY 2010-2014

Location	Fatal Crashes	Injury Crashes	Property Damage Only	Unknown Damage	Total Crashes
Roadways			·	8	
NH Route 102, Exit 4 to Tsienneto Road.	1	58	172	9	240
NH Route 28, Exit 5 to NH Route 102	0	40	162	9	211
I-93, Exit 4 to Exit 5	0	27	97	3	127
NH Route 28 Bypass, NH Route 102 to					
Auburn Town Line	0	19	39	0	58
Folsom Road/Tsienneto Road	0	3	27	2	32
TOTAL	1	147	497	23	668
% OF TOTAL	0.1%	22.0%	74.4%	3.4%	100.0%
AVG PER YEAR	0.2	29.4	99.4	4.6	133.6
Major Intersections					
NH Route 102/NH Route 28 Bypass	0	7	16	0	23
NH Route 28 Bypass/Tsienneto Road	0	3	14	0	17
NH Route 102/NH Route 28	0	3	14	0	17
NH Route 102/Fordway/High St.	0	3	12	0	15
Tsienneto Road/Pinkerton Street	0	1	10	0	11
Folsom Road/Franklin Street	0	1	8	1	10
NH Route 28/Folsom Road/Tsienneto					
Road/ (Ross' Corner)	0	1	9	0	10
NH Route 28/Ashleigh Dr.	0	3	6	1	10
NH Route 28/Linlew Dr.	0	0	9	0	9
NH Route 102/Londonderry Road	0	2	5	1	8
NH Route 102/Tsienneto Road	0	1	4	0	5
TOTAL	0	25	107	3	135
% OF TOTAL	0.0%	18.5%	79.3%	2.2%	100.0%
AVG PER YEAR	0	5	21.4	0.6	27
ADDITIONAL INFO BELOW					

Year					
2010	0	45	132	5	182
2011	0	32	83	0	115
2012	0	45	135	5	185
2013	0	8	40	4	52
2014	1	39	133	9	182
	1	169	523	23	716

23.7% (approx. percent that are injury or fatality)

Crash Types	Number	% Total
Animal	6	0.84%
Bicyclist	2	0.28%
Fixed Object	91	12.71%
Jackknife	1	0.14%
Other Motor Vehicle	568	79.33%
Other Object	3	0.42%
Overturn	14	1.96%
Parked Motor Vehicle	9	1.26%
Pedestrian	5	0.70%
Spill (two-wheeled vehicles)	3	0.42%
Other	14	1.96%
	716	

#### 4.0 Development of Base Traffic Networks

The time periods to be analyzed will be the 2015 AM and PM peak hours as determined by the traffic counts. The analysis will focus on operations of both the Interstate system (freeway facilities, ramp terminals, ramp merge/diverge, weaving sections) as well as local intersection Levels of Service, using the methodologies in the current version of the HCM.

There are two different approaches that need to be considered for the Interstate system versus the local roadways. The Interstate section within the study area from south of Exit 4 to north of Exit 5 is a closed system – traffic enters and exits at specific locations, so the entire system needs to balance in both directions. The local roadways are not a closed system; counts between the local intersections may not necessarily balance in most locations because there are other intervening driveways for adjacent land uses and other minor streets where traffic is able to enter or exit the network.

#### **Interstate Volume Balancing**

Within the closed Interstate system, there are two adjustments that need to be made. One is for the overall mainline/ramp system, where a starting point was chosen (in this case, at the NHDOT permanent traffic recorder location south of Exit 4) and add or subtract the on- and off-ramp volumes both northbound and southbound to develop the base AM and PM peak hour networks along I-93.

The second adjustment is to balance volumes between the ramp terminals at both Exits 4 and 5, based on the peak hour volume counts and the recent TMCs that were collected in May 2016. This second process will be discussed later in the report.

Directional counts from the I-93 permanent recorder station during May 2015 were reviewed and compiled to determine the AWDT during that period (taking the Memorial Day holiday count out of consideration). These were adjusted seasonally to develop the 2015 AWDT for both northbound and southbound traffic as the starting point. The ramp counts taken in May 2016 were also seasonally and annually adjusted to the 2015 AWDT and then added and subtracted accordingly going north and south on the Interstate. The resulting mainline 2015 AWDT volumes for the AM and PM peak hours are shown in Figures 4 and 5, respectively. The counts and calculations are provided in Appendix C.

#### Ramp Terminal Balancing – Exits 4 and 5

The turning movement volumes at the ramp terminals at Exits 4 and 5 must also balance between the intersections while agreeing with the overall ramp volumes. While the ramp volumes were collected with automatic traffic recorders, which only summarized data on an hourly basis, the turning movements were collected at 15-minute intervals. Furthermore, the individual intersections also have their own peak hours, which may not necessarily match the adjacent ramp or the hourly ramp volume. Therefore, an overall peak for each interchange was developed from a summary of the turning movement

counts at each location and the turning percentages applied to the balanced interstate ramp volumes derived above. The AM peak period was determined to be from 7:30-8:30, while the PM peak was from 4:45-5:45. The balanced 2015 AM and PM peak hour volumes at the two interchanges are also shown in Figures 4 and 5, respectively. The calculations are also provided in Appendix C.

#### Other Intersection Counts

As noted above, the local intersection turning movement counts were collected in groups of intersections in close proximity to each other to minimize significant differences between locations, even if there were intervening roadways or driveways that would not allow balancing between sites. There are only four intersections on the local network where traffic should essentially balance between adjacent intersections:

- Between Ross' Corner (NH Route 28/Folsom/Tsienneto) and at Pinkerton Street;
- Between North High Street/Madden Road and the North High Street/Folsom/ Franklin/Franklin Street Extension intersection;
- Between the NH Route 28 Bypass/NH Route 102 traffic circle and the intersection at NH Route 28 Bypass/Pinkerton Street/Perkins Street to the north; and
- Between NH Route 102/Tsienneto Road easterly to include the North Shore Road and English Range Road intersections.

Counts at these locations were balanced and all counts were adjusted to the 2015 AWDT using the NHDOT seasonal and annual factors for Group 4 Urban Highways noted above. The 2015 AM and PM peak hour volumes at the local intersections are shown in Figures 6 and 7, respectively.

#### 5.0 Model Calibration

The SNHPC regional traffic model is an Average Annual Weekday Traffic (AAWDT) model for the greater Manchester, NH area that includes Derry and Londonderry as well as other surrounding towns. The model area has expanded since its use in the 2007 DEIS project to include towns to the south, east and west of the Exit 4A area with added roadway links and TAZs to provide traffic generation capabilities for the SNHPC's planning horizon of 2040.

However, to be a useful travel forecasting tool, the model needs to be able to replicate actual traffic volumes throughout its network within certain reasonable margins of error established by the Federal Highway Administration (FHWA) for regional traffic models. As such, the various 2015 traffic volume counts provided in Table 1 for the Exit 4A study area, among other locations in the SNHPC region, were used as a guide to test the validity of the SNHPC traffic model as a predictive tool of actual 2015 counts found in the region. This was found to be the case, and the findings of the calibration process were presented to the Exi4 4A Working Group in October, 2016. A more detailed memo describing the various calibration procedures undertaken as part of this project is included in Appendix D.

It should be noted that the current SNHPC traffic model is based on expected trip making behavior from observations of past conditions and predicting these out to a future date, in this case the 2040 design year. With the advent of autonomous/connected vehicles (AV/CVs) and the increasing likelihood of them being a larger share of the vehicle fleet within the planning horizon now covered by the model, there is much uncertainty about how and to what extent current and forecasted individual driving habits may be affected by this potentially transformative technology.

A recent study prepared by the Texas A&M Transportation Institute (Texas A&M, 2017) looked at the possible implications of AV/CVs on the transportation planning process. Some of the key modeling components they identified that could be affected by the eventual deployment of AV/CVs into the traffic stream include:

- the possible changes on the socio-economic factors that typically influence trip making and vehicle ownership;
- future characteristics of the highway network, including the effect on roadway and intersection capacity, safety and operations;
- the need to consider changes to the model area geography (e.g. traffic zones) based on possible household locational decisions;
- the possible effects on trip generation, distribution and mode choices with the availability of AV/CVs, including the likelihood of zero-occupant vehicles on the roadway network

The current transportation planning process looks at changes to demographics and roadway networks to predict future travel demands, assuming trip making will be similar to today. With AV/CVs becoming a larger component of future transportation options, the current process is not suited to predict future trip-making behavior since there is no way to reasonably predict the impact of these technologies on individual travel demand decisions. There is also the likelihood that populations that now are unable to drive or own a vehicle will have greater mobility options available to them, and therefore may result in more trips on the network than would normally be forecasted.

Therefore, until such time as traffic demand modelling on a regional basis can account for the increased deployment of AV/CVs at some critical mass to be able to better assess the impact on some/all of the trip-making factors noted above, the current transportation planning and regional travel demand modeling process is the best available option for forecasting future traffic on the roadway network for a project such as Exit 4A.

## 6.0 Capacity Analyses – 2015 Base Conditions

In general, traffic analyses focus on the facilities that present the most likely constraints to overall operations on the roadway network. For interstate facilities, traffic operations are governed largely by the combination of mainline traffic flow at a given speed and number of lanes as it may be influenced by merging and diverging traffic at on and off-ramps at interchanges, as well as any weaving sections between ramps in close proximity to each other. For local roadway networks, traffic flow tends to be governed by

intersection capacity which acts to meter volumes onto adjacent roadway segments based on its ability to allow conflicting movements to be served.

The 2010 Highway Capacity Manual (TRB, 2010) provide the technical procedures to analyze traffic operations of freeway facilities (basic freeways, ramp merge/diverge and weaving sections) used in this report. Chapter 10 of the 2010 HCM defines the methodologies used to analyze typical freeway facility operations for extended lengths of continuously connected basic freeway, weaving, merge and diverge segments, such as those along I-93 in the Exit 4A study area. This methodology allows for the analysis of multiple/continuous 15-minute time periods and is capable of identifying locations where the facility may break down and the impacts of such on the rest of the facility. As such, the analysis determines where the 'weakest link' in the facility may control overall operations along a freeway network in either direction.

The 2000 *Highway Capacity Manual* (TRB, 2000) provided methodologies for signalized and unsignalized intersections, including roundabouts, that will be used to analyze the NH Route 102/NH Route Bypass 28 traffic circle. Because of the phasing and timing limitations of the existing intersections, the HCM 2000 procedures were used for the signalized and unsignalied intersection analyses, as well as to be consistent with the IJR. Chapters 18 and 19 of the 2000 HCM define the methodologies for signalized and two-way stop controlled intersections.

The Highway Capacity Software (McTrans, 2018) as well as the SYNCHRO/Sim-Traffic programs (Trafficware, 2016) are common software packages used by traffic engineers to evaluate how traffic volumes react under interrupted and uninterrupted flow conditions under various volume, speed, traffic composition, lane use and signal timing conditions. The Level of Service (LOS) criteria for freeway facilities and intersection operations defined in the both versions of the HCM are provided in Appendix E. In general, a LOS C is considered desirable for freeway facilities operations; however, LOS D is considered acceptable for both freeways and intersection operations in urbanized areas.

#### **6.1 Mainline Interstate Operations**

The 2015 base weekday AM and PM peak hour volumes along I-93 from just south of Exit 4 to north of Exit 5 are shown in Figures 4 and 5.

The existing two-lane I-93 freeway facility was segmented along its length both northbound and southbound, based on the spacing of on- and off-ramps connecting the basic two-lane freeway segments on either side. Northbound, there were five basic freeway segments, two diverge (i.e., off-ramp) and two merge (i.e. on-ramp) segments under existing conditions. Southbound, there is one additional freeway and one more merge segment to account for the SB loop on-ramp at Exit 4 from the east and the segment between the SB on-ramps. Because of the distance between the existing interchanges, there are currently no weaving sections along I-93 in the Exit 4A study area network.

#### **6.1.1** Mainline Freeway Segments

Five freeway segments are contained in the I-93 project study area going northbound, with a sixth one added in the southbound direction because of the additional on-ramp at Exit 4. There will be additional segments created when the Exit 4A alternatives are analyzed.

The demand and geometric factors input for segments and facility analyses include:

#### Demand

- Vehicles/hour
- Percent trucks and recreatonal vehicles (RVs)
- Driver population factor

#### Geometry

- Number of lanes
- Average lane width
- Right-side lateral clearance
- Terrain
- Free-flow speed
- Location of/distance to merge/diverge segments, with number of lanes, length of acceleration/deceleration lanes

A description of the existing facility segments and the detailed reports are summarized in Table 3 and included in Appendix F.

TABLE 3 HCS 2010 - FREEWAY FACILITIES ANALYSIS - 2015 BASE- AM AND PM PEAK HOURS

1-May-17		AM Peak Hour			PM Peak Hour			
			Level of Service (LOS)/d/c ratio		Level of Service (LOS)/d/c ratio			
Segment	<u>No</u>	rthbound Direction	<u>BASIC</u>	<u>DIVERGE</u>	<u>MERGE</u>	<u>BASIC</u>	<u>DIVERGE</u>	<u>MERGE</u>
1	I-93 Mainline south of Exit 4		B/0.45			D/0.77		
2	Exit 4 NB off-ramp			B/0.26			D/0.62	
3	I-93 Mainline between Exit 4 ramps					B/0.50		
4	Exit 4 NB on-ram	•			B/0.57			C/0.44
5	I-93 Mainline betw NB off-ramps	ween Exit 4 NB on- and Exit 5	C/0.60			C/0.68		
6	Exit 5 NB off-ram	np		C/0.27			C/0.34	
7	I-93 Mainline bety	ween Exit 5 ramps	B/0.51			C/0.57		
8	Exit 5 NB on-ram	p			D/0.58			D/0.42
9	I-93 Mainline nor	th of Exit 5	D/0.74			D/0.75		
	Facility Operations		С			С		
	Space Mean Speed (mph)		63.2			62.7		
	Density (veh/mi/hr)		19.8			24.4		
Segment	Sou	uthbound Direction						
1	I-93 Mainline nor	th of Exit 5	D/0.74			D/0.76		
2	Exit 5 SB off-ramp			D/0.50			D/0.50	
3	I-93 Mainline between Exit 5 ramps		C/0.57			C/0.55		
4	Exit 5 SB on-ramp				C/0.31			C/0.25
5	I-93 Mainline between Exit 5 SB on- and Exit 4 SB off-ramps		C/0.69			C/0.65		
6	Exit 4 SB off-ramp			C/0.39			C/0.49	
7	I-93 Mainline between Exit 4 SB off- and SB on ramp from east		B/0.51			B/0.44		
8	Exit 4 SB on-ramp from east				B/0.33			B/0.13
9	I-93 Mainline between Exit 4 SB on-ramps		C/0.63			B/0.49		
10	Exit 4 SB on-ramp from west				C/0.40		B/0.18	
11	I-93 Mainline sou	th of Exit 4	D/0.78			C/0.56		
		Facility Operations	С			C		
		Space Mean Speed (mph)	62.5			62.8		
		Density (veh/mi/hr)	24.4			22.1		

Note: d/c = Demand-to-capacity ratio

#### **6.1.2** Merge/Diverge Operations

Merge/diverge operations are the result of off-ramp and on-ramp traffic leaving and/or getting onto the freeway and how the ramp traffic interacts with the mainline freeway traffic. Since all traffic on I-93 in the study area is entering or exiting in the rightmost lane, which is also where most heavy vehicles travel, this Lane 1 volume is critical to the determination of operations. The ramp spacing and order of operation (e.g. off-ramp followed by an on-ramp, as opposed to an off-ramp followed by another off-ramp) also plays a role in how and to what degree these movements impede mainline freeway traffic flow.

There are currently four merge (on-ramp) and diverge (off-ramp) arrangements in the Exit 4A study area in the northbound direction and a fifth in the southbound direction (the second SB on-ramp at Exit 4). The introduction of a new interchange between Exits 4 and 5 will add another merge and diverge in each direction. The differences between the northerly and southerly interchange alternatives and their relative proximity to Exits 4 and 5 will ultimately determine how these new ramps will affect mainline operations. Table 3 provides the analysis results for the merge/diverge operations along I-93 in the study area under 2015 AM and PM peak hour conditions.

#### **6.1.3** Weaving Operations

Weaving operations occur on highway segments between on- and off-ramps where merging and diverging traffic conflict while completing their respective movements. This analysis is mostly governed by the distance between these ramps, the number of lanes available to make such a movement, the volumes making their respective merge and/or diverge movements, and the ability of these movements to occur independently without influencing each other. This is more of an issue in areas where there are closely spaced interchange ramps.

In the current condition, Exits 4 and 5 are more than two miles apart, so there is essentially no weaving that occurs between the ramps. With the introduction of Exit 4A to the I-93 network, weaving between the Exit 4 NB on-ramp and the Exit 4A NB off-ramp may need to be considered for the southerly interchange alternatives. However, the HCS Freeway Facilities calculations allow for an overlap of the 1500-foot 'influence areas' between adjacent ramps, which was included in the analyses. At this point, it does not appear that a weaving section will be created between Exit 4A and Exit 5 because of the greater spacing between them.

### 7.0 Signalized Intersection Operations – 2015 Base Condition

The existing signal timing/phasing information gathered earlier, combined with the current lane use at each location along with the 2015 AM and PM peak hour volumes, was compiled into a data file in the SYNCHRO (Trafficware, 2016) signal analysis program, which emulates the procedures in Volume 3 (Interrupted Flow) of the *Highway Capacity Manual* 2000 (*HCM*) analysis procedures (TRB, 2000). Because of the phasing and timing limitations of the existing intersections, the HCM 2000 procedures were used for the signalized intersection analyses. The overall delay and LOS was determined by using the HCM module in SYNCHRO, while the queuing calculation results came directly from five runs of the Sim-Traffic module within SYNCHRO per NHDOT guidance (NHDOT, 2017a). The volume-to-capacity (v/c) ratios, average delays and LOS for the signalized intersections are shown in Table 4 below. The peak queues by approach are shown in Table 5 later in this report.

Summa	Table 4 ry of 2015 Signalized Inters	ection (	Capacity	Analys	ses		
	Signalized Interse	ctions					
		AM Peak Hour PM Po			M Peak Ho	Peak Hour	
Intersection	<b>Existing Lane Use</b>	v/c	Delay	LOS	v/c	Delay	LOS
#1 - Exit 4 SB Off-Ramp/NH Route 102	EB- T, T; WB- T, T SB- L, R	0.55	17.7	В	0.67	40.2	D
#2 - Exit 4 NB Off-Ramp/NH Route 102	<b>EB</b> - L, T, T; <b>WB</b> - T, T, R <b>NB</b> - L, L, R	0.86	34.6	С	0.71	29.8	С
#3 - Exit 5 SB Off-Ramp/NH Route 28	<b>EB</b> - T, T, R; <b>WB</b> - L, T, T <b>SB</b> - L, L, R	0.74	21.0	С	0.63	21.8	С
#4 - Exit 5 NB Off-Ramp/NH Route 28	<b>EB</b> - L, T, T; <b>WB</b> - T, T, R <b>NB</b> - L, R	0.78	15.9	В	0.66	20.3	С
#6 - NH Route 102/Fordway	EB- T, R; WB- L/T; NB- L/R; SB- L/T/R	0.89	25.7	С	0.94	34.1	С
#7 - NH Routes 102/28	EB- L,T/R; WB- L,T/R; NB- L,T/R; SB- L, T, R	0.84	39.9	D	0.83	39.9	D
#11- Ross' Corner (Folsom/NH Route 28)	EB- L,T,R; WB- L,T,R; NB- L, T, T, R; SB- L, T, T, R	0.61	37.1	D	0.78	47.2	D
#13 -NH Route 28/Linlew Drive	<b>EB-</b> L/T, R; <b>WB-</b> L/T, R; <b>NB-</b> L, T, T/R; <b>SB-</b> L, T, T/R	0.41	13.3	В	0.61	18.9	В
#14 - NH Route 28/Ashleigh Drive	<b>EB-</b> L,T/R; <b>WB-</b> L, L/T, R; <b>NB-</b> L, T, T/R; <b>SB-</b> L, L, T, T,/R	0.48	16.9	В	0.72	24.0	С
#18 - NH Route 28 Bypass/ Tsienneto Road	<b>EB-</b> L,T/R; <b>WB-</b> L,T/R; <b>NB-</b> L,T/R; <b>SB-</b> L, T, R	0.80	36.5	D	0.83	35.4	D

The HCM and SYNCHRO printouts are provided in Appendices G 1-3.

The results of these analyses show which movements at the various intersections exhibit some current capacity constraints (LOS E or worse). Some of these, such as at the Exit 4 ramp terminals, will be addressed by the ongoing I-93 widening project, while issues at other local intersections may need to be addressed in some form, either through added lanes and/or optimized signal timings, by the 2040 design year. These existing deficiencies are discussed briefly below:

#### • Exit 4 SB Off-Ramp

The turns from the off-ramp are the most constrained movements, with the higher-volume right turn from a single lane showing the most delay and queuing. A second right-turn lane is proposed as part of the ongoing improvements to Exit 4.

#### • Exit 4 NB Ramps

The westbound thru traffic is under duress during the AM peak, while the eastbound left turn to the on-ramp is at LOS E in the PM peak. While the right turn from the off-ramp operates at a good LOS because it is not controlled by the signal, field observations show it is often impeded by either the eastbound traffic through the intersection and/or the downstream queuing of traffic on NH Route 102 east of the interchange.

#### • NH Route 102/NH Route 28 (Crystal Avenue/Broadway/Birch Street)

This major crossroads in the heart of downtown Derry has several movements that exhibit substantial delays during AM and/or PM peak hours, and results in queuing along Broadway. The level of parking and pedestrian activity also affects overall traffic operations as the mix of local and through traffic results in significant congestion, even if not directly reflected in the overall capacity/LOS calculations.

Because the reduction in this through traffic in downtown Derry is one of the primary purposes for the proposed Exit 4A project, it was necessary to find a more qualitative assessment of downtown congestion that may not be reflected in the capacity calculations. To do this, we looked at Google Maps snapshots during the course of typical weekday AM and PM peak hours (Google, 2018). These are based on real-time on-the-ground observations of travel times in the study area. The snapshots for AM and PM peak hours between Monday, January 22, 2018 and Friday, January 26, 2018 are provided in Appendix H. It should be noted that Exit 4 is currently under construction, although there should be minimal work going on during the winter when these snapshots were taken.

These figures show regular congestion at the NH Route 102/28 intersection as well as other key intersections in the study area during any given weekday peak

hour. Congestion in and around Exit 4 is oriented westbound in the AM peak and eastbound in the PM peak, and is shown to affect other segments along Broadway in both directions to varying degrees. Key intersections along the north-south corridors of NH Route 28 and NH Route 28 Bypass, such as at Ross' Corner, Tsienneto Road, and the traffic circle at NH Route 102, appear to exhibit regular levels of delay and congestion based on this sample of peak hour travel times.

#### • Ross' Corner (NH Route 28/Tsienneto Road/Folsom Road)

This intersection leads to the major commercial corridor in north Derry as well as serving as a commuter route. Traffic currently uses the Ash Street Extension and Folsom Road as an alternative route to NH Route 102 to avoid the aforementioned downtown congestion. Several turning movements experience significant delays, even with recent improvements that provided a second SB left-turn lane onto Tsienneto Road. The proximity of the Pinkerton Street unsignalized intersection just east of this location also affects overall traffic flow in this area.

#### • NH Route28/Ashleigh Drive

This intersection serves as the primary access drive to the new Wal-Mart supercenter as well as other commercial establishments on the east side of NH Route 28. The heavy turning movements into and out of this town road, combined with significant commuter volumes along the NH Route 28 corridor, result in less than desirable levels of delay for several movements, particularly in the PM peak, even though the overall LOS is at LOS C.

#### • NH Route 28 Bypass/Tsienneto Road

The Tsienneto Road corridor west of NH Route 28 Bypass as well as the lands adjacent to this intersection has seen a fair share of new development over the years, as well as increased use by east-west commuter traffic avoiding NH Route 102 and the downtown area. With only a single east-west lane through the intersection, calculated delays now exceed acceptable LOS thresholds for some movements during both peaks.

#### 8.0 Unsignalized Intersection Operations

Similarly, the unsignalized intersections in the study area network were analyzed for the 2015 AM and PM peak hours using the standard 2010 HCM procedures. These results are provided in Table 6, with the printouts in Appendix I. It should be noted that the traffic circle at the intersection of NH Route 28 Bypass, NH Route 102, and East Derry Road was analyzed as a roundabout, since all turns at this location are right turns in the counterclockwise direction. The circle was evaluated using updated roundabout analysis procedures from HCM 6, published in 2016 (TRB, 2016), because it incorporates updated data from actual field operations of the growing number of roundabouts in the USA and, as such, should be more representative of local driver behavior.

As observed in the field and confirmed by the SYNCHRO analyses, left turns from the minor side streets experience significant delays due to the high volumes on the major streets, either on the State highway system or local streets such as Tsienneto Road. Of particular concern is the heavy left-turn volume exiting from Pinkerton Street onto Tsienneto Road in close proximity to the signalized intersection at Ross' Corner. Special attention will be needed to address this condition under future No-Build and Build conditions.

The table also shows the peak design queue by approach for both the signalized and unsignalized intersections, based on the 2015 capacity analysis of base conditions. This will be an important component of evaluating the future 2040 Build condition layouts under the various alternatives.

Table 5
2015 Signalized Intersection Capacity and Queuing Analyses

## Signalized Intersections

			Peak Hour						
		95% queue v/c Average				95%	A		
Intersection	Lane Groups	(ft)	v/c ratio	Average Delay	LOS	queue (ft)	v/c ratio	Average Delay	LOS
#1 - Exit 4 SB Off-Ramp/NH	*	Ì		•		` ′		•	
Route 102	EB Thru	212	0.46	11.5	В	230	0.44	11.0	В
	WB Thru	18	0.31	1.9	A	18	0.41	1.8	A
	SB LT	251	0.64	39.5	D	317	0.69	50.4	D
	SB RT	176	0.75	13.6	В	630	1.08	80.9	F
#2 - Exit 4 NB Off-Ramp/NH	NB LT	107	0.57	46.2	D	281	0.50	33.3	С
Route 102									
	NB RT	0	0.15	0.2	A	0	0.41	0.8	A
	EB LT EB Thru	610 83	0.88 0.24	43.8 4.3	D A	548 242	0.91 0.40	62.3 19.5	E B
	WB Thru	448	0.24	58.7	E E	250	0.40	51.5	D
	WDIIIu	440	0.97	36.7	Ľ	230	0.70	31.3	D
#3 - Exit 5 SB Off-Ramp/NH		212	0.68	32.7	С	197	0.56	27.8	С
Route 28	EB Thru								
	EB RT	0	0.21	0.3	A	0	0.21	0.3	A
	WB LT	211	0.81	40.0	D	151	0.62	45.3	D
	WB Thru	59 138	0.43	7.0	A	52 254	0.28	4.8	A
	SB LT SB RT	138	0.68 0.78	29.2 28.7	C C	254 63	0.73 0.45	36.5 6.2	D A
	SDKI	140	0.78	26.7	C	03	0.43	0.2	A
#4 - Exit 5 NB Off-Ramp/NH		251	0.86	55.0	D	223	0.72	48.4	D
Route 28	EB LT								
	EB Thru	5 189	0.44 0.56	2.2 26.1	A C	308 192	0.53 0.37	12.7 27.4	B C
	WB Thru WB RT	0	0.53	1.3	A	0	0.37	0.7	A
	NB LT	233	0.33	49.4	D	180	0.38	44.1	D
	NB RT	0	0.10	0.1	A	143	0.77	35.2	D
	T(BTC)	Ů	0.10	0.1		1.0	0.7.7	00.2	
#6 - NH Route 102/Fordway	EB all	247	0.12	17.7	В	591	1.00	47.1	D
	WB all	368	0.94	26.4	C	306	0.81	26.8	C
	NB all	304	0.72	51.7	D	215	0.84	36.6	D
	SB all	22	0.86	12.4	В	90	0.18	15.9	В
#7 - NH Routes 102/28	EB L	148	0.83	83.0	F	155	0.70	55.8	Е
	EB T/R	170	0.42	20.1	C	393	0.73	34.2	C
	WB L	47	0.28	40.6	D	119	0.68	69.5	E
	WB T/R	385	0.88	42.7	D	272	0.67	35.1	D
	NB L	101	0.79	90.6	F	80	0.43	42.5	D
	NB T/R	274	0.85	48.3	D	316	0.86	51.3	D
	SB L	121	0.86	103.4	F	174	0.79	67.9	Е
	SB Thru	188	0.61	33.9	C	346	0.77	43.3	D
	SB RT	2	0.23	1.1	A	35	0.21	3.5	A

Table 5 (Cont'd)
Signalized Intersections (cont.)

	_	Г				T					
		050/	AM	Peak Hour	PM Peak Hour 95%						
	Existing Lane	95% queue	v/c	Average		queue	v/c	Average			
Intersection	Use	(ft)	ratio	Delay	LOS	(ft)	ratio	Delay	LOS		
#11- Ross' Corner (Folsom/NH				•	F			•			
Route 28)	EB L	191	0.16	88.0	Г	324	0.89	78.7	E		
	EB Thru	169	0.27	45.1	D	310	0.73	49.0	D		
	EB R	0	0.25	0.0	A	0	0.17	0.7	A		
	WB L	157	0.70	66.1	E	273	1.14	165.5	F		
	WB Thru	323	0.21	80.3	F	241	0.75	60.7	E		
	WB R	108	0.26	8.0	A	190	0.52	16.4	В		
	NB L	35	0.90	40.5	D	134	0.58	66.6	E		
	NB Thru	90	0.63	25.5	C	198	0.43	40.0	D		
	NB R	0	0.01	1.2	A	0	0.27	1.1	A		
	SB L	131	0.74	42.0	D	248	0.76	49.7	D		
	SB Thru	72	0.95	19.5	В	419	0.64	35.6	D		
	SB RT	27	0.48	4.1	A	51	0.28	4.8	A		
	<u> —</u> <b>-</b>										
#13 -NH Route 28/Linlew Drive	EB L/T	10	0.06	33.0	С	40	0.18	39.4	D		
	EB R	0	0.04	0.2	A	0	0.05	0.3	A		
	WB L/T	61	0.35	40.6	D	69	0.46	48.8	D		
	WB R	93	0.71	18.9	В	43	0.66	13.0	В		
	NB L	0	0.00	0.0	A	36	0.19	46.3	D		
	NB T/R	675	0.35	12.9	В	296	0.50	15.5	В		
	SB L	63	0.35	42.8	D	125	0.64	37.4	D		
	SB T/R	134	0.38	4.9	A	437	0.57	14.3	В		
#14 - NH Route 28/Ashleigh Drive	EB L	20	0.12	40.8	D	60	0.54	65.2	Е		
#14 - Wil Route 20/Ashieigh Diffe	EB T/R	16	0.12	30.0	C	29	0.25	34.5	C		
	WBL	110	0.52	46.5	D	232	0.84	69.2	E		
	WB L/T	111	0.53	46.7	D	227	0.83	67.0	E		
	WB R	38	0.22	6.0	A	63	0.29	10.9	В		
	NB L	56	0.05	61.6	D	3	0.06	65.0	E		
	NB T/R	183	0.50	10.1	В	311	0.69	14.8	В		
	SB L	8	0.41	42.9	Е	39	0.47	47.4	D		
	SB T/R	285	0.35	10.3	В	234	0.60	14.0	В		
#18 - NH Route 28 Bypass/		126	0.88	77.5	Е	278	0.86	54.0	D		
Tsienneto Road	EB L										
	EB T/R	114	0.49	24.2	C	394	0.69	30.0	C		
	WB L	82	0.50	41.9	D	36	0.15	35.1	D		
	WB T/R NB L	309 119	0.95 0.70	59.4 57.5	E E	248 97	0.86 0.53	58.0 44.2	E D		
	NB T/R	119	0.70	26.8	C	307	0.55	37.0	D		
	SB L	36	0.48	35.8	D	80	0.09	42.4	D		
	SB Thru	171	0.63	35.7	D	149	0.39	29.4	C		
	SBR	71	0.41	7.9	A	30	0.20	2.3	A		

Table 6
2015 Unsignalized Intersection Capacity and Queuing Analyses

			Λ <b>λ</b> Λ	Peak Hour	PM Peak Hour							
		95%	Alvi	reak noui	95%							
E	Existing Lane	queue	v/c	Average		queue	v/c	Average				
Intersection	Use	(ft)	ratio	Delay	LOS	(ft)	ratio	Delay	LOS			
#5 - NH Route 102/Londonderry Road	EB L	13	0.142	12.3	В	40	0.354	11.7	В			
	WB L	0	0.005	8.6	A	0	0.008	10.7	В			
	NB all	0	0.008	11.9	В	65	1.078	*	F			
	SB L/T	20	0.253	115.0	F	68	1.130	*	F			
	SB R	65	0.505	36.1	Е	45	0.395	19.9	С			
#8 - North High Street/Ash Street Extension	EB all	45	0.383	15.4	С	445	1.152	123.5	F			
	NB LT	0	0.005	8.2	A	0	0.005	8.4	A			
#9 - North High Street/Madden Road	EB all	8	0.079	18.7	С	10	0.11	27.2	D			
	NB LT	0	0.000	0.0	A	0	0.00	0.0	A			
#10 – North High/Folsom/Franklin Streets	EB all	3	0.035	8.3	A	3	0.043	8.4	A			
	WB all	3	0.025	8.0	A	3	0.038	9.2	Α			
	NB all	15	0.160	14.2	В	30	0.293	23.7	C			
	SB all	8	0.096	10.5	В	50	0.424	22.5	С			
#12 - Tsienneto Road/Pinkerton Street	WB L	8	0.088	8.5	A	13	0.138	9.3	A			
	WB L/T	0	0.000	0.0	A	0	0.000	0.7	A			
	NB L	309	1.156	154.3	F	340	1.424	282.3	F			
	NB R	13	0.154	11.8	В	28	0.279	15.0	C			
#15 - NH Route 28/Scobie Pond Road	EB L	3	0.022	9.5	A	5	0.061	10.3	В			
	SB all	183	1.011	143.2	F	318	2.116	*	F			
#16 - NH Route 102/NH Route 28	EDR WB	375	1.031	77.5	F	450	1.112	103.3	F			
Bypass/East Derry Road (Traffic Circle-RT only)	28 Byp NB	175	0.781	29.5	D	525	1.268	169.4	D			
(Tranic Circle-KT only)	28 Byp NB 28 Byp SB	400	1.058	83.5	F	750	1.250	146.4	F			
	102 EB		1.106	96.6	F		1.456	240.0	F			
	102 WB		1.026	86.1	F		0.622	24.6	C			
#17 - NH Route 28Bypass/	EB L/T	125	3.388	*	F	60	0.521	69.4	F			
Pinkerton/Nesmith	EB R	40	0.350	13.6	В	140	0.692	20.6	C			
	WB all	245	1.371	296.3	F	73	0.599	76.5	F			
	NB all	30	0.289	9.5	A	15	0.175	8.5	A			
	SB all	0	0.014	8.5	A	3	0.025	8.4	A			
#19 - NH Route 102/Tsienneto Road	EB L	3	0.020	9.5	A	0	0.016	8.4	A			
	SB L/R	30	0.287	19.3	С	218	0.869	60.9	F			

Note- Assumes 25 ft per queued vehicle

<sup>\* -</sup> calculated delay exceeds 300s

#### 9.0 Summary of SNHPC Model Assignments – 2015, 2040

The SNHPC calibration of their regional traffic forecasting model was discussed with the Traffic Working Group (TWG) in October 2016. This calibration process was based on the least-mean squared comparison of the 2015 assignments (based on the various socioeconomic characteristics of each Traffic Analysis Zone (TAZ) used by the model to generate origins and destinations to be assigned to the network) to the calculated 2015 Average Annual Weekday Traffic (AAWDT) on the key links in the study area network that were derived from the extensive traffic counting program initiated at the start of this SDEIS project. This comparison was found to fall within the FHWA's acceptable margin of error for traffic modeling as summarized in Appendix D. As such, it was agreed by the TWG at this meeting that the model was in compliance with FHWA standards for model accuracy and could be used as a tool to reasonably project future volumes for this project.

It was further agreed by the TWG that the relative differences between the model AAWDT assignments for 2015 and 2040 would be applied to the calculated 2015 AAWDT volumes. AM and PM peak hour volumes were to be derived as a percentage of the AAWDT as determined in both the roadway and intersection turning movement count data. AAWDT assignments at individual intersections would be used to develop any adjustments to peak hour existing turning movements, based on both the increase/decrease in traffic volume as well as any changes in turning movement percentages of any particular movement. The derivation of these future intersection volumes was completed only after consensus was reached with the TWG on the reasonableness of the 2040 AAWDT traffic assignments for each alternative.

The future model includes known/programmed roadway improvements in the SNHPC's Regional Transportation Plan - 2015-2040 (SNHPC, 2017) that includes Exit 4A; however, this interchange was not included in any of the No-Build networks. While it was recognized that there may be locations where existing/projected capacity deficiencies may exist, only those projects either programmed in the State's Ten-Year Highway Plan (NHDOT, 2018) or the Regional Transportation Plan were included in the 2040 No-Build network.

The 2040 SNHPC model assignments were developed by including the population and employment projections for each community in the SNHPC model area, as outlined in the Lane Use Scenarios report (Louis Berger, 2017) and disaggregated to the TAZ level. This report also included alternative development scenarios without and with the proposed Exit 4A interchange, notably for the Woodmont Commons development on the east side of I-93, since the development of that parcel would be directly impacted by the location of the proposed interchange. In general, the Woodmont Commons–East development was assumed to reach its build-out potential under only the southerly interchange options (A and B), and would have a lesser development scenario under the 2040 No-Build C, D, and F alternatives.

It should also be noted that the Woodmont Commons traffic impact study for the full development project submitted to the Town of Londonderry (TEC, 2013) assumed that, because of the 'live-work-play' design intent of the proposed mixed-use development, a certain percentage of site-generated trips would remain 'internally captured' within the site itself and would not be assigned to the adjacent street network outside of the development. An adjustment factor of 23% was applied to the total site traffic generation for the various proposed land uses assumed in the Woodmont Commons traffic impact study to account for this estimated internal capture rate.

However, it should be noted that the methodologies used to develop trip generation, distribution and assignments for an individual traffic impact study versus a regional model are quite different. The model applies its trip distribution and assignment algorithms directly to the trip productions and attractions generated by each TAZ, based on their socioeconomic characteristics, which does not differentiate between trips that should or should not be assigned to other TAZs. In addition, the Woodmont Commons development is included as part of several TAZs, so correcting for only some trips from a particular TAZ and not others may appear to be arbitrary and jeopardize the validity of the model.

After consultation with the NHDOT Bureau of Traffic, it was agreed, as the initial step, all the model-generated traffic from all TAZs, including Woodmont Commons, was assigned to the SNHPC model network without regard to the internal capture rate assumptions noted in their site-specific traffic impact study. (NHDOT, 2017b) This should provide a conservatively worst-case estimate of traffic being assigned to the study area roadway network. Should the design intent of Woodmont Commons be realized and less traffic is actually generated as the project evolves, overall operations would be better than projected and the design life of any proposed improvements would be extended.

Individual spreadsheets were created for the key links in the network under each 2040 alternative for purposes of calculating the projected 2040 AAWDT and AM and PM peak hour volumes, based on the relative increase/decrease between 2015 and 2040 model assignments.

#### 9.1 AAWDT Comparisons – 2040

Table 7 presents a summary of the projected 2040 AAWDT on key links in the study area roadway network, including the I-93 mainline and all interchange ramps. As noted above, these were derived by applying the growth rate between SNHPC's 2015 and 2040 model assignments to the calculated 2015 AAWDT derived from the updated traffic counting program created for this project. These assignments also provide projected volumes for newly created road segments, including the Exit 4A on- and off-ramps as well as the connector roadway between the new proposed interchange and the existing roadway network.

	TABLE 7 Adjusted 2040 AAWDT volume comparison - All Alternatives 7-Apr-17																										
	7-Apr-17 rev 1-26-18					% Growth			% Growth		AAWDT		% Growth		AAWDT		% Growth		AAWDT		% Growth		AAWDT		% Growth		AAWDT
		Raw		2015 AAWDT	2040 AAWDT		2040	2040 AAWDT 1			Difference	2040 AAWDT			Difference	2040 AAWDT	to '15 base		Difference	2040 AAWDT	_		Difference	2040 AWDT			Difference
Loc			Adj 2015		No-Build	No-Build	No-Build	Alt A		2040 Alt A	Alt A vs	Alt B	Alt B	2040 Alt B	Alt B vs	Alt C		2040 Alt C	Alt C vs	Alt D		2040 Alt D	Alt D vs	Alt F		2040 Alt F	Alt F vs
Code	Count Location  Derry Locations	AAWDT	AAWDT	Assigns	Assigns	2015-40	AAWDT	Assigns	2015-40	AAWDT	No-Build	Assigns	2015-40	AAWDT	No-Build	Assigns	2015-40	AAWDT	No-Build	Assigns	2015-40	AAWDT	No-Build	Assigns	2015-40	AAWDT	No-Build
Derry 1	Crystal Av (NH 28), S of Tsienneto	15,585	15,195	13,406	10,220	-23.77%	11,584	7,242	-45.98%	8,208	-29.1%	10,565	-21.19%	11,975	3.4%	12,279	-8.41%	13,918	20.1%	13,225	-1.35%	14,990	29.4%	10,313	-23.07%	11,689	0.9%
2	Folsom Rd W of NH 28	12,070	11,768	8,960	10,537	17.60%	13,839	29,612	230.49%	38,892	181.0%	4,730	-47.21%	6,212	-55.1%	9,494	5.96%	12,469	-9.9%	8,646			-17.9%	9,223	2.94%	12,113	-12.5%
	Pinkerton St E of Tsienneto	10,722	10,454	8,776	6,396	-27.12%	7,619	9,059	3.22%	10,791	41.6%	9,178	4.58%	10,933	43.5%	11,138	26.91%	13,268	74.1%	11,608			81.5%	6,356	-27.58%	7,571	-0.6%
	Tsiennto Rd, W of NH 102 Tsienneto Rd E of Pinkerton	5,532 15,012	5,394 14,637	5,666 14,200	9,072 18,876	60.11% 32.93%	8,636 19,457	10,824 22,226	91.03% 56.52%	10,304 22,910	19.3% 17.7%	16,182 15,241	185.60% 7.33%	15,405 15,710	78.4% -19.3%	15,529 15,644	174.07% 10.17%	14,784 16,125	41.6% -17.1%	11,363 20,041	100.55% 41.13%		25.3% 6.2%	9,191 18,976	62.21% 33.63%	8,750 19,560	1.3% 0.5%
	NH 102, E of NH 28 Bypass	7,456	7,270	7,016	6,126	-12.69%	6,348	6,924	-1.31%	7,175	13.0%	4,277	-39.04%	4,432	-30.2%	3,324	-52.62%	3,444	-45.7%	5,942		6,157	-3.0%	6,450	-8.07%	6,684	5.3%
	NH 28 Byp, N of Academy Dr	8,615	8,400	7,318	2,853	-61.01%	3,275	2,333	-68.12%	2,678	-18.2%	2,375	-67.55%	2,726	-16.8%	2,436	-66.71%	2,796	-14.6%	2,420		2,778	-15.2%	2,785	-61.94%	3,197	-2.4%
8	NH 28 Byp, N of Tsienneto Rd	12,250	11,944	9,377	4,072	-56.57%	5,187	4,229	-54.90%	5,387	3.9%	2,696	-71.25%	3,434	-33.8%	2,290	-75.58%	2,917	-43.8%	4,218		5,373	3.6%	4,145	-55.80%	5,280	1.8%
	NH 28 Byp, S of Thornton Rd S.	14,341	13,982	12,227	7,327	-40.08%	8,379	7,652	-37.42%	8,750	4.4%	7,791	-36.28%	8,909	6.3%	8,741	-28.51%	9,996	19.3%	8,136		9,304	11.0%	7,191	-41.19%	8,223	-1.9%
	NH 102 E of Griffin St NH 102 W of Abbot St	16,000	16,820 14,350	18,002 11,128	20,810 14,902	15.60% 33.91%	19,444 19,217	16,885 15,442	-6.20% 38.77%	15,776 19,913	-18.9% 3.6%	16,759 11,283	-6.90% 1.39%	15,659 14,550	-19.5% -24.3%	16,330 9,968	-9.29% -10.42%	15,258 12,854	-21.5% -33.1%	18,591 11,885	3.27% 6.80%	17,370 15,326	-10.7% -20.2%	24,147 15,829	34.14% 42.24%	22,562 20,412	16.0% 6.2%
	Fordway over Beaver Brook	5,200	5,330	5,114	3,511	-31.35%	3,659	4,748	-7.16%	4,949	35.3%	4,273	-16.45%	4,453	21.7%	4,206	-17.76%	4,384	19.8%	3,926		4,092	11.8%	3,595	-29.70%	3,747	2.4%
	Franklin St Ext, N. of Folsom Rd	1,800	1,845	1,254	1,959	56.22%	2,882	1,367	9.01%	2,011	-30.2%	4,736	277.67%	6,968	141.8%	2,083	66.11%	3,065	6.3%	2,019			3.1%	1,783	42.19%	2,623	-9.0%
	Ash St at Londonderry town line	6,600	6,765	5,936	13,790	132.31%	15,716	6,065	2.17%	6,912	-56.0%	5,923	-0.22%	6,750	-57.1%	8,843	48.97%	10,078	-35.9%	8,511	43.38%	9,700	-38.3%	12,825	116.05%	14,616	-7.0%
	Crystal Av (NH 28), S of Rollins St	13,000	13,000	13,215	10,463	-20.82%	10,293	11,087	-16.10%	10,907	6.0%	11,110	-15.93%	10,929	6.2%	11,753	48.97%	10,078	-2.1%	11,998	-9.21%		14.7%	11,022	-16.59%	10,843	5.3%
	NH 102, at Derry/Chester town line	8,200	8,200	10,839	12,783	17.94%	9,671	14,181	30.83%	10,728	10.9%	14,668	35.33%	11,097	14.7%	14,002	-11.06%	11,562	19.6%	14,138	30.44%	10,696	10.6%	12,808	18.17%	9,690	0.2%
	Londonderry Locations																										
	NH 102, E of Hampton Dr	32,000	32,000	30,418	51,401	68.98%	54,074	56,306	85.11%	59,234	9.5%	56,263	84.97%	59,189	9.5%	50,680	66.61%	53,316	-1.4%	51,066			-0.7%	52,565	72.81%	55,299	2.3%
	NH 102, E of Exit 4 NH 102 at Derry/L'derry Town line	22,656	26,800 22,090	20,818 22,983	32,410 29,904	55.68% 30.11%	41,723 28,742	15,723 20,413	-24.47% -11.18%	20,241 19,620	-51.5% -31.7%	16,852 20,908	-19.05% -9.03%	21,694 20,096	-48.0% -30.1%	18,986 21,661	-8.80% -5.75%	24,442 20,819	-41.4% -27.6%	20,775 23,215			-35.9% -22.4%	34,151 32,520	64.05% 41.50%	43,964 31,256	5.4% 8.7%
	NH 28 at Derry/L'derry Town line	17,324	16,891	19,392	15,638	-19.36%	13,621	9,440	-51.32%	8,223	-39.6%	8,125	-58.10%	7,077	-48.0%	42,458	118.95%	36,982	171.5%	40,462			158.7%	15,477	-20.19%	13,481	-1.0%
20	NH 28 N of Liberty Dr	13,000	13,000	15,406	14,733	-4.37%	12,432	9,984	-35.19%	8,425	-32.2%	8,697	-43.55%	7,339	-41.0%	4,904	-68.17%	4,138	-66.7%	4,757	-69.12%	4,014	-67.7%	14,584	-5.34%	12,306	-1.0%
	Gilcreast Rd N of NH 102	10,070	9,818	9,397	16,438	74.93%	17,174	15,318	63.01%	16,004	-6.8%	15,035	60.00%	15,709	-8.5%	15,112	60.82%	15,789	-8.1%	14,742		15,402	-10.3%	16,006	70.33%	16,723	-2.6%
	Londonderry Rd, N of NH 102	6,900	4,622	4,742 5,949	4,823 14,001	1.71%	4,701	6,536 6,065	37.83%	6,371 7,035	35.5% -56.7%	6,034 5,923	27.25% -0.44%	5,881 6,870	25.1%	7,633	60.97%	7,440 10,070	58.3%	7,354		7,168 9,809	52.5%	4,521	-4.66% 118.91%	4,407	-6.3% -7.0%
23	Ash St E of Londonderry Rd	6,900	6,900	5,949	14,001	135.35%	16,239	0,005	1.95%	7,035	-50.7%	5,923	-0.44%	0,870	-57.7%	8,682	45.94%	10,070	-38.0%	8,457	42.10%	9,809	-39.6%	13,023	118.91%	15,105	-7.0%
	Connector Rd, E. of Exit 4A (L'derry)	-	-					53,720				54,523				38,516				36,728				0			
	Connector Rd, W. of N High St (Derry)	-	-					40,974																			
	Connector Rd, W. of NH 28 (Derry) Connector Rd, E. of NH 28 (Derry)	-	-									35,565 16,193				13,888											
	Connector Rd, N. of NH 102 (Derry)		_									16,182				15,529											
24	Exit 4 NB Off-ramp	10.240	0.002	40.200	20.245	94.58%	19,444	10.072	72.06%	17.384	10.60/	40.425	74.56%	17.444	40.20/	40.720	00.270/	10.011	7.40/	10.107	87.67%	40.754	2.50/	20.447	06 520/	10.630	4.00/
	Exit 4 NB On-ramp	10,249	9,993 10,045	10,389 9,550	20,215 21,343	123.49%	22,449	18,073 15,150	73.96% 58.64%	15,935	-10.6% -29.0%	18,135 17,638	84.69%	18,552	-10.3% -17.4%	18,728 15,903	80.27% 66.52%	18,014 16,727	-7.4% -25.5%	19,497 15,411		-, -	-3.5% -27.8%	20,417 21,378	96.53% 123.85%	19,639 22,486	1.0% 0.2%
	Exit 4 SB Off-ramp	9,862	9,615	8,157	18,349	124.95%	21,629	13,795	69.12%	16,261	-24.8%	14,795	81.38%	17,439	-19.4%	12,694	55.62%	14,963	-30.8%	12,431	52.40%		-32.3%	18,730	129.62%	22,078	2.1%
	Exit 4 SB On-ramp - EB to SB	5,310	5,177	4,907	10,778	119.65%	11,371	11,836	141.21%	12,487	9.8%	11,659	137.60%	12,301	8.2%	10,850	121.11%	11,447	0.7%	10,881	121.74%		1.0%	10,705	118.16%	11,294	-0.7%
28	Exit 4 SB On-ramp - WB to SB	4,767	4,648	3,637	7,402	103.52%	9,460	3,879	6.65%	4,957	-47.6%	4,125	13.42%	5,272	-44.3%	5,140	41.33%	6,569	-30.6%	5,152	41.66%	6,584	-30.4%	7,494	106.05%	9,577	1.2%
	Exit 4A NB Off-ramp	-	-					8,732		8,732		9,488		9,488		2,795		2,795		1,504		1,504					
	Exit 4A NB On-ramp	-	-					15,240		15,240		13,208		13,208		13,410		13,410		13,630		13,630					
	Exit 4A SB Off-ramp	-	-					18,996		18,996		19,376		19,376		17,290		17,290		16,972		16,972					
	Exit 4A SB On-ramp	-	-					10,752		10,752		12,450		12,450		5,021		5,021		4,621		4,621		6,256			
29	Exit 5 NB Off-ramp	5,745	5,601	4,430	6,401	44.49%	8,093	7,521	69.77%	9,509	17.5%	7,036	58.83%	8,896	9.9%	6,626	49.57%	8,377	3.5%	7,054	59.23%	8,919	10.2%	13,329	41.22%	7,910	-2.3%
	Exit 5 NB On-ramp	9,580	9,341	9,101		48.32%	13,855	10,863	19.36%	11,149	-19.5%	10,468	15.02%	10,744	-22.5%	7,829	-13.98%	8,035	-42.0%	7,985			-40.8%	12,249	46.46%	13,680	-1.3%
	Exit 5 SB Off-ramp	9,520	9,282	9,234	13,577	47.03%	13,648	7,670	-16.94%		-43.5%	6,036	-34.63%	6,067	-55.5%	5,728	-37.97%	5,758	-57.8%	5,790			-57.4%	5,882	32.65%	12,313	-9.8%
32	Exit 5 SB On-ramp	5,645	5,504	3,919	5,884	50.14%	8,264	6,879	75.53%	9,661	16.9%	5,355	36.64%	7,521	-9.0%	5,916	50.96%	8,309	0.5%	5,879	50.01%	8,257	-0.1%		50.09%	8,261	0.0%
	I-93, south of Exit 4 (DOT PATR)		71,060	72,378	118,908	64.29%	116,743	123,109	70.09%	120,867	3.5%	123,558	70.71%	121,308	3.9%	119,322	64.86%	117,149	0.3%	119,380	64.94%	117,206	0.4%	119,129	64.59%	116,960	0.2%
	NB			36,417	59,234	62.65%	-	61,455	68.75%	-		61,615	69.19%	60,470		59,601	63.66%	-		59,527				59,424	63.18%	-	
	SB	-	74.000	35,961	59,674	65.94%	- 440.046	61,654	71.45%	- 440.015	4.001	61,943	72.25%	60,839		59,721	66.07%	- 442.050	5.00	59,853			7.451	59,705	66.03%	- 120.25	0.001
	I-93, between Exits 4 and 4A  NB		71,000	71,152 35,578	120,205 60,363	68.94% 69.66%	119,948 0	118,266 58,532	64.52%	118,013	-1.6%	122,072 61,119	71.57% 71.79%	121,811	1.6%	113,200 56,776	59.10% 59.58%	112,958 -	-5.8%	111,723 55,441			-7.1%	120,621 60,385	69.53% 69.73%	120,363	0.3%
	SB			35,574	59,842	68.22%	0	59,734	67.91%	-		60,953	71.73%	-		56,424	58.61%	-		56,282				60,236	69.33%		
	I-93, between Exits 4A and 5		71,000	71,152	120,205	68.94%	119,948	133,018		132,734	10.7%	132,718	86.53%	132,434	10.4%	136,083	91.26%	135,792	13.2%	136,200		135,909	13.3%	120,621	69.53%	120,363	0.3%
	NB			35,578	60,363	69.66%	-	65,040	82.81%			64,839	82.24%			67,390	89.41%			67,567				60,385	69.73%	-	
	I-93, north of Exit 5		76,000	35,574 81,139	59,842 134,995	68.22% 66.37%	126,445	67,978 137,153	91.09%	128,466	1.6%	67,879 136,851	90.81%	128,183	1.4%	68,693 137,099	93.10% 68.97%	128,416	1.6%	68,633 137,042			1.5%	60,236 135,061	69.33% 66.46%	- 126,507	0.0%
	NB		, 0,000	40,250	67,460	67.60%	-	68,383	69.90%	-	1.076	68,290	69.66%	-	1.470	68,593	70.42%	-	1.0/6	68,497			1.576	67,458	67.60%	-	0.078
	SB			40,889	67,535	65.17%	-	68,770	68.19%	-		68,561	67.68%	-		68,506	67.54%	-		68,545	67.64%	-		67,603	65.33%	-	
			Adj 2015	2015 AWDT	2040 AAWDT	%	2040	2040 AWDT		2040 Alt A		2040 AWDT	%	2040 Alt B	AAWDT	2040 AWDT		2040 Alt C	AAWDT	2040 AWDT		2040 Alt D	AAWDT	2040 AWDT		2040 Alt F	AAWDT
			AAWDT	Base Model Assigns	No-Build Assigns	Growth 2015-40	No-Build AAWDT	Alt A Assigns	Growth 2015-40	AAWDT	Difference Alt A vs	Alt B Assigns	Growth 2015-40	AAWDT	Difference Alt B vs	Alt C Assigns	Growth 2015-40	AAWDT	Difference Alt C vs	Alt D Assigns	Growth 2015-40	AAWDT	Difference Alt D vs	Alt F Assigns	Growth 2015-40	AAWDT	Alt F vs
				, ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,		2013 40					No-Build		2010 40		No-Build		2010 40		No-Build	, 13316113	2313 40		No-Build		2013 40		No-Build
				-																							

#### 9.1.1 No-Build Conditions

A review of the table indicates that there is a reduction in trips on north-south roadways such as NH Route 28 Bypass, NH Route 28 and Fordway under No-Build conditions. This appears to be as a result of the additional capacity provided by the widening of I-93 to four lanes each way which allows through traffic to use the interstate for these north-south trips as opposed to the local roadways through Derry. Mainline volumes on I-93 increase by between 64-68% from 2015 and 2040, which is about a 2.5% annual growth rate. Volumes on the Exit 4 ramps increase between 95-125% from 2015 to 2040, while ramp volumes at Exit 5 only grow between 45-50% during the same period. This would appear to indicate the influence of the Woodmont Commons development in Londonderry on both sides of the Interstate being accessed from either side of Exit 4, and is also reflected in volume increase on NH Route 102 west of the interchange. Local roads in the Woodmont area, such as Gilcreast Road and Ash Street, also experience marked increases in traffic volumes under 2040 No-Build conditions.

#### 9.1.2 Alternative A

Mainline volumes on I-93 show slightly higher growth rates under 2040 conditions with Exit 4A –Alternative A in place than in the No-Build condition. This is driven in part by Woodmont Commons because this development is assumed to reach its maximum potential with Alternative A in place, as opposed to either No-Build or most other Exit 4A options.

Exit 4 ramp volumes are affected to differing degrees with Alternative A in place. Growth rates for the NB on-ramp and SB off-ramp are about half what they are under the No-Build case, since this traffic is diverted to Exit 4A. The projected NB off-ramp volume of 17,385 vehicles per day (vpd), shows a 10% reduction over 2040 No-Build volumes. The development of Woodmont Commons to the west is reflected in the 10% increase in SB on-ramp volumes from the west side of the interchange, whereas the SB on-ramp volume from the east shows a 48% reduction in traffic that is now presumably using Exit 4A.

Exit 5 ramp volumes show greater increases on the NB off-ramp and SB on-ramp under Alternative A compared to the No-Build case. This would indicate increased interaction between Exit 4A and 5 to and from the north more than between Exits 4 and 4A, which is consistent with the findings in the previous DEIS for this project. (FHWA, 2007) The Exit 5 SB off-ramp actually shows a 43.5% reduction in traffic compared to No-Build, indicating that this traffic is likely continuing on the mainline down to Exit 4A. The NB on-ramp traffic volume is also about 20% lower than under No-Build conditions, indicating redistribution of some NB trips to Exit 4A and away from NH Route 28.

Exit 4A volumes range between 8,700-10,700 vehicles per day (vpd) on the NB off-ramp and SB on-ramp, and from 15,200 to 19,000 vpd on the NB on-ramp and SB off-ramp, respectively. The two northerly-oriented ramps have the higher volumes, consistent with the increased interaction between the new interchange and Exit 5. The projected volume on the connector road east of the Alternative A interchange is 53,700 vpd.

The local roadways are also affected by the introduction of a new interchange to the regional network. Volumes on NH Route 102 just east of Exit 4 are about half of the projected 2040 No-Build condition, while volumes closer to the downtown area show reductions of around 19%. Folsom Road shows significant increases, since it is now the primary connection between the new interchange and the local street network. Some of this increase continues easterly along the Tsienneto Road corridor (+3000 vpd over No-Build) and NH Route 102 east at the Chester town line (+1000 vpd over No-Build).

#### 9.1.3 Alternative B

Mainline volumes on I-93 under this scenario show similar growth rates as Alternative A as compared to 2040 No-Build conditions. This is consistent with the earlier DEIS when comparing southerly versus northerly interchange locations.

Exit 4 ramp volumes show some differences as compared to Alternative A. Projected volumes on the NB on-ramp and SB off-ramp are slightly higher under Alternative B than A, but still 17-19% less than what they are under the No-Build case. This may be because Alternative B provides a section of new roadway onto the Derry street network, which may attract more traffic. The NB off-ramp shows a 10% volume reduction under Alternative B than under No-Build, similar to Alternative A. This development of Woodmont Commons to the west is reflected in an 8% increase in SB on-ramp volumes from the west side of the interchange, whereas the SB on-ramp volume from the east shows about a 44% reduction in projected traffic, similar to Alternative A.

Exit 5 ramp volumes show smaller increases on the NB off-ramp and SB on-ramp than under Alternative A. This continues to indicate the increased interaction between Exit 4A and 5 to and from the north more than between Exits 4 and 4A, which is consistent with the previous DEIS for this project. The Exit 5 SB off-ramp actually shows a greater reduction in traffic under Alternative B than under A, and this is reflected in a similarly higher volume at the Exit 4A SB off-ramp as compared to Alternative A. The Exit 5 NB on-ramp traffic is also lower than under No-Build conditions or Alternative A, indicating redistribution of some NB trips to Exit 4A and away from NH Route 28. These results appear to show that this alternative supports more of a north-south trip pattern than the east-west pattern exhibited under Alternative A.

Exit 4A volumes with Alternative B range between 9,500-12,400 vpd on the NB off-ramp and SB on-ramp, and from 13,200 to 19,400 vpd on the NB on-ramp and SB off-ramp, respectively. The SB on- and off-ramp volumes are higher than under Alternative A, but the NB on-ramp traffic is slightly lower than under Alternative A. The projected connector road volume east of the Alternative B interchange are about 54,500 vpd, and decrease to 16,200 vpd east of NH Route 28 along the Ashleigh Drive alignment.

The projected volumes on the local roadways under Alternative B have similar but generally slightly lower volumes than Alternative A. Volumes on NH Route 102 just east of Exit 4 are about 48% of the projected 2040 No-Build condition, while volumes closer to the downtown area show reductions around 19%. Folsom and Tsienneto Roads do not see the same increases as under Alternative A, since the new main connection road goes north of this area to intersect with Franklin Street Extension and Ashleigh Drive on the new alignment. The existing Tsienneto Road corridor sees minimal change since Alternative B creates a new roadway for the eastwest traffic that currently uses this roadway to access the Interstate, but traffic volumes at the east end of the study area are higher than under Alternative A.

#### 9.1.4 Alternative C

Mainline volumes on I-93 south of Exit 5 under this scenario show slightly higher growth rates than the southerly interchange alternatives (A and B) when compared to 2040 No-Build conditions. Projected volumes north of Exit 5 are consistent across all interchange alternatives, being slightly higher than No-Build.

Exit 4 ramp volumes under this alternative are slightly lower than the southerly interchange options, notably on the NB on-ramp and SB off-ramp, but higher for the SB on-ramp from the east than either Alternative A or B. This is likely indicative of the increased distance of the northerly interchange from the NH Route 102 corridor and the expectation of less effectiveness in reducing east-west traffic through the downtown area.

Impacts on Exit 5 ramp volumes show larger reductions in both the NB on-ramp and SB off-ramp volumes than the southerly interchange options. This makes sense, given the greater proximity of Alternatives C (and D) to Exit 5, which further emphasizes the increased interaction between Exit 4A and 5 to and from the north more than between Exits 4 and 4A, which is consistent with the previous DEIS for this project.

Exit 4A ramp volumes for trips to/from the south with Alternative C are noticeably lower than with the southerly interchange options, ranging between 2,800-5,000 vpd on the NB off-ramp and SB on-ramp. Trips on the NB on-ramp are similar to Alternative B but are lower on the SB off-ramp, respectively. The projected connector road volume east of the C interchange is less than under A or B (about 38,500 vpd), and decrease to 13,900 vpd west of NH Route 28 along the Ashleigh Drive alignment.

The projected volumes on the local roadways under Alternative C have similar but slightly larger volume reductions than Alternatives A or B. Volumes on NH Route 102 just east of Exit 4 are slightly lower than 2040 No-Build volumes but slightly higher than 2015 base conditions. Volumes further east on NH Route 102 show slightly larger reductions than under A or B. With the main connection road going north to NH Route 28 near the town line, volumes on this section of NH Route 28 more than double than under existing conditions. The existing Tsienneto Road corridor sees similar volume levels as Alternative B since C follows the new roadway to serve this east-west traffic demand.

#### 9.1.5 Alternative D

Mainline volumes on I-93 under this scenario show similar growth rates as Alternative C as compared to 2040 No-Build conditions. This is consistent with the earlier DEIS where comparing southerly versus northerly interchange locations. Exits 4 and 5 ramp volumes under this option are also quite similar to Alternative C.

Exit 4A volumes with Alternative D are similar to Alternative C - the NB off-ramp and SB on-ramp volumes are lower than Alternative C but the SB off-ramp traffic is slightly higher. The projected connector road volume east of the Alternative D interchange is about 36,700 vpd.

The projected volumes on the local roadways under Alternative D have similarly but generally slightly lower reductions than Alternatives A or B. Volumes on NH Route 102 just east of Exit 4 are about the same as under 2015 base conditions, even if slightly lower than 2040 No-Build volumes. Volumes further east on NH Route 102 show smaller traffic reductions than any of the other interchange options. With the main connection road going north to NH Route 28 near the town line, volumes along this part of the NH Route 28 corridor more than double over existing conditions. The existing Tsienneto Road corridor also sees marked growth over existing volumes with this option since it follows the present roadway for east-west traffic.

#### 9.1.6 Alternative F

Alternative F is essentially the Transportation Systems Management (TSM) option, which from the traffic model's perspective is essentially a third lane along NH Route 102 to provide some additional capacity at intersections east of Exit 4 into downtown Derry.

Mainline volumes on I-93 under this scenario show similar growth rates compared to 2040 No-Build conditions and lower than with an interchange alternative. This is consistent with the lower growth scenario as compared to those with a new interchange. Exits 4 and 5 ramp volumes under this option are also quite similar to 2040 No-Build conditions. With the provision of some additional capacity along the existing NH Route 102 corridor easterly into downtown Derry, traffic volumes are

higher than under No-Build conditions or with any of the interchange alternatives, so it does not meet the Purpose and Need for the project.

Figures 8 through 12 graphically show these volume comparisons by alternative for key areas of interest as part of this study: the Exit 4 ramps, Exit 5 ramps, Exit 4A ramps, points along the NH Route 102 corridor, and other local streets of interest, respectively.

#### 9.2 Composition of Through Traffic in Downtown Derry

While the volume reductions may not be as profound on the surface as one might expect, it is the composition of the trips in the downtown area that are of interest, since one of the Purposes and Needs of the project is to reduce through traffic in downtown Derry that had neither an origin nor destination there. Existing travel patterns suggest that a good deal of existing traffic is already finding alternative routes to avoid the downtown area.

To test the sensitivity of the hypothesis of a reduction in 'through' traffic as a result of a new interchange, a link on NH Route 102 just west of the main downtown area, which is the location east of Griffin Street near the Beaver Brook bridge, was chosen as a representative location of downtown traffic. The SNHPC model can generate trip tables that will provide the origin and destination zone for trips on any link in the network in either direction. This traffic pattern was evaluated by comparing the number of trips from zones and external stations from the east and northeast that are currently assigned to that link under existing (2015) base, 2040 No-Build and 2040 –Alternative A conditions, which was the Preferred Alternative in the previous DEIS for this project, that might be diverted to another route/path under any Build scenario.

A series of TAZs from the SNHPC traffic model area to the east and northeast were aggregated to see how many trips remained on this link under the different scenarios, as shown in Figures 13 and 14. The ones of primary interest were noted as follows:

- North Derry TAZs 121-124, 126, 127
- East Derry TAZs 128-130, 145-147, 221, 225
- Chester TAZs 148-155
- Raymond/Deerfield/Candia TAZs 156-191
- External Stations east and northeast Stations 308-324

Table 8 shows a summary of the assigned trips to this link in each direction as well as combined under the three scenarios. In summary, the table shows that, in general, the trips to and from these zones to the east that now pass through the downtown area are lower with an interchange alternative (in this case, Alternative A) in place than under the 2040 No-Build scenario. However, since the overall link volume is reduced as well, these trips make up a slightly higher percentage of the total trips on that link than under No-Build conditions. This appears logical, because this link is likely the shortest path from these easterly zones to destinations in downtown Derry. Nevertheless, this analysis appears to show that an interchange alternative will reduce the amount of through traffic in downtown Derry for trips to and from the east and northeast.

TABLE 8
SELECT LINK ANALYSIS
NH ROUTE 102, EAST OF GRIFFIN ROAD, DERRY, NH

Eastbound (To)	N Derry	E Derry	Chester	Raymond/Candia/ Deerfield					
Traffic Zones	121-124. 126,127	128-130, 145-147, 221, 225	148-155	156-191	308-324	Target zone total	Increase over 2015 Base	Total trips on link	% of total to target zones
2015 Base	1194	642	162	293	1209	3500		8,806	39.7%
% total on link	13.6%	7.3%	1.8%	3.3%	13.7%				
2040 No-Build	1332	1056	130	78	1282	3878	1.1%	9,642	40.2%
% total on link	13.8%	11.0%	1.3%	0.8%	13.3%				
2040 Alt A	571	1235	236	146	1845	4033	1.2%	9,108	44.3%
% total on link	6.3%	13.6%	2.6%	1.6%	20.3%				
Westbound (From)	N Derry	E Derry	Chester	Raymond/Candia/ Deerfield	N/NE/SE External Stations				
Traffic Zones	121-124. 126,127	128-130, 145-147, 221, 225	148-155	156-191	308-324	Target zone total	Increase over 2015 Base	Total trips on link	% of total to target zones
2015 Base	1177	814	114	192	760	3057		9,191	33.3%
2015 Base % total on link	1177 12.8%	814 8.9%	114 1.2%	2.1%	760 8.3%	3057		ŕ	
% total on link 2040 No-Build						3057 4002	1.1%	9,191 11,168	33.3% 35.8%
% total on link	12.8% 1663 14.9%	8.9% 1465 13.1%	1.2% 64 0.6%	2.1% 37 0.3%	8.3% 773 6.9%	4002		ŕ	35.8%
% total on link 2040 No-Build	12.8% 1663	8.9% 1465	1.2% 64	2.1% 37	8.3% 773 6.9% 1073		1.1% 0.8%	ŕ	
% total on link 2040 No-Build % total on link	12.8% 1663 14.9%	8.9% 1465 13.1%	1.2% 64 0.6%	2.1% 37 0.3%	8.3% 773 6.9%	4002		11,168	35.8%
% total on link 2040 No-Build % total on link 2040 Alt A	12.8% 1663 14.9% 307	8.9% 1465 13.1% 1097	1.2% 64 0.6% 156	2.1% 37 0.3% 113	8.3% 773 6.9% 1073	4002		11,168	35.8%
% total on link 2040 No-Build % total on link 2040 Alt A % total on link	12.8% 1663 14.9% 307 3.9%	8.9% 1465 13.1% 1097 14.1%	1.2% 64 0.6% 156 2.0%	2.1% 37 0.3% 113 1.5% Raymond/Candia/	8.3% 773 6.9% 1073 13.8% N/NE/SE External	4002		11,168	35.8%
% total on link 2040 No-Build % total on link 2040 Alt A % total on link Both Directions	12.8% 1663 14.9% 307 3.9% N Derry	8.9% 1465 13.1% 1097 14.1% E Derry 128-130, 145-147,	1.2% 64 0.6% 156 2.0% Chester	2.1% 37 0.3% 113 1.5% Raymond/Candia/ Deerfield	8.3% 773 6.9% 1073 13.8% N/NE/SE External Stations	4002 2746 Target	0.8%  Increase over 2015	11,168 7,776 Total trips on	35.8% 35.3% % of total to target
% total on link 2040 No-Build % total on link 2040 Alt A % total on link  Both Directions  Traffic Zones	12.8% 1663 14.9% 307 3.9% N Derry 121-124. 126,127	8.9% 1465 13.1% 1097 14.1% E Derry 128-130, 145-147, 221, 225 1456 8.1%	1.2% 64 0.6% 156 2.0% Chester	2.1% 37 0.3% 113 1.5% Raymond/Candia/ Deerfield	8.3% 773 6.9% 1073 13.8% N/NE/SE External Stations 308-324	4002 2746  Target zone total	0.8%  Increase over 2015	11,168 7,776  Total trips on link	35.8% 35.3% % of total to target zones
% total on link 2040 No-Build % total on link 2040 Alt A % total on link  Both Directions  Traffic Zones	12.8% 1663 14.9% 307 3.9% N Derry 121-124. 126,127	8.9% 1465 13.1% 1097 14.1% E Derry 128-130, 145-147, 221, 225	1.2% 64 0.6% 156 2.0% Chester 148-155	2.1% 37 0.3% 113 1.5%  Raymond/Candia/ Deerfield  156-191	8.3% 773 6.9% 1073 13.8% N/NE/SE External Stations 308-324	4002 2746  Target zone total	0.8%  Increase over 2015	11,168 7,776  Total trips on link	35.8% 35.3% % of total to target zones
% total on link 2040 No-Build % total on link 2040 Alt A % total on link  Both Directions  Traffic Zones  2015 Base % total on link	12.8% 1663 14.9% 307 3.9% N Derry 121-124. 126,127 2371 13.2%	8.9% 1465 13.1% 1097 14.1% E Derry 128-130, 145-147, 221, 225 1456 8.1% 2521 12.1%	1.2% 64 0.6% 156 2.0% Chester 148-155	2.1% 37 0.3% 113 1.5%  Raymond/Candia/ Deerfield  156-191  485 2.7% 115 0.6%	8.3% 773 6.9% 1073 13.8% N/NE/SE External Stations 308-324	4002 2746  Target zone total 6557	0.8%  Increase over 2015 Base	11,168 7,776  Total trips on link 18,002	35.8% 35.3% % of total to target zones 36.4%
% total on link 2040 No-Build % total on link 2040 Alt A % total on link  Both Directions  Traffic Zones  2015 Base % total on link 2040 No-Build	12.8% 1663 14.9% 307 3.9% N Derry 121-124. 126,127 2371 13.2% 2995	8.9% 1465 13.1% 1097 14.1% E Derry 128-130, 145-147, 221, 225 1456 8.1% 2521	1.2% 64 0.6% 156 2.0% Chester 148-155 276 1.5% 194	2.1% 37 0.3% 113 1.5%  Raymond/Candia/ Deerfield  156-191  485 2.7% 115	8.3% 773 6.9% 1073 13.8% N/NE/SE External Stations 308-324 1969 10.9% 2055	4002 2746  Target zone total 6557	0.8%  Increase over 2015 Base	11,168 7,776  Total trips on link 18,002	35.8% 35.3% % of total to target zones 36.4%

#### 9.3 Comparison to I-93 SEIS 2030 Mainline Projections

An additional comparison was made to the projected 2030 mainline volumes on I-93 as shown in the SEIS for the I-93 project (NHDOT, 2009). This document utilized the statewide traffic model that was available at the time, and also included the proposed Exit 4A Preferred Alternative as part of the network.

However, there are some major differences between the two scenarios. First, there are two different design years: the I-93 SEIS went out only to 2030 while this Exit 4A SDEIS extends out to 2040, so there are ten more years of overall growth that contributes additional traffic onto the network. Secondly, the I-93 SEIS did not account for the full Woodmont Commons development scenario included in the Exit 4A project for the Preferred Alternative, which adds a substantial number of trips to the area in and around Exit 4 and the proposed Exit 4A. Given these factors, it is expected that design hourly volumes would be higher under the 2040 case.

Table 9 shows excerpts from Tables 4-12 and 4-13 from the 2009 I-93 SEIS, which includes the projected ADT and DDHV for 2020 and 2030 from that document. The current table includes a projection of these volumes to 2040 using the same growth rates, including Exit 4A which was included in the I-93 SEIS Build condition, and the projected AAWDT and DDHV from the latest SNHPC modeling to the 2040 design year, and a comparison between the two modelling efforts.

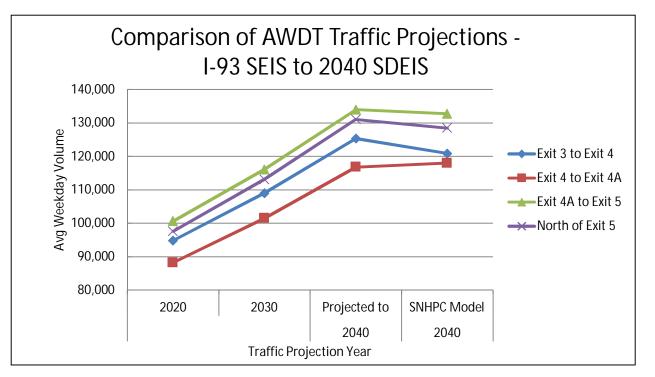
These comparisons show that the more recent SNHPC AAWDT traffic projections are consistent with the growth trend line from the I-93 SEIS if it were extended to the same 2040 design year within less than 4%. Similarly, the differences calculated DDHV extended to 2040 are within 3% when using the same methodology. The last two points on the graphs compare the 2040 projections for both the I-93 numbers and the latest SNHPC projections. Therefore, it would appear that the two modelling efforts are reasonably close to each other when extending the original I-93 design horizon out to 2040.

The original I-93 SEIS also noted that the congested flow capacity for I-93 would be 1,800 vph per lane, which would be 7,200 vph for the projected four-lane Interstate project. Should this volume be exceeded, the volumes would have to be adjusted to account for the effect of peak spreading that would likely occur into the adjacent hours before and after this demand was projected. At first glance, it appears that this scenario may also occur between Exits 4A and 5 and north of Exit 5 when using the SNHPC 2040 model projections, using the same DDHV calculation assumptions as in the I-93 SEIS. However, a more detailed review of the projected 2040 mainline volumes, which are discussed below, indicates that this 7,200 vph threshold will not likely be reached under any Exit 4A scenario.

### TABLE 9 COMPARISON OF I-93 SEIS AND EXIT 4A SDEIS TRAFFIC PROJECTIONS 2020, 2030 AND 2040 DESIGN YEARS, INCLUDING EXIT 4A

#### Average Annual Weekday Traffic (AAWDT) Projections

			SNHPC 2040			
I 02 Sagment	2020 Build	2030 Build	Growth Rate/Year	Projected To 2040	Model Projections Alternative A	% Difference
I-93 Segment	Dullu	Dullu	Kate/Tear	10 2040	Alternative A	% Difference
Exit 3 to Exit 4	94,800	109,000	1.014	125,330	120,860	-3.6%
Exit 4 to Exit 4A	88,200	101,500	1.014	116,810	118,015	1.0%
Exit 4A to Exit 5	100,600	116,100	1.014	133,990	132,734	-0.9%
North of Exit 5	97,600	113,100	1.015	131,060	128,466	-2.0%



#### Notes:

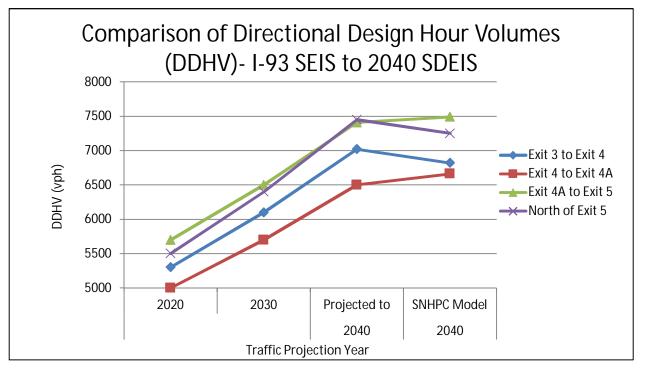
DDHV calculated as 9.4% of ADT with a 60/40 directional split, consistent with I-93 SEIS, using Scenario 2 (OEP Projections)

Source: NHDOT, Supplemental Environmental Impact Statement and Reevaluation/Section4(f) Evaluation, August 2009, Tables 4-12 and 4-13

# TABLE 9 (Cont'd) COMPARISON OF I-93 SEIS AND EXIT 4A SDEIS TRAFFIC PROJECTIONS 2020, 2030 AND 2040 DESIGN YEARS, INCLUDING EXIT 4A

#### **Directional Design Hourly Volume (DDHV) Projections**

			SNHPC 2040	0		
	2020	2030	Growth	Projected	Calculated DDHV	
I-93 Segment	Build	Build	Rate/Year	To 2040	Alternative A	% Difference
Exit 3 to Exit 4	5,300	6,100	1.014	7,020	6,820	-2.8%
Exit 4 to Exit 4A	5,000	5,700	1.013	6,500	6,660	2.5%
Exit 4A to Exit 5	5,700	6,500	1.013	7,410	7,490	1.1%
North of Exit 5	5,500	6,400	1.015	7,450	7,250	-2.7%



#### Notes:

DDHV calculated as 9.4% of ADT with a 60/40 directional split, consistent with I-93 SEIS, using Scenario 2 (OEP Projections)

Source: NHDOT, Supplemental Environmental Impact Statement and Reevaluation/Section4(f) Evaluation, August 2009, Tables 4-12 and 4-13

#### 10.0 Derivation of 2040 Volumes for Analysis Purposes

Now that the projected 2040 AAWDT volumes have been provided by the SNHPC model and appear to be reasonable, these need to be reduced to AM and PM peak volumes for analysis purposes. Since the SNHPC model provides only daily volumes, these must be reduced to peak hours on both the I-93 mainline and interchange ramp terminals as well as at the various study area intersections that may be directly or indirectly affected by any alternative. Different procedures were used to develop these volumes to be used for analysis purposes.

As noted earlier, the full development potential of Woodmont Commons was assigned to the study area traffic model network as a worse-case scenario, but if much of the site-generated traffic is captured internally to the site - as is the design intent of this mixed-use development - operations would be better than projected and the design life of any roadway and intersection improvements would be extended.

#### 10.1 Mainline Interstate Volumes

A different procedure was used to generate the 2040 No-Build interstate networks as was done for deriving the 2015 base network for calibration. The projected 2040 AAWDT was calculated based on the projected growth (positive or negative) reflected in the model assignments on that segment between 2015 and 2040, then this growth rate was applied to the adjusted 2015 AAWDT. Then, the 2040 projected AM and PM peak hour volumes were derived based on the percentage that the existing (2015) AM and/or PM peak hour volume was as a percentage of the adjusted 2015 AAWDT, since these percentages should not change substantially over time. These peak hour percentages generally fell in the range of 6-9% of AAWDT. Tables J-1 through J-6 in Appendix J show summary tables of the projected 2040 peak hour volumes for each alternative on the key links on the interstate and local roadway networks.

As in the 2015 base case, the most logical starting point for developing the balanced interstate networks is south of Exit 4, where NHDOT permanent recorder data should provide more reliability. The various interchange ramp volumes were then taken directly from the appropriate tables in Appendix J, and the mainline volumes were balanced through the network to the point north of Exit 5. This process was followed to develop 2040 AM and PM peak hour volumes along the Interstate for each alternative, which are shown graphically in Figures 15 through 26.

#### **10.2** Local Intersection Volumes

A more detailed procedure was needed to derive peak hour intersection volumes for each alternative from the regional traffic model to be used for design purposes. Since the SNHPC model only provides daily volumes, a relationship needs to be established between the peak hour volumes from the actual turning movement count at any intersection and the model output that can be made available. The SNHPC model can provide daily volumes between any two nodes through one central node that would

simulate movements at an intersection. As such, information was requested from SNHPC for the daily model assignments for each study area intersection for each alternative to assist in developing turning movements at each location. Then a procedure was developed to estimate intersection turning movements at each study area location based on the existing turning movement volumes for both the AM and PM peak hours and how the total and individual turn volumes change as a result of the reassignment of traffic under any scenario. This process had to be usable regardless of alternative or the magnitude of change in traffic assignments for any movement at a specific intersection from one alternative to another. The procedure is discussed in greater detail in the memorandum dated September 29, 2017, which is attached in Appendix K. The memo was reviewed and approved by the NHDOT before the procedure was applied to the rest of the alternatives (NHDOT, 2017c).

The resulting AM and PM peak hour volumes for each study area intersection for each of the 2040 alternatives are provided in Figures 27 through 38.

#### 11.0 Analysis of Interstate Operations

As in the existing case, the Freeway Facilities procedure from the 2010 HCM and replicated in the HCS was used to evaluate the mainline interstate operations under all 2040 conditions. A free flow speed of 70 mph and a Peak Hour Factor of 0.94 were agreed upon by NHDOT (NHDOT, 2017d) to be used in the HCM analysis. With the introduction of a northerly or southerly interchanges, certain design parameters consistent with the I-93 layout were agreed upon with the NHDOT to ensure that the appropriate distances would be used in the analyses. A conceptual layout for the southerly interchange for Alternatives A and B had already been provided in the 2007 DEIS as well as part of the I-93 design between Exits 4 and 5, and was used to determine ramps spacing for analysis purposes. The previous conceptual layout for the northerly interchange for Alternatives C and D from the 2007 DEIS was used as the starting point for this study.

The HCM procedure accounts for a 1,500 foot 'influence area' in the ramp merge or diverge areas. With the southerly interchange, there is overlap between the influence areas of the Exit 4 NB on-ramp and the Exit 4A NB off-ramp, as well as the Exit 4A SB on-ramp and the Exit 4 SB off-ramp. As such, the HCS analysis software allows for this overlap to be considered, and is reflected in the results.

The Freeway Facilities criteria in the HCS were provided in Appendix E when the 2015 operations were discussed for the existing two-lane facility. The 2040 results for the proposed four-lane facility are summarized in Table 10 with the HCM printouts provided in Appendix L. By definition, if the demand/ capacity (d/c) ratio is greater than 1.00, ramp merge/diverge or mainline operations will be constrained, either by traffic unable to merge onto the interstate and subsequently affecting 'topside' operations at the ramp terminals, or by the off-ramp being unable to process the demand for exiting traffic, which may affect mainline traffic free flow speeds.

The 2040 cases where d/c ratios are 0.98 or greater, indicating potential capacity constraints to I-93 operations with a single-lane ramp, are noted below:

- Alternative A Exit 4A SB off-ramp diverge AM peak
- Alternative B Exit 4A SB off-ramp diverge AM peak
- Alternative B Exit 4 NB on-ramp merge AM peak
- Alternative B Exit 4 SB off-ramp diverge PM peak
- Alternative F Exit 4 NB on-ramp merge AM and PM peaks
- Alternative F Exit 4 SB off-ramp diverge PM peak

These results appear to reflect the increased demands from the higher development scenarios from the Woodmont Commons development under Alternatives A and B, as well as the projected limitations at the Exit 4 interchange with Alternative F in place, even with a lesser development scenario for Woodmont Commons.

If the projected Exit 4 NB on-ramp volumes reach levels where the merge with the mainline I-93 is affected as shown, it would likely result in backups of traffic back to the ramp terminal itself, affecting the topside intersections along NH Route 102. Both the Exit 4 and Exit 4A SB off-ramp diverge constraints could be ameliorated by providing a two-lane off-ramp to service the projected traffic should actual volumes meet projections in the future.

However, given the aforementioned discussion about the possible realization of the Woodmont Commons internal capture rate and the subsequent reduction in traffic assignments onto the study area network, a sensitivity analysis was conducted at the Exit 4A SB off-ramp to determine what kind of volume reduction would be needed to provide an acceptable LOS for a single-lane off-ramp at this location. If the projected off-ramp AM peak volume was reduced by only 200 vph, this ramp would function at a LOS D with a demand/capacity ratio of 0.94, which would be acceptable. Therefore, should the full impact of the traffic projections from Woodmont Commons or the overall study area development scenario not be realized, the ramps that are projected to be capacity-constrained may operate better than these analyses would indicate.

19-Jun-17 **TABLE 10** 

	rev 4-12-18 HCS 2010 - FREEWAY FACILITIES ANALYSIS - 2040 NO-BUILD AND BUILD (South Interchange) CASES - AM and PM PEAK HOURS											
		2040 N	o Build	4A Alte	ernative A	4A Alternative B						
		AM Peak Hour	PM Peak Hour	AM Peak Hour	PM Peak Hour	AM Peak Hour	PM Peak Hour					
		(LOS) / (d/c ratio)										
Segmen	Northbound Direction	BASIC DIVERGE MERGE										
1	I-93 Mainline south of Exit 4	B/0.37	C/0.63	B/0.38	C/0.66	B/0.38	C/0.66					
2	Exit 4 NB off-ramp	A/0.26	B/0.61	A/0.23	B/0.67	A/0.23	B/0.67					
3	I-93 Mainline between Exit 4 ramps	A/0.28	B/0.37	A/0.30	B/0.42	A/0.30	B/0.42					
4	Exit 4 NB on-ramp	C/1.25	C/0.99	B/0.89	C/0.70	C/1.03	C/0.81					
5	I-93 Mainline between Exit 4 on-ramp and Exit 4A off-ramp			B/0.49		C/0.52	C/0.59					
	Exit 4A NB off-ramp	N	T/A	C/0.48	C/0.41	C/0.52	C/0.44					
7	I-93 Mainline between Exit 4A ramps			B/0.40	B/0.48	B/0.43	B/0.50					
8	Exit 4A NB on-ramp			C/0.84	C/0.72	C/0.73	C/0.48					
9	I-93 Mainline between Exit 4(4A) NB on- and Exit 5 NB off-ramps	B/0.55	C/0.57	C/0.56	C/0.62	C/0.56	C/0.62					
10	Exit 5 NB off-ramp	C/0.37	C/0.49	C/0.43	D/0.58	C/0.41	D/0.54					
11	I-93 Mainline between Exit 5 ramps	B/0.48	B/0.49	B/0.49	C/0.53	B/0.49	C/0.54					
12	Exit 5 NB on-ramp	C/0.83	C/0.62	C/0.67	C/0.50	C/0.65	C/0.48					
13	I-93 Mainline north of Exit 5	C/0.64	C/0.62	C/0.62	C/0.65	C/0.62	C/0.65					
	Facility operations	В	С	В	С	В	С					
	Space Mean Speed (mph)	68.4	68.6	68.5	67.9	67.6	67.9					
	Density (veh/mi/hr)	15.8	19.2	16.4	20.2	17.3	20.4					
Segmen	<u>Southbound Direction</u>											
1	I-93 Mainline north of Exit 6	C/0.59	C/0.64	C/0.62	C/0.62	C/063	C/0.62					
2	Exit 5 SB off-ramp	D/0.73	D/0.74	C/0.41	C/0.62	C/0.32	C/033					
3	I-93 Mainline between Exit 5 ramps	B/0.46	B/0.49	C/0.55	C/0.53	C/0.57	C/0.55					
4	Exit 5 SB on-ramp	C/0.45	C/0.38	C/0.52	B/0.44	B/0.40	B/0.34					
5	I-93 Mainline between Exit 5 SB on- and Exit 4A SB off-ramps			C/0.65	C/0.61	C/0.65	C/0.62					
	Exit 4A SB off-ramp	N	I/A	C/0.94	D/0.89	C/0.94	D/0.91					
7	I-93 Mainline between Exit 4A ramps			B/0.46	B/0.44	B/0.45	B/0.44					
8 9	Exit 4A SB on-ramp I-93 Mainline between Exit 5(4A) SB on-	C/0.55	C/0.56	B/0.60 D/0.57	C/0.51 D/0.54	C/0.70 D/0.58	C/0.58 D/055					
10	and Exit 4 SB off-ramps Exit 4 SB off-ramp	C/0.84	D/1.10	D/0.76*	C/0.91	C/0.81	D/0.98					
11	I-93 Mainline between Exit 4 SB off- and SB on ramp from east	B/0.36	B/0.33	B/0.43	B/0.36	B/0.43	B/0.36					
12	Exit 4 SB on-ramp from east	B/0.66	B/0.30	B/0.49	A/0.16	B/0.37	A/0.17					
13	I-93 Mainline between Exit 4 SB on-ramps	B/0.48	B/0.38	B/0.49	B/0.39	B/0.49	B/0.39					
14	Exit 4 SB on-ramp from west	C/0.85	B/0.40	C/0.93	B/0.44	C/0.92	B/0.43					
15	I-93 Mainline south of Exit 5	C/0.64	B/0.46	C/0.66	B/0.47	C/0.66	B/0.47					
	Facility operations	С	С	С	C	С	C					
	Space Mean Speed (mph)	68.5	68.3	67.4	68.6	67.3	68.4					
	Density (veh/mi/hr)	18.8	19.1	20.6	18.4	20.9	18.9					

19-Jun-17 **TABLE 10 (cont.)** 

rev 4-12-18 HCS 2010 - FREEWAY FACILITIES ANALYSIS - 2040 NO-BUILD (North or No Interchange) CASES - AM and PM PEAK HOURS

	rev 4-12-18	1103 201	IU-FREEWAY FACI	LITES ANALISIS -	2040 NO-BUILD ANI		miterchange) CASES	- AWI and I WIT EAK	HOURS	
		2040 N	lo Build	4A Alter	native C	4A Alter	mative D	4A Alter	rnative F	
		AM Peak Hour	PM Peak Hour							
		(LOS) / (d/c ratio)								
Segment		BASIC DIVERGE MERGE				BASIC DIVERGE MERGE			BASIC DIVERGE MERGE	
1	I-93 Mainline south of Exit 4	B/0.37	C/0.63	B/0.37	C/0.64	B/0.37	C/0.64	B/037	C/0.64	
2	Exit 4 NB off-ramp	A/0.26	B/0.61	A/0.24	B/0.56	A/0.25	B/0.59	A/0.26	B/0.62	
3	I-93 Mainline between Exit 4 ramps	A/0.28	B/0.37	A/0.28	B/0.39	A/0.28	B/0.38	A/0.28	B/0.37	
4	Exit 4 NB on-ramp	C/1.25	C/0.99	B/0.93	B/0.73	B/0.90	B/0.71	C/1.25	C/0.99	
5	I-93 Mainline between Exit 4 on-ramp			B/0.49	C/0.54	B/0.48	B/0.52	B/0.55	C/0.57	
	and Exit 4A off-ramp Exit 4A NB off-ramp		N/A	B/0.15	C/0.13	B/0.08	B/0.07			
	I-93 Mainline between Exit 4A ramps		11//1	B/0.46	B/0.51	B/0.46	B/0.51			
	_									
8	Exit 4A NB on-ramp I-93 Mainline between Exit 4 (4A) NB			C/0.74	C/0.63	C/0.76	C/0.64			
9	on- and Exit 5 NB off-ramps	B/0.55	C/0.57	C/0.60	C/0.64	C/0.60	C/0.64			
10	Exit 5 NB off-ramp	C/0.37	C/0.49	C/0.40	C/0.51	C/0.41	D/0.55	C/0.36	C/0.48	
11	I-93 Mainline between Exit 5 ramps	B/0.48	B/0.49	C/0.53	C/0.56	C/0.53	C/0.55	B/0.49	B/0.49	
12	Exit 5 NB on-ramp	C/0.83	C/0.62	C/0.48	C/0.36	C/0.49	C/0.39	C/0.82	C/0.62	
13	I-93 Mainline north of Exit 5	C/0.64	C/0.62	C/0.63	C/0.63	C/0.63	C/0.63	C/0.65	C/0.62	
	Facility operations	В	C	В	С	В	C	В	C	
	Space Mean Speed (mph)	68.4	68.6	68.4	68.3	68.6	68.4	68.4	68.6	
	Density (veh/mi/hr)	15.8	19.2	16.4	19.7	16.4	19.5	15.8	19.2	
Segment	Southbound Direction									
1	I-93 Mainline north of Exit 6	C/0.59	C/0.64	C/0.62	C/0.61	C/0.62	C/0.61	C/0.58	C/0.64	
2	Exit 5 SB off-ramp	D/0.73	D/0.74	C/0.31	C/0.31	C/0.31	C/0.32	C/0.66	C/0.67	
3	I-93 Mainline between Exit 5 ramps	B/0.46	B/0.49	C/0.57	C/0.55	C/0.57	C/0.55	B/0.47	B/0.50	
4	Exit 5 SB on-ramp	C/0.45	C/0.38	C/0.45	C/0.38	C/0.44	C/0.38	B/0.45	B/0.38	
5	I-93 Mainline between Exit 5 SB on- and Exit 4A SB off-ramps			C/0.66	C/0.63	C/0.66	C/0.62	C/0.55	C/0.57	
	Exit 4A SB off-ramp		N/A	D/0.92	D/0.79	D/0.91	D/0.78			
7	I-93 Mainline between Exit 4A ramps		11/11	B/0.48	B/0.46	B/0.48	B/0.46			
,	-							]	N/A	
8	Exit 4A SB on-ramp I-93 Mainline between Exit 5(4A) SB			B/0.27	B/0.23	B/0.25	B/0.21			
9	on- and Exit 4 SB off-ramps	C/0.55	C/0.56	B/0.52	B/0.51	B/0.52	B/0.50			
10	Exit 4 SB off-ramp	C/0.84	D/1.10	C/0.64	C/0.76	C/0.63	C/0.75	C/0.85	D/1.12	
11	I-93 Mainline between Exit 4 SB off-	B/0.36	B/0.33	B/0.40	B/0.34	B/0.40	B/0.34	B/0.36	B/0.33	
12	and SB on ramp from east Exit 4 SB on-ramp from east	B/0.66	B/0.30	B/0.46	B/0.21	B/0.46	B/0.21	B/0.67	B/0.30	
	I-93 Mainline between Exit 4 SB on-	B/0.48	B/0.38	C/0.48	B/0.38	B/0.48	B/0.38	B/0.48	B/0.38	
	ramps									
	Exit 4 SB on-ramp from west	C/0.85	B/0.40	C/0.86	B/0.40	C/0.85	B/0.40	C/0.84	B/0.39	
15	I-93 Mainline south of Exit 5	C/0.64	B/0.46	C/0.64	B/0.46	C/0.64	B/0.46	C/0.64	B/0.46	
	Facility operations	C	C	C 67.0	C	C	C	C	B	
	Space Mean Speed (mph)		68.3	67.9	68.5	67.9	68.6	68.5	68.4	
	Density (veh/mi/hr)	18.8	19.1	19.9	17.8	19.8	17.8	18.8	19.1	

## 12.0 Estimated Contribution of Woodmont Commons Traffic to Interstate Ramp Volumes

During the review of the traffic projections, the NHDOT inquired as to the potential impact that traffic from the Woodmont Commons development may have on the Exit 4 ramps under the various alternatives, since the southerly interchange alternatives (A and B) assume a higher intensity of development that under all other alternatives, including the No-Build.

As noted earlier, the 2040 projections from the SNHPC regional traffic model do not account for the same level of 'internally captured' trips within the development itself in the traffic assignments used for the Exit 4A project, as opposed to the site-specific traffic study prepared for the Woodmont project that assumed as much as a 23% internal captured trip rate in their projections and traffic assignments (TEC, 2013). Nevertheless, the model assignments should be able to present an 'order of magnitude' assessment of the relative contribution of traffic to the Exit 4 and 4A ramps from the three traffic analysis zones that Woodmont Commons would eventually occupy.

To accomplish this, SNHPC was tasked with providing 'select link' assignments to the Exit 4 and 4A ramps for trips from the three Woodmont Common zones (Zone 277 to the west, and Zones 69 and 375 to the east) under different scenarios: 2015 No-Build; 2040 No-Build; and 2040 Build with either Alternative A (southern interchange) and Alternative C (northern interchange). This information was summarized in a technical memo provided to the NHDOT for their review and concurrence (CLD, 2018), which is attached in Appendix M.

The results show that under the 2015 No-Build case, the three Woodmont zones only account for about 13% of the total traffic volume on all Exit 4 ramps, almost exclusively from the existing development in Zone 277 on the west side of I-93 in the Garden Lane area. Under the 2040 No-Build condition, the total volumes on the Exit 4 ramps would more than double, even with a lesser Woodmont development scenario, and these three zones now comprise almost 27% of this total Exit 4 ramp traffic and almost 40% of the projected increase in traffic.

With Exit 4A in place under Alternative A, which also assumes the most intense Woodmont development scenario, traffic assignments from the three subject zones account for 36% of the total Exit 4 ramp volume, most of which comes from Zone 277 on the west side. At Exit 4A, the two easterly Woodmont zones also account for 36% of total Exit 4A ramp traffic with no traffic assigned to these ramps from the west side.

With Alternative C in place, which assumes the same development scenario for Woodmont as in the 2040 No-Build case, the total traffic on the Exit 4 ramps is roughly the same as under Alternative A, but the Woodmont contribution is a slightly lower percentage (32%) of the total. At Exit 4A, Woodmont traffic would comprise only about 1% of the total ramp assignments, given that it is further removed from the traffic zones in question.

This analysis is only intended to show the relative potential contribution of Woodmont Commons traffic to both Exits 4 and 4A based on the full assignment of this traffic to the network as reflected in the SNHPC regional traffic model. As the Woodmont Commons development progresses and traffic is added to the adjacent road network, this situation should be monitored to determine how the actual additional traffic impacts affect overall traffic operations. Should the magnitude of the 'internal capture' trip rate be closer to what the TEC study anticipated, operations on the ramps, their intersections with the local road system, and the overall Interstate system would be better than by using the more conservative SNHPC model projections.

#### 13.0 Exit 4A and Connecting Roadways

The Exit 4A interchange is currently proposed as a diamond configuration with access only to and from the east. As such, it creates two new ramp terminal intersections that will be provided with sufficient lanes to operate at an acceptable LOS. The connector road to the existing roadway network was assumed to be a four-lane limited access arterial roadway between the interchange and NH Route 28 to the east, with future breaks in access reserved for the proposed Woodmont Commons-East parcel based on their future development layout. New intersections would be created under all Build alternatives and existing intersections that would be affected by each of the respective layouts would need to be upgraded, which will be discussed in the next section.

The following is a listing of new intersections created by the connector roadway under the various interchange alternatives:

- Alternative A Connector Road with North High Street.
- Alternative B Connector Road with Franklin Street Extension, NH Route 28
  Bypass, and relocated Tsienneto Road. In addition, the existing intersection with
  Ashleigh Drive will be reconfigured.
- Alternative C- Connector Road with NH Route 28 near the Londonderry town line, as well as NH Route 28 Bypass and relocated Tsienneto Road.
- Alternative D Connector Road with NH Route 28 near Londonderry town line.

#### 14.0 Analysis of Local Intersection Operations

Only those known programmed projects in the SNHPC 2040 Long-Range Transportation Plan (SNHPC, 2017) were included as foreseeable projects in the traffic modeling for this study. However, it is also assumed that ongoing State and Town traffic maintenance projects, such as signal retiming and optimization, will occur during the duration of the design horizon. Therefore, any intersection analyses assumes the optimization of signal timing and phasing at a specific location as a base condition, with any additional lane improvements evaluated as an impact associated with a specific alternative.

In addition, the Woodmont Commons development has also developed conceptual plans along the NH Route 102 corridor, as well as other intersections in Londonderry and Derry, to accommodate their projected traffic as that project moves forward (TEC, 2013). **The NHDOT has agreed that these projects should be considered as part of the 2040** 

**No-Build condition (NHDOT, 2016f).** While most of these future improvements on NH Route 102 are west of Exit 4, including the Garden Lane and Gilcreast Road intersections, there are other improvements in the Exit 4A study area east of I-93 that will be considered as part of this No-Build condition for analysis purposes. These include:

- # 5 NH Route 102/Londonderry Road intersection signalization and lane additions, including a second east-west through lane on NH Route 102.
- # 8- North High Street/Ash Street Extension providing a four-way stop controlled intersection, as well as separate left- and right-turn lanes exiting Ash Street, and adding an exclusive SB right-turn lane from North High Street onto Ash Street Extension.

It also should be noted that not all of the study area intersections are directly affected by the Exit 4A alternatives, even though the redistribution of traffic will have an indirect effect. Only those intersections that a specific alternative passes through were considered for any additional improvements as part of the project to maintain an acceptable LOS D or better for the overall intersection as well as on any individual approach. Analyses were conducted for all of the study area intersections, either with or without any required improvements.

It was also assumed that signalization would be required at many of the existing unsignalized locations where an alternative passes through it or where new intersections were being created at major State or local roadways. No formal signal warrants study was performed, but engineering judgment was applied to treat each of these locations the same if they were part of the layout of an alternative. Conversely, if the alternative did not go through that location, the existing traffic control was assumed to remain in place, regardless of operational efficiency, since these locations have not yet been programmed for further improvements.

#### 15. Signalized Intersections

A summary table for the comparison of lane use and operations at each existing or proposed signalized intersection is provided in Table 11. No additional improvements to the lane use at the Exits 4 and 5 ramp terminals were investigated as part of any Build alternative, since these are being reconstructed as part of the ongoing I-93 project. The results are provided using the HCM 2000 procedures, since these procedures can address many non-standard timing and phasing parameters that later versions of the HCM cannot, as well as to be consistent with the Interstate Justification Report being conducted separately. (Louis Berger, 2018). The actual HCM and Synchro printouts for all the 2040 alternatives are provided in Appendices N through S.

### Table 11 Summary of 2040 Capacity Analyses by Alternative

		A	M Peak Hou	r	P	M Peak Hou	ır	
Intersection	2040 Alternative	v/c	Average	LOS	v/c	Average	LOS	Comments/
intersection	2040 Atternative	ratio	Delay	LOS	ratio	Delay	LOS	Lane Use Revisions
#1 - Exit 4 SB Off	No-Build	1.08	44.5	D	1.22	106.4	f	Current lane use per I93 project
Ramp/NH 102	Alternative A	0.92	25.9	C	1.09	50.9	D	Current lane use per I93 project
	Alternative B	0.93	26.8	C	1.09	53.9	D	Current lane use per I93 project
	Alternative C	1.00	36.1	D	1.09	57.2	E	Current lane use per I93 project
	Alternative D	0.99	35.1	D	1.11	59.6	E	Current lane use per I93 project
	Alternative F	1.09	51.0	D	1.14	61.5	E	Current lane use per I93 project
#2 - Exit 4 NB Off	No-Build	1.10	61.4	Е	1.12	92.8	F	Current lane use per I93 project
Ramp/NH 102	Alternative A	1.04	71.2	E	1.11	115.1	F	Current lane use per I93 project
	Alternative B	0.99	54.8	D	1.06	88.0	F	Current lane use per I93 project
	Alternative C	1.02	62.1	E	1.05	82.0	F	Current lane use per I93 project
	Alternative D	1.04	67.3	E	1.06	81.8	F	Current lane use per I93 project
	Alternative F	1.06	57.5	E	1.15	91.8	F	Current lane use per I93 project
#3 - Exit 5 SB Off	No-Build	1.17	77.0	Е	0.90	31.2	С	Current lane use per I93 project
Ramp/NH 28	Alternative A	1.06	49.3	D	0.83	20.1	C	Current lane use per I93 project
	Alternative B	0.86	28.0	C	0.70	16.9	В	Current lane use per I93 project
	Alternative C	0.83	22.9	C	0.62	15.0	В	Current lane use per I93 project
	Alternative D	0.82	23.3	C	0.61	15.2	В	Current lane use per I93 project
	Alternative F	1.10	62.1	E	0.87	27.8	C	Current lane use per I93 project
#4 - Exit 5 NB Off	No-Build	1.10	51.7	D	1.04	37.7	D	Current lane use per I93 project
Ramp/NH 28	Alternative A	1.11	63.0	E	0.99	39.2	D	Current lane use per I93 project
	Alternative B	1.03	50.2	D	0.93	33.9	C	Current lane use per I93 project
	Alternative C	1.02	49.9	D	0.87	27.7	C	Current lane use per I93 project
	Alternative D	1.02	50.5	D	0.89	32.6	C	Current lane use per I93 project
	Alternative F	1.07	44.0	D	0.99	35.1	D	Current lane use per I93 project
#5 - NH Rte	No-Build	0.85	17.7	В	1.16	67.5	Е	Add 2nd E-W lane per Woodmont concept
102/Londonderry Rd/	Alternative A	0.52	11.4	В	0.58	14.8	В	Add 2nd E-W lane per Woodmont concept
St. Charles Street	Alternative B	0.48	7.2	A	0.54	14.2	В	Add 2nd E-W lane per Woodmont concept
	Alternative C	0.52	8.2	A	0.53	13.1	В	Add 2nd E-W lane per Woodmont concept
	Alternative D	0.56	8.3	A	0.65	16.3	В	Add 2nd E-W lane per Woodmont concept
	Alternative F	0.75	12.3	В	0.87	27.9	C	Add 2nd E-W lane per Woodmont concept
#6 - NH Rte	No-Build	0.92	30.8	С	1.04	47.3	D	Current lane use
102/Fordway/Madden	Alternative A	0.79	23.4	C	0.99	42,5	D	Current lane use
Hill Road	Alternative B	0.80	23.0	C	0.91	29.1	C	Current lane use
	Alternative C	0.78	22.3	C	0.92	30.0	C	Current lane use
	Alternative D	0.81	23.2	C	0.94	30.2	C	Current lane use
	Alternative F	0.93	28.7	C	0.96	29.9	C	Add NB LT, EB RT lanes
#7 - NH Rtes 102/28	No-Build	0.88	47.4	D	0.79	37.5	D	Current lane use
	Alternative A	0.89	55.3	E	0.84	47.9	D	Current lane use
	Alternative B	0.87	44.1	D	0.80	40.5	D	Current lane use
	Alternative C	0.77	35.0	C	0.84	40.2	D	Current lane use
	Alternative D	0.89	48.1	D	0.86	46.2	D	Current lane use
	Alternative F	0.63	28.6	C	0.83	34.0	C	Add NB LT, WB Th, EB RT lanes
	Anternative F	0.03	20.0	C	0.65	34.0	C	Aud ND L1, WD 111, ED K1 lattes

# Table 11 (Cont'd) Summary of 2040 Capacity Analyses by Alternative

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			M Peak Hou	r		M Peak Hou	ır	
Intersection	2040 Alternative	v/c ratio	Average	LOS	v/c ratio	Average	LOS	Comments/
#9A - Connector Rd/N High	No-Build	Tatio	Delay n/a/		14110	Delay n/a/		Lane Use Revisions  Does not exist
St St		0.50		C	0.05		ъ	
	Alternative A	0.59	25.0	С	0.95	37.5	D	Prop lane use: EB - T,T,R; WB-L,T,T; NB- L,L,R lanes
	Alternative B		n/a/			n/a/		Does not exist
	Alternative C		n/a/			n/a/		Does not exist
	Alternative D		n/a/			n/a/		Does not exist
	Alternative F		n/a/			n/a/		Does not exist
#10 - N	No-Build		n/a/			n/a/		Would remain unsignalized
High/Folsom/Franklin Sts.	Alternative A	0.65	17.9	В	0.92	32.2	С	EB - L,T,T,TR; WB-L,T,TR; SB- LT,R; NB- L,TR lanes
	Alternative B		n/a/			n/a/		Would remain unsignalized
	Alternative C		n/a/			n/a/		Would remain unsignalized
	Alternative D		n/a/			n/a/		Would remain unsignalized
	Alternative F		n/a/			n/a/		Would remain unsignalized
#11- Ross' Corner	No-Build	0.72	91.3	F	0.80	56.4	E	Current lane use
(Folsom/NH 28)	Alternative A	0.56	22.3	С	0.79	32.9	С	Add 2nd EB LT and Th lanes; add 2nd WB Th lane
	Alternative B	0.49	28.4	C	0.66	38.3	D	Current lane use
	Alternative C	0.73	32.5	C	0.83	46.1	D	Current lane use
	Alternative D	0.73	27.0	С	0.80	35.2	D	Add 2nd EB LT lane; add 2nd WB RT lane
	Alternative F	0.61	32.6	C	0.72	42.7	D	Current lane use
#12 - Tsienneto	No-Build		n/a/			n/a/		Would remain unsignalized
Rd/Pinkerton St	Alternative A	0.61	13.7	В	0.65	12.5	В	Signalized and coord with Ross' Corner
	Alternative B		n/a/			n/a/		Would remain unsignalized
	Alternative C		n/a/			n/a/		Would remain unsignalized
	Alternative D	0.69	20.1	C	0.64	24.2	C	Signalized and coord with Ross' Corner
	Alternative F		n/a/			n/a/		Would remain unsignalized
#13 -NH 28/Linlew Dr	No-Build	0.41	18.9	В	0.48	17.2	В	Current lane use
	Alternative A	0.19	11.7	В	0.46	25.0	C	Current lane use
	Alternative B	0.36	6.3	A	0.49	13.8	В	Current lane use
	Alternative C	0.39	5.2	A	0.49	12.9	В	Current lane use
	Alternative D	0.56	14.9	В	0.78	20.4	C	Current lane use
	Alternative F	0.28	11.3	В	0.40	16.1	В	Current lane use
#14 - NH 28/Ashleigh Dr	No-Build	0.43	17.3	В	0.59	24.8	С	Current lane use
	Alternative A	0.35	17.0	В	0.48	21.7	C	Current lane use
#22 - B/C Connector/NH 28	Alternative B	0.73	26.8	С	0.83	35.6	D	Revised Lane Use: EB- L,T,R; WB-L,L,T,TR; NB-L,T,T,R,R; SB-L,T,T,R

# Table 11 (Cont'd) Summary of 2040 Capacity Analyses by Alternative

		AN	M Peak Hou	r	PM Peak Hour			
Intersection	2040 Alternative	v/c	Average	LOS	v/c	Average	LOS	Comments/
intersection	2040 Alternative	ratio	Delay		ratio	Delay		Lane Use Revisions
#22 - B/C Connector/NH 28	Alternative C	0.71	22.0	С	0.84	29.7	С	Revised Lane Use: EB- L,L,T,TR; WB-
	Alternative D	0.58	21.0	C	0.84	34.8	C	L,T,TR; NB-L,TR; SB-LT,R Add WB RT lane to current lane use
	Alternative F	0.38	16.9	В	0.55	26.2	C	Current lane use
#18 - NH Byp 28/Tsienneto	No-Build	0.69	58.1	Е	0.90	112.0	F	Current lane use
Rd	Alternative A	0.64	33.6	C	0.80	23.8	C	Add 2nd EB/WB Th lanes
	Alternative B	0.54	32.4	C	0.59	33.0	C	Current lane use
	Alternative C	0.58	23.9	C	0.79	28.4	C	Current lane use
	Alternative D	0.56	25.2	C	0.60	22.9	C	Add 2nd EB/WB Th lanes
	Alternative F	0.74	32.4	C	0.87	34.8	C	Current lane use
#19 - NH 102/Tsienneto Rd, coord w/	No-Build *	0.53	24.9	С	1.53	247.7	F	LOS as unsignalized
#26 - NH 102/North Shore	Alternative A	0.62	13.2	В	0.76	19.6	D	Add EB LT, WB RT lanes at signal
Rd	Alternative B	0.60	11.0	В	0.61	9.9	A	Add EB LT, WB RT lanes at signal
	Alternative C	0.60	12.7	В	0.60	9.0	A	Add EB LT, WB RT lanes at signal
	Alternative D	0.63	12.1	В	0.65	6.9	A	Add EB LT, WB RT lanes at signal
	Alternative F*	0.30	24.3	C	1.46	247.5	F	LOS as unsignalized
#20 - Exit 4A SB off	No-Build		n/a/			n/a/		Does not exist
ramp/Connector Rd	Alternative A	0.97	41.2	D	0.88	28.9	C	2 SB LT lanes from off-ramp, 2 WB LT lanes
	Alternative B	1.04	52.3	D	0.94	34.6	C	to on-ramp 2 SB LT lanes from off-ramp, 2 WB LT lanes
	Alternative C	0.73	20.1	C	0.65	18.3	В	to on-ramp 2 SB LT lanes from off-ramp, 2 WB LT lanes
	Alternative D	0.70	19.2	В	0.63	18.2	В	to on-ramp 2 SB LT lanes from off-ramp, 2 WB LT lanes to on-ramp
	Alternative F		n/a/			n/a/		Does not exist
#21 - Exit 4A NB off	No-Build		n/a/			n/a/		Does not exist
ramp/Connector Rd	Alternative A	0.93	20.4	C	0.84	16.1	В	EB - T,T; WB T,T,R,R; NB- LR,R
	Alternative B	0.97	27.5	C	0.88	15.8	В	EB - T,T; WB T,T,R,R; NB- LR,R
	Alternative C	0.65	7.9	A	0.58	7.1	A	EB - T,T; WB T,T,R,R; NB- LR,R
	Alternative D	0.59	5.7	A	0.53	5.1	A	EB - T,T; WB T,T,R,R; NB- LR,R
	Alternative F		n/a/			n/a/		Does not exist
#23 - B/C Connector	No-Build		n/a/			n/a/		Does not exist
Road/NH Bypass 28	Alternative A		n/a/			n/a/		Does not exist
	Alternative B	0.25	17.0	В	0.32	16.9	В	Prop lane use: EB- L,T,TR; WB- L,T,TR; NB- L,TR; SB-L,T,R
	Alternative C	0.37	18.5	В	0.46	20.4	C	Prop lane use: EB- L,TR; WB- L,TR; NB- L,TR; SB-L,T,R
	Alternative D		n/a/			n/a/		Does not exist
	Alternative F		n/a/			n/a/		Does not exist

# Table 11 (Cont'd) Summary of 2040 Capacity Analyses by Alternative

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		Al	M Peak Hou	r	P	M Peak Ho	ur	
Intersection	2040 Alternative	v/c	Average	LOS	v/c	Average	LOS	Comments/
		ratio	Delay		ratio	Delay		Lane Use Revisions
#25 - C/D Connector	No-Build		n/a/			n/a/		Does not exist
Road/NH 28	Alternative A		n/a/			n/a/		Does not exist
	Alternative B		n/a/			n/a/		Does not exist
	Alternative C	0.81	10.6	В	0.79	12.2	В	Prop lane use: EB- L,T,T; WB- T TR, SB- L,R
	Alternative D	0.96	13.7	В	0.87	14.1	В	Prop lane use: EB- L,T,T; WB- T TR, SB- L,R
	Alternative F		n/a/			n/a/		Does not exist

#### #1 – Exit 4 SB off-ramp at NH Route 102

The results show that this ramp terminal as presently proposed will still experience capacity constraints into the 2040 design horizon. All 4A Build interchange alternatives appear to function better than No-Build, with Alternatives A and B doing better than the northerly or no interchange alternatives, even though they both have a higher potential development scenario for Woodmont Commons than the others. The heavy SB right turn onto NH Route 102 from the ramp, even with two lanes, combined with heavy WB flow from the NB ramps located to the east, contribute to the decline in LOS. The single left turn lane from the off-ramp also appears insufficient to handle the peak hour demands.

#### #2 – Exit 4 NB ramps at NH Route 102

The results show that this ramp terminal as presently proposed will also experience capacity constraints into the 2040 design horizon. All 4A Build interchange alternatives improve 2040 AM peak hour operations, with Alternatives C and D doing slightly better than Alternatives A and B in the PM peak. The heavy EB left-turn onto the on-ramp, even with two lanes, is the dominant volume at this location, as well as the NB left turn from the off-ramp. Alternatives C and D appear to operate at a slightly better LOS, but the Woodmont Commons development scenario is also less intense in these cases than under Alternatives A and B. Alternative F fares worse than any of the alternatives as proposed.

#### #3 – Exit 5 SB ramps at NH Route 28

The results show that this ramp terminal as presently proposed will still experience some capacity constraints into the 2040 design horizon. All 4A Build interchange alternatives provide better operations than the No-Build condition. The single WB left turn and SB right-turn lanes appear to be the constraints to better operations across all alternatives. Alternatives C and D appear to function better than No-Build or the southerly or no interchange alternatives, likely because of their proximity to this interchange and the increased likelihood of diverting some of the traffic demand, as opposed to the other alternatives.

#### #4 – Exit 5 NB ramps at NH Route 28

The results show that this ramp terminal as presently proposed will also experience capacity constraints into the 2040 design horizon. All 4A Build interchange alternatives provide slightly better operations than under No-Build conditions. The heavy EB left-turn demand onto the on-ramp in a single lane, as well as the single-lane NB left turn from the off-ramp, are the critical movements at this intersection. Alternatives C and D appear to operate at a slightly better LOS than Alternatives A and B, again because of their proximity to this interchange and increased likelihood of diverting some of the traffic demand. Alternative F fares worse than any of the alternatives as proposed.

#### #5 – NH Route 102/Londonderry Road/St. Charles Street

With the addition of a second east-west through lane on NH Route 102 as part of the proposed Woodmont Commons improvements, this intersection would operate at acceptable LOS under all alternatives. Alternative F would operate slightly worse than the other alternatives, because of projected increased traffic on NH Route 102, but would still be at an acceptable LOS.

#### #6 - NH Route 102/Fordway/ Madden Hill Road

This existing intersection would operate at acceptable LOS under all alternatives except Alternative F. Alternative A appears to draw more traffic to the Madden Hill Road approach that opposes the heavy Fordway volumes on the same permissive phase (where both approaches have a concurrent green light and must wait for gaps in opposing traffic to proceed), so it operates slightly worse than the other interchange alternatives, particularly in the 2040 PM peak. Alternative F would necessitate provision of lane separation out of Fordway as well as an exclusive EB right-turn lane to maintain an acceptable LOS.

#### #7 - NH Routes 102/28

Based solely on the capacity calculations, this existing intersection would operate at acceptable LOS under all alternatives except Alternative F. As noted earlier, there are many other unquantifiable factors in the downtown area, such as pedestrian activity and friction from side street and on-street parking maneuvers, that contribute to reduced traffic speeds and the general diversion/avoidance of the area by through traffic to other routes such as Ash Street Extension, North High Street, Folsom Road, and Tsienneto Road.

The traffic model indicates that Alternative A appears to draw more traffic to the eastern part of downtown that then makes a right turn to NH Route 28 in the direction of Exit 4A and the Woodmont Commons development. In reality, much of this traffic may divert to the traffic circle to the east and use the Pinkerton/Tsienneto corridor to complete such a trip. Other Build alternatives show similar operational/LOS characteristics than under No-Build conditions. With additional traffic through the downtown area and no interchange option, Alternative F would necessitate provision of a second NB left-turn lane, an EB exclusive right-turn lane, and a second WB thru lane to maintain an acceptable LOS in the 2040 design horizon.

#### #9A - Alternative A Connector Road/North High Street

This new intersection is created by the Alternative A connector road with the local street network. The existing intersection of North High Street with Madden Road would be relocated off the new connector road as a minor roadway serving the small number of residences there. It is envisioned that this new intersection would need to be signalized and widened to provide acceptable operations, given the projected traffic volumes. The Connector Road eastbound approach would consist of two thru lanes and an exclusive right-turn lane to North High Street. The Connector Road westbound approach would consist of an exclusive left-turn lane and two thru lanes. The North High Street northbound approach would

consist of two left-turn lanes and a right-turn lane. Given the projected volumes and this lane use, this intersection would operate at a LOS D in the 2040 PM peak hour.

#### #10 - Alternative A Connector Road/Franklin Street/Franklin Street Extension

This existing intersection is presently unsignalized and operates at a poor LOS for the north/south side street approaches, which experience difficulty entering the main traffic flow during peak periods. With the increase in development activity nearby, this condition would be exacerbated into the future to the point where there may need to be consideration of additional improvements to provide acceptable operations, even with other interchange alternatives beyond Alternative A.

With the Alternative A connector road in place, this intersection will require significant widening and signalization to provide sufficient lanes to handle the project volumes as a direct result of Exit 4A. The east/west approaches would have at least two thru lanes (the projections suggest a third lane may be needed for the eastbound approach) with exclusive left-turn lanes. The north/south approaches would have two lanes with an exclusive lane oriented to the west to handle the projected traffic. This configuration would operate at a LOS C in the 2040 PM peak hour.

#### #11 - Ross' Corner (NH Route 28/Folsom Road/Tsienneto Road)

This intersection was upgraded several years ago to provide a second southbound left-turn lane from NH Route 28 onto Tsienneto Road to serve the predominant southbound-to-eastbound travel demand between I-93 and Derry and points to the east. With the projected growth to 2040, the existing lane geometry will no longer be sufficient to meet the expected traffic demands.

With an Exit 4A interchange in place, and with the Alternative A connector road in particular, the existing north-south traffic orientation now becomes an east-west flow. As such, improvements to handle the increase east-west travel demand will be required. With Alternative A, a second EB left-turn lane and second EB thru lane will be needed, as well as a second WB thru lane, to provide an acceptable LOS. Alternatives B and C are on a new east-west alignment north of this intersection so no changes to the existing lane use are required. With Alternative D, the interchange is north of this intersection, so movements oriented in that direction will need to be augmented. This means the addition of a second EB left-turn lane and second WB right-turn lane at this location. Alternative F maintains the existing traffic distribution, and the existing lane use can accommodate the projected traffic volumes.

#### #12 - Tsienneto Road/Pinkerton Street (Alternatives A and D only)

This intersection is in close proximity (300 feet +/-) from the Ross' Corner signal, but is not currently signalized. As such, left-turn exits experience lengthy delays while waiting for a gap in the Tsienneto Road traffic flow. The eastbound right-

turn movement has been separated from the main traffic stream by a channelizing island to help exiting traffic, but the opposing traffic flow limits the number of available gaps for exiting traffic. At some point in the future, regardless of this project, this intersection may need to be signalized and coordinated with the Ross' Corner signal, but there are no defined plans to do that at this time. Therefore, except for those alternatives that directly impact this intersection, namely Alternatives A and D, the intersection is assumed to remain unsignalized and is expected to operate at a poor LOS for the minor street approach from Pinkerton Street.

For Alternatives A and D, a second lane for thru traffic would be provided in both the eastbound and westbound directions, as well as an exclusive westbound left-turn lane into Pinkerton Street. With this geometry and coordinated phasing with Ross' Corner as a cluster intersection, this location would operate at an acceptable LOS C or better in the 2040 design year.

#### #13 - NH Route 28/Linlew Drive

No changes to the existing lane use at this intersection are required to accommodate traffic volumes under any of the proposed alternatives.

#### #14/22 - NH Route 28/Ashleigh Drive/Alternative B-C Connector Road

This intersection would see significant changes depending on which alternative would be in place. For Alternatives B and C, the proposed connector road would create a new east-west roadway that would require reconfiguration of lanes to accommodate the new distribution of traffic for either a southerly or northerly interchange. Under Alternative B, the new roadway would need two thru lanes in the east-west direction, as well as double-turn lanes to and from NH Route 28 to the south, along with other lane use changes. With Alternative C, a double SB left-turn lane into Ashleigh Drive would be needed to serve traffic from the new interchange to the north and the connector road, among other lane use changes. An acceptable LOS C or better can be provided for all alternatives with the appropriate revisions to the lane use.

#### #18 - NH Route 28 Bypass/Tsienneto Road

The 2040 No-Build analysis shows that the existing intersection would operate at or over capacity during both peak hours, so some improvements would appear to be needed at some point in the future. Alternatives B and C reduce east-west traffic through this intersection, so the existing lane use can provide an acceptable LOS D or better in 2040. Alternatives A and D will require the addition of a second east-west thru lane to accommodate the increased east-west traffic at an acceptable LOS.

#### #19/26- NH Route 102/Tsienneto Road/North Shore Road (Alternatives A-D)

A review of the existing traffic counts at the North Shore Road and English Range Road intersections indicate that existing 2015 left-turn volumes currently satisfy turn-lane warrants at both locations. As such, any improvements at the Tsienneto

Road/NH Route 102 intersection associated with any of the alternatives should take this into consideration in the design.

Because existing PM peak analyses already indicate a poor LOS for exiting traffic, combined with the projected increase in left-turn volumes exiting Tsienneto Road, it has been assumed that this location will need to be signalized as part of any interchange alternative. Because of the proximity of North Shore Road, that intersection would be incorporated into the signalized intersection, similar to Ross' Corner and Pinkerton Street. An exclusive right-turn lane would be provided for NH Route 102 WB traffic entering Tsienneto Road, as well as a WB left-turn lane into North Shore Road. This left-turn lane would also be carried easterly towards the English Range Road intersection for continuity, where an EB left turn lane would be provided. There would still only be a single lane exiting Tsienneto Road, despite the higher volumes, because of the complexity of accommodating a double left-turn lane onto NH Route 102 and then tapering back to a single lane with North Shore Road being so close.

With signalization of the intersection as proposed, an acceptable LOS C or better can be provided for all interchange alternatives in the 2040 design horizon.

#### #20/21 - Exit 4A SB and NB Ramp Terminals (Alternatives A-D)

With either a northerly or southerly interchange, it is envisioned that both ramp terminals would be signalized as part of the diamond configuration. The SB off-ramp would have two lanes exiting the ramp, while there would be two lanes provided for the left turn onto the SB on-ramp. This ramp would be close to capacity in the 2040 AM peak hour, assuming full realization of the traffic projections on the SB off-ramp.

At the NB ramps, there would be two east-west thru lanes with a single EB left-turn lane and double WB right-turn lanes onto the NB on-ramp. On the off-ramp, there would be a shared left/right lane and an exclusive right-turn lane, since there is no access to the west. An acceptable LOS D or better can be provided at this ramp terminal under all interchange alternatives.

#### #23 - NH Route 28 Bypass/B-C Connector Road (Alternatives B and C)

This new intersection is created by the connector road roughly along the alignment of the existing Ashleigh Drive. With Alternative B, two east-west thru lanes need to be provided so that an acceptable LOS C can be achieved. Only one east-west thru lane is required with Alternative C because of less overall traffic volume through the intersection.

#### #25 - C-D Connector Road/NH Route 28 (Alternatives C-D)

This new intersection is created by the connector road from the northerly interchange where it would intersect with the existing two-lane section of NH Route 28 just north of the Derry/Londonderry town line. NH Route 28 southbound would become the minor approach to the intersection and would have

separate left- and right-turn lanes. The EB approach would have an exclusive left lane and two thru lanes, while the WB approach would have a thru lane and a shared thru/right lane. This configuration would provide a LOS B during the 2040 peak hours.

#### 16. Unsignalized Intersections

A summary table showing a comparison of operations at each existing or proposed unsignalized intersection is provided in Table 12. In most cases, the existing or projected deficiencies for the minor street approaches are exacerbated, except where traffic diversions may reduce the volume of traffic on the major approach that would conflict with traffic turning from the minor street approach(es).

It is not envisioned that any of these intersections would warrant signals, except those that are directly impacted by a specific alternative, such as Tsienneto Road/Pinkerton Street or NH Route 102/Tsienneto Road/North Shore Road. Delays at the North High Street /Ash Street Extension and the North High Street/Folsom Road/Franklin Streets locations are excessive and should be monitored as the Woodmont Commons development progresses to determine if and when signal warrants may be satisfied.

### Table 12 Summary of 2040 Capacity Analyses by Alternative Unsignalized Intersections

_		AM Peak Hour			Pl	M Peak Hour		_
Intersection	2040 Alternative	v/c ratio	Average Delay	LOS	v/c ratio	Average Delay	LOS	Comments/ Lane Use Revisions
#8 - N High St/Ash St Ext	No-Build	1.04	78.0	F	3.04	>300	F	
(Critical Movement - EB LT)	Alternative A	0.53	17.4	C	1.47	228.8	F	
	Alternative B	0.42	14.3	В	0.96	56.5	F	
	Alternative C	0.76	29.3	D	1.09	90.6	F	
	Alternative D	0.74	25.7	D	1.70	>300	F	
	Alternative F	0.74	27.1	D	1.79	>300	F	
#10 - N High/Folsom/Franklin Sts.	No-Build	0.20	21.8	C	0.55	82.0	F	NB all is critical
(Critical Movement varies between NB and SB)	Alternative A		n/a/			n/a/		Signalized
and SD)	Alternative B	0.94	96.5	F	3.00+	>300*	F	NB all is critical
	Alternative C	1.35	219.6	F	3.31	>300*	F	SB all is critical
	Alternative D	0.22	10.9	В	1.21	160.2	F	
	Alternative F	0.36	31.7	D	2.31	>300	F	NB critical in AM, SB critical in PM
#12 -Tsienneto Rd/Pinkerton St	No-Build	0.25	16.1	С	0.97	84.0	F	
(Critical Movement - NW LT)	Alternative A		n/a/			n/a/		Signalized
	Alternative B	0.89	80.0	F	1.00	126.4	F	
	Alternative C	2.04	>300*	F	2.54	>300*	F	
	Alternative D		n/a/			n/a/		Signalized
	Alternative F	0.65	66.1	F	4.10	>300	F	
#15 - NH 28/Scobie Pond Rd	No-Build	1.01	144.7	F	0.58	32.2	D	
(Critical Movement - SB all)	Alternative A	0.18	14.4	В	0.19	16.4	C	
	Alternative B	0.18	13.3	В	0.23	16.5	С	
	Alternative C	0.67	>300*	F	4.44	>300*	F	
	Alternative D	1.34	>300*	F	6.67	4259.8*	F	
	Alternative F	0.31	27.4	D	0.47	51.0	F	
#16 - NH 102/NH Byp 28/E Derry Rd	No-Build	0.87	31.9	D	1.26	151.2	F	
(Traffic Circle-RT only)	Alternative A	1.11	94.0	F	0.92	41.9	E	
(HCM 2010)	Alternative B	0.77	21.4	C	0.68	16.4	C	
(Critical Movement - E Derry Rd)	Alternative C	0.73	18.8	C	0.78	21.7	C	
	Alternative D	0.84	28.3	D	0.89	33.6	D	
	Alternative F	0.91	40.1	E	1.21	128.7	F	
#17 - NH Byp 28/Pinkerton/Nesmith	No-Build	-	-	F	-	-	F	Left turns from Nesmith
(HCM 2010)	Alternative A	1.01	138.9	F	0.52	55.3	F	
(Critical Movement - WB all)	Alternative B	1.13	188.1	F	0.53	57.3	F	
	Alternative C	0.96	127.6	F	0.41	41.7	E	
	Alternative D	1.35	280.7	F	0.63	78.3	F	
	Alternative F	0.45	26.2	D	0.46	49.1	Е	
#24 - B/C Connector Rd/Tsienneto Road	No-Build		n/a/			n/a/		Does not exist
(Critical Movement - NB LT)	Alternative A		n/a/			n/a/	-	Does not exist
	Alternative B	0.09	38.9	E	0.00	0.0	A	
	Alternative C	0.00	0.0	A	0.00	0.0	A	
	Alternative D		n/a/			n/a/	-	Does not exist
	Alternative F		n/a/			n/a/		Does not exist

### Table 12 (Cont'd) Summary of 2040 Capacity Analyses by Alternative

_		AM	I Peak Hour		Pl	M Peak Hour	-	
Intersection	2040 Alternative	v/c ratio	Average Delay	LOS	v/c ratio	Average Delay	LOS	Comments/ Lane Use Revisions
#27 - NH 102/English Range Road	No-Build		n/a/			n/a/	-	
(Critical Movement - SEB all)	Alternative A	0.17	20.8	C	0.16	28.4	D	
	Alternative B	0.23	24.5	C	0.22	26.1	D	
	Alternative C	0.17	20.8	C	0.23	42.1	E	
	Alternative D	0.17	21.0	C	0.18	32.8	D	
	Alternative F	0.17	20.8	C	0.16	28.4	D	

<sup>\* -</sup> calculated delay exceeds 300s

#### 17. Findings and Conclusions

The results of the traffic modeling for the Project indicates that the provision of a new interchange on I-93 will provide varying levels of traffic relief to NH Route 102 east of Exit 4 and into the downtown Derry area by the 2040 design year, as shown in Table 7.

Examples on key links include:

- NH Route 102 east of Exit 4: In the 2040 No-Build case, there is projected to be 41,725 vpd on this segment. Alternative A provides the most relief on this segment (-51.5%) to a volume of 20,240 vpd, which is the same magnitude as the 2015 base volume. Alternative B shows a 48% reduction, while Alternatives C and D show lesser reductions. Alternative F shows a slight increase in projected traffic than any interchange alternative.
- NH Route 102 east of Griffin Street (downtown): Alternatives A, B and C show similar reductions, on the order of 19-21%, or 3000-4000 vpd, over 2040 No-Build conditions. Alternative D shows a lesser reduction, but still lower volume than the 2015 base. Alternative F projects higher volumes than any interchange alternative and would be higher than either the 2015 or 2040 No-Build case.
- Volumes on the Exit 4 ramps are lower under most interchange alternatives, with Alternative A providing the most overall relief over No-Build conditions, even under the highest potential development scenario for the Woodmont Commons development.
- Volumes on the Exit 5 ramps see the highest traffic reductions under Alternatives C and D (northerly interchange) than under a southerly interchange scenario.

Mainline freeway facilities operational analyses indicates that the four-lane I-93 mainline will function at an acceptable LOS C or better under all scenarios, with a couple of exceptions where two-lane on- or off-ramps may be needed to accommodate all projected volumes. A sensitivity analyses of the Exit 4A SB off-ramp indicated that a 200-vph reduction in the assigned traffic would allow this ramp to function as a single lane off-ramp if these traffic projections are not fully realized.

The Exit 4 ramps would have slightly higher volumes under either Alternatives A or B, but this is more reflective of the higher potential development scenario assumed for the Woodmont Commons development than for Alternatives C, D or F, which use the same scenario as the No-Build condition. As noted earlier, should the 23% internal capture rate for Woodmont Commons trips be realized in some form, the number of trips assigned to the study area network may be reduced accordingly, which should result in better traffic operations than the worse-case scenario assumed in this study.

The level of intersection improvements needed to accommodate the alternative and connector road corridors vary greatly depending on alternative. In general, all intersections can provide an acceptable LOS under any alternative with appropriate lane use and signalization/coordination as required. The traffic circle at NH Route 102/NH Route 28 Bypass will continue to function at a poor LOS regardless of alternative.

In summary, from a purely traffic standpoint, Alternatives A appears to best satisfy the Purpose and Need for the Project by providing the greatest reductions in NH Route 102 traffic through downtown Derry than the other alternatives evaluated. Volumes on NH Route 102 just east of Exit 4 would be roughly half of 2040 No-Build levels and similar to existing (2015) conditions. Alternative B provides some relief as well, but primarily serves a north-south trip pattern as opposed to the east-west pattern needed to reduce traffic on NH 102 in downtown Derry. Alternatives C and D would provide some, but not as much, relief to the NH Route 102 corridor, because of the increased distance between these northerly interchange alternatives and the NH Route 102 corridor.

Other natural and cultural resource impact criteria will be used to provide the final assessment of the Preferred Alternative, but the previous finding of Alternative A as the Preferred Alternative from a traffic standpoint is supported by the updated analyses contained herein.

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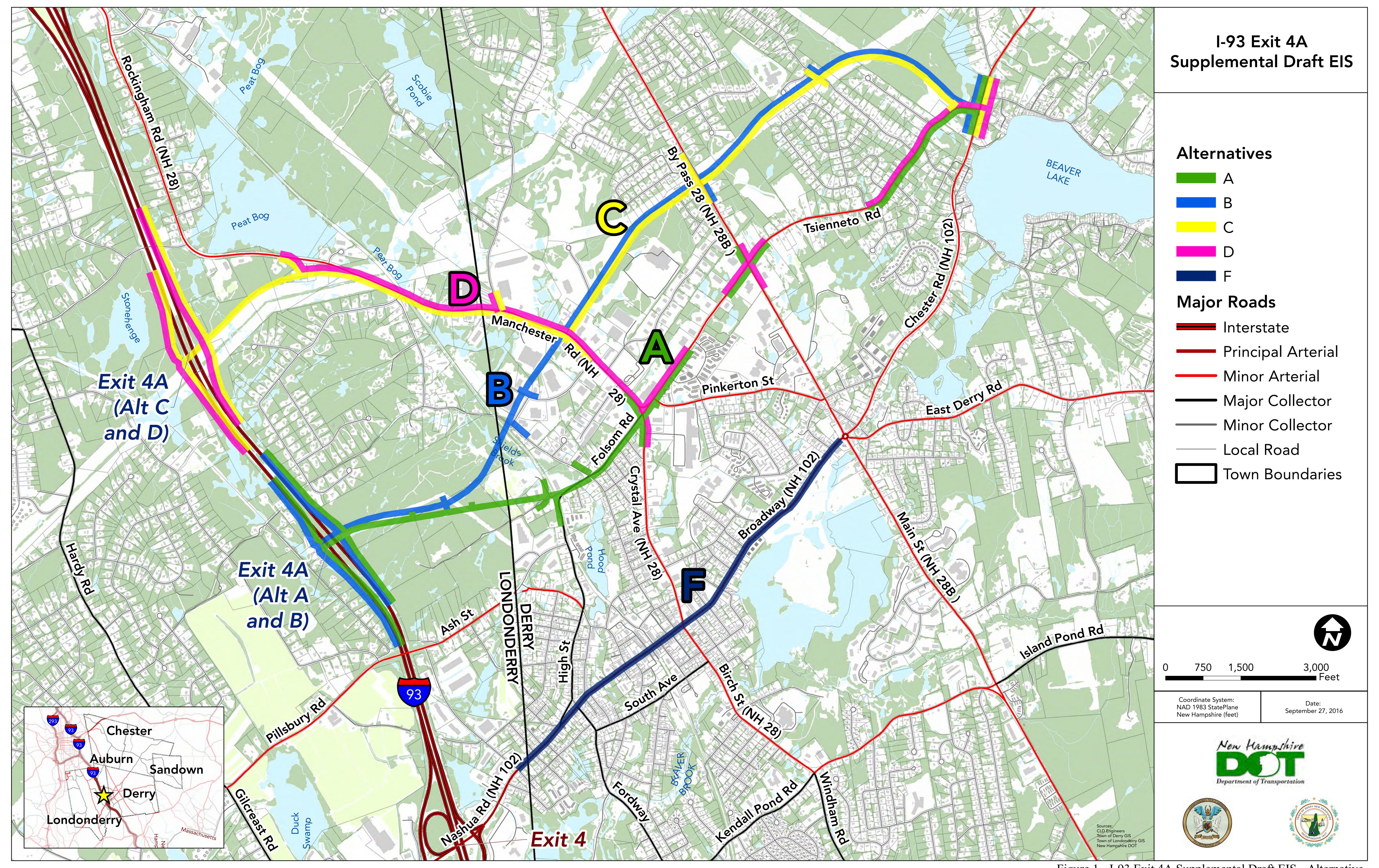


Figure 1 - I-93 Exit 4A Supplemental Draft EIS - Alternative

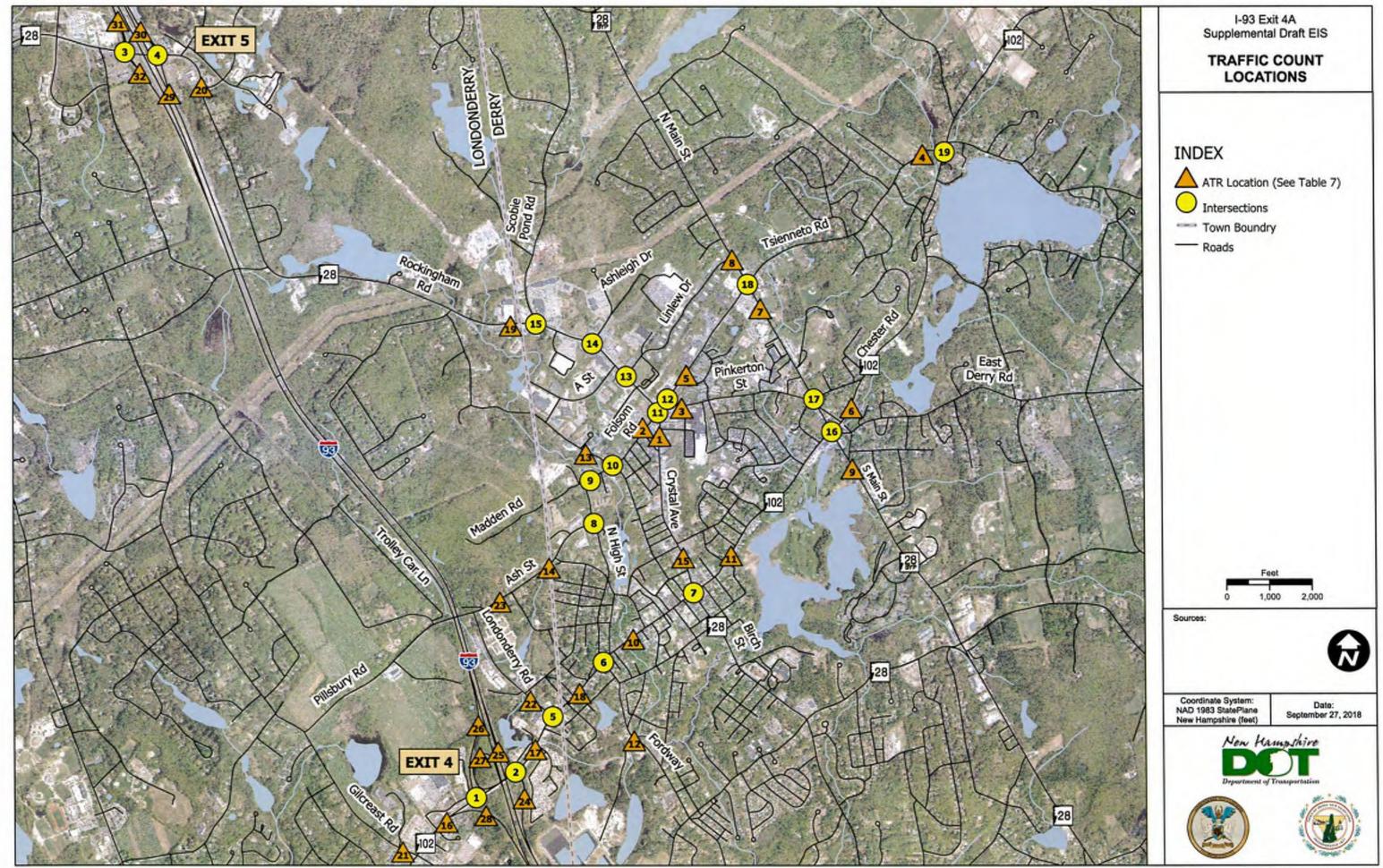


Figure 2 - Traffic Count Locations

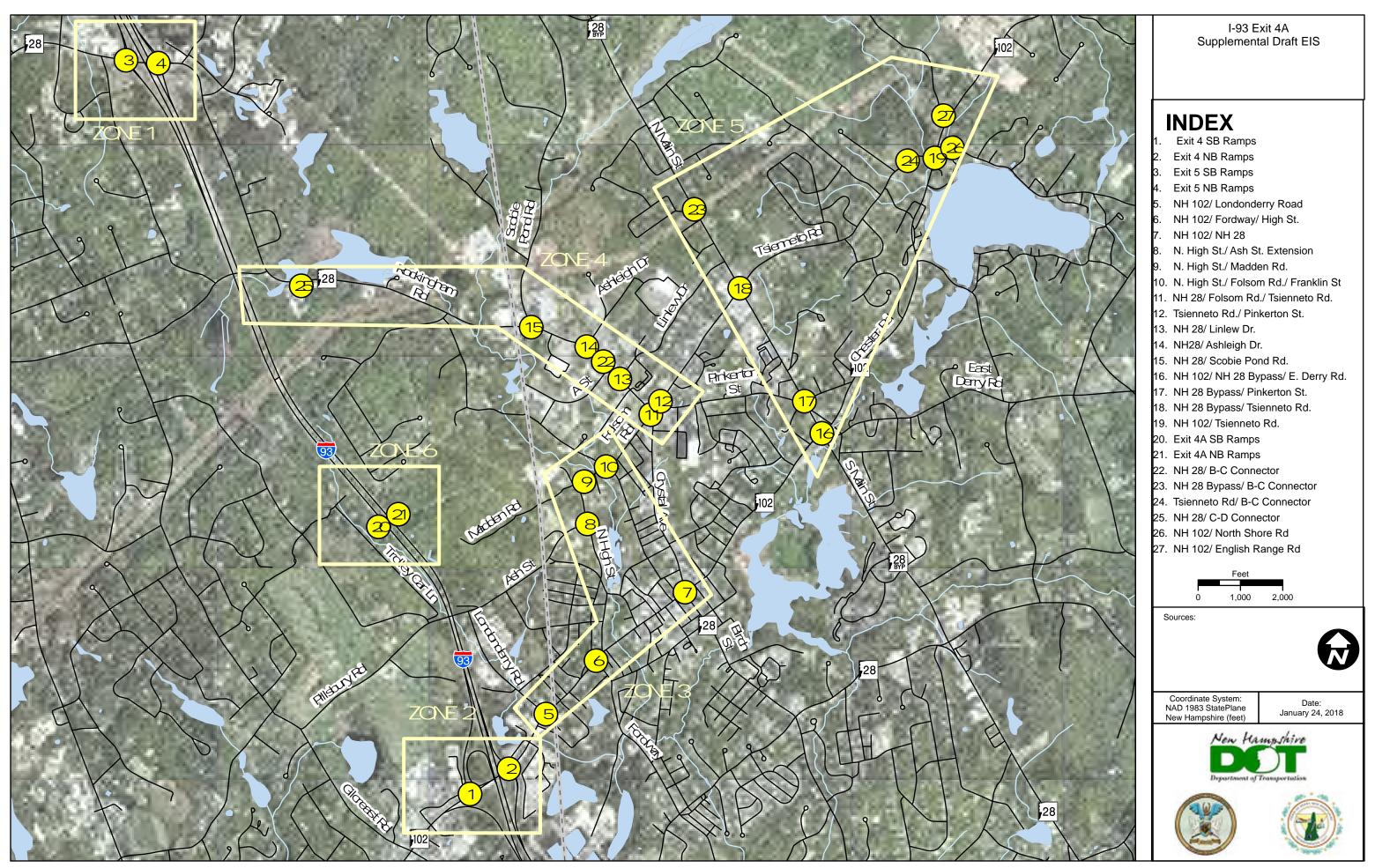


Figure 3 - I-93 Exit 4A Supplemental Draft EIS – Zones 1-6 Locus Map

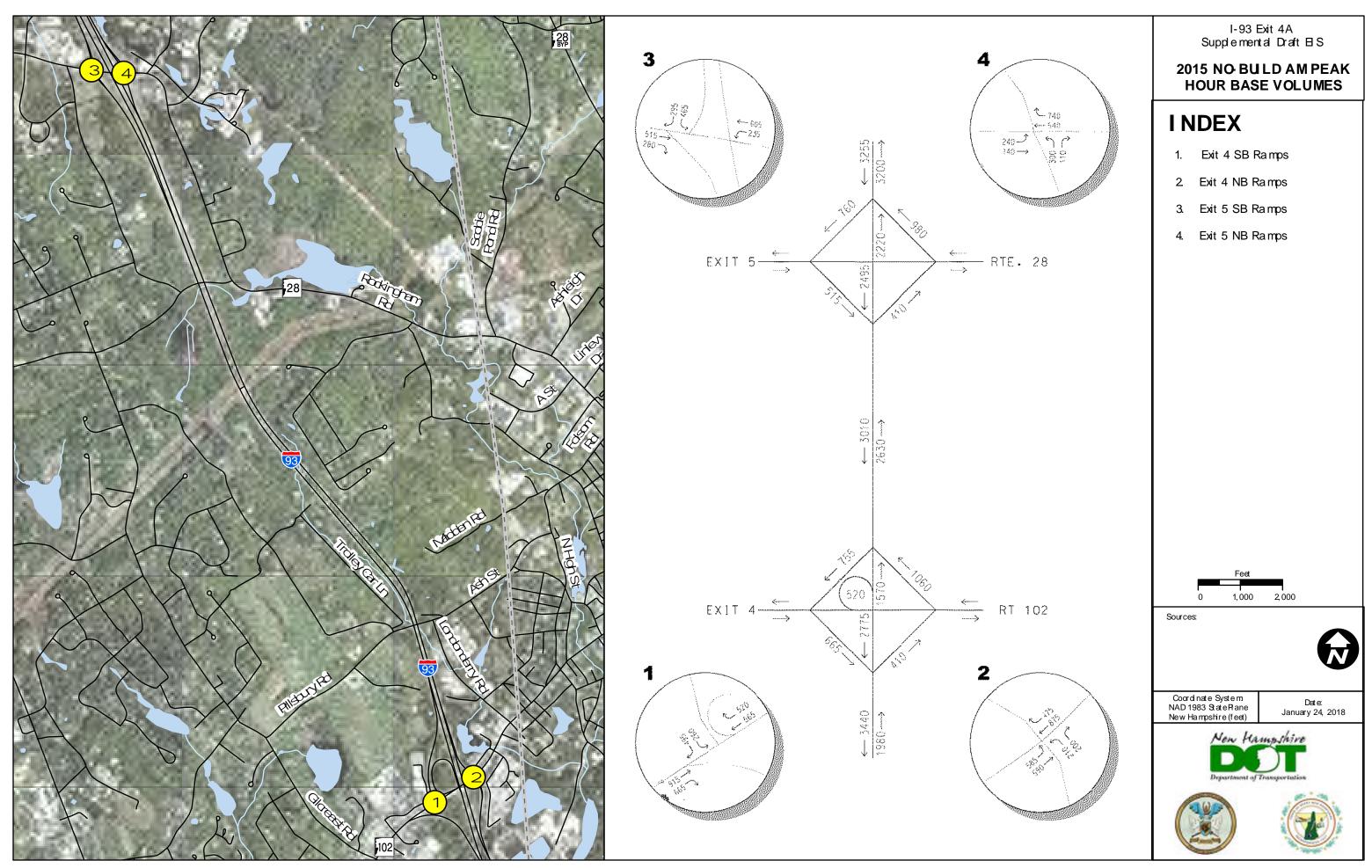


Figure 4 - 2015 No-Build AM Peak Hour Base Volumes - Locations 1-4

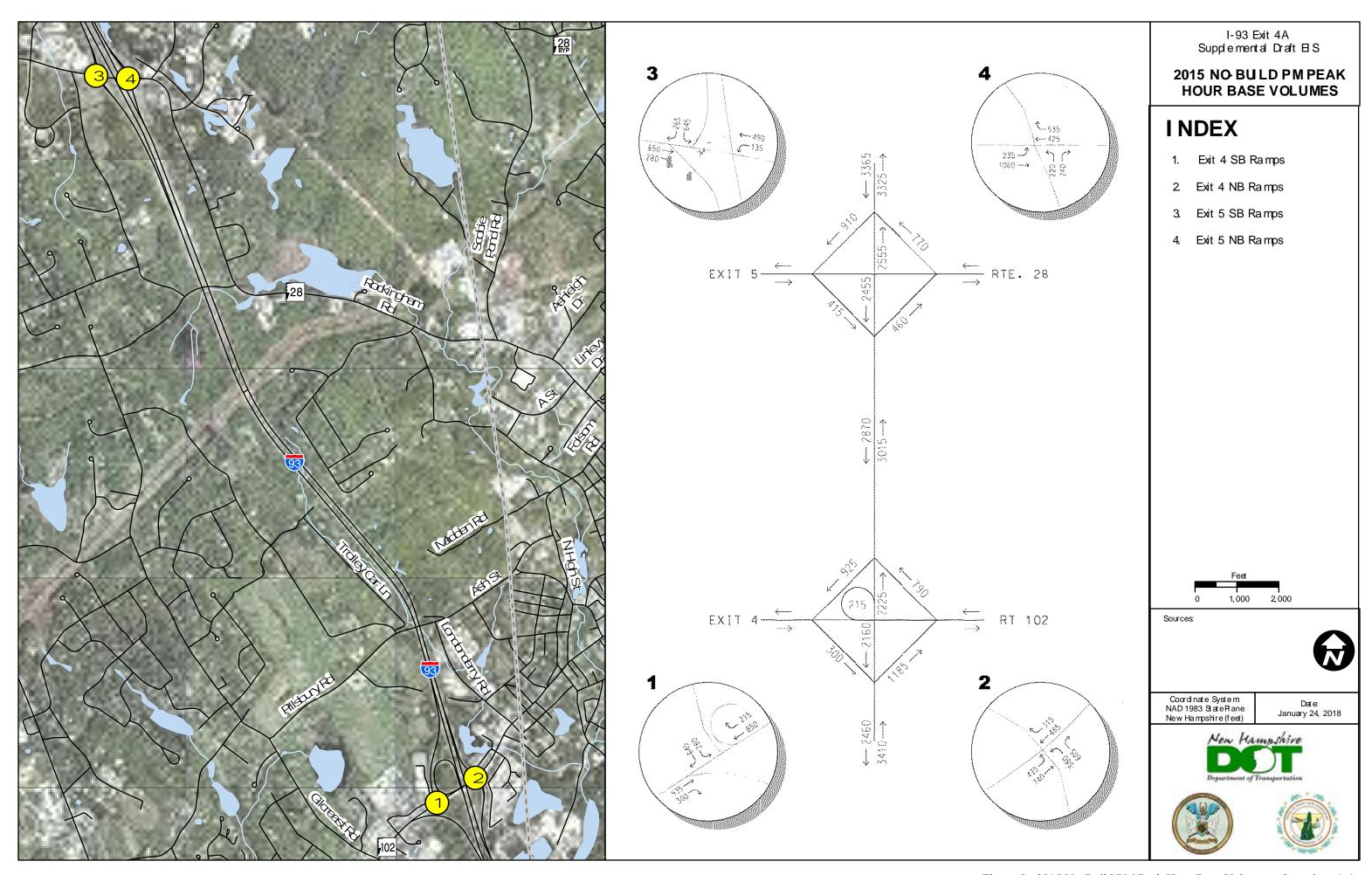


Figure 5 - 2015 No-Build PM Peak Hour Base Volumes – Locations 1-4

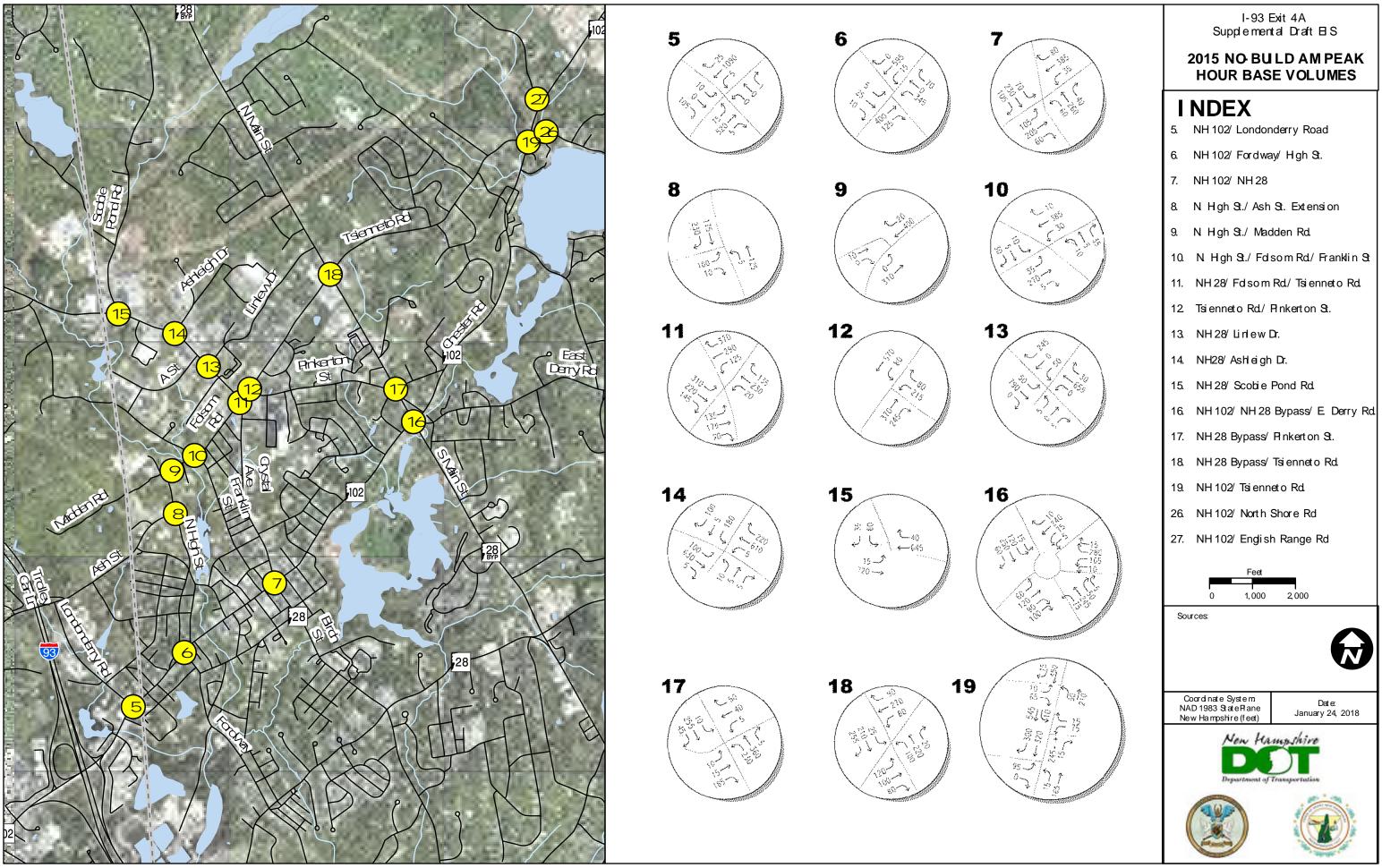


Figure 6 - 2015 No-Build AM Peak Hour Base Volumes - Locations 5-19 and 26-27

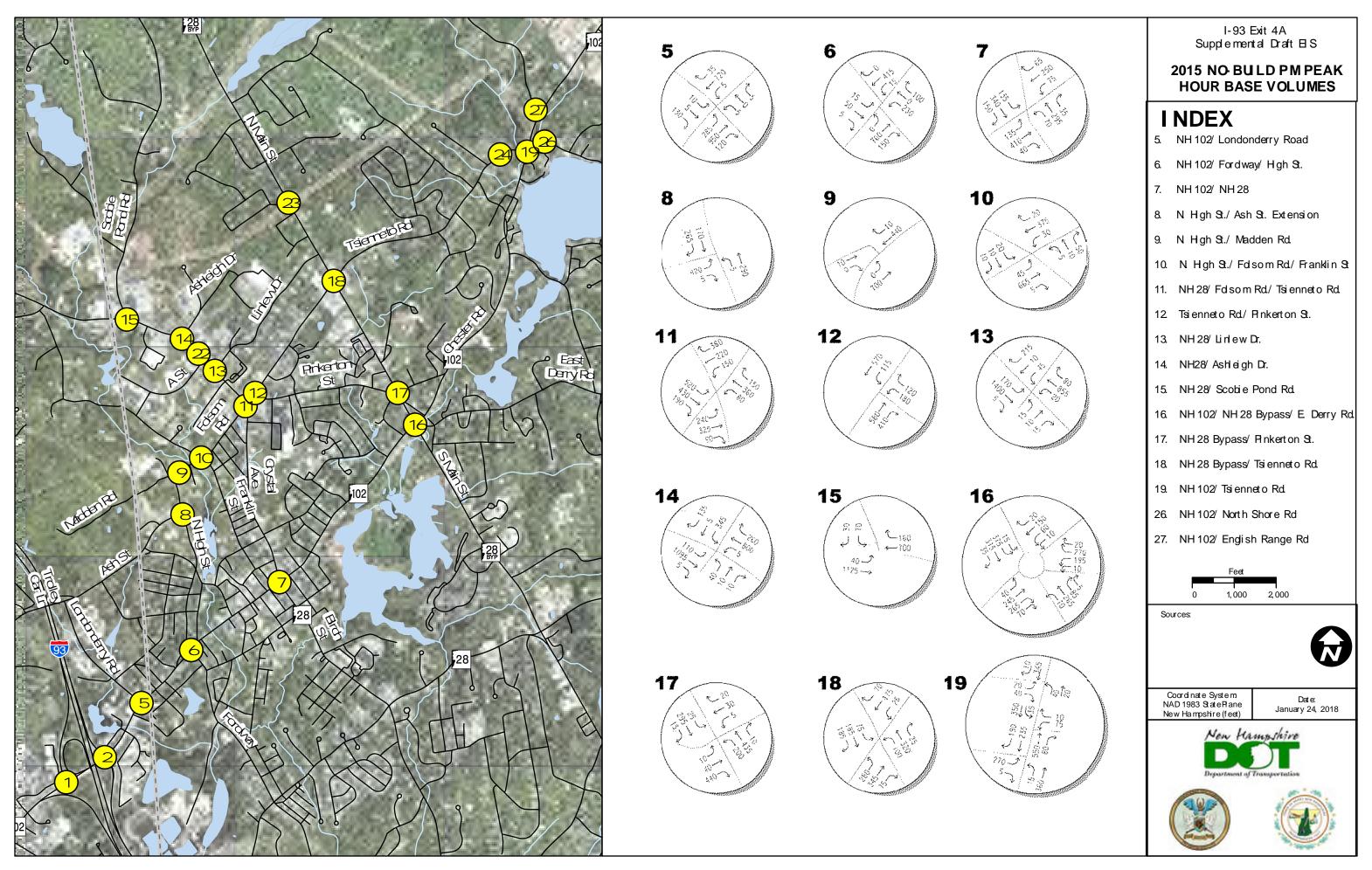
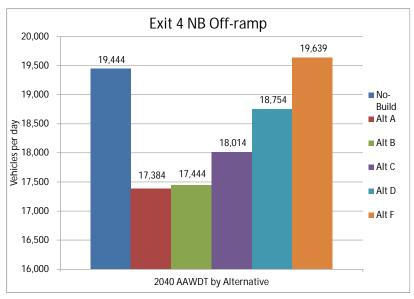
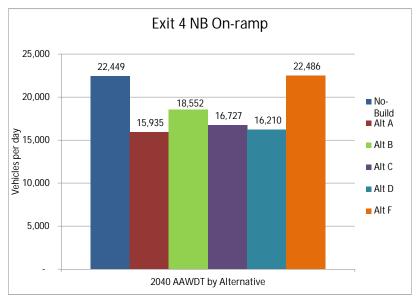
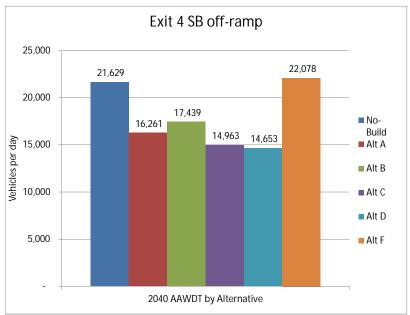


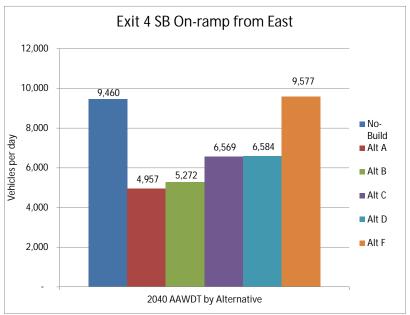
Figure 7 - 2015 No-Build PM Peak Hour Base Volumes – Locations 5-19 and 26-27

### FIGURE 8 - VOLUME COMPARISONS - EXIT 4 RAMPS

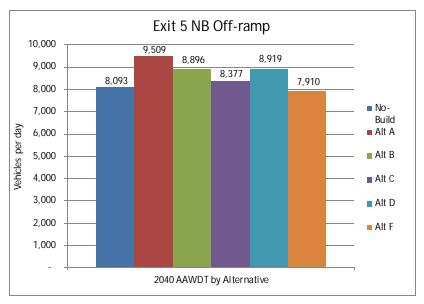


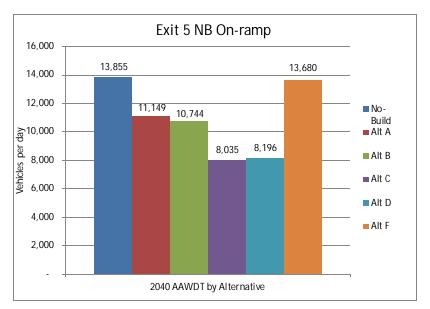


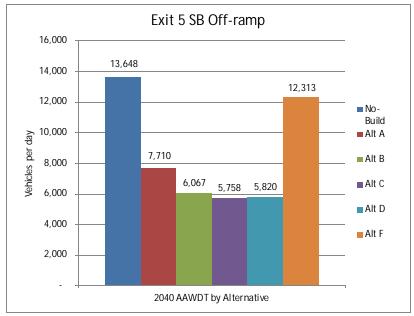


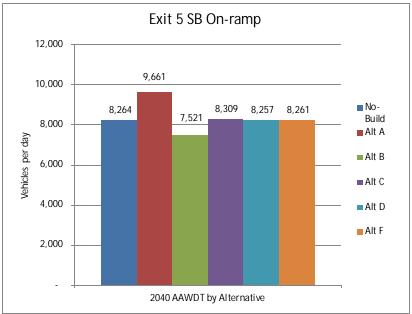


## FIGURE 9 - VOLUME COMPARISONS - EXIT 5 RAMPS

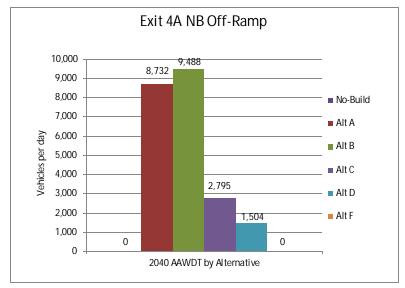


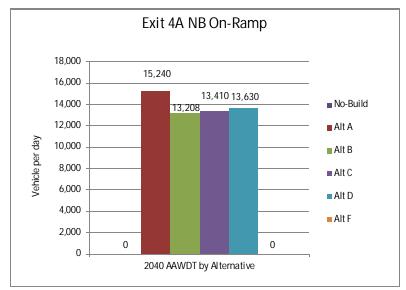


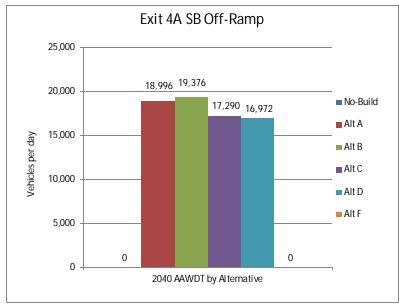


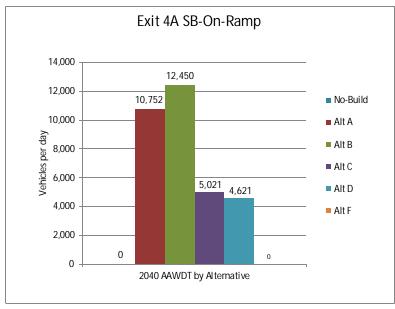


#### FIGURE 10- VOLUME COMPARISONS - EXIT 4A RAMPS

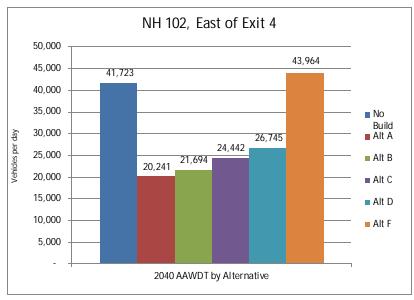


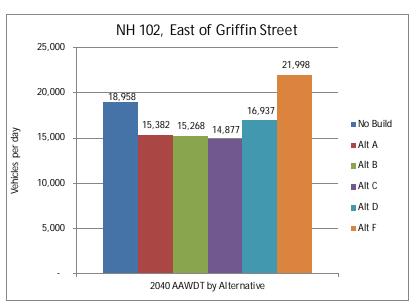


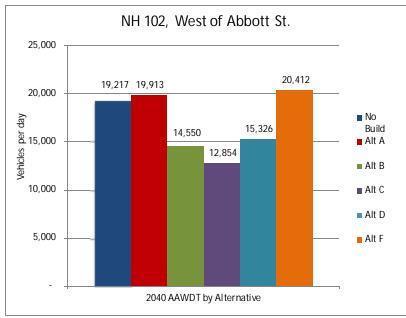


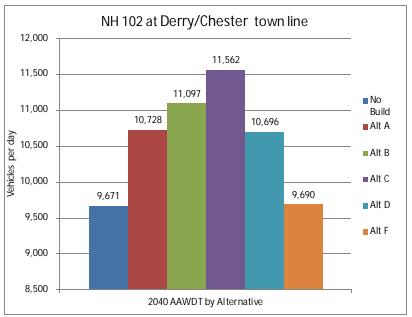


### FIGURE 11 - VOLUME COMPARISONS - NH ROUTE 102 CORRIDOR

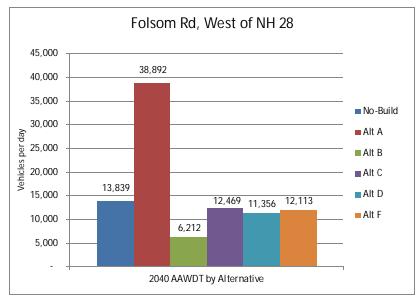


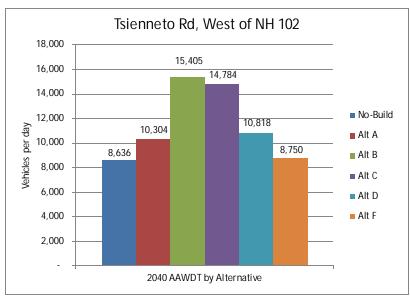


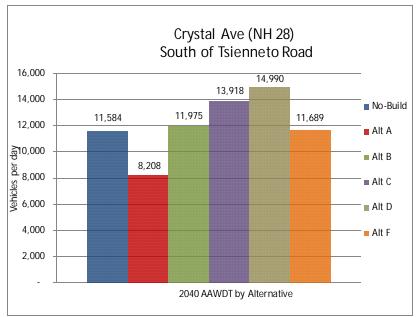


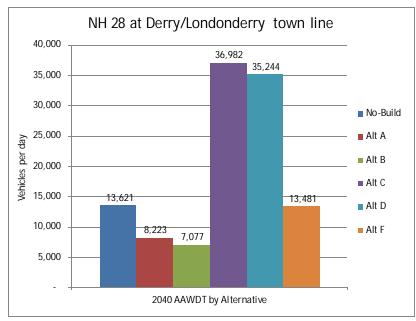


### FIGURE 12- VOLUME COMPARISONS- OTHER LOCAL STREETS









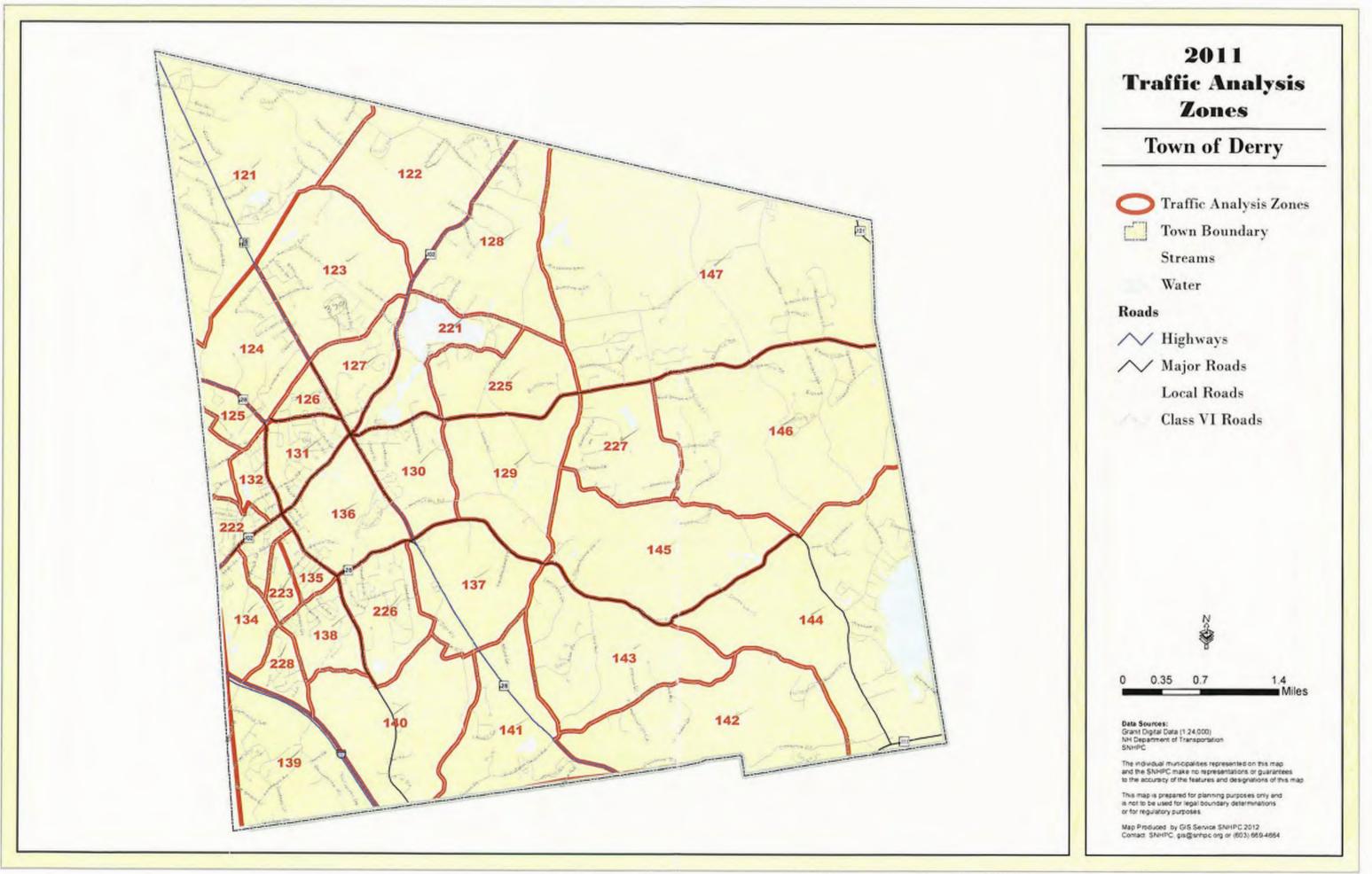
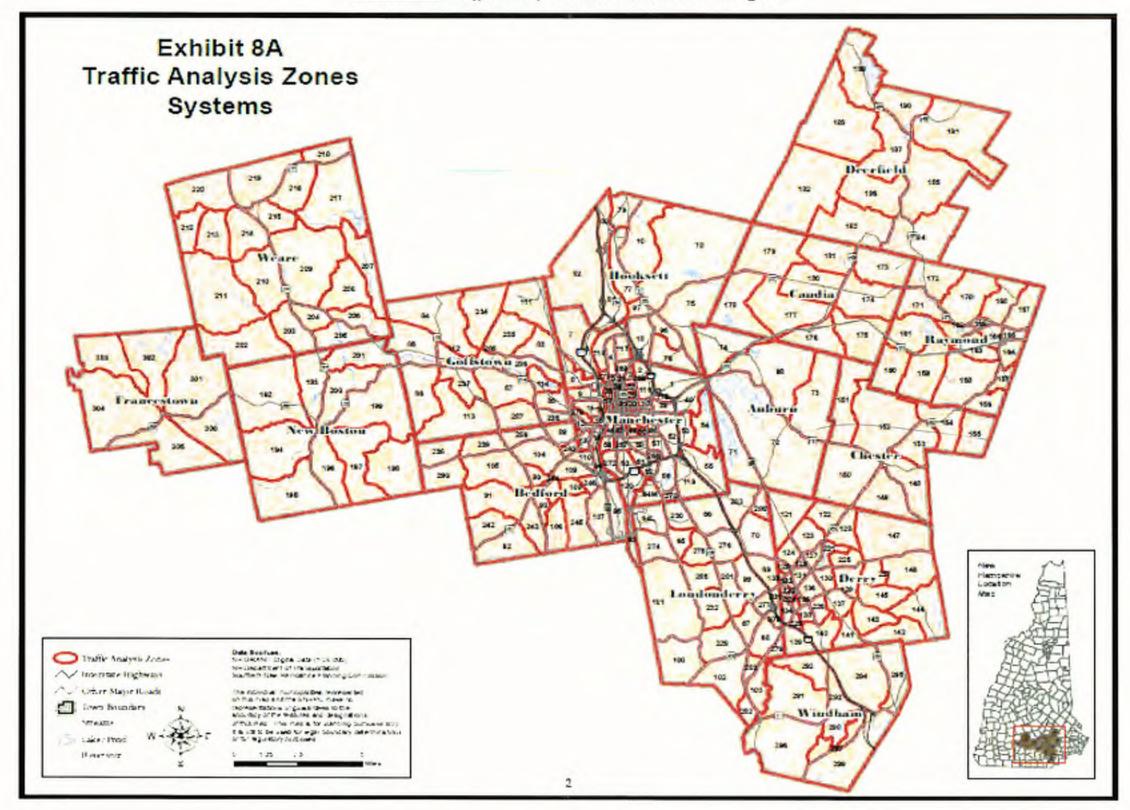


Figure 13 - SNHPC Traffic Analysis Zones - Derry NH



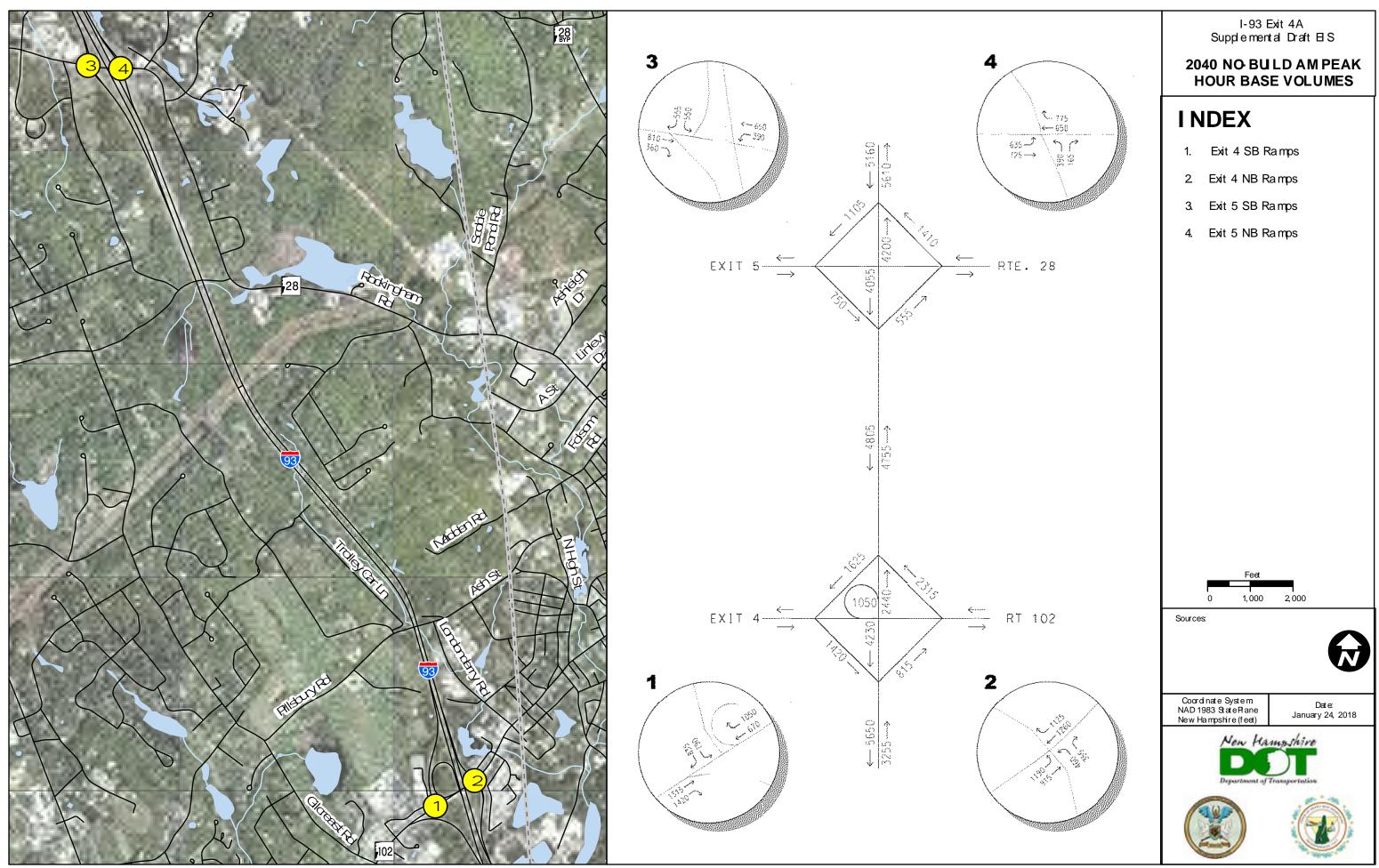


Figure 15 - 2040 No-Build AM Peak Hour Base Volumes – Locations 1-4

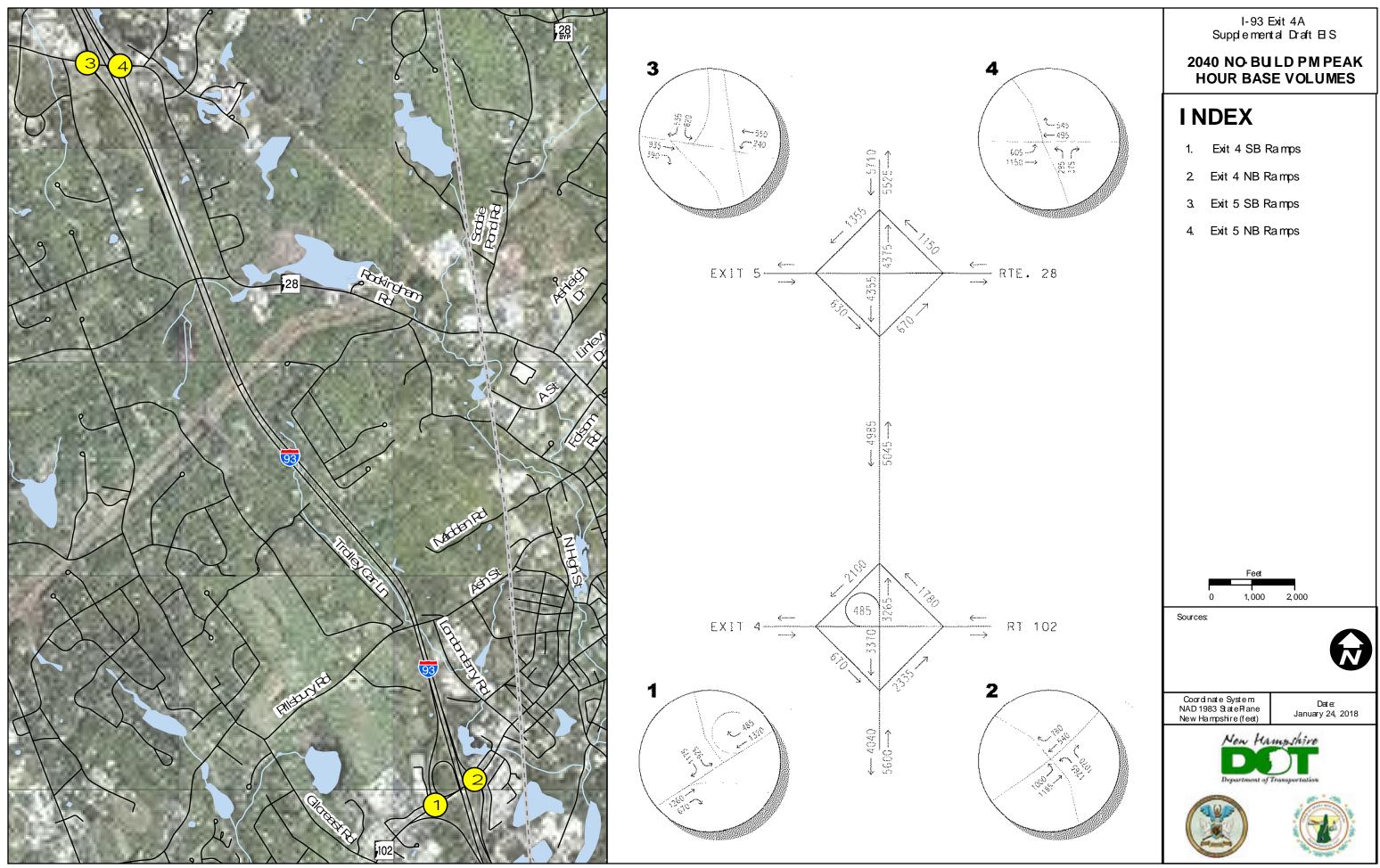


Figure 16 - 2040 No-Build PM Peak Hour Base Volumes – Locations 1-4

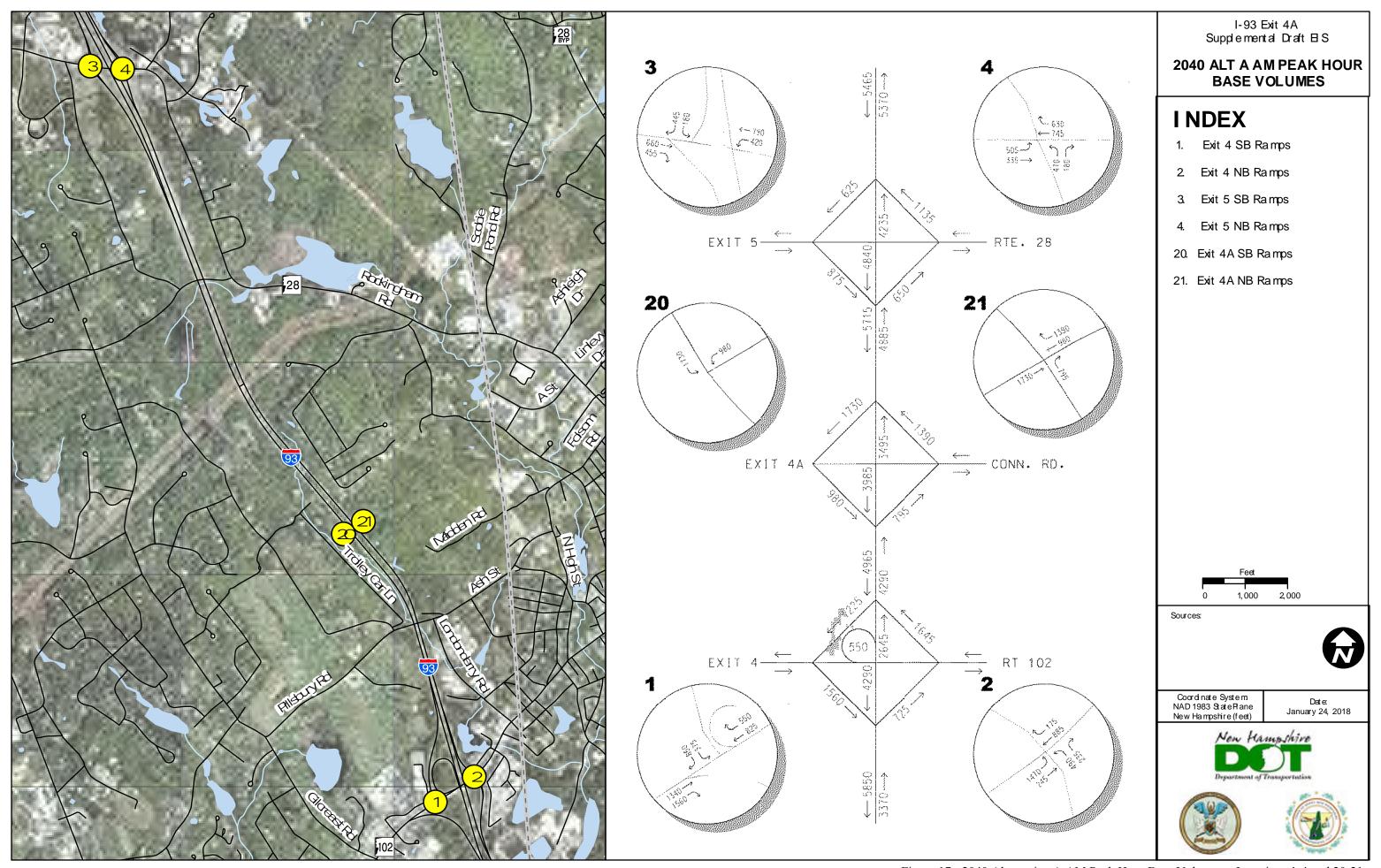


Figure 17 - 2040 Alternative A AM Peak Hour Base Volumes – Locations 1-4 and 20-21

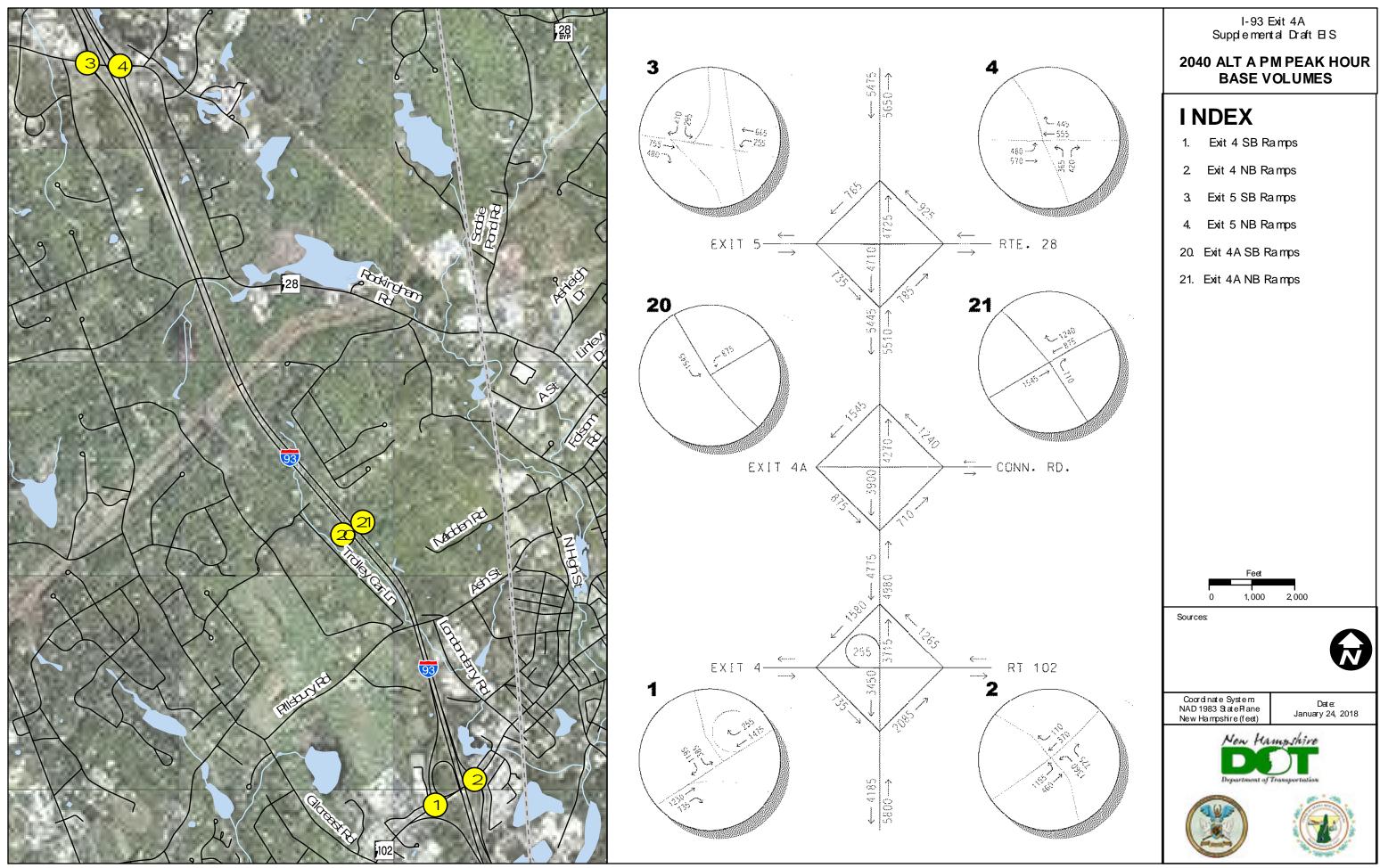


Figure 18 - 2040 Alternative A PM Peak Hour Base Volumes – Locations 1-4 and 20-21

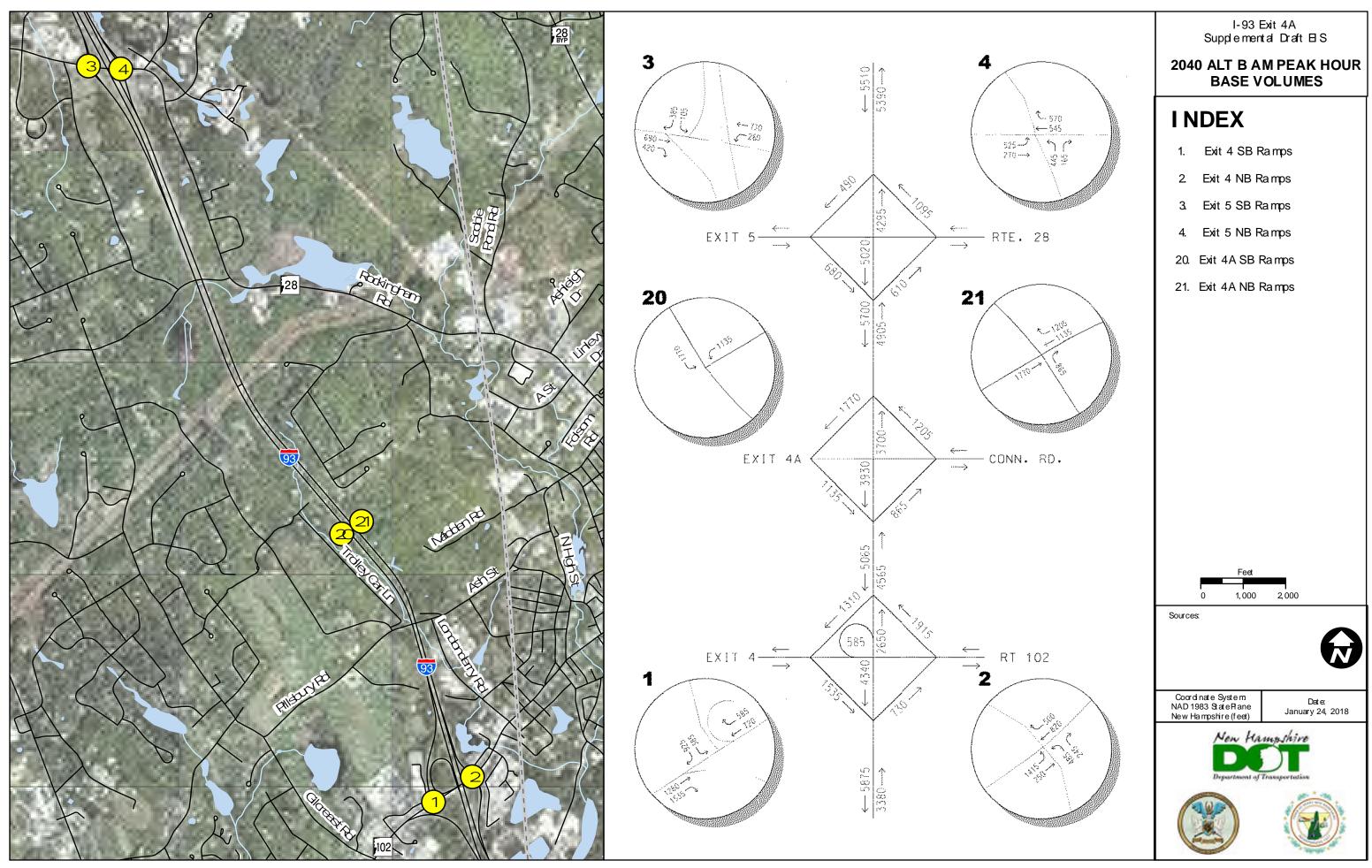


Figure 19 - 2040 Alternative B AM Peak Hour Base Volumes – Locations 1-4 and 20-21

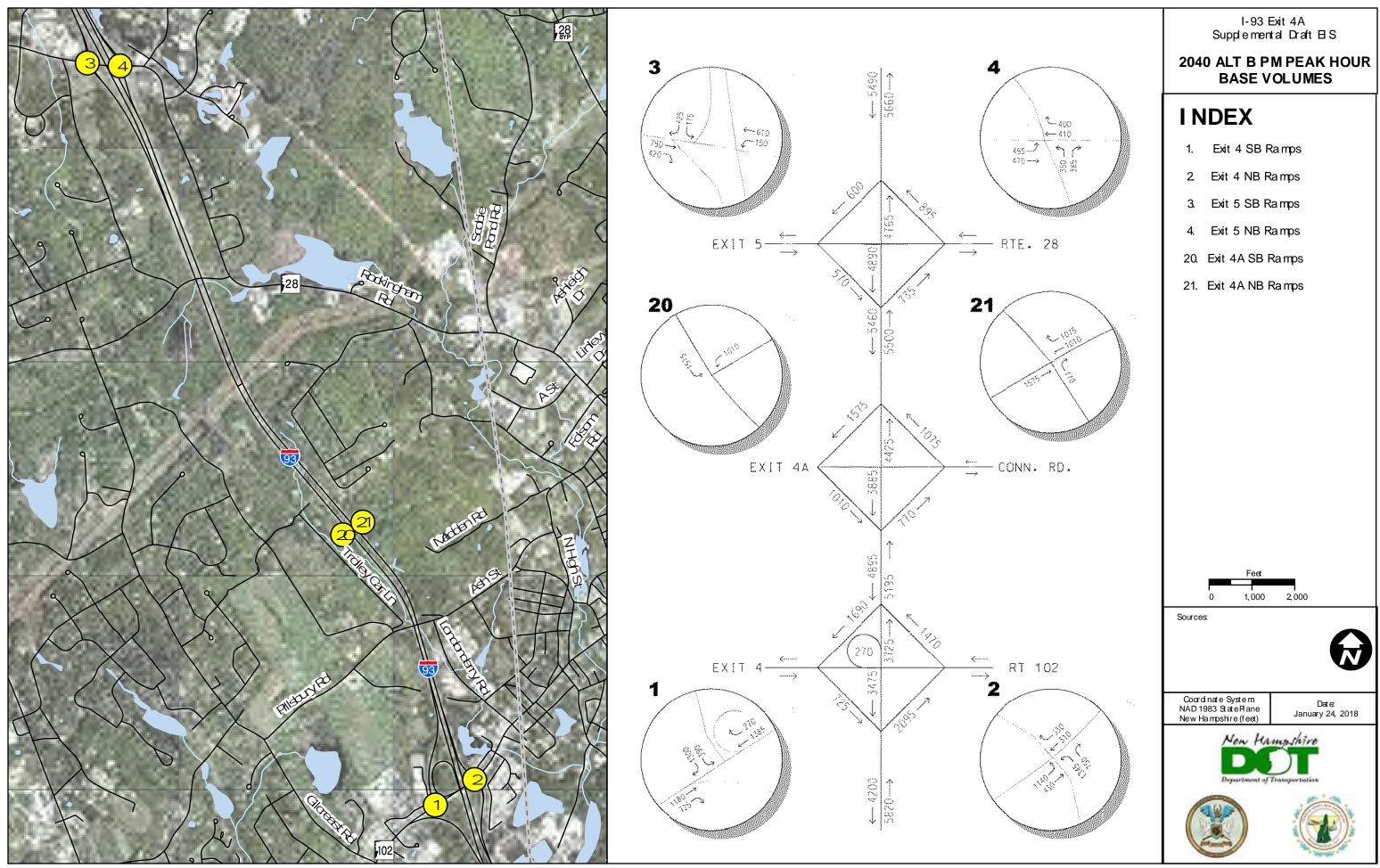


Figure 20 - 2040 Alternative B PM Peak Hour Base Volumes – Locations 1-4 and 20-21

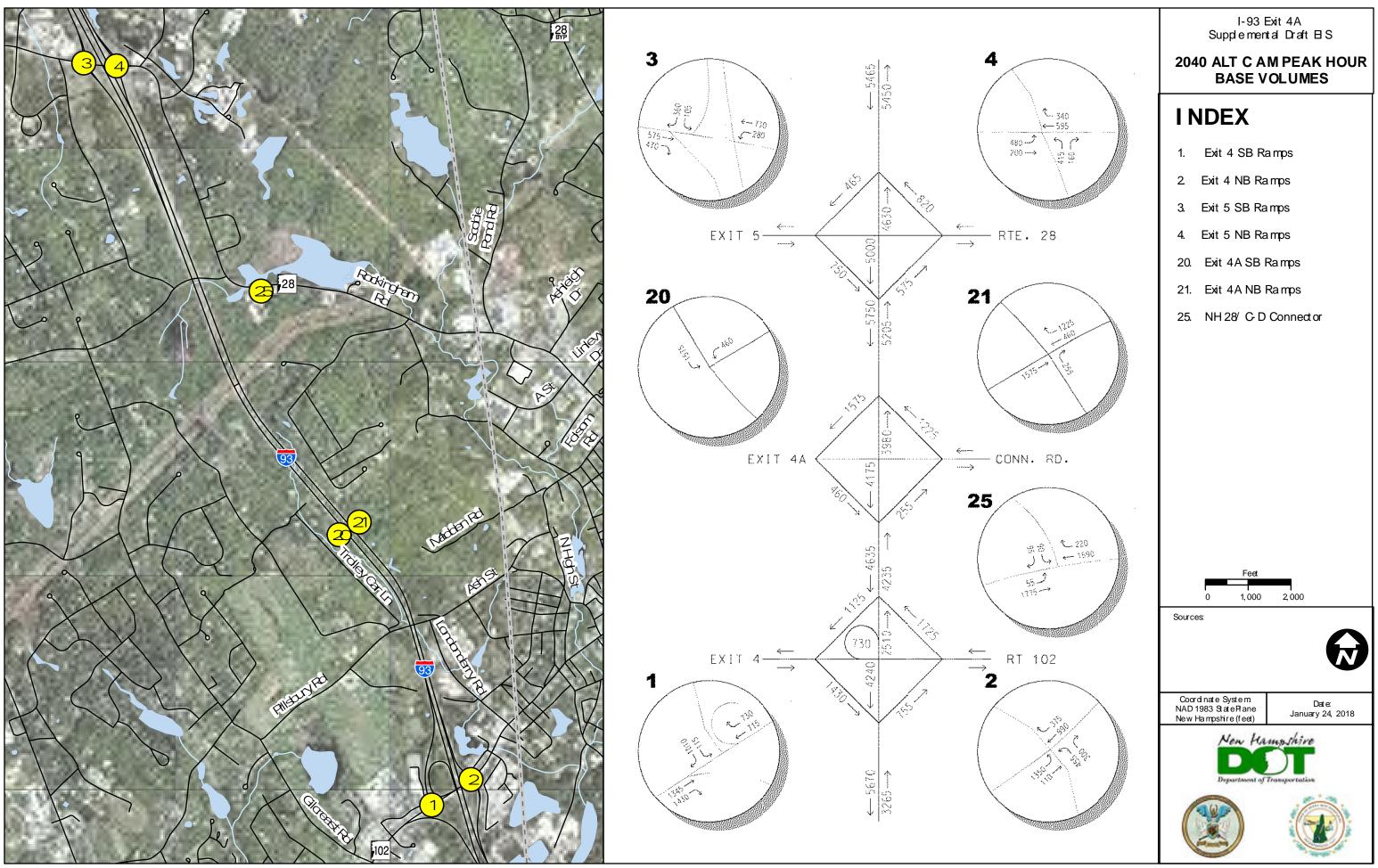


Figure 21 - 2040 Alternative C AM Peak Hour Base Volumes – Locations 1-4, 20-21, and 25

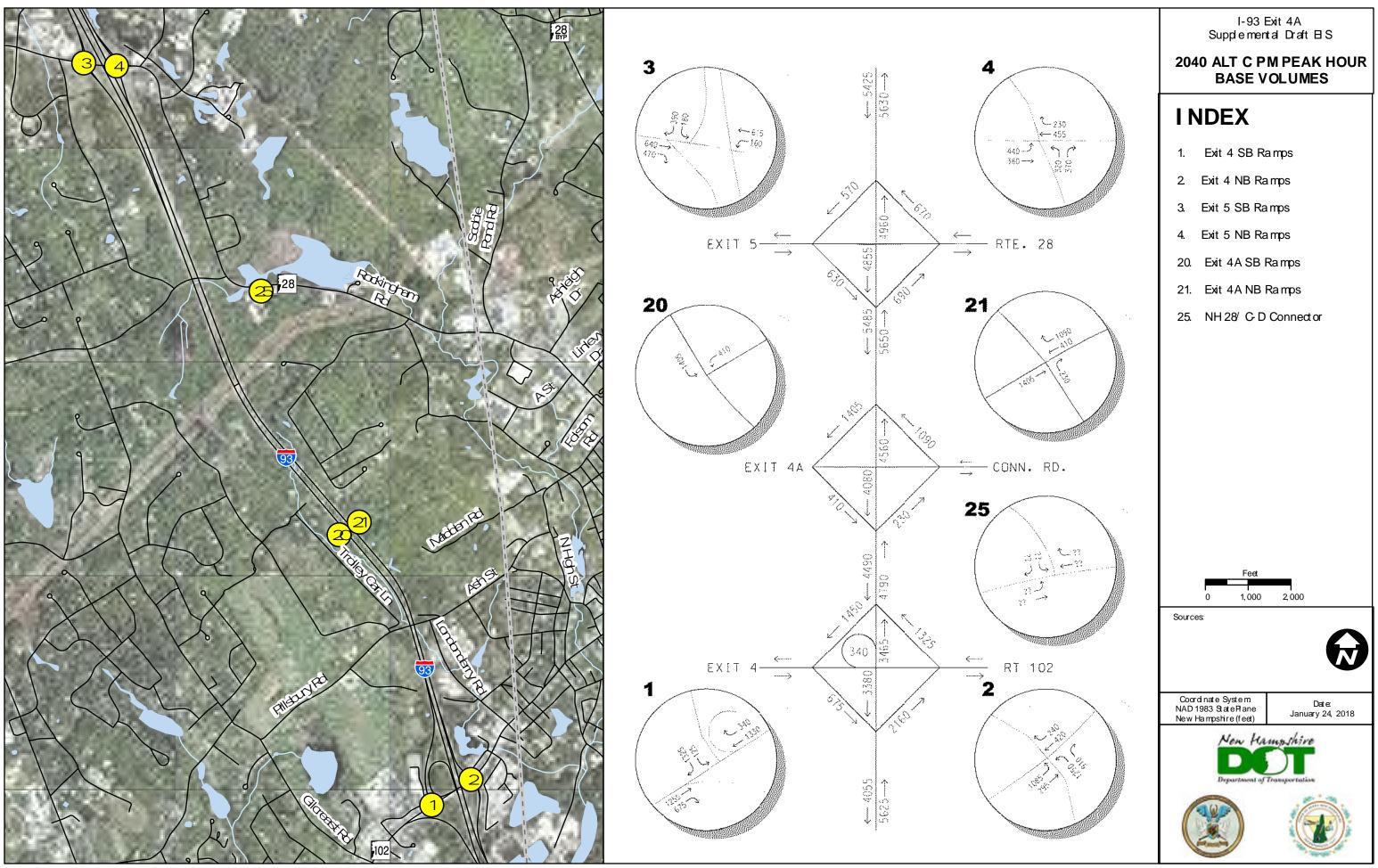


Figure 22 - 2040 Alternative C PM Peak Hour Base Volumes – Locations 1-4, 20-21, and 25

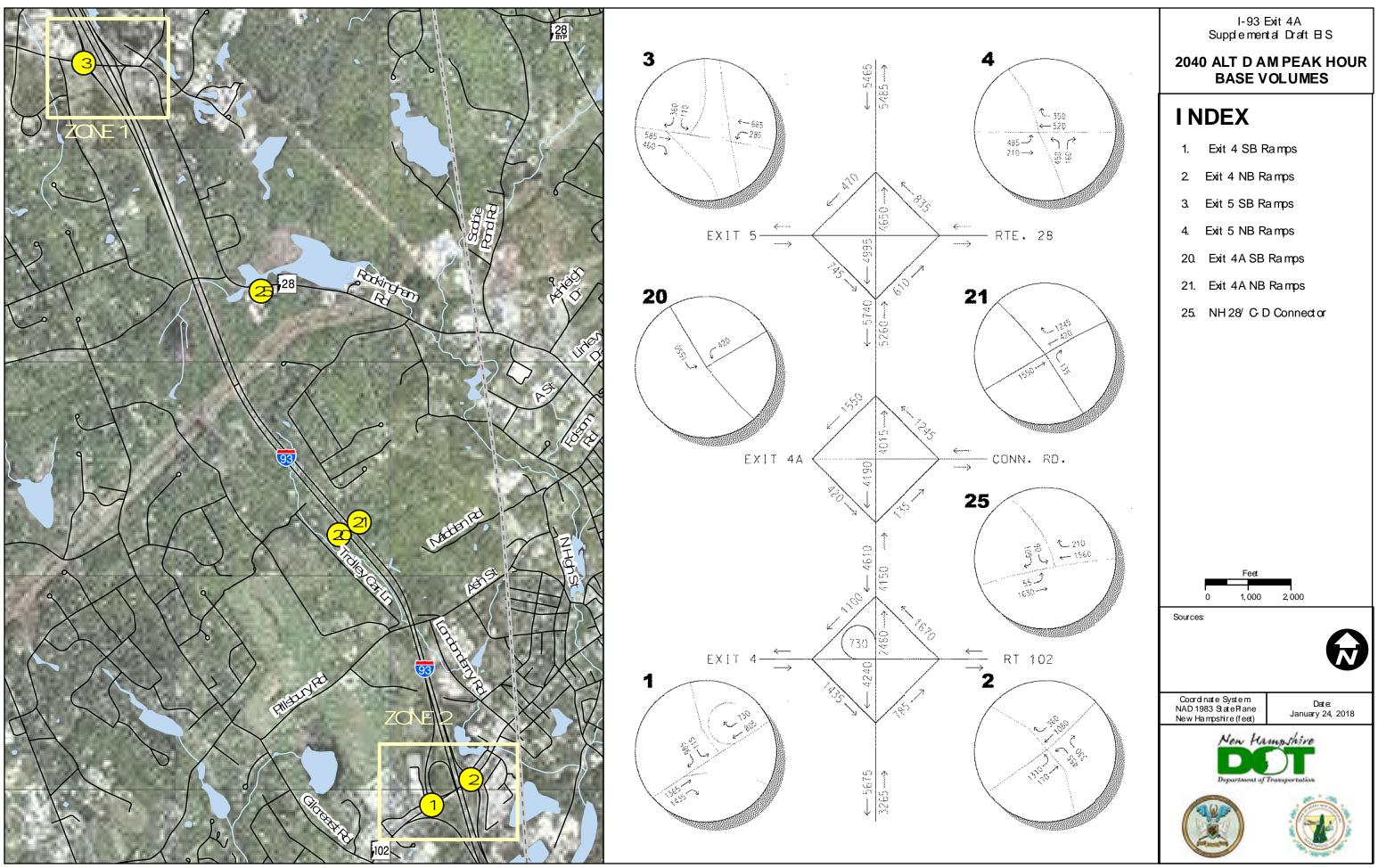


Figure 23 - 2040 Alternative D AM Peak Hour Base Volumes – Locations 1-4, 20-21, and 25

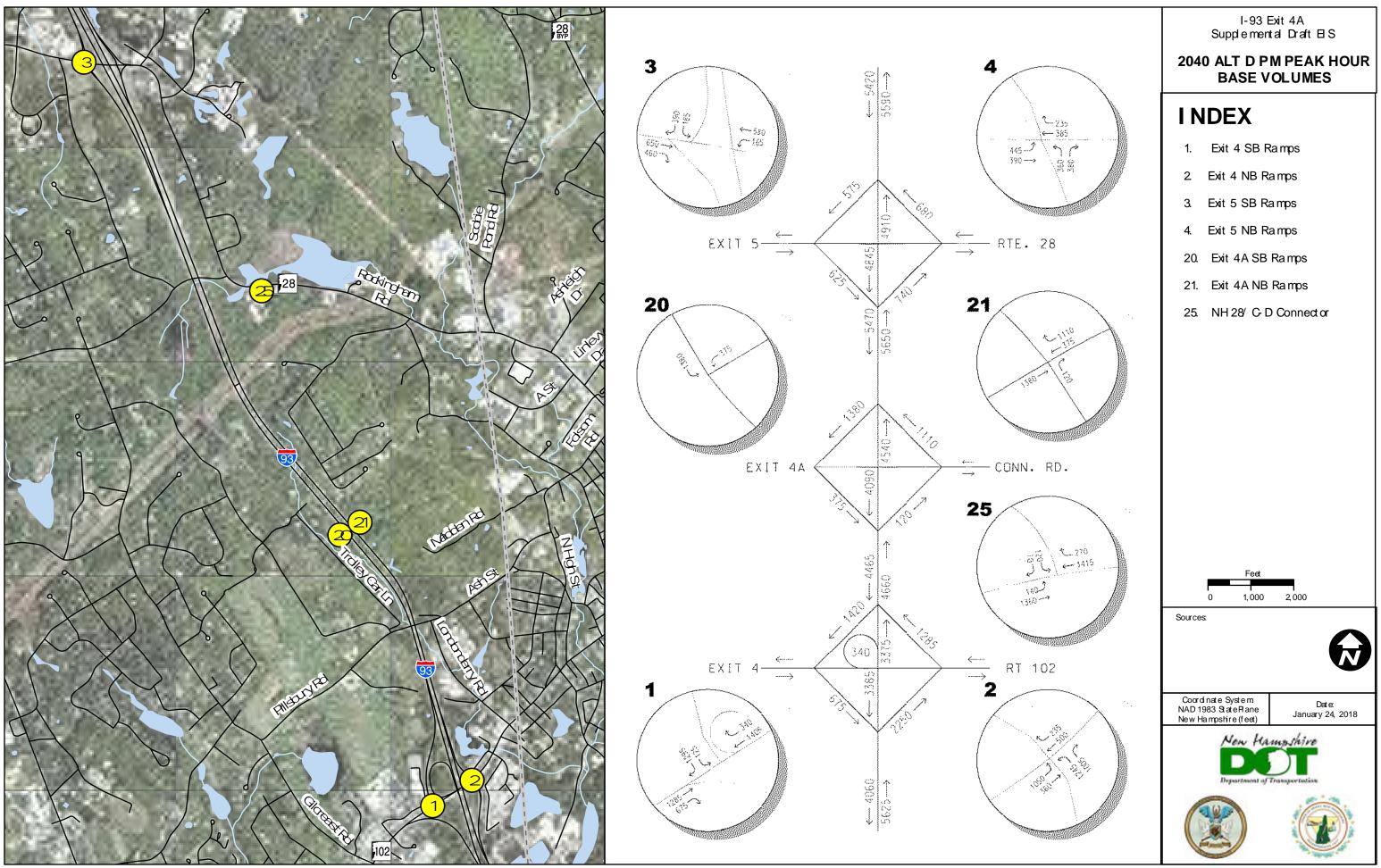


Figure 24 - 2040 Alternative D PM Peak Hour Base Volumes – Locations 1-4, 20-21, and 25

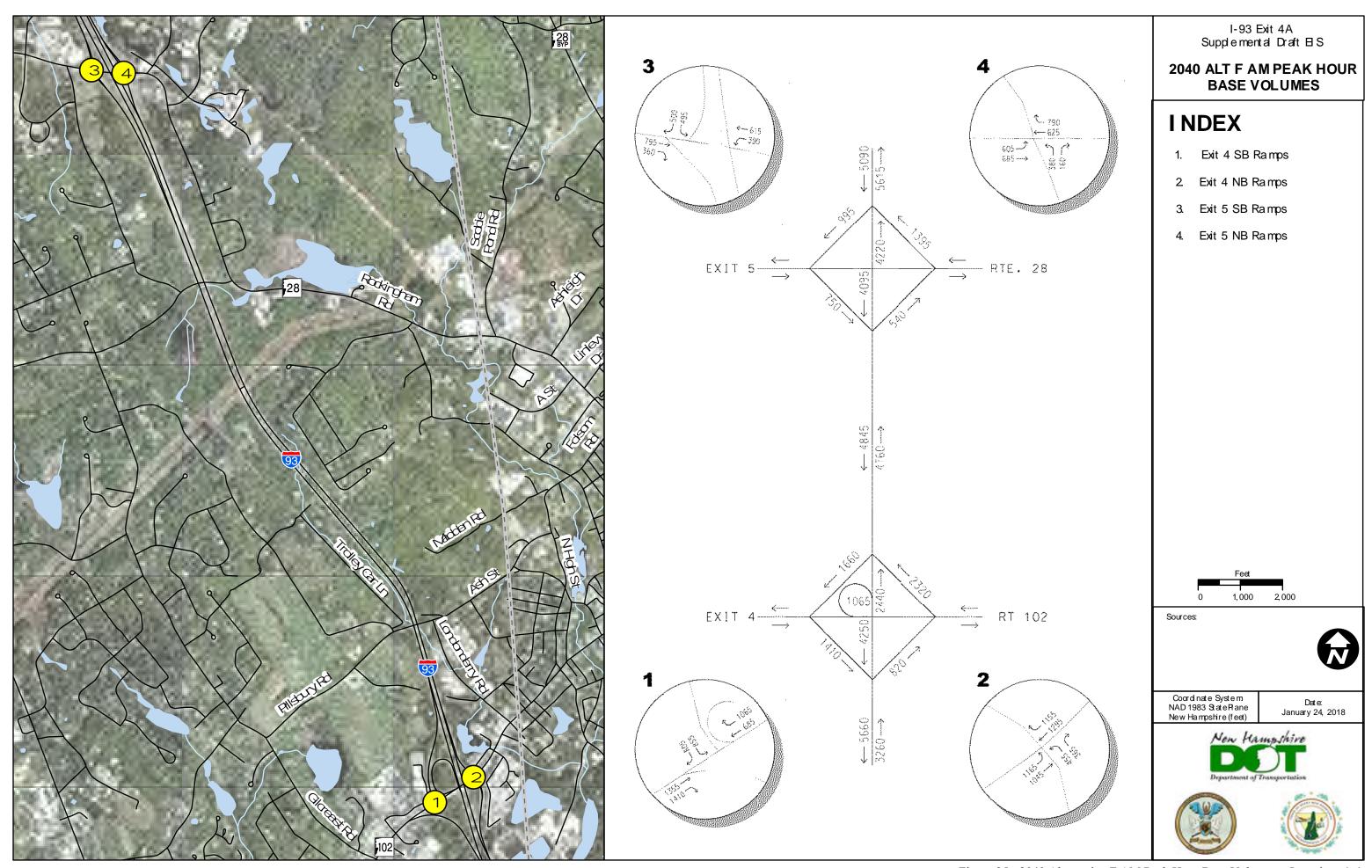


Figure 25 - 2040 Alternative F AM Peak Hour Base Volumes – Locations 1-4

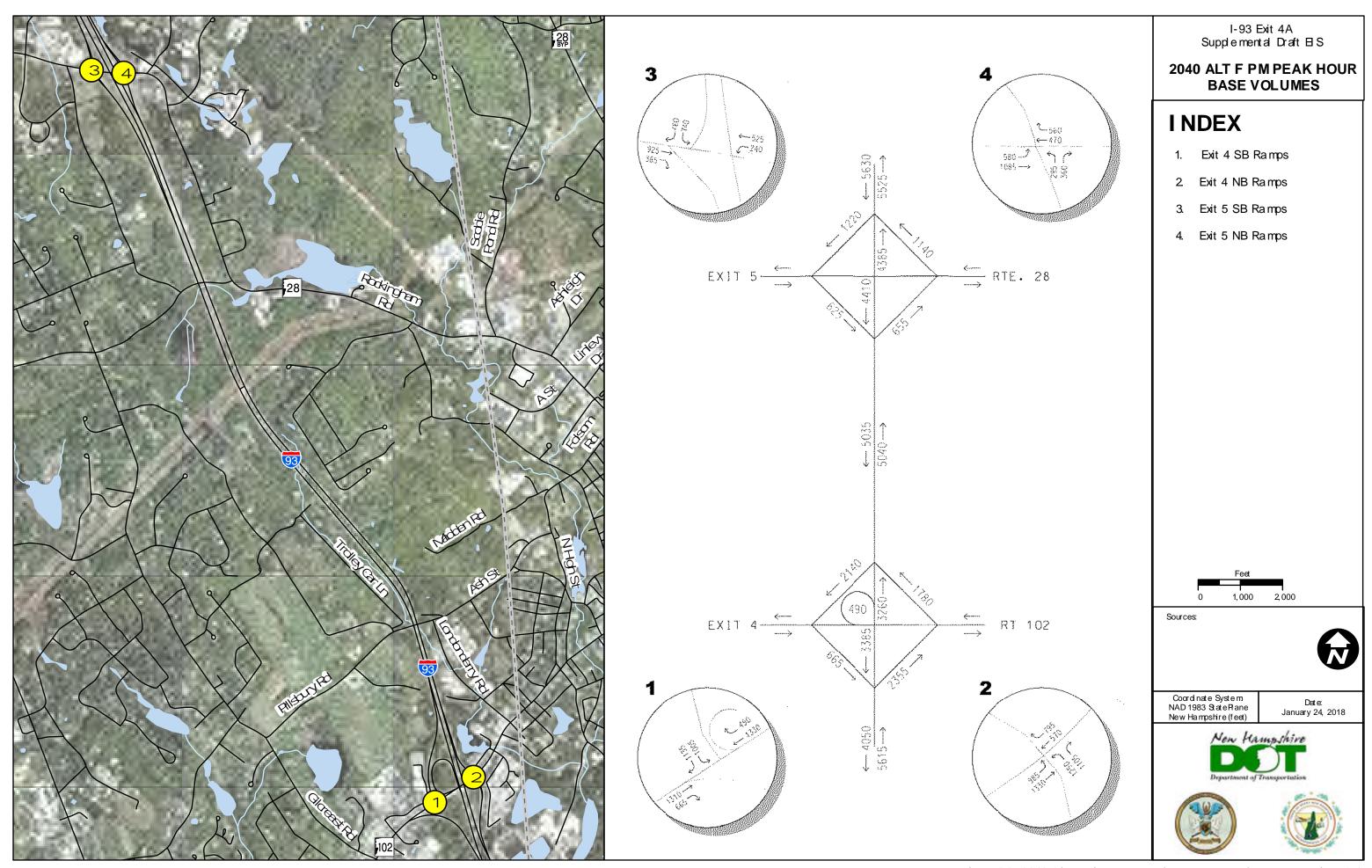


Figure 26 - 2040 Alternative F PM Peak Hour Base Volumes – Locations 1-4

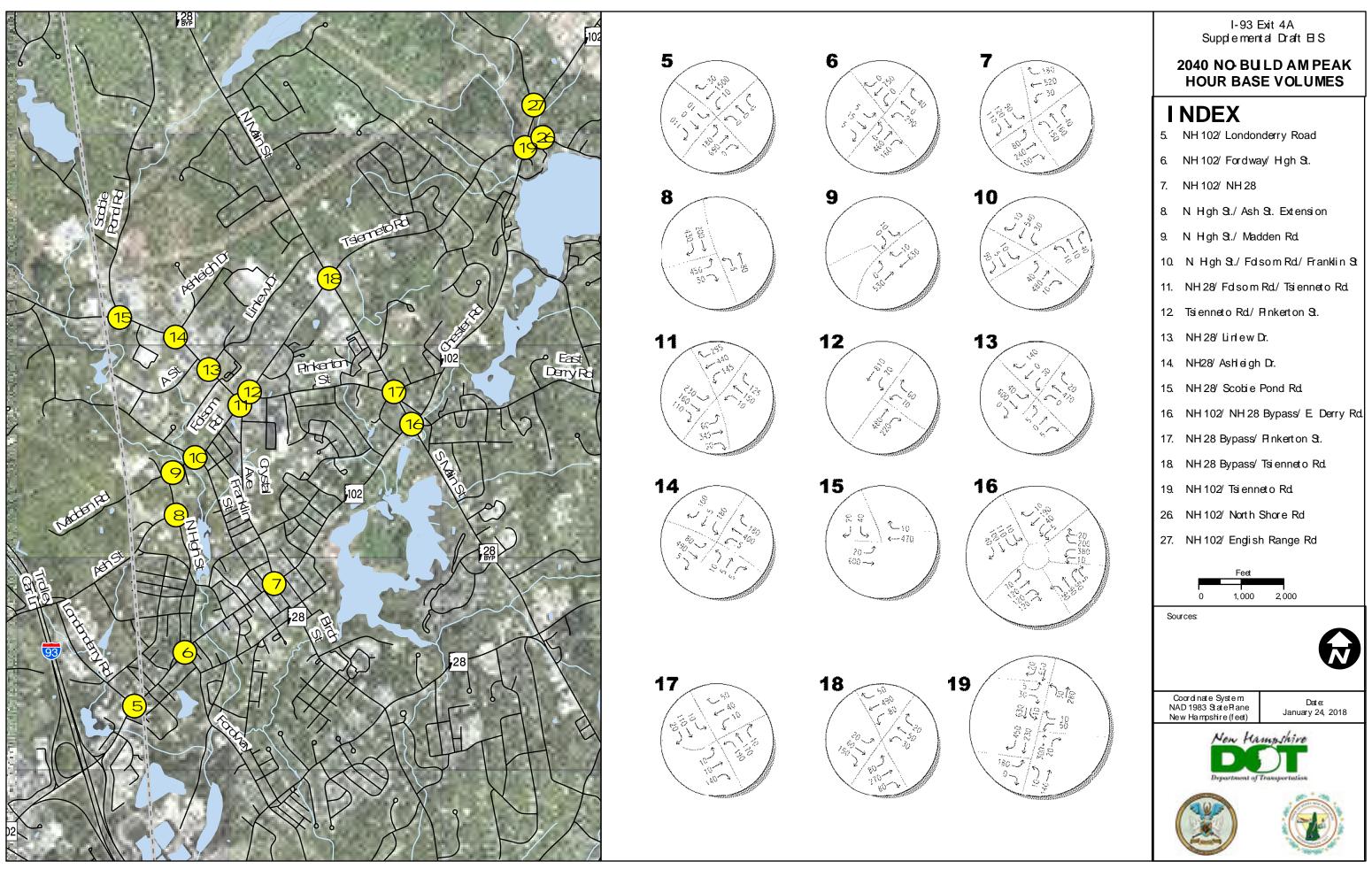


Figure 27 - 2040 No-Build AM Peak Hour Base Volumes – Locations 5-19 and 26-27

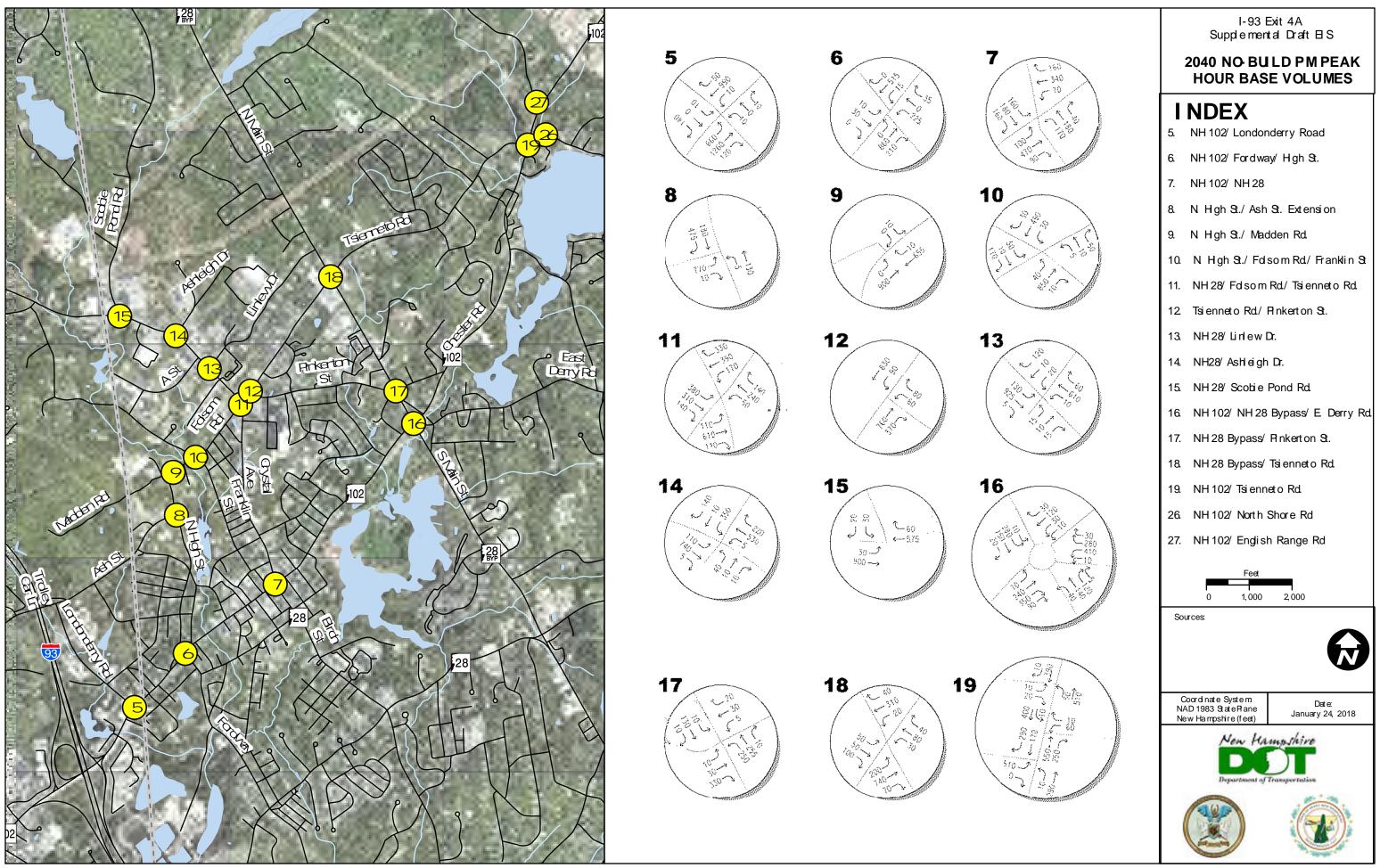


Figure 28 - 2040 No-Build PM Peak Hour Base Volumes – Locations 5-19 and 26-27

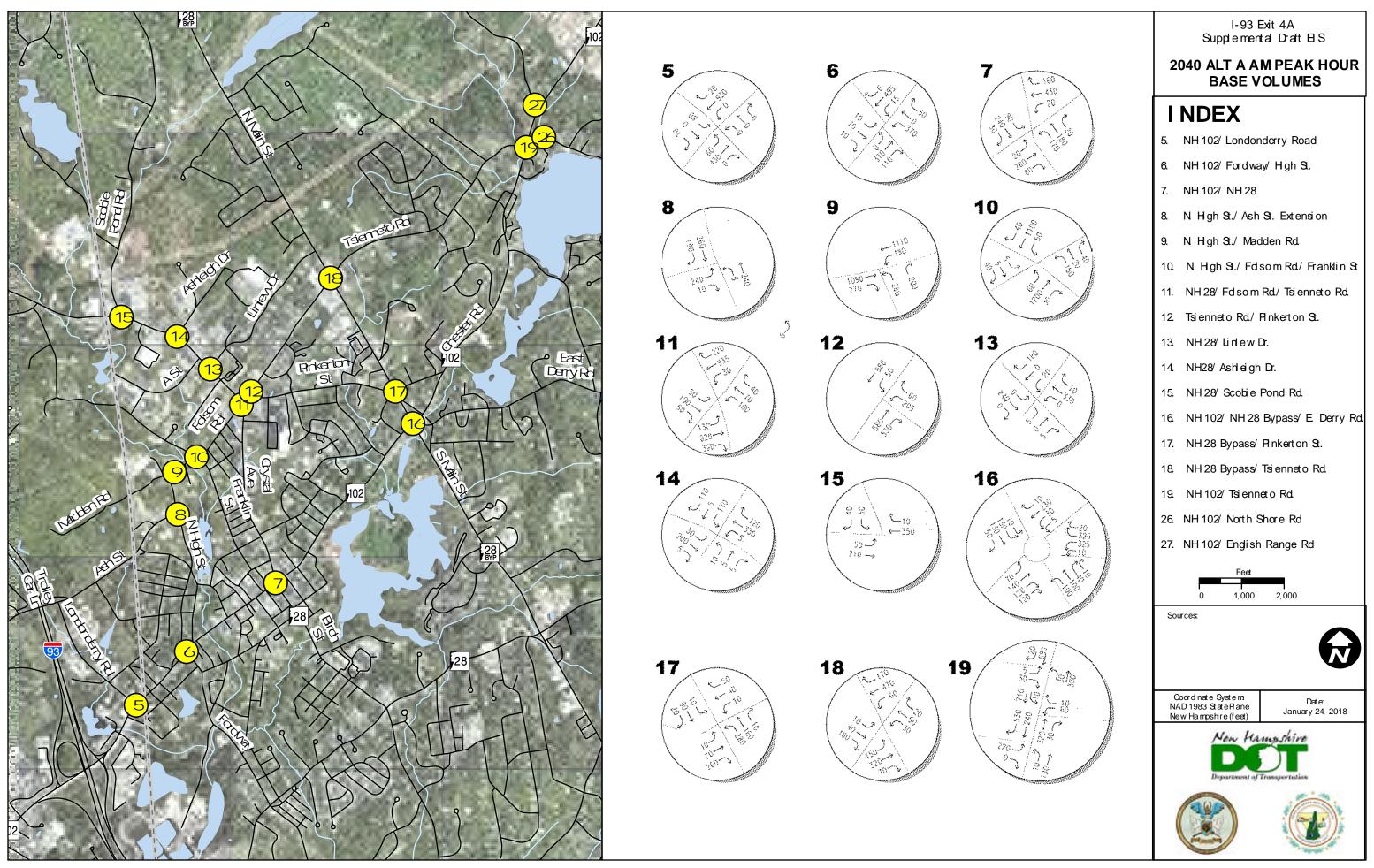


Figure 29 - 2040 Alternative A AM Peak Hour Base Volumes – Locations 5-19 and 26-27

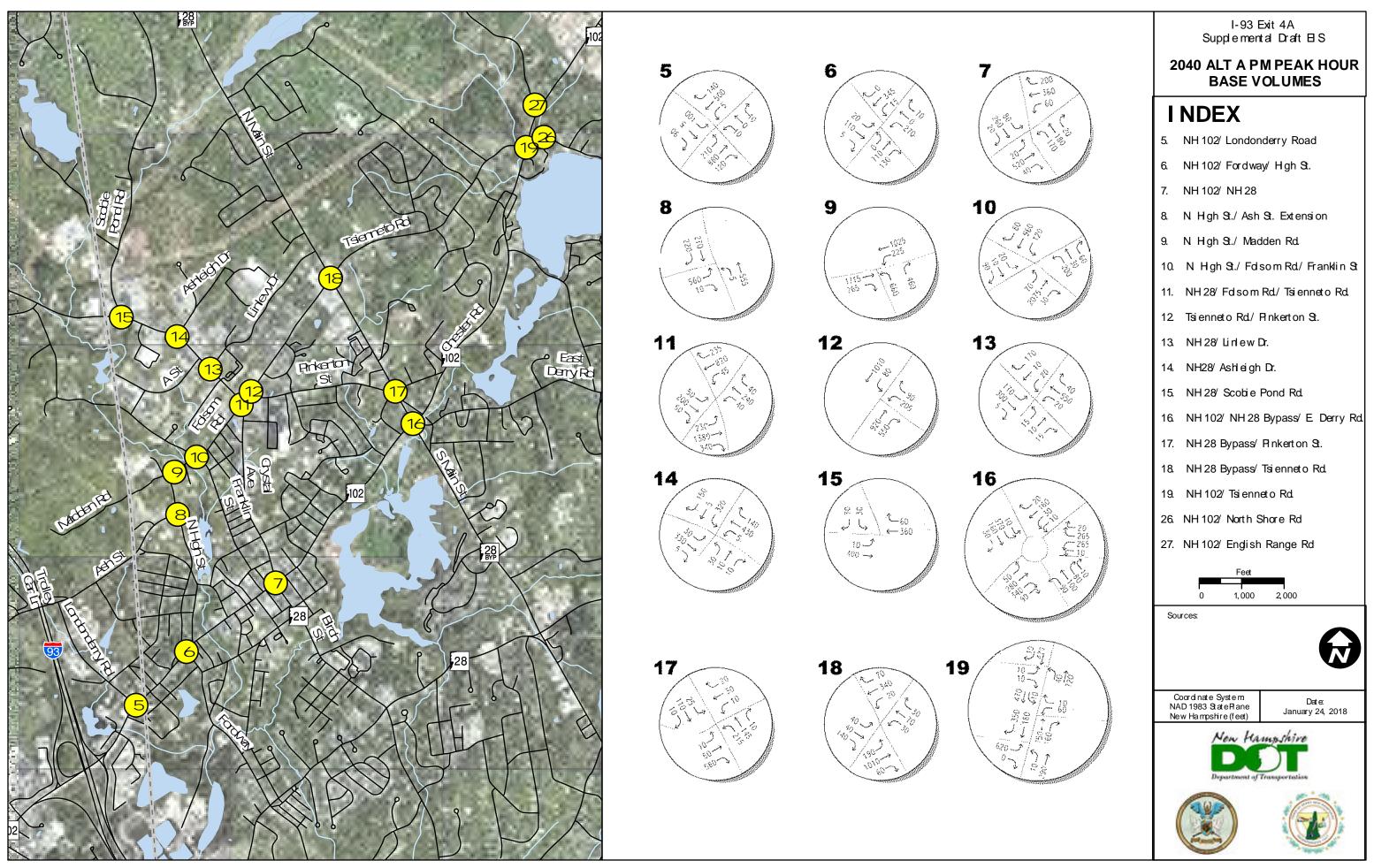


Figure 30 - 2040 Alternative A PM Peak Hour Base Volumes – Locations 5-19 and 26-27

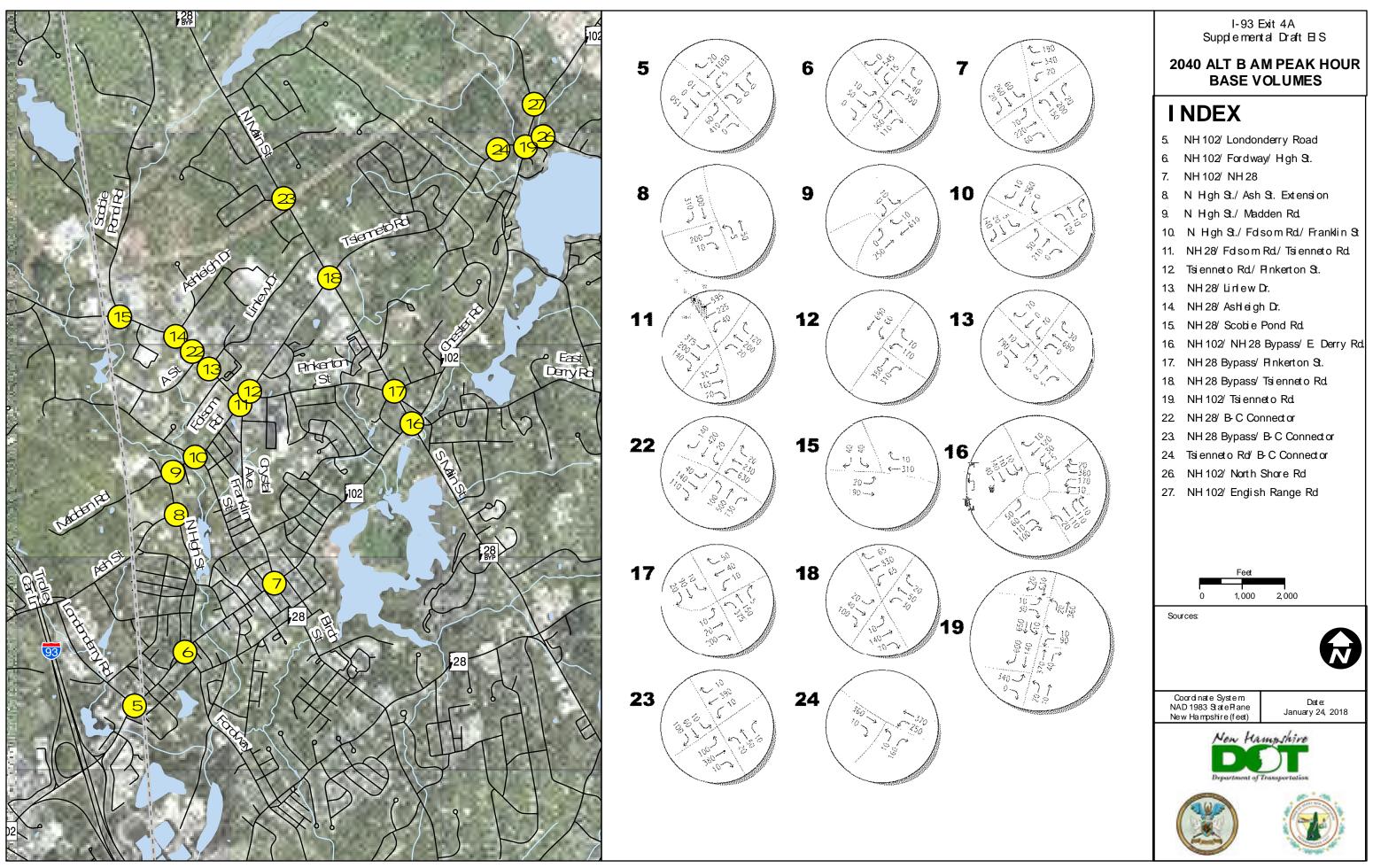


Figure 31 - 2040 Alternative B AM Peak Hour Base Volumes – Locations 5-19, 22-24, and 26-27

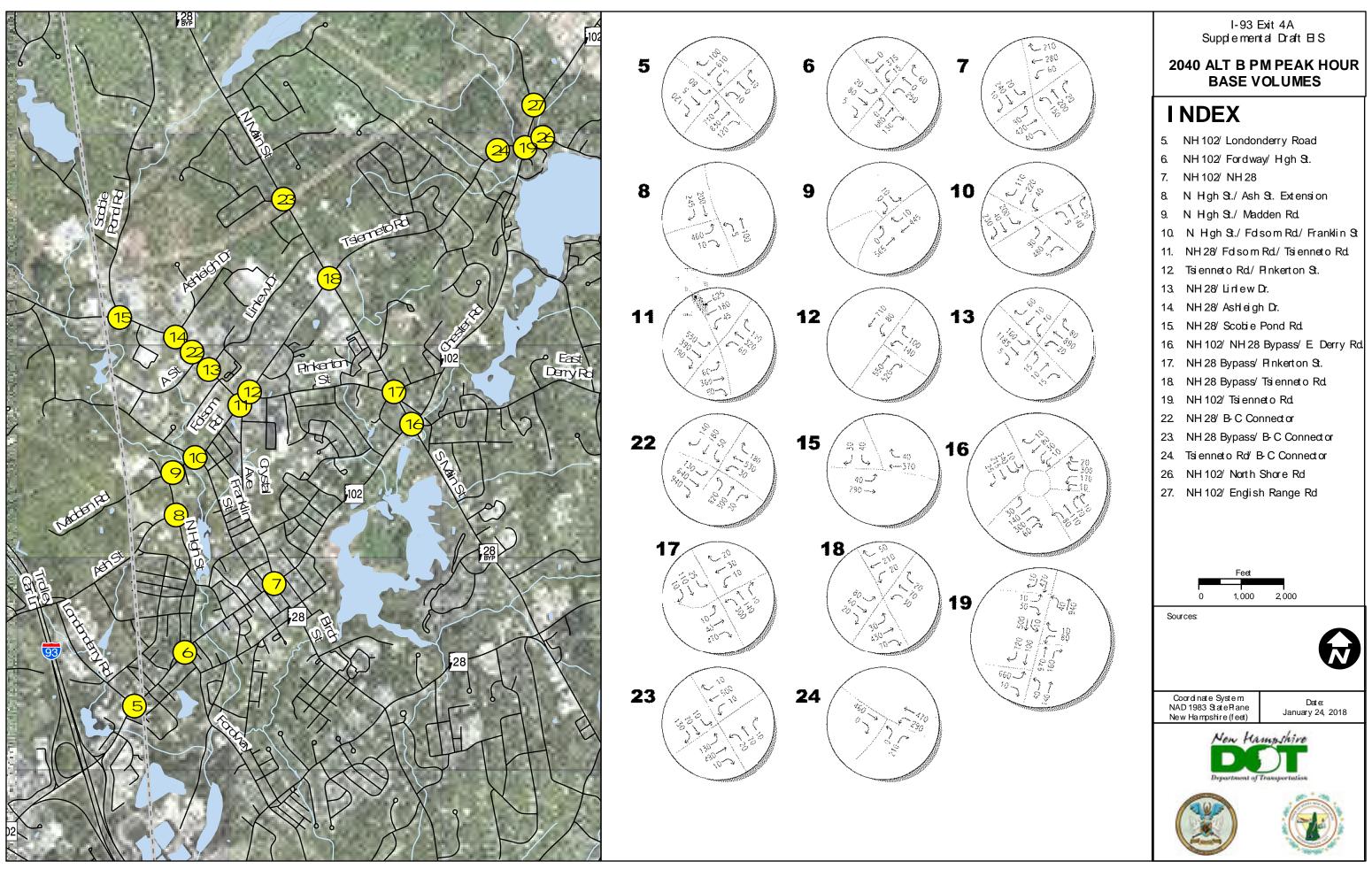


Figure 32 - 2040 Alternative B PM Peak Hour Base Volumes – Locations 5-19, 22-24, and 26-27

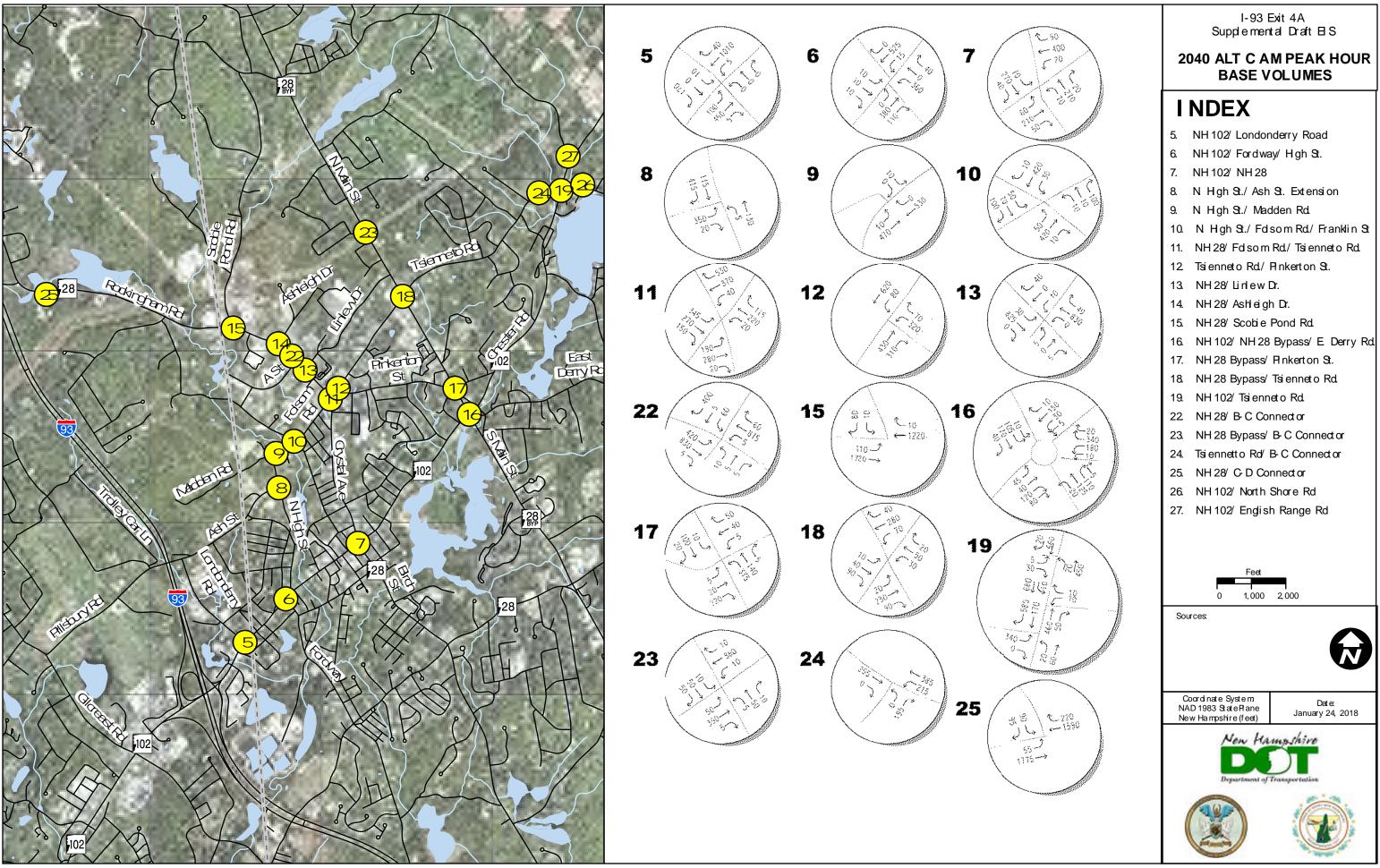


Figure 33 - 2040 Alternative C AM Peak Hour Base Volumes – Locations 5-19 and 22-27

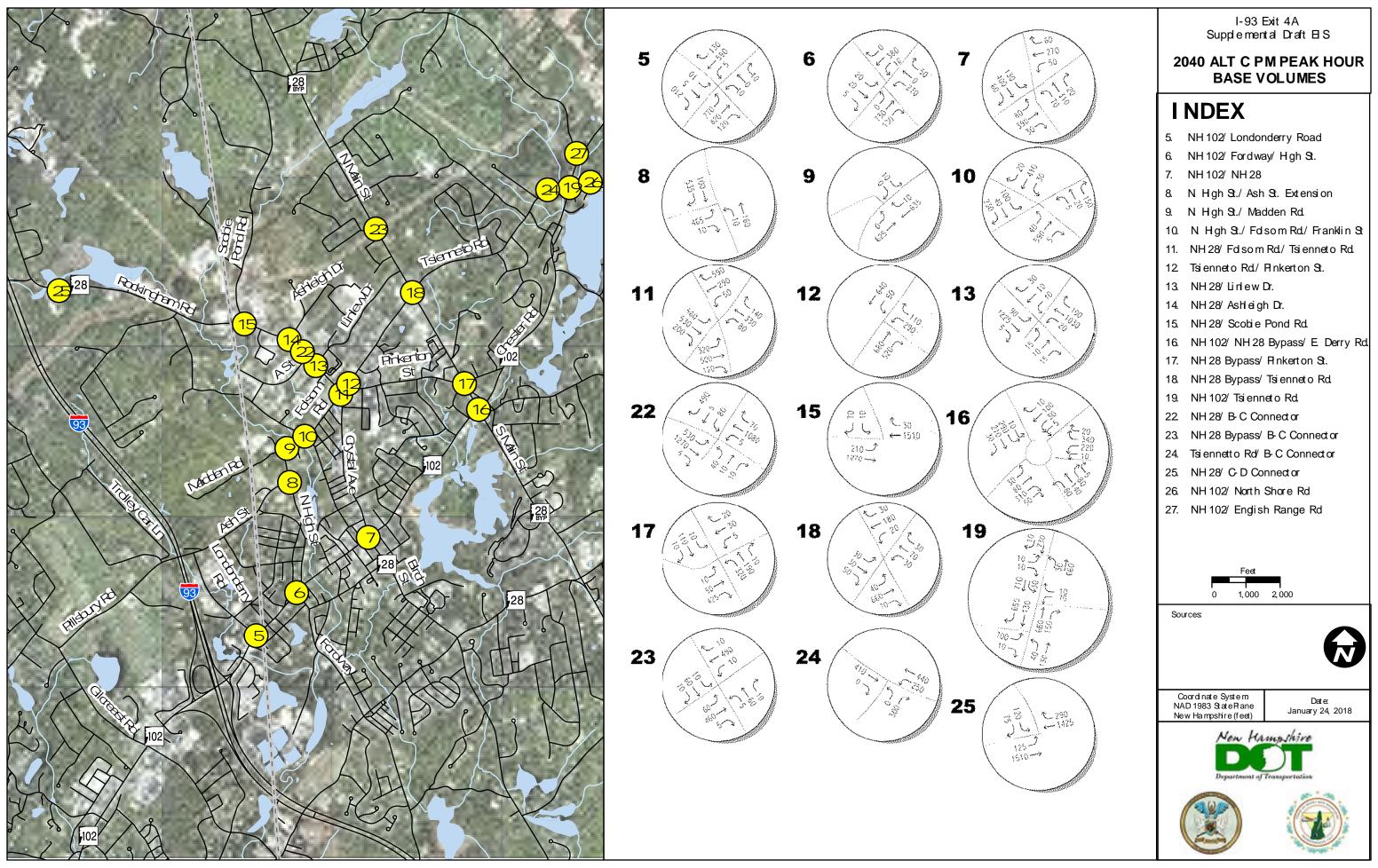


Figure 34 - 2040 Alternative C PM Peak Hour Base Volumes – Locations 5-19 and 22-27

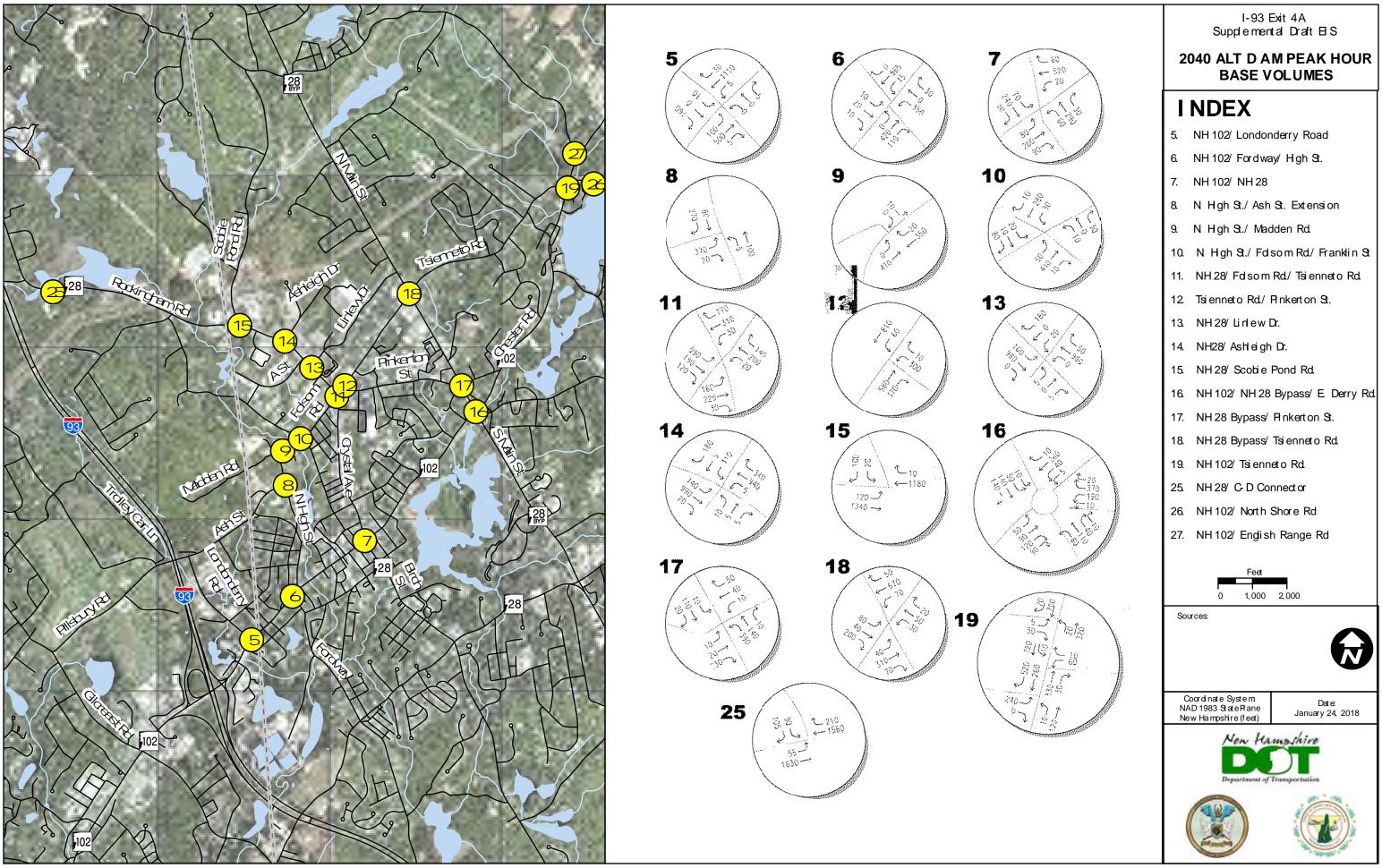


Figure 35 - 2040 Alternative D AM Peak Hour Base Volumes – Locations 5-19 and 25-27

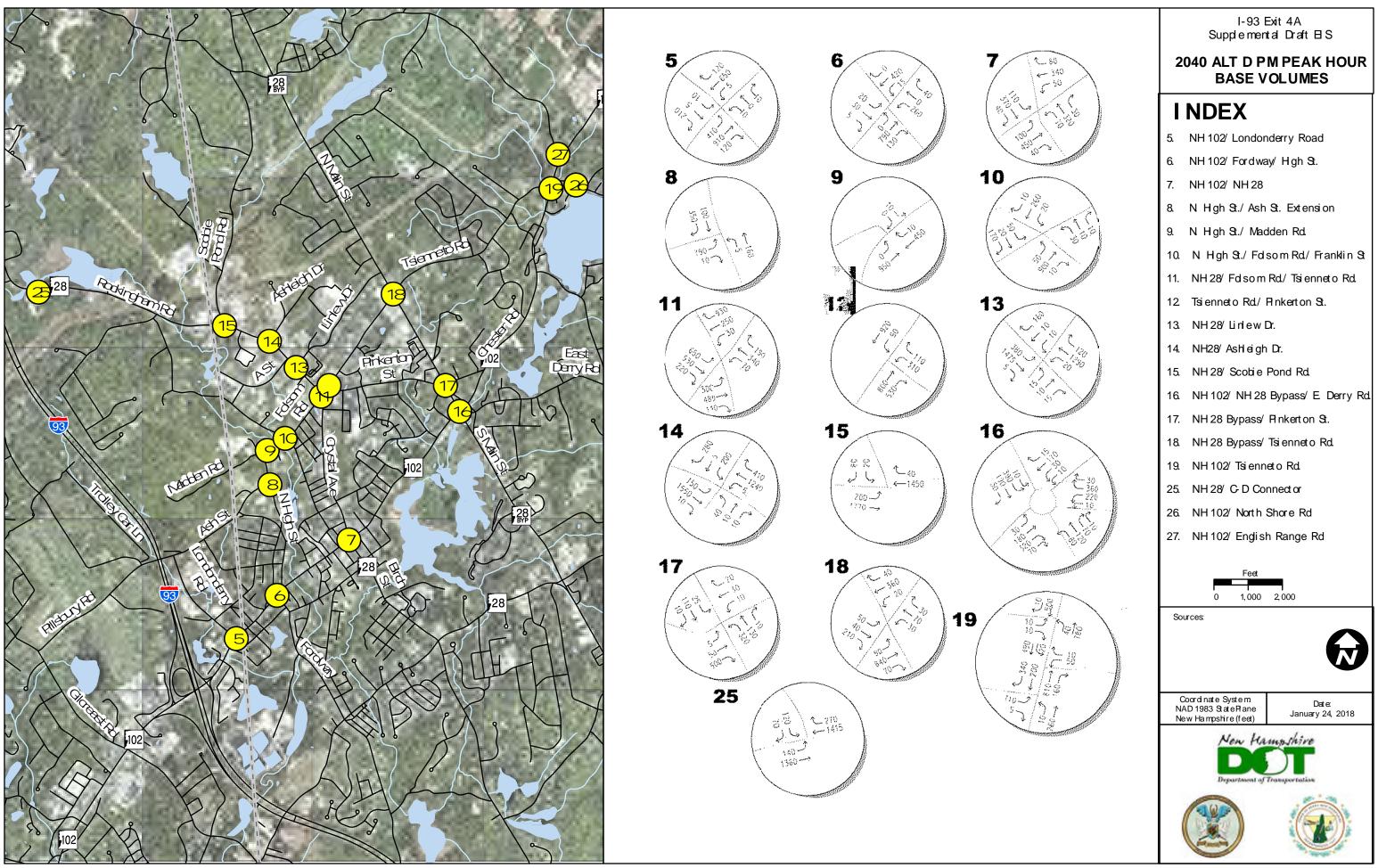


Figure 36 - 2040 Alternative D PM Peak Hour Base Volumes – Locations 5-19 and 25-27

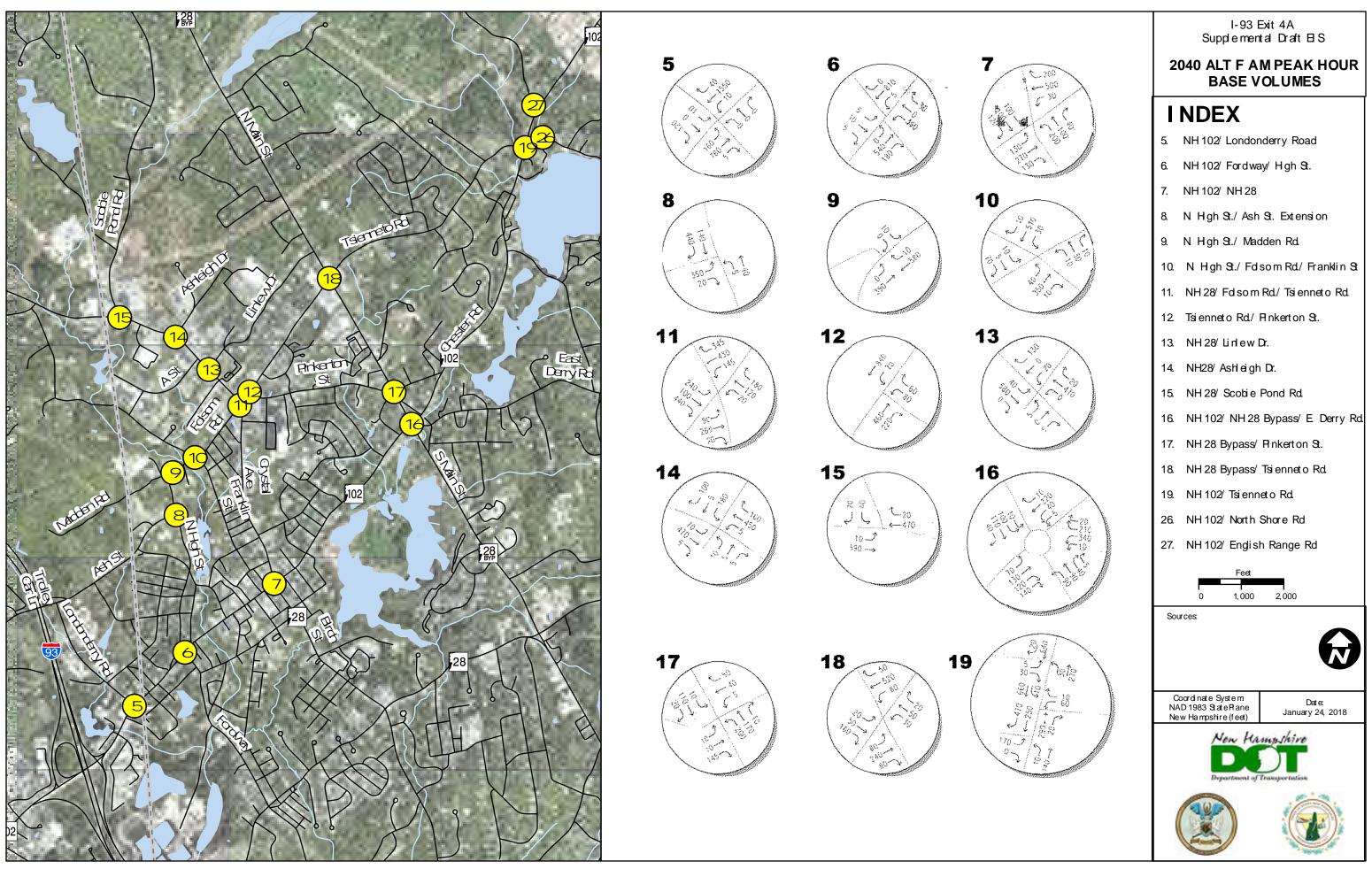


Figure 37 - 2040 Alternative F AM Peak Hour Base Volumes – Locations 5-19 and 26-27

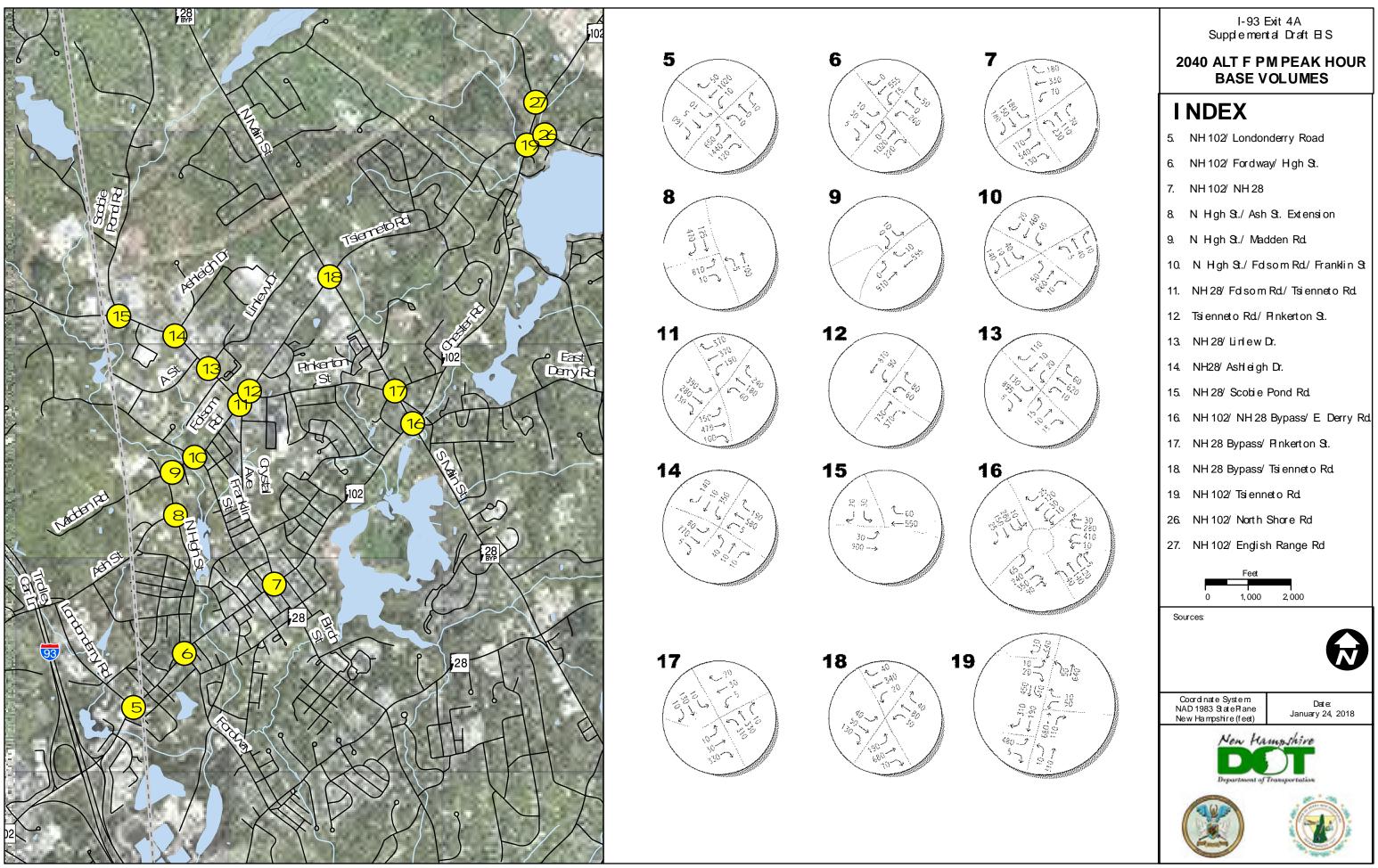


Figure 38 - 2040 Alternative F PM Peak Hour Base Volumes – Locations 5-19 and 26-27

# APPENDIX A: TRAFFIC COUNT DATA

#### NHOOT PERMANENT RECORDER COUNTS - 193 S OF EXIT 4 - MAY 2016

489003							พทบบ	: FLMG	ASPAIRE 14	II NEC	Ownen	CODM	112-13	3 S UF	£ A11 4	- įVIĄY	ZU35											
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rear San Fr		DV	D D	Hi	#12	·H3	şa4	Н5	HG.	:: <del>117</del>	7-8 AM		н10	Hai	H12	H13	: H14	His	K15	Hiý i	5-6 PM	Hi9	H20	H21	H22	#23	H2G t	ditated
	5	1	1	551	3/7	——	159	153	195	332		3171	1356	1926		2305	~~~~~	2153	2245	2267	2967	1917	1485	1104	816	.\$75	485	79[63]
	£	-6	3	375	354	162	129	113	155	333		960	1350	2012	2313	25/1	2491	2364	2507	2453	7551	7303	1627	1462	976	€41	415	31745
	5	2	2	419	20≌	147	125	262	€35]	1397	7230	£131	1540	1623	1898	1760	1959:	2480	2689	3376	3611	2648	1582	1864	961	616	466	35130
		9	2	2492	151	111	122	£67	€85	1476	2290	f979	1500	1679	1580	1811	1540	2459	3280	3547	3573	2518	1714	1314	987	659	591	35757
	- 5	3	3	270	182	174	F41	227	€īij	1402	2197	1986	1595	1512	1859	174[1	1911	7602	3949	3207.	3537	25?7	1721	1254	1050	632	5 <b>á</b> 3	.36593]
		10	3	343	138	139	149	247	653	F4 <del>1</del> 15	2292	1923	1705	1724	1684	1795	1571	2615	3315	379E	8699	2737	1651	1364	1058	-795	765	38258
		4	4	256	193	161	351	268	509	1444	2261	1952	1558	1353	1014	1890	1952	2742	3329	3406	3540	2727	1827	117%	1978	677	524	37217
		5	5	338	205	156	156	.2E3	607	1357	2205	1969	1204	1625	1709	1876	1455	3051	3751	3585	364á	2755	2519	1038	1167	.∉15	627	38141
		-1	f:	393) 476)	281	.173	16F.	296	625			1941	1669	1821	2177	2262	2552	3228	3555	3635	3546	300.24	2757	1573	1413	भरक	894	42494
ı	- 1	1		476	295	151	151	145	.951	680	1,314	1949	2790,	2445	2635	2674	2716	7662	2744	2535	2308	- 2059	1708	1393	1251	2031	753	37663
ADT-sum				3704	2433	1514	1431	2256	5927	16817	12400	izetn	16116	n Tenë	10254	10106	31050	2000	20477	22242	32012		14000		anines	mir na		
ADT				370	743	161	1431	226				1755		1751		2079		2655		3275					1087	7532 753	5993 3	
AW97-sum			· · · · · ·	7271	1412	1056	1001	1844	4441		15720			11325				19274		25432	<del></del>		13066	9407	7774	5284	4353 7	35735
AWDT				324	.202	151	143	263			2246			1618							3601		1857		1111	755		37822
	·									•																		
WINDHAM		1-93 <u>58</u>	BÉTWE	EN EXIT	S 3-4 (0)	2489002			•						-										•			
WINDHAM		1-93 <u>58</u> DY		EN EXIT	S 3-4 (0) H2	2489002 143	; } }44	<del>1</del> 15	H5	Н7	7-8 AM	Ĥ9	H10	Bii	H32	H13	H34	His	H16	H37	5-6 PM	H19	HŻO	ŘIJ	HZZ	#123	H24 1	×tTota
WINDHAM		. —		* * .			•	H5	H6 358	H7 .535		H9 .1742	H10 1587	B11 2799	H32 2623	R13	H34 2605	H15 2662	H16	H37	5-6 PM 7786	H19 1855	H20	H25	H22 748	1423 475	H24 1	xtTo13) 32524
WINGHAM		. —		H) 309 331	#12 243 210	143 155 131	1:4 		35\$ 375	.535 512	900 813				<del></del> -				~~~~~				\$478 \$726			~~~~	<del></del> -	
WINGHAM		. —		H1 309 331 150	H2 243 210 135	155 131 187	364 165 251	177 124 8012	35\$ 375 2837	.635 612 3492	900 813 3445	,1740 1301 3667	169 <i>7</i> 1932 2358	2799 2745 1549	2523	2/26 3201 1731	2605	2662	2676 2676 1568	2747	7789	1855	1478	1977 1261 784	748 929 623	475	260 268 254	32524 35325 35072
WINGHAM		. —		H1 309 331 150 174	H2 243 210 135 154	155 131 187 185	144 164 165 251 285	1/7/ 124 1012 1350	358 375 2837 2580	.535 512 0092 3407	900 813 3145 3344	,1740 1301 3807 2974	1697 1932 2358 2377	2799 2745 5549 1757	2623 3127 1853 1879	2726 3201 1731 1736	2605 2936 1681 1615	2662 2809 1768 1969	2645 2676 1568 2106	2747 2724 2027 2200	7788 2633 2262 2461	1856 2106 1386 1550	\$475 \$726 '924 1079	1077 1261 784 872	748 929 623 688	475 586 428 451	266 254 246	37524 35325 35072 37214
WINGHAM		. —		H3 309 331 150 174 173	H2 243 210 135 154 515	143 155 131 187 155 171	144 165 165 291 285 265	177 124 3012 7350 1918	358 375 2837 2580 2530	.535 512 3497 3407 3245	900 813 3445 3344 3358	,1740 1301 3667 2974 3209	1697 1992 2355 2377 2213	2799 2745 5549 1757 1753	2623 3127 1853 1879 1752	2726 3201 1731 1736 1730	2605 2936 1691 1615 1551	2662 2809 1768 1969 1930	2645 2676 1568 2106 2050	2747 2724 2027 2200 2178	7786 2633 2262 2461 2449	1695- 2176 1386 1556 1621	1478 1726 1924 1079 1184	1077 1261 784 672 902	748 929 623 688 883	475 586 426 431 437	260 268 254 246 246 247	37524 35325 35072 37211 36729
WINGHAM		. —		H3 309 331 150 174 173 166	H2 243 210 136 164 516 435	163 155 131 167 165 171 167	344 364 165 251 285 265 271	177 124 3812 7359 988 4043	358 375 2537 2547 2532 2756	.595 512 3497 3407 3245 3373	900 813 3145 3344 3356 3456	.9740 9301 3687 2974 3209 3100	1597 1932 2358 2377 2213 2356	2799 2745 5549 1757 1753 1731	7623 3127 1853 1879 1752 1726	2/26 3201 1731 1736 1730 1760	2605 7936 1681 1615 1551 1732	2662 2809 1768 1969 1930	2645 2676 1566 2106 2050 2263	2747 2724 2027 2250 2178 2410	7786 2033 2202 2461 2449 2530	1655 2176 1386 1550 1621 1950	\$478 \$726 \$24 1079 1164 1227	1977 1261 784 672 907 899	748 929 623 668 883 776	475 586 426 451 437 514	260 268 254 246 246 247 777	37524 35325 35077 37211 26729 38268
WINGHAX		. —		H3 209 331 156 174 173 165 203	H2 243 210 135 154 515 235 139	163 155 131 187 155 171 167 158	344 364 165 291 285 265 271 765	177 124 3912 1359 1918 1925	358 375 2837 2837 2532 2756 2833	.635 512 3497 3407 3245 3373 2317	900 813 5445 3344 3356 3456 3456	.5740 1301 3887 2974 3209 3100 3085	1697 1932 2355 2377 2213 2356 2285	2799 2745 5549 1757 1753 1731	7623 3127 1853 1879 1752 1755 1756 3714	2/26 3201 1731 1736 1730 1760 1765	2605 7236 1681 1615 1551 1732 1783	2662 2809 1768 1969 1930 1994 1930	2645 2676 1566 2105 2050 -2763 2164	2747 2724 2027 2209 2178 2419 1792	7785 2633 2262 2461 2449 2500 7783	1895 2106 1386 1558 1621 1558 1623	1478 1726 1924 1079 1164 1227 1158	1077 1261 784 672 907 899 881	748 929 623 688 883 776 731	415 586 429 481 437 514 495	260) 268 254 246 247 247 277 282	37524 35325 35072 37211 36729 38268 37250
WINGHAM		. —		H3 309 331 450 174 173 166 203	H2 243 210 136 154 515 235 139 143	163 155 131 187 195 171 167 158	344 354 165 291 285 265 271 255 269	177 124 3912 1359 1918 4043 1926 973	358 375 2837 2580 2532 2756 2653 2675	.525 512 3407 3407 3255 3311 3102	900 813 5445 3344 3356 3456 3456 3457	.3740 1301 2667 2974 3209 3100 3065 3069	1697 1932 2355 2377 2213 2356 2285 7417	2799 2745 5549 1757 1753 1731 1730 1625	2623 3127 1853 1879 1752 1735 2714 4942	2726 3201 4734 4736 1730 1760 1785	2605 2936 1681 1615 1551 1732 1783 1967	2662 2809 1768 1969 1930 1994 1930 7254	2545 2676 1568 2106 2050 2050 2763 2164 7744	2747] 2724 2022 2250 2178 2410 1792 2332	7785 2033 2202 2461 2449 2530 7783	1895 2106 1386 1556 1621 1580 1625 1588	1478 1726 1924 1079 1184 1227 1258 1176	1977 1261 764 672 907 899 881	748 929 623 668 668 563 776 135	475 586 429 481 437 514 495 551	260 268 254 246 247 277 282 121	37524 35325 35072 37211 36729 38268 37250 37864
WINDHAM.		. —		H3 309 331 450 174 173 165 203 191 262	H2 243 210 136 154 518 435 143 178	155 131 187 195 171 -167 158 171 213	H4 904 105 293 285 269 271 265 269 289	177 124 3912 1359 5918 4943 1926 973	358 375 2837 2537 2532 2756 2833 2576 2469	.525 512 0092 3407 3245 3373 3317 3102	900 813 3448 3344 3356 3456 3452 3107 3367	3740 5301 3887 2974 3209 3100 3085 3099 2798	1597 1932 2355 2377 2213 2356 2285 2417 2201	2799 2745 5549 1757 1753 1731 1730 1625 1634	2623 3127 1853 1879 1752 1785 3714 1942 2012	2726 3201 1731 1736 1730 1760 1765 1764 2007	2605 2936 1681 1615 1551 1732 1783 1967 2098	2662 2809 1768 1969 1930 1994 1930 2254 2356	2645 2676 1566 2105 2050 -2353 2184 2744 2561	2747 2724 2027 2269 2178 2419 1792 2332 2485	7785 2633 2202 2461 2449 2530 7763 2523 7717	1895 7176 1386 1556 1621 1556 1623 1558 2025	1478 1726 1926 1079 1164 1227 1358 1276 1466	1977 1261 784 672 902 899 981 933	748 929 623 686 583 776 731 862 864	475 586 429 481 437 514 298 551 741	260 268 254 240 240 747 771 782 121 432	37524 35325 35072 37211 36729 38768 37250 37654 40538
WINDHAM		. —		H3 309 331 450 174 173 166 203	H2 243 210 136 154 515 235 139 143	163 155 131 187 195 171 167 158	344 354 165 291 285 265 271 255 269	177 124 3912 1359 1918 4043 1926 973	358 375 2837 2580 2532 2756 2653 2675	.525 512 0092 3407 3245 3373 3317 3102	900 813 5445 3344 3356 3456 3456 3457	.3740 1301 2667 2974 3209 3100 3065 3069	1697 1932 2355 2377 2213 2356 2285 7417	2799 2745 5549 1757 1753 1731 1730 1625	2623 3127 1853 1879 1752 1735 2714 4942	2726 3201 4734 4736 1730 1760 1785	2605 2936 1681 1615 1551 1732 1783 1967	2662 2809 1768 1969 1930 1994 1930 7254	2545 2676 1568 2106 2050 2050 2763 2164 7744	2747] 2724 2022 2250 2178 2410 1792 2332	7785 2033 2202 2461 2449 2530 7783	1895 2106 1386 1556 1621 1580 1625 1588	1478 1726 1924 1079 1184 1227 1258 1176	1977 1261 764 672 907 899 881	748 929 623 668 668 563 776 135	475 586 429 481 437 514 495 551	260 268 254 246 247 277 282 121	37524 35325 35072 37211 36729 38268 37250 37864
WINGHAM.		. —		H3 309 331 450 174 173 165 203 191 262	H2 243 210 136 154 518 435 143 178	155 131 187 195 171 -167 158 171 213	H4 904 105 293 285 269 271 265 269 289	177 124 8812 1350 1918 1026 973 950 314	358 375 2837 7692 2532 2756 7633 2976 2469 733	\$255 512 5099 3407 3245 3373 2317 3103 1044	900 813 5445 3344 3358 3456 3456 3457 3107 3387	3740 1301 3667, 2914 3209 3110 3085 3097 2735 1877	1687 1932 2356 2377 2213 2356 2285 2412 2201 7116	2799 2745 5549 1757 1753 1731 1730 1625 1636 2039	2623 3127 1852 1879 1752 1728 2714 1942 2012 2615	2726 3201 1734 1736 1730 1760 1785 1784 2007 2582	2605 7236 1581, 1615 1551, 1732 1783, 1967 2098 2460	2652 2809 1758 1969 1930 1994 1930 2254 2356 7555	2645 2676 1565 21(6 2050 2353 2184 2744 2564 2756	2747 2724 2027 2269 2178 2416 1732 2332 2465 7780	7766 2633 2202 2461 2449 2530 7789 2523 7111 2563	1695 2176 1386 1550 1621 1556 1623 1588 2025 2109	1475 1726 1924 1079 1184 1222 1255 1176 1466 1667	1971 1261 784 672 902 899 861 933 1077	748 929 623 688 883 776 733 862 884	475 586 428 451 437 514 495 551 741	200 268 253 246 247 277 282 121 432 565	35325 35325 35072 37211 36729 38268 57250 37614 46338 36364
		. —		H3 309 331 150 174 173 166 203 191 202 255	H2 243 210 136 154 515 235 143 179 177	H3 155 131 187 155 471 162 158 171 213	H4 964 185 285 265 271 255 259 289 280 161	177 124 8812 1350 1918 1026 973 950 314	358 375 2837 7692 2532 2756 7633 2976 2469 733	5355 512 512 3407 3245 3373 2317 3102 1044 24804	900 813 5445 3344 3358 3456 3456 3457 3107 3387	3740 1301 2667, 2974 3209 3110 3085 3097 2795 1877	1687 1932 2356 2377 2213 2356 2288 2412 2201 7176 21999	2799 2745 5599 1757 1753 1731 1730 1625 1634 2339	2623 3127 1852 1879 1752 1228 2714 1942 2012 2615	2726 3201 1734 1736 1730 1760 1785 1784 2007 2582	2605 7236 1581 1615 1551 1732 1763 1607 2098 2460	2662 2809 1758 1969 1920 1994 1930 2254 2356 7555	7745 2676 1566 2106 2050 2263 2184 2744 2561 2756	2747 2724 2027 2269 2178 2416 1732 2332 2465 7780	7766 2633 2262 2461 2449 2530 7783 2673 7117 2563 24855	1695- 2106- 1586- 1590- 1621- 1596- 1625- 1588- 2025- 2109- 17555	1475 1726 1924 1079 1184 1227 1155 1176 1466 1667	1977 1261 764 672 907 899 861 933 1077 1283	748 929 675 686 683 776 731 862 884 1002	475 586 428 451 437 514 498 551 741 767	200 268 254 246 247 277 282 121 432 565	35325 35072 35072 37211 36729 35268 37253 37555 40528 36364
AD7-sum		. —		H1 209 331 156 174 173 166 203 191 202 255	H2 243 210 136 154 516 235 149 177 1577	H3 155 131 167 155 171 167 158 171 213 133	144 105 195 291 285 265 271 265 278 289 161	177 124 3812 1359 1918 1928 1928 973 950 314 7684 7684	359 375- 2837 2592 2593 2796 2673 2976 2469 733 19602 19602	.535 512 5092 3407 3245 3373 2317 3102 3110 1044 24804 24804	900 813 3145 3356 3456 3456 3457 3107 3367 1476 26418 2642	3740 1301 3887 2974 3209 3110 3005 3605 3699 2798 1877 25547	1697 1932 2355 2377 2213 2356 2288 7417 2201 7176 21999 2200	2799 2745 5549 1757 1753 1731 1730 1625 1634 2339 19437	7623 3127 1852 1879 1752 1728 2714 4942 2012 2615 21303 2130	2/26 3201 1734 1736 1730 1760 1765 1784 2007 2582 21017 2102	2605 2936 1681 1615 1752 1763 1967 2098 2460 20348 7035	2602 2609 1758 1969 1930 1994 1930 7254 2356 7555 22257 2226	7645 2676 1568 2106 2050 2763 2184 2744 2561 2756 23353 23353	2741 2724 2027 2269 2178 2416 1732 2332 2465 2788	7766 2633 2262 2461 2449 2530 7783 2673 2717 2583 24855 24855	1695- 2106- 1586- 1590- 1621- 1596- 1625- 1588- 2025- 2109- 17555	1475 1726 1924 1079 1184 1222 1255 1176 1466 1667	1971 1261 784 672 902 899 861 933 1077	748 929 623 688 883 776 733 862 884	475 586 428 451 437 514 495 551 741	200 268 254 246 247 277 282 121 432 565	37524 35325 35072 37211 36729 35268 37253 37654 40528 36364 367162 367162
AD7-sum AD7		. —		H1 209 331 156 174 173 166 203 191 242 255 2156 215	H2 243 210 136 154 516 235 139 143 177 158	163 155 131 187 155 171 162 158 171 213 133 1636 264 1217	144 302 195 291 285 265 271 265 289 289 161	177 124 3812 1359 1918 1928 1928 973 950 314 7684 7684	359 375- 2837 2592 2593 2796 2673 2976 2469 733 19602 19602	.535 512 5092 3407 3245 3373 3310 1044 24804 24804 72553	900 813 3145 3356 3456 3456 3457 3107 3367 1476 26418 2642	374e 1301 2877 2974 3209 3130 3005 3005 2795 1877 25547 2555 21129	1697 1932 2355 2377 2213 2356 2288 7417 2201 7116 21999 2200 16197	2799 2745 5549 1757 1753 1731 1730 1625 1634 2339 19437 1943	7623 3127 1853 1879 1752 1228 2714 4942 2012 2615 21303 2130 12938	2/26/ 3201 1/34/ 1/36/ 1/30/ 1/60/ 1/65/ 1/84/ 2007/ 2/82/ 2/1017/ 2/102/ 1/2508/	2605 2936 1681 1615 1732 1763 1967 2098 2460 20348 2035 12127	2602 2609 17785 1969 1930 1930 1930 7254 2356 7555 22257 2226 34231	7545 2676 1568 2106 2050 2783 2184 2744 2561 2756 23353 23353 2335	2742 2724 2027 2250 2178 2416 1792 2332 2485 2780 2367 2367 15419	7765 2633 2267 2461 2449 2530 7763 2523 7117 2563 24865 24865 2487 17583	1695 2176 1586 1596 1621 1596 1623 1588 2025 2109 17555 1756	1478 1726 1079 1164 1227 1155 1176 1466 1667 13004 1300 6253	1077 1261 784 672 902 899 881 933 1077 1283	748 929 675 686 683 776 731 862 884 1902 8025 803	475 586 428 451 437 514 496 571 741 781 5484 5484	200 268 254 246 247 277 282 321 432 565 3147 3 315 2054 2	37524 35325 35072 37211 36729 35268 37253 37654 40528 36364 367162 367162

AUTOMATIC TRAFFIC RECORDER DATA FOR THE MONTH OF MAY 20	4,
WIREHAM, 193 RETWEEN EVICE SUIZE UP ICIZEONA ELICONAL	

edet on the						injio:469A	. 1																			
MN DY D	H.5	47)	· H3	H4	H5	115	417	7-S AM	115	- H10	H11	H127	H23	H)4	+=15	1136	#17	5-6 PM	1925	H20	H22	H22	HZB	H74	tetTotat	_
2 .3 1	E1!	93%	40/	761	271	\$51	900	1967	5740)	2/1/4	Jack.	4266	4157	4741	45.19	4644	4750	43/26	4159)	3196	7547	1093	1976	146	60736	
\$ 10 1	E11	202	260	154	.523	التفسي	/64	1787	1:51	3121	SE14	รรายุ	550	5174	4937	(dic	5733	5270	4374	1935	1188	2/36	1141	Di.	lessa!	1
5 17 L	93%	7.U	759	251	193	412	1077	1937	3,153	31:4	9770	ينجد	9/5	565	4691	47/6	ねに	5:11	4553	17/e	1865	2164	5463	185	bV/d1	1
ë 5+ i	F	51.1	759	.F≥`\	2150	446	£13	-1447	27.59	3%%	47.14	400	4n It	4077	4241	2992	4851	4760	19 Hz	Joe 3	net	Phy	1974	51AV	E1914	1
5 31 1	65/	BASS	والاق	£13	233	418	815	12/2	1517	2027	3650	45H,	4593	4,669	4270	45.52	655	49-jsi	3729	2890	7151	بوهيا	97.95	143	562746	1
5 7 7	Jun:	9).	59.1	921	1419	245	15%	2352	\$237	5/612	4176	3106	4/ye	4027	\$ (4p	4747	4273	4519	14.14	169	Atab	2598	:44.4	64.25	e/byz	1
5 9 7	B77	3,54	17%	/64	3/9	y.i.e	1053	7/11	92/1	44.22	£211	9395	54905	1 l90:	5173	59%	5030	45%	4.41	1591	3574	1100	2364	t3±/2	14000	1
5 15 7	£114	120	4114	3/1	રજ:	ų.	977d	260)	5292	.6/1	648/	470.5	3.95	857	4549	4917	4513	#525	والمرافق	1158	2494	<b>/</b> /€1	la Ka	902	50050	Į.
5 23 7	#51	1:0	374	(64)	457	B19	16/1	1110	55/2	iska	2101	5775	500	4696	4e lo	4795	4545	47%	389	,67E	7507	1144	A10	1451	16475	1
5 99 T	675	201	450	3/1	150	1000	1/09	7550	31/1	4758	4/1/2	48:5	€F31	Alab	4575	45/6	2245	4/15	1>7!	2070	2592	7275	<b>7</b> 2142	1241	6/374	j
5 25 2	540	194	217	182	447	57(	9%	1968	1753	2514	3447	4365	49635	4957	44/6	enst:	4ct4	4000	ગાંત	3431	2943	2151	14/2	703	April 1	Heiséa
5 4 2	532	247	170	SAL	pe.r	2657	62/3	2017	Liter	2/61	arte.	1147	1567	1770	4136	3977	وجائره	51.75	4.817	2E31	210,00	ls&s	1067	5/4	19471	
5 11 2	125	140	160	MI	645	755tc	4 (5)		5124	36%	3314	5691	1/5/	2.50	4121	ووعو	9516	1321	46%	314:	1546	15/1	(197)	F.J.C.	1488	ĺ
E 13 2	479	HE	716	341	976	7973	4972	5054	5156	₹659	3071	3/25]	J999	1195	4276	5812	11:45	2937	المالة	1121	1190	والواوا	400	2/6	23446	
5 5 3	591	324	20%	i	675	2161	4512	5670	5151	79.56	5174	5407	270%	1560	1/54	eut.	3545	947	51/201	120	//8/	1907	110	951	7/141	Į
5 12 3	493	541	- 2797	35.6	197	1976	4//8	Segn	7(46	3152	اللاد	,2445	3251	2057	4/44	4541	5500	3906	4430	1/64	1,797	-Tidys	1/179	95:	1/4/4	j
5 19 3	541	978	tat	274	977	2540	\$//2	24.85	5340	4,141	H47	E112	\$1,72	3413	58.11	±1 Js	\$940	683.4	4663	3164	215 l)	1924	1325	1917	1205	ž.
5 26 3	411	780	14	208	الليخ	2003	4199	5817	514.1	40%	1/48	3411	3/35	379e	261/	\$1.6r	72-2	82.0	4551)	5100	259	1901	1,64	215	Alca	
5 6 4	\$200	551	377	261	FFI	2183	4221	3347	5/15	1651	1501	2114	320	3:25	4200	35(1)	5) (5	E512	4516	2/5/	ក្នុង	6113	1∢   ≹	1971	ass	į.
\$ 13 d	£17	\$3.0	260	J-14	\$21	2511	4/94	3747	3193	391!	شوابنا	t\s1::	(20	5165	(12)	5015	9/96	VXVT	1921	2345	5511	Hege	1425	971	74,152	i
5 70 4	574	468	944	J11,	97.1	mil	4.534	56812	200	4(6)	15/8	ښ <i>ن</i> وړ	.15,15	5/20	1467	51817	5074	1981	(5%)	3813	2453	25265	249 /	1971	79/15/9	1
5 21 4	2.53	396	799	195	- Eta	ere.	939	7574	2100	4509	1641	3636	2049	31,75	4502	4955	5412	125.50	4/ES	1311	2547	20.95	1391	927	(5/15)	i
5 7 5	b't	40/	215	145	さわり	V/96	1,70%	5544	5198	4186	7515	1541	541	2160	1745	5/5/	5774	9527	29.02	22.0	//15	174	1764	16.54	546	
3 14 5	F11	19/	276	181	ga:	209/{	1,721	55.9	श्चान	3174	Jozef	JF37	H/at-	Jaget	4720	5544	±1,53	1/35	1743	1560	(1921)	77.5	1567	ijac:	17199	1
9 71 5	±υ	4ಚನ್ನ	وايوا	340	91)	1884	1 118	5071	:450	657	2834	le i al	2(1)	4//5	4614	5377	2943	\$,IZU	4747	1775	2873	250	2101	1136	19552	i i
5 76 5	1692	199	215	351	900	2310	4110	5/47	.P141	40.4	31/61/2	15.16	1198	49.7	4105	5:44	14024	36/4.2	4857	14646	(/61)	124/	1971	1997	7657s	i
5 1 é	ą, is	500	)4t	395	134	(455)	3519	4413	4797	4046	4671	4131	412	59.5	5185	5e42	.5056	9/41	4577	154%	203/	110	1769	1215	79761	i
5 € €	\$172	511	3713	,845	dept.	7549	4757	5141	5077	5977	3301	4523	2:15	4121	49,14	9279	5910	£152	5185	14/45	1/55	C\$Re	1238	1/19	2   2   5	į
5 15 6	8-f/s	430	1',4 }	40%	P49	शक्ष	SE41	2513	Sist.	400	(12)	(307)	4950	21/20	3115	39.3	3190	Egi)	20,2	4,092	3092	11/2	1922	11/5	(2,92%	,
5 22 €	tpe	450	350	414	<u>8</u> 21.	Pass	3941	7166	4900	077	4230	atte	4167	รกอ	5247	3:11	45/1	ED X.S	4,997	5,115	3454	£197	الواع	1259	e)-tie	į
5 29 6	t6/	44.1	155	Jest	477	76/0	4000	2501	8075	46/0-	3312	4119	4461	4557	5/4/2	51,41	57.65	5393	990	40%	પ્રાય	1372	<b>7917</b>	11/5	P1547	

.AVG Weekday 5533 5997 75450

#### AUTOMATIC TRAFFIC RECORDER DATA FOR THE ADMINIST MAY 2015 WINDHAM: 193 NB AT RETWEEN EXITS 3 4 (37469307)

MN DC D	нь	H2	H3	fit	.165	.135	.642	7-8 AM	Hġ	HÍD	HÔ1	1112	3613	1414	HES	H26	8127	5-6 PM	HIS	H20	H25	1122	1373	1124	tet Total	
5 5 1	441	,~~~	.01	196	181	ley	381	1/6	186	1/14	100	1383	710		791	2190	2154	7195	NG4.	1992	129/	972.2	-E35	465	101 (dva)	
5 10 1	-59è	31.1	192	191	152	157	270	579	1937	1111	1965	2745		2102	2217	217	797	2437	nis!	1998	1554	1/25	.ess	498	- D545V	
5 17 1	383	.300	514	1);	1,53	1±1	411	F&c.	1750	1993	1949	ئن <u>نگسس</u> دیارد	2401	20%	1221	2012	739	2143	1223	15%	124	1,54	(49			
5 74 1	547	47.1	/31	\$165	1654	190	36/	197	5774	10-14	.2114	i) He ć	1722	rise	1981	1819		7.55	1752	1917	1351	11/0	913	24:	Z# 18%	
5 31 3	162	4.15	tje:	:13	10	1:4	2144	5/1	K/4	1/9/2	1531	4950	1944	104	1454	120		1/0/	1914	1443	1578	E12	131	4010	70951	
5 2 7	Fla	497.	. 20	L-V.	١٧.	107	254	וְישׁרוּ	وببدا	1940	160/	7551	gárált	7357	6374	6194	62/1	s <sub>r</sub> (,	1947	/ls1;	1432	-112	1672	£0	17959	
3 9 7	598	14:	214	749	118	760	¢\$1	1264	22.15	235/	1400	4254	die	2067	g512	3775	2652	64.00	455	1592	1102	1531	595	96%	5///6	
5 % T	·*:	μ:	223	Ļ5s.	MA	Ji te	l/c	1,40	1241	100	1525	145%	2571	25%	2=40	2577	27%	//5)	2325	1986	\$ Sizes	500	:1:4:	Jau	34473	
5 23 7	164:	.36.1	767	49	515	1//	7945	11,22	7197	1000	1150	J-1984,	2942	2 fey	NSE	15%	, četi	2247	YEVY	1547	1342	trax	1831	342	1970-5	
≛ 33 T	5/6	121	04	114	(e)	300	199	1517	1534	1100	2537	2504	7535	2541	7375	2225	32%	7042	ital.	351/	1707	90	11%	/64	1470!	
7 25 2	3'4	22.5	193	≥r	lny	<u>!</u> t4	32%	497	/89	1000	14./2	1514	tq.32	4571	1241	16,54	#%1a	1441	14:21	Fries	1976	315	574	<b>₹</b> ¥23	27/31/20	50:044
5 4 2	<u>199</u> 1.	315	1.45	145	240	5/5	194	p0.75	1984	190	1857	194)	14,23,0	483	irly	cš12	1975	33%	(152	પદમ	112/	952	PM:	<sub>C-l</sub> C <sub>c</sub>	Tetal	
š 11 Z	20.5	ŊΕ	144	15/	761	5/1:	7161	190	2047	1299	10%	Isb4	17%	1/92	788	2936	1781	J251	eH)	ritor.	1318	1955	e la	4.0	risti	
5 1E ?		191	571	174	755	543	2/35	247	2019	116.9	10.65	17te	1200	9672	74.8	180	3982	3127	/e/e	/76/	[] 52}	1987	(25,	3 14	J6495	
5 5 3	245	747	1.02	1:5	195	494	-101	7097	1917	15/1	1210	1427	1557	15.13	2774	1950	140%	2977	947	1915	1395	11.68	버기	1690	39593	
5 12 3	4/1	£21·	196	15	14]	>=i	1112	NVI	5930	1542	1169	164.7	1547	कार्य	2748	<u>iest.</u>	7206	21/9	304	2459	1154	1897	(H:	31/0	19590	
5 15 )	150	750	154	114)	н	194	ाल	1675	ស្នេរ	9595	1555	افزادا	1995	170	\$JE7	2.63	1211	5944	7217	1977	1407	1155	E45	(St	sia le	
5 <b>3</b> 6 ()		185	105			1:1]	1713	- 224	9846	1466	892/	1776	15.50	125-1	7113	15.21	3084	-2421	2947	7095	1319	1124	97	400	J*4.80	
5 5 4	12/		172	LE	191		41,60	1981	(991)		5495	Smag	1772	1985	1113	જીવ	39%	3495	100	1994	3387	-6131	F5/	550	45370	
5 13 4	*2%	702	191	(0)	407	372	1519	nive:	15 72	1907	1945	967	1/8/	1044	7371	1975	3917	25 te	2939	00	F1E1	:245	إيو	tin	3€ 105	
S 70 &	5×0		1/4		100	531	1/16	2508	2001	1586	1594	Pag. N	18th	1936	7496	693	1453	3634	3616	7145	1469	1957	6945	/1±j	37921	
5 27 A		275	132		77	512	3195	446)	ctivis	1586	1365	1764	1/5%	15.14]	798	7937	J2/1		غزوج و المحمد	2:51	15 te	11,84	113	983	He/34	
575	420		50t:	1/4	- 10th	1877	\$134	1950	762,	168	1içt <u>+</u>	1/49	1417	//¤	1077	3333	<u> </u>	2550	9709	(342	16.71	1443	977		16951	
5 14 3 5 7: 3		725	149	34/	337	92	:154		27778	934	259 f	27/5	2917	SE)14	2388	2927	3427	3540			\$50b	3770	3/17	. +52/	3 19160	
5 78 8	515		170	163		2/4	170%	NO:		nii)	1950	1843	997	, r134	7570		35760	410	£404	74054	100	286	<b>21</b> /2	179	979475	
2 at 2	54E			107		217	1917	#197	8507	1765	1427	(24)	153/	2071	2472	7,5%1	2149	3,565	1101	15.00	(401)	11/2	*52	64.1	:/53/	
: 1 C;	453	27)}	- 24		124	201	1255	1582	1351	1987	1251		/XX	24.6	2813	13,72	غزادر	1594	/k11	2004	1796	114/2	1121	ekt	100.22	
5 15 6	433	nej ese	15/	11/2	775	20	1'6!	2011	19%	1/45	1/5>	73117	9,7642	249.0	760	1571	3000	거설인	.E.W.]	5412	1950		1525	15/	£1777	
5 27 6	49.0	530	1914	142	×12	421	100	2020	2001	1/4/	1354	446	2164	5/439	33%	- 421	11213	1984	:13.2	(11)	1852	1443	1:32	<b>b</b> ),	42504	
5 25 €	493	330	LED LED	195]	/28		52°F2	A61	7958	1946	1975	2713	3414	3714	3190	भाग्ने	24.6	315/	30%	7131	7746	1779	17/7	¥43	24550	
2 12 6	4933	722	LEG	141	271	3:5]	914	7264	7007	5754	1254	2194	2127	3340	300.01	7/87	સામ{	3164	3461	بالجلان	1917	1555	17 (%)	895	41559	

### AUTOMATIC TRAFFIC RECORDER DATA FOR THE MONTH OF MAY 2015 WHIDHAM 190 SE STIWEEN EXITS 3.4 (02489002)

\$\frac{1}{5}\$ \cdot \frac{1}{5}\$			PASSIFIE ONLY	1.81 24 85	CONFERME	प्रशंद रून स	W4890071																				
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	ΑМ	TO	101	62	47	39	51	104	<b>2</b> 50	435	474	426	441	483	550	548	866	1077	1192	1223	1008	670	461	366	237	213	11321

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5	4	4	42	76	19	42	75	235	716	1115	877	508	568	605	619	617	692	798	782	773	572	438	329	206	145	74	10976
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5	3	3	8	19	17	39	127	438	646	687	587	339		259	289	284	288	294	266		239	142	99	79		18	5782
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5	7	- 7	201	10	12	17	44	59	171	195	268	343	352	437	430	348	379	383	318	260	245	163	154	121	55	70	4914
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5	5	5	21	21	27	48	187	.511	548	527	413	302	192	271	300	247	295	274	253	233	176	135	119	115	79	47	5343
5	6	6	19	19	35	50	192	484	527	524	418	2B3	237	245	243	264	269	260	265	865	260	159	140	110	125	55	5452
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### B 81 269102 LONDONDERRY-1-93 NB ON RAMP EXIT 5

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5	30	3	38	-28	23	53	25	.58	123	136	182	293	364	451	447	426	418	385	360	305	307	248	241	153	108	. 78	-5222
5	3	3	61	34	26	-65	79	197	593	1983	796	512	447	460	491	507	675	825	858	657	555	3B1	294	192	139	71	10199
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5	31	3	42	. 21	25	54	75	231	624	1957	830	\$56	557	5:6	513	481	751	823	799	769	525	458	305	225	151	-66	19433
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5	25	4	105	.69	45	63	60	246	633	965	834	.569	478	547	534	553	708	863	823	821	636	436	352	250	166	98	10874
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5	26	5	115	68	33	56	105	247	604	1013	684	615	550	576	511	517	738	676	796	841	568	456	360	235	213	917	11100
5	15	Б	112	45	391	63	80[	.220	600	.539	800	585	548	591	635	620	733	991	861	.623	615	505	380	244	224	135	11000
5	27	Б	1,00	55	38	57	100	242	575	936	797	532	594	610	650	611	760	862	697	674	599	464	.324	292	207	140	11031
5	1	7.	111	42	32		45	98	197	350	443	516	578	634	594	613	647	527	522	502	437	374	301	230	190	126	8146
5	- 28	7	89	45	32	57	46	84	195	356	442	536	559	493	542	485	586	.534	478	431	350.	319	264	207	1,50	194	7335
Sum	AWC	Ť	795	399	314	527	780	2020	5458	8929	7353	5086	4657	4845	4889	4840	6511	7653	7326	7137	5056	3991	 2903	2055	1512	916	95952

Sum AWDT 795 399 314 527 780 2020 5458 8929 7353 5086 4657 4845 4889 4840 6511 7653 7326 7137 5056 3991 2903 2055 1512 916 95952 AWDT 88 44 35 59 87 224 606 992 817 565 517 538 543 538 723 850 814 793 562 443 323 228 168 102 10661

### AUTOMATIC TRAFFIC RECORDER DATA F

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	£		12 AM	1 AM	2 AM	3 AM	4 AM	5 AM	6 AM	7 434	MAB	9 AM	10 AM	11 AM	12 PM	1 PM	2 PM	3 PM	4 PM	5 PM	6 PM	7 PM	8 PM	9 PM	16 PM	11 PM	Total
5	·E	1	90	63	53	39	35	39	67	151	.228	332	447	559	5E1	562	556	527	472	452	362	346	269	189	131	6±1	6572
5	20	1	97	62	35	20	18	25	109	152	219	283	345	408	427	444	449	420	422	401	363	394	243	236	150	112	5776
5	35	Σ	75	38	33	16	26	40	72	129	152	223	395	415	455	441	497	472	419	360	542	340	274	223	161	75	5586
5	-3	.3	47	37	34	47	149	321	739	737	629	450	394	433	494	513	601	780	905	943	584	456	329	279	150	103	10134
5	-24	ä	47	35	33	-4C	157	301	566	647	502	465	448	512	495	447	554	752	899	962	584	4.15	344	203	143	121	10280
3	31	3	56	-28	23	40	160	295	.741	£21	705	501	472	453	547	548	677	820	593	808	544	444	327	291	198	118	10851
5		4	56	45	27	42	145	306	7G4	746	ê35 <mark>]</mark>	442	416	482	496	516	586	793	1127	1090	708	378	337	270	147	99	10594
2	25	4	71	71	33	41	171	323	736	754	610	483	448	510	527	571	€22	₽¢B	923	977	614	437	433	351	168	126	10850
	20 20	2	72	38	35	41	153	305	690	866	414	257	457	499	526	520	674	798	977	690	653	434	359	324	161	139	10297
2	28	2	113	60		Ď1	142	313	697	791	674	484	472	535	523	57B	639	-831	889	.971	620	485	374	347	227	158	11008
; E	10°	E.	75	59	44	45	173	273	714	763	649	500	459	<del></del>	584	562	544	871	940	996	618	46¢	356	329	216	169	11035
5	21	-6	1 21	42	28	57	122	256	707	768	601	514	461	539	577	591	669	8.37	822	718	482	432	.336	292	223	169	10314
-	.58	1	110		37	38	30	100	167	311	399	443	488	523	542	561	620	621	598	547	435	335	307	297	197	159	7910
	20	٠.	7:01	0.1	53	42	27	:60	177	276	391	428	425	457	473	4 <del>6</del> 9	453	450	436	456	393	345	309	319	207	159	6992
Sem	AWI	TC	618	415	291	414	1383	2693	8883	K903	5818	anát	4027	#64É	4780	1256	5070	יזכפדי	0276	DARE.	E A O S	nher	9905		*070	a non	price.

Sum AWDT 618 415 291 414 1383 2693 6386 6893 5818 4091 4027 4515 4769 4856 5676 7330 8375 8455 5407 3945 3205 2766 1633 1202 95163 AWDT 69 46 32 46 154 299 710 766 646 455 447 502 530 540 631 814 931 939 601 438 356 307 181 134 10574

excl 5-24

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781

	41	£	10	81 269	101 1	ONDO	NOER	RY-1-9:	SB O	N RÁM	P EXIT	5	-				******				- '	-						
	N	T,	Ŷ			٠.						5														7		
		Ξ		12 AM	1 AM	2 AM	3 AM	4 AM		6 AM	7 AM	B AM	9 AM	10 AM	11 AM	12 PM	1 PM	2 PM	3 PM	4 PM	5 PM	E PM	7 PM	8 PM	9 PM	10 PM	11 PM T	nial
	5	e	11	35	25	18	16	19	45	82	134	170	212	288	297	329	303	275	251	265	214	1B5	135	104	54	54]	23	3534
	5	39	14	31	29	11	21	23	43	66	102	147	192	253	270	265	253	246	200	177	203	154	129	119	69	5:	43	3170
	5	35	2	31	15	13	27	35	58	63	.80	125	151	194	249	245	212	211	209	180	170	192	146	133	79	43		2883
	5	3	3	54	27	39	56	175	390	.520	499	453	375	273.	275	318	299	341	437	385	393	268	167	129	95	65	47	6114
	5	24	ja i	-51	34	35	61	2:34	396	521	532	381	331	787	271	316	265	327	393	435	474	191	190	151	93	.59	461	6925
	5	31	3	38	18	27	58	185	400	566	523	462	377	327	327	286	312	354	496	460	473	228	139	133	66	94	61	6350
	3	4	4	53	32	39	65	187	423	518	.515	456	349	324	275	296	304	327	400	358	449	273	185	126	94	66	55	6167
	5	25	4	54	79	33	.65	183	476	527	549	461	363	Z89	270	298	.275	360	465	423	431	254	182	141	95	67	56	6356
	5	5	5	52	34	42	45	184	425	538	499	418	413	317	310	313	262	324	425	442	411	251	173	116	102	82	45	6218
	5	26	5	69	31	34	56	198	413	535	520	476	387	301	252	309	289	797	458	474	405	281	<b>#93</b>	138	126	72	54	6363
	5	5	ъ	57	26	42	42	185	377	479	484	455	384	301	.289	353	308	403	458	461	911	299	226	148	119	75	57	6439
	5	27	16	47	34	53	60	183	363	494	504	403	356	337	326	332	316	384	403	343	355	260	157	136	102	77	£4	.6101
	5	7	7	49	† <u>5</u>	15	29	48	719	128	209	259	313	289	322	307	314	309	795	319	262	196	180	134	100	103	68	4391
	5	28	7	45	37	31	20	46	72	136	192	273	254	.286	249	242	243	251	222	204	185	172	155	143	192	7.5	57	3709
ADD	Ď	1	-4	45	30]	31	63	193	492	554	561	460	.350	366	274	272	268	309	399	359	469	252	162	141	90	79	42	620
	Sum	AW:	DΤ	521	295	375	579	1874	4085	5255	5166	4425	3686	3119	2869	3093	2900	3436	4244	4171	4271	2587	1784	1337	986	739	537	62334
		AW	DT :	52	30	38	58	187	407	526	519	443	369	312	287	309	290	344	424	417	427	259	178	134	99	74	54	6233
					1.1														1		:=:							CESC
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DERRY CRYSTAL AVE SO OF TSIENNETO RD STATE COUNT

Web: www.snhpc.org

Site Code: 82119050 Station ID:

Start	Mon	Tue	Wed	Thu	Fri	Average	Sal	Sun	Week	
Time	02-May-16	03-May-16		05-May-16	06-May-16	Day	07-May-16	08-May-16	Average	
12:00 AM			90	.74	119	94	137	156	115	
01:00			44	47	54	48	70	73	58 1	
02:00	É	•	27	30	27	28	49	47	36 ⅓	
03:00			29	27	44	33	24	15	28 ]	
04:00			62	68	77	69	42	29	.56 ₺	
05:00			164	170	183	172	93	63	135	
06:00	+	± .e.e.e.e.e.e.e.e.e.e.e.e.e.e.e.e.e.e.e	434	410	437	427	203	128	322	
07:00			833	878	797	836	469	273	650	[
08:00	•		871	950	895	905	710	481	781	<u> </u>
09:00		923		922	949	920	1116	769	927	
10:00	**************************************	948	968	933	1034	971	1239	948	1012	
11:00		1089	1113	1083	1257	1136	1468	1096	1184	
12:00 PM		1271	1295	1307	1477	1338	1373	1199	1320	
01:00		1161	1223	1219	1360	1241	1437	1155	1259	
02:00	.18	1368	1348	1357	1488	1390	1371	1068	1333	100000000000000000000000000000000000000
03:00		1354	1348	1334	1490	1382	1313	979	1303	***************************************
04:00	· *	1287	1478	1381	1528	(1418		1038	1314	
05:00		1304	1257	1444	1519	1381	1212	964	1283	
06.00	i filologia filologia + <b>±</b>	1113	1133	1272	1328	1212	1091	871	1135	
07:00	entiled by the An	905	844	994	1112	964	1006	824	948	2000 A
08:00	and Altebra delegation (************************************	747	684	767	989	797	796	632	769	(1)
09:00		405	433	504	687	507	587	392	501	
10:00	*	253	241	311	468	318	351	258	314	
11:00		161	141	170	243	179_	276	126	186	
Day Total	C	14289	16944	17652	19562	17766	17603	13584	16969	
% Avg.	0.0%	80.4%	95.4%	99.4%	110.1%	and the second s	A response to the fire	-		
WkDay	<b>U</b> .U70	00.476	90.470	99.470	110.170					
% Avg.	0.0%	84.2%	99.9%	104.0%	115.3%	<b>1</b> 04.7%	103.7%	80.1%	·.	
Week	V.V70	04.270							i de la composición	
AM Peak	-	11:00	11:00	11:00	11:00	- 11:00	- 11:00	11:00	- 11:00 -	
Vol.	*	1089	1113	1083	1257	- 1136	- 1468	1096	- 1184	
PM Peak	•	14:00	16:00	17:00	16:00	- 16:00	- 13:00	12.00	- 14:00	-
Vol.	<del>-</del> .	1368	1478	1444	1528	- 1418	- 1437	1199	1333	

DERRY FOLSOM RD WEST OF NH 28 STATE COUNT

Web: www.snhpc.org

Site Code: 82119076 Station ID:

Start Time	Mon	Tue	Wed	Thu	Fri	Average	Sat	Sun	Week	
12:00 AM	02-May-16	03-May-16		05-May-16	06-May-16	Day	07-May-16	08-May-16	Average	
01:00	700000000000000000000000000000000000000		36	37	43	. 39	63	78	51	
02:00	ildinakirarkiring:		17	18	25	20	35	40	27	
03:00			15	16	14		29	17	18	
04:00	ulingil (polytikaling).	ddiddal,a,ddidd ★	19	25	26	23	<b>23</b>		22	
05:00	verse resolvitions and		- 94	95	84	91	26	19	64	
06:00		iranumar.	233	219	209	220	86	40	157	
07:00		inger i de la companie de la compani	558	539	524	540	182	110		
			777	818	738	778	426	236	599	
08:00		energy war i	795	811	835	814	578	360	676	
09:00		709	689	672	735	701	800	547	692	
10:00	·# Nankatani nankanananan	764	747	764	831	776	977	793	813	
11:00		776	787	843	903	827	1077	747	856	
12:00 PM		. 813	875	938	995	905	1025	917	927	
01:00		860	904	888	1029	920	1105	766	925	
02:00	*	1041	1033	1049	1088	1053	1032	796	1006 L	
03:00		1083	1122	1084	1211	1125	991	750	1040 2	
04:00		1126	1296	1165	1208	(1199)				<u> 1999 (m. 1999)</u> Militar (m. 1999)
05:00		1188	1129	1180	1185			685	1066	
06:00	alakitakikilesi •	860	834	901	974	1170	811	650	1024	
07:00	****************	523	567	623	681	892	738	565	. <b>812</b> []	
08:00	n de la colonida de l *	368	399	415		598	571	475	573	
09:00		254	244	274	490 348	418 280	438	325		
10:00	amada kaleakkan kuma. *	133	135	179	252	175	291	202	269	<u>(5.55)</u> 6.64
11:00		66	82	93	142	96	200 145	132 54	172 L	1 <u>864</u> et
Day Total	0	10564	13387	13646	14570	13675	12567		97	<u>₹</u>
% Avg.	-		1 1 1 1 1 1 1			1007	12307	9319	12675	
WkDay	0.0%	77.3%	97.9%	99.8%	106.5%					
% Avg.	A 501	50 504								
Week	0.0%	83.3%	105.6%	107.7%	115.0%	107.9%	99.1%	73.5%		
AM Peak		11.00	08:00	<b>1</b> 1:00	11:00	- 11:00	- 11:00	10:00	- 11.00	are regional energy in
Vol.	_	776	795	843	903	- 827	- 1077	793	- 11.00 - 856	•
PM Peak		<b>1</b> 7:00	16:00	17:00	15.00	- 16:00	- 13:00	12:00	- 16:00	
Vol.	_	1188	1296	1180	1211	1199	- 1105	917	- 1066	
				::				Đư	- 1V00	

DERRY PINKERTON ST EAST OF TSIENNETO RD STATE COUNT

Web: www.snhpc.org

Site Code: 82119069 Station ID:

Start	Mon	Tue	Wed	Thu	Fri	Average	Sat	Sun	Week
Time 12:00 AM	02-May-16	03-May-16	04-May-16	05-May-16	06-May-16	Day	07-May-16	08-May-16	Average
01:00	10001100000		54 29	48 ************************************	78 33	. 60 ∧¢≎ (10 ) (10 ) (10 ) (10 ) (10 )	.88 	101 45	.74 12 34 4
02:00		Gikayaktonakta ≉	23	39				36	
03:00			31	39	ા જાણ	.0. <b>36</b> : Every Constitution	23	34	31 5 The result of the result
04:00	entere seseterininger **	landarkadi di etilik #	54	68	60		38	19	
05:00	**************************************		197	170	195	187	82	37	136 🕮
06:00			592	636	637	622	182	109	431
07:00			661	703	720	695		279	549
08:00	1	. \$	633	583	636	617	429	394	.535
09:00			521	531	589	547	653	574	574
10:00			554	630	656	613	796	746	676
11:00		613	665	636	725	660	928	769	723
12:00 PM	•	626	709	743	731	702	854	907	762
01:00		739	684	705	783	728	932	818	777
02:00	*	933	917	881	992	931	984	812	920
03:00		910	857	890	1016	918	922	780	896
04:00	*	984	997	1015	1072	1017	903	740	952
05:00		1047	1036	1009	1061	1038	864	720	956
06:00	4	864	843	989	945	885	768	585	816
07:00		674	607	669	795	686	647	558	658
08:00	· ·	518	516	549	529	528	538	442	515 (2000/2000)
09:00		329	322	357	478	372	392	274	359
10:00	·≢ aaaasa-saasaasaasaa	175	160	212	308	.214	269	164	215 📖
11:00		109	107	154	199	142	195	68	139 (21)
Day Total % Avg	. 0	8521	11769	12183	13307	12320	11934	10011	11809
WkDay	0.0%	69.2%	95.5%	98.9%	108.0%				
% Avg. Week	0.0%	72.2%	99.7%	103.2%	112.7%	104.3%	101.1%	84.8%	
AM Peak		11:00	11:00	07:00	11:00	- 07:00	- 11:00	11:00	- 11:00
Vol		613	665	703	725	- 695	- 928	769	- 723
PM Peak	i.	17:00	17:00	16:00	16:00	- 17:00	- 14:00	12:00	- 17:00
Vol.	•.	1047	1036	1015	1072	- 1038	- 984	907	956

DERRY TSIENNETO RD EAST OF PINKERTON ST STATE COUNT

Web: www.snhpc.org

Site Code: 82119078 Station ID:

Start	Mon	Tue	Wed	Thu	Fri	Average	Sat	Sun	Week	
Time	02-May-16	03-May-16		05-May-16	-	Day	07-May-16		Average	المنتبينية والمستنوني
12:00 AM		ridayyan sa sa 🔓	31	35	47	38	85		57	
01:00			26	25	24	7. T.			29	
02:00		ference en en en en en	. 27	27	20	25	38	29	28	
03:00			37	42	40	40	28		32	
04:00		ngi nganggawing i San	127	119	109	118	51		87	
05:00		daninan Ar <mark>i</mark> .	309	320	308	312	] (2007)			
06:00		r Properties	938	959	909 Savatela avene	935	301		and the second state of the second	
07:00			1097	1159	1084	1113	561		851	
08:00		in the second se	1021	1102	1042	1055	788		883	
09:00			873	931	946	917	929		871	
10:00	# 		985	950	995	977	1106		972	
11:00		1034	1001	1131	1202	1092	1286	879	1089	
12:00 PM	.*	1087	1110	1101	1248	1136	1047	983	1096	
01:00	•	1085	1083	1010	1309	1122	1142	745	1062	
02:00	*	1446	1410	1505	1496	1464	1134		1302	
03:00		1441	1382	1363	1495	1420.	977	806	1244	
04:00	:. <b>≜</b>	1457	1540	1476	1523	1499	1005		1290	
05:00		1395	1355	1346	1415	1378	886		1197	
06:00	. *	1050	885	934	998	967	767		879	
07:00		594	618	666	720	650	572		614	Valence I
08:00		467	393	429	526	454	466		440	
09:00	AND THE PARTY OF T	247	236	277	417	294	352		291	
10:00	ŧ	119	119	166	306	178	241		184	
11:00		80	89	95	128	86 1. /// 198	126		94	
Day Total	0	11502	16692	17168	18307	17307	14034		15461	
% Avg.	0.0%	66.5%	96.4%	99.2%	105.8%					
WkDay	U.\$76	00.37a	90.474	99.2%	100.6%	•				
% Avg.	0.0%	74.4%	108.0%	111.0%	118.4%	444 00/	πό πίν			
Week	0.070	74.470	100.076	111.070	110,470	111.9%	90.8%	67.2%		
AM Peak		11.00	07:00	07:00	11:00	- 07:00	- 11:00	11:00	- 11:00	•
Vol.	<b>-</b>	1034	1097	1159	1202	- 1113	- 1286	879	1089	
PM Peak		16:00	<b>1</b> 6:00	14:00	16:00	- 16:00	- 13:00	12:00	- 14:00	
Vol.	-	1457	1540	1505	1523	- 1499	- 1142		- 1302	- ÷

DERRY CHESTER RD EAST OF SILVESTRI CIR STATE COUNT

Web: www.snhpc.org

Site Code: 82119064 Station ID.

Start	Mon	Tue	Wed	Thυ	Fri	Average	Sat	Sun	Week	
Time	02-May-16	03-May-16			06-May-16	Day	07-May-16	08-May-16	Average	
12:00 AM	*	*	35	36	.39	.37	72	82	53	1
01:00			24	34	40	33	34	49	36	
02:00	*	•	28	24	34	29	29	25	28	
03:00			43	47	45	45	28	16	36	
04:00	.*	*	139	140	146	142	.53	35	103	
05:00			316	299	304	306	91	70	216	
06:00	*		519	499	532	517	215	132	379	
07:00			605	588	592	<b>595</b>	396	251	486	
08:00	*	±	581	506	545	544	459	307	480	
09:00			367	396	390	384	562	418	427	
10:00		369	353	400	407	382	. 581	551	444	
11:00		379	. 392	390	417	394	626	605	468	
12:00 PM	1	377	402	432	505	429	638	585	490	
01:00		478	468	460	531	484	599	620	526	
02:00	*	491	545	544	595	544	648	519	557	
03:00		636	606	647	702	648.	570	543	617	
04:00	antenationen atenationalei. •	663	697	5 co-c: 5	665	661	539	526	618	
05:00	orani nyangananak TANGTO T	633	597	632	714	644	556	526	610	
06:00	i utanalanlari turi #	574	529	498	649	562	486	496	:539 <u> </u>	<u>andaniahan dan pagana</u> Kabupatèn
07:00		410	383	401	512	426	415	431	425	
08:00	**************************************	313	310	305	362	322	344	297	322	**************************************
09.00		220	234	232	284	242	282	182	239	
10:00	4	143	139	154	216	163	211	116	163	2000 C
11:00		82	76	93	136	97	157	62	101	
Day Total	0	5768	8388	8375	9362	8630	8591	7444	8363	
% Avg. WkDay	0.0%	66.8%	97.2%	97.0%	108.5%				÷ .	
% Avg.	0.0%	69.0%	100.3%	100.1%	111.9%	103.2%	300 70/	iện nêz		
Week	0.076			100.170	111.876	103.2%	102.7%	89.0%		
AM Peak	٠.	11:00	07:00	07:00	07:00	- 07:00	- 11:00	11:00	- 07:00	
Vol.	•	379	605	588	592	- 595	- 626	605	486	
PM Peak	·	16:00	16:00	15:00	17:00	- 16:00	- 14:00	13:00	- 16.00	
Vol.		663	697	647	714	- 661	- 648	620	- 618	

DERRY NO. MAIN ST NO OF ACADEMY DR STATE COUNT

Web: www.snhpc.org

Site Code: 82119052 Station ID:

Start	Mon	Tue	Wed	Thu	Fri	Average		er da ees		
Time	02-May-16	03-May-16	04-May-16	05-May-16		Day	Sat 07-May-16	Sun 08-May-16	Week	
12:00 AM			21	23	39	28	45	74	Average 40	
01:00			14	13	20	16	23	11:11:14	22	
02:00	tarentaria de la recentraria del recentraria de la recentraria de la recentraria de la recentraria de la recentraria del recentraria de la	et.	11	12	20	14	20	12	15	
03:00			. 8	7.	12	9	8	12		
04:00	TANGARAN SANGAN SAN	* Seleteraria (aliante)	37	39	39	38	19	14	30	
05:00			111	100	104	105	33	32	12/32/32/15/27/16/27/16/27/16/27/16/27/16/27/16/27/16/27/16/27/16/27/16/27/16/27/16/27/16/27/16/27/16/27/16/27/16/27/16/27/16/27/27/27/27/27/27/27/27/27/27/27/27/27/	
06:00		TORREST STANDARD CONTRACTOR	695	688	644	-676 سر	146	62		
07:00			759	752	757	756	393	203	573	
08:00		<b>.</b>	650	679	640	656	390	259	524	
09:00			459	449	449	452	462	349	434	
10:00		**************************************	448	487	497	477	558	442	486 ]	
11:00			455	467	520	481	671	509	524	
12:00 PM	.*	449	501	493	582	506	654	646	554	
01:00		512	558	512	652	558	702	499	PARAGRAMIAN AND AND AND AND AND AND AND AND AND A	<u> 1900 - 1900 - 1900 - 1900 - 1900 - 1900 - 1900 - 1900 - 1900 - 1900 - 1900 - 1900 - 1900 - 1900 - 1900 - 1900</u> Elektron 1900 - 1900 - 1900 - 1900 - 1900 - 1900 - 1900 - 1900 - 1900 - 1900 - 1900 - 1900 - 1900 - 1900 - 1900
02:00	*	785	782	850	834	813			572	
03:00		798	807	798	858	.815~	689 663	568 512	751	
04:00	<b>‡</b>	804	904	825	990	881			739	<u>Aleksia kangula ya kata da</u> Manungan
05:00		833	856	738	1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 -	the transfer of the transfer o	/ :559 	503	764	
C6:00	.nkh-kathathitai.e.,§ ≢	588	573	667	918	836	541	530	736	
07:00	nggggggggg	445	405	356	694 512	630	· 551	428	584 🕹	
08:00	· · · · · · · · · · · · · · · · · · ·	292	254	386	335	430	380	324	404	
09:00		154	129	300 171	213	317	279	233	296 🗓	
10:00	· · · · · · · · · · · · · · · · · · ·	79	92	129	229	167	308	177	192	
11:00		44	54	50	106	132 64	163	148	140 🖺	
Day Total	0	5783	9583	9691	10664	9857	143 8400	36	72	3
% Avg.						5001	04VV	6613	8984	
WkDay	0.0%	58.7%	97.2%	98.3%	108.2%					
% Avg.	0.007	01.15						-		
Week	0.0%	64.4%	106.7%	107.9%	118.7%	109.7%	93.5%	73.6%		
AM Peak	2		07:00	07:00	07:00	- 07:00	- 11:00	11:00	ስታ.ሰብ	أتعمونا للشروسات
Vol.	<b>.</b>	-	759	752	757	756	- 671	509	07:00	
PM Peak	-	17:00	16:00	14.00	16:00	- 16:00	13:00	12:00	- 573	Ť
Vol.		833	904	850	990	881	- 702	646	- 16:00	
							102	040	- 764	-

DERRY NO. MAIN ST NO OF TSIENNETO RD STATE COUNT

Web: www.snhpc.org

Site Code: 82119062 Station ID:

Start Time	Mon 02-May-16	Tue 03-May-16	Wed	Thu 05-May-16	Fri	Average	Sat	Sun	Week	
12:00 AM	varining-10	03-1419-10	u4-iway- ro 67	U5-Way-16 73	.00-May-10	Day	07-May-16 127		Average	
01:00	**************************************		22		44	14. 66-20-1-20-1-21-21-21-21-21-21-21-21-21-21-21-21-2	61	143 143 (1981)	98 🗵 46 🗓	
02:00	. (	alaqidan alaqidi. Al	19	26	25	23	- 10 (10 (10 (10 (10 (10 (10 (10 (10 (10		29	
03:00				24	27	23 27	29	27	29 L	
04:00	*	· · · · · · · · · · · · · · · · · · ·	57	55	56	-56	: 35		#####################################	
05:00		(\$\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	205	186	168	186		45	134 2	
06:00	3	<b>±</b>	456	490	438	461	154	80	324	
07:00				991	996	997	349		706	
08:00	· · •	**	996	1014	994	1001		369	790	<u>ः।</u> १९३१
09:00			739	727	781	749	709		693	12553 34
10:00	. : . :	-,	568	576	662	602	795	721	664	<u> </u>
11:00			591	617	702	637	896	764	Plant in the compared a control of the first and the control of th	22 설계
2:00 PM	andania (adalik ada)	672	747	710	774	726	1015	912	714	<u>요요.</u> 홍 임조건조(형
01:00		668	708	676	861	728	986	836	805 789	aaldid Varrus
02:00		826	829	803	959	854	942	765	854 (	2662 <b>0</b> 9989-9 <b>1</b>
03:00		1065	1042	1145	1215	1117	957	815	1040	
04:00	*	1163	1196	1134	1311	1201	845	793	1074	
05:00		1253	1299	1199	1377	1282	827	799	1126	
06:00	ir einteineanna juoist T	1102	1094	1102	1149	1112	, 756 :	696	983	
07:00		758	734	724	835	763	673	657	730	
08:00	*	574	556	575	627	583	522	488	557	
09.00		397	342	362	517	404	471	349	406	
10:00		224	226	309	392	288	327	233	285	
11:00		116	113	141	256	156-	238	94	160 110	
ay Total	0	8818	13642	13680	15247	14056	12396	10410	13078	
% Avg. WkDay	0.0%	62.7%	97.1%	97.3%	108.5%	and the second second		•		
% Avg. Week	0.0%	67.4%	104.3%	104.6%	116.6%	107.5%	94.8%	79.6%	:	
M Peak	_		07:00	08:00	07:00	- 08:00	- 11:00	11:00	- 08:00 -	
Vol.			1005	1014	996	1001	- 896	764	- 790	
M Peak		17:00	17:00	17:00	17:00	- 17.00	- 12:00	12:00	- 17:00	
Vol.	<del>.</del>	1253	1299	1199	1377	- 1282	- 1015	912	- 1126 -	

## Southern New Hampshire Planning Commission 438 Dubuque Street, Manchester, NH 03102

DERRY SO, MAIN ST SO OF THORTON ST STATE COUNT 438 Dubuque Street, Manchester, NH 03102 Tel: 603-669-4664 Fax:603-669-4350 Web: www.snhpc.org

Site Code: 821 19054 Station ID:

Start	Mon	Tue	Wed	Thu	Fri	Average	Sat	Sun	Week	
Time	02-May-16	03-May-16		05-May-16	06-May-16	Day	07-May-16	08-May-16	Average	
12:00 AM	*		-48	57	85	.63	112	133	87	
01:00		ovicoje,6vo≱* Stickaskakali	35	30	43	36	53	67	46	
02:00	*	<b>\$</b>	24	26	35	28	39	40	33 (	
03:00			33	34	37	35	24	36	33	
04:00	•	*	73	84	81	79	39	23	60	
05:00			230	209	219	219	82	62	160	100 g
06:00	4	4	962	946	943	950	273	154	656	
07:00			1095	1105	1129	1110	) 623	374	865	
08:00	*	*	1038	1010	1004	1017	640	548	848	
09:00			797	777	842	805	882	728	805	
10:00	·#	- *	734	860	859	818	1070	945	894	
11:00			833	805	921	853	1244	1020	965	
12:00 PM		810	896	909	979	898	1209	1184	998	
01:00	V*15/1975*	934	890	886	1083	948	1237	980	1002	
02:00		1002	1002	1063	1044	1028	1285	1085	1080	
03:00	with the Alberta	1221	1273	1243	1383	1280	1181	980	1214	
04:00	سننداداداداداداداداداداداداداداداداداداد	1340	1352	1418	1459	1392	1143	971	1280	
		1407	1390	1340	1454	1398	1092	989	1279	
05:00			1144		1295	1178	1074	806	1099	
06:00		1161	812	774	992	869	843	660	830	
07:00		898 616	569	695	623	626	617	538	610	waxaaaaaa
08:00 09:00	ering semperatables	383	357	419	526	421	563	315		WW.W.)
10:00	a da ar da and dalar •	189	197	258	429	268	383	264		
11:00		108	120	162	242	158.	295	80	168	
Day Total		10069	15904	16224	17707	16477	16003	12982	15726	2.2.2.2.
% Avg.		-					gf			
WkDay		61.1%	96.5%	98.5%	107.5%					
% Avg.	0.0%	64.0%	101.1%	103.2%	112.6%	104.8%	101.8%	82.6%		
Week AM Peak			07:00	07:00	07:00	- 07:00	- 11:00	11:00	- 11:00	
ANI Peak Vol.	•		1095	1105	1129	1110	1244	1020	- 965	
PM Peak	•	17:00	17:00	16:00	16.00	- 17:00	- 14:00	12:00	- 16:00	
Vol.	-	1407	1390	1418	1459	1398	- 1285	1184	- 1280	• · · · · · · · · · · · · · · · · · · ·
VOI.	•	1401	1000	1410					tak jakit oleh titologi	

DERRY TSIENNETO RD WEST OF CHESTER RD STATE COUNT

Web: www.snhpc.org

Site Code: 82119021 Station ID:

Start	Mon	Tue	Wed	Thu	·····Fri	Average	Sat	Sun	:Week	
Time	02-May-16	03-May-16	04-May-16	05-May-16	06-May-16	Day	07-May-16	08-May-16	Average	
12:00 AM	#		21	23	27	24	37	49	31 🛚	
01:00			16	10	15	14	15	19	151	
02:00	· · · · · · · · · · · · · · · · · · ·	*	12	10	8	10	20	23	15 🛚	
03:00			15	18	11.	15	42	7.	13 ]	
04:00			28	29	31	.29	20	13	24	
05:00			122	118	108	116	35	16	80	
06:00	*	*	412	421	417	417	114	37	280 1	
07:00			503	495	452	. 483	259	111	364_	
08:00		*	429	433	415	426	297	204	356	HUNNYA DINA SANSA SA
09:00			301	316	286	301	374	312	318	
10:00		*	311	292	323	309	441	382	350	
11:00		330	330	298	342	325	497	386	364	
12:00 PM	•	351	296	298	364	327	444	394	358	
01:00		299	320	336	398	338	459	372	364	
02:00	*	450	493	507	502	488	446	373	462	
03:00		469	441	461	502	468	483	382	456	
04:00	*	501	499	485	559	511		366	472	
05:00	erang ng Propinsi yan	508	477	490	503	494	394	357	455	
06:00	*	440	382	441	442	426	388	301	.399	
07:00		311	279	275	339	301	280	237	287	
08:00	*	216	207	261	295	245	242	171	232	
09:00		128	120	135	228	153	189	101	150	
10:00	•	- 68	58	104	154	.96	115	84	97 ∐	
11:00		31	39	58	78	52	[10 PER 19 PER 1	29	# 777 4 1 1 1 1 1 1 1 5 <b>54</b> 2	
Day Total	0	4102	6111	6314	6799	6368	6076	4726	5996	
% Avg. WkDay	0.0%	64.4%	96.0%	99.2%	106.8%		<b>y</b>		•	
% Avg. Week	0.0%	68.4%	101.9%	105.3%	113.4%	106.2%	101.3%	78.8%		
AM Peak		11:00	07:00	07:00	07:00	- 07:00	- 11:00	11:00	- 07:00	
Vol.	-	330	503	495	452	- 483	- 497	386	- 364	
PM Peak	· ····	17:00	16:00	14:00	16:00	- 16:00	- 15.00	12:00	- 16.00	er en
Vol.	<b>.</b>	508	499	507	559	- 511	- 483	394	- 472	

LONDERRY NH 102 (NASHUA RD) @ DERRY T/L STAATE COUNT

Web: www.snhpc.org

Site Code: 82269058 Station ID:

Start Time	Mon 02-May-16	Tue 03-May-16	Wed	Thu	Fri	Average	Sat	Sun	Week	
12:00 AM	UZ-IVIAY- 10	U3-May-10	04-May-16 140	05-May-16 164	06-May-16 <b>1</b> 94	Day		08-May-16	Average	imple of the transfer of
01:00		şeriyeş veşter <b>a</b> r	140 80	81	136	166 99 : 1	234	260 223	198 1	
02:00	a kadini a akada ka	kasaksakkai lei kar •	86	74	103	88:	101	98	92	
03:00			107	122	111	113	94	66	100	
04:00	*	±	309	347	324	327	124	76	236	
05:00			858	824	816	B33	278	143		
06:00	7	5	1327	1280	1244	.1284-		335	950	
07:00			1761	1750	1642	1718		599	1337	i
08:00	*	*	1596	1665	1605	1622	1275	865	1401	
09:00		1376	1337	1502	1404	1405	1549	1223	1398	
10:00		1358	1408	1362	1511	1410	1761	1629	1505	
11:00		1411	1448	1473	1517	1462	1946	1751	1591	
12:00 PM		1489	1515	1615	1698	1579	1973	1777	1678	
01:00		1507	1482	1508	1668	1541	2014	1761	1657	
02:00	*	1587	1631	1766	1864	1712	1915	1680	1740	
03:00		1839	1737	1846	1915	1834	1859	1559	1792	
04:00	•	1820	1733	1731	1901	1796	1751	1507	1740 [	
05:00		1730	1773	1737	1764	1751	1678	1482	1694	
06:00	*	1616	1567	1633	1766	1646	1581	1269	1572	
07:00		1118	1197	1253	1406	1244	1319	1133	1238	
08:00	in the second second section is the second section in the second section in the second section is the second section in the second section in the second section is the second section in the second section in the second section is the second section in the second section in the second section is the second section in the second section in the second section is the second section in the second section in the second section is the second section in the second section in the second section is the second section in the second section in the second section is the second section in the second section in the second section is the second section in the second section in the second section is the second section in the second section in the second section is the second section in the second section in the second section is the second section in the second section in the second section is the second section in the second section in the second section is the second section in the second section in the second section is the second section in the second section is the second section in the second section is the second section in the second section in the second section is the second section in the second section in the second section is the second section in the second section in the second section is the second section in the second section in the second section is the second section in the second section in the second section is the second section in the section is the section in the section in the section is the section in the section in the section is the section in the section is the section in the section in the section is the section in	927	873	1021	1037	964	1095	875	971	
09:00		691	673	777	869	752	816	580	734	
10:00	्र १९२० वर्षे	422	429	540	691	520	- :631	372		<u> </u>
11:00		252	256	340	459	327	504	231	340	
Day Total % Avg.	. 0	19143	25323	26411	27645	26193	26164	21494	25200	
WkDay	0.0%	73.1%	96.7%	100.8%	105.5%					
% Avg. Week	0.0%	76.0%	100.5%	104.8%	109.7%	103.9%	103.8%	85.3%		
AM Peak	·	11:00	07:00	07:00	07:00	- 07:00	- 11:00	11:00	- 11:00	Alexandra de la companya de la compa
Vol.	-	1411	1761	1750	1642	- 1718	- 1946	1751	- 1591	
PM Peak		15:00	17:00	<b>1</b> 5:00	15:00	- 15:00	- 13.00	12:00	- 15:00	• • • • • • •
Vol.	5	1839	1773	1846	1915	1834	- 2014	1777	- 1792	

LONDONDERRY NH 28 (ROCKINGHAM RD) @ DERRY T/L **STATE COUNT** 

Web: www.snhpc.org

Site Code: 62269053 Station ID:

Start	Mon	Tue	Wed	Thu	Fri	Average	Sat	Sun	Week
Time	02-May-16	C3-May-16		05-May-16	06-May-16	Day	07-May-16	08-May-16	Average
12:00 AM			88	85	158	110	164	148	129 🖾
01:00			61	57	76	65	72	92	72 )
02:00			46	54	58	53	54	76	58 🖟
03:00			45	61	67	58	50	49	TENERS 1 54 3
04:00			110	110	139	120	.61	34	<b>91</b> 🖫
05:00			344	304	279	309	132	64	225
06:00	¹. <b>±</b>		826	838	807	824	266	149	577
07:00			1287	1309	1240	1279	<b>&gt;</b> 609	338	957
08:00		*		1397	1252	1306	753	446	1023
09:00		**************************************	932	1005	1061	999	1008	776	956
10:00		881	956	918	1009	941	1167	977	985
11:00	a a conserva a conserva de la confection de	975		994	1105	1015	1271	1157	1081
12:00 PM	anderleitanarkalanda L∰	1075	A	1146	1263	1167	1340	1290	
01:00		1073		1116	1259	1128	1376	1144	1216 []
02:00						and the property of the proper	The state of the s		1172
02:00		1207	1241	1229	1435	1278	1471		1293
		1433		1549	1562	1476	1353	1050	1384
04:00	1187 (942) 100 100 100 (98)	1563	1732	1682	1751	1682	1328	1060	1519
05:00	ali kalingd	1775		1811	1956	1864	1206	959	1604
06:00	rangan kananan di Sarahan Sarah	1246	1226	1346	1424	1310	1052	812	1184 (1888)
07:00		871	820	979	1102	943	925	735	905
08:00	and the second second	641	630	703	823	699	720	565	680
09:00		457	439	583	656	534	497	331	494
10:00	* verselannen (* 1976) eta	271	<b>277</b>	353	492	348	396	267	343
11:00		182	184	237	296	225	322	130	225 221
Day Total	0	13601	19069	19866	21270	19733	17593	13824	18227
% Avg.	0.0%	68.9%	96.6%	100.7%	107.8%	•	• •	* *	• •
WkDay			-						
% Avg.	0.0%	74.6%	104.6%	109.0%	116.7%	108.3%	96.5%	75.8%	
Week									
AM Peak		11:00	07:00	08:00	08:00	- 08:00	- 11:00	11:00	- 11:00
Vol.		975	1287	1397	1252	1306	- 1271	1157	1081
PM Peak		17:00	17:00	17:00	17:00	- 17:00	- 14.00	12:00	- 17:00
Vol		1775	1916	1811	1956	1864	1471	1290	- 1604

LONDONDERRY GILCREST RD NO OF NH 102 STATE COUNT

Web: www.snhpc.org

Site Code: 82269082 Station ID:

Time	Start	Mon	Tue	Wed	Thu	Fri	Average	Sat	Sun	Week	
1200 AM	Time	02-May-16	03-May-16			06-May-16	Day				
01:00		<u>*</u>	<b>.</b>			36	28		51		
02:00				14	21	18	18	39	51		
03.00		*		17		19	17	20	11		
04:00				11	15	22	16	18	6		
05:00						38	48	17	15		
06:00 - ' 443 417 384 415 117 75 287				209	218	184	204	63	36		
07:00			*				415	117	75	287	
09-00	07:00			690	724	678	697	311	216		
09:00   \$   554   631   618   618   605   676   563   610	08:00	. •	703	702	858	763	756	509	370	651	
10:00 * 565 584 561 608 580 877 689 647 11:00 * 566 627 593 710 624 991 736 704 12:00 PM * 701 697 708 806 728 900 884 783 12:00 PM * 708 768 653 775 688 911 794 743 10:00 * 648 678 653 775 6888 911 794 743 10:00 * 708 753 800 836 774 912 738 791 10:00 * 867 866 938 978 917 938 718 888 10:00 830 877 800 838 878 917 938 718 888 10:00 830 877 800 838 879 800 838 879 800 838 879 800 838 879 800 838 879 800 838 879 800 838 879 800 838 879 800 838 879 800 838 879 800 838 879 800 838 879 800 838 879 800 838 879 800 838 879 800 838 879 800 838 879 800 838 879 800 800 838 879 800 800 800 800 800 800 800 800 800 80	09:00		554	631	618	618					
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02:00         *         708         753         800         836         774         912         738         791           03:00         *         867         886         938         978         917         938         718         888           04:00         *         946         1054         994         1040         1008         877         720         938           05:00         *         1113         1026         1030         1044         1053         777         666         943           06:00         *         892         732         844         896         841         655         563         764           07:00         *         528         524         537         640         557         510         447         531           08:00         *         360         365         389         432         366         424         315         381           09:00         *         212         210         228         308         240         291         144         232           10:00         *         116         120         122         210         142         174         83											
09:00		•									
04:00         •         946         1054         994         1040         1008         877         720         938           05:00         •         1113         1026         1030         1044         1053         777         666         943           06:00         •         892         732         844         896         841         655         563         764           07:00         •         528         524         537         640         557         510         447         531           08:00         •         360         365         389         432         386         424         315         381           09:00         •         212         210         228         308         240         291         144         232           10:00         •         116         120         122         210         142         174         83         138           11:00         •         58         67         75         119         80         119         43         80           Day Total         0         9537         1115         11436         12162         11422         11177         8934 <td></td> <td></td> <td>\$555-\$555-\$555-\$555</td> <td>determinent, erene er er er er er</td> <td>er en nomerous au de la composition de</td> <td>Address of August 1997 and</td> <td></td> <td></td> <td></td> <td>\$35943 (1985) 200 (1985)</td> <td></td>			\$555-\$555-\$555-\$555	determinent, erene er er er er er	er en nomerous au de la composition de	Address of August 1997 and				\$35943 (1985) 200 (1985)	
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## STATE OF NEW HAMPSHIRE, DEPARTMENT OF TRANSPORTATION - BUREAU OF TRAFFIC IN COOPERATION WITH U.S. DEPARTMENT OF TRANSPORTATION FEDERAL HIGHWAY ADMINISTRATION

AUTOMATIC TRAFFIC RECORDER DATA FOR THE MONTH OF APRIL 2014

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4	20	1	153	103	64	35	34	85	168	343	438	641	792	931	1073	840	737	669	751	786	878.	710	555	326	178	132	1147	22
4	15	3	64	44	47	48	180	426	861.	1021	904	798	745	811	817	824	1008	1096	1031	1048	976:	769	608	343	221	165	1485	
4	16	4	66	47	49	€5	142	420	811	1002	903	717	698	760	735	813.	1026	1014	1052.	1107	1052	805	652	409	269	139	1475	3
4	17	5	89	49	44	49	175	458	884	1025	955	741	704	779	821	853	912	1122	1141	1192:	1042	856	630	514	273	176	1548	34
4	18	6	76	59	50	. 54	155	379	832	1031	941	845	800	893	926	1015	1154	1147	1169	1198	1103	798	563	526	417	311	1644	2
4	19	7	149	99	47	29	73	145	323	677	780	1060	1081			1092		1049	997	965	867	725	585	507	393	231	1529	<u>-</u>
	ΤY	PE	STATION	ΥE	AR	MON	тн		NO.		VERA		AVER WEEK	AGE	AVE	RAGE JRDAY	A	VERAG DAILY	E	COMPL VOLU			CENT AIN		CENT OSS			7
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MIDDAY - 10 AM TO 2 PM

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## STATE OF NEW HAMPSHIRE, DEPARTMENT OF TRANSPORTATION - BUREAU OF TRAFFIC IN COOPERATION WITH U.S. DEPARTMENT OF TRANSPORTATION FEDERAL HIGHWAY ADMINISTRATION AUTOMATIC TRAFFIC RECORDER DATA FOR THE MONTH OF APRIL 2014

AVIONATIO TRAFFIO RECURDER DATA RE

WEEKDAY

SATURDAY

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4	20	1	175	119	63		47						832													135	12162
4	15	3	80	65	56	71	202	544	772	1033	1020	976	983	1017	1091	1050	1083	1136	1137	1128:	1034	742	645	432	271	210	16778
4	16	4	91	55	50	78.	163	519	779	972	1024	970	1054	1073	1007	1030	1207	1229	1155	1150	1103	889	697	536	335	189	17355
4	17	5	112	68	.58	76	197	560	794	1065	1056	933	1027	1061	1056	1096	1117	1243	1149	1190	1173	936	844	611	360	234	18016
4	18	6	135	90	73	75	187	483	751	1006	1062	1094	1067	1150	1211	1183	1259	1258	1285	1262	1157	946	735	590	448	354	18861
4	19	7	182	112	75	41	84	165	337	638	868	1073	1251	1289	1359	1344	1302	1245	1121	1090	998	833	699	567	446	283	17402
	TY	Ė	STATION	YE	AR	MON	ITH		NO.		VERA		AVER WEEK			RAGE URDAY		VERAG DAILY		COMPL VOLU			CENT SAIN		CENT OSS		
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### STATE OF NEW HAMPSHIRE, DEPARTMENT OF TRANSPORTATION - BUREAU OF TRAFFIC IN COOPERATION WITH U.S. DEPARTMENT OF TRANSPORTATION FEDERAL HIGHWAY ADMINISTRATION

AUTOMATIC TRAFFIC RECORDER DATA FOR THE MONTH OF APRIL 2014

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4	15	3	37	.18	13	. 12	45	112	283	422	442	350	305	289	364	327	364	357	434	432	319	230	168	111	-66	54	5554
4	16	4	28	12	14:	13	49	98	228	357	375	284	308	298	297	343	386	412	414	448	374	229	177	129	.79	59	5411
4	17	5	32	8	14	13	51	117	258	427	393	295	295	349	359	352	410	431	414	504	406	315	203	149	96;	72	5963
4	18	6	37	19	11	7	33	116	253	345	398	356	379	393	419	420	487	539	513	493	412	279	211	167	124	86	6497
4	19	7	48	35	12	14	19	37	94	222	368	492	468	570	548	534	589	492	370	352	280	237	169	160	118	73	6301
	TY	PE	STATION	YE	AR	MON	TH		NO. DAYS		VERAC SUNDA	-	AVER/ WEEK			RAGE URDAY		/ERAGI DAILY		COMPL VOLU			RCENT BAIN		RCENT OSS		\$ -
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## STATE OF NEW HAMPSHIRE, DEPARTMENT OF TRANSPORTATION - BUREAU OF TRAFFIC IN COOPERATION WITH U.S. DEPARTMENT OF TRANSPORTATION FEDERAL HIGHWAY ADMINISTRATION

AUTOMATIC TRAFFIC RECORDER DATA FOR THE MONTH OF APRIL 2014

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ŧ	27	1	:	15	2	4	4	3	2	15	47	49	76	97	103	128	119	107	104	79	₽4	66	51	61	27	35.	10	1288
	23	4	!:	16	4	5	5	10	30	78	86	99	87	103	102	130	100	135	158	162	158:	123	90	69	51	32	7	1840
	24	-5	ः -	6	9	1	4	7	37	90	97	78	49	87	76	132	101	127	166	175	172	149	128	:95:	62	28	13	1889
	25	6		11	10	3	3	10	30	74	101	99	90	94	127	171	143	130	170	175	1,51	125	101	77	60	34	25	2014
	26	7	= -	9	7	3	1	3	.8	17	51	59	101	109	117	127	129	138	88	€19	100	.96	67	32	36	32	20	1439
	TY	ÞΕ	51	TATION	YE	AR	MON			NO.		VERA	-	AVERAG WEEKD	ĠĖ	AVE	RAGE IRDAY	Ą٧	ERAG		COMPU VOLU			RCENT SAIN		RCENT OSS		
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SATURDAY

## STATE OF NEW HAMPSHIRE, DEPARTMENT OF TRANSPORTATION - BUREAU OF TRAFFIC IN COOPERATION WITH U.S. DEPARTMENT OF TRANSPORTATION FEDERAL HIGHWAY ADMINISTRATION

AUTOMATIC TRAFFIC RECORDER DATA FOR THE MONTH OF JULY 2014

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7	20	1	182	77	44	58	65	98	143	281	576	631	811	975	898	1014	994	931	1054	1034	853	769	576	392	249	151	12854
7	16	4	163	96	116	114	233	663	1009	1361	1432	1071	958	1031	1005	1072	1094	1457	1593	1607	1139	818	729	462	334	223	19780
7	17	5	171	105	98	118	257	640	1065	1409	1401	1107	1004	1022	1108	1134	1198	1504	1623	1757	1253	909	752	527	387,	240	20789
7	18 6 206 132 103 117 196 564 100										1376	1141	1060	1006	1143	1147	1455	1505	1758	1721	1312	1090	723	493	452	339	.21431
7	19	7	257	132	101	104	117	202	277	435	598	751	902	951	1078	993	1056	975	933	790	686	599	494	453	322	258	13464
	TYF	PE 8	STATION	YE	EAR	MON	ŧT <b>H</b>		NO. DAY		AVERA SUND		AVER WEER			RAGE URDAY		VERAG DAILY		COMPL			RCENT BAIN	-	RCENT .OSS	:	
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### STATE OF NEW HAMPSHIRE, DEPARTMENT OF TRANSPORTATION - BUREAU OF TRAFFIC IN COOPERATION WITH U.S. DEPARTMENT OF TRANSPORTATION FEDERAL HIGHWAY ADMINISTRATION

AUTOMATIC TRAFFIC RECORDER DATA FOR THE MONTH OF JUNE 2015

M O	D A	D A	82	119	070	DER	RY- N				AVE)						11124	MON	111 ()	, ach	L 201	J						
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6	28	1	1:	5	69	39	24	31	52	105	249	313	556	693	809	932	952	875	861		789		678	456	342	217	101.	10827
6	24	4	1	8.	62	26	.31	80	185	374	627	771	804	905	973	1040	1028	1040	1011	1137	1161	1012	892	810	576	336	203	15202
6	25	5	11	7	54	38	29	74	181	392	642	823	816	862	1068	.1110	1071	1079	1050	1094	1130	966	854	773	572	394	205	15394
6	26	6	1	9	59	39.	28	.75	194	370	620	727	829	867	1036	1125	1144	1127	1081	1139	1230	1137	955	779	694	436	297	16107
6	27	7	17	8	90	55	41	56	110	207	402	574	842	1051	1061	1128	1054	1018	1003	882	894	815	759	618	529	331	163	13861
	Ty	PE 82	STAT(		ΥE		MON			NO DAYS	S ?	VERAC SUNDA	<b>٩</b> Υ	AVER WEE	CDAY	SAT	RAGE URDAY		VERAG DAILY		COMPL VOLU	ME		CENT SAIN		RCENT OSS		
		02	1 (90	10	2	GIO	₃iun	ie.		5	9	108	2/		5568		13861		1470	8	44	1241	: "		1,13			
						į <b>p</b> į	EAK HO	OUR V	DLUME	:S:	SUNC WEEI			ERAGE 55 81	E AM: 6 9	.AV	41	)52 090	DAY: {	8	GE PM 75 74	./	M - 6 A MDDAY M - 2 P	- 10 A	м то 2			
											SATU	IRDAY		84				128			18	F	PM - 2 P	M TO 8	3 PM			

## STATE OF NEW HAMPSHIRE, DEPARTMENT OF TRANSPORTATION - BUREAU OF TRAFFIC IN COOPERATION WITH U.S. DEPARTMENT OF TRANSPORTATION FEDERAL HIGHWAY ADMINISTRATION AUTOMATIC TRAFFIC RECORDER DATA FOR THE MONTH OF APRIL 2014

M	D A	D A	82	119	059	DER	RY-			LONE	-			101.11			1111	WIOIT	: : :	74 10	(L EV)	. "3		-				
Ň	T	Ŷ			7	• • • • • • • • • • • • • • • • • • • •					<i>.</i> .			٠.														
	E		12	AM	1 AM	2 AM	3 AM	4 AM	5 AM	6 AM	7 AM	в АМ	9 AM	10 AM		12 PM							7 PM	8 PM	9 PM	10 PM	11 PM	Total
4	20	1		25	16	7	10	11	39	51	102	154	224	292	324	404	284	226	235	205	27t	249	207	139	68	43	23	3609
4	15	3	<u> </u>	12	5	8	5	39	100	306:	405	382	331	354	411	488	417	454	551	665	608	461	314	203	107	.54	43	6723
4	16 .	4		15	14	9	4	29	106	281	386	357	369	404	471	453	428	496	603	619	678	561:	366	218	108	61	34	7100
4	17	5		18	11	9	8	34	125	327	419	424	345.	408	456	548:	483	576	613	768	753	556	382	254	182	71	60	7830
4	18	6		21	17	6	6	31	98.	255	380	419	427	438	568	559	512	651	724	777	707	574	419	257	196	94	67	8203
4	19	7		24	14	13	.9	17	40	89	226	345	457	563	636	662	599	629	613	516	468	449	290	259	146	95	53	7212
		_	STAT			AR	MON		•	NO. DAYS		VERAI SUND	¥Υ	AVER/ WEEK	DAY	SAT	RAGE JRDAY	•	ÆRAGI DAILY		OMPL VOLU	ME		RCENT BAIN	,	CENT OSS		
		82	119	Ub9	2	014	Àрі	rii		Б		350	)9	7	64		7212		6916		207	7492		-		•		

PEAK HOUR VOLUMES:		AVERAGE AM:	AVERAGE MIDDAY:	AVERAGE PM:	
	SUNDAY WEEKDAY	224	404	271	AM - 6 AM TO 10 AM
	SATURDAY	410 457	.522 662	722 629	MIDDAY - 10 AM TO 2 PM PM - 2 PM TO 8 PM

### STATE OF NEW HAMPSHIRE, DEPARTMENT OF TRANSPORTATION - BUREAU OF TRAFFIC IN COOPERATION WITH U.S. DEPARTMENT OF TRANSPORTATION FEDERAL HIGHWAY ADMINISTRATION

AUTOMATIC TRAFFIC RECORDER DATA FOR THE MONTH OF JUNE 2015

M O	D A	G A	82 2690	115	LON	DON	DERR	Y- AS	SH ST	EAS	OF	LOND	ONDE	RRY	RD		:											
N	Ŧ	γ				,								. /	/													
	E		12 AM 1	AM	2 AM	3 AM	4 AM	5 AM	6 AM	7 AM	8 AM	9 AM	10 AM	i AM	12 PM	1 PM	2 PM	3 PM	4 PM	5 PM	6 PM	7 PM	8 PM	9 PM	10 PM	11 PM	Total	
6	28	1	40	22	11	12	15	23	58	87	166	273	394	446	468	490	471	441	396	334	259	212	128	119	59	34	4958	j.
6	24	4	28	12	13	15	50	107	282	402	431	400	420	460	544	474	530	627	665	689	555	418	309	158,	. 87:	45	7721	Ĭ,
6	25	5	29	16	20	18	43	103	276	364	431	386	423	420	444	475	483	636	693	716.	523	402	302	169	90	57	7529	<u>.</u>
6	26	6	37	13	14	11	36	104	233	360	390	419	478	539	567	535	626	667	752	765	564	398	303	201	107	67	8186	}
6	27	7	25	40	18	13	29	49	103	216	357	524	595	628	630	502.	566	495	475	399	336	275	227	138	-88	54	£782	ř
		PE :	269015	ΥÉ	AR 015	MON Jut			NO. DAY:	S	WERA SUND 49	ΑY	AVERA WEEKI	GE	SATU	RAGE IRDAY 6782		/ERAGI DAILY 7294	-	COMPL VOLU 21			CENT SAIN		RCENT OSS			
					Þ	EAK H	OUR V	OLUME	S.	:	DAY KDAY JRDAY	:	ERAGE 273 427 524	· .	AV	5		AY: I	AVERA 41 7	71 23	¥ N	AM - 6 A MIDDAY PM - 2 F	'- 10 A	M TO 2	PM			

### STATE OF NEW HAMPSHIRE, DEPARTMENT OF TRANSPORTATION - BUREAU OF TRAFFIC IN COOPERATION WITH U.S. DEPARTMENT OF TRANSPORTATION FEDERAL HIGHWAY ADMINISTRATION

AUTOMATIC TRAFFIC RECORDER DATA FOR THE MONTH OF SEPTEMBER 2015

M O N	D A T	D A Y	82 26	9D46	LON	IDON	DERR	Y- NI	28 (1	ROCK	INGH	AM F	RD) NO	ORTH	OF L	BER'	TY DE	₹									
	E		12 AM	1 AM	2 AM	3 AM	4 AM	5 AM	6 AM	7 AM	B AM	9 AM	10 AM	11 AM	12 PM	1 PM	2 PM	3 PM	4 PM	5 PM	6 PM	7 PM	8 PM	9 PM	10 PM	11 PM	Total
9	6	1	.81	54	47	36	56	86	180	260	371	619	663	657	768	749	623	546	499	516 <sup>1</sup>	552	470	424	334	207	377	8975
9	7	2	60	55	36	30	50	109	200	248	382	486	583	642	577	564	467	474	450	434	429	410	311	255	132	101	7485
9	2	4	99	70	57	70	179	469	1026	1402	1136	872	906	862	891	874	946	1107	1169	1172	836	761	.582	423	266	192	16367
9	3	5	113	80	711	73	203	480	1045	1471	1208	917	863	922	895	895	1058	1140	1301	1292	908	819	693	410	301	179	17337
9	4	6	104	80	54	84	198	446	1011	1347	1111	984	953	1018	1093	1003	1154	1235	1267	1223	993	780	586	522	340	231	17817
9	:5	7	147	91	61	50	82	159	330	544	709	757	886	954	881	852	795	733	663	673	651	573	489	417	286	165	11948
			STATION		AR	МОМ			NO. DAYS	;	VERAC SUND/	lΥ	AVER. WEEK	DAY		RAGE JRDAY		ÆRAG DAILY		OMPU VOLU			RCENT BAIN	. –	CENT OSS		
		82	269046	2	015	Se	ptembe	ŕ	E		897	<b>'</b> 5	14	752 /		11948		1360	8	400	3225				-		
			•		Þ	EAK H(	OUR VO	DLUME	Ś:		DAY KDAY JRDAY	ΑV	ERAGE 61 117	9 '6	ΑV	(₿	E MIDD 68 91	AÝ;		:	A A	IIDDAY	M TO / - 10 A PM TO (	м то а	PM		

## STATE OF NEW HAMPSHIRE, DEPARTMENT OF TRANSPORTATION - BUREAU OF TRAFFIC IN COOPERATION WITH U.S. DEPARTMENT OF TRANSPORTATION FEDERAL HIGHWAY ADMINISTRATION AUTOMATIC TRAFFIC RECORDER DATA FOR THE MONTH OF JULY 2015

M	D .	D A	82 269	048	LON	IDON	DERR	Y- N	1 102	(NAS	HUÀ	ŔD) E	AST	OF HA	MPT	ON D	R										
N	Т	γ		.,				٠.	4.43		:		· :		11		24/2										
	E		12 AM	1 AM	2 AM	3 AM	4 AM	5 AM	Б АМ	7 AM	8 AM	9 AM	10 AN	11 AM	12 PN	1 PM	2 PM	3 PM	4 PM	5 PM	6 PM	7 PM	B PM	9 PM	10 PM	11 PM	Total
7	29	4			109	154	379	1069	1737	2502	2383	2009	1875	1962	2127	2054	2213	2535	2739	2915	2197	1551	1368	892	554	360	36016
7	30	5	215	132	104	155		1039	1761	2560	2453	2022	2032	2258	2418	2347	2404	2731	2885	2876	2233	1546	1202	882	·····	331	37526
7	31	6	186	136	115	148	391	958	7615	2332	2371	2294	2266	2343	2501	2454	2476	2686	2725	2690	2179	1622	1390	966	653	469	37966
	TYP!		STATION 269048		AR 2015	AOM lut		· .	NO. DAYS		AVERA SUND/ 0					RAGE URDAY 0		VERAG DAILY		COMPL VOLU		_	RCENT GAIN		RCENT OSS		
					:P	EAK H	OUR V	DLUME	ES:		DAY KDAY JRDAY		ÆRAGI 24		A\	ÆRAGI 2	E MIDC 349	DAY:	AVERA 28	•	∀. <b>i</b>	AM - 6 / MIDDAY	/ - 10 A	м то а			

Project Exit 4a 50815 1 (cention: Ealt 4 NB ramps

Growth rates:

s: 2014->2015 - 2.025 Annual

2016->2015 0.975

Seasonal

enal : : (AM Pea) : PM Peak : May 16 Ad) Factor= : 0.96 : 0.98

AM Peak FM Feah

Total Adjustments:

7034->2015 0.984 1.0845 2016->2015

	: :		7014->2015 2016->2015	0.984 0.936											
	:	2015- Raw		2025 - AADT				7025 - AAE	)T			2025 - AWI	DT- Balance	l from EMC	and ATHs
		AM Peak	PM Peak	AM Peák	Approach	PM Peak	Approach	AM Peak	Approach	PAA Peak	Approach	AM Feel	Approach		
		(730-B30)	(445-545)	(730-830)	Totals	(445-545)	Totals	(730-B30)	Totals -	(445-545)	Totals	(730-830)	Totals	(445-545)	Totals
ΕĐ	.17	562	536	540	j085	525	1343	527	1058	512	1310	585	1175	475	1215
	Theu	568	\$35	545		818	•	531		798		590		740	
	RT	. 0	0.	¢		₽ .		Q <sup>'</sup>	- 1	b :		Ω		ō.	
WE	Ą٣	:D	9	0	1240	0	877	0	1209	0	855	Ø	1350	Ġ	-800
	Thru	£36	542	803		531	_	783		538		875		485	
	ЯŢ	455	953	437		346	:	428	İ	337		475		315	
NB	Lī	219	535	219	412	524	1071	205	402	523	1044	210	410	589	4185
	Thru	C	0	9	=	0		Ç		Ð		Ċ		Q	77.77
	ŔŦ	210	558	202		547		197		533		200		605	
<u>58</u>	Ľš	- 30	- C	.ċ	¢	٥	:.0	:C	0	.0	- 10 ·	G	à	o	e
	Try	Ó	t	-0		¢		Ć.		ġ		0		Ş	
	ĥΤ	£ :	.0	£ .		G		Ð		. 0		Ð		ø	
	total	2850	3359	2737	- 2737	3293	5791	2669	2569	3209	3209	2935	2935	3200	3200
			·. •	) Sisé Seasonal	Factor	· · ·		Vise Annual Balance to			.'				
					žB.	•									

	WB		NB		18		
	RT	TH	RΤ	ŧΤ	146	JLT,	Total
700-800	518	.813	388	137	.595	527	2738
715-815	520	803	199	207	534	562	2825
730-830	.455	835	210	219	568	562	2850
745-845	399	· 855	217	233	- 577	549	2820
B00-900	346	847	202	223	573	514	2705

	Southbound			Westbound (NH 182)						Northbe	ound (Exit 4)	NB Ramp)		East	bound (N	302)			
Time Period	Class.	1	.00	R	Ţ	U	#	0	R	. 1	- 1	1	:O	/ <b>j</b> r		ŧ	.t	O.	Total
Peak 1	Lights	] 0	983	441	896	Ú	1257	737	200	Đ	396	356	:B	537	542	1	júše	1011	2733
Specified Period	% ·	0%	27%	57%	59%	994	919	-51%	55%	P's	<del>2</del> 94	\$25v	·DA*	55%	FEL	\$100	955	5 FX	36%
7:00 AM - 9:15 AM	ther Vehicle	0	34	34	20	0	34	41	:10	Ð	-23	37	D	- <del>1</del> 1 ·	20	'n	51	43	125
One Hastr Peak	1.8	£	85	5%	2%	- 6%	75	5	54	-05	214	6.	ps	574	à.	- 84	5%	45	-3%
7:30 AM 8:30 A1	Total	0	1017	455	836	e j	1251	778	210	c	219	429	.0	568	562	1	3331	1056	2851
	:FHF	.0	0.0	9.84	0.E2	.0	0.97	6.9	8.85	Ó	0.84	0.68	6	0.93	0.88	:Ö.2\$	0.94	0.85	0.94
	Approach N	0%	55%				42%	778				23%	1894				4374	árk,	
						:[		: .					- 11			:	i .		1
		AVB		NB.		€8						· .					٠.		'.
		ŖТ	ŦĦ	RT	1.T	<b>174</b>	Ţŗ	Total											
Á	00-500	303	: 622	533	590	775	337	3230											
4	15-515	357	597	543	524	743	520	3284											
t	30-530	, 357	560	:53B	537	·B01	525	3523											
4	45-545	853	542	55B	535	835	536	3359											
5	00-600	914	515	591	57 <b>.</b> 0	823	503	3322											

	5	aethhound	٠.	Westbound (NH 192)					Northbo	aund Exit & N	8 off ramp)			East	bound (NH	102)		
Time Period Class.	1	0	R	Ţ	: .U	.i	0	8	*	l.	1	0	7	1	U		D	Total
Penist ∃ights	0	₽67	342	53E	0	€78	1369	552	Ď	,527	\$079	0 .	817	525	D	1342	1063	3299
Specified Feriod 8	PX	: FEX.	57%	53%	\$F⊕	95%	38%	99%	čni.	9214	95%	TN I	-55%	. 55k	D/4	55%	- 55%	254
4 DO PM - 6 35 PAOther Vehic	je ( 0	22	31	4	, e	17	74	6	0	-8	14	·ò :	18	11	ωĎ	79	34	£0
One Hour Peak is	_ Fs	. 2%	-35.	1%	ОX	n	374	.1%	256	-1%	15	6.	2%	24	99. °	2%	- 15	25
4 45 PM 5:45 PM Total	1 0	889	353	542	÷Ċ	895	1393	558	Ö	535	1093	ė	<b>#3</b> 5	536	C	2371	2077	3359
म्म	0	Q 57	0.77	835	£ <sup>i</sup>	0.87	0.98	0.91	Ģ	0.92	0.92	ė.	0.92	<b>695</b>	œ :	0,98	£ 0.96	0.96
Approach &		. 26%				27%	313	1		-	33%	ps			:	415	124	
			٠.			٠.		1			ř.	'			:			٠.

Project: Exit 4a SDE(S

Los Z docation; Exit 438 samps

Growth rates: Growth rates:
Annual 2014->2015 1.025
2015->2015 0.975

Seasonal

sonal AM Peak PM Peak May-16 Adj Factor= 0.96 0.98

AM Peak PM Peak

2014->2015 0.984 1.0045 Total Adjustments:

2016->2015 0.936 0.9555

				2016->2015	0.936	0.9555									
		2016- Raw		2016 - AADT	-			2015 - AAI	ÞΤ			2015 AW	OT-Balance	d from TM	C and ATRs
		AM Peak	PM Feak	AM Peak	Approach	PM Peak	Арриваст	AM Peak	Approach	FM Peak	Approach	AM Paak			
	_	(730-630)	(445-545)	(730-630)	Totals	[445-545]	Totals	(730-B30)		(445-545)		(730-630)		(445-545)	
₹ġ	17	,D	0	Đ	1475	· fi	1336	ũ	1439	G	:1307	0	1589	Đ	1235
	Thru	869	1052	815		1031	- A	795		1005	:	915		935	
	<b>お</b> て	687	311	660		305	1	544	-	297		665		300	
₩B	۴ı	. 0	0	. 0	3078	£:	1138	0	1051	û	1110	o o	3085	В	1065
	Thru	589	917	565		899		551		877		565		850	
	£(T	534	244	513		239		500		233	1	520		235	
NB.	ĻΤ	: <b>p</b>	G ·	9	e.	ð	Ď	Ç.	ø	0	C	O.	Đ	Ð	£
	Thru	ά	ą.	a a		0		c c		0		0		0	
	ЯŢ	D D	[ c ·	Ð.		0		Ð		۵				Ð	
55	17	246	300	235	777	294	963	730	757	257	939	26G	755	259	925
	Toru	. Ú	C	ū	1	0		Ò		Ø	:	j0		Q	-
	RY	564	683	543	· .	659		527	*	652		495		545	
	iota!	3469	3507	3330	3330	3437	3437	3247	3247	3352	3351	3420	3420	3725	3225
			٠.			:			\$4.						
				Use Seasonal	Factor ·		1 .	Use Annua	Factor						
						: * *	1.5	Balance to	NS ramp						

					perente to r
	SB	•	WB	£Β	: .
	RT	ŁΤ	T	7 .	Tota!
700-600	532	719	517	832	2100
715-815	535	740	552	:846	7174
730-E35	504	246	589	849	7188
745 E45	503	267	608	215	2194
800-900	510	266	616	.744	2180

		50)	uthbound (i	4 4 58 DM			Westbound	(NH 102)			Eastbour	d (NH 102)		
Time Period	Class.	7 <b>1.</b> ∵	4	19 M	. :0	13	**U	-1	.0	T	. <b>U</b>	- 1	.0	Total
Peak 1	LigJ:14	474	751	725	£ #	570	-,t0	570	1035	784	Đ.	784	1044	7075
Specified Period	Š.	98%	24%	90%	Di	>11.	37%	Ç4Ş	- <del>1,0</del> 0	ବଳ	494	55%	52%	95%
CIA 23 © MA DOS	iher Vehisie:	79	2.6	65	El.	38	n	3.8	:46	37	Ð	35	67	113
One Hour Peak	5-	E1	25	6%	2%	85	. DK - 1	VN.	44	45, -	D.	4%	0%	58
7.45 AM - 8.45 A	Total	503	267	770	: Ē	£08	- 00	6D8	1083	E16	0	816	3312	2394
	PHF	0.89	68.0	0.89	ď;	0.88	-p	0.88	0.95	0.95	<b>0</b>	0.93	0.92	0.94
٠.	Approach &	-	• • • • • • • • • • • • • • • • • • • •	35%	4%			169.	492			57%	52%	
		Ś₿		WB	EB									,
		ŖŦ.	13	.Th	TH	1.7	Total							
4	00-500	550	247	1013	1014	Ġ	2834							
4	15-515	397	.260	973	999	·jD	2828							
4	30-530	.637	286	3939	1051	Ú.	:2913							
4	45-545	683	300	917	1052	Ð	2952							
5	00-600	655	. 397	211	1006	e.	2689							
			100											

			Southbo	rund (Ekit 4	4 58 off) Westbound (NH 102)								Ea	estbound (NI	102)		
Time Period	Elass.	R	1.1	U	1	- 0	R	3.3	:10	ı	ø	7	i	· ti	11	Đ.	Total
Peak I	ights	£49	286	Đ.	999	·jģ	, in	207	ø	907	1325	1039	Ď	e	1039	1576	2901
Specified Pertod	÷.	52%	859	D:	97%;	18.	65	29%	tra	567	981	99%	178	F/S <sub>E</sub>	55%	<b>5</b> -5-	200
4:00 PM - 6.15 PM	they Vehicle:	14	14	Ö	7€	Ð	0	.19	Û	10	27	33	- 57	.0	13	- 24	51
Ont Hour Peak	*	25	t x		3%	ris.	174	28	05	13	25.	1%	r.	.0%	2%	25	78.
4.45 PM - 5:45 PF	Tutal	683	300	D	983	Ď	1 0	917	Ó	917	1357	1052	:13		1052	.1600	2952
	èнi	0.92.	0.91	ΞĎ	6.92	Ð	n	0.89	:0	\$189	0.92	0.52	Į.	ŢÎ.	\$157	29.96	.0.95
	Appropriet		•		374	105			:	408 11	45%				35%	324	
					-		•			:		:			!		

Exit de SDEIS Project to: 3 tocation: Exit 5 NB ramps

Growth rates:

Annesi 2014->2015 1.025

2016->2015 0.975

Seasonal

AM Peak PM Peek

May 16 Adj Factors 0.96

0.98

AM Peak PIM Peak

					AM Peak	Pivi Peak									
		Fota! Adjustmi		2014 >2015	0.984	1:0045									
				2016->2015	0.935										
					-	1.4									
		2016 Raw	. **:	2016 - AADT			1	2015 - AAC	T.			2015 - AW	or Balance	d from Tabl	and ATRs
		Add Feek	PM Pest	AM Peak	Approach	PM Pesk	Approach	AM/ Peak	Approach	Plu treak	Approach	AM Feal	Approach	PM Pesk	Approach
	_	[730-830]	(445-545)	(730-839)	Totals .	(445-545)	Totals	[730-830]	Totals	(445-545)	Totals	[780-880]	Totals	(445-545)	Totals
£B	ĻĒ	715	228	207	913	223	1310	202	890	217	1277	24C	980	235	.1295
	30.ព	735	1109	706		2087		.683		3060		740		1060	
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NB.	4.7	273	210	262	358	205	425	255	.349	₹01	415	300	410	220	450
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	87	100	223	95		219		94		714		110		<b>340</b>	
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	Thru	Ó	6	Ð		G		0		e		5		æ	-
	RT	0	e	0		C		0		0		o		£	
	totai	2565	2686	2467	2462	2633	2633	2400	2400	2567	2567	267G	2670	2715	2715

\*Use Seasonal Factor  Use Annual Factor Balance to 38 ramp

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				5 5 5 5			
	WB		NB		€6		
	R1	TH	RT	ŁŦ	37.4	Lî	Total
700-850	774	£17	97	221	573	232	2534
715-815	710	558	- 56	. 789	674	:221	2578
730-830	572	569	103	273	735	216	2565
745-845	592	.531	.94	244	796	186	7443
500-900	\$30	479	9.0	199	783	176	2261

		Souti	nbpund		Wes	stbound (N	H 28}			Northbot	und (Ex. 5 Ne	Off-Ramp	)		£as	Lbound (NF	128]		
Time Period	Class.	1	0	R	T	U	)	D	R	7		.1	- 10	Ť	1	- 11	į.	О	Total
Peak 1	Lights	3)	873	582	: 554	ţi	1236	699	g;	ģ	269	351	0 .	516	193	:0	809	873	23\$6
Specified Period	*	C×	94%	H44.	,pak	350	97%	ėjų.	55%	37K	93K	g Fin	05: E	91%	975	124	90%	53%	93%
7;60 AM - 9,00 ASO	ther Volvicles	Ú.	:56	28	34	70	457	72	14	Ď	20	34	.0	58	291	n	-86	54	182
One Hour Peak	16	174	374	4%	#W	.8%	5%	5%	15%	37%	.75	99	D.	F%;	135	176	20%	65	78
7.15 AM - 8:15 AF	Total	Ď	931	710	588	b	1298	770	95	Ð	289	385	Ó	674	221	b	895	877	2578
	PHI	g.	687	0.89	D 25	a)t	0.9	£178	0.85	- D	t <del>.</del> .73	0.78	0	0.75	5.2	70	0.87	50.83	0.89
	Approach	Ċ	ejes.		• •		56%	50%	[	•		25%	(O)				55%	314	
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	25.197																		

	WE		N.S		.EB		
	₽ĭ	TH	#T	l.T.	7.1	17	Total
490-\$00	500	443	143	.143	985	209	2479
415-515	500	425	130	118	1037	232	2426
430-530	514	:415	168	151	1055	231	2555
445-545	515	401	223	210	1109	278	2686
500-600	507	353	252	247	1055	728	2648

		.5ou	thbound		W	estbound (Ni	H 28)			Northbo	ound (Ex 5 No	Off-Ramp	)		Ess	thound (N)	128)		2.52
Time Period	Class.	1	∙0	, in	7	ŧJ	ı	0	R	* *	(1)	. 1	.O	1	i	⊹U.		Ö	Tota!
Peak 1	tiglas 🚦	Ò	735	498	388	.tr	88F	1,795	211	40	194	405	Ö	1084	297	0	1301	587	2592
Specified Period	> કં	24	9E%	57%	57%	2%	57%	27.A	25%	<b>25</b>	574	546	(%	58%	.555	.0%	97%	555	97N
4:00 PM - 6:00 PMD	ther Vehicles	D	28	37	33	D	30	37	32	0	15	38	. 10	25	11	D.	35	25	94
One Hour Peak	5	DN.	4%	3%	.5%	:D%	3%	3%	5%	DO:	. 4% .	6%	£4	24	5%	D5-	3%	5%	: \$4
4 45 PM - 5 45 PM	Total	₽.	743	515	401	: É	916	1332	223	ij	210	433	.0	1169	228	Ü .	1337	611	2626
	-PHT -	Đ	11.84	0.63	5.9	ŝ}	0.91	0.91	0.66	ū	0.67	0.67	Đ	0.93	6.84	ũ	0.92	0.88	094
	Approach	es	.53%	1		7	54%	SN				159	9%				50%	1388 ×	1

Project Exit da SDEIS Loc 4 Location: Exit 5.58 ramps

Growth rates:

7014->2015 1.02S Annual. 2016->2015 0.975

Seasons).

AM Peak PM Peak
May 15 Adj Factor# 0.96 0.98 0.98

AM Peak PM Peak

Total Adjustments: 2014->2015 0.984 1.0045

		2016->2015	0.936	0.9555	
2016- Raw		2016 - AADT	1.5		
AM Feak	PM Feak	AM Peak	Approach	PM Peak	À

		2016- Raw	1					2015 - AAI	)Ť			2015 - AW	DT - Balankı	of from To	Cand ATRs	
		AM Feak	PM Feak	AM Paak	Approach	PM Peak	Approach	AM Peak	Approach	PM Peak	Approach	AM Peak	Approach,	PM Peak	Approach	
		(730-830)	(445-545)	(730-830)	Totals	[465-545]	Totals	[730-830]	Totals	[445-545]	Totals	(730-830)	Tetals	(445-545)	Totals	
E	3 LŢ	Ç	0	0	661	Ú	870	0	€45	G	E48	ū	795	. 0	930	
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	料	726	247	217		247		212		235		780		380		
. W	.β Γ1	192	115	184	795	316	585	179	776	311	571	235	840	335	625	
	Thru	658	452	632		672	. :	597		450		605		490		
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S	ıi	495	690	475	782	576	957	454	762	659	933	455	760	ō45	910	
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	RΥ	919	287	395		261		<b>298</b>	. :	274		295		265		
	fota:	2334	2463	2235	7239	2413	2413	.2183	2183	7352	Z952	2395	2395	7455	Z455	-
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Use Seasonal Factor

Use Annual Factor Balance to NB ramp

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0.41	0.59	595	700-800	742	553	EEO	235	225	325	2189
04	6.6	725	715-815	287	439	673	211	723	359	2298
0.39	0.61	815	730-830	319	496	(638	192	226	351	2334
0.38	0.52	885	.745-845	333	552	504	155	205	463	2288
0.38	9.67	870	800,500	379	541	534	125	195	435	2167

. :	1.65		Southbound	Ex 5 58 Off	-Rampi			West	bound [8	RH 28)		Norti	speund		≹a:	theend (#	128)		
Time Period	Class.	Ħ	Ť	L	· .	.0	Ť	4	IJ,	ં	O	1	. 0	.R	Ť	U	1	0	Total
Pezk 1	tights	301	io.	457	768		485	179	30	76k	#53	Ċ	377	198	396	Ď	594	290	2130
Specified Period	%	64%	75	34%	34%	67	92%	P3N	is.	91.K	10%	6%	974	LIN.	FEN	45%	664	27	918
7 00 AM - 9.35 A/3	ther Vehicles	12	43	- 29	47	6	49	23	ħ.	62	96	.o	41	- ZB	∴/€7	ō.	95	67	264
One Hour Peak	*	, A.	:0%	5%	68	ox ·	58	25	.84	7%	ios :		20x	175	34%	10%	14%	- 7N ·	94
7:30 AM - 2:30 Af	Total	319	Ü	496	815	:6	638	192	b	-830	959	a	418	726	463	Ô	689	957	2334
	. इवाह	9.72	10	0.7É	0.74		0,72	:0.76	-0	0.73	.0.39	Ð	0.84	89	- 0.55	e.	0.92	10.82	6.89
	Approach %			·	33%	UK.				36%	41% /	9%	15%				10%	+42%	
		SB RT		978		: £B											,		
		₹T	ĴŦ.	Tit	- <u>J</u> .*	fit.	34	Total											
4	i00-500	,237	579	459	125	248	443	7233											
4	15-515	. 262	597	474	119	275	458	2306											
4	30-530	284	650	440	315	271	<b>470</b>	2409											
4	145-543	:2B7	690	482	115	247	E45	2463											
.5	00-503	756	.625	49Þ	334	236	641	2390											
		.1	outhbound i	EL E ED OR	On mail			Malanti	الأك أشفرونا	nd vol		March	أمست		÷	ما الما الما الما الما الما الما الما ا	. 701		

			501	ithbou	nd (Ex 5 58 D	ff-Ramp)			We	stboued (N	# ZB)		Nor	theound		Ea	stepund (N	H 28)		1.
Time Period	Çlass.	∵8		4	· /L	. 1	0	Ţ	°k.	U	. 1	. 0		. 0	A	Ŧ	U		O	Total
Peak 1	(ights	267		₹.	672	843	Ø	452	415	Ď	5£7	1723	þ	.349	732	£21	Æ	B53	719	2365
Specified Period	*	524		100%	97%	56%	£%.	986	99%	2%	95%	:97%	6.	- BEN	F4%	21%	: [%	984	954	955
4:00 PM - 6:15 PM	ther Vehicle:	\$0		0	18	38	Ò	30	1	Ð	31	38	0	16	15	20	: "0"	35	50	104
One Hoor Pask	W	7%		224	žx	4.	7%	EN	3.4	£76	5%	3%	UN	4%	ēλ.	- 35	t.	2%	. 7%	4%
4 45 PM - 3:45 PN	Total	287		. 2	650	979		482	216	0	598	1331	្	365	247.	(4)	.0	888	769	2465
	P745	5,61		10.5	Ú 3T	0.95	Ð	9.87	45,83	0	0.86	20,9	¢	0.61	0.74	0.9	0	0.87	0.9	:0:91
	Approprié					હજ	. X.				24%	598	ex.	15%	į			SEN.	23%	

Project - 3350 44 SDES 5 lecation NH 107-Londonderry Rd Growth rates: Anoual 2014 > 7015 1.025

Sessonal .

Intersection Turning Mayement Counts

.2016->2015 0.575

nt Counts AM Peak PM Yesk May-3E Adj Factors 0.96 0.58

		2016-Raw	]	2016 - AADT				2015 - AAC	श			2015 - AAD	71- Rounde	d	<del></del>
		AM Peak	PHIPEAL	AM Peak	Approach	PM Peak	Approach	AM Peak	Approach	#Alleck				PM Peak	Approach
		(725 €25)	(445-545)	(730-830)	Totals	[430 536)		(715-815)		(430-530)	Totals	[715-8(S)		430-530)	
EB	17	80	298	72	612	292	1392.	75	731	-285	1358	75	600	285	1355
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WB	1.5	1	1	1	1248	1	776	i	1109	1	.757	-5	1120	5	760
	Thur	3167	757	1120		747		1097		719		1090		728	
	PI	≱8	39	27		38		76		-37		25		35	1
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	रांच्य	÷¢	ş	ū		l l		e		1		0		5	• • • • • • • • • • • • • • • • • • • •
	8)	1(1	136	107		333		104	. ]	530		105		130	- 1
	late!	1957	₹36€	1880	1880	<del></del>			3833	2262	27£7	1636	.1836	2170	2770
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Balance to SB anno

700-800 .7738 715-815 1167 1557 730 830 2850 745-845 2820 809,900 2705

	Southbound (Condenderry Rd.)									Westbou	(d (NH 102)			4.4	24	orthbound (	5t. Charles	51.1				Easthour	d (NH 102)			: .
Time Period	Class.	R	T	1	Ù	F	D	Ħ	* <b>*</b>	1	لط	- 1	.0	#	T	E	.13	1	Ó	18	Ť	1	. EI	.1	'n	Total
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Specified Period	40	±888	- 0%	9/%	410	45%	45%	96%	988	1428	- 324	161	97%	39%	25	15.	270	210%	1995	1935	61%	EG.	. (A.	714	Fei.	1,000
7,50 AM - 9 15 Alona	retiskler ted	6	ġ	1		7	12		- 48	6	·iji	45	46		: - á	-10	- 33	in.	'n	r6	45	31		ii.	2.	117
Gae Rous Peek	* %	48	-180	43.	.05	43.	-214-	45	44	-174	15.	1	:8%	sinc.	26	17%	: (17)	1	16		EN.	156	-194		3+	1
7.15 AM - 8.15 AT	Total	311	Ď	22	ē	123	104	28	1167	1	. D	1,195	369	1 .	Ð	ij	.0	1	- "	1	556	20	h h	637	1275	1957
•	196	0.9	:19	0.75	Ů	0.85	0.82	5.78	0.69	40.25	0	40.93	6.69	0.25	.Ď	Ð	. 10	0.25	:0.\$	D 25	6.9	á 23	n	0.89	0.9	£.55
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445-545	.1	757	39	. 3	. 2	:∌	298	996	127	ۋى	1	336	2166
500-660		-							-	- *			jp.

		12	South	heimā (Lon	donderry X	d)				Westbour	6 (NH 102)				. N	erthbound [	St. Charles	5t.)				Eastbount	NH 10021			
Time Period	Class.	R	7	\$	.0	į	Ò	Ŕ	7	ì.	, U		-30	Ħ	+	-ા	U	· 1	Ø	£	7	1	· · ·	·	.0	Total
Peak 1	\$ in this	334	Ŀ	Ŕ	Ú	141	330	35	739	3	.0	776	995	3	:1	3	€ .	7	327	125	994	191	.in	1 9200	E7E	2328
Specified Perio	d 🔏	914	128	685	DX.	45%	564	85%	123	10.8	g	98%	585	1000	(88)	2000	- Co.	130%	356	656	370	His ·	10i	217.	yes.	195
4:00 PM - 6:35 P	NOUser Vehicle		-6	2	D	- 9	ė	1	23	···ja	ë	10	13		Ð	.30	. in	n	9	,	92	1	- 46	1	15	95
One Hour Page	6.	38	30%	21%	ft.	276	, je	234	. 45	45	zv.	1	38	95	this .	- 24	:04		b	73.	1k	216	 25	12	. 33.	1 2
4:65 PM - 5 45 P	ł Total	136	- 1	5	£	146	335	379	752	1	e	197	2008	1	i	3	0	,	129	127	996	208	ė	1421	E91	236E
	TF LEF	- ELE3	D 75	0.73		0.83	គ្រ	0.55	€.94	U.75	ē	0 <b>5</b> 5	0.96	€35	-0.25	0.75	.ib	Ú5€	O.E.L	0.79	0.98	- © EE	ņ	0.97	0.95	0.97
	Ayairani A.Ay		٠.		- 7	4%	HS .			÷		us	425					*	35					16	135	

PROPERT Eut 6á SDEIS 6 material NH 302 Fordway - High St Ganth rates: Annual 2014-52015 1.073 2016 > 2015 0.975 Seasons) Intersection Tushing Movement Counts CHECK E-W APPRIADIDIES = AM Peak PM Peak May 15 Adj Feergte 0.96 88.0 2016: Raw 7016 AADI 1015 - AADT 2015 - AADT - Rounded 2015 Paid Hour link Velemes based on TMC Pto Peal AM Peak Approach PM Feak Approach AM Peak Approach Profess Approach AM Feak ATA Peak Approach | FM Peak Approach [215-835] [430-530] [795-615] [439-530] Totals Totals .795-815) Totals (439-530) Potals (735-815) Totals (430-530) Totals AM Feat Ple Pers 6 539 Ð 511 0 576 D 930 Approach integral Outbook lobound Dalbaund istof Tire 476 795 411 779 401 760 490 760 North: High 5t N of Breadway 21 133 157 172 154 125 150 125 150 itue2: Fortiwer 5 of 102 215 Skn 254 335 545 1T :14 -13 440 (4)7 14 419 6tC 15 15 15 450 A set 102 WB. E. of Feebwar ₽;D 330 150 436 450 1050 the 634 435 609 426 594 4.5 195 415 BR 107 LB, Wlof Fardway 523 1900 1/85 Ò ą Đ. 专 -0 Ð g 3380 318C 椒果 17 241 937 369 1554 476 236 345 A17 2**3**0 :IIS 345 415 210 333 Adjusted 2015 AADT based on ATR counts for comparison purposes. Three 'n n . 0 6 2 Ð Σī 77 103 .74 191 12 98 70 100 Calculated 2015 AADR based on AMPAN's factors of red 17 15 42 15 -63 41 15 E€ 3 -46 15 70 k factions based on riskip of TMC volumes compared to adjusted 2015 AADT from ATA data ₹B Thsu 52 -27 51 76 50 25 50 81 total 3.598 1815 2631 1630 1779 1779 1571 3591 1735 1740 dise Seasonal Factor Use Annual factor Ealance to Na ramp 35 SVE No. ·FG ΤŅ 31 TH Fata: 706-800 715-815 428 133 1998 730-880 :0 745 845 'n 500-500 L Southbound (Madden Hill Ad.) Westbaund (NH 107) Northbound (Fordway) Eastboying INH 1021 Time Period :12 Li Intel Feet I 42 ō 4969 605 13 267 518 71 42.7 ŧ. 435 485 335 ьт. 1567 Specified Period 314 200% 48% -24 95% .514 935 .574 H, ı in 74° şeş. 4.4 134 1.50 AM - 9.35 Children well-ober Œ 0 Þ 29 τ 57 :35 7 ż 91 Eve Hais Feat Ġ. . - 12% 5% 34 85 21. 100 64 65 25 17% 12 33 7:35 AM 6:35 AF 534 512 517 77 150 3 175 446 E23 42F Ö 551 \$012 1595 rege 0.62 £ 58 20.44 6.5 £ 827 £5£ éζε 349 0.88 0.62 0.55 DB# 4 0 6.5 D 89 D 0.39 1.85 1525 2000000 15 480 Des. بينا 355 185 T<sub>1</sub>N Łe, SE į٢ 18 Į, Ţik ŚΊ İctel 490-300 Ϋ́ 415-515 : 35 430-530 15 57 É 11 235 157 241 103 755 1815 444.545

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Southbound (Madden Hill Rd.)

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in AMPA in PARA

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15012

24817

Project Ext 4:50(6) 7 totaler 701 SC7 FM Z6 @cwiz ratés: 2014 52015 Active 1.015 /2015-97015 6 675 Spannost Introduction Turning Movement Counts AMPON PMPerk 2016- Raw 2016 AACT 2016 - AADT 2015 - AAD1 - Rounded 2015 Sept Hour till Volumes based on TMC AMPER Alle Prei Approach & PM Foak Approach 184 Peak Approach PM Peak Approach AM Peak Approach PM Peak Approach Adjunct Adjunct (745 545) ,445 545<u>;</u> [745-8465 Tetsk (665 545) Totals (745-645) Tollats (445-545) Tollats 1745 845 1 1alals (445-545) Tetals Matei PM Pezi 2015 2005 | 2015 | NAME PERADE £Ţ HE 142 106 374 139 552 164 365 L36 334 165 Approach Interest Bulggard laborist Butbourd AAD? AM Pk PIA SA DAMES INPRAME Tary 429 205 420 264 ayg 289 418 Crystal Not Blookway 40% 445 850 4:25 1120 15364 5.46% 7 19% R.T -51 40 35 39 58 35 f:0 Bluck S of Broadway 160 325 535 490 435 855 11385 \$ 465 7 19% ŗŢ :518 22 34 70 464 21 505 77 794 35 590 75 350 ELLI AN 107 WE, E. of NH 25 530 350 1959 390 470 380 11754 3.466 7 [98] Thou -412 267 336 24.7 UNS 254 West - 48 16215, Walfah 26 176 315 685 555 1155 15194 5.46% 9,198 87 69 44 58 εį íð B 26:15 1533 3276 1000 4200 1: -42 75 199 315 74 411 361 77 60 300 70 409 Abre .780 107 162 335 162 291 160 295 . Adjusted 2015 AADY based on ATR spursy for compansors perposes 13 45 37 41 35 **3**0 35 Taltisticed 2019 AADT based on AASPM's faction in red L† 35 144 23 416 541 645 71 435 327 628 70 465 135 625 is Cortons based on ratio of PINC volumes compared to acquired 2015 AADT Soon ATRIdate 1lg a 246 359 210 342 213 440 DT 1)2 155 107 151 194 144 50% 150 (6)2! 2058 2358 EG-16 H-R-2006 2605 1535 1635 Nacional Factor Une Annual Farent Balance to \$8 samp 35 17 3.45 700 859 715 615 730 695 745-845 76 1746 002.008 Westbound (NH 102) Northbound (64) 25! tastbound (NK 102) Crosswalk Time Period æ D Pedesirian: Total Post 1 23£ £, 401 351 350 45 . 6 508 346 41 265 <u>†</u>54 315 141 -5% 3633 ·Ŀ Special Perod 295 525 515 en. 55% 35% 73 3555 ALCOHOL & IS All other residen : 15 25 25 15 : # 31 -31 2 25 76 -11 33 2 7 Æ 56 112 ÷ One spow First 23 . 15 -44 185 12 5% 32% 5% 100 741,885,685,88 Total 245 411 TŁ D 453 477 81 412 46 -10 539 \$32 43 3E3 æ 383 41 210 :80 225 2:5 585 1746 190 £.51 29.92 .0 66 : p. £ 61 10.95 6.64 0.91 1.7? -6 994 £ 59 9.08 A-35 e 0.26 250 £ 54 D)B 0.64 0.95 3225 B00023 6 156 1.5% 13% 125 ÷ 228 524 58 Ŧk ţ: ЛH ፡ [ች :13 . .ৰঠান্ত্ৰ 200,500 435.545 439 530 · C 445-545 357 142 423 40 : 73 2100 550 600 Southbound (NH 22) Miescholassichin EDZ Northbound (NH 2E) Lettbound [36] Hill والمهودات كالمراق Fitte Pested Cass. 3.1 E Total: Fedestriate Jutal Peak I .335 316 Latter 144 655 Ass £¢. 25R 465 \$05 35 **152** 4(1) 603 1229 Specialist Person 55% m refer-100% 515 200 265 ş⊕ş.` 55% 500 455 244 40.4 4 CO Fat. E 15 PHÖ (nec Vénère) . 2 3 æ Ė 1 -34 0 4 2 1 .5 1: n Green House Peak  $\leq s$ ė×. .4% .3% :2% 15 D. 23 23. 443792 SASTM 1. TOBAL 756 -93E 3841 - 30 SSE 512 767 452 .640 · E 75 412 679 42 429 143 'n . 615 423 2159 2 1117 698 0.00 12/F Đ 991 5.56 655 991 ret D ST 5 54 051 ₹15 692 Ď98 : [2] 6.27 055 693 ø 10.55 0.53 947 Personal Principal 250 53% 100 215 10 215 3 16 10

Project: Loc

Exit 4a SDEtS

8 Location:

North High 51 at Ash 51 Ext

Growth rates:

Annual

2014->2015

1.025

2016->2015

0.975

Seasonal:

Intersection Turning Movement Counts

700-900 715-815 730-830 745-845 800-900 AM Peak PM Peak

Ma

ay-16	Adj Factor=	 0.96	0.5

		016- Raw	•	2015 - AADT	÷				<b>-</b> .						
	•			1				2015 - AAD	и			2015 - AAE	T-Rounder	į	
		AM Peak	PM Peak	AM Peak	Approach	PM Peak	Approach	AM Peak	Approach	PM Peak	Approach	AM Peak	Approach	PM Peak	Approach
		(730-830)	(500-600)	(730-830)	Totals	(500-600)	Totals	(745-845)	Totals	(445-545)	Totals	[745-845]	Totals	(445-545)	Totals
EB	ŧΤ	190	442	187	:191	433	439	177	186	422	428	180	190	420	425
	3 pari	<b>x</b> 0	0	0 '	*	0		Đ		0	1	0		0	
	RŦ	9	6	9	. :	6		9		.6		10		5	
₩₿	LT	1D	g	0	Ð	0	Ò	.0	D	0	0	Û	ø	0	()
	Thru	Ø	Ð	0	-	:10		Q	- :	O.	• •	Ð		O	
	RT	0	0	. 0		0	÷.,	0		0		0		10	
NB 1	.:LT	3	2	-3	129	2	298	Ė	1.76	2	291	5 .	-130	5	295
	Thru	131	302	326	-	796		123	1	289	*	175	:	290	
	RT	0	0	Û		Ũ		0		0		0		(j) ·	
SB	31.7	: :0::	.0	Ð	414	-0	442	0	404	0	431	D	405	Ð	435
	Thru	184	. 375	177		172	•	173		168		175		170	
	RT	247	276	237		27Ó		231		263		230		265	
	fola	764	1203	734	734	1179	1279	716	716	1150	1150	725	725	1155	1155

Use Seasonal Factor Use Annual Factor Balance to NB ramp Balance to NB ramp

\$8		NB	₽B	
ΤĦ	₽T	<b>ा</b> ∦	at RT	LT Total
		1	-	0.
			4. 5.5.5	Ü
184	247	131	3 9	190 <b>764</b>
	1.7	: 1		D

			South	oond (N. H	igh St.)		-	North	bound (N.)	High St.)			Eastbo	ound (Ash )	St. Ext.)		
Time Period	Class.	- R	1	U		0	Ţ	ı	IJ	j	.0	R	: 1	U	. 31	0	Total
Peak 1	Lights	244	177	Ð	42.1	307	126	2 '	( ) <b>(</b>	128	186	9	381	0.0	190	246	739
Specified Perio	78	99%	:90%	DX.	98%	98%	95%	£7%.	40%	95%	98%	100%	95%	ios.	95%	:98%	97%
7:00 AM - 5:15 AO	ther Vehicles	3	7	D	10	. 14	5	1 .	Ü	6	7	Ų	g	Đ	9	.4	2.5
One Hour Peal	15%	1%	4%	TS.	2%	4%	A15	31%	Ð8	4%	44	9%	5%	.0%	.5%	.2%	3/2
7:30 AM - 8:30 A	Total	247	184	0	431	321	131	3	10	134	193	9	190	'n	199	250	764
	PHF	0.76	0.82		0.93	0.89	0.89	0.75	Ü	0.91	0.85	0.38	0.86	Ð	0.89	0.76	0.92
	Approprié %				56%	<b>47</b> \$				18%	75%	-			26%	53%	

	58		N8		FB		
	ŢĦ	RT	LT	ŢĦ	1.7	RТ	Total
400-500				•*		-	O
415-515							. 0
430-530							Ď
445-545				* *			Ď
500-600	175	276	- 2	302	442	. 6	1203
1.	1 1 1 1 1	1.1				1	

tor	8 Location:	North High	St at Ash St E	ď														
	2.4			Southbo	ound (N. Hig	h 5t.)			North	ound (N. I	High St.)			Eastbo	ound (Ash S	t, Ext.)		
	Time Perlod	Class.	R	1	:U <sub>]</sub>	.)	0	i, <b>,⊤</b>	1	U	74	0	R	ì	U	.1	0	Total
	Peak 1	Lights	273	173	Ó	446	735	296	2	Ü	298	179	6	439	.0	445	275	1189
	Specified Perio	od ∻	99%	93%	:0%	59%	99%	98%	300%	F/S	92%	99%	100%	59%	10%	593.	49%	595A
	4:00 PM - 6:15 I	MOther Vehicle	3 .	2	, C	5	9	-6	. 0	0	.6	. 2	0	3	0	3	3	.14
	One Hour Pea		- 3%	156	: .0%	1%	1%	3%	0%	ρ%	2%	īħ.	- 0%	3%	g/g	15%	1%	:1%
	5:00 PM - 6:00 I	I Total	276	175	0	451	744	302	2	9	304	131	6	442	.0	448	278	1203
		:PHF	0.9	0.74	Ö	0.87	0.94	0.87	0.5	D	0.87	£.75	Ø.5	0.9	:Ď	0.9	0.89	0.93
		Appenais %		•		37%	67%				2550	15%				17%	23%	1
		-									1					ĺ		1

Project:

Exit 4a SDEIS

Loc 9 Location: High St at Madden Rd

Growth rates:

Annual

2014->2015

1.025

2016->2015

0.975

Seasonal:

Intersection Turning Movement Counts

AM Peak PM Peak

Adj Factor= 0.96 0.98

	:	2016- Raw	. ]	2016 - AADT				2015 - AAC	n <b>r</b>			2015 AAC	T- Rounde	·	<del></del>
		AM Peak	PM Peak	AM Peák	Approach	PM Peak	Approach	AM Peak	Approach	PM Peak	Approach			ī	Approach
	_	[730-830]	(500-600)	(730-830)	Totals	(500-600)	Totals	(745-845)	Totals	(445-545)	Totals	(745-845)	Totals	(445-545)	Totals
ЕB	ĽΤ	12	12	12	14	12	16	12	14	12	16.	10	10	10	10
	Thru	.0	0 1	0		0		Ó		0		0	:	ō	:
	RŤ	. 2	4	2		å		2		4		Ð	:	Q	-
₩₿	LT	0	0	0	¥ <b>0</b>	0	0	Ð	Ö	Q	.0	0	70	0	ó
	Thru	0	O.	Ö		0		-0		0		0		o	
	RT	· .0	.0	0		-0		Đ		0		0		G	1
NB	LŢ	0	3	. 0	313	.3	725	Ð	305	3	707	0	310	0	700
	Thru	326	737	313		722		305	****	704		310		700	
	RT	Ď.	0	0		Ò		,Ò		0		0		O	
58	LT	0	0	-0	428	o ·	456	.0	418	0	445	O	420	o o	450
	Thru	428	460	411		451		401		440		400		440	177
	RT.	18	5	17		5		17		5		20		10	
	total	786	1221	755	755	1197	1197	737	737	1168	1168	740	740	1160	1160
	total	786	1771	755	755	1197	1197	737	737	1168	1168	740	.740	1160	1160

Use Seasonal Factor Jebson... Use Annual Factor Balance to NB ramp

	\$8		NB		EB		
	. TH	ŖŤ	TH	1.7	RT	Ţ1	Total
700-800							0
715-815						+1.	0
730-830	428	18	326	0	2	12	786
745-845							.0
800-900			·				. 0

			Southb	ound (N. Hig	gh St.)			North	bound (N. H	gh St.)			Eastbo	ound (Made	len Kd.)		
Time Period	Class	R	7	U	1	Ó	Ť	L	Ų	` <b>.</b>	O	R	1	U		0	Total
Peak 1	Lights	.4	417	D	421	314	313	0	D	313	419	<u>. 2</u>	1	0	3	:4	737
Specified Period	#£	. 22%	97%	0%	94%	93%	98%	Ota	£%	56%	97%	100%	B%	10%	21%	22%	94%
7:00 AM - 9:00 AM	Other Vehicles	14	11	Û	25	24	13	D	0	ÌЗ	- 11	0	11	Ü	11	14	49
One Hour Feak	*	78%	3%	Dis	. 64	7%	4%	.0%	0×.	4%	5%	0%	92%	D%	79%	76%	6%
7:30 AM - 8:30 Af	Total	18	428	.10	446	338	326	:0	0	326	430	2	12	0	14	18	786
	PHF	0.56	0.95	Ó	0.96	0.9	0.95	.0	o l	0.95	0.95	0.5	0.38	D	0.44	0.5€	0.94
	Approach %				57%	435				61%	55%	ļ		-	2%	2%	-
	-						,			× 1.1		<b>'.</b>	:				

Loc	9 Loca		High St at Ma	adden Rd															
				SB		NB		EΒ											
		·		TH	ЭŘТ	TH	17		/ AT	Total									
			400-500		•			•	- 1 1	(									
			415-515																
			430-530							Ţ									
			445-545			-			-	1									
			500-600	460		5 737	3												
			•			. 3													
					Southb	ound (N. High	51.)		2.52	North	ound (N. I	ligh St.)			Eastbo	bbeM) bnu	en Rd.)		
	Tip	ne Period	Class.	R	Ť	· v	. 1	an -		. L	υ	j	0	R	L	U	4	0	Total
		Peak 1	Lights	5	454	yo (	459	738	727	.3	.0	730	458	4	9 11	. 0	15	. 8	1704
	Spec	tified Périod	*	150%	59%	<b>5</b> %	59%	99%	.95%	103%	:0%	95%	99%	100%	92%	'6%	54%	500%	
	4:00 F	PM - 6:15 PA	Other Vehicles	Ď	∴6 -	0	Б	33	.10	· Ū	•0	10	6	0	1	O.	ì	0	17
	One	Assistant .	: 3%	9%	1%	10%	1%	19.	3% .	184	2%	18	1%	£95	8%	0%	6%	0%	.1%
	5:00.P	PM - 6:00 PA	Total	5	460	0	465	749	737	á	Ō	740	454	4	12	0	16	8	1221
			PHF	0.62	0.85	0 1	0.86	0.93	0.94	0.38	r.	.0.93	.0.96	0.33	0.6	0	0.5	0.5	0.94
			Approach %	· (6)	:	***************************************	38%	\$1%				£1.8	38%		• •		136	, d% 	

Project.

Şəit 4a S0715

Loc 10 Lecation N High 51 Folsom Rd Franklin St

Growthrates

Annual 2014->7015 <u>1.025</u> -2015->2015 0.975

Seasonal
Intersection Texning Movement Counts
AM Peak FM Peak
May-15 AdyTactors 0.96 0.98

						1																					
	2	2016- Raw		2016 - AADT				2015 - RADI					)T-Rounde			ĺ											
		AM Feek	PM Prak	AM Peak	Approach		Vtotogra			Plvt Peek			Asproach														
	~	(730 850)	[500-600)	(739-230)	स्विक्ष	(560-600)		(745-845)	Bolals	(445-545)	Totals	(745-845)	Tot≱ls	[445-545)	Tetats												
f6	լ∓ Դերը	38 791	46	36	371	45	332	35	313	44	713	35	919	45	735												
-:	:87	.ţ:	696 4	279	:	EBI	!	272	5.	665		276		665	- 55												
WB	17	31	33	5 30	436	32	437	P.	1475	4		5		5													
44.15	Thes	.413	333	355	435	385	457	29 385	. 412	31 375	426	30	415	30	425												
	RT	11	20	122		202		13		20	1	385		375 76													
49	ĘĪ	7	, p	7	47	1 4	65	7	<b>4</b> 6	4	65	30 10	50	70 5													
	Theu		40	5	7	10	44	5	.40	16	6-2	3)	20	30	65												
	BT	36	52	35	1.	51		34	1	56	. :	35		50 50	1												
58	ĻŦ	32	18	12	46	18	58	17	45	16	95	10	45	35	-100												
	Thru	4	35	А		39		4		15		5		10	105												
	RT	33	73	35	1.	, a		<b>1</b> 9	. 1	68	-	<b>3</b> 0		70													
	traal	K23	1357	850	B5f)	1331	1331	629	629	1799	1799	830	630	130%	.1305												
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				Use Stasona)	Factor			Lise Annyal :	Factor																		
								Eálance to N	49 ranig																		
							4.4.5			4.3			:														
				58 1*.	-		N/E		1.24	J/B	200	1.1	ES		- J.	2.5											
			700-800	ş:.	्राम	-10	17	भूभ	įσ	11	TH	:RT	¥.	¥14	6.7	Tatal											
			715-B15									-															
			730-83D	43		-31	- 51	(41)		7		35	:38	291		883											
			745-B45									i.	196	205	•	. 663											
			R00-900									٠.															
												e a troif				- 1			-								
					South	bound (Fra	erktin St. Ex	니		-			(Folsom Ad				16	icithbaund (	franklin St.)				Eastbound	IN High St !			•
	-	Time Period	Cass.	.₩	Ŧ	ï	٠Ŀ	. d	.0	R	.7	· .k	, U	ì	D.	Ř	Ŧ	4	iU-	1 (	) <b>j</b> a	T	. 1	. U	1	D	Total
		Peak 1	լերե	-30	4	27	*	≉6	57	\$0	385	30	- 0	479	319	зé	-5	7	.0	45 3		272	37	4:	315	z26	805
		pecified Period		97%	100%	300%	Lon.	1 <del>4</del> %	John 🖁	51%	95%	305	-(4-	9/8	54%	\$10%.	3005	: :1275	: I	200% 95	. 67	مرة ×		-m.	915	*/A	151
		00 ÅM - 9.15 AF	Olbei Vebide:	1		- D	- ১					_				2150	714:4	11503	464	2.500	. ,	7,79	1938			. ,	
				-	· jū	47		1 .	• 3	‡	-27	-1	.0	24	50	ŧ,	È	Ď.	D	£ 3				0	23	23 1	4E
		One Huta Peak		38	ia.	170	ou.	196	Tr {	43	45	- ay,	is.	18	50 50	t) MS	∯ 1-0¢	io me, ∤	(D)	€ 3 € 20	i i	70 14	i je			23	46
	1.3	One Huta Pes). 30 AM - 8:55 AF	Total	31 31	ija jā	11 11	e. D	/% 47	24 1r	13 13	411	- 95 31	io.	15 45 #	70 64 335	€ .ms .ds	10 10 3	0 04.: 7	D te	6 3 70 28 48 49	1 11 6	70 74 791	1 1. 38	±0 34% ⊴0	23	4.09	15 888
	1.3	10 AM - 8:55 AF	Total Pici	38	ia.	170	ou.	75 47 045	14 54 (168	43	45	- ay,	is.	45.E D.95	20 64 339 DES	t) MS	∯ 1-0¢	io me, ∤	D 186 10	6 3 70 33 48 46 017 01	1 6 6 5 5 5 5 5	70 74 791	1 1. 38	-(0 -3-4)	23 %	4.	16
	1.3	10 AM - 8:55 AF	Total	31 31	in ;¥ : 655	11 11	e. D	/% 47	24 1r	13 13	411	- 95 31	io.	15 45 #	70 14 335 DES	€ .ms .ds	10 10 3	0 04.: 7	D te	6 3 70 28 48 49	1 6 6 5 5 5 5 5	70 74 791	1 1. 38	±0 34% ⊴0	23 15. 335	4.09	15 888
	1.3	10 AM - 8:55 AF	Total Pici	31 D78	in ;¥ : 655	11 03	D D	75 47 045	14 54 (168	13 13 6:34	411	- 95 31	p p	45.E D.95	70 64 335 DES	€ .ms .ds	10 10 3	0 04.: 7	D 186 10	6 3 70 33 48 46 017 01	1 6 6 5 5 5 5 5	70 74 791	1 1. 38	±0 34% ⊴0	72 15. 335 0 89	4.69 0.96	15 888
	1.3	10 AM - 8:55 AF	Total Pici	35 31 078 58	16 4 : 65	11 03	e D D	75 47 065 55	15 54 6:68 (6)	¥5 13 €:34	411 0 97	35. 311 10.7	p p	453 D95 116	70 85 335 DES	f) 36 0,69	10 10 3	0 04.: 7	D 186 10	6 3 70 33 48 46 017 01	1 6 6 5 5 5 5 5	70 74 791	1 30 0.79	±0 34% ⊴0	72 15. 335 0 89	4.69 0.96	14 888
	1.3	14 35 S - MA QE	Total Pid Podoviba	31 D78	in ;¥ : 655	11 03	D D	75 47 045	14 54 (168	13 13 6:34	411	- 95 31	p p	45.E D.95	70 64 335 DES	10 05 36 0,69 7(4)\$1	10 10 3	0 04.: 7	D 186 10	6 3 70 33 48 46 017 01	1 6 6 5 5 5 5 5	70 74 791	1 30 0.79	±0 34% ⊴0	72 15. 335 0 89	4.69 0.96	14 888
	1.3	19 35 S - MA 08	Total Per Per Per Per Per Per Per Per Per Per	35 31 078 58	16 4 : 65	11 03	e D D	75 47 065 55	15 54 6:68 (6)	¥5 13 €:34	411 0 97	35. 311 10.7	p p	453 D95 116	70 85 335 DES	17 26 0.69 7 (1.5)	10 10 3	0 04.: 7	D 186 10	6 3 70 33 48 46 017 01	1 6 6 5 5 5 5 5	70 74 791	1 30 0.79	±0 34% ⊴0	72 15. 335 0 89	4.69 0.96	15 888
	1.3	19 35 8 - MA 08	Total (PM (Action) 5 (400-500) (415-515	35 31 078 58	16 4 : 65	11 03	e D D	75 47 065 55	15 54 6:68 (6)	¥5 13 €:34	411 0 97	35. 311 10.7	p p	453 D95 116	70 85 335 DES	17 26 0.69 7(0.8) 4 31	10 10 3	0 04.: 7	D 186 10	6 3 70 33 48 46 017 01	1 6 6 5 5 5 5 5	70 74 791	1 30 0.79	±0 34% ⊴0	72 15. 335 0 89	4.69 0.96	15 888
	1.3	90 AM - 8-55 AT	Total Per Per Per Per Per Per Per Per Per Per	35 31 078 58	16 4 : 65	11 03	e D D	75 47 065 55	15 54 6:68 (6)	¥5 13 €:34	411 0 97	35. 311 10.7	p p	453 D95 116	70 85 335 DES	0 m 36 0.69 Total 4 9	10 10 3	0 04.: 7	D 186 10	6 3 70 33 48 46 017 01	1 6 6 5 5 5 5 5	70 74 791	1 30 0.79	±0 34% ⊴0	72 15. 335 0 89	4.69 0.96	14 888
	1.3	90 AM - 8-35 AT	Total (Pid (Sections to 400-500) 415-515 430-530	35 31 078 58	16 4 : 65	11 12 13 13	W8	75 47 065 55	15 54 6:68 (6)	¥5 13 €:34	411 0 97	35. 311 10.7	p p	453 D95 116	70 85 335 DES	0 m 36 0.69 Total 4 9	10 10 3	0 04.: 7	D 186 10	6 3 70 33 48 46 017 01	1 6 6 5 5 5 5 5	70 74 791	, , , , , , , , , , , , , , , , , , ,	© 0	72 (%) >35 () 89 () %	4.69 0.96	14 888
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Project:

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tor 12 Location:

Tsienneto Rd-Pinkerton St

Growth rates:

Annual 2014->2015 1.025

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Seasonal:

One Hour Peak

7:00 AM - 8:00 Air

intersection Turning Movement Counts

AM Peak PM Peak

May-15

Adj Factor=

0.96	0.98

			· •				44.5					· · · · · ·		<u> </u>	, a start,
		2016- Raw		2016 - AADT				2015 - AAD	nT .			2015 - AW	OT-Rounde	ed .	
		- AM Feak	PW Peak	AM Peak	Approach	PM Peak	Approach	AM Peak	Approach	PW Peak	Approach	AM Peak	Αρρισσεή	PM Peak	Approach
	_	(700-800)	(400-500)	(700-800)	Totals	(500-600)	Totals	(745-845)	Totals	(445-545)	Totals	(745-845)	Totals	(445-545)	Totals
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7	730-830	595	79	237	/74	417	231	1533							
7	745-845	604	84	. 231	84	399	263	1565							
ŧ	300-900	574	90	243	.75	387	254	1523							
		A .	Westbound	Tsienneto	o Rd.)	• •		Northbou	ınd (Pinke	erton St.)			Łastboi	ınd (Tsienn	eto Rd.)
Time Period	Class.	,T	Ł	-:U	1	0	R	1	U	1	0	R	1	U	*
Peak 1	Lights	558	:9S	, a	663	527	104	232	· O	336	334	239	423	p	662
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	LT.	TH	ĮT.	RT	<b>₹</b> Ĥ	ŔŦ	Total
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415-515	.592	115	190	113	£75	494	2182
430-530	601	115	189	101	674	495	2179
445-545	554	105	195	107	651	502	2134
300-500	552	101	195	96	686	502	2133

				no (Tsienne	to Rd)			Northb	ound (Pink	erton St)			Eastbo	und (Tsienr	neto Rdi		
Time Period	Class.	T	1	·U		. 0	R		U	1	0	R	J	àu	1	0	Total
Peak 1	Lights	585	117	O	698	108	124	186	0	310	598	481	684	œ	1165	767	2173
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4:00 PM - 6:15 PAC	ther Vehicles	/ :8	1		.9	£	0	-3	C	3	5	4	6	D	10	11	22
One Hour Peak	*	· · 2%	1%	\$58	1%	3%	ille -	2%	1%	1%	1%	15.	1%	£%	:15	18.	156
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Growth rates 2014 02615 2016-2015 0.975 feators? Intersection Turning Movement Course. - AM Feek PM Seis €2y-16 For eners 0.96 0.58 : 7015 Feat Food List Volumes based en TIVE 2015 Have 2016 - AADT 2015 A407 2015 - RADT - Founded 672 Feet - PALIFERI وي چا ليد Approach PM Fest Approach 4th Fest Approach PM Fest Approach AM Fest Approach PM Peek Approach ANI Feat KIN Yeak 2009 BLAKES SLASON (145 845) (485-585) (745 645) Tetris 500-600) Resyle :245.845| fcta5 (425.545) Totab (745-645) Serals [265-545] Tenab Approprie 43 MAN PL INTHESA Independ - Estimate 177 53 5F4 173 1630 52 645 159 2570 70 840 BHIZE NO Linker 2575 1035 312 2435 791 1399 790 (400) Sport BRIEfel (With 685 E45 ens. 1455 51 LT ŧ HE ISMISTANTS 16 295 270 49 ΝE J.S 701 \$1£ 554 ŧş: 955 West Acceptant Section 197 FFE 657 374 575 135 613 1350 1810 2840 2540 ,52 E 3.1 81 30 13 3 44 12 3 35 20 66 2 13 35 Е P2 14 14 25 - 11 SÍ ķ. 52 361 45 177 5.5 297 41 27¢ 275 45 7.0 0 8942 .542 LE75 Cola? 253U 1575 290: 2901 1577 \$857 7532 1535 1837 (940) Lisé Sepsonal Factor Des Arrest Factor NOTE - FRI HAND SE Barance to 168 camp 14年:16日7年7日 55 - LINEW 70ta: 7160 2796 NS = Applebees 43 会に 17 тн 715-815 716-E10 58 ŝŝ 725 B43 262 ÷ 445 32 900400 žĮE) Westbound (WH 26) Northboard (Applehees Driveway) Earlagued ISH 7E Ciptonale Sime Period Can IJ Pagaetiteen Total Febr 1 727 3 - 4 - 51 358 992 13% 15N-DIRENOS ų. 455 21% 61 488 123 100 63**7**4  $\sigma p_k$ 3.4 JOBAN IS SEASON WINNER 27 6! 9 rio Ų. 74 Die ligen brek ings in in 45 35. 4.5 :4% .EPF 5% 4 6% 0 . IN 13 85 E 25 95 550 \* ... 33 ₹\*• Z ACES BRICE **12** 20 27 116 711 ŧ 3 EG GER 502 555 1953 18 (4) 1095 4:17  $a_{\frac{1}{2}b}$ 200 15.75 199 199 多沙 0.76 25 9,03 639 والأوادية 475  $\mu_{3}$ re 45% '5E 161 342 Ŕ! .13 34 -67 Bata: 400-500 433-535 430-530 ÷ 11 445-545 165 22E :557 103 13 .5 14 177 .145è 2560 500-600 Westbised (NH 23) Monthbourd (Aeslebara Silvarray) Parthouse 186 281 Constant! Time Period (Sast Total Pepastnett Teisl Feat 1 Lights 225 ود. 351 ш ŧ! :[8 睫 1466 **F3** 35 \$175 1975 See Gellewood 135 10% ÷'n. 13. e73, 45% 39% 355 gain. .:cq. ⊙. Algebl Editables hereby 4á - 2 115 ė 1: 21  $v_{i}$ Ð  $\mathfrak{H}^{\prime}$ U, Q ā" , Dø 13 188 112 The Post Feel . .48 12 n. 78. 86 86 . . 3 :> 1.35 23 334 92 9 100 24 14 34 33 7 15 24 :54 15 ARREN ARSTS BOOK 264 891 15 ì - 6 1252 111 63 1528 H 1111 1753 412 -30 281 рва 25 D/A5 0.5 835 0,21 0.75 6.35 685 096 681 GΥ 25 937 0.83 6.55 0.57 944 031 Appears to 414 45% ٠ģ

Project:

13 totaler

Fact Au SDEIS

76H 28-Unless Tribe

14 tecation Alif 26 Ashleigh Dr Glowin tates. PREMARK 2014-2015 1.025 2016->2015 0.975 Spasonel Intersection Turning Movement Counts AM Feak PM Feak Adj latters B.96 2016- Raw 2016 - AADI 2015 - AADT 2015 - AADT: Rounded ASS Peak PM Peak AM Peak Approach PM Peak Approach AM Feak Approach PM Feak Approach ASS Peak Approach (PA) Fee Approach 1745-845 (430 570) (745-843] Totals (\$00-600) Tattib (745-645) Totals (685-545) Totals (745-645) Tetals (645-545) Tetals ĮΤ 165 113 151 *7*32 111 1737 99 108 732 1206 127 735 3000 12 ti? dist £7t 1147 <del>[</del>45 52B 1124 1096 630 1095 Ð 2 2 ξT. 5 3 E7-P \$ces 4 ₹37 (051 635 1865 The 652 868 676 571 :19 600 610 500 ĦT. 236 279 ₹27 265 221 25% 720 269 17 á G! B -te 35 55 8 16 33 54 60 12 70 40 thtu 5 E 8 5 10 **#**7 7 8 . Ż Fi 10 37 154 359 285 281 352 490 iš] 284 341 418 180 265 345 485 Тъги 5 1 5 5 20 194 100 137 134 100 total 1995 1975 1517 -2873 4917 2871 3869 1892 2759 -7799 1875 1975 2220 2570 NOTE: ES = NA 28.55 Use Seatonal Factor the annual factor Lise these in Synchro Existing Econd enalyses With a Niel 28 Nie. SB = Ashleigh Dr Não VIP Drivenar 11 TÈI Ð Ė. Jesel 700 800 715 215 730-830 ø 745-845 134 657 236 ₽. 1995 103 :571 800 900 Southbound [Ashleigh Ce.] Westbaund (ftH 78) Northbound (VIP Delveway) Fastbound (NH 28) Cresswals Time Period Class · Ju Đ ·Đ IJ 3E Ð total Pedestrian: Total Pack I 103 333 225 425 55.9 \$15 615 - 2 Ė tĖ :35-€ 153 . 45 733 73₽ 3303 3 Specified Period 550 324 884 65 475 344 415 544 1100 100% 56% 515 11825 1925 1004 7 DO AM - SIES AND ONEY VENUE: :34 -1 - B 12 13 27 : 0 5 38 34 t 30 :0 ė 9 e 45 Ł 40 ·28 97 6 Doe Rocal Peak 25 4% 84 ĮĄ, -24 35 7.65 AM BIGS AV TIME! 101 . 5 191 ъ 9(3 347 736 €52 ·iè . 3 到十 400 .**E**e LE 37 ٠Æ 671 105 Ė 792 754 1998 ð ∴≑भर 0.79 10.47 63 4:9) 6.53 0.35 ġ75 1935 097 0.85 6.5 0:35 205 e DIET -0.53 0.5 2.81 3:77 0.83 \$.86 0.91 ক্ষ James 1 105 125 845 68 12 33  $\mu_{X}$ ž -55 WE ·\$ B 1: ΤÌτ 11/27 ŽĮi. 81 LE 115 亿 1,E Tθ :RF Total 409-500 415-515 D 430-550 379 1147 270 173 2579 445-545 10 500-600 ٠ŧ Southbound [Ashteigh Dr.] Westbound (RH ZB) isorthogona (VIP Daveway) Eastbound (NH 25) Crosswas Tjrue Period Class. :1 źΨ Ð Sedentida Total · 10 Tetal Peek 1 Lights 125 -1 25E 2 B 455 365 269 519 1104 4513 40 ŠÉ 2132 .3. -15 В 7 213 : 1246 .559 2904  $^{-1}$ Specified Period 100% 4998 24 108-584 1905 354 ::00% 100% 128 578 1995 E.S 14% loń, 100% 100% 595 45% 2964 4.00 PAR - 6 15 PARTHER VEHICLE £ · it 2 3 33 ·Ç 20 15 Þ ď 15 5 20 Gre Hoer beak - 254 94  $\mathcal{O}_{\tilde{q}}$ 7h \$4 254 14 į, . ۲4 Įs, 5% 10 . 195 95 65. 7% .63 15 75 13 2% 4.35 946 - 3 30 94 . 1 355 Ð. \$00 56; 270 932 :3 :± 1124 :1527 46 36 1117 1113 . 6 2 . 2 - 1 1163 1029 7565 0.5 149 983 4573 31,87 . ę 0.86 0.97 8.95 0.89 2.65 0.6 0.53 0.27 p sa 2.5 0.5 6.24 E 5 0.5 0.81 6 81 £25 0.84 0.91 8.85 34. Associates. 23% 2.74 454 18.5% 15 era. 41% 185 

Exit 4a SDEIS

PHOTECH

Project: Loc 15 Location: Exit 4a 5DEIS

NH 28-Scobie Pand Rd

Growth rates:

Annual

2014->2015

1.025

2016->2015

0.975

Seasonal:

Seasonal: Intersection Turning Movement Counts

AM Peak PM Peak

May-15

Adj Factor=

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0.98	
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	-	2016- Raw		2016 - AADT				2015 - AAI	)T			2015 - AAC	T- Rounde	ď	
		AM Peak	PM Peak	AM Peak	Approach	PM Peak	Approach	AM Peak	Approach	PM Feak	Approach	AM Peak	Approach	PM Peak	Aparoach
		(730-830)	(430-530)	(730-830)	Totals	(500-500)	Totals	(745-845)	Totals	(445-545)	Totals	(745-845)	Totals	(445-545)	5.1
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Use Seasonal Factor

Use Annual Factor

Use these in Synchro Existing Cond analyses

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7,00 AM - 9,15 AM	ther Vehicles	3	£.	n	7	12	5	71	į0	26	:54	48	7	Đ	.55	27	B8
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7.90 AM - 8:30 A5	Total	37	83	D	120	59	42	689	1.6	<b>731</b>	850	767	17	ŧ	784	726	1635
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May 15 Augustion Cope Och

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		AM Peak	PM Feak	AM Peak	Approach	Ph Pean	Approach	AM Peak	Approach	PM Peak	hoproath				Approach
	_	(780 860)	(400 500)	(730-831)	Totals	(508-586)	Totals	(745-845)	Totals	(445.545)	Totals	1745-545)	16133	(443.545)	Tértals
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Else Annaie Fattor

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Projecti rec 19 tecation Exit 4a SDEIS

NH 102 -Tsienneto Rd

Growth rates

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540 Commercial Street Manchester, NH 03101

File Name: NShorePM

Site Code : 00777777 Start Date : 5/30/2017

Page No : 1

Groups Printed- CARS - Trucks

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540 Commercial Street Manchester, NH 03101

File Name : dshore

Site Code : 33333333 Start Date : 5/30/2017

Page No . 1

Groups Printed- Cars - Trucks

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Trucks	0	Ò	0	ñ	6	0	99.6	0	:0	99.6	100	0	100	.0	100	ñ	98.6	100	ń	98.7	1752
% Trucks	Û	.0	'n	ñ	ň	0	0.4	Ų.	40	.4	0	0	0	Ō	0	ñ	6	D	n n	90.7	99.4
			~	Ĭij		·U	0.4	Ü	Đ	0.4	0	.0	0	0	0	- 0	1.4	0	ō	12	10

Start Time Left Peak Hour Analysis From Peak Hour for Entire Inters	Thru 07:00 AM	rom Nort Right to 08:45 gins at 0	Peds Ap	p Total 1 of 1	Left	Thru	Rt 102 From Eas Right	st Peds	App Total	Left		th Shore rom Sou Right		App Tutal	Left	Thru	Rt 102 From Wei Right	· · · · · ·	App Total	Int. Total
07:00 AM 0 07:15 AM 0 07:30 AM 0 07:45 AM 0 Total Volume 0 % App. Total 0 PHF 000	0 0 0 0 0 0	0 0 0 0 0 0	0 0 0 0 0 0	0 0 0 0	2 3 4 1 10 1.7 625	142 133 155 161 591 98.3 918	0 0 0 0 0 0	0 0 0 0 0 0	144 136 159 162 601	25 16 22 18 81 83.5 810	0 0 0 0 0 0	4 3 4 5 16 16.5 .800	0 0 0 0 0 0	29 19 26 23 97	0 0 0 0 0 0	73 68 52 65 258 93.8 .884	5 3 7 2 17 6.2 607	0 000	78 71 59 67 275	251 226 244 252 973

540 Commercial Street Manchester, NH 03101

> File Name : englisham Site Code : 00666666

Start Date : 5/31/2017

Page No : 1

Groups Printed- Cars - Trucks

		_			2.7			1.4	- Group:	s Printed- C	ars - Tru	icks	•						. •		
		Eng	lish Ranç	ge RD				Rt 102	•								1	Rt 102			
			From No	nh .				From Ea	st				rom Sou	ith			2.0				
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left		-					rom We	Sŧ		
07:00 AM	4	.0	- 23	0	27	10		i ngili				Thru	Right	Peds	App. Total	Left	Thru	Righ!	Peds	App. Total	Int. Total
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07:30 AM	2	.,0	10.00	v	19	U	140	4	0	144	0	0	10	:0	Ó	20	49	ñ	ñ	69	232
07:45 AM	1	n n	16	U	19	G	137	1	0	138	0	.0	-0	Ð	0	13	56	. 4	n.		
	أد	U	19	U	20	-0	152	.3	.0	155	10	:.0	n	'n	ň	11	49	·n	n v	70	227
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					1.5						*		Ÿ	v	-10	04	221	7	U	276	927
08:00 AM	3	D.	17	C	20	0	92	3	Ò	95		'n.	1 dh	:		.547	4.5.1				
08:15 AM	2	D	14	.0	16	ñ	111	÷	ก	112	- W	,71.7 1.00	10	U	·Ų	9	48	- 0	D	.57	172
08:30 AM	2	0	7	Ð	à	ņ	107	,			U	Ü	· U	D	C	7	45	0	0	52	180
08:45 AM	1	.0	5	.ñ	E .	-0		.Z.	v	109	Ū	.0	Đ	0	Ō	. 11	38	Ü	0	.49	167
Total	Я	ñ	43	'n	.51	- 0	76	3	- 10	$\mathcal{M}_{i}$	Ð	0	.0	.0	Q.	6	32	0	n	38	121
, 5,12,		U	40	·V	. (3)	ń.	386	-7	Ð	393	.0	-0	O	0	0	-33	163	Õ	ő	196	640
Grand Total	18	'n	118	i D	136	0	noo			·								1	_		015
Appreh %	13.2	ñ	86.8	0	130		936	23	:0	959	(0	.0	0	-0	:0	87	384	1	0	472	1567
Total %	1.1	'n	7.5	.U	6.7	U	97.6	2.4	Ð	:	.0	0	0	Ò		18.4	81.4	0.2	. ñ		.00.
Cars	17	70		.U	-8.7	υ	59.7	1.5	C	61.2	0	D	Û	Ď	-0	5.6	24.5	0.1	n .	30.1	
% Cars		ម	118	U	135	0	922	23	Ð	945	Ð	0	÷Ū	Ď.	.ñ	85	376	- 1	in.	462	.deah
	94.4	, U	100	,Đ	99.3	10	98.5	100	0	98.5	-0	Ó	o o	ñ	ñ	97.7	97.9	100	'n		1542
Trucks		0	0	0	1	0	14	Ð	: 0	14	n	Ď	ñ	.n	6	97.1	97.S	ານປ	-U	97.9	98.4
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<b>.</b>	ar se		lish Rang From Nor	th				Rt 102 From Ea	st			i <b>r</b>	rom Sou	tés				Rt 102			
Start Time Peak Hour Analysis	Left s From I	Thru 07:00 AN	Right Lo 08:49	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App Tolal	Left	Tha⊔	From Wes Right		App. Total	Int. Total
Peak Hour for Entir	e Inters	ection B	egins at (	07:00 AM	oun i Çe i		4	1						-		-	-	\$7 s	F .		
07:00 AM	4	Ð	23	Ö	27	0	121	·B	'n	129	n	á	n	÷ά	· iń	ea A			344		
07:15 AM	2	ø	17	0	19	0	140	4	ñ	144	ถ	ñ	n v	n		10 20	67 49	£3	ň	777	233
07:30 AM	3	O.	16	0	19	D	137	Í	0	138	ñ	D.	n	U.	ŭ ŭ	40 13	49 56	U	(j)	69	232
07:45 AM	1	0	19	0	20	Ď	152	3	O	155	Ď.	õ	a.	n		4.4		:1	.U	<u>f</u> U	227
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% App. Total	11.8	Ó	88.2	Ó		ñ	97.2	2.8	n	.000	n h	'n	÷	Ų.	:-E)	54	221	. 1	0	276	927
PHF	.625	.000	815	.000	.787	000	905	.500	.000	.913	.000	Oño.	000	() chá	no.	19.6	80.1	0.4	.0		
		2.5			,. <b>.</b> .	-500			-UUU	-913	UUU	.000	000	.000	000	675	825	.250	.000	896	.986

540 Commercial Street Manchester, NH 03101

File Name: EnglishPM Site Code: 00888877

Start Date : 6/5/2017

Page No :1

		Eric	lish rang	- bb					Groups	s Printed- C	ars - Tru	cks						3 C	Ac in	, , ,	
		⊏,ilÿi	rom Nor	8 KD. 46				Rt 102	-		-: .					•	4.1	RI 102			
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04:00 PM	:L-C3:		Righ!	Peds	App. Total	Left	Thru	Right	Pecs	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds		41.41.
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05:45 PM	3	.0	3	0	6	0	103	1	ñ	104	n n	N O	į) n	U	:0	2	115	.0	0	117	235
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Cars	26	n	3.2 63	.U	4.5	0.1	39.2	_1	0.1	40.3	Ō	0	0	0	<u>:</u> 0	3.6	51.6	ń	u n	55.2	
% Cars	100	ñ	100	r n	89 100	0	764	20	1	785	Đ	0	0	D.	0	69	1015	Ô	n	1084	1958
Trucks	0	õ	0	ă	100	- (i	99	100	100	98.9	0	C	þ	Ū	0	98.6	99.8	Ö	:0	99.7	.99.4
% Trucks	0	Ō	Õ	õ	'n	100	·.co -t	Ú	.U	. 9	0	0	0	0	0	13	2	D	0	3	12
				ŭ		100	*.	· u	υ	1.1	U	O	Đ	O	D	1.4	0.2	0	0	0.3	0.6

Chail The	<b>.</b>		ish range rom Nor	th			. : : 1:	Rt 102 From Eas	st			<u> </u>	rom Sou	th				RI 102			
Start Time Peak Hour Analysi	Left is From 0	Thru Wan niv	Right	Peds	Asp Total	Left	Thru	Right	Peds	App Total	Left	Thru	Right	Peds	App Total	Left	Thru	From Wes Right	st Peds	App. Total	Int Tatal
Peak Hour for Enti	re interse	ection Be	1 (O UD:45 20105 Al (	) PW - Pe. 14:30 PM	ak 1 of 1					18 - 1 - 1				4		Lon	11/10	1 MyIII	LENS	App. roizi	Int. Total
04:30 PW	4	0	11	0	15	'n	91	3	ó	94	n	Á		1.8			7				
04:45 PM	3	.0	10	.0	13	0	129	1	0	130	0	.0	v	.00	. 10	14	150	0	0	164	273
05:00 PM	7	Þ	14	O,	21	0	84	2	Ď	86	ň	Tr.	ម	Ü.	.U.	:9 40	130	0	0	139	282
05:15 PM	4	0	-8	Ö	12	0	-81	5	:0	86	Ď	ñ	. 10	D.	v N	12	136	0	0	148	255
Total Volume	18	.0	43	Ð	61	0	385	11	0	396	ő	ő	Ď.	. n	 	40	123 539	Ü	:0	128	226
% App. Total	29.5	0	70.5	0		C	97.2	2.8	0		Ô	ñ	ñ	ຄ	Ų	:6.9)		Û	Ū	579	1036
PHF	.643	.000	768	.000	.726	.000	746	.550	000	.762	.000	000	.000	.000	.000	714	93.1 898	.000	.000	.883	.918
	1.2		· .				-														.510

# APPENDIX B: SEASONAL, ANNUAL AND AXLE CORRECTION FACTORS

### Group 4 Averages

Year 2015 Monthly Data

Peak Hour Data Group 4 Averages Urban Highways

				1.0				1 1.
		Dat	a				Factors	
Month	AM	Mid	<u>PM</u>	Sat Mid	<u>AM</u>	Mid	PM	Sat Mid
Jan	17267	13564	20154	15524	1.11	1.14	1.11	1.17
Feb	17366	13436	20253	17441	1.10	1.16	1.11	1.05
Mar	19827	14389	22267	16671	0.97	1.08	1.01	1.09
Арг	19924	15214	22733	18484	0.96	1.02	0.99	0.99
May	20046	16198	23476	18916	0.96	0.96	0.96	0.96
Jun	19952	16451	23779	19485	0,96	0.94	0.94	0.94
Jul	18444	17126	23314	18349	1.04	0.91	0.96	0.99
Aug	18720	16672	23360	19436	1.02	0.93	0.96	0.94
Sep	20260	16000	23092	19374	0.95	0.97	0.97	0.94
Oct	20391	15823	23465	18951	0.94	0.98	0.96	0.96
Nov	19208	15635	21905	17902	1.00	0.99	1.02	1.02
Dec	18348	15787	21589	18339	1.04	0.98	1,04	0.99
Average	19146	15525	22449	18239				

Fáctors are based on Average Morith.

## NHDOT Seasonal Adjustment Factors by Roadway Group - 2015

		Group1	Group2	Group3	Group4	Group5	Group6
	٠						Other
		Rugal	Rural	Urban	Urban	Recreational	Reer
StartDate	FinDate	Interstate	Highways	Interstate	Highways	Highways	Highways
1/1/2015		1.18	1.35	1.24	1.32	1.21	3.35
	1/9/2015	1,35	1.16	-1.10	1.02	1.31	1.83
1/12/2015	-1/16/2015	1.23	1.12	1.05	00,11	1.21	1.82
1/19/2015		***	1.07	1,02	0.99	1.19	1,59
1/26/2015	1/30/2015	1.67	1.34	1.39	1.27	- 1,59	2.24
2/2/2015	2/6/2015	1.43	1.20	1.21	1.13	1.40	2.18
2/9/2015		1.37	1.18	1.17	1.09	1,33	2.10
2/16/2015	2/20/2015	1.11	1.09	1,01	1.01	1.15	1.42
2/23/2015	2/27/2015	1.17	1.10		1.02.	1.17	1.50
3/2/2015	3/6/2015	1.20	1.10		0.99	1.21	1.50
[3/9/2015	3/13/2015		1.06	0.99	0.96	1.15	1.45
3/16/2015:		1.17	1.09	1.02	0.99	1,20	1,45
13/23/2015	3/27/2015	1.20		1.02	0.96	1.22	1.55
3/30/2015	4/3/2015	1.15	1.04		0.94	1.19	1.49
4/6/2015	-4/10/2015		1.07	1.01	0.96	1.25	1.67
4/13/2015	4/17/2015	1.18	• •	0.99	0.92	1.16	1.52
4/20/2015	4/24/2015	1.11	1.03	0.97	0.93	1.13	1.53
4/27/2015	5/1/2015		1.01	. 1,00	0.95	1.15	1,57
5/4/2015	5/8/2015	0.1.1.0	<u>-</u>	0.95	0.88	1.02	1.32
5/11/2015	5/15/2015.			0.94		1.01	1.36
5/18/2015	5/22/2015	0.98	-0.91	0.91	0.88	0.93	1,23
5/25/2015	5/29/2015	0.98	0.93	0.96	0.93	0.93	3,08
6/1/2015	6/5/2015	1.07	0.94	0.94	0.89	0.98	1.29
6/8/2015	6/12/2015	-1.00	0.90	0.92	0.87	0.92	1.08
6/15/2015	6/19/2015	0.92	10.87	0.89	0.87	0.75	0.85
6/22/2015	6/26/2015	0.90	0.88	0.88	0.88	0.86	0.83
6/29/2015	7/3/2015	.0.83	0.86	0.89	0.90	0.77	0.73
7/6/2015		0.83	0.85	0.87	0.89	0.74	0.73
7/13/2015	7/17/2015	0.83	0.85	0.86	0.88	0.77	0.73
7/20/2015	7/24/2015	0.80	0.84	0.85		0.73	0.68
7/27/2015	7/31/2015	0,80	0.83	0.85	0.88	0.75	0.66
8/3/2015	8/7/2015	0.78	0.83	0.84	0.88	0.73	0.64
8/10/2015	8/14/2015	0.78		0.84	0.89	0.75	0.65
8/17/2015		0.80		0.85	0.89	0.76	0.67
8/24/2015	8/28/2015	0.85		9.88	0,89	0.82	0.79
8/31/2015	1.9/4/2015	The second second	0.87	0.90	0.88	0,86	0.90
	. 9/11/2015	0,88	0.89	0.92	0.94	0.87	0.92
	- 9/18/2015	0.96		0.91		0.92	0.94
	9/25/2015	0.97	0.91		0.89	0.94	1.05
9/28/2015	10/2/2015	1.02		0.93	0,91	0.98	1.08
10/5/2015		0.92	0.89	0.90	0.90.	0.85	0.91
110/12/2015				0.89	0.90	0.87	0.92
	10/23/2015	1.06		0.94	0.92	1.04	1.29
	10/30/2015		0,98	0.96	0.92	1.11	1,49
11/2/2015			0.97	0.96	0.92	1.11:	1,49
	11/13/2015	1.15	**	0.98	0.94	1.16	1.68
11/16/2015		1.16	1.01	0.96		1.16	1.71
1.1/23/2015		1.03	1,05	1.01	1.06	1.15	·· ::: 1.46
11/30/2015	12/4/2015	1.20	. *	0.97		1.21	1.79
	12/11/2015	1.18	1.03	0.96	0.93	and the second of the second o	1,69
12/14/2015	12/18/2015	1.13	0.99	0.94	0.92	1.17	1.69
12/21/2015		1.17	1.12	***		1.26	1.56
1/1/2016	1/1/2016	£10	1.19	1.09	1.14	1.22	1.23

### NHDOT Axle Correction Factors by Functional Classification - 2015

	AcfYear	FC	Description	Factor
Rural	2015	01		0.908
10.700	2015	02		0.962
	2015	06		0.967
	2015	07		0.959
	2015	08		0.993
	2015	09		0.997
Urban	2015	11	Interstate	0.953
	2015	12	Freeways/ Expressways	0.956
	2015	14	Principle Arterials	0.973
	2015	16	Minor Arterials	0.981
	2015	17	Collectors	0.989
	2015	19	Local Streets	0.987
	2015	00		1.000

# APPENDIX C: INTERSTATE COUNTS AND BALANCING CALCULATIONS AT RAMP TERMINALS

#### 1-93 Interstate Balancing based on ATR and TMC counts - 2015 and 2016

Last revision Date:

7/29/2016

							-				15.00	
	Using							Using	# **			£ 1.
	May 2015 rounts	AWDY =	7-8 AM	% AWDT	5-G PM	% AWDT		May 2016 counts		7-8 AM	5-6 PM	
Total	AVG Weekday	76499	5533	7.23%	5997	7.84%	Total	AVG Weekday		5567	6113	
NΒ	AVG Weekday	38078	2021	5.31%	3483	9.15%	Na	AVG Weekday		2246	3601	ŧ.
56	AVG Weekday	38417	3512	9.14%	2515	6,55%	58	AVC Weekday		3321	2512	
	Seasonal Adjustment			0.98 IL			Ann/Sei	asonal Adjustment fac 2015 AAWDT - 1-9	3 South of Exit	4 at Windhah		0.99 2016->2015 0.98 May >AADT
	12.531	ere j	7-8 AM		5-6 PM			*. •	1, 1, 157	7-8 AM	5-6 PM	
		Total	5420		5880				Total	5400	5930	
		re .	1980		3410				NS	.2180	3490	
		SB	3440		2460				58	3220	2440	

			May-15						2015 AWOT	(adj)	
Ramp cos	ints		AWDT	7-8 AM	% AWDT	5-6 PM	% AWDT		7.8 AM	5-6 PM	
May-15	Exit 4	NE OFF	11321	422	3.73%	1223	30,80%		409	1387	
		NB on	11380	1091	9.59%	\$12	7.14%		1058	788	
		SB off	10893	776	7.12%	952	8.74%		753	924	
		SE on E-5	5865	.687	11.71%	311	5.30%		.667	:302	
		\$8 on W-5	3265	534	10.14%	244	4,63%		518	237	
							-:-		7.15		
	£xt 5	NB Off	6251	422	6.75%	472	7.55%	:	409	458	-
		NB on	19663	1008	9.46%	793	7.44%		978	769	
		58 off	30574	781	7.39%	939	8.88%		758	911	
		SB on	6733	532	8.54%	427	6.85%		516	416	

SB off vol fr/7-8 on 5/24 appears inconsistent - use AWDT for that hour

NOTE. Peak Hr Vot either day of TMC or AWDT from Way count.

2015 AWDT - Mainline 1-9:

ANI Peak

ΝB

55

,	1 2						·	25.5		P
	START	SUBTRACT	ADD		193 NB	SUBTRACT	ADD	193 NB	]	
:	193 S of EA	E4 NB off	£4 NB on		N of E4	ES NB off	E5 NB on	Nof E3	Ì	
	1980	409	1058		2629	609	978	3198	]	ň
	1980	410	1060		2630	:410	980	3200	rounded	
	START	SUBTRACT	<b>SUBTRACT</b>	ADD	\$93 5B	SUBTRACT	ADD	193 58	1	
	193 5 of E4	E4 58 cm E-5	E4 58 on W-5	₹4 \$5 off	No! £4	ES SB as	£5 58 off	N pl £5	j	
	3440	667	518	753	3608	915	758	3Z50		5
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540 Commercial Street, Manchester, NH 03101 CALCULATED BY PIC DATE 7-27-11 (603) 668-8223 • Fax. (603) 668-8802 CIC@cidengineers com • www.cidengineers com CHECKED BY CCG DATE 8/7/14

New Hampshire • Vermont • Maine

SUBJECT 2015 AM PLAIC • Exist. AS ATRE SCALE AWAT 98b N 1060 



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CALCULATED BY PK DATE 7-27-16

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SUBJECT 2015 AM Reck - Belanced SCALE 730-830 980 900 405 740 Exit 235 540 1280 240) 7407 810 -795 515 410 755 -1060 475 1350 (875) 1580



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540 Commercial Street, Manchester, NH 03101 (503) 668-8223 - Fax. (503) 668-8802 cld@cidengineers.com > www.cidengineers.com New Hampshire - Vermont - Maine CHECKED BY LCG SUBJECT Balance & Frit 4 volumes 730-830 SCALE AVAI PE 410 1060 219 210 210 200 429 410 56Z 47 on -583 475 435 101 1060 4- 5) 520 665 = 50 75\$ 267 67 260 503 RT 495 770 755 0 5800 0/3 1001/2 1 562 5:85 1.0404) 6374 1548 90 1130 260 (LT R/ S/3 0/4) -12. + 210 (LT off) = 108 + - 570 (PTa) 836 WO Ten 129 135



540 Commercial Street, Manchester, NH 03101 (603) 668-8223 + Fax (603) 668-8802

403 EXIT 4a	108 NO 05-248
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DIEDRO BY LCG  DATE 8/7/1/4  SUBJECT Be an condition them  SUBJECT Be an condition them  SUBJECT Be an condition to the subject to the subjec
1) Balune exist value between ray so courts are close.  1 1 1 2 957 leg a SB, 951 are a NB 954/951 = 1 cost  1/ 100 Ex 44 216 218 128 1200 check  0 10 10 10 128 1280 check  1 100
11 12 - 957 Rp & SB 951 arr & NB 958/951 = 1 cost  F/mc Et LF 214 218 220 check  0 NB 60 th 735 741 740  VB - 542 Rep By NB 830 arr & SB 812/530 = 1 014 ±  Rel tmc & SB ray WB 47 = 192 195 195  WB 70 th - 638 207 842 > 840 per Re  2) NB ray LT eff 273 300 840 - 300 = 540 WB FE.  El tmc & T ff - 100 110  NB as ray LT arr 216/24 740  Remc Bi arr & 126/24 740  Remc Bi arr & 126/24 740  SB 8 - 780 (-1.1036)
11 12 - 957 Rep & SB 951 arr @ NB 958/951 = 1 cost  F/mc Et LF 214 218 220 check  o NB 60 Th 735 741 740  VB - 542 Rep By NB 830 arr @ SB 812/530 = 1 014 5  Q1 mc & SB rep WB 47 = 192 195 195  WB Th = 638 247 698  2) NB rep L7 eff 273 300 840 - 300 = 540 WB FA.  E   FMC 87 87 - 100 110  NB as reg L7 arr 216/24 740  R TMC D1 arr 672 76 740  \$ 50 45 (arr L) 496 446
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WB - 842 Lep Ar/ Nt. 830 an @ SB 812/830 = 1.0145  El AME @ SB can WB 4T = 192 195 195  WB TA - 638 647 647  El FMC 87 87 - 100 110  MB as reg LT at 216 24 240  R TMC 01 as 672 76 740  E SB AF ray LT at 216 240 740  E SB AF ray LT at 216 240 740  E SB AF ray LT at 216 240 740  E SB AF ray LT at 216 240 740
WB - 842 log & NE, 830 av @ SB 8 12 / 830 = 1,014 ±  Q1 +mr @ SB red WB 4T = 192 195 195 195  WB 12 - 438 477 647  B30 -> 842 -> 840 per Cu  NB red
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2) NO Vario 47 et   - 273   300 840 - 300 = 540 WB MG.  ELITARE 47 EF - 100   110    NB as reg LT at 214 (24 240)  ETMC 01 in 672 (76 740    BE 8 = 950 (-1.1036)
A TINC 27 96 - 100 110  NB as cons LT at 214 (24 240)  R TINC 01 in 670, 76 740  3888 - 980 (-1.1036)  SB off rai, L7 aft 496 465
AB as (=2 LT at 216 (24 240)  A TRIC 214 472 (76) 740  373 - 740 240  A TRIC 214 472 (76) 740  3888 - 780 (21/036)
AB as (=2 LT at 216 (24 240)  A TRIC 214 472 (76) 740  373 - 740 240  A TRIC 214 472 (76) 740  3888 - 780 (21/036)
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368 - 980 (~1.1036) 3 Sagran 47 M. 496 465
3) Se off ray 47 off 496 465
6/mc 814/8 319 1241
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1) 50 and and 192 235
( ( This )   RT - 126   1282
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(240,1740) = 980 - 465 = 515 EB FA



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540 Commercial Street, Manchester, NH 03101 (503) 668-8223 • Fax. (503) 668-8802

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cid@cldengineers.com • www.cidengineers.com  New Hampshire • Vermont • Maine  CHECKED BY	DATE 8/7//C
445-545 SUBJECT Bolance Cost 4 volume	SCALE PA PIC
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# APPENDIX D: TRAVEL DEMAND FORECAST MODEL DEVELOPMENT AND CALIBRATION REPORT – SOUTHERN NH PLANNING COMMISSION, JANUARY 2018

## Travel Demand Forecast Model Development and Calibration Report for I-93 Exit 4A Supplemental Draft Environmental Impact Statement

Prepared by the Southern NH Planning Commission and CLD/Fuss & O'Neill



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#### 1.INTRODUCTION

The report serves the purpose of documenting the methodology for development and calibration of the travel demand model for the update of I-93 Exit 4A SDEIS. The report includes development and calibration for the 2015 24-hour base year model, and development for 2040 No-Build 24-hour model. This report doesn't include detailed network and land use description for 2040 build scenarios, alternative A, B, C, D, E and F, because this information is included in the traffic and land use reports prepared by CLD|Fuss & O'Neill and Louis Berger.

#### 2. 2015 BASE YEAR MODEL

#### 2.1 Network

The updated 2015 base year regional travel demand model was built based on the 2010 base year SNHPC regional model. The 2010 Travel Demand Forecast Model Development and Calibration Report detailed development and calibration of the 2010 model. The model covers fifteen communities: Auburn, Bedford, Candia, Chester, Deerfield, Derry, Francestown, Goffstown, Hooksett, Londonderry, Manchester, New Boston, Raymond, Weare, and Windham. The change to the functional classification system for roadway system was incorporated into the 2015 base year model due to changes to the urbanized area from the 2010 U.S. Census. In addition, projects completed between 2010 and 2015, the Manchester Airport Access Road, Pettengill Road in Londonderry, NH 28 Manchester Road improvement in Derry, Hooksett Open Road Tolling, I-93 Exit 5 reconstruction, US 3/NH 28 widening in Hooksett, I-93 Exit 3 area reconstruction, were added to the 2015 model.

#### 2.2 Traffic Analysis Zone (TAZ) System

The fifteen communities in the model area were disaggregated into 306 internal TAZs in the 2010 model. To better reflect traffic patterns around the I-93 Exit 4A study area, TAZs 69 in Londonderry, 123, 124, 125 and 133 in Derry were split into additional smaller TAZs indicated in Table 1. Layouts of these TAZs are displayed in Appendix A.

Table 1 TAZ Splits

TAZ 2010	TAZ 2015 for I-93 Exit 4A							
69	69A, 69B and 69C							
123	123A and 123B							
124	124A, 124B, and 124C							
125	125A and 125B							
133	133A and 133B							

#### 2.3 Population and Households

Population estimates from 2015 Population Estimates of New Hampshire Cities and Towns prepared by the New Hampshire Office of Strategic Initiatives (NHOSI) [2] were used for the 2015 base year model. A summary table including 2015 population estimates for communities within the model area from the NHOSI estimates is presented in Appendix D. Dwelling units collected by SNHPC annually that were issued Certification of Occupancy between 2010 and 2015 by communities were used in allocating change in population into TAZs, and calculating number of households in a TAZ.

The formula used for calculating dwelling unit increases between April 2010 (Census day on April 1) and December 31, 2015 is shown below.

$$\Delta D_{TAZ} = \Delta D_{2015TAZ} + \Delta D_{2014TAZ} + \Delta D_{2013TAZ} + \Delta D_{2012TAZ} + \Delta D_{2011TAZ} + \frac{3}{4} \Delta D_{2010TAZ})$$

Where:

 $\Delta D_{TAZ}$ =Increase of dwelling units in a TAZ between April 1, 2010 and December 31, 2015

 $\Delta D_{2015TAZ}$ = Increase of dwelling units in a TAZ in 2015

 $\Delta D_{2014TAZ}$ = Increase of dwelling units in a TAZ in 2014

 $\Delta D_{2013TAZ}$ = Increase of dwelling units in a TAZ in 2013

 $\Delta D_{2012TAZ}$ = Increase of dwelling units in a TAZ in 2012

 $\Delta D_{2011TAZ}$ = Increase of dwelling units in a TAZ in 2011

 $\Delta D_{2010TAZ}$ = Increase of dwelling units in a TAZ in 2010

2015 dwelling units were calculated as follows:

$$D_{2015TAZ} = D_{2010TAZ} + \Delta D_{TAZ}$$

The 2015 population in TAZs were calculated by allocating the difference in population between 2010 and 2015 in a community. If the population increased during 2010-2015, the following formula was used.

$$P_{2015TAZ} = P_{2010TAZ} + (P_{2015com} - P_{2010com}) * \frac{\Delta D_{TAZ}}{\Delta D_{com}}$$

Where:

 $P_{2015TAZ}$ =2015 population in a TAZ

 $P_{2010TAZ}$ =2010 population in a TAZ

 $P_{2015com}$ =2015 population in the community (NHOEP estimates) in which the TAZ located

 $P_{2010com}$ =2010 population in the community (2010 US Census) in which the TAZ located

 $\Delta D_{TAZ}$ =Increase of dwelling units in a TAZ between April 1, 2010 and December 31, 2015

 $\Delta D_{com}$ =Increase of dwelling units in the community in which the TAZ located between April 1, 2010 and December 31, 2015

The 2015 population in TAZs were calculated by allocating the difference of population between 2010 and 2015 in a community. If the population decreased during 2010-2015, the following formula was used.

$$P_{2015TAZ} = P_{2010TAZ} + \Delta P_{DWTAZ} + (P_{2015com} - P_{2010com} - \Delta P_{DWcom}) * \frac{D_{2015TAZ}}{D_{2015com}}$$

Where:

 $P_{2015TAZ}$ =2015 population in a TAZ

 $P_{2010TAZ}$ =2010 population in a TAZ

 $P_{2015com}$ =2015 population in the community (NHOEP estimates) in which the TAZ located

 $\Delta P_{DWTAZ} = \frac{P_{2010TAZ}}{HH_{2010TAZ}} * \Delta D_{TAZ}$  - Assume population change in a TAZ due to dwelling units change between 2010 and 2015

 $HH_{2010TAZ}$ =2010 number of households in a TAZ

 $\Delta P_{DWcom} = \sum \Delta P_{TAZ}$  - Assume population change in the community in which the TAZ located due to dwelling units change between 2010 and 2015

 $P_{2010com}$ =2010 population in the community (2010 US Census) in which the TAZ located

 $D_{2015TAZ}$ =2015 dwelling units in a TAZ

 $D_{2015com}$ =2015 dwelling units in the community in which the TAZ located

Number of households in a TAZ was calculated as follows.

$$HH_{2015TAZ} = D_{2015TAZ} * OR_{2010TAZ}$$

Where:

 $HH_{2015TAZ}$ =2015 number of households in a TAZ

 $D_{2015TAZ}$ =2015 dwelling units in a TAZ

 $OR_{2010TAZ}$ =2010 Occupancy rate in a TAZ

#### 2.4 Student Enrollment

School enrollments for 2014-2015 for all elementary, middle and high schools in the region were collected from the New Hampshire Department of Education. College enrollments were collected by contacting colleges in the region.

#### 2.5 Employment

The quarterly employment of 2015 for each community in the region including first, second, third and fourth quarters was downloaded from the New Hampshire Employment Security (NHES) website. A Summary table containing these data is shown in Appendix E.

The average annual employment for communities was calculated by averaging the four quarters of employment. Considering that the 2010 SNHPC employment for model input calculated directly from the employer database is slightly higher than NHES's annual average, the 2015 annual employment was adjusted to reflect the difference between the two data sets. The adjustment was made according to the following equation.

$$E_{2015comadiusted} = E_{2015comNHES} + (E_{2010comSNHPC} - E_{2010comNHES})$$

Where:

 $E_{2015comadjusted}$  =Adjusted 2015 employment in a community

 $E_{2015comNHES}$  =2015 employment average in a community based on NHES data

 $E_{2010comNHES}$  =2010 employment average in a community based on NHES data

 $E_{2010comSNHPC}$  =2015 employment average in a community based on SNHPC employment database

Building permits issued 2011-2015 were used to identify new businesses in a TAZ. Employment in a new building was estimated based on a similar business type in 2010 employment database obtained from NHES. Employment in businesses we were aware closed during 2011-2015 was estimated based on the 2010 employment database.

To allocate the difference between 2010 and 2015 to TAZs by employment category, the following formula was used.

$$E_{2015TAZ-EC} = E_{2010TAZ-EC} + \Delta E_{DWTAZ-EC} + (E_{Ann2015} - E_{Ann2010} - \Delta E_{DW2011-2015})$$

$$* (E_{2010TAZ-EC}/E_{Ann2010})$$

Where:

 $E_{2015TAZ-EC}$ =2015 Employment in a TAZ by employment category group

 $E_{2010TAZ-EC}$ =2010 Employment in a TAZ by employment category group

 $\Delta E_{DWTAZ-EC}$ =Assumed Change of Employment in a TAZ by employment category group due to number of building permits change between 2010 and 2015

 $E_{Ann_{2015}}$ =2015 Annual employment in the community in which TAZ located

 $E_{Ann2010}$ =2010 Annual employment in the community in which TAZ located

 $\Delta E_{DW2011-2015}$  = Change of employment in the community due to number building permits change between 2010 and 2015

#### 2.6. Base Year Model Calibration and Validation

Highway assignment is crucial for models to produce traffic volume estimates within acceptable ranges of tolerance compared to actual ground counts. For detailed model calibration and validation methodology information, refer to 2010 Travel Demand Forecast Model Development and Calibration Report for the Southern New Hampshire Planning Commission <sup>[1]</sup>. Model calibration and validation results for the 2015 base year are as follows.

• The difference of Vehicle Mile Traveled (VMT) estimates between the model and the Highway Performance Monitoring System (HPMS) is 1.28%, which is acceptable according to the Model Validation and Reasonableness Checking Manual [3], which is allowed a 3% difference by Environmental Protection Agency (EPA).

- The Coefficient of Determination (R<sup>2</sup>) region wide equals 0.91 which is greater than the Model Validation and Reasonableness Checking Manual <sup>[3]</sup> recommended, which is 0.88 for all roadways with functional class collector and higher. Percent Root Mean Square of the Error (% RMSE) equals 27.28 for all roadways with functional class collector and higher which is less than the commonly accepted standard of 30 <sup>[3]</sup>.
- Absolute percentage differences of total observed versus model estimated volumes at a Merrimack River screen line crossing and external station cordon line crossings are less than 2%.
- Absolute percentage differences of observed versus model estimated volumes at locations within I-93 Exit 4A area shown in Appendix C are within acceptable ranges of tolerance based on FHWA targets [3].

#### 3. FUTURE YEAR 2040 NO-BUILD MODEL

#### 3.1 Network

2040 No-Build model network was built by adding projects documented in Regional Transportation Plan 2017-2040 for the SNHPC Region <sup>[6]</sup> to the 2015 base year model except I-93 Exit 4A project. The list of the projects is shown in Appendix B.

#### 3.2 Population and Households

Population projections used in the 2040 No-Build model were based on the State of New Hampshire County Population Projections 2015-2040 By Municipality <sup>[5]</sup> prepared by New Hampshire Office of Strategic Initiatives (NHOSI) in partnership with the state's Regional Planning Commissions and additional adjustments to NHOSI projections were made according to the final numbers in the Land Use Scenarios Report <sup>[4]</sup> to reflect additional population and households for relevant 2040 No-Build development projects. The population projections from 2015 through 2040 for each community in the region from the NHOSI projections are presented in Appendix D.

Due to the fact that numbers of dwelling units changes in five-year increments was used in distributing population changes to TAZs, and calculating numbers of households in a TAZ, SNHPC dwelling unit projections for 2010 through 2040 (Completed 2012) were adjusted for 2020 through 2040 to reflect number of dwelling units change between 2010 and 2015. An assumption was made that numbers of dwelling unit growth rates 2015-2040 were kept the same as the 2012 Southern NH Planning Commission dwelling unit projection for 2010-2040, which were reviewed by corresponding communities in the region. Two conditions were considered as the population was allocated to TAZs: 1) population increase in a five-year period; 2) Population decrease in a five-year period.

#### Condition one

When the population increases during a five-year period, the allocation is calculated using the following formula.

$$\Delta P_{TAZ} = \frac{\Delta P_{com}}{\Delta D_{com}} * \Delta D_{TAZ}$$

Where:

 $\Delta P_{TAZ}$ = population change in a TAZ during a five-year period

 $\Delta P_{com}$ =Population change in the community in which the TAZ located during the five-year period

 $\Delta D_{TAZ}$ =Number of dwelling units change in a TAZ during the five-year period

 $\Delta D_{com}$ = Number of dwelling units change in the community in which the TAZ located during the five-year period

#### Condition two

When the population decreases during a five-year period, the allocation is calculated using the following formula.

$$\Delta P_{TAZ} = \Delta P_{DWTAZ} + (\Delta P_{com} - \Delta P_{DWcom}) * \frac{D_{TAZ}}{D_{com}}$$

Where:

 $\Delta P_{TAZ}$ = Population change in a TAZ during a five-year period

 $\Delta P_{DWTAZ} = HHS_{2015TAZ} * \Delta D_{TAZ}$  =Assume population change in a TAZ during a five-year period due to number of dwelling units change

 $HHS_{2015TAZ} = 2015$  household size within the TAZ

 $\Delta P_{com}$ = Change of population in the community in which the TAZ located during the 5-year period

 $\Delta P_{dwcom} = \sum \Delta P_{dwTAZ}$ = Population change in the community in which the TAZ located during the five-year period due to number of dwelling units change

 $D_{TAZ}$ =Number of dwelling units in the TAZ at the end of the five-year period

 $D_{\alpha\alpha m}$ 

= Number of dwelling units in the cummunity in which the TAZ located at end of the five

year period

Population within a TAZ at end of a five-year period was calculated as follows.

$$P_{TAZ} = P_{TAZ-1} + \Delta P_{TAZ}$$

Where:

 $P_{TAZ}$  =Population in the TAZ at end of the five-year period

 $P_{TAZ-1}$  =Population in the TAZ at end of the prior five-year period

#### **Number of Households Calculation**

Numbers of households for TAZs were calculated using the following formula.

$$HH_{TAZ} = (P_{TAZ} - P_{specialTAZ})/HHS_{2015}$$

Where:

 $HH_{TAZ}$  = Number of households in a TAZ

 $P_{specialTAZ}$  = Special population such population in nursing homes, jails, etc. in the TAZ

 $HHS_{2015TAZ}$  = Household size in the TAZ

#### 3.3 Employment

In order to reflect changes in employment between 2010 and 2015, the original SNHPC employment projection for 2010 through 2040 (completed in 2012) was adjusted for 2020 through 2040. Three steps are followed in calculating the 2015-2040 employment projection. Additional adjustments were made to the final numbers based on the Land Use Scenarios Report <sup>[4]</sup> to account for additional employment for relevant 2040 No-Build development projects.

#### **Step 1: Growth rates**

The study assumes that employment growth rates by employment category group for 2015-2040 were kept the same as the 2012 Southern NH Planning Commission employment projection for 2010-2040, which were reviewed by corresponding communities in the region. The following formula was used in calculating growth rates over a five-year interval.

$$GR_{Com\ EC\ i} = (E_{2012\ Com\ EC\ i} - E_{2012\ Com\ EC\ i-1})/E_{2012\ Com\ EC\ i-1}$$

Where:

i = projection years 2015, 2020, 2025, 2030, 2035 and 2040

 $GR_{Com\ EC\ i} =$ Growth rate by employment category group over i to i-1 five-year interval

 $E_{2012 com EC i}$  = Total employment for an employment category group in a community at projection year i in 2012 projection

 $E_{2012 \ com \ EC \ i-1}$  = Total employment for the employment category group in community at projection year i-1 in 2012 projection

# Step 2: Total employment projection for an employment category group in a community 2020 through 2040

The 2015 total employment estimate for an employment category group in a community was considered as base. Total employment projections for the employment category group in the community 2020 through 2040 were calculated as follows:

$$E_{2016\ Com\ EC\ i} = E_{2016\ Com\ EC\ i-1} * (1 + GR_{Com\ EC\ i})$$

Where:

i = projection years 2020,2025,2030,2035 and 2040

 $E_{2016\ com\ EC\ i}$  = Total employment for an employment category group in the community at projection year i in the 2016 projection

 $E_{2016\ com\ EC\ i-1}$  = Total employment for the employment category group in the community at projection year i-1 in the 2016 projection

# Step 3: Total employment for an employment category group in the community for 2020-2040 projection distributed to TAZs

Two conditions were used as total projected employment for an employment category group in the community was allocated into TAZs.

#### Condition one

When the data for developable land for a land use category is available and appropriate to use in a community, employment is distributed based on percentage of developable land in a TAZ in total of developable land in the community.

$$E_{2016\,TAZ\,EC\,i} = E_{2016\,TAZ\,EC\,i-1} + (E_{2016\,Com\,EC\,i} - E_{2016\,Com\,EC\,i-1}) * Percentage$$

Where:

 $E_{2016\,TAZ\,EC\,i}=2016$  Employment projection in a TAZ for an employment category group at projection year i

 $E_{2016\,TAZ\,EC\,i-1} = 2016$  Employment projection in a TAZ for the employment category group at projection year i-1 in the 2016 projection

 $E_{2016\ com\ EC\ i}$  = Total employment for the employment category group in the community at projection year i in the 2016 projection

 $E_{2016 com\ EC\ i-1}$  = Total employment for the employment category group in the community at projection year i-1 in the 2016 projection

#### Condition two

When the data for developable land for the land use category is not available or not appropriate to use in a community, employment in a TAZ is calculated using the same growth rate as that of employment of the employment category.

$$E_{2016\,TAZ\,EC\,i} = E_{2016\,TAZ\,EC\,i-1} * (1 + GR_{2016\,Com\,EC\,i})$$

Where:

 $E_{2016\,TAZ\,EC\,i}=2016$  Employment projection in a TAZ for an employment category group at projection year i

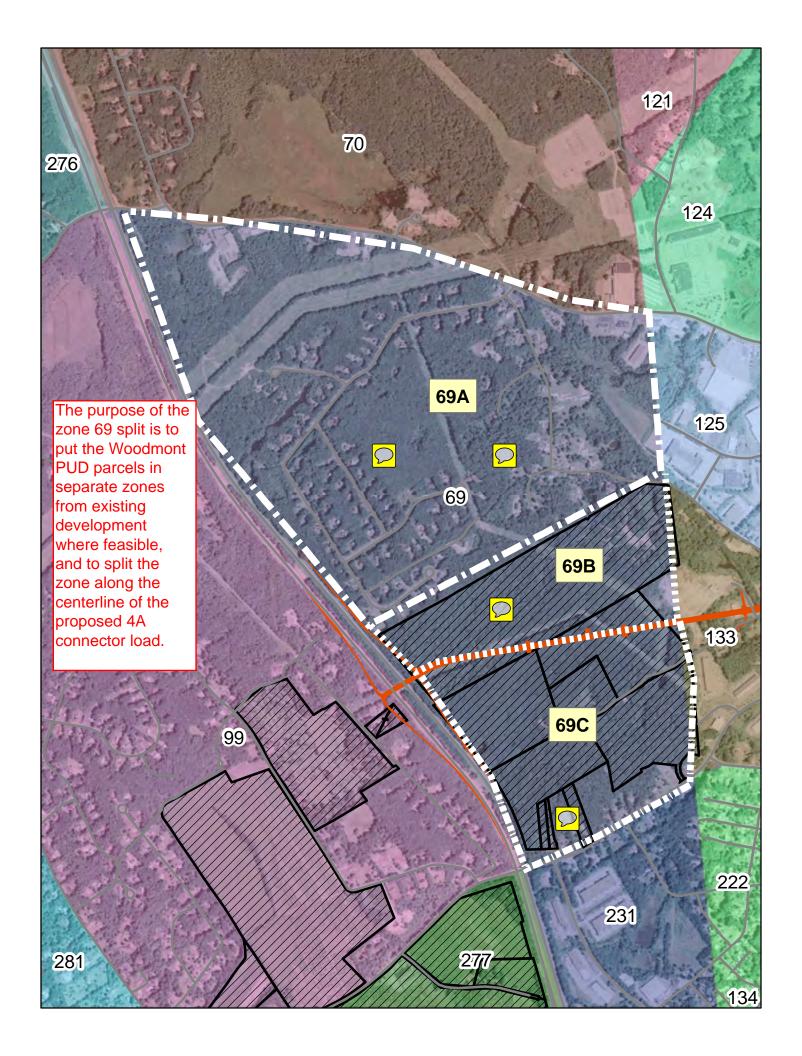
 $E_{2016\,TAZ\,EC\,i-1}=2016$  Employment projection in a TAZ for the employment category group at projection year i-1 in the 2016 projection



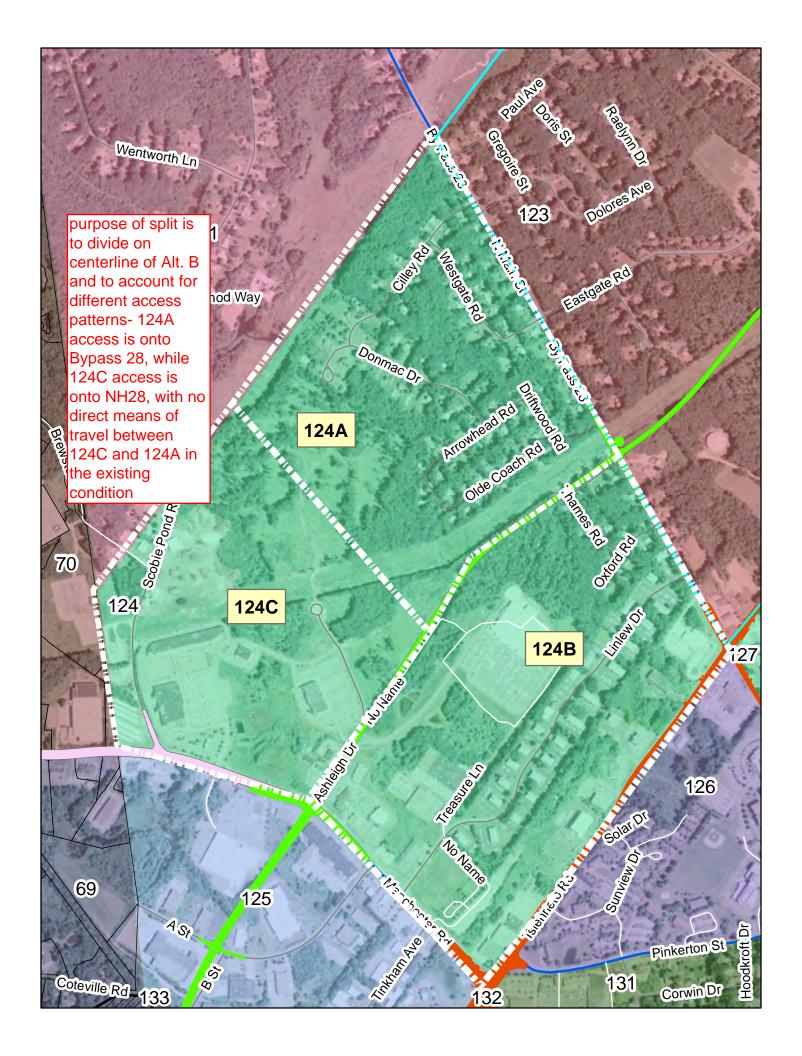
#### 4. REFERENCES

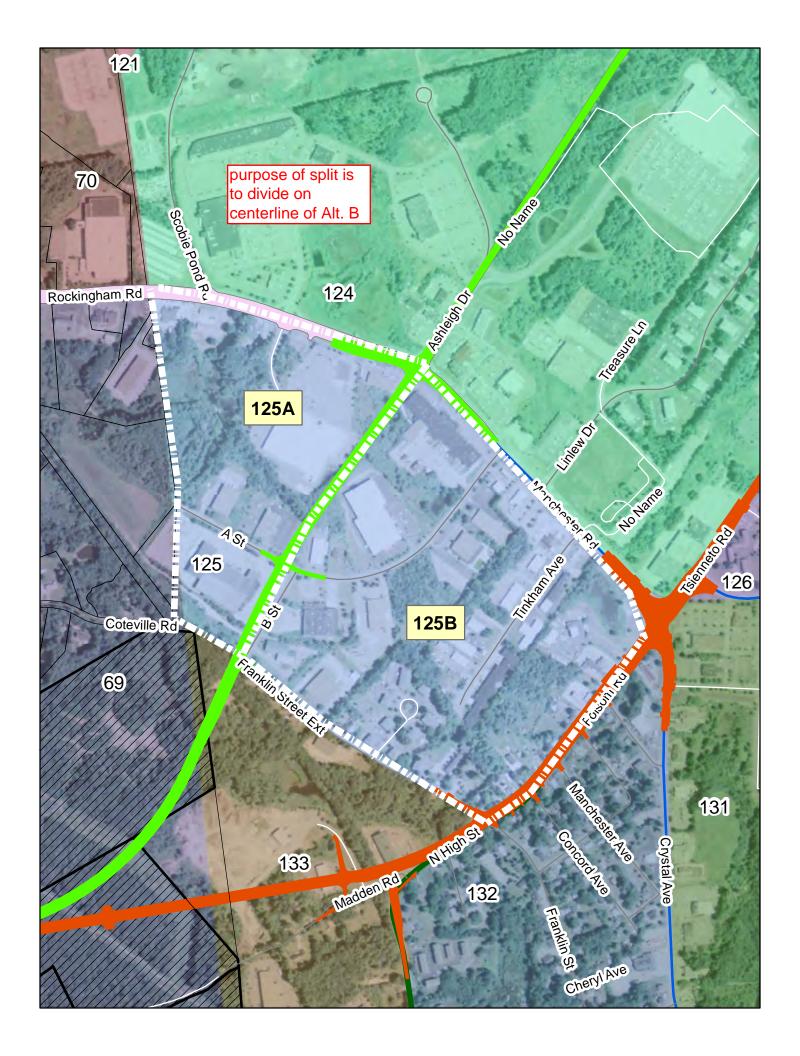
- 1. 2010 Travel Demand Forecast Model Development and Calibration Report, Southern New Hampshire Planning Commission, 2012.
- 2. 2015 Population Estimates of New Hampshire Cities and Towns, The New Hampshire Office of Strategic Initiatives (NHOSI), 2016.
- 3. Model Validation and Reasonableness Checking Manual, Travel Model Improvement Program, 2001.
- 4. I-93 Exit 4A Supplemental Draft Environmental Impact Statement Land Use Scenarios Report, Louis Berger, 2017.
- State of New Hampshire County Population Projections, By Municipality, The New Hampshire Office of Strategic Initiatives (NHOSI) in Partnership with the State's Regional Planning Commissions, 2016
- 6. FY 2017 FY 2040 Regional Transportation Plan for the Southern NH Planning Commission, Southern New Hampshire Planning Commission, 2017.

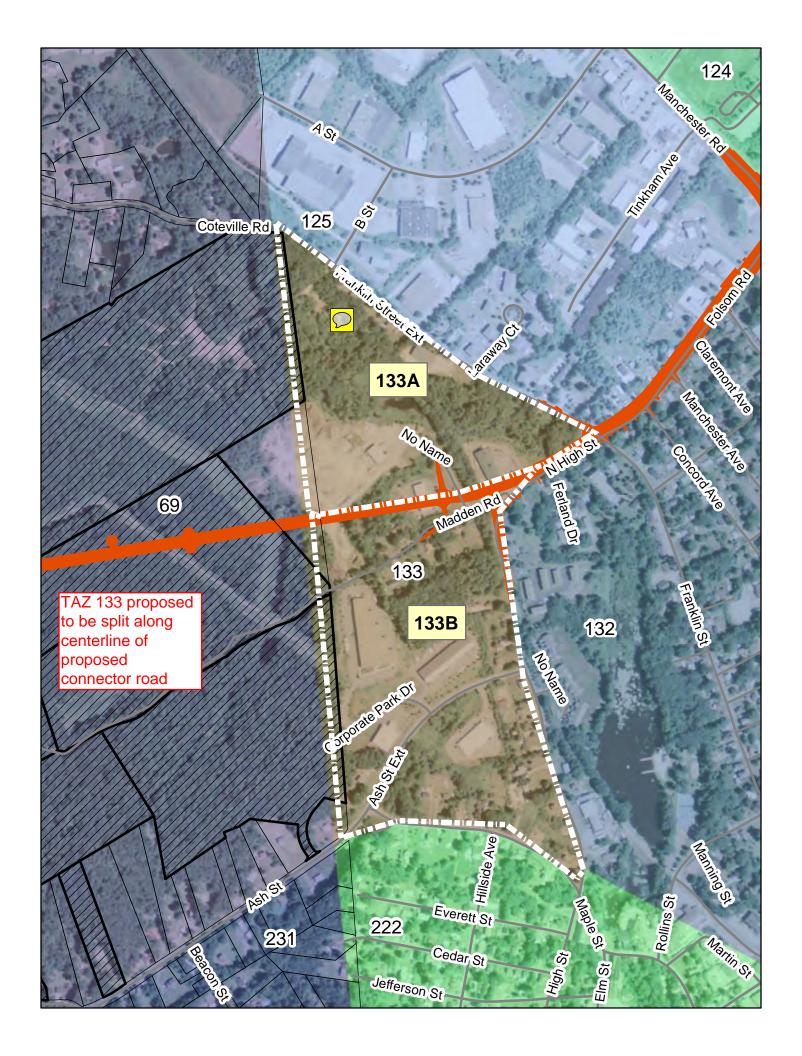
### APPENDIX A STUDY AREA TAZ SPLIT











## APPENDIX B PROJECT LIST

#### **Projects Coded in the 2040 No-Build Model**

Community <sup>1</sup>	Project	Project #
BE	NH 101 - Widen NH 101 to 5 Lanes from NH 114 up to Wallace Rd	13953
BE	NH 101 - Widen NH 101 to 5 Lanes from Wallace Rd up to Amherst TL <sup>2</sup>	
BE	US 3 - Widen US 3 to 5 Lanes from Hawthorne Drive North to Manchester Airport Access Road	40664
BE-ME	F.E.E Turnpike - Improvement to Bedford Mainline Toll Plaza to Institute Open Road Tolling	16100
NA-ME-BE	F.E.E.Turnpike - Widen existing 2-Lane Sections of the Turnpike to a 3-Lane Typical From Exit 8 in Nashua to I-293 in Bedford	13761
СН	NH 102 - NH 102/North Pond Road Intersection Improvements.	
DE-LO	I-93 - Construction of I-93 Exit 4A	13065
НО	US 3/NH 28 - Widen US 3/NH 28 to 5 Lanes from Martins Ferry Rd to West Alice Ave	29611
НО	US 3/NH 28 - Construct Southern Segment of US 3/NH 28 Alternate Bypass <sup>2</sup>	
НО	US 3/NH 28 - Construct Northern Segment of US3/NH28 Alternate Bypass <sup>2</sup>	
НО	Widen US3/NH28 to 5 Lanes from Legends Dr to Hunt Street <sup>2</sup>	
НО	Hackett Hill Road - Reconstruction intersection of NH 3A/Hackett Hill Road	14950
НО	NH 3A - Reconstruct and Widen from Commerce Road North to Goonan Rd.	24862
LO	NH 28 - Widening NH 28 from NH 128 to Page Rd.	
LO	NH 102 - Widen NH 102 to 4 Lanes from Hudson Town Line to NH 128 <sup>2</sup> - Lower Corridor	
LO	NH 102 - Widen NH 102 to 5 Lanes from I-93 East to Londonderry Road - Upper Corridor	
LO	NH 102 - Widen NH 102 to 6 Lanes from I-93 to NH 128 <sup>2</sup> - Central Corridor	
LO	Intersection Improvements at NH28/NH128 for Safety and Traffic Flow	
MA	I-293 - Reconstruction of Exit 4 on I-293	
MA	I-293 - Reconstruct and Widening of Exit 6 (Amoskeag)	16099A
MA	I-293 - Reconstruct Exit 7	16099B
SA-MA	I-93- Reconstruct and Widen Mainline, Environmental Impact Study and Final Design From Mass S/L in Salem to I-293 in Manchester. Capacity Improvements, Reconstruction, and Widening from North of Exit 3 to I-293	10418C
SA-MA	I-93 - NB & SB Mainline Weigh Station to Kendall	14633B
SA-MA	I-93 - Exit 4 Ramps, NB & SB Mainline, NH 102 Approach Work	14633D
SA-MA	I-93- NB & SB Mainline, Exit 5 to I-293 Split (Londonderry & Manchester)	14633H
SA-MA	I-93- NB & SB Mainline, Exit 4 and 5 (Londonderry)	14633I
SA-MA	I-93 - Exit 1 to Exit 5 - Construct 4th Lane Northbound and Southbound	14633J
SA-MA	I-93 - Final Design (PE) and ROW for I-93 Salem to Manchester	10418X
Windham	NH 111 - Corridor Improvements Within Town Center (Construction not in TYP)	40663
Windham	NH 28 - Intersection NH 28/Roulston Road Improvements	40665

Source: FY 2017 - 2020 Transportation Improvement Program, FY 2017-2026 Ten-Year Transportation Improvement Plan, and 2017-2040 SNHPC Regional Transportation Plan.

Updated 10/21/2016

 $<sup>^{1}\;</sup>BE=Bedford, CH=Chester, DE=Derry, HO=Hooksett, LO=Londonderry, MA=Manchester, NB=New\;Boston, \;\;RA=Raymond, SA=Salem, NA=Nashua$ 

 $<sup>^{2}\,</sup>$  These projects are taken from various studies and are part of the Regional Transportation Plan

APPENDIX C 2015 BASE YEAR MODEL STUDY AREA CALIBRATION RESULTS

**2015** Base Year Model Study Area Calibration Results

Location	A	В	Assign	Count	% Diff
NH 28 N. of Liberty Dr.	589	3645	15,406	13,000	18.51
NH 102 at Derry Town line	594	3556	20,817	22,270	-6.52
NH 28 at Derry Town line	793	1621	19,392	17,454	11.10
Exit 5 SB Off ramp	999	3650	9,234	9,282	-0.52
Exit 4 SB On ramp	1003	1764	8,157	9,615	-15.16
Exit 4 NB Off ramp	1006	6519	10,389	9,843	5.55
Exit 5 NB Off ramp	1010	3652	4,430	5,601	-20.91
Gilcreast Rd. N. of NH 102	1334	3557	9,397	10,000	-6.03
Ash St. E. of Londonderry Rd.	1348	3555	5,950	6,900	-13.77
Ash St. at Londonderry Town line	1349	2125	5,936	6,765	-12.25
Exit 4 SB On ramp EB to SB	1767	1005	4,907	5,010	-2.06
Exit 4 SB On ramp WB to SB	1770	1004	3,637	4,648	-21.75
NH28 Bypass N. of Tsienneto Rd.	1838	1839	9,377	11,943	-21.49
NH28 Bypass N. of Academy Dr.	1839	3532	7,318	7,329	-0.15
NH28 Bypass S. of Thornton Rd.	1840	2143	12,015	13,981	-14.06
NH102 E. of NH 28 Bypass	1841	1878	7,017	7,329	-4.26
Crystal Ave. NH 28 S of Rollins	1860	1861	13,215	13,000	1.65
Crystal Ave. NH 28 S of Tsienneto	1862	1863	13,407	15,193	-11.76
Folsom Rd. W. of NH 28	1863	3483	8,960	11,672	-23.24
NH 102 E. of Griffin St.	1870	1871	18,002	16,400	9.77
NH 102 W. of Abbot St.	1876	1877	11,128	14,350	-22.45
Tsienneto Rd. W. of NH 102	1883	2082	5,666	5,393	5.06
Franklin St. Ext N. of Folsom Rd.	2106	3484	1,255	1,845	-31.98
Tsienneto Rd. E. of Pinkerton	2107	2108	14,200	14,636	-2.98
Pinkerton St. E. of Tsienneto	2107	2109	8,776	11,672	-24.81
Fordway over Beaver Brook	2135	2136	5,114	5,330	-4.05
NH102 E. of Hampton Dr.	3234	1766	30,419	32,000	-4.94
Exit 5 NB On ramp	3651	1011	9,101	9,341	-2.57
Exit 5 SB On ramp	3653	1000	3,919	5,503	-28.78
Exit 4 NB On ramp	6518	1007	9,550	10,045	-4.93

FHWA Targets

	_
Upper Limit Lowe	
25	-25
25	-25
25	-25
29	-29
29	-29
29	-29
29	-29
25	-25
29	-29
29	-29
29	-29
36	-36
25	-25
29	-29
25	-25
29	-29
25	-25
25	-25
25	-25
25	-25
25	-25
29	-29
47	-47
25	-25
25	-25
29	-29
22	-22
29	-29
29	-29
25	-25

Note: Traffic volumes were taken from NHDOT traffic count program, SNHPC traffic count program, and CLD|Fuss & O'Neil traffic counts for the project.

APPENDIX D POPULATION PROJECTION [2] [5]

**Population Projection 2015-2040** 

Town	2015	2020	2025	2030	2035	2040
Auburn	5,315	5,560	5,828	5,959	6,033	6,048
Bedford	22,236	23,451	24,797	25,276	25,576	25,680
Candia	3,909	3,891	3,880	3,967	4,016	4,026
Chester	4,887	5,199	5,536	5,660	5,731	5,744
Deerfield	4,413	4,631	4,869	4,978	5,040	5,052
Derry	32,948	32,459	32,018	32,733	33,144	33,222
Francestown	1,562	1,576	1,597	1,628	1,647	1,654
Goffstown	17,846	18,051	18,335	18,689	18,911	18,988
Hooksett	14,473	15,403	16,508	17,089	17,532	17,823
Londonderry	24,891	25,434	26,057	26,639	26,973	27,036
Manchester	109,419	109,469	109,963	112,087	113,420	113,881
New Boston	5,457	5,818	6,214	6,334	6,409	6,435
Raymond	10,257	10,403	10,577	10,814	10,949	10,975
Weare	8,811	9,051	9,334	9,514	9,627	9,667
Windham	14,301	15,414	16,612	16,983	17,196	17,237
Total	280,725	285,810	292,125	298,350	302,204	303,468

Source: New Hampshire Office of Strategic Initiatives.

APPENDIX E 2015 EMPLOYMENT AVERAGE

2015 Employment Average

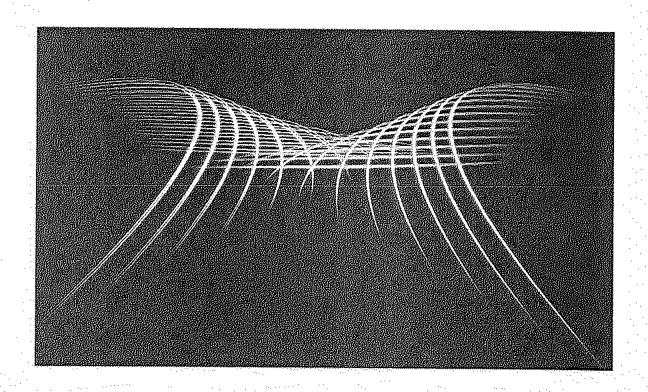
Town	Q1	Q2	Q3	Q4	Average
Auburn	1,706	1,766	1,806	1,852	1,783
Bedford	15,223	15,487	15,446	15,617	15,443
Candia	673	820	865	818	794
Chester	364	371	349	376	365
Deerfield	384	454	437	411	422
Derry	8,123	8,240	7,806	8,251	8,105
Francestown	94	125	136	117	118
Goffstown	3,129	3,304	3,159	3,235	3,207
Hooksett	9,275	9,496	9,591	9,700	9,516
Londonderry	12,812	13,345	13,185	13,454	13,199
Manchester	67,548	68,384	68,349	69,812	68,523
New Boston	727	756	732	794	752
Raymond	2,965	3,051	2,902	3,074	2,998
Weare	1,764	1,852	1,762	1,836	1,804
Windham	3,428	3,534	3,463	3,689	3,529

Source: New Hampshire Department of Employment Security.

## **APPENDIX E: HCM 2010 LOS CRITERIA**

# 

HIGHWAY CAPACITY MANUAL



VOLUME 3: INTERRUPTED FLOW



TRANSPORTATION RESEARCH BOARD

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leaving basic freeway segments. Thus, the impact on the capacity of the mainline freeway most often is negligible.

This does not mean, however, that the capacity of each component segment of a facility is the same. Each segment has its own demand and demand characteristics. Demand flow rate can change at every entry and exit point along the freeway, and the percent of heavy vehicles can change too. Terrain also can change at various points along the freeway.

Changes in heavy vehicle presence can change the capacity of individual segments within a defined facility. Changes in the split of movements in a weaving segment can change its capacity. In the same way, changes in the relative demand flows at on- and off-ramps can change the location of the critical segment within a defined facility and its capacity.

As noted previously, the capacity of a freeway facility is defined as the capacity of its critical segment,

#### LOS: COMPONENT SEGMENTS AND THE FREEWAY FACILITY

#### LOS of Component Segments

Chapters 11, 12, and 13 provide methodologies to determine the LOS in basic, weaving, merge, and diverge segments. In all cases, LOS F is identified when  $v_a/c$  is greater than 1.00. Such breakdowns are easily identified, and users are referred to this chapter.

This chapter's methodology provides an analysis of breakdown conditions, including the spatial and time impacts of a breakdown. Thus, in the performance of a facility-level analysis, LOS F in a component segment can be identified (a) when the segment  $v_a/c$  is greater than 1.00 and (b) when a queue from a downstream breakdown extends into an upstream segment. The latter cannot be done by using the individual segment analysis procedures of Chapters 11, 12, and 13.

Thus, when facility-level analysis is undertaken by using the methodology of this chapter, LOS F for a component segment will be identified in two different ways:

- When the is greater than 1.00, or
- When the density is greater than 45 pc/mi/ln for basic freeway segments or 43 pc/mi/ln for weaving, merge, or diverge segments.

The latter identifies segments in which queues have formed as a result of downstream breakdowns.

#### LOS for a Freeway Facility

Because LOS for basic, weaving, merge, and diverge segments on a freeway is defined in terms of density, LOS for a freeway facility is also defined on the basis of density.

A facility analysis will result in a density determination and LOS for each component segment. The facility LOS will be based on the weighted average density for all segments within the defined facility. Weighting is done on the

berse of segment length and the naming and mass injust regment as shown in Equation 11(2)

$$\sum_{i} D_{i} \cdot I_{i} \cdot N$$

$$= \sum_{i} I_{i} \cdot N$$

where

Dr + average density for the facility (pelmi/lo).

Definition segment it (pc/millip).

A<sub>c</sub> = dength of segment i (ii).

Not number of lanes in segment i, and

ne admirable of segments in the defined medity.

The LOS criteria for a freeway facility are shown in Exhibit 10-7. They are the same criteria used for basic freeway segments.

Level of Service	Density (pc/mi/ln)
A	<u>&lt;11</u>
B	>11-18
·C	>18-25
. <b>D</b> .	>26-35
E	>35-45
F	>45 or
	any component vy/ciratio > 1.00

Use of a LOS descriptor for the overall freeway facility must be done with care. It is critical that the LOS for individual segments composing the facility also be reported. Because the overall LOS is an average, it may mask serious problems in individual segments of the facility.

This is particularly important it one or more of the component segments are operating at LOS F. As described in this chapter's methodology section, the treeway facility methodology applies models to estimate the propagation of the effects of a breakdown in time and space. Where breakdowns exist in one or more segments of a facility, the average LOS is of limited use. The average LOS applies to a specific time period, usually 15 min.

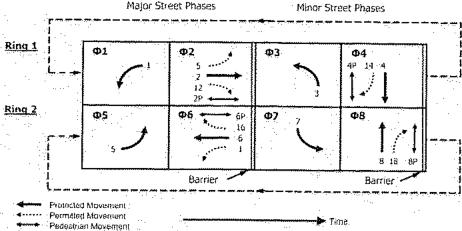
While LOS A through D are defined by using the same densities that apply to basic freeway segments, LOS F for a facility is defined as a case in which any component segment of the freeway exceeds a r/c ratio of L00 or the average density over the defined facility exceeds 45 pc/mi/ln. In such a case, this chapter's methodology allows the analyst to map the impacts of this breakdown in time and space, and close attention to the individual LOS of component segments is necessary.

Equation 10-2

Exhibit 10-7 LOS Criteria for Freeway Facilities

18-3. The symbol @shown in this exhibit represents the word "phase," and the number following the symbol represents the phase number.

Exhibit 18-3 shows one way that traffic movements can be assigned to each of the eight phases. These assignments are illustrative, but they are not uncommon. Each left-turn movement is assigned to an exclusive phase. During this phase, the left-turn movement is "protected" so that it receives a green arrow indication. Each through, right-turn, and pedestrian movement combination is also assigned to an exclusive phase. The dashed arrows indicate turn movements that are served in a "permitted" manner so that the turn can be completed only after yielding the right-of-way to conflicting movements. Additional information about traffic signal controller operation is provided in Chapter 31, Signalized Intersections: Supplemental.



LOS CRITERIA

This subsection describes the LOS criteria for the automobile, pedestrian, and bicycle modes. The criteria for the automobile mode are different from those for the nonautomobile modes. Specifically, the automobile-mode criteria are based on performance measures that are field measurable and perceivable by travelers. The criteria for the nonautomobile modes are based on scores reported by travelers indicating their perception of service quality.

#### Automobile Mode

LOS can be characterized for the entire intersection, each intersection approach, and each lane group. Control delay alone is used to characterize LOS for the entire intersection or an approach. Control delay and volume-to-capacity ratio are used to characterize LOS for a lane group. Delay quantifies the increase in travel time due to traffic signal control. It is also a surrogate measure of driver discomfort and fuel consumption. The volume-to-capacity ratio quantifies the degree to which a phase's capacity is utilized by a lane group. The following paragraphs describe each LOS.

LOS A describes operations with a control delay of 10 s/veh or less and a volume-to-capacity ratio no greater than 1.0. This level is typically assigned when the volume-to-capacity ratio is low and either progression is exceptionally

Exhibit 18-3
Dual-Ring Structure with
Illustrative Movement Assignments

All uses of the word "volume" or the phrase "volume-to-capacity ratio" in this chapter refer to demand volume or demand volume-to-capacity ratio. taxorable or the cycle length is very short. If it is due to tax orable progression, most vehicles arrive during the green indication and travel through the intersection without stopping.

4.05.B describes operations with control delay between 10 and 20 s/veh and a volume-to-capacity ratio no greater than 1.0. This level is typically assigned when the volume-to-capacity ratio is low and either progression is highly Jayorable or the cycle length is short. More vehicles stop than with LOS A.

LOS C describes operations with control delay between 20 and 35 s/veh and a volume-to-capacity ratio no greater than 1.0. This level is typically assigned when progression is favorable or the cycle length is moderate. Individual cycle failures (i.e., one or more queued vehicles are not able to depart as a result of insufficient capacity during the cycle) may begin to appear at this level. The number of vehicles stopping is significant, although many vehicles still pass through the intersection without stopping.

4.OS D describes operations with control delay between 35 and 55 s/veh and a volume-to-capacity ratio no greater than 1.0. This level is typically assigned when the volume-to-capacity ratio is high and either progression is ineffective or the cycle length is long. Many vehicles stop and individual cycle failures are noticeable.

LOS E describes operations with control delay between 55 and 80 s/yeh and a volume-to-capacity ratio no greater than 1.0. This level is typically assigned when the volume-to-capacity ratio is high, progression is unfavorable, and the cycle length is long. Individual cycle failures are frequent.

LOS if describes operations with control delay exceeding 80 s/veh or a volume-to-capacity ratio greater than 1.0. This level is typically assigned when the volume-to-capacity ratio is very high, progression is very poor, and the cycle length is long. Most cycles fail to clear the queue.

A lane group can incur a delay less than 80 s/vgh when the volume-to-capacity ratio exceeds 1.0. This condition typically occurs when the cycle length is short, the signal progression is favorable, or both. As a result, both the delay and volume-to-capacity ratio are considered when lane group LOS is established. A ratio of 1.0 or more indicates that cycle capacity is fully utilized and represents failure from a capacity perspective (just as delay in excess of 80 s/vgh represents failure from a delay perspective).

\*\* Exhibit 18-4 lists the LOS thresholds established for the automobile mode at a signalized intersection.

Exhibit 18-4 LOS Criteria: Automobile Mode

	LOS by Volume-to-Capacity Ratio*			
Control Delay (s/veh)	≤1.0	>1.0		
≤10 >10-20	A	F 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		
>20~35 >35~55	D	<b>.</b>		
>55-80	E	F		
>80	F	F.		

Note: \* For approach based and intersectionwide assessments, LOS is defined solely by control delay.

#### 1. INTRODUCTION

Two-way-stor-controlled (TWSC) intersections are common in the United States. One typical configuration is a four-leg intersection, where one street—the major street—is uncontrolled, while the other street—the major street—is controlled by \$100 signs. The other typical configuration is a three-leg intersection, where the single minor-street approach (i.e., the stem of the T configuration) is controlled by a \$100 sign. Minor street approaches can be public streets or private driveways. Chapter 19, Two-Way \$100-Controlled.

Intersections, presents concepts and procedures for analyzing these types of intersections. Chapter 9 provides a glossary and list of symbols, including those used for TWSC intersections.

Capacity analysis of TWSC intersections requires a clear description and sunderstanding of the interaction between travelers on the minor, or store-controlled, approach with travelers on the major street. Both gap acceptance and empirical models have been developed to describe this interaction. Procedures described in this chapter rely primarily on field measurements of TWSC performance in the United States (1) that have been applied to a gap acceptance model developed and refined in Germany (2).

#### INTERSECTION ANALYSIS BOUNDARIES AND TRAVEL MODES

The intersection boundaries for a TWSC intersection analysis are assumed to be those of an isolated intersection (i.e., not affected by upstream or downstream intersections), with the exception of TWSC intersections that are located within .0.25 mi of a signalized intersection (for the major-street approaches). This chapter presents methodologies to assess TWSC intersections for both pedestrians and motor vehicles. A discussion of how the procedures for motor vehicles could potentially apply to an analysis of bicycle movements is also provided.

#### LEVEL-OF-SERVICE CRITERIA

Level of service (LOS) for a TWSC intersection is determined by the computed or measured control delay. For motor vehicles, LOS is determined for each minor-street movement (or shared movement) as well as major-street left turns by using criteria given in Exhibit 19-1. LOS is not defined for the intersection as a whole or for major-street approaches for three primary reasons: (a) major-street through vehicles are assumed to experience zero delay; (b) the disproportionate number of major-street through vehicles at a typical TWSC intersection skews the weighted average of all movements, resulting in a very low overall average delay for all vehicles; and (c) the resulting low delay can mask important LOS deficiencies for minor movements. As Exhibit 19-1 notes, LOS F is assigned to the movement if the volume-to-capacity ratio for the movement exceeds 1.0, regardless of the control delay.

The LQS criteria for TWSC intersections are somewhat different from the criteria used in Chapter 18 for signalized intersections, primarily because user perceptions differ among transportation facility types. The expectation is that a signalized intersection is designed to carry higher traffic volumes and will.

#### 19. TWSC Intersections

Three-leg intersections are considered a standard type of TWSC intersection, when the stem of the F is controlled by a stop sign.

LOS is not defined for the majorstreet approaches or for the overall intersection, as major-street through vehicles are assumed to experience no delay.

Exhibit 19-1 Level-of-Service Criteria: Automobile Mode

present greater delay than an unsignalized intersection. Unsignalized intersections are also associated with more uncertainty for users, as delays are less predictable than they are at signals, which can reduce users' delay tolerance,

Control Delay	LOS by Volume-t	o-Capacity Ratio
(s/vehicle)	v/c≤ 1.0	v/c>1.0
Q-‡0	A 4.1	<b>F</b> 2444 24
>10-15	: В	F· ·
>15-25	C	÷
>25-35.	D ·	<b>F</b> ` ·
>35~50	Ε	F
>50	F	F

Note: The LOS criteria apply to each land on a given approach and to each approach on the minor street, LOS is not calculated for major-street approaches or for the intersection as a whole.

Pedestrian LOS at TWSC intersections is defined for pedestrians crossing a traffic stream not controlled by a \$10P sign; it also applies to midblock pedestrian crossings. LOS criteria for pedestrians are given in Exhibit 19-2.

Exhibit 19-2 Level-of-Service Criteria: Pedestrian Mode

****	Control Delay	
LOS	(s/pedestrian)	Comments
.A	0-5	Usually no conflicting traffic
B	5-10	Occasionally some delay due to conflicting traffic
C.	10~20	Delay noticeable to pedestrians, but not inconveniencing
D	20-30	Delay noticeable and irritating, increased likelihood of risk taking
E ·	30-45	Delay approaches tolerance level, risk-taking behavior likely
F	>45	Delay exceeds tolerance level, high likelihood of pedestrian risk taking

Note: Control delay may be interpreted as s/pedestrian group if groups of pedestrians were counted as opposed to individual pedestrians.

LOS F for pedestrians occurs when there are not enough gaps of suitable size to allow waiting pedestrians to cross through traffic on the major street safely. This situation is typically exident from extremely long control delays. The method is based on a constant critical headway. In the field, however, LOS F may also appear in the form of crossing pedestrians selecting smaller-than-usual gaps. In such cases, safety could be a concern that warrants further study.

#### REQUIRED INPUT DATA

Analysis of a TWSC intersection requires the following data:

- 4. Number and configuration of lanes on each approach;
- 2. Percentage of heavy vohicles for each movement;
- 3. Either of the following:
  - a. Demand flow rate for each entering vehicular movement and each pedestrian crossing movement during the peak 15 min, or
  - Demand flow rate for each entering vehicular movement and each pedestrian crossing movement during the peak hour and a peak hour factor for the hour;
- 4. Special geometric factors such as:
  - a. Unique channelization aspects.
  - Existence of a two-way left-turn line or raised or striped median storage (or both),

#### 1. INTRODUCTION

Roundabouts are intersections with a generally circular shape, characterized by yield on entry and circulation around a central island (counterclockwise in the United States). Roundabouts have been used successfully throughout the world and are being used increasingly in the United States, especially since 1990.

Chapter 21, Roundabouts, presents concepts and procedures for analyzing these intersections. National Cooperative Highway Research Program Project 3-65 (1) provided a comprehensive database of roundabout operations for U.S. conditions on the basis of a study of 34 sites. The procedures that follow are largely founded on that study's recommendations. These procedures allow the analyst to assess the operational performance of an existing or planned one-lane or two-lane roundabout given traffic demand levels.

#### INTERSECTION ANALYSIS BOUNDARIES AND TRAVEL MODES

The analytical procedure presented in this chapter assumes that the analysis boundaries are the roundabout itself, including associated pedestrian crosswalks. Alternative tools discussed in this chapter can, in some cases, expand the analysis boundaries to include adjacent intersections. The methodology presented here includes discussion of motor vehicles, pedestrians, and bicycles.

#### LEVEL OF SERVICE CRITERIA

The level of service (LOS) criteria for automobiles in roundabouts are given in Exhibit 21-1. As the table notes, LOS F is assigned if the volume-to-capacity ratio of a lane exceeds 1.0 regardless of the control delay. For assessment of LOS at the approach and intersection levels, LOS is based solely on control delay.

The thresholds in Exhibit 21-1 are based on the considered judgment of the Transportation Research Board Committee on Highway Capacity and Quality of Service. As discussed later in this chapter, roundabouts share the same basic control delay formulation with two-way and all-way STOP-controlled intersections, adjusting for the effect of YIELD control. However, at the time of publication of this edition of the *Highway Capacity Manual* (HCM), no research was available on traveler perception of quality of service at roundabouts. In the absence of such research, the service measure and thresholds have been made consistent with those for other unsignalized intersections, primarily on the basis of this similar control delay formulation.

Control Delay	LOS by Volum	e-to-Capacity Ratio*
(s/veh)	v/c ≤ 1.0	v/c >1.0
0-10	Α	From From From From From From From From
>10-15	В	F
>15-25	C	in the second second second
>25-35	+ <b>D</b> +	F
>35-50	· &	F
>50	F	F

vote: For approaches and intersectionwide assessment, LOS is defined safely by control delay.

(ii) Francisch (daße sin Bergel Die eine Gerge Albertegen ( Dies Geraff wegenen) Des gewiß Abergebeite wir Balle außeren (b.)

#### 21. Roundabouts

A American per mayor Bolivia karance kentin 1988 Tamingan

Exhibit 21-1 LOS Criteria: Automobile Mode

#### APPENDIX F: HCS 2010 FREEWAY FACILITY ANALYSES – 2015 BASE

#### **Segment Identification Listing**

#### Northbound Direction

Segment 1 – Basic – I-93 Mainline south of Exit 4

Segment 2 – Diverge – Exit 4 NB off-ramp

Segment 3 – Basic – I-93 Mainline between Exit 4 ramps

Segment 4 – Merge – Exit 4 NB on-ramp

Segment 5 – Basic – I-93 Mainline between Exit 4 NB on- and Exit 5 NB off-ramps

Segment 6 – Diverge – Exit 5 NB off-ramp

Segment 7 – Basic – I-93 Mainline between Exit 5 ramps

Segment 8 – Merge – Exit 5 NB on-ramp

Segment 9 – Basic – I-93 Mainline north of Exit 5

#### Southbound Direction

Segment 1 – Basic – I-93 Mainline north of Exit 5

Segment 2 – Diverge – Exit 5 SB off-ramp

Segment 3 – Basic – I-93 Mainline between Exit 5 ramps

Segment 4 – Merge – Exit 5 SB on-ramp

Segment 5 – Basic – I-93 Mainline between Exit 5 SB on- and Exit 4 SB off-ramps

Segment 6 – Diverge – Exit 4 SB off-ramp

Segment 7 – Basic – I-93 Mainline between Exit 4 SB off- and SB on ramp from east

Segment 8 – Merge – Exit 4 SB on-ramp from east

Segment 9 – Basic – I-93 Mainline between Exit 4 SB on-ramps

Segment 10 – Merge – Exit 4 SB on-ramp from west

Segment 11 – Basic – I-93 Mainline south of Exit 4

## HCS 2010 Facilities Report

## **Project Information**

Analyst	PK/LCG	Agency		
Jurisdiction		Time Period Analyzed	AM Peak - NB	
Analysis Year	2015 Base - AM	Date	5/1/2017	
Project Description	I-93 - from S. of Exit 4 to	N of Exit 5		

## **Facility Global Input**

Jam Density, pc/mi/ln	190.0	Density at Capacity, pc/mi/ln	45.0	
Queue Discharge Capacity Drop, %	7	Total Segments	9	
Total Time Periods	4	Time Period Duration, min	15	

## **Segment Geometric Data**

No.	Coded	Analyzed	Name	Length, ft	Lanes
1	Basic	Basic	a->b	5280	2
2	Diverge	Diverge	b>c	1500	2
3	Basic	Basic	c->d	2575	2
4	Merge	Merge	d->e	1500	2
5	Basic	Basic	e->f	13225	2
6	Diverge	Diverge	f->g	1500	2
7	Basic	Basic	g->h	4100	2
8	Merge	Merge	h->i	1500	2
9	Basic	Basic	i->j	5280	2

## **Facility Segment Data**

## Segment 1: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	1.00	0.979	2022	4700	0.43	65.0	15.6	В
2	1.00	0.979	2022	4700	0.43	65.0	15.6	В
3	1.00	0.979	2022	4700	0.43	65.0	15.6	В
4	1.00	0.979	2022	4700	0.43	65.0	15.6	В

## Segment 2: Diverge

Time Period	PHF		fl	łV	Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	1.00	1.00	0.979	0.962	2022	426	4700	1900	0.43	0.22	51.3	51.3	19.7	14.3	В
2	1.00	1.00	0.979	0.962	2022	426	4700	1900	0.43	0.22	51.3	51.3	19.7	14.3	В
3	1.00	1.00	0.979	0.962	2022	426	4700	1900	0.43	0.22	51.3	51.3	19.7	14.3	В
4	1.00	1.00	0.979	0.962	2022	426	4700	1900	0.43	0.22	51.3	51.3	19.7	14.3	В

### Segment 3: Basic

			_										1201	5 - An	-116								
Time Period	Р	HF	1	HV	100000000000000000000000000000000000000	/ Rate c/h)		acity c/h)	1000	d/c atio		eed ni/h)	De	nsity mi/ln)	LOS								
1	1	.00	0.	.984	15	596	47	700	0	.34	6	5.0	1	2.3	В								
2	1	.00	0.	984	15	596	47	700	0	.34	6	5.0	1	2.3	В								
3	1	.00	0.	984	15	96	47	700	0	.34	6	5.0	1	2.3	В								
4	1	.00	0.	984	15	96	47	1700 0.34		6	5.0	1	2.3	В									
							Segment	4: Mer	ge														
Time Period	Р	HF	f	н٧		Rate :/h)		acity :/h)		l/c ntio	Speed (mi/h)					nsity mi/ln)	LOS						
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp									
1	1.00	1.00	0.973	0.984	2691	1077	4700	2100	0.57	0.51	59.2	59.2	22.7	17.2	В								
2	1.00	1.00	0.973	0.984	2691	1077	4700	2100	0.57	0.51	59.2	59.2	22.7	17.2	В								
3	1.00	1.00	0.973	0.984	2691	1077	4700	2100	0.57	0.51	59.2	59.2	22.7	17.2	В								
4	1.00	1.00	0.973	0.984	2691	1077	4700	2100	0.57	0.51	59.2	59.2	22.7	17.2	В								
							Segmen	t 5: Bas	ic														
Time Period	PI	HF	fi	HV	Flow (pc			acity :/h)		/c itio		eed i/h)		nsity ni/ln)	LOS								
1	1.	00	0.9	973	27	03	47	00	0.	58	6	5.0	20	0.8	С								
2	1.	00	0.9	973	27	03	47	00	0.	58	6	5.0	20	0.8	С								
3	1.	00	0.9	973	27	03	47	00	0.	58	6	5.0	20	0.8	С								
4	1.0	00	0.9	973	27	03	47	00	0.	58	6	5.0	20	0.8	С								
						S	egment	6: Dive	rae														
Time	PI	HF	fl	٠	Flow	Rate	Capa	ocity	_	/c	Sp	eed	Den	sity	LOS								
Period	F	R	F	R	(pc,	(h) Ramp	(pc	/h) Ramp	Ra F	tio		i/h)		ni/ln)									
1	1.00	1.00	0.973	0.957	2703	428	4700		-	R	F	R	Freeway	Ramp									
2	1.00	1.00	0.973	0.957	2703	428	4700	2000	0.58	0.21	54.3	54.3	24.9	23.2	С								
3	1.00	1.00	0.973	0.957	2703			2000	0.58	0.21	54.3	54.3	24.9	23.2	C								
	1.00	1.00				428	4700	2000	0.58	0.21	54.3	54.3	24.9	23.2	С								
4	1.00	1.00	0.973	0.957	2703	428	4700	2000	0.58	0.21	54.3	54.3	24.9	23.2	C								
							Segment	7: Bas	ic														
Time Period	PH	4F	fH	IV	Flow (pc/		Capa (pc/		d, Ra	c tio	Spe (mi		Den (pc/n		LOS								
1	1.0	00	0.9	76	227	75	470	00	0.4	18	65	.0	17	.5	В								
2	1.0	00	0.9	76	227	5	470	00	0.4	18	65	.0	17	.5	В								
3	1.0	00	0.9	76	227	5	470	00	0.4	18	65	.0	17	.5	В								
4	1.0	00	0.9	76	227	5	470	00	0.4	18	65	.0	17		В								
						S	egment	8: Merc	ie														
			-	v I	Flow F		Capa	ALL THE P	d/c		d/c		d/c		d/c				d/c		Spe	sity	LOS
Time Period	РН	IF	fH	•	(pc/	h)	(pc/	h)	Rat	io	(mi	/h)	(pc/m										
	PH F	IF R	fH F	R		h) Ramp	(pc/ Freeway	h) Ramp	Rat F	R	(mi	/h) R		ni/ln)									
Period					(pc/		-		_		_		(pc/m		С								

3	1.00	1.00	0.983	0.971	3267	1009	4700	2100	0.70	0.48	56.8	56.8	28.8	25.8	С
4	1.00	1.00	0.983	0.971	3267	1009	4700	2100	0.70	0.48	56.8	56.8	28.8	25.8	С
						!	Segmen	t 9: Bas	ic						
Time Period	PI	HF	fl-	HV	Flow (pc,		Capacity (pc/h)		1	/c itio		eed i/h)	Den (pc/n		LOS
1	1.0	1.00 0.983		183	32	55	47	'00	0.	.69	64	1.3	25		С
2	1.0	00	0.983		32	55	470	00	0.	69	64	1.3	25	.3	С
3	1.0	00	0.9	983	32	55	470	00	0.9	69	64.3		25	.3	С
4	1.00 0.983		32	3255		700 0.69		64	1.3	25		С			
Facility	/ Time	Peri	od Re	sults											
Т	s	peed, n	ni/h		Density, p	c/mi/ln	Dens	ity, veh/m	ni/In	Tr	avel Tin	ne, min		LOS	
1		63.2	1		20.	3		19.8			6.6	;		С	
											6.6			С	
2		63.2			20.	3		19.8			4.4			-	
2		63.2			20.		-	19.8			6.6	i		С	
_		_	!			3									
3	Over	63.2 63.2			20.	3		19.8			6.6			С	
3 4		63.2 63.2 rall Re	esults		20.	3		19.8	/eh/mi/l	n	6.6		19.8	С	

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HCS 2010 Facilities Version 6.90 Base AM-NB.xff

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			HCS 2	010 Facilitie	s Report					
Projec	Informa	tion					THE REAL PROPERTY.			
Analyst			PK/LCG	Agen	cy					
Jurisdict	ion				Period Analyzed		AM Peak - SB			
Analysis	Year		2015 - Base AM (3			5/1/2017				
Project E	Description		1-93 SB - from N o	f Exit 5 to S of Exit						
Facility	Global I	nput								
Jam Den	sity, pc/mi/ln	1	190.0	Densi	ty at Capacity, p	c/mi/ln	45.0			
Queue D	ischarge Cap	acity Drop, %	7		Segments		11			
Total Tin	ne Periods		4		Period Duration,	min	15			
Segme	nt Geome	etric Data								
No.	Codec	1	Analyzed	Name		Length	ft	Lanes		
1	Basic		Basic	a->b		5280		2		
2	Diverg	e	Diverge	b->c		1500		2		
3	Basic		Basic	c->d		3920		2		
4	Merge	,	Merge	d->e		1500		2		
5	Basic		Basic	e->f		11980	)	2		
6	Diverge	e	Diverge	f->g		1500		2		
7	Basic		Basic	asic g->h				2		
8	Merge		Merge	h->i		1500		2		
9	Basic		Basic	i->j		900		2		
10	Merge		Merge	j->k		1500		2		
11	Basic		Basic	l->m		5230		2		
Facility	Segment	Data								
				Segment 1: Ba	sic					
Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS		
1	1.00	0.980	3321	4700	0.71	64.0	25.9	C		
2	1.00	0.980	3321	4700	0.71	64.0	25.9	С		
3	1.00	0.980	3321	4700	0.71	64.0	25.9	С		
4	1.00	0.980	3321	4700	0.71	64.0	25.9	С		
			Se	gment 2: Dive	erge					
Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Patio	Speed	Density	LOS		

(pc/h)

Ramp

2000

2000

2000

Freeway

4700

4700

4700

(pc/h)

Ramp

783

783

783

Freeway

3321

3321

3321

Period

1

2

3

F

1.00

1.00

1.00

R

1.00

1.00

1.00

F

0.980

0.980

0.980

R

0.971

0.971

0.971

(mi/h)

R

53.5

53.5

53.5

F

53.5

53.5

53.5

Ratio

R

0.39

0.39

0.39

F

0.71

0.71

0.71

(pc/mi/ln)

Ramp

28.1

28.1

28.1

Freeway

31.0

31.0

31.0

D

D

D

4	1.00	1.00	0.980	0.971	3321	783	4700	2000	0.71	0.39	53.5	53.5	31.0	28.1	1														
							Segmen	t 3: Bas	sic			1.	2015 /	9m - Si	0/														
Time Period		HF	f	HV		Rate :/h)		acity :/h)		i/c atio		eed ni/h)		nsity mi/ln)	LC														
1	1	.00	0.	983	25	38	47	00	0	.54	6	5.0	19	).5	(														
2	-	.00	0.	983	25	38	47	4700		0.54		0.54		0.54		0.54		0.54		0.54		0.54		5.0	19	.5			
3	1	.00	0.	983	25	38	47	00	0.54		0.54		0.54		0.54		0.54		0.54		0.54		0.54		6	5.0	19	.5	
4	1	.00	0.	983	25	38	47	00	0	.54	6	5.0	19	0.5															
						5	Segment	4: Mer	ge																				
Time Period	Р	HF	fi	HV	Flow (pc		Capa (pc			l/c ntio	Speed (mi/h)		Den (pc/n		L														
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp															
1	1.00	1.00	0.983	0.952	3079	541	4700	2100	0.66	0.26	57.5	57.5	26.8	23.7	-														
2	1.00	1.00	0.983	0.952	3079	541	4700	2100	0.66	0.26	57.5	57.5	26.8	23.7															
3	1.00	1.00	0.983	0.952	3079	541	4700	2100	0.66	0.26	57.5	57.5	26.8	23.7															
4	1.00	1.00	0.983	0.952	3079	541	4700	2100	0.66	0.26	57.5	57.5	26.8	23.7															
							Segment	5: Bas	ic																				
Time Period	PI	HF	fi	٠V	Flow (pc/	10000	Capa (pc/			/c tio	Speed (mi/h)		Den (pc/m		L														
1	1.	00	0.9	983	306	52	470	00	0.	65	64.8		23.	.6															
2	1.	00	0.9	83	306	52	470	00	0.	65	64.8		4.8 23.																
3	1.	00	0.9	83	306	52	470	00	0.	65	64	64.8 23.6		.6															
4	1.0	00	0.9	83	306	52	470	00	0.	65	64	64.8		6															
						Se	egment 6	: Diver	ge																				
Time Period	P	4F	fl-	IV	Flow I (pc/		Capa (pc/			d/c Speed Ratio (mi/h					Dens (pc/m		LC												
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp															
1	1.00	1.00	0.983	0.971	3062	778	4700	1900	0.65	0.41	50.6	50.6	30.3	23.9	(														
2	1.00	1.00	0.983	0.971	3062	778	4700	1900	0.65	0.41	50.6	50.6	30.3	23.9	(														
3	1.00	1.00	0.983	0.971	3062	778	4700	1900	0.65	0.41	50.6	50.6	30.3	23.9	(														
4	1.00	1.00	0.983	0.971	3062	778	4700	1900	0.65	0.41	50.6	50.6	30.3	23.9	(														
						5	Segment	7: Basi	c																				
Time eriod	PH	IF	fH	v	Flow F	W. No. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10	Capac (pc/		d/c Ratio				Spe (mi		Dens (pc/m		LC												
1	1.0		0.9	_	228		470	0	0.4	19	65	.0	17.6	6	E														
2	1.0		0.9		228		470	0	0.4	19	65	.0	17.6	6	8														
3	1.0		0.9		228		470	0	0.4	19	65	.0	17.0	5	В														
4	1.0	00	0.9	87	228	5	470	0	0.4	9	65	.0	17.6	6	Е														
						Se	egment 8	B: Merg	je																				
Time eriod	PH	F	fH	v	Flow R (pc/l		Capac (pc/l	ity h)	d/ Rat		Spe (mi		Dens (pc/mi		LO														

	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	1.00	1.00	0.985	0.980	2820	531	4700	2000	0.60	0.27	58.2	58.2	24.2	17.8	В
2	1.00	1.00	0.985	0.980	2820	531	4700	2000	0.60	0.27	58.2	58.2	24.2	17.8	В
3	1.00	1.00	0.985	0.980	2820	531	4700	2000	0.60	0.27	58.2	58.2	24.2	17.8	В
4	1.00	1.00	0.985	0.980	2820	531	4700	2000	0.60	0.27	58.2	58.2	24.2	17.8	В
							Segment	9: Bas	ic						
Time Period	PI	HF	fl	٠V	Flow (pc,		Capa (pc/			/c itio		eed i/h)	Den (pc/m		LOS
1	1.0	00	0.9	985	28:	17	470	00	0.	60	65	5.0	21	.7	С
2	1.0	00	0.9	85	281	17	470	00	0.	60	65	5.0	21	.7	С
3	1.0	00	0.9	985	281	17	470	00	0.	60	65	5.0	21	.7	С
4	1.0	00	0.9	985	281	17	470	00	0.	0.60		5.0	21	.7	С
						Se	egment 1	LO: Mei	ge						
Time Period	PH	4F	fl-	IV	Flow (pc/		Capa (pc/			/c tio		eed i/h)	Den: (pc/m		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	1.00	1.00	0.984	0.980	3499	679	4700	2100	0.74	0.32	57.2	57.2	30.6	23.7	С
2	1.00	1.00	0.984	0.980	3499	679	4700	2100	0.74	0.32	57.2	57.2	30.6	23.7	С
3	1.00	1.00	0.984	0.980	3499	679	4700	2100	0.74	0.32	57.2	57.2	30.6	23.7	С
4	1.00	1.00	0.984	0.980	3499	679	4700	2100	0.74	0.32	57.2	57.2	30.6	23.7	C
						S	egment	11: Bas	ic						
Time Period	PH	IF	fH	V	Flow I (pc/		Capac (pc/		d, Ra	/c tio	Spe (mi		Dens (pc/m		LOS
1	1.0	0	0.9	84	349	6	470	0	0.7	74	63	.3	27.	6	D
2	1.0	10	0.9	84	349	6	470	0	0.7	74	63	.3	27.	6	D
3	1.0	0	0.9	84	349	6	470	0	0.7	74	63	.3	27.	6	D
4	1.0	0	0.9	84	349	6	470	0	0.7	74	63	.3	27.	6	D
acility	Time	Peri	od Re	sults											
Т	Sp	eed, n	ni/h		Density, p	c/mi/ln	Densit	ty, veh/m	i/ln	Tra	vel Tin	ne, min		LOS	
1		62.5			24.8			24.4			6.6			С	
2		62.5			24.8			24.4			6.6			С	
3	3 62.5			24.8			24.4			6.6			С		
4		62.5			24.8			24.4		Les	6.6			С	
acility	Over	all Re	esults												
Space Me	pace Mean Speed, mi/h 62.5					Density, veh/mi/ln				T	24.4		_		
Average Travel Time, min					6.6										
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# HCS 2010 Facilities Report

## **Project Information**

Analyst	PK/LCG	Agency	
Jurisdiction		Time Period Analyzed	2015 PM Peak - NB
Analysis Year	2015- Base PM (3 pgs)	Date	5/1/2017
Project Description			

## **Facility Global Input**

Jam Density, pc/mi/ln	190.0	Density at Capacity, pc/mi/ln	45.0
Queue Discharge Capacity Drop, %	7	Total Segments	9
Total Time Periods	4	Time Period Duration, min	15

## **Segment Geometric Data**

No.	Coded	Analyzed	Name	Length, ft	Lanes
1	Basic	Basic	a->b	5280	2
2	Diverge	Diverge	b>c	1500	2
3	Basic	Basic	c->d	2575	2
4	Merge	Merge	d->e	1500	2
5	Basic	Basic	e->f	13225	2
6	Diverge	Diverge	f->g	1500	2
7	Basic	Basic	g->h	4100	2
8	Merge	Merge	h->i	1500	2
9	Basic	Basic	i->j	5280	2

## **Facility Segment Data**

## Segment 1: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	1.00	0.979	3483	4700	0.74	63.3	27.5	D
2	1.00	0.979	3483	4700	0.74	63.3	27.5	D
3	1.00	0.979	3483	4700	0.74	63.3	27.5	D
4	1.00	0.979	3483	4700	0.74	63.3	27.5	D

## Segment 2: Diverge

Time Period	PHF		fHV		Flow Ra (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	1.00	1.00	0.979	0.995	3483	1191	4700	1900	0.74	0.63	49.7	49.7	35.0	26.9	С
2	1.00	1.00	0.979	0.995	3483	1191	4700	1900	0.74	0.63	49.7	49.7	35.0	26.9	С
3	1.00	1.00	0.979	0.995	3483	1191	4700	1900	0.74	0.63	49.7	49.7	35.0	26.9	С
4	1.00	1.00	0.979	0.995	3483	1191	4700	1900	0.74	0.63	49.7	49.7	35.0	26.9	С

## Segment 3: Basic

12415 PM-NB Time PHF fHV Flow Rate Capacity d/c Speed Density LOS Period (pc/h) (pc/h) Ratio (mi/h) (pc/mi/ln) 1 1.00 0.971 2291 4700 0.49 65.0 17.6 В 2 1.00 0.971 2291 4700 0.49 65.0 17.6 В 3 1.00 0.971 2291 4700 0.49 65.0 17.6 В 4 1.00 0.971 2291 4700 0.49 65.0 17.6 B Segment 4: Merge PHF Time fHV Flow Rate Capacity d/c Speed Density LOS Period (pc/h) (pc/h) Ratio (mi/h) (pc/mi/ln) F F R R Freeway Ramp Freeway F Ramp F R R Freeway Ramp 1 1.00 1.00 0.977 0.988 3077 800 4700 2100 0.65 58.6 0.38 58.6 26.3 20.3 C 2 1.00 1.00 0.977 0.988 3077 800 4700 2100 0.65 0.38 58.6 58.6 26.3 20.3 C 3 1.00 1.00 0.977 0.988 3077 800 4700 2100 0.65 0.38 58.6 58.6 26.3 20.3 C 4 1.00 1.00 0.977 0.988 3077 800 4700 2100 0.65 0.38 58.6 58.6 26.3 20.3 C Segment 5: Basic PHF Time fHV Flow Rate Capacity d/c Speed Density LOS Period (pc/h) (pc/h) Ratio (mi/h) (pc/mi/ln) 1 1.00 0.977 3086 4700 0.66 64.7 23.8 C 2 1.00 0.977 3086 4700 0.66 64.7 23.8 C 3 1.00 0.977 3086 4700 0.66 64.7 23.8 C 4 1.00 0.977 3086 4700 0.66 64.7 23.8 C Segment 6: Diverge Time PHF fHV Flow Rate Capacity d/c Speed Density LOS Period (pc/h) (pc/h) Ratio (mi/h) (pc/mi/ln) F R F R Freeway Ramp F Freeway Ramp R F R Freeway Ramp 1.00 1.00 0.977 1 0.971 3086 474 4700 2000 0.66 0.24 54.2 54.2 28.5 26.5 C 2 1.00 1.00 0.977 0.971 3086 474 4700 2000 0.66 0.24 54.2 54.2 28.5 26.5 C 3 1.00 1.00 0.977 0.971 3086 474 4700 2000 0.66 0.24 54.2 54.2 28.5 26.5 C 1.00 1.00 4 0.977 0.971 3086 474 4700 2000 0.66 0.24 54.2 54.2 28.5 26.5 C Segment 7: Basic Time PHF fHV Flow Rate Capacity d/c Speed Density LOS Period (pc/h) (pc/h) Ratio (mi/h) (pc/mi/ln) 1.00 1 0.978 2612 4700 0.56 65.0 20.1 C 2 1.00 0.978 2612 4700 0.56 65.0 20.1 C 3 1.00 0.978 2612 4700 0.56 65.0 20.1 C 4 1.00 0.978 2612 4700 0.56 65.0 20.1 C Segment 8: Merge Time PHF fHV Flow Rate Capacity d/c Speed Density LOS Period (pc/h) (pc/h) Ratio (mi/h) (pc/mi/ln)

F

1.00

1

R

1.00

F

0.983

R

0.981

Freeway

3384

Freeway

4700

F

0.72

R

0.37

F

56.5

R

56.5

Freeway

29.9

Ramp

26.8

C

Ramp

2100

Ramp

785

2	1.00	1.00	0.983	0.981	3384	785	4700	2100	0.72	0.37	56.5	56.5	29.9	26.8	C
3	1.00	1.00	0.983	0.981	3384	785	4700	2100	0.72	0.37	56.5	56.5	29.9	26.8	С
4	1.00	1.00	0.983	0.981	3384	785	4700	2100	0.72	0.37	56.5	56.5	29.9	26.8	C
						9	egmen	t 9: Bas	ic						
Time Period	PI	HF	fl-	١٧	Flow (pc/			acity /h)		/c tio		eed i/h)		nsity ni/ln)	LOS
1	1.0	00	0.9	83	338	33	47	00	0.	72	63	8.8	26	5.5	D
2	1.0	00	0.9	83	338	33	47	00	0.	72	63	1.8	26	5.5	D
3	1.00 0.983		83	338	13	47	00	0.	72	63	8.8	26	i.5	D	
4	1.00 0.983		83	3383		47	00	0.	72	63	1.8	26	5.5	D	
Facility	/ Time	e Peri	iod R	esults											
Т	S	peed, r	ni/h		Density, p	c/mi/ln	Dens	ity, veh/n	ni/In	Tra	vel Tin	ne, mi	1	LOS	
1		62.7			24.9	)		24.4			6.6			С	
2		62.7			24.9	)		24.4				6.6		С	
3		62.7			24.9	)	24.4				6.6		c		
4		62.7	N .		24.9	)		24.4			6.6			С	
Facility	Ove	rall R	esults												
Space M	ean Spe	eed, mi,	/h	T	62.7			Density,	veh/mi/	ln.			24.4		

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Average Travel Time, min

6.6

HCS 2010 Facilities Version 6.90 Base PM-NB.xff

Generated: 5/1/2017 5:13:11 PM

	11/2		HCS 2	010 Facilitie	s Report		11 11	E/17	To Burn
Project	Informat	ion							
Analyst			PK/LCG	Agenc	у				_
Jurisdicti	ion				eriod Analyzed		2015 PN	1 Peak - SB	
Analysis	Year		2015 Base - PM (3	pgs) Date			5/1/201	7	
Project D	Description		193 SB - from N of	Exit 5 to S of Exit 4					
Facility	Global In	put							
Jam Den	sity, pc/mi/ln		190.0	Densit	y at Capacity, po	:/mi/ln	45.0		
Queue D	ischarge Capa	city Drop, %	7	Total S	egments		11		
Total Tim	ne Periods		4	Time P	eriod Duration,	min	15		
Segme	nt Geome	tric Data							
No.	Coded		Analyzed	Name		Length	, ft	Lar	nes
1	Basic		Basic	a->b		5280			2
2	Diverge		Diverge	b->c		1500			2
3	Basic		Basic	c->d		3920		2	
4	Merge		Merge	d->e		1500		2	
5	Basic		Basic	e->f		11980	0	2	
6	Diverge		Diverge	f->g		1500	1500		
7	Basic		Basic	g->h		1600		2	
8	Merge		Merge	h->i		1500		2	
9	Basic		Basic	i->j		900		2	
10	Merge		Merge	j->k		1500		2	
11	Basic		Basic	l->m		5230		2	
Facility	y Segment Data								
				Segment 1: Ba	sic				
Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)		nsity mi/ln)	LOS
1	1.00	0.980	3434	4700	0.73	63.6	2	7.0	D
2	1.00	0.980	3434	4700	0.73	63.6	2	7.0	D
3	1.00	0.980	3434	4700	0.73	63.6	2	7.0	D
	1.00	0.000	2.47	and the same			27.00		

Time Period	P	PHF fHV		ıv	Flow (pc)					/c tio		eed i/h)	Dens (pc/m		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	1.00	1.00	0.980	0.980	3434	929	4700	2000	0.73	0.46	53.2	53.2	32.3	29.1	D
2	1.00	1.00	0.980	0.980	3434	929	4700	2000	0.73	0.46	53.2	53.2	32.3	29.1	D
3	1.00	1.00	0.980	0.980	3434	929	4700	2000	0.73	0.46	53.2	53.2	32.3	29.1	D

4700

Segment 2: Diverge

0.73

63.6

27.0

D

1.00

0.980

3434

4	1.00	1.00	0.980	0.980	3434	929	4700	2000	0.73	0.46	53.2	53.2		29.1	D
							Segmen	t 3: Bas	sic			201	5 PM	-53	1
Time Period		HF	f	HV		Rate /h)	Capa (po	acity /h)		d/c atio		eed i/h)		nsity ni/ln)	LO
1	1	.00	0.	980	25	05	47	00	0	.53	6	5.0	19	3.3	C
2	1	.00	0.	980	25	05	47	00	0	.53	6	5.0	19	9.3	0
3	_	.00	0.	980	25	05	47	00	0	.53	6	5.0	19	9.3	(
4	1.	.00	0.	980	25	05	47	00	0	.53	6	5.0	19	0.3	(
						9	Segment	4: Mer	ge						
Time Period	P	HF	fl	HV	Flow (pc,		Capa (pc			l/c atio		eed i/h)	Den (pc/n	sity ni/ln)	LO
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	1.00	1.00	0.980	0.977	2930	425	4700	2100	0.62	0.20	57.8	57.8	25.3	22.6	C
2	1.00	1.00	0.980	0.977	2930	425	4700	2100	0.62	0.20	57.8	57.8	25.3	22.6	0
3	1.00	1.00	0.980	0.819	3012	507	4700	2100	0.64	0.24	57.6	57.6	26.1	23.2	0
4	1.00	1.00	0.980	0.977	2930	425	4700	2100	0.62	0.20	57.8	57.8	25.3	22.6	(
							Segment	5: Bas	ic						
Time Period	PI	HF	fi	١٧	Flow (pc/	A	Capa (pc/			/c itio		eed i/h)	Den (pc/m		LO
1	1.0	00	0.9	080	292	29	470	00	0.	62	64	1.9	22	.6	-
2	1.0	00	0.9	80	292	29	470	00	0.	62	64	1.9	22	.6	0
3	1.0	00	0.9	80	292	29	470	00	0.	62	64	1.9	22	.6	C
4	1.0	00	0.9	80	292	19	470	00	0.	62	64	.9	22.	.6	C
						Se	egment 6	: Diver	ge						
Time Period	PH	4F	fi	IV	Flow I (pc/		Capa (pc/			/c tio		ed /h)	Dens (pc/m		LO
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	1.00	1.00	0.980	0.985	2929	939	4700	1900	0.62	0.49	50.2	50.2	29.2	22.8	С
2	1.00	1.00	0.980	0.985	2929	939	4700	1900	0.62	0.49	50.2	50.2	29.2	22.8	C
3	1.00	1.00	0.980	0.985	2929	939	4700	1900	0.62	0.49	50.2	50.2	29.2	22.8	С
4	1.00	1.00	0.980	0.985	2929	939	4700	1900	0.62	0.49	50.2	50.2	29.2	22.8	C
						5	Segment	7: Basi	c						
Time Period	PH		fH	v	Flow F (pc/l		Capac (pc/		d/ Rat	1	Spe (mi		Dens (pc/m		LO
1	1.0		0.9		198		470	0	0.4	12	65	.0	15.	3	В
2	1.0		0.9		198	9	470	0	0.4	12	65	.0	15.	3	В
3	1.0		0.9		1989		470	0	0.4	12	65	.0	15.	3	В
4	1.0	0	0.9	78	1989	9	470	0	0.4	12	65	.0	15.	3	В
						Se	egment 8	3: Merg	je						
Time eriod	PH	F	fH	v	Flow R (pc/h		Capac (pc/l		d/ Rat		Spe (mi/		Dens (pc/mi		LOS

	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	1.00	1.00	0.978	0.980	2208	219	4700	2000	0.47	0.11	58.9	58.9	18.7	13.2	В
2	1.00	1.00	0.978	0.980	2208	219	4700	2000	0.47	0.11	58.9	58.9	18.7	13.2	В
3	1.00	1.00	0.978	0.980	2208	219	4700	2000	0.47	0.11	58.9	58.9	18.7	13.2	В
4	1.00	1.00	0.978	0.980	2208	219	4700	2000	0.47	0.11	58.9	58.9	18.7	13.2	В
							Segment	9: Bas	ic						
Time Period	PI	HF	fl	łv	Flow (pc/		Capa (pc)			/c itio		eed i/h)	Den (pc/m		LOS
1	1.0	00	0.9	78	220	09	470	00	0.	47	65	5.0	17	.0	В
2	1.	00	0.9	78	220	9	470	00	0.	47	65	5.0	17	.0	В
3	1.0	00	0.9	78	220	9	470	00	0.	47	65	5.0	17	.0	В
4	1.0	00	0.9	78	220	)9	470	00	0,	47	65	5.0	17	.0	В
						Se	gment :	LO: Mei	rge						
Time Period	PH	łF.	fH	IV	Flow (pc/		Capa (pc/			/c tio		eed i/h)	Den: (pc/m		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	1.00	1.00	0.978	0.980	2515	306	4700	2100	0.54	0.15	59.1	59.1	21.3	16.2	В
2	1.00	1.00	0.978	0.980	2515	306	4700	2100	0.54	0.15	59.1	59.1	21.3	16.2	В
3	1.00	1.00	0.978	0.980	2515	306	4700	2100	0.54	0.15	59.1	59.1	21.3	16.2	В
4	1.00	1.00	0.978	0.980	2515	306	4700	2100	0.54	0.15	59.1	59.1	21.3	16.2	В
						S	egment	11: Bas	ic						
Time Period	PH	IF	fH	v	Flow F		Capa (pc/		d/ Rat		Spc (mi		Dens (pc/m		LOS
1	1.0	00	0.9	78	251	5	470	0	0.5	54	65	.0	19.	4	С
2	1.0	0	0.9	78	251	5	470	0	0.5	54	65	.0	19.	4	С
3	1.0	0	0.9	78	251	5	470	0	0.5	54	65	.0	19.	4	С
4	1.0	0	0.9	78	251	5	470	0	0.5	54	65	.0	19.	4	С
acility	Time	Peri	od Re	sults											
Т	Sp	eed, n	ni/h		Density, po	/mi/ln	Densit	y, veh/m	i/In	Tra	vel Tin	ne, min		LOS	_
1		62.8			22.5			22.1			6.6			С	
2	62.8				22.5			22.1			6.6			С	
3		62.8			22.6			22.1			6.6			С	
4	4 62.8 22.5							22.1			6.6	_		С	
acility	Over	all Re	esults												
Space Me	pace Mean Speed, mi/h 62.8							Density,	veh/mi/l	ln .			22.1		
Average	Travel T	ime, m	in		6.6							-			_

# APPENDIX G-1: HCM AND SYNCHRO PRINTOUTS – SIGNALIZED INTERSECTION CAPACITY ANALYSES – 2015 AM PEAK HOURS – SYNCHRO PRINTOUTS

	1	-	-	*	1	1			
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR	Ø9	CONTRACTOR OF THE PARTY OF THE	
Lane Configurations		<b>^</b>		.,	ሻ	*		100000	01-04-03
Traffic Volume (vph)	0	915	565	0	260	495			
Future Volume (vph)	0	915		0	260	495			
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900			
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00			
Frt			0.00	1.00	1.00	0.850			
FIt Protected					0.950	0.000			
Satd. Flow (prot)	0	3471	3406	0	1703	1524			
Flt Permitted			0100		0.950	1024			
Satd. Flow (perm)	0	3471	3406	0	1703	1524			
Right Turn on Red		0111	0100	Yes	1100	Yes			
Satd. Flow (RTOR)				103		458			
Link Speed (mph)		30	30		25	400			
Link Distance (ft)		317	266		752				
Travel Time (s)		7.2	6.0						
Peak Hour Factor	0.93	0.93	0.88	0.88	20.5	0.00			
Heavy Vehicles (%)	4%	4%	6%		0.89	0.89			
Adj. Flow (vph)				6%	6%	6%			
Shared Lane Traffic (%)	0	984	642	0	292	556			
	0	004	040						
Lane Group Flow (vph)	0	984	642	0	292	556			
Turn Type		NA	NA		Prot	Perm			
Protected Phases		2	2		7		9		
Permitted Phases						7			
Detector Phase		2	2		7	7			
Switch Phase		74.2	20.0						
Minimum Initial (s)		10.0	10.0		7.0	7.0	4.0		
Minimum Split (s)		41.0	41.0		33.0	33.0	14.0		
Total Split (s)		41.0	41.0		33.0	33.0	26.0		
Total Split (%)		41.0%	41.0%		33.0%	33.0%	26%		
Maximum Green (s)		35.0	35.0		27.0	27.0	20.0		
Yellow Time (s)		4.0	4.0		4.0	4.0	3.0		
All-Red Time (s)		2.0	2.0		2.0	2.0	3.0		
Lost Time Adjust (s)		0.0	0.0		0.0	0.0			
Total Lost Time (s)		6.0	6.0		6.0	6.0			
Lead/Lag									
Lead-Lag Optimize?									
Vehicle Extension (s)		3.0	3.0		3.0	3.0	3.0		
Recall Mode		C-Max	C-Max		Max	Max	None		
Walk Time (s)		7.0	7.0		7.0	7.0			
Flash Dont Walk (s)		11.0	11.0		11.0	11.0			
Pedestrian Calls (#/hr)		0	0		0	0			
Act Effct Green (s)		61.0	61.0		27.0	27.0			
Actuated g/C Ratio		0.61	0.61		0.27	0.27			
v/c Ratio		0.46	0.31		0.64	0.75			
Control Delay		11.5	1.9		39.5	13.6			
Queue Delay		0.0	0.0		0.0	0.0			
Total Delay		11.5	1.9		39.5	13.6			
LOS		В	A		D	B			
Approach Delay		11.5	1.9		22.5	0			
approduit Delay		11.5	1.9	1-	22.5				1

		-		-	*	*			
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR	Ø9	145 - 1	
Approach LOS		В	A		С				
Queue Length 50th (ft)		165	17		164	49			
Queue Length 95th (ft)		212	m18		251	176			
Internal Link Dist (ft)		237	186		672				
Turn Bay Length (ft)					-				
Base Capacity (vph)		2117	2077		459	745			
Starvation Cap Reductn		0	0		0	0			
Spillback Cap Reductn		0	0		0	0			
Storage Cap Reductn		0	0		0	0			
Reduced v/c Ratio		0.46	0.31		0.64	0.75			

Area Type:

Other

Cycle Length: 100

Actuated Cycle Length: 100

Offset: 0 (0%), Referenced to phase 2:EBWB, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.75 Intersection Signal Delay: 12.8 Intersection Capacity Utilization 58.3%

Intersection LOS: B
ICU Level of Service B

Analysis Period (min) 15

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 7: Exit 4 SB Off



	ሻ	1	4	1	7	*	4	4	×	*	
Lane Group	NBL	NBR	SEL	SER	NEL	NET	NER	SWL	SWT	SWR	
Lane Configurations	ሻሻ	7			ሻ	<b>^</b>			<b>^</b>	7	CONTRACTOR IN
Traffic Volume (vph)	210	200	0	0	585	590	0	0	875	0	-
Future Volume (vph)	210	200	0	0		590	0	0	875	0	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Storage Length (ft)	0	0	0	0	350	1000	0	0	1300	0	
Storage Lanes	2	1	0	0	1		0	0		1	
Taper Length (ft)	25		25		25			25			
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Frt	7.00	0.850		1.00	1.00	0.50	1.00	1.00	0.50	1.00	
Fit Protected	0.950				0.950						
Satd. Flow (prot)	3242	1495	0	0	1719	3438	0	0	2505	4045	
Flt Permitted	0.950	1100		0	0.950	3430	0	0	3505	1845	
Satd. Flow (perm)	3242	1495	0	0	1719	3438	0	0	2505	1015	
Right Turn on Red	OL TE	Yes		0	1713	3430	Yes	0	3505	1845	
Satd. Flow (RTOR)		227					res			Yes	
Link Speed (mph)	25	221	30			20			-		
Link Distance (ft)	347		390			30			30		
Travel Time (s)	9.5		8.9			494			346		
Peak Hour Factor	0.88	0.88	0.92	0.92	0.04	11.2			7.9		
Heavy Vehicles (%)	8%	8%	2%		0.94	0.94	0.94	0.92	0.92	0.92	
Adj. Flow (vph)	239	227		2%	5%	5%	5%	3%	3%	3%	
Shared Lane Traffic (%)	233	221	0	0	622	628	0	0	951	0	
Lane Group Flow (vph)	239	227	^		000						
Turn Type	Prot	227	0	0	622	628	0	0	951	0	
Protected Phases		Free			Prot	NA			NA	Free	
Permitted Phases	2	F			7	4			8		
Detector Phase		Free			-					Free	
Switch Phase	2				7	4			8		
	40.0										
Minimum Initial (s)	10.0				5.0	10.0			10.0		
Minimum Split (s)	46.0				11.0	46.0			46.0		
Total Split (s)	31.0				35.0	69.0			34.0		
Total Split (%)	31.0%				35.0%	69.0%			34.0%		
Maximum Green (s)	25.0				29.0	63.0			28.0		
Yellow Time (s)	4.0				4.0	4.0			4.0		
All-Red Time (s)	2.0				2.0	2.0			2.0		
Lost Time Adjust (s)	0.0				0.0	0.0			0.0		
Total Lost Time (s)	6.0				6.0	6.0			6.0		
Lead/Lag					Lead				Lag		
Lead-Lag Optimize?											
Vehicle Extension (s)	3.0				3.0	3.0			3.0		
Recall Mode	C-Min				None	Min			Min		
Walk Time (s)	7.0					7.0			7.0		
Flash Dont Walk (s)	11.0					11.0			11.0		
Pedestrian Calls (#/hr)	0					0			0		
Act Effct Green (s)	12.9	100.0			41.1	75.1			28.0		
Actuated g/C Ratio	0.13	1.00			0.41	0.75			0.28		
v/c Ratio	0.57	0.15			0.88	0.24			0.97		
Control Delay	46.2	0.2		4	43.8	4.3			58.7		
Queue Delay	0.0	0.0			0.0	0.0			0.0		

	7	1	4	1	7	1	7	6	×	*	
Lane Group	NBL	NBR	SEL	SER	NEL	NET	NER	SWL	SWT	SWR	
Total Delay	46.2	0.2			43.8	4.3			58.7	0.11.1	The same
LOS	D	A			D	A			F		
Approach Delay	23.8					23.9			58.7		
Approach LOS	C					C			50.7 E		
Queue Length 50th (ft)	75	0			357	52			315		
Queue Length 95th (ft)	107	0			#610	83			#448		
Internal Link Dist (ft)	267		310			414			266		
Turn Bay Length (ft)					350				200		
Base Capacity (vph)	810	1495			706	2582			981		
Starvation Cap Reductn	0	0			0	0			0		
Spillback Cap Reductn	0	0			0	0			0		
Storage Cap Reductn	0	0			0	0			0		
Reduced v/c Ratio	0.30	0.15			0.88	0.24			0.97		
Intersection Summary			er lineración			-	-				

intersection summary

Area Type: Cycle Length: 100

Actuated Cycle Length: 100

Offset: 0 (0%), Referenced to phase 2:NBL and 6:, Start of Green

Other

Natural Cycle: 145

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.97 Intersection Signal Delay: 36.3 Intersection Capacity Utilization 84.6%

Intersection LOS: D ICU Level of Service E

Analysis Period (min) 15

Queue shown is maximum after two cycles.

Splits and Phases: 11: Exit 4 NB Off & NH 102

1 02 (R)	<b>≯</b> 04	
31s	69 s	
	7 07	<b>∠</b> <sub>08</sub>
	35 s	34s

<sup># 95</sup>th percentile volume exceeds capacity, queue may be longer.

	•	-	*	1	-	-	1	T	1	-	+	4
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		11	7	ሻ						ሻሻ		7
Traffic Volume (vph)	0	515	280	235	605	0	0	0	0	465	0	295
Future Volume (vph)	0	515	280	235	605	0	0	0	0	465	0	295
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	0.97	1.00	1.00
Frt			0.850		1005.0	- 2723			1.00	0.01	1.00	0.850
FIt Protected				0.950						0.950		0.000
Satd. Flow (prot)	0	3167	1417	1687	3374	0	0	0	0	3303	0	1524
FIt Permitted				0.950		7				0.950	U	1024
Satd. Flow (perm)	0	3167	1417	1687	3374	0	0	0	0	3303	0	1524
Right Turn on Red			Yes			Yes			Yes	0000		Yes
Satd. Flow (RTOR)			304									123
Link Speed (mph)		30			30			30			35	120
Link Distance (ft)		410			242			486			444	
Travel Time (s)		9.3			5.5			11.0			8.6	
Peak Hour Factor	0.92	0.92	0.92	0.73	0.73	0.73	0.92	0.92	0.92	0.74	0.74	0.74
Heavy Vehicles (%)	14%	14%	14%	7%	7%	7%	2%	2%	2%	6%	6%	6%
Adj. Flow (vph)	0	560	304	322	829	0	0	0	0	628	0	399
Shared Lane Traffic (%)					020				v	020	v	999
Lane Group Flow (vph)	0	560	304	322	829	0	0	0	0	628	0	399
Turn Type		NA	Free	Prot	NA			v	0	Prot	v	Prot
Protected Phases		2		1	6					4		4
Permitted Phases			Free							-		*
Detector Phase		2	0.44	1	6					4		4
Switch Phase										-		*
Minimum Initial (s)		5.0		4.0	5.0					3.0		3.0
Minimum Split (s)		26.0		24.0	26.0					36.0		36.0
Total Split (s)		24.0		22.0	46.0					34.0		34.0
Total Split (%)		30.0%		27.5%	57.5%					42.5%		42.5%
Maximum Green (s)		18.0		16.0	40.0					28.0		28.0
Yellow Time (s)		4.0		4.0	4.0					4.0		4.0
All-Red Time (s)		2.0		2.0	2.0					2.0		2.0
Lost Time Adjust (s)		0.0		0.0	0.0					0.0		0.0
Total Lost Time (s)		6.0		6.0	6.0					6.0		6.0
Lead/Lag		Lag		Lead						0.0		0.0
Lead-Lag Optimize?		Yes		Yes								
Vehicle Extension (s)		3.0		3.0	3.0					3.0		3.0
Recall Mode		C-Max		None	C-Max					None		None
Walk Time (s)		7.0		7.0	7.0					7.0		7.0
Flash Dont Walk (s)		11.0		11.0	11.0					11.0		
Pedestrian Calls (#/hr)		0		0	0					0		11.0
Act Effct Green (s)		20.9	80.0	18.8	45.7					22.3		0
Actuated g/C Ratio		0.26	1.00	0.24	0.57					0.28		22.3
v/c Ratio		0.68	0.21	0.81	0.43							0.28
Control Delay		32.7	0.3	40.0	7.0					0.68		0.78
Queue Delay		0.0	0.0	0.0	0.0					29.2		28.7
Total Delay		32.7	0.3	40.0	7.0					0.0		0.0
.OS		C	Α.	D	A.					29.2		28.7
Approach Delay		21.3	^	U	16.3					C	29.0	C

	1	-	1	1	-	1	1	1	*	-	1	1
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach LOS		C			В					-	C	-
Queue Length 50th (ft)		139	0	87	46					142		127
Queue Length 95th (ft)		#212	0	#211	59					138		146
Internal Link Dist (ft)		330			162			406		100	364	140
Turn Bay Length (ft)								,,,,,			004	
Base Capacity (vph)		828	1417	396	1929					1156		613
Starvation Cap Reductn		0	0	0	0					0		0
Spillback Cap Reductn		0	0	0	0					0		0
Storage Cap Reductn		0	0	0	0					0		0
Reduced v/c Ratio		0.68	0.21	0.81	0.43					0.54		0.65
Intersection Summary		-					-	_				-

Area Type:

Other

Cycle Length: 80

Actuated Cycle Length: 80

Offset: 38 (48%), Referenced to phase 2:EBT and 6:WBT, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.81 Intersection Signal Delay: 22.0 Intersection Capacity Utilization 65.7%

Intersection LOS: C ICU Level of Service C

Analysis Period (min) 15

# 95th percentile volume exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.

Splits and Phases: 3: Exit 5 SB On/Exit 5 SB Off & NH 28



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Lane Group			*	*		-	1	1	1	-	+	4
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	ሻ	11			<b>^</b>	*	*	.,,,,,	*	ODC	001	ODIT
Traffic Volume (vph)	240	740	0	0	540	740	300	0	110	0	0	0
Future Volume (vph)	240	740	0	0	540	740	300	0	110	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	
Frt		0.00		1.00	0.00	0.850	1.00	1.00	0.850	1.00	1.00	1.00
Fit Protected	0.950					0.000	0.950		0.000			
Satd. Flow (prot)	1641	3282	0	0	3438	1538	1656	0	1482	0	0	
Fit Permitted	0.950				0100	1000	0.950	0	1402	U	0	0
Satd. Flow (perm)	1641	3282	0	0	3438	1538	1656	0	1482	0	0	
Right Turn on Red		OLOL	Yes		0400	Yes	1000	0	Yes	0	0	0
Satd. Flow (RTOR)			100			822			205			Yes
Link Speed (mph)		30			30	022		35	205		00	
Link Distance (ft)		196			451						30	
Travel Time (s)		4.5			10.3			450			368	
Peak Hour Factor	0.87	0.87	0.87	0.90	0.90	0.90	0.70	8.8	0.70	0.00	8.4	
Heavy Vehicles (%)	10%	10%	10%	5%			0.78	0.78	0.78	0.92	0.92	0.92
Adj. Flow (vph)	276	851	0		5%	5%	9%	9%	9%	2%	2%	2%
Shared Lane Traffic (%)	2/0	001	U	0	600	822	385	0	141	0	0	0
Lane Group Flow (vph)	276	851	0		000	000						
Turn Type	Prot		0	0	600	822	385	0	141	0	0	0
Protected Phases		NA.			NA	Free	Prot		Free			
Permitted Phases	5	2			6		8		-			
Detector Phase	5	2 2			6	Free			Free			
Switch Phase	9	2			6		8					
Minimum Initial (s)	5.0	5.0			5.0		5.0					
Minimum Split (s)	24.0	24.0			24.0		11.0					
Total Split (s)	22.0	51.0			29.0		29.0					
Total Split (%)	27.5%	63.8%			36.3%		36.3%					
Maximum Green (s)	16.0	45.0			23.0		23.0					
Yellow Time (s)	4.0	4.0			4.0		4.0					
All-Red Time (s)	2.0	2.0			2.0		2.0					
Lost Time Adjust (s)	0.0	0.0			0.0		0.0					
Total Lost Time (s)	6.0	6.0			6.0		6.0					
_ead/Lag	Lead				Lag							
Lead-Lag Optimize?	Yes				Yes							
/ehicle Extension (s)	3.0	3.0			3.0		3.0					
Recall Mode	None	C-Max			C-Max		None					
Walk Time (s)	7.0	7.0			7.0							
Tash Dont Walk (s)	11.0	11.0			11.0							
Pedestrian Calls (#/hr)	0	0			0							
Act Effct Green (s)	15.7	46.6			24.9	80.0	21.4		80.0			
Actuated g/C Ratio	0.20	0.58			0.31	1.00	0.27		1.00			
//c Ratio	0.86	0.44			0.56	0.53	0.87		0.10			
Control Delay	55.0	22			26.1	1.3	49.4		0.10			
Queue Delay	0.0	0.0			0.0	0.0	0.0		0.0			
Total Delay	55.0	2.2			26.1	1.3	49.4		0.0			
.OS	D	A			- C	Α	49.4 D					
Approach Delay .		15.1			11.8	~	U	36.2	Α			

	•	-	1	1	-	*	1	1	1	1	1	1
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach LOS		В			В			D				
Queue Length 50th (ft)	130	0			135	0	178		0			
Queue Length 95th (ft)	#251	5			189	0	233		0			
Internal Link Dist (ft)		116			371			370			288	
Turn Bay Length (ft)								-			200	
Base Capacity (vph)	333	1913			1071	1538	476		1482			
Starvation Cap Reductn	0	0			0	0	0		0			
Spillback Cap Reductn	0	0			0	0	0		0			
Storage Cap Reductn	0	0			0	0	0		0			
Reduced v/c Ratio	0.83	0.44			0.56	0.53	0.81		0.10			

Area Type:

Other

Cycle Length: 80

Actuated Cycle Length: 80

Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green

Natural Cycle: 70

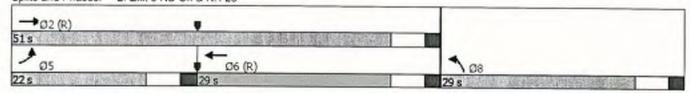
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.87 Intersection Signal Delay: 17.2 Intersection Capacity Utilization 65.7%

Intersection LOS: B ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 2: Exit 5 NB Off & NH 28



<sup># 95</sup>th percentile volume exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.

	4	×	2	-	×	*	7	*	~	4	×	*
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations		4			4			1.		0112	4	Oitis
Traffic Volume (vph)	5	25	10	345	0	70	0	400	125	15	595	0
Future Volume (vph)	5	25	10	345	0	70	0	400	125	15	595	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.966			0.977			0.968		1.00	1.00	1.00
Fit Protected		0.994			0.960						0.999	
Satd. Flow (prot)	0	1789	0	0	1730	0	0	1703	0	0	1808	0
Flt Permitted		0.937			0.716						0.981	v
Satd. Flow (perm)	0	1686	0	0	1290	0	0	1703	0	0	1775	0
Right Turn on Red			Yes			Yes			Yes		1110	Yes
Satd. Flow (RTOR)		17			55			36	100			163
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		285			644			243			338	
Travel Time (s)		6.5			14.6			5.5			7.7	
Peak Hour Factor	0.60	0.60	0.60	0.96	0.96	0.96	0.89	0.89	0.89	0.86	0.86	0.86
Heavy Vehicles (%)	2%	2%	2%	3%	3%	3%	8%	8%	8%	5%	5%	5%
Adj. Flow (vph)	8	42	17	359	0	73	0	449	140	17	692	0
Shared Lane Traffic (%)		-						445	140	11	032	U
Lane Group Flow (vph)	0	67	0	0	432	0	0	589	0	0	709	0
Turn Type	Perm	NA		Perm	NA			NA		Perm	NA	v
Protected Phases		2			2			1		r Giiii	1	
Permitted Phases	2			2	-					- 1		
Detector Phase	2	2		2	2			1		1	1	
Switch Phase					_							
Minimum Initial (s)	5.0	5.0		5.0	5.0			5.0		5.0	5.0	
Minimum Split (s)	24.0	24.0		24.0	24.0			24.0		24.0	24.0	
Total Split (s)	25.0	25.0		25.0	25.0			35.0		35.0	35.0	
Total Split (%)	41.7%	41.7%		41.7%	41.7%			58.3%		58.3%	58.3%	
Maximum Green (s)	19.0	19.0		19.0	19.0			29.0		29.0	29.0	
Yellow Time (s)	4.0	4.0		4.0	4.0			4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0			2.0		2.0	2.0	
Lost Time Adjust (s)	-	0.0		-	0.0			0.0		2.0	0.0	
Total Lost Time (s)		6.0			6.0			6.0			6.0	
Lead/Lag	Lag	Lag		Lag	Lag			Lead		Lead	Lead	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes			Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0		3.0	3.0	
Recall Mode	None	None		None	None			Min		Min	Min	
Walk Time (s)	7.0	7.0		7.0	7.0			7.0		7.0	7.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0			11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0			0		0	0	
Act Effct Green (s)		19.1			19.1			27.3		·	27.3	
Actuated g/C Ratio		0.33			0.33			0.47			0.47	
w/c Ratio		0.12			0.94			0.72			0.86	
Control Delay		12.4			51.7			17.7			26.4	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		12.4			51.7			17.7				
LOS		В			D			В			26.4	
Approach Delay		12.4			51.7			17.7			26.4	

SEL					,	-	/	. 4	*	-	-
	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
	В			D							- Citi
	13			135						1000	
	22										
	205										
							100			200	
	562			458			866			884	
	0			0			0			004	
	0			0			0			0	
	0			0			0			0	
	0.12			0.94			0.68			0.80	
	OCC.	B 13 22 205 562 0 0	B 13 22 205 562 0 0	B 13 22 205 562 0 0	B D 13 135 22 #304 205 564  562 458 0 0 0 0 0 0	B D 13 135 22 #304 205 564  562 458 0 0 0 0 0 0	B D 13 135 22 #304 205 564  562 458 0 0 0 0 0 0	B D B 13 135 145 22 #304 247 205 564 163  562 458 866 0 0 0 0 0 0 0 0 0	B D B 13 135 145 22 #304 247 205 564 163  562 458 866 0 0 0 0 0 0 0 0 0	B D B 13 135 145 22 #304 247 205 564 163  562 458 866 0 0 0 0 0 0 0 0 0 0	B D B C 13 135 145 206 22 #304 247 #368 205 564 163 258  562 458 866 884 0 0 0 0 0 0 0 0 0 0 0 0 0 0

Area Type: Other

Cycle Length: 60

Actuated Cycle Length: 58.4

Natural Cycle: 70

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.94 Intersection Signal Delay: 29.1 Intersection Capacity Utilization 83.4%

Intersection LOS: C ICU Level of Service E

Analysis Period (min) 15

Splits and Phases: 4: NH 102 & Fordway/N. High St

<b>≯</b> 01	102	
35 s	25 s	

<sup># 95</sup>th percentile volume exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.

	1	-	7	1	-	1	1	1	-	-	1	4
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	*	7.		*	1		*	1.		*	1	*
Traffic Volume (vph)	105	205	60	35	385	80	60	260	40	70	230	105
Future Volume (vph)	105	205	60	35	385	80	60	260	40	70	230	105
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.966			0.974			0.980		-		0.850
Fit Protected	0.950			0.950			0.950			0.950		0.000
Satd. Flow (prot)	1656	1684	0	1703	1746	0	1719	1773	0	1703	1792	1524
FIt Permitted	0.950			0.950			0.950		-	0.950		1021
Satd. Flow (perm)	1656	1684	0	1703	1746	0	1719	1773	0	1703	1792	1524
Right Turn on Red			Yes			Yes		1000	Yes			Yes
Satd. Flow (RTOR)		20			14			9				205
Link Speed (mph)		30			30			30			30	200
Link Distance (ft)		505			530			361			411	
Travel Time (s)		11.5			12.0			8.2			9.3	
Peak Hour Factor	0.96	0.96	0.96	0.94	0.94	0.94	0.85	0.85	0.85	0.91	0.91	0.91
Heavy Vehicles (%)	9%	9%	9%	6%	6%	6%	5%	5%	5%	6%	6%	6%
Parking (#/hr)	7.00	7.7	0	-		4.0	0.10	070	010	010	UN	0.70
Adj. Flow (vph)	109	214	63	37	410	85	71	306	47	77	253	115
Shared Lane Traffic (%)		-			410	00		500	41		200	113
Lane Group Flow (vph)	109	277	0	37	495	0	71	353	0	77	253	115
Turn Type	Prot	NA		Prot	NA		Prot	NA	U	Prot	NA	
Protected Phases	5	2		1	6		3	8		7	4	Perm
Permitted Phases		-					3	0		,	*	
Detector Phase	5	2		1	6		3	8		7	4	4
Switch Phase		-			0		9	0		,	4	4
Minimum Initial (s)	4.0	5.0		4.0	10.0		4.0	10.0		4.0	9.0	0.0
Minimum Split (s)	10.0	30.0		10.0	30.0		10.0	25.0		10.0	25.0	9.0 25.0
Total Split (s)	12.0	33.0		12.0	33.0		10.0	25.0		10.0	25.0	25.0
Total Split (%)	15.0%	41.3%		15.0%	41.3%		12.5%	31.3%		12.5%		
Maximum Green (s)	6.0	27.0		6.0	27.0		4.0	19.0		4.0	31.3%	31.3%
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0			19.0	19.0
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		4.0	4.0	4.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		2.0	2.0	2.0
Total Lost Time (s)	6.0	6.0		6.0	6.0					0.0	0.0	0.0
Lead/Lag	Lead	Lag		Lead			6.0	6.0		6.0	6.0	6.0
Lead-Lag Optimize?	Yes	Yes		Yes	Lag		Lead	Lag		Lead	Lag	Lag
Vehicle Extension (s)	3.0	3.0			Yes		Yes	Yes		Yes	Yes	Yes
Recall Mode				3.0	3.0		3.0	3.0		3.0	3.0	3.0
Walk Time (s)	None	Min 7.0		None	Min		Min	None		Min	None	None
and the same of th					7.0			7.0			7.0	7.0
Flash Dont Walk (s)		11.0			11.0			11.0			11.0	11.0
Pedestrian Calls (#/hr)	0.0	10			10			0			10	10
Act Effct Green (s)	6.0	29.4		5.9	24.1		4.0	17.5		4.0	17.5	17.5
Actuated g/C Ratio	0.08	0.39		0.08	0.32		0.05	0.23		0.05	0.23	0.23
v/c Ratio	0.83	0.42		0.28	0.88		0.79	0.85		0.86	0.61	0.23
Control Delay	83.0	20.1		40.6	42.7		90.6	48.3		103.4	33.9	1.1
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	83.0	20.1		40.6	42.7		90.6	48.3		103.4	33.9	1.1
LOS	F	C		D	D		F	D		F	C	A

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	1	-	*	1	-	*	1	1	-	1	1	1
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach Delay		37.8			42.6			55.4		-	37.4	ODIT
Approach LOS		D			D			E			D	
Queue Length 50th (ft)	55	99		18	218		36	164		39	113	0
Queue Length 95th (ft)	#148	170		47	#385		#101	#274		#121	188	2
Internal Link Dist (ft)		425			450			281		11121	331	-
Turn Bay Length (ft)								201			331	
Base Capacity (vph)	132	663		135	634		90	453		90	452	537
Starvation Cap Reductn	0	0		0	0		0	0		0	402	007
Spillback Cap Reductn	0	0		0	0		0	0		0	0	0
Storage Cap Reductn	0	0		0	0		0	0		0	0	0
Reduced v/c Ratio	0.83	0.42		0.27	0.78		0.79	0.78		0.86	0.56	0.21
Intersection Summany			211	- 1981								3,41

Intersection Summary

Area Type:

Other

Cycle Length: 80

Actuated Cycle Length: 75.9

Natural Cycle: 80

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.88 Intersection Signal Delay: 43.3

Intersection Capacity Utilization 70.9%

Intersection LOS: D ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 23: Birch St/Crystal Ave & NH 102 (E Broadway)

€01	→02	103	₩ 04
12 s	33 s	10 s	25 s
♪ <sub>05</sub>	₩ 06	<b>1</b> 07	↑ <sub>Ø8</sub>
25	33 s	10 s	25 s

<sup># 95</sup>th percentile volume exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.

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Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations	ň	1	7	ሻሻ	**	7	ሻ	1	*	*	1	7
Traffic Volume (vph)	20	230	135	310	220	145	135	170	20	125	290	370
Future Volume (vph)	20	230	135	310	220	145	135	170	20	125	290	370
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		150	0		0	0		0	0		0
Storage Lanes	1		1	2		1	1		1	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	1.00	0.97	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850			0.850	1000		0.850			0.850
Fit Protected	0.950			0.950		415.57	0.950		0.000	0.950		0.000
Satd. Flow (prot)	1736	3471	1553	3335	3438	1538	1752	1845	1568	1752	1845	1568
Fit Permitted	0.950			0.950	19,729		0.950			0.950	1010	1000
Satd. Flow (perm)	1736	3471	1553	3335	3438	1538	1752	1845	1568	1752	1845	1568
Right Turn on Red			Yes		Deser.	Yes		10.10	Yes		1010	Yes
Satd. Flow (RTOR)			255			184			327			259
Link Speed (mph)		30			30			30	02.		30	200
Link Distance (ft)		639			394			532			387	
Travel Time (s)		14.5			9.0			12.1			8.8	
Peak Hour Factor	0.84	0.84	0.84	0.79	0.79	0.79	0.86	0.86	0.86	0.99	0.99	0.99
Heavy Vehicles (%)	4%	4%	4%	5%	5%	5%	3%	3%	3%	3%	3%	3%
Adj. Flow (vph)	24	274	161	392	278	184	157	198	23	126	293	374
Shared Lane Traffic (%)		-		002	2.0	107	101	100	20	120	200	214
Lane Group Flow (vph)	24	274	161	392	278	184	157	198	23	126	293	374
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Free	Prot	NA	pt+ov
Protected Phases	5	2		1	6	1 01111	7	4	1100	3	8	81
Permitted Phases		2	2		6	6		4	Free	0	8	0 1
Detector Phase	5	2	2 2	1	6	6	7	4	1100	3	8	81
Switch Phase		-	-		-			-			0	01
Minimum Initial (s)	8.0	8.0	8.0	8.0	8.0	8.0	6.0	8.0		7.0	8.0	
Minimum Split (s)	14.0	31.0	31.0	14.0	40.0	40.0	12.0	21.0		13.0	21.0	
Total Split (s)	14.0	31.0	31.0	23.0	40.0	40.0	15.0	21.0		15.0	21.0	
Total Split (%)	15.6%	34.4%	34.4%	25.6%	44.4%	44.4%	16.7%	23.3%		16.7%	23.3%	
Maximum Green (s)	8.0	25.0	25.0	17.0	34.0	34.0	9.0	15.0		9.0	15.0	
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0		6.0	6.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Lead	Lag	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		Yes 3.0	Yes	
Recall Mode	Max	C-Max	C-Max	None	Max	Max	None	None			3.0	
Walk Time (s)	5.0	5.0	5.0	Hone	5.0	5.0	Ivone	5.0	-	None	None	
Flash Dont Walk (s)	11.0	11.0	11.0		11.0	11.0					5.0	
Pedestrian Calls (#/hr)	0	0	0		0	0		11.0			11.0	
Act Effct Green (s)	8.0	26.8	26.8	15.2	34.0	34.0	0.0	0	00.0	0.7	0	20.0
Actuated g/C Ratio	0.09	0.30	0.30	0.17			9.0	15.3	90.0	8.7	15.0	36.2
v/c Ratio	0.16	0.30	0.30	0.17	0.38	0.38	0.10	0.17	1.00	0.10	0.17	0.40
Control Delay	40.5	25.5	1.2		0.21	0.26	0.90	0.63	0.01	0.74	0.95	0.48
Queue Delay	0.0			42.0	19.5	4.1	88.0	45.1	0.0	66.1	80.3	8.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

15: Folsom Rd/Tsienneto Rd & Crystal Av/NH 28

	1	1	7	4	1	لر	*	×	4	1	×	t
Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Total Delay	40.5	25.5	1.2	42.0	19.5	4.1	88.0	45.1	0.0	66.1	80.3	8.0
LOS	D	C	A	D	В	A	F	D	A	E	E	A
Approach Delay		17.8			26.5	-		60.2		-	44.0	
Approach LOS		В			C			F		7	D	
Queue Length 50th (ft)	13	63	0	107	55	0	90	106	0	71	167	40
Queue Length 95th (ft)	35	90	0	131	72	27	#191	169	0	#157	#323	108
Internal Link Dist (ft)		559			314	8		452		=101	307	100
Turn Bay Length (ft)	150		150					102			001	
Base Capacity (vph)	154	1032	641	629	1298	695	175	312	1568	175	307	811
Starvation Cap Reductn	0	0	0	0	0	0	0	0.0	0	0	001	011
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.16	0.27	0.25	0.62	0.21	0.26	0.90	0.63	0.01	0.72	0.95	0.46

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 0 (0%), Referenced to phase 2:NBT, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.95 Intersection Signal Delay: 35.6 Intersection Capacity Utilization 58.3%

Intersection LOS: D ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 15: Folsom Rd/Tsienneto Rd & Crystal Av/NH 28

G <sub>01</sub>		1 Ø2 (R)	<b>√</b> Ø3	<b>≯</b> 04
23 s	(200-21-2	31s	15 s	21 s
<b>A</b> 05	₩ Ø6		707	¥ 08
14s	40 s	WARE A STATE OF THE STATE OF THE STATE OF	15 s	21s

<sup># 95</sup>th percentile volume exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.

	36	-	7	No	+	*	7	*	^	4	×	1
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations	*	<b>†</b> ‡		*	<b>^</b>			4	*		4	*
Traffic Volume (vph)	50		0	0	655	30	5	0		50	0	245
Future Volume (vph)	50	790	0	0	655	30	5	0		50	0	245
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900		1900	1900	1900
Storage Length (ft)	75		0	150		150	0		0	0	1000	0
Storage Lanes	1		0	1		0	0		1	0		1
Taper Length (ft)	50			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt					0.993				0.850	1.00	1.00	0.850
Flt Protected	0.950							0.950	0.000		0.950	0.000
Satd. Flow (prot)	1687	3374	0	1863	3514	0	0	1805	1615	0	1787	1599
Flt Permitted	0.950						-	0.720	1010		0.751	1333
Satd. Flow (perm)	1687	3374	0	1863	3514	0	0	1368	1615	0	1413	1599
Right Turn on Red			Yes			Yes		1000	Yes		1413	Yes
Sald. Flow (RTOR)					6				109			227
Link Speed (mph)		30			30			30	100		30	221
Link Distance (ft)		277			755			218			433	
Travel Time (s)		6.3			17.2			5.0			9.8	
Peak Hour Factor	0.83	0.83	0.83	0.92	0.92	0.92	0.50	0.50	0.50	0.90	0.90	0.90
Heavy Vehicles (%)	7%	7%	7%	2%	2%	2%	0%	0%	0%	1%	1%	1%
Adj. Flow (vph)	60	952	0	0	712	33	10	0.0	10	56	0	272
Shared Lane Traffic (%)	-					00	10	0	10	30	0	212
Lane Group Flow (vph)	60	952	0	0	745	0	0	10	10	0	50	272
Turn Type	Prot	NA		Prot	NA	v	custom	NA	custom	Perm	56 NA	272
Protected Phases	5	2		1	6		Ouatom	INC	Custom	reim	4	Perm
Permitted Phases					6		8	8	8	4	4	
Detector Phase	5	2		1	6		8	8	8	4	4	4
Switch Phase								0	0	*	4	"
Minimum Initial (s)	8.0	8.0		5.0	8.0		5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	14.0	46.0		11.0	43.0		33.0	33.0	33.0	33.0	33.0	33.0
Total Split (s)	14.0	46.0		11.0	43.0		33.0	33.0	33.0	33.0	33.0	33.0
Total Split (%)	15.6%	51.1%		12.2%	47.8%		36.7%	36.7%	36.7%	36.7%	36.7%	36.7%
Maximum Green (s)	8.0	40.0		5.0	37.0		27.0	27.0	27.0	27.0	27.0	27.0
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0		
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	4.0	4.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		4.0	0.0	0.0	2.0		2.0
Total Lost Time (s)	6.0	6.0		6.0	6.0			6.0	6.0		0.0	0.0
Lead/Lag	Lead	Lag		Lead	Lag			0.0	0.0		6.0	6.0
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	20	20
Recall Mode	None	C-Max		None	None		None	None	None	None	3.0	3.0
Act Effct Green (s)	9.2	67.7		140110	55.2		INUTE	10.3	10.3	MOLIG	None	None
Actuated g/C Ratio	0.10	0.75			0.61			0.11	0.11		10.3	10.3
w/c Ratio	0.35	0.38			0.35			0.06	0.04		0.11	0.11
Control Delay	42.8	4.9			12.9			33.0	0.04		0.35	0.71
Queue Delay	0.0	0.0			0.0			0.0	0.2		40.6	18.9
Total Delay	42.8	4.9			12.9						0.0	0.0
LOS	D	A			B			33.0 C	0.2		40.6	18.9
Approach Delay		7.1			12.9			16.6	A		D 22.6	В

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR
Approach LOS		A			В			В		0112	C	OHIA
Queue Length 50th (ft)	33	72			119			5	0		30	24
Queue Length 95th (ft)	63	134			m208			10	0		61	93
Internal Link Dist (ft)		197			675			138			353	30
Turn Bay Length (ft)	75							100			000	
Base Capacity (vph)	173	2537			2159			410	560		423	638
Starvation Cap Reductn	0	0			0			0	0		0	030
Spillback Cap Reductn	0	0			0			0	0		0	0
Storage Cap Reductn	0	0			0			0	0		0	0
Reduced v/c Ratio	0.35	0.38			0.35			0.02	0.02		0.13	0.43
Intersection Summary					Tree -			-			-	

Area Type:

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 63 (70%), Referenced to phase 2:EBT, Start of Green

Other

Natural Cycle: 90

Control Type: Actuated-Coordinated

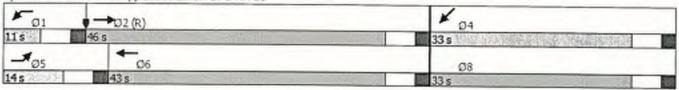
Maximum v/c Ratio: 0.71 Intersection Signal Delay: 11.7 Intersection Capacity Utilization 53.4%

Intersection LOS: B
ICU Level of Service A

Analysis Period (min) 15

m. Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 6: Applebees/Linlew Dr & NH 28



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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	ሻሻ	<b>1</b>		*	<b>1</b>		*1			*	4	7
Traffic Volume (vph)	100	630	- 5	5	610	220	10	5	5	180	5	100
Future Volume (vph)	100	630	5	5	610	220	10	5	5	180	5	100
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		150	150		150	0	10000	0	0	1000	0
Storage Lanes	2		0	1		0	1		0	1		1
Taper Length (ft)	200			25			25			25		
Lane Util. Factor	0.97	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	0.95	0.95	1.00
Frt		0.999			0.960			0.925		0.00	0.00	0.850
Fit Protected	0.950			0.950			0.950			0.950	0.955	0.000
Satd. Flow (prot)	3303	3402	0	1736	3332	0	1805	1758	0	1665	1674	1568
Flt Permitted	0.950			0.950			0.950			0.950	0.955	1000
Satd. Flow (perm)	3303	3402	0	1736	3332	0	1805	1758	0	1665	1674	1568
Right Turn on Red			Yes		1100	Yes	1000	1100	Yes	1000	1014	Yes
Satd. Flow (RTOR)		1			79			7	100			111
Link Speed (mph)		30			30			30			30	111
Link Distance (ft)		412			486			151			343	
Travel Time (s)		9.4			11.0			3.4				
Peak Hour Factor	0.83	0.83	0.83	0.97	0.97	0.97	0.67	0.67	0.67	0.90	7.8	0.00
Heavy Vehicles (%)	6%	6%	6%	4%	4%	4%	0%	0%	0.07		0.90	0.90
Adj. Flow (vph)	120	759	6	5	629	227	15	7		3%	3%	3%
Shared Lane Traffic (%)	120	100			020	221	13	,	7	200	6	111
Lane Group Flow (vph)	120	765	0	5	856	0	15	14		49%		
Turn Type	Prot	NA		Prot	NA	v			0	102	104	111
Protected Phases	5	2		1	6		Split 3	NA		Split	NA	pt+ov
Permitted Phases					0		3	3		4	4	4.5
Detector Phase	5	2		1	6		3	3				
Switch Phase					Ů.		3	3		4	4	45
Minimum Initial (s)	5.0	8.0		5.0	8.0		5.0	5.0		0.0	0.0	
Minimum Split (s)	14.0	53.0		11.0	50.0		11.0	11.0		8.0	8.0	
Total Split (s)	14.0	53.0		11.0	50.0		11.0	11.0		15.0	15.0	
Total Split (%)	15.6%	58.9%		12.2%	55.6%		12.2%			15.0	15.0	
Maximum Green (s)	8.0	47.0		5.0	44.0		5.0	12.2%		16.7%	16.7%	
Yellow Time (s)	4.0	4.0		4.0	4.0			5.0		9.0	9.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		4.0	4.0		4.0	4.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		2.0	2.0		2.0	2.0	
Total Lost Time (s)	6.0	6.0		6.0	6.0		0.0	0.0		0.0	0.0	
Lead/Lag	Lead	Lag		Lead			6.0	6.0		6.0	6.0	
Lead-Lag Optimize?	Yes	Yes		Yes	Lag		Lead	Lead		Lag	Lag	
Vehicle Extension (s)	3.0	3.0		3.0	Yes		Yes	Yes		Yes	Yes	
Recall Mode	None	Min			3.0		3.0	3.0		3.0	3.0	
Walk Time (s)	Mone	5.0		None	C-Min		None	None		None	None	
Flash Dont Walk (s)		11.0			5.0		5.0	5.0		5.0	5.0	
					11.0		11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0.0	0			0		0	0		0	0	
Act Effet Green (s)	8.0	57.4		5.6	45.5		6.3	6.3		10.7	10.7	24.7
Actuated g/C Ratio	0.09	0.64		0.06	0.51		0.07	0.07		0.12	0.12	0.27
v/c Ratio	0.41	0.35		0.05	0.50		0.12	0.11		0.52	0.53	0.22
Control Delay	42.9	10.3		61.6	10.1		40.8	30.0		46.5	46.7	6.0
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay	42.9	10.3		61.6	10.1		40.8	30.0		46.5	46.7	6.0
LOS	D	В		E	В		D	C		D	D	A
Approach Delay		14.7			10.4			35.6			32.4	^
Approach LOS		В			В			D			02.4	
Queue Length 50th (ft)	33	105		3	94		8	4		57	58	0
Queue Length 95th (ft)	56	183		m8	285		20	16		110	111	38
Internal Link Dist (ft)		332			406			71		110	263	30
Turn Bay Length (ft)	150			150							200	
Base Capacity (vph)	309	2212		107	1847		127	130		201	202	501
Starvation Cap Reductn	0	0		0	0		0	0		0	0	001
Spillback Cap Reductn	0	0		0	0		0	0		0	0	0
Storage Cap Reductn	0	0		0	0		0	0		0	0	0
Reduced v/c Ratio	0.39	0.35		0.05	0.46		0.12	0.11		0.51	0.51	0.22
(-1 · · · · · · · · · · · · · · · · · · ·	or bursten											

Area Type:

Other

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 0 (0%), Referenced to phase 6:WBT, Start of Green.

Natural Cycle: 90

Control Type: Actuated-Coordinated

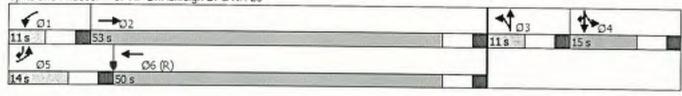
Maximum v/c Ratio: 0.53 Intersection Signal Delay: 15.9 Intersection Capacity Utilization 54.8%

Intersection LOS: B ICU Level of Service A

Analysis Period (min) 15

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 9: VIP Dr/Ashleigh Dr & NH 28



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Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations	4	1		*1	1	7	ሻ	7.		*	1	
Traffic Volume (vph)	100	220	20	25		255	120	100	80	80	270	90
Future Volume (vph)	100	220	20	25	210	255	120	100	80	80	270	90
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		150	150		150	150	1000	150	150	1000	150
Storage Lanes	1		0	1		1	1		0	1		0
Taper Length (ft)	25			25			25			25		U
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.988		1.00	1.00	0.850	1.00	0.933	1.00	1.00	0.963	1.00
Fit Protected	0.950	0.000		0.950		0.000	0.950	0.555		0.950	0.303	
Satd. Flow (prot)	1752	1823	0	1736	1827	1553	1770	1738	0	1787	1812	0
Flt Permitted	0.950	1020		0.950	1027	1000	0.950	1730	v	0.950	1012	0
Satd. Flow (perm)	1752	1823	0	1736	1827	1553	1770	1738	0	1787	4040	
Right Turn on Red	1102	1020	Yes	1700	1021	Yes	1770	1730		1/0/	1812	0
Satd. Flow (RTOR)		5	100			202		40	Yes		00	Yes
Link Speed (mph)		30			30	202		48			20	
Link Distance (ft)		481			347			30			30	
Travel Time (s)		10.9						479			371	
Peak Hour Factor	0.82		0.00	0.04	7.9	0.04	0.00	10.9			8.4	2
Heavy Vehicles (%)	3%	0.82	0.82	0.81	0.81	0.81	0.68	0.68	0.68	0.78	0.78	0.78
		3%	3%	4%	4%	4%	2%	2%	2%	1%	1%	1%
Adj. Flow (vph)	122	268	24	31	259	315	176	147	118	103	346	115
Shared Lane Traffic (%)	400	000	-	-								
Lane Group Flow (vph)	122	292	0	31	259	315	176	265	0	103	461	0
Turn Type	Prot	NA		Prot	NA	pt+ov	Prot	NA		Prot	NA	
Protected Phases	1	6		5	2	23	3	8		7	4	
Permitted Phases	-			10		2.0						
Detector Phase	1	6		5	2	23	3	8		7	4	
Switch Phase					- 20							
Minimum Initial (s)	8.0	8.0		8.0	8.0		8.0	8.0		8.0	8.0	
Minimum Split (s)	14.0	20.0		14.0	20.0		14.0	20.0		14.0	20.0	
Total Split (s)	14.0	24.0		14.0	24.0		15.0	26.0		16.0	27.0	
Total Split (%)	17.5%	30.0%		17.5%	30.0%		18.8%	32.5%		20.0%	33.8%	
Maximum Green (s)	8.0	18.0		8.0	18.0		9.0	20.0		10.0	21.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.0	6.0		6.0	6.0		6.0	6.0		6.0	6.0	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	C-Max		None	None		None	None	
Act Effct Green (s)	8.0	26.5		8.0	18.1	33.1	9.0	23.4		9.2	20.9	
Actuated g/C Ratio	0.10	0.33		0.10	0.23	0.41	0.11	0.29		0.12	0.26	
v/c Ratio	0.70	0.48		0.18	0.63	0.41	0.88	0.49		0.50	0.95	
Control Delay	57.5	26.8		35.8	35.7	7.9	77.5	24.2		41.9	59.4	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	57.5	26.8		35.8	35.7	7.9	77.5	24.2		41.9	59.4	
LOS	E	C		D	D	A	E	C		D	E	
Approach Delay		35.9		-	21.2		-	45.5		-	56.2	

### 8 1: Tsienneto Rd & NH 28 Byp S/NH 28 Byp N

	7)	- 1	L	1	+	×	7	×	4	+	K	V
Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Approach LOS		D			С			D			E	OTTIS
Queue Length 50th (ft)	60	99		15	117	35	88	94		49	217	
Queue Length 95th (ft)	#119	193		36	171	71	#126	114		82	#309	
Internal Link Dist (ft)		401			267		10.2-10	399		-	291	
Turn Bay Length (ft)	150			150		150	150	000		150	201	
Base Capacity (vph)	175	607		173	414	761	199	543		223	490	
Starvation Cap Reductn	0	0		0	0	0	0	0		0	0	
Spillback Cap Reductn	0	0		0	0	0	0	0		0	0	
Storage Cap Reductn	0	0		0	0	0	0	0		0	0	
Reduced v/c Ratio	0.70	0.48		0.18	0.63	0.41	0.88	0.49		0.46	0.94	

#### Intersection Summary

Area Type: Other

Cycle Length: 80

Actuated Cycle Length: 80

Offset: 0 (0%), Referenced to phase 2:SBT, Start of Green

Natural Cycle: 80

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.95 Intersection Signal Delay: 39.2 Intersection Capacity Utilization 65.8%

Intersection LOS: D ICU Level of Service C

Analysis Period (min) 15

# 95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 1: Tsienneto Rd & NH 28 Byp S/NH 28 Byp N

101	Ø2 (R)	₩ 03	¥ 04	
14 s	24 s	15 s	27 s	Marian Salah
W <sub>Ø5</sub>	<b>1</b> ø6	€ 07	<b>≯</b> Ø8	
14s	24s	16 s	26 s	THE STREET STREET

# APPENDIX G-2: HCM AND SYNCHRO PRINTOUTS – SIGNALIZED INTERSECTION CAPACITY ANALYSES – 2015 PM PEAK HOURS – SYNCHRO PRINTOUTS

	,	-	+	*	1	1		
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR	Ø9	
Lane Configurations		<b>^</b>	<b>^</b>		ሻ	7		
Traffic Volume (vph)	0	935		0	280	645		
Future Volume (vph)	0	935		0	280	645		
Ideal Flow (vphpl)	1900	1900		1900	1900	1900		
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00		
Frt						0.850		
Fit Protected					0.950			
Satd. Flow (prot)	0	3574	3574	0	1752	1568		
FIt Permitted					0.950			
Satd. Flow (perm)	0	3574	3574	0	1752	1568		
Right Turn on Red				Yes		Yes		
Satd. Flow (RTOR)						344		
Link Speed (mph)		30	30		25			
Link Distance (ft)		317	266		431			
Travel Time (s)		7.2	6.0		11.8			
Peak Hour Factor	0.92	0.92	0.89	0.89	0.92	0.92		
Heavy Vehicles (%)	1%	1%	1%	1%	3%	3%		
Adj. Flow (vph)	0	1016	955	0	304	701		
Shared Lane Traffic (%)			-		001			
Lane Group Flow (vph)	0	1016	955	0	304	701		
Turn Type		NA	NA		Prot	Perm		
Protected Phases		2	2		7	1-01111	9	
Permitted Phases		_				7		
Detector Phase		2	2		7	7		
Switch Phase		-						
Minimum Initial (s)		10.0	10.0		7.0	7.0	4.0	
Minimum Split (s)		40.0	40.0		29.0	29.0	22.0	
Total Split (s)		58.0	58.0		36.0	36.0	26.0	
Total Split (%)		48.3%	48.3%		30.0%	30.0%	22%	
Maximum Green (s)		52.0	52.0		30.0	30.0	20.0	
Yellow Time (s)		4.0	4.0		4.0	4.0	3.0	
All-Red Time (s)		2.0	2.0		2.0	2.0	3.0	
Lost Time Adjust (s)		0.0	0.0		0.0	0.0	3.0	
Total Lost Time (s)		6.0	6.0		6.0	6.0		
Lead/Lag		0.0	0.0		0.0	0.0		
Lead-Lag Optimize?								
Vehicle Extension (s)		3.0	3.0		3.0	3.0	3.0	
Recall Mode		C-Max	C-Max		Max	Max	None	
Walk Time (s)		7.0	7.0		7.0	7.0	Mone	
Flash Dont Walk (s)		11.0	11.0		11.0	11.0		
Pedestrian Calls (#/hr)		0	0		0	0		
Act Effct Green (s)		78.0	78.0		30.0	30.0		
Actuated g/C Ratio		0.65	0.65		0.25	0.25		
wc Ratio		0.44	0.65		0.69	1.08		
Control Delay		11.0	1.8		50.4			
Queue Delay		0.0	0.0		0.0	80.9		
Total Delay		11.0	1.8		50.4			
LOS		B				80.9		
Approach Delay			Α		· D	F		
при одить регау		11.0	1.8		71.7			

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Lane Group	EBL EBT	WBT	WBR SBL	SBR	Ø9	
Approach LOS	В	Α.	E			
Queue Length 50th (ft)	186	15	214	~392		
Queue Length 95th (ft)	230	18	317	#630		
Internal Link Dist (ft)	237	186	351			
Turn Bay Length (ft)						
Base Capacity (vph)	2323	2323	438	650		
Starvation Cap Reductn	0	0	0	0		
Spillback Cap Reductn	0	0	0	0		
Storage Cap Reductn	0	0	0	0		
Reduced v/c Ratio	0.44	0.41	0.69	1.08		

Area Type:

Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 0 (0%), Referenced to phase 2:EBWB, Start of Green

Natural Cycle: 95

Control Type: Actuated-Coordinated

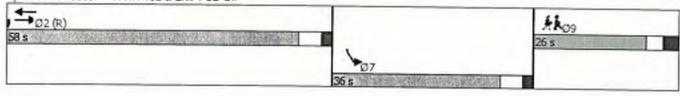
Maximum v/c Ratio: 1.08 Intersection Signal Delay: 28.5 Intersection Capacity Utilization 73.4%

Intersection LOS: C ICU Level of Service D

Analysis Period (min) 15

- Volume exceeds capacity, queue is theoretically infinite.
   Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.

Splits and Phases: 7: NH 102 & Exit 4 SB Off



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	4	7	1	4	1	7	*	4	4	×	~
Lane Group	NBL2	NBL	NBR	SEL	SER	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations	ሻሻ		*			*	11			<b>†</b> †	*
Traffic Volume (vph)	580	0	605	0	0	475	740	0	0	485	0
Future Volume (vph)	580	0	605	0	0	475	740	0	0	485	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt			0.850				0.00		1.00	0.00	1.00
FIt Protected	0.950		21000			0.950					
Satd. Flow (prot)	3467	0	1599	0	0	1770	3539	0	0	3539	1863
FIt Permitted	0.950					0.950	0000		v	0000	1003
Satd. Flow (perm)	3467	0	1599	0	0	1770	3539	0	0	3539	1863
Right Turn on Red	0.0.		Yes			1110	0000	Yes	0	3039	
Satd. Flow (RTOR)			499					res			Yes
Link Speed (mph)		25	400	30			20			20	
Link Distance (ft)		347		390			30			30	
Travel Time (s)		9.5					361			346	
Peak Hour Factor	0.00		0.00	8.9	0.00	0.00	8.2			7.9	
	0.92	0.92	0.92	0.92	0.92	0.96	0.96	0.96	0.87	0.87	0.87
Heavy Vehicles (%)	1%	1%	1%	2%	2%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	630	0	658	0	0	495	771	0	0	557	0
Shared Lane Traffic (%)											
Lane Group Flow (vph)	630	0	658	0	0	495	771	0	0	557	0
Turn Type	Prot		Free			Prot	NA.			NA.	Free
Protected Phases	2					7	4			8	
Permitted Phases			Free				7				Free
Detector Phase	2					7	4			8	
Switch Phase											
Minimum Initial (s)	5.0					5.0	10.0			10.0	
Minimum Split (s)	9.5					9.5	66.0			66.0	
Total Split (s)	38.0					44.0	82.0			38.0	
Total Split (%)	31.7%					36.7%	68.3%			31.7%	
Maximum Green (s)	33.5					39.5	76.0			32.0	
Yellow Time (s)	3.5					3.5	4.0			4.0	
All-Red Time (s)	1.0					1.0	2.0			2.0	
Lost Time Adjust (s)	0.0					0.0	0.0			0.0	
Total Lost Time (s)	4.5					4.5	6.0			6.0	
Lead/Lag						Lead				Lag	
Lead-Lag Optimize?						Yes				Yes	
Vehicle Extension (s)	3.0					3.0	3.0			3.0	
Recall Mode	C-Max					None	None			None	
Walk Time (s)						Hono	7.0			7.0	
Flash Dont Walk (s)							11.0			11.0	
Pedestrian Calls (#/hr)							0				
Act Effct Green (s)	43.4		120.0			36.7	66.1			0	
Actuated g/C Ratio	0.36		1.00			0.31	0.55			24.9	
w/c Ratio	0.50		0.41			0.91				0.21	
Control Delay	33.3		0.41				0.40			0.76	
Queue Delay	0.0		0.0			62.3	19.5			51.5	
Total Delay	33.3		0.0			0.0	0.0			0.0	
LOS	. C					62.3	19.5			51.5	
		10.7	A			E	В			D	
Approach Delay		16.7					36.2			51.5	

	1	ሻ	1	-	1	7	*	4	4	×	~
Lane Group	NBL2	NBL	NBR	SEL	SER	NEL	NET	NER	SWL	SWT	SWR
Approach LOS		В					D	-	-	D	Othic
Queue Length 50th (ft)	202		0			374	200			215	
Queue Length 95th (ft)	281		0			#548	242			250	
Internal Link Dist (ft)		267		310			281			266	
Turn Bay Length (ft)							201			200	
Base Capacity (vph)	1253		1599			582	2241			943	
Starvation Cap Reductn	0		0			0	0			0	
Spillback Cap Reductn	0		0			0	0			0	
Storage Cap Reductn	0		0			0	0			0	
Reduced v/c Ratio	0.50		0.41			0.85	0.34			0.59	

Area Type:

Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 0 (0%), Referenced to phase 2:NBL and 6:, Start of Green

Natural Cycle: 135

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.91

Intersection Signal Delay: 30.9

Intersection Capacity Utilization 68.4%

Intersection LOS: C ICU Level of Service C

Analysis Period (min) 15

# 95th percentile volume exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.

Splits and Phases: 11: Exit 4 NB Off & NH 102

→ Ø2 (R)	<b>≯</b> 04	
8 s	82 s	
	) <sub>07</sub>	¥ <sub>Ø8</sub>
	44 s	38 s

	*	-	7	1	+	1	1	1	-	1	+	1
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		<b>^</b>	7	ሻ	<b>^</b>					ሻሻ		7
Traffic Volume (vph)	0	650	280	135	490	0	0	0	0	645	0	265
Future Volume (vph)	0	650	280	135	490	0	0	0	0	645	0	265
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	500		0	0		0	0	1000	0
Storage Lanes	0		1	1		0	0		0	2		1
Taper Length (ft)	25			30			25			25		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	0.97	1.00	1.00
Frt			0.850						1.00	0.01	1.00	0.850
Fit Protected				0.950						0.950		0.000
Satd. Flow (prot)	0	3471	1553	1719	3438	0	0	0	0	3367	0	1553
Flt Permitted				0.950					-	0.950	v	1555
Satd. Flow (perm)	0	3471	1553	1719	3438	0	0	0	0	3367	0	1553
Right Turn on Red			Yes		- 100	Yes			Yes	0001	0	Yes
Satd. Flow (RTOR)			322						100			276
Link Speed (mph)		30			30			30			35	2/0
Link Distance (ft)		410			699			486			444	
Travel Time (s)		9.3			15.9			11.0			8.6	
Peak Hour Factor	0.87	0.87	0.87	0.86	0.86	0.86	0.92	0.92	0.92	0.91	0.91	0.91
Heavy Vehicles (%)	4%	4%	4%	5%	5%	5%	2%	2%	2%	4%	4%	4%
Adj. Flow (vph)	0	747	322	157	570	0	0	0	0	709	0	291
Shared Lane Traffic (%)			-		0.0				V	103	v	291
Lane Group Flow (vph)	0	747	322	157	570	0	0	0	0	709	0	291
Turn Type		NA	Free	Prot	NA					Prot	v	Prot
Protected Phases		2	0.000	1	6					4		4
Permitted Phases			Free		1					7		"
Detector Phase		2		1	6					4		4
Switch Phase										7		*
Minimum Initial (s)		5.0		4.0	5.0					3.0		3.0
Minimum Split (s)		41.0		10.0	41.0					36.0		36.0
Total Split (s)		36.0		24.0	60.0					40.0		40.0
Total Split (%)		36.0%		24.0%	60.0%					40.0%		40.0%
Maximum Green (s)		30.0		18.0	54.0					34.0		34.0
Yellow Time (s)		4.0		4.0	4.0					4.0		4.0
All-Red Time (s)		2.0		2.0	2.0					2.0		2.0
Lost Time Adjust (s)		0.0		0.0	0.0					0.0		0.0
Total Lost Time (s)		6.0		6.0	6.0					6.0		
Lead/Lag		Lag		Lead	0.0					0.0		6.0
Lead-Lag Optimize?		Yes		Yes								
Vehicle Extension (s)		4.0		4.0	4.0					4.0		40
Recall Mode		C-Min		None	C-Min					None		4.0 None
Walk Time (s)		7.0			7.0					7.0		None
Flash Dont Walk (s)		11.0			11.0							7.0
Pedestrian Calls (#/hr)		0			0					11.0		11.0
Act Effct Green (s)		38.4	100.0	14.7	59.2					0		0
Actuated g/C Ratio		0.38	1.00	0.15	0.59					28.8		28.8
w/c Ratio		0.56	0.21	0.62	0.38					0.29		0.29
Control Delay		27.8	0.3	45.3	4.8					0.73		0.45
Queue Delay		0.0	0.0	0.0	0.0					36.5		6.2

	1	-	*	1	-	*	1	1	-	1	1	1
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay		27.8	0.3	45.3	4.8					36.5		6.2
LOS		C	A	D	A					D		A
Approach Delay		19.5			13.5						27.7	-
Approach LOS		В			В						C	
Queue Length 50th (ft)		197	0	101	97					207		7
Queue Length 95th (ft)		277	0	151	52					254		63
Internal Link Dist (ft)		330			619			406			364	- 00
Turn Bay Length (ft)				500							001	
Base Capacity (vph)		1334	1553	309	2034					1144		710
Starvation Cap Reductn		0	0	0	0					0		0
Spillback Cap Reductn		0	0	0	0					0		0
Storage Cap Reductn		0	0	0	0					0		0
Reduced v/c Ratio		0.56	0.21	0.51	0.28					0.62		0.41

Area Type:

Cycle Length: 100

Actuated Cycle Length: 100

Offset: 48 (48%), Referenced to phase 2:EBT and 6:WBT, Start of Green

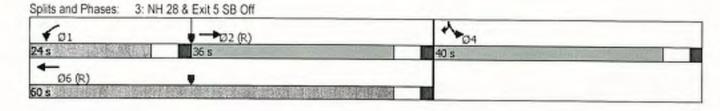
Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.73 Intersection Signal Delay: 20.9

Intersection Capacity Utilization 58.8%

Analysis Period (min) 15



Intersection LOS: C

ICU Level of Service B

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	ሻ	11			<b>^</b>	7	*		7	002	001	ODI
Traffic Volume (vph)	235	1060	0	0	425	535	220	0	240	0	0	0
Future Volume (vph)	235	1060	0	0	425	535	220	0	240	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	500		0	0		0	0		0	0	1000	0
Storage Lanes	1		0	0		1	1		1	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt						0.850			0.850		1.00	1.00
Flt Protected	0.950						0.950					
Satd. Flow (prot)	1752	3505	0	0	3505	1568	1703	0	1524	0	0	0
Flt Permitted	0.950						0.950					
Satd. Flow (perm)	1752	3505	0	0	3505	1568	1703	0	1524	0	0	0
Right Turn on Red			Yes			Yes	- 11177		Yes			Yes
Satd. Flow (RTOR)						588			98			100
Link Speed (mph)		30			30			35	-		35	
Link Distance (ft)		699			492			450			828	
Travel Time (s)		15.9			11.2			8.8			16.1	
Peak Hour Factor	0.92	0.92	0.92	0.91	0.91	0.91	0.67	0.67	0.67	0.92	0.92	0.92
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	6%	6%	6%	2%	2%	2%
Adj. Flow (vph)	255	1152	0	0	467	588	328	0	358	0	0	0
Shared Lane Traffic (%)							-		-			
Lane Group Flow (vph)	255	1152	0	0	467	588	328	0	358	0	0	0
Turn Type	Prot	NA			NA	Free	Prot		Prot			
Protected Phases	5	2			6		8		8			
Permitted Phases		52				Free						
Detector Phase	5	2			6		8		8			
Switch Phase									-			
Minimum Initial (s)	4.0	16.0			16.0		4.0		4.0			
Minimum Split (s)	26.0	55.0			24.0		33.0		33.0			
Total Split (s)	32.0	61.0			29.0		39.0		39.0			
Total Split (%)	32.0%	61.0%			29.0%		39.0%		39.0%			
Maximum Green (s)	26.0	55.0			23.0		33.0		33.0			
Yellow Time (s)	4.0	4.0			4.0		4.0		4.0			
All-Red Time (s)	2.0	2.0			2.0		2.0		2.0			
Lost Time Adjust (s)	0.0	0.0			0.0		0.0		0.0			
Total Lost Time (s)	6.0	6.0			6.0		6.0		6.0			
Lead/Lag	Lead				Lag							
Lead-Lag Optimize?	Yes				Yes							
Vehicle Extension (s)	4.0	4.0			4.0		4.0		4.0			
Recall Mode	None	C-Max			C-Max		None		None			
Walk Time (s)		7.0			7.0							
Flash Dont Walk (s)		11.0			11.0							
Pedestrian Calls (#/hr)		0			0							
Act Effct Green (s)	20.3	62.1			35.8	100.0	25.9		25.9			
Actuated g/C Ratio	0.20	0.62			0.36	1.00	0.26		0.26			
w/c Ratio	0.72	0.53			0.37	0.38	0.75		0.77			
Control Delay	48.4	12.7			27.4	0.7	44.1		35.2			
Queue Delay .	0.0	0.0			0.0	0.0	0.0		0.0			

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay	48.4	12.7			27.4	0.7	44.1		35.2			
LOS	D	В			C	A	D		D			
Approach Delay		19.2			12.5			39.5				
Approach LOS		В			В			D				
Queue Length 50th (ft)	152	202			115	0	191		155			
Queue Length 95th (ft)	223	308			192	0	180		143			
Internal Link Dist (ft)		619			412			370			748	
Turn Bay Length (ft)	500							77.7				
Base Capacity (vph)	455	2176			1254	1568	561		568			
Starvation Cap Reductn	0	0			0	0	0		0			
Spillback Cap Reductn	0	0			0	0	0		0			
Storage Cap Reductn	0	0			0	0	0		0			
Reduced w/c Ratio	0.56	0.53			0.37	0.38	0.58	4	0.63			

Area Type:

Other

Cycle Length: 100

Actuated Cycle Length: 100

Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

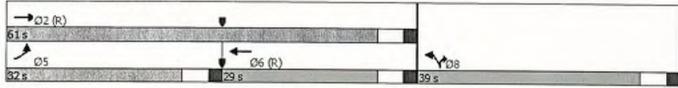
Maximum v/c Ratio: 0.77 Intersection Signal Delay: 21.4 Intersection Capacity Utilization 58.8%

Intersection LOS: C ICU Level of Service B

Analysis Period (min) 15

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Splits and Phases: 2: Exit 5 NB Off & NH 28



	50	×	1	-	13 1	*	5 EB	*	~	5	×	*
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations		4			4			1.			4	
Traffic Volume (vph)	15	50	5	230	0	100	0	760	150	15	415	0
Future Volume (vph)	15	50	5	230	0	100	0	760	150	15	415	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.990			0.959		11.00	0.978		1100	1.00	1.00
Fit Protected		0.989			0.966						0.998	
Satd. Flow (prot)	0	1842	0	0	1743	0	0	1822	0	0	1841	0
FIt Permitted		0.902			0.740						0.620	v
Satd. Flow (perm)	0	1680	0	0	1335	0	0	1822	0	0	1144	0
Right Turn on Red			Yes			Yes			Yes		1144	Yes
Satd. Flow (RTOR)		6			55	1.00		24	100			165
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		170			373			245			336	
Travel Time (s)		3.9			8.5			5.6			7.6	
Peak Hour Factor	0.83	0.83	0.83	0.98	0.98	0.98	0.95	0.95	0.95	0.89		0.00
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	2%	2%	2%	3%	0.89	0.89
Adj. Flow (vph)	18	60	6	235	0	102	0	800	158		3%	3%
Shared Lane Traffic (%)	10	00		200	v	102	U	000	130	17	466	0
Lane Group Flow (vph)	0	84	0	0	337	0	0	958	0		400	
Turn Type	Perm	NA		Perm	NA.	U	U		0	0	483	0
Protected Phases	1.01111	2		remi	2			NA		Perm	NA	
Permitted Phases	2	-		2	2			1			1	
Detector Phase	2	2		2	2			-		1	- 1	
Switch Phase	-	4		2	2			1		1	1	
Minimum Initial (s)	5.0	5.0		5.0	F 0							
Minimum Split (s)	24.0	24.0		24.0	5.0 24.0			5.0		5.0	5.0	
Total Split (s)	24.0	24.0		24.0				24.0		24.0	24.0	
Total Split (%)	40.0%	40.0%		40.0%	24.0			36.0		36.0	36.0	
Maximum Green (s)	18.0	18.0			40.0%			60.0%		60.0%	60.0%	
Yellow Time (s)	4.0			18.0	18.0			30.0		30.0	30.0	
All-Red Time (s)		4.0		4.0	4.0			4.0		4.0	4.0	
Lost Time Adjust (s)	2.0	2.0		2.0	2.0			2.0		2.0	2.0	
the state of the s		0.0			0.0			0.0			0.0	
Total Lost Time (s)	1100	6.0		7	6.0			6.0			6.0	
Lead/Lag	Lag	Lag		Lag	Lag			Lead		Lead	Lead	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes			Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0		3.0	3.0	
Recall Mode	Min	Min		Min	Min			None		None	None	
Walk Time (s)	7.0	7.0		7.0	7.0			7.0		7.0	7.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0			11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0			0		0	0	
Act Effct Green (s)		15.8			15.8			30.1			30.1	
Actuated g/C Ratio		0.27			0.27			0.52			0.52	
v/c Ratio		0.18			0.84			1.00			0.81	
Control Delay		15.9			36.6			47.1			26.8	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		15.9			36.6			47.1			26.8	
LOS		В			D			D			C	
Approach Delay		15.9			36.6			47.1			26.8	

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Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Approach LOS		В			D			D			C	O.I.I.
Queue Length 50th (ft)		21			91			~382			140	
Queue Length 95th (ft)		45			#215			#591			#306	
Internal Link Dist (ft)		90			293			165			256	
Turn Bay Length (ft)								100			200	
Base Capacity (vph)		528			454			959			595	
Starvation Cap Reductn		0			0			0			0	
Spillback Cap Reductn		0			0			0			0	
Storage Cap Reductn		0			0			0			0	
Reduced v/c Ratio		0.16			0.74			1.00			0.81	

Area Type:

Other

Cycle Length: 60

Actuated Cycle Length: 57.9

Natural Cycle: 80

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 1.00 Intersection Signal Delay: 38.5 Intersection Capacity Utilization 95.4%

Intersection LOS: D ICU Level of Service F

Analysis Period (min) 15

Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.

# 95th percentile volume exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.

Splits and Phases: 4: NH 102 & Fordway/N. High St

<b>%</b> 01	102	
36 s	24s	200

1	2	23	120	16

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Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations	*	1		ሻ	1	7	*	1,		*	1.	
Traffic Volume (vph)	70	295	35	135	340	150	135	410	40	75	250	65
Future Volume (vph)	70	295	35	135	340	150	135	410	40	75	250	65
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.984				0.850		0.987			0.969	
Fit Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1752	1815	0	1752	1845	1568	1787	1857	0	1787	1823	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1752	1815	0	1752	1845	1568	1787	1857	0	1787	1823	0
Right Turn on Red			Yes			Yes			Yes		-	Yes
Satd. Flow (RTOR)		7				161		6			15	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		361			411			477			530	
Travel Time (s)		8.2			9.3			10.8			12.0	
Peak Hour Factor	0.91	0.91	0.91	0.93	0.93	0.93	0.95	0.95	0.95	0.94	0.94	0.94
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	1%	1%	1%	1%	196	1%
Adj. Flow (vph)	77	324	38	145	366	161	142	432	42	80	266	69
Shared Lane Traffic (%)					-				-	00	200	00
Lane Group Flow (vph)	77	362	0	145	366	161	142	474	0	80	335	0
Turn Type	Prot	NA		Prot	NA	pm+ov	Prot	NA		Prot	NA	v
Protected Phases	3	8		7	4	5	5	2		1	6	
Permitted Phases						4		-				
Detector Phase	3	8		7	4	5	5	2		1	6	
Switch Phase								_				
Minimum Initial (s)	4.0	5.0		4.0	10.0	4.0	4.0	10.0		4.0	9.0	
Minimum Split (s)	17.0	24.0		11.0	24.0	16.0	16.0	24.0		11.0	24.0	
Total Split (s)	17.0	27.0		15.0	25.0	16.0	16.0	32.0		11.0	27.0	
Total Split (%)	20.0%	31.8%		17.6%	29.4%	18.8%	18.8%	37.6%		12.9%	31.8%	
Maximum Green (s)	11.0	21.0		9.0	19.0	10.0	10.0	26.0		5.0	21.0	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.0	6.0		6.0	6.0	6.0	6.0	6.0		6.0	6.0	
Lead/Lag	Lead	Lag		Lead	Lag	Lead	Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None	None	None	C-Max		None	None	
Act Effct Green (s)	8.8	19.5		8.9	22.0	37.6	9.7	29.5		5.6	22.9	
Actuated g/C Ratio	0.10	0.23		0.10	0.26	0.44	0.11	0.35		0.07	0.27	
v/c Ratio	0.43	0.86		0.79	0.77	0.21	0.70	0.73		0.68	0.67	
Control Delay	42.5	51.3		67.9	43.3	3.5	55.8	34.2		69.5	35.1	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	42.5	51.3		67.9	43.3	3.5	55.8	34.2		69.5	35.1	
LOS	D	D		E	D	A	E	C		09.5 E	35.1 D	
Approach Delay		49.7			39.1	-	_	39.1		-	41.7	
Approach LOS		D			D			D			41.7 D	
Queue Length 50th (ft)	39	178		77	184	0	74	231		43	157	
Queue Length 95th (ft)	80	#316		#174	#346	35	#155	#393		#119	#272	

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Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Internal Link Dist (ft) Turn Bay Length (ft)		281			331			397	7,100	0112	450	Oiiii
Base Capacity (vph)	226	453		185	477	791	212	647		118	501	
Starvation Cap Reductn	0	0		0	0	0	0	0		0	0	
Spillback Cap Reductn	0	0		0	0	0	0	0		0	0	
Storage Cap Reductn	0	0		0	0	0	0	0		0	0	
Reduced v/c Ratio	0.34	0.80		0.78	0.77	0.20	0.67	0.73		0.68	0.67	
Intersection Cummens	TOTAL PROPERTY.			-			-		-		To a transfer over	

Area Type:

Cycle Length: 85

Actuated Cycle Length: 85

Offset: 0 (0%), Referenced to phase 2:NET, Start of Green

Other

Natural Cycle: 85

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.86 Intersection Signal Delay: 41.8 Intersection Capacity Utilization 87.5%

Intersection LOS: D ICU Level of Service E

Analysis Period (min) 15

Solits and Phases: 23: NH 102 (E Broadway) & Birch St/Crystal Av.

₹ 01 ·	≠02 (R)	703	↓ 04
11s	32 s	17 s	25 s
₩ os	¥ Ø6	₩ <sub>07</sub>	↑ <sub>Ø8</sub>
16 s	27 s	15 s	27 s

<sup># 95</sup>th percentile volume exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.

## Lanes, Volumes, Timings // 15: Folsom Rd/Tsienneto Rd & NH 28 S/NH 28

	4	1	1	4	1	١	200	×	4	€00	×	t
Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations	ሻ	<b>^</b>	7	44	1	*	ħ	1	7	*	1	7
Traffic Volume (vph)	80	360	150	520	430	190	240	320	90	150	220	380
Future Volume (vph)	80	360	150	520	430	190	240	320	90	150	220	380
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		150	0		0	0	1000	0	0	1300	0
Storage Lanes	1		1	2		1	1		1	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	1.00	0.97	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.00	0.850	0.01	1.00	0.850	1.00	1.00	0.850	1.00	1.00	0.850
Fit Protected	0.950		0.000	0.950		0.000	0.950		0.000	0.950		0.830
Satd. Flow (prot)	1770	3539	1583	3433	1863	1583	1770	1863	1583	1787	1881	1500
Flt Permitted	0.950	0000	1000	0.950	1000	1000	0.950	1000	1303	0.950	1001	1599
Satd. Flow (perm)	1770	3539	1583	3433	1863	1583	1770	1863	1583		1001	4500
Right Turn on Red	1710	0000	Yes	5455	1000	Yes	1770	1003		1787	1881	1599
Satd. Flow (RTOR)			256			202			Yes			Yes
Link Speed (mph)		30	200		30	202		20	199		-00	142
Link Distance (ft)		639			394			30			30	
Travel Time (s)		14.5			9.0			532			387	
Peak Hour Factor	0.92	0.92	0.92	004		0.04	0.00	12.1	0.00		8.8	
Heavy Vehicles (%)	2%			0.94	0.94	0.94	0.96	0.96	0.96	0.95	0.95	0.95
Adj. Flow (vph)		2%	2%	2%	2%	2%	2%	2%	2%	1%	1%	1%
	87	391	163	553	457	202	250	333	94	158	232	400
Shared Lane Traffic (%)	0.7	201	400							772		
Lane Group Flow (vph)	87	391	163	553	457	202	250	333	94	158	232	400
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	pm+ov
Protected Phases	5	2		1	6		7	4		3	8	1
Permitted Phases			2			6	-		4			8
Detector Phase	5	2	2	1	6	6	7	4	4	3	8	1
Switch Phase				2.7	3.2	0.0						
Minimum Initial (s)	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0
Minimum Split (s)	15.0	25.0	25.0	35.0	45.0	45.0	14.0	40.0	40.0	15.0	25.0	35.0
Total Split (s)	15.0	25.0	25.0	35.0	45.0	45.0	25.0	40.0	40.0	15.0	25.0	35.0
Total Split (%)	13.0%	21.7%	21.7%	30.4%	39.1%	39.1%	21.7%	34.8%	34.8%	13.0%	21.7%	30.4%
Maximum Green (s)	9.0	19.0	19.0	29.0	39.0	39.0	19.0	34.0	34.0	9.0	19.0	29.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (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
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Max	C-Max	None	None	None	None	None	None	None	None	None
Walk Time (s)		5.0	5.0		5.0	5.0		5.0	5.0		5.0	
Flash Dont Walk (s)		11.0	11.0		11.0	11.0		11.0	11.0		11.0	
Pedestrian Calls (#/hr)		0	0		0	0		0	0		0	
Act Effct Green (s)	9.8	29.4	29.4	24.3	44.0	44.0	18.4	28.3	28.3	9.0	18.9	49.2
Actuated g/C Ratio	0.09	0.26	0.26	0.21	0.38	0.38	0.16	0.25	0.25	0.08	0.16	0.43
w/c Ratio	0.58	0.43	0.27	0.76	0.64	0.28	0.89	0.73	0.17	1.14	0.75	0.52
Control Delay	66.6	40.0	1.1	49.7	35.6	4.8	78.7	49.0	0.7	165.5	60.7	16.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

	1	1	1	4	1	J.	*	*	4	4	×	t
Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Total Delay	66.6	40.0	1.1	49.7	35.6	4.8	78.7	49.0	0.7	165.5	60.7	16.4
LOS	E	D	A	D	D	A	E	D	A	F	E	В
Approach Delay		33.7			36.9			53.3			59.2	
Approach LOS		C			D			D			E	
Queue Length 50th (ft)	62	130	0	199	284	0	182	224	0	~136	165	134
Queue Length 95th (ft)	#134	198	0	248	419	51	#324	310	0	#273	241	190
Internal Link Dist (ft)		559			314			452			307	
Turn Bay Length (ft)	150		150									
Base Capacity (vph)	153	905	595	865	712	730	292	550	608	139	392	824
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0.0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.57	0.43	0.27	0.64	0.64	0.28	0.86	0.61	0.15	1.14	0.59	0.49

Area Type:

Other

Cycle Length: 115

Actuated Cycle Length: 115

Offset: 0 (0%), Referenced to phase 2:NBT, Start of Green

Natural Cycle: 115

Control Type: Actuated-Coordinated

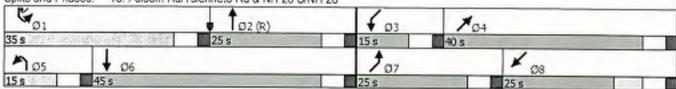
Maximum v/c Ratio: 1.14 Intersection Signal Delay: 44.9 Intersection Capacity Utilization 74.5%

Intersection LOS: D ICU Level of Service D

Analysis Period (min) 15

- Volume exceeds capacity, queue is theoretically infinite.
   Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.

Splits and Phases: 15: Folsom Rd/Tsienneto Rd & NH 28 S/NH 28



	4	×	1	~	*	7	7,	B 1	~	4	. ×	*
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations	*	44		*1	<b>1</b>			4	7	0.112	4	7
Traffic Volume (vph)	170		5	20		80	15	10	15	45	10	215
Future Volume (vph)	170	1400	5	20		80	15	10	15	45	10	215
Ideal Flow (vphpl)	1900	1900	1900	1900		1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	0.95	1.00		0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.999		27.57	0.987	0.00	1.00	1.00	0.850	1.00	1.00	0.850
Fit Protected	0.950			0.950				0.971	0.000		0.961	0.000
Satd. Flow (prot)	1787	3571	0	1787	3528	0	0	1845	1615	0	1808	4500
FIt Permitted	0.950			0.950				0.774	1013	U	0.747	1599
Satd. Flow (perm)	1787	3571	0	1787	3528	0	0	1471	1615	^		4500
Right Turn on Red			Yes	1101	0020	Yes	U	14/1	Yes	0	1405	1599
Satd. Flow (RTOR)		1	100		13	163						Yes
Link Speed (mph)		30			30			30	172			269
Link Distance (ft)		277			755						30	
Travel Time (s)		6.3			17.2			230			387	
Peak Hour Factor	0.97	0.97	0.97	0.95	0.95	0.95	0.00	5.2	0.00	0.00	8.8	
Heavy Vehicles (%)	1%	1%	1%	1%	1%		0.90	0.90	0.90	0.80	0.80	0.80
Adj. Flow (vph)	175	1443	5	21	900	1%	0%	0%	0%	1%	1%	1%
Shared Lane Traffic (%)	17.0	1440	0	21	900	84	17	11	17	56	13	269
Lane Group Flow (vph)	175	1448	0	24	001				-			
Turn Type	Prot	NA.	U	21	984	0	0	28	17	0	69	269
Protected Phases				Prot	NA		Perm	NA	Perm	Perm	NA.	Perm
Permitted Phases	5	2		1	6			8			4	
Detector Phase		0					8		8	4	4	4
Switch Phase	5	2		1	6		8	8	8	4	4	4
Minimum Initial (s)	5.0	8.0		5.0	8.0		5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	26.0	63.0		11.0	48.0		21.0	21.0	21.0	21.0	21.0	21.0
Total Split (s)	26.0	63.0		11.0	48.0		21.0	21.0	21.0	21.0	21.0	21.0
Total Split (%)	27.4%	66.3%		11.6%	50.5%		22.1%	22.1%	22.1%	22.1%	22.1%	22.1%
Maximum Green (s)	20.0	57.0		5.0	42.0		15.0	15.0	15.0	15.0	15.0	15.0
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		4.0	0.0	0.0	2.0	0.0	0.0
Total Lost Time (s)	6.0	6.0		6.0	6.0			6.0	6.0		6.0	6.0
Lead/Lag	Lead	Lag		Lead	Lag			0.0	0.0		0.0	0.0
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	20	20
Recall Mode	None	C-Max		None	C-Max		None	None	None	None	3.0	3.0
Walk Time (s)		7.0		110110	7.0		7.0	7.0	7.0	7.0	None	None
Flash Dont Walk (s)		11.0			11.0		11.0	11.0	11.0		7.0	7.0
Pedestrian Calls (#/hr)		0			0		0			11.0	11.0	11.0
Act Effct Green (s)	14.5	68.0		6.0	52.4		U	10.1	0	0	0	0
Actuated g/C Ratio	0.15	0.72		0.06	0.55			10.1	10.1		10.1	10.1
w/c Ratio	0.64	0.57		0.19	0.50			0.11	0.11		0.11	0.11
Control Delay	37.4	14.3		46.3	15.5			0.18	0.05		0.46	0.66
Queue Delay	0.0	0.0		0.0	0.0			39.4	0.3		48.8	13.0
Total Delay	37.4	14.3						0.0	0.0		0.0	0.0
LOS	D D	B		46.3	15.5			39.4	0.3		48.8	13.0
Approach Delay	D	16.8		D	B 16.2			D 24.7	Α		D	В
- pp. oddr. Doldy		10.0			10.2			24.7			20.3	

	-	×	1	~	×	*	7	×	~	6	K	*
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Approach LOS		В			В			С			C	
Queue Length 50th (ft)	104	284		12	179			16	0		40	0
Queue Length 95th (ft)	m125	437		36	296			40	0		69	43
Internal Link Dist (ft)		197			675			150			307	40
Turn Bay Length (ft)					77.7			100			001	
Base Capacity (vph)	376	2557		113	1951			232	399		221	479
Starvation Cap Reductn	0	0		0	0			0	000		0	0
Spillback Cap Reductn	0	0		0	0			0	0		0	0
Storage Cap Reductn	0	0		0	0			0	0		0	0
Reduced v/c Ratio	0.47	0.57		0.19	0.50			0.12	0.04		0.31	0.56
Intersection Cummon			P .			NO DE		-	-			

Area Type: Other

Cycle Length: 95

Actuated Cycle Length: 95

Offset: 69 (73%), Referenced to phase 2:SET and 6:NWT, Start of Green

Natural Cycle: 95

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.66

Intersection Signal Delay: 17.1

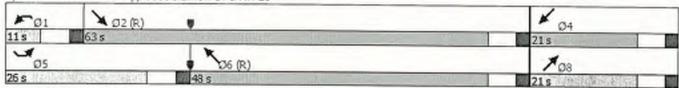
Intersection Capacity Utilization 67.7%

Intersection LOS: B ICU Level of Service C

Analysis Period (min) 15

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 6: Applebee's/Linlew Dr & NH 28



	*	53	*	1	Ns	1	1	<b>†</b>	-	1	1	4
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	ሻሻ	<b>†</b> ‡		ሻ	<b>†</b> ‡		*	1		*	4	*
Traffic Volume (vph)	110	1095	5	5	800	260	40	10	10	345	5	135
Future Volume (vph)	110	1095	5	5	800	260	40	10	10	345	5	135
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		150	150		150	0		0	0		0
Storage Lanes	2		0	1		0	1		0	1		1
Taper Length (ft)	150			25			25		-	25		
Lane Util. Factor	0.97	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	0.95	0.95	1.00
Frt		0.999			0.963			0.925	214.4	0.00	0.00	0.850
Fit Protected	0.950			0.950			0.950			0.950	0.954	0.000
Satd. Flow (prot)	3467	3571	0	1770	3408	0	1805	1758	0	1715	1722	1615
Flt Permitted	0.950			0.950			0.950			0.950	0.954	1010
Satd. Flow (perm)	3467	3571	0	1770	3408	0	1805	1758	0	1715	1722	1615
Right Turn on Red			Yes			Yes			Yes		11.22	Yes
Satd. Flow (RTOR)		1			62			13				108
Link Speed (mph)		30			30			30			30	100
Link Distance (ft)		877			261			151			343	
Travel Time (s)		19.9			5.9			3.4			7.8	
Peak Hour Factor	0.84	0.84	0.84	0.90	0.90	0.90	0.78	0.78	0.78	0.86	0.86	0.86
Heavy Vehicles (%)	1%	1%	1%	2%	2%	2%	0%	0%	0%	0%	0%	0.00
Adj. Flow (vph)	131	1304	6	6	889	289	51	13	13	401	6	157
Shared Lane Traffic (%)					000	200	01	10	10	49%	0	15/
Lane Group Flow (vph)	131	1310	0	6	1178	0	51	26	0	205	202	157
Turn Type	Prot	NA		Prot	NA		Split	NA	U	Split	NA	
Protected Phases	5	2		1	6		3	3		Spin 4	4	pt+ov 45
Permitted Phases		2			6		9	0		4	4	43
Detector Phase	5	2		1	6		3	3		4	4	45
Switch Phase		17						0		4	4	45
Minimum Initial (s)	5.0	8.0		5.0	8.0		5.0	5.0		8.0	8.0	
Minimum Split (s)	11.0	53.0		11.0	50.0		11.0	11.0		20.0	20.0	
Total Split (s)	14.0	53.0		11.0	50.0		11.0	11.0		20.0	20.0	
Total Split (%)	14.7%	55.8%		11.6%	52.6%		11.6%	11.6%		21.1%	21.1%	
Maximum Green (s)	8.0	47.0		5.0	44.0		5.0	5.0		14.0	14.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
ost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.0	6.0		6.0	6.0		6.0	6.0		6.0	6.0	
_ead/Lag	Lead	Lag		Lead	Lag		Lead	Lead		Lag		
.ead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Lag Yes	
/ehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max		None	None		None	None		None	None	
Valk Time (s)		5.0			5.0		5.0	5.0		5.0	5.0	
lash Dont Walk (s)		11.0			11.0		11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)		0			0		0	0		0	0	
Act Effct Green (s)	7.7	58.5		5.1	47.0		5.0	5.0		13.5	13.5	27.2
Actuated g/C Ratio	0.08	0.62		0.05	0.49		0.05	0.05		0.14	0.14	0.29
/c Ratio	0.47	0.60		0.06	0.69		0.54	0.05		0.14	0.14	
Control Delay	47.4	14.0		65.0	14.8		65.2	34.5		69.2		0.29
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	67.0 0.0	10.9

	1	58	1	1	-	1	1	†	*	1	1	1
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay	47.4	14.0		65.0	14.8		65.2	34.5		69.2	67.0	10.9
LOS	D	В		E	В		E	C		E	E	10.5 B
Approach Delay		17.1		1.5	15.0		-	54.8		_	52.2	0
Approach LOS		В			В			D			D.20	
Queue Length 50th (ft)	39	234		3	311		31	8		127	125	21
Queue Length 95th (ft)	63	356		m7	408		#60	29		#232	#227	63
Internal Link Dist (ft)		797			181			71		WZ-02	263	03
Turn Bay Length (ft)	150			150							203	
Base Capacity (vph)	291	2198		95	1717		95	104		252	253	533
Starvation Cap Reductn	0	0		0	0		0	0		0	200	000
Spillback Cap Reductn	0	0		0	0		0	0		0	0	0
Storage Cap Reductn	0	0		0	0		0	0		0	0	0
Reduced v/c Ratio	0.45	0.60		0.06	0.69		0.54	0.25		0.81	0.80	0.29

Area Type:

Other

Cycle Length: 95

Actuated Cycle Length: 95

Offset: 0 (0%), Referenced to phase 2:EBT, Start of Green

Natural Cycle: 95

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.84 Intersection Signal Delay: 23.3 Intersection Capacity Utilization 65.9%

Intersection LOS: C ICU Level of Service C

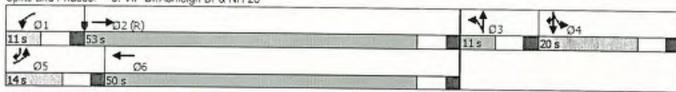
Analysis Period (min) 15

# 95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 9: VIP Dr/Ashleigh Dr & NH 28



	4	1	1	4	1	ل	\$ EC.	, 1	4	€00	×	t
Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations	7	1		ሻ	1	7	7	1		*	1>	
Traffic Volume (vph)	100	320	25	75	185	185	280	345	75	25	175	70
Future Volume (vph)	100	320	25	75	185	185	280	345	75	25	175	70
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		150	150	10000	150	150	,,,,,	150	150	1000	150
Storage Lanes	1		0	1		1	1		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.989				0.850		0.973		1100	0.957	1.00
Fit Protected	0.950			0.950			0.950			0.950	0.001	
Satd. Flow (prot)	1770	1842	0	1787	1881	1599	1805	1849	0	1805	1818	0
Flt Permitted	0.950			0.950			0.950	1010		0.950	1010	V
Satd. Flow (perm)	1770	1842	0	1787	1881	1599	1805	1849	0	1805	1818	0
Right Turn on Red			Yes		-	Yes	1000	1010	Yes	1000	1010	Yes
Satd. Flow (RTOR)		4	-			195		13	100		21	168
Link Speed (mph)		30			30	100		30			30	
Link Distance (ft)		481			347			479			371	
Travel Time (s)		10.9			7.9			10.9			8.4	
Peak Hour Factor	0.99	0.99	0.99	0.95	0.95	0.95	0.89	0.89	0.89	0.93	0.93	0.00
Heavy Vehicles (%)	2%	2%	2%	1%	1%	1%	0.05	0%	0.09	0.93	0.93	0.93
Adj. Flow (vph)	101	323	25	79	195	195	315	388	84	27	188	0%
Shared Lane Traffic (%)		020	20	10	100	100	010	300	04	21	100	75
Lane Group Flow (vph)	101	348	0	79	195	195	315	472	0	27	263	0
Turn Type	Prot	NA	-	Prot	NA	pt+ov	Prot	NA.	0	Prot	NA NA	0
Protected Phases	1	6		5	2	23	3	8		7		
Permitted Phases		6			2	20		0		,	4	
Detector Phase	1	6		5	2	23	3	8		7	4	
Switch Phase		-				20		0		-	4	
Minimum Initial (s)	8.0	8.0		8.0	8.0		8.0	8.0		8.0	8.0	
Minimum Split (s)	14.0	20.0		14.0	20.0		14.0	28.0		14.0	14.0	
Total Split (s)	15.0	24.0		14.0	23.0		23.0	28.0		14.0	19.0	
Total Split (%)	18.8%	30.0%		17.5%	28.8%		28.8%	35.0%		17.5%	23.8%	
Maximum Green (s)	9.0	18.0		8.0	17.0		17.0	22.0		8.0	13.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.0	6.0		6.0	6.0		6.0	6.0		6.0	6.0	
Lead/Lag	Lead	Lag		Lead	Lag		Lead					
Lead-Lag Optimize?	Loud	Lug		Loca	ray		Ledu	Lag		Lead	Lag	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	C-Max		None	None		None		
Walk Time (s)	140110			Hone	O INICIA		Ivolic	7.0		IVOUR	None	
Flash Dont Walk (s)								15.0				
Pedestrian Calls (#/hr)								0				
Act Effct Green (s)	8.7	21.8		8.0	21.2	43.5	16.3	29.4		0.0	10.7	
Actuated g/C Ratio	0.11	0.27		0.10	0.26	0.54	0.20	0.37		8.0 0.10	12.7	
w/c Ratio	0.53	0.69		0.44	0.39	0.20	0.86	0.69			0.16	
Control Delay	44.2	37.0		42.4	29.4	2.3	54.0			0.15	0.86	
Queue Delay	0.0	0.0		0.0	0.0			30.0		35.1	58.0	
Guede Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	

1: Tsienneto Rd & NH 28 Byp NB/NH 28 Byp SB

-	1	1	4	†	لر	*	*	4	4	K	t
NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
44.2	37.0		42.4	29.4	2.3	54.0	30.0				
D	D		D	C	A	m mag					
	38.6			20.4							
	D			C			D			F	
48	165		38	86	0	151	162		13	119	
97	#307		80						COL		
	401			267							
150			150	-	150	150			150	201	
199	505		178	497			687			313	
0	0		0	0		0	0		0.50		
0	0		0	0		0	0				
0	0		0	0	0	0	0		0		
0.51	0.69		0.44	0.39	0.20	0.82	0.69		0.15	0.84	
	44.2 D 48 97 150 199 0 0	44.2 37.0 D D 38.6 D 48 165 97 #307 401 150 199 505 0 0 0 0 0 0 0 0	44.2 37.0 D D 38.6 D 48 165 97 #307 401 150 199 505 0 0 0 0 0 0	44.2 37.0 42.4 D D D 38.6 D 48 165 38 97 #307 80 401 150 150 199 505 178 0 0 0 0 0 0 0 0 0	44.2     37.0     42.4     29.4       D     D     D     C       38.6     20.4       D     C       48     165     38     86       97     #307     80     149       401     267       150     150       199     505     178     497       0     0     0     0       0     0     0     0       0     0     0     0       0     0     0     0       0     0     0     0       0     0     0     0       0     0     0     0	44.2     37.0     42.4     29.4     2.3       D     D     D     C     A       38.6     20.4     D     C       48     165     38     86     0       97     #307     80     149     30       401     267       150     150     150       199     505     178     497     970       0     0     0     0     0       0     0     0     0     0       0     0     0     0     0       0     0     0     0     0       0     0     0     0     0       0     0     0     0     0	44.2     37.0     42.4     29.4     2.3     54.0       D     D     D     C     A     D       38.6     20.4     C     C       48     165     38     86     0     151       97     #307     80     149     30     #278       401     267       150     150     150     150       199     505     178     497     970     383       0     0     0     0     0     0       0     0     0     0     0     0       0     0     0     0     0     0       0     0     0     0     0     0       0     0     0     0     0     0	44.2         37.0         42.4         29.4         2.3         54.0         30.0           D         D         D         C         A         D         C           38.6         20.4         39.6         D         C         D           48         165         38         86         0         151         162           97         #307         80         149         30         #278         #394           401         267         399           150         150         150         150           199         505         178         497         970         383         687           0         0         0         0         0         0         0         0           0         0         0         0         0         0         0         0           0         0         0         0         0         0         0         0           0         0         0         0         0         0         0         0	44.2     37.0     42.4     29.4     2.3     54.0     30.0       D     D     D     C     A     D     C       38.6     20.4     39.6       D     C     D       48     165     38     86     0     151     162       97     #307     80     149     30     #278     #394       401     267     399       150     150     150     150       199     505     178     497     970     383     687       0     0     0     0     0     0       0     0     0     0     0     0       0     0     0     0     0     0       0     0     0     0     0     0       0     0     0     0     0     0       0     0     0     0     0     0	44.2         37.0         42.4         29.4         2.3         54.0         30.0         35.1           D         D         D         C         A         D         C         D           38.6         20.4         39.6         39.6         D         D         C         D         D         C         D         C         D         C         D         C         D         C         D         C         D         C         D         C         D         C         D         C         D         C         D         D         C         D         C         D         D         C         D         D         C         D         D         C         D         D         C         D         D         D         A         A         D         C         D         D         D         A         39.6         D         A         36         A         39.4         36         A         39.9         A         39.9         A         150         150         150         150         150         150         150         199         505         178         497         970         383         687         180	44.2       37.0       42.4       29.4       2.3       54.0       30.0       35.1       58.0         D       D       D       C       A       D       C       D       E         38.6       20.4       39.6       55.9         D       C       D       E         48       165       38       86       0       151       162       13       119         97       #307       80       149       30       #278       #394       36       #248         401       267       399       291         150       150       150       150         199       505       178       497       970       383       687       180       313         0       0       0       0       0       0       0       0       0       0         0       0       0       0       0       0       0       0       0       0

### Intersection Summary

Area Type: Other

Cycle Length: 80

Actuated Cycle Length: 80

Offset: 0 (0%), Referenced to phase 2:SBT, Start of Green

Natural Cycle: 80

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.86

Intersection Signal Delay: 37.2 Intersection Capacity Utilization 74.4%

Intersection LOS: D ICU Level of Service D

Analysis Period (min) 15

# 95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 1: Tsienneto Rd & NH 28 Byp NB/NH 28 Byp SB



I-93 Exit 4A SDEIS

### APPENDIX G-3: HCM PRINTOUTS – SIGNALIZED INTERSECTION CAPACITY ANALYSES – 2015 AM AND PM PEAK HOURS

	*	-	+	1	1	1	
Movement	EBL	EBT	WBT	WBR	SBL	SBR	
Lane Configurations		11	<b>^</b>		*	7	A Marine of the contract of the
Traffic Volume (vph)	0	915	565	0	260	495	
Future Volume (vph)	0	915	565	0	260	495	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	
Total Lost time (s)		6.0	6.0		6.0	6.0	
Lane Util. Factor		0.95	0.95		1.00	1.00	
Frt		1.00	1.00		1.00	0.85	
Fit Protected		1.00	1.00		0.95	1.00	
Satd. Flow (prot)		3471	3406		1703	1524	
Flt Permitted		1.00	1.00		0.95	1.00	
Satd. Flow (perm)		3471	3406		1703	1524	
Peak-hour factor, PHF	0.93	0.93	0.88	0.00			
The state of the s				0.88	0.89	0.89	
Adj. Flow (vph)	0	984	642	0	292	556	
RTOR Reduction (vph)	0	0	0	0	0	334	
Lane Group Flow (vph)	0	984	642	0	292	222	
Heavy Vehicles (%)	4%	4%	6%	6%	6%	6%	
Turn Type		NA	NA		Prot	Perm	
Protected Phases		2	2		7		
Permitted Phases						7	
Actuated Green, G (s)		61.0	61.0		27.0	27.0	
Effective Green, g (s)		61.0	61.0		27.0	27.0	
Actuated g/C Ratio		0.61	0.61		0.27	0.27	
Clearance Time (s)		6.0	6.0		6.0	6.0	
Vehicle Extension (s)		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		2117	2077		459	411	
v/s Ratio Prot		c0.28	0.19		c0.17		
v/s Ratio Perm		25/25				0.15	
v/c Ratio		0.46	0.31		0.64	0.54	
Uniform Delay, d1		10.6	9.4		32.2	31.2	
Progression Factor		1.00	0.18		1.00	1.00	
Incremental Delay, d2		0.7	0.2		6.6	5.0	
Delay (s)		11.4	1.9		38.8	36.2	
Level of Service		В	Α.		D D	D D	
Approach Delay (s)		11.4	1.9		37.1	U	
Approach LOS		В	Α		D D		
Intersection Summary	-	क्सहा		in a visit	DOCT		
HCM 2000 Control Delay			17.7	Н	CM 2000	Level of Service	В
HCM 2000 Volume to Capacity	ratio		0.55		2000		
Actuated Cycle Length (s)			100.0	S	m of lost	time (s)	18.0
Intersection Capacity Utilization			58.3%			f Service	B
Analysis Period (min)			15	10	C Level C	OCI VICE	
c Critical Lane Group			10				

	ሻ	1	4	1	7	*	4	4	×	*	
Movement	NBL	NBR	SEL	SER	NEL	NET	NER	SWL	SWT	SWR	NATURE OF STREET
Lane Configurations	ሻሻ	7			7	<b>^</b>			<b>^</b>	7	Torque a pass of the
Traffic Volume (vph)	210	200	0	0	585	590	0	0	875	0	
Future Volume (vph)	210	200	0	0	585	590	0	0	875	0	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)	6.0	4.0			6.0	6.0		1000	6.0	1300	
Lane Util. Factor	0.97	1.00			1.00	0.95			0.95		
Frt	1.00	0.85			1.00	1.00			1.00		
Fit Protected	0.95	1.00			0.95	1.00			1.00		
Satd. Flow (prot)	3242	1495			1719	3438			3505		
Flt Permitted	0.95	1.00			0.95	1.00			1.00		
Satd. Flow (perm)	3242	1495			1719	3438			3505		
Peak-hour factor, PHF	0.88	0.88	0.92	0.92	0.94	0.94	0.94	0.92	0.92	0.00	_
Adj. Flow (vph)	239	227	0.02	0.32	622	628	0.34	0.92	951	0.92	
RTOR Reduction (vph)	0	0	0	0	0	0	0			0	
Lane Group Flow (vph)	239	227	0	0	622	628		0	0	0	
Heavy Vehicles (%)	8%	8%	2%	2%	5%	5%	0	0	951	0	
Turn Type	Prot	Free	210	210			5%	3%	3%	3%	
Protected Phases	2	Lies			Prot	NA			NA	Free	
Permitted Phases	2	Free			7	4			8		
Actuated Green, G (s)	12.9	100.0				75.4				Free	
Effective Green, g (s)	12.9				41.1	75.1			28.0		
		100.0			41.1	75.1			28.0		
Actuated g/C Ratio	0.13	1.00			0.41	0.75			0.28		
Clearance Time (s)	6.0				6.0	6.0			6.0		
Vehicle Extension (s)	3.0				3.0	3.0			3.0		
Lane Grp Cap (vph)	418	1495			706	2581			981		
v/s Ratio Prot	c0.07				c0.36	0.18			c0.27		
v/s Ratio Perm	-	0.15									
v/c Ratio	0.57	0.15			0.88	0.24			0.97		
Uniform Delay, d1	41.0	0.0			27.2	3.8			35.6		
Progression Factor	1.00	1.00			1.00	1.00			1.00		
Incremental Delay, d2	5.6	0.2			12.4	0.0			21.3		
Delay (s)	46.5	0.2			39.6	3.8			56.9		
Level of Service	D	A			D	A			Ε		
Approach Delay (s)	24.0		0.0			21.6			56.9		
Approach LOS	С		Α			C			E		
Intersection Summary						3.8	03				
HCM 2000 Control Delay			34.6	HC	M 2000 I	Level of S	ervice		С		
HCM 2000 Volume to Capa	city ratio		0.86								
Actuated Cycle Length (s)			100.0	Su	m of lost	time (s)			18.0		
Intersection Capacity Utiliza	tion		84.6%		J Level of				E		
Analysis Period (min)			15			00.1100			-		
c Critical Lane Group											

	•	-	+	1	-	1	1	1	-	1	+	1
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBF
Lane Configurations		11	7	7	11					ኻኻ		7
Traffic Volume (vph)	0	515	280	235	605	0	0	0	0	465	0	295
Future Volume (vph)	0	515	280	235	605	0	0	0	0	465	0	295
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0	4.0	6.0	6.0					6.0	1000	6.0
Lane Util. Factor		0.95	1.00	1.00	0.95					0.97		1.00
Frt		1.00	0.85	1.00	1.00					1.00		0.85
Fit Protected		1.00	1.00	0.95	1.00					0.95		1.00
Satd. Flow (prot)		3167	1417	1687	3374					3303		1524
Flt Permitted		1.00	1.00	0.95	1.00					0.95		1.00
Satd. Flow (perm)		3167	1417	1687	3374					3303		
Peak-hour factor, PHF	0.92	0.92	0.92	0.73	0.73	0.73	0.92	0.92	0.92		0.74	1524
Adj. Flow (vph)	0	560	304	322	829	0.73				0.74	0.74	0.74
RTOR Reduction (vph)	0	0	0	0	0		0	0	0	628	0	399
Lane Group Flow (vph)	0	560	304	322	829	0	0	0	0	0	0	89
Heavy Vehicles (%)	14%	14%	14%	7%	7%	0	0	0	0	628	0	310
Turn Type	1470					7%	2%	2%	2%	6%	6%	6%
Protected Phases		NA	Free	Prot	NA					Prot		Prot
		2		1	6					4		4
Permitted Phases		20.0	Free									
Actuated Green, G (s)		20.9	80.0	18.8	45.7					22.3		22.3
Effective Green, g (s)		20.9	80.0	18.8	45.7					22.3		22.3
Actuated g/C Ratio		0.26	1.00	0.24	0.57					0.28		0.28
Clearance Time (s)		6.0		6.0	6.0					6.0		6.0
Vehicle Extension (s)		3.0		3.0	3.0					3.0		3.0
Lane Grp Cap (vph)		827	1417	396	1927					920		424
v/s Ratio Prot		c0.18		c0.19	0.25					0.19		c0.20
v/s Ratio Perm			0.21									
v/c Ratio		0.68	0.21	0.81	0.43					0.68		0.73
Uniform Delay, d1		26.5	0.0	28.9	9.7					25.7		26.1
Progression Factor		1.00	1.00	0.78	0.60					1.00		1.00
Incremental Delay, d2		4.4	0.3	10.2	0.6					2.1		6.4
Delay (s)		31.0	0.3	32.7	6.4					27.8		32.5
Level of Service		C	A	C	A					C		C
Approach Delay (s)		20.2			13.8			0.0			29.6	
Approach LOS		C			В			A			C	
Intersection Summary				707					- 3			
HCM 2000 Control Delay			21.0	H	CM 2000	Level of S	ervice		С			
HCM 2000 Volume to Capacity ra	atio		0.74									
Actuated Cycle Length (s)			80.0	Su	m of lost	time (s)			18.0			
Intersection Capacity Utilization			65.7%		U Level o				C			
Analysis Period (min)		*	15									
c Critical Lane Group												

	•	-	+	1	-	1	1	1	-	1	+	1
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	7	11			<b>†</b> †	*	ሻ		*			
Traffic Volume (vph)	240	740	0	0	540	740	300	0	110	0	0	0
Future Volume (vph)	240	740	0	0	540	740	300	0	110	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0			6.0	4.0	6.0		4.0	1000	1000	1000
Lane Util. Factor	1.00	0.95			0.95	1.00	1.00		1.00			
Frt	1.00	1.00			1.00	0.85	1.00		0.85			
Fit Protected	0.95	1.00			1.00	1.00	0.95		1.00			
Satd. Flow (prot)	1641	3282			3438	1538	1656		1482			
Fit Permitted	0.95	1.00			1.00	1.00	0.95		1.00			
Satd. Flow (perm)	1641	3282			3438	1538	1656		1482			
Peak-hour factor, PHF	0.87	0.87	0.87	0.90	0.90	0.90	0.78	0.78	0.78	0.92	0.92	0.00
Adj. Flow (vph)	276	851	0.07	0.50	600	822	385	0.70	141			0.92
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	276	851	0	0	600	822	385	0		0	0	0
Heavy Vehicles (%)	10%	10%	10%	5%	5%	5%	9%	9%	141	0	0	0
Turn Type	Prot	NA	1070	J/D	NA.	Free		876	9%	2%	2%	2%
Protected Phases	5					Free	Prot		Free			
Permitted Phases	3	2 2			6	Free	8		· · · ·			
Actuated Green, G (s)	15.7	46.6			6	Free	04.4		Free			
Effective Green, g (s)	15.7				24.9	80.0	21.4		80.0			
		46.6			24.9	80.0	21.4		80.0			
Actuated g/C Ratio	0.20	0.58			0.31	1.00	0.27		1.00			
Clearance Time (s)	6.0	6.0			6.0		6.0					
Vehicle Extension (s)	3.0	3.0			3.0		3.0					
Lane Grp Cap (vph)	322	1911			1070	1538	442		1482			
w/s Ratio Prot	c0.17	0.26			0.17		c0.23					
v/s Ratio Perm		2112				c0.53			0.10			
w/c Ratio	0.86	0.45			0.56	0.53	0.87		0.10			
Uniform Delay, d1	31.1	9.4			23.0	0.0	28.0		0.0			
Progression Factor	1.05	0.16			1.00	1.00	1.00		1.00			
Incremental Delay, d2	16.2	0.6			2.1	1.3	16.9		0.1			
Delay (s)	49.0	2.1			25.1	1.3	44.9		0.1			
Level of Service	D	A			C	A	D		A			
Approach Delay (s)		13.6			11.4			32.9			0.0	
Approach LOS		В			В			C			Α	
Intersection Summary		- 1111	1									
HCM 2000 Control Delay			15.9	Н	CM 2000	Level of	Service		В			
HCM 2000 Volume to Capa	city ratio		0.78									
Actuated Cycle Length (s)			80.0	St	um of lost	time (s)			18.0			
Intersection Capacity Utiliza	ition		65.7%			of Service			C			
Análysis Period (min)			15									
c Critical Lane Group												

	4	×	1	-	×	1	7	×	~	4	×	*
Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations		4			4			7			4	
Traffic Volume (vph)	5	25	10	345	0	70	0	400	125	15	595	(
Future Volume (vph)	5	25	10	345	0	70	0	400	125	15	595	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0			6.0			6.0		1000	6.0	1000
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frt		0.97			0.98			0.97			1.00	
Fit Protected		0.99			0.96			1.00			1.00	
Satd. Flow (prot)		1788			1731			1703			1807	
Flt Permitted		0.94			0.72			1.00			0.98	
Satd. Flow (perm)		1685			1291			1703			1776	
Peak-hour factor, PHF	0.60	0.60	0.60	0.96	0.96	0.96	0.89	0.89	0.89	0.86	0.86	0.88
Adj. Flow (vph)	8	42	17	359	0	73	0	449	140	17	692	0.00
RTOR Reduction (vph)	0	11	0	0	37	0	0	19	0	0	0	Ò
Lane Group Flow (vph)	0	56	0	0	395	0	0	570	0	0	709	Č
Heavy Vehicles (%)	2%	2%	2%	3%	3%	3%	8%	8%	8%	5%	5%	5%
Turn Type	Perm	NA		Perm	NA			NA		Perm	NA.	010
Protected Phases		2			2			1			1	
Permitted Phases	2			2						1		
Actuated Green, G (s)		19.1			19.1			27.3			27.3	
Effective Green, g (s)		19.1			19.1			27.3			27.3	
Actuated g/C Ratio		0.33			0.33			0.47			0.47	
Clearance Time (s)		6.0			6.0			6.0			6.0	
Vehicle Extension (s)		3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)		551			422			796			830	
v/s Ratio Prot								0.33				
v/s Ratio Perm		0.03			c0.31						c0.40	
v/c Ratio		0.10			0.94			0.72			0.85	
Uniform Delay, d1		13.7			19.1			12.4			13.8	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		0.1			28.1			3.1			8.5	
Delay (s)		13.8			47.1			15.5			22.3	
Level of Service		В			D			В			C	
Approach Delay (s)		13.8			47.1			15.5			22.3	
Approach LOS		В			D			В			C	
Intersection Summary			-	11.7	2757						-	
HCM 2000 Control Delay			25.7		244.0000.1	- 11					F	100

HCM 2000 Control Delay	25.7	HCM 2000 Level of Service	C	
HCM 2000 Volume to Capacity ratio	0.89	20101010100		
Actuated Cycle Length (s)	58.4	Sum of lost time (s)	12.0	
Intersection Capacity Utilization	83.4%	ICU Level of Service	E	
Analysis Period (min)	15	All and the state of the state		
c Critical Lane Group				

	•	-	1	1	-	*	1	1	-	1	1	1
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBF
Lane Configurations	7	1		ħ	4		*	1		*	1	7
Traffic Volume (vph)	105	205	60	35	385	80	60	260	40	70	230	10
Future Volume (vph)	105	205	60	35	385	80	60	260	40	70	230	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	190
Total Lost time (s)	6.0	6.0		6.0	6.0		6.0	6.0	1000	6.0	6.0	6.
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.0
Frt	1.00	0.97		1.00	0.97		1.00	0.98		1.00	1.00	0.8
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1656	1684		1703	1746		1719	1773		1703	1792	152
Fit Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1656	1684		1703	1746		1719	1773		1703	1792	1524
Peak-hour factor, PHF	0.96	0.96	0.96	0.94	0.94	0.94	0.85	0.85	0.85	0.91	0.91	
Adj. Flow (vph)	109	214	62	37	410	85	71	306	47	77		0.91
RTOR Reduction (vph)	0	13	0	0	9	0	0	7	0	0	253	115
Lane Group Flow (vph)	109	264	0	37	486	0	71	346	0	77	0	89
Heavy Vehicles (%)	9%	9%	9%	6%	6%	6%	5%	5%	5%		253	26
Parking (#/hr)	0.0	010	0	070	0.0	076	376	576	3%	6%	6%	6%
Turn Type	Prot	NA		Prot	NA		Prot	NA		Prot	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases												4
Actuated Green, G (s)	6.0	29.3		3.4	26.7		4.0	17.5		4.0	17.5	17.5
Effective Green, g (s)	6.0	29.3		3.4	26.7		4.0	17.5		4.0	17.5	17.5
Actuated g/C Ratio	0.08	0.37		0.04	0.34		0.05	0.22		0.05	0.22	0.22
Clearance Time (s)	6.0	6.0		6.0	6.0		6.0	6.0		6.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	127	630		74	596		87	396		87	401	341
v/s Ratio Prot	c0.07	c0.16		0.02	c0.28		0.04	c0.20		c0.05	0.14	V+1
v/s Ratio Perm							-			00.00	0.14	0.02
v/c Ratio	0.86	0.42		0.50	0.82		0.82	0.87		0.89	0.63	0.08
Uniform Delay, d1	35.7	18.1		36.6	23.5		36.7	29.3		36.9	27.4	24.0
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	40.1	0.5		5.2	8.4		42.3	18.7		59.7	3.2	0.1
Delay (s)	75.7	18.6		41.8	31.9		79.0	48.0		96.6	30.7	24.1
Level of Service	E	В		D	C		E	D		50.0 E	C	24.1
Approach Delay (s)	_	34.7			32.6		_	53.2			40.4	
Approach LOS		C			C			D			40.4 D	
Intersection Summary	3			- T	deciman	19			-	-		-
HCM 2000 Control Delay	NACT.		39.9	Н	CM 2000	Level of S	Service		D			
HCM 2000 Volume to Capa	city ratio		0.84				-900 70		-			
Actuated Cycle Length (s)			78.2	Si	um of lost	time (s)			24.0			
Intersection Capacity Utiliza	tion		70.9%		U Level o				C			
Analysis Period (min)			15									
Critical Lane Group												

	1	1	7	4	+	J.	*	*	4	+	×	t
Movement	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations	7	1	7	ሻሻ	11	7	ሻ	1	7	*	1	7
Traffic Volume (vph)	20	230	135	310	220	145	135	170	20	125	290	370
Future Volume (vph)	20	230	135	310	220	145	135	170	20	125	290	370
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	4.0	6.0	6.0	6.0
Lane Util. Factor	1.00	0.95	1.00	0.97	0.95	1.00	1.00	1.00	1.00	1.00	1.00	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
Fit 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)	1736	3471	1553	3335	3438	1538	1752	1845	1568	1752	1845	1568
Fit 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)	1736	3471	1553	3335	3438	1538	1752	1845	1568	1752	1845	1568
Peak-hour factor, PHF	0.84	0.84	0.84	0.79	0.79	0.79	0.86	0.86	0.86	0.99		
Adj. Flow (vph)	24	274	161	392	278	184	157	198			0.99	0.99
RTOR Reduction (vph)	0	0	113	0	0	114	0	180	23	126	293	374
Lane Group Flow (vph)	24	274	48	392	278	70			0	0	0	155
Heavy Vehicles (%)	4%	4%	4%	5%	5%	5%	157	198	23	126	293	219
	Prot	NA.					3%	3%	3%	3%	3%	3%
Turn Type Protected Phases			Perm	Prot	NA	Perm	Prot	NA	Free	Prot	NA	pt+ov
	5	2		1	6		7	4		3	8	81
Permitted Phases	0.0	2	2	200	6	6		4	Free		8	
Actuated Green, G (s)	8.0	26.8	26.8	15.2	34.0	34.0	9.0	15.3	90.0	8.7	15.0	36.2
Effective Green, g (s)	8.0	26.8	26.8	15.2	34.0	34.0	9.0	15.3	90.0	8.7	15.0	36.2
Actuated g/C Ratio	0.09	0.30	0.30	0.17	0.38	0.38	0.10	0.17	1.00	0.10	0.17	0.40
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0		6.0	6.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	154	1033	462	563	1298	581	175	313	1568	169	307	630
ws Ratio Prot	0.01	c0.08		c0.12	0.08		c0.09	0.11		0.07	c0.16	0.14
ws Ratio Perm			0.03			0.05			c0.01			
w/c Ratio	0.16	0.27	0.10	0.70	0.21	0.12	0.90	0.63	0.01	0.75	0.95	0.35
Uniform Delay, d1	37.9	24.1	22.9	35.2	19.0	18.2	40.0	34.7	0.0	39.6	37.2	18.7
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	2.1	0.6	0.5	3.7	0.4	0.4	39.8	4.1	0.0	16.3	39.0	0.3
Delay (s)	40.0	24.7	23.3	39.0	19.3	18.7	79.8	38.9	0.0	55.9	76.1	19.0
Level of Service	D	C	C	D	В	В	E	D	A	E	E	В
Approach Delay (s)		25.0			28.2			53.5			46.0	1
Approach LOS		C			C			D			D	
Intersection Summary												
HCM 2000 Control Delay			37.1	H	CM 2000	Level of	Service		D			
HCM 2000 Volume to Capac	ity ratio		0.61									
Actuated Cycle Length (s)			90.0	St	um of lost	time (s)			24.0			
Intersection Capacity Utilizat	ion		58.3%		U Level o				В			
Analysis Period (min)			15									
c Critical Lane Group												

	_#	-	7	~	+	~	7	*	^	6	×	1
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations	4	<b>*</b>		7	<b>1</b>			4	7		4	7
Traffic Volume (vph)	50	790	0	0	655	30	5	0	5	50	0	245
Future Volume (vph)	50	790	0	0	655	30	5	0	5	50	0	245
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0			6.0			6.0	6.0	1000	6.0	6.0
Lane Util. Factor	1.00	0.95			0.95			1.00	1.00		1.00	1.00
Frt	1.00	1.00			0.99			1.00	0.85		1.00	0.85
Flt Protected	0.95	1.00			1.00			0.95	1.00		0.95	1.00
Satd. Flow (prot)	1687	3374			3516			1805	1615		1787	1599
Fit Permitted	0.95	1.00			1.00			0.72	1.00		0.75	1.00
Satd. Flow (perm)	1687	3374			3516			1369	1615		1413	
Peak-hour factor, PHF	0.83	0.83	0.83	0.92	0.92	0.92	0.50	0.50		0.00		1599
Adj. Flow (vph)	60	952	0.00	0.32	712	33			0.50	0.90	0.90	0.90
RTOR Reduction (vph)	0	0	0	0	2		10	0	10	56	0	272
Lane Group Flow (vph)	60	952	0			0	0	0	9	0	0	201
Heavy Vehicles (%)	7%	7%		0	743	0	0	10	1	0	56	71
			7%	2%	2%	2%	0%	0%	0%	1%	1%	1%
Turn Type	Prot	NA		Prot	NA		custom	NA	custom	Perm	NA	Perm
Protected Phases	5	2		1	6						4	
Permitted Phases					6		8	8	8	4		4
Actuated Green, G (s)	7.6	67.7			54.1			10.3	10.3		10.3	10.3
Effective Green, g (s)	7.6	67.7			54.1			10.3	10.3		10.3	10.3
Actuated g/C Ratio	0.08	0.75			0.60			0.11	0.11		0.11	0.11
Clearance Time (s)	6.0	6.0			6.0			6.0	6.0		6.0	6.0
Vehicle Extension (s)	3.0	3.0			3.0			3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	142	2537			2113			156	184		161	182
w/s Ratio Prot	0.04	c0.28			0.21							
v/s Ratio Perm								0.01	0.00		0.04	c0.04
v/c Ratio	0.42	0.38			0.35			0.06	0.01		0.35	0.39
Uniform Delay, d1	39.1	3.8			9.1			35.6	35.3		36.8	36.9
Progression Factor	1.00	1.00			1.20			1.00	1.00		1.00	1.00
Incremental Delay, d2	2.0	0.4			0.1			0.2	0.0		1.3	1.4
Delay (s)	41.1	4.3			11.0			35.7	35.3		38.1	38.3
Level of Service	D	A			В			D	D		D	D
Approach Delay (s)		6.5			11.0			35.5			38.3	D
Approach LOS		A			В			D			D	
Intersection Summary		- F.			200		Contra la	010				
HCM 2000 Control Delay			13.3	Н	M 2000 I	evel of	Service		В			
HCM 2000 Volume to Capac	city ratio		0.41						-			
Actuated Cycle Length (s)			90.0	Su	m of lost	fime (s)			18.0			
Intersection Capacity Utilizat	ion		53.4%		J Level of				Λ.0			
Analysis Period (min)			15	101	201010	OUI VICE			~			
c Critical Lane Group			10									

	•	-	1	1	-	1	4	1	-	1	1	1
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	44	<b>1</b>		*	<b>^</b>		7	1		*	4	
Traffic Volume (vph)	100	630	5	5	610	220	10	5	5	180	5	100
Future Volume (vph)	100	630	5	5	610	220	10	5	5	180	5	100
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0	1900	6.0	6.0	1000	6.0	6.0	6.0
Lane Util. Factor	0.97	0.95		1.00	0.95		1.00	1.00		0.95	0.95	1.00
Frt	1.00	1.00		1.00	0.96		1.00	0.93		1.00	1.00	0.85
Fit Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	0.96	1.00
Satd. Flow (prot)	3303	3402		1736	3333		1805	1758		1665	1674	1568
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	0.96	1.00
Satd. Flow (perm)	3303	3402		1736	3333		1805	1758		1665	1674	1568
Peak-hour factor, PHF	0.83	0.83	0.83	0.97	0.97	0.97	0.67	0.67	0.67	0.90	0.90	0.90
Adj. Flow (vph)	120	759	6	5	629	227	15	7	7	200	6	111
RTOR Reduction (vph)	0	0	0	0	41	0	0	7	0	0	0	
Lane Group Flow (vph)	120	765	0	5	815	0	15	7	0	102		81
Heavy Vehicles (%)	6%	6%	6%	4%	4%	4%	0%	0%	0%		104	30
Turn Type	Prot	NA	- 070	Prot	NA.	470			076	3%	3%	3%
Protected Phases	5	2		1	6		Split	NA		Split	NA	pt+ov
Permitted Phases	9	2			0		3	3		4	4	4.5
Actuated Green, G (s)	8.0	50.2		1.0	43.2			3		***		
Effective Green, g (s)	8.0	50.2		1.0	43.2		4.1	4.1		10.7	10.7	24.7
Actuated g/C Ratio	0.09	0.56					4.1	4.1		10.7	10.7	24.7
Clearance Time (s)	6.0	6.0		6.0	0.48		0.05	0.05		0.12	0.12	0.27
Vehicle Extension (s)	3.0	3.0			6.0		6.0	6.0		6.0	6.0	
	293	1897		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph) v/s Ratio Prot				19	1599		82	80		197	199	430
v/s Ratio Perm	c0.04	c0.22		0.00	c0.24		c0.01	0.00		0.06	c0.06	0.02
wc Ratio	0.41	0.40		0.26	0.51		0.40	0.00				
Uniform Delay, d1	38.8	11.4		44.1	16.1		0.18	0.09		0.52	0.52	0.07
Progression Factor	1.00	1.00		1.52			41.3	41.2		37.2	37.3	24.2
Incremental Delay, d2	0.9	0.1		6.9	0,60		1.00	1.00		1.00	1.00	1.00
Delay (s)	39.7	11.5			1.1		1.1	0.5		2.3	2.5	0.1
Level of Service	D D	В		73.9	10.8		42.4	41.7		39.5	39.7	24.2
Approach Delay (s)	U	15.3		E	B		D	D		D	D	C
Approach LOS		B			11.2 B			42.1 D			34.2 C	
Intersection Summary		(*)		100								
HCM 2000 Control Delay			16.9	H	CM 2000	Level of S	Service		В			
HCM 2000 Volume to Capa	city ratio		0.48			22/2/15						
Actuated Cycle Length (s)			90.0	Si	um of lost	time (s)			24.0			
Intersection Capacity Utiliza	ation		54.8%		U Level o				A			
Analysis Period (min)			15	10	770191							
c Critical Lane Group												



	4	1	7	4	1	J	*	*	4	1	×	t
Movement	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations	ħ	7.		ሻ	<b>^</b>	7	7	1		*	4	
Traffic Volume (vph)	100	220	20	25	210	255	120	100	80	80	270	90
Future Volume (vph)	100	220	20	25	210	255	120	100	80	80	270	90
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0	6.0	6.0	6.0		6.0	6.0	1000
Lane Util. Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	0.99		1.00	1.00	0.85	1.00	0.93		1.00	0.96	
Fit Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1752	1822		1736	1827	1553	1770	1738		1787	1811	
Fit Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1752	1822		1736	1827	1553	1770	1738		1787	1811	
Peak-hour factor, PHF	0.82	0.82	0.82	0.81	0.81	0.81	0.68	0.68	0.68	0.78	0.78	0.78
Adj. Flow (vph)	122	268	24	31	259	315	176	147	118	103	346	115
RTOR Reduction (vph)	0	4	0	0	0	121	0	34	0	0	15	0
Lane Group Flow (vph)	122	288	0	31	259	194	176	231	0	103	447	0
Heavy Vehicles (%)	3%	3%	3%	4%	4%	4%	2%	2%	2%	1%	1%	1%
Turn Type	Prot	NA		Prot	NA	pt+ov	Prot	NA	210	Prot	NA	170
Protected Phases	1	6		5	2	23	3	8		7	4	
Permitted Phases				v	-	20	0	0		1	4	
Actuated Green, G (s)	8.0	21.8		3.2	17.0	32.0	9.0	23.4		7.6	22.0	
Effective Green, g (s)	8.0	21.8		3.2	17.0	32.0	9.0	23.4		7.6	22.0	
Actuated g/C Ratio	0.10	0.27		0.04	0.21	0.40	0.11	0.29		0.09	0.28	
Clearance Time (s)	6.0	6.0		6.0	6.0	0.40	6.0	6.0		6.0	6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	175	496		69	388	621	199	508		169	498	_
v/s Ratio Prot	c0.07	c0.16		0.02	c0.14	0.12	c0.10	0.13		0.06	c0.25	
v/s Ratio Perm	-	00.10		0.02	00.14	0.12	00.10	0.10		0.00	00.20	
v/c Ratio	0.70	0.58		0.45	0.67	0.31	0.88	0.45		0.61	0.90	
Uniform Delay, d1	34.8	25.2		37.5	28.9	16.5	35.0	23.1		34.8	27.9	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	11.4	1.7		4.6	8.8	0.3	33.9	0.6		6.1	18.5	
Delay (s)	46.3	26.9		42.1	37.7	16.7	68.9	23.7		40.9	46.4	
Level of Service	D	C		D	D	В	E	C		D	40.4 D	
Approach Delay (s)		32.6			27.0		-	41.7		U	45.4	
Approach LOS		C			C			D			40.4 D	
Intersection Summary	100											3 1
HCM 2000 Control Delay			36.5	Н	CM 2000	Level of	Service		D			
HCM 2000 Volume to Capa	city ratio		0.80									
Actuated Cycle Length (s)			80.0	Si	um of lost	time (s)			24.0			
Intersection Capacity Utiliza	tion		65.8%		U Level o				C			
Analysis Period (min)			15									
c Critical Lane Group												

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Movement	EBL	EBT	WBT	WBR	SBL	SBR	
Lane Configurations		11	<b>^</b>		*	*	
Traffic Volume (vph)	0	935	850	0	280	645	
Future Volume (vph)	0	935	850	0	280	645	
	1900	1900	1900	1900	1900	1900	
Total Lost time (s)		6.0	6.0		6.0	6.0	
Lane Util. Factor		0.95	0.95		1.00	1.00	
Frt		1.00	1.00		1.00	0.85	
Fit Protected		1.00	1.00		0.95	1.00	
Satd. Flow (prot)		3574	3574		1752	1568	
FIt Permitted		1.00	1.00		0.95	1.00	
Satd. Flow (perm)		3574	3574		1752	1568	
	0.92	0.92	0.89	0.89	0.92	0.92	
Adj. Flow (vph)	0.52	1016	955	0.09	304	701	
RTOR Reduction (vph)	0	0	0	0	0	258	
Lane Group Flow (vph)	0	1016	955	0	304		
Heavy Vehicles (%)	1%	1%	1%	1%	3%	443	
	170			170		3%	
Turn Type		NA	NA		Prot	Perm	
Protected Phases		2	2		7		
Permitted Phases						7	
Actuated Green, G (s)		78.0	78.0		30.0	30.0	
Effective Green, g (s)		78.0	78.0		30.0	30.0	
Actuated g/C Ratio		0.65	0.65		0.25	0.25	
Clearance Time (s)		6.0	6.0		6.0	6.0	
Vehicle Extension (s)		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		2323	2323		438	392	
w/s Ratio Prot		c0.28	0.27		0.17		
w/s Ratio Perm						c0.28	
w/c Ratio		0.44	0.41		0.69	1.13	
Uniform Delay, d1		10.3	10.0		40.8	45.0	
Progression Factor		1.00	0.13		1.00	1.00	
Incremental Delay, d2		0.6	0.5		8.8	85.8	
Delay (s)		10.9	1.8		49.6	130.8	
Level of Service		В	A		D	F	
Approach Delay (s)		10.9	1.8		106.2		
Approach LOS		В	A		F		
Intersection Summary	-					or Frank Lan	
HCM 2000 Control Delay			40.2	HC	CM 2000	Level of Service	D
HCM 2000 Volume to Capacity ra	atio		0.67				
Actuated Cycle Length (s)			120.0	Su	m of lost	time (s)	18.0
Intersection Capacity Utilization			73.4%			of Service	D
Analysis Period (min)			15				7
c Critical Lane Group							

	1	٦	1	4	1	7	*	7	4	×	*
Movement	NBL2	NBL	NBR	SEL	SER	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations	ሻሻ		7			7	<b>^</b>			<b>^</b>	7
Traffic Volume (vph)	580	0	605	0	0	475	740	0	0	485	0
Future Volume (vph)	580	0	605	0	0	475	740	0	0	485	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5		4.0	1000000		4.5	6.0	1000	1000	6.0	1300
Lane Util, Factor	0.97		1.00			1.00	0.95			0.95	
Frt	1.00		0.85			1.00	1.00			1.00	
Fit Protected	0.95		1.00			0.95	1.00			1.00	
Satd. Flow (prot)	3467		1599			1770	3539			3539	
FIt Permitted	0.95		1.00			0.95	1.00			1.00	
Satd. Flow (perm)	3467		1599			1770	3539			3539	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.96	0.96	0.96	0.87		0.07
Adj. Flow (vph)	630	0.52	658	0.52	0.32	495	771			0.87	0.87
RTOR Reduction (vph)	0	0	0	0	0	0		0	0	557	0
Lane Group Flow (vph)	630	0	658	0	0	495	0	0	0	0	0
Heavy Vehicles (%)	1%	1%	1%	2%	-		771	0	0	557	0
Turn Type		179		270	2%	2%	2%	2%	2%	2%	2%
Protected Phases	Prot		Free			Prot	NA			NA	Free
Permitted Phases	2		-			7	4			8	
	10.1		Free				7				Free
Actuated Green, G (s)	43.4		120.0			36.7	66.1			24.9	
Effective Green, g (s)	43.4		120.0			36.7	66.1			24.9	
Actuated g/C Ratio	0.36		1.00			0.31	0.55			0.21	
Clearance Time (s)	4.5					4.5	6.0			6.0	
Vehicle Extension (s)	3.0					3.0	3.0			3.0	
Lane Grp Cap (vph)	1253		1599			541	1949			734	
v/s Ratio Prot	c0.18					c0.28	0.22			c0.16	
//s Ratio Perm			0.41								
v/c Ratio	0.50		0.41			0.91	0.40			0.76	
Jniform Delay, d1	29.9		0.0			40.1	15.5			44.7	
Progression Factor	1.00		1.00			1.04	1.26			1.00	
ncremental Delay, d2	1.4		0.8			18.3	0.1			4.5	
Delay (s)	31.3		0.8			60.2	19.7			49.2	
evel of Service	C		A			E	В			D	
Approach Delay (s)		15.7		0.0			35.5			49.2	
Approach LOS		В		Α			D			D	
ntersection Summary											
ICM 2000 Control Delay			29.8	HO	M 2000	Level of S	Service		С		
ICM 2000 Volume to Capacity	y ratio		0.71								
Actuated Cycle Length (s)	4.5.000		120.0	Su	m of lost	time (s)			15.0		
ntersection Capacity Utilizatio	n		68.4%			of Service			C		
Analysis Period (min)			15	101	201010	0011100			0		
Critical Lane Group											

	1	-	7	1	+	1	1	1	1	-	+	1
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		<b>^</b>	7	ሻ	<b>†</b> †					*		*
Traffic Volume (vph)	0	650	280	135	490	0	0	0	0	645	0	265
Future Volume (vph)	0	650	280	135	490	0	0	0	0	645	0	265
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0	4.0	6.0	6.0					6.0	1000	6.0
Lane Util. Factor		0.95	1.00	1.00	0.95					0.97		1.00
Frt		1.00	0.85	1.00	1.00					1.00		0.85
Fit Protected		1.00	1.00	0.95	1.00					0.95		1.00
Satd. Flow (prot)		3471	1553	1719	3438					3367		1553
FIt Permitted		1.00	1.00	0.95	1.00					0.95		1.00
Satd. Flow (perm)		3471	1553	1719	3438					3367		1553
Peak-hour factor, PHF	0.87	0.87	0.87	0.86	0.86	0.86	0.92	0.92	0.92	0.91	0.91	0.91
Adj. Flow (vph)	0	747	322	157	570	0.00	0.32	0.32	0.52	709		291
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0		0	
Lane Group Flow (vph)	0	747	322	157	570	0	0	0	0	700	0	197
Heavy Vehicles (%)	4%	4%	4%	5%	5%	5%	2%	2%		709	0	94
Turn Type	770	NA	Free	Prot	NA.	376	270	270	2%	4%	4%	4%
Protected Phases		2	riee	1						Prot		Prot
Permitted Phases		4	Free	1	6					4		4
Actuated Green, G (s)		38.5	100.0	14.7	50.0							
Effective Green, g (s)			100.0		59.2					28.8		28.8
Actuated g/C Ratio		38.5		14.7	59.2					28.8		28.8
Clearance Time (s)		0.38	1.00	0.15	0.59					0.29		0.29
		6.0		6.0	6.0					6.0		6.0
Vehicle Extension (s)		4.0	4===	4.0	4.0					4.0		4.0
Lane Grp Cap (vph)		1336	1553	252	2035					969		447
v/s Ratio Prot		c0.22		c0.09	0.17					c0.21		0.06
v/s Ratio Perm			0.21									
v/c Ratio		0.56	0.21	0.62	0.28					0.73		0.21
Uniform Delay, d1		24.1	0.0	40.0	10.0					32.1		27.0
Progression Factor		1.00	1.00	0.90	0.42					1.00		1.00
Incremental Delay, d2		1.7	0.3	4.9	0.1					3.1		0.3
Delay (s)		25.8	0.3	40.7	4.3					35.2		27.3
Level of Service		C	A	D	A					D		C
Approach Delay (s)		18.1			12.1			0.0			32.9	
Approach LOS		В			В			A			C	
Intersection Summary		Allian			28	- 1	The same			233		- 17
HCM 2000 Control Delay			21.8	H	CM 2000	Level of S	Service		С			
HCM 2000 Volume to Capacity	ratio		0.63									
Actuated Cycle Length (s)			100.0	Su	m of lost	time (s)			18.0			
Intersection Capacity Utilization	1		58.8%			f Service			В			
Analysis Period (min)			15						-			
c Critical Lane Group			5.5									

	1	-	*	1	-	1	1	1	-	1	+	1
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	*	<b>^</b>			<b>^</b>	7	ሻ		*			-
Traffic Volume (vph)	235	1060	0	0	425	535	220	0	240	0	0	0
Future Volume (vph)	235	1060	0	0	425	535	220	0	240	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0			6.0	4.0	6.0		6.0	1000	1000	1500
Lane Util. Factor	1.00	0.95			0.95	1.00	1.00		1.00			
Frt	1.00	1.00			1.00	0.85	1.00		0.85			
Flt Protected	0.95	1.00			1.00	1.00	0.95		1.00			
Satd. Flow (prot)	1752	3505			3505	1568	1703		1524			
Flt Permitted	0.95	1.00			1.00	1.00	0.95		1.00			
Satd. Flow (perm)	1752	3505			3505	1568	1703		1524			
Peak-hour factor, PHF	0.92	0.92	0.92	0.91	0.91	0.91	0.67	0.67	0.67	0.92	0.92	0.92
Adj. Flow (vph)	255	1152	0	0	467	588	328	0.07	358	0.52	0.92	7-1-5-
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	73			0
Lane Group Flow (vph)	255	1152	0	0	467	588	328	0	285	0	0	0
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	6%	6%	6%	2%	0	0
Turn Type	Prot	NA	- 070	070	NA	Free	Prot	076		270	2%	2%
Protected Phases	5	2			6	FIEE			Prot			
Permitted Phases		52			0	Erro	8		8			
Actuated Green, G (s)	20.3	62.1			35.8	Free 100.0	25.0		05.0			
Effective Green, g (s)	20.3	62.1			35.8		25.9		25.9			
Actuated g/C Ratio	0.20	0.62				100.0	25.9		25.9			
Clearance Time (s)	6.0	6.0			0.36	1.00	0.26		0.26			
Vehicle Extension (s)	4.0	4.0			4.0		6.0		6.0			
Lane Grp Cap (vph)	355	2176				4500	4.0		4.0			
v/s Ratio Prot					1254	1568	441		394			
v/s Ratio Perm	c0.15	c0.33			0.13		c0.19		0.19			
	0.70	0.50				0.38						
wc Ratio	0.72	0.53			0.37	0.38	0.74		0.72			
Uniform Delay, d1	37.2	10.7			23.8	0.0	34.0		33.8			
Progression Factor	1.00	1.00			1.00	1.00	1.00		1.00			
Incremental Delay, d2	7.3	0.3			8.0	0.7	7.1		6.9			
Delay (s)	44.4	11.0			24.6	0.7	41.1		40.7			
Level of Service	D	В			С	Α	D		D			
Approach Delay (s)		17.1			11.3			40.9			0.0	
Approach LOS		В			В			D			Α	
Intersection Summary					-						929	
HCM 2000 Control Delay			20.3	HO	CM 2000	Level of	Service		С			
HCM 2000 Volume to Capa	city ratio		0.66									
Actuated Cycle Length (s)			100.0	Su	m of lost	time (s)			18.0			
Intersection Capacity Utiliza	tion		58.8%			of Service			В			
Analysis Period (min)			15									
c Critical Lane Group												

	*	×	2	-	×	1	7	×	~	6	K	*
Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations		4			4			1			4	0.111
Traffic Volume (vph)	15	50	5	230	0	100	0	760	150	15	415	0
Future Volume (vph)	15	50	5	230	0	100	0	760	150	15	415	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0			6.0		02.00	6.0		1000	6.0	1000
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frt		0.99			0.96			0.98			1.00	
Flt Protected		0.99			0.97			1.00			1.00	
Satd. Flow (prot)		1843			1744			1821			1841	
Fit Permitted		0.90			0.74			1.00			0.62	
Satd. Flow (perm)		1681			1335			1821			1144	
Peak-hour factor, PHF	0.83	0.83	0.83	0.98	0.98	0.98	0.95	0.95	0.95	0.89	0.89	0.89
Adj. Flow (vph)	18	60	6	235	0	102	0	800	158	17	466	0.03
RTOR Reduction (vph)	0	4	0	0	40	0	0	12	0	0	0	0
Lane Group Flow (vph)	0	80	0	0	297	0	0	946	0	0	483	0
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	2%	2%	2%	3%	3%	3%
Turn Type	Perm	NA		Perm	NA.	110	6.70	NA	270	Perm	NA	370
Protected Phases		2			2			1		reiiii	1	
Permitted Phases	2			2	-					4		
Actuated Green, G (s)		15.8		-	15.8			30.1			30.1	
Effective Green, g (s)		15.8			15.8			30.1			30.1	
Actuated g/C Ratio		0.27			0.27			0.52			0.52	
Clearance Time (s)		6.0			6.0			6.0			6.0	
Vehicle Extension (s)		3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)		458			364			946			594	
v/s Ratio Prot					001			c0.52			034	
v/s Ratio Perm		0.05			c0.22			00.02			0.42	
v/c Ratio		0.17			0.82			1.00			0.42	
Uniform Delay, d1		16.1			19.7			13.9			11.6	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		0.2			13.2			29.4			8.3	
Delay (s)		16.3			32.9			43.3			19.9	
Level of Service		В			C			D			B	
Approach Delay (s)		16.3			32.9			43.3			19.9	
Approach LOS		В			C			D			В	
Intersection Summary	-		-		A.Dese	- Internation	el.			TORK		1
HCM 2000 Control Delay			34.1	Н	CM 2000	Level of S	Service		С			
HCM 2000 Volume to Capaci	ty ratio		0.94									
Actuated Cycle Length (s)			57.9	St	im of lost	time (s)			12.0			
Intersection Capacity Utilization	on		95.4%			f Service			F			
Analysis Period (min)			15			MINISTER STATE						
c Critical Lane Group												

	1	1	1	4	+	لا	*	*	4	1	K	t
Movement	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations	*	1		*1	1	*	*	7.		*	1.	
Traffic Volume (vph)	70	295	35	135	340	150	135	410	40	75	250	65
Future Volume (vph)	70	295	35	135	340	150	135	410	40	75	250	65
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0	6.0	6.0	6.0		6.0	6.0	1000
Lane Util. Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	0.98		1.00	1.00	0.85	1.00	0.99		1.00	0.97	
Fit Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1752	1816		1752	1845	1568	1787	1856		1787	1823	
Fit Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1752	1816		1752	1845	1568	1787	1856		1787	1823	
Peak-hour factor, PHF	0.91	0.91	0.91	0.93	0.93	0.93	0.95	0.95	0.95	0.94		0.04
Adj. Flow (vph)	77	324	38	145	366	161	142	432			0.94	0.94
RTOR Reduction (vph)	0	5	0	0	0	101	0		42	80	266	69
Lane Group Flow (vph)	77	357	0	145	366	60	142	4 470	0	0	11	0
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%			0	80	324	0
			370				1%	1%	1%	1%	1%	1%
Turn Type Protected Phases	Prot	NA		Prot	NA	pm+ov	Prot	NA		Prot	NA	
	3	8		7	4	5	5	2		1	6	
Permitted Phases	7.7	20.0				4						
Actuated Green, G (s)	7.7	20.8		8.9	22.0	31.7	9.7	27.0		4.3	21.6	
Effective Green, g (s)	7.7	20.8		8.9	22.0	31.7	9.7	27.0		4.3	21.6	
Actuated g/C Ratio	0.09	0.24		0.10	0.26	0.37	0.11	0.32		0.05	0.25	
Clearance Time (s)	6.0	6.0		6.0	6.0	6.0	6.0	6.0		6.0	6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	158	444		183	477	695	203	589		90	463	
v/s Ratio Prot	0.04	0.20		c0.08	c0.20	0.01	c0.08	c0.25		0.04	0.18	
v/s Ratio Perm						0.03						
v/c Ratio	0.49	0.80		0.79	0.77	0.09	0.70	0.80		0.89	0.70	
Uniform Delay, d1	36.8	30.2		37.1	29.1	17.3	36.2	26.5		40.1	28.8	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	2.4	10.1		20.5	7.3	0.1	10.1	10.8		59.2	4.6	
Delay (s)	39.1	40.3		57.6	36.4	17.3	46.3	37.3		99.3	33.3	
Level of Service	D	D		E	D	В	D	D		F	C	
Approach Delay (s)		40.1			36.4			39.4			46.1	
Approach LOS		D			D			D			D	
Intersection Summary			- 1116	71 1	100		RE-SI		-	21216	110000	
HCM 2000 Control Delay			39.9	Н	CM 2000	Level of	Service		D			
HCM 2000 Volume to Capac	city ratio		0.83									
Actuated Cycle Length (s)			85.0	S	um of los	t time (s)			24.0			
Intersection Capacity Utilizat	ion		87.5%			of Service			E			
Analysis Period (min)			15		3 20101	0.001100			-			
c Critical Lane Group												

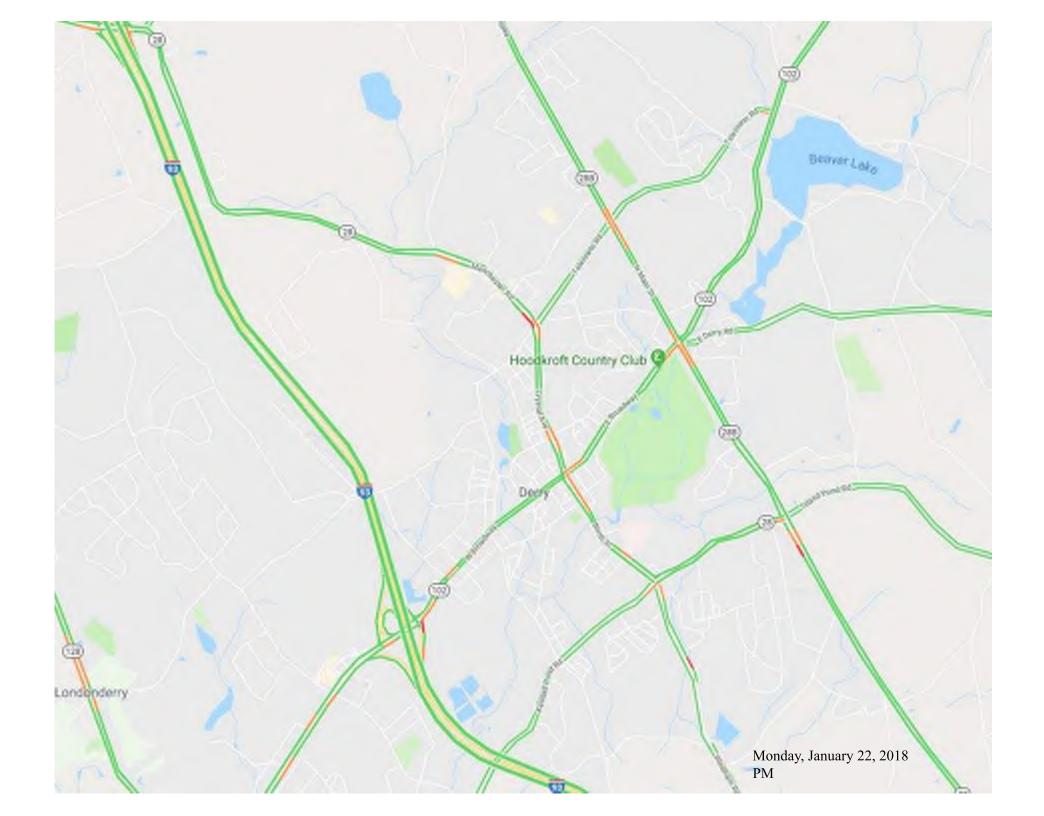
	7	1	1	4	1	J.	*	*	4	4	K	t
Movement	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWF
Lane Configurations	*	<b>^</b>	*	ሻሻ	1	7	ሻ	1	7	*	1	7
Traffic Volume (vph)	80	360	150	520	430	190	240	320	90	150	220	380
Future Volume (vph)	80	360	150	520	430	190	240	320	90	150	220	380
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	0.95	1.00	0.97	1.00	1.00	1.00	1.00	1.00	1.00	1.00	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
Fit 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)	1770	3539	1583	3433	1863	1583	1770	1863	1583	1787	1881	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)	1770	3539	1583	3433	1863	1583	1770	1863	1583	1787	1881	
Peak-hour factor, PHF	0.92	0.92	0.92	0.94	0.94	0.94	0.96					1599
Adj. Flow (vph)	87	391	163	553	457			0.96	0.96	0.95	0.95	0.95
RTOR Reduction (vph)	0	0	121	0		202	250	333	94	158	232	400
Lane Group Flow (vph)	87	391	42		0	125	0	0	71	0	0	89
	2%	2%	2%	553	457	77	250	333	23	158	232	311
Heavy Vehicles (%)				2%	2%	2%	2%	2%	2%	1%	1%	1%
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	pm+ov
Protected Phases	5	2		1	6		7	4		3	8	1
Permitted Phases			2	200		6			4			8
Actuated Green, G (s)	9.8	29.4	29.4	24.3	43.9	43.9	18.4	28.3	28.3	9.0	18.9	43.2
Effective Green, g (s)	9.8	29.4	29.4	24.3	43.9	43.9	18.4	28.3	28.3	9.0	18.9	43.2
Actuated g/C Ratio	0.09	0.26	0.26	0.21	0.38	0.38	0.16	0.25	0.25	0.08	0.16	0.38
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	150	904	404	725	711	604	283	458	389	139	309	684
v/s Ratio Prot	0.05	0.11		c0.16	c0.25		c0.14	c0.18		0.09	0.12	0.10
v/s Ratio Perm			0.03			0.05			0.01		71,12	0.10
w/c Ratio	0.58	0.43	0.10	0.76	0.64	0.13	0.88	0.73	0.06	1.14	0.75	0.46
Uniform Delay, d1	50.6	35.8	32.7	42.6	29.1	23.1	47.3	39.8	33.2	53.0	45.8	27.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	5.4	1.5	0.5	4.8	2.0	0.1	26.0	5.7	0.1	117.8	9.8	0.5
Delay (s)	56.0	37.3	33.2	47.4	31.1	23.2	73.3	45.5	33.2	170.8	55.6	27.5
Level of Service	E	D	C	D	C	C	E	D	C	F	E	C
Approach Delay (s)		38.8			37.2		-	54.0		,	64.4	
Approach LOS		D			D			D			E	
Intersection Summary												
HCM 2000 Control Delay			47.4	Н	CM 2000	Level of	Service		D			
HCM 2000 Volume to Capac	city ratio		0.78			E5551E31	- EPP-ZE					
Actuated Cycle Length (s)	- Control		115.0	S	um of lost	time (s)			24.0			
Intersection Capacity Utilizat	ion		74.5%		U Level o				D			
Analysis Period (min)			15									
c Critical Lane Group												

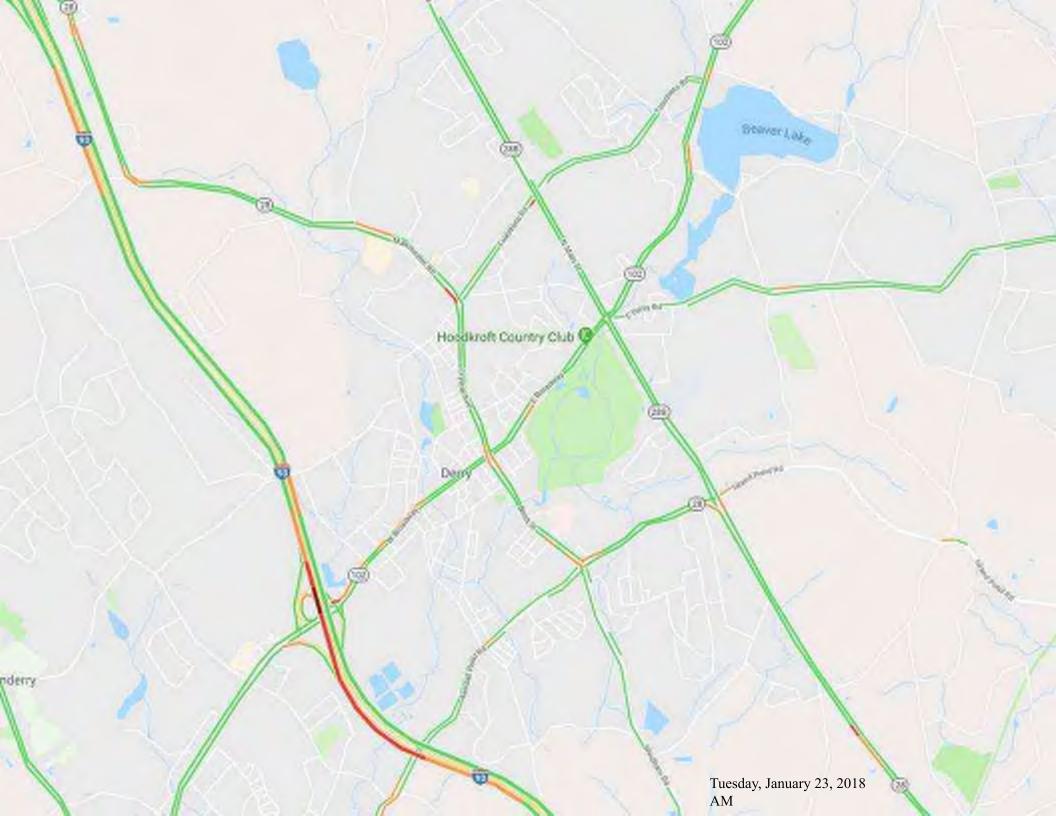
	4	×	7	~	×	1	7	*	~	6	×	*
Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations	7	<b>1</b>		*	<b>†</b> ‡			4	7		4	7
Traffic Volume (vph)	170	1400	.5	20	855	80	15	10	15	45	10	215
Future Volume (vph)	170	1400	5	20	855	80	15	10	15	45	10	215
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0			6.0	6.0	1000	6.0	6.0
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00	1.00		1.00	1.00
Frt	1.00	1.00		1.00	0.99			1.00	0.85		1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00			0.97	1.00		0.96	1.00
Satd. Flow (prot)	1787	3572		1787	3528			1844	1615		1808	1599
Flt Permitted	0.95	1.00		0.95	1.00			0.77	1.00		0.75	1.00
Satd. Flow (perm)	1787	3572		1787	3528			1471	1615		1405	1599
Peak-hour factor, PHF	0.97	0.97	0.97	0.95	0.95	0.95	0.90	0.90	0.90	0.80	0.80	0.80
Adj. Flow (vph)	175	1443	5	21	900	84	17	11	17	56	12	269
RTOR Reduction (vph)	0	0	0	0	6	0	0	0	15	0	0	240
Lane Group Flow (vph)	175	1448	0	21	978	0	0	28	2	0	69	29
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	0%	0%	0%	1%	1%	1%
Turn Type	Prot	NA	1.00	Prot	NA	179	Perm	NA.	Perm	Perm	NA	
Protected Phases	5	2		1	6		remi	8	reiiii	reim		Perm
Permitted Phases		2			0		8	0	8	4	4	
Actuated Green, G (s)	14.5	64.4		2.5	52.4		0	10.1	10.1	4	404	404
Effective Green, g (s)	14.5	64.4		2.5	52.4			10.1	10.1		10.1	10.1
Actuated g/C Ratio	0.15	0.68		0.03	0.55			0.11	0.11		10.1	10.1
Clearance Time (s)	6.0	6.0		6.0	6.0			6.0	6.0		0.11	0.11
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0	3.0		6.0	6.0
Lane Grp Cap (vph)	272	2421		47	1945					_	3.0	3.0
v/s Ratio Prot	c0.10	00.41		0.01	0.28			156	171		149	169
v/s Ratio Perm	00.10	00.41		0.01	V.20			0.00	0.00		-0.05	0.00
v/c Ratio	0.64	0.60		0.45	0.50			0.02	0.00		c0.05	0.02
Uniform Delay, d1	37.8	8.3		45.6	13.2						0.46	0.17
Progression Factor	0.77	1.64		1.00	1.00			38.7	38.0		39.9	38.6
Incremental Delay, d2	4.0	0.8		6.6	0.9			1.00	1.00		1.00	1.00
Delay (s)	33.3	14.5		52.2	14.2			0.6	0.0		2.3	0.5
Level of Service	C	В		D	B			39.2 D	38.0		42.2	39.1
Approach Delay (s)	-	16.5		0	14.9				D		D	D
Approach LOS		В.			B			38.8 D			39.7 D	
Intersection Summary			The state of the s		7 77 7	10.00	Mela Lan	-	777	-		
HCM 2000 Control Delay			18.9	H	CM 2000	Level of S	Service		В			
HCM 2000 Volume to Capa	city ratio		0.61									
Actuated Cycle Length (s)			95.0	St	m of lost	time (s)			18.0			
Intersection Capacity Utiliza	ition		67.7%		U Level o				C			
Analysis Period (min)			15									
c Critical Lane Group												

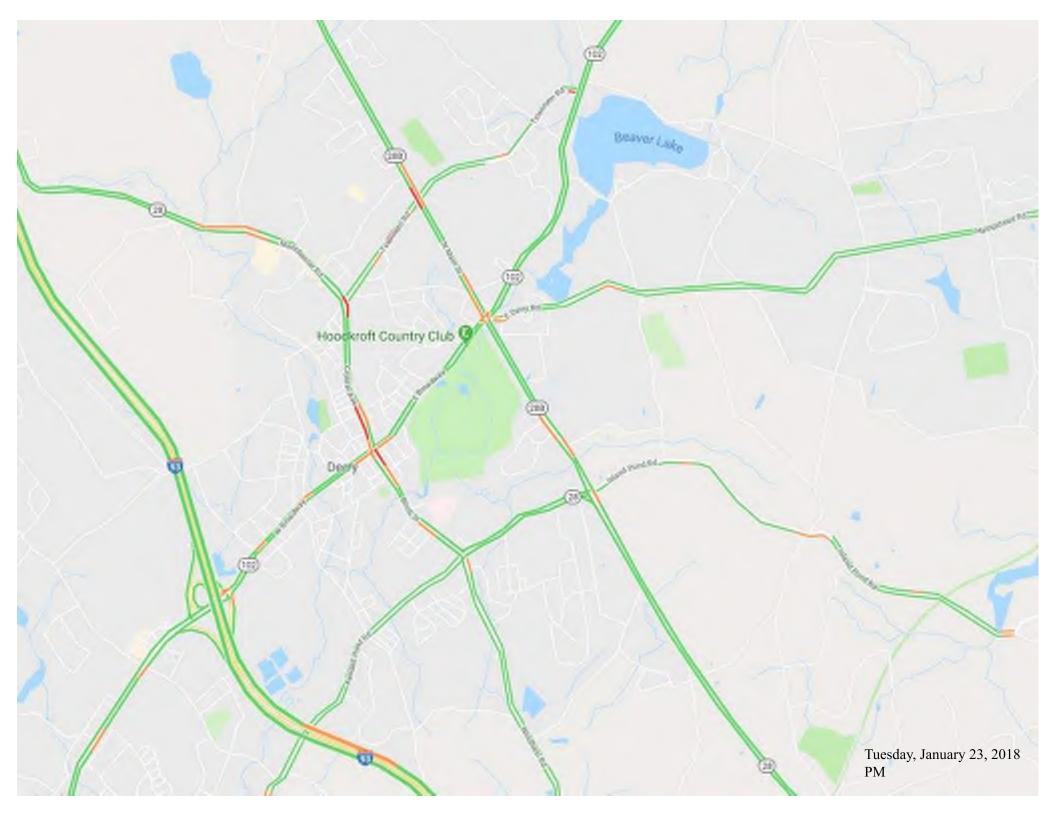
	1	-	7	1	+	1	1	1	1	1	+	1
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	ሻሻ	<b>^</b>		7	1		*5	1		*5	4	*
Traffic Volume (vph)	110	1095	5	5	800	260	40	10	10	345	5	135
Future Volume (vph)	110	1095	5	5	800	260	40	10	10	345	5	135
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0		6.0	6.0		6.0	6.0	6.0
Lane Util. Factor	0.97	0.95		1.00	0.95		1.00	1.00		0.95	0.95	1.00
Frt	1.00	1.00		1.00	0.96		1.00	0.93		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	0.95	1.00
Satd. Flow (prot)	3467	3572		1770	3409		1805	1758		1715	1721	1615
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	0.95	1.00
Satd. Flow (perm)	3467	3572		1770	3409		1805	1758		1715	1721	1615
Peak-hour factor, PHF	0.84	0.84	0.84	0.90	0.90	0.90	0.78	0.78	0.78			
Adj. Flow (vph)	131	1304	6	6	889	289	51	13		0.86	0.86	0.86
RTOR Reduction (vph)	0	0	0	0	32	0	0	12	13	401	6	157
Lane Group Flow (vph)	131	1310	0	6	1146	0			0	0	0	77
Heavy Vehicles (%)	1%	1%	1%	2%	2%	10.00	51	14	0	205	202	80
Turn Type	Prot	NA.	170			2%	0%	0%	0%	0%	0%	0%
Protected Phases				Prot	NA		Split	NA		Split	NA	pt+av
Permitted Phases	5	2 2		1	6		3	3		4	4	4.5
	7.7				6							
Actuated Green, G (s)	7.7	52.5		1.0	45.8		4.0	4.0		13.5	13.5	27.2
Effective Green, g (s)	7.7	52.5		1.0	45.8		4.0	4.0		13.5	13.5	27.2
Actuated g/C Ratio	0.08	0.55		0.01	0.48		0.04	0.04		0.14	0.14	0.29
Clearance Time (s)	6.0	6.0		6.0	6.0		6.0	6.0		6.0	6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	281	1974		18	1643		76	74		243	244	462
v/s Ratio Prot	c0.04	c0.37		0.00	0.34		c0.03	0.01		c0.12	0.12	0.05
v/s Ratio Perm												
v/c Ratio	0.47	0.66		0.33	0.70		0.67	0.18		0.84	0.83	0.17
Uniform Delay, d1	41.7	15.0		46.7	19.2		44.9	43.9		39.7	39.6	25.5
Progression Factor	1.00	1.00		1.48	0.69		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	1.2	1.8		9.3	1.1		20.8	1.2		22.5	20.1	0.2
Delay (s)	42.9	16.8		78.4	14.4		65.7	45.1		62.2	59.7	25.6
Level of Service	D	В		E	В		E	D		E	E	C
Approach Delay (s)		19.2			14.7			58.7			51.1	
Approach LOS		В			В			E			D	
Intersection Summary	15		100									
HCM 2000 Control Delay			24.0	H	M 2000	Level of S	Service		С			
HCM 2000 Volume to Capaci	ty ratio		0.72						7			
Actuated Cycle Length (s)			95.0	Su	m of lost	time (s)			24.0			
Intersection Capacity Utilization	on		65.9%		U Level o				C			
Analysis Period (min)			15		100							
c Critical Lane Group												

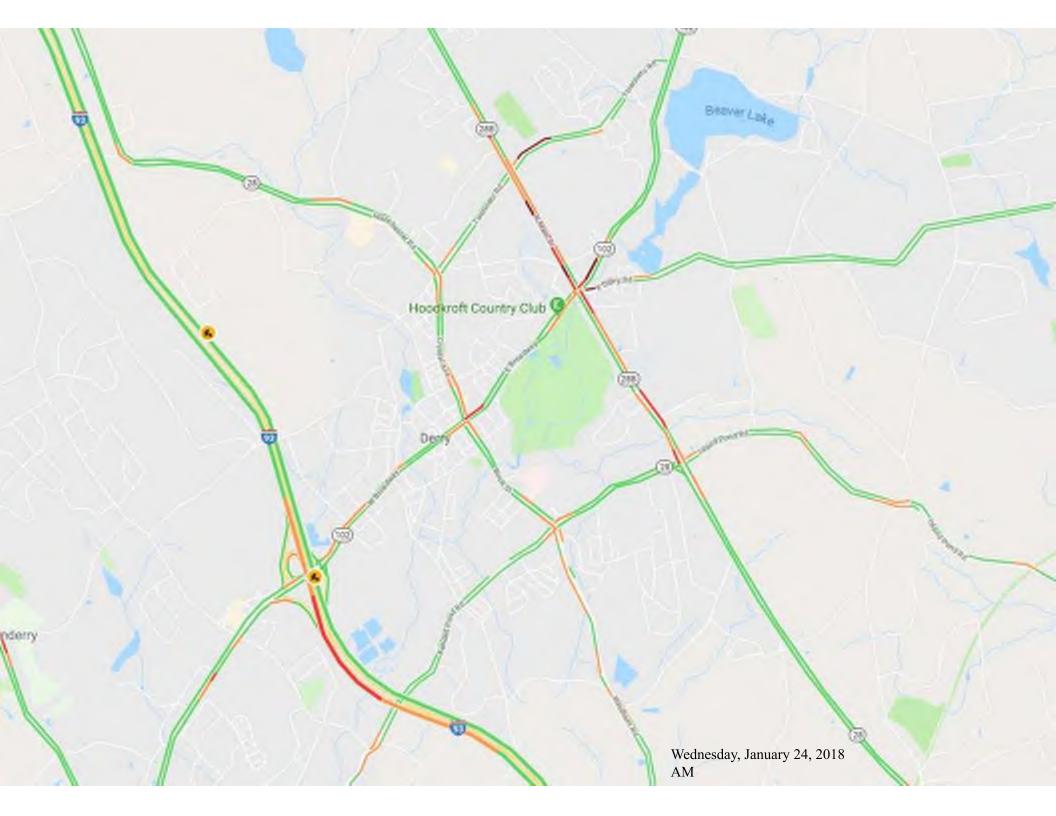
	4	1	*	4	+	J	*	*	4	4	×	t
Movement	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations	7	7		7	<b>^</b>	7	7	4		7	1	
Traffic Volume (vph)	100	320	25	75	185	185	280	345	75	25	175	70
Future Volume (vph)	100	320	25	75	185	185	280	345	75	25	175	70
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0	6.0	6.0	6.0		6.0	6.0	1000
Lane Util. Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	0.99		1.00	1.00	0.85	1.00	0.97		1.00	0.96	
Fit Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1843		1787	1881	1599	1805	1849		1805	1819	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	1843		1787	1881	1599	1805	1849		1805	1819	
Peak-hour factor, PHF	0.99	0.99	0.99	0.95	0.95	0.95	0.89	0.89	0.89	0.93	0.93	0.93
Adj. Flow (vph)	101	323	25	79	195	195	315	388	84	27	188	75
RTOR Reduction (vph)	0	3	0	0	0	101	0	8	0	0	17	0
Lane Group Flow (vph)	101	345	0	79	195	94	315	464	0	27	246	0
Heavy Vehicles (%)	2%	2%	2%	1%	1%	1%	0%	0%	0%	0%	0%	0%
Turn Type	Prot	NA		Prot	NA	pt+ov	Prot	NA	0.10	Prot	NA	070
Protected Phases	1	6		5	2	23	3	8		7	4	
Permitted Phases		6			2					-	-	
Actuated Green, G (s)	7.1	17.0		6.4	16.3	38.6	16.3	29.4		3.2	16.3	
Effective Green, g (s)	7.1	17.0		6.4	16.3	38.6	16.3	29.4		3.2	16.3	
Actuated g/C Ratio	0.09	0.21		0.08	0.20	0.48	0.20	0.37		0.04	0.20	
Clearance Time (s)	6.0	6.0		6.0	6.0		6.0	6.0		6.0	6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	157	391		142	383	771	367	679		72	370	
w/s Ratio Prot	c0.06	c0.19		0.04	0.10	0.06	c0.17	c0.25		0.01	0.14	
v/s Ratio Perm								00.20		0.01	0.14	
v/c Ratio	0.64	0.88		0.56	0.51	0.12	0.86	0.68		0.38	0.67	
Uniform Delay, d1	35.2	30.5		35.4	28.3	11.4	30.7	21.4		37.4	29.3	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	8.7	20.2		4.7	4.8	0.1	17.7	2.8		3.3	4.5	
Delay (s)	43.9	50.7		40.1	33.1	11.5	48.4	24.2		40.7	33.8	
Level of Service	D	D		D	C	В	D	C		D	C	
Approach Delay (s)		49.2			25.3			33.9			34.5	
Approach LOS		D			C			C			C	
Intersection Summary							- 11					
HCM 2000 Control Delay			35.4	H	CM 2000	Level of	Service		D			_
HCM 2000 Volume to Capa	city ratio		0.83									
Actuated Cycle Length (s)			80.0					24.0				
Intersection Capacity Utiliza	tion		74.4%	ICU Level of Service					D			
Analysis Period (min)			15									
c Critical Lane Group												

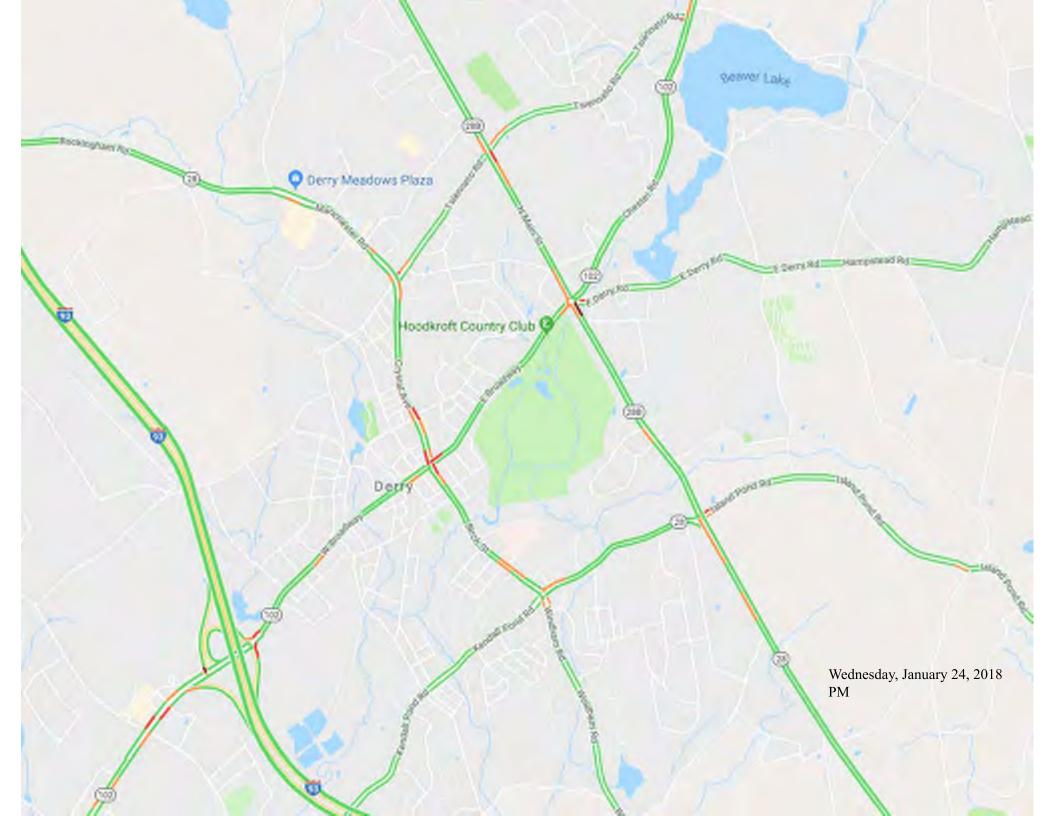
## APPENDIX H: GOOGLE MAPS PRINTOUT OF TRAFFIC CONDITIONS – DERRY AREA – JANUARY 2018

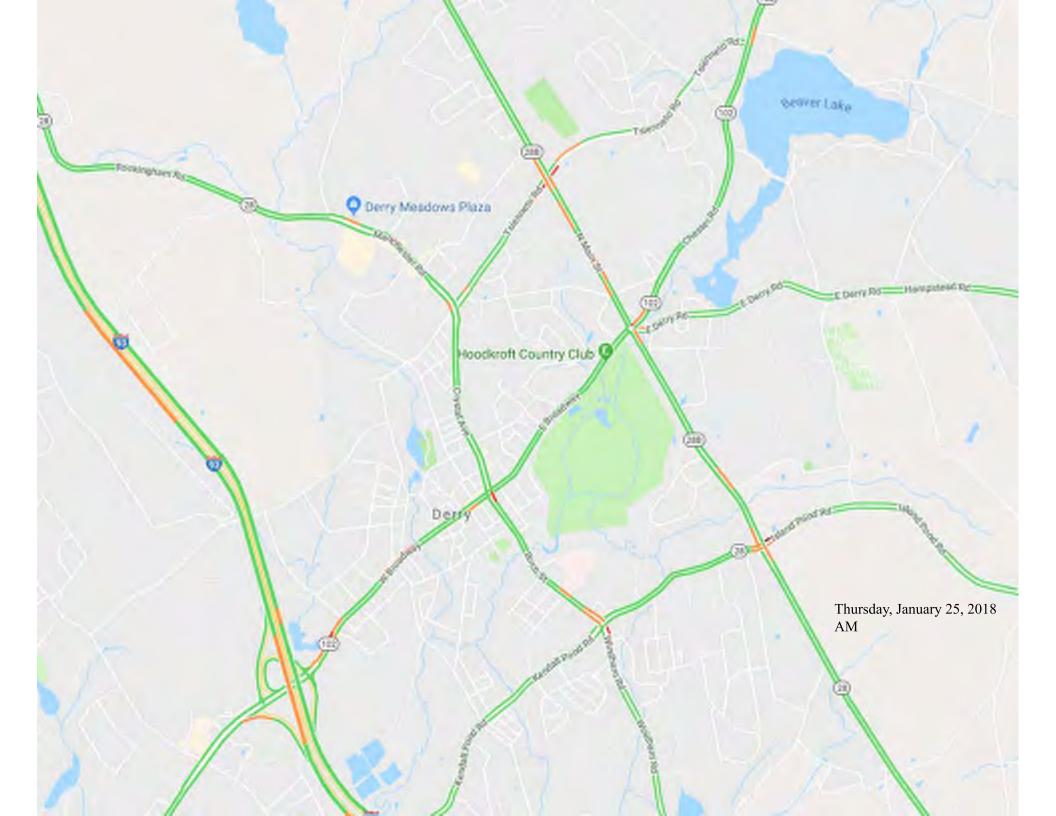




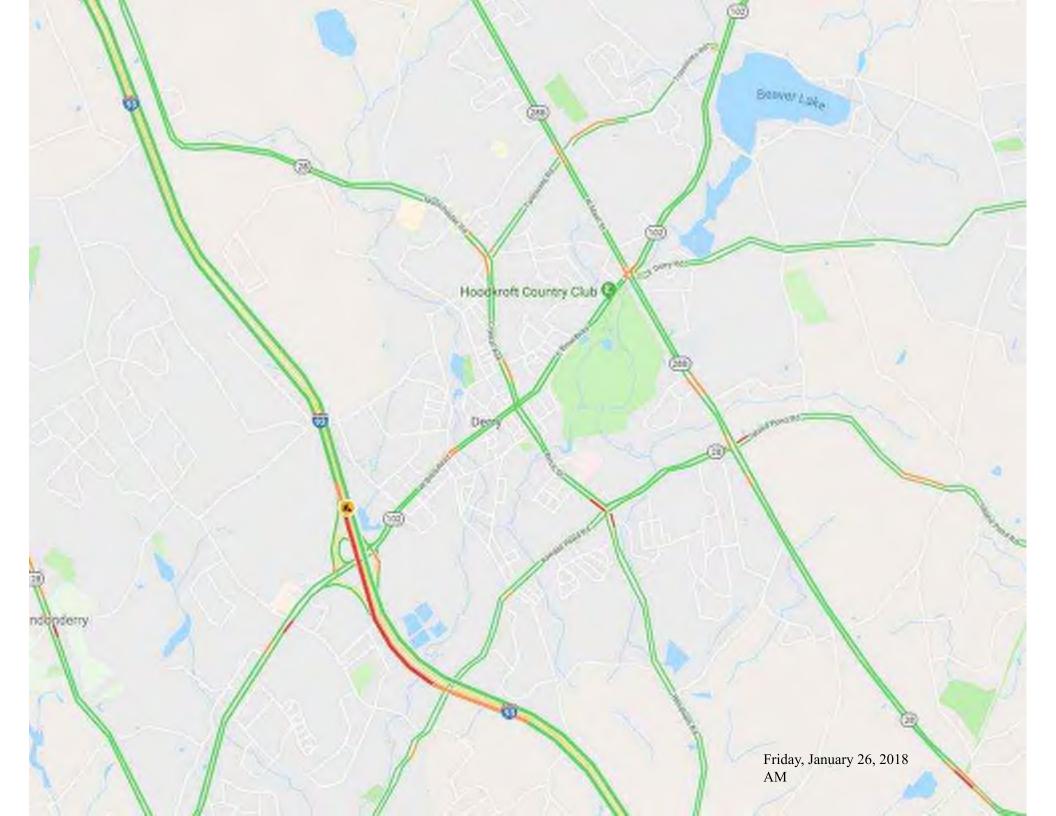


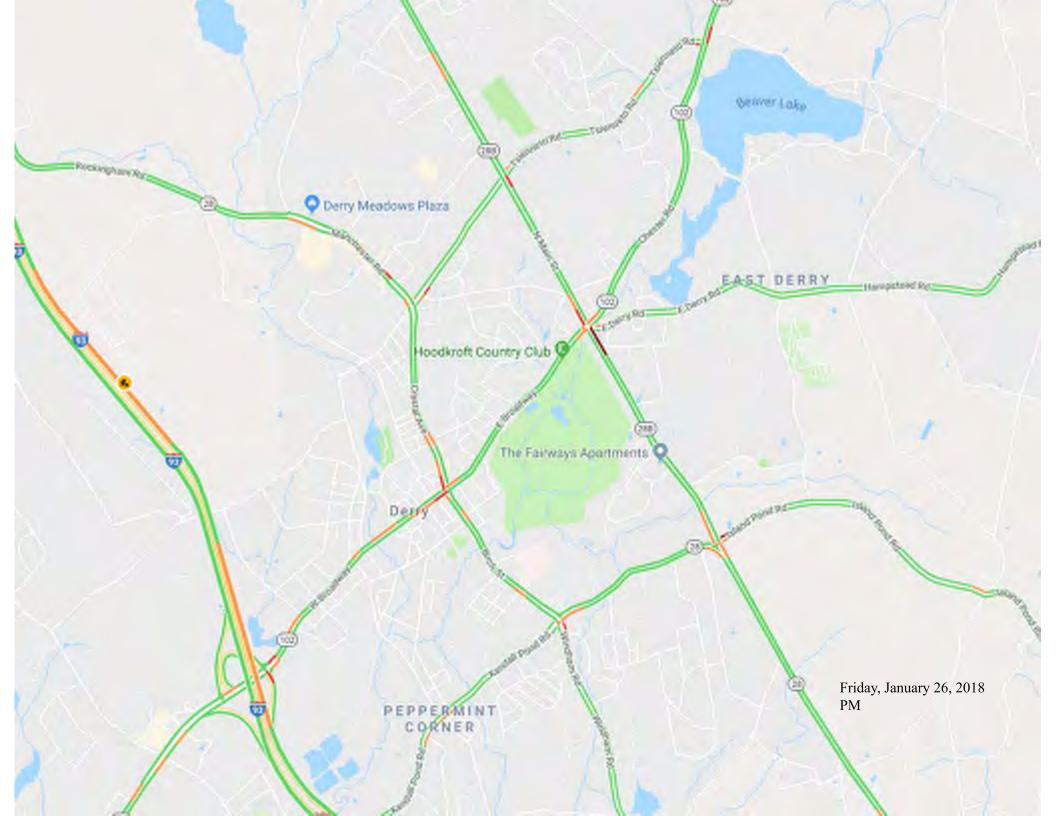












## APPENDIX I: HCM PRINTOUTS – UNSIGNALIZED INTERSECTION CAPACITY ANALYSES – 2015 AM AND PM PEAK HCM PRINTOUTS

Int Delay, s/veh 3	2				-							100	
Movement	SEL	SET	SER	NW	. NWT	NWR		NEL	NET	NER	SWL	SWT	SWF
Lane Configurations		4	*		4			*	1			4	
Traffic Vol, veh/h	10	0	105	(	0 0	- 1		75	520	5	5	1090	25
Future Vol, veh/h	10	0	105		0 (	1		75	520	5	5	1090	
Conflicting Peds, #/hr	0	0	0		0	0		0	0	0	0	0	(
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop		Free	Free	Free	Free	Free	Free
RT Channelized	-		None			None				None			None
Storage Length			150	10		-		150					110110
Veh in Median Storage, #		0			. 0	-			0			0	
Grade, %	-	0			. 0				0			0	
Peak Hour Factor	92	92	92	25	25	25		92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	(		0		2	2	2	2	2	
Mvmt Flow	11	0	114	(		4		82	565	5	5	1185	27
						4		02	303	9	9	1100	21
Major/Minor	Minor2		33.	Minor	The same		٨	Major1			Major2		
Conflicting Flow All	1942	1943	1198	1940	1954	568		1212	0	0	571	0	0
Stage 1	1209	1209		731									
Stage 2	733	734	-	1209									
Critical Howy	7.12	6.52	6.22	7.1		6.2		4.12			4.12		
Critical Howy Stg 1	6.12	5.52		6.1									
Critical Hdwy Stg 2	6.12	5.52		6.1									
Follow-up Hdwy	3.518	4.018	3.318	3.5		3.3		2.218			2.218		
Pot Cap-1 Maneuver	49	65	226	50		526		576			1002		
Stage 1	223	256	-	416		020		010	-		1002		
Stage 2	412	426		225								- 1	
Platoon blocked, %	712	720		220	204				-				
Mov Cap-1 Maneuver	43	55	226	22	55	526		576			4000		
Mov Cap-2 Maneuver	43	55	220	22		520		3/0			1002		
Stage 1	191	252		357									
		365											
Stage 2	351	300		110	250								
Approach	SE	-	-	NV	27270	no men	NO TO STATE OF	NE	-	TO 100	SW	1000	PRE 270
HCM Control Delay, s	43			11.9				1.5			0	-	
HCM LOS	E			В				1.0			U		
	EB			NO SE		WB							
Minor Lane/Major Mymt	NEL	NET	NERN	WLn1 SELn1			SWT	SIMB	111000	_			
Capacity (veh/h)	576	144.	14414	526 43		1002	UITT	OTTI					-
HCM Lane V/C Ratio	0.142			0.008 0.253									
HCM Control Delay (s)	12.3			11.9 115			0						
HCM Lane LOS						8.6	0						
TOM Lane LOS	0.5			B F	E	A	A	-					

Intersection			1-11-				
Int Delay, s/veh	1.2						
Movement	EBL	EBR	NBL	NBT	SBT	SBR	
Lane Configurations	A			4	1.		
Traffic Vol, veh/h	180	10	5		175	230	
Future Vol., veh/h	180	10	5		175		
Conflicting Peds, #/hr	0	0	0		0	0	
Sign Control	Stop	Stop	Free		Free		
RT Channelized		None					
Storage Length	0					110110	
Veh in Median Storage, #	0			. 0	0	-	
Grade, %	0			0	0		
Peak Hour Factor	89	89	91		93	93	
Heavy Vehicles, %	5	5	4		2	2	
Mymt Flow	202	11	5				
MINITE FIOW	202	- 11	3	137	188	247	
Major/Minor	Minor2		Major1	10 - 10 - 10 - 10	Major2		
Conflicting Flow All	460	312	435			0	
Stage 1	312						
Stage 2	148						
Critical Hdwy	6.45	6.25	4.14				
Critical Hdwy Stg 1	5.45	0.20	4.14			- 5	
Critical Hdwy Stg 2	5.45					-	
Follow-up Hdwy	3.545	3.345	2.236				
Pot Cap-1 Maneuver	554	721	1114			-	
		121	1114				
Stage 1	735	-	-				
Stage 2	872	-					
Platoon blocked, %							
Mov Cap-1 Maneuver	551	721	1114				
Mov Cap-2 Maneuver	551						
Stage 1	735						
Stage 2	868						
Approach	EB	-	NB	-	SB	0.0000000000000000000000000000000000000	
HCM Control Delay, s	15.4		0.3			1000	Section of the last
HCM LOS	C		0.3		0		
HOM LOS	C						
Minor Lane/Major Mvmt	NBL	NBT EBLn1	SBT SBR				
Capacity (veh/h)	1114	- 558					
ICM Lane V/C Ratio	0.005	- 0.383					
ICM Control Delay (s)	8.2	0 15.4					
ICM Lane LOS	A	A C					
HCM 95th %tile Q(veh)	0	- 1.8					
Tom con Nuic attent	0	1.0					

Intersection							
Int Delay, s/veh	0.5						
Movement	EBL	EBR	NBL	NBT	SBT	SBR	
ane Configurations	*A			4	4		
Traffic Vol, veh/h	10	0	0		400	20	
uture Vol., veh/h	10	0			400	20	
Conflicting Peds, #/hr	0	0	0		0	0	
Sign Control	Stop	Stop	Free		Free	Free	
RT Channelized	0.00	None			1100	None	
Storage Length	0			140110		IVOITO	
/eh in Median Storage, #	0			0	0		
Grade, %	0						
Peak Hour Factor	44	44	0.5	95	0	-	
			95		96	96	
Heavy Vehicles, %	79	79	4		6	6	
Mvmt Flow	23	0	0	326	417	21	
Major/Minor	Minor2		Major1	No.	Major2		
Conflicting Flow All	753	427	438			0	
Stage 1	427						
Stage 2	326						
Critical Hdwy	7.19	6.99	4.14				
Critical Hdwy Stg 1	6.19	0.00	7.17				
Critical Hdwy Stg 2	6.19					-	
follow-up Hdwy	4.211	4.011	2.236				
Pot Cap-1 Maneuver	286	492	1111	-			
Stage 1	521						
Stage 2	587						
Platoon blocked, %	10.00			-		-	
Mov Cap-1 Maneuver	286	492	1111	-		-	
Nov Cap-2 Maneuver	286					-	
Stage 1	521				-	-	
Stage 2	587		-				
Approach	EB		NB	-	SB		
ICM Control Delay, s	18.7		0				100 100 100 100 100 100 100 100 100 100
CM LOS	C		0		0		
TOM LOS	C						
Minor Lane/Major Mymt	NBL	NBT EBLn1	SBT SBR			7	
Capacity (veh/h)	1111	- 286					
ICM Lane V/C Ratio		- 0.079					
ICM Control Delay (s)	0	- 18.7			- 4		
ICM Lane LOS	A	- C					
ICM 95th %tile Q(veh)	0	- 0.3					

Int Delay, s/veh	2.5													
Movement	EBL	EBT	EBR	27.39	WBL	WBT	WBR		SEL	SET	SER	NWL	NWT	NWR
Lane Configurations		4				4				4			4	
Traffic Vol, veh/h	35	270	5		30	385	10		10	5	30	10	5	35
Future Vol, veh/h	35	270	5		30	385	10		10	5	30	10	5	35
Conflicting Peds, #/hr	0	0	0		0	0	0		0	0	0	0	0	(
Sign Control	Free	Free	Free		Free	Free	Free		Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized			None				None				Yield			None
Storage Length					-						-			
Veh in Median Storage, #		0			-	0				0	-		0	
Grade, %		0			-	0				0			0	
Peak Hour Factor	89	89	89		96	96	96		65	65	65	67	67	67
Heavy Vehicles, %	7	7	7		5	5	5		2	2	2	0	0	0
Mvmt Flow	39	303	6		31	401	10		15	8	46	15	7	
Major/Minor	Major1			М	ajor2	13/6	- 5	1	Minor2			Minor1		
Conflicting Flow All	411	0	0		309	0	0		884	857	406	858	859	306
Stage 1	7.1	-			000		-		469	469	400	385	385	300
Stage 2									415	388		473	474	
Critical Hdwy	4.17				4.15				7.12	6.52	6.22	7.1	6.5	0.0
Critical Hdwy Stg 1	7.00				4.10				6.12	5.52	0.22	6.1		6.2
Critical Hdwy Stg 2		-	-						6.12	5.52		-	5.5 5.5	
Follow-up Hdwy	2.263			-	2.245		100		3.518	4.018	3.318	6.1		
Pot Cap-1 Maneuver	1121		- 1		1235				266	295	645	3.5 279	4	739
Stage 1	1121				1200				575	561	040	642	296 614	138
Stage 2									615	609	-	576		
Platoon blocked, %							-		010	009		010	561	
Mov Cap-1 Maneuver	1121	- 7			1235				228	273	645	200	074	700
Mov Cap-2 Maneuver	1121				1230				228	273	643	239	274	739
Stage 1												239	274	
Stage 2									551 541	542 583		615 510	588 542	
Approach	EB		a transfer	NIV THE	MID		tons		0.5	OLD PETER			(1)179(4)	Metronos
				- 1.	WB	-	eg.	- 100	SE	177,530	0.00	NW	N. Marinay	etelloi
HCM Control Delay, s HCM LOS	0.9				0.6				10.5 B			14.2 B		
Minor Lane/Major Mvmt	NWLn1	EBL	EBT	EBR	WBL	WBT	WBR:	SELn1						
Capacity (veh/h)	465	1121			1235			724						
HCM Lane V/C Ratio		0.035			.025			0.096						
HCM Control Delay (s)	14.2	8.3		-	8	0		10.5						
HCM Lane LOS	В	A			A	A		В						
	0.6	-0.1			0.1	-	-	0						

Int Delay, s/veh 22	.6										
Movement	NWL	NWR	-	Here was	NET	NER	SWL	SWT	100		32.5
Lane Configurations	ሻ	*			1	*		414			
Traffic Vol, veh/h	215	80			370	245	80	570			
Future Vol., veh/h	215	80			370	245	80	570			
Conflicting Peds, #/hr	0	0			0	0	0	0			
Sign Control	Stop	Stop			Free	Free	Free	Free			
RT Channelized	-	None				Yield	-	None			
Storage Length		150				0		Hone			
Veh in Median Storage, #	0				0			0			
Grade, %	0				0			0			
Peak Hour Factor	83	83			86	86	81	81			
Heavy Vehicles, %	2	2			3	3					
Mymt Flow	259	96			430	285	2	2			
MWIII FIOW	233	30			430	200	99	704			
Major/Minor	Minor1	1111		M	lajor1		Major2		73	13000	500
Conflicting Flow All	979	430			0	0	430	0			
Stage 1	430	400				-	400	v			
Stage 2	549										
Critical Hdwy	6.63	6.23					4.13				
Critical Hdwy Stg 1	5.43	0.23					4.13				
	5.83				-		-	-			
Critical Hdwy Stg 2		2 240					0.040				
Follow-up Hdwy	3.519	3.319					2.219				
Pot Cap-1 Maneuver	262	624					1128				
Stage 1	655					-					
Stage 2	543					-					
Platoon blocked, %	223				-	-					
Mov Cap-1 Maneuver	~ 224	624					1128				
Mov Cap-2 Maneuver	~ 224	-			-	-					
Stage 1	655				-	-					
Stage 2	465										
Approach	NW				NE		CIN		-1200000	CONTRACTOR CO.	
	115.7						SW				
HCM Control Delay, s					0		1.5				
HCM LOS	F										
Minor Lane/Major Mvmt	NET	NERNWLn1	WLn2	SWL	SWT				36300	V. 15.33	4.75
Capacity (veh/h)	-	- 224	624	1128							
HCM Lane V/C Ratio		- 1.156									
HCM Control Delay (s)		- 154.3	11.8	8.5	0.5						
HCM Lane LOS		- F	В.	Α.	A						
HCM 95th %tile Q(veh)		- 12.3		0.3	^						
		12.3	0.0	0.5	Theren		about the same and	TO A TO SERVICE AND ASSESSMENT OF THE PARTY	Service and the	DOUBLE BOX	one have
Notes	200	18 25	Mary Mary	ne suns	18	Authorities R	ST THE	1000	のでは機能	Carried No.	Mark.



EBL	EBT								
	CDI				WBT	WBR	SBL	SBR	
7	1				7+	11011	¥	COIX	1 7 11 2
15	720				645	40	80	35	
						100			
							Stop		
	140110					INOTIE	0	None	
12	0				0				
84						00		-	
10	80/				725	45	96	42	
Major1	7.3				Major2	- 40 M	Minor2		
770	0					0		747	
					-				
4.17								6.26	
								0.20	
2.263					-			2 254	
020								400	
					- 2				
					-		393		
022					-		400	100	
023					-			406	
					-				
-					-				
							384		
EB		-	ACCORDING TO SECOND	-	WB		SB	The same of the same	her and a second
0.2									The second second
							F		
EBL	EBT	WBT	WBR	SBLn1					
		-							
	770 4.17 2.263 823 823	0 0 Free Free - None 0 0 - 0 84 84 7 7 18 857  Major1 770 0	0 0 Free Free - None 0 0 - 0 84 84 7 7 7 18 857  Major1 770 0 2.263 - 823 823 823 823 823	0 0 Free Free - None 0 0 - 0 84 84 84 7 7 7 18 857  Major1  770 0 2.263 823 823	0 0 Free Free - None 0 - 0 84 84 84 7 7 7 18 857  Major1  770 0 - 0 2.263 - 2 823	0 0 Free Free Free Free Free - None - 0 0 0 - 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 Free Free Free Free Free Free Free	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

13: NH 102 W/NH 102 E & Bypass 28 S/Bypass 28 N & E Derry Rd
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Intersection Delay, s/veh	76.6					
Intersection LOS	F	ZAR	Bypz8	Byp 28	102 68	102 WB
Approach		WB	NB	SB	ME	SW
Entry Lanes		1	1	1	1	1
Conflicting Circle Lanes		1	1.	1	1	1
Adj Approach Flow, veh/h		516	436	557	617	397
Demand Flow Rate, veh/h		530	450	595	666	424
Vehicles Circulating, veh/h		788	673	698	629	1006
Vehicles Exiting, veh/h		335	622	732	665	312
Follow-Up Headway, s		3.186	3.186	3.186	3.186	3.186
Ped Vol Crossing Leg, #\h		0	0	0	0	0
Ped Cap Adj		1.000	1.000	1.000	1.000	1.000
Approach Delay, s/veh		77.5	29.5	83.5	96.6	86.1
Approach LOS		F	D	F	F	F
Lane	Left		Left	Left	Left	Left
Designated Moves	LR		LTR	LTR	LTR	LTR
Assumed Moves	LR		LTR	LTR	LTR	LTR
RT Channelized						
Lane Util	1.000		1.000	1.000	1.000	1.000
Critical Headway, s	5.193		5.193	5.193	5.193	5.193
Entry Flow, veh/h	530		450	595	666	424
Cap Entry Lane, veh/h	514		576	562	602	413
Entry HV Adj Factor	0.973		0.970	0.936	0.926	0.935
Flow Entry, veh/h	516		436	557	617	396
Cap Entry, veh/h	500		559	526	558	386
VIC Ratio	1.031		0.781	1.058	1.106	1.026
Control Delay, s/veh	77.5		29.5	83.5	96.6	86.1
LOS	F		D	F	F	F
95th %tile Queue, veh	15		7	16	19	13

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Movement	EBL	EBT	EBR	WE	L WB1	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	LUL	4	7	- 111	4		NDL	4	NDIX	ODL	4	ODF
Traffic Vol, veh/h	10	15	185		5 40		245	390	5	10	255	45
Future Vol., veh/h	10	15	185		5 40		245	390	5	10	255	45
Conflicting Peds, #/hr	0	0	0		0 (	1	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Sto			Free	Free	Free	Free	Free	Free
RT Channelized	olop.	0.00	None	0	- 0.07	None	1100	1100	None	1100	1100	None
Storage Length			30						110110			INOHIC
Veh in Median Storage, #		0	-		- (			0			0	
Grade, %		0			. (			0			0	
Peak Hour Factor	82	82	82	7	0 70		75	75	75	71	71	71
Heavy Vehicles, %	8	8	8		5 5		3	3	3	4	4	4
Mvmt Flow	12	18	226		7 57		327	520	7	14	359	63
			and				OL.	020		14	000	0.0
Major/Minor	Minor2			Mino	1		Major1			Major2		
Conflicting Flow All	1660	1599	391	160		523	423	0	0	527	0	0
Stage 1	419	419		117					-			
Stage 2	1241	1180		42								
Critical Hdwy	7.18	6.58	6.28	7.1			4.13	-	-	4.14		
Critical Howy Stg 1	6.18	5.58		6.1								
Critical Hdwy Stg 2	6.18	5.58		6.1				-				
Follow-up Hdwy	3.572	4.072	3.372	3.54	5 4.045	3.345	2.227			2.236		
Pot Cap-1 Maneuver	75	103	645	8	3 100	548	1131			1030		
Stage 1	600	580		23	0 261	-			-			
Stage 2	208	257		59	9 566	-						
Platoon blocked, %											-	
Mov Cap-1 Maneuver	~4	60	645	2	8 58	548	1131			1030	-	
Mov Cap-2 Maneuver	~ 4	60	-	2	8 58	-						
Stage 1	355	570	-	13	6 154	-				- 4	-	
Stage 2	67	152	-	37	0 556					-	-	
				-								
Approach	EB			W			NB			SB		
HCM Control Delay, s HCM LOS	237 F			296.	3 F		3.6			0.3		
HOM LOS	-											
Minor Lane/Major Mvmt	NBL	NBT	NBR E	BLn1 EBLn	2WBLn1	SBL	SBT SBR		-	-		-
Capacity (veh/h)	1131	-		9 64								
HCM Lane V/C Ratio	0.289	-	- 1		5 1.371							
HCM Control Delay (s)	9.5	0			6 296.3		0 -					
HCM Lane LOS	A	A			B F		Α .					
HCM 95th %tile Q(veh)	1.2	-		5 1.		-						
Notes	70.5	Elde-		- 2134		- 25					-	

	0
- 1	9
1	1

Movement	*B
Lane Configurations	
Traffic Vol, veh/h	
Future Vol, veh/h Conflicting Peds, #/hr O O O O O O O O O O O O O O O O O O O	
Conflicting Peds, #/hr 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	
Sign Control         Stop         Stop         Free         Free           RT Channelized         - None         - None         - None           Storage Length         0         - 0         0           Orade, %         0         - 0         0           Grade, %         0         - 0         0           Peak Hour Factor         94         94         91         91           Heavy Vehicles, %         2         2         2         11         11         2           Mwmt Flow         101         0         16         181         390           Major/Minor         Minor2         Major1         Major2         Major3         Major3         Major3         Major4         Major	
None	
Storage Length	
Veh in Median Storage, #         0         -         -         0 <td>- None</td>	- None
Grade, %         0         -         -         0<	
Peak Hour Factor         94         94         91         91         82           Heavy Vehicles, %         2         2         2         11         11         2           Mwmt Flow         101         0         16         181         390           Major/Minor         Minor2         Major1         Major2           Conflicting Flow All         787         573         756         0           Stage 1         573         -         -         -           Stage 2         214         -         -         -           Critical Hdwy         6.42         6.22         4.21         -         -           Critical Hdwy Stg 1         5.42         -         -         -         -         -           Critical Hdwy Stg 2         5.42         - <t< td=""><td></td></t<>	
Heavy Vehicles, %   2   2   11   11   2	
Mount Flow         101         0         16         181         390           Major/Minor         Minor2         Major1         Major2           Conflicting Flow All         787         573         756         0           Stage 1         573         -         -         -           Stage 2         214         -         -         -           Critical Hdwy         6.42         6.22         4.21         -           Critical Hdwy Stg 1         5.42         -         -         -           Critical Hdwy Stg 2         5.42         -         -         -           Critical Hdwy Stg 2         5.42         -         -         -           Critical Hdwy Stg 2         5.42         -         -         -           Critical Hdwy Stg 3         5.42         -         -         -         -           Critical Hdwy Stg 2         5.42         -	
Major/Minor         Minor2         Major1         Major2           Conflicting Flow All         787         573         756         0           Stage 1         573         -         -         -           Stage 2         214         -         -         -           Critical Hdwy         6.42         6.22         4.21         -           Critical Hdwy Stg 1         5.42         -         -         -           Critical Hdwy Stg 2         5.42         -         -         -         -           Critical Hdwy Stg 2         5.42         -	
Stage 1	366
Stage 1	
Stage 1	- 0
Stage 2	
Critical Hdwy         6.42         6.22         4.21         -           Critical Hdwy Stg 1         5.42         -         -         -           Critical Hdwy Stg 2         5.42         -         -         -           Follow-up Hdwy         3.518         3.318         2.299         -           Pot Cap-1 Maneuver         360         519         816         -           Stage 1         564         -         -         -           Stage 2         822         -         -         -           Platoon blocked, %         -         -         -         -           Mov Cap-1 Maneuver         352         519         816         -           Mov Cap-2 Maneuver         352         -         -         -           Stage 1         564         -         -         -         -           Stage 2         804         -         -         -         -         -           Approach         EB         NB         SB         SB           HCM LOS         C         C         -         -         -         -         -         -         -         -         -         -         - <td< td=""><td></td></td<>	
Critical Hdwy Stg 1       5.42	
Critical Hdwy Stg 2         5.42         -	
Follow-up Hdwy 3.518 3.318 2.299 - Pot Cap-1 Maneuver 360 519 816 - Stage 1 564	
Pot Cap-1 Maneuver   360   519   816	
Stage 1	
Stage 2   822       Platoon blocked, %   -     Mov Cap-1 Maneuver   352   519   816   -     Mov Cap-2 Maneuver   352   -   -     Stage 1   564   -   -     Stage 2   804   -   -     Stage 2   804   -   -     Approach   EB   NB   SB     HCM Control Delay, s   19.3   0.8   0   HCM LOS   C     Minor Lane/Major Mvmt   NBL   NBT EBLn1   SBT   SBR     Capacity (veh/h)   816   - 352   -     HCM Lane V/C Ratio   0.02   - 0.287   -	
Platoon blocked, %	
Mov Cap-1 Maneuver         352         519         816         - <td></td>	
Mov Cap-2 Maneuver   352   -   -	
Stage 1   564         Stage 2   804       Approach   EB   NB   S8     HCM Control Delay, s   19.3   0.8   0   HCM LOS   C     E	
Approach   EB   NB   SB	
Approach         EB         NB         SB           HCM Control Delay, s         19.3         0.8         0           HCM LOS         C         C         5 €           Minor Lane/Major Mvmt         NBL         NBT EBLn1         SBT         SBR           Capacity (veh/h)         816         - 352         -         -           HCM Lane V/C Ratio         0.02         - 0.287         -         -	
HCM Control Delay, s 19.3 0.8 0 HCM LOS C    F   S   G	
HCM Control Delay, s 19.3 0.8 0 HCM LOS C    Fo 50     Minor Lane/Major Mvmt   NBL NBT EBLn1   SBT   SBR     Capacity (veh/h)   816 - 352     HCM Lane V/C Ratio   0.02 - 0.287	
C   E   S   C	
E	
Minor Lane/Major Mvmt         NBL         NBT EBLn1         SBT         SBR           Capacity (veh/h)         816         -         352         -         -           HCM Lane V/C Ratio         0.02         -         0.287         -         -	
Capacity (veh/h) 816 - 352 HCM Lane V/C Ratio 0.02 - 0.287	
HCM Lane V/C Ratio 0.02 - 0.287	
CONTRACTOR OF THE PART OF THE	
HCM Control Delay (s) 9.5 0 19.3 HCM Lane LOS A A C	
HCM 95th %tile Q(veh) 0.1 - 1.2	



Int Delay, s/veh 11	5	15			13				8			el(_	
Movement	SEL	SET	SER	NW	NWT	NWR		NEL	NET	NER	SWL	SWT	SWE
Lane Configurations		4	*		4			*	1.			4	
Traffic Vol, veh/h	10	5	130		5 0			285	950	120	5	720	3
Future Vol, veh/h	10	5	130		5 0	5		285	950	120	5	720	3
Conflicting Peds, #/hr	0	0	0		0 0	0		0	0	0	0	0	-
Sign Control	Stop	Stop	Stop	Sto	Stop	Stop		Free	Free	Free	Free	Free	Free
RT Channelized	-		None			None		-		None			None
Storage Length			150					150				-	
Veh in Median Storage, #		0	-		- 0			-	0			0	
Grade, %		0			- 0			-	0			0	
Peak Hour Factor	83	83	83	5	3 58	58		97	97	97	95	95	98
Heavy Vehicles, %	2	2	2		0 0	100		1	1	1	2	2	
Mvmt Flow	12	6	157		9 0	9		294	979	124	5	758	3
Major/Minor	Minor2		rand en	Minor				Major1			Major2	-	
Conflicting Flow All	2420	2478	776	241		1041		795	0	0	1103	0	
Stage 1	787	787	110	162		1041		133		0	1103		
Stage 2	1633	1691	-	79									
Critical Hdwy	7.12	6.52	6.22	7.				4.11		-	4.12		
Critical Hdwy Stg 1	6.12	5.52	0.22	6.				4.11			4.12		
Critical Hdwy Stg 2	6.12	5.52		6.				-					
Follow-up Hdwy	3.518	4.018	3.318	3.				2.209			2.218		
Pot Cap-1 Maneuver	22	30	397	2				831			633		
Stage 1	385	403	331	13				031					
Stage 2	128	149		38								-	
Platoon blocked, %	120	143		30	390								
Mov Cap-1 Maneuver	15	19	397	~ 1	3 20	282		831		-	600		
Mov Cap-1 Maneuver	15	19	331	-				031			633		
the state of the s	249	397		8						-			
Stage 1 Stage 2	80	96		22				- 1					
otogo a	-	00			002							-	
Approach	SE		EIL	NV		egant tarre		NE		73576	SW	WH.	EW.
HCM Control Delay, s	79.8			\$ 578.3	2			2.5			0.1		
HCM LOS	F			1									
Minor Lane/Major Mvmt	NEL	NET	NERV	WLn1 SELn	SFI n2	SWL	SWT	SWR		-			
Capacity (veh/h)	831	1,160.0	144141	16 16		633	OIT!	OWN.					
HCM Lane V/C Ratio	0.354				0.395								
HCM Control Delay (s)	11.7			578.2\$ 598.6		10.7	0				*		
HCM Lane LOS			9	F F			0	-					
HCM 95th %tile Q(veh)	1.6			2.6 2.7	_	B 0	Α .						
	1.0	and the same		2.0 2.1	1.0	v			2000	-		The same	
Notes ~: Volume exceeds capacity	A PARTIES	lay exc	100	00s +: Cor	a benefits	1 1 79	William	EN STATE	7 5	21371.5		THE S	N. S.

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Int Delay, s/veh 44	.5					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	**			4	4	0011
Traffic Vol, veh/h	420	5	5	290	170	265
Future Vol., veh/h	420	5	5	290	170	265
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized		None			1100	None
Storage Length	0					Note
Veh in Median Storage, #	0			0	0	
Grade, %	0			0	0	
Peak Hour Factor	90	90	87	87	87	87
Heavy Vehicles, %	1	1	2	2	1	1
Mymt Flow	467	6	6	333	195	305
minut ion	401	0	0	303	180	303
Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	693	348	500	0	- majora	0
Stage 1	348					
Stage 2	345					
Critical Hdwy	6.41	6.21	4.12			-
Critical Hdwy Stg 1	5.41					_
Critical Howy Stg 2	5.41					-
Follow-up Hdwy	3.509	3.309	2.218			
Pot Cap-1 Maneuver	~411	697	1064			-
Stage 1	717					
Stage 2	719					
Platoon blocked, %						-
Mov Cap-1 Maneuver	~ 408	697	1064			
Mov Cap-2 Maneuver	~ 408					
Stage 1	717					
Stage 2	714					
ougo a						
Approach	EB		NB	Applies for the second	SB	
HCM Control Delay, s	123.5		0.1		0	
HCM LOS	F		0.1		۰	
Minor Lane/Major Mvmt	NBL	NBT EBLn1	SBT SBR	- 1 Stalland Coll		
Capacity (veh/h)	1064	- 410				
ICM Lane V/C Ratio	0.005	- 1.152			-	
HCM Control Delay (s)	8.4	0 123.5				
HCM Lane LOS	Α	A F				
ICM 95th %tile Q(veh)	0	- 17.8				
lotes		Manual Property		THE PERSON NAMED IN		Editor le le le le le le le le le le le le le

Int Delay, s/veh	0.4						
Movement	EBL	EBR	NB	NBT	SBT	SBR	- A Paris I Barbara
Lane Configurations	**			4	1.		
Traffic Vol, veh/h	10	0		700	440		
Future Vol, veh/h	10	0		700	440		
Conflicting Peds, #/hr	0	0		0 (	0	0	
Sign Control	Stop	Stop	Fre	Free	Free	Free	
RT Channelized		None		- None		None	
Storage Length	0						
Veh in Median Storage, #	0			. 0	0		
Grade, %	0			. 0	0	-	
Peak Hour Factor	50	50	9.	93	86	86	
Heavy Vehicles, %	6	6		1	1	1	
Mymt Flow	20	0		753	512	12	
Major/Minor	Minor2		Major		Major2		
Conflicting Flow All	1270	517	52		mojura	0	
Stage 1	517						
Stage 2	753						
Critical Hdwy	6.46	6.26	4.1				
Critical Hdwy Stg 1	5.46		***				
Critical Howy Stg 2	5.46						
Follow-up Hdwy	3.554	3.354	2.209				
Pot Cap-1 Maneuver	182	550	1049				
Stage 1	590						
Stage 2	458						
Platoon blocked, %							
Mov Cap-1 Maneuver	182	550	1049				
Mov Cap-2 Maneuver	182						
Stage 1	590						
Stage 2	458						
Approach	EB	237 (227	NE		SB		
HCM Control Delay, s	27.2		(		0	The state of the s	and the second s
HCM LOS	D		,		v		
Minor Lane/Major Mymt	NBL	NBT EBLn1	SBT SBF				
Capacity (veh/h)	1049	- 182			101 10 10 10 10		
HCM Lane V/C Ratio	1010	- 0.11					
HCM Control Delay (s)	0	- 27.2					
HCM Lane LOS	A	- D					
HCM 95th %tile Q(veh)	0	- 0.4					

Intersection							1	7				137		- 1
Int Delay, s/veh	4													
Movement	EBL	EBT	EBR		WBL	WBT	WBR	20,000	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations		4				4				4			4	
Traffic Vol, veh/h	45	665	5		30	375	20		20	10	70	5	10	50
Future Vol., veh/h	45	665	5		30	375	20		20	10	70	5	10	50
Conflicting Peds, #/hr	0	0	0		0	0	0		0	0	0	0	0	0
Sign Control	Free	Free	Free		Free	Free	Free		Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized			None				None		-	-	Yield	Ciop	0,00	None
Storage Length														140110
Veh in Median Storage, #		. 0				0				0			0	
Grade, %		. 0				0				0			0	
Peak Hour Factor	94	94	94		88	88	88		67	67	67	82	82	82
Heavy Vehicles, %	1		1		2	2	2		0	0	0	0	0	02
Mymt Flow	48		5		34	426	23		30	15	104	6	-	61
THE POST OF THE PO	40				54	420	20		30	10	104	0	12	01
Major/Minor	Major1		. 157		Major2			1	Minor2			Minor1		
Conflicting Flow All	449		0		713	0	0		1348	1315	438	1319	1323	710
Stage 1			-						506	506		806	806	110
Stage 2			-						842	809		513	517	
Critical Hdwy	4.11				4.12				7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1									6.1	5.5	0.2	6.1	5.5	0.2
Critical Hdwy Stg 2									6.1	5.5		6.1	5.5	
Follow-up Hdwy	2.209				2.218				3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1117				887				129	159	623	135		
Stage 1			-		001		-		552	543			158	437
Stage 2			-									379	398	
Platoon blocked, %									362	396	-	548	537	
Mov Cap-1 Maneuver	1117				887	- 1				440	000			
CAPACITY OF THE PROPERTY OF TH	1117				007	-			94	140	623	94	139	437
Mov Cap-2 Maneuver						,			94	140		94	139	
Stage 1						-			513	515	-	352	370	
Stage 2			-						280	368		420	510	
Approach	EB				WB		-	-	SE			NW		
HCM Control Delay, s	0.5				0.7				22.5			23.7		
HCM LOS	0.0				0.1				C			C C		
Minne I anoliMaine I fount	ADM -4	EDI	EDT	EDD	WOL	IAIDT	MDD	001-4	-					
Minor Lane/Major Mvmt	NWLn1	EBL	EBT	EBR	WBL	WBT	WBR					- 3/		-3-1
Capacity (veh/h)	271				887			352						
HCM Lane V/C Ratio		0.043			0.038			0.424						
HCM Control Delay (s)	23.7		0	-	9.2	0								
HCM Lane LOS	C		A	-	A	A		C						
HCM 95th %tile Q(veh)	1.2	0.1			0.1			2						

Intersection			" -						
Int Delay, s/veh 2	8.8								
Movement	NWL	NWR			NET	NER	SWL	SWT	The second second
Lane Configurations	*	7			1	7		414	
Traffic Vol, veh/h	180	120			580	410	115	570	
Future Vol., veh/h	180	120			580	410	115	570	
Conflicting Peds, #/hr	0	0			0	0	0	0	
Sign Control	Stop	Stop			Free	Free	Free	Free	
RT Channelized	Otop	None			1100	Yield	1166	None	
Storage Length		150				0	-	None	
Veh in Median Storage, #	0	150			0	U			
								0	
Grade, %	0	-			0	-		0	
Peak Hour Factor	86	86			96	96	85	85	
Heavy Vehicles, %	1	1			1	1	1	1	
Mvmt Flow	209	140			604	427	135	671	
Major/Minor	Minor1				Major1		Major2		
Conflicting Flow All	1210	604			0	0	604	0	
Stage 1	604					-			
Stage 2	606								
Critical Hdwy	6.615	6.215					4.115		
Critical Hdwy Stg 1	5.415	0.213			-		4.110		
					-				
Critical Hdwy Stg 2	5.815	2 2025			-				
Follow-up Hawy	3.5095	3.3095			-		2.2095		
Pot Cap-1 Maneuver	~ 189	500			-		978	-	
Stage 1	547				-		-	-	
Stage 2	510				-		-	-	
Platoon blocked, %								-	
Mov Cap-1 Maneuver	~ 147	500			-	-	978	-	
Mov Cap-2 Maneuver	~ 147						-		
Stage 1	547					-			
Stage 2	398						-		
	ADAC				NE.		0111		
Approach	NW				NE		SW	1	
HCM Control Delay, s	175.4				0		2.1		
HCM LOS	F								
Minor Lane/Major Mvmt	NET	NERNWLn1	WLn2	SWL	SWT				
Capacity (veh/h)		- 147	500	978					Quit-
HCM Lane V/C Ratio				0.138					
HCM Control Delay (s)		- 282.3	15	9.3	0.7				
HCM Lane LOS		- Z0Z.5	C	A.S					
HCM 95th %tile Q(veh)		- 13.6	1.1	0.5	A				
Notes		10.0		0.0					
~: Volume exceeds capaci		lay exceeds 3				Not Def			olume in platoon

,	
- /	V
1	5

Intersection			1000	Maria de la compansa	BONS	MANUAL PROPERTY.	INTEREST		
Int Delay, s/veh 37	.1								
Movement	EBL	EBT			WBT	WBR	SBL	SBR	
Lane Configurations	*1	<b>^</b>			4		**		
Traffic Vol, veh/h	40	1125			700	160	70	30	
Future Vol, veh/h	40	1125			700	160	70		
Conflicting Peds, #/hr	0	0			0	0	0	0	
Sign Control	Free	Free			Free	Free	Stop	Stop	
RT Channelized		None			1100	None	Stop	None	
Storage Length	0					140110	0	IVOTE	
Veh in Median Storage, #		0			0		- 100		
Grade, %		0			0		0		
Peak Hour Factor	91	91				00	0		
					90	90	75	75	
Heavy Vehicles, %	2	2			2	2	3	3	
Mvmt Flow	44	1236			778	178	93	40	
Major/Minor	Major1				Major2		Minor2		
Conflicting Flow All	956	0				0	2191	867	
Stage 1							867	001	
Stage 2							1324		
Critical Howy	4.12						6.43	0.00	
Critical Howy Stg 1	7.14	130						6.23	
Critical Howy Stg 2		-				-	5.43		
	2240	-					5.43		
Follow-up Hdwy	2.218					-	3.527	3.327	
Pot Cap-1 Maneuver	719	-				-	~ 50	351	
Stage 1		-					410	-	
Stage 2	-				-		247	-	
Platoon blocked, %					-				
Mov Cap-1 Maneuver	719				-		~ 47	351	
Mov Cap-2 Maneuver							~ 47		
Stage 1							410		
Stage 2							232		
Anemach		-			IAID.	- area		TOTAL MENT OF THE PARTY NAMED IN	
Approach	EB	- 1			WB	- Iliu	SB	, C	
HCM Control Delay, s HCM LOS	0.4				0		\$ 656.1 F		
Vinor Lane/Major Mvmt	EBL	EBT	WBT 1	VBR SBLn1	1	District.		0 77	
Capacity (veh/h)	719	-		- 63	1				
ICM Lane V/C Ratio	0.061			- 2.116					
HCM Control Delay (s)	10.3			-\$ 656.1					
HCM Lane LOS	В			- F					
ICM 95th %tile Q(veh)	0.2			- 12.7					
Votes		ON THE REAL PROPERTY.	1200	E 70 1 2 3	D July	MI DESTRU			
-: Volume exceeds capacity	\$: De	lay exce	eds 300	s +: Con	nputation	Not Det	fined * All	major volume	in platoon

Intersection Delay, s/veh	153.6					
Intersection LOS	F	EDR	3402r	Byp 28	102 EB	102 W
Approach		WB	NB	SB	NE	SW
Entry Lanes		1	1	1	1	1
Conflicting Circle Lanes		1	1	1	1	1
Adj Approach Flow, veh/h		544	489	804	688	264
Demand Flow Rate, veh/h		549	499	811	695	268
Vehicles Circulating, veh/h		828	1055	555	862	964
Vehicles Exiting, veh/h		726	502	677	504	413
Follow-Up Headway, s		3.186	3.186	3.186	3.186	3.186
Ped Vol Crossing Leg, #h		0	0	0	0	0
Ped Cap Adj		1.000	1.000	1.000	1.000	1.000
Approach Delay, s/veh		103.3	169.4	146.4	240.0	24.6
Approach LOS		F	F	F	F	C
Lane	Left		Left	Left	Left	Left
Designated Moves	LR		LTR	LTR	LTR	LTR
Assumed Moves	LR		LTR	LTR	LTR	LTR
RT Channelized						
Lane Util	1.000		1.000	1.000	1.000	1.000
Critical Headway, s	5.193		5.193	5.193	5.193	5.193
Entry Flow, veh/h	549		499	811	695	268
Cap Entry Lane, veh/h	494		393	649	477	431
Entry HV Adj Factor	0.991		0.980	0.991	0.990	0.983
Flow Entry, veh/h	544		489	803	688	263
Cap Entry, veh/h	489		385	643	473	424
//C Ratio	1.112		1.268	1.250	1.456	0.622
Control Delay, s/veh	103.3		169.4	146.4	240.0	24.6
LOS	F		F	F	F	C
95th %tile Queue, veh	18		21	30	34	4

Intersection Int Delay, s/veh 12	7													
Movement	EBL	EBT	EBR		WBL	WBT	WBR		NBL	NBT	NBR	SBL	CDT	cor
Lane Configurations	LUL	4	7		TYDE	4	WORK		INDL		MDIX	ODL	SBT	SBF
Traffic Vol, veh/h	10	40	435		5	30	20		200	435	10	25	4	40
Future Vol, veh/h	10	40	435		5	30	20					25	290	15
Conflicting Peds, #/hr	0	0	0		0	0	0		200	435	10	25	290	15
Sign Control	Stop	Stop	Stop		Stop	Stop			0	0	0	0	0	. (
RT Channelized	Stop	Slop	None		ашр	Stop	Stop		Free	Free	Free	Free	Free	Free
Storage Length			0	-			None				None			None
Veh in Median Storage, #		0		-	-	0								
Grade, %		0	-			0			-	0	-		0	
Peak Hour Factor	88	88	88		82	82	82		93	93	00		0	
Heavy Vehicles, %	2	2	2			02	02				93	91	91	91
Mymt Flow	11	45	494		6	37			1	1	1	1	1	1
WINTER FLOW	- 11	40	494		0	31	24		215	468	11	27	319	16
Major/Minor	Minor2			1	Minor1			Se ur	Major1		70.00	Major2	ne y	
Conflicting Flow All	1316	1291	327		1308	1293	473		335	0	0	478	0	0
Stage 1	382	382			903	903	-		-		-			
Stage 2	934	909			405	390								
Critical Hdwy	7.12	6.52	6.22		7.1	6.5	6.2		4.11	-		4.11	-	-
Critical Hdwy Stg 1	6.12	5.52	-		6.1	5.5				-				
Critical Hdwy Stg 2	6.12	5.52			6.1	5.5			-				-	
Follow-up Hdwy	3.518	4.018	3.318		3.5	4	3.3		2.209			2.209		
Pot Cap-1 Maneuver	135	163	714		138	164	595		1230		-	1090		
Stage 1	640	613			335	359								
Stage 2	319	354			626	611			- 1	-	-			
Platoon blocked, %											-			
Mov Cap-1 Maneuver	80	120	714		24	121	595		1230			1090		
Mov Cap-2 Maneuver	80	120			24	121	-							
Stage 1	488	594			255	274			5.3			-		
Stage 2	202	270			172	592						-		
Approach	EB				WB				NB	-		SB		
HCM Control Delay, s	25.6			1 - 1	76.5				2.6			0.6		
HCM LOS	D				F				2.0			0.0		
Minor Lane/Major Mymt	NBL	NBT	MRD	EBLn1 E	EDI ADI	AIDI ad	SBL	SBT	SBR					
Capacity (veh/h)	1230	IND!	INDIX	109	714	112	1090				_			- 18
HCM Lane V/C Ratio	0.175		-			0.599								
HCM Control Delay (s)			-					- 0						
HCM Lane LOS	8.5	0	- 3	69.4	20.6	76.5	8.4	0						
IOM FRIE FOS	A	A	-	F	C	F	A	A	-					

Intersection							
int Delay, s/veh 15	5.4	6	E	3	C.	8	
Movement	EBL	EBR	NBL	NBT	SBT	SBR	
ane Configurations	**			4	4		
Traffic Vol, veh/h	270	5	15		235	190	
Future Vol., veh/h	270	5	15		235	190	
Conflicting Peds, #/hr	0	0	0		0	0	
Sign Control	Stop	Stop	Free		Free	Free	
RT Channelized	-	None	-	Table State		None	
Storage Length	0				-		
Veh in Median Storage, #	0			0	0		
Grade, %	0			0	0		
Peak Hour Factor	90	90	87	87	89	89	
Heavy Vehicles, %	1	1	2	2	3	3	
Mymt Flow	300	6	17	414			
WWIITLIOM	300	0	11	414	264	213	
Vajor/Minor	Minor2		Major1		Major2		
Conflicting Flow All	819	371	478	0		0	
Stage 1	371						
Stage 2	448						
Critical Hdwy	6.41	6.21	4.12	1.			
Critical Howy Stg 1	5.41	0.21	7.16				
Critical Howy Stg 2	5.41						
follow-up Hdwy	3.509	3.309	2.218		-		
ot Cap-1 Maneuver	346	677	1084				
Stage 1	700				-		
Stage 2	646						
	040						
Platoon blocked, %	000	077	1001				
Mov Cap-1 Maneuver	339	677	1084				
Mov Cap-2 Maneuver	339						
Stage 1	700						
Stage 2	633			-			
Approach	EB		NB		SB		
ICM Control Delay, s	60.9	111	0.3		0		
ICM LOS	60.5 F		0.3		0		
TOWN EGO							
/linor Lane/Major Mymt	NBL	NBT EBLn1	SBT SBR				
Capacity (veh/h)	1084	- 342					
ICM Lane V/C Ratio	0.016	- 0.893					
ICM Control Delay (s)	8.4	0 60.9	1				
ICM Lane LOS	A	A F					
ICM 95th %tile Q(veh)	0	- 8.7					

## APPENDIX J: 2040 AWDT PEAK HOUR VOLUMES

11-Apr-17	1.00				TABLE I-					-		-			
res 5-17-17	Adji	usted 2040	AAWDT	and Peak	Hour No-I	Build volume	es based o	in 2015 o	ounts						
res 9-14-17							-		1				100		
	Annual			-		ghway Sroup 4								100	
	Growth rates		-	intersecti	on Tunning M	overnent Count		AM Peak							
	2014->3015	1.025		-		April	Adj Factors								
	2015->3015	1.000				May		0.9	0.9	8					
	2016->3015	0.575				June		0.9	0.9	4					
						July		1.0	0.9	6					
						Sept.		0.9	0.9	0					
													(Apply % to		
											-		2015 adi	-	
				Counted	Adi 2015		Counted	Adi 2005		2015 HART	2040 AAMOT	- %	AAN/OT)	2040	
	Count	Faw	Adj 2015	Att Feet		AM Pk as	PM Proix	PM Peak		Base Model					2040
Count Location	Month/Yr	AAWST	AAWOT	Volume		Not AANOT		Volume		-	No-Build	Growth	2040 NB	NoSd	No5d
my Crystal Av (NH 38), 5 of Triennets	May-15	15,585	15.195	836	803	5.28%			Nof AAWG1	Assigns	Assigns	2215-40	ARWOT	AM Pk	P56 P8
Folsom Rd W of NH 28	May-35				-		1418	1390	9.15%	13,406	10,229	-29.77%	11,584	632	10
- Control of the Cont	-	12,070	11,768	778	747	639%	1199	1175	9.58%	8,960	30,537	17.60%	13,839	878	10
Pinkerton St E of Tsienneto	14ey-35	30,722	10,454	695	667	6.38%	3017	997	9.54%	8,775	6,396	-27.12%	7,619	486	
Triennto Rd, W of NH 102	May-35	5,532	5,394	483	464	E.50%	511	500	9.29%	5,666	9,072	60.11%	8,686	743	- 1
Tsienneto Rd E of Pinkerton	May-36	15,012	14,537	1113	1068	7.30%	3499	1468	30.04%	14,200	18,875	12.99%	19,457	0420	15
NH 102, E of NH 28 Bypass	May-35	7,456	7,270	595	571	7.85%	661	648	8.51%	7,036	6.135	-12.69%	5,348	499	
NH 25 Syp, N of Academy Dr	May-36	8,615	8,400	756	735	8.64%	881	863	30.27%	7,808	2.853	-61.00%	3,215	283	3
NH 29 Syp, N of Tsienneto Rd	May-56	12,250	11.944	997	957	8.02%	1221	1177	9.85%	9,377	4,072	-56,57%	5,387		
NH 28 Byp, 5 of Thornton Rd (south)	May-16	14,341	13.982	1110	1066	7.62%	1392	1364	9.70%	The second second		_		416	
NH 102 E of Griffin St	Apr-34	16,410	15,800	1080	1037	5.17%				12,227	7,327	-43.08%	8,379	639	
NH 101 W of Abbot St	Apr-34	-		-			1224	1212	7.21%	18,002	20,830	15.60%	19,444	1199	14
		14,230	14,576	1030	979	6.72%	1148	1137	7.80%	11,128	14,902	33.51%	19,519	1311	-15
Fordway over Beaver Brook	Apr-34	5,500	5,638	411	395	7.00%	481	476	E.44%	5,114	3,511	-31,35%	3,871	271	-
Franklin St Ext, N. of Foliam Rd	Apr-04	1,795	1,840	109	105	5.71%	171	169	9.18%	1,254	1,959	56.22%	2,874	964	
Ash St at Londonderry town line	Apr-04	6,955	7,130	407	458	5.42%	722	715	1003%	5,986	13,790	13231%	16,564	1064	35
Crystal Av (N= 28), S of Rollins	Jun-15	13,134	13,134	1036	985	7.50%	1174	1104	8.47%	13,215	12,463	-30.E290	10,399	783	- 4
NH 102, at Derny Chester town line	364-15	8,200	8,300	544	670	8.17%	841	807	3.84%	30,839	12,783	17.54%	5,671	790	
average						7.11%		1	9.23%	30,633	12,193	21.5404	3,071	790	9
									2.124	-	-				
erry NH 302, E of Hampton Dr	14-15	31,102	31,302	3478	2577				100						
NH 302, E of Exit 4	NA. 27	34,192			2577	8.29%	2942	2728	3.77%	30,418	51,401	58.38%	52,557	4855	46
			26,800	2140		7.59%	2045		8.00%	20,818	32,410	55.58%	41,723	3332	33
NH 102 at Derry Town line	May-15	22,656	22,090	1718	3549	7.06%	1795	1750	7.97%	22,983	29,904	30.17%	29,742	2146	22
AW 28 at Derry Town line	May-16	17,324	56,890	1279	1228	7.27%	1582	3548	9,75%	19,392	15,638	-15.36%	13,621	990	13
NH 28 N of Liberty Or	Sep-15	14,994	14,994	5437	1337	8.92%	1247	1210	8.07%	15,406	34,733	4.37%	14,339	1279	11
Gilcreset Rd N of NH 302	May-15	30,070	9,818	697	668	6.81%	3308	588	20.06%	9,357	96,438	74.93%	17,174	1170	17.
Condonderry Rd, N of NH 182			4,522	215	215	4.59%	465	465	30.06%	4,742	4,823	1776	4,701	219	4
Ash St E of Londonderry Rd	Jun-15	6,590	6.591	477	458	£99%	723	680	20.32%	5,949	14,000	135.35%	15,512	1078	16
average			-	-		7.29%		-	9.13%	2,343	54,500	233.33%	15,312	DUYE	15
						7.42%		-	3-41%	-		-			
	-						-	-	_	-					
Exit 4 NB Off-rame	Man-16	10.249	2.003	enr.	-	4100			-						
Exit 4 NE Co-ramo			9,993	435	433	4.18%	1223	1199	12.00%	10,389	20,215	54.58%	19,444	E13	33
	May-16	10,308	10,045	1079	1035	10.32%	812	796	7.92%	9,550	21,343	123,49%	22,448	2915	17
Exit 4 58 Off-ramp	May-16	5,862	9,605	753	723	7.52%	952	933	9.70%	8,157	18,349	134,95%	21,529	1625	305
Exit 4 58 On-ramp - EB to 58	May-16	5,330	5,177	673	545	12.48%	311	305	5.89%	4,907	10,778	129.65%	11,371	1419	5
Exit 4 S8 On-ramp - W9 to S8	May-16	4,767	4,648	537	505	11.10%	344	299	5.14%	3,637	7,402	109.52%	9,460	1050	- 4
average					1	9.12%			8.13%				2,00	-	
					2					-	-				-
Exit 5 N3 Off-ramp	May-16	5,745	5,601	400	384	5.86%	472	463	8.27%	4,430	5,401	44.44	F 200		
Exit 5 NS On-ramo	May-15	9,580	9,341	992	952	30.19%	798	777	8.32%	100000		64,09%	8,093	555	6
Exit 5 S8 Off-ramp			_			0.0340.00				9,000	13,499	48.32%	13,855	1412	11
	May-15	9,520	9,282	781	750	8.08%	939	920	9.90%	9,234	13,577	47.03%	13,648	1108	133
Exit 5 S8 On-ramp	May-15	5,645	5,504	519	498	9.05%	427	418	7.59%	3,919	5,884	50.14%	8,264	748	6
average	-	-		-		8.54%			8.52%		-	-			
								-	1	1					
199, south of Exit 4 (DOT PATR)			71,060		5420	7.63%		5870	8.25%	72,378	138,908	64.29%	116,743	8,904	9,54
ME.			35,740	-		35.9%			58.1%	36,417	59,284	62.69%	58,133	3,253	5,60
58	-		35,320	- 0	1	63.5%			41.9%	35,961	59,674	65.94%	58,610	5,850	4,04
I-59, between Exits 4 and 5			71,000			7.94%			8.29%		120,205			$\overline{}$	
A3				-		45.E%				71,152		68.90%	119,548	9,538	9,94
58					1				50.2%	35,578	60,363	69.66%		4,443	5,09
I-53, north of Exit 5			20.000	-		53.4%			48.8%	35,574	59,842	68.22%	-	5,085	4,84
			76,000		the same of the sa	8.45%			8.80%	83,139	134,995	66.37%	126,445	10,590	11,13
A9						49.8%		3325	49.7%	40,250	57,460	67,60%	-	5,334	5,58
58					3225	50.2%		3365	50.3%	40,889	67,535	65.17%		5,366	5,98
	- 1			Counted	Adj 2005		Counted	Adj 2015	-	3015 AWDS	2040 AWST	%	AAWQT)	2040	2040
			Adj 3015	AM Peak	-	AM 24 25	PM Peak	PM Prok	PM Pk as	Sase Model	No-Build	Growth	2040 NS	Nobd	NoBd
			AAWOT	Volume	-	N-of-AAWOT	Volume		% of AWWER						
		-					1000	- Committee	A STANFOLD	Assigns	Assigns	2015-40	TOWA	AM Fk	PM Pk
Note - Exit S S8 off ramp AM peak volum	a dissort over in the				and an ar	andto d									
THE RESERVE AND ADDRESS OF THE PARTY AND ADDRE	E WASHINGT DOOR		max appeal	- anomaio	ne white could	e seo to coner o	DUTTS IT SAM	e sour			-				
Red counts are from NHDOT Town summ															

Separate   Control   Con	rev 5-17-17	10.00			- 10	TABLE		-								
Second   S	The second secon	Adji	usted 204	DAAWDT	and Pea	k Hour No	-Build volum	nes based	on 2015 o	ounts						
Secret Area	sex 9-34-17													-	1	
Secretary   Secr					Selesiona	it Use Urban i	Highway Group	4 adjustmen	f. factors					1	+	-
					intersec	tion Tunning	Movement Coun	eta.		PM Peak			-	-		
			1.025				April	Adi Facto	c= 0.9	_		-	-	-	-	
		2015->2005	1.000				May		_			-	+	-		
		2015->2015	0.979				-	-				-	-			
Section   Court   Rept   Court   Cou						-	_	-								
County   C					+	-		-	_							
Company   Comp				-	-	-	Sept		0.9	5 0.	57					
Company   Comp			_		-									(Apply N to		
Count Loadies		-		-	-	1	-									
Count Location   Security   March   Ma					_		5	Counter	Adj 2015		2215 AN/OT	2040 ANWOO			2000	****
Company   Comp		-		Adj 2015	AM Per	k AM Peak	AM.Pk as	PM Pea	PM Peak	PM Picas						_
## Special and Section   1.5 (and Tennome)   May-16   1.5 (and Tennome)   1.5 (and Ten			AAWDE	AAWST	Volume	e Volume	% of AAWS	T Volume	Volume						the state of the s	
Professor Sign of No. 28		May-16	15,585	15,195	835	803	5.38%									PM 26
Polaron St of Tourness   Mar-16   13.712   20.64   695   687   6.380   1327   997   5.586   6.380   12.381		May-15	12,070	11,758	778	747		1	2.5			-				30
Telement R. Mr 198 122 May 15 5,533 5,586 481 566 8.000 531 532 5,000 5.000 1.	Pinkerton St E of Tsienneto	May-15	The second second second	-							100000		The second second second		878	13
Thermotic bill of Prinstance   Mary 51   35,02   54,837   3131   2068   3200   340   3400   3	Tsiennto Rd, W of NH 102								1		8,775	6,396	-27.529	7,619	485	7
Net SQ, Get No. 28 players				10000					_		5,666	9,072	60.131	8,636	743	
No. 10 August   10							The second second second			10.04%	14,200	38,876	32.939			-
Pet 3 Bigs, Left Tissenses Methods			-		The second second			661	648	8.51%				227.5		
May 15 (1.5 CE TEXTURE SEE SEE SEE SEE SEE SEE SEE SEE SEE S							E.54%	881	863	10.27%		-			-	
Mod 132 of Chambook Spouth   May 16   14,341   13,962   1130   1066   7,00%   3382   1314   1212   278   13,000   3,327   44,00%   3,337   44,00%   44,0				11,944	997	957	E.02%	1201	1177		-					
Net 1222 of Confirm 32  Net 12		May-16	14,341	13,982	1210	1066	7.62%				200000000000000000000000000000000000000					5
Met 2021 Well Albert 20   April 14   14200   14470   14400		Apr-04	16,430	15,820	1080	1037		-			and the second second second					
Fortive State Person   April 2, 5,500   5,500   5,500   4,11   355   7,750   100	MH 102 W of Abbot St	Apr-54		-			The state of the s						_			140
Francis Start, N. of follows filed   April   A	Fordway over Beaver Brook		The second secon	-							The second secon	The second secon		19,519	1311	15
## APP Not Landonderly from line   APP-14				-	-					_		3,511	-31.35%	3,871	271	30
Cycle   Company   Compan			-						169	9.18%	1,254	1,959	56.22%			
No 1000, at Derry(Constant rown line			-					722	715	10.0%	5,536	13,790	132.319			358
### 150   Sept.   Sept							7.50%	1174	1104	8.41%				-		
### 12   1   1   1   1   1   1   1   1   1		306-15	8,300	8,200	644	670	8.17%	841	807	9,84%	The second secon					.87
Sery Not 1821, C of namepton Dr Not 13 31,000 31,102 NOTE 2517 8,29% 2841 2718 8,77% 18,45.88 53,400 65,90% 21,305 22,000 1718 1549 7,90% 2115 8,00% 23,858 33,400 55,80% 41,723 3332 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3	average						7.11%		1			21,700	27.543	9,671	790	95
May 12   Col Exists   May 15   22.855   25.000   2340   279   8.77%   8.025   22.605   23.605   23.5				-						24111		-		-		
Net 1922, Eer fürcht 4 May 16 2,2555 2,2565 1,256 1,256 2,2565 2,266 1,273 3332 3332 3332 3333 3333 3334 3455 4,266 1,273 1,274 1,275 1,27		Jul-15	31,002	31,102	2478	2572	2 79K	2002	3724	0.750	40.000					
PM 102 of Certy Town line	NH 102, E of Exit 4			25.800	2548	1 - 63.11			2748						4355	461
Met 38 of Certy Town line	NH 102 at Derry Town line	May-16	22.656	-		I tran					-	32,430	55.68%	41,723	3332	333
Miles Not Debuy P   54-55   14,094   34,094	NH 38 at Derry Town line										22,983	25,904	30.11%	28,742	2346	229
Section   Sect						_			1548	9.76%	19,392	15,638	-19.35%	13.621	990	132
Landconderly Rd, N of Nn 102		and the second second		-				1347	1230	8.07%	15,406	14,793	4.37%		1	115
And St. of Londonderly 18		May-15	12,070		637	669	6.81%	1008	988	10.00%	9.397	15 438	24.93%			172
######################################				4,622	215	215	4.65%	465	465	10.09%	-	-				
Exit Als CR-ramp  May-15  Set 2 Als CR-ramp  May-15  Set 3 Als CR-ramp  May		Jun-15	6,591	6,590	477	458	6.99%	723	680	10 32%				The second second		47
Exit A MS Off-ramp	ëverage						7.29%		1			34,003	190,000	15,504	3078	160
Ext 4 MB On-camp										2420		-		-		
Ext 4 MB On-camp							1	-	-			-				
Ext 4 M3 Chi-camp	Exit 4 NB Off-ramp	May-36	10.249	9.002	435	645	4100									
Exit 4 58 OFF-ramp	Exit 4 NB Co-ramp		-	255000				the second second second				20,215	94.58%	29,444	813	233
Earl 53 On-ramp - 28 to 58	Ext 4 S8 Off-rame										9,550	21,343	123,49%	22,449	2315	1779
Date 4 58 Christoph					-		-		933	9.70%	8,157	18,349	134,95%	21.529		309
Bit 5 SH CH-ramp									305	5.89%	4,907	10,778	119.65A			670
Belt S NB OFF-ramp		May-15	4,767	4,648	537	506	11.10%	244	239	5.14%	3,637			-		48
Each S NB Off-namp May 15 5,745 5,600 400 384 6,86N 472 453 8,77% 4,430 6,401 44,49% 8,063 555 66 545 NB On-ramp May 15 9,580 9,341 992 552 00.19N 793 777 8,32% 9,501 13,499 48,32% 13,655 3411 131 135 55 S Off-namp May 15 9,500 5,262 781 750 8,08% 999 920 9,51% 5,234 13,577 47,09% 13,648 3133 13 13 13 13 13 13 13 13 13 13 13 1	ave age						9.12%			8.13%	2,227	.,	1	2,400	1830	48
Exit 5 NB De-ramp													-			
Exit 5 NB On-ramp May-15 9,580 9,341 992 952 10.19N 793 777 8.12N 9.101 13,499 43.223 13,655 3411 15,745 9,520 9,520 9,520 7331 750 8.09N 999 920 9,51N 9,234 13,577 47,09N 13,648 1133 13 13 13 13 13 13 13 13 13 13 13 1		May-15	5,745	5,600	400	384	6.86%	470	40	277	4 470	-				
Exit 5 59 Off-ramp May 16 9,522 522 381 750 Eules 999 820 9,5115 5,234 13,577 27,098 18,645 1103 13 13 12 11 12 11 12 11 12 12 11 11	Exit 5 NS On-ramp	May-15	9,580	9.341	-						-		The second second	-	-	665
Set 5 50 On-ramp	Exit 5 58 Off-ramp		2000	and the second									The State of the S	The second second	3432	1153
### ##################################	Exit 5 58 On-ramp		-		Annual Control of the	_					The second second		47.03%	13,648	2103	1353
### ### ##############################		741.70	2,045	2,364	319	458	-	427	418		3,929	5,884	50.14%	8,354	748	629
NS   35,100   2980   36,506   3410   58,278   35,417   35,234   62,650   58,233   3,253   5,650	errage		_		-		8.54%			8.52%						
NS   35,100   2980   36,506   3410   58,278   35,417   35,234   62,650   58,233   3,253   5,650	LAS youth of East Contractor															
199, between Exits 4 and 5  19				The second second		5430	7,63%		5879	8.26%	72,378	115 908	64 794d	116.742	8000	0.000
199, between Exits 4 and 5			- 2	35,740			Contract of the Contract of th		The state of the s				A STATE OF THE PARTY OF THE PAR	and the second s		9,644
199, between Esits 4 and 5   11,000   5560   7,34N   5885   8,296   71,152   130,205   58,945   119,948   9,178   9,378   538   3880   45,69K   3015   51,29K   95,518   60,353   65,945   119,948   9,178   9,378				35,320		3440	53.5%	1	Part of the last							5,602
MB   2680 45.5K 3015 51.2W 35.518 60.363 65.5K 119.968 9.5K 9.3K 9.3K 119.968 9.5K 9.3K 9.3K 119.968 9.5K 9.3K 9.3K 9.3K 9.3K 9.3K 9.3K 9.3K 9.3	1-93, between Exits 4 and 5															4,542
SECOND   S	MS	1000									The second second			119,948	9,528	9,342
152, north of Eait 5   76,000   5425   8,45%   5600   8,80%   51,254   59,842   68,27%   5,865   4,84     153, north of Eait 5   76,000   5425   8,45%   5600   8,80%   81,129   134,395   66,37%   125,445   10,900   11,13     153, north of Eait 5   76,000   5425   8,27%   40,250   8,80%   81,129   134,395   66,37%   125,445   10,900   11,13     153, north of Eait 5   8,45%   50,80%   8,129   134,395   66,37%   125,445   10,900   11,13     153, north of Eait 5   8,45%   8,80%   81,129   134,395   66,37%   125,445   10,900   11,13     153, north of Eait 5   8,45%   8,80%   81,129   134,395   66,37%   125,445   10,900   11,13     153, north of Eait 5   8,45%   8,80%   81,129   134,395   66,37%   125,445   10,900   11,13     153, north of Eait 5   8,45%   8,80%   81,129   134,395   66,37%   125,445   10,900   11,13     153, north of Eait 5   8,45%   8,80%   81,129   134,395   66,37%   125,445   10,900   11,13     153, north of Eait 5   8,45%   8,80%   81,129   134,395   66,37%   125,445   10,900   11,13     153, north of Eait 5   8,45%   8,80%   81,129   134,395   66,37%   125,445   10,900   11,13     153, north of Eait 5   8,45%   8,80%   81,129   134,395   66,37%   125,445   10,900   11,13     153, north of Eait 5   8,45%   8,80%   81,129   134,395   66,37%   125,445   10,900   11,13     153, north of Eait 5   8,45%   8,80%   81,129   134,395   66,37%   125,445   10,900   11,13     153, north of Eait 5   8,45%   8,80%   81,129   134,395   66,37%   125,445   10,900   11,13     153, north of Eait 5   8,45%   8,4	Gal Gal													-	4,443	5,099
A8 3200 49.8% 3125 49.7% 40,250 67,650 67,650 67,650 53,94 5,334 5,33 50 60,000 10,13 50 50,000 10,13 50 50,000 10,13 50 50,000 10,13 50 50,000 10,13 50 50,000 10,13 50 50,000 10,13 50 50,000 10,13 50		-		26,000				-					68.22%	-	5,885	4,849
\$30 \$3,000 \$3,000 \$3,000 \$3,000 \$3,000 \$7,000 \$7,000 \$5,00				16,200			The second second				81,139	134,995	65.37%	125,445	10,690	11,130
1225   50.2%   1365   50.3%   40,889   57,535   65,170   .   5,365   5,39			-	-						9.7%	40,250		67,60%		The second second	5,532
Counted Adj 2015 Counted Adj 2015 2015 AWOT X AAWOT] 2540 2040  Adj 2015 AW Peak AM Peak AM Peak PM Peak PM Peak PM Peak Base Model No-Build Growth 2540 NB NB6 NB6 NB6 AAWOT Volume Volume Volume Volume Volume Volume Volume Volume Volume Adj 2015 AWOT Assigns 2015-40 AAWOT AM Pk PM Pk  Note - Eak 5 58 off ramp AM peak volume does not include one count that appears anomalous when compared to other revents in same hore.	38		-		-	1225	50.2%		3365	0.3%	40,889		-			
Adj 2015 AM Pask AM Pask AM Pask PM Pa															200	2,496
Adj 2015 AM Peak AM Peak AM Peak PM Peak PM Peak PM Peak Bale Model No-Build Growth 2540 NB NoBd NoBd AAMIDT Volume Volume Sof AAMIDT Volume Volume Sof AAMIDT Volume Volume Sof AAMIDT Nobleme Sof AAMIDT Addings 2015-40 AAMIDT AM Pix PM Pix Noble - Exit 5-58 off ramp AM peak volume does not include one count that appears anomalous when compared to other reviews in same hore.					Counted	Adj 2005		Counted	Adj 2015		2015 AWOO 12	S4D AWOT	4	EMMON:	2042	2045
AAMOT Volume Volume S of AAMOT Volume Volume S of AAMOT Nolume Volume S of AAMOT Assigns 2515-40 AAMOT AM Pk PM Pk  Note - Exit 5 58 off ramp AM peak volume does not include one count that appears anomalous when compared to other revents in same hour.				Adj 2015	AM Peak	AM Peak	AMPR as			PM 29: 21						
Note - Exit 5 58 off ramp AM peak volume does not include one count that appears anomalous when company to other revents in same hour																
Note - Exit 5 98 off ramp AM peak volume does not include one count that appears anomalous when compared to other counts in same hour  Red counts are from NACOT From remnanciary. What or 2005										- E-MINST	Accepts.	ASSESS.	A15-40	TOWAR	AM Pk	PM Pk
Red counts are from NHSST from removerable. White are the	Note - Exit 5 58 off ramp AM peak volume	does not includ	Se one count	that annexe	S becomes	e when com	and to add	made in a		-						
					200	- when comp	He GO SO DOUGH (	OUTS IT SAT	e hour							

nev 5-17-17	Adjusted	d 2040 A4	wor a	d Peak I	Hour Alter	native A vo	Armer has	m/ ~~ ~	ns course		1	1	1	-	-	-	-
nev 9-14-17			1	1	The same	THE PARTY	W1100 000	CO OH Z	M3 count	-	-	-					
	Annual			Sessonal.	Use Difeasi	fighway Group	4 adjustmen	e factors	-		+	-		-	-		
	Growth rates					Acvement Cour		AM Pes	k PM Pesk	-	-	-		-			-
	3064×3065	1.12			T	April	Adjifador			9	+	-	-		-	-	-
	3005->3005	1.80	0			May		8.5								-	+
	2016->2015	0.305				Ane		8.5	6 0.9	4							-
						July		1.0	4 0.9	6							+
						Sept		8.5	0.8	1							-
-						1							(Apply % to				-
													Adj 3005				1
				Counted			Counted	_			2043 AW91	- %	AAWOTO		SOlffreenz	2040	2
Court Location	Count Month/W	Raw AANOT	Adj 2005		_		PM Peak			Base Model	ARA	Crowth	2040 Alt. II	2940105	2940 Alt A	AltA	A
TY Crystal Se INH 281. S of Felenceto	May 15	15,585	15,195	Tolume 836	tolume	N of ARRIO		Volume		Assigne	Assigns	2005-40	TOWAN	AAWICE	to 2040 NS	AM Pa	25
Folsom Rd IV of NH 28	May-15	12,870	11,768	378	347	5.29% 6.35%	1418	1390	9.15%	13,406			8,708	-		434	
Pinkerton St E of Tsienneto	May 15	10,722	10,454	695	667	6.38%	1199	2275	9.36%	8,960	1		-	_	44.00	2,489	
Taleanto Nd, W of NH 162	May-16	5,530	5,394	461	464	8.60%	511	957 501	954%	8,776	-					689	4
Tsienneto Rd E of Pinkerton	May 15	15,002	14,637	1013	1068	7.30%	311	-	9.29%	5,600			-		_		
NH SCIL E of NH 38 Bygges	May-16	7.456	7,270	585	571	7.885	961	1469	30.34%	14,200						1,60	
MH 28 Byo, N of Academy Dr	May 16	8,615	8,400	756	726			548	8.91%	7,006	4		7,175	_		564	
NH 28 Byp, N of Tsiennets Rd	May-25	12,250	11,944	997	957	E.COS.	881	863	30.17%	7,308			2,678			233	
NH 28 Byp. 5 of Thorston Rd (south)	May-35	34,340	11,982	1110	1066	7.62%	1201	1177	5.855	9,377	-		5,387			432	
NM 162 E of Sniffen St	Apr. 14	35,433	36.829	1080	1037	5.176	1352	1354	9.76K	11,227			8,750			567	4
NH 182 W of Abbot 92	Apr-14	14,779	34,575	1000	979	5.72%	1204	1212	7.21%	38,002			15,776			973	
Fordway over Beaver Braids	Apr-14	5,500	5,618	411	385	7.026	1148	1137	7.80%	11,128						2000	
Franklin St. Ext., N. of Folsom Rd	Apr-34	1,795	1.840	109	105	5.72%	480	476	E.46%	5,114	-		5,234			367	
Ash St at Condonderry town line	Apr-34	£,955	7,130	477	458	5.42%	170	199	5.32%	1,254	1,367		2,006			114	1
Crystal Av (NH 28), 5 of Rollins	ke-25	13,134	13,114	1005	985	7.50%	722 1174	715	11.036	5,986	6,065		-	15,564		468	
NH 100, at Deny Dieser town line	Jul-15	8,300	8,300	544	670	817%	842	1304	8.42%	23,215	11,067		11,019				1
average		-	-,	-	410	7.565	344	907	9.84%	16,839	14,381	30.839	10,728	9,573	9.65%	877	
erry NW 102, E of Hampton Dr		-							9.15%		-						
NH 100, E of Eat 4	Jul-15	30,302	30,362	3478	2577	8.29%	3542	2738	8.77%	30,418	56,306	85.118	57,572	52,357	8.72%	4,110	
Not 100 at Deny Town line			25,800	2140		7:99%	2145		8.00%	29,818	15,729	-24.479	30,240	41,779		1,616	
NH 28 at Derry Town line	May 16	12,656	22,090	1718	3649	7.45%	1796	1760	7.97%	22,983	20,403	-51.189	19.629	28,742		1,45	
MH 28 N of Liberty Dr	May 15	17,304	15,891	2279	1338	7.17%	2005	1548	2.75N	19,352	9,640	-50.32%	8,119	13,621		598	
Glorest Rd N of NH 102	Sep-15	14,554	14,584	1907	1117	8.92%	1247	1200	8:00%	15,406	9,384	-85.19%	9,717	14,339		866	1
	May 15	10,000	9,808	957	609	E.81%	1008	988	30:06%	9,397	25,318	63.EES	35,004	27.174		1,051	
Londonderry Rd, N of NH 102			4,522	2:5	225	4.69%	465	465	30,06%	4,742	6,536	37.89X	6,171	4,701		796	1
Ash St C of Landonderry Rd	Aun-15	6,580	6,380	407	458	6.99%	723	580	10.32%	5,343	6,065	1.35%	6,730	15,512		467	-
\$46.984			1			7.29%			5.175								
Connector Rd, E. of Exit 4A						7,466			7.57%		53,730				1		-
Connector Rd, IV. of N High St						7.42%		1	7.57%		45,574					4,000	
									7,3104	-	40,374					1,058	
Bit 4.98.05 ramp	May 25	10,349	5,998	435	418	4186	1223	1199	12.00%	10,389	18,673	73.96%	12.741		1		
Set 4.95 On ramp	May 15	10,306	10,045	1009	1086	10.30%	812	796	7.52%	3,550	15,150		17,384	19,664	The second second	127	
Enit 4 S8 Off-ramp	May 15	5,862	9,615	758	773	7.52%	952	533	9.70%	8,157	13,795	59.12%	15,305	11,48	A COLUMN	1,643	
Enit 4 S8 Cn-ramp - 68 to 58	May 15	5,330	5,277	673	645	12.48%	311	305	5.85%	4,907	11,636	141.21%	16,291	21,529	_	2,235	
Exit 4 S8 On-ramp - Will to S8	May 15	4,767	4,648	537	515	11.10N	344	239	5.14%	3,617	3,879	6.69%	12,487	11,371		1,558	
ayeraya	1					9.12%			813%		3,3/7	2.51%	4,957	9,460	-90.54%	550	
Exit 4A NS Off-ramp	-					-		-	4104			-			-		
Ext 4A.VE On rang	-		-		_		-	_			8,712		8,792			796	
Exit 4A S8 Diff-ramp	-										15,240		25,240			1,380	
Exit 4A 58 Co-ramp			-							-	38,996		18,995			1,792	
		-								-	30,752		10,752			980	1
Exit 5 NB Off-ramp	May-26	6.74	200	400													
Exit 5 MS Do-camp	May-36	5,745	5,600	400	384	5.88%	100	463	8.27%	4,430	7,511	69.77%	5,509	8,051	14.89%	652	
8xt538 Off-ramp	May-06	5,580	9,340	992	962	10.396	793	377	8.32%	9,100	15,863	19.36N	10,349	13,855	-24.27%	1,136	
Selt 5 58 On-ramp	May-16	5,645	5,382 5,504	790	150	8.086	988	850	3.52%	9,234	7,670	-36,9490	7,730	13,548	-77.02%	623	
average.	mat/Jig	3,645	3,504	529	498	9.15%	427	418	759%	3,919	5,879	75.53%	9,661	8,264	14,464	874	
meage.			_		_	8.54%			852%								
3-99, south of fait 4 (DOT FATR)	-		21 040			200		-									
NS.			35,340	- 1	5429		-	5870		72,178	123,109	70.09%	120,567	116,743	3.50%	5,219	- 1
58	-	-	35,330			36.5%			58.1%	36,417	62,455	68.75%	60,303	58,133	3.50%	3,368	1
MS, between Exits 4 and 4A				-		68.5%			41.3%	35,961	61,554	71,49%	60,355	58,600	3.22%	5,851	- 4
18			72,000			7.94%			8.29%	71,152	118,766	and the second second	118,003			3,375	- 9
58	-					46.6%			51.2%	35,578	58,382	54,52%	-			4,302	5
1-51, between Exits 44 and 5	-		71,000			1000			48.8%	15,574	59,794	67.5250				5,983	4
AS			A London			7.54%			8.29%	71,152	231,068	86.95%	130,754	119,948	9.63%	10,544	11
98				-		4E.63%	-		51.29%	25,578	\$5,040	82,80%		- 10		4,907	5
I-90, north of Eut 5			76,000			53.37%			48.77%	25,574	57,918	91.08%				5,627	- 5
NB NB						1.6%			1.80%	E1,139	130,753	69.00%	129,466	125,665	1576	30,360	10
9		- 1	-			43.8%			49.7%	40,250	68,383	69.90%	-	- 4.		5,409	5
- 2			-	-	U.S	50.2%		1365	50.7%	40,889	68,736	68.19%			-	5,451	. 5
	-		-	Countries	46.300												
	-				A4) 2705		Counted			TOWACIES		%	-		NDifference	2040	204
				Milit Posis	EM Post	AND PA as				Base Model	ARE	Growth	2940 Alt A		3940 Alt A	AR A	100
	-	-	TOWA	Volume	Tolume	Not ARREST	Volume	Volume	Not ANNOT	Assigns	Assigns	3085-40	AANVET	MANET	10 2948 NB	AME PE	214
												- 1					
Note - Exit 5 Sil off ramp AM peak volume																	

15 Apr 27 rex 5 17 47	Adies	red 2040 4	AWOT -	nd Peak L	TABLE	native 3 vol	amar have	-do- 20	S annual	-			-		1	-	
mr 5-14-13	,			T COM.	OU ALD	MUNA 2 AC	ALC: DAY	60 On 21/	is counts				-	1	4		2
	noval					ighway Group		factors		1	1		4	-	-		
	10wth rates 054×3015			Intersection	on Turning M	tovement Coun		AM Per				1		+			
	005->3005	1.00			-	April	Alijiador			-							
	005×3005	0.57				May		0.5			1-						
			-	-	-	July .	-	10		-					1		
				-		Sept		0.5				-					
									-	-	-		(Apply % to		-	1	
				-				+			*-		Ad 3005			1	
	-		_	Counted	Adj 2015		Counted	A6 2005		2005 ##O	2040 AWOT	*	AANGE		Sofference	2940	2040
Court Legation	Count Mouth/Ye	ANWET	Adj 2015		AM Peak	AM Phas	PM Peak	PM Prof	PMPLE	Sase Model	Att	Growth	2040 At 8	2040 NB	2040 Alt 8	ARB.	10.0
ery Crystal Ar (80% 38), 5 of Triemnets	May 15	15,585	15,195		Volume	% of ARROT	Volume	Tours	No. WINDS	Assigns	Assigns	2005-40	AFACC	ARWOR	to 2040/NB		PMR
Follow Rd W of Not 28	May-15	12,070	12,768		809	5.28% 6.35%	1418	1390	9.15%	11,40	-	-21.198	11,575	11,564		-	
Pinkerton St. E of Tolerange	May 15	10,722	12,454		667	6.38%	1199	1175	9.58N	1,96		-47.215	5,212		-122.78	294	62
Talenato Rd, W of NH 102	May 15	5,512	5,394		464	8.50%	9017 511	957	9.54%	8,73	-	4.589		7,515	30.375	F98	104
Tsienneto Rd E of Rinkerton	May 15	15,012	14,617		1068	7.30%	1499	1999	9.29% 10.06%	5,68	-	185,609		8,536	43.50	1325	143
NH 162, E of NH 28 Bygons	May 15	7,456	7,230		571	7.85%	661	548	8.90%	14,30		7.32%	1000			1146	117
AH 28 Big, N of Academy Or	May-16	8,615	8,400		736	2.54%	881	153		7,00		-35.045	4,432			348	39
NH 28 Byp, N of Tsienneto Rd	May-16	12,250	11,544		957	8.01%	1301	11.77	10.27% 9.85%	7,33		-67,515	2,796	1,275		236	18
NH 28 thp, 1 of Thorston Rd (south)	May-16	14,341	15.562		1066	7,62%	1392	1364	9.76%	9,377	-	-73.21%	3,434	5,187		775	38
NH 100 E of Griffin St	Apr-14	15,400	15,500		1832	6.17%	2234	1212	7.11%	12,22		-34.385	8,909	8,379			
/NH 102 W of Abbot St	Age 16	14,220	14,5%		979	6.726	1048	1137	7.8%	18,000	-	-6.906	25,650	15,444		965	
Fordway over Besver Brook	Apr-14	5,500	1,576		385	7,01%	480	475	E.44%	5.114		1.39%	34,179	15,519		993	
Franklin St Dut, N. of Follow Rd	Apr-14	1,795	1,840		105	5.71%	172	160	5.18%	1,254		-15.45%	4,711	3,871			
Ash St at Landonderry town line	Apr-14	6,956	7,130		458	5.42%	722	715	10.00%	5,986		217.57%	6,549	2,814		-	
Crystal Au (NK 28), 5 of Rollins	Jun-15	13,156	13,134		985	7.50%	1174	1104	8.47%	13,215		-0.22% -15.90%	2,114	15,564		457	
NH 200, at Denryl Chester town line	Jul-15	8,300	8,200	644	670	8.17%	840	807	3.84%	10,839		35,38%	11,042	10,399			_
average .				100		7.00%	-	-	9.27%	2000	-	35.500	13,057	9,671	12.81%	900	100
									-			-		-			
Servy NH 300, E of Hampton Dr	24-35	31,300	31,100	3478	2577	8.29%	2512	2738	8.77%	30,418	56,261	84.97%	57.538	*****		-	
NH 300, if of Dair 4			25,800	2140		7.39%	2145		8.00%	29,818		-25.05N	21,634	\$2,567 41,729	-02.375		
MH DDI at Detry Town line	May 15	22,656	22,090	1718	3549	7.45%	1796	1790	7:50%	72,961		5.08%	30,3%	38,742		1792	
NH 28 at Deny Town line	May 15	17,334	15,891	1279	2225	7.27%	3682	1548	9.75%	19,352		-58.10%	7:077	11.621		1500	
NH 28 N of Liberty Dr	Sep-15	14,594	14,554	5407	21117	8.90%	3254	1002	6.82%	15,406		43.998	8,454	14,339		505 755	
Gilcreed Rd N of NH 100	May 16	12,170	9,838	997	909	6.82%	1008	988	30.06%	9,357		50.00%		17,174		1070	
Condonderry Rd, N of NH 100			4,522	205	275	4.68%	806	465	30.06%	4742	6,094	17.25%	5,880	4,301	20.065	125	
Ash St E of Gordanderry Rd	Jun-15	6,580	6,580	400	458	6.99%	723	680	20.12%	5,948		-0.44%	6,562	15,512	-136.380	455	
Connector Rd. E. of East 4A			-			7.29%			1.57%			-	-		1200.000	400	211
Connector Rd, VI. of NH 28											54,523					3,830	4300
Connector Rd, E. of Nov 28											35,565					2,490	1,200
COMMETTER AND TO SERVICE	-										16,199					1.130	1,460
			-														2-4-
Exit 4 NB Off-ramp	May 15	10,349	3,990													1	
	May 16	10,308	10.045	2079	418	4.18%	1113	1299	12.00%	10,389	18,135	74,50%	17,004	12,600	-11,47%	730	2093
	May 15	5,862	3,615	758	3066 723	10.30N 7.52N	812	796	7.90%	5,550	17,638	84,00%	18,552	22,649	-20.02%	1511	1470
	May 15	5,310	5,177	673	646	12.48%	952	503	9.70%	8,357	14,795	E1.18%	17,439	11,629	-24,89%	1333	1682
	May 15	4,767	4,648	517	516	11.10%	311	365	5.89%	4,907	11,659	137.60%	11,300	11,871	7.56%	1535	725
average		~	-,	221	250	912%	244	299	5.14%	3,637	4,125	13.42%	5,272	9,460	179,4490	185	271
	-			-		211.0			813%						7		
Bit 44 NB Off-ramp				-													
Selt 4A NB Co-ramp											2,488		5,488			865	772
Belt 4A 58 Off-ramp											11,208		11,308			1,304	1,874
Belt 4A 58 On-ramp			200								29,375		15,176			1,767	1.576
-						-			-	-	32,450		12,410	-		1,135	1,002
	May-15	5,745	5,600	400	384	5.BCK	472	465	8.276	4.430	7,086	60.000		-			
	day-15	5,583	2,141	992	952	10.19%	798	1117	8.32%	1,100	16,468	58.83% 75.00%	8,896	8,011	5.02%	610	725
	Apr 15	5,520	9,382	780	750	8.00%	999	530	9.52%	3,734	5,036		10,744	13,855	-28.90%	5095	894
	May 15	5,645	5,504	519	496	9.15N	427	418	758%	3,919	5,395	34.63% 36.64%	5,067	13,548	-124,996	490	635
merage		-		-		8.54%	-	-	8.52%	2,715	5,333	A 443	7,521	8,764	-5.881	680	571
I was a second or the second of the second or the second o		-					-			-		-			- 100	-	
1-53, south of talk 6 (001 PATR)			72,060		5420	7 53%		5820	8.25%	72,378	121,558	70.71%	771 500	224 242	-		
16			35,740	1	560	36.53%		3430		36,417	61,635	55.19%	131,308	116,743	3,76%		16,681
9			35,330			68.40%		2460		35,961	61,943	72.22%	60,105	58,133	3.38%	1,180	5,821
153, between Dists 4 and 48			71,000			7.54%			1,795	71,152	111,072	71.57%	121,811	58,610	1.66%	5,879	4,300
18				3		4E.63%			12%	35,578	£7.113	71.79%	201,041			5,676	10,057
58	_		1	13	000	81178			01.0%	35,574	60,918	71.340				4,512	5,573
198, between Exits 64 and 5			71,000			7.54%			1.29%	71,152	133,718	86.53%	130,414	119,548	1429	5,364	4,304
. 58						SEEPS.			51.2%	35,578	64,839	82,2434		113,346	1415	4,906	10,977
100 35	- 1	-				3.17%			CLES .	35,574	67,879	90315				5,614	5,524
195, north of Exit 5			76,000			\$.6%			1.82%	E1,139	136,851	68.553.	129,083	175,445	1.10%	10,837	11,283
MS .						0.076		1115		40,250	68,290	69.66%	-			5,397	5,608
9		minute a		3	225	0.19%		1105	0.3%	41,889	68,561	67.68%	- 1			5,040	5,675
+		-	-								-						2012
-	- 1.	-		Counted			Counted			2015 AWOT	10WW.0000	×	ARWOT]	. 5	SDifference	3040	3040
				Attit Prok			PM Prok	PM Peak	PM Pk as	Bear Model	Alta	Greath	3040 MR 8	3040 NS	2040 Att 8	Alt B	Alta
Annual Control of the	- 4		WW31	Youne	Found	Stof ANNOT	Volume	Volume :	TOWAN NO	Analges	Assigns	3015-40	AANOT		to 2040 NB	AMPA	BER

mr 5-14-17						matine C vol	ST ST S CHAPE	a ea car	J LOUIS								
	Annual		1	Sessonal: I	Use Urban H	ighway Draug-	Enductment	factors				-					
	Crowth rates:					Comment Coun		AM Peak	PM Peck	-			-		-1-		
	2014-2015	1.02				April	Adj Factory	0.90	0.5	9		-		-		-	
the same and	5013-5012	1.000				Mby		1.96	0.5	6							
	5006 - 5005	0.307	5			June		8.96	0.3	4			-		1	-	
-	-		-	-	_	July		3.64	0.3	6.		-			1		
-					-	Sept	1	0.99	0.3	0							
-			-		-		-						Apply N to	-	_	1	-
-	+			· ·		-	1.		-	_			Adj 2015				T
	Count	Rev	A412055	Kounted Att Prok	A6,2005 AM Peak		Counted	A4 2015			3040 WWDT	- %	TOWAR		NOWenesce	3040	1
Count Location	Month/W	ANNOT	AUVOI	Volume	Tolume	Not AANVE!	PSE Peuk	PM Pesk	Patricas	Base Model	ARC	Gnowth	2043 Alt C	2040 NB	2940 Alt C	Att	
Crystal Av (NW 38), 5 of Telemetra	May 16	15,585	15,195	#36	BCR.	5.18%	Tolune	Valume	N of ANWES	Assigns	Accigns	3005-40	AAWET	AAWET	10 2040 168	ASK Pk	
Folsom Rd W of NH 28	May-16	12,070	11,768	778	747	6.35%	1418 1199	1390	9.15%	13,400	12,275	-8.413	18,908	11,584		736	6
Pinkerton St. E of Tolenness	May-26	10,722	10,454	685	667	6.10%	1017	1175	9:38% 9:54%	8,360	-	5.96%	12,465	11,839		791	L.
Talenato Rd, W of NW 100	May-36	5,582	5,384	403	464	1.00%	511	500	9.29%	5,000		25.51%	-	7,619		847	
Tsienneso Rd E of Pinkerton	May-06	15,002	14,530	1113	1068	7.30%	1499	1453	10.049	14,200	4,230	1.000	-	1,636		504	
NH 182, E of NH 28 Bypers	May-06	7,456	7,270	585	571	7.825	561	648	8.91%	7,006		10.175 -52.675	36,115	15,457		1177	
NH 29 Byp, N of Academy Or	1 May-26	8,615	8,400	756	726	1.64%	881	863	10.27%	7,108		-66.725	3,444 2,796	6,348		230	
NH 28 Byp, N of Talenneto Rd	May 15	12,250	11,944	207	957	B.DES	1291	1177	3.82%	2,377		-75.58%	2,796	3,275		243	
NM 28 Byp, 5 of Thursdon Rd (south)	May-16	34,341	13,982	1110	1066	7.62%	1392	1364	9.76%	12,127		-18.50%	9,996	5,387		294	
NN 102 E en Griffie St.	Apr-04	35,410	16,820	1080	1087	5.27%	1224	1313	7206	18,000		-9.295	15,258	19,444		762	
NH 102 W of Abberts	Apr-04	14,230	54,575	3000	979	6.72%	1148	2117	7.80%	21,138		-10.425	13,057	19,509		940 877	•
Fortisas over Seaver Brack  Drawits to the IN addition to	Apr-04	5,500	5,638	411	395	7.00%	481	475	8.60%	5,114	4,206	-17,793	4.607	3,871		325	
Franklin St Est, N. of Follow Rd Ash St at Landondern town line	Apr-04	1,795	1,840	109	105	3.71N	171	199	9.18%	1,254	2,063	96.11%	3,056	2,874		174	
Crystal Au (10th 25), 5 of Rollins	Apr-04	5,996	7,130	477	458	6.42%	712	725	10.19%	5,536	8,843	48.97%	10,522	16,364		682	
NH 300, at Deny/Otestar town line	Jun-15	13,134	13,134	3036	585	7.50%	1114	11/04	8.42%	13,225	11,253	-11.06%	6,540	10,399	44.00	407	
ANY JULY OF THE CHESTER TOWN TIME	34515	8,200	8,200	644	170	8.17%	841	807	234%	10,899	14,000	29.38%	16,967	9,671		1177	
				-		7.11%			9.33%						-		
MH 352, E of Hampton Dr	16-15	31,102	31,102	2478	2517	1.27%	2642	2778	8.77%	10,616	50,580	65.575	51,820	52,957			-
NH SEE, E of Exit 4			36,800	2040		7.99%	2045		8.00%	20,818	38,985	-1.80%	24,442	40,733	-1.42%	4294	
AH 183 at Deny Town line	May-35	22,656	32,090	1718	1549	7.46%	1796	1793	7.57%	31,983	21,661	-5.75%	20,819	28.747	38.06%	1552	
AH 28 at Derry Town line	30y-06	17,324	34,890	1279	1228	7.276	1582	1648	9.76%	79.392	42,458	118 95%	36,982	13,621	51.17%	1554 2689	
AH 28 Nof Liberty Dr	Sep-15	34,996	14,994	1407	1330	8.52%	1297	1210	1.07%	71,406	4,904	-68.17%	4,713	14,339	200429	436	
Gilconnet Ad N of NH 302	May 15	30,000	9,818	887	663	5.E2%	200E	988	10.00%	5,397	15,712	60.82%	15.789	17,174	-8.77%	1076	
Londonderry Rd, Nof NH 102		-	4,622	115	215	4.55%	465	465	10.00%	4,742	7,611	60.97%	7,440	4.701	35,875	346	
Ash St E of Londonderry Rd	Jun-05	5,990	6,991	477	458	5.95%	729	680	10.32%	5,549	8,687	45.94%	2,579	15.512	-63,20%	568	
Connector Rd. E. of fact 4A		_				7.29%			9.13%							-	
Connector Rd. E. of No. 28											38,536					2,700	
Connector Rd, IS, of Rev 1927											13,888					570	
The state of the s			-								15,529				_	1,090	
Exit 4 NB Off-rame	May-26	10,245	9.553	476	418												
Exit 4 MB Co-ramp	May-16	10,303	12,265	1079	1036	10.11%	1223	1199	12.00%	10,389	18,729	80.27%	38,064	25,446	-7.94%	754	
Exit 4 58 Off-ramp	May-36	9,362	9.635	753	723	7.52%	952	796	7.92%	2,550	15,903	66.52%	36,727	22,449	-34.225	2725	
Exit 4 58 On-rang - 69 to 58	Nov-16	5,310	5,177	679	565	12.489	302	993	9.70%	8.157	11,684	15.52%	04,968	21,629	-44,55%	1125	
Exit 4 58 Co-rang - Will to 58	Mby-06	4,767	4,648	580	525	11,10%	204	305 239	5.89%	4,907	30,850	HUM	11,447	12,171	0.66%	1428	
zuerage		-	100			9.12%	200	459	5.14% 8.17%	1,637	5,140	41,39%	6,568	3,460	-44.01%	729	
Exit 4A NB Off-rame						3.424	-		8.176								
Sait 4A NB Co-rang											2,795		2,795			195	
Exit 4A SA Off-ramp											13,410		13,410			1,223	
Cuit 4A 58 On-ramp							-				17,290		17,290			1,577	
		1000			2					-	5,821		5,021	-		458	
Dat 5 NE Officiano	May 15	5,745	5,601	400	384	6.86%	417	463	8.27%	4,430	5,536	45.57%	8,307	4,093	3.39%	57%	
Exit 5 NB On ramp Exit 5 SB Off-ramp	May 15	9,580	9,341	952	952	30.199X	253	777	832%	9,101	7,525	-13.98%	8,005	11,855	-72,490	819	
Exit 5 SE On-ramp	May 15	9,530	9,282	781	750	8.08%	539	900	930N	9,234	5,728	-37.57%	5,758	13,648	-157.09%	465	
The second secon	May-15	5,545	5,504	579	498	1.08%	Q1	408	1:50%	3,519	5,506	50.96%	8,309	8,364	0.54%	752	
sverge	-			-		8.54%.		-	8.52%				-				
153, south of Exit & (DOT PATE)			71.000			200							lated.				
NS.			71,060		5430			5810	1.30%	72,376	229,322	64.86%	227,349	115,743	0.358	8,995	
58						2652%			478	36,427	55,600	63.56%	-	58,133		3,254	
199, between Exits 4 and 4A		-	71,000	- 3		53.47%	- 12		1.9%	35,961	59,721	66.07%	30.1	58,610	1	1,671	
NS NS			-	-		7.54% 45.67%			1295	71,152	113,300	59 10%	112,958			8,973	
58-						53.37%			12%	35,578	56,776	59:38%	-			4,184	
95, between Exits 44 and 5	-		71,000	- 6	-	7.90%	- 2	670 4	S.EX	35,514	56,434	58.61%				4,789	
N8						46.53%			8.29% 1.2%	71,752	136,083	91.36%	115,792	119,948	11.57%	10,787	
58						\$1,37%			LIS	35,578	47,390	89.41%				5,680	
\$1, north of Exit 5			75,000			8.45%			E-80%	81,179	68,553	93.30%	VM	A200 1115		5,757	
18		-		31		49.31%			9.7%	40,250	137,099	58.57%	138,416	126,445	1.53%	10,856	
58						50 19%			0.3%	40,885	68,389 68,306	72.476 42.696	-			5,407	
				-					-	-2,000	06,300	67.5es	-2	154		5,449	
				austed .			Counted #	49.2005	T	2005 RMOT	2004000	8	ANNET	ANNOIS S	SOffeene	Mare	_
	-			M Pesk	AM Peak	AM Plus			SMR as	Since Model	AltC		2040 Alt C		2040 Alt: C	1940	3
						Notativor.			10MARIO	Assigns		2005-40	AFMOR		10 2040 NB	AM Pk	P
				- 1			-					-			- Example	HAR P.E.	- 50

	Nev 5-17-17	Adjusta	ed 2048 A	AWDT a	nd Peak	Hour Alte	mative D so	lumes ba	sed on 20	MS counts	-	1-				4	-	-
	16V9-14-17					7		-	sea on 2	MJ CDONG	+ -	1-	-			1		
		Amoual		1			Highway Group		e factors		-		1	+	-	-		
Н		Growth rates			Interest	ion Tunning	Movement Cour	es	AM Per	ok PM Prok			-	-	-	-		1
		2004×2005	2.00				April	Adjifedo	. 0	96 0	20	1		-	-	-		
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		3005-3005	0.57	9			June	-		96 1.	94					100		
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		-			Country	Ad) 201		Country	Adi 200		Taxas -		-	A6 3005				
		Count	Raw	Adi 201				-			3005 WWID Sase Model			AANGT		Willerence	2040	
į	Count tocation	Month/Yr	ANNET	AAWER	Volume	Volume			Tolor	-	All of the last of	ARD	Growth	2940 Alt D		2040 Alt 0	AltO	
۰	Crystal Au (NH 15), 5 of Trienness	May 15	15,585	15,196	835	808	5.29%	1418	1790		13.40	23,225 13,225	2905-40	ARWOT	AWWOO	to 2040 NS	AM Pa	- 31
	Folsom Rd W of Nm 28	May 16	12,000	10,768	778	347	6.35N	1139	2175	2.50%	1,96			14,990			790	
	Finiserton St E of Toleraneto	May 15	10,733	10,454	665	667	6.38%	3017	957	9.54%	8,770			-	15,00		725	
	Toleranto Rd, W aFWH 182	May 15	5,511	5,394	483	466	8.50%	511	501	9.29%	5.66				2,630		882	
	Tsienneto Rd E of Pinkerton	May 16	15,013	14,637	3313	3068	7.30%	3499	1469	10.00%	14,20	-	51.18		79.45		990	
	MH DDD, E of NIK 28 Byposs	May 16	7,650	-		571	7.85N	130	548	8.90%	7,00		-05.319		6.341		7500	
	NH 28 Byp., N of Academy Dr NH 28 Byp., N of Telenneto Rd	May 16	8,505	8,400	756	736	8.64%	881	863	30,27%	7,313	-		2,778	1,175		484	
	NH 28 Byp, 5 of Thorston Rg (south)	May-16	12,250	-	-	55.7	8.00%	1201	1177	2235	9,377			5,373	5,18		411	
	NH 152 E of Snille. St	Map-16 Apr-14	14,340 26,400			1,006	7.62%	1352	1364	9.70%	12,220	8,136	-88,461	9,304	8,171		309	
	NH 102 W of Abbot St	April 4	14,222	-	1080	1237	5.17%	1224	1212	7.11%	18,000	38,590	3.209		15,444		1071	
	Sondway over Bissier Brook	April 4	1,300	14,376		979	5.72%	1148	1137	7.80%	11,126		6,829	15,968	19,575		1046	
	Franklin St. Ext. N. of Foliam Rd	Apr-14	1,795	1,840	129	105	7.00%	480	475	8.44%	5,114	-	-29,290	4,318	3,871		363	
	Ash St at Londonderry town line	Apr-14	6,956	7,110	477	458	5.776	170	349	9.18%	1,254	2,009	£1.009		2,834		165	
	Crystal Av (NH 28), 5 of Railins	Jun-15	13.134	23,116	1005	985	7.50%	1174	715	10.05%	5,996	1,511	43.389		15,564	-	653	
j	NH 120, at Descriptions town line	A4-15	8,300	8,300	644	670	817%	341	807	8.42%	13,215	10,998	-9.215	11,334	10,399		894	
	average		-		-	***	7.11%	940	OUT.	3.50%	50,835	14,138	30.448	10,696	2,577	9.58%	874	
		-		-				1		9.22%	-	-	1					
3	NN 100, E of Hampton Or	341-15	30,308	30,102	2418	2577	8.29%	2842	2738	8.77%	30,418		-					
	NH 302, E of Enit 4			25,800	2340		7.20%	2145		8.00%	20,818	30,775	67.889		52,557		4125	
	MR 300 at Derry Town line	May 16	22,856	22,890	3738	1649	7.45%	1796	1760	7.97%	22,503	28,215	0.319	36,745	41,723		2116	
	NH 28 at Deny Town line	May-16	17,304	15,881	1279	1238	2.17%	1682	1501	9.75%	19,350	40.452	108.009		28,712	and the second second	3966	
	NA 28 N of Liberty Cr	Sep-15	14,394	14,994	1407	1337	2.57%	1247	1200	8.07%	15,606	4,757	-63.175	4,630	23,621		2562	
	Sikmeest Rd Ni of Nix 200	May-36	10,070	9,808	457	569	5.81%	1008	268	30,068	2,397	34,742	56.88%	15,400	17,114		413	
	londonderry Rd, Nof Nat 102			4,522	255	2.5	4.026	485	465	880.00	4,712	7.354	15-000	7,168	4,701	34.42%	1049	
ř	Ash St E of Landonderry Rd	Jun-25	6,380	6,510	477	458	6.92%	729	680	10.32%	5,949	8,457	42.16%		15,512		333	
١	aeagr				1		7.29%	1		9.17%		7.5	-	2,210	10,312	43.35%	951	
í	Connector Rd, E. of Balt 4A			-								36,728					2,570	
١		- +	-			A	-	-	1								-	
ž	sit 4 NE Officeno	May 15	10,349	5,993	435		1											
	bit 4 NE On-ramp	May 15	10,306	10,045	3079	418 1096	4.18%	1223	1299	12.00%	18,389	19,457	87,67%	18,754	19,444	-0.00%	754	
	kit 4 SEOM-ramp	May 15	9,862	3,615	751	772	10.30% T-52%	813	796	1.95%	9,550	15,411	51.17%	16,210	22,445	-08.49%	2672	
ξ	xit 4 SE On ramp - EB to 58	May 15	5,310	5,177	671	646	17.48%	952	303	9.70%	8,257	12,491	52,40%	14,653	21,629	-47.52%	1102	
	xit 4 SE On-ramp - WS to SE	May 16	4,767	4,548	537	536	11.10%	244	235	5.14% 5.14%	4,907	10,881	122,34%		11,375	0.95%	3435	
	average			-	-	-	5.12%	-	420		3,537	5,152	40,66%	6,384	2,460	-42.58%	731	
ŧ	at 64 NEOfficiano								-	8.13%	-	-	-					
	xit 68.88 On-ramp											1,504		1,506			130	
	xit 64 SEOff rang			Francis								11,630		17,630			1,243	
ŧ	alt 44 SE On ramp									1		36,972		18,912			1,548	
	xit 5 NB Offerang	Mayor	5.745	5,600	400	204		-	1	-		4,671		4,621		-	422	
	elt 5 NB On-tamp	May-15	5,580	3,341	992	384	5.00%	472	468	8.276	4,450	7,054	99.29%	8,919	8,011	9.36%	600	
	alt 5 SB DS-ramp	May-16	5,520	5,312	781	952 750	10.19% 8.00%	799 989	777	8.32%	5,300	7,585	-11.16%	8,196	13,855	-65.05%	835	
	elt 5 SB-On-ramp	May-15	5,645	5,504	213	498	9.25%		530	9.30%	5,234	5,790	-37,30%	5,830	13,548	-134,50%	470	
	average		- 100	2,000	-45		150N	427	418	7.58%	3,929	5,879	Scots	8,257	8,254	-0.08%	147	
				-			-	-	-	8.52%	-	-		1				
į	98, south of Exit 4 (DDT PILTS)	-		70,060		5420	T428	-	5820	8.25%	72,378	119,380	64 545		-		- 1	-
	NB		- 1			1980	36.50%		3410	SEIN	36,417	119,580	53.48%	117,396	116,743	0.40%	8,540	
,	58					3640	61.47%		2460	41.9%	35,561	19,553	55.40%		58,133		3,266	
	53, between Skits 4 and 64.	1		72,000		5640	7.94%		5885	8.29%	11,152	111,779	57.52%	111,484	58,610		5,534	
	. 18					2630	46.63%			51.2%	25,570	55,440	55.00%				8,856	
,	58	-				3000	53.17%		2870	41.8%	25,574	56,382	58.20%	- 1			4,796	
	53, between Exits 44 and 5			71,000			7.54%			8.29%	37125	136,300	91.42%	135,909	115,548	11.74%	30,796	-
	AS CO						46.62%			51.2%	35,578	57,967	89.90%				1,094	
d	10, north of Exit S		-	-			53.37%			51.5%	35,574	56,611	\$2,99%	1	-		3,792	
1	AS AS			76,000		6425			5650	Construction of the last	81,139	130,042	68.90%	128,362	126,005	1.49%	30852	1
	58					2300	49.82%			43.7%	40,250	58,457	70.18%	-	-		5,405	
		-	-			1025	50.15%	-	3385	50.3%	40,889	48,545	67,64%		-	-	5,447	
				- 1	Counter	46,3005		Course	14.704		Secretary and							
	-		- 1		AME Peak	Attit Prok	AMERICA	Counted PM Prod	PM Page	men.	2005 AWOT			ARWEET		SDifference	2040	20
4		-	-		Volume	Volume	Not ARIVET	Volume:		Staf ANNET	Base Model	Alto	Street.	2040 Alt D	3040.58	3040 Alt D	ARD	. 40
			-	_						THE PERSON NAMED IN	Assigns	Assigns	2015-40	AANDI	AAWST	to-3040 NB	AMERICAN .	954

pev 5-17-17	100				TABLE												
	Adjust	60 2040 A	AWDTa	nd Peak	Hour Alte	mative F vol	lumes bas	ed on 200	5 counts				12.00	0	1		
rev 5-14-17												-			-	1	
_	Annual					ighway Group		fectors				-		-	-		
	Growth rates:			Intersec	tion Turning N	Novement Cour	ts	AMI Fee	PM Peak			+		+	-		
	2034->2015	1.02				April	Adj Factor	- 0.3	6 0.5	19	1	-	-	-			
	3005->2015	£.00	0			May		0.5				-	-	100			
	3006->2015	0.97	5		1	Jone		0.5				-	-	+	-		
						July		1.0				-	-				
						Sept	-	0.5	-		-			9 10 10			
						- Apr	-	2.5	5 03	U)							
			-			-		-	1				(Apply % to		1		
				Counte	4 12 300	+		-					Adj 2005				
	Count	Rev	24 3535				Countred	7.00		2005.#WD4	TOWA 0405	%	AAWQTI		Notherence	2040	3040
Count Location	Month/Yr		Adj 2015		-	70001.00	PM Peak	PMI Feel		Ease Model	Alt F	Growth	2040 Alt F	2040 NB	2940 Alt F	Alte	
ry Crystel Av (NH 28), 5 of Triennets		AWWST	AAWST	Volume		N of AANO	T Volume	Volume	Nort ANWO	Assigns	Assigns	2015-40	AANOT	TOWAR	to 2040 NS	AM Pa	Alt.F
Folsom Rd W of NH 28	May-15	15,585	15,195	E36	803	5.28%	1418	1390	9.15%	13.406		-23.079	11,689				PM Pk
	May-15	12,000	11,768	778	747	6.39%	1199	1175	9,58%	8,960		2.548					1065
Pinkerton St E of Tsienneto	May-35	30,722	10,454	595	667	6.38%	3017	997	9.54%	8,776						799	1209
Talemnto Rd, W of NH 302	May-06	5,532	5,394	483	464	1.60%	511	500	9.29%	5,666		4	7,571			483	722
Trienneta Rd E of Pinkerton	May-06	15,012	14,637	1113	1068	7.30%	1499	1488	10.04%	1	-	62.21%	-			753	813
NH 133, E of NH 28 Sypess	May-16	7,455	7,270	585	571	7.85%	660	548		14,300		33.63%	20,000		0.53%	1427	1963
NH 28 Byp, N of Academy Dr	May-16	8,615	-	756	726	8.64%			E92%	7,016		-8.179	5,584	6,348	5.08%	525	586
MH 38 Byp, N of Tslenneto Rd	May-16	12,250		997	957		881	863	10.27%	7,318	2,785	-51 348	3,197	3,275	-2.44%	275	128
NH 28 Byp, S of Thornton Rd (south)	May-16	14,341	13.582	-		8.01%	1200	1177	9.85%	9,377	4,145	-55.80%	5,290			423	520
NH 102 E of Seiffin St	Apr-14			1110	3066	7.62%	1392	1364	9.79%	12,227	7,290	-41.199	8,223			627	
NH 102 W of Abbot St		15,400	56,820	1080	3087	6.17%	1224	1212	7.21%	18,002	24,347	34.14%	22,562				802
Fordway over Beaver Brook	Apr-14	14,220	14,575	3020	579	6.72%	1148	1137	7.80%	11,128	15,829	42.24%					1626
	Apr-14	5,500	5,538	411	395	7.01%	481	476	8,44%	5.134	1,595	-29.70%		1		1393	1617
Franklin St Eat, N. of Folsom Rd	Apr-14	1,795	1,840	309	105	5.71%	171	369	9.38%	1,254			3,963			278	335
Ash St at Londonderry town line	Apr-14	6,956	7,130	477	458	647%	722	715	30,08%		1,783	42.1966	-			149	340
Crystal An (NH 28), 5 of Rollins	Jun-25	13,134	13,134	1025	985	7.50%	1174	1004		5,996	12,825	135,05%	15,405			990	1545
NH 102, at Derty/Chester town line	Auf-15	8,200	8,200	544	670	8.17%			8.41%	13,215	11,022	-35.59%	10,954	10,399	5.07%	822	931
average		-		-	1		841	807	9.84%	10,839	12,808	18.17%	9,690	9,571	0.22%	792	954
					1	7.11%			5.23%						1		
ery NH 102, E of Hampton Dr	7sd-15	20 400	25.000	2022												-	
NH 102, E of Eait 4	Ne-72	33,102	31,302	3478	2577	8.29%	2642	2728	8.77%	30,418	52,565	72.87%	53.747	52,557	2,71%	1000	-
			26,800	2140		7.99%	2045		8.00%	20,818	34,151	64.05%	43,964	41,723		4458	4704
NH 102 at Derry Town line	May-15	22,656	22,090	1718	3549	7.46%	1795	1760	7.97%	22.963	32,520	41.50%			5.00%	3511	3515
NY 28 at Derry Town line	May-15	17,324	16,891	1279	1228	7.27%	1582	1648	9.76%	19,392			31,256	28,742	8.04%	2333	2490
NH 28 N of Liberty Dr	Sep-15	14,994	14,954	1407	1337	E.92%	1247	1710	8.57%		15,A77	-30,19%	13,481	13,621	-1.04%	980	1315
Giloneast Rd N of NH 302	May-15	30,575	9,838	597	969	6.87%	3008	988		15,406	14,584	-5.34%	14,194	34,339	-1.02%	1296	1145
Londonderry Rd, N of NH 102			4,622	215	215	4.69%			30.06%	9,397	16,006	70,33%	16,723	17,174	-2.70%	1140	1983
Ash St E of Landonderry Rd	Jun-15	6.591	5,591	477	458		455	465	30.06%	4,742	4,521	4.66%	4,407	4,700	-6.67%	305	443
average	1	2,352	4,551	-01	438	5.95%	723	580	1032%	5,549	13,023	11831%	14,438	15,512	-7.52%	1009	1489
- mag						7.29%			9.13%						1		1400
			-														
Exit 4 NS Off-ramo						-									-	-	
	May-16	11,249	9,993	435	41E	4.38%	1223	1199	12.00%	10389	20,417	96.53%	19,639	19,444			
Exit 4 NS On-ramp	May-15	20,303	10,045	3079	3096	10.31%	812	796	7.52%	9.550	21,378	123.85%			0.99%	821	2356
Exit 4 S8 Off-ramp	May-15	9,862	9,515	753	723	7.52%	952	533	9,70%	8.157	18,790	the second second second	22,486	22,445	0.16%	29:29	1782
Exit 4 S8 On-ramp - E8 to S8	May-16	5,310	5,177	£73	645	12.48%	351	305	5.89%	4,907		129,62%	22,678	21,629	2.03%	1660	2342
Exit 4 SB On-ramp - WB to SB	May-35	4,767	4,548	537	515	11.10%	164	239	5.54%	The second secon	10,705	138,15%	11,294	11,371	-0.58%	5409	665
äverage					1	9.12%		235		3,637	7,454	106.05%	9,577	9,460	1.22%	1063	492
						2.12%			8.13%							1	F
Exit 5 NB Off-ramp	Man-16	5.745	5,601	400	384	1600											
Exit 5 NB On-ramp	Way-16	9,580	9,341	992	_	6.88%	472	463	8.27%	4,430	6,256	41.22%	7,900	8,093	-2.32%	542	654
Exit 5 58 Off-ramp	May-16				952	10.19%	793	777	8.32%	9,301	13,329	46.46%	13,680	13,855	-1.28%	1394	1138
Exit 5 SB On-ramp		9,530	9,282	791	750	3.08%	939	920	9.90%	9,234	12,349	32.69%	12,313	13,648	-10.84%	995	
	May-16	5,645	5,504	519	498	9.05%	427	418	7.59%	3,319	5.882	50.09%	8,351	8,354	-0.04%		1220
average		_			1	8.54%			8.52%		2012		5,001	0,214	-0.19404	747	627
44														-			-
HSS, south of Exit 4 (DOT PATR)	100		71,060		5420	7.53%		5870	8.36%	72,378	115.130	CHEM	100 000	1000			
NB					1980	36.53%		3430	58.09%		115,129	64.59%	116,960	136,743	019%	8,521	5,662
58					3440	53.47%		3460		36,417	55,434	68.38%	-	58,133		3,259	5,613
1-93, between Exits 4 and 5			71,000		5640				41.51%	35,961	59,795	56.03%	-	58,610		5,662	4,049
N3								5885	The second secon	71,152	130,621	69.53%	120,368	115,948	0.34%	9,561	9,577
58	1				3530	45.63%		3015	51.29%	35,578	60,385	69.73%	-			4,458	5,111
193, north of Exit 5			25.000		3000	53.17%		2870	48.77%	35,574	60,236	55.33%		- 1		5,103	4,866
		-	75,000		6425			6590	8.80%	81,139	135,061	66.42%	135,507	125,445	0.05%	10,695	11,135
NB col	-			_		49.81%		3325	9.7%	40,250	57,458	67.60%	-				The second second
58					3225	50.19%			50.3%	40,889	67,608	65.33%	- 1			5,327	5,535
											-			-	-	5,368	5,541
				Counted	Adj 2015		Counted	Ad 2015		2015 ANIOT  2	000 E405			-			
		1	Adj 2005		AM Peak	AM Fix as	PM Pesk					×	AAWOT)		NORTHERENCE	2040	2040
				Volume		TOWAR to 20	Volume			Base Model	Altr		2040 Alt F	2940 NB	2040 Alt 5	Alt F	ARF
			-		- money	- second	Tourse	solume	N of AAWOT	Assigns	Assigns	2015-40	ANWOR	DOWNA	to 2040 MB	AM Pk	PM Pk
Note - Exit 5.58 off ramp AM peak volume	does not lead at	H 000 10 10	there are a		-		-			7							
and the second s		- one count	Line, appeal	es anomal	out wings can	spaced to other	counts in san	me hour									-
Rad counts are from AHDOF Youn summo																	