

# Memo

To: Paul DiDonato, ATI Architects and Engineers  
From: David Parisi, PE and Ashley Tam, EIT  
Date: February 23, 2016

**Subject: Traffic Analysis for Bon Air Bridge Mitigation – Magnolia Storm Water Quality Project**

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## **INTRODUCTION**

As a part of the Bon Air Bridge Mitigation-Magnolia Storm Water Quality Project, off-site improvements will be made to offset the Bon Air Bridge Replacement project's environmental impacts. The previous center median along Magnolia Road between Dartmouth Drive/Skylark Drive and Bon Air Road will be widened to provide greater storm water retention, while Magnolia Avenue will be restriped to provide buffered bicycle lanes and one vehicular through travel lane in each direction. This memorandum summarizes the traffic analysis of proposed conditions and provides recommendations for Magnolia Avenue's intersections with Bon Air Road and Dartmouth Drive/Skylark Drive.

## **METHODOLOGY**

Vehicular and bicycle turning movement counts were conducted at the Magnolia Avenue/Bon Air Road and Magnolia Avenue/Dartmouth Drive intersections, during fair weather conditions, on Wednesday, December 2 and Saturday, December 5, 2015. Nearby public and private schools were in session during the weekday survey. Counts of pedestrians crossing at the crosswalks were included. Weekday counts were conducted between 7-9 a.m., 2-4 p.m., and 4-6 p.m. and Saturday counts were performed between 12-2 p.m.

Traffic operations analysis was conducted for both intersections to compare the existing configurations with 2015 traffic levels to reconfigured conditions, considering both and 2040 traffic levels to reconfiguration conditions with 2040 traffic levels. Traffic volume projections for year 2040 were attained by assuming a growth rate of 0.5% per year, compounded to the year 2040, consistent with recent planning efforts conducted for the City of Larkspur.

Level of service (LOS) analysis was conducted for the signalized Magnolia Avenue/Bon Air Road intersection as a whole and for each traffic movement. Level of service is defined in Appendix 1. The 50<sup>th</sup> percentile (average) and 95<sup>th</sup> percentile queues were also estimated for each movement. The 95<sup>th</sup> percentile queues are peak hour queues that would be exceeded about five percent of the time. This analysis measure is used for turn lane design purposes.

In the case of the Magnolia Avenue/Dartmouth Drive/Skylark Drive multi-lane all-way stop-sign control intersection, level of service analysis was conducted for the intersection as a whole, and for each approach.

Count data is attached in Appendix 2. Synchro analysis reports are available upon request.

## Existing Conditions

### *Magnolia Avenue/Bon Air Road:*

This intersection is signalized; existing signal timing was used to compare to reconfigured conditions. The existing configuration consists of:

- Northbound Magnolia Ave.: two through-lanes, one free right turn
- Southbound Magnolia Ave.: two through-lanes, one left turn lane
- Westbound Bon Air Rd.: one left turn lane, one free right turn

### *Magnolia Avenue/Dartmouth Drive/Skylark Drive:*

This intersection is controlled with stop signs at all four approaches, and consists of:

- Northbound Magnolia Ave.: one left turn, one through-lane, and one through-right lane
- Southbound Magnolia Ave.: one left turn, one through-lane, and one through-right lane
- Eastbound Skylark Dr.: one lane
- Westbound Dartmouth Dr.: one lane

## Project Conditions

The proposed changes to the corridor would widen the center median on both sides to increase storm water retention, while reducing Magnolia Avenue's through travel lanes two to one in each direction. Additionally, bicycle lanes on would be enhanced with painted buffer, similar to the lane configurations on Magnolia Avenue north and south of the project. Bicyclist separation from vehicles at the westbound and northbound right turns at the Bon Air intersection is also proposed to increase bicyclist safety.

### *Magnolia Avenue/Bon Air Road:*

This signalized intersection will be reconfigured to provide:

- Northbound Magnolia Ave.: one through, one right turn lane (overlaps with westbound left turn signal phase)
- Westbound Bon Air Rd.: One left turn lane, one right turn lane (permitted)
- Southbound Magnolia Ave.: One through lane, one left turn lane

### *Magnolia Avenue/Dartmouth Drive/Skylark Drive:*

Preliminary analysis showed that a reduction in the northbound and southbound approach lanes at the Dartmouth/Skylark intersection would greatly impact vehicular traffic. Under all-way stop-sign control it was determined that two through-travel lanes in the northbound and southbound approaches would be retained.

## RESULTS

### *Magnolia Avenue/Bon Air Road:*

Comparisons of existing traffic conditions to reconfigured configuration at Magnolia Avenue and Bon Air Road are presented in Tables 1 and 2 respectively.

Under current 2015 traffic volumes, the project level of service operates at LOS B during all peak hours. Mid-day traffic levels are the critical peak hour, in which the southbound left turn lane's 95th percentile queue is 210 feet long.

The 2040 projected level of service of the Magnolia/Bon Air intersection would decrease to LOS C under the proposed reconfiguration in the mid-day and evening peak hour. The greatest increase in delay would occur for the southbound left turn approach, which would require a 255-foot left turn lane long to contain the 95<sup>th</sup> percentile queue during the midday peak hour.

### *Magnolia Avenue/Dartmouth Drive/Skylark Drive*

Even though the existing all-way stop sign-controlled configuration at Magnolia/Dartmouth/Skylark would remain with project, the design should consider a northbound left turn pocket long enough to allow vehicles to enter the turn lane behind northbound through-lane queues. Table 3 tabulates the traffic conditions for 2015 and 2040. The northbound approach delay would increase up to nine seconds between current traffic levels and projected traffic levels.

Table 1. Magnolia Ave./Bon Air Rd. 2015 Existing and Project Conditions

|               |                            | Magnolia/ Bon Air 2015 Existing |     |      |     |      |     | Magnolia/ Bon Air 2015 Project |      |      |     |      |      |
|---------------|----------------------------|---------------------------------|-----|------|-----|------|-----|--------------------------------|------|------|-----|------|------|
|               |                            | WB                              |     | NB   |     | SB   |     | WB                             |      | NB   |     | SB   |      |
|               |                            | LT                              | RT  | TH   | RT  | LT   | TH  | LT                             | RT   | TH   | RT  | LT   | TH   |
| AM Peak       | Intersection Delay (s)     | 9.9                             |     |      |     |      |     | 14.5                           |      |      |     |      |      |
|               | Intersection LOS           | A                               |     |      |     |      |     | B <sup>^</sup>                 |      |      |     |      |      |
|               | Delay (s)                  | 15.1                            | 0.2 | 15.2 | 0.3 | 24.5 | 7.7 | 20.4                           | 15   | 20.1 | 5.7 | 23.3 | 10.5 |
|               | LOS                        | B                               | A   | B    | A   | C    | A   | C                              | B    | C    | A   | C    | B    |
|               | Queue 50th percentile (ft) | 77                              | 0   | 46   | 0   | 47   | 52  | 97                             | 0    | 108  | 7   | 59   | 141  |
|               | Queue 95th percentile (ft) | 165                             | 0   | 105  | 0   | 135  | 126 | 202                            | 40   | 233  | 27  | 149  | 324  |
| Midday Peak   | Intersection Delay (s)     | 12.1                            |     |      |     |      |     | 19.8                           |      |      |     |      |      |
|               | Intersection LOS           | B                               |     |      |     |      |     | B*                             |      |      |     |      |      |
|               | Delay (s)                  | 17.5                            | 0.1 | 17.4 | 0.5 | 29.3 | 7.2 | 26.8                           | 17.6 | 28.9 | 5.4 | 40.8 | 7.5  |
|               | LOS                        | B                               | A   | B    | A   | C    | A   | C                              | B    | C    | A   | D    | A    |
|               | Queue 50th percentile (ft) | 106                             | 0   | 91   | 0   | 58   | 31  | 141                            | 0    | 227  | 35  | 81   | 77   |
|               | Queue 95th percentile (ft) | 189                             | 0   | 171  | 0   | 130  | 67  | 229                            | 39   | 450  | 62  | 209  | 150  |
| PM Peak       | Intersection Delay (s)     | 9.3                             |     |      |     |      |     | 17.3                           |      |      |     |      |      |
|               | Intersection LOS           | A                               |     |      |     |      |     | B*                             |      |      |     |      |      |
|               | Delay (s)                  | 16.8                            | 0.2 | 14.6 | 0.5 | 21.8 | 5.7 | 27.7                           | 21.9 | 23   | 4.5 | 33.1 | 5.8  |
|               | LOS                        | B                               | A   | B    | A   | C    | A   | C                              | C    | C    | A   | C    | A    |
|               | Queue 50th percentile (ft) | 65                              | 0   | 89   | 0   | 33   | 22  | 107                            | 0    | 263  | 22  | 55   | 61   |
|               | Queue 95th percentile (ft) | 129                             | 0   | 237  | 0   | 92   | 66  | 200                            | 53   | 503  | 40  | 156  | 135  |
| Saturday Peak | Intersection Delay (s)     | 7.9                             |     |      |     |      |     | 11.7                           |      |      |     |      |      |
|               | Intersection LOS           | A                               |     |      |     |      |     | B <sup>^</sup>                 |      |      |     |      |      |
|               | Delay (s)                  | 1.2                             | 0.1 | 10.9 | 0.2 | 19.2 | 4.4 | 15.4                           | 13.6 | 15.1 | 4.5 | 21.3 | 6.1  |
|               | LOS                        | B                               | A   | B    | A   | B    | A   | B                              | B    | B    | A   | C    | A    |
|               | Queue 50th percentile (ft) | 40                              | 0   | 36   | 0   | 29   | 17  | 48                             | 0    | 82   | 0   | 35   | 40   |
|               | Queue 95th percentile (ft) | 102                             | 0   | 102  | 0   | 102  | 61  | 124                            | 39   | 219  | 15  | 114  | 129  |

<sup>^</sup> 75-second cycle length

\* 90-second cycle length

Table 2. Magnolia Ave./Bon Air Rd. 2040 Existing and Project Conditions

|               |                            | Magnolia/ Bon Air 2040 Existing |     |      |     |      |     | Magnolia/ Bon Air 2040 Project |      |      |     |      |      |
|---------------|----------------------------|---------------------------------|-----|------|-----|------|-----|--------------------------------|------|------|-----|------|------|
|               |                            | WB                              |     | NB   |     | SB   |     | WB                             |      | NB   |     | SB   |      |
|               |                            | LT                              | RT  | TH   | RT  | LT   | TH  | LT                             | RT   | TH   | RT  | LT   | TH   |
| AM Peak       | Intersection Delay (s)     | 10.7                            |     |      |     |      |     | 17                             |      |      |     |      |      |
|               | Intersection LOS           | B                               |     |      |     |      |     | B^                             |      |      |     |      |      |
|               | Delay (s)                  | 18.2                            | 0.2 | 17.6 | 0.4 | 21.6 | 8.1 | 23.7                           | 15.9 | 22.8 | 5.9 | 28.8 | 13.1 |
|               | LOS                        | B                               | A   | B    | A   | C    | A   | C                              | B    | C    | A   | C    | B    |
|               | Queue 50th percentile (ft) | 99                              | 0   | 60   | 0   | 60   | 68  | 126                            | 0    | 141  | 22  | 77   | 193  |
|               | Queue 95th percentile (ft) | 191                             | 0   | 118  | 0   | 173  | 146 | 233                            | 43   | 264  | 45  | 203  | 400  |
| Midday Peak   | Intersection Delay (s)     | 13.5                            |     |      |     |      |     | 25.9                           |      |      |     |      |      |
|               | Intersection LOS           | B                               |     |      |     |      |     | C*                             |      |      |     |      |      |
|               | Delay (s)                  | 22.2                            | 0.2 | 22   | 0.6 | 26.6 | 7.5 | 43.5                           | 22.8 | 34.4 | 6.1 | 53.4 | 8.1  |
|               | LOS                        | C                               | A   | C    | A   | C    | A   | D                              | C    | C    | A   | D    | A    |
|               | Queue 50th percentile (ft) | 133                             | 0   | 118  | 0   | 74   | 39  | 224                            | 0    | 344  | 59  | 126  | 110  |
|               | Queue 95th percentile (ft) | 220                             | 0   | 223  | 0   | 180  | 79  | 385                            | 49   | 556  | 101 | 256  | 167  |
| PM Peak       | Intersection Delay (s)     | 10.3                            |     |      |     |      |     | 20.8                           |      |      |     |      |      |
|               | Intersection LOS           | B                               |     |      |     |      |     | C*                             |      |      |     |      |      |
|               | Delay (s)                  | 17.9                            | 0.2 | 16.7 | 0.5 | 23.6 | 6.1 | 32.8                           | 24.1 | 28.2 | 4.3 | 49.4 | 6.3  |
|               | LOS                        | B                               | A   | B    | A   | C    | A   | C                              | C    | C    | A   | D    | A    |
|               | Queue 50th percentile (ft) | 77                              | 0   | 112  | 0   | 39   | 27  | 144                            | 0    | 350  | 34  | 75   | 83   |
|               | Queue 95th percentile (ft) | 146                             | 0   | 285  | 0   | 102  | 75  | 228                            | 55   | 652  | 57  | 192  | 156  |
| Saturday Peak | Intersection Delay (s)     | 8.2                             |     |      |     |      |     | 12.5                           |      |      |     |      |      |
|               | Intersection LOS           | A                               |     |      |     |      |     | B^                             |      |      |     |      |      |
|               | Delay (s)                  | 17.8                            | 0.2 | 11.2 | 0.3 | 20.5 | 4.6 | 16.6                           | 14.4 | 16.2 | 4.5 | 24.2 | 6.5  |
|               | LOS                        | B                               | A   | B    | A   | C    | A   | B                              | B    | B    | A   | C    | A    |
|               | Queue 50th percentile (ft) | 48                              | 0   | 43   | 0   | 32   | 21  | 60                             | 0    | 103  | 0   | 41   | 51   |
|               | Queue 95th percentile (ft) | 115                             | 0   | 115  | 0   | 107  | 69  | 143                            | 42   | 248  | 15  | 122  | 149  |

^ 75-second cycle length

\* 90-second cycle length

**Table 3. Magnolia Ave./Dartmouth Dr./Skylark Dr. Conditions**

|                  |                        | Magnolia/Dartmouth<br>2015 |      |      |      | Magnolia/ Dartmouth<br>2040 |      |      |      |
|------------------|------------------------|----------------------------|------|------|------|-----------------------------|------|------|------|
|                  |                        | EB                         | WB   | NB   | SB   | EB                          | WB   | NB   | SB   |
| AM<br>Peak       | Intersection Delay (s) | 15                         |      |      |      | 19.1                        |      |      |      |
|                  | Intersection LOS       | B                          |      |      |      | C                           |      |      |      |
|                  | Approach Delay (s)     | 11.8                       | 12   | 13.9 | 17   | 13.1                        | 13   | 16.9 | 23.2 |
|                  | Approach LOS           | B                          | B    | B    | C    | B                           | B    | C    | C    |
| Midday<br>Peak   | Intersection Delay (s) | 16.5                       |      |      |      | 22.7                        |      |      |      |
|                  | Intersection LOS       | C                          |      |      |      | C                           |      |      |      |
|                  | Approach Delay (s)     | 11.2                       | 11.6 | 18.1 | 15.2 | 12.1                        | 12.3 | 26.6 | 19.3 |
|                  | Approach LOS           | B                          | B    | C    | C    | B                           | B    | D    | C    |
| PM<br>Peak       | Intersection Delay (s) | 16.1                       |      |      |      | 22.2                        |      |      |      |
|                  | Intersection LOS       | C                          |      |      |      | C                           |      |      |      |
|                  | Approach Delay (s)     | 10.5                       | 11.2 | 18.3 | 13.1 | 11.2                        | 11.8 | 26.9 | 15.4 |
|                  | Approach LOS           | B                          | B    | C    | B    | B                           | B    | D    | C    |
| Saturday<br>Peak | Intersection Delay (s) | 11                         |      |      |      | 12.2                        |      |      |      |
|                  | Intersection LOS       | B                          |      |      |      | B                           |      |      |      |
|                  | Approach Delay (s)     | 10.1                       | 10.6 | 10.9 | 11.3 | 10.7                        | 11.1 | 12.1 | 12.7 |
|                  | Approach LOS           | B                          | B    | B    | B    | B                           | B    | B    | B    |

## RECOMMENDATIONS

### *Magnolia Avenue/Bon Air Road*

The following changes are planned be as a part of the Bon Air Bridge project:

- Conversion of the northbound free right turns into a protected right turn for bicyclists and controlled right turn for vehicles, which overlaps with the westbound movement.
- Maintaining one northbound through-lane.
- Maintaining one westbound left and one westbound right turn lane with the addition of a bicycle left turn lane.
- Conversion the westbound free right turn into a protected right turn for bicyclists and controlled right turn for vehicles.
- Reconfiguration of the southbound approach to consist of one through and one left turn lane

The following recommendation is for the design of the Bon Air Bridge Mitigation project:

- **The southbound left turn pocket should be at least 255 feet long.**

### *Magnolia Avenue/Dartmouth Drive/Skylark Drive*

The following recommendation is for the design of the Bon Air Bridge Mitigation project:

- **Maintain the existing intersection lane configuration: northbound approach includes one left turn lane, one through-lane, and one through-right lane.**

## APPENDIX 1 – INTERSECTION LEVEL OF SERVICE DEFINITION

Signalized intersection level of service is defined in terms of the average total vehicle delay of all movements through an intersection. Vehicle delay is used to quantify several intangible factors, including driver discomfort, frustration, and lost travel time. Specifically, level of service criteria are stated in terms of average delay per vehicle during a specified time period. Vehicle delay is a complex measure based on many variables, including signal phasing (i.e., progression of movements through the intersection), signal cycle length, and traffic volumes with respect to intersection capacity. Table A1 shows level of service criteria for signalized intersections.

**Table A1 Level of Service Definitions for Signalized Intersections**

| <b>Level of Service</b> | <b>Average Control Delay Per Vehicle (in Seconds)</b> | <b>Description</b>                                                                                                  |
|-------------------------|-------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------|
| A                       | ≤ 10                                                  | Free flow                                                                                                           |
| B                       | > 10 – 20                                             | Stable flow (slight delays)                                                                                         |
| C                       | > 20 – 35                                             | Stable flow (slight delays)                                                                                         |
| D                       | > 35 – 55                                             | Approaching unstable flow (tolerable delay, occasionally wait through more than one signal cycle before proceeding) |
| E                       | > 55 – 80                                             | Unstable flow (intolerable delay)                                                                                   |
| F                       | > 80                                                  | Forced flow (jammed)                                                                                                |

Source: Transportation Research Board, 2000.

Unsignalized intersection level of service criteria can be further reduced into two intersection types: all-way stop-controlled and two-way stop-controlled. All-way stop-controlled intersection level of service is expressed in terms of the average vehicle delay of all of the movements, much like that of a signalized intersection. Two-way stop-controlled intersection level of service is defined in terms of the average vehicle delay of an individual movement(s). This is because the performance of a two-way stop-controlled intersection is more closely reflected in terms of its individual movements, rather than its performance overall.

With this in mind, total average vehicle delay (i.e., average delay of all movements) for a two-way stop-controlled intersection should be viewed with discretion. Table A2 shows level of service criteria for unsignalized intersections (both all-way and two-way, stop-controlled).



**Table A2 Level of Service Definitions for Unsignalized Intersections**

| <b>Level of Service</b> | <b>Average Control Delay Per Vehicle (in Seconds)</b> |
|-------------------------|-------------------------------------------------------|
| A                       | $\leq 10$                                             |
| B                       | > 10 – 15                                             |
| C                       | > 15 – 25                                             |
| D                       | > 25 – 35                                             |
| E                       | > 35 – 50                                             |
| F                       | > 50                                                  |

Source: Transportation Research Board, 2000.

**APPENDIX 2 – VEHICULAR TURNING MOVEMENT COUNTS**

# TRAFFIC COUNTS PLUS

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CITY OF LARKSPUR

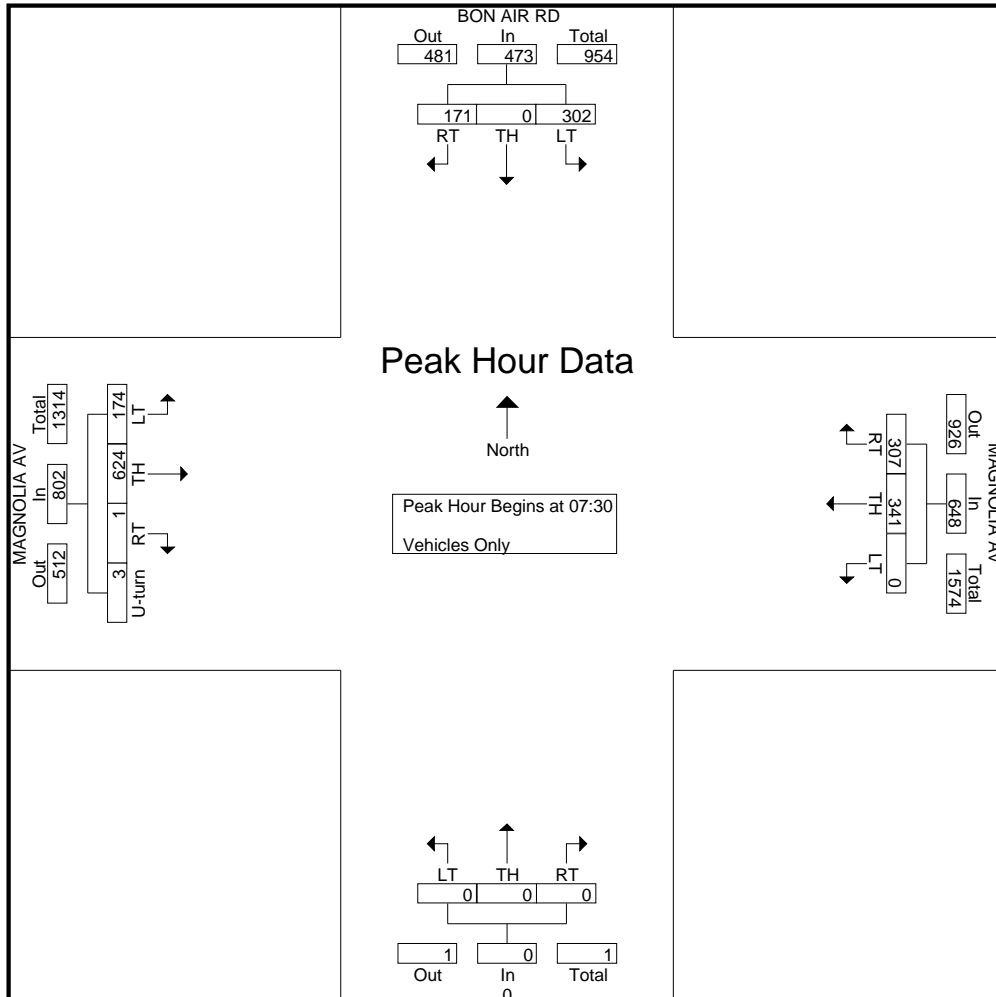
File Name : bon air-magnolia-a  
Site Code : 1  
Start Date : 12/2/2015  
Page No : 1

### Groups Printed- Vehicles Only

| Start Time         | BON AIR RD Southbound |          |            |            | MAGNOLIA AV Westbound |            |          |             | 0 Northbound |          |          |            | MAGNOLIA AV Eastbound |            |            |          |             |             |
|--------------------|-----------------------|----------|------------|------------|-----------------------|------------|----------|-------------|--------------|----------|----------|------------|-----------------------|------------|------------|----------|-------------|-------------|
|                    | RT                    | TH       | LT         | App. Total | RT                    | TH         | LT       | App. Total  | RT           | TH       | LT       | App. Total | RT                    | TH         | LT         | U-turn   | App. Total  | Int. Total  |
| 07:00              | 14                    | 0        | 34         | 48         | 30                    | 20         | 0        | 50          | 0            | 0        | 0        | 0          | 0                     | 47         | 24         | 0        | 71          | 169         |
| 07:15              | 21                    | 0        | 36         | 57         | 32                    | 35         | 0        | 67          | 0            | 0        | 0        | 0          | 0                     | 103        | 40         | 0        | 143         | 267         |
| 07:30              | 24                    | 0        | 80         | 104        | 59                    | 39         | 0        | 98          | 0            | 0        | 0        | 0          | 0                     | 188        | 38         | 1        | 227         | 429         |
| 07:45              | 36                    | 0        | 97         | 133        | 101                   | 86         | 0        | 187         | 0            | 0        | 0        | 0          | 0                     | 212        | 42         | 1        | 255         | 575         |
| <b>Total</b>       | <b>95</b>             | <b>0</b> | <b>247</b> | <b>342</b> | <b>222</b>            | <b>180</b> | <b>0</b> | <b>402</b>  | <b>0</b>     | <b>0</b> | <b>0</b> | <b>0</b>   | <b>0</b>              | <b>550</b> | <b>144</b> | <b>2</b> | <b>696</b>  | <b>1440</b> |
| 08:00              | 59                    | 0        | 73         | 132        | 71                    | 114        | 0        | 185         | 0            | 0        | 0        | 0          | 1                     | 115        | 43         | 1        | 160         | 477         |
| 08:15              | 52                    | 0        | 52         | 104        | 76                    | 102        | 0        | 178         | 0            | 0        | 0        | 0          | 0                     | 109        | 51         | 0        | 160         | 442         |
| 08:30              | 25                    | 0        | 54         | 79         | 54                    | 75         | 0        | 129         | 0            | 0        | 0        | 0          | 0                     | 113        | 54         | 0        | 167         | 375         |
| 08:45              | 38                    | 0        | 48         | 86         | 58                    | 75         | 0        | 133         | 0            | 0        | 0        | 0          | 3                     | 98         | 48         | 0        | 149         | 368         |
| <b>Total</b>       | <b>174</b>            | <b>0</b> | <b>227</b> | <b>401</b> | <b>259</b>            | <b>366</b> | <b>0</b> | <b>625</b>  | <b>0</b>     | <b>0</b> | <b>0</b> | <b>0</b>   | <b>4</b>              | <b>435</b> | <b>196</b> | <b>1</b> | <b>636</b>  | <b>1662</b> |
| <b>Grand Total</b> | <b>269</b>            | <b>0</b> | <b>474</b> | <b>743</b> | <b>481</b>            | <b>546</b> | <b>0</b> | <b>1027</b> | <b>0</b>     | <b>0</b> | <b>0</b> | <b>0</b>   | <b>4</b>              | <b>985</b> | <b>340</b> | <b>3</b> | <b>1332</b> | <b>3102</b> |
| Apprch %           | 36.2                  | 0        | 63.8       |            | 46.8                  | 53.2       | 0        |             | 0            | 0        | 0        | 0          | 0.3                   | 73.9       | 25.5       | 0.2      |             |             |
| Total %            | 8.7                   | 0        | 15.3       | 24         | 15.5                  | 17.6       | 0        | 33.1        | 0            | 0        | 0        | 0          | 0.1                   | 31.8       | 11         | 0.1      | 42.9        |             |

| Start Time          | BON AIR RD Southbound |          |            |            | MAGNOLIA AV Westbound |            |          |            | 0 Northbound |          |          |            | MAGNOLIA AV Eastbound |            |            |          |            |             |
|---------------------|-----------------------|----------|------------|------------|-----------------------|------------|----------|------------|--------------|----------|----------|------------|-----------------------|------------|------------|----------|------------|-------------|
|                     | RT                    | TH       | LT         | App. Total | RT                    | TH         | LT       | App. Total | RT           | TH       | LT       | App. Total | RT                    | TH         | LT         | U-turn   | App. Total | Int. Total  |
| 07:30               | 24                    | 0        | 80         | 104        | 59                    | 39         | 0        | 98         | 0            | 0        | 0        | 0          | 0                     | 188        | 38         | 1        | 227        | 429         |
| 07:45               | 36                    | 0        | 97         | 133        | 101                   | 86         | 0        | 187        | 0            | 0        | 0        | 0          | 0                     | 212        | 42         | 1        | 255        | 575         |
| 08:00               | 59                    | 0        | 73         | 132        | 71                    | 114        | 0        | 185        | 0            | 0        | 0        | 0          | 1                     | 115        | 43         | 1        | 160        | 477         |
| 08:15               | 52                    | 0        | 52         | 104        | 76                    | 102        | 0        | 178        | 0            | 0        | 0        | 0          | 0                     | 109        | 51         | 0        | 160        | 442         |
| <b>Total Volume</b> | <b>171</b>            | <b>0</b> | <b>302</b> | <b>473</b> | <b>307</b>            | <b>341</b> | <b>0</b> | <b>648</b> | <b>0</b>     | <b>0</b> | <b>0</b> | <b>0</b>   | <b>1</b>              | <b>624</b> | <b>174</b> | <b>3</b> | <b>802</b> | <b>1923</b> |
| % App. Total        | 36.2                  | 0        | 63.8       |            | 47.4                  | 52.6       | 0        |            | 0            | 0        | 0        | 0          | 0.1                   | 77.8       | 21.7       | 0.4      |            |             |
| PHF                 | .725                  | .000     | .778       | .889       | .760                  | .748       | .000     | .866       | .000         | .000     | .000     | .000       | .250                  | .736       | .853       | .750     | .786       | .836        |

Peak Hour Analysis From 07:00 to 08:45 - Peak 1 of 1  
Peak Hour for Entire Intersection Begins at 07:30



# TRAFFIC COUNTS PLUS

mietekm@comcast.net  
925.305.4358

CITY OF LARKSPUR

File Name : bon air-magnolia-m  
Site Code : 1  
Start Date : 12/2/2015  
Page No : 1

## Groups Printed- Vehicles Only

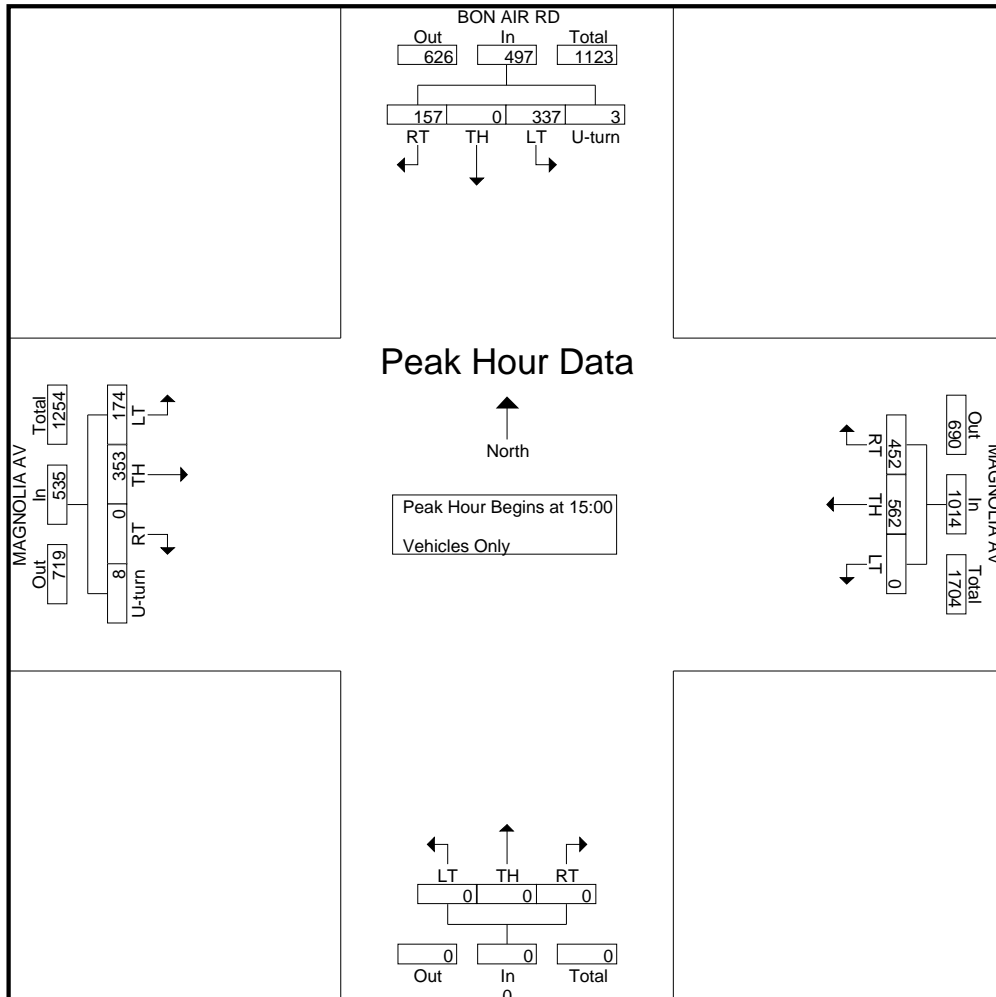
| Start Time   | BON AIR RD Southbound |          |            |          |            | MAGNOLIA AV Westbound |            |          |             | 0 Northbound |          |          |            | MAGNOLIA AV Eastbound |            |            |          |            | Int. Total  |
|--------------|-----------------------|----------|------------|----------|------------|-----------------------|------------|----------|-------------|--------------|----------|----------|------------|-----------------------|------------|------------|----------|------------|-------------|
|              | RT                    | TH       | LT         | U-turn   | App. Total | RT                    | TH         | LT       | App. Total  | RT           | TH       | LT       | App. Total | RT                    | TH         | LT         | U-turn   | App. Total |             |
| 14:00        | 41                    | 0        | 54         | 0        | 95         | 96                    | 103        | 0        | 199         | 0            | 0        | 0        | 0          | 0                     | 68         | 41         | 0        | 109        | 403         |
| 14:15        | 31                    | 0        | 67         | 1        | 99         | 59                    | 103        | 0        | 162         | 0            | 0        | 0        | 0          | 0                     | 98         | 38         | 2        | 138        | 399         |
| 14:30        | 47                    | 0        | 72         | 0        | 119        | 121                   | 100        | 0        | 221         | 0            | 0        | 0        | 0          | 0                     | 58         | 41         | 2        | 101        | 441         |
| 14:45        | 31                    | 0        | 54         | 0        | 85         | 56                    | 92         | 0        | 148         | 0            | 0        | 0        | 0          | 0                     | 88         | 58         | 1        | 147        | 380         |
| <b>Total</b> | <b>150</b>            | <b>0</b> | <b>247</b> | <b>1</b> | <b>398</b> | <b>332</b>            | <b>398</b> | <b>0</b> | <b>730</b>  | <b>0</b>     | <b>0</b> | <b>0</b> | <b>0</b>   | <b>0</b>              | <b>312</b> | <b>178</b> | <b>5</b> | <b>495</b> | <b>1623</b> |
| 15:00        | 45                    | 0        | 76         | 0        | 121        | 85                    | 92         | 0        | 177         | 0            | 0        | 0        | 0          | 0                     | 87         | 43         | 0        | 130        | 428         |
| 15:15        | 30                    | 0        | 96         | 3        | 129        | 134                   | 174        | 0        | 308         | 0            | 0        | 0        | 0          | 0                     | 94         | 45         | 4        | 143        | 580         |
| 15:30        | 38                    | 0        | 91         | 0        | 129        | 126                   | 162        | 0        | 288         | 0            | 0        | 0        | 0          | 0                     | 97         | 37         | 3        | 137        | 554         |
| 15:45        | 44                    | 0        | 74         | 0        | 118        | 107                   | 134        | 0        | 241         | 0            | 0        | 0        | 0          | 0                     | 75         | 49         | 1        | 125        | 484         |
| <b>Total</b> | <b>157</b>            | <b>0</b> | <b>337</b> | <b>3</b> | <b>497</b> | <b>452</b>            | <b>562</b> | <b>0</b> | <b>1014</b> | <b>0</b>     | <b>0</b> | <b>0</b> | <b>0</b>   | <b>0</b>              | <b>353</b> | <b>174</b> | <b>8</b> | <b>535</b> | <b>2046</b> |
| Grand Total  | 307                   | 0        | 584        | 4        | 895        | 784                   | 960        | 0        | 1744        | 0            | 0        | 0        | 0          | 0                     | 665        | 352        | 13       | 1030       | 3669        |
| Apprch %     | 34.3                  | 0        | 65.3       | 0.4      |            | 45                    | 55         | 0        |             | 0            | 0        | 0        | 0          | 0                     | 64.6       | 34.2       | 1.3      |            |             |
| Total %      | 8.4                   | 0        | 15.9       | 0.1      | 24.4       | 21.4                  | 26.2       | 0        | 47.5        | 0            | 0        | 0        | 0          | 0                     | 18.1       | 9.6        | 0.4      | 28.1       |             |

| Start Time | BON AIR RD Southbound |    |    |        |            | MAGNOLIA AV Westbound |    |    |            | 0 Northbound |    |    |            | MAGNOLIA AV Eastbound |    |    |        |            | Int. Total |
|------------|-----------------------|----|----|--------|------------|-----------------------|----|----|------------|--------------|----|----|------------|-----------------------|----|----|--------|------------|------------|
|            | RT                    | TH | LT | U-turn | App. Total | RT                    | TH | LT | App. Total | RT           | TH | LT | App. Total | RT                    | TH | LT | U-turn | App. Total |            |

Peak Hour Analysis From 14:00 to 15:45 - Peak 1 of 1

Peak Hour for Entire Intersection Begins at 15:00

|              |           |      |           |          |            |            |            |      |            |      |      |      |      |      |           |           |          |            |            |
|--------------|-----------|------|-----------|----------|------------|------------|------------|------|------------|------|------|------|------|------|-----------|-----------|----------|------------|------------|
| 15:00        | <b>45</b> | 0    | 76        | 0        | 121        | 85         | 92         | 0    | 177        | 0    | 0    | 0    | 0    | 0    | 87        | 43        | 0        | 130        | 428        |
| 15:15        | 30        | 0    | <b>96</b> | <b>3</b> | <b>129</b> | <b>134</b> | <b>174</b> | 0    | <b>308</b> | 0    | 0    | 0    | 0    | 0    | 94        | 45        | <b>4</b> | <b>143</b> | <b>580</b> |
| 15:30        | 38        | 0    | 91        | 0        | 129        | 126        | 162        | 0    | 288        | 0    | 0    | 0    | 0    | 0    | <b>97</b> | 37        | 3        | 137        | 554        |
| 15:45        | 44        | 0    | 74        | 0        | 118        | 107        | 134        | 0    | 241        | 0    | 0    | 0    | 0    | 0    | 75        | <b>49</b> | 1        | 125        | 484        |
| Total Volume | 157       | 0    | 337       | 3        | 497        | 452        | 562        | 0    | 1014       | 0    | 0    | 0    | 0    | 0    | 353       | 174       | 8        | 535        | 2046       |
| % App. Total | 31.6      | 0    | 67.8      | 0.6      |            | 44.6       | 55.4       | 0    |            | 0    | 0    | 0    | 0    | 0    | 66        | 32.5      | 1.5      |            |            |
| PHF          | .872      | .000 | .878      | .250     | .963       | .843       | .807       | .000 | .823       | .000 | .000 | .000 | .000 | .000 | .910      | .888      | .500     | .935       | .882       |



# TRAFFIC COUNTS PLUS

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CITY OF LARKSPUR

File Name : bon air-magnolia-p  
Site Code : 1  
Start Date : 12/2/2015  
Page No : 1

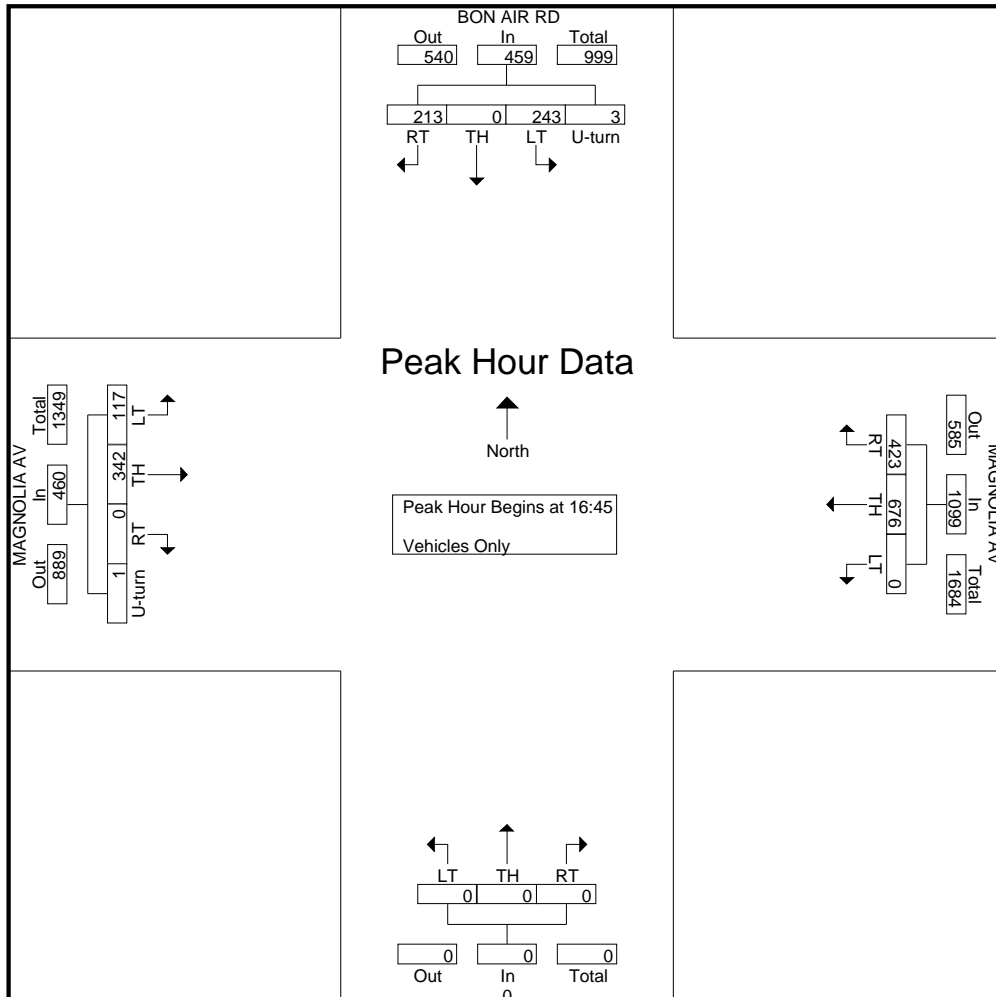
## Groups Printed- Vehicles Only

| Start Time   | BON AIR RD Southbound |          |            |          |            | MAGNOLIA AV Westbound |            |          |             | 0 Northbound |          |          |            | MAGNOLIA AV Eastbound |            |            |          |            | Int. Total  |
|--------------|-----------------------|----------|------------|----------|------------|-----------------------|------------|----------|-------------|--------------|----------|----------|------------|-----------------------|------------|------------|----------|------------|-------------|
|              | RT                    | TH       | LT         | U-turn   | App. Total | RT                    | TH         | LT       | App. Total  | RT           | TH       | LT       | App. Total | RT                    | TH         | LT         | U-turn   | App. Total |             |
| 16:00        | 39                    | 0        | 58         | 3        | 100        | 119                   | 134        | 0        | 253         | 0            | 0        | 0        | 0          | 0                     | 77         | 26         | 1        | 104        | 457         |
| 16:15        | 36                    | 0        | 63         | 0        | 99         | 96                    | 140        | 0        | 236         | 0            | 0        | 0        | 0          | 0                     | 60         | 32         | 1        | 93         | 428         |
| 16:30        | 40                    | 0        | 75         | 1        | 116        | 106                   | 143        | 0        | 249         | 0            | 0        | 0        | 0          | 0                     | 93         | 30         | 1        | 124        | 489         |
| 16:45        | 56                    | 0        | 54         | 1        | 111        | 102                   | 157        | 0        | 259         | 0            | 0        | 0        | 0          | 0                     | 87         | 25         | 0        | 112        | 482         |
| <b>Total</b> | <b>171</b>            | <b>0</b> | <b>250</b> | <b>5</b> | <b>426</b> | <b>423</b>            | <b>574</b> | <b>0</b> | <b>997</b>  | <b>0</b>     | <b>0</b> | <b>0</b> | <b>0</b>   | <b>0</b>              | <b>317</b> | <b>113</b> | <b>3</b> | <b>433</b> | <b>1856</b> |
| 17:00        | 65                    | 0        | 65         | 1        | 131        | 96                    | 158        | 0        | 254         | 0            | 0        | 0        | 0          | 0                     | 69         | 33         | 0        | 102        | 487         |
| 17:15        | 51                    | 0        | 74         | 1        | 126        | 105                   | 160        | 0        | 265         | 0            | 0        | 0        | 0          | 0                     | 98         | 25         | 0        | 123        | 514         |
| 17:30        | 41                    | 0        | 50         | 0        | 91         | 120                   | 201        | 0        | 321         | 0            | 0        | 0        | 0          | 0                     | 88         | 34         | 1        | 123        | 535         |
| 17:45        | 51                    | 0        | 38         | 0        | 89         | 109                   | 168        | 0        | 277         | 0            | 0        | 0        | 0          | 0                     | 71         | 29         | 0        | 100        | 466         |
| <b>Total</b> | <b>208</b>            | <b>0</b> | <b>227</b> | <b>2</b> | <b>437</b> | <b>430</b>            | <b>687</b> | <b>0</b> | <b>1117</b> | <b>0</b>     | <b>0</b> | <b>0</b> | <b>0</b>   | <b>0</b>              | <b>326</b> | <b>121</b> | <b>1</b> | <b>448</b> | <b>2002</b> |
| Grand Total  | 379                   | 0        | 477        | 7        | 863        | 853                   | 1261       | 0        | 2114        | 0            | 0        | 0        | 0          | 0                     | 643        | 234        | 4        | 881        | 3858        |
| Apprch %     | 43.9                  | 0        | 55.3       | 0.8      |            | 40.4                  | 59.6       | 0        |             | 0            | 0        | 0        | 0          | 0                     | 73         | 26.6       | 0.5      |            |             |
| Total %      | 9.8                   | 0        | 12.4       | 0.2      | 22.4       | 22.1                  | 32.7       | 0        | 54.8        | 0            | 0        | 0        | 0          | 0                     | 16.7       | 6.1        | 0.1      | 22.8       |             |

| Start Time   | BON AIR RD Southbound |      |           |          |            | MAGNOLIA AV Westbound |            |      |            | 0 Northbound |      |      |            | MAGNOLIA AV Eastbound |           |           |          |            | Int. Total |
|--------------|-----------------------|------|-----------|----------|------------|-----------------------|------------|------|------------|--------------|------|------|------------|-----------------------|-----------|-----------|----------|------------|------------|
|              | RT                    | TH   | LT        | U-turn   | App. Total | RT                    | TH         | LT   | App. Total | RT           | TH   | LT   | App. Total | RT                    | TH        | LT        | U-turn   | App. Total |            |
| 16:45        | 56                    | 0    | 54        | <b>1</b> | 111        | 102                   | 157        | 0    | 259        | 0            | 0    | 0    | 0          | 0                     | 87        | 25        | 0        | 112        | 482        |
| 17:00        | <b>65</b>             | 0    | 65        | 1        | <b>131</b> | 96                    | 158        | 0    | 254        | 0            | 0    | 0    | 0          | 0                     | 69        | 33        | 0        | 102        | 487        |
| 17:15        | 51                    | 0    | <b>74</b> | 1        | 126        | 105                   | 160        | 0    | 265        | 0            | 0    | 0    | 0          | 0                     | <b>98</b> | 25        | 0        | <b>123</b> | 514        |
| 17:30        | 41                    | 0    | 50        | 0        | 91         | <b>120</b>            | <b>201</b> | 0    | <b>321</b> | 0            | 0    | 0    | 0          | 0                     | 88        | <b>34</b> | <b>1</b> | 123        | <b>535</b> |
| Total Volume | 213                   | 0    | 243       | 3        | 459        | 423                   | 676        | 0    | 1099       | 0            | 0    | 0    | 0          | 0                     | 342       | 117       | 1        | 460        | 2018       |
| % App. Total | 46.4                  | 0    | 52.9      | 0.7      |            | 38.5                  | 61.5       | 0    |            | 0            | 0    | 0    | 0          | 0                     | 74.3      | 25.4      | 0.2      |            |            |
| PHF          | .819                  | .000 | .821      | .750     | .876       | .881                  | .841       | .000 | .856       | .000         | .000 | .000 | .000       | .000                  | .872      | .860      | .250     | .935       | .943       |

Peak Hour Analysis From 16:00 to 17:45 - Peak 1 of 1

Peak Hour for Entire Intersection Begins at 16:45



# TRAFFIC COUNTS PLUS

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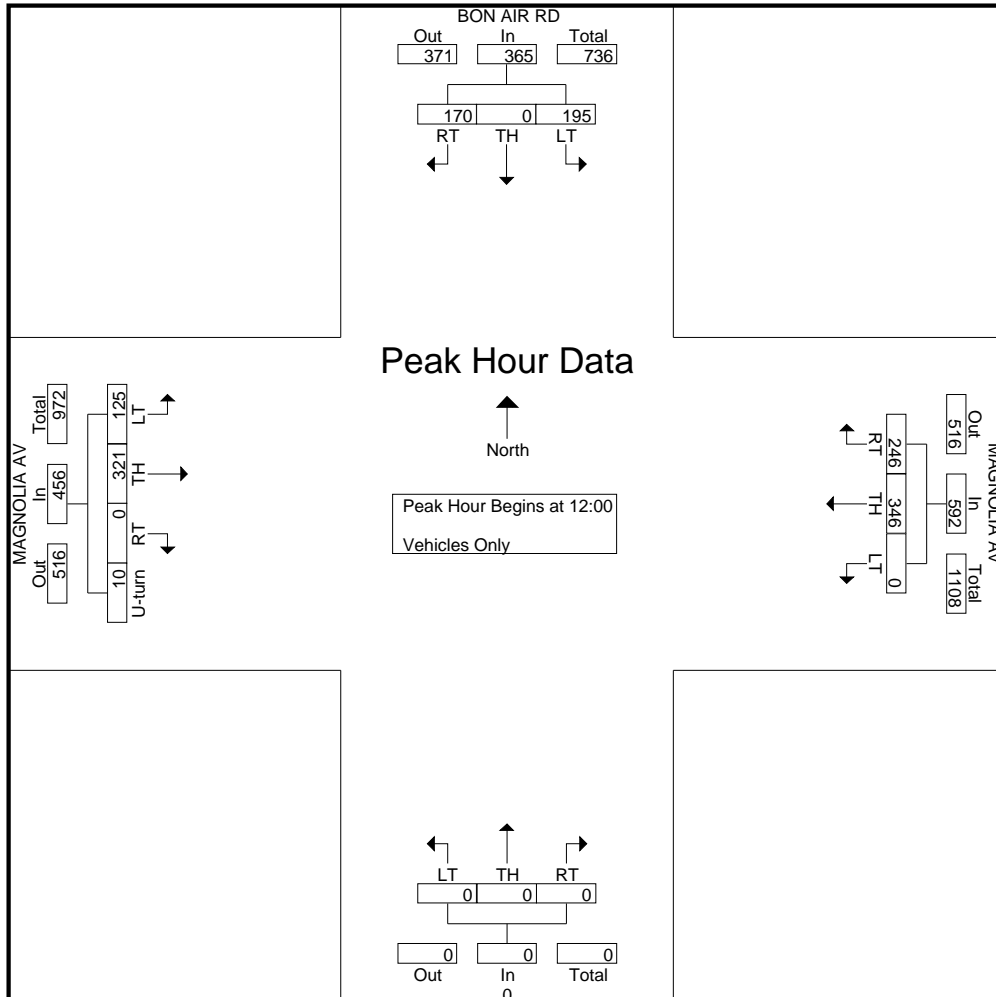
CITY OF LARKSPUR

File Name : bon air-magnolia-s  
Site Code : 1  
Start Date : 12/5/2015  
Page No : 1

### Groups Printed- Vehicles Only

| Start Time         | BON AIR RD Southbound |          |            |            | MAGNOLIA AV Westbound |            |          |             | 0 Northbound |          |          |            | MAGNOLIA AV Eastbound |            |            |           |            |             |
|--------------------|-----------------------|----------|------------|------------|-----------------------|------------|----------|-------------|--------------|----------|----------|------------|-----------------------|------------|------------|-----------|------------|-------------|
|                    | RT                    | TH       | LT         | App. Total | RT                    | TH         | LT       | App. Total  | RT           | TH       | LT       | App. Total | RT                    | TH         | LT         | U-turn    | App. Total | Int. Total  |
| 12:00              | 47                    | 0        | 48         | 95         | 56                    | 97         | 0        | 153         | 0            | 0        | 0        | 0          | 0                     | 83         | 33         | 3         | 119        | 367         |
| 12:15              | 47                    | 0        | 52         | 99         | 57                    | 74         | 0        | 131         | 0            | 0        | 0        | 0          | 0                     | 81         | 33         | 3         | 117        | 347         |
| 12:30              | 34                    | 0        | 53         | 87         | 76                    | 84         | 0        | 160         | 0            | 0        | 0        | 0          | 0                     | 73         | 34         | 0         | 107        | 354         |
| 12:45              | 42                    | 0        | 42         | 84         | 57                    | 91         | 0        | 148         | 0            | 0        | 0        | 0          | 0                     | 84         | 25         | 4         | 113        | 345         |
| <b>Total</b>       | <b>170</b>            | <b>0</b> | <b>195</b> | <b>365</b> | <b>246</b>            | <b>346</b> | <b>0</b> | <b>592</b>  | <b>0</b>     | <b>0</b> | <b>0</b> | <b>0</b>   | <b>0</b>              | <b>321</b> | <b>125</b> | <b>10</b> | <b>456</b> | <b>1413</b> |
| 13:00              | 30                    | 0        | 44         | 74         | 68                    | 90         | 0        | 158         | 0            | 0        | 0        | 0          | 0                     | 93         | 37         | 2         | 132        | 364         |
| 13:15              | 31                    | 0        | 40         | 71         | 56                    | 71         | 0        | 127         | 0            | 0        | 0        | 0          | 0                     | 98         | 36         | 2         | 136        | 334         |
| 13:30              | 41                    | 0        | 45         | 86         | 75                    | 82         | 0        | 157         | 0            | 0        | 0        | 0          | 0                     | 84         | 32         | 4         | 120        | 363         |
| 13:45              | 30                    | 0        | 51         | 81         | 71                    | 81         | 0        | 152         | 0            | 0        | 0        | 0          | 0                     | 72         | 32         | 4         | 108        | 341         |
| <b>Total</b>       | <b>132</b>            | <b>0</b> | <b>180</b> | <b>312</b> | <b>270</b>            | <b>324</b> | <b>0</b> | <b>594</b>  | <b>0</b>     | <b>0</b> | <b>0</b> | <b>0</b>   | <b>0</b>              | <b>347</b> | <b>137</b> | <b>12</b> | <b>496</b> | <b>1402</b> |
| <b>Grand Total</b> | <b>302</b>            | <b>0</b> | <b>375</b> | <b>677</b> | <b>516</b>            | <b>670</b> | <b>0</b> | <b>1186</b> | <b>0</b>     | <b>0</b> | <b>0</b> | <b>0</b>   | <b>0</b>              | <b>668</b> | <b>262</b> | <b>22</b> | <b>952</b> | <b>2815</b> |
| Apprch %           | 44.6                  | 0        | 55.4       |            | 43.5                  | 56.5       | 0        |             | 0            | 0        | 0        | 0          | 0                     | 70.2       | 27.5       | 2.3       |            |             |
| Total %            | 10.7                  | 0        | 13.3       | 24         | 18.3                  | 23.8       | 0        | 42.1        | 0            | 0        | 0        | 0          | 0                     | 23.7       | 9.3        | 0.8       | 33.8       |             |

| Start Time                                           | BON AIR RD Southbound |      |           |            | MAGNOLIA AV Westbound |           |      |            | 0 Northbound |      |      |            | MAGNOLIA AV Eastbound |           |           |          |            |            |
|------------------------------------------------------|-----------------------|------|-----------|------------|-----------------------|-----------|------|------------|--------------|------|------|------------|-----------------------|-----------|-----------|----------|------------|------------|
|                                                      | RT                    | TH   | LT        | App. Total | RT                    | TH        | LT   | App. Total | RT           | TH   | LT   | App. Total | RT                    | TH        | LT        | U-turn   | App. Total | Int. Total |
| Peak Hour Analysis From 12:00 to 13:45 - Peak 1 of 1 |                       |      |           |            |                       |           |      |            |              |      |      |            |                       |           |           |          |            |            |
| Peak Hour for Entire Intersection Begins at 12:00    |                       |      |           |            |                       |           |      |            |              |      |      |            |                       |           |           |          |            |            |
| 12:00                                                | <b>47</b>             | 0    | 48        | 95         | 56                    | <b>97</b> | 0    | 153        | 0            | 0    | 0    | 0          | 0                     | 83        | 33        | 3        | <b>119</b> | <b>367</b> |
| 12:15                                                | 47                    | 0    | 52        | <b>99</b>  | 57                    | 74        | 0    | 131        | 0            | 0    | 0    | 0          | 0                     | 81        | 33        | 3        | 117        | 347        |
| 12:30                                                | 34                    | 0    | <b>53</b> | 87         | <b>76</b>             | 84        | 0    | <b>160</b> | 0            | 0    | 0    | 0          | 0                     | 73        | <b>34</b> | 0        | 107        | 354        |
| 12:45                                                | 42                    | 0    | 42        | 84         | 57                    | 91        | 0    | 148        | 0            | 0    | 0    | 0          | 0                     | <b>84</b> | 25        | <b>4</b> | 113        | 345        |
| <b>Total Volume</b>                                  | 170                   | 0    | 195       | 365        | 246                   | 346       | 0    | 592        | 0            | 0    | 0    | 0          | 0                     | 321       | 125       | 10       | 456        | 1413       |
| % App. Total                                         | 46.6                  | 0    | 53.4      |            | 41.6                  | 58.4      | 0    |            | 0            | 0    | 0    | 0          | 0                     | 70.4      | 27.4      | 2.2      |            |            |
| PHF                                                  | .904                  | .000 | .920      | .922       | .809                  | .892      | .000 | .925       | .000         | .000 | .000 | .000       | .000                  | .955      | .919      | .625     | .958       | .963       |



# TRAFFIC COUNTS PLUS

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CITY OF LARKSPUR

File Name : dartmouth-magnolia-a  
Site Code : 2  
Start Date : 12/2/2015  
Page No : 1

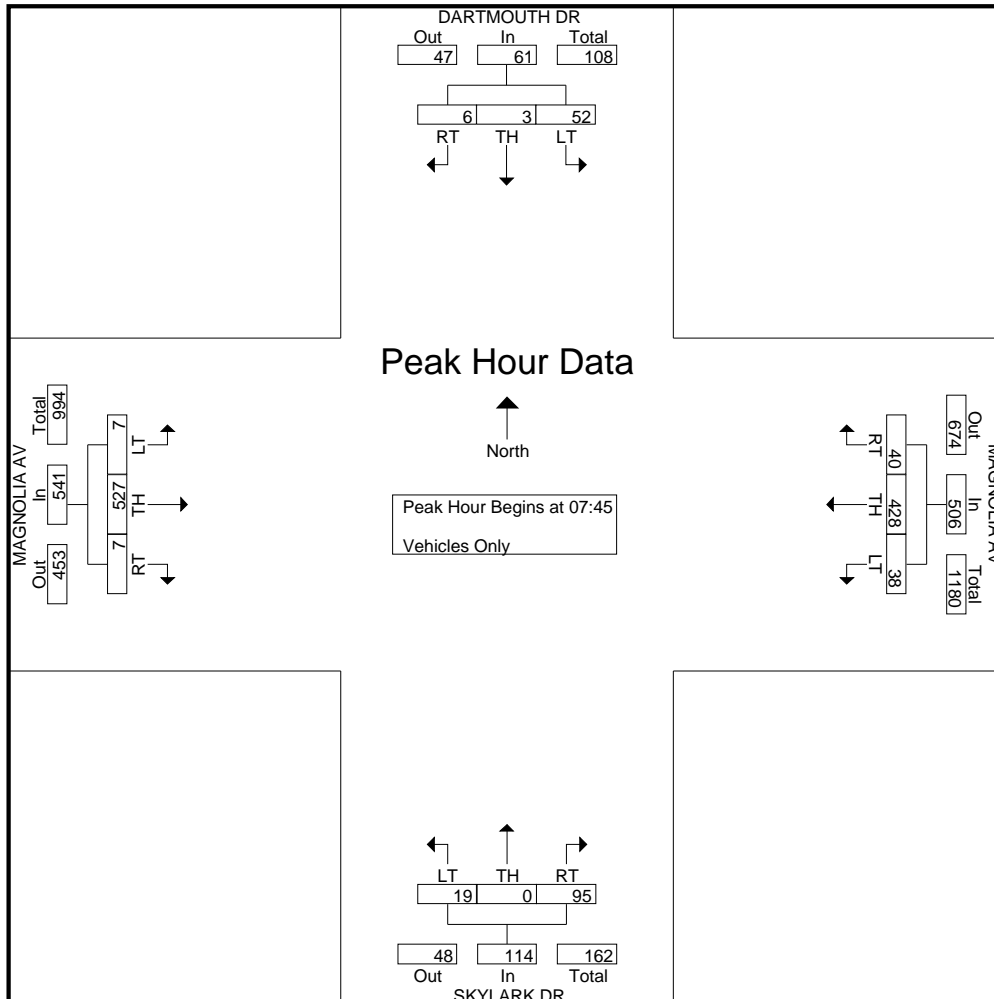
### Groups Printed- Vehicles Only

| Start Time   | DARTMOUTH DR<br>Southbound |          |           |            | MAGNOLIA AV<br>Westbound |            |           |            | SKYLARK DR<br>Northbound |          |           |            | MAGNOLIA AV<br>Eastbound |            |          |            | Int. Total  |
|--------------|----------------------------|----------|-----------|------------|--------------------------|------------|-----------|------------|--------------------------|----------|-----------|------------|--------------------------|------------|----------|------------|-------------|
|              | RT                         | TH       | LT        | App. Total | RT                       | TH         | LT        | App. Total | RT                       | TH       | LT        | App. Total | RT                       | TH         | LT       | App. Total |             |
| 07:00        | 0                          | 0        | 0         | 0          | 0                        | 23         | 3         | 26         | 15                       | 0        | 0         | 15         | 0                        | 43         | 0        | 43         | 84          |
| 07:15        | 0                          | 1        | 9         | 10         | 3                        | 45         | 6         | 54         | 28                       | 0        | 3         | 31         | 1                        | 99         | 0        | 100        | 195         |
| 07:30        | 2                          | 0        | 13        | 15         | 5                        | 35         | 5         | 45         | 33                       | 1        | 5         | 39         | 1                        | 153        | 2        | 156        | 255         |
| 07:45        | 0                          | 2        | 24        | 26         | 8                        | 82         | 3         | 93         | 24                       | 0        | 3         | 27         | 1                        | 143        | 2        | 146        | 292         |
| <b>Total</b> | <b>2</b>                   | <b>3</b> | <b>46</b> | <b>51</b>  | <b>16</b>                | <b>185</b> | <b>17</b> | <b>218</b> | <b>100</b>               | <b>1</b> | <b>11</b> | <b>112</b> | <b>3</b>                 | <b>438</b> | <b>4</b> | <b>445</b> | <b>826</b>  |
| 08:00        | 2                          | 1        | 14        | 17         | 10                       | 135        | 17        | 162        | 24                       | 0        | 8         | 32         | 3                        | 126        | 2        | 131        | 342         |
| 08:15        | 3                          | 0        | 5         | 8          | 9                        | 127        | 14        | 150        | 22                       | 0        | 5         | 27         | 1                        | 132        | 0        | 133        | 318         |
| 08:30        | 1                          | 0        | 9         | 10         | 13                       | 84         | 4         | 101        | 25                       | 0        | 3         | 28         | 2                        | 126        | 3        | 131        | 270         |
| 08:45        | 3                          | 0        | 4         | 7          | 10                       | 86         | 7         | 103        | 27                       | 1        | 1         | 29         | 0                        | 117        | 4        | 121        | 260         |
| <b>Total</b> | <b>9</b>                   | <b>1</b> | <b>32</b> | <b>42</b>  | <b>42</b>                | <b>432</b> | <b>42</b> | <b>516</b> | <b>98</b>                | <b>1</b> | <b>17</b> | <b>116</b> | <b>6</b>                 | <b>501</b> | <b>9</b> | <b>516</b> | <b>1190</b> |
| Grand Total  | 11                         | 4        | 78        | 93         | 58                       | 617        | 59        | 734        | 198                      | 2        | 28        | 228        | 9                        | 939        | 13       | 961        | 2016        |
| Apprch %     | 11.8                       | 4.3      | 83.9      |            | 7.9                      | 84.1       | 8         |            | 86.8                     | 0.9      | 12.3      |            | 0.9                      | 97.7       | 1.4      |            |             |
| Total %      | 0.5                        | 0.2      | 3.9       | 4.6        | 2.9                      | 30.6       | 2.9       | 36.4       | 9.8                      | 0.1      | 1.4       | 11.3       | 0.4                      | 46.6       | 0.6      | 47.7       |             |

| Start Time   | DARTMOUTH DR<br>Southbound |      |      |            | MAGNOLIA AV<br>Westbound |      |      |            | SKYLARK DR<br>Northbound |      |      |            | MAGNOLIA AV<br>Eastbound |      |      |            | Int. Total |
|--------------|----------------------------|------|------|------------|--------------------------|------|------|------------|--------------------------|------|------|------------|--------------------------|------|------|------------|------------|
|              | RT                         | TH   | LT   | App. Total | RT                       | TH   | LT   | App. Total | RT                       | TH   | LT   | App. Total | RT                       | TH   | LT   | App. Total |            |
| 07:45        | 0                          | 2    | 24   | 26         | 8                        | 82   | 3    | 93         | 24                       | 0    | 3    | 27         | 1                        | 143  | 2    | 146        | 292        |
| 08:00        | 2                          | 1    | 14   | 17         | 10                       | 135  | 17   | 162        | 24                       | 0    | 8    | 32         | 3                        | 126  | 2    | 131        | 342        |
| 08:15        | 3                          | 0    | 5    | 8          | 9                        | 127  | 14   | 150        | 22                       | 0    | 5    | 27         | 1                        | 132  | 0    | 133        | 318        |
| 08:30        | 1                          | 0    | 9    | 10         | 13                       | 84   | 4    | 101        | 25                       | 0    | 3    | 28         | 2                        | 126  | 3    | 131        | 270        |
| Total Volume | 6                          | 3    | 52   | 61         | 40                       | 428  | 38   | 506        | 95                       | 0    | 19   | 114        | 7                        | 527  | 7    | 541        | 1222       |
| % App. Total | 9.8                        | 4.9  | 85.2 |            | 7.9                      | 84.6 | 7.5  |            | 83.3                     | 0    | 16.7 |            | 1.3                      | 97.4 | 1.3  |            |            |
| PHF          | .500                       | .375 | .542 | .587       | .769                     | .793 | .559 | .781       | .950                     | .000 | .594 | .891       | .583                     | .921 | .583 | .926       | .893       |

Peak Hour Analysis From 07:00 to 08:45 - Peak 1 of 1

Peak Hour for Entire Intersection Begins at 07:45



# TRAFFIC COUNTS PLUS

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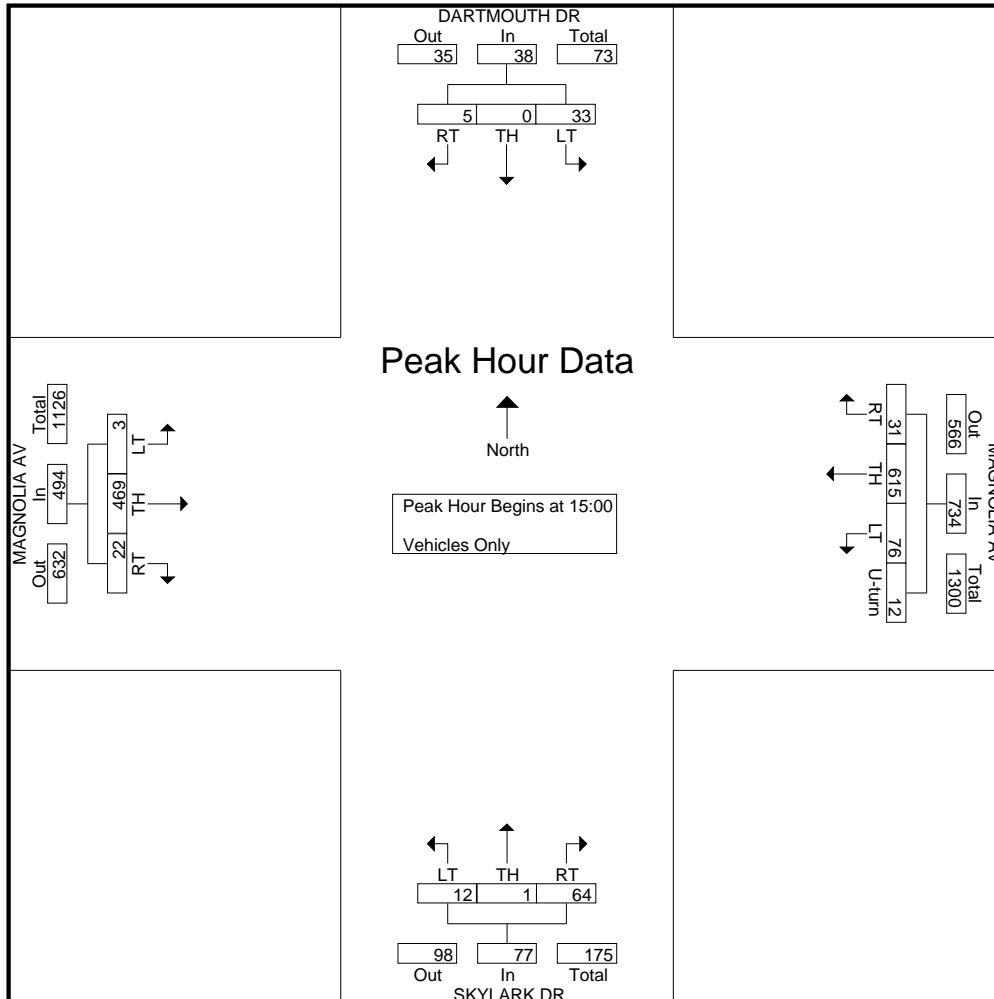
File Name : dartmouth-magnolia-m  
Site Code : 2  
Start Date : 12/2/2015  
Page No : 1

### Groups Printed- Vehicles Only

| Start Time   | DARTMOUTH DR<br>Southbound |          |           |            | MAGNOLIA AV<br>Westbound |            |           |           |            | SKYLARK DR<br>Northbound |          |           |            | MAGNOLIA AV<br>Eastbound |            |          |            | Int. Total  |
|--------------|----------------------------|----------|-----------|------------|--------------------------|------------|-----------|-----------|------------|--------------------------|----------|-----------|------------|--------------------------|------------|----------|------------|-------------|
|              | RT                         | TH       | LT        | App. Total | RT                       | TH         | LT        | U-turn    | App. Total | RT                       | TH       | LT        | App. Total | RT                       | TH         | LT       | App. Total |             |
| 14:00        | 3                          | 0        | 6         | 9          | 10                       | 112        | 15        | 1         | 138        | 10                       | 0        | 2         | 12         | 2                        | 99         | 6        | 107        | 266         |
| 14:15        | 1                          | 0        | 7         | 8          | 11                       | 129        | 12        | 0         | 152        | 10                       | 0        | 3         | 13         | 6                        | 120        | 1        | 127        | 300         |
| 14:30        | 0                          | 0        | 10        | 10         | 11                       | 135        | 17        | 4         | 167        | 8                        | 0        | 2         | 10         | 2                        | 87         | 1        | 90         | 277         |
| 14:45        | 1                          | 0        | 9         | 10         | 7                        | 101        | 11        | 4         | 123        | 18                       | 0        | 3         | 21         | 2                        | 134        | 1        | 137        | 291         |
| <b>Total</b> | <b>5</b>                   | <b>0</b> | <b>32</b> | <b>37</b>  | <b>39</b>                | <b>477</b> | <b>55</b> | <b>9</b>  | <b>580</b> | <b>46</b>                | <b>0</b> | <b>10</b> | <b>56</b>  | <b>12</b>                | <b>440</b> | <b>9</b> | <b>461</b> | <b>1134</b> |
| 15:00        | 1                          | 0        | 6         | 7          | 9                        | 126        | 16        | 3         | 154        | 13                       | 0        | 5         | 18         | 2                        | 140        | 1        | 143        | 322         |
| 15:15        | 1                          | 0        | 15        | 16         | 10                       | 174        | 23        | 4         | 211        | 15                       | 0        | 1         | 16         | 11                       | 128        | 0        | 139        | 382         |
| 15:30        | 1                          | 0        | 12        | 13         | 7                        | 165        | 21        | 3         | 196        | 11                       | 0        | 5         | 16         | 5                        | 104        | 1        | 110        | 335         |
| 15:45        | 2                          | 0        | 0         | 2          | 5                        | 150        | 16        | 2         | 173        | 25                       | 1        | 1         | 27         | 4                        | 97         | 1        | 102        | 304         |
| <b>Total</b> | <b>5</b>                   | <b>0</b> | <b>33</b> | <b>38</b>  | <b>31</b>                | <b>615</b> | <b>76</b> | <b>12</b> | <b>734</b> | <b>64</b>                | <b>1</b> | <b>12</b> | <b>77</b>  | <b>22</b>                | <b>469</b> | <b>3</b> | <b>494</b> | <b>1343</b> |
| Grand Total  | 10                         | 0        | 65        | 75         | 70                       | 1092       | 131       | 21        | 1314       | 110                      | 1        | 22        | 133        | 34                       | 909        | 12       | 955        | 2477        |
| Apprch %     | 13.3                       | 0        | 86.7      |            | 5.3                      | 83.1       | 10        | 1.6       |            | 82.7                     | 0.8      | 16.5      |            | 3.6                      | 95.2       | 1.3      |            |             |
| Total %      | 0.4                        | 0        | 2.6       | 3          | 2.8                      | 44.1       | 5.3       | 0.8       | 53         | 4.4                      | 0        | 0.9       | 5.4        | 1.4                      | 36.7       | 0.5      | 38.6       |             |

| Start Time   | DARTMOUTH DR<br>Southbound |      |           |            | MAGNOLIA AV<br>Westbound |            |           |          |            | SKYLARK DR<br>Northbound |          |          |            | MAGNOLIA AV<br>Eastbound |            |          |            | Int. Total |
|--------------|----------------------------|------|-----------|------------|--------------------------|------------|-----------|----------|------------|--------------------------|----------|----------|------------|--------------------------|------------|----------|------------|------------|
|              | RT                         | TH   | LT        | App. Total | RT                       | TH         | LT        | U-turn   | App. Total | RT                       | TH       | LT       | App. Total | RT                       | TH         | LT       | App. Total |            |
| 15:00        | 1                          | 0    | 6         | 7          | 9                        | 126        | 16        | 3        | 154        | 13                       | 0        | 5        | 18         | 2                        | <b>140</b> | <b>1</b> | <b>143</b> | 322        |
| 15:15        | 1                          | 0    | <b>15</b> | <b>16</b>  | <b>10</b>                | <b>174</b> | <b>23</b> | <b>4</b> | <b>211</b> | 15                       | 0        | 1        | 16         | <b>11</b>                | 128        | 0        | 139        | <b>382</b> |
| 15:30        | 1                          | 0    | 12        | 13         | 7                        | 165        | 21        | 3        | 196        | 11                       | 0        | 5        | 16         | 5                        | 104        | 1        | 110        | 335        |
| 15:45        | 2                          | 0    | 0         | 2          | 5                        | 150        | 16        | 2        | 173        | <b>25</b>                | <b>1</b> | <b>1</b> | <b>27</b>  | 4                        | 97         | 1        | 102        | 304        |
| Total Volume | 5                          | 0    | 33        | 38         | 31                       | 615        | 76        | 12       | 734        | 64                       | 1        | 12       | 77         | 22                       | 469        | 3        | 494        | 1343       |
| % App. Total | 13.2                       | 0    | 86.8      |            | 4.2                      | 83.8       | 10.4      | 1.6      |            | 83.1                     | 1.3      | 15.6     |            | 4.5                      | 94.9       | 0.6      |            |            |
| PHF          | .625                       | .000 | .550      | .594       | .775                     | .884       | .826      | .750     | .870       | .640                     | .250     | .600     | .713       | .500                     | .838       | .750     | .864       | .879       |

Peak Hour Analysis From 14:00 to 15:45 - Peak 1 of 1  
Peak Hour for Entire Intersection Begins at 15:00





# TRAFFIC COUNTS PLUS

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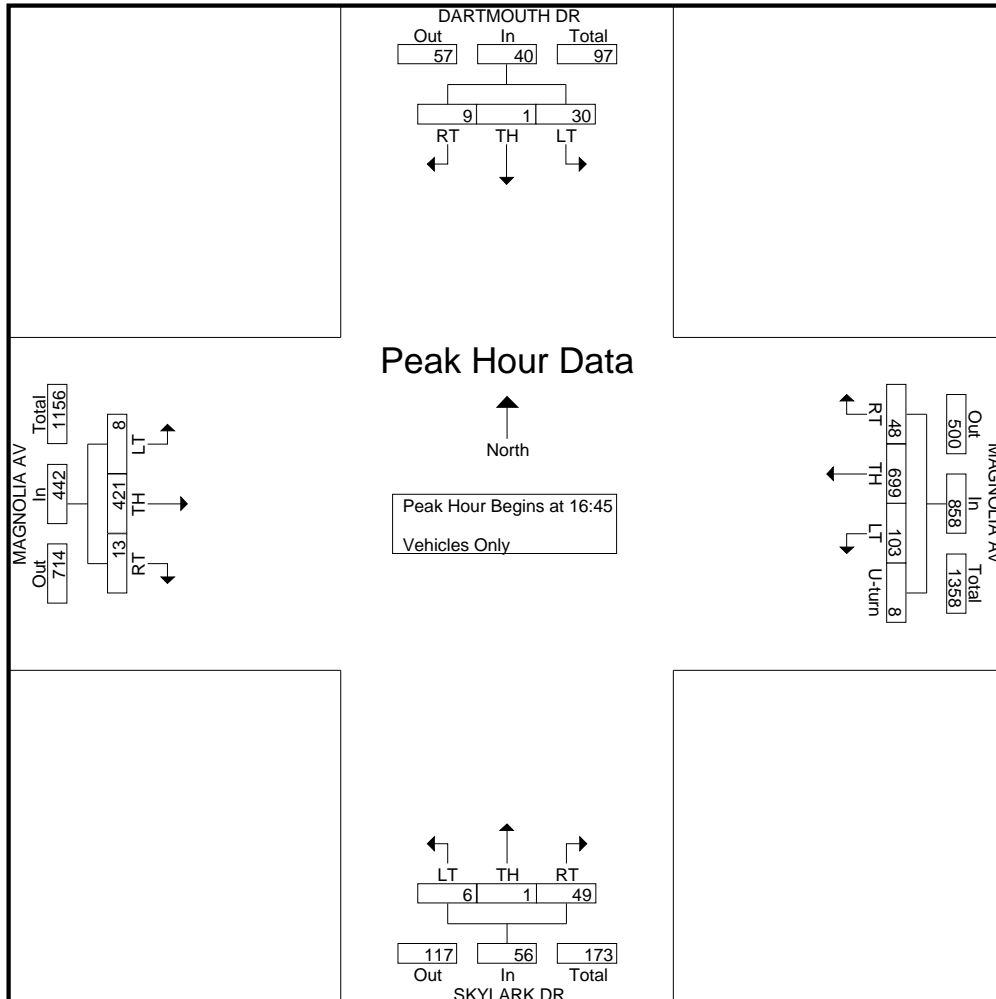
File Name : dartmouth-magnolia-p  
Site Code : 2  
Start Date : 12/2/2015  
Page No : 1

### Groups Printed- Vehicles Only

| Start Time         | DARTMOUTH DR<br>Southbound |          |           |            | MAGNOLIA AV<br>Westbound |             |            |           |             | SKYLARK DR<br>Northbound |          |           |            | MAGNOLIA AV<br>Eastbound |            |           |            | Int. Total  |
|--------------------|----------------------------|----------|-----------|------------|--------------------------|-------------|------------|-----------|-------------|--------------------------|----------|-----------|------------|--------------------------|------------|-----------|------------|-------------|
|                    | RT                         | TH       | LT        | App. Total | RT                       | TH          | LT         | U-turn    | App. Total  | RT                       | TH       | LT        | App. Total | RT                       | TH         | LT        | App. Total |             |
| 16:00              | 2                          | 0        | 6         | 8          | 12                       | 117         | 15         | 0         | 144         | 9                        | 0        | 5         | 14         | 5                        | 89         | 2         | 96         | 262         |
| 16:15              | 5                          | 1        | 9         | 15         | 10                       | 140         | 17         | 1         | 168         | 4                        | 0        | 1         | 5          | 6                        | 84         | 3         | 93         | 281         |
| 16:30              | 6                          | 0        | 10        | 16         | 10                       | 160         | 13         | 0         | 183         | 14                       | 0        | 4         | 18         | 4                        | 95         | 5         | 104        | 321         |
| 16:45              | 1                          | 0        | 11        | 12         | 10                       | 172         | 27         | 4         | 213         | 10                       | 1        | 1         | 12         | 3                        | 95         | 0         | 98         | 335         |
| <b>Total</b>       | <b>14</b>                  | <b>1</b> | <b>36</b> | <b>51</b>  | <b>42</b>                | <b>589</b>  | <b>72</b>  | <b>5</b>  | <b>708</b>  | <b>37</b>                | <b>1</b> | <b>11</b> | <b>49</b>  | <b>18</b>                | <b>363</b> | <b>10</b> | <b>391</b> | <b>1199</b> |
| 17:00              | 3                          | 1        | 10        | 14         | 14                       | 181         | 30         | 1         | 226         | 19                       | 0        | 3         | 22         | 4                        | 108        | 1         | 113        | 375         |
| 17:15              | 4                          | 0        | 3         | 7          | 9                        | 177         | 25         | 1         | 212         | 13                       | 0        | 2         | 15         | 1                        | 109        | 2         | 112        | 346         |
| 17:30              | 1                          | 0        | 6         | 7          | 15                       | 169         | 21         | 2         | 207         | 7                        | 0        | 0         | 7          | 5                        | 109        | 5         | 119        | 340         |
| 17:45              | 2                          | 0        | 13        | 15         | 17                       | 168         | 39         | 2         | 226         | 6                        | 0        | 1         | 7          | 4                        | 69         | 4         | 77         | 325         |
| <b>Total</b>       | <b>10</b>                  | <b>1</b> | <b>32</b> | <b>43</b>  | <b>55</b>                | <b>695</b>  | <b>115</b> | <b>6</b>  | <b>871</b>  | <b>45</b>                | <b>0</b> | <b>6</b>  | <b>51</b>  | <b>14</b>                | <b>395</b> | <b>12</b> | <b>421</b> | <b>1386</b> |
| <b>Grand Total</b> | <b>24</b>                  | <b>2</b> | <b>68</b> | <b>94</b>  | <b>97</b>                | <b>1284</b> | <b>187</b> | <b>11</b> | <b>1579</b> | <b>82</b>                | <b>1</b> | <b>17</b> | <b>100</b> | <b>32</b>                | <b>758</b> | <b>22</b> | <b>812</b> | <b>2585</b> |
| Apprch %           | 25.5                       | 2.1      | 72.3      |            | 6.1                      | 81.3        | 11.8       | 0.7       |             | 82                       | 1        | 17        |            | 3.9                      | 93.3       | 2.7       |            |             |
| Total %            | 0.9                        | 0.1      | 2.6       | 3.6        | 3.8                      | 49.7        | 7.2        | 0.4       | 61.1        | 3.2                      | 0        | 0.7       | 3.9        | 1.2                      | 29.3       | 0.9       | 31.4       |             |

| Start Time          | DARTMOUTH DR<br>Southbound |          |           |            | MAGNOLIA AV<br>Westbound |            |            |          |            | SKYLARK DR<br>Northbound |          |          |            | MAGNOLIA AV<br>Eastbound |            |          |            | Int. Total  |
|---------------------|----------------------------|----------|-----------|------------|--------------------------|------------|------------|----------|------------|--------------------------|----------|----------|------------|--------------------------|------------|----------|------------|-------------|
|                     | RT                         | TH       | LT        | App. Total | RT                       | TH         | LT         | U-turn   | App. Total | RT                       | TH       | LT       | App. Total | RT                       | TH         | LT       | App. Total |             |
| 16:45               | 1                          | 0        | 11        | 12         | 10                       | 172        | 27         | 4        | 213        | 10                       | 1        | 1        | 12         | 3                        | 95         | 0        | 98         | 335         |
| 17:00               | 3                          | 1        | 10        | 14         | 14                       | 181        | 30         | 1        | 226        | 19                       | 0        | 3        | 22         | 4                        | 108        | 1        | 113        | 375         |
| 17:15               | 4                          | 0        | 3         | 7          | 9                        | 177        | 25         | 1        | 212        | 13                       | 0        | 2        | 15         | 1                        | 109        | 2        | 112        | 346         |
| 17:30               | 1                          | 0        | 6         | 7          | 15                       | 169        | 21         | 2        | 207        | 7                        | 0        | 0        | 7          | 5                        | 109        | 5        | 119        | 340         |
| <b>Total Volume</b> | <b>9</b>                   | <b>1</b> | <b>30</b> | <b>40</b>  | <b>48</b>                | <b>699</b> | <b>103</b> | <b>8</b> | <b>858</b> | <b>49</b>                | <b>1</b> | <b>6</b> | <b>56</b>  | <b>13</b>                | <b>421</b> | <b>8</b> | <b>442</b> | <b>1396</b> |
| % App. Total        | 22.5                       | 2.5      | 75        |            | 5.6                      | 81.5       | 12         | 0.9      |            | 87.5                     | 1.8      | 10.7     |            | 2.9                      | 95.2       | 1.8      |            |             |
| PHF                 | .563                       | .250     | .682      | .714       | .800                     | .965       | .858       | .500     | .949       | .645                     | .250     | .500     | .636       | .650                     | .966       | .400     | .929       | .931        |

Peak Hour Analysis From 16:00 to 17:45 - Peak 1 of 1  
Peak Hour for Entire Intersection Begins at 16:45



# TRAFFIC COUNTS PLUS

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CITY OF LARKSPUR

File Name : dartmouth-magnolia-s  
Site Code : 2  
Start Date : 12/5/2015  
Page No : 1

## Groups Printed- Vehicles Only

| Start Time   | DARTMOUTH DR<br>Southbound |          |           |            | MAGNOLIA AV<br>Westbound |            |           |          |            | SKYLARK DR<br>Northbound |          |           |            | MAGNOLIA AV<br>Eastbound |            |           |          |            | Int. Total  |
|--------------|----------------------------|----------|-----------|------------|--------------------------|------------|-----------|----------|------------|--------------------------|----------|-----------|------------|--------------------------|------------|-----------|----------|------------|-------------|
|              | RT                         | TH       | LT        | App. Total | RT                       | TH         | LT        | U-turn   | App. Total | RT                       | TH       | LT        | App. Total | RT                       | TH         | LT        | U-turn   | App. Total |             |
| 12:00        | 1                          | 0        | 9         | 10         | 10                       | 97         | 20        | 0        | 127        | 19                       | 1        | 3         | 23         | 3                        | 97         | 3         | 1        | 104        | 264         |
| 12:15        | 2                          | 0        | 12        | 14         | 2                        | 92         | 23        | 1        | 118        | 13                       | 0        | 5         | 18         | 5                        | 88         | 2         | 0        | 95         | 245         |
| 12:30        | 1                          | 0        | 7         | 8          | 8                        | 89         | 17        | 1        | 115        | 16                       | 0        | 6         | 22         | 6                        | 78         | 4         | 0        | 88         | 233         |
| 12:45        | 2                          | 0        | 7         | 9          | 9                        | 105        | 15        | 1        | 130        | 15                       | 0        | 4         | 19         | 4                        | 86         | 1         | 0        | 91         | 249         |
| <b>Total</b> | <b>6</b>                   | <b>0</b> | <b>35</b> | <b>41</b>  | <b>29</b>                | <b>383</b> | <b>75</b> | <b>3</b> | <b>490</b> | <b>63</b>                | <b>1</b> | <b>18</b> | <b>82</b>  | <b>18</b>                | <b>349</b> | <b>10</b> | <b>1</b> | <b>378</b> | <b>991</b>  |
| 13:00        | 1                          | 0        | 11        | 12         | 6                        | 99         | 17        | 0        | 122        | 17                       | 0        | 4         | 21         | 3                        | 106        | 5         | 1        | 115        | 270         |
| 13:15        | 0                          | 0        | 12        | 12         | 5                        | 81         | 11        | 1        | 98         | 16                       | 0        | 3         | 19         | 3                        | 112        | 3         | 0        | 118        | 247         |
| 13:30        | 4                          | 0        | 9         | 13         | 10                       | 96         | 14        | 2        | 122        | 19                       | 0        | 5         | 24         | 10                       | 86         | 1         | 1        | 98         | 257         |
| 13:45        | 1                          | 1        | 7         | 9          | 9                        | 83         | 14        | 0        | 106        | 14                       | 0        | 7         | 21         | 8                        | 87         | 4         | 0        | 99         | 235         |
| <b>Total</b> | <b>6</b>                   | <b>1</b> | <b>39</b> | <b>46</b>  | <b>30</b>                | <b>359</b> | <b>56</b> | <b>3</b> | <b>448</b> | <b>66</b>                | <b>0</b> | <b>19</b> | <b>85</b>  | <b>24</b>                | <b>391</b> | <b>13</b> | <b>2</b> | <b>430</b> | <b>1009</b> |
| Grand Total  | 12                         | 1        | 74        | 87         | 59                       | 742        | 131       | 6        | 938        | 129                      | 1        | 37        | 167        | 42                       | 740        | 23        | 3        | 808        | 2000        |
| Apprch %     | 13.8                       | 1.1      | 85.1      |            | 6.3                      | 79.1       | 14        | 0.6      |            | 77.2                     | 0.6      | 22.2      |            | 5.2                      | 91.6       | 2.8       | 0.4      |            |             |
| Total %      | 0.6                        | 0.1      | 3.7       | 4.3        | 3                        | 37.1       | 6.6       | 0.3      | 46.9       | 6.4                      | 0.1      | 1.9       | 8.4        | 2.1                      | 37         | 1.1       | 0.2      | 40.4       |             |

| Start Time                                           | DARTMOUTH DR<br>Southbound |      |      |            | MAGNOLIA AV<br>Westbound |      |      |        |            | SKYLARK DR<br>Northbound |      |      |            | MAGNOLIA AV<br>Eastbound |      |      |        |            | Int. Total |
|------------------------------------------------------|----------------------------|------|------|------------|--------------------------|------|------|--------|------------|--------------------------|------|------|------------|--------------------------|------|------|--------|------------|------------|
|                                                      | RT                         | TH   | LT   | App. Total | RT                       | TH   | LT   | U-turn | App. Total | RT                       | TH   | LT   | App. Total | RT                       | TH   | LT   | U-turn | App. Total |            |
| Peak Hour Analysis From 12:00 to 13:45 - Peak 1 of 1 |                            |      |      |            |                          |      |      |        |            |                          |      |      |            |                          |      |      |        |            |            |
| Peak Hour for Entire Intersection Begins at 12:45    |                            |      |      |            |                          |      |      |        |            |                          |      |      |            |                          |      |      |        |            |            |
| 12:45                                                | 2                          | 0    | 7    | 9          | 9                        | 105  | 15   | 1      | 130        | 15                       | 0    | 4    | 19         | 4                        | 86   | 1    | 0      | 91         | 249        |
| 13:00                                                | 1                          | 0    | 11   | 12         | 6                        | 99   | 17   | 0      | 122        | 17                       | 0    | 4    | 21         | 3                        | 106  | 5    | 1      | 115        | 270        |
| 13:15                                                | 0                          | 0    | 12   | 12         | 5                        | 81   | 11   | 1      | 98         | 16                       | 0    | 3    | 19         | 3                        | 112  | 3    | 0      | 118        | 247        |
| 13:30                                                | 4                          | 0    | 9    | 13         | 10                       | 96   | 14   | 2      | 122        | 19                       | 0    | 5    | 24         | 10                       | 86   | 1    | 1      | 98         | 257        |
| Total Volume                                         | 7                          | 0    | 39   | 46         | 30                       | 381  | 57   | 4      | 472        | 67                       | 0    | 16   | 83         | 20                       | 390  | 10   | 2      | 422        | 1023       |
| % App. Total                                         | 15.2                       | 0    | 84.8 |            | 6.4                      | 80.7 | 12.1 | 0.8    |            | 80.7                     | 0    | 19.3 |            | 4.7                      | 92.4 | 2.4  | 0.5    |            |            |
| PHF                                                  | .438                       | .000 | .813 | .885       | .750                     | .907 | .838 | .500   | .908       | .882                     | .000 | .800 | .865       | .500                     | .871 | .500 | .500   | .894       | .947       |

