



City of Bellevue

# Transportation Analysis Report Lakemont Boulevard SE & SE Newport Way Bellevue, WA

July 2019

Contract # 1850215

PREPARED FOR



PREPARED BY

**ReidMiddleton**



**City of Bellevue Neighborhood Congestion Reduction Program  
Lakemont Blvd SE/SE Newport Way Transportation Analysis Report  
Contract Number 1850215  
July 2019**

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The engineering material and data contained in this report were prepared under the supervision and direction of the undersigned, whose seal as registered professional engineer is affixed below.



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# CONTENTS

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|   |          |
|---|----------|
| <b>INTRODUCTION .....</b>                                   | <b>1</b> |
| Background.....   | 1        |
| Purpose .....   | 2        |
| <b>EXISTING CONDITIONS.....</b>                             | <b>3</b> |
| Traffic Conditions.....                                     | 3        |
| <i>Collision History</i> .....                              | 6        |
| Public Outreach .....                                       | 7        |
| <b>TRAFFIC ANALYSIS .....</b>                               | <b>9</b> |
| Modeling Methodology .....                                  | 9        |
| Alternatives Analysis.....                                  | 10       |
| Recommended Alternative .....                               | 19       |
| <i>Anticipated Benefits</i> .....                           | 19       |
| <i>The anticipated benefits of Alternative 1 are:</i> ..... | 19       |
| <i>Challenges and Risks</i> .....                           | 20       |
| <i>Opinion of Probable Construction Costs</i> .....         | 20       |
| <i>Coordination with WSDOT</i> .....                        | 20       |

## FIGURES

|  |    |
|--|----|
| Figure 1. Vicinity Map.....  | 2  |
| Figure 2. Existing Peak Hour Traffic Volumes (Lakemont Boulevard / Newport Way).....               | 4  |
| Figure 3. Existing Peak Hour Traffic Volumes (Newport Way / I-90 On-Ramp).....                     | 4  |
| Figure 4. Lakemont Boulevard SE/SE Newport Way & SE Newport Way/I-90 On Ramp – Alternative 1. .... | 13 |
| Figure 5. Lakemont Boulevard SE/SE Newport Way & SE Newport Way/I-90 On Ramp – Alternative 2. .... | 15 |

## TABLES

|   |    |
|---|----|
| Table 1. Existing Conditions – Synchro Results SE Newport Way and Lakemont Boulevard SE.....        | 5  |
| Table 2. Existing Conditions – Synchro Results SE Newport Way & I-90 On-Ramp. ....                  | 6  |
| Table 3. Collision History.....   | 7  |
| Table 4. Intersection Volumes.....  | 9  |
| Table 5. 2035 Alternatives – Synchro & Sidra Results (Lakemont Boulevard SE / SE Newport Way). .... | 17 |
| Table 6. 2035 Alternatives – Synchro & Sidra Results (Newport Way / I-90 On-Ramp).....              | 17 |
| Table 7. Preferred Alternatives Analysis (Lakemont / Newport Way).....                              | 18 |
| Table 8. Preferred Alternatives MMLOS Analysis (Lakemont / Newport Way).....                        | 19 |

## APPENDICES

- A – Traffic Counts**
- B – Collision Data**
- C – Origin-Destination Study**
- D - Traffic Analysis**
- E – Opinion Of Probable Construction Costs**
- F– Public Comments**



## INTRODUCTION

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In November 2016, voters passed the Neighborhood Safety, Connectivity and Congestion Levy, which helps the city address a backlog of needs organized into the following six categories: neighborhood safety; bicycle facilities; new sidewalks; sidewalk and trail maintenance; traffic management technology; and neighborhood congestion reduction. The levy provides approximately \$2 million per year for the Neighborhood Congestion Reduction Program that focuses on reducing motor vehicle congestion for residents traveling to and from their neighborhoods. Levy funding pays for the planning, public outreach, design and construction of projects that rate the highest for reducing congestion. This study falls under the Neighborhood Congestion Reduction program.

City of Bellevue staff compiled a list of congested intersections and corridors in the city to start this program and then worked with the Transportation Commission in 2018 to develop scoring criteria to rank these projects. Nine locations were selected for evaluation in 2018. After this study is completed, the City will compare the benefits and costs of this project with other Neighborhood Congestion Reduction projects throughout the city to determine which projects will move forward to design and construction.

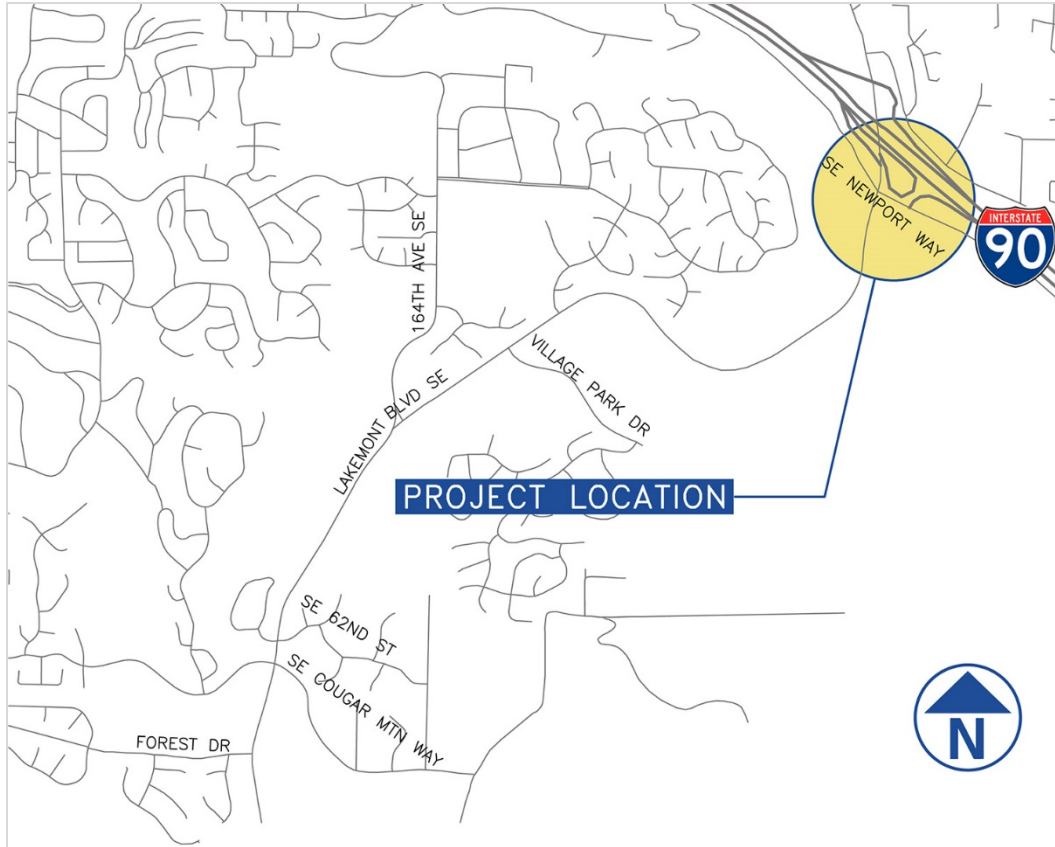
### Background

The Lakemont Boulevard SE and SE Newport Way corridors are major and minor arterials respectively that provide access to residential neighborhoods, schools, parks, and employment centers, and travel between I-90, Cougar Mountain/Lakemont, and Issaquah.

The two existing intersections that are being evaluated for this study include:

- Lakemont Boulevard SE and SE Newport Way.
- SE Newport Way and I-90 Eastbound On-Ramp.

The signalized intersections of SE Newport Way at Lakemont Boulevard SE and the I-90 eastbound on-ramp are less than 400 feet apart. This close spacing contributes to congestion and traffic backups between intersections, particularly during peak periods. During the AM peak hour, northbound traffic on Lakemont Boulevard experiences long queues and delays along with eastbound left-turn movements to I-90 from SE Newport Way. During the PM peak hour southbound left-turn traffic from Lakemont Boulevard SE to SE Newport Way experiences excessive queueing and delays. The intersections are being evaluated to assess future capacity, level-of-service (LOS), and operational safety.



**Figure 1. Vicinity Map.**

## Purpose

This report summarizes the analysis performed for the Lakemont Boulevard SE and SE Newport Way intersection area including the SE Newport Way/I-90 Eastbound On-ramp intersection. The study includes evaluation of existing conditions, future no-build conditions, and alternatives analysis for conceptual design alternatives for the intersections at Lakemont Boulevard SE and SE Newport Way and SE Newport Way and the I-90 Eastbound On-Ramp. The alternatives analysis includes the advantages and disadvantages of each alternative, a preliminary analysis of probable construction costs, and the assessment of multimodal and safety impacts related to each alternative. A conceptual layout of the preferred alternative is included, along with the challenges and risks associated with the proposed alternative.

## EXISTING CONDITIONS

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### Traffic Conditions

Lakemont Boulevard SE and SE Newport Way provide access to the I-90 corridor for neighborhoods on both sides of I-90. The I-90 eastbound off-ramp splits into separate directional ramp connections to northbound and southbound lanes on Lakemont Boulevard SE that are merge- and stop-controlled, respectively. The I-90 eastbound on-ramp is accessed from a signalized T intersection on SE Newport Way east of Lakemont Boulevard SE.

Lakemont Boulevard SE consists of two northbound and two southbound lanes near its signalized intersection at SE Newport Way, with additional left- and right-turn lanes provided at the intersection. Lakemont Boulevard SE has paved shoulders on both sides of the roadway north of SE Newport Way. South of SE Newport Way, there are marked bike lanes/shoulders on both sides and a sidewalk on the west side. The posted speed on Lakemont Boulevard SE is 30 MPH north of Newport Way and 40 MPH to the south.

SE Newport Way is a two-lane roadway with additional left- and right-turn lanes provided at both the Lakemont Boulevard SE and I-90 Eastbound On-ramp intersections. There are paved shoulders on both sides of the roadway. The posted speed on SE Newport Way is 30 MPH east of Lakemont Boulevard SE and 40 MPH on the west leg.

King County Metro operates bus route 271 on the west and north legs of the Lakemont Boulevard SE/SE Newport Way intersection with all-day service (60 total trips, 30 each way).

Traffic counts were conducted in November 2018 at all project intersections (see Appendix A). Figures 2 and 3 show the existing peak hour volumes for the Lakemont Boulevard SE/SE Newport Way and SE Newport Way/I-90 Eastbound On-ramp intersections respectively.

At the intersection of Lakemont Boulevard SE and SE Newport Way the northbound and southbound volumes on Lakemont Boulevard SE are especially heavy. Traffic is predominantly traveling northbound in the morning and southbound in the afternoon.

At the intersection of SE Newport Way and the I-90 Eastbound On-ramp, eastbound left-turn volumes headed eastbound on I-90 are heavy in both AM and PM peak hours. The eastbound through volume on SE Newport Way is also heavy in the PM peak hour. The heaviest westbound volume on SE Newport Way occurs in the morning.

An origin-destination analysis was conducted using *Streetlight* data to determine how much of the Eastbound I-90 Off-ramp traffic uses either of the directional ramp connections to northbound or southbound Lakemont Boulevard to access SE Newport Way (see Appendix C). The results indicate that a significant amount of traffic uses the loop ramp connection to northbound Lakemont Boulevard to make a U-turn at the roundabout on the north side of I-90 and travel southbound on Lakemont Boulevard to turn onto SE Newport Way. The volume of traffic using this U-turn route represents approximately 34 percent of AM and 42 percent of PM peak hour loop ramp traffic. This traffic is avoiding congestion on the other directional ramp



associated with the right-turn movement onto southbound Lakemont Boulevard. More details of the origin-destination study can be found in Appendix A.

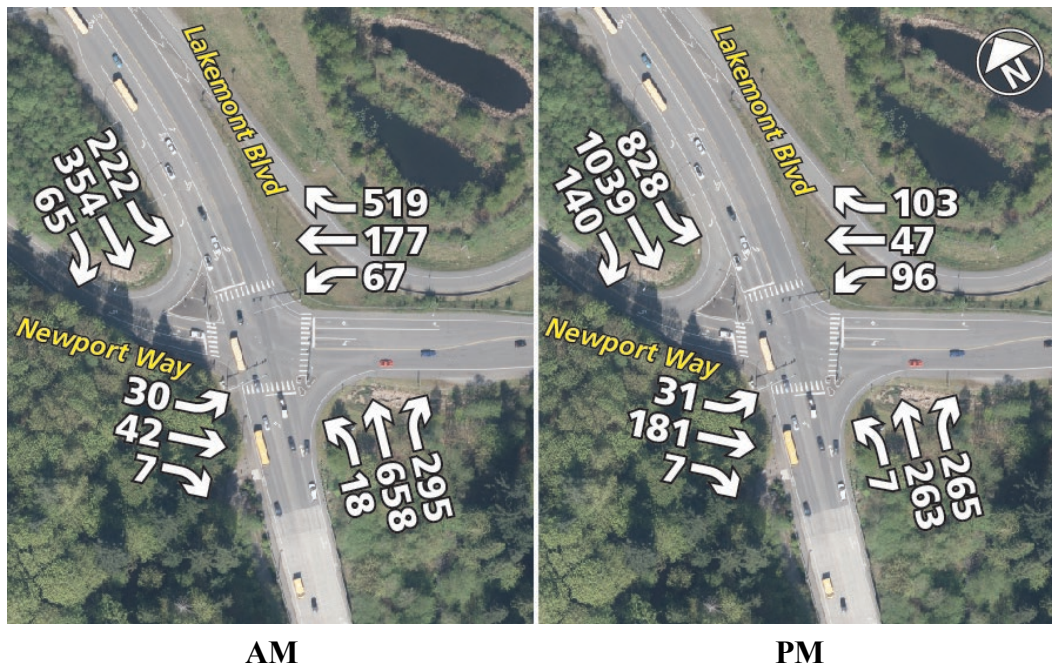


Figure 2. Existing Peak Hour Traffic Volumes (Lakemont Boulevard / Newport Way).

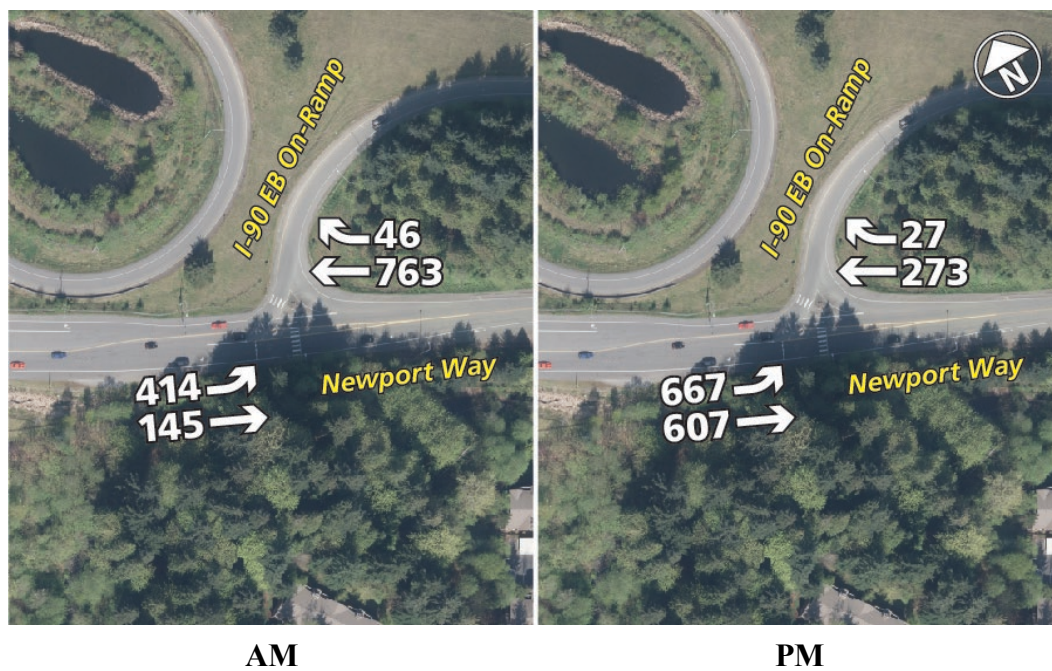


Figure 3. Existing Peak Hour Traffic Volumes (Newport Way / I-90 On-Ramp).



Existing traffic conditions at both project intersections were modeled using Synchro (see Appendix D). The results of the analysis are shown in Tables 1 and 2.

**Table 1. Existing Conditions – Synchro Results SE Newport Way and Lakemont Boulevard SE.**

| Street                | Movement     | Existing Conditions (Current) |          |            |                       |
|-----------------------|--------------|-------------------------------|----------|------------|-----------------------|
|                       |              | Delay(s)                      | LOS      | Avg. Queue | 95th Percentile Queue |
| <b>AM Peak</b>        |              |                               |          |            |                       |
| SE Newport Way        | EBL          | 42                            | D        | 21         | 46                    |
|                       | EBT/R        | 31                            | C        | 28         | 53                    |
|                       | WBL          | 44                            | D        | 40         | 87                    |
|                       | WBT          | 36                            | D        | 105        | 175                   |
|                       | WBR          | 15                            | B        | 144        | 260                   |
| Lakemont Boulevard SE | NBL          | 24                            | C        | 8          | 27                    |
|                       | NBT/R        | 37                            | D        | 278        | 478                   |
|                       | SBL          | 34                            | C        | 103        | 200                   |
|                       | SBL/T or SBT | 31                            | C        | 108        | 178                   |
|                       | SBR          | 2                             | A        | 0          | 7                     |
| <b>Intersection</b>   |              | <b>30</b>                     | <b>C</b> |            |                       |
| <b>PM Peak</b>        |              |                               |          |            |                       |
| SE Newport Way        | EBL          | 61                            | E        | 32         | 58                    |
|                       | EBT/R        | 65                            | E        | 190        | 237                   |
|                       | WBL          | 68                            | E        | 102        | 141                   |
|                       | WBT          | 41                            | D        | 41         | 69                    |
|                       | WBR          | 2                             | A        | 0          | 11                    |
| Lakemont Boulevard SE | NBL          | 42                            | D        | 5          | 19                    |
|                       | NBT/R        | 41                            | D        | 160        | 228                   |
|                       | SBL          | 50                            | D        | 523        | 846                   |
|                       | SBL/T or SBT | 42                            | D        | 545        | 763                   |
|                       | SBR          | 8                             | A        | 15         | 60                    |
| <b>Intersection</b>   |              | <b>43</b>                     | <b>D</b> |            |                       |

**Table 2. Existing Conditions – Synchro Results SE Newport Way & I-90 On-Ramp.**

| Street              | Movement | Existing Conditions (Current) |          |            |                       |
|---------------------|----------|-------------------------------|----------|------------|-----------------------|
|                     |          | Delay(s)                      | LOS      | Avg. Queue | 95th Percentile Queue |
| <b>AM Peak</b>      |          |                               |          |            |                       |
| SE Newport Way      | EBL      | 24                            | C        | 75         | 267                   |
|                     | EBT      | 0                             | A        | 0          | 0                     |
|                     | WBT/R    | 14                            | B        | 237        | 356                   |
| <b>Intersection</b> |          | <b>16</b>                     | <b>B</b> |            |                       |
| <b>PM Peak</b>      |          |                               |          |            |                       |
| SE Newport Way      | EBL      | 9                             | A        | 0          | 139                   |
|                     | EBT      | 0                             | A        | 0          | 0                     |
|                     | WBT/R    | 19                            | B        | 80         | 118                   |
| <b>Intersection</b> |          | <b>8</b>                      | <b>A</b> |            |                       |

The results indicate the Lakemont Boulevard SE and SE Newport Way intersection is performing at LOS D or better under existing peak hour conditions; however, the split phase condition for northbound and southbound approaches on Lakemont Boulevard SE limits overall capacity of the intersection. In general, left-turn movements are functioning at worse levels of service than other movements, and the overall intersection is nearing capacity for the current PM peak hour traffic volumes.

The results for the SE Newport Way and I-90 Eastbound On-ramp intersection indicate that the intersection is performing at LOS B or better under existing peak hour conditions; however, left-turn movements are functioning at worse levels of service than the through movements.

The following observations were made during a site visit:

- Bicycle activity was observed at both intersections, and moderate levels of delay were noted.
- At the intersection of SE Newport Way and I-90 Eastbound On-Ramp, an eastbound vehicle was observed running a red light during the conflicting pedestrian phase.
- The inside eastbound through lane is utilized more than the outside eastbound through lane on SE Newport Way, due to the merge point downstream of the intersections.

## Collision History

The City of Bellevue provided the raw crash data for the study area for the last five years (see Appendix B). The data were analyzed and post processed. Crashes were grouped based on different crash types and are shown in Table 3. Twenty-one collisions occurred at the

intersection of Lakemont Boulevard SE and SE Newport Way over the past five years. The majority of the collisions are rear-end crashes occurring in the northbound and southbound directions. There are about twice as many northbound rear-end collisions as there are southbound, which suggests that the grade on Lakemont Boulevard SE may be a factor.

**Table 3. Collision History.**

|                             | <b>Crash Count</b> |
|-----------------------------|--------------------|
| Approach Turn               | 1                  |
| Head On                     | 0                  |
| Other                       | 1                  |
| Parked Vehicle/Fixed Object | 2                  |
| Pedestrian                  | 0                  |
| Rear End                    | 11                 |
| Right Angle                 | 3                  |
| Sideswipe/Lane Change       | 3                  |
| <b>Total</b>                | <b>21</b>          |

## Public Outreach

An open house for the Lakemont Boulevard SE and SE Newport Way corridors analysis was conducted on the evening of February 20, 2019. The open house was held at the Lewis Creek Park Visitor Center. Comments received included comment cards from open house participants and email correspondence from community members that were unable to attend. The following is a summary of comments received:

- Roundabouts are “a slam dunk”.
- Like having two lanes for traffic turning onto I-90 eastbound ramp.
- Some respondents did not like the idea of interruptions during construction. The interruption to traffic on Lakemont Boulevard would be undesirable.
- One respondent suggested a longer protected green for left turns on to I-90 would be sufficient.

Copies of comments received are included in Appendix F.



# TRAFFIC ANALYSIS

## Modeling Methodology

AM and PM peak hour traffic analyses were conducted to evaluate operational improvements at the Lakemont Boulevard SE/SE Newport Way and SE Newport Way/I-90 Eastbound On-ramp intersections. The operation analysis covered the Existing, Future No-Build, and Future Build conditions for the study area.

Synchro was used for the analysis of traffic signals alternatives and Sidra was used for the analysis of roundabout alternatives. The City of Bellevue provided the 2035 future volumes used in this analysis and shown in Table 4.

**Table 4. Intersection Volumes.**

| Lakemont Boulevard SE & SE Newport Way | EBL     | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL  | SBT  | SBR |
|--|---------|-----|-----|-----|-----|-----|-----|-----|-----|------|------|-----|
|  | AM Peak | 30  | 60  | 10  | 40  | 220 | 480 | 20  | 600 | 330  | 370  | 340 |
|  | 30      | 42  | 7   | 67  | 177 | 519 | 18  | 658 | 295 | 222  | 354  | 65  |
| PM Peak                                | 30      | 170 | 0   | 80  | 50  | 140 | 10  | 230 | 270 | 1130 | 970  | 160 |
|  | 31      | 181 | 7   | 96  | 47  | 103 | 7   | 263 | 265 | 828  | 1039 | 140 |
| SE Newport Way & I-90 On-ramp          | EBL     | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL  | SBT  | SBR |
| AM Peak                                | 600     | 170 | 0   | 0   | 730 | 40  | 0   | 0   | 0   | 0    | 0    | 0   |
|  | 414     | 145 | 0   | 0   | 763 | 46  | 0   | 0   | 0   | --   | --   | --  |
| PM Peak                                | 1160    | 570 | 0   | 0   | 230 | 30  | 0   | 0   | 0   | 0    | 0    | 0   |
|  | 667     | 607 | 0   | 0   | 273 | 27  | 0   | 0   | 0   | --   | --   | --  |

Legend: 2035 Intersection Volumes  
Existing Volumes

## Alternatives Analysis

Future scenarios were considered for the two project intersections in the corridor. Alternatives analysis considered modifications to the signalized intersections as well as roundabout options for each intersection. A key assumption for implementing any improvements was that the two intersections would either both operate as signals or as roundabouts, so that if one intersection was converted to a roundabout the other would be converted as well. Each intersection has been evaluated for the following:

- Future No Build: Maintain existing configuration.
- Signalized Alternatives: Signalized improvements to the intersections.
- Roundabout Alternatives: Roundabout options for the intersections.

Synchro and Sidra analyses were performed for the two project intersections to evaluate Future No-Build, Future Modified Signal, and Future Roundabout alternatives (see Appendix D). See Tables 5 and 6 for a breakdown of the results. A full comparison of all of the alternatives considered for the project are included in Appendix A. The results show that in the future design year 2035 the Lakemont Boulevard SE/SE Newport Way and SE Newport Way/I-90 Eastbound On-ramp intersections operate at LOS D and E respectively during the PM peak hour with no improvements. However, the 95th percentile queue for the eastbound left-turn movement from SE Newport Way onto the I-90 Eastbound On-ramp backs up beyond the intersection at Lakemont Boulevard SE during both peak hours, which indicates that intersection delays at Lakemont Boulevard SE are actually worse than reported by Synchro.

Synchro analysis of various modifications of the existing signalized configuration demonstrated that converting the southbound through/left lane on Lakemont Boulevard to a second left-turn lane and similarly converting one of the eastbound through lanes on SE Newport Way to another left-turn lane at the ramp intersection provides the optimal improvement for the signal operation. A conceptual plan showing the modified signal alternative is included in Figure 4. This alternative (Alternative 1) improves the intersections operations from LOS D/E in the PM to LOS C/B in the future design year while reducing the 95th percentile queues for the eastbound left-turn on to the ramp to be accommodated between intersections. This alternative also assumes that a future connection from the I-90 Eastbound Off-ramp to SE Newport Way is not constructed.

Sidra analysis was performed for future peak hour volumes and showed the optimal roundabout configuration to be a hybrid multi-lane roundabout with right-turn bypass lanes for northbound, southbound, and westbound approaches and a two-lane tear-drop roundabout at SE Newport Way and the I-90 Eastbound On-ramp. A conceptual plan showing the roundabout alternative is included in Figure 5. This alternative (Alternative 2) improves the intersections operations to LOS A in the future design year. This alternative also assumes that a future connection from the I-90 Eastbound Off-ramp to SE Newport Way is not constructed. Although a previous study by WSDOT proposed a future connection, an evaluation of this configuration demonstrated that it would degrade the intersection to LOS F; therefore, it was not included in the future traffic projections.



It should be noted that the layout for Alternative 2 includes widening the eastbound approach of SE Newport Way at Lakemont Boulevard SE to two lanes. A one-lane eastbound approach was also modeled which resulted in a V/C of 0.90 for this approach as well as the intersection. Adding a second lane improves the V/C to 0.40 for the approach and 0.77 for the intersection; however, this approach has the lightest volumes of any of the intersection approaches. While a second lane benefits traffic operations it adds considerable cost, because it encroaches into the existing wall and steep slope on the south side of SE Newport Way.

Both Alternatives 1 and 2 involve widening the existing eastbound on-ramp to provide two receiving lanes for left-turn traffic from SE Newport Way; however, there is sufficient ramp length to merge the two lanes to one lane prior to the connection with the mainline so that no modification of the mainline connection is needed.







Modified Signal Control

Lakemont Blvd SE

I-90 Eastbound Off-Ramp

I-90 Eastbound On-Ramp

SE Newport Way

Lakemont Blvd SE

Right-Of-Way

I-90



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Figure 4 – Lakemont Blvd SE/SE Newport Way & SE Newport Way/I-90 EB On-Ramp – Alternative 1









Roundabout Control

Lakemont Blvd SE

I-90 Eastbound Off-Ramp

I-90 Eastbound On-Ramp

SE Newport Way

Lakemont Blvd SE

Right-Of-Way



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Figure 5 – Lakemont Blvd SE/SE Newport Way & SE Newport Way/I-90 EB On-Ramp – Alternative 2







**Table 5. 2035 Alternatives – Synchro & Sidra Results (Lakemont Boulevard SE / SE Newport Way).**

| Street              | Move-ment | Future No-Build |          |            |              | Alternative 1 – Modified Signals |          |            |              | Move-ment | Alternative 2 - Roundabouts |          |             |              |
|---------------------|-----------|-----------------|----------|------------|--------------|----------------------------------|----------|------------|--------------|-----------|-----------------------------|----------|-------------|--------------|
|                     |           | Delay (s)       | LOS      | Avg. Queue | 95th % Queue | Delay (s)                        | LOS      | Avg. Queue | 95th % Queue |           | Delay (s)                   | LOS      | V/C         | 95th % Queue |
| <b>AM Peak</b>      |           |                 |          |            |              |                                  |          |            |              |           |                             |          |             |              |
| SE Newport Way      | EBL       | 43              | D        | 22         | 46           | 35                               | D        | 17         | 40           | EB        | 7.7                         | A        | 0.07        | 8            |
|                     | EBT/R     | 30              | C        | 41         | 71           | 22                               | C        | 31         | 55           |           | -                           | -        | -           | -            |
|                     | WBL       | 43              | D        | 25         | 59           | 36                               | D        | 20         | 52           | WB        | 3.2                         | A        | 0.33        | 59           |
|                     | WBT       | 41              | D        | 135        | 216          | 29                               | C        | 105        | 170          |           | -                           | -        | -           | -            |
|                     | WBR       | 12              | B        | 114        | 216          | 15                               | B        | 120        | 214          |           | -                           | -        | -           | -            |
| Lakemont Blvd SE    | NBL       | 24              | C        | 9          | 29           | 24                               | C        | 9          | 26           | NB        | 6.4                         | A        | 0.59        | 109          |
|                     | NBT/R     | 35              | C        | 272        | 446          | 27                               | C        | 200        | 351          |           | -                           | -        | -           | -            |
|                     | SBL       | 36              | D        | 140        | 251          | 32                               | C        | 88         | 144          | SB        | 5.5                         | A        | 0.32        | 58           |
|                     | SBL/T     | 32              | C        | 144        | 219          | 23                               | C        | 84         | 344          |           | -                           | -        | -           | -            |
|                     | SBR       | 7               | A        | 0          | 45           | 4                                | A        | 0          | 30           |           | -                           | -        | -           | -            |
| <b>Intersection</b> |           | <b>30</b>       | <b>C</b> |            |              | <b>24</b>                        | <b>C</b> |            |              |           | <b>5.3</b>                  | <b>A</b> | <b>0.59</b> | <b>109</b>   |
| <b>PM Peak</b>      |           |                 |          |            |              |                                  |          |            |              |           |                             |          |             |              |
| SE Newport Way      | EBL       | 59              | E        | 29         | 57           | 59                               | E        | 27         | 58           | EB        | 17.8                        | B        | 0.40        | 67           |
|                     | EBT/R     | 60              | E        | 162        | 217          | 56                               | E        | 148        | 214          |           | -                           | -        | -           | -            |
|                     | WBL       | 62              | E        | 179        | 121          | 84                               | F        | 77         | 146          | WB        | 3.8                         | A        | 0.13        | 19           |
|                     | WBT       | 39              | D        | 42         | 71           | 41                               | D        | 40         | 74           |           | -                           | -        | -           | -            |
|                     | WBR       | 2               | A        | 0          | 11           | 2                                | A        | 0          | 11           |           | -                           | -        | -           | -            |
| Lakemont Blvd SE    | NBL       | 42              | D        | 7          | 25           | 52                               | D        | 7          | 28           | NB        | 10.3                        | B        | 0.44        | 75           |
|                     | NBT/R     | 36              | D        | 126        | 198          | 33                               | C        | 131        | 210          |           | -                           | -        | -           | -            |
|                     | SBL       | 63              | E        | 584        | 1025         | 33                               | C        | 365        | 506          | SB        | 6.2                         | A        | 0.77        | 243          |
|                     | SBL/T     | 50              | D        | 589        | 917          | 25                               | C        | 481        | 1062         |           | -                           | -        | -           | -            |
|                     | SBR       | 9               | A        | 21         | 74           | 3                                | A        | 9          | 47           |           | -                           | -        | -           | -            |
| <b>Intersection</b> |           | <b>47</b>       | <b>D</b> |            |              | <b>31</b>                        | <b>C</b> |            |              |           | <b>7.5</b>                  | <b>A</b> | <b>0.77</b> | <b>243</b>   |

**Table 6. 2035 Alternatives – Synchro & Sidra Results (Newport Way / I-90 On-Ramp).**

| Street              | Move-ment | Future No-Build |          |            |              | Alternative 1 – Modified Signals |          |            |              | Move-ment | Alternative 2 - Roundabouts |          |             |              |
|---------------------|-----------|-----------------|----------|------------|--------------|----------------------------------|----------|------------|--------------|-----------|-----------------------------|----------|-------------|--------------|
|                     |           | Delay (s)       | LOS      | Avg. Queue | 95th % Queue | Delay (s)                        | LOS      | Avg. Queue | 95th % Queue |           | Delay (s)                   | LOS      | V/C         | 95th % Queue |
| <b>AM Peak</b>      |           |                 |          |            |              |                                  |          |            |              |           |                             |          |             |              |
| Newport Way         | EBL       | 78              | E        | 206        | 494          | 30                               | C        | 129        | 217          | EB        | 5.9                         | A        | 0.29        | 0            |
|                     | EBT       | 0               | A        | 0          | 0            | 0                                | A        | 0          | 0            |           | -                           | -        | -           | -            |
|                     | WBT/R     | 15              | B        | 215        | 327          | 18                               | B        | 242        | 430          | WB        | 4.0                         | A        | 0.41        | 47           |
| <b>Intersection</b> |           | <b>38</b>       | <b>D</b> |            |              | <b>21</b>                        | <b>C</b> |            |              |           | <b>5.0</b>                  | <b>A</b> | <b>0.41</b> | <b>47</b>    |
| <b>PM Peak</b>      |           |                 |          |            |              |                                  |          |            |              |           |                             |          |             |              |
| Newport Way         | EBL       | 112             | F        | 334        | 556          | 14                               | B        | 128        | 252          | EB        | 5.3                         | A        | 0.67        | 0            |
|                     | EBT       | 0               | A        | 0          | 0            | 1                                | A        | 0          | 0            |           | -                           | -        | -           | -            |
|                     | WBT/R     | 18              | B        | 66         | 101          | 21                               | C        | 71         | 146          | WB        | 6.1                         | A        | 0.21        | 24           |
| <b>Intersection</b> |           | <b>67</b>       | <b>E</b> |            |              | <b>11</b>                        | <b>B</b> |            |              |           | <b>5.4</b>                  | <b>A</b> | <b>0.67</b> | <b>24</b>    |

Several other factors have been considered in addition to the traffic operations at the intersection. Table 7 provides a summary of various criteria for the preferred signal option (Alternative 1) and preferred roundabout option (Alternative 2). A preliminary Opinion of Probable Construction Costs for each of the preferred alternatives can be found in Appendix B.

**Table 7. Preferred Alternatives Analysis (Lakemont / Newport Way)**

| <b>Future No Build</b>  | <b>Alternative 1 – Modified Signals</b>  | <b>Alternative 2 - Roundabouts</b>  |
|---|--|---|
| <b>Traffic Operations</b>   |  |   |
| LOS D/E<br>Significant queues during AM and PM Peak.                                      | LOS C<br>Improved operations by adding additional left turn lanes  | LOS A<br>V/C 0.77 or less for both intersections.   |
| <b>Traffic Safety</b>   |  |   |
| Signalized operations with higher volumes likely to result in continued rear-end crashes. | Reduced congestion and queueing may reduce the number of crashes.  | Reduced number of conflict points and vehicle speeds through intersection may reduce both the number of crashes and crash severity. |
| <b>Right-of-Way</b>   |  |   |
| None  | None<br>Much of the reconstructed area lies within WSDOT limited access area   | None<br>Much of the reconstructed area lies within WSDOT limited access area  |
| <b>Stormwater Impacts</b>   |  |   |
| None  | Increase in impervious surfacing will require stormwater mitigation. Likely stormwater treatment, possibly minor flow control. | Increase in impervious surfacing and new hard surfacing triggers stormwater treatment and flow control.                             |
| <b>Utility Impacts</b>  |  |   |
| None  | Adjustment/relocation of underground utilities as needed to accommodate improvements.  | Adjustment/relocation of underground utilities as needed to accommodate improvements.   |
| <b>Environmental Impacts</b>  |  |   |
| None  | Potential minor impacts to critical area may require mitigation.   | Potential minor impacts to critical area may require mitigation.  |
| <b>Construction Costs</b>   |  |   |
| None  | \$3,300,000 (see Appendix E)   | \$11,200,000 (see Appendix E)   |

Each alternative was also assessed to identify how it impacts the Multi-Modal LOS for pedestrians, bikes, and transit. Table 8 summarizes the assessment.

**Table 8. Preferred Alternatives MMLoS Analysis (Lakemont / Newport Way)**

| Element                     | Alternative 1 – Modified Signals  | Alternative 2 - Roundabouts   |
|-----------------------------|---|---|
| <b>Pedestrian LOS</b>       |   |   |
| Sidewalk & Landscape Buffer | Improves: Sidewalk is provided on south side of Newport Way.                | Improves: Multi-use path with landscape buffer is provided within the roundabouts on the south side of Newport Way and west side of Lakemont Boulevard.                                       |
| Intersection Treatment      | No Change   | Improves: The number of conflict points between vehicles and pedestrians is reduced.  |
| <b>Bicycle LOS</b>          |   |   |
| Intersection Treatment      | No Change   | Improves: Multi-use path with bicycle ramps is provided on entrances and exits of the roundabouts where possible to give bicyclists the option of having a physical separation from vehicles. |
| <b>Transit LOS</b>          |   |   |
| Passenger Amenities         | No Change   | No change   |
| Transit Speed               | Improves: Vehicle delay is reduced, which reduces travel times for transit. | Improves: Vehicle delay is reduced, which reduces travel times for transit.   |

## Recommended Alternative

Alternative 2, with roundabouts constructed at the intersections of Lakemont Boulevard SE/SE Newport Way and SE Newport Way/I-90 On-ramp is the preferred long-term improvement because it provides the best overall traffic operations of the alternatives and will have a calming effect on traffic. However, Alternative 1, with modifications to the existing signalized intersections, is recommended as the best near-term solution because it provides needed congestion relief at less than a third of the cost of roundabouts.

## Anticipated Benefits

The anticipated benefits of Alternative 1 are:

- Reduced congestion relieves driver frustration.
- Cost effective solution for the level of investment.

## Challenges and Risks

The challenges and risks associated with Alternative 1 are:

- Queues on SE Newport Way between Lakemont Boulevard and the I-90 Eastbound On-ramp will reach nearly to the upstream intersection by 2035.
- Much of the reconstruction lies within WSDOT Limited Access area, which will require considerable agency coordination.
- Impacts to critical areas are thought to be minor but further investigation is needed to confirm the level of impact.

## Opinion of Probable Construction Costs

The preliminary opinion of probable construction costs for the preferred near-term improvement is \$3,300,000. This estimate includes construction costs only. No additional right-of-way is anticipated.

## Coordination with WSDOT

A meeting was held with WSDOT on March 28, 2019, to present the findings of this study and determine the next steps going forward. Anticipated next steps include:

- Prepare the Intersection Control Evaluation (ICE). Most of the ICE work has been done.
- Through the ICE, determine the preferred alternative – roundabout vs. signal.
- A concept design with very specific elements would be developed for WSDOT headquarters (HQ) review. HQ review is needed because of impact to the freeway system.
- FHWA would need to review and would need a Basis of Design (BOD).
- Develop the Channelization Plan for WSDOT review and approval.
- Design approval is only good for three years.
- Document the preferred pedestrian paths to support the Mountains to Sound Greenway (MTSG) path connection to the City of Issaquah trail.
- In the ICE, address why WSDOT's proposal to split the I-90 eastbound loop ramp is not recommended.
- WSDOT noted that they would like to see the more constrained design, with only one lane in the roundabout eastbound approach and only one lane onto the I-90 Eastbound On-ramp.

# APPENDICES

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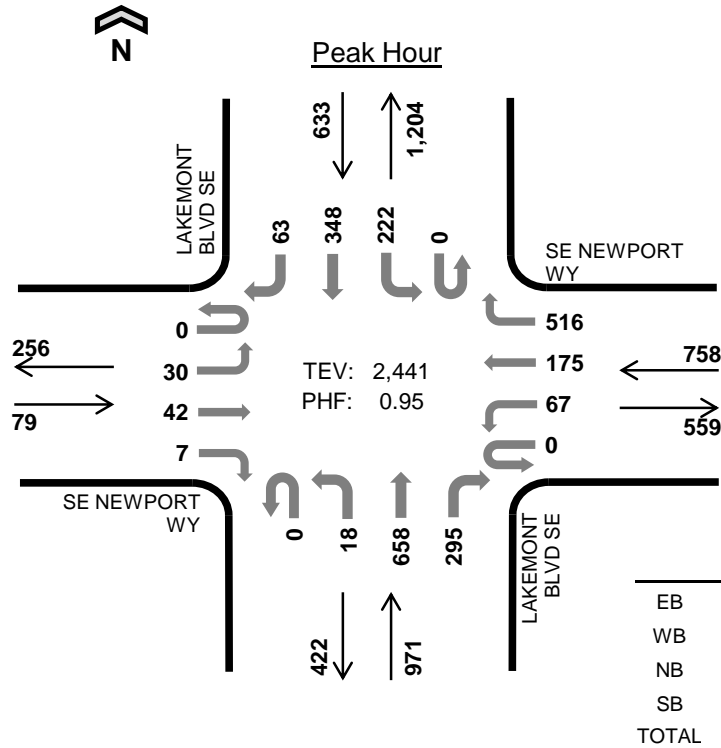


## APPENDIX A: TRAFFIC COUNTS

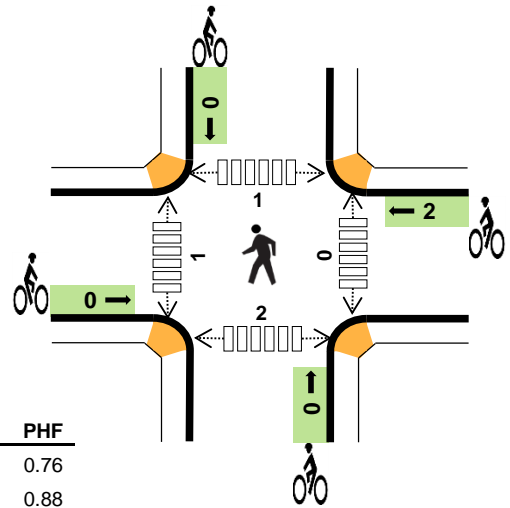
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# LAKEMONT BLVD SE SE NEWPORT WY



Date: Tue, Nov 13, 2018  
Count Period: 7:00 AM to 9:00 AM  
Peak Hour: 7:45 AM to 8:45 AM



|       | HV %: | PHF  |
|-------|-------|------|
| EB    | 3.8%  | 0.76 |
| WB    | 1.7%  | 0.88 |
| NB    | 0.9%  | 0.91 |
| SB    | 4.3%  | 0.92 |
| TOTAL | 2.1%  | 0.95 |

## Two-Hour Count Summaries

| Interval Start | SE NEWPORT WY |    |    |    | SE NEWPORT WY |     |     |     | LAKEMONT BLVD SE |    |       |     | LAKEMONT BLVD SE |     |     |     | 15-min Total | Rolling One Hour |
|----------------|---------------|----|----|----|---------------|-----|-----|-----|------------------|----|-------|-----|------------------|-----|-----|-----|--------------|------------------|
|                | Eastbound     |    |    |    | Westbound     |     |     |     | Northbound       |    |       |     | Southbound       |     |     |     |              |                  |
|                | UT            | LT | TH | RT | UT            | LT  | TH  | RT  | UT               | LT | TH    | RT  | UT               | LT  | TH  | RT  |              |                  |
| 7:00 AM        | 0             | 3  | 16 | 0  | 0             | 3   | 15  | 87  | 0                | 1  | 129   | 79  | 0                | 42  | 33  | 9   | 417          | 0                |
| 7:15 AM        | 0             | 7  | 9  | 0  | 0             | 18  | 20  | 109 | 0                | 2  | 149   | 92  | 0                | 51  | 44  | 10  | 511          | 0                |
| 7:30 AM        | 0             | 8  | 10 | 2  | 0             | 13  | 32  | 107 | 0                | 3  | 154   | 87  | 0                | 55  | 76  | 9   | 556          | 0                |
| 7:45 AM        | 0             | 8  | 8  | 2  | 0             | 15  | 51  | 130 | 0                | 3  | 138   | 81  | 0                | 64  | 77  | 22  | 599          | 2,083            |
| 8:00 AM        | 0             | 6  | 10 | 0  | 0             | 14  | 45  | 156 | 0                | 6  | 164   | 50  | 0                | 46  | 90  | 11  | 598          | 2,264            |
| 8:15 AM        | 0             | 10 | 13 | 3  | 0             | 22  | 38  | 117 | 0                | 3  | 187   | 76  | 0                | 61  | 97  | 14  | 641          | 2,394            |
| 8:30 AM        | 0             | 6  | 11 | 2  | 0             | 16  | 41  | 113 | 0                | 6  | 169   | 88  | 0                | 51  | 84  | 16  | 603          | 2,441            |
| 8:45 AM        | 0             | 10 | 13 | 3  | 0             | 11  | 36  | 111 | 0                | 0  | 114   | 69  | 0                | 44  | 84  | 21  | 516          | 2,358            |
| Count Total    | 0             | 58 | 90 | 12 | 0             | 112 | 278 | 930 | 0                | 24 | 1,204 | 622 | 0                | 414 | 585 | 112 | 4,441        | 0                |
| Peak Hour      | 0             | 30 | 42 | 7  | 0             | 67  | 175 | 516 | 0                | 18 | 658   | 295 | 0                | 222 | 348 | 63  | 2,441        | 0                |

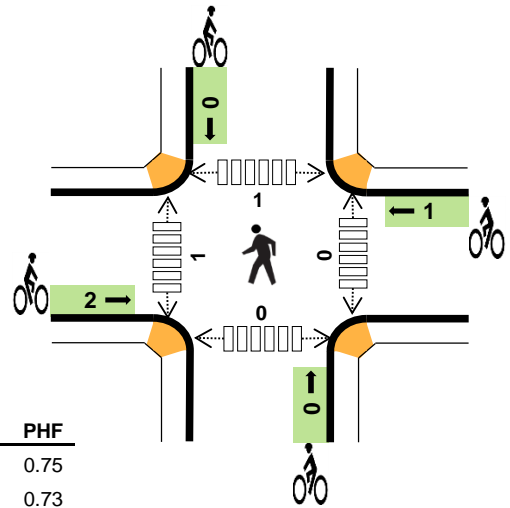
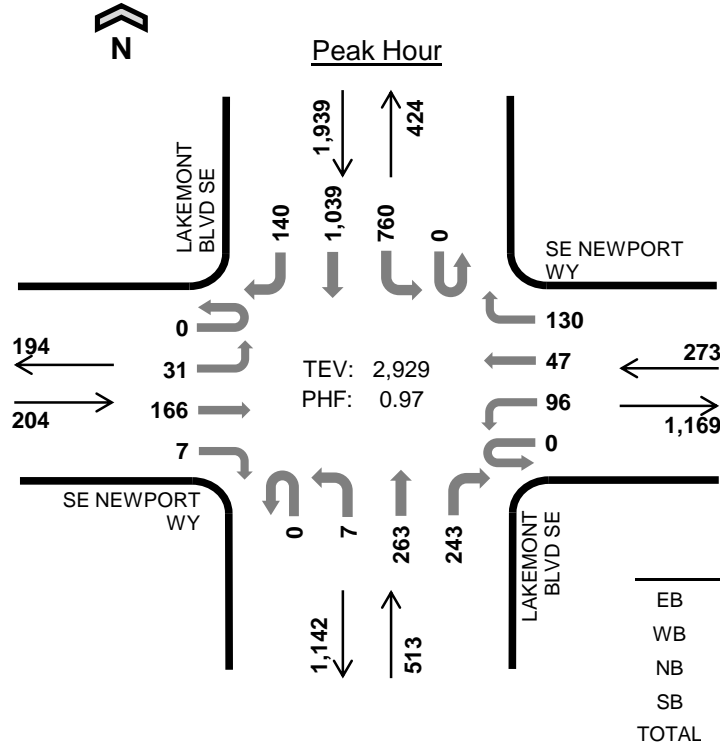
Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

| Interval Start | Heavy Vehicle Totals |    |    |    |       | Bicycles |    |    |    |       | Pedestrians (Crossing Leg) |      |       |       |       |
|----------------|----------------------|----|----|----|-------|----------|----|----|----|-------|----------------------------|------|-------|-------|-------|
|                | EB                   | WB | NB | SB | Total | EB       | WB | NB | SB | Total | East                       | West | North | South | Total |
| 7:00 AM        | 1                    | 1  | 2  | 10 | 14    | 0        | 0  | 0  | 0  | 0     | 0                          | 1    | 0     | 0     | 1     |
| 7:15 AM        | 2                    | 3  | 7  | 4  | 16    | 0        | 1  | 0  | 0  | 1     | 1                          | 0    | 2     | 0     | 3     |
| 7:30 AM        | 1                    | 2  | 3  | 5  | 11    | 1        | 0  | 0  | 0  | 1     | 0                          | 0    | 0     | 0     | 0     |
| 7:45 AM        | 0                    | 4  | 1  | 2  | 7     | 0        | 0  | 0  | 0  | 0     | 0                          | 0    | 0     | 0     | 0     |
| 8:00 AM        | 0                    | 2  | 2  | 7  | 11    | 0        | 1  | 0  | 0  | 1     | 0                          | 0    | 1     | 0     | 1     |
| 8:15 AM        | 1                    | 2  | 3  | 8  | 14    | 0        | 1  | 0  | 0  | 1     | 0                          | 1    | 0     | 2     | 3     |
| 8:30 AM        | 2                    | 5  | 3  | 10 | 20    | 0        | 0  | 0  | 0  | 0     | 0                          | 0    | 0     | 0     | 0     |
| 8:45 AM        | 1                    | 3  | 2  | 9  | 15    | 0        | 0  | 0  | 0  | 0     | 0                          | 0    | 0     | 0     | 0     |
| Count Total    | 8                    | 22 | 23 | 55 | 108   | 1        | 3  | 0  | 0  | 4     | 1                          | 2    | 3     | 2     | 8     |
| Peak Hour      | 3                    | 13 | 9  | 27 | 52    | 0        | 2  | 0  | 0  | 2     | 0                          | 1    | 1     | 2     | 4     |

# LAKEMONT BLVD SE SE NEWPORT WY



Date: Tue, Nov 13, 2018  
 Count Period: 4:00 PM to 6:00 PM  
 Peak Hour: 4:15 PM to 5:15 PM



|       | HV %: | PHF  |
|-------|-------|------|
| EB    | 2.9%  | 0.75 |
| WB    | 0.4%  | 0.73 |
| NB    | 2.7%  | 0.94 |
| SB    | 0.8%  | 0.96 |
| TOTAL | 1.3%  | 0.97 |

## Two-Hour Count Summaries

| Interval Start | SE NEWPORT WY Eastbound |    |     |    | SE NEWPORT WY Westbound |     |    |     | LAKEMONT BLVD SE Northbound |    |     |     | LAKEMONT BLVD SE Southbound |       |       |     | 15-min Total | Rolling One Hour |
|----------------|-------------------------|----|-----|----|-------------------------|-----|----|-----|-----------------------------|----|-----|-----|-----------------------------|-------|-------|-----|--------------|------------------|
|                | UT                      | LT | TH  | RT | UT                      | LT  | TH | RT  | UT                          | LT | TH  | RT  | UT                          | LT    | TH    | RT  |              |                  |
| 4:00 PM        | 0                       | 10 | 37  | 5  | 0                       | 19  | 13 | 38  | 0                           | 2  | 52  | 70  | 0                           | 195   | 212   | 11  | 664          | 0                |
| 4:15 PM        | 0                       | 4  | 23  | 3  | 0                       | 21  | 5  | 32  | 0                           | 7  | 64  | 61  | 0                           | 190   | 281   | 33  | 724          | 0                |
| 4:30 PM        | 0                       | 10 | 37  | 1  | 0                       | 29  | 17 | 48  | 0                           | 0  | 68  | 62  | 0                           | 184   | 262   | 38  | 756          | 0                |
| 4:45 PM        | 0                       | 8  | 48  | 2  | 0                       | 28  | 17 | 26  | 0                           | 0  | 55  | 60  | 0                           | 178   | 255   | 36  | 713          | 2,857            |
| 5:00 PM        | 0                       | 9  | 58  | 1  | 0                       | 18  | 8  | 24  | 0                           | 0  | 76  | 60  | 0                           | 208   | 241   | 33  | 736          | 2,929            |
| 5:15 PM        | 0                       | 11 | 66  | 1  | 0                       | 21  | 6  | 16  | 0                           | 3  | 59  | 56  | 0                           | 171   | 256   | 33  | 699          | 2,904            |
| 5:30 PM        | 0                       | 10 | 76  | 5  | 0                       | 28  | 17 | 35  | 0                           | 3  | 39  | 71  | 0                           | 216   | 242   | 39  | 781          | 2,929            |
| 5:45 PM        | 0                       | 13 | 53  | 6  | 0                       | 20  | 14 | 23  | 0                           | 0  | 41  | 63  | 0                           | 170   | 231   | 18  | 652          | 2,868            |
| Count Total    | 0                       | 75 | 398 | 24 | 0                       | 184 | 97 | 242 | 0                           | 15 | 454 | 503 | 0                           | 1,512 | 1,980 | 241 | 5,725        | 0                |
| Peak Hour      | 0                       | 31 | 166 | 7  | 0                       | 96  | 47 | 130 | 0                           | 7  | 263 | 243 | 0                           | 760   | 1,039 | 140 | 2,929        | 0                |

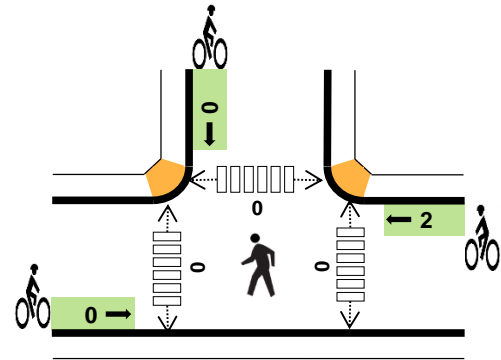
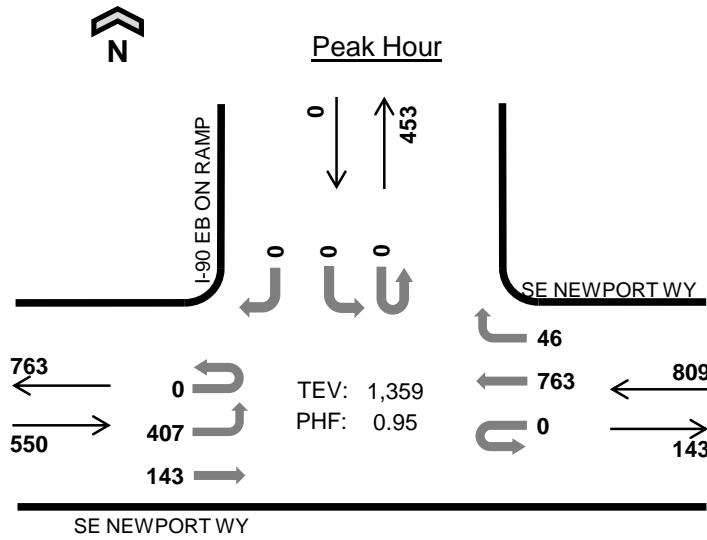
Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

| Interval Start | Heavy Vehicle Totals |    |    |    |       | Bicycles |    |    |    |       | Pedestrians (Crossing Leg) |      |       |       |       |
|----------------|----------------------|----|----|----|-------|----------|----|----|----|-------|----------------------------|------|-------|-------|-------|
|                | EB                   | WB | NB | SB | Total | EB       | WB | NB | SB | Total | East                       | West | North | South | Total |
| 4:00 PM        | 5                    | 0  | 6  | 4  | 15    | 0        | 1  | 0  | 0  | 1     | 0                          | 0    | 1     | 0     | 1     |
| 4:15 PM        | 1                    | 0  | 6  | 2  | 9     | 1        | 0  | 0  | 0  | 1     | 0                          | 0    | 0     | 0     | 0     |
| 4:30 PM        | 1                    | 0  | 3  | 7  | 11    | 0        | 0  | 0  | 0  | 0     | 0                          | 1    | 1     | 0     | 2     |
| 4:45 PM        | 2                    | 1  | 4  | 6  | 13    | 1        | 0  | 0  | 0  | 1     | 0                          | 0    | 0     | 0     | 0     |
| 5:00 PM        | 2                    | 0  | 1  | 1  | 4     | 0        | 1  | 0  | 0  | 1     | 0                          | 0    | 0     | 0     | 0     |
| 5:15 PM        | 0                    | 2  | 1  | 3  | 6     | 0        | 0  | 1  | 0  | 1     | 0                          | 1    | 0     | 0     | 1     |
| 5:30 PM        | 1                    | 0  | 2  | 1  | 4     | 0        | 0  | 0  | 0  | 0     | 1                          | 0    | 0     | 1     | 2     |
| 5:45 PM        | 1                    | 0  | 3  | 1  | 5     | 1        | 0  | 0  | 0  | 1     | 3                          | 0    | 2     | 1     | 6     |
| Count Total    | 13                   | 3  | 26 | 25 | 67    | 3        | 2  | 1  | 0  | 6     | 4                          | 2    | 4     | 2     | 12    |
| Peak Hour      | 6                    | 1  | 14 | 16 | 37    | 2        | 1  | 0  | 0  | 3     | 0                          | 1    | 1     | 0     | 2     |

### I-90 EB ON RAMP SE NEWPORT WY



Date: Tue, Nov 13, 2018  
 Count Period: 7:00 AM to 9:00 AM  
 Peak Hour: 7:45 AM to 8:45 AM



TEV: 1,359  
 PHF: 0.95

|       | HV %: | PHF  |
|-------|-------|------|
| EB    | 2.0%  | 0.90 |
| WB    | 1.5%  | 0.89 |
| NB    | -     | -    |
| SB    | -     | -    |
| TOTAL | 1.7%  | 0.95 |

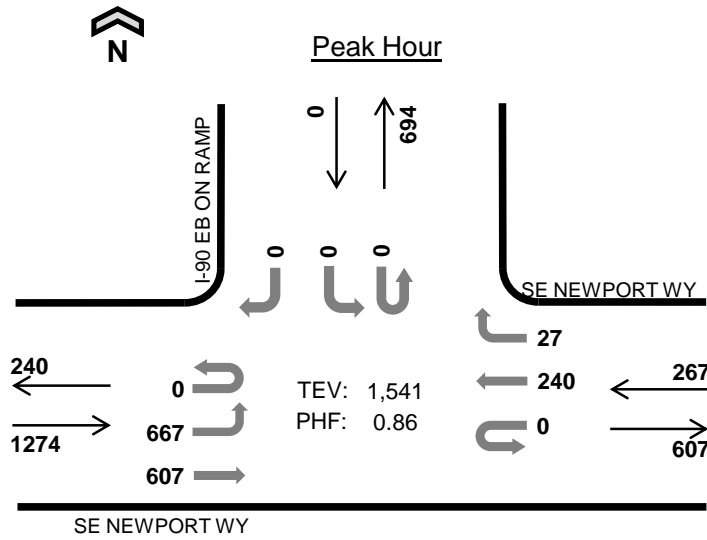
#### Two-Hour Count Summaries

| Interval Start   | SE NEWPORT WY |            |            |          | SE NEWPORT WY |          |            |           | 0          |          |          |          | I-90 EB ON RAMP |          |          |          | 15-min Total | Rolling One Hour |
|------------------|---------------|------------|------------|----------|---------------|----------|------------|-----------|------------|----------|----------|----------|-----------------|----------|----------|----------|--------------|------------------|
|                  | Eastbound     |            |            |          | Westbound     |          |            |           | Northbound |          |          |          | Southbound      |          |          |          |              |                  |
|                  | UT            | LT         | TH         | RT       | UT            | LT       | TH         | RT        | UT         | LT       | TH       | RT       | UT              | LT       | TH       | RT       |              |                  |
| 7:00 AM          | 0             | 114        | 22         | 0        | 0             | 0        | 103        | 7         | 0          | 0        | 0        | 0        | 0               | 0        | 0        | 0        | 246          | 0                |
| 7:15 AM          | 0             | 126        | 23         | 0        | 0             | 0        | 148        | 5         | 0          | 0        | 0        | 0        | 0               | 0        | 0        | 0        | 302          | 0                |
| 7:30 AM          | 0             | 128        | 30         | 0        | 0             | 0        | 161        | 3         | 0          | 0        | 0        | 0        | 0               | 0        | 0        | 0        | 322          | 0                |
| <b>7:45 AM</b>   | <b>0</b>      | <b>118</b> | <b>31</b>  | <b>0</b> | <b>0</b>      | <b>0</b> | <b>191</b> | <b>19</b> | <b>0</b>   | <b>0</b> | <b>0</b> | <b>0</b> | <b>0</b>        | <b>0</b> | <b>0</b> | <b>0</b> | <b>359</b>   | 1,229            |
| 8:00 AM          | 0             | 71         | 35         | 0        | 0             | 0        | 220        | 7         | 0          | 0        | 0        | 0        | 0               | 0        | 0        | 0        | 333          | 1,316            |
| 8:15 AM          | 0             | 108        | 44         | 0        | 0             | 0        | 183        | 8         | 0          | 0        | 0        | 0        | 0               | 0        | 0        | 0        | 343          | 1,357            |
| 8:30 AM          | 0             | 110        | 33         | 0        | 0             | 0        | 169        | 12        | 0          | 0        | 0        | 0        | 0               | 0        | 0        | 0        | 324          | 1,359            |
| 8:45 AM          | 0             | 106        | 30         | 0        | 0             | 0        | 153        | 9         | 0          | 0        | 0        | 0        | 0               | 0        | 0        | 0        | 298          | 1,298            |
| Count Total      | 0             | 881        | 248        | 0        | 0             | 0        | 1,328      | 70        | 0          | 0        | 0        | 0        | 0               | 0        | 0        | 0        | 2,527        | 0                |
| <b>Peak Hour</b> | <b>0</b>      | <b>407</b> | <b>143</b> | <b>0</b> | <b>0</b>      | <b>0</b> | <b>763</b> | <b>46</b> | <b>0</b>   | <b>0</b> | <b>0</b> | <b>0</b> | <b>0</b>        | <b>0</b> | <b>0</b> | <b>0</b> | <b>1,359</b> | <b>0</b>         |

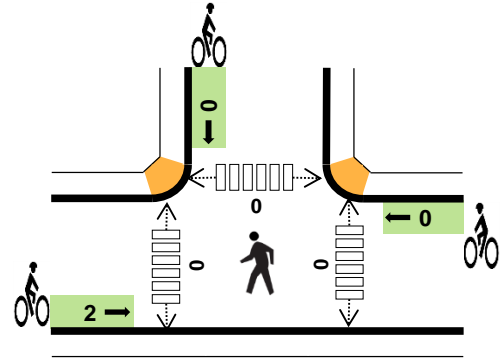
Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

| Interval Start | Heavy Vehicle Totals |           |          |          |           | Bicycles |          |          |          |          | Pedestrians (Crossing Leg) |          |          |          |          |
|----------------|----------------------|-----------|----------|----------|-----------|----------|----------|----------|----------|----------|----------------------------|----------|----------|----------|----------|
|                | EB                   | WB        | NB       | SB       | Total     | EB       | WB       | NB       | SB       | Total    | East                       | West     | North    | South    | Total    |
| 7:00 AM        | 6                    | 1         | 0        | 0        | 7         | 0        | 0        | 0        | 0        | 0        | 0                          | 0        | 0        | 0        | 0        |
| 7:15 AM        | 7                    | 2         | 0        | 0        | 9         | 0        | 1        | 0        | 0        | 1        | 0                          | 0        | 1        | 0        | 1        |
| 7:30 AM        | 5                    | 3         | 0        | 0        | 8         | 0        | 0        | 0        | 0        | 0        | 0                          | 0        | 0        | 0        | 0        |
| <b>7:45 AM</b> | <b>1</b>             | <b>2</b>  | <b>0</b> | <b>0</b> | <b>3</b>  | <b>0</b> | <b>0</b> | <b>0</b> | <b>0</b> | <b>0</b> | <b>0</b>                   | <b>0</b> | <b>0</b> | <b>0</b> | <b>0</b> |
| 8:00 AM        | 2                    | 2         | 0        | 0        | 4         | 0        | 1        | 0        | 0        | 1        | 0                          | 0        | 0        | 0        | 0        |
| 8:15 AM        | 5                    | 3         | 0        | 0        | 8         | 0        | 1        | 0        | 0        | 1        | 0                          | 0        | 0        | 1        | 1        |
| 8:30 AM        | 3                    | 5         | 0        | 0        | 8         | 0        | 0        | 0        | 0        | 0        | 0                          | 0        | 0        | 0        | 0        |
| 8:45 AM        | 5                    | 3         | 0        | 0        | 8         | 0        | 0        | 0        | 0        | 0        | 0                          | 0        | 0        | 0        | 0        |
| Count Total    | 34                   | 21        | 0        | 0        | 55        | 0        | 3        | 0        | 0        | 3        | 0                          | 0        | 1        | 1        | 2        |
| <b>Peak Hr</b> | <b>11</b>            | <b>12</b> | <b>0</b> | <b>0</b> | <b>23</b> | <b>0</b> | <b>2</b> | <b>0</b> | <b>0</b> | <b>2</b> | <b>0</b>                   | <b>0</b> | <b>0</b> | <b>1</b> | <b>1</b> |

### I-90 EB ON RAMP SE NEWPORT WY



Date: Tue, Nov 13, 2018  
 Count Period: 4:00 PM to 6:00 PM  
 Peak Hour: 4:45 PM to 5:45 PM



|       | HV %: | PHF  |
|-------|-------|------|
| EB    | 0.9%  | 0.88 |
| WB    | 1.1%  | 0.78 |
| NB    | -     | -    |
| SB    | -     | -    |
| TOTAL | 1.0%  | 0.86 |

#### Two-Hour Count Summaries

| Interval Start | SE NEWPORT WY Eastbound |            |            |          | SE NEWPORT WY Westbound |          |           |          | 0 Northbound |          |          |          | I-90 EB ON RAMP Southbound |          |          |          | 15-min Total | Rolling One Hour |
|----------------|-------------------------|------------|------------|----------|-------------------------|----------|-----------|----------|--------------|----------|----------|----------|----------------------------|----------|----------|----------|--------------|------------------|
|                | UT                      | LT         | TH         | RT       | UT                      | LT       | TH        | RT       | UT           | LT       | TH       | RT       | UT                         | LT       | TH       | RT       |              |                  |
| 4:00 PM        | 0                       | 171        | 132        | 0        | 0                       | 0        | 65        | 8        | 0            | 0        | 0        | 0        | 0                          | 0        | 0        | 0        | 376          | 0                |
| 4:15 PM        | 0                       | 152        | 130        | 0        | 0                       | 0        | 59        | 4        | 0            | 0        | 0        | 0        | 0                          | 0        | 0        | 0        | 345          | 0                |
| 4:30 PM        | 0                       | 144        | 132        | 0        | 0                       | 0        | 99        | 7        | 0            | 0        | 0        | 0        | 0                          | 0        | 0        | 0        | 382          | 0                |
| <b>4:45 PM</b> | <b>0</b>                | <b>151</b> | <b>142</b> | <b>0</b> | <b>0</b>                | <b>0</b> | <b>64</b> | <b>8</b> | <b>0</b>     | <b>0</b> | <b>0</b> | <b>0</b> | <b>0</b>                   | <b>0</b> | <b>0</b> | <b>0</b> | <b>365</b>   | <b>1,468</b>     |
| 5:00 PM        | 0                       | 163        | 157        | 0        | 0                       | 0        | 53        | 4        | 0            | 0        | 0        | 0        | 0                          | 0        | 0        | 0        | 377          | 1,469            |
| 5:15 PM        | 0                       | 150        | 151        | 0        | 0                       | 0        | 45        | 7        | 0            | 0        | 0        | 0        | 0                          | 0        | 0        | 0        | 353          | 1,477            |
| <b>5:30 PM</b> | <b>0</b>                | <b>203</b> | <b>157</b> | <b>0</b> | <b>0</b>                | <b>0</b> | <b>78</b> | <b>8</b> | <b>0</b>     | <b>0</b> | <b>0</b> | <b>0</b> | <b>0</b>                   | <b>0</b> | <b>0</b> | <b>0</b> | <b>446</b>   | <b>1,541</b>     |
| 5:45 PM        | 0                       | 148        | 142        | 0        | 0                       | 0        | 58        | 2        | 0            | 0        | 0        | 0        | 0                          | 0        | 0        | 0        | 350          | 1,526            |
| Count Total    | 0                       | 1,282      | 1,143      | 0        | 0                       | 0        | 521       | 48       | 0            | 0        | 0        | 0        | 0                          | 0        | 0        | 0        | 2,994        | 0                |
| Peak Hour      | 0                       | 667        | 607        | 0        | 0                       | 0        | 240       | 27       | 0            | 0        | 0        | 0        | 0                          | 0        | 0        | 0        | 1,541        | 0                |

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

| Interval Start | Heavy Vehicle Totals |          |          |          |          | Bicycles |          |          |          |          | Pedestrians (Crossing Leg) |          |          |          |          |
|----------------|----------------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------------------------|----------|----------|----------|----------|
|                | EB                   | WB       | NB       | SB       | Total    | EB       | WB       | NB       | SB       | Total    | East                       | West     | North    | South    | Total    |
| 4:00 PM        | 8                    | 1        | 0        | 0        | 9        | 0        | 1        | 0        | 0        | 1        | 0                          | 0        | 0        | 0        | 0        |
| 4:15 PM        | 6                    | 1        | 0        | 0        | 7        | 0        | 0        | 0        | 0        | 0        | 0                          | 0        | 0        | 0        | 0        |
| 4:30 PM        | 6                    | 2        | 0        | 0        | 8        | 1        | 0        | 0        | 0        | 1        | 0                          | 0        | 1        | 0        | 1        |
| <b>4:45 PM</b> | <b>5</b>             | <b>1</b> | <b>0</b> | <b>0</b> | <b>6</b> | <b>1</b> | <b>0</b> | <b>0</b> | <b>0</b> | <b>1</b> | <b>0</b>                   | <b>0</b> | <b>0</b> | <b>0</b> | <b>0</b> |
| 5:00 PM        | 3                    | 0        | 0        | 0        | 3        | 0        | 0        | 0        | 0        | 0        | 0                          | 0        | 0        | 0        | 0        |
| 5:15 PM        | 2                    | 2        | 0        | 0        | 4        | 1        | 0        | 0        | 0        | 1        | 0                          | 0        | 0        | 0        | 0        |
| <b>5:30 PM</b> | <b>2</b>             | <b>0</b> | <b>0</b> | <b>0</b> | <b>2</b> | <b>0</b> | <b>0</b> | <b>0</b> | <b>0</b> | <b>0</b> | <b>0</b>                   | <b>0</b> | <b>0</b> | <b>0</b> | <b>0</b> |
| 5:45 PM        | 0                    | 0        | 0        | 0        | 0        | 1        | 0        | 0        | 0        | 1        | 0                          | 0        | 1        | 0        | 1        |
| Count Total    | 32                   | 7        | 0        | 0        | 39       | 4        | 1        | 0        | 0        | 5        | 0                          | 0        | 2        | 0        | 2        |
| Peak Hr        | 12                   | 3        | 0        | 0        | 15       | 2        | 0        | 0        | 0        | 2        | 0                          | 0        | 0        | 0        | 0        |

## APPENDIX B: COLLISION DATA

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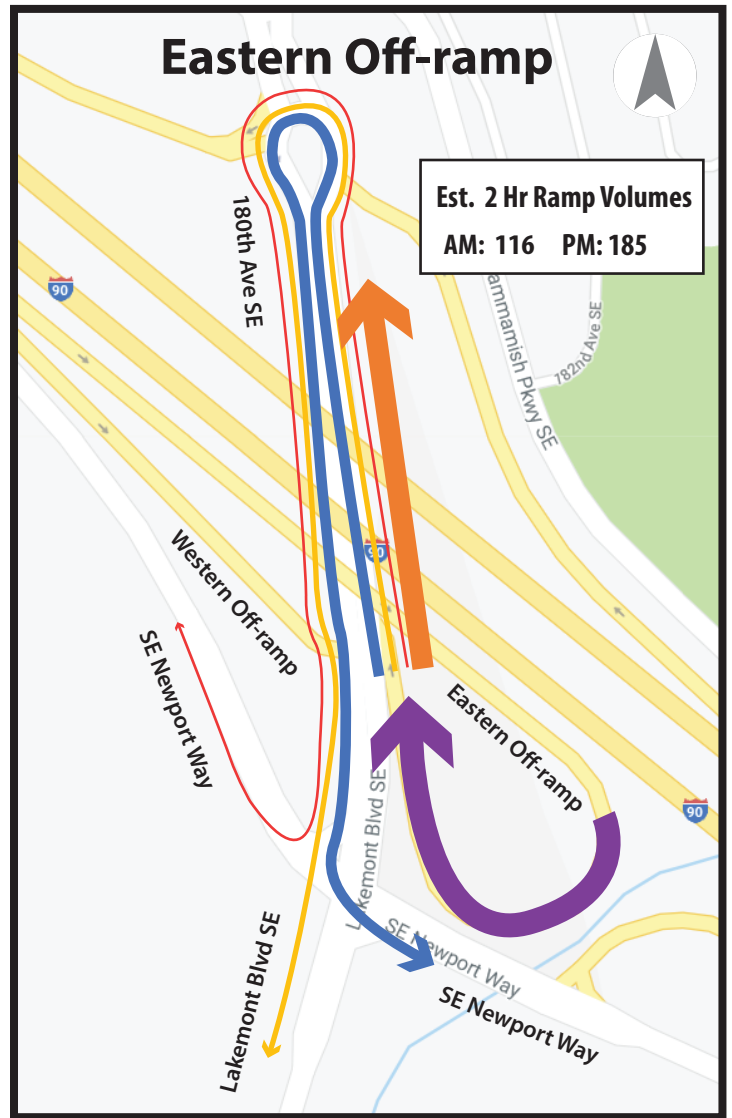
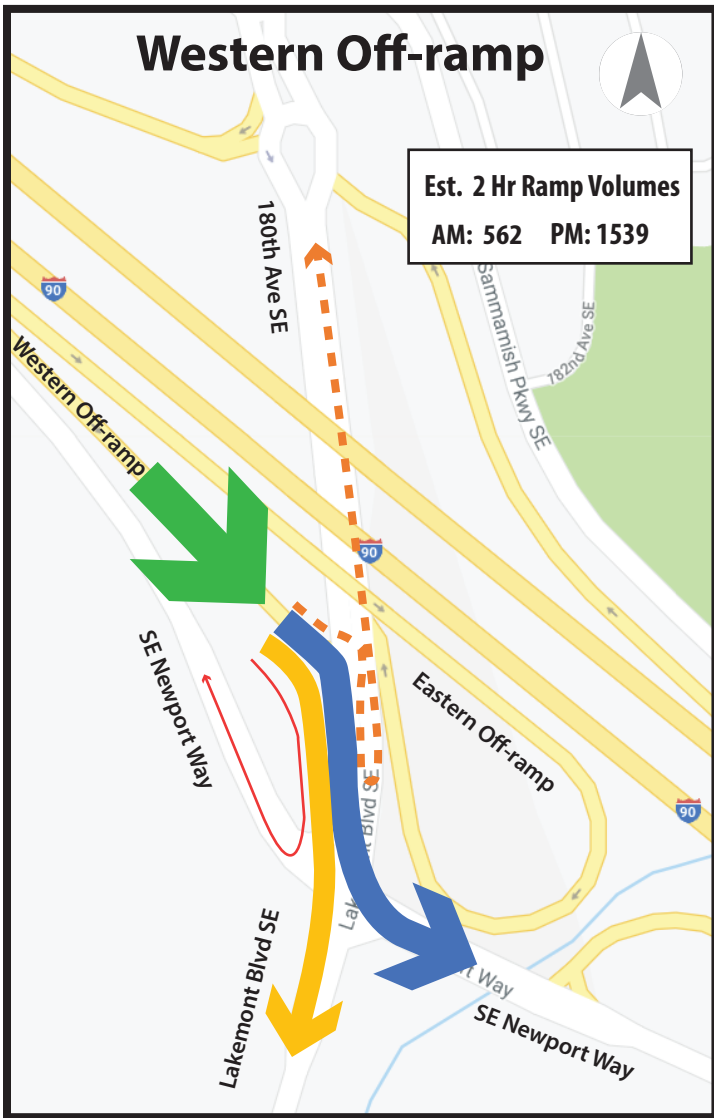
| Date             | Year | ColTypeDesc                 | PossInjuries | NDInjuries | DInjuries | Fatalities | Injury               | RoadSurfaceDesc | LightCondDesc           | VehDirLong | VehMovement | StreetName    | CrossStreetName | Contrib1CircumDesc              | Contrib2CircumDesc              | Contrib3CircumDesc         |
|------------------|------|-----------------------------|--------------|------------|-----------|------------|----------------------|-----------------|-------------------------|------------|-------------|---------------|-----------------|---------------------------------|---------------------------------|----------------------------|
| 1/25/2018 10:40  | 2018 | Right Angle                 | 0            | 0          | 0         | 0          | PDO                  | wet             | Daylight                | Eastbound  | T           | SE NEWPORT WY | LAKEMONT BD SE  | None                            |                                 |                            |
| 1/25/2018 10:40  | 2018 | Right Angle                 | 0            | 0          | 0         | 0          | PDO                  | wet             | Daylight                | Northbound | T           | SE NEWPORT WY | LAKEMONT BD SE  | Unknown driver distraction      |                                 |                            |
| 8/31/2017 15:47  | 2017 | Approach Turn               | 2            | 0          | 0         | 0          | Possible Injury      | dry             | Daylight                | Southbound | LT          | SE NEWPORT WY | LAKEMONT BD SE  | None                            |                                 |                            |
| 8/31/2017 15:47  | 2017 | Approach Turn               | 2            | 0          | 0         | 0          | Possible Injury      | dry             | Daylight                | Northbound | T           | SE NEWPORT WY | LAKEMONT BD SE  | Disregard Stop and Go Signal    | Did Not Grant R/W to Vehicle    |                            |
| 8/31/2017 15:47  | 2017 | Approach Turn               | 2            | 0          | 0         | 0          | Possible Injury      | dry             | Daylight                | Southbound | T           | SE NEWPORT WY | LAKEMONT BD SE  | None                            |                                 |                            |
| 8/31/2017 15:47  | 2017 | Approach Turn               | 2            | 0          | 0         | 0          | Possible Injury      | dry             | Daylight                | Southbound | T           | SE NEWPORT WY | LAKEMONT BD SE  | None                            |                                 |                            |
| 6/25/2017 23:05  | 2017 | Other                       | 1            | 0          | 0         | 0          | Possible Injury      | dry             | Dark - Street Lights On | Northbound | UT          | SE NEWPORT WY | LAKEMONT BD SE  | Improper U Turn                 |                                 |                            |
| 6/25/2017 23:05  | 2017 | Other                       | 1            | 0          | 0         | 0          | Possible Injury      | dry             | Dark - Street Lights On | Southbound | T           | SE NEWPORT WY | LAKEMONT BD SE  | None                            |                                 |                            |
| 6/19/2017 17:55  | 2017 | Rear End                    | 1            | 0          | 0         | 0          | Possible Injury      | dry             | Daylight                | Northbound | T           | SE NEWPORT WY | LAKEMONT BD SE  | Inattention                     |                                 |                            |
| 6/19/2017 17:55  | 2017 | Rear End                    | 1            | 0          | 0         | 0          | Possible Injury      | dry             | Daylight                | Northbound | T           | SE NEWPORT WY | LAKEMONT BD SE  | None                            |                                 |                            |
| 4/11/2017 15:52  | 2017 | Sideswipe/Lane Change       | 0            | 0          | 0         | 0          | PDO                  | dry             | Daylight                | Northbound | T           | SE NEWPORT WY | LAKEMONT BD SE  | Did Not Grant R/W to Vehicle    |                                 |                            |
| 4/11/2017 15:52  | 2017 | Sideswipe/Lane Change       | 0            | 0          | 0         | 0          | PDO                  | dry             | Daylight                | Northbound | T           | SE NEWPORT WY | LAKEMONT BD SE  | None                            |                                 |                            |
| 10/19/2016 22:00 | 2016 | Right Angle                 | 0            | 0          | 0         | 0          | PDO                  | wet             | Dark - Street Lights On | Westbound  | T           | SE NEWPORT WY | LAKEMONT BD SE  | Under Influence of Drugs        |                                 |                            |
| 10/19/2016 22:00 | 2016 | Right Angle                 | 0            | 0          | 0         | 0          | PDO                  | wet             | Dark - Street Lights On | Southbound | T           | SE NEWPORT WY | LAKEMONT BD SE  | None                            |                                 |                            |
| 9/7/2016 18:40   | 2016 | Rear End                    | 0            | 0          | 0         | 0          | PDO                  | wet             | Daylight                | Northbound | T           | SE NEWPORT WY | LAKEMONT BD SE  | Exceeding Reasonable Safe Speed |                                 |                            |
| 9/7/2016 18:40   | 2016 | Rear End                    | 0            | 0          | 0         | 0          | PDO                  | wet             | Daylight                | Northbound | T           | SE NEWPORT WY | LAKEMONT BD SE  | None                            |                                 |                            |
| 8/20/2016 15:53  | 2016 | Rear End                    | 2            | 0          | 0         | 0          | Possible Injury      | dry             | Daylight                | Southbound | T           | SE NEWPORT WY | LAKEMONT BD SE  | Other * (List in Narrative)     |                                 |                            |
| 8/20/2016 15:53  | 2016 | Rear End                    | 2            | 0          | 0         | 0          | Possible Injury      | dry             | Daylight                | Southbound | T           | SE NEWPORT WY | LAKEMONT BD SE  | None                            |                                 |                            |
| 5/3/2016 7:25    | 2016 | Rear End                    | 0            | 0          | 0         | 0          | PDO                  | dry             | Daylight                | Northbound | RT          | SE NEWPORT WY | LAKEMONT BD SE  | Inattention                     | Did Not Grant R/W to Vehicle    |                            |
| 5/3/2016 7:25    | 2016 | Rear End                    | 0            | 0          | 0         | 0          | PDO                  | dry             | Daylight                | Northbound | RT          | SE NEWPORT WY | LAKEMONT BD SE  | None                            |                                 |                            |
| 4/21/2016 11:32  | 2016 | Rear End                    | 0            | 1          | 0         | 0          | Non-Disabling Injury | dry             | Daylight                | Northbound | T           | SE NEWPORT WY | LAKEMONT BD SE  | Inattention                     | Following Too Closely           |                            |
| 4/21/2016 11:32  | 2016 | Rear End                    | 0            | 1          | 0         | 0          | Non-Disabling Injury | dry             | Daylight                | Northbound | T           | SE NEWPORT WY | LAKEMONT BD SE  | None                            |                                 |                            |
| 12/22/2015 10:17 | 2015 | Rear End                    | 0            | 0          | 0         | 0          | PDO                  | wet             | Daylight                | Southbound | T           | SE NEWPORT WY | LAKEMONT BD SE  | Exceeding Reasonable Safe Speed |                                 |                            |
| 12/22/2015 10:17 | 2015 | Rear End                    | 0            | 0          | 0         | 0          | PDO                  | wet             | Daylight                | Southbound | T           | SE NEWPORT WY | LAKEMONT BD SE  | None                            |                                 |                            |
| 10/1/2015 14:32  | 2015 | Sideswipe/Lane Change       | 0            | 0          | 0         | 0          | PDO                  | dry             | Daylight                | Southbound | T           | SE NEWPORT WY | LAKEMONT BD SE  | Did Not Grant R/W to Vehicle    |                                 |                            |
| 10/1/2015 14:32  | 2015 | Sideswipe/Lane Change       | 0            | 0          | 0         | 0          | PDO                  | dry             | Daylight                | Southbound | T           | SE NEWPORT WY | LAKEMONT BD SE  | None                            |                                 |                            |
| 5/29/2015 16:38  | 2015 | Rear End                    | 0            | 0          | 0         | 0          | PDO                  | dry             | Daylight                | Northbound | RT          | SE NEWPORT WY | LAKEMONT BD SE  | Inattention                     |                                 |                            |
| 5/29/2015 16:38  | 2015 | Rear End                    | 0            | 0          | 0         | 0          | PDO                  | dry             | Daylight                | Northbound | RT          | SE NEWPORT WY | LAKEMONT BD SE  | None                            |                                 |                            |
| 10/16/2014 8:13  | 2014 | Rear End                    | 0            | 0          | 0         | 0          | PDO                  | dry             | Daylight                | Westbound  | T           | SE NEWPORT WY | LAKEMONT BD SE  | Inattention                     |                                 |                            |
| 10/16/2014 8:13  | 2014 | Rear End                    | 0            | 0          | 0         | 0          | PDO                  | dry             | Daylight                | Westbound  | T           | SE NEWPORT WY | LAKEMONT BD SE  | None                            |                                 |                            |
| 10/15/2014 11:25 | 2014 | Sideswipe/Lane Change       | 0            | 0          | 0         | 0          | PDO                  | wet             | Daylight                | Northbound | T           | SE NEWPORT WY | LAKEMONT BD SE  | Inattention                     |                                 |                            |
| 10/15/2014 11:25 | 2014 | Sideswipe/Lane Change       | 0            | 0          | 0         | 0          | PDO                  | wet             | Daylight                | Northbound | T           | SE NEWPORT WY | LAKEMONT BD SE  | None                            |                                 |                            |
| 8/5/2014 7:13    | 2014 | Parked Vehicle/Fixed Object | 0            | 6          | 0         | 0          | Non-Disabling Injury | dry             | Daylight                | Northbound | RT          | SE NEWPORT WY | LAKEMONT BD SE  | Inattention                     |                                 |                            |
| 6/23/2014 17:01  | 2014 | Rear End                    | 0            | 0          | 0         | 0          | PDO                  | dry             | Daylight                | Northbound | RT          | SE NEWPORT WY | LAKEMONT BD SE  | Exceeding Reasonable Safe Speed |                                 |                            |
| 6/23/2014 17:01  | 2014 | Rear End                    | 0            | 0          | 0         | 0          | PDO                  | dry             | Daylight                | Northbound | RT          | SE NEWPORT WY | LAKEMONT BD SE  | None                            |                                 |                            |
| 5/29/2014 19:31  | 2014 | Parked Vehicle/Fixed Object | 0            | 1          | 0         | 0          | Non-Disabling Injury | dry             | Daylight                | Northbound | T           | SE NEWPORT WY | LAKEMONT BD SE  | Under Influence of Alcohol      |                                 |                            |
| 10/27/2013 14:19 | 2013 | Rear End                    | 0            | 0          | 0         | 0          | PDO                  | wet             | Daylight                | Northbound | T           | SE NEWPORT WY | LAKEMONT BD SE  | Inattention                     | Exceeding Reasonable Safe Speed | Unknown driver distraction |
| 10/27/2013 14:19 | 2013 | Rear End                    | 0            | 0          | 0         | 0          | PDO                  | wet             | Daylight                | Northbound | T           | SE NEWPORT WY | LAKEMONT BD SE  | None                            |                                 |                            |
| 6/8/2013 17:40   | 2013 | Right Angle                 | 0            | 0          | 0         | 0          | PDO                  | dry             | Daylight                | Westbound  | T           | SE NEWPORT WY | LAKEMONT BD SE  | Disregard Stop and Go Signal    |                                 |                            |
| 6/8/2013 17:40   | 2013 | Right Angle                 | 0            | 0          | 0         | 0          | PDO                  | dry             | Daylight                | Northbound | T           | SE NEWPORT WY | LAKEMONT BD SE  | None                            |                                 |                            |
| 6/8/2013 17:40   | 2013 | Right Angle                 | 0            | 0          | 0         | 0          | PDO                  | dry             | Daylight                | Southbound | T           | SE NEWPORT WY | LAKEMONT BD SE  | None                            |                                 |                            |
| 2/8/2013 12:30   | 2013 | Rear End                    | 1            | 0          | 0         | 0          | Possible Injury      | dry             | Daylight                | Southbound | T           | SE NEWPORT WY | LAKEMONT BD SE  | Exceeding Reasonable Safe Speed |                                 |                            |
| 2/8/2013 12:30   | 2013 | Rear End                    | 1            | 0          | 0         | 0          | Possible Injury      | dry             | Daylight                | Southbound | T           | SE NEWPORT WY | LAKEMONT BD SE  | None                            |                                 |                            |



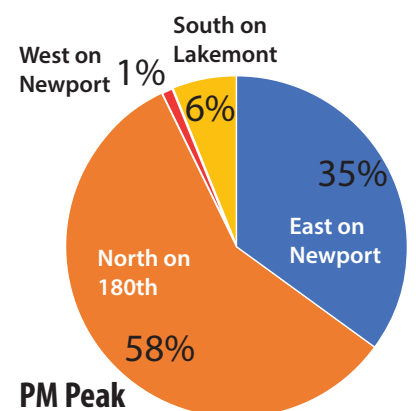
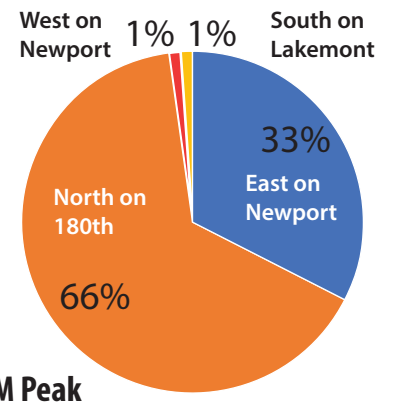
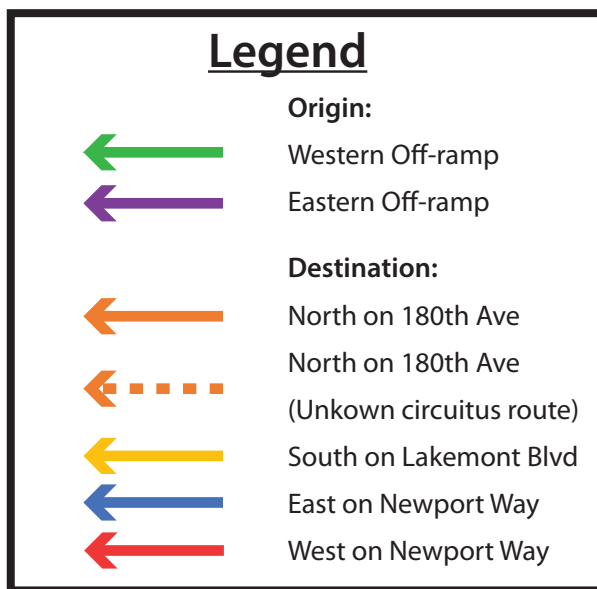
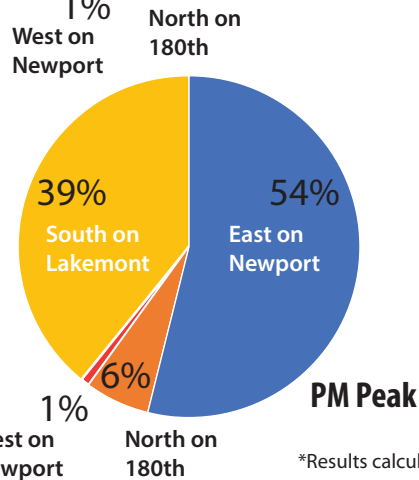
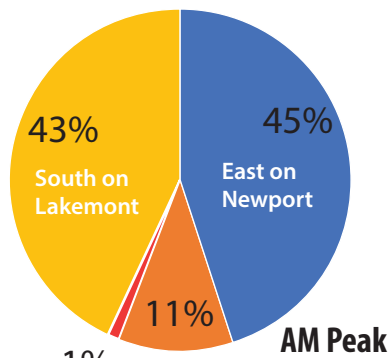
## APPENDIX C: ORIGIN-DESTINATION STUDY

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## Bellevue Exit 13 Origin-Destination Analysis



\*Results calculated using Streetlight data from 2017-2018 calibrated with WSDOT 2017 AADT counts at each ramp.



# APPENDIX D: TRAFFIC ANALYSIS

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Lanes, Volumes, Timings  
228: Lakemont Blvd & Newport Way

05/28/2019



| Lane Group                 | EBL   | EBT   | EBR   | WBL   | WBT   | WBR   | NBL   | NBT   | NBR   | SBL   | SBT   | SBR   |
|----------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Lane Configurations        |       |       |       |       |       |       |       |       |       |       |       |       |
| Traffic Volume (vph)       | 30    | 42    | 7     | 67    | 177   | 519   | 18    | 658   | 295   | 222   | 354   | 65    |
| Future Volume (vph)        | 30    | 42    | 7     | 67    | 177   | 519   | 18    | 658   | 295   | 222   | 354   | 65    |
| Ideal Flow (vphpl)         | 1900  | 1900  | 1900  | 1900  | 1900  | 1900  | 1900  | 1900  | 1900  | 1900  | 1900  | 1900  |
| Storage Length (ft)        | 200   |       | 0     | 140   |       | 140   | 40    |       | 275   | 0     |       | 285   |
| Storage Lanes              | 1     |       | 0     | 1     |       | 1     | 1     |       | 1     | 1     |       | 1     |
| Taper Length (ft)          | 75    |       |       | 75    |       |       | 100   |       |       | 150   |       |       |
| Lane Util. Factor          | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 0.95  | 0.95  | 0.91  | 0.91  | 1.00  |
| Ped Bike Factor            | 1.00  | 1.00  |       | 1.00  |       | 0.98  | 1.00  |       |       |       |       | 0.98  |
| Frt                        |       | 0.979 |       |       |       | 0.850 |       | 0.954 |       |       |       | 0.850 |
| Flt Protected              | 0.950 |       |       | 0.950 |       |       | 0.950 |       |       | 0.950 | 0.995 |       |
| Satd. Flow (prot)          | 1736  | 1785  | 0     | 1770  | 1863  | 1583  | 1787  | 3410  | 0     | 1579  | 3308  | 1553  |
| Flt Permitted              | 0.950 |       |       | 0.950 |       |       | 0.950 |       |       | 0.950 | 0.995 |       |
| Satd. Flow (perm)          | 1734  | 1785  | 0     | 1764  | 1863  | 1559  | 1783  | 3410  | 0     | 1579  | 3308  | 1515  |
| Right Turn on Red          |       |       | Yes   |       |       | Yes   |       |       | Yes   |       |       | Yes   |
| Satd. Flow (RTOR)          |       | 8     |       |       |       | 233   |       | 72    |       |       |       | 125   |
| Link Speed (mph)           |       | 40    |       |       | 30    |       |       | 40    |       |       |       | 30    |
| Link Distance (ft)         |       | 989   |       |       | 412   |       |       | 695   |       |       |       | 444   |
| Travel Time (s)            |       | 16.9  |       |       | 9.4   |       |       | 23.7  |       |       |       | 9.1   |
| Confl. Peds. (#/hr)        | 1     |       | 2     | 2     |       | 1     | 1     |       |       |       |       | 1     |
| Confl. Bikes (#/hr)        |       |       |       |       |       | 2     |       |       |       |       |       |       |
| Peak Hour Factor           | 0.76  | 0.76  | 0.76  | 0.88  | 0.88  | 0.88  | 0.91  | 0.91  | 0.91  | 0.92  | 0.92  | 0.92  |
| Heavy Vehicles (%)         | 4%    | 4%    | 4%    | 2%    | 2%    | 2%    | 1%    | 1%    | 1%    | 4%    | 4%    | 4%    |
| Adj. Flow (vph)            | 39    | 55    | 9     | 76    | 201   | 590   | 20    | 723   | 324   | 241   | 385   | 71    |
| Shared Lane Traffic (%)    |       |       |       |       |       |       |       |       |       | 16%   |       |       |
| Lane Group Flow (vph)      | 39    | 64    | 0     | 76    | 201   | 590   | 20    | 1047  | 0     | 202   | 424   | 71    |
| Enter Blocked Intersection | No    | No    | No    | No    | No    | No    | No    | No    | No    | No    | No    | No    |
| Lane Alignment             | Left  | Left  | Right | Left  | Left  | Right | Left  | Left  | Right | Left  | Left  | Right |
| Median Width(ft)           |       | 12    |       |       | 12    |       |       | 12    |       |       |       | 12    |
| Link Offset(ft)            |       | 0     |       |       | 0     |       |       | 0     |       |       |       | 0     |
| Crosswalk Width(ft)        |       | 10    |       |       | 10    |       |       | 10    |       |       |       | 10    |
| Two way Left Turn Lane     |       |       |       |       |       |       |       |       |       |       |       |       |
| Headway 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  |
| Turning Speed (mph)        | 15    |       | 9     | 15    |       | 9     | 15    |       | 9     | 15    |       | 9     |
| Number of Detectors        | 3     | 2     |       | 2     | 4     | 2     | 2     | 2     |       | 2     | 3     | 2     |
| Detector Template          |       |       |       |       |       |       |       |       |       |       |       |       |
| Leading Detector (ft)      | 156   | 100   |       | 100   | 236   | 100   | 100   | 100   |       | 100   | 176   | 100   |
| Trailing Detector (ft)     | 2     | 2     |       | 2     | 2     | 2     | 2     | 2     |       | 2     | 2     | 2     |
| Detector 1 Position(ft)    | 2     | 2     |       | 2     | 2     | 2     | 2     | 2     |       | 2     | 2     | 2     |
| Detector 1 Size(ft)        | 6     | 6     |       | 6     | 6     | 6     | 6     | 6     |       | 6     | 6     | 6     |
| Detector 1 Type            | Cl+Ex | Cl+Ex |       | Cl+Ex | Cl+Ex | Cl+Ex | Cl+Ex | Cl+Ex |       | Cl+Ex | Cl+Ex | Cl+Ex |
| Detector 1 Channel         |       |       |       |       |       |       |       |       |       |       |       |       |
| Detector 1 Extend (s)      | 0.0   | 0.0   |       | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |       | 0.0   | 0.0   | 0.0   |
| Detector 1 Queue (s)       | 0.0   | 0.0   |       | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |       | 0.0   | 0.0   | 0.0   |
| Detector 1 Delay (s)       | 0.0   | 0.0   |       | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |       | 0.0   | 0.0   | 0.0   |
| Detector 2 Position(ft)    | 94    | 94    |       | 94    | 94    | 94    | 94    | 94    |       | 94    | 94    | 94    |
| Detector 2 Size(ft)        | 6     | 6     |       | 6     | 6     | 6     | 6     | 6     |       | 6     | 6     | 6     |
| Detector 2 Type            | Cl+Ex | Cl+Ex |       | Cl+Ex | Cl+Ex | Cl+Ex | Cl+Ex | Cl+Ex |       | Cl+Ex | Cl+Ex | Cl+Ex |
| Detector 2 Channel         |       |       |       |       |       |       |       |       |       |       |       |       |

Lanes, Volumes, Timings  
228: Lakemont Blvd & Newport Way

05/28/2019



| Lane Group              | EBL   | EBT   | EBR | WBL   | WBT   | WBR   | NBL   | NBT   | NBR | SBL   | SBT   | SBR   |
|-------------------------|-------|-------|-----|-------|-------|-------|-------|-------|-----|-------|-------|-------|
| Detector 2 Extend (s)   | 0.0   | 0.0   |     | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |     | 0.0   | 0.0   | 0.0   |
| Detector 3 Position(ft) | 150   |       |     |       | 150   |       |       |       |     |       | 170   |       |
| Detector 3 Size(ft)     | 6     |       |     |       | 6     |       |       |       |     |       | 6     |       |
| Detector 3 Type         | Cl+Ex |       |     |       | Cl+Ex |       |       |       |     |       | Cl+Ex |       |
| Detector 3 Channel      |       |       |     |       |       |       |       |       |     |       |       |       |
| Detector 3 Extend (s)   | 0.0   |       |     |       | 0.0   |       |       |       |     |       | 0.0   |       |
| Detector 4 Position(ft) |       |       |     |       | 230   |       |       |       |     |       |       |       |
| Detector 4 Size(ft)     |       |       |     |       | 6     |       |       |       |     |       |       |       |
| Detector 4 Type         |       |       |     |       | Cl+Ex |       |       |       |     |       |       |       |
| Detector 4 Channel      |       |       |     |       |       |       |       |       |     |       |       |       |
| Detector 4 Extend (s)   |       |       |     |       | 0.0   |       |       |       |     |       |       |       |
| Turn Type               | Prot  | NA    |     | Prot  | NA    | pm+ov | Split | NA    |     | Split | NA    | Perm  |
| Protected Phases        | 3     | 8     |     | 7     | 4     | 2     | 1     | 1     |     | 2     | 2     |       |
| Permitted Phases        |       |       |     |       |       | 4     |       |       |     |       |       | 2     |
| Detector Phase          | 3     | 8     |     | 7     | 4     | 2     | 1     | 1     |     | 2     | 2     | 2     |
| Switch Phase            |       |       |     |       |       |       |       |       |     |       |       |       |
| Minimum Initial (s)     | 5.0   | 12.0  |     | 5.0   | 12.0  | 5.0   | 7.0   | 7.0   |     | 5.0   | 5.0   | 5.0   |
| Minimum Split (s)       | 10.0  | 23.5  |     | 10.0  | 24.5  | 17.5  | 25.5  | 25.5  |     | 17.5  | 17.5  | 17.5  |
| Total Split (s)         | 15.0  | 25.0  |     | 15.0  | 25.0  | 28.0  | 32.0  | 32.0  |     | 28.0  | 28.0  | 28.0  |
| Total Split (%)         | 15.0% | 25.0% |     | 15.0% | 25.0% | 28.0% | 32.0% | 32.0% |     | 28.0% | 28.0% | 28.0% |
| Maximum Green (s)       | 10.5  | 20.5  |     | 10.5  | 20.5  | 22.5  | 26.5  | 26.5  |     | 22.5  | 22.5  | 22.5  |
| Yellow Time (s)         | 3.5   | 3.5   |     | 3.5   | 3.5   | 4.5   | 4.5   | 4.5   |     | 4.5   | 4.5   | 4.5   |
| All-Red Time (s)        | 1.0   | 1.0   |     | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   |     | 1.0   | 1.0   | 1.0   |
| Lost Time Adjust (s)    | -2.0  | -2.0  |     | -2.0  | -2.0  | -2.0  | -2.0  | -2.0  |     | -2.0  | -2.0  | -2.0  |
| Total Lost Time (s)     | 2.5   | 2.5   |     | 2.5   | 2.5   | 3.5   | 3.5   | 3.5   |     | 3.5   | 3.5   | 3.5   |
| Lead/Lag                | Lead  | Lag   |     | Lead  | Lag   | Lead  | Lag   | Lag   |     | Lead  | Lead  | Lead  |
| Lead-Lag Optimize?      | Yes   | Yes   |     | Yes   | Yes   | Yes   | Yes   | Yes   |     | Yes   | Yes   | Yes   |
| Vehicle Extension (s)   | 2.0   | 2.0   |     | 2.0   | 2.0   | 2.0   | 2.0   | 2.0   |     | 2.0   | 2.0   | 2.0   |
| Minimum Gap (s)         | 2.0   | 2.0   |     | 2.0   | 2.0   | 2.0   | 2.0   | 2.0   |     | 2.0   | 2.0   | 2.0   |
| Time Before Reduce (s)  | 0.0   | 0.0   |     | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |     | 0.0   | 0.0   | 0.0   |
| Time To Reduce (s)      | 5.0   | 5.0   |     | 5.0   | 5.0   | 5.0   | 5.0   | 5.0   |     | 5.0   | 5.0   | 5.0   |
| Recall Mode             | None  | 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   | 5.0   |
| Flash Dont Walk (s)     |       | 14.0  |     |       | 15.0  | 7.0   | 15.0  | 15.0  |     | 7.0   | 7.0   | 7.0   |
| Pedestrian Calls (#/hr) |       | 1     |     |       | 1     | 1     | 0     | 0     |     | 1     | 1     | 1     |
| Act Effct Green (s)     | 8.6   | 15.9  |     | 9.9   | 19.2  | 39.9  | 29.0  | 29.0  |     | 21.8  | 21.8  | 21.8  |
| Actuated g/C Ratio      | 0.10  | 0.18  |     | 0.11  | 0.22  | 0.46  | 0.34  | 0.34  |     | 0.25  | 0.25  | 0.25  |
| v/c Ratio               | 0.23  | 0.19  |     | 0.37  | 0.49  | 0.69  | 0.03  | 0.88  |     | 0.51  | 0.51  | 0.15  |
| Control Delay           | 42.1  | 30.5  |     | 43.6  | 35.9  | 15.0  | 23.8  | 37.3  |     | 34.2  | 31.0  | 1.6   |
| Queue Delay             | 0.0   | 0.0   |     | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |     | 0.0   | 0.0   | 0.0   |
| Total Delay             | 42.1  | 30.5  |     | 43.6  | 35.9  | 15.0  | 23.8  | 37.3  |     | 34.2  | 31.0  | 1.6   |
| LOS                     | D     | C     |     | D     | D     | B     | C     | D     |     | C     | C     | A     |
| Approach Delay          |       | 34.9  |     |       | 22.4  |       |       | 37.0  |     |       | 28.9  |       |
| Approach LOS            |       | C     |     |       | C     |       |       | D     |     |       | C     |       |

Intersection Summary

Area Type: Other

Cycle Length: 100

Actuated Cycle Length: 86.4



Lanes, Volumes, Timings  
228: Lakemont Blvd & Newport Way

05/28/2019



| Lane Group                 | EBL   | EBT   | EBR   | WBL   | WBT   | WBR   | NBL   | NBT   | NBR   | SBL   | SBT   | SBR   |
|----------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Lane Configurations        |       |       |       |       |       |       |       |       |       |       |       |       |
| Traffic Volume (vph)       | 31    | 181   | 7     | 96    | 47    | 130   | 7     | 263   | 265   | 828   | 1039  | 140   |
| Future Volume (vph)        | 31    | 181   | 7     | 96    | 47    | 130   | 7     | 263   | 265   | 828   | 1039  | 140   |
| Ideal Flow (vphpl)         | 1900  | 1900  | 1900  | 1900  | 1900  | 1900  | 1900  | 1900  | 1900  | 1900  | 1900  | 1900  |
| Storage Length (ft)        | 200   |       | 0     | 140   |       | 140   | 40    |       | 275   | 0     |       | 285   |
| Storage Lanes              | 1     |       | 0     | 1     |       | 1     | 1     |       | 1     | 1     |       | 1     |
| Taper Length (ft)          | 75    |       |       | 75    |       |       | 100   |       |       | 150   |       |       |
| Lane Util. Factor          | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 0.95  | 0.95  | 0.91  | 0.91  | 1.00  |
| Ped Bike Factor            | 1.00  | 1.00  |       |       |       | 0.98  | 1.00  |       |       |       |       | 0.97  |
| Frt                        |       | 0.995 |       |       |       | 0.850 |       | 0.925 |       |       |       | 0.850 |
| Flt Protected              | 0.950 |       |       | 0.950 |       |       | 0.950 |       |       | 0.950 | 0.991 |       |
| Satd. Flow (prot)          | 1752  | 1834  | 0     | 1805  | 1900  | 1615  | 1752  | 3242  | 0     | 1626  | 3393  | 1599  |
| Flt Permitted              | 0.950 |       |       | 0.950 |       |       | 0.950 |       |       | 0.950 | 0.991 |       |
| Satd. Flow (perm)          | 1749  | 1834  | 0     | 1805  | 1900  | 1590  | 1751  | 3242  | 0     | 1626  | 3393  | 1559  |
| Right Turn on Red          |       |       | Yes   |       |       | Yes   |       |       | Yes   |       |       | Yes   |
| Satd. Flow (RTOR)          |       | 1     |       |       |       | 178   |       | 175   |       |       |       | 115   |
| Link Speed (mph)           |       | 40    |       |       | 30    |       |       | 40    |       |       |       | 30    |
| Link Distance (ft)         |       | 989   |       |       | 412   |       |       | 695   |       |       |       | 444   |
| Travel Time (s)            |       | 16.9  |       |       | 9.4   |       |       | 23.7  |       |       |       | 9.1   |
| Confl. Peds. (#/hr)        | 1     |       |       |       |       |       | 1     | 1     |       |       |       | 1     |
| Confl. Bikes (#/hr)        |       |       | 2     |       |       | 1     |       |       |       |       |       |       |
| Peak Hour Factor           | 0.75  | 0.75  | 0.75  | 0.73  | 0.73  | 0.73  | 0.94  | 0.94  | 0.94  | 0.96  | 0.96  | 0.96  |
| Heavy Vehicles (%)         | 3%    | 3%    | 3%    | 0%    | 0%    | 0%    | 3%    | 3%    | 3%    | 1%    | 1%    | 1%    |
| Adj. Flow (vph)            | 41    | 241   | 9     | 132   | 64    | 178   | 7     | 280   | 282   | 863   | 1082  | 146   |
| Shared Lane Traffic (%)    |       |       |       |       |       |       |       |       |       | 27%   |       |       |
| Lane Group Flow (vph)      | 41    | 250   | 0     | 132   | 64    | 178   | 7     | 562   | 0     | 630   | 1315  | 146   |
| Enter Blocked Intersection | No    | No    | No    | No    | No    | No    | No    | No    | No    | No    | No    | No    |
| Lane Alignment             | Left  | Left  | Right | Left  | Left  | Right | Left  | Left  | Right | Left  | Left  | Right |
| Median Width(ft)           |       | 12    |       |       | 12    |       |       | 12    |       |       |       | 12    |
| Link Offset(ft)            |       | 0     |       |       | 0     |       |       | 0     |       |       |       | 0     |
| Crosswalk Width(ft)        |       | 10    |       |       | 10    |       |       | 10    |       |       |       | 10    |
| Two way Left Turn Lane     |       |       |       |       |       |       |       |       |       |       |       |       |
| Headway 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  |
| Turning Speed (mph)        | 15    |       | 9     | 15    |       | 9     | 15    |       | 9     | 15    |       | 9     |
| Number of Detectors        | 3     | 2     |       | 2     | 4     | 2     | 2     | 2     |       | 2     | 3     | 2     |
| Detector Template          |       |       |       |       |       |       |       |       |       |       |       |       |
| Leading Detector (ft)      | 156   | 100   |       | 100   | 236   | 100   | 100   | 100   |       | 100   | 176   | 100   |
| Trailing Detector (ft)     | 2     | 2     |       | 2     | 2     | 2     | 2     | 2     |       | 2     | 2     | 2     |
| Detector 1 Position(ft)    | 2     | 2     |       | 2     | 2     | 2     | 2     | 2     |       | 2     | 2     | 2     |
| Detector 1 Size(ft)        | 6     | 6     |       | 6     | 6     | 6     | 6     | 6     |       | 6     | 6     | 6     |
| Detector 1 Type            | Cl+Ex | Cl+Ex |       | Cl+Ex | Cl+Ex | Cl+Ex | Cl+Ex | Cl+Ex |       | Cl+Ex | Cl+Ex | Cl+Ex |
| Detector 1 Channel         |       |       |       |       |       |       |       |       |       |       |       |       |
| Detector 1 Extend (s)      | 0.0   | 0.0   |       | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |       | 0.0   | 0.0   | 0.0   |
| Detector 1 Queue (s)       | 0.0   | 0.0   |       | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |       | 0.0   | 0.0   | 0.0   |
| Detector 1 Delay (s)       | 0.0   | 0.0   |       | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |       | 0.0   | 0.0   | 0.0   |
| Detector 2 Position(ft)    | 94    | 94    |       | 94    | 94    | 94    | 94    | 94    |       | 94    | 94    | 94    |
| Detector 2 Size(ft)        | 6     | 6     |       | 6     | 6     | 6     | 6     | 6     |       | 6     | 6     | 6     |
| Detector 2 Type            | Cl+Ex | Cl+Ex |       | Cl+Ex | Cl+Ex | Cl+Ex | Cl+Ex | Cl+Ex |       | Cl+Ex | Cl+Ex | Cl+Ex |
| Detector 2 Channel         |       |       |       |       |       |       |       |       |       |       |       |       |

Lanes, Volumes, Timings  
228: Lakemont Blvd & Newport Way

05/28/2019



| Lane Group              | EBL   | EBT   | EBR | WBL   | WBT   | WBR   | NBL   | NBT   | NBR | SBL   | SBT   | SBR   |
|-------------------------|-------|-------|-----|-------|-------|-------|-------|-------|-----|-------|-------|-------|
| Detector 2 Extend (s)   | 0.0   | 0.0   |     | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |     | 0.0   | 0.0   | 0.0   |
| Detector 3 Position(ft) | 150   |       |     |       | 150   |       |       |       |     |       | 170   |       |
| Detector 3 Size(ft)     | 6     |       |     |       | 6     |       |       |       |     |       | 6     |       |
| Detector 3 Type         | Cl+Ex |       |     |       | Cl+Ex |       |       |       |     |       | Cl+Ex |       |
| Detector 3 Channel      |       |       |     |       |       |       |       |       |     |       |       |       |
| Detector 3 Extend (s)   | 0.0   |       |     |       | 0.0   |       |       |       |     |       | 0.0   |       |
| Detector 4 Position(ft) |       |       |     |       | 230   |       |       |       |     |       |       |       |
| Detector 4 Size(ft)     |       |       |     |       | 6     |       |       |       |     |       |       |       |
| Detector 4 Type         |       |       |     |       | Cl+Ex |       |       |       |     |       |       |       |
| Detector 4 Channel      |       |       |     |       |       |       |       |       |     |       |       |       |
| Detector 4 Extend (s)   |       |       |     |       | 0.0   |       |       |       |     |       |       |       |
| Turn Type               | Prot  | NA    |     | Prot  | NA    | pm+ov | Split | NA    |     | Split | NA    | Perm  |
| Protected Phases        | 3     | 8     |     | 7     | 4     | 2     | 1     | 1     |     | 2     | 2     |       |
| Permitted Phases        |       |       |     |       |       | 4     |       |       |     |       |       | 2     |
| Detector Phase          | 3     | 8     |     | 7     | 4     | 2     | 1     | 1     |     | 2     | 2     | 2     |
| Switch Phase            |       |       |     |       |       |       |       |       |     |       |       |       |
| Minimum Initial (s)     | 5.0   | 12.0  |     | 5.0   | 12.0  | 5.0   | 7.0   | 7.0   |     | 5.0   | 5.0   | 5.0   |
| Minimum Split (s)       | 10.0  | 23.5  |     | 10.0  | 24.5  | 17.5  | 25.5  | 25.5  |     | 17.5  | 17.5  | 17.5  |
| Total Split (s)         | 18.0  | 27.0  |     | 18.0  | 27.0  | 55.0  | 30.0  | 30.0  |     | 55.0  | 55.0  | 55.0  |
| Total Split (%)         | 13.8% | 20.8% |     | 13.8% | 20.8% | 42.3% | 23.1% | 23.1% |     | 42.3% | 42.3% | 42.3% |
| Maximum Green (s)       | 13.5  | 22.5  |     | 13.5  | 22.5  | 49.5  | 24.5  | 24.5  |     | 49.5  | 49.5  | 49.5  |
| Yellow Time (s)         | 3.5   | 3.5   |     | 3.5   | 3.5   | 4.5   | 4.5   | 4.5   |     | 4.5   | 4.5   | 4.5   |
| All-Red Time (s)        | 1.0   | 1.0   |     | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   |     | 1.0   | 1.0   | 1.0   |
| Lost Time Adjust (s)    | -2.0  | -2.0  |     | -2.0  | -2.0  | -2.0  | -2.0  | -2.0  |     | -2.0  | -2.0  | -2.0  |
| Total Lost Time (s)     | 2.5   | 2.5   |     | 2.5   | 2.5   | 3.5   | 3.5   | 3.5   |     | 3.5   | 3.5   | 3.5   |
| Lead/Lag                | Lead  | Lag   |     | Lead  | Lag   | Lead  | Lag   | Lag   |     | Lead  | Lead  | Lead  |
| Lead-Lag Optimize?      | Yes   | Yes   |     | Yes   | Yes   | Yes   | Yes   | Yes   |     | Yes   | Yes   | Yes   |
| Vehicle Extension (s)   | 2.0   | 2.0   |     | 2.0   | 2.0   | 2.0   | 2.0   | 2.0   |     | 2.0   | 2.0   | 2.0   |
| Minimum Gap (s)         | 2.0   | 2.0   |     | 2.0   | 2.0   | 2.0   | 2.0   | 2.0   |     | 2.0   | 2.0   | 2.0   |
| Time Before Reduce (s)  | 0.0   | 0.0   |     | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |     | 0.0   | 0.0   | 0.0   |
| Time To Reduce (s)      | 5.0   | 5.0   |     | 5.0   | 5.0   | 5.0   | 5.0   | 5.0   |     | 5.0   | 5.0   | 5.0   |
| Recall Mode             | None  | 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   | 5.0   |
| Flash Dont Walk (s)     |       | 14.0  |     |       | 15.0  | 7.0   | 15.0  | 15.0  |     | 7.0   | 7.0   | 7.0   |
| Pedestrian Calls (#/hr) |       | 0     |     |       | 1     | 1     | 0     | 0     |     | 1     | 1     | 1     |
| Act Effct Green (s)     | 9.4   | 21.0  |     | 13.6  | 27.5  | 78.4  | 21.0  | 21.0  |     | 51.9  | 51.9  | 51.9  |
| Actuated g/C Ratio      | 0.08  | 0.18  |     | 0.11  | 0.23  | 0.66  | 0.18  | 0.18  |     | 0.43  | 0.43  | 0.43  |
| v/c Ratio               | 0.30  | 0.77  |     | 0.65  | 0.15  | 0.16  | 0.02  | 0.79  |     | 0.89  | 0.89  | 0.20  |
| Control Delay           | 60.5  | 64.6  |     | 67.6  | 40.7  | 1.7   | 42.0  | 41.2  |     | 49.9  | 41.9  | 7.8   |
| Queue Delay             | 0.0   | 0.0   |     | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |     | 0.0   | 0.0   | 0.0   |
| Total Delay             | 60.5  | 64.6  |     | 67.6  | 40.7  | 1.7   | 42.0  | 41.2  |     | 49.9  | 41.9  | 7.8   |
| LOS                     | E     | E     |     | E     | D     | A     | D     | D     |     | D     | D     | A     |
| Approach Delay          |       | 64.0  |     |       | 31.6  |       |       | 41.2  |     |       | 41.9  |       |
| Approach LOS            |       | E     |     |       | C     |       |       | D     |     |       | D     |       |

Intersection Summary

Area Type: Other

Cycle Length: 130







Actuated Cycle Length: 119.6

Lanes, Volumes, Timings  
 228: Lakemont Blvd & Newport Way

05/28/2019

|   |                        |
|---|------------------------|
| Natural Cycle: 100                      |                        |
| Control Type: Actuated-Uncoordinated    |                        |
| Maximum v/c Ratio: 0.89                 |                        |
| Intersection Signal Delay: 42.6         | Intersection LOS: D    |
| Intersection Capacity Utilization 79.6% | ICU Level of Service D |
| Analysis Period (min) 15                |                        |

Splits and Phases: 228: Lakemont Blvd & Newport Way

|  |  |  |  |
|--|--|--|--|
|  Ø2 |  Ø1 |  Ø3 |  Ø4 |
| 55 s   | 30 s   | 18 s   | 27 s   |
|  |  |  Ø7 |  Ø8 |
|  |  | 18 s   | 27 s   |

Lanes, Volumes, Timings  
228: Lakemont Blvd & Newport Way

05/28/2019



| Lane Group                 | EBL   | EBT   | EBR   | WBL   | WBT   | WBR   | NBL   | NBT   | NBR   | SBL   | SBT   | SBR   |
|----------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Lane Configurations        |       |       |       |       |       |       |       |       |       |       |       |       |
| Traffic Volume (vph)       | 30    | 60    | 10    | 40    | 220   | 480   | 20    | 600   | 330   | 370   | 340   | 120   |
| Future Volume (vph)        | 30    | 60    | 10    | 40    | 220   | 480   | 20    | 600   | 330   | 370   | 340   | 120   |
| Ideal Flow (vphpl)         | 1900  | 1900  | 1900  | 1900  | 1900  | 1900  | 1900  | 1900  | 1900  | 1900  | 1900  | 1900  |
| Storage Length (ft)        | 200   |       | 0     | 140   |       | 140   | 40    |       | 275   | 0     |       | 285   |
| Storage Lanes              | 1     |       | 0     | 1     |       | 1     | 1     |       | 1     | 1     |       | 1     |
| Taper Length (ft)          | 75    |       |       | 75    |       |       | 100   |       |       | 150   |       |       |
| Lane Util. Factor          | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 0.95  | 0.95  | 0.91  | 0.91  | 1.00  |
| Ped Bike Factor            | 1.00  | 1.00  |       | 1.00  |       | 0.98  | 1.00  |       |       |       |       | 0.98  |
| Frt                        |       | 0.979 |       |       |       | 0.850 |       | 0.947 |       |       |       | 0.850 |
| Flt Protected              | 0.950 |       |       | 0.950 |       |       | 0.950 |       |       | 0.950 | 0.986 |       |
| Satd. Flow (prot)          | 1736  | 1785  | 0     | 1770  | 1863  | 1583  | 1787  | 3385  | 0     | 1579  | 3278  | 1553  |
| Flt Permitted              | 0.950 |       |       | 0.950 |       |       | 0.950 |       |       | 0.950 | 0.986 |       |
| Satd. Flow (perm)          | 1734  | 1785  | 0     | 1765  | 1863  | 1559  | 1784  | 3385  | 0     | 1579  | 3278  | 1515  |
| Right Turn on Red          |       |       | Yes   |       |       | Yes   |       |       | Yes   |       |       | Yes   |
| Satd. Flow (RTOR)          |       | 8     |       |       |       | 243   |       | 104   |       |       |       | 130   |
| Link Speed (mph)           |       | 40    |       |       | 30    |       |       | 40    |       |       |       | 30    |
| Link Distance (ft)         |       | 989   |       |       | 412   |       |       | 695   |       |       |       | 444   |
| Travel Time (s)            |       | 16.9  |       |       | 9.4   |       |       | 23.7  |       |       |       | 9.1   |
| Confl. Peds. (#/hr)        | 1     |       | 2     | 2     |       | 1     | 1     |       |       |       |       | 1     |
| Confl. Bikes (#/hr)        |       |       |       |       |       | 2     |       |       |       |       |       |       |
| Peak Hour Factor           | 0.76  | 0.76  | 0.76  | 0.88  | 0.88  | 0.88  | 0.91  | 0.91  | 0.91  | 0.92  | 0.92  | 0.92  |
| Heavy Vehicles (%)         | 4%    | 4%    | 4%    | 2%    | 2%    | 2%    | 1%    | 1%    | 1%    | 4%    | 4%    | 4%    |
| Adj. Flow (vph)            | 39    | 79    | 13    | 45    | 250   | 545   | 22    | 659   | 363   | 402   | 370   | 130   |
| Shared Lane Traffic (%)    |       |       |       |       |       |       |       |       |       | 37%   |       |       |
| Lane Group Flow (vph)      | 39    | 92    | 0     | 45    | 250   | 545   | 22    | 1022  | 0     | 253   | 519   | 130   |
| Enter Blocked Intersection | No    | No    | No    | No    | No    | No    | No    | No    | No    | No    | No    | No    |
| Lane Alignment             | Left  | Left  | Right | Left  | Left  | Right | Left  | Left  | Right | Left  | Left  | Right |
| Median Width(ft)           |       | 12    |       |       | 12    |       |       | 12    |       |       |       | 12    |
| Link Offset(ft)            |       | 0     |       |       | 0     |       |       | 0     |       |       |       | 0     |
| Crosswalk Width(ft)        |       | 10    |       |       | 10    |       |       | 10    |       |       |       | 10    |
| Two way Left Turn Lane     |       |       |       |       |       |       |       |       |       |       |       |       |
| Headway 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  |
| Turning Speed (mph)        | 15    |       | 9     | 15    |       | 9     | 15    |       | 9     | 15    |       | 9     |
| Number of Detectors        | 3     | 2     |       | 2     | 4     | 2     | 2     | 2     |       | 2     | 3     | 2     |
| Detector Template          |       |       |       |       |       |       |       |       |       |       |       |       |
| Leading Detector (ft)      | 156   | 100   |       | 100   | 236   | 100   | 100   | 100   |       | 100   | 176   | 100   |
| Trailing Detector (ft)     | 2     | 2     |       | 2     | 2     | 2     | 2     | 2     |       | 2     | 2     | 2     |
| Detector 1 Position(ft)    | 2     | 2     |       | 2     | 2     | 2     | 2     | 2     |       | 2     | 2     | 2     |
| Detector 1 Size(ft)        | 6     | 6     |       | 6     | 6     | 6     | 6     | 6     |       | 6     | 6     | 6     |
| Detector 1 Type            | Cl+Ex | Cl+Ex |       | Cl+Ex | Cl+Ex | Cl+Ex | Cl+Ex | Cl+Ex |       | Cl+Ex | Cl+Ex | Cl+Ex |
| Detector 1 Channel         |       |       |       |       |       |       |       |       |       |       |       |       |
| Detector 1 Extend (s)      | 0.0   | 0.0   |       | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |       | 0.0   | 0.0   | 0.0   |
| Detector 1 Queue (s)       | 0.0   | 0.0   |       | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |       | 0.0   | 0.0   | 0.0   |
| Detector 1 Delay (s)       | 0.0   | 0.0   |       | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |       | 0.0   | 0.0   | 0.0   |
| Detector 2 Position(ft)    | 94    | 94    |       | 94    | 94    | 94    | 94    | 94    |       | 94    | 94    | 94    |
| Detector 2 Size(ft)        | 6     | 6     |       | 6     | 6     | 6     | 6     | 6     |       | 6     | 6     | 6     |
| Detector 2 Type            | Cl+Ex | Cl+Ex |       | Cl+Ex | Cl+Ex | Cl+Ex | Cl+Ex | Cl+Ex |       | Cl+Ex | Cl+Ex | Cl+Ex |
| Detector 2 Channel         |       |       |       |       |       |       |       |       |       |       |       |       |

Lanes, Volumes, Timings  
228: Lakemont Blvd & Newport Way

05/28/2019



| Lane Group              | EBL   | EBT   | EBR | WBL   | WBT   | WBR   | NBL   | NBT   | NBR | SBL   | SBT   | SBR   |
|-------------------------|-------|-------|-----|-------|-------|-------|-------|-------|-----|-------|-------|-------|
| Detector 2 Extend (s)   | 0.0   | 0.0   |     | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |     | 0.0   | 0.0   | 0.0   |
| Detector 3 Position(ft) | 150   |       |     |       | 150   |       |       |       |     |       | 170   |       |
| Detector 3 Size(ft)     | 6     |       |     |       | 6     |       |       |       |     |       | 6     |       |
| Detector 3 Type         | Cl+Ex |       |     |       | Cl+Ex |       |       |       |     |       | Cl+Ex |       |
| Detector 3 Channel      |       |       |     |       |       |       |       |       |     |       |       |       |
| Detector 3 Extend (s)   | 0.0   |       |     |       | 0.0   |       |       |       |     |       | 0.0   |       |
| Detector 4 Position(ft) |       |       |     |       | 230   |       |       |       |     |       |       |       |
| Detector 4 Size(ft)     |       |       |     |       | 6     |       |       |       |     |       |       |       |
| Detector 4 Type         |       |       |     |       | Cl+Ex |       |       |       |     |       |       |       |
| Detector 4 Channel      |       |       |     |       |       |       |       |       |     |       |       |       |
| Detector 4 Extend (s)   |       |       |     |       | 0.0   |       |       |       |     |       |       |       |
| Turn Type               | Prot  | NA    |     | Prot  | NA    | pm+ov | Split | NA    |     | Split | NA    | Perm  |
| Protected Phases        | 3     | 8     |     | 7     | 4     | 2     | 1     | 1     |     | 2     | 2     |       |
| Permitted Phases        |       |       |     |       |       | 4     |       |       |     |       |       | 2     |
| Detector Phase          | 3     | 8     |     | 7     | 4     | 2     | 1     | 1     |     | 2     | 2     | 2     |
| Switch Phase            |       |       |     |       |       |       |       |       |     |       |       |       |
| Minimum Initial (s)     | 5.0   | 12.0  |     | 5.0   | 12.0  | 5.0   | 7.0   | 7.0   |     | 5.0   | 5.0   | 5.0   |
| Minimum Split (s)       | 10.0  | 23.5  |     | 10.0  | 24.5  | 17.5  | 25.5  | 25.5  |     | 17.5  | 17.5  | 17.5  |
| Total Split (s)         | 15.0  | 25.0  |     | 15.0  | 25.0  | 28.0  | 32.0  | 32.0  |     | 28.0  | 28.0  | 28.0  |
| Total Split (%)         | 15.0% | 25.0% |     | 15.0% | 25.0% | 28.0% | 32.0% | 32.0% |     | 28.0% | 28.0% | 28.0% |
| Maximum Green (s)       | 10.5  | 20.5  |     | 10.5  | 20.5  | 22.5  | 26.5  | 26.5  |     | 22.5  | 22.5  | 22.5  |
| Yellow Time (s)         | 3.5   | 3.5   |     | 3.5   | 3.5   | 4.5   | 4.5   | 4.5   |     | 4.5   | 4.5   | 4.5   |
| All-Red Time (s)        | 1.0   | 1.0   |     | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   |     | 1.0   | 1.0   | 1.0   |
| Lost Time Adjust (s)    | -2.0  | -2.0  |     | -2.0  | -2.0  | -2.0  | -2.0  | -2.0  |     | -2.0  | -2.0  | -2.0  |
| Total Lost Time (s)     | 2.5   | 2.5   |     | 2.5   | 2.5   | 3.5   | 3.5   | 3.5   |     | 3.5   | 3.5   | 3.5   |
| Lead/Lag                | Lead  | Lag   |     | Lead  | Lag   | Lead  | Lag   | Lag   |     | Lead  | Lead  | Lead  |
| Lead-Lag Optimize?      | Yes   | Yes   |     | Yes   | Yes   | Yes   | Yes   | Yes   |     | Yes   | Yes   | Yes   |
| Vehicle Extension (s)   | 2.0   | 2.0   |     | 2.0   | 2.0   | 2.0   | 2.0   | 2.0   |     | 2.0   | 2.0   | 2.0   |
| Minimum Gap (s)         | 2.0   | 2.0   |     | 2.0   | 2.0   | 2.0   | 2.0   | 2.0   |     | 2.0   | 2.0   | 2.0   |
| Time Before Reduce (s)  | 0.0   | 0.0   |     | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |     | 0.0   | 0.0   | 0.0   |
| Time To Reduce (s)      | 5.0   | 5.0   |     | 5.0   | 5.0   | 5.0   | 5.0   | 5.0   |     | 5.0   | 5.0   | 5.0   |
| Recall Mode             | None  | 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   | 5.0   |
| Flash Dont Walk (s)     |       | 14.0  |     |       | 15.0  | 7.0   | 15.0  | 15.0  |     | 7.0   | 7.0   | 7.0   |
| Pedestrian Calls (#/hr) |       | 1     |     |       | 1     | 1     | 0     | 0     |     | 1     | 1     | 1     |
| Act Effct Green (s)     | 8.7   | 17.8  |     | 8.9   | 18.0  | 40.4  | 28.7  | 28.7  |     | 23.4  | 23.4  | 23.4  |
| Actuated g/C Ratio      | 0.10  | 0.21  |     | 0.10  | 0.21  | 0.47  | 0.33  | 0.33  |     | 0.27  | 0.27  | 0.27  |
| v/c Ratio               | 0.23  | 0.25  |     | 0.25  | 0.64  | 0.63  | 0.04  | 0.86  |     | 0.59  | 0.59  | 0.26  |
| Control Delay           | 42.5  | 30.2  |     | 42.5  | 41.1  | 12.3  | 24.4  | 35.0  |     | 36.2  | 32.0  | 7.0   |
| Queue Delay             | 0.0   | 0.0   |     | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |     | 0.0   | 0.0   | 0.0   |
| Total Delay             | 42.5  | 30.2  |     | 42.5  | 41.1  | 12.3  | 24.4  | 35.0  |     | 36.2  | 32.0  | 7.0   |
| LOS                     | D     | C     |     | D     | D     | B     | C     | C     |     | D     | C     | A     |
| Approach Delay          |       | 33.9  |     |       | 22.5  |       |       | 34.7  |     |       | 29.5  |       |
| Approach LOS            |       | C     |     |       | C     |       |       | C     |     |       | C     |       |

Intersection Summary

Area Type: Other

Cycle Length: 100

Actuated Cycle Length: 86.4




Lanes, Volumes, Timings  
 228: Lakemont Blvd & Newport Way

05/28/2019

|   |                        |
|---|------------------------|
| Natural Cycle: 80                       |                        |
| Control Type: Actuated-Uncoordinated    |                        |
| Maximum v/c Ratio: 0.86                 |                        |
| Intersection Signal Delay: 29.6         | Intersection LOS: C    |
| Intersection Capacity Utilization 71.2% | ICU Level of Service C |
| Analysis Period (min) 15                |                        |

Splits and Phases: 228: Lakemont Blvd & Newport Way

|  |  |   |  |
|--|--|---|--|
|  Ø2 |  Ø1 |  Ø3  |  Ø4 |
| 28 s   | 32 s   | 15 s  | 25 s   |
|  |  |  Ø7 |  Ø8 |
|  |  | 15 s  | 25 s   |

Lanes, Volumes, Timings  
228: Lakemont Blvd & Newport Way

05/28/2019



| Lane Group                 | EBL   | EBT   | EBR   | WBL   | WBT   | WBR   | NBL   | NBT   | NBR   | SBL   | SBT   | SBR   |
|----------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Lane Configurations        |       |       |       |       |       |       |       |       |       |       |       |       |
| Traffic Volume (vph)       | 30    | 170   | 0     | 80    | 50    | 140   | 10    | 230   | 270   | 1130  | 970   | 160   |
| Future Volume (vph)        | 30    | 170   | 0     | 80    | 50    | 140   | 10    | 230   | 270   | 1130  | 970   | 160   |
| Ideal Flow (vphpl)         | 1900  | 1900  | 1900  | 1900  | 1900  | 1900  | 1900  | 1900  | 1900  | 1900  | 1900  | 1900  |
| Storage Length (ft)        | 200   |       | 0     | 140   |       | 140   | 40    |       | 275   | 0     |       | 285   |
| Storage Lanes              | 1     |       | 0     | 1     |       | 1     | 1     |       | 1     | 1     |       | 1     |
| Taper Length (ft)          | 75    |       |       | 75    |       |       | 100   |       |       | 150   |       |       |
| Lane Util. Factor          | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 0.95  | 0.95  | 0.91  | 0.91  | 1.00  |
| Ped Bike Factor            | 1.00  |       |       |       |       | 0.98  | 1.00  |       |       |       |       | 0.97  |
| Fr <sub>t</sub>            |       |       |       |       |       | 0.850 |       | 0.919 |       |       |       | 0.850 |
| Fl <sub>t</sub> Protected  | 0.950 |       |       | 0.950 |       |       | 0.950 |       |       | 0.950 | 0.985 |       |
| Satd. Flow (prot)          | 1752  | 1845  | 0     | 1805  | 1900  | 1615  | 1752  | 3221  | 0     | 1626  | 3372  | 1599  |
| Fl <sub>t</sub> Permitted  | 0.950 |       |       | 0.950 |       |       | 0.950 |       |       | 0.950 | 0.985 |       |
| Satd. Flow (perm)          | 1749  | 1845  | 0     | 1805  | 1900  | 1590  | 1751  | 3221  | 0     | 1626  | 3372  | 1559  |
| Right Turn on Red          |       |       | Yes   |       |       | Yes   |       |       | Yes   |       |       | Yes   |
| Satd. Flow (RTOR)          |       |       |       |       |       | 192   |       | 204   |       |       |       | 118   |
| Link Speed (mph)           |       | 40    |       |       | 30    |       |       | 40    |       |       | 30    |       |
| Link Distance (ft)         |       | 989   |       |       | 412   |       |       | 695   |       |       | 444   |       |
| Travel Time (s)            |       | 16.9  |       |       | 9.4   |       |       | 23.7  |       |       | 9.1   |       |
| Confl. Peds. (#/hr)        | 1     |       |       |       |       | 1     | 1     |       |       |       |       | 1     |
| Confl. Bikes (#/hr)        |       |       | 2     |       |       | 1     |       |       |       |       |       |       |
| Peak Hour Factor           | 0.75  | 0.75  | 0.75  | 0.73  | 0.73  | 0.73  | 0.94  | 0.94  | 0.94  | 0.96  | 0.96  | 0.96  |
| Heavy Vehicles (%)         | 3%    | 3%    | 3%    | 0%    | 0%    | 0%    | 3%    | 3%    | 3%    | 1%    | 1%    | 1%    |
| Adj. Flow (vph)            | 40    | 227   | 0     | 110   | 68    | 192   | 11    | 245   | 287   | 1177  | 1010  | 167   |
| Shared Lane Traffic (%)    |       |       |       |       |       |       |       |       |       | 39%   |       |       |
| Lane Group Flow (vph)      | 40    | 227   | 0     | 110   | 68    | 192   | 11    | 532   | 0     | 718   | 1469  | 167   |
| Enter Blocked Intersection | No    | No    | No    | No    | No    | No    | No    | No    | No    | No    | No    | No    |
| Lane Alignment             | Left  | Left  | Right | Left  | Left  | Right | Left  | Left  | Right | Left  | Left  | Right |
| Median Width(ft)           |       | 12    |       |       | 12    |       |       | 12    |       |       | 12    |       |
| Link Offset(ft)            |       | 0     |       |       | 0     |       |       | 0     |       |       | 0     |       |
| Crosswalk Width(ft)        |       | 10    |       |       | 10    |       |       | 10    |       |       | 10    |       |
| Two way Left Turn Lane     |       |       |       |       |       |       |       |       |       |       |       |       |
| Headway 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  |
| Turning Speed (mph)        | 15    |       | 9     | 15    |       | 9     | 15    |       | 9     | 15    |       | 9     |
| Number of Detectors        | 3     | 2     |       | 2     | 4     | 2     | 2     | 2     |       | 2     | 3     | 2     |
| Detector Template          |       |       |       |       |       |       |       |       |       |       |       |       |
| Leading Detector (ft)      | 156   | 100   |       | 100   | 236   | 100   | 100   | 100   |       | 100   | 176   | 100   |
| Trailing Detector (ft)     | 2     | 2     |       | 2     | 2     | 2     | 2     | 2     |       | 2     | 2     | 2     |
| Detector 1 Position(ft)    | 2     | 2     |       | 2     | 2     | 2     | 2     | 2     |       | 2     | 2     | 2     |
| Detector 1 Size(ft)        | 6     | 6     |       | 6     | 6     | 6     | 6     | 6     |       | 6     | 6     | 6     |
| Detector 1 Type            | Cl+Ex | Cl+Ex |       | Cl+Ex | Cl+Ex | Cl+Ex | Cl+Ex | Cl+Ex |       | Cl+Ex | Cl+Ex | Cl+Ex |
| Detector 1 Channel         |       |       |       |       |       |       |       |       |       |       |       |       |
| Detector 1 Extend (s)      | 0.0   | 0.0   |       | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |       | 0.0   | 0.0   | 0.0   |
| Detector 1 Queue (s)       | 0.0   | 0.0   |       | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |       | 0.0   | 0.0   | 0.0   |
| Detector 1 Delay (s)       | 0.0   | 0.0   |       | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |       | 0.0   | 0.0   | 0.0   |
| Detector 2 Position(ft)    | 94    | 94    |       | 94    | 94    | 94    | 94    | 94    |       | 94    | 94    | 94    |
| Detector 2 Size(ft)        | 6     | 6     |       | 6     | 6     | 6     | 6     | 6     |       | 6     | 6     | 6     |
| Detector 2 Type            | Cl+Ex | Cl+Ex |       | Cl+Ex | Cl+Ex | Cl+Ex | Cl+Ex | Cl+Ex |       | Cl+Ex | Cl+Ex | Cl+Ex |
| Detector 2 Channel         |       |       |       |       |       |       |       |       |       |       |       |       |

Lanes, Volumes, Timings  
228: Lakemont Blvd & Newport Way

05/28/2019



| Lane Group              | EBL   | EBT   | EBR | WBL   | WBT   | WBR   | NBL   | NBT   | NBR | SBL   | SBT   | SBR   |
|-------------------------|-------|-------|-----|-------|-------|-------|-------|-------|-----|-------|-------|-------|
| Detector 2 Extend (s)   | 0.0   | 0.0   |     | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |     | 0.0   | 0.0   | 0.0   |
| Detector 3 Position(ft) | 150   |       |     |       | 150   |       |       |       |     |       | 170   |       |
| Detector 3 Size(ft)     | 6     |       |     |       | 6     |       |       |       |     |       | 6     |       |
| Detector 3 Type         | Cl+Ex |       |     |       | Cl+Ex |       |       |       |     |       | Cl+Ex |       |
| Detector 3 Channel      |       |       |     |       |       |       |       |       |     |       |       |       |
| Detector 3 Extend (s)   | 0.0   |       |     |       | 0.0   |       |       |       |     |       | 0.0   |       |
| Detector 4 Position(ft) |       |       |     |       | 230   |       |       |       |     |       |       |       |
| Detector 4 Size(ft)     |       |       |     |       | 6     |       |       |       |     |       |       |       |
| Detector 4 Type         |       |       |     |       | Cl+Ex |       |       |       |     |       |       |       |
| Detector 4 Channel      |       |       |     |       |       |       |       |       |     |       |       |       |
| Detector 4 Extend (s)   |       |       |     |       | 0.0   |       |       |       |     |       |       |       |
| Turn Type               | Prot  | NA    |     | Prot  | NA    | pm+ov | Split | NA    |     | Split | NA    | Perm  |
| Protected Phases        | 3     | 8     |     | 7     | 4     | 2     | 1     | 1     |     | 2     | 2     |       |
| Permitted Phases        |       |       |     |       |       | 4     |       |       |     |       |       | 2     |
| Detector Phase          | 3     | 8     |     | 7     | 4     | 2     | 1     | 1     |     | 2     | 2     | 2     |
| Switch Phase            |       |       |     |       |       |       |       |       |     |       |       |       |
| Minimum Initial (s)     | 5.0   | 12.0  |     | 5.0   | 12.0  | 5.0   | 7.0   | 7.0   |     | 5.0   | 5.0   | 5.0   |
| Minimum Split (s)       | 10.0  | 23.5  |     | 10.0  | 24.5  | 17.5  | 25.5  | 25.5  |     | 17.5  | 17.5  | 17.5  |
| Total Split (s)         | 18.0  | 27.0  |     | 18.0  | 27.0  | 55.0  | 30.0  | 30.0  |     | 55.0  | 55.0  | 55.0  |
| Total Split (%)         | 13.8% | 20.8% |     | 13.8% | 20.8% | 42.3% | 23.1% | 23.1% |     | 42.3% | 42.3% | 42.3% |
| Maximum Green (s)       | 13.5  | 22.5  |     | 13.5  | 22.5  | 49.5  | 24.5  | 24.5  |     | 49.5  | 49.5  | 49.5  |
| Yellow Time (s)         | 3.5   | 3.5   |     | 3.5   | 3.5   | 4.5   | 4.5   | 4.5   |     | 4.5   | 4.5   | 4.5   |
| All-Red Time (s)        | 1.0   | 1.0   |     | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   |     | 1.0   | 1.0   | 1.0   |
| Lost Time Adjust (s)    | -2.0  | -2.0  |     | -2.0  | -2.0  | -2.0  | -2.0  | -2.0  |     | -2.0  | -2.0  | -2.0  |
| Total Lost Time (s)     | 2.5   | 2.5   |     | 2.5   | 2.5   | 3.5   | 3.5   | 3.5   |     | 3.5   | 3.5   | 3.5   |
| Lead/Lag                | Lead  | Lag   |     | Lead  | Lag   | Lead  | Lag   | Lag   |     | Lead  | Lead  | Lead  |
| Lead-Lag Optimize?      | Yes   | Yes   |     | Yes   | Yes   | Yes   | Yes   | Yes   |     | Yes   | Yes   | Yes   |
| Vehicle Extension (s)   | 2.0   | 2.0   |     | 2.0   | 2.0   | 2.0   | 2.0   | 2.0   |     | 2.0   | 2.0   | 2.0   |
| Minimum Gap (s)         | 2.0   | 2.0   |     | 2.0   | 2.0   | 2.0   | 2.0   | 2.0   |     | 2.0   | 2.0   | 2.0   |
| Time Before Reduce (s)  | 0.0   | 0.0   |     | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |     | 0.0   | 0.0   | 0.0   |
| Time To Reduce (s)      | 5.0   | 5.0   |     | 5.0   | 5.0   | 5.0   | 5.0   | 5.0   |     | 5.0   | 5.0   | 5.0   |
| Recall Mode             | None  | 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   | 5.0   |
| Flash Dont Walk (s)     |       | 14.0  |     |       | 15.0  | 7.0   | 15.0  | 15.0  |     | 7.0   | 7.0   | 7.0   |
| Pedestrian Calls (#/hr) |       | 0     |     |       | 1     | 1     | 0     | 0     |     | 1     | 1     | 1     |
| Act Effct Green (s)     | 9.2   | 20.0  |     | 12.7  | 27.9  | 78.9  | 18.9  | 18.9  |     | 52.0  | 52.0  | 52.0  |
| Actuated g/C Ratio      | 0.08  | 0.17  |     | 0.11  | 0.24  | 0.68  | 0.16  | 0.16  |     | 0.45  | 0.45  | 0.45  |
| v/c Ratio               | 0.29  | 0.71  |     | 0.56  | 0.15  | 0.17  | 0.04  | 0.76  |     | 0.98  | 0.97  | 0.22  |
| Control Delay           | 58.8  | 59.6  |     | 62.1  | 39.2  | 1.6   | 42.3  | 36.3  |     | 63.1  | 49.7  | 8.7   |
| Queue Delay             | 0.0   | 0.0   |     | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |     | 0.0   | 0.0   | 0.0   |
| Total Delay             | 58.8  | 59.6  |     | 62.1  | 39.2  | 1.6   | 42.3  | 36.3  |     | 63.1  | 49.7  | 8.7   |
| LOS                     | E     | E     |     | E     | D     | A     | D     | D     |     | E     | D     | A     |
| Approach Delay          |       | 59.5  |     |       | 26.5  |       |       | 36.4  |     |       | 50.9  |       |
| Approach LOS            |       | E     |     |       | C     |       |       | D     |     |       | D     |       |

Intersection Summary

Area Type: Other

Cycle Length: 130

Actuated Cycle Length: 115.7



Lanes, Volumes, Timings  
228: Lakemont Blvd & Newport Way

05/28/2019



| Lane Group                 | EBL   | EBT   | EBR   | WBL   | WBT   | WBR   | NBL   | NBT   | NBR   | SBL   | SBT   | SBR   |
|----------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Lane Configurations        |       |       |       |       |       |       |       |       |       |       |       |       |
| Traffic Volume (vph)       | 30    | 60    | 10    | 40    | 220   | 480   | 20    | 600   | 330   | 370   | 340   | 120   |
| Future Volume (vph)        | 30    | 60    | 10    | 40    | 220   | 480   | 20    | 600   | 330   | 370   | 340   | 120   |
| Ideal Flow (vphpl)         | 1900  | 1900  | 1900  | 1900  | 1900  | 1900  | 1900  | 1900  | 1900  | 1900  | 1900  | 1900  |
| Storage Length (ft)        | 200   |       | 0     | 140   |       | 140   | 40    |       | 275   | 0     |       | 285   |
| Storage Lanes              | 1     |       | 0     | 1     |       | 1     | 1     |       | 1     | 2     |       | 1     |
| Taper Length (ft)          | 75    |       |       | 75    |       |       | 100   |       |       | 150   |       |       |
| Lane Util. Factor          | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 0.95  | 0.95  | 0.97  | 1.00  | 1.00  |
| Ped Bike Factor            | 1.00  | 1.00  |       | 1.00  |       | 0.99  | 1.00  |       |       |       |       | 0.98  |
| Frt                        |       | 0.979 |       |       |       | 0.850 |       | 0.947 |       |       |       | 0.850 |
| Flt Protected              | 0.950 |       |       | 0.950 |       |       | 0.950 |       |       | 0.950 |       |       |
| Satd. Flow (prot)          | 1736  | 1785  | 0     | 1770  | 1863  | 1583  | 1787  | 3385  | 0     | 3367  | 1827  | 1553  |
| Flt Permitted              | 0.950 |       |       | 0.950 |       |       | 0.950 |       |       | 0.950 |       |       |
| Satd. Flow (perm)          | 1734  | 1785  | 0     | 1766  | 1863  | 1561  | 1784  | 3385  | 0     | 3367  | 1827  | 1517  |
| Right Turn on Red          |       |       | Yes   |       |       | Yes   |       |       | Yes   |       |       | Yes   |
| Satd. Flow (RTOR)          |       | 10    |       |       |       | 194   |       | 135   |       |       |       | 157   |
| Link Speed (mph)           |       | 40    |       |       | 30    |       |       | 40    |       |       | 30    |       |
| Link Distance (ft)         |       | 989   |       |       | 412   |       |       | 695   |       |       | 444   |       |
| Travel Time (s)            |       | 16.9  |       |       | 9.4   |       |       | 23.7  |       |       | 9.1   |       |
| Confl. Peds. (#/hr)        | 1     |       | 2     | 2     |       | 1     | 1     |       |       |       |       | 1     |
| Confl. Bikes (#/hr)        |       |       |       |       |       | 2     |       |       |       |       |       |       |
| Peak Hour Factor           | 0.76  | 0.76  | 0.76  | 0.88  | 0.88  | 0.88  | 0.91  | 0.91  | 0.91  | 0.92  | 0.92  | 0.92  |
| Heavy Vehicles (%)         | 4%    | 4%    | 4%    | 2%    | 2%    | 2%    | 1%    | 1%    | 1%    | 4%    | 4%    | 4%    |
| Adj. Flow (vph)            | 39    | 79    | 13    | 45    | 250   | 545   | 22    | 659   | 363   | 402   | 370   | 130   |
| Shared Lane Traffic (%)    |       |       |       |       |       |       |       |       |       |       |       |       |
| Lane Group Flow (vph)      | 39    | 92    | 0     | 45    | 250   | 545   | 22    | 1022  | 0     | 402   | 370   | 130   |
| Enter Blocked Intersection | No    | No    | No    | No    | No    | No    | No    | No    | No    | No    | No    | No    |
| Lane Alignment             | Left  | Left  | Right | Left  | Left  | Right | Left  | Left  | Right | Left  | Left  | Right |
| Median Width(ft)           |       | 12    |       |       | 12    |       |       | 24    |       |       | 24    |       |
| Link Offset(ft)            |       | 0     |       |       | 0     |       |       | 0     |       |       | 0     |       |
| Crosswalk Width(ft)        |       | 10    |       |       | 10    |       |       | 10    |       |       | 10    |       |
| Two way Left Turn Lane     |       |       |       |       |       |       |       |       |       |       |       |       |
| Headway 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  |
| Turning Speed (mph)        | 15    |       | 9     | 15    |       | 9     | 15    |       | 9     | 15    |       | 9     |
| Number of Detectors        | 3     | 2     |       | 2     | 4     | 2     | 2     | 2     |       | 2     | 3     | 2     |
| Detector Template          |       |       |       |       |       |       |       |       |       |       |       |       |
| Leading Detector (ft)      | 156   | 100   |       | 100   | 236   | 100   | 100   | 100   |       | 100   | 176   | 100   |
| Trailing Detector (ft)     | 2     | 2     |       | 2     | 2     | 2     | 2     | 2     |       | 2     | 2     | 2     |
| Detector 1 Position(ft)    | 2     | 2     |       | 2     | 2     | 2     | 2     | 2     |       | 2     | 2     | 2     |
| Detector 1 Size(ft)        | 6     | 6     |       | 6     | 6     | 6     | 6     | 6     |       | 6     | 6     | 6     |
| Detector 1 Type            | Cl+Ex | Cl+Ex |       | Cl+Ex | Cl+Ex | Cl+Ex | Cl+Ex | Cl+Ex |       | Cl+Ex | Cl+Ex | Cl+Ex |
| Detector 1 Channel         |       |       |       |       |       |       |       |       |       |       |       |       |
| Detector 1 Extend (s)      | 0.0   | 0.0   |       | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |       | 0.0   | 0.0   | 0.0   |
| Detector 1 Queue (s)       | 0.0   | 0.0   |       | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |       | 0.0   | 0.0   | 0.0   |
| Detector 1 Delay (s)       | 0.0   | 0.0   |       | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |       | 0.0   | 0.0   | 0.0   |
| Detector 2 Position(ft)    | 94    | 94    |       | 94    | 94    | 94    | 94    | 94    |       | 94    | 94    | 94    |
| Detector 2 Size(ft)        | 6     | 6     |       | 6     | 6     | 6     | 6     | 6     |       | 6     | 6     | 6     |
| Detector 2 Type            | Cl+Ex | Cl+Ex |       | Cl+Ex | Cl+Ex | Cl+Ex | Cl+Ex | Cl+Ex |       | Cl+Ex | Cl+Ex | Cl+Ex |
| Detector 2 Channel         |       |       |       |       |       |       |       |       |       |       |       |       |

Lanes, Volumes, Timings  
228: Lakemont Blvd & Newport Way

05/28/2019



| Lane Group              | EBL   | EBT   | EBR | WBL   | WBT   | WBR   | NBL   | NBT   | NBR | SBL   | SBT   | SBR   |
|-------------------------|-------|-------|-----|-------|-------|-------|-------|-------|-----|-------|-------|-------|
| Detector 2 Extend (s)   | 0.0   | 0.0   |     | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |     | 0.0   | 0.0   | 0.0   |
| Detector 3 Position(ft) | 150   |       |     |       | 150   |       |       |       |     |       | 170   |       |
| Detector 3 Size(ft)     | 6     |       |     |       | 6     |       |       |       |     |       | 6     |       |
| Detector 3 Type         | Cl+Ex |       |     |       | Cl+Ex |       |       |       |     |       | Cl+Ex |       |
| Detector 3 Channel      |       |       |     |       |       |       |       |       |     |       |       |       |
| Detector 3 Extend (s)   | 0.0   |       |     |       | 0.0   |       |       |       |     |       | 0.0   |       |
| Detector 4 Position(ft) |       |       |     |       | 230   |       |       |       |     |       |       |       |
| Detector 4 Size(ft)     |       |       |     |       | 6     |       |       |       |     |       |       |       |
| Detector 4 Type         |       |       |     |       | Cl+Ex |       |       |       |     |       |       |       |
| Detector 4 Channel      |       |       |     |       |       |       |       |       |     |       |       |       |
| Detector 4 Extend (s)   |       |       |     |       | 0.0   |       |       |       |     |       |       |       |
| Turn Type               | Prot  | NA    |     | Prot  | NA    | pm+ov | Prot  | NA    |     | Prot  | NA    | Perm  |
| Protected Phases        | 3     | 8     |     | 7     | 4     | 5     | 1     | 6     |     | 5     | 2     |       |
| Permitted Phases        |       |       |     |       |       | 4     |       |       |     |       |       | 2     |
| Detector Phase          | 3     | 8     |     | 7     | 4     | 5     | 1     | 6     |     | 5     | 2     | 2     |
| Switch Phase            |       |       |     |       |       |       |       |       |     |       |       |       |
| Minimum Initial (s)     | 5.0   | 12.0  |     | 5.0   | 12.0  | 5.0   | 7.0   | 7.0   |     | 5.0   | 5.0   | 5.0   |
| Minimum Split (s)       | 9.5   | 23.5  |     | 9.5   | 24.5  | 17.5  | 25.5  | 25.5  |     | 17.5  | 17.5  | 17.5  |
| Total Split (s)         | 10.0  | 24.0  |     | 10.0  | 24.0  | 18.0  | 24.0  | 28.0  |     | 18.0  | 22.0  | 22.0  |
| Total Split (%)         | 12.5% | 30.0% |     | 12.5% | 30.0% | 22.5% | 30.0% | 35.0% |     | 22.5% | 27.5% | 27.5% |
| Maximum Green (s)       | 5.5   | 19.5  |     | 5.5   | 19.5  | 12.5  | 18.5  | 22.5  |     | 12.5  | 16.5  | 16.5  |
| Yellow Time (s)         | 3.5   | 3.5   |     | 3.5   | 3.5   | 4.5   | 4.5   | 4.5   |     | 4.5   | 4.5   | 4.5   |
| All-Red Time (s)        | 1.0   | 1.0   |     | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   |     | 1.0   | 1.0   | 1.0   |
| Lost Time Adjust (s)    | -2.0  | -2.0  |     | -2.0  | -2.0  | -2.0  | -2.0  | -2.0  |     | -2.0  | -2.0  | -2.0  |
| Total Lost Time (s)     | 2.5   | 2.5   |     | 2.5   | 2.5   | 3.5   | 3.5   | 3.5   |     | 3.5   | 3.5   | 3.5   |
| Lead/Lag                | Lead  | Lag   |     | Lead  | Lag   | Lead  | Lag   | Lag   |     | Lead  | Lead  | Lead  |
| Lead-Lag Optimize?      | Yes   | Yes   |     | Yes   | Yes   | Yes   | Yes   | Yes   |     | Yes   | Yes   | Yes   |
| Vehicle Extension (s)   | 2.0   | 2.0   |     | 2.0   | 2.0   | 2.0   | 2.0   | 2.0   |     | 2.0   | 2.0   | 2.0   |
| Minimum Gap (s)         | 2.0   | 2.0   |     | 2.0   | 2.0   | 2.0   | 2.0   | 2.0   |     | 2.0   | 2.0   | 2.0   |
| Time Before Reduce (s)  | 0.0   | 0.0   |     | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |     | 0.0   | 0.0   | 0.0   |
| Time To Reduce (s)      | 5.0   | 5.0   |     | 5.0   | 5.0   | 5.0   | 5.0   | 5.0   |     | 5.0   | 5.0   | 5.0   |
| Recall Mode             | None  | None  |     | None  | None  | None  | None  | None  |     | None  | None  | None  |
| Walk Time (s)           |       | 5.0   |     |       | 5.0   |       |       | 5.0   |     |       | 5.0   | 5.0   |
| Flash Dont Walk (s)     |       | 14.0  |     |       | 15.0  |       |       | 15.0  |     |       | 7.0   | 7.0   |
| Pedestrian Calls (#/hr) |       | 1     |     |       | 1     |       |       | 0     |     |       | 1     | 1     |
| Act Effct Green (s)     | 7.5   | 17.0  |     | 7.5   | 17.0  | 29.4  | 13.3  | 23.2  |     | 13.4  | 31.8  | 31.8  |
| Actuated g/C Ratio      | 0.11  | 0.25  |     | 0.11  | 0.25  | 0.43  | 0.19  | 0.34  |     | 0.20  | 0.46  | 0.46  |
| v/c Ratio               | 0.21  | 0.20  |     | 0.23  | 0.54  | 0.70  | 0.06  | 0.83  |     | 0.61  | 0.44  | 0.17  |
| Control Delay           | 35.2  | 22.0  |     | 35.5  | 29.2  | 14.9  | 23.9  | 27.0  |     | 31.5  | 22.7  | 3.9   |
| Queue Delay             | 0.0   | 0.0   |     | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |     | 0.0   | 0.0   | 0.0   |
| Total Delay             | 35.2  | 22.0  |     | 35.5  | 29.2  | 14.9  | 23.9  | 27.0  |     | 31.5  | 22.7  | 3.9   |
| LOS                     | D     | C     |     | D     | C     | B     | C     | C     |     | C     | C     | A     |
| Approach Delay          |       | 25.9  |     |       | 20.3  |       |       | 27.0  |     |       | 23.9  |       |
| Approach LOS            |       | C     |     |       | C     |       |       | C     |     |       | C     |       |

Intersection Summary

Area Type: Other

Cycle Length: 80

Actuated Cycle Length: 68.7



Lanes, Volumes, Timings  
228: Lakemont Blvd & Newport Way

05/28/2019



| Lane Group                 | EBL   | EBT   | EBR   | WBL   | WBT   | WBR   | NBL   | NBT   | NBR   | SBL   | SBT   | SBR   |
|----------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Lane Configurations        |       |       |       |       |       |       |       |       |       |       |       |       |
| Traffic Volume (vph)       | 30    | 170   | 0     | 80    | 50    | 140   | 10    | 230   | 270   | 1130  | 970   | 160   |
| Future Volume (vph)        | 30    | 170   | 0     | 80    | 50    | 140   | 10    | 230   | 270   | 1130  | 970   | 160   |
| Ideal Flow (vphpl)         | 1900  | 1900  | 1900  | 1900  | 1900  | 1900  | 1900  | 1900  | 1900  | 1900  | 1900  | 1900  |
| Storage Length (ft)        | 200   |       | 0     | 140   |       | 140   | 40    |       | 275   | 0     |       | 285   |
| Storage Lanes              | 1     |       | 0     | 1     |       | 1     | 1     |       | 1     | 2     |       | 1     |
| Taper Length (ft)          | 75    |       |       | 75    |       |       | 100   |       |       | 150   |       |       |
| Lane Util. Factor          | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 0.95  | 0.95  | 0.97  | 1.00  | 1.00  |
| Ped Bike Factor            | 1.00  |       |       |       |       | 0.99  | 1.00  |       |       |       |       | 0.97  |
| Fr <sub>t</sub>            |       |       |       |       |       | 0.850 |       | 0.919 |       |       |       | 0.850 |
| Fl <sub>t</sub> Protected  | 0.950 |       |       | 0.950 |       |       | 0.950 |       |       | 0.950 |       |       |
| Satd. Flow (prot)          | 1752  | 1845  | 0     | 1805  | 1900  | 1615  | 1752  | 3221  | 0     | 3467  | 1881  | 1599  |
| Fl <sub>t</sub> Permitted  | 0.950 |       |       | 0.950 |       |       | 0.950 |       |       | 0.950 |       |       |
| Satd. Flow (perm)          | 1749  | 1845  | 0     | 1805  | 1900  | 1592  | 1750  | 3221  | 0     | 3467  | 1881  | 1559  |
| Right Turn on Red          |       |       | Yes   |       |       | Yes   |       |       | Yes   |       |       | Yes   |
| Satd. Flow (RTOR)          |       |       |       |       |       | 192   |       | 151   |       |       |       | 126   |
| Link Speed (mph)           |       | 40    |       |       | 30    |       |       | 40    |       |       |       | 30    |
| Link Distance (ft)         |       | 989   |       |       | 412   |       |       | 695   |       |       |       | 444   |
| Travel Time (s)            |       | 16.9  |       |       | 9.4   |       |       | 23.7  |       |       |       | 9.1   |
| Confl. Peds. (#/hr)        | 1     |       |       |       |       |       | 1     | 1     |       |       |       | 1     |
| Confl. Bikes (#/hr)        |       |       | 2     |       |       | 1     |       |       |       |       |       |       |
| Peak Hour Factor           | 0.75  | 0.75  | 0.75  | 0.73  | 0.73  | 0.73  | 0.94  | 0.94  | 0.94  | 0.96  | 0.96  | 0.96  |
| Heavy Vehicles (%)         | 3%    | 3%    | 3%    | 0%    | 0%    | 0%    | 3%    | 3%    | 3%    | 1%    | 1%    | 1%    |
| Adj. Flow (vph)            | 40    | 227   | 0     | 110   | 68    | 192   | 11    | 245   | 287   | 1177  | 1010  | 167   |
| Shared Lane Traffic (%)    |       |       |       |       |       |       |       |       |       |       |       |       |
| Lane Group Flow (vph)      | 40    | 227   | 0     | 110   | 68    | 192   | 11    | 532   | 0     | 1177  | 1010  | 167   |
| Enter Blocked Intersection | No    | No    | No    | No    | No    | No    | No    | No    | No    | No    | No    | No    |
| Lane Alignment             | Left  | Left  | Right | Left  | Left  | Right | Left  | Left  | Right | Left  | Left  | Right |
| Median Width(ft)           |       | 12    |       |       | 12    |       |       | 24    |       |       |       | 24    |
| Link Offset(ft)            |       | 0     |       |       | 0     |       |       | 0     |       |       |       | 0     |
| Crosswalk Width(ft)        |       | 10    |       |       | 10    |       |       | 10    |       |       |       | 10    |
| Two way Left Turn Lane     |       |       |       |       |       |       |       |       |       |       |       |       |
| Headway 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  |
| Turning Speed (mph)        | 15    |       | 9     | 15    |       | 9     | 15    |       | 9     | 15    |       | 9     |
| Number of Detectors        | 3     | 2     |       | 2     | 4     | 2     | 2     | 2     |       | 2     | 3     | 2     |
| Detector Template          |       |       |       |       |       |       |       |       |       |       |       |       |
| Leading Detector (ft)      | 156   | 100   |       | 100   | 236   | 100   | 100   | 100   |       | 100   | 176   | 100   |
| Trailing Detector (ft)     | 2     | 2     |       | 2     | 2     | 2     | 2     | 2     |       | 2     | 2     | 2     |
| Detector 1 Position(ft)    | 2     | 2     |       | 2     | 2     | 2     | 2     | 2     |       | 2     | 2     | 2     |
| Detector 1 Size(ft)        | 6     | 6     |       | 6     | 6     | 6     | 6     | 6     |       | 6     | 6     | 6     |
| Detector 1 Type            | Cl+Ex | Cl+Ex |       | Cl+Ex | Cl+Ex | Cl+Ex | Cl+Ex | Cl+Ex |       | Cl+Ex | Cl+Ex | Cl+Ex |
| Detector 1 Channel         |       |       |       |       |       |       |       |       |       |       |       |       |
| Detector 1 Extend (s)      | 0.0   | 0.0   |       | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |       | 0.0   | 0.0   | 0.0   |
| Detector 1 Queue (s)       | 0.0   | 0.0   |       | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |       | 0.0   | 0.0   | 0.0   |
| Detector 1 Delay (s)       | 0.0   | 0.0   |       | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |       | 0.0   | 0.0   | 0.0   |
| Detector 2 Position(ft)    | 94    | 94    |       | 94    | 94    | 94    | 94    | 94    |       | 94    | 94    | 94    |
| Detector 2 Size(ft)        | 6     | 6     |       | 6     | 6     | 6     | 6     | 6     |       | 6     | 6     | 6     |
| Detector 2 Type            | Cl+Ex | Cl+Ex |       | Cl+Ex | Cl+Ex | Cl+Ex | Cl+Ex | Cl+Ex |       | Cl+Ex | Cl+Ex | Cl+Ex |
| Detector 2 Channel         |       |       |       |       |       |       |       |       |       |       |       |       |



Lanes, Volumes, Timings  
228: Lakemont Blvd & Newport Way

05/28/2019



| Lane Group              | EBL   | EBT   | EBR | WBL  | WBT   | WBR   | NBL   | NBT   | NBR | SBL   | SBT   | SBR   |
|-------------------------|-------|-------|-----|------|-------|-------|-------|-------|-----|-------|-------|-------|
| Detector 2 Extend (s)   | 0.0   | 0.0   |     | 0.0  | 0.0   | 0.0   | 0.0   | 0.0   |     | 0.0   | 0.0   | 0.0   |
| Detector 3 Position(ft) | 150   |       |     |      | 150   |       |       |       |     |       | 170   |       |
| Detector 3 Size(ft)     | 6     |       |     |      | 6     |       |       |       |     |       | 6     |       |
| Detector 3 Type         | Cl+Ex |       |     |      | Cl+Ex |       |       |       |     |       | Cl+Ex |       |
| Detector 3 Channel      |       |       |     |      |       |       |       |       |     |       |       |       |
| Detector 3 Extend (s)   | 0.0   |       |     |      | 0.0   |       |       |       |     |       | 0.0   |       |
| Detector 4 Position(ft) |       |       |     |      | 230   |       |       |       |     |       |       |       |
| Detector 4 Size(ft)     |       |       |     |      | 6     |       |       |       |     |       |       |       |
| Detector 4 Type         |       |       |     |      | Cl+Ex |       |       |       |     |       |       |       |
| Detector 4 Channel      |       |       |     |      |       |       |       |       |     |       |       |       |
| Detector 4 Extend (s)   |       |       |     |      | 0.0   |       |       |       |     |       |       |       |
| Turn Type               | Prot  | NA    |     | Prot | NA    | pm+ov | Prot  | NA    |     | Prot  | NA    | Perm  |
| Protected Phases        | 3     | 8     |     | 7    | 4     | 5     | 1     | 6     |     | 5     | 2     |       |
| Permitted Phases        |       |       |     |      |       | 4     |       |       |     |       |       | 2     |
| Detector Phase          | 3     | 8     |     | 7    | 4     | 5     | 1     | 6     |     | 5     | 2     | 2     |
| Switch Phase            |       |       |     |      |       |       |       |       |     |       |       |       |
| Minimum Initial (s)     | 5.0   | 12.0  |     | 5.0  | 12.0  | 5.0   | 7.0   | 7.0   |     | 5.0   | 5.0   | 5.0   |
| Minimum Split (s)       | 10.0  | 23.5  |     | 10.0 | 24.5  | 17.5  | 25.5  | 25.5  |     | 17.5  | 17.5  | 17.5  |
| Total Split (s)         | 11.0  | 24.0  |     | 11.0 | 24.0  | 58.0  | 20.0  | 37.0  |     | 58.0  | 75.0  | 75.0  |
| Total Split (%)         | 8.5%  | 18.5% |     | 8.5% | 18.5% | 44.6% | 15.4% | 28.5% |     | 44.6% | 57.7% | 57.7% |
| Maximum Green (s)       | 6.5   | 19.5  |     | 6.5  | 19.5  | 52.5  | 14.5  | 31.5  |     | 52.5  | 69.5  | 69.5  |
| Yellow Time (s)         | 3.5   | 3.5   |     | 3.5  | 3.5   | 4.5   | 4.5   | 4.5   |     | 4.5   | 4.5   | 4.5   |
| All-Red Time (s)        | 1.0   | 1.0   |     | 1.0  | 1.0   | 1.0   | 1.0   | 1.0   |     | 1.0   | 1.0   | 1.0   |
| Lost Time Adjust (s)    | -2.0  | -2.0  |     | -2.0 | -2.0  | -2.0  | -2.0  | -2.0  |     | -2.0  | -2.0  | -2.0  |
| Total Lost Time (s)     | 2.5   | 2.5   |     | 2.5  | 2.5   | 3.5   | 3.5   | 3.5   |     | 3.5   | 3.5   | 3.5   |
| Lead/Lag                | Lead  | Lag   |     | Lead | Lag   | Lead  | Lag   | Lag   |     | Lead  | Lead  | Lead  |
| Lead-Lag Optimize?      | Yes   | Yes   |     | Yes  | Yes   | Yes   | Yes   | Yes   |     | Yes   | Yes   | Yes   |
| Vehicle Extension (s)   | 2.0   | 2.0   |     | 2.0  | 2.0   | 2.0   | 2.0   | 2.0   |     | 2.0   | 2.0   | 2.0   |
| Minimum Gap (s)         | 2.0   | 2.0   |     | 2.0  | 2.0   | 2.0   | 2.0   | 2.0   |     | 2.0   | 2.0   | 2.0   |
| Time Before Reduce (s)  | 0.0   | 0.0   |     | 0.0  | 0.0   | 0.0   | 0.0   | 0.0   |     | 0.0   | 0.0   | 0.0   |
| Time To Reduce (s)      | 5.0   | 5.0   |     | 5.0  | 5.0   | 5.0   | 5.0   | 5.0   |     | 5.0   | 5.0   | 5.0   |
| Recall Mode             | None  | None  |     | None | None  | None  | None  | None  |     | None  | None  | None  |
| Walk Time (s)           |       | 5.0   |     |      | 5.0   |       |       | 5.0   |     |       | 5.0   | 5.0   |
| Flash Dont Walk (s)     |       | 14.0  |     |      | 15.0  |       |       | 15.0  |     |       | 7.0   | 7.0   |
| Pedestrian Calls (#/hr) |       | 0     |     |      | 1     |       |       | 0     |     |       | 1     | 1     |
| Act Effct Green (s)     | 8.1   | 19.0  |     | 8.7  | 24.2  | 68.8  | 9.7   | 22.4  |     | 45.6  | 69.0  | 69.0  |
| Actuated g/C Ratio      | 0.08  | 0.18  |     | 0.08 | 0.22  | 0.64  | 0.09  | 0.21  |     | 0.42  | 0.64  | 0.64  |
| v/c Ratio               | 0.31  | 0.70  |     | 0.76 | 0.16  | 0.18  | 0.07  | 0.68  |     | 0.80  | 0.84  | 0.16  |
| Control Delay           | 58.7  | 56.3  |     | 84.0 | 41.4  | 1.6   | 51.8  | 33.4  |     | 32.9  | 24.6  | 3.4   |
| Queue Delay             | 0.0   | 0.0   |     | 0.0  | 0.0   | 0.0   | 0.0   | 0.0   |     | 0.0   | 0.0   | 0.0   |
| Total Delay             | 58.7  | 56.3  |     | 84.0 | 41.4  | 1.6   | 51.8  | 33.4  |     | 32.9  | 24.6  | 3.4   |
| LOS                     | E     | E     |     | F    | D     | A     | D     | C     |     | C     | C     | A     |
| Approach Delay          |       | 56.6  |     |      | 33.4  |       |       | 33.8  |     |       | 27.2  |       |
| Approach LOS            |       | E     |     |      | C     |       |       | C     |     |       | C     |       |

Intersection Summary

Area Type: Other

Cycle Length: 130

Actuated Cycle Length: 108



# MOVEMENT SUMMARY

 Site: 10 [Newport and Lakemont AM]

Roundabout

| Movement Performance - Vehicles |        |                    |            |               |                   |                  |                                |             |              |                             |                   |
|---------------------------------|--------|--------------------|------------|---------------|-------------------|------------------|--------------------------------|-------------|--------------|-----------------------------|-------------------|
| Mov ID                          | OD Mov | Demand Total veh/h | Flows HV % | Deg. Satn v/c | Average Delay sec | Level of Service | 95% Back of Queue Vehicles veh | Distance ft | Prop. Queued | Effective Stop Rate per veh | Average Speed mph |
| South: Lakemont Blvd            |        |                    |            |               |                   |                  |                                |             |              |                             |                   |
| 3                               | L2     | 22                 | 1.0        | 0.608         | 13.1              | LOS A            | 4.8                            | 122.1       | 0.71         | 0.73                        | 35.6              |
| 8                               | T1     | 659                | 1.0        | 0.608         | 7.3               | LOS A            | 4.8                            | 122.1       | 0.71         | 0.73                        | 31.8              |
| 18                              | R2     | 363                | 1.0        | 0.219         | 3.6               | LOS A            | 0.0                            | 0.0         | 0.00         | 0.44                        | 37.3              |
| Approach                        |        | 1044               | 1.0        | 0.608         | 6.1               | LOS A            | 4.8                            | 122.1       | 0.46         | 0.63                        | 33.6              |
| East: Newport Way               |        |                    |            |               |                   |                  |                                |             |              |                             |                   |
| 1                               | L2     | 45                 | 2.0        | 0.743         | 16.9              | LOS A            | 11.0                           | 280.2       | 1.00         | 1.14                        | 29.5              |
| 6                               | T1     | 250                | 2.0        | 0.743         | 11.4              | LOS A            | 11.0                           | 280.2       | 1.00         | 1.14                        | 29.4              |
| 16                              | R2     | 545                | 2.0        | 0.743         | 11.5              | LOS A            | 11.0                           | 280.2       | 0.99         | 1.07                        | 26.2              |
| Approach                        |        | 841                | 2.0        | 0.743         | 11.7              | LOS B            | 11.0                           | 280.2       | 0.99         | 1.10                        | 27.3              |
| North: Lakemont Blvd            |        |                    |            |               |                   |                  |                                |             |              |                             |                   |
| 7                               | L2     | 402                | 4.0        | 0.336         | 8.8               | LOS A            | 2.5                            | 65.0        | 0.60         | 0.65                        | 28.1              |
| 4                               | T1     | 370                | 4.0        | 0.336         | 2.9               | LOS A            | 2.5                            | 65.0        | 0.59         | 0.40                        | 32.0              |
| 14                              | R2     | 130                | 4.0        | 0.336         | 3.3               | LOS A            | 2.5                            | 65.0        | 0.49         | 0.43                        | 31.5              |
| Approach                        |        | 902                | 4.0        | 0.336         | 5.6               | LOS A            | 2.5                            | 65.0        | 0.58         | 0.52                        | 30.0              |
| West: Newport Way               |        |                    |            |               |                   |                  |                                |             |              |                             |                   |
| 5                               | L2     | 39                 | 4.0        | 0.171         | 12.3              | LOS A            | 0.7                            | 18.2        | 0.59         | 0.70                        | 32.2              |
| 2                               | T1     | 79                 | 4.0        | 0.171         | 6.5               | LOS A            | 0.7                            | 18.2        | 0.59         | 0.70                        | 31.7              |
| 12                              | R2     | 13                 | 4.0        | 0.171         | 6.3               | LOS A            | 0.7                            | 18.2        | 0.59         | 0.70                        | 34.2              |
| Approach                        |        | 132                | 4.0        | 0.171         | 8.2               | LOS A            | 0.7                            | 18.2        | 0.59         | 0.70                        | 32.1              |
| All Vehicles                    |        | 2919               | 2.4        | 0.743         | 7.7               | LOS A            | 11.0                           | 280.2       | 0.66         | 0.73                        | 30.4              |

Site Level of Service (LOS) Method: Delay & Degree of Saturation (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Roundabout LOS Method: Same as Signalised Intersections.

Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.

Intersection and Approach LOS values are based on average delay for all movements (v/c not used).

Roundabout Capacity Model: SIDRA Standard.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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Project: H:\(p) Projects\18\18112-002 Bellevue TO 2 Corridor Improvements (Reid Middleton)\Analysis\SIDRA\Sidra Reports\Study Area 3\Future Build 3 - New Vol\Newport Lakemont\20190214\_Study Area 3 Future Build 2.sip7

# MOVEMENT SUMMARY

 Site: 10 [Newport and Lakemont PM]

Roundabout

| Movement Performance - Vehicles |        |                    |            |               |                   |                  |                                |             |              |                             |                   |
|---------------------------------|--------|--------------------|------------|---------------|-------------------|------------------|--------------------------------|-------------|--------------|-----------------------------|-------------------|
| Mov ID                          | OD Mov | Demand Total veh/h | Flows HV % | Deg. Satn v/c | Average Delay sec | Level of Service | 95% Back of Queue Vehicles veh | Distance ft | Prop. Queued | Effective Stop Rate per veh | Average Speed mph |
| South: Lakemont Blvd            |        |                    |            |               |                   |                  |                                |             |              |                             |                   |
| 3                               | L2     | 11                 | 3.0        | 0.464         | 19.6              | LOS A            | 3.5                            | 89.8        | 0.95         | 1.04                        | 32.9              |
| 8                               | T1     | 245                | 3.0        | 0.464         | 13.8              | LOS A            | 3.5                            | 89.8        | 0.95         | 1.04                        | 29.7              |
| 18                              | R2     | 287                | 3.0        | 0.177         | 3.6               | LOS A            | 0.0                            | 0.0         | 0.00         | 0.44                        | 37.3              |
| Approach                        |        | 543                | 3.0        | 0.464         | 8.5               | LOS A            | 3.5                            | 89.8        | 0.44         | 0.72                        | 33.3              |
| East: Newport Way               |        |                    |            |               |                   |                  |                                |             |              |                             |                   |
| 1                               | L2     | 110                | 0.0        | 0.219         | 8.1               | LOS A            | 1.5                            | 37.0        | 0.51         | 0.50                        | 32.0              |
| 6                               | T1     | 68                 | 0.0        | 0.219         | 2.7               | LOS A            | 1.5                            | 37.0        | 0.51         | 0.50                        | 31.9              |
| 16                              | R2     | 192                | 0.0        | 0.219         | 3.1               | LOS A            | 1.5                            | 37.0        | 0.50         | 0.48                        | 28.3              |
| Approach                        |        | 370                | 0.0        | 0.219         | 4.5               | LOS A            | 1.5                            | 37.0        | 0.50         | 0.49                        | 30.0              |
| North: Lakemont Blvd            |        |                    |            |               |                   |                  |                                |             |              |                             |                   |
| 7                               | L2     | 1177               | 1.0        | 0.767         | 9.4               | LOS A            | 9.8                            | 246.2       | 0.74         | 0.63                        | 27.9              |
| 4                               | T1     | 1010               | 1.0        | 0.767         | 3.1               | LOS A            | 9.3                            | 234.9       | 0.68         | 0.42                        | 31.6              |
| 14                              | R2     | 167                | 1.0        | 0.099         | 2.5               | LOS A            | 0.5                            | 13.4        | 0.21         | 0.34                        | 32.3              |
| Approach                        |        | 2354               | 1.0        | 0.767         | 6.2               | LOS A            | 9.8                            | 246.2       | 0.68         | 0.52                        | 29.7              |
| West: Newport Way               |        |                    |            |               |                   |                  |                                |             |              |                             |                   |
| 5                               | L2     | 40                 | 3.0        | 0.897         | 55.6              | LOS D            | 8.9                            | 228.9       | 0.98         | 1.40                        | 20.3              |
| 2                               | T1     | 227                | 3.0        | 0.897         | 49.8              | LOS D            | 8.9                            | 228.9       | 0.98         | 1.40                        | 20.1              |
| 12                              | R2     | 1                  | 3.0        | 0.897         | 49.7              | LOS D            | 8.9                            | 228.9       | 0.98         | 1.40                        | 21.1              |
| Approach                        |        | 268                | 3.0        | 0.897         | 50.7              | LOS D            | 8.9                            | 228.9       | 0.98         | 1.40                        | 20.2              |
| All Vehicles                    |        | 3535               | 1.4        | 0.897         | 9.8               | LOS A            | 9.8                            | 246.2       | 0.65         | 0.61                        | 29.2              |

Site Level of Service (LOS) Method: Delay & Degree of Saturation (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Roundabout LOS Method: Same as Signalised Intersections.

Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.

Intersection and Approach LOS values are based on average delay for all movements (v/c not used).

Roundabout Capacity Model: SIDRA Standard.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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Lanes, Volumes, Timings  
260: Newport Way & I-90 EB On-Ramp

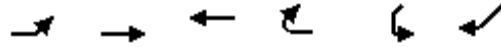
05/28/2019



| Lane Group                 | EBL   | EBT   | WBT   | WBR   | SWL  | SWR   | Ø8 |
|----------------------------|-------|-------|-------|-------|------|-------|----|
| Lane Configurations        |       |       |       |       |      |       |    |
| Traffic Volume (vph)       | 414   | 145   | 763   | 46    | 0    | 0     |    |
| Future Volume (vph)        | 414   | 145   | 763   | 46    | 0    | 0     |    |
| Ideal Flow (vphpl)         | 1900  | 1900  | 1900  | 1900  | 1900 | 1900  |    |
| Storage Length (ft)        | 125   |       |       | 0     | 0    | 0     |    |
| Storage Lanes              | 1     |       |       | 0     | 0    | 0     |    |
| Taper Length (ft)          | 75    |       |       |       | 25   |       |    |
| Lane Util. Factor          | 1.00  | 0.95  | 1.00  | 1.00  | 1.00 | 1.00  |    |
| Ped Bike Factor            |       |       | 1.00  |       |      |       |    |
| Frt                        |       |       | 0.992 |       |      |       |    |
| Flt Protected              | 0.950 |       |       |       |      |       |    |
| Satd. Flow (prot)          | 1770  | 3539  | 1846  | 0     | 0    | 0     |    |
| Flt Permitted              | 0.173 |       |       |       |      |       |    |
| Satd. Flow (perm)          | 322   | 3539  | 1846  | 0     | 0    | 0     |    |
| Right Turn on Red          |       |       |       | Yes   |      | Yes   |    |
| Satd. Flow (RTOR)          |       |       | 4     |       |      |       |    |
| Link Speed (mph)           |       | 30    | 30    |       | 30   |       |    |
| Link Distance (ft)         |       | 412   | 232   |       | 156  |       |    |
| Travel Time (s)            |       | 9.4   | 5.3   |       | 3.5  |       |    |
| Confl. Bikes (#/hr)        |       |       |       | 2     |      |       |    |
| Peak Hour Factor           | 0.90  | 0.90  | 0.89  | 0.89  | 0.25 | 0.25  |    |
| Heavy Vehicles (%)         | 2%    | 2%    | 2%    | 2%    | 0%   | 0%    |    |
| Adj. Flow (vph)            | 460   | 161   | 857   | 52    | 0    | 0     |    |
| Shared Lane Traffic (%)    |       |       |       |       |      |       |    |
| Lane Group Flow (vph)      | 460   | 161   | 909   | 0     | 0    | 0     |    |
| Enter Blocked Intersection | No    | No    | No    | No    | No   | No    |    |
| Lane Alignment             | Left  | Left  | Left  | Right | Left | Right |    |
| Median Width(ft)           |       | 12    | 12    |       | 0    |       |    |
| Link Offset(ft)            |       | 0     | 0     |       | 0    |       |    |
| Crosswalk Width(ft)        |       | 10    | 10    |       | 10   |       |    |
| Two way Left Turn Lane     |       |       |       |       |      |       |    |
| Headway Factor             | 1.00  | 1.00  | 1.00  | 1.00  | 1.00 | 1.00  |    |
| Turning Speed (mph)        | 15    |       |       | 9     | 15   | 9     |    |
| Number of Detectors        | 1     | 2     | 2     |       |      |       |    |
| Detector Template          |       |       |       |       |      |       |    |
| Leading Detector (ft)      | 25    | 166   | 236   |       |      |       |    |
| Trailing Detector (ft)     | 0     | 0     | 0     |       |      |       |    |
| Detector 1 Position(ft)    | 0     | 0     | 0     |       |      |       |    |
| Detector 1 Size(ft)        | 25    | 25    | 25    |       |      |       |    |
| Detector 1 Type            | Cl+Ex | Cl+Ex | Cl+Ex |       |      |       |    |
| Detector 1 Channel         |       |       |       |       |      |       |    |
| Detector 1 Extend (s)      | 0.0   | 0.0   | 0.0   |       |      |       |    |
| Detector 1 Queue (s)       | 0.0   | 0.0   | 0.0   |       |      |       |    |
| Detector 1 Delay (s)       | 0.0   | 0.0   | 0.0   |       |      |       |    |
| Detector 2 Position(ft)    |       | 160   | 230   |       |      |       |    |
| Detector 2 Size(ft)        |       | 6     | 6     |       |      |       |    |
| Detector 2 Type            |       | Cl+Ex | Cl+Ex |       |      |       |    |
| Detector 2 Channel         |       |       |       |       |      |       |    |
| Detector 2 Extend (s)      |       | 0.0   | 0.0   |       |      |       |    |

Lanes, Volumes, Timings  
 260: Newport Way & I-90 EB On-Ramp

05/28/2019

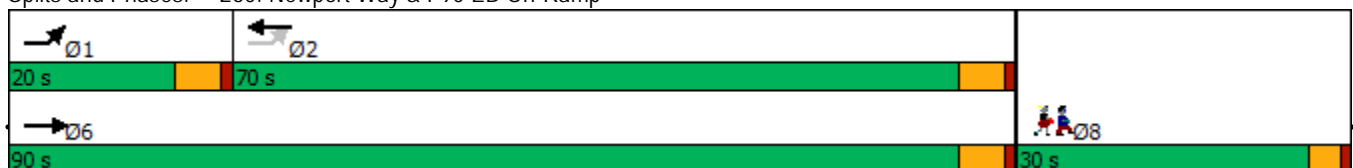


| Lane Group              | EBL   | EBT   | WBT   | WBR | SWL | SWR | Ø8   |
|-------------------------|-------|-------|-------|-----|-----|-----|------|
| Turn Type               | D.P+P | NA    | NA    |     |     |     |      |
| Protected Phases        | 1     | 6     | 2     |     |     |     | 8    |
| Permitted Phases        | 2     |       |       |     |     |     |      |
| Detector Phase          | 1     | 6     | 2     |     |     |     |      |
| Switch Phase            |       |       |       |     |     |     |      |
| Minimum Initial (s)     | 4.0   | 4.0   | 4.0   |     |     |     | 5.0  |
| Minimum Split (s)       | 10.0  | 20.0  | 20.0  |     |     |     | 30.0 |
| Total Split (s)         | 20.0  | 90.0  | 70.0  |     |     |     | 30.0 |
| Total Split (%)         | 16.7% | 75.0% | 58.3% |     |     |     | 25%  |
| Maximum Green (s)       | 14.9  | 84.9  | 64.9  |     |     |     | 26.0 |
| Yellow Time (s)         | 4.1   | 4.1   | 4.1   |     |     |     | 3.0  |
| All-Red Time (s)        | 1.0   | 1.0   | 1.0   |     |     |     | 1.0  |
| Lost Time Adjust (s)    | 0.0   | 0.0   | 0.0   |     |     |     |      |
| Total Lost Time (s)     | 5.1   | 5.1   | 5.1   |     |     |     |      |
| Lead/Lag                | Lead  |       | Lag   |     |     |     |      |
| Lead-Lag Optimize?      | Yes   |       | Yes   |     |     |     |      |
| Vehicle Extension (s)   | 2.0   | 2.0   | 2.0   |     |     |     | 2.0  |
| Minimum Gap (s)         | 2.0   | 2.0   | 2.0   |     |     |     | 2.0  |
| Time Before Reduce (s)  | 0.0   | 0.0   | 0.0   |     |     |     | 0.0  |
| Time To Reduce (s)      | 5.0   | 5.0   | 5.0   |     |     |     | 5.0  |
| Recall Mode             | None  | None  | None  |     |     |     | None |
| Walk Time (s)           |       |       |       |     |     |     | 5.0  |
| Flash Dont Walk (s)     |       |       |       |     |     |     | 21.0 |
| Pedestrian Calls (#/hr) |       |       |       |     |     |     | 0    |
| Act Effct Green (s)     | 59.3  | 69.8  | 44.1  |     |     |     |      |
| Actuated g/C Ratio      | 0.85  | 1.00  | 0.63  |     |     |     |      |
| v/c Ratio               | 0.78  | 0.05  | 0.78  |     |     |     |      |
| Control Delay           | 23.6  | 0.0   | 14.3  |     |     |     |      |
| Queue Delay             | 0.0   | 0.0   | 0.0   |     |     |     |      |
| Total Delay             | 23.6  | 0.0   | 14.3  |     |     |     |      |
| LOS                     | C     | A     | B     |     |     |     |      |
| Approach Delay          |       | 17.5  | 14.3  |     |     |     |      |
| Approach LOS            |       | B     | B     |     |     |     |      |

Intersection Summary

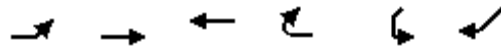
|                                    |                        |
|------------------------------------|------------------------|
| Area Type:                         | Other                  |
| Cycle Length:                      | 120                    |
| Actuated Cycle Length:             | 69.8                   |
| Natural Cycle:                     | 140                    |
| Control Type:                      | Actuated-Uncoordinated |
| Maximum v/c Ratio:                 | 0.78                   |
| Intersection Signal Delay:         | 15.6                   |
| Intersection LOS:                  | B                      |
| Intersection Capacity Utilization: | 74.4%                  |
| ICU Level of Service:              | D                      |
| Analysis Period (min):             | 15                     |

Splits and Phases: 260: Newport Way & I-90 EB On-Ramp



Lanes, Volumes, Timings  
260: Newport Way & I-90 EB On-Ramp

05/28/2019

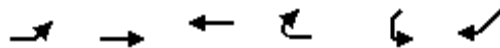


| Lane Group                 | EBL   | EBT   | WBT   | WBR   | SWL  | SWR   | Ø8 |
|----------------------------|-------|-------|-------|-------|------|-------|----|
| Lane Configurations        |       |       |       |       |      |       |    |
| Traffic Volume (vph)       | 667   | 607   | 273   | 27    | 0    | 0     |    |
| Future Volume (vph)        | 667   | 607   | 273   | 27    | 0    | 0     |    |
| Ideal Flow (vphpl)         | 1900  | 1900  | 1900  | 1900  | 1900 | 1900  |    |
| Storage Length (ft)        | 125   |       |       | 0     | 0    | 0     |    |
| Storage Lanes              | 1     |       |       | 0     | 0    | 0     |    |
| Taper Length (ft)          | 75    |       |       |       | 25   |       |    |
| Lane Util. Factor          | 1.00  | 0.95  | 1.00  | 1.00  | 1.00 | 1.00  |    |
| Frt                        |       |       | 0.988 |       |      |       |    |
| Flt Protected              | 0.950 |       |       |       |      |       |    |
| Satd. Flow (prot)          | 1787  | 3574  | 1859  | 0     | 0    | 0     |    |
| Flt Permitted              | 0.412 |       |       |       |      |       |    |
| Satd. Flow (perm)          | 775   | 3574  | 1859  | 0     | 0    | 0     |    |
| Right Turn on Red          |       |       |       | Yes   |      | Yes   |    |
| Satd. Flow (RTOR)          |       |       | 6     |       |      |       |    |
| Link Speed (mph)           |       | 30    | 30    |       | 30   |       |    |
| Link Distance (ft)         |       | 412   | 232   |       | 156  |       |    |
| Travel Time (s)            |       | 9.4   | 5.3   |       | 3.5  |       |    |
| Peak Hour Factor           | 0.88  | 0.88  | 0.78  | 0.78  | 0.25 | 0.25  |    |
| Heavy Vehicles (%)         | 1%    | 1%    | 1%    | 1%    | 0%   | 0%    |    |
| Adj. Flow (vph)            | 758   | 690   | 350   | 35    | 0    | 0     |    |
| Shared Lane Traffic (%)    |       |       |       |       |      |       |    |
| Lane Group Flow (vph)      | 758   | 690   | 385   | 0     | 0    | 0     |    |
| Enter Blocked Intersection | No    | No    | No    | No    | No   | No    |    |
| Lane Alignment             | Left  | Left  | Left  | Right | Left | Right |    |
| Median Width(ft)           |       | 12    | 12    |       | 0    |       |    |
| Link Offset(ft)            |       | 0     | 0     |       | 0    |       |    |
| Crosswalk Width(ft)        |       | 10    | 10    |       | 10   |       |    |
| Two way Left Turn Lane     |       |       |       |       |      |       |    |
| Headway Factor             | 1.00  | 1.00  | 1.00  | 1.00  | 1.00 | 1.00  |    |
| Turning Speed (mph)        | 15    |       |       | 9     | 15   | 9     |    |
| Number of Detectors        | 1     | 2     | 2     |       |      |       |    |
| Detector Template          |       |       |       |       |      |       |    |
| Leading Detector (ft)      | 25    | 166   | 236   |       |      |       |    |
| Trailing Detector (ft)     | 0     | 0     | 0     |       |      |       |    |
| Detector 1 Position(ft)    | 0     | 0     | 0     |       |      |       |    |
| Detector 1 Size(ft)        | 25    | 25    | 25    |       |      |       |    |
| Detector 1 Type            | Cl+Ex | Cl+Ex | Cl+Ex |       |      |       |    |
| Detector 1 Channel         |       |       |       |       |      |       |    |
| Detector 1 Extend (s)      | 0.0   | 0.0   | 0.0   |       |      |       |    |
| Detector 1 Queue (s)       | 0.0   | 0.0   | 0.0   |       |      |       |    |
| Detector 1 Delay (s)       | 0.0   | 0.0   | 0.0   |       |      |       |    |
| Detector 2 Position(ft)    |       | 160   | 230   |       |      |       |    |
| Detector 2 Size(ft)        |       | 6     | 6     |       |      |       |    |
| Detector 2 Type            |       | Cl+Ex | Cl+Ex |       |      |       |    |
| Detector 2 Channel         |       |       |       |       |      |       |    |
| Detector 2 Extend (s)      |       | 0.0   | 0.0   |       |      |       |    |
| Turn Type                  | D.P+P | NA    | NA    |       |      |       |    |
| Protected Phases           | 1     | 6     | 2     |       |      |       | 8  |

# Lanes, Volumes, Timings

## 260: Newport Way & I-90 EB On-Ramp

05/28/2019

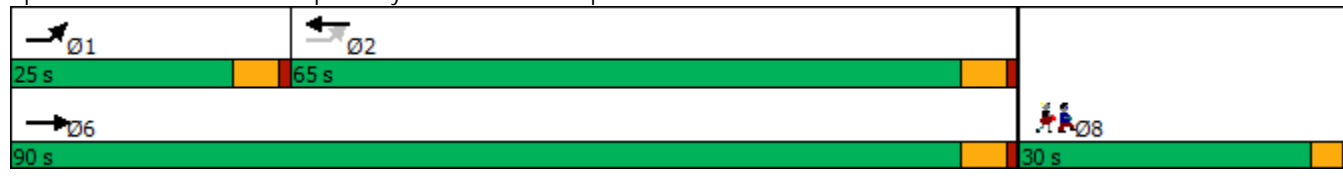


| Lane Group              | EBL   | EBT   | WBT   | WBR  | SWL | SWR | Ø8   |
|-------------------------|-------|-------|-------|------|-----|-----|------|
| Permitted Phases        | 2     |       |       |      |     |     |      |
| Detector Phase          | 1     | 6     | 2     |      |     |     |      |
| Switch Phase            |       |       |       |      |     |     |      |
| Minimum Initial (s)     | 4.0   | 4.0   | 4.0   | 5.0  |     |     |      |
| Minimum Split (s)       | 10.0  | 20.0  | 20.0  | 30.0 |     |     |      |
| Total Split (s)         | 25.0  | 90.0  | 65.0  | 30.0 |     |     |      |
| Total Split (%)         | 20.8% | 75.0% | 54.2% | 25%  |     |     |      |
| Maximum Green (s)       | 19.9  | 84.9  | 59.9  | 26.0 |     |     |      |
| Yellow Time (s)         | 4.1   | 4.1   | 4.1   | 3.0  |     |     |      |
| All-Red Time (s)        | 1.0   | 1.0   | 1.0   | 1.0  |     |     |      |
| Lost Time Adjust (s)    | 0.0   | 0.0   | 0.0   |      |     |     |      |
| Total Lost Time (s)     | 5.1   | 5.1   | 5.1   |      |     |     |      |
| Lead/Lag                | Lead  |       | Lag   |      |     |     |      |
| Lead-Lag Optimize?      | Yes   |       | Yes   |      |     |     |      |
| Vehicle Extension (s)   | 2.0   | 2.0   | 2.0   | 2.0  |     |     |      |
| Minimum Gap (s)         | 2.0   | 2.0   | 2.0   | 2.0  |     |     |      |
| Time Before Reduce (s)  | 0.0   | 0.0   | 0.0   | 0.0  |     |     |      |
| Time To Reduce (s)      | 5.0   | 5.0   | 5.0   | 5.0  |     |     |      |
| Recall Mode             | None  | None  | None  | None |     |     |      |
| Walk Time (s)           |       |       |       |      |     |     | 5.0  |
| Flash Dont Walk (s)     |       |       |       |      |     |     | 21.0 |
| Pedestrian Calls (#/hr) |       |       |       |      |     |     | 0    |
| Act Effct Green (s)     | 33.6  | 43.9  | 13.6  |      |     |     |      |
| Actuated g/C Ratio      | 0.77  | 1.00  | 0.31  |      |     |     |      |
| v/c Ratio               | 0.72  | 0.19  | 0.66  |      |     |     |      |
| Control Delay           | 9.2   | 0.1   | 18.9  |      |     |     |      |
| Queue Delay             | 0.0   | 0.0   | 0.0   |      |     |     |      |
| Total Delay             | 9.2   | 0.1   | 18.9  |      |     |     |      |
| LOS                     | A     | A     | B     |      |     |     |      |
| Approach Delay          |       |       | 4.9   | 18.9 |     |     |      |
| Approach LOS            |       |       | A     | B    |     |     |      |

### Intersection Summary

|                                    |                        |
|------------------------------------|------------------------|
| Area Type:                         | Other                  |
| Cycle Length:                      | 120                    |
| Actuated Cycle Length:             | 43.9                   |
| Natural Cycle:                     | 90                     |
| Control Type:                      | Actuated-Uncoordinated |
| Maximum v/c Ratio:                 | 0.72                   |
| Intersection Signal Delay:         | 7.8                    |
| Intersection LOS:                  | A                      |
| Intersection Capacity Utilization: | 61.5%                  |
| ICU Level of Service:              | B                      |
| Analysis Period (min):             | 15                     |

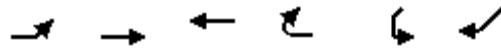
Splits and Phases: 260: Newport Way & I-90 EB On-Ramp





Lanes, Volumes, Timings  
260: Newport Way & I-90 EB On-Ramp

05/28/2019

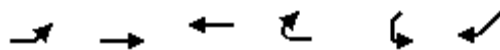


| Lane Group                 | EBL   | EBT   | WBT   | WBR   | SWL  | SWR   | Ø8 |
|----------------------------|-------|-------|-------|-------|------|-------|----|
| Lane Configurations        |       |       |       |       |      |       |    |
| Traffic Volume (vph)       | 600   | 170   | 730   | 40    | 0    | 0     |    |
| Future Volume (vph)        | 600   | 170   | 730   | 40    | 0    | 0     |    |
| Ideal Flow (vphpl)         | 1900  | 1900  | 1900  | 1900  | 1900 | 1900  |    |
| Storage Length (ft)        | 125   |       |       | 0     | 0    | 0     |    |
| Storage Lanes              | 1     |       |       | 0     | 0    | 0     |    |
| Taper Length (ft)          | 75    |       |       |       | 25   |       |    |
| Lane Util. Factor          | 1.00  | 0.95  | 1.00  | 1.00  | 1.00 | 1.00  |    |
| Ped Bike Factor            |       |       | 1.00  |       |      |       |    |
| Frt                        |       |       | 0.993 |       |      |       |    |
| Flt Protected              | 0.950 |       |       |       |      |       |    |
| Satd. Flow (prot)          | 1770  | 3539  | 1848  | 0     | 0    | 0     |    |
| Flt Permitted              | 0.179 |       |       |       |      |       |    |
| Satd. Flow (perm)          | 333   | 3539  | 1848  | 0     | 0    | 0     |    |
| Right Turn on Red          |       |       |       | Yes   |      | Yes   |    |
| Satd. Flow (RTOR)          |       |       | 4     |       |      |       |    |
| Link Speed (mph)           |       | 30    | 30    |       | 30   |       |    |
| Link Distance (ft)         |       | 412   | 232   |       | 156  |       |    |
| Travel Time (s)            |       | 9.4   | 5.3   |       | 3.5  |       |    |
| Confl. Bikes (#/hr)        |       |       |       | 2     |      |       |    |
| Peak Hour Factor           | 0.90  | 0.90  | 0.89  | 0.89  | 0.25 | 0.25  |    |
| Heavy Vehicles (%)         | 2%    | 2%    | 2%    | 2%    | 0%   | 0%    |    |
| Adj. Flow (vph)            | 667   | 189   | 820   | 45    | 0    | 0     |    |
| Shared Lane Traffic (%)    |       |       |       |       |      |       |    |
| Lane Group Flow (vph)      | 667   | 189   | 865   | 0     | 0    | 0     |    |
| Enter Blocked Intersection | No    | No    | No    | No    | No   | No    |    |
| Lane Alignment             | Left  | Left  | Left  | Right | Left | Right |    |
| Median Width(ft)           |       | 12    | 12    |       | 0    |       |    |
| Link Offset(ft)            |       | 0     | 0     |       | 0    |       |    |
| Crosswalk Width(ft)        |       | 10    | 10    |       | 10   |       |    |
| Two way Left Turn Lane     |       |       |       |       |      |       |    |
| Headway Factor             | 1.00  | 1.00  | 1.00  | 1.00  | 1.00 | 1.00  |    |
| Turning Speed (mph)        | 15    |       |       | 9     | 15   | 9     |    |
| Number of Detectors        | 1     | 2     | 2     |       |      |       |    |
| Detector Template          |       |       |       |       |      |       |    |
| Leading Detector (ft)      | 25    | 166   | 236   |       |      |       |    |
| Trailing Detector (ft)     | 0     | 0     | 0     |       |      |       |    |
| Detector 1 Position(ft)    | 0     | 0     | 0     |       |      |       |    |
| Detector 1 Size(ft)        | 25    | 25    | 25    |       |      |       |    |
| Detector 1 Type            | Cl+Ex | Cl+Ex | Cl+Ex |       |      |       |    |
| Detector 1 Channel         |       |       |       |       |      |       |    |
| Detector 1 Extend (s)      | 0.0   | 0.0   | 0.0   |       |      |       |    |
| Detector 1 Queue (s)       | 0.0   | 0.0   | 0.0   |       |      |       |    |
| Detector 1 Delay (s)       | 0.0   | 0.0   | 0.0   |       |      |       |    |
| Detector 2 Position(ft)    |       | 160   | 230   |       |      |       |    |
| Detector 2 Size(ft)        |       | 6     | 6     |       |      |       |    |
| Detector 2 Type            |       | Cl+Ex | Cl+Ex |       |      |       |    |
| Detector 2 Channel         |       |       |       |       |      |       |    |
| Detector 2 Extend (s)      |       | 0.0   | 0.0   |       |      |       |    |

# Lanes, Volumes, Timings

## 260: Newport Way & I-90 EB On-Ramp

05/28/2019

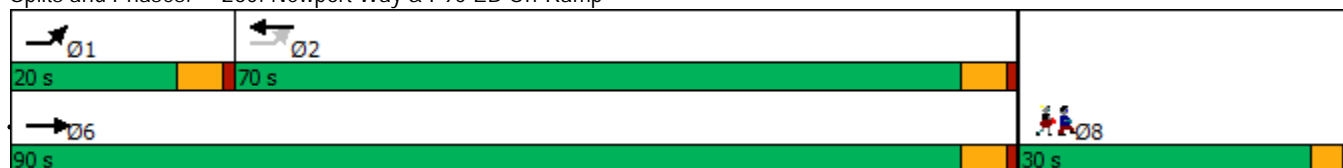


| Lane Group              | EBL   | EBT   | WBT   | WBR | SWL | SWR | Ø8   |
|-------------------------|-------|-------|-------|-----|-----|-----|------|
| Turn Type               | D.P+P | NA    | NA    |     |     |     |      |
| Protected Phases        | 1     | 6     | 2     |     |     |     | 8    |
| Permitted Phases        | 2     |       |       |     |     |     |      |
| Detector Phase          | 1     | 6     | 2     |     |     |     |      |
| Switch Phase            |       |       |       |     |     |     |      |
| Minimum Initial (s)     | 4.0   | 4.0   | 4.0   |     |     |     | 5.0  |
| Minimum Split (s)       | 10.0  | 20.0  | 20.0  |     |     |     | 30.0 |
| Total Split (s)         | 20.0  | 90.0  | 70.0  |     |     |     | 30.0 |
| Total Split (%)         | 16.7% | 75.0% | 58.3% |     |     |     | 25%  |
| Maximum Green (s)       | 14.9  | 84.9  | 64.9  |     |     |     | 26.0 |
| Yellow Time (s)         | 4.1   | 4.1   | 4.1   |     |     |     | 3.0  |
| All-Red Time (s)        | 1.0   | 1.0   | 1.0   |     |     |     | 1.0  |
| Lost Time Adjust (s)    | 0.0   | 0.0   | 0.0   |     |     |     |      |
| Total Lost Time (s)     | 5.1   | 5.1   | 5.1   |     |     |     |      |
| Lead/Lag                | Lead  |       | Lag   |     |     |     |      |
| Lead-Lag Optimize?      | Yes   |       | Yes   |     |     |     |      |
| Vehicle Extension (s)   | 2.0   | 2.0   | 2.0   |     |     |     | 2.0  |
| Minimum Gap (s)         | 2.0   | 2.0   | 2.0   |     |     |     | 2.0  |
| Time Before Reduce (s)  | 0.0   | 0.0   | 0.0   |     |     |     | 0.0  |
| Time To Reduce (s)      | 5.0   | 5.0   | 5.0   |     |     |     | 5.0  |
| Recall Mode             | None  | None  | None  |     |     |     | None |
| Walk Time (s)           |       |       |       |     |     |     | 5.0  |
| Flash Dont Walk (s)     |       |       |       |     |     |     | 21.0 |
| Pedestrian Calls (#/hr) |       |       |       |     |     |     | 0    |
| Act Effct Green (s)     | 53.8  | 64.3  | 38.6  |     |     |     |      |
| Actuated g/C Ratio      | 0.84  | 1.00  | 0.60  |     |     |     |      |
| v/c Ratio               | 1.08  | 0.05  | 0.78  |     |     |     |      |
| Control Delay           | 77.6  | 0.0   | 14.8  |     |     |     |      |
| Queue Delay             | 0.0   | 0.0   | 0.0   |     |     |     |      |
| Total Delay             | 77.6  | 0.0   | 14.8  |     |     |     |      |
| LOS                     | E     | A     | B     |     |     |     |      |
| Approach Delay          |       | 60.5  | 14.8  |     |     |     |      |
| Approach LOS            |       | E     | B     |     |     |     |      |

### Intersection Summary

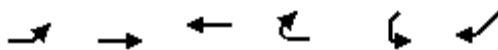
|                                    |                        |
|------------------------------------|------------------------|
| Area Type:                         | Other                  |
| Cycle Length:                      | 120                    |
| Actuated Cycle Length:             | 64.3                   |
| Natural Cycle:                     | 150                    |
| Control Type:                      | Actuated-Uncoordinated |
| Maximum v/c Ratio:                 | 1.08                   |
| Intersection Signal Delay:         | 37.5                   |
| Intersection LOS:                  | D                      |
| Intersection Capacity Utilization: | 82.6%                  |
| ICU Level of Service:              | E                      |
| Analysis Period (min):             | 15                     |

Splits and Phases: 260: Newport Way & I-90 EB On-Ramp



Lanes, Volumes, Timings  
260: Newport Way & I-90 EB On-Ramp

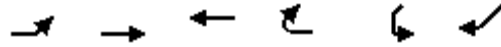
05/28/2019



| Lane Group                 | EBL   | EBT   | WBT   | WBR   | SWL  | SWR   | Ø8 |
|----------------------------|-------|-------|-------|-------|------|-------|----|
| Lane Configurations        |       |       |       |       |      |       |    |
| Traffic Volume (vph)       | 1160  | 570   | 230   | 30    | 0    | 0     |    |
| Future Volume (vph)        | 1160  | 570   | 230   | 30    | 0    | 0     |    |
| Ideal Flow (vphpl)         | 1900  | 1900  | 1900  | 1900  | 1900 | 1900  |    |
| Storage Length (ft)        | 125   |       |       | 0     | 0    | 0     |    |
| Storage Lanes              | 1     |       |       | 0     | 0    | 0     |    |
| Taper Length (ft)          | 75    |       |       |       | 25   |       |    |
| Lane Util. Factor          | 1.00  | 0.95  | 1.00  | 1.00  | 1.00 | 1.00  |    |
| Frt                        |       |       | 0.985 |       |      |       |    |
| Flt Protected              | 0.950 |       |       |       |      |       |    |
| Satd. Flow (prot)          | 1787  | 3574  | 1853  | 0     | 0    | 0     |    |
| Flt Permitted              | 0.478 |       |       |       |      |       |    |
| Satd. Flow (perm)          | 899   | 3574  | 1853  | 0     | 0    | 0     |    |
| Right Turn on Red          |       |       |       | Yes   |      | Yes   |    |
| Satd. Flow (RTOR)          |       |       | 8     |       |      |       |    |
| Link Speed (mph)           |       | 30    | 30    |       | 30   |       |    |
| Link Distance (ft)         |       | 412   | 232   |       | 156  |       |    |
| Travel Time (s)            |       | 9.4   | 5.3   |       | 3.5  |       |    |
| Peak Hour Factor           | 0.88  | 0.88  | 0.78  | 0.78  | 0.25 | 0.25  |    |
| Heavy Vehicles (%)         | 1%    | 1%    | 1%    | 1%    | 0%   | 0%    |    |
| Adj. Flow (vph)            | 1318  | 648   | 295   | 38    | 0    | 0     |    |
| Shared Lane Traffic (%)    |       |       |       |       |      |       |    |
| Lane Group Flow (vph)      | 1318  | 648   | 333   | 0     | 0    | 0     |    |
| Enter Blocked Intersection | No    | No    | No    | No    | No   | No    |    |
| Lane Alignment             | Left  | Left  | Left  | Right | Left | Right |    |
| Median Width(ft)           |       | 12    | 12    |       | 0    |       |    |
| Link Offset(ft)            |       | 0     | 0     |       | 0    |       |    |
| Crosswalk Width(ft)        |       | 10    | 10    |       | 10   |       |    |
| Two way Left Turn Lane     |       |       |       |       |      |       |    |
| Headway Factor             | 1.00  | 1.00  | 1.00  | 1.00  | 1.00 | 1.00  |    |
| Turning Speed (mph)        | 15    |       |       | 9     | 15   | 9     |    |
| Number of Detectors        | 1     | 2     | 2     |       |      |       |    |
| Detector Template          |       |       |       |       |      |       |    |
| Leading Detector (ft)      | 25    | 166   | 236   |       |      |       |    |
| Trailing Detector (ft)     | 0     | 0     | 0     |       |      |       |    |
| Detector 1 Position(ft)    | 0     | 0     | 0     |       |      |       |    |
| Detector 1 Size(ft)        | 25    | 25    | 25    |       |      |       |    |
| Detector 1 Type            | Cl+Ex | Cl+Ex | Cl+Ex |       |      |       |    |
| Detector 1 Channel         |       |       |       |       |      |       |    |
| Detector 1 Extend (s)      | 0.0   | 0.0   | 0.0   |       |      |       |    |
| Detector 1 Queue (s)       | 0.0   | 0.0   | 0.0   |       |      |       |    |
| Detector 1 Delay (s)       | 0.0   | 0.0   | 0.0   |       |      |       |    |
| Detector 2 Position(ft)    |       | 160   | 230   |       |      |       |    |
| Detector 2 Size(ft)        |       | 6     | 6     |       |      |       |    |
| Detector 2 Type            |       | Cl+Ex | Cl+Ex |       |      |       |    |
| Detector 2 Channel         |       |       |       |       |      |       |    |
| Detector 2 Extend (s)      |       | 0.0   | 0.0   |       |      |       |    |
| Turn Type                  | D.P+P | NA    | NA    |       |      |       |    |
| Protected Phases           | 1     | 6     | 2     |       |      |       | 8  |

Lanes, Volumes, Timings  
 260: Newport Way & I-90 EB On-Ramp

05/28/2019

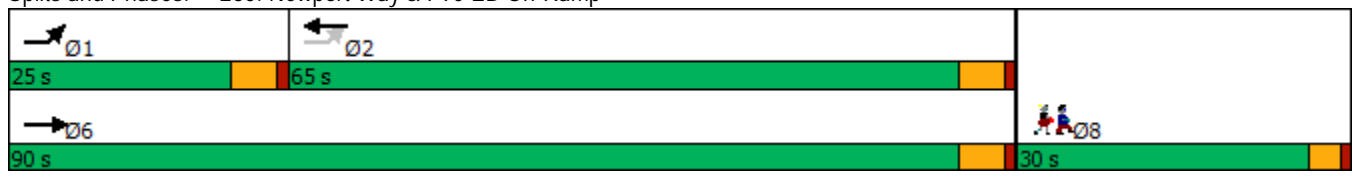


| Lane Group              | EBL   | EBT   | WBT   | WBR  | SWL | SWR | Ø8   |
|-------------------------|-------|-------|-------|------|-----|-----|------|
| Permitted Phases        | 2     |       |       |      |     |     |      |
| Detector Phase          | 1     | 6     | 2     |      |     |     |      |
| Switch Phase            |       |       |       |      |     |     |      |
| Minimum Initial (s)     | 4.0   | 4.0   | 4.0   | 5.0  |     |     |      |
| Minimum Split (s)       | 10.0  | 20.0  | 20.0  | 30.0 |     |     |      |
| Total Split (s)         | 25.0  | 90.0  | 65.0  | 30.0 |     |     |      |
| Total Split (%)         | 20.8% | 75.0% | 54.2% | 25%  |     |     |      |
| Maximum Green (s)       | 19.9  | 84.9  | 59.9  | 26.0 |     |     |      |
| Yellow Time (s)         | 4.1   | 4.1   | 4.1   | 3.0  |     |     |      |
| All-Red Time (s)        | 1.0   | 1.0   | 1.0   | 1.0  |     |     |      |
| Lost Time Adjust (s)    | 0.0   | 0.0   | 0.0   |      |     |     |      |
| Total Lost Time (s)     | 5.1   | 5.1   | 5.1   |      |     |     |      |
| Lead/Lag                | Lead  |       | Lag   |      |     |     |      |
| Lead-Lag Optimize?      | Yes   |       | Yes   |      |     |     |      |
| Vehicle Extension (s)   | 2.0   | 2.0   | 2.0   | 2.0  |     |     |      |
| Minimum Gap (s)         | 2.0   | 2.0   | 2.0   | 2.0  |     |     |      |
| Time Before Reduce (s)  | 0.0   | 0.0   | 0.0   | 0.0  |     |     |      |
| Time To Reduce (s)      | 5.0   | 5.0   | 5.0   | 5.0  |     |     |      |
| Recall Mode             | None  | None  | None  | None |     |     |      |
| Walk Time (s)           |       |       |       |      |     |     | 5.0  |
| Flash Dont Walk (s)     |       |       |       |      |     |     | 21.0 |
| Pedestrian Calls (#/hr) |       |       |       |      |     |     | 0    |
| Act Effct Green (s)     | 32.0  | 42.2  | 12.0  |      |     |     |      |
| Actuated g/C Ratio      | 0.76  | 1.00  | 0.28  |      |     |     |      |
| v/c Ratio               | 1.20  | 0.18  | 0.63  |      |     |     |      |
| Control Delay           | 111.6 | 0.1   | 18.4  |      |     |     |      |
| Queue Delay             | 0.0   | 0.0   | 0.0   |      |     |     |      |
| Total Delay             | 111.6 | 0.1   | 18.4  |      |     |     |      |
| LOS                     | F     | A     | B     |      |     |     |      |
| Approach Delay          |       |       | 74.8  | 18.4 |     |     |      |
| Approach LOS            |       |       | E     | B    |     |     |      |

Intersection Summary

|                                    |                        |
|------------------------------------|------------------------|
| Area Type:                         | Other                  |
| Cycle Length:                      | 120                    |
| Actuated Cycle Length:             | 42.2                   |
| Natural Cycle:                     | 150                    |
| Control Type:                      | Actuated-Uncoordinated |
| Maximum v/c Ratio:                 | 1.20                   |
| Intersection Signal Delay:         | 66.6                   |
| Intersection LOS:                  | E                      |
| Intersection Capacity Utilization: | 86.7%                  |
| ICU Level of Service:              | E                      |
| Analysis Period (min):             | 15                     |

Splits and Phases: 260: Newport Way & I-90 EB On-Ramp



Lanes, Volumes, Timings  
260: Newport Way & I-90 EB On-Ramp

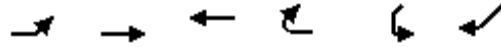
05/28/2019



| Lane Group                 | EBL   | EBT   | WBT   | WBR   | SWL  | SWR   |
|----------------------------|-------|-------|-------|-------|------|-------|
| Lane Configurations        |       |       |       |       |      |       |
| Traffic Volume (vph)       | 600   | 170   | 730   | 40    | 0    | 0     |
| Future Volume (vph)        | 600   | 170   | 730   | 40    | 0    | 0     |
| Ideal Flow (vphp)          | 1900  | 1900  | 1900  | 1900  | 1900 | 1900  |
| Storage Length (ft)        | 125   |       |       | 0     | 0    | 0     |
| Storage Lanes              | 1     |       |       | 0     | 0    | 0     |
| Taper Length (ft)          | 75    |       |       |       | 25   |       |
| Lane Util. Factor          | 0.97  | 1.00  | 1.00  | 1.00  | 1.00 | 1.00  |
| Ped Bike Factor            |       |       | 1.00  |       |      |       |
| Frt                        |       |       | 0.993 |       |      |       |
| Flt Protected              | 0.950 |       |       |       |      |       |
| Satd. Flow (prot)          | 3433  | 1863  | 1848  | 0     | 0    | 0     |
| Flt Permitted              | 0.950 |       |       |       |      |       |
| Satd. Flow (perm)          | 3433  | 1863  | 1848  | 0     | 0    | 0     |
| Right Turn on Red          |       |       |       | Yes   |      | Yes   |
| Satd. Flow (RTOR)          |       |       | 6     |       |      |       |
| Link Speed (mph)           |       | 30    | 30    |       | 30   |       |
| Link Distance (ft)         |       | 412   | 232   |       | 156  |       |
| Travel Time (s)            |       | 9.4   | 5.3   |       | 3.5  |       |
| Confl. Bikes (#/hr)        |       |       |       | 2     |      |       |
| Peak Hour Factor           | 0.90  | 0.90  | 0.89  | 0.89  | 0.88 | 0.88  |
| Adj. Flow (vph)            | 667   | 189   | 820   | 45    | 0    | 0     |
| Shared Lane Traffic (%)    |       |       |       |       |      |       |
| Lane Group Flow (vph)      | 667   | 189   | 865   | 0     | 0    | 0     |
| Enter Blocked Intersection | No    | No    | No    | No    | No   | No    |
| Lane Alignment             | Left  | Left  | Left  | Right | Left | Right |
| Median Width(ft)           |       | 24    | 24    |       | 0    |       |
| Link Offset(ft)            |       | 0     | 0     |       | 0    |       |
| Crosswalk Width(ft)        |       | 10    | 10    |       | 10   |       |
| Two way Left Turn Lane     |       |       |       |       |      |       |
| Headway Factor             | 1.00  | 1.00  | 1.00  | 1.00  | 1.00 | 1.00  |
| Turning Speed (mph)        | 15    |       |       | 9     | 15   | 9     |
| Number of Detectors        | 1     | 2     | 2     |       |      |       |
| Detector Template          |       |       |       |       |      |       |
| Leading Detector (ft)      | 25    | 166   | 236   |       |      |       |
| Trailing Detector (ft)     | 0     | 0     | 0     |       |      |       |
| Detector 1 Position(ft)    | 0     | 0     | 0     |       |      |       |
| Detector 1 Size(ft)        | 25    | 25    | 25    |       |      |       |
| Detector 1 Type            | Cl+Ex | Cl+Ex | Cl+Ex |       |      |       |
| Detector 1 Channel         |       |       |       |       |      |       |
| Detector 1 Extend (s)      | 0.0   | 0.0   | 0.0   |       |      |       |
| Detector 1 Queue (s)       | 0.0   | 0.0   | 0.0   |       |      |       |
| Detector 1 Delay (s)       | 0.0   | 0.0   | 0.0   |       |      |       |
| Detector 2 Position(ft)    |       | 160   | 230   |       |      |       |
| Detector 2 Size(ft)        |       | 6     | 6     |       |      |       |
| Detector 2 Type            |       | Cl+Ex | Cl+Ex |       |      |       |
| Detector 2 Channel         |       |       |       |       |      |       |
| Detector 2 Extend (s)      |       | 0.0   | 0.0   |       |      |       |
| Turn Type                  | Prot  | NA    | NA    |       |      |       |

Lanes, Volumes, Timings  
 260: Newport Way & I-90 EB On-Ramp

05/28/2019



| Lane Group             | EBL   | EBT    | WBT   | WBR | SWL | SWR |
|------------------------|-------|--------|-------|-----|-----|-----|
| Protected Phases       | 1     | 6      | 2     |     |     |     |
| Permitted Phases       |       |        |       |     |     |     |
| Detector Phase         | 1     | 6      | 2     |     |     |     |
| Switch Phase           |       |        |       |     |     |     |
| Minimum Initial (s)    | 4.0   | 4.0    | 4.0   |     |     |     |
| Minimum Split (s)      | 10.0  | 20.0   | 20.0  |     |     |     |
| Total Split (s)        | 26.0  | 80.0   | 54.0  |     |     |     |
| Total Split (%)        | 32.5% | 100.0% | 67.5% |     |     |     |
| Maximum Green (s)      | 20.9  | 74.9   | 48.9  |     |     |     |
| Yellow Time (s)        | 4.1   | 4.1    | 4.1   |     |     |     |
| All-Red Time (s)       | 1.0   | 1.0    | 1.0   |     |     |     |
| Lost Time Adjust (s)   | 0.0   | 0.0    | 0.0   |     |     |     |
| Total Lost Time (s)    | 5.1   | 5.1    | 5.1   |     |     |     |
| Lead/Lag               | Lead  |        | Lag   |     |     |     |
| Lead-Lag Optimize?     | Yes   |        | Yes   |     |     |     |
| Vehicle Extension (s)  | 2.0   | 2.0    | 2.0   |     |     |     |
| Minimum Gap (s)        | 2.0   | 2.0    | 2.0   |     |     |     |
| Time Before Reduce (s) | 0.0   | 0.0    | 0.0   |     |     |     |
| Time To Reduce (s)     | 5.0   | 5.0    | 5.0   |     |     |     |
| Recall Mode            | None  | None   | None  |     |     |     |
| Act Effect Green (s)   | 16.4  | 64.2   | 36.9  |     |     |     |
| Actuated g/C Ratio     | 0.26  | 1.00   | 0.57  |     |     |     |
| v/c Ratio              | 0.76  | 0.10   | 0.81  |     |     |     |
| Control Delay          | 30.0  | 0.1    | 18.3  |     |     |     |
| Queue Delay            | 0.0   | 0.0    | 0.0   |     |     |     |
| Total Delay            | 30.0  | 0.1    | 18.3  |     |     |     |
| LOS                    | C     | A      | B     |     |     |     |
| Approach Delay         |       | 23.4   | 18.3  |     |     |     |
| Approach LOS           |       | C      | B     |     |     |     |

Intersection Summary

|                                    |                        |
|------------------------------------|------------------------|
| Area Type:                         | Other                  |
| Cycle Length:                      | 80                     |
| Actuated Cycle Length:             | 64.2                   |
| Natural Cycle:                     | 55                     |
| Control Type:                      | Actuated-Uncoordinated |
| Maximum v/c Ratio:                 | 0.81                   |
| Intersection Signal Delay:         | 20.9                   |
| Intersection LOS:                  | C                      |
| Intersection Capacity Utilization: | 66.5%                  |
| ICU Level of Service:              | C                      |
| Analysis Period (min):             | 15                     |

Splits and Phases: 260: Newport Way & I-90 EB On-Ramp





Lanes, Volumes, Timings  
260: Newport Way & I-90 EB On-Ramp

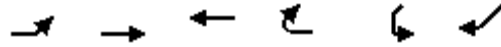
05/28/2019



| Lane Group                 | EBL   | EBT   | WBT   | WBR   | SWL  | SWR   |
|----------------------------|-------|-------|-------|-------|------|-------|
| Lane Configurations        |       |       |       |       |      |       |
| Traffic Volume (vph)       | 1160  | 570   | 230   | 30    | 0    | 0     |
| Future Volume (vph)        | 1160  | 570   | 230   | 30    | 0    | 0     |
| Ideal Flow (vphpl)         | 1900  | 1900  | 1900  | 1900  | 1900 | 1900  |
| Storage Length (ft)        | 125   |       |       | 0     | 0    | 0     |
| Storage Lanes              | 1     |       |       | 0     | 0    | 0     |
| Taper Length (ft)          | 75    |       |       |       | 25   |       |
| Lane Util. Factor          | 0.97  | 1.00  | 1.00  | 1.00  | 1.00 | 1.00  |
| Frt                        |       |       | 0.985 |       |      |       |
| Flt Protected              | 0.950 |       |       |       |      |       |
| Satd. Flow (prot)          | 3467  | 1881  | 1853  | 0     | 0    | 0     |
| Flt Permitted              | 0.950 |       |       |       |      |       |
| Satd. Flow (perm)          | 3467  | 1881  | 1853  | 0     | 0    | 0     |
| Right Turn on Red          |       |       |       | Yes   |      | Yes   |
| Satd. Flow (RTOR)          |       |       | 11    |       |      |       |
| Link Speed (mph)           |       | 30    | 30    |       | 30   |       |
| Link Distance (ft)         |       | 412   | 232   |       | 156  |       |
| Travel Time (s)            |       | 9.4   | 5.3   |       | 3.5  |       |
| Peak Hour Factor           | 0.88  | 0.88  | 0.78  | 0.78  | 0.25 | 0.25  |
| Heavy Vehicles (%)         | 1%    | 1%    | 1%    | 1%    | 0%   | 0%    |
| Adj. Flow (vph)            | 1318  | 648   | 295   | 38    | 0    | 0     |
| Shared Lane Traffic (%)    |       |       |       |       |      |       |
| Lane Group Flow (vph)      | 1318  | 648   | 333   | 0     | 0    | 0     |
| Enter Blocked Intersection | No    | No    | No    | No    | No   | No    |
| Lane Alignment             | Left  | Left  | Left  | Right | Left | Right |
| Median Width(ft)           |       | 24    | 24    |       | 0    |       |
| Link Offset(ft)            |       | 0     | 0     |       | 0    |       |
| Crosswalk Width(ft)        |       | 10    | 10    |       | 10   |       |
| Two way Left Turn Lane     |       |       |       |       |      |       |
| Headway Factor             | 1.00  | 1.00  | 1.00  | 1.00  | 1.00 | 1.00  |
| Turning Speed (mph)        | 15    |       |       | 9     | 15   | 9     |
| Number of Detectors        | 1     | 2     | 2     |       |      |       |
| Detector Template          |       |       |       |       |      |       |
| Leading Detector (ft)      | 25    | 166   | 236   |       |      |       |
| Trailing Detector (ft)     | 0     | 0     | 0     |       |      |       |
| Detector 1 Position(ft)    | 0     | 0     | 0     |       |      |       |
| Detector 1 Size(ft)        | 25    | 25    | 25    |       |      |       |
| Detector 1 Type            | Cl+Ex | Cl+Ex | Cl+Ex |       |      |       |
| Detector 1 Channel         |       |       |       |       |      |       |
| Detector 1 Extend (s)      | 0.0   | 0.0   | 0.0   |       |      |       |
| Detector 1 Queue (s)       | 0.0   | 0.0   | 0.0   |       |      |       |
| Detector 1 Delay (s)       | 0.0   | 0.0   | 0.0   |       |      |       |
| Detector 2 Position(ft)    |       | 160   | 230   |       |      |       |
| Detector 2 Size(ft)        |       | 6     | 6     |       |      |       |
| Detector 2 Type            |       | Cl+Ex | Cl+Ex |       |      |       |
| Detector 2 Channel         |       |       |       |       |      |       |
| Detector 2 Extend (s)      |       | 0.0   | 0.0   |       |      |       |
| Turn Type                  | Prot  | NA    | NA    |       |      |       |
| Protected Phases           | 1     | 6     | 2     |       |      |       |

Lanes, Volumes, Timings  
 260: Newport Way & I-90 EB On-Ramp

05/28/2019



| Lane Group             | EBL   | EBT    | WBT   | WBR | SWL | SWR |
|------------------------|-------|--------|-------|-----|-----|-----|
| Permitted Phases       |       |        |       |     |     |     |
| Detector Phase         | 1     | 6      | 2     |     |     |     |
| Switch Phase           |       |        |       |     |     |     |
| Minimum Initial (s)    | 4.0   | 4.0    | 4.0   |     |     |     |
| Minimum Split (s)      | 10.0  | 20.0   | 20.0  |     |     |     |
| Total Split (s)        | 39.0  | 65.0   | 26.0  |     |     |     |
| Total Split (%)        | 60.0% | 100.0% | 40.0% |     |     |     |
| Maximum Green (s)      | 33.9  | 59.9   | 20.9  |     |     |     |
| Yellow Time (s)        | 4.1   | 4.1    | 4.1   |     |     |     |
| All-Red Time (s)       | 1.0   | 1.0    | 1.0   |     |     |     |
| Lost Time Adjust (s)   | 0.0   | 0.0    | 0.0   |     |     |     |
| Total Lost Time (s)    | 5.1   | 5.1    | 5.1   |     |     |     |
| Lead/Lag               | Lead  |        | Lag   |     |     |     |
| Lead-Lag Optimize?     | Yes   |        | Yes   |     |     |     |
| Vehicle Extension (s)  | 2.0   | 2.0    | 2.0   |     |     |     |
| Minimum Gap (s)        | 2.0   | 2.0    | 2.0   |     |     |     |
| Time Before Reduce (s) | 0.0   | 0.0    | 0.0   |     |     |     |
| Time To Reduce (s)     | 5.0   | 5.0    | 5.0   |     |     |     |
| Recall Mode            | None  | Min    | None  |     |     |     |
| Act Effct Green (s)    | 22.9  | 47.1   | 13.2  |     |     |     |
| Actuated g/C Ratio     | 0.49  | 1.00   | 0.28  |     |     |     |
| v/c Ratio              | 0.78  | 0.34   | 0.63  |     |     |     |
| Control Delay          | 14.2  | 0.5    | 21.4  |     |     |     |
| Queue Delay            | 0.0   | 0.0    | 0.0   |     |     |     |
| Total Delay            | 14.2  | 0.5    | 21.4  |     |     |     |
| LOS                    | B     | A      | C     |     |     |     |
| Approach Delay         |       | 9.7    | 21.4  |     |     |     |
| Approach LOS           |       | A      | C     |     |     |     |

Intersection Summary

Area Type: Other  
 Cycle Length: 65  
 Actuated Cycle Length: 47.1  
 Natural Cycle: 50  
 Control Type: Actuated-Uncoordinated  
 Maximum v/c Ratio: 0.78  
 Intersection Signal Delay: 11.4  
 Intersection Capacity Utilization 55.5%  
 Analysis Period (min) 15  
 Intersection LOS: B  
 ICU Level of Service B

Splits and Phases: 260: Newport Way & I-90 EB On-Ramp



# MOVEMENT SUMMARY

 Site: 11 [Newport and I-90 AM]

Roundabout

| Movement Performance - Vehicles |        |                    |            |               |                   |                  |                       |                      |              |                             |                   |  |
|---------------------------------|--------|--------------------|------------|---------------|-------------------|------------------|-----------------------|----------------------|--------------|-----------------------------|-------------------|--|
| Mov ID                          | OD Mov | Demand Total veh/h | Flows HV % | Deg. Satn v/c | Average Delay sec | Level of Service | 95% Back Vehicles veh | of Queue Distance ft | Prop. Queued | Effective Stop Rate per veh | Average Speed mph |  |
| East: Newport Way               |        |                    |            |               |                   |                  |                       |                      |              |                             |                   |  |
| 6                               | T1     | 820                | 2.0        | 0.901         | 12.0              | LOS D            | 11.9                  | 301.3                | 0.88         | 1.25                        | 26.8              |  |
| 16                              | R2     | 45                 | 2.0        | 0.901         | 12.4              | LOS D            | 11.9                  | 301.3                | 0.88         | 1.25                        | 26.2              |  |
| Approach                        |        | 865                | 2.0        | 0.901         | 12.0              | LOS B            | 11.9                  | 301.3                | 0.88         | 1.25                        | 26.8              |  |
| West: Newport Way               |        |                    |            |               |                   |                  |                       |                      |              |                             |                   |  |
| 5                               | L2     | 667                | 2.0        | 0.269         | 7.1               | LOS A            | 0.0                   | 0.0                  | 0.00         | 0.54                        | 29.2              |  |
| 2                               | T1     | 189                | 2.0        | 0.269         | 1.5               | LOS A            | 0.0                   | 0.0                  | 0.00         | 0.47                        | 29.3              |  |
| Approach                        |        | 856                | 2.0        | 0.269         | 5.9               | LOS A            | 0.0                   | 0.0                  | 0.00         | 0.53                        | 29.2              |  |
| All Vehicles                    |        | 1721               | 2.0        | 0.901         | 8.9               | LOS A            | 11.9                  | 301.3                | 0.44         | 0.89                        | 28.0              |  |

Site Level of Service (LOS) Method: Delay & Degree of Saturation (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Roundabout LOS Method: Same as Signalised Intersections.

Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.

Intersection and Approach LOS values are based on average delay for all movements (v/c not used).

Roundabout Capacity Model: SIDRA Standard.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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Organisation: DKS ASSOCIATES | Processed: Monday, February 11, 2019 10:43:47 AM

Project: H:\(p) Projects\18\18112-002 Bellevue TO 2 Corridor Improvements (Reid Middleton)\Analysis\SIDRA\Future Build\Study Area 3\Future Build 3 - New Vol\20190211\_Study Area 3 Future Build 3.sip7

# MOVEMENT SUMMARY

 Site: 11 [Newport and I-90 PM]

Roundabout

| Movement Performance - Vehicles |        |                       |               |                  |                      |                  |                                      |                |              |                                |                      |  |
|---------------------------------|--------|-----------------------|---------------|------------------|----------------------|------------------|--------------------------------------|----------------|--------------|--------------------------------|----------------------|--|
| Mov ID                          | OD Mov | Demand Total<br>veh/h | Flows HV<br>% | Deg. Satn<br>v/c | Average Delay<br>sec | Level of Service | 95% Back of Queue<br>Vehicles<br>veh | Distance<br>ft | Prop. Queued | Effective Stop Rate<br>per veh | Average Speed<br>mph |  |
| East: Newport Way               |        |                       |               |                  |                      |                  |                                      |                |              |                                |                      |  |
| 6                               | T1     | 295                   | 1.0           | 0.436            | 7.4                  | LOS A            | 2.2                                  | 56.0           | 0.69         | 0.82                           | 28.4                 |  |
| 16                              | R2     | 38                    | 1.0           | 0.436            | 7.8                  | LOS A            | 2.2                                  | 56.0           | 0.69         | 0.82                           | 27.6                 |  |
| Approach                        |        | 333                   | 1.0           | 0.436            | 7.4                  | LOS A            | 2.2                                  | 56.0           | 0.69         | 0.82                           | 28.3                 |  |
| West: Newport Way               |        |                       |               |                  |                      |                  |                                      |                |              |                                |                      |  |
| 5                               | L2     | 1318                  | 1.0           | 0.611            | 7.1                  | LOS A            | 0.0                                  | 0.0            | 0.00         | 0.53                           | 29.3                 |  |
| 2                               | T1     | 648                   | 1.0           | 0.611            | 1.5                  | LOS A            | 0.0                                  | 0.0            | 0.00         | 0.39                           | 29.7                 |  |
| Approach                        |        | 1966                  | 1.0           | 0.611            | 5.3                  | LOS A            | 0.0                                  | 0.0            | 0.00         | 0.48                           | 29.4                 |  |
| All Vehicles                    |        | 2299                  | 1.0           | 0.611            | 5.6                  | LOS A            | 2.2                                  | 56.0           | 0.10         | 0.53                           | 29.2                 |  |

Site Level of Service (LOS) Method: Delay & Degree of Saturation (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Roundabout LOS Method: Same as Signalised Intersections.

Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.

Intersection and Approach LOS values are based on average delay for all movements (v/c not used).

Roundabout Capacity Model: SIDRA Standard.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

**SIDRA INTERSECTION 7.0 | Copyright © 2000-2017 Akcelik and Associates Pty Ltd | sidrasolutions.com**

Organisation: DKS ASSOCIATES | Processed: Monday, February 11, 2019 10:43:47 AM

Project: H:\(p) Projects\18\18112-002 Bellevue TO 2 Corridor Improvements (Reid Middleton)\Analysis\SIDRA\Future Build\Study Area 3\Future Build 3 - New Vol\20190211\_Study Area 3 Future Build 3.sip7

## **APPENDIX E: OPINION OF PROBABLE CONSTRUCTION COSTS**





**City of Bellevue**  
**Lakemont Blvd & Newport Way Alternative 1**  
**Modified Signal**

Preliminary Opinion of Probable Construction Cost

| <u>ITEM</u>                   | <u>QTY</u> | <u>UNIT</u> | <u>UNIT COST</u> | <u>COST</u> |
|-------------------------------|------------|-------------|------------------|-------------|
| <b>PREPARATION</b>            |            |             |                  |             |
| Mobilization                  | 1          | LS          | \$195,000        | \$195,000   |
| Construction Surveying        | 1          | LS          | \$42,000         | \$42,000    |
| Clearing & Grubbing           | 0.6        | AC          | \$50,000         | \$30,000    |
| <b>TRAFFIC CONTROL</b>        |            |             |                  |             |
| Traffic Control               | 1          | LS          | \$310,000        | \$310,000   |
| <b>GRADING</b>                |            |             |                  |             |
| Roadway Excavation Incl. Haul | 1,470      | CY          | \$50             | \$73,500    |
| Gravel Borrow                 | 1,180      | TN          | \$30             | \$35,400    |
| <b>ROADWAY SECTION</b>        |            |             |                  |             |
| Planing Bituminous Pavement   | 6,070      | SY          | \$8              | \$48,560    |
| HMA Cl. 1/2 in. PG 58H-22     | 1,050      | TN          | \$130            | \$136,500   |
| Crushed Surfacing Base Course | 1,660      | TN          | \$40             | \$66,400    |
| <b>STORM DRAINAGE</b>         |            |             |                  |             |
| Stormwater Improvements       | 1          | LS          | \$110,000        | \$110,000   |
| <b>EROSION CONTROL</b>        |            |             |                  |             |
| TESC                          | 1          | LS          | \$37,000         | \$37,000    |
| <b>CURBING</b>                |            |             |                  |             |
| Cement Conc. Curbs            | 810        | LF          | \$40             | \$32,400    |
| <b>STRIPING &amp; SIGNING</b> |            |             |                  |             |
| Channelization and Signing    | 1          | LS          | \$16,320         | \$16,320    |
| <b>TRAFFIC SIGNAL</b>         |            |             |                  |             |
| Traffic Signal                | 1          | LS          | \$600,000        | \$600,000   |
| <b>SIDEWALK &amp; RAMPS</b>   |            |             |                  |             |
| Cement Conc. Sidewalk         | 1,230      | SY          | \$75             | \$92,250    |
| Cement Concrete Curb Ramps    | 6          | EA          | \$3,500          | \$21,000    |
| <b>OTHER ITEMS</b>            |            |             |                  |             |
| Landscaping & Irrigation      | 820        | SY          | \$125            | \$102,500   |
| Retaining Walls               | 1,000      | SF          | \$150            | \$150,000   |
| Miscellaneous/Unknown Costs   | 1          | LS          | \$420,000        | \$420,000   |

Subtotal \$2,520,000  
Contingency (30%) \$760,000  
**Total \$3,300,000**

**City of Bellevue**  
**Lakemont Blvd & Newport Way Alternative 2**  
**Roundabout**

Preliminary Opinion of Probable Construction Cost

| <u>ITEM</u>                   | <u>QTY</u> | <u>UNIT</u> | <u>UNIT COST</u> | <u>COST</u> |
|-------------------------------|------------|-------------|------------------|-------------|
| <b>PREPARATION</b>            |            |             |                  |             |
| Mobilization                  | 1          | LS          | \$500,000        | \$500,000   |
| Construction Surveying        | 1          | LS          | \$150,000        | \$150,000   |
| Clearing & Grubbing           | 1.1        | AC          | \$50,000         | \$55,000    |
| <b>TRAFFIC CONTROL</b>        |            |             |                  |             |
| Traffic Control               | 1          | LS          | \$800,000        | \$800,000   |
| <b>ROADWAY PREPARATION</b>    |            |             |                  |             |
| Roadway Excavation Incl. Haul | 11,200     | CY          | \$50             | \$560,000   |
| Gravel Borrow                 | 7,100      | TN          | \$30             | \$213,000   |
| <b>ROADWAY SECTION</b>        |            |             |                  |             |
| HMA Cl. 1/2 in. PG 58H-22     | 7,350      | TN          | \$130            | \$955,500   |
| Crushed Surfacing Base Course | 7,770      | TN          | \$40             | \$310,800   |
| <b>STORM DRAINAGE</b>         |            |             |                  |             |
| Stormwater Improvements       | 1          | LS          | \$532,000        | \$532,000   |
| <b>EROSION CONTROL</b>        |            |             |                  |             |
| TESC                          | 1          | LS          | \$84,000         | \$84,000    |
| <b>CURBING</b>                |            |             |                  |             |
| Cement Conc. Curbs            | 7,500      | LF          | \$40             | \$300,000   |
| <b>STRIPING &amp; SIGNING</b> |            |             |                  |             |
| Channelization and Signing    | 1          | LS          | \$110,000        | \$110,000   |
| <b>ILLUMINATION</b>           |            |             |                  |             |
| Illumination System           | 1          | LS          | \$200,000        | \$200,000   |
| <b>SIDEWALK &amp; RAMPS</b>   |            |             |                  |             |
| Cement Conc. Sidewalk         | 2,800      | SY          | \$75             | \$210,000   |
| Cement Concrete Curb Ramps    | 13         | EA          | \$3,500          | \$45,500    |
| <b>OTHER ITEMS</b>            |            |             |                  |             |
| Landscaping & Irrigation      | 3,500      | SY          | \$125            | \$437,500   |
| Retaining Walls               | 7,500      | SF          | \$150            | \$1,125,000 |
| Miscellaneous/Unknown Costs   | 1          | LS          | \$2,000,000      | \$2,000,000 |

Subtotal \$8,590,000  
Contingency (30%) \$2,580,000  
**Total \$11,200,000**

# APPENDIX F: PUBLIC COMMENTS

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**COMMENT SHEET**  
**Intersection Study on Lakemont Blvd**  
**Open House – February 20, 2019**



Your input is valuable. Please add your comments, questions, concerns, and ideas for one or more of the study intersections and leave this sheet with us tonight.

**Lakemont Blvd and Forest Drive SE**

No traffic light! a traffic light will be too disruptive for traffic on Lakemont

**Lakemont Blvd SE and SE Newport Way**

Like the roundabout solution to keep traffic moving

**I-90 Eastbound On-ramp on SE Newport Way**

Thank you for your input.

Name: \_\_\_\_\_

Contact information (phone, email and/or address):  
 \_\_\_\_\_

For more information about the project or to submit comments online, visit:

**BellevueWa.gov/transportationlevy**

You can also contact:

**Jun An, P.E., Project Manager | 425-452-4230 | jan@BellevueWa.gov**



# COMMENT SHEET

## Intersection Study on Lakemont Blvd

### Open House – February 20, 2019



Your input is valuable. Please add your comments, questions, concerns, and ideas for one or more of the study intersections and leave this sheet with us tonight.

#### Lakemont Blvd and Forest Drive SE

At a minimum a left turn lane from Lakemont N to Forest would be a big help.

The traffic light would be a bigger help ~~for~~ for those turning from Forest onto Lakemont - Lower priority but still helpful.

#### Lakemont Blvd SE and SE Newport Way

No strong opinion on this one or the one below - traffic circles seem to make sense but disruptions from removal of existing lights and installation of circles is something I'm not looking forward to.

#### I-90 Eastbound On-ramp on SE Newport Way

Thank you for taking the time to provide your input.

Name: \_\_\_\_\_

Contact info \_\_\_\_\_ d/or addr. \_\_\_\_\_

For more information about the project or to submit comments online, visit:

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# COMMENT SHEET

## Intersection Study on Lakemont Blvd

### Open House – February 20, 2019



Your input is valuable. Please add your comments, questions, concerns, and ideas for one or more of the study intersections and leave this sheet with us tonight.

**Lakemont Blvd and Forest Drive SE**

Left hand turn from Lnt. Blvd northbound into FD will dramatically reduce backup on FD/Lnt Blvd junction in the AFTERNOON. TRAFFIC SIGNAL NOT NEEDED.

**Lakemont Blvd SE and SE Newport Way**

ROUNDABOUT is a slam dunk

**I-90 Eastbound On-ramp on SE Newport Way**

" " SAME

SE Cougar Mt Way / Lakemont signal: Real issues - NOT NEEDED except 7:00-10:00 AM & 3:30-6:30 PM M-F. WEEKEND NOT NEEDED AT ALL. CARS turning north on Lakemont from Cougar Mt. Way trigger turn signal even if no oncoming traffic forcing a stop.

Thank you for taking the time to provide your input.

Name: \_\_\_\_\_

Contact info: \_\_\_\_\_

to submit comments online, visit:

**BellevueWa.gov/transportationlevy**

You can also contact:

**Jun An, P.E., Project Manager | 425-452-4230 | jan@BellevueWa.gov**





**COMMENT SHEET**  
**Intersection Study on Lakemont Blvd**  
**Open House – February 20, 2019**



Your input is valuable. Please add your comments, questions, concerns, and ideas for one or more of the study intersections and leave this sheet with us tonight.

**Lakemont Blvd and Forest Drive SE**

Left turn lane from Northbound Lakemont to Forest is good idea and would help. Just widening Forest to have fairly long right turn lane might be sufficient first step.

**Lakemont Blvd SE and SE Newport Way**

Double roundabout idea seems best option to me. It is sorely needed.

**I-90 Eastbound On-ramp on SE Newport Way**

Just making left turn green arrow signal stay green longer would be a useful 1st step.

Thank you for taking the time to provide your input.

Name: \_\_\_\_\_

Contact \_\_\_\_\_ d/or address \_\_\_\_\_

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You can also contact:

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# COMMENT SHEET

## Intersection Study on Lakemont Blvd

### Open House – February 20, 2019



Your input is valuable. Please add your comments, questions, concerns, and ideas for one or more of the study intersections and leave this sheet with us tonight.

#### Lakemont Blvd and Forest Drive SE

Has the volume of bicycle traffic on Lakemont been addressed? Traffic signal with left turn lane would work best but without left turn would work also

#### Lakemont Blvd SE and SE Newport Way

Round about looks like best option

#### I-90 Eastbound On-ramp on SE Newport Way

Really like 2 lanes for traffic onto I-90.

Thank you for taking the time to provide your input.

\_\_\_\_\_  
Co. \_\_\_\_\_ address): \_\_\_\_\_

For more information about the project or to submit comments online, visit:

**[BellevueWa.gov/transportationlevy](http://BellevueWa.gov/transportationlevy)**

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