



Massachusetts Gaming Commission
101 Federal Street, 12th Floor
Boston, MA 02110

**2016 COMMUNITY MITIGATION FUND
RESERVE / SPECIFIC IMPACT APPLICATION**

CHECK BOX IF REQUESTING THE CREATION OF A
MITIGATION RESERVE FUND FOR A COMMUNITY

APPLICATIONS DUE NO LATER THAN FEBRUARY 1, 2016.

For anyone with specific impacts, please complete the gray boxes 1-4 beginning on page 2. If you are not applying for mitigation of specific impacts by February 1, 2016, you do not need to complete grayed boxes 1-4.

City of Lynn

1. NAME OF MUNICIPALITY/GOVERNMENT ENTITY/DISTRICT

Department of Community Development

2. DEPARTMENT RECEIVING FUNDS

James Marsh, Director

3. NAME AND TITLE OF INDIVIDUAL RESPONSIBLE FOR HANDLING OF FUNDS

Department of Community Development, Lynn City Hall, 3 City Hall Square, Lynn, MA 01901

4. ADDRESS OF INDIVIDUAL RESPONSIBLE FOR HANDLING OF FUNDS

781-586-6768 jmarsh@lynnma.gov

5. PHONE # AND EMAIL ADDRESS OF INDIVIDUAL RESPONSIBLE FOR HANDLING OF FUNDS

Judith Flanagan Kennedy, Mayor

6. NAME AND TITLE OF INDIVIDUAL AUTHORIZED TO COMMIT FUNDS ON BEHALF OF
MUNICIPALITY/GOVERNMENTAL ENTITY

Mayor's Office, Lynn City Hall, 3 City Hall Square, Lynn, MA 01901

7. ADDRESS OF INDIVIDUAL AUTHORIZED TO COMMIT FUNDS ON BEHALF OF
MUNICIPALITY/GOVERNMENTAL ENTITY

781-586-6857 jkennedy@lynn.ma.gov

8. PHONE # AND EMAIL ADDRESS OF INDIVIDUAL AUTHORIZED TO COMMIT FUNDS ON BEHALF
OF MUNICIPALITY/GOVERNMENTAL ENTITY

Wynn MA, LLC/Everett

9. NAME OF GAMING LICENSEE

1. IMPACT DESCRIPTION

Please describe in detail the impact that is attributed to the construction of a gaming facility. Please provide support for the determination that the construction of the gaming facility caused or is causing the impact.

The City of Lynn is an older urban City with a large blue collar population. It is anticipated that many of the construction workers employed by the Licensee will reside in Lynn. These individuals will be traveling on Lynn's congested roadways during rush hour further congesting Lynn roads. It is likely the majority of these individuals will utilize Route 1A and Route 107 to travel back and forth to the construction site in Everett. Concrete/cement contractors from Lynn and the immediate surrounding areas will likely be utilized during the construction phase. These construction vehicles and trucks would be utilizing Routes 1A and 107 to and from the Everett facility.

Routes 1A and 107 are heavily traveled thoroughfares and during construction will be further congested. The General Electric facility is located between Routes 1A and 107 and sees heavy traffic during the rush hour commute. The construction of the Everett facility will further exacerbate traffic issues in the City of Lynn.

The City of Lynn is an older urban Gateway City with a population of over 90,000. Lynn is the largest city on the North Shore and tenth largest city in Massachusetts. Lynn's recently completed Waterfront Master Plan contains waterfront parcels that have been identified by the Commonwealth of Massachusetts as priority development sites. These parcels are a mere 8 miles from the proposed facility. In addition, thousands of Lynn, Swampscott, Marblehead and Salem residents commute to Boston and beyond each morning utilizing Lynn roads that lead them directly to the proposed facility.

Although the City of Lynn has steadily been working on reinventing itself, attracting loft and condo owners, one issue remains. The City is plagued by a lack of direct, free flowing traffic into and out of the city limits. Somewhere along each entry point, motorists must pass through residential neighborhoods or navigate limited access roads with traffic signals and numerous stops. Unlike urban communities abutting major thoroughfares such as Routes 128, 495 and 1, the City of Lynn's commercial base and resulting economics are limited to what can be carried over these aging local roads. In fact, during a recent study administered by economist Dr. Barry Bluestone of Northeastern University, the lack of free flowing vehicular transportation was identified as one of the major "deal

breakers" when it came to attracting new business to Lynn.

In an attempt to remedy these issues, the City has been tirelessly lobbying for funds to design, engineer, and implement a variety of improvements and alternatives aimed at streamlining vehicular and transit oriented commuters and commerce into and out of the City's core business districts.

To date, Lynn has been successful lobbying for major improvements to one of the City's core business districts along Route 129. Major roadway improvements were undertaken and completed by the Commonwealth of Massachusetts. Lynn also obtained funding to offer a ferry service in and out of Boston for the past two summers. Unfortunately, no funding has yet to be secured for the continuation of the ferry service in the summer of 2016. The ferry service eliminates significant vehicular traffic during the morning and evening rush hour commutes. The City is actively seeking funding for additional stops in Lynn on our commuter rail line, and exploring ways to create additional access to our waterfront, which is now primed for development. In addition, we are in the permitting phases of a variety of city intersections including access to our Waterfront off Route 1A, streamlining traffic on Route 107 and the extension of the Blue Line.

Across the Commonwealth, large municipal projects such as Quincy's Marina Bay and the new Quincy Center/Street Works Initiative, Somerville's Assembly Square/Inner Belt and Worcester's City Square are reinvigorating the economies of older Urban Centers. Governor Baker and his Chief Economic Aid Jay Ash have observed Lynn's potential for significant growth and committed to work with Lynn to assist us to reach our goals. Governor Baker and Secretary Ash believe that Lynn has positioned itself for redevelopment of both our Waterfront and Downtown. As the economy improves, much like these other cities, State and local officials believe that Lynn is poised to continue its economic transformation and break through as one of the areas main, cultural, economic and tourist hubs.

However, in attempting to bring in businesses to the City, many corporate leaders are looking to areas closer to the Everett facility. For more than a decade Lynn officials have attempted to attract a hotel to the City of Lynn. To date, this endeavor has been unsuccessful. While Lynn is only 8 miles from the Everett facility, hotels and other businesses have selected locations closer to the Everett facility with the anticipation of a fertile market. The significant traffic congestion in Lynn on a daily basis makes the 8 mile commute appear much longer in the eyes of businesses that we have sought to locate in Lynn. The

increased traffic on Lynn's roadways during the course of the construction will only worsen the perceived traffic concerns of prospective businesses.

2. PROPOSED MITIGATION

Please identify below the manner in which the funds are proposed to be used. Please provide documentation (e.g. - invoices, proposals, estimates, etc.) adequate for the Commission to ensure that the funds will be used for the cost of mitigating the impact from the construction of a proposed gaming establishment. Please describe how the mitigation request will address the specific impact indicated. Please attach additional sheets/supplemental materials if necessary.

Lynn would utilize these funds to alleviate the significant traffic issues facing our City. Lynn has been actively seeking funding to create a left hand turn into the ferry entrance for commuters traveling south on Route 1A. At the present time, ferry travelers are forced to drive past the ferry entrance and take a legal U-turn more than a half mile away from the ferry terminal.

The City is also actively seeking funding to continue to operate the ferry this coming summer. The ferry shuttle from Lynn to Boston has been operational the past two summers with the assistance of state funds. At this time, no such funding has been allotted to the City of Lynn. Just last week, the City hosted the owner of the largest ferry service in the world to look at ways to continue to operate and to expand the ferry service. The City has attached funding estimates to achieve this much needed goal.

The City has conducted numerous traffic studies to synchronize the traffic lights on Routes 107 to alleviate congestion. Route 107 has been identified as a priority by the Commonwealth of Massachusetts because of traffic congestion. In fact, the Commonwealth of Massachusetts is holding a series of public hearings to discuss ways that Route 107 could be improved. Unfortunately, not all of Route 107 is under the jurisdiction of the Commonwealth. More than three miles of Route 107 including seven major intersections are under the jurisdiction of the City. Improvements undertaken by the Commonwealth of Massachusetts on sections of the road under its control will not have a maximum benefit unless the City secures funding to upgrade traffic signals under the City's control. Traffic issues along the Route 107 corridor will only worsen when a new Market Basket is constructed and opened in 2016.

The City is also seeking funding to add additional stops on the Rockport/Newburyport Commuter Rail Line. Recently, a developer purchased a 65 acre site adjacent to the Riverworks commuter rail stop. However, presently, only employees of the General Electric can utilize this stop. It is envisioned that the property will be developed into several hundred residential units directly overlooking Boston Harbor. While the City strongly supports this

proposed project, the City recognizes that the project will increase the significant traffic issues that exist at this time. In order for this project to proceed, significant upgrades to the Riverwork station must be completed.

If awarded community mitigation funding, the City will consult with State officials including Secretary Ash and representatives of Massachusetts Highway to determine the best manner to expend these funds to lessen traffic and maximize the economic development in Lynn

3. IMPACT CONTROLS/ADMINISTRATION OF IMPACT FUNDS

Please provide detail regarding the controls that will be used to ensure that funds will only be used to address the specific impact. If non-governmental entities will receive any funds, please describe what reporting will be required and how the applicant will remedy any misuse of funds.

The Chief Financial Officer of the City of Lynn has insisted that any community mitigation funding awarded to the City of Lynn be placed in a separate revolving account. In this manner, the funding would only be permitted if it addressed the specific transportation needs of the City. Community Development Director Marsh would be required to obtain the approval of both the Mayor and the City Council prior to any expenditure of community mitigation funding.

City officials have worked tirelessly to secure funding for the projects identified in Section 2 of the Application. The City is hopeful that a public/private partnership can result to bring these projects to completion. However, the City understands that Lynn will need to contribute funding to any other sources of public and private financing that becomes available. The community mitigation monies would ensure that Lynn could meet its obligations to bring the traffic improvements to fruition.

4. RELEVANT EXCERPTS FROM HOST OR SURROUNDING COMMUNITY AGREEMENTS

Please describe and include excerpts from any relevant sections of any Host or Surrounding Community Agreement. Please explain how this impact was either anticipated or not anticipated in that Agreement.

Attached please find a Neighboring Community Agreement between the City of Lynn and Wynn MA, LLC.

Since the execution of this Agreement, Wynn MA, LLC has selected Suffolk Construction as the general contractor to construct its facility. Suffolk Construction employs a significant number of employees in the Greater Lynn area. Traditionally, Suffolk has hired many Lynn tradesmen as subcontractors and vendors on local construction projects. The selection of Suffolk Construction ensures that Lynn will be adversely effected as a result of the injection of increased vehicular traffic.

CERTIFICATION BY MUNICIPALITY/GOVERNMENTAL ENTITY

On behalf of the aforementioned municipality/governmental entity I hereby certify that the funds that are requested in this application will be used solely for the purposes articulated in this Application.

Judith Flanagan Kennedy Mayor
Signature of Responsible Municipal
Official/Governmental Entity

February 1, 2016
Date

APPROVAL OF THE MASSACHUSETTS GAMING COMMISSION

On behalf of the Massachusetts Gaming Commission, the Commission hereby authorizes the payment from the Community Mitigation Fund in accordance with M.G.L. c. 23K as outlined in this Application.

Executive Director

Date

Ombudsman

Date





**Massachusetts Gaming Commission
101 Federal Street, 12th Floor
Boston, MA 02110**

**INSTRUCTIONS FOR FILING FOR THE
2016 COMMUNITY MITIGATION FUND RESERVE / SPECIFIC IMPACT
APPLICATION OR 2016 TRANSPORTATION PLANNING GRANT APPLICATION**

1. 2015 Mitigation Reserve Fund - continuation

Note: Communities that received approval of the 2015 Mitigation Reserve Fund request **do not** need to submit any application to preserve its reserve in 2016.

2. 2016 Mitigation Reserve Fund Only

If a Community is filing for a **mitigation reserve fund only**, please use the application entitled "2016 COMMUNITY MITIGATION FUND RESERVE / SPECIFIC IMPACT APPLICATION", **check the box on page 1** and fill out all the boxes in blue. **Skip grayed boxes 1-4.** Detail regarding the use of the reserve fund can be provided to the Commission on a rolling basis upon consultation with the Commission.

3. 2016 Community Mitigation Fund Specific Impact Application

If a Community or other Applicant has a **specific impact**, please use the application entitled "2016 COMMUNITY MITIGATION FUND RESERVE / SPECIFIC IMPACT APPLICATION" and fill out **entire application form**.

4. 2016 Community Mitigation Reserve Fund and 2016 Community Mitigation Fund Specific Impact Application

If a Community or other Applicant is requesting **both a 2016 Mitigation Reserve Fund and has a specific impact**, please fill out the **entire application form** entitled "2016 COMMUNITY MITIGATION FUND RESERVE / SPECIFIC IMPACT APPLICATION".

5. 2016 Transportation Planning Grant Application

If a Community is filing for a **2016 Transportation Planning Grant**, please use the application entitled "2016 TRANSPORTATION PLANNING GRANT APPLICATION. Please fill out the **entire application form**.

**Any questions contact: John S. Ziemba, Ombudsman
101 Federal Street, 12th Floor, Boston, MA 02110
(617) 979-8423 or john.s.ziemba@state.ma.us**

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An application must be received by February 1, 2016 to meet the application deadline.

Applications should be sent to: www.commbuys.com. Applicants that are not part of the COMMBUYS system should contact Mary Thurlow of the Commission's Ombudsman's Office well in advance of the February 1, 2016 deadline to make arrangements for submission of the application by the deadline. Mary Thurlow can be contacted at 617-979-8420 or at mary.thurlow@state.ma.us.

If you have any questions regarding COMMBUYS, please contact COMMBUYS Help Desk assistance at 1-888-627-8283 or COMMBUYS@state.ma.us.

Attachments

- Traffic Volume Count Data
- 2014 Lynn to Boston Ferry Schedule
- Lynn Commuter Ferry Ridership Data
- Intersection Capacity Analyses
- Preliminary Cost Estimates
- Signal Warrant Worksheet

Traffic Volume Count Data



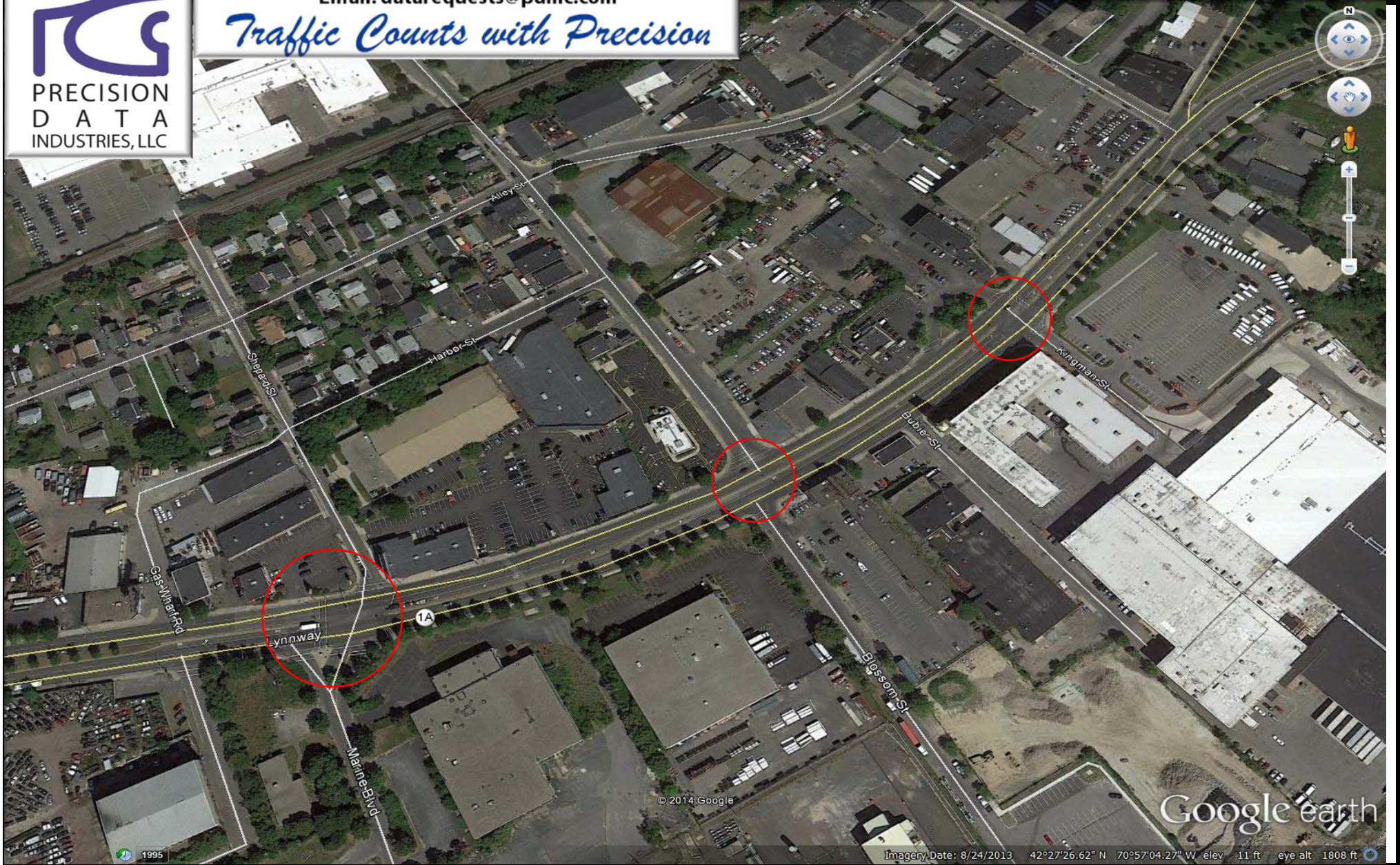
PRECISION
DATA
INDUSTRIES, LLC

PRECISION DATA INDUSTRIES, LLC

Office: 508.481.3999 Fax: 508.545.1234

Email: datarequests@pdillc.com

Traffic Counts with Precision



Client:
VHB

Engineer:
K. Keen

Site Code:
11942.03

Date:
Tuesday 11/18/14

PDI Job Number:
144179

City, State:
Lynn, MA



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D A T A
INDUSTRIES, LLC

P.O. Box 301 Berlin, MA 01503
Office: 508.481.3999 Fax: 508.545.1234
Email: datarequests@pdillc.com

N/S: Shepard Street/ Marine Boulevard
E/W: Lynnway (Route 1A)
City, State: Lynn, MA
Client: VHB/K. Keen

File Name : 144179 A
Site Code : 11942.03
Start Date : 11/18/2014
Page No : 1

Groups Printed- Cars - Heavy Vehicles

| Start Time | Shepard Street From North | | | | Lynnway (Route 1A) From East | | | | Marine Boulevard From South | | | | Lynnway (Route 1A) From West | | | | Int. Total |
|------------------|---------------------------|------|------|--------|------------------------------|------|------|--------|-----------------------------|------|------|--------|------------------------------|------|------|--------|------------|
| | Right | Thru | Left | U-Turn | Right | Thru | Left | U-Turn | Right | Thru | Left | U-Turn | Right | Thru | Left | U-Turn | |
| 07:00 AM | 4 | 0 | 7 | 0 | 14 | 640 | 1 | 2 | 2 | 7 | 1 | 0 | 6 | 199 | 3 | 0 | 886 |
| 07:15 AM | 5 | 0 | 6 | 0 | 12 | 621 | 2 | 5 | 2 | 1 | 1 | 0 | 3 | 227 | 9 | 0 | 894 |
| 07:30 AM | 6 | 0 | 5 | 0 | 12 | 579 | 0 | 7 | 3 | 1 | 2 | 0 | 4 | 290 | 12 | 1 | 922 |
| 07:45 AM | 5 | 0 | 6 | 0 | 14 | 554 | 3 | 12 | 2 | 0 | 4 | 0 | 4 | 310 | 11 | 2 | 927 |
| Total | 20 | 0 | 24 | 0 | 52 | 2394 | 6 | 26 | 9 | 9 | 8 | 0 | 17 | 1026 | 35 | 3 | 3629 |
| 08:00 AM | 3 | 0 | 12 | 0 | 13 | 545 | 5 | 15 | 4 | 0 | 1 | 0 | 6 | 236 | 10 | 0 | 850 |
| 08:15 AM | 2 | 0 | 8 | 0 | 12 | 549 | 4 | 7 | 3 | 3 | 2 | 0 | 3 | 287 | 11 | 0 | 891 |
| 08:30 AM | 4 | 0 | 9 | 0 | 13 | 444 | 3 | 10 | 3 | 0 | 2 | 0 | 4 | 266 | 13 | 0 | 771 |
| 08:45 AM | 2 | 0 | 6 | 0 | 11 | 457 | 2 | 10 | 4 | 0 | 0 | 0 | 2 | 287 | 9 | 0 | 790 |
| Total | 11 | 0 | 35 | 0 | 49 | 1995 | 14 | 42 | 14 | 3 | 5 | 0 | 15 | 1076 | 43 | 0 | 3302 |
| Grand Total | 31 | 0 | 59 | 0 | 101 | 4389 | 20 | 68 | 23 | 12 | 13 | 0 | 32 | 2102 | 78 | 3 | 6931 |
| Apprch % | 34.4 | 0 | 65.6 | 0 | 2.2 | 95.9 | 0.4 | 1.5 | 47.9 | 25 | 27.1 | 0 | 1.4 | 94.9 | 3.5 | 0.1 | |
| Total % | 0.4 | 0 | 0.9 | 0 | 1.5 | 63.3 | 0.3 | 1 | 0.3 | 0.2 | 0.2 | 0 | 0.5 | 30.3 | 1.1 | 0 | |
| Cars | 25 | 0 | 50 | 0 | 94 | 4292 | 13 | 66 | 14 | 7 | 7 | 0 | 16 | 1993 | 71 | 3 | 6651 |
| % Cars | 80.6 | 0 | 84.7 | 0 | 93.1 | 97.8 | 65 | 97.1 | 60.9 | 58.3 | 53.8 | 0 | 50 | 94.8 | 91 | 100 | 96 |
| Heavy Vehicles | 6 | 0 | 9 | 0 | 7 | 97 | 7 | 2 | 9 | 5 | 6 | 0 | 16 | 109 | 7 | 0 | 280 |
| % Heavy Vehicles | 19.4 | 0 | 15.3 | 0 | 6.9 | 2.2 | 35 | 2.9 | 39.1 | 41.7 | 46.2 | 0 | 50 | 5.2 | 9 | 0 | 4 |

| Start Time | Shepard Street From North | | | | | Lynnway (Route 1A) From East | | | | | Marine Boulevard From South | | | | | Lynnway (Route 1A) From West | | | | | Int. Total |
|--|---------------------------|------|------|--------|------------|------------------------------|------|------|--------|------------|-----------------------------|------|------|--------|------------|------------------------------|------|------|--------|------------|------------|
| | Right | Thru | Left | U-Turn | App. Total | Right | Thru | Left | U-Turn | App. Total | Right | Thru | Left | U-Turn | App. Total | Right | Thru | Left | U-Turn | App. Total | |
| Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1 | | | | | | | | | | | | | | | | | | | | | |
| Peak Hour for Entire Intersection Begins at 07:00 AM | | | | | | | | | | | | | | | | | | | | | |
| 07:00 AM | 4 | 0 | 7 | 0 | 11 | 14 | 640 | 1 | 2 | 657 | 2 | 7 | 1 | 0 | 10 | 6 | 199 | 3 | 0 | 208 | 886 |
| 07:15 AM | 5 | 0 | 6 | 0 | 11 | 12 | 621 | 2 | 5 | 640 | 2 | 1 | 1 | 0 | 4 | 3 | 227 | 9 | 0 | 239 | 894 |
| 07:30 AM | 6 | 0 | 5 | 0 | 11 | 12 | 579 | 0 | 7 | 598 | 3 | 1 | 2 | 0 | 6 | 4 | 290 | 12 | 1 | 307 | 922 |
| 07:45 AM | 5 | 0 | 6 | 0 | 11 | 14 | 554 | 3 | 12 | 583 | 2 | 0 | 4 | 0 | 6 | 4 | 310 | 11 | 2 | 327 | 927 |
| Total Volume | 20 | 0 | 24 | 0 | 44 | 52 | 2394 | 6 | 26 | 2478 | 9 | 9 | 8 | 0 | 26 | 17 | 1026 | 35 | 3 | 1081 | 3629 |
| % App. Total | | | | | | | | | | | | | | | | | | | | | |
| PHF | .833 | .000 | .857 | .000 | 1.00 | .929 | .935 | .500 | .542 | .943 | .750 | .321 | .500 | .000 | .650 | .708 | .827 | .729 | .375 | .826 | .979 |
| Cars | 14 | 0 | 17 | 0 | 31 | 48 | 2350 | 4 | 26 | 2428 | 2 | 4 | 2 | 0 | 8 | 8 | 962 | 32 | 3 | 1005 | 3472 |
| % Cars | 70.0 | 0 | 70.8 | 0 | 70.5 | 92.3 | 98.2 | 66.7 | 100 | 98.0 | 22.2 | 44.4 | 25.0 | 0 | 30.8 | 47.1 | 93.8 | 91.4 | 100 | 93.0 | 95.7 |
| Heavy Vehicles | | | | | | | | | | | | | | | | | | | | | |
| % Heavy Vehicles | 30.0 | 0 | 29.2 | 0 | 29.5 | 7.7 | 1.8 | 33.3 | 0 | 2.0 | 77.8 | 55.6 | 75.0 | 0 | 69.2 | 52.9 | 6.2 | 8.6 | 0 | 7.0 | 4.3 |



PRECISION
D A T A
INDUSTRIES, LLC

P.O. Box 301 Berlin, MA 01503
Office: 508.481.3999 Fax: 508.545.1234
Email: datarequests@pdillc.com

N/S: Shepard Street/ Marine Boulevard
E/W: Lynnway (Route 1A)
City, State: Lynn, MA
Client: VHB/K. Keen

File Name : 144179 A
Site Code : 11942.03
Start Date : 11/18/2014
Page No : 1

Groups Printed- Cars

| Start Time | Shepard Street From North | | | | Lynnway (Route 1A) From East | | | | Marine Boulevard From South | | | | Lynnway (Route 1A) From West | | | | Int. Total |
|-------------|---------------------------|------|------|--------|------------------------------|------|------|--------|-----------------------------|------|------|--------|------------------------------|------|------|--------|------------|
| | Right | Thru | Left | U-Turn | Right | Thru | Left | U-Turn | Right | Thru | Left | U-Turn | Right | Thru | Left | U-Turn | |
| 07:00 AM | 4 | 0 | 4 | 0 | 14 | 625 | 0 | 2 | 0 | 3 | 0 | 0 | 4 | 188 | 2 | 0 | 846 |
| 07:15 AM | 2 | 0 | 5 | 0 | 11 | 605 | 1 | 5 | 0 | 0 | 0 | 0 | 1 | 219 | 9 | 0 | 858 |
| 07:30 AM | 3 | 0 | 3 | 0 | 11 | 571 | 0 | 7 | 1 | 1 | 1 | 0 | 2 | 265 | 12 | 1 | 878 |
| 07:45 AM | 5 | 0 | 5 | 0 | 12 | 549 | 3 | 12 | 1 | 0 | 1 | 0 | 1 | 290 | 9 | 2 | 890 |
| Total | 14 | 0 | 17 | 0 | 48 | 2350 | 4 | 26 | 2 | 4 | 2 | 0 | 8 | 962 | 32 | 3 | 3472 |
| 08:00 AM | 3 | 0 | 12 | 0 | 11 | 537 | 3 | 15 | 3 | 0 | 1 | 0 | 3 | 228 | 8 | 0 | 824 |
| 08:15 AM | 2 | 0 | 6 | 0 | 12 | 532 | 4 | 6 | 3 | 3 | 2 | 0 | 2 | 273 | 10 | 0 | 855 |
| 08:30 AM | 4 | 0 | 9 | 0 | 12 | 429 | 2 | 9 | 2 | 0 | 2 | 0 | 3 | 253 | 12 | 0 | 737 |
| 08:45 AM | 2 | 0 | 6 | 0 | 11 | 444 | 0 | 10 | 4 | 0 | 0 | 0 | 0 | 277 | 9 | 0 | 763 |
| Total | 11 | 0 | 33 | 0 | 46 | 1942 | 9 | 40 | 12 | 3 | 5 | 0 | 8 | 1031 | 39 | 0 | 3179 |
| Grand Total | 25 | 0 | 50 | 0 | 94 | 4292 | 13 | 66 | 14 | 7 | 7 | 0 | 16 | 1993 | 71 | 3 | 6651 |
| Apprch % | 33.3 | 0 | 66.7 | 0 | 2.1 | 96.1 | 0.3 | 1.5 | 50 | 25 | 25 | 0 | 0.8 | 95.7 | 3.4 | 0.1 | |
| Total % | 0.4 | 0 | 0.8 | 0 | 1.4 | 64.5 | 0.2 | 1 | 0.2 | 0.1 | 0.1 | 0 | 0.2 | 30 | 1.1 | 0 | |

| Start Time | Shepard Street From North | | | | | Lynnway (Route 1A) From East | | | | | Marine Boulevard From South | | | | | Lynnway (Route 1A) From West | | | | | Int. Total |
|--|---------------------------|------|------|--------|------------|------------------------------|------|------|--------|------------|-----------------------------|------|------|--------|------------|------------------------------|------|------|--------|------------|------------|
| | Right | Thru | Left | U-Turn | App. Total | Right | Thru | Left | U-Turn | App. Total | Right | Thru | Left | U-Turn | App. Total | Right | Thru | Left | U-Turn | App. Total | |
| Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1 | | | | | | | | | | | | | | | | | | | | | |
| Peak Hour for Entire Intersection Begins at 07:00 AM | | | | | | | | | | | | | | | | | | | | | |
| 07:00 AM | 4 | 0 | 4 | 0 | 8 | 14 | 625 | 0 | 2 | 641 | 0 | 3 | 0 | 0 | 3 | 4 | 188 | 2 | 0 | 194 | 846 |
| 07:15 AM | 2 | 0 | 5 | 0 | 7 | 11 | 605 | 1 | 5 | 622 | 0 | 0 | 0 | 0 | 0 | 1 | 219 | 9 | 0 | 229 | 858 |
| 07:30 AM | 3 | 0 | 3 | 0 | 6 | 11 | 571 | 0 | 7 | 589 | 1 | 1 | 1 | 0 | 3 | 2 | 265 | 12 | 1 | 280 | 878 |
| 07:45 AM | 5 | 0 | 5 | 0 | 10 | 12 | 549 | 3 | 12 | 576 | 1 | 0 | 1 | 0 | 2 | 1 | 290 | 9 | 2 | 302 | 890 |
| Total Volume | 14 | 0 | 17 | 0 | 31 | 48 | 2350 | 4 | 26 | 2428 | 2 | 4 | 2 | 0 | 8 | 8 | 962 | 32 | 3 | 1005 | 3472 |
| % App. Total | | | | | | | | | | | | | | | | | | | | | |
| PHF | .700 | .000 | .850 | .000 | .775 | .857 | .940 | .333 | .542 | .947 | .500 | .333 | .500 | .000 | .667 | .500 | .829 | .667 | .375 | .832 | .975 |



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INDUSTRIES, LLC

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N/S: Shepard Street/ Marine Boulevard
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City, State: Lynn, MA
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File Name : 144179 A
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Groups Printed- Heavy Vehicles

| Start Time | Shepard Street From North | | | | Lynnway (Route 1A) From East | | | | Marine Boulevard From South | | | | Lynnway (Route 1A) From West | | | | Int. Total |
|-------------|---------------------------|------|------|--------|------------------------------|------|------|--------|-----------------------------|------|------|--------|------------------------------|------|------|--------|------------|
| | Right | Thru | Left | U-Turn | Right | Thru | Left | U-Turn | Right | Thru | Left | U-Turn | Right | Thru | Left | U-Turn | |
| 07:00 AM | 0 | 0 | 3 | 0 | 0 | 15 | 1 | 0 | 2 | 4 | 1 | 0 | 2 | 11 | 1 | 0 | 40 |
| 07:15 AM | 3 | 0 | 1 | 0 | 1 | 16 | 1 | 0 | 2 | 1 | 1 | 0 | 2 | 8 | 0 | 0 | 36 |
| 07:30 AM | 3 | 0 | 2 | 0 | 1 | 8 | 0 | 0 | 2 | 0 | 1 | 0 | 2 | 25 | 0 | 0 | 44 |
| 07:45 AM | 0 | 0 | 1 | 0 | 2 | 5 | 0 | 0 | 1 | 0 | 3 | 0 | 3 | 20 | 2 | 0 | 37 |
| Total | 6 | 0 | 7 | 0 | 4 | 44 | 2 | 0 | 7 | 5 | 6 | 0 | 9 | 64 | 3 | 0 | 157 |
| 08:00 AM | 0 | 0 | 0 | 0 | 2 | 8 | 2 | 0 | 1 | 0 | 0 | 0 | 3 | 8 | 2 | 0 | 26 |
| 08:15 AM | 0 | 0 | 2 | 0 | 0 | 17 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 14 | 1 | 0 | 36 |
| 08:30 AM | 0 | 0 | 0 | 0 | 1 | 15 | 1 | 1 | 1 | 0 | 0 | 0 | 1 | 13 | 1 | 0 | 34 |
| 08:45 AM | 0 | 0 | 0 | 0 | 0 | 13 | 2 | 0 | 0 | 0 | 0 | 0 | 2 | 10 | 0 | 0 | 27 |
| Total | 0 | 0 | 2 | 0 | 3 | 53 | 5 | 2 | 2 | 0 | 0 | 0 | 7 | 45 | 4 | 0 | 123 |
| Grand Total | 6 | 0 | 9 | 0 | 7 | 97 | 7 | 2 | 9 | 5 | 6 | 0 | 16 | 109 | 7 | 0 | 280 |
| Apprch % | 40 | 0 | 60 | 0 | 6.2 | 85.8 | 6.2 | 1.8 | 45 | 25 | 30 | 0 | 12.1 | 82.6 | 5.3 | 0 | |
| Total % | 2.1 | 0 | 3.2 | 0 | 2.5 | 34.6 | 2.5 | 0.7 | 3.2 | 1.8 | 2.1 | 0 | 5.7 | 38.9 | 2.5 | 0 | |

| Start Time | Shepard Street From North | | | | | Lynnway (Route 1A) From East | | | | | Marine Boulevard From South | | | | | Lynnway (Route 1A) From West | | | | | Int. Total |
|--|---------------------------|------|------|--------|------------|------------------------------|------|------|--------|------------|-----------------------------|------|------|--------|------------|------------------------------|------|------|--------|------------|------------|
| | Right | Thru | Left | U-Turn | App. Total | Right | Thru | Left | U-Turn | App. Total | Right | Thru | Left | U-Turn | App. Total | Right | Thru | Left | U-Turn | App. Total | |
| Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1 | | | | | | | | | | | | | | | | | | | | | |
| Peak Hour for Entire Intersection Begins at 07:00 AM | | | | | | | | | | | | | | | | | | | | | |
| 07:00 AM | 0 | 0 | 3 | 0 | 3 | 0 | 15 | 1 | 0 | 16 | 2 | 4 | 1 | 0 | 7 | 2 | 11 | 1 | 0 | 14 | 40 |
| 07:15 AM | 3 | 0 | 1 | 0 | 4 | 1 | 16 | 1 | 0 | 18 | 2 | 1 | 1 | 0 | 4 | 2 | 8 | 0 | 0 | 10 | 36 |
| 07:30 AM | 3 | 0 | 2 | 0 | 5 | 1 | 8 | 0 | 0 | 9 | 2 | 0 | 1 | 0 | 3 | 2 | 25 | 0 | 0 | 27 | 44 |
| 07:45 AM | 0 | 0 | 1 | 0 | 1 | 2 | 5 | 0 | 0 | 7 | 1 | 0 | 3 | 0 | 4 | 3 | 20 | 2 | 0 | 25 | 37 |
| Total Volume | 6 | 0 | 7 | 0 | 13 | 4 | 44 | 2 | 0 | 50 | 7 | 5 | 6 | 0 | 18 | 9 | 64 | 3 | 0 | 76 | 157 |
| % App. Total | 46.2 | 0 | 53.8 | 0 | | 8 | 88 | 4 | 0 | | 38.9 | 27.8 | 33.3 | 0 | | 11.8 | 84.2 | 3.9 | 0 | | |
| PHF | .500 | .000 | .583 | .000 | .650 | .500 | .688 | .500 | .000 | .694 | .875 | .313 | .500 | .000 | .643 | .750 | .640 | .375 | .000 | .704 | .892 |



PRECISION
D A T A
INDUSTRIES, LLC

P.O. Box 301 Berlin, MA 01503
Office: 508.481.3999 Fax: 508.545.1234
Email: datarequests@pdillc.com

File Name : 144179 A
Site Code : 11942.03
Start Date : 11/18/2014
Page No : 1

N/S: Shepard Street/ Marine Boulevard
E/W: Lynnway (Route 1A)
City, State: Lynn, MA
Client: VHB/K. Keen

Groups Printed- Peds and Bikes

| Start Time | Shepard Street From North | | | | | Lynnway (Route 1A) From East | | | | | Marine Boulevard From South | | | | | Lynnway (Route 1A) From West | | | | | Int. Total |
|-------------|---------------------------|------|------|---------|---------|------------------------------|------|------|---------|---------|-----------------------------|------|------|---------|---------|------------------------------|------|------|---------|---------|------------|
| | Right | Thru | Left | Peds EB | Peds WB | Right | Thru | Left | Peds SB | Peds NB | Right | Thru | Left | Peds WB | Peds EB | Right | Thru | Left | Peds NB | Peds SB | |
| 07:00 AM | 0 | 0 | 0 | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 |
| 07:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 |
| 07:30 AM | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 3 |
| 07:45 AM | 0 | 0 | 0 | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 1 | 6 |
| Total | 0 | 0 | 0 | 4 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 1 | 1 | 13 |
| 08:00 AM | 0 | 0 | 0 | 2 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 |
| 08:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 2 |
| 08:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 |
| Total | 0 | 0 | 0 | 2 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 2 | 0 | 7 |
| Grand Total | 0 | 0 | 0 | 6 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 0 | 3 | 1 | 20 |
| Apprch % | 0 | 0 | 0 | 50 | 50 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 100 | 0 | 0 | 0 | 75 | 25 | |
| Total % | 0 | 0 | 0 | 30 | 30 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 20 | 0 | 0 | 0 | 15 | 5 | |

| Start Time | Shepard Street From North | | | | | | Lynnway (Route 1A) From East | | | | | | Marine Boulevard From South | | | | | | Lynnway (Route 1A) From West | | | | | | Int. Total | |
|--|---------------------------|------|------|---------|---------|------------|------------------------------|------|------|---------|---------|------------|-----------------------------|------|------|---------|---------|------------|------------------------------|------|------|---------|---------|------------|------------|---|
| | Right | Thru | Left | Peds EB | Peds WB | App. Total | Right | Thru | Left | Peds SB | Peds NB | App. Total | Right | Thru | Left | Peds WB | Peds EB | App. Total | Right | Thru | Left | Peds NB | Peds SB | App. Total | | |
| Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Peak Hour for Entire Intersection Begins at 07:30 AM | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 07:30 AM | 0 | 0 | 0 | 0 | 2 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 3 |
| 07:45 AM | 0 | 0 | 0 | 2 | 1 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 2 | 0 | 0 | 0 | 0 | 1 | 1 | 6 | |
| 08:00 AM | 0 | 0 | 0 | 2 | 2 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | |
| 08:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 2 | 2 | |
| Total Volume | 0 | 0 | 0 | 4 | 5 | 9 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 2 | 0 | 0 | 0 | 3 | 1 | 4 | 15 | |
| % App. Total | 0 | 0 | 0 | 44.4 | 55.6 | | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | 0 | 0 | 100 | | 0 | 0 | 0 | 75 | 25 | | | |
| PHF | .000 | .000 | .000 | .500 | .625 | .563 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .250 | .250 | .000 | .000 | .000 | .375 | .250 | .500 | .625 | |



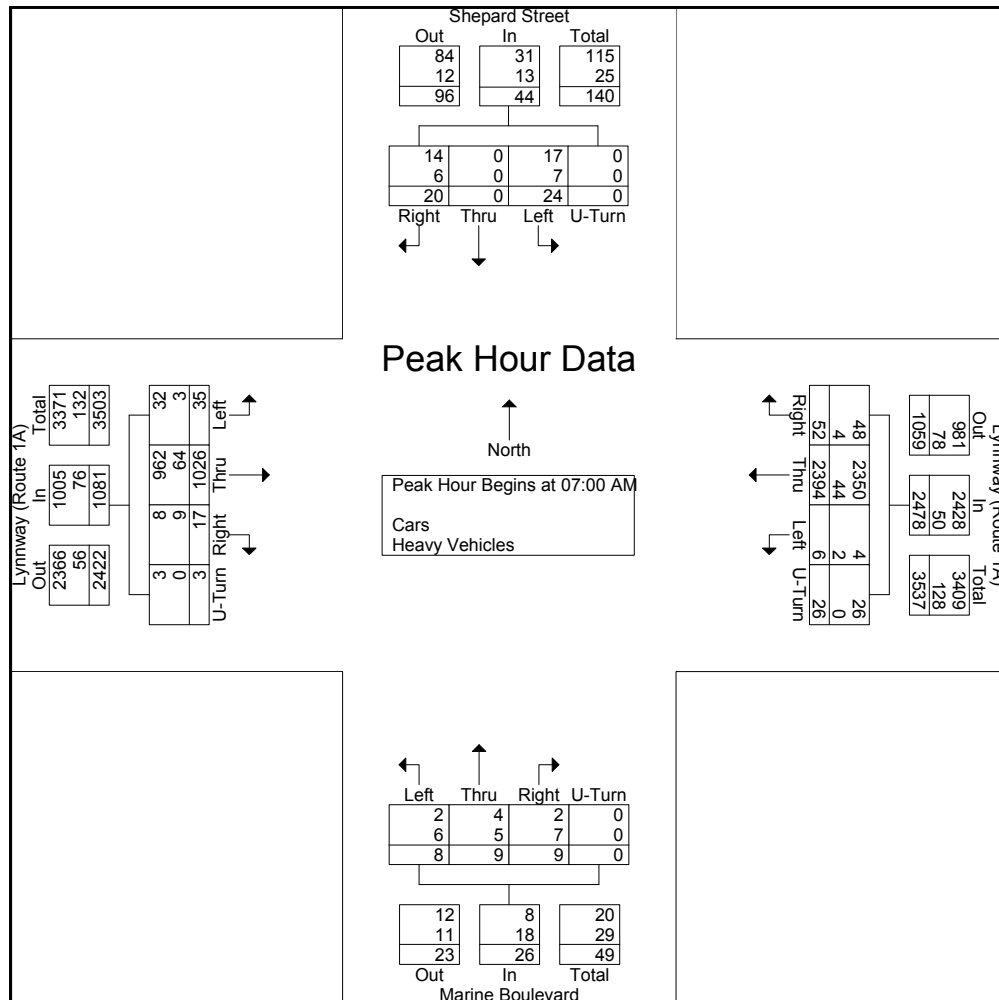
PRECISION
D A T A
INDUSTRIES, LLC

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N/S: Shepard Street/ Marine Boulevard
E/W: Lynnway (Route 1A)
City, State: Lynn, MA
Client: VHB/K. Keen

File Name : 144179 A
Site Code : 11942.03
Start Date : 11/18/2014
Page No : 1

| Start Time | Shepard Street From North | | | | | Lynnway (Route 1A) From East | | | | | Marine Boulevard From South | | | | | Lynnway (Route 1A) From West | | | | | Int. Total |
|--|---------------------------|------|------|--------|------------|------------------------------|------|------|--------|------------|-----------------------------|------|------|--------|------------|------------------------------|------|------|--------|------------|------------|
| | Right | Thru | Left | U-Turn | App. Total | Right | Thru | Left | U-Turn | App. Total | Right | Thru | Left | U-Turn | App. Total | Right | Thru | Left | U-Turn | App. Total | |
| Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1 | | | | | | | | | | | | | | | | | | | | | |
| Peak Hour for Entire Intersection Begins at 07:00 AM | | | | | | | | | | | | | | | | | | | | | |
| 07:00 AM | 4 | 0 | 7 | 0 | 11 | 14 | 640 | 1 | 2 | 657 | 2 | 7 | 1 | 0 | 10 | 6 | 199 | 3 | 0 | 208 | 886 |
| 07:15 AM | 5 | 0 | 6 | 0 | 11 | 12 | 621 | 2 | 5 | 640 | 2 | 1 | 1 | 0 | 4 | 3 | 227 | 9 | 0 | 239 | 894 |
| 07:30 AM | 6 | 0 | 5 | 0 | 11 | 12 | 579 | 0 | 7 | 598 | 3 | 1 | 2 | 0 | 6 | 4 | 290 | 12 | 1 | 307 | 922 |
| 07:45 AM | 5 | 0 | 6 | 0 | 11 | 14 | 554 | 3 | 12 | 583 | 2 | 0 | 4 | 0 | 6 | 4 | 310 | 11 | 2 | 327 | 927 |
| Total Volume | 20 | 0 | 24 | 0 | 44 | 52 | 2394 | 6 | 26 | 2478 | 9 | 9 | 8 | 0 | 26 | 17 | 1026 | 35 | 3 | 1081 | 3629 |
| % App. Total | .833 | .000 | .857 | .000 | 1.000 | .929 | .935 | .500 | .542 | .943 | .750 | .321 | .500 | .000 | .650 | .708 | .827 | .729 | .375 | .826 | .979 |
| Cars | 14 | 0 | 17 | 0 | 31 | 48 | 2350 | 4 | 26 | 2428 | 2 | 4 | 2 | 0 | 8 | 8 | 962 | 32 | 3 | 1005 | 3472 |
| % Cars | 70.0 | 0 | 70.8 | 0 | 70.5 | 92.3 | 98.2 | 66.7 | 100 | 98.0 | 22.2 | 44.4 | 25.0 | 0 | 30.8 | 47.1 | 93.8 | 91.4 | 100 | 93.0 | 95.7 |
| Heavy Vehicles | | | | | | | | | | | | | | | | | | | | | |
| % Heavy Vehicles | 30.0 | 0 | 29.2 | 0 | 29.5 | 7.7 | 1.8 | 33.3 | 0 | 2.0 | 77.8 | 55.6 | 75.0 | 0 | 69.2 | 52.9 | 6.2 | 8.6 | 0 | 7.0 | 4.3 |





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N/S: Shepard Street/ Marine Boulevard
E/W: Lynnway (Route 1A)
City, State: Lynn, MA
Client: VHB/K. Keen

File Name : 144179 AA
Site Code : 11942.03
Start Date : 11/18/2014
Page No : 1

Groups Printed- Cars - Heavy Vehicles

| Start Time | Shepard Street From North | | | | Lynnway (Route 1A) From East | | | | Marine Boulevard From South | | | | Lynnway (Route 1A) From West | | | | Int. Total |
|--------------------|---------------------------|----------|-----------|----------|------------------------------|-------------|----------|-----------|-----------------------------|----------|-----------|----------|------------------------------|-------------|------------|-----------|-------------|
| | Right | Thru | Left | U-Turn | Right | Thru | Left | U-Turn | Right | Thru | Left | U-Turn | Right | Thru | Left | U-Turn | |
| 04:00 PM | 5 | 0 | 6 | 0 | 10 | 293 | 0 | 8 | 3 | 0 | 2 | 1 | 7 | 436 | 16 | 2 | 789 |
| 04:15 PM | 6 | 0 | 12 | 0 | 15 | 314 | 3 | 8 | 2 | 0 | 13 | 1 | 3 | 478 | 16 | 4 | 875 |
| 04:30 PM | 7 | 0 | 15 | 0 | 12 | 286 | 1 | 6 | 2 | 1 | 10 | 0 | 4 | 531 | 25 | 2 | 902 |
| 04:45 PM | 2 | 0 | 14 | 0 | 17 | 281 | 1 | 16 | 1 | 1 | 2 | 0 | 5 | 585 | 18 | 2 | 945 |
| Total | 20 | 0 | 47 | 0 | 54 | 1174 | 5 | 38 | 8 | 2 | 27 | 2 | 19 | 2030 | 75 | 10 | 3511 |
| 05:00 PM | 6 | 0 | 11 | 0 | 7 | 324 | 0 | 12 | 4 | 6 | 8 | 0 | 8 | 575 | 30 | 2 | 993 |
| 05:15 PM | 0 | 0 | 8 | 0 | 10 | 311 | 0 | 5 | 3 | 0 | 0 | 0 | 0 | 582 | 31 | 4 | 954 |
| 05:30 PM | 6 | 0 | 12 | 0 | 16 | 261 | 0 | 8 | 0 | 0 | 2 | 0 | 2 | 561 | 21 | 3 | 892 |
| 05:45 PM | 6 | 0 | 6 | 0 | 9 | 245 | 0 | 10 | 1 | 1 | 1 | 0 | 1 | 603 | 21 | 2 | 906 |
| Total | 18 | 0 | 37 | 0 | 42 | 1141 | 0 | 35 | 8 | 7 | 11 | 0 | 11 | 2321 | 103 | 11 | 3745 |
| Grand Total | 38 | 0 | 84 | 0 | 96 | 2315 | 5 | 73 | 16 | 9 | 38 | 2 | 30 | 4351 | 178 | 21 | 7256 |
| Apprch % | 31.1 | 0 | 68.9 | 0 | 3.9 | 93 | 0.2 | 2.9 | 24.6 | 13.8 | 58.5 | 3.1 | 0.7 | 95 | 3.9 | 0.5 | |
| Total % | 0.5 | 0 | 1.2 | 0 | 1.3 | 31.9 | 0.1 | 1 | 0.2 | 0.1 | 0.5 | 0 | 0.4 | 60 | 2.5 | 0.3 | |
| Cars | 37 | 0 | 82 | 0 | 95 | 2256 | 0 | 72 | 16 | 9 | 36 | 2 | 21 | 4271 | 173 | 21 | 7091 |
| % Cars | 97.4 | 0 | 97.6 | 0 | 99 | 97.5 | 0 | 98.6 | 100 | 100 | 94.7 | 100 | 70 | 98.2 | 97.2 | 100 | 97.7 |
| Heavy Vehicles | 1 | 0 | 2 | 0 | 1 | 59 | 5 | 1 | 0 | 0 | 2 | 0 | 9 | 80 | 5 | 0 | 165 |
| % Heavy Vehicles | 2.6 | 0 | 2.4 | 0 | 1 | 2.5 | 100 | 1.4 | 0 | 0 | 5.3 | 0 | 30 | 1.8 | 2.8 | 0 | 2.3 |

| Start Time | Shepard Street From North | | | | | Lynnway (Route 1A) From East | | | | | Marine Boulevard From South | | | | | Lynnway (Route 1A) From West | | | | | Int. Total |
|--|---------------------------|-------------|-------------|-------------|-------------|------------------------------|-------------|-------------|-------------|-------------|-----------------------------|-------------|-------------|-------------|-------------|------------------------------|-------------|-------------|-------------|-------------|-------------|
| | Right | Thru | Left | U-Turn | App. Total | Right | Thru | Left | U-Turn | App. Total | Right | Thru | Left | U-Turn | App. Total | Right | Thru | Left | U-Turn | App. Total | |
| Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1 | | | | | | | | | | | | | | | | | | | | | |
| Peak Hour for Entire Intersection Begins at 04:30 PM | | | | | | | | | | | | | | | | | | | | | |
| 04:30 PM | 7 | 0 | 15 | 0 | 22 | 12 | 286 | 1 | 6 | 305 | 2 | 1 | 10 | 0 | 13 | 4 | 531 | 25 | 2 | 562 | 902 |
| 04:45 PM | 2 | 0 | 14 | 0 | 16 | 17 | 281 | 1 | 16 | 315 | 1 | 1 | 2 | 0 | 4 | 5 | 585 | 18 | 2 | 610 | 945 |
| 05:00 PM | 6 | 0 | 11 | 0 | 17 | 7 | 324 | 0 | 12 | 343 | 4 | 6 | 8 | 0 | 18 | 8 | 575 | 30 | 2 | 615 | 993 |
| 05:15 PM | 0 | 0 | 8 | 0 | 8 | 10 | 311 | 0 | 5 | 326 | 3 | 0 | 0 | 0 | 3 | 0 | 582 | 31 | 4 | 617 | 954 |
| Total Volume | 15 | 0 | 48 | 0 | 63 | 46 | 1202 | 2 | 39 | 1289 | 10 | 8 | 20 | 0 | 38 | 17 | 2273 | 104 | 10 | 2404 | 3794 |
| % App. Total | .536 | .000 | .800 | .000 | .716 | .676 | .927 | .500 | .609 | .940 | .625 | .333 | .500 | .000 | .528 | .531 | .971 | .839 | .625 | .974 | .955 |
| Cars | 15 | 0 | 48 | 0 | 63 | 45 | 1170 | 0 | 39 | 1254 | 10 | 8 | 19 | 0 | 37 | 13 | 2232 | 100 | 10 | 2355 | 3709 |
| % Cars | 100 | 0 | 100 | 0 | 100 | 97.8 | 97.3 | 0 | 100 | 97.3 | 100 | 100 | 95.0 | 0 | 97.4 | 76.5 | 98.2 | 96.2 | 100 | 98.0 | 97.8 |
| Heavy Vehicles | 0 | 0 | 0 | 0 | 0 | 2.2 | 2.7 | 100 | 0 | 2.7 | 0 | 0 | 5.0 | 0 | 2.6 | 23.5 | 1.8 | 3.8 | 0 | 2.0 | 2.2 |
| % Heavy Vehicles | 0 | 0 | 0 | 0 | 0 | 2.2 | 2.7 | 100 | 0 | 2.7 | 0 | 0 | 5.0 | 0 | 2.6 | 23.5 | 1.8 | 3.8 | 0 | 2.0 | 2.2 |



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N/S: Shepard Street/ Marine Boulevard
E/W: Lynnway (Route 1A)
City, State: Lynn, MA
Client: VHB/K. Keen

File Name : 144179 AA
Site Code : 11942.03
Start Date : 11/18/2014
Page No : 1

Groups Printed- Cars

| Start Time | Shepard Street From North | | | | Lynnway (Route 1A) From East | | | | Marine Boulevard From South | | | | Lynnway (Route 1A) From West | | | | Int. Total |
|-------------|---------------------------|------|------|--------|------------------------------|------|------|--------|-----------------------------|------|------|--------|------------------------------|------|------|--------|------------|
| | Right | Thru | Left | U-Turn | Right | Thru | Left | U-Turn | Right | Thru | Left | U-Turn | Right | Thru | Left | U-Turn | |
| 04:00 PM | 4 | 0 | 6 | 0 | 10 | 285 | 0 | 8 | 3 | 0 | 2 | 1 | 4 | 430 | 16 | 2 | 771 |
| 04:15 PM | 6 | 0 | 11 | 0 | 15 | 304 | 0 | 8 | 2 | 0 | 12 | 1 | 2 | 464 | 16 | 4 | 845 |
| 04:30 PM | 7 | 0 | 15 | 0 | 12 | 275 | 0 | 6 | 2 | 1 | 10 | 0 | 2 | 520 | 23 | 2 | 875 |
| 04:45 PM | 2 | 0 | 14 | 0 | 17 | 277 | 0 | 16 | 1 | 1 | 1 | 0 | 3 | 573 | 17 | 2 | 924 |
| Total | 19 | 0 | 46 | 0 | 54 | 1141 | 0 | 38 | 8 | 2 | 25 | 2 | 11 | 1987 | 72 | 10 | 3415 |
| 05:00 PM | 6 | 0 | 11 | 0 | 6 | 315 | 0 | 12 | 4 | 6 | 8 | 0 | 8 | 563 | 29 | 2 | 970 |
| 05:15 PM | 0 | 0 | 8 | 0 | 10 | 303 | 0 | 5 | 3 | 0 | 0 | 0 | 0 | 576 | 31 | 4 | 940 |
| 05:30 PM | 6 | 0 | 11 | 0 | 16 | 253 | 0 | 7 | 0 | 0 | 2 | 0 | 1 | 550 | 21 | 3 | 870 |
| 05:45 PM | 6 | 0 | 6 | 0 | 9 | 244 | 0 | 10 | 1 | 1 | 1 | 0 | 1 | 595 | 20 | 2 | 896 |
| Total | 18 | 0 | 36 | 0 | 41 | 1115 | 0 | 34 | 8 | 7 | 11 | 0 | 10 | 2284 | 101 | 11 | 3676 |
| Grand Total | 37 | 0 | 82 | 0 | 95 | 2256 | 0 | 72 | 16 | 9 | 36 | 2 | 21 | 4271 | 173 | 21 | 7091 |
| Apprch % | 31.1 | 0 | 68.9 | 0 | 3.9 | 93.1 | 0 | 3 | 25.4 | 14.3 | 57.1 | 3.2 | 0.5 | 95.2 | 3.9 | 0.5 | |
| Total % | 0.5 | 0 | 1.2 | 0 | 1.3 | 31.8 | 0 | 1 | 0.2 | 0.1 | 0.5 | 0 | 0.3 | 60.2 | 2.4 | 0.3 | |

| Start Time | Shepard Street From North | | | | | Lynnway (Route 1A) From East | | | | | Marine Boulevard From South | | | | | Lynnway (Route 1A) From West | | | | | Int. Total |
|--|---------------------------|------|------|--------|------------|------------------------------|------|------|--------|------------|-----------------------------|------|------|--------|------------|------------------------------|------|------|--------|------------|------------|
| | Right | Thru | Left | U-Turn | App. Total | Right | Thru | Left | U-Turn | App. Total | Right | Thru | Left | U-Turn | App. Total | Right | Thru | Left | U-Turn | App. Total | |
| Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1 | | | | | | | | | | | | | | | | | | | | | |
| Peak Hour for Entire Intersection Begins at 04:30 PM | | | | | | | | | | | | | | | | | | | | | |
| 04:30 PM | 7 | 0 | 15 | 0 | 22 | 12 | 275 | 0 | 6 | 293 | 2 | 1 | 10 | 0 | 13 | 2 | 520 | 23 | 2 | 547 | 875 |
| 04:45 PM | 2 | 0 | 14 | 0 | 16 | 17 | 277 | 0 | 16 | 310 | 1 | 1 | 1 | 0 | 3 | 3 | 573 | 17 | 2 | 595 | 924 |
| 05:00 PM | 6 | 0 | 11 | 0 | 17 | 6 | 315 | 0 | 12 | 333 | 4 | 6 | 8 | 0 | 18 | 8 | 563 | 29 | 2 | 602 | 970 |
| 05:15 PM | 0 | 0 | 8 | 0 | 8 | 10 | 303 | 0 | 5 | 318 | 3 | 0 | 0 | 0 | 3 | 0 | 576 | 31 | 4 | 611 | 940 |
| Total Volume | 15 | 0 | 48 | 0 | 63 | 45 | 1170 | 0 | 39 | 1254 | 10 | 8 | 19 | 0 | 37 | 13 | 2232 | 100 | 10 | 2355 | 3709 |
| % App. Total | | | | | | | | | | | | | | | | | | | | | |
| PHF | .536 | .000 | .800 | .000 | .716 | .662 | .929 | .000 | .609 | .941 | .625 | .333 | .475 | .000 | .514 | .406 | .969 | .806 | .625 | .964 | .956 |



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N/S: Shepard Street/ Marine Boulevard
E/W: Lynnway (Route 1A)
City, State: Lynn, MA
Client: VHB/K. Keen

File Name : 144179 AA
Site Code : 11942.03
Start Date : 11/18/2014
Page No : 1

Groups Printed- Heavy Vehicles

| Start Time | Shepard Street From North | | | | Lynnway (Route 1A) From East | | | | Marine Boulevard From South | | | | Lynnway (Route 1A) From West | | | | Int. Total |
|-------------|---------------------------|------|------|--------|------------------------------|------|------|--------|-----------------------------|------|------|--------|------------------------------|------|------|--------|------------|
| | Right | Thru | Left | U-Turn | Right | Thru | Left | U-Turn | Right | Thru | Left | U-Turn | Right | Thru | Left | U-Turn | |
| 04:00 PM | 1 | 0 | 0 | 0 | 0 | 8 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 6 | 0 | 0 | 18 |
| 04:15 PM | 0 | 0 | 1 | 0 | 0 | 10 | 3 | 0 | 0 | 0 | 1 | 0 | 1 | 14 | 0 | 0 | 30 |
| 04:30 PM | 0 | 0 | 0 | 0 | 0 | 11 | 1 | 0 | 0 | 0 | 0 | 0 | 2 | 11 | 2 | 0 | 27 |
| 04:45 PM | 0 | 0 | 0 | 0 | 0 | 4 | 1 | 0 | 0 | 0 | 1 | 0 | 2 | 12 | 1 | 0 | 21 |
| Total | 1 | 0 | 1 | 0 | 0 | 33 | 5 | 0 | 0 | 0 | 2 | 0 | 8 | 43 | 3 | 0 | 96 |
| 05:00 PM | 0 | 0 | 0 | 0 | 1 | 9 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 12 | 1 | 0 | 23 |
| 05:15 PM | 0 | 0 | 0 | 0 | 0 | 8 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6 | 0 | 0 | 14 |
| 05:30 PM | 0 | 0 | 1 | 0 | 0 | 8 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 11 | 0 | 0 | 22 |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 8 | 1 | 0 | 10 |
| Total | 0 | 0 | 1 | 0 | 1 | 26 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 37 | 2 | 0 | 69 |
| Grand Total | 1 | 0 | 2 | 0 | 1 | 59 | 5 | 1 | 0 | 0 | 2 | 0 | 9 | 80 | 5 | 0 | 165 |
| Apprch % | 33.3 | 0 | 66.7 | 0 | 1.5 | 89.4 | 7.6 | 1.5 | 0 | 0 | 100 | 0 | 9.6 | 85.1 | 5.3 | 0 | |
| Total % | 0.6 | 0 | 1.2 | 0 | 0.6 | 35.8 | 3 | 0.6 | 0 | 0 | 1.2 | 0 | 5.5 | 48.5 | 3 | 0 | |

| Start Time | Shepard Street From North | | | | | Lynnway (Route 1A) From East | | | | | Marine Boulevard From South | | | | | Lynnway (Route 1A) From West | | | | | Int. Total |
|--|---------------------------|------|------|--------|------------|------------------------------|------|------|--------|------------|-----------------------------|------|------|--------|------------|------------------------------|------|------|--------|------------|------------|
| | Right | Thru | Left | U-Turn | App. Total | Right | Thru | Left | U-Turn | App. Total | Right | Thru | Left | U-Turn | App. Total | Right | Thru | Left | U-Turn | App. Total | |
| Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1 | | | | | | | | | | | | | | | | | | | | | |
| Peak Hour for Entire Intersection Begins at 04:15 PM | | | | | | | | | | | | | | | | | | | | | |
| 04:15 PM | 0 | 0 | 1 | 0 | 1 | 0 | 10 | 3 | 0 | 13 | 0 | 0 | 1 | 0 | 1 | 1 | 14 | 0 | 0 | 15 | 30 |
| 04:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 11 | 1 | 0 | 12 | 0 | 0 | 0 | 0 | 0 | 2 | 11 | 2 | 0 | 15 | 27 |
| 04:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 1 | 0 | 5 | 0 | 0 | 1 | 0 | 1 | 2 | 12 | 1 | 0 | 15 | 21 |
| 05:00 PM | 0 | 0 | 0 | 0 | 0 | 1 | 9 | 0 | 0 | 10 | 0 | 0 | 0 | 0 | 0 | 0 | 12 | 1 | 0 | 13 | 23 |
| Total Volume | 0 | 0 | 1 | 0 | 1 | 1 | 34 | 5 | 0 | 40 | 0 | 0 | 2 | 0 | 2 | 5 | 49 | 4 | 0 | 58 | 101 |
| % App. Total | 0 | 0 | 100 | 0 | | 2.5 | 85 | 12.5 | 0 | | 0 | 0 | 100 | 0 | | 8.6 | 84.5 | 6.9 | 0 | | |
| PHF | .000 | .000 | .250 | .000 | .250 | .250 | .773 | .417 | .000 | .769 | .000 | .000 | .500 | .000 | .500 | .625 | .875 | .500 | .000 | .967 | .842 |



PRECISION
D A T A
INDUSTRIES, LLC

P.O. Box 301 Berlin, MA 01503
Office: 508.481.3999 Fax: 508.545.1234
Email: datarequests@pdillc.com

N/S: Shepard Street/ Marine Boulevard
E/W: Lynnway (Route 1A)
City, State: Lynn, MA
Client: VHB/K. Keen

File Name : 144179 AA
Site Code : 11942.03
Start Date : 11/18/2014
Page No : 1

Groups Printed- Peds and Bikes

| Start Time | Shepard Street From North | | | | | Lynnway (Route 1A) From East | | | | | Marine Boulevard From South | | | | | Lynnway (Route 1A) From West | | | | | Int. Total | |
|-------------|---------------------------|------|------|---------|---------|------------------------------|------|------|---------|---------|-----------------------------|------|------|---------|---------|------------------------------|------|------|---------|---------|------------|----|
| | Right | Thru | Left | Peds EB | Peds WB | Right | Thru | Left | Peds SB | Peds NB | Right | Thru | Left | Peds WB | Peds EB | Right | Thru | Left | Peds NB | Peds SB | | |
| 04:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 |
| 04:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 2 |
| 04:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 4 | 0 | 6 | 6 |
| 04:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 3 | 0 | 4 | 4 |
| Total | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 7 | 3 | 13 | |
| 05:00 PM | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 2 |
| 05:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:30 PM | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 1 | 1 | 4 | 4 |
| Total | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 1 | 0 | 0 | 0 | 1 | 1 | 7 | 7 |
| Grand Total | 0 | 0 | 0 | 1 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 3 | 0 | 0 | 0 | 8 | 4 | 20 | 20 |
| Apprch % | 0 | 0 | 0 | 50 | 50 | 0 | 100 | 0 | 0 | 0 | 0 | 0 | 0 | 40 | 60 | 0 | 0 | 0 | 66.7 | 33.3 | | |
| Total % | 0 | 0 | 0 | 5 | 5 | 0 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 10 | 15 | 0 | 0 | 0 | 40 | 20 | | |

| Start Time | Shepard Street From North | | | | | | Lynnway (Route 1A) From East | | | | | | Marine Boulevard From South | | | | | | Lynnway (Route 1A) From West | | | | | | Int. Total | |
|--|---------------------------|------|------|---------|---------|------------|------------------------------|------|------|---------|---------|------------|-----------------------------|------|------|---------|---------|------------|------------------------------|------|------|---------|---------|------------|------------|---|
| | Right | Thru | Left | Peds EB | Peds WB | App. Total | Right | Thru | Left | Peds SB | Peds NB | App. Total | Right | Thru | Left | Peds WB | Peds EB | App. Total | Right | Thru | Left | Peds NB | Peds SB | App. Total | | |
| Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Peak Hour for Entire Intersection Begins at 04:15 PM | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 04:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 2 | 2 | 2 |
| 04:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 4 | 0 | 4 | 6 | |
| 04:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 3 | 0 | 3 | 4 | |
| 05:00 PM | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | |
| Total Volume | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 2 | 3 | 0 | 0 | 0 | 7 | 2 | 9 | 14 | |
| % App. Total | 0 | 0 | 0 | 0 | 100 | | 0 | 100 | 0 | 0 | 0 | | 0 | 0 | 0 | 33.3 | 66.7 | | 0 | 0 | 0 | 77.8 | 22.2 | | | |
| PHF | .000 | .000 | .000 | .000 | .250 | .250 | .000 | .250 | .000 | .000 | .000 | .250 | .000 | .000 | .000 | .250 | .500 | .750 | .000 | .000 | .000 | .438 | .250 | .563 | .583 | |



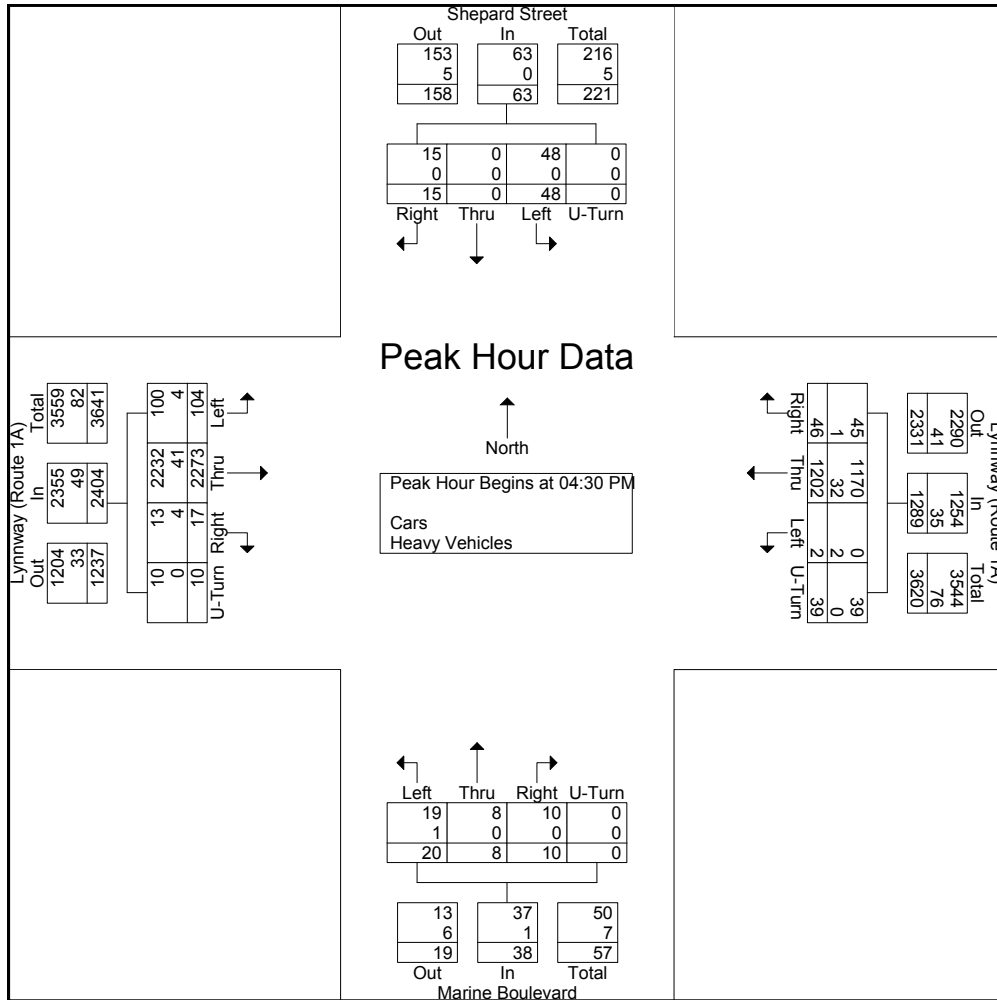
PRECISION
D A T A
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N/S: Shepard Street/ Marine Boulevard
E/W: Lynnway (Route 1A)
City, State: Lynn, MA
Client: VHB/K. Keen

File Name : 144179 AA
Site Code : 11942.03
Start Date : 11/18/2014
Page No : 1

| Start Time | Shepard Street From North | | | | | Lynnway (Route 1A) From East | | | | | Marine Boulevard From South | | | | | Lynnway (Route 1A) From West | | | | | Int. Total |
|--|---------------------------|------|------|--------|------------|------------------------------|------|------|--------|------------|-----------------------------|------|------|--------|------------|------------------------------|------|------|--------|------------|------------|
| | Right | Thru | Left | U-Turn | App. Total | Right | Thru | Left | U-Turn | App. Total | Right | Thru | Left | U-Turn | App. Total | Right | Thru | Left | U-Turn | App. Total | |
| Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1 | | | | | | | | | | | | | | | | | | | | | |
| Peak Hour for Entire Intersection Begins at 04:30 PM | | | | | | | | | | | | | | | | | | | | | |
| 04:30 PM | 7 | 0 | 15 | 0 | 22 | 12 | 286 | 1 | 6 | 305 | 2 | 1 | 10 | 0 | 13 | 4 | 531 | 25 | 2 | 562 | 902 |
| 04:45 PM | 2 | 0 | 14 | 0 | 16 | 17 | 281 | 1 | 16 | 315 | 1 | 1 | 2 | 0 | 4 | 5 | 585 | 18 | 2 | 610 | 945 |
| 05:00 PM | 6 | 0 | 11 | 0 | 17 | 7 | 324 | 0 | 12 | 343 | 4 | 6 | 8 | 0 | 18 | 8 | 575 | 30 | 2 | 615 | 993 |
| 05:15 PM | 0 | 0 | 8 | 0 | 8 | 10 | 311 | 0 | 5 | 326 | 3 | 0 | 0 | 0 | 3 | 0 | 582 | 31 | 4 | 617 | 954 |
| Total Volume | 15 | 0 | 48 | 0 | 63 | 46 | 1202 | 2 | 39 | 1289 | 10 | 8 | 20 | 0 | 38 | 17 | 2273 | 104 | 10 | 2404 | 3794 |
| % App. Total | .536 | .000 | .800 | .000 | .716 | .676 | .927 | .500 | .609 | .940 | .625 | .333 | .500 | .000 | .528 | .531 | .971 | .839 | .625 | .974 | .955 |
| PHF | | | | | | | | | | | | | | | | | | | | | |
| Cars | 15 | 0 | 48 | 0 | 63 | 45 | 1170 | 0 | 39 | 1254 | 10 | 8 | 19 | 0 | 37 | 13 | 2232 | 100 | 10 | 2355 | 3709 |
| % Cars | 100 | 0 | 100 | 0 | 100 | 97.8 | 97.3 | 0 | 100 | 97.3 | 100 | 100 | 95.0 | 0 | 97.4 | 76.5 | 98.2 | 96.2 | 100 | 98.0 | 97.8 |
| Heavy Vehicles | 0 | 0 | 0 | 0 | 0 | 2.2 | 2.7 | 100 | 0 | 2.7 | 0 | 0 | 5.0 | 0 | 2.6 | 23.5 | 1.8 | 3.8 | 0 | 2.0 | 2.2 |
| % Heavy Vehicles | | | | | | | | | | | | | | | | | | | | | |





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N/S: Blossom Street/ Blossom Street Ext
E/W: Lynnway (Route 1A)
City, State: Lynn, MA
Client: VHB/K. Keen

File Name : 144179 B
Site Code : 11942.03
Start Date : 11/18/2014
Page No : 1

Groups Printed- Cars - Heavy Vehicles

| Start Time | Shepard Street From North | | | | Lynnway (Route 1A) From East | | | | Marine Boulevard From South | | | | Lynnway (Route 1A) From West | | | | Int. Total |
|--------------------|---------------------------|----------|----------|----------|------------------------------|-------------|----------|----------|-----------------------------|----------|----------|----------|------------------------------|-------------|----------|----------|-------------|
| | Right | Thru | Left | U-Turn | Right | Thru | Left | U-Turn | Right | Thru | Left | U-Turn | Right | Thru | Left | U-Turn | |
| 07:00 AM | 6 | 0 | 0 | 0 | 19 | 675 | 0 | 0 | 14 | 0 | 0 | 0 | 18 | 200 | 0 | 0 | 932 |
| 07:15 AM | 6 | 0 | 0 | 0 | 38 | 640 | 0 | 0 | 14 | 0 | 0 | 0 | 20 | 221 | 0 | 0 | 939 |
| 07:30 AM | 15 | 0 | 0 | 0 | 46 | 591 | 0 | 0 | 23 | 0 | 0 | 0 | 25 | 285 | 0 | 0 | 985 |
| 07:45 AM | 14 | 0 | 0 | 0 | 44 | 596 | 0 | 0 | 18 | 0 | 0 | 0 | 29 | 300 | 0 | 0 | 1001 |
| Total | 41 | 0 | 0 | 0 | 147 | 2502 | 0 | 0 | 69 | 0 | 0 | 0 | 92 | 1006 | 0 | 0 | 3857 |
| 08:00 AM | 9 | 0 | 0 | 0 | 40 | 567 | 0 | 0 | 19 | 0 | 0 | 0 | 20 | 251 | 0 | 0 | 906 |
| 08:15 AM | 14 | 0 | 0 | 0 | 30 | 567 | 0 | 0 | 20 | 0 | 0 | 0 | 34 | 268 | 0 | 0 | 933 |
| 08:30 AM | 10 | 0 | 0 | 0 | 34 | 483 | 0 | 0 | 17 | 0 | 0 | 0 | 18 | 276 | 0 | 0 | 838 |
| 08:45 AM | 11 | 0 | 0 | 0 | 36 | 468 | 0 | 0 | 16 | 0 | 0 | 0 | 27 | 277 | 0 | 0 | 835 |
| Total | 44 | 0 | 0 | 0 | 140 | 2085 | 0 | 0 | 72 | 0 | 0 | 0 | 99 | 1072 | 0 | 0 | 3512 |
| Grand Total | 85 | 0 | 0 | 0 | 287 | 4587 | 0 | 0 | 141 | 0 | 0 | 0 | 191 | 2078 | 0 | 0 | 7369 |
| Apprch % | 100 | 0 | 0 | 0 | 5.9 | 94.1 | 0 | 0 | 100 | 0 | 0 | 0 | 8.4 | 91.6 | 0 | 0 | |
| Total % | 1.2 | 0 | 0 | 0 | 3.9 | 62.2 | 0 | 0 | 1.9 | 0 | 0 | 0 | 2.6 | 28.2 | 0 | 0 | |
| Cars | 78 | 0 | 0 | 0 | 268 | 4480 | 0 | 0 | 129 | 0 | 0 | 0 | 177 | 1953 | 0 | 0 | 7085 |
| % Cars | 91.8 | 0 | 0 | 0 | 93.4 | 97.7 | 0 | 0 | 91.5 | 0 | 0 | 0 | 92.7 | 94 | 0 | 0 | 96.1 |
| Heavy Vehicles | 7 | 0 | 0 | 0 | 19 | 107 | 0 | 0 | 12 | 0 | 0 | 0 | 14 | 125 | 0 | 0 | 284 |
| % Heavy Vehicles | 8.2 | 0 | 0 | 0 | 6.6 | 2.3 | 0 | 0 | 8.5 | 0 | 0 | 0 | 7.3 | 6 | 0 | 0 | 3.9 |

| Start Time | Shepard Street From North | | | | | Lynnway (Route 1A) From East | | | | | Marine Boulevard From South | | | | | Lynnway (Route 1A) From West | | | | | Int. Total |
|--|---------------------------|-------------|-------------|-------------|-------------|------------------------------|-------------|-------------|-------------|-------------|-----------------------------|-------------|-------------|-------------|-------------|------------------------------|-------------|-------------|-------------|-------------|-------------|
| | Right | Thru | Left | U-Turn | App. Total | Right | Thru | Left | U-Turn | App. Total | Right | Thru | Left | U-Turn | App. Total | Right | Thru | Left | U-Turn | App. Total | |
| Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1 | | | | | | | | | | | | | | | | | | | | | |
| Peak Hour for Entire Intersection Begins at 07:00 AM | | | | | | | | | | | | | | | | | | | | | |
| 07:00 AM | 6 | 0 | 0 | 0 | 6 | 19 | 675 | 0 | 0 | 694 | 14 | 0 | 0 | 0 | 14 | 18 | 200 | 0 | 0 | 218 | 932 |
| 07:15 AM | 6 | 0 | 0 | 0 | 6 | 38 | 640 | 0 | 0 | 678 | 14 | 0 | 0 | 0 | 14 | 20 | 221 | 0 | 0 | 241 | 939 |
| 07:30 AM | 15 | 0 | 0 | 0 | 15 | 46 | 591 | 0 | 0 | 637 | 23 | 0 | 0 | 0 | 23 | 25 | 285 | 0 | 0 | 310 | 985 |
| 07:45 AM | 14 | 0 | 0 | 0 | 14 | 44 | 596 | 0 | 0 | 640 | 18 | 0 | 0 | 0 | 18 | 29 | 300 | 0 | 0 | 329 | 1001 |
| Total Volume | 41 | 0 | 0 | 0 | 41 | 147 | 2502 | 0 | 0 | 2649 | 69 | 0 | 0 | 0 | 69 | 92 | 1006 | 0 | 0 | 1098 | 3857 |
| % App. Total | .683 | .000 | .000 | .000 | .683 | .799 | .927 | .000 | .000 | .954 | .750 | .000 | .000 | .000 | .750 | .793 | .838 | .000 | .000 | .834 | .963 |
| Cars | 38 | 0 | 0 | 0 | 38 | 138 | 2453 | 0 | 0 | 2591 | 63 | 0 | 0 | 0 | 63 | 87 | 930 | 0 | 0 | 1017 | 3709 |
| % Cars | 92.7 | 0 | 0 | 0 | 92.7 | 93.9 | 98.0 | 0 | 0 | 97.8 | 91.3 | 0 | 0 | 0 | 91.3 | 94.6 | 92.4 | 0 | 0 | 92.6 | 96.2 |
| Heavy Vehicles | 7.3 | 0 | 0 | 0 | 7.3 | 6.1 | 2.0 | 0 | 0 | 2.2 | 8.7 | 0 | 0 | 0 | 8.7 | 5.4 | 7.6 | 0 | 0 | 7.4 | 3.8 |
| % Heavy Vehicles | 7.3 | 0 | 0 | 0 | 7.3 | 6.1 | 2.0 | 0 | 0 | 2.2 | 8.7 | 0 | 0 | 0 | 8.7 | 5.4 | 7.6 | 0 | 0 | 7.4 | 3.8 |



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N/S: Blossom Street/ Blossom Street Ext
E/W: Lynnway (Route 1A)
City, State: Lynn, MA
Client: VHB/K. Keen

File Name : 144179 B
Site Code : 11942.03
Start Date : 11/18/2014
Page No : 1

Groups Printed- Cars

| Start Time | Shepard Street From North | | | | Lynnway (Route 1A) From East | | | | Marine Boulevard From South | | | | Lynnway (Route 1A) From West | | | | Int. Total |
|-------------|---------------------------|------|------|--------|------------------------------|------|------|--------|-----------------------------|------|------|--------|------------------------------|------|------|--------|------------|
| | Right | Thru | Left | U-Turn | Right | Thru | Left | U-Turn | Right | Thru | Left | U-Turn | Right | Thru | Left | U-Turn | |
| 07:00 AM | 5 | 0 | 0 | 0 | 15 | 659 | 0 | 0 | 12 | 0 | 0 | 0 | 18 | 183 | 0 | 0 | 892 |
| 07:15 AM | 5 | 0 | 0 | 0 | 38 | 624 | 0 | 0 | 14 | 0 | 0 | 0 | 18 | 209 | 0 | 0 | 908 |
| 07:30 AM | 15 | 0 | 0 | 0 | 42 | 581 | 0 | 0 | 20 | 0 | 0 | 0 | 23 | 257 | 0 | 0 | 938 |
| 07:45 AM | 13 | 0 | 0 | 0 | 43 | 589 | 0 | 0 | 17 | 0 | 0 | 0 | 28 | 281 | 0 | 0 | 971 |
| Total | 38 | 0 | 0 | 0 | 138 | 2453 | 0 | 0 | 63 | 0 | 0 | 0 | 87 | 930 | 0 | 0 | 3709 |
| 08:00 AM | 9 | 0 | 0 | 0 | 37 | 556 | 0 | 0 | 18 | 0 | 0 | 0 | 20 | 241 | 0 | 0 | 881 |
| 08:15 AM | 12 | 0 | 0 | 0 | 28 | 550 | 0 | 0 | 20 | 0 | 0 | 0 | 30 | 255 | 0 | 0 | 895 |
| 08:30 AM | 9 | 0 | 0 | 0 | 32 | 466 | 0 | 0 | 14 | 0 | 0 | 0 | 14 | 260 | 0 | 0 | 795 |
| 08:45 AM | 10 | 0 | 0 | 0 | 33 | 455 | 0 | 0 | 14 | 0 | 0 | 0 | 26 | 267 | 0 | 0 | 805 |
| Total | 40 | 0 | 0 | 0 | 130 | 2027 | 0 | 0 | 66 | 0 | 0 | 0 | 90 | 1023 | 0 | 0 | 3376 |
| Grand Total | 78 | 0 | 0 | 0 | 268 | 4480 | 0 | 0 | 129 | 0 | 0 | 0 | 177 | 1953 | 0 | 0 | 7085 |
| Apprch % | 100 | 0 | 0 | 0 | 5.6 | 94.4 | 0 | 0 | 100 | 0 | 0 | 0 | 8.3 | 91.7 | 0 | 0 | |
| Total % | 1.1 | 0 | 0 | 0 | 3.8 | 63.2 | 0 | 0 | 1.8 | 0 | 0 | 0 | 2.5 | 27.6 | 0 | 0 | |

| Start Time | Shepard Street From North | | | | | Lynnway (Route 1A) From East | | | | | Marine Boulevard From South | | | | | Lynnway (Route 1A) From West | | | | | Int. Total |
|--|---------------------------|------|------|--------|------------|------------------------------|------|------|--------|------------|-----------------------------|------|------|--------|------------|------------------------------|------|------|--------|------------|------------|
| | Right | Thru | Left | U-Turn | App. Total | Right | Thru | Left | U-Turn | App. Total | Right | Thru | Left | U-Turn | App. Total | Right | Thru | Left | U-Turn | App. Total | |
| Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1 | | | | | | | | | | | | | | | | | | | | | |
| Peak Hour for Entire Intersection Begins at 07:00 AM | | | | | | | | | | | | | | | | | | | | | |
| 07:00 AM | 5 | 0 | 0 | 0 | 5 | 15 | 659 | 0 | 0 | 674 | 12 | 0 | 0 | 0 | 12 | 18 | 183 | 0 | 0 | 201 | 892 |
| 07:15 AM | 5 | 0 | 0 | 0 | 5 | 38 | 624 | 0 | 0 | 662 | 14 | 0 | 0 | 0 | 14 | 18 | 209 | 0 | 0 | 227 | 908 |
| 07:30 AM | 15 | 0 | 0 | 0 | 15 | 42 | 581 | 0 | 0 | 623 | 20 | 0 | 0 | 0 | 20 | 23 | 257 | 0 | 0 | 280 | 938 |
| 07:45 AM | 13 | 0 | 0 | 0 | 13 | 43 | 589 | 0 | 0 | 632 | 17 | 0 | 0 | 0 | 17 | 28 | 281 | 0 | 0 | 309 | 971 |
| Total Volume | 38 | 0 | 0 | 0 | 38 | 138 | 2453 | 0 | 0 | 2591 | 63 | 0 | 0 | 0 | 63 | 87 | 930 | 0 | 0 | 1017 | 3709 |
| % App. Total | | | | | | | | | | | | | | | | | | | | | |
| PHF | .633 | .000 | .000 | .000 | .633 | .802 | .931 | .000 | .000 | .961 | .788 | .000 | .000 | .000 | .788 | .777 | .827 | .000 | .000 | .823 | .955 |



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N/S: Blossom Street/ Blossom Street Ext
E/W: Lynnway (Route 1A)
City, State: Lynn, MA
Client: VHB/K. Keen

File Name : 144179 B
Site Code : 11942.03
Start Date : 11/18/2014
Page No : 1

Groups Printed- Heavy Vehicles

| Start Time | Shepard Street From North | | | | Lynnway (Route 1A) From East | | | | Marine Boulevard From South | | | | Lynnway (Route 1A) From West | | | | Int. Total |
|-------------|---------------------------|------|------|--------|------------------------------|------|------|--------|-----------------------------|------|------|--------|------------------------------|------|------|--------|------------|
| | Right | Thru | Left | U-Turn | Right | Thru | Left | U-Turn | Right | Thru | Left | U-Turn | Right | Thru | Left | U-Turn | |
| 07:00 AM | 1 | 0 | 0 | 0 | 4 | 16 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 17 | 0 | 0 | 40 |
| 07:15 AM | 1 | 0 | 0 | 0 | 0 | 16 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 12 | 0 | 0 | 31 |
| 07:30 AM | 0 | 0 | 0 | 0 | 4 | 10 | 0 | 0 | 3 | 0 | 0 | 0 | 2 | 28 | 0 | 0 | 47 |
| 07:45 AM | 1 | 0 | 0 | 0 | 1 | 7 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 19 | 0 | 0 | 30 |
| Total | 3 | 0 | 0 | 0 | 9 | 49 | 0 | 0 | 6 | 0 | 0 | 0 | 5 | 76 | 0 | 0 | 148 |
| 08:00 AM | 0 | 0 | 0 | 0 | 3 | 11 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 10 | 0 | 0 | 25 |
| 08:15 AM | 2 | 0 | 0 | 0 | 2 | 17 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 13 | 0 | 0 | 38 |
| 08:30 AM | 1 | 0 | 0 | 0 | 2 | 17 | 0 | 0 | 3 | 0 | 0 | 0 | 4 | 16 | 0 | 0 | 43 |
| 08:45 AM | 1 | 0 | 0 | 0 | 3 | 13 | 0 | 0 | 2 | 0 | 0 | 0 | 1 | 10 | 0 | 0 | 30 |
| Total | 4 | 0 | 0 | 0 | 10 | 58 | 0 | 0 | 6 | 0 | 0 | 0 | 9 | 49 | 0 | 0 | 136 |
| Grand Total | 7 | 0 | 0 | 0 | 19 | 107 | 0 | 0 | 12 | 0 | 0 | 0 | 14 | 125 | 0 | 0 | 284 |
| Apprch % | 100 | 0 | 0 | 0 | 15.1 | 84.9 | 0 | 0 | 100 | 0 | 0 | 0 | 10.1 | 89.9 | 0 | 0 | |
| Total % | 2.5 | 0 | 0 | 0 | 6.7 | 37.7 | 0 | 0 | 4.2 | 0 | 0 | 0 | 4.9 | 44 | 0 | 0 | |

| Start Time | Shepard Street From North | | | | | Lynnway (Route 1A) From East | | | | | Marine Boulevard From South | | | | | Lynnway (Route 1A) From West | | | | | Int. Total |
|--|---------------------------|------|------|--------|------------|------------------------------|------|------|--------|------------|-----------------------------|------|------|--------|------------|------------------------------|------|------|--------|------------|------------|
| | Right | Thru | Left | U-Turn | App. Total | Right | Thru | Left | U-Turn | App. Total | Right | Thru | Left | U-Turn | App. Total | Right | Thru | Left | U-Turn | App. Total | |
| Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1 | | | | | | | | | | | | | | | | | | | | | |
| Peak Hour for Entire Intersection Begins at 07:00 AM | | | | | | | | | | | | | | | | | | | | | |
| 07:00 AM | 1 | 0 | 0 | 0 | 1 | 4 | 16 | 0 | 0 | 20 | 2 | 0 | 0 | 0 | 2 | 0 | 17 | 0 | 0 | 17 | 40 |
| 07:15 AM | 1 | 0 | 0 | 0 | 1 | 0 | 16 | 0 | 0 | 16 | 0 | 0 | 0 | 0 | 0 | 2 | 12 | 0 | 0 | 14 | 31 |
| 07:30 AM | 0 | 0 | 0 | 0 | 0 | 4 | 10 | 0 | 0 | 14 | 3 | 0 | 0 | 0 | 3 | 2 | 28 | 0 | 0 | 30 | 47 |
| 07:45 AM | 1 | 0 | 0 | 0 | 1 | 1 | 7 | 0 | 0 | 8 | 1 | 0 | 0 | 0 | 1 | 1 | 19 | 0 | 0 | 20 | 30 |
| Total Volume | 3 | 0 | 0 | 0 | 3 | 9 | 49 | 0 | 0 | 58 | 6 | 0 | 0 | 0 | 6 | 5 | 76 | 0 | 0 | 81 | 148 |
| % App. Total | 100 | 0 | 0 | 0 | | 15.5 | 84.5 | 0 | 0 | | 100 | 0 | 0 | 0 | | 6.2 | 93.8 | 0 | 0 | | |
| PHF | .750 | .000 | .000 | .000 | .750 | .563 | .766 | .000 | .000 | .725 | .500 | .000 | .000 | .000 | .500 | .625 | .679 | .000 | .000 | .675 | .787 |



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Groups Printed- Peds and Bikes

| Start Time | Shepard Street From North | | | | | Lynnway (Route 1A) From East | | | | | Marine Boulevard From South | | | | | Lynnway (Route 1A) From West | | | | | Int. Total |
|-------------|---------------------------|------|------|---------|---------|------------------------------|------|------|---------|---------|-----------------------------|------|------|---------|---------|------------------------------|------|------|---------|---------|------------|
| | Right | Thru | Left | Peds EB | Peds WB | Right | Thru | Left | Peds SB | Peds NB | Right | Thru | Left | Peds WB | Peds EB | Right | Thru | Left | Peds NB | Peds SB | |
| 07:00 AM | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 07:15 AM | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 3 |
| 07:30 AM | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 |
| 07:45 AM | 0 | 0 | 0 | 3 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 1 | 8 |
| Total | 0 | 0 | 0 | 5 | 5 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 2 | 1 | 15 |
| 08:00 AM | 0 | 0 | 0 | 2 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 7 |
| 08:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:30 AM | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 08:45 AM | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| Total | 0 | 0 | 0 | 3 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 9 |
| Grand Total | 0 | 0 | 0 | 8 | 10 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 2 | 2 | 24 |
| Apprch % | 0 | 0 | 0 | 44.4 | 55.6 | 0 | 0 | 0 | 0 | 100 | 0 | 0 | 0 | 100 | 0 | 0 | 0 | 0 | 50 | 50 | |
| Total % | 0 | 0 | 0 | 33.3 | 41.7 | 0 | 0 | 0 | 0 | 4.2 | 0 | 0 | 0 | 4.2 | 0 | 0 | 0 | 0 | 8.3 | 8.3 | |

| Start Time | Shepard Street From North | | | | | | Lynnway (Route 1A) From East | | | | | | Marine Boulevard From South | | | | | | Lynnway (Route 1A) From West | | | | | | Int. Total | | | | |
|--|---------------------------|------|------|---------|---------|------------|------------------------------|------|------|---------|---------|------------|-----------------------------|------|------|---------|---------|------------|------------------------------|------|------|---------|---------|------------|------------|---|---|----|--|
| | Right | Thru | Left | Peds EB | Peds WB | App. Total | Right | Thru | Left | Peds SB | Peds NB | App. Total | Right | Thru | Left | Peds WB | Peds EB | App. Total | Right | Thru | Left | Peds NB | Peds SB | App. Total | | | | | |
| Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Peak Hour for Entire Intersection Begins at 07:15 AM | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 07:15 AM | 0 | 0 | 0 | 2 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | |
| 07:30 AM | 0 | 0 | 0 | 0 | 3 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | |
| 07:45 AM | 0 | 0 | 0 | 3 | 1 | 4 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 1 | 3 | 0 | 0 | 0 | 8 | |
| 08:00 AM | 0 | 0 | 0 | 2 | 4 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 7 | |
| Total Volume | 0 | 0 | 0 | 7 | 8 | 15 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 2 | 2 | 4 | 0 | 0 | 0 | 21 | |
| % App. Total | 0 | 0 | 0 | 46.7 | 53.3 | 0 | 0 | 0 | 0 | 100 | 0 | 0 | 0 | 100 | 0 | 0 | 0 | 0 | 50 | 50 | | | | | | | | | |
| PHF | .000 | .000 | .000 | .583 | .500 | .625 | .000 | .000 | .000 | .000 | .250 | .250 | .000 | .000 | .000 | .250 | .000 | .250 | .000 | .000 | .000 | .250 | .500 | .333 | .656 | | | | |



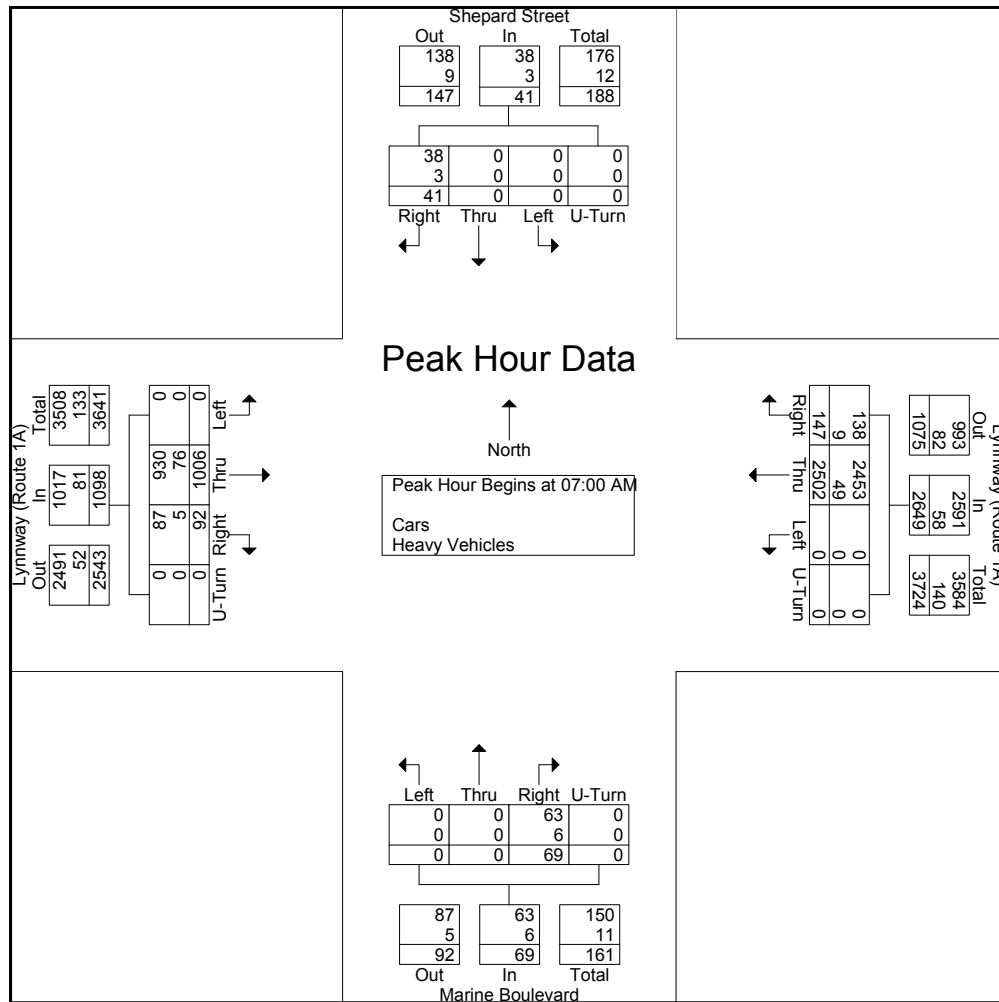
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N/S: Blossom Street/ Blossom Street Ext
E/W: Lynnway (Route 1A)
City, State: Lynn, MA
Client: VHB/K. Keen

File Name : 144179 B
Site Code : 11942.03
Start Date : 11/18/2014
Page No : 1

| Start Time | Shepard Street From North | | | | | Lynnway (Route 1A) From East | | | | | Marine Boulevard From South | | | | | Lynnway (Route 1A) From West | | | | | Int. Total |
|--|---------------------------|------|------|--------|------------|------------------------------|------|------|--------|------------|-----------------------------|------|------|--------|------------|------------------------------|------|------|--------|------------|------------|
| | Right | Thru | Left | U-Turn | App. Total | Right | Thru | Left | U-Turn | App. Total | Right | Thru | Left | U-Turn | App. Total | Right | Thru | Left | U-Turn | App. Total | |
| Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1 | | | | | | | | | | | | | | | | | | | | | |
| Peak Hour for Entire Intersection Begins at 07:00 AM | | | | | | | | | | | | | | | | | | | | | |
| 07:00 AM | 6 | 0 | 0 | 0 | 6 | 19 | 675 | 0 | 0 | 694 | 14 | 0 | 0 | 0 | 14 | 18 | 200 | 0 | 0 | 218 | 932 |
| 07:15 AM | 6 | 0 | 0 | 0 | 6 | 38 | 640 | 0 | 0 | 678 | 14 | 0 | 0 | 0 | 14 | 20 | 221 | 0 | 0 | 241 | 939 |
| 07:30 AM | 15 | 0 | 0 | 0 | 15 | 46 | 591 | 0 | 0 | 637 | 23 | 0 | 0 | 0 | 23 | 25 | 285 | 0 | 0 | 310 | 985 |
| 07:45 AM | 14 | 0 | 0 | 0 | 14 | 44 | 596 | 0 | 0 | 640 | 18 | 0 | 0 | 0 | 18 | 29 | 300 | 0 | 0 | 329 | 1001 |
| Total Volume | 41 | 0 | 0 | 0 | 41 | 147 | 2502 | 0 | 0 | 2649 | 69 | 0 | 0 | 0 | 69 | 92 | 1006 | 0 | 0 | 1098 | 3857 |
| % App. Total | .683 | .000 | .000 | .000 | .683 | .799 | .927 | .000 | .000 | .954 | .750 | .000 | .000 | .000 | .750 | .793 | .838 | .000 | .000 | .834 | .963 |
| Cars | 38 | 0 | 0 | 0 | 38 | 138 | 2453 | 0 | 0 | 2591 | 63 | 0 | 0 | 0 | 63 | 87 | 930 | 0 | 0 | 1017 | 3709 |
| % Cars | 92.7 | 0 | 0 | 0 | 92.7 | 93.9 | 98.0 | 0 | 0 | 97.8 | 91.3 | 0 | 0 | 0 | 91.3 | 94.6 | 92.4 | 0 | 0 | 92.6 | 96.2 |
| Heavy Vehicles | 7.3 | 0 | 0 | 0 | 7.3 | 6.1 | 2.0 | 0 | 0 | 2.2 | 8.7 | 0 | 0 | 0 | 8.7 | 5.4 | 7.6 | 0 | 0 | 7.4 | 3.8 |
| % Heavy Vehicles | | | | | | | | | | | | | | | | | | | | | |





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N/S: Blossom Street/ Blossom Street Ext
E/W: Lynnway (Route 1A)
City, State: Lynn, MA
Client: VHB/K. Keen

File Name : 144179 BB
Site Code : 11942.03
Start Date : 11/18/2014
Page No : 1

Groups Printed- Cars - Heavy Vehicles

| Start Time | Shepard Street From North | | | | Lynnway (Route 1A) From East | | | | Marine Boulevard From South | | | | Lynnway (Route 1A) From West | | | | Int. Total |
|--------------------|---------------------------|----------|----------|----------|------------------------------|-------------|----------|----------|-----------------------------|----------|----------|----------|------------------------------|-------------|----------|----------|-------------|
| | Right | Thru | Left | U-Turn | Right | Thru | Left | U-Turn | Right | Thru | Left | U-Turn | Right | Thru | Left | U-Turn | |
| 04:00 PM | 10 | 0 | 0 | 0 | 32 | 328 | 0 | 0 | 13 | 0 | 0 | 0 | 12 | 450 | 0 | 0 | 845 |
| 04:15 PM | 15 | 0 | 0 | 0 | 28 | 331 | 0 | 0 | 10 | 0 | 0 | 0 | 10 | 484 | 0 | 0 | 878 |
| 04:30 PM | 17 | 0 | 0 | 0 | 29 | 309 | 0 | 0 | 15 | 0 | 0 | 0 | 13 | 550 | 0 | 0 | 933 |
| 04:45 PM | 7 | 0 | 0 | 0 | 35 | 325 | 0 | 0 | 15 | 0 | 0 | 0 | 12 | 579 | 0 | 0 | 973 |
| Total | 49 | 0 | 0 | 0 | 124 | 1293 | 0 | 0 | 53 | 0 | 0 | 0 | 47 | 2063 | 0 | 0 | 3629 |
| 05:00 PM | 14 | 0 | 0 | 0 | 52 | 360 | 0 | 0 | 14 | 0 | 0 | 0 | 9 | 595 | 0 | 0 | 1044 |
| 05:15 PM | 5 | 0 | 0 | 0 | 40 | 340 | 0 | 0 | 12 | 0 | 0 | 0 | 11 | 594 | 0 | 0 | 1002 |
| 05:30 PM | 16 | 0 | 0 | 0 | 38 | 314 | 0 | 0 | 9 | 0 | 0 | 0 | 6 | 591 | 0 | 0 | 974 |
| 05:45 PM | 11 | 0 | 0 | 0 | 23 | 264 | 0 | 0 | 9 | 0 | 0 | 0 | 8 | 624 | 0 | 0 | 939 |
| Total | 46 | 0 | 0 | 0 | 153 | 1278 | 0 | 0 | 44 | 0 | 0 | 0 | 34 | 2404 | 0 | 0 | 3959 |
| Grand Total | 95 | 0 | 0 | 0 | 277 | 2571 | 0 | 0 | 97 | 0 | 0 | 0 | 81 | 4467 | 0 | 0 | 7588 |
| Apprch % | 100 | 0 | 0 | 0 | 9.7 | 90.3 | 0 | 0 | 100 | 0 | 0 | 0 | 1.8 | 98.2 | 0 | 0 | |
| Total % | 1.3 | 0 | 0 | 0 | 3.7 | 33.9 | 0 | 0 | 1.3 | 0 | 0 | 0 | 1.1 | 58.9 | 0 | 0 | |
| Cars | 93 | 0 | 0 | 0 | 264 | 2495 | 0 | 0 | 95 | 0 | 0 | 0 | 81 | 4405 | 0 | 0 | 7433 |
| % Cars | 97.9 | 0 | 0 | 0 | 95.3 | 97 | 0 | 0 | 97.9 | 0 | 0 | 0 | 100 | 98.6 | 0 | 0 | 98 |
| Heavy Vehicles | 2 | 0 | 0 | 0 | 13 | 76 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 62 | 0 | 0 | 155 |
| % Heavy Vehicles | 2.1 | 0 | 0 | 0 | 4.7 | 3 | 0 | 0 | 2.1 | 0 | 0 | 0 | 0 | 1.4 | 0 | 0 | 2 |

| Start Time | Shepard Street From North | | | | | Lynnway (Route 1A) From East | | | | | Marine Boulevard From South | | | | | Lynnway (Route 1A) From West | | | | | Int. Total |
|--|---------------------------|----------|----------|----------|------------|------------------------------|-------------|----------|----------|-------------|-----------------------------|----------|----------|----------|------------|------------------------------|-------------|----------|----------|-------------|-------------|
| | Right | Thru | Left | U-Turn | App. Total | Right | Thru | Left | U-Turn | App. Total | Right | Thru | Left | U-Turn | App. Total | Right | Thru | Left | U-Turn | App. Total | |
| Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1 | | | | | | | | | | | | | | | | | | | | | |
| Peak Hour for Entire Intersection Begins at 04:45 PM | | | | | | | | | | | | | | | | | | | | | |
| 04:45 PM | 7 | 0 | 0 | 0 | 7 | 35 | 325 | 0 | 0 | 360 | 15 | 0 | 0 | 0 | 15 | 12 | 579 | 0 | 0 | 591 | 973 |
| 05:00 PM | 14 | 0 | 0 | 0 | 14 | 52 | 360 | 0 | 0 | 412 | 14 | 0 | 0 | 0 | 14 | 9 | 595 | 0 | 0 | 604 | 1044 |
| 05:15 PM | 5 | 0 | 0 | 0 | 5 | 40 | 340 | 0 | 0 | 380 | 12 | 0 | 0 | 0 | 12 | 11 | 594 | 0 | 0 | 605 | 1002 |
| 05:30 PM | 16 | 0 | 0 | 0 | 16 | 38 | 314 | 0 | 0 | 352 | 9 | 0 | 0 | 0 | 9 | 6 | 591 | 0 | 0 | 597 | 974 |
| Total Volume | 42 | 0 | 0 | 0 | 42 | 165 | 1339 | 0 | 0 | 1504 | 50 | 0 | 0 | 0 | 50 | 38 | 2359 | 0 | 0 | 2397 | 3993 |
| % App. Total | | | | | | | | | | | | | | | | | | | | | |
| PHF | .656 | .000 | .000 | .000 | .656 | .793 | .930 | .000 | .000 | .913 | .833 | .000 | .000 | .000 | .833 | .792 | .991 | .000 | .000 | .990 | .956 |
| Cars | 40 | 0 | 0 | 0 | 40 | 159 | 1308 | 0 | 0 | 1467 | 49 | 0 | 0 | 0 | 49 | 38 | 2329 | 0 | 0 | 2367 | 3923 |
| % Cars | 95.2 | 0 | 0 | 0 | 95.2 | 96.4 | 97.7 | 0 | 0 | 97.5 | 98.0 | 0 | 0 | 0 | 98.0 | 100 | 98.7 | 0 | 0 | 98.7 | 98.2 |
| Heavy Vehicles | | | | | | | | | | | | | | | | | | | | | |
| % Heavy Vehicles | 4.8 | 0 | 0 | 0 | 4.8 | 3.6 | 2.3 | 0 | 0 | 2.5 | 2.0 | 0 | 0 | 0 | 2.0 | 0 | 1.3 | 0 | 0 | 1.3 | 1.8 |



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N/S: Blossom Street/ Blossom Street Ext
E/W: Lynnway (Route 1A)
City, State: Lynn, MA
Client: VHB/K. Keen

File Name : 144179 BB
Site Code : 11942.03
Start Date : 11/18/2014
Page No : 1

Groups Printed- Cars

| Start Time | Shepard Street From North | | | | Lynnway (Route 1A) From East | | | | Marine Boulevard From South | | | | Lynnway (Route 1A) From West | | | | Int. Total |
|-------------|---------------------------|------|------|--------|------------------------------|------|------|--------|-----------------------------|------|------|--------|------------------------------|------|------|--------|------------|
| | Right | Thru | Left | U-Turn | Right | Thru | Left | U-Turn | Right | Thru | Left | U-Turn | Right | Thru | Left | U-Turn | |
| 04:00 PM | 10 | 0 | 0 | 0 | 30 | 310 | 0 | 0 | 13 | 0 | 0 | 0 | 12 | 447 | 0 | 0 | 822 |
| 04:15 PM | 15 | 0 | 0 | 0 | 26 | 319 | 0 | 0 | 9 | 0 | 0 | 0 | 10 | 472 | 0 | 0 | 851 |
| 04:30 PM | 17 | 0 | 0 | 0 | 26 | 296 | 0 | 0 | 15 | 0 | 0 | 0 | 13 | 542 | 0 | 0 | 909 |
| 04:45 PM | 6 | 0 | 0 | 0 | 34 | 320 | 0 | 0 | 15 | 0 | 0 | 0 | 12 | 574 | 0 | 0 | 961 |
| Total | 48 | 0 | 0 | 0 | 116 | 1245 | 0 | 0 | 52 | 0 | 0 | 0 | 47 | 2035 | 0 | 0 | 3543 |
| 05:00 PM | 13 | 0 | 0 | 0 | 49 | 352 | 0 | 0 | 14 | 0 | 0 | 0 | 9 | 586 | 0 | 0 | 1023 |
| 05:15 PM | 5 | 0 | 0 | 0 | 38 | 331 | 0 | 0 | 11 | 0 | 0 | 0 | 11 | 590 | 0 | 0 | 986 |
| 05:30 PM | 16 | 0 | 0 | 0 | 38 | 305 | 0 | 0 | 9 | 0 | 0 | 0 | 6 | 579 | 0 | 0 | 953 |
| 05:45 PM | 11 | 0 | 0 | 0 | 23 | 262 | 0 | 0 | 9 | 0 | 0 | 0 | 8 | 615 | 0 | 0 | 928 |
| Total | 45 | 0 | 0 | 0 | 148 | 1250 | 0 | 0 | 43 | 0 | 0 | 0 | 34 | 2370 | 0 | 0 | 3890 |
| Grand Total | 93 | 0 | 0 | 0 | 264 | 2495 | 0 | 0 | 95 | 0 | 0 | 0 | 81 | 4405 | 0 | 0 | 7433 |
| Apprch % | 100 | 0 | 0 | 0 | 9.6 | 90.4 | 0 | 0 | 100 | 0 | 0 | 0 | 1.8 | 98.2 | 0 | 0 | |
| Total % | 1.3 | 0 | 0 | 0 | 3.6 | 33.6 | 0 | 0 | 1.3 | 0 | 0 | 0 | 1.1 | 59.3 | 0 | 0 | |

| Start Time | Shepard Street From North | | | | | Lynnway (Route 1A) From East | | | | | Marine Boulevard From South | | | | | Lynnway (Route 1A) From West | | | | | Int. Total |
|--|---------------------------|------|------|--------|------------|------------------------------|------|------|--------|------------|-----------------------------|------|------|--------|------------|------------------------------|------|------|--------|------------|------------|
| | Right | Thru | Left | U-Turn | App. Total | Right | Thru | Left | U-Turn | App. Total | Right | Thru | Left | U-Turn | App. Total | Right | Thru | Left | U-Turn | App. Total | |
| Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1 | | | | | | | | | | | | | | | | | | | | | |
| Peak Hour for Entire Intersection Begins at 04:45 PM | | | | | | | | | | | | | | | | | | | | | |
| 04:45 PM | 6 | 0 | 0 | 0 | 6 | 34 | 320 | 0 | 0 | 354 | 15 | 0 | 0 | 0 | 15 | 12 | 574 | 0 | 0 | 586 | 961 |
| 05:00 PM | 13 | 0 | 0 | 0 | 13 | 49 | 352 | 0 | 0 | 401 | 14 | 0 | 0 | 0 | 14 | 9 | 586 | 0 | 0 | 595 | 1023 |
| 05:15 PM | 5 | 0 | 0 | 0 | 5 | 38 | 331 | 0 | 0 | 369 | 11 | 0 | 0 | 0 | 11 | 11 | 590 | 0 | 0 | 601 | 986 |
| 05:30 PM | 16 | 0 | 0 | 0 | 16 | 38 | 305 | 0 | 0 | 343 | 9 | 0 | 0 | 0 | 9 | 6 | 579 | 0 | 0 | 585 | 953 |
| Total Volume | 40 | 0 | 0 | 0 | 40 | 159 | 1308 | 0 | 0 | 1467 | 49 | 0 | 0 | 0 | 49 | 38 | 2329 | 0 | 0 | 2367 | 3923 |
| % App. Total | | | | | | | | | | | | | | | | | | | | | |
| PHF | .625 | .000 | .000 | .000 | .625 | .811 | .929 | .000 | .000 | .915 | .817 | .000 | .000 | .000 | .817 | .792 | .987 | .000 | .000 | .985 | .959 |



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N/S: Blossom Street/ Blossom Street Ext
E/W: Lynnway (Route 1A)
City, State: Lynn, MA
Client: VHB/K. Keen

File Name : 144179 BB
Site Code : 11942.03
Start Date : 11/18/2014
Page No : 1

Groups Printed- Heavy Vehicles

| Start Time | Shepard Street From North | | | | Lynnway (Route 1A) From East | | | | Marine Boulevard From South | | | | Lynnway (Route 1A) From West | | | | Int. Total |
|-------------|---------------------------|------|------|--------|------------------------------|------|------|--------|-----------------------------|------|------|--------|------------------------------|------|------|--------|------------|
| | Right | Thru | Left | U-Turn | Right | Thru | Left | U-Turn | Right | Thru | Left | U-Turn | Right | Thru | Left | U-Turn | |
| 04:00 PM | 0 | 0 | 0 | 0 | 2 | 18 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 23 |
| 04:15 PM | 0 | 0 | 0 | 0 | 2 | 12 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 12 | 0 | 0 | 27 |
| 04:30 PM | 0 | 0 | 0 | 0 | 3 | 13 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 8 | 0 | 0 | 24 |
| 04:45 PM | 1 | 0 | 0 | 0 | 1 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 0 | 12 |
| Total | 1 | 0 | 0 | 0 | 8 | 48 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 28 | 0 | 0 | 86 |
| 05:00 PM | 1 | 0 | 0 | 0 | 3 | 8 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 9 | 0 | 0 | 21 |
| 05:15 PM | 0 | 0 | 0 | 0 | 2 | 9 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 16 |
| 05:30 PM | 0 | 0 | 0 | 0 | 0 | 9 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 12 | 0 | 0 | 21 |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 9 | 0 | 0 | 11 |
| Total | 1 | 0 | 0 | 0 | 5 | 28 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 34 | 0 | 0 | 69 |
| Grand Total | 2 | 0 | 0 | 0 | 13 | 76 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 62 | 0 | 0 | 155 |
| Apprch % | 100 | 0 | 0 | 0 | 14.6 | 85.4 | 0 | 0 | 100 | 0 | 0 | 0 | 0 | 100 | 0 | 0 | |
| Total % | 1.3 | 0 | 0 | 0 | 8.4 | 49 | 0 | 0 | 1.3 | 0 | 0 | 0 | 0 | 40 | 0 | 0 | |

| Start Time | Shepard Street From North | | | | | Lynnway (Route 1A) From East | | | | | Marine Boulevard From South | | | | | Lynnway (Route 1A) From West | | | | | Int. Total |
|--|---------------------------|------|------|--------|------------|------------------------------|------|------|--------|------------|-----------------------------|------|------|--------|------------|------------------------------|------|------|--------|------------|------------|
| | Right | Thru | Left | U-Turn | App. Total | Right | Thru | Left | U-Turn | App. Total | Right | Thru | Left | U-Turn | App. Total | Right | Thru | Left | U-Turn | App. Total | |
| Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1 | | | | | | | | | | | | | | | | | | | | | |
| Peak Hour for Entire Intersection Begins at 04:00 PM | | | | | | | | | | | | | | | | | | | | | |
| 04:00 PM | 0 | 0 | 0 | 0 | 0 | 2 | 18 | 0 | 0 | 20 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 3 | 23 |
| 04:15 PM | 0 | 0 | 0 | 0 | 0 | 2 | 12 | 0 | 0 | 14 | 1 | 0 | 0 | 0 | 1 | 0 | 12 | 0 | 0 | 12 | 27 |
| 04:30 PM | 0 | 0 | 0 | 0 | 0 | 3 | 13 | 0 | 0 | 16 | 0 | 0 | 0 | 0 | 0 | 0 | 8 | 0 | 0 | 8 | 24 |
| 04:45 PM | 1 | 0 | 0 | 0 | 1 | 1 | 5 | 0 | 0 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 0 | 5 | 12 |
| Total Volume | 1 | 0 | 0 | 0 | 1 | 8 | 48 | 0 | 0 | 56 | 1 | 0 | 0 | 0 | 1 | 0 | 28 | 0 | 0 | 28 | 86 |
| % App. Total | 100 | 0 | 0 | 0 | | 14.3 | 85.7 | 0 | 0 | | 100 | 0 | 0 | 0 | | 0 | 100 | 0 | 0 | | |
| PHF | .250 | .000 | .000 | .000 | .250 | .667 | .667 | .000 | .000 | .700 | .250 | .000 | .000 | .000 | .250 | .000 | .583 | .000 | .000 | .583 | .796 |



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N/S: Blossom Street/ Blossom Street Ext
E/W: Lynnway (Route 1A)
City, State: Lynn, MA
Client: VHB/K. Keen

File Name : 144179 BB
Site Code : 11942.03
Start Date : 11/18/2014
Page No : 1

Groups Printed- Peds and Bikes

| Start Time | Shepard Street From North | | | | | Lynnway (Route 1A) From East | | | | | Marine Boulevard From South | | | | | Lynnway (Route 1A) From West | | | | | Int. Total |
|-------------|---------------------------|------|------|---------|---------|------------------------------|------|------|---------|---------|-----------------------------|------|------|---------|---------|------------------------------|------|------|---------|---------|------------|
| | Right | Thru | Left | Peds EB | Peds WB | Right | Thru | Left | Peds SB | Peds NB | Right | Thru | Left | Peds WB | Peds EB | Right | Thru | Left | Peds NB | Peds SB | |
| 04:00 PM | 0 | 0 | 0 | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 |
| 04:15 PM | 0 | 0 | 0 | 6 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 10 |
| 04:30 PM | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 04:45 PM | 0 | 0 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 |
| Total | 0 | 0 | 0 | 13 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 18 |
| 05:00 PM | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| 05:15 PM | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 05:30 PM | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 4 |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| Total | 0 | 0 | 0 | 3 | 2 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 8 |
| Grand Total | 0 | 0 | 0 | 16 | 7 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 26 |
| Apprch % | 0 | 0 | 0 | 69.6 | 30.4 | 0 | 0 | 0 | 50 | 50 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 100 | 0 | |
| Total % | 0 | 0 | 0 | 61.5 | 26.9 | 0 | 0 | 0 | 3.8 | 3.8 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3.8 | 0 | |

| Start Time | Shepard Street From North | | | | | | Lynnway (Route 1A) From East | | | | | | Marine Boulevard From South | | | | | | Lynnway (Route 1A) From West | | | | | | Int. Total | | | |
|--|---------------------------|------|------|---------|---------|------------|------------------------------|------|------|---------|---------|------------|-----------------------------|------|------|---------|---------|------------|------------------------------|------|------|---------|---------|------------|------------|------|------|------|
| | Right | Thru | Left | Peds EB | Peds WB | App. Total | Right | Thru | Left | Peds SB | Peds NB | App. Total | Right | Thru | Left | Peds WB | Peds EB | App. Total | Right | Thru | Left | Peds NB | Peds SB | App. Total | | | | |
| Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Peak Hour for Entire Intersection Begins at 04:00 PM | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 04:00 PM | 0 | 0 | 0 | 2 | 1 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 |
| 04:15 PM | 0 | 0 | 0 | 6 | 4 | 10 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 10 |
| 04:30 PM | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 04:45 PM | 0 | 0 | 0 | 4 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 |
| Total Volume | 0 | 0 | 0 | 13 | 5 | 18 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 18 |
| % App. Total | 0 | 0 | 0 | 72.2 | 27.8 | | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | 0 | |
| PHF | .000 | .000 | .000 | .542 | .313 | .450 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .450 |



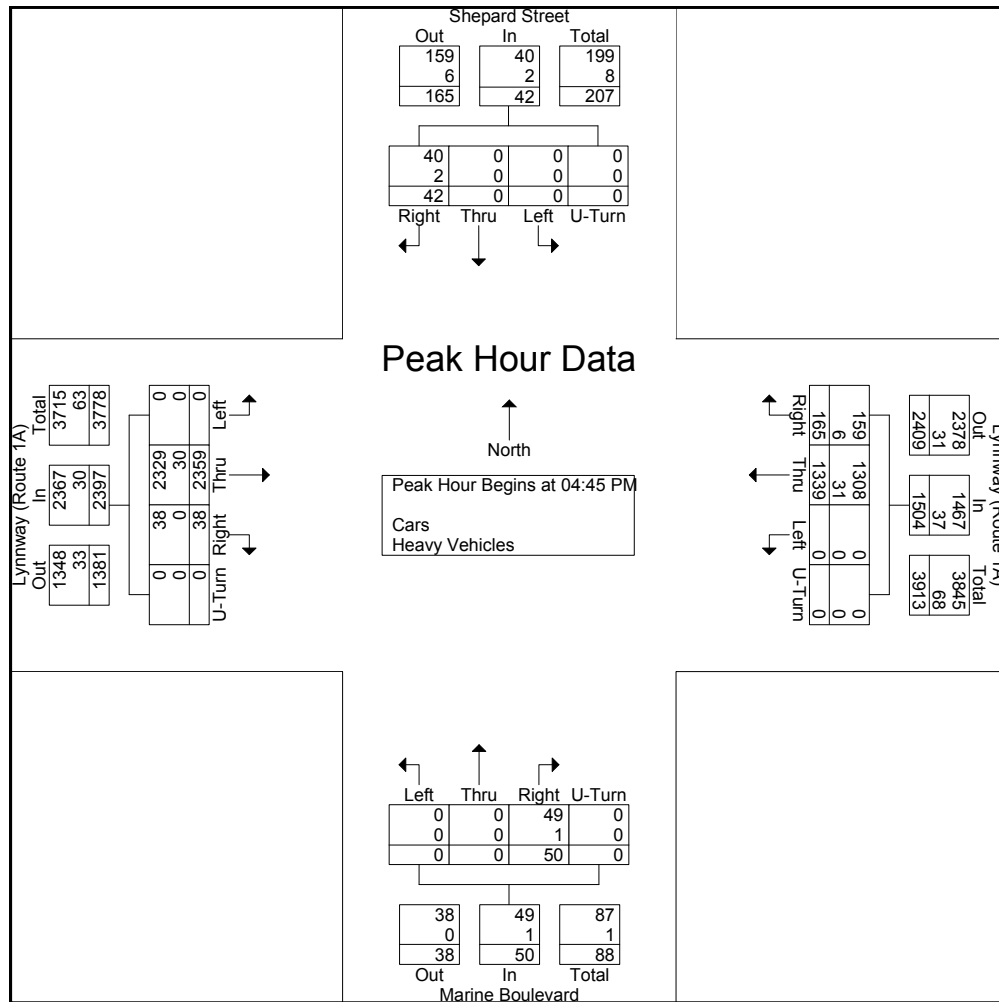
PRECISION
D A T A
INDUSTRIES, LLC

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N/S: Blossom Street/ Blossom Street Ext
E/W: Lynnway (Route 1A)
City, State: Lynn, MA
Client: VHB/K. Keen

File Name : 144179 BB
Site Code : 11942.03
Start Date : 11/18/2014
Page No : 1

| Start Time | Shepard Street From North | | | | | Lynnway (Route 1A) From East | | | | | Marine Boulevard From South | | | | | Lynnway (Route 1A) From West | | | | | Int. Total |
|--|---------------------------|------|------|--------|------------|------------------------------|------|------|--------|------------|-----------------------------|------|------|--------|------------|------------------------------|------|------|--------|------------|------------|
| | Right | Thru | Left | U-Turn | App. Total | Right | Thru | Left | U-Turn | App. Total | Right | Thru | Left | U-Turn | App. Total | Right | Thru | Left | U-Turn | App. Total | |
| Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1 | | | | | | | | | | | | | | | | | | | | | |
| Peak Hour for Entire Intersection Begins at 04:45 PM | | | | | | | | | | | | | | | | | | | | | |
| 04:45 PM | 7 | 0 | 0 | 0 | 7 | 35 | 325 | 0 | 0 | 360 | 15 | 0 | 0 | 0 | 15 | 12 | 579 | 0 | 0 | 591 | 973 |
| 05:00 PM | 14 | 0 | 0 | 0 | 14 | 52 | 360 | 0 | 0 | 412 | 14 | 0 | 0 | 0 | 14 | 9 | 595 | 0 | 0 | 604 | 1044 |
| 05:15 PM | 5 | 0 | 0 | 0 | 5 | 40 | 340 | 0 | 0 | 380 | 12 | 0 | 0 | 0 | 12 | 11 | 594 | 0 | 0 | 605 | 1002 |
| 05:30 PM | 16 | 0 | 0 | 0 | 16 | 38 | 314 | 0 | 0 | 352 | 9 | 0 | 0 | 0 | 9 | 6 | 591 | 0 | 0 | 597 | 974 |
| Total Volume | 42 | 0 | 0 | 0 | 42 | 165 | 1339 | 0 | 0 | 1504 | 50 | 0 | 0 | 0 | 50 | 38 | 2359 | 0 | 0 | 2397 | 3993 |
| % App. Total | .656 | .000 | .000 | .000 | .656 | .793 | .930 | .000 | .000 | .913 | .833 | .000 | .000 | .000 | .833 | .792 | .991 | .000 | .000 | .990 | .956 |
| PHF | .656 | .000 | .000 | .000 | .656 | .793 | .930 | .000 | .000 | .913 | .833 | .000 | .000 | .000 | .833 | .792 | .991 | .000 | .000 | .990 | .956 |
| Cars | 40 | 0 | 0 | 0 | 40 | 159 | 1308 | 0 | 0 | 1467 | 49 | 0 | 0 | 0 | 49 | 38 | 2329 | 0 | 0 | 2367 | 3923 |
| % Cars | 95.2 | 0 | 0 | 0 | 95.2 | 96.4 | 97.7 | 0 | 0 | 97.5 | 98.0 | 0 | 0 | 0 | 98.0 | 100 | 98.7 | 0 | 0 | 98.7 | 98.2 |
| Heavy Vehicles | 4.8 | 0 | 0 | 0 | 4.8 | 3.6 | 2.3 | 0 | 0 | 2.5 | 2.0 | 0 | 0 | 0 | 2.0 | 0 | 1.3 | 0 | 0 | 1.3 | 1.8 |
| % Heavy Vehicles | 4.8 | 0 | 0 | 0 | 4.8 | 3.6 | 2.3 | 0 | 0 | 2.5 | 2.0 | 0 | 0 | 0 | 2.0 | 0 | 1.3 | 0 | 0 | 1.3 | 1.8 |





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N/S: Jughandle/Kingman Street
E/W: Lynnway (Route 1A)
City, State: Lynn, MA
Client: VHB/K. Keen

File Name : 144179 C
Site Code : 11942.03
Start Date : 11/18/2014
Page No : 1

Groups Printed- Cars - Heavy Vehicles

| Start Time | Jughandle From North | | | | Lynnway (Route 1A) From East | | | | Kingman Street From South | | | | Lynnway (Route 1A) From West | | | | Int. Total |
|------------------|----------------------|------|------|--------|------------------------------|------|------|--------|---------------------------|------|------|--------|------------------------------|------|------|--------|------------|
| | Right | Thru | Left | U-Turn | Right | Thru | Left | U-Turn | Right | Thru | Left | U-Turn | Right | Thru | Left | U-Turn | |
| 07:00 AM | 0 | 0 | 0 | 0 | 41 | 731 | 11 | 0 | 6 | 0 | 8 | 0 | 9 | 199 | 3 | 2 | 1010 |
| 07:15 AM | 0 | 0 | 0 | 0 | 44 | 725 | 12 | 0 | 11 | 2 | 11 | 0 | 8 | 218 | 5 | 1 | 1037 |
| 07:30 AM | 0 | 0 | 0 | 0 | 41 | 632 | 17 | 3 | 9 | 1 | 6 | 0 | 6 | 275 | 3 | 9 | 1002 |
| 07:45 AM | 0 | 0 | 0 | 0 | 40 | 636 | 18 | 2 | 9 | 0 | 6 | 0 | 11 | 290 | 6 | 5 | 1023 |
| Total | 0 | 0 | 0 | 0 | 166 | 2724 | 58 | 5 | 35 | 3 | 31 | 0 | 34 | 982 | 17 | 17 | 4072 |
| 08:00 AM | 0 | 0 | 0 | 0 | 44 | 542 | 20 | 5 | 5 | 0 | 14 | 0 | 17 | 241 | 5 | 13 | 906 |
| 08:15 AM | 0 | 0 | 0 | 0 | 39 | 568 | 21 | 5 | 16 | 0 | 13 | 0 | 16 | 237 | 5 | 2 | 922 |
| 08:30 AM | 0 | 0 | 0 | 0 | 41 | 474 | 26 | 0 | 5 | 1 | 10 | 0 | 30 | 257 | 12 | 8 | 864 |
| 08:45 AM | 1 | 0 | 1 | 0 | 33 | 447 | 30 | 3 | 7 | 0 | 8 | 0 | 14 | 247 | 5 | 5 | 801 |
| Total | 1 | 0 | 1 | 0 | 157 | 2031 | 97 | 13 | 33 | 1 | 45 | 0 | 77 | 982 | 27 | 28 | 3493 |
| Grand Total | 1 | 0 | 1 | 0 | 323 | 4755 | 155 | 18 | 68 | 4 | 76 | 0 | 111 | 1964 | 44 | 45 | 7565 |
| Apprch % | 50 | 0 | 50 | 0 | 6.2 | 90.6 | 3 | 0.3 | 45.9 | 2.7 | 51.4 | 0 | 5.1 | 90.8 | 2 | 2.1 | |
| Total % | 0 | 0 | 0 | 0 | 4.3 | 62.9 | 2 | 0.2 | 0.9 | 0.1 | 1 | 0 | 1.5 | 26 | 0.6 | 0.6 | |
| Cars | 1 | 0 | 1 | 0 | 314 | 4682 | 146 | 18 | 37 | 2 | 43 | 0 | 101 | 1849 | 42 | 44 | 7280 |
| % Cars | 100 | 0 | 100 | 0 | 97.2 | 98.5 | 94.2 | 100 | 54.4 | 50 | 56.6 | 0 | 91 | 94.1 | 95.5 | 97.8 | 96.2 |
| Heavy Vehicles | 0 | 0 | 0 | 0 | 9 | 73 | 9 | 0 | 31 | 2 | 33 | 0 | 10 | 115 | 2 | 1 | 285 |
| % Heavy Vehicles | 0 | 0 | 0 | 0 | 2.8 | 1.5 | 5.8 | 0 | 45.6 | 50 | 43.4 | 0 | 9 | 5.9 | 4.5 | 2.2 | 3.8 |

| Start Time | Jughandle From North | | | | | Lynnway (Route 1A) From East | | | | | Kingman Street From South | | | | | Lynnway (Route 1A) From West | | | | | Int. Total |
|--|----------------------|------|------|--------|------------|------------------------------|------|------|--------|------------|---------------------------|------|------|--------|------------|------------------------------|------|------|--------|------------|------------|
| | Right | Thru | Left | U-Turn | App. Total | Right | Thru | Left | U-Turn | App. Total | Right | Thru | Left | U-Turn | App. Total | Right | Thru | Left | U-Turn | App. Total | |
| Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1 | | | | | | | | | | | | | | | | | | | | | |
| Peak Hour for Entire Intersection Begins at 07:00 AM | | | | | | | | | | | | | | | | | | | | | |
| 07:00 AM | 0 | 0 | 0 | 0 | 0 | 41 | 731 | 11 | 0 | 783 | 6 | 0 | 8 | 0 | 14 | 9 | 199 | 3 | 2 | 213 | 1010 |
| 07:15 AM | 0 | 0 | 0 | 0 | 0 | 44 | 725 | 12 | 0 | 781 | 11 | 2 | 11 | 0 | 24 | 8 | 218 | 5 | 1 | 232 | 1037 |
| 07:30 AM | 0 | 0 | 0 | 0 | 0 | 41 | 632 | 17 | 3 | 693 | 9 | 1 | 6 | 0 | 16 | 6 | 275 | 3 | 9 | 293 | 1002 |
| 07:45 AM | 0 | 0 | 0 | 0 | 0 | 40 | 636 | 18 | 2 | 696 | 9 | 0 | 6 | 0 | 15 | 11 | 290 | 6 | 5 | 312 | 1023 |
| Total Volume | 0 | 0 | 0 | 0 | 0 | 166 | 2724 | 58 | 5 | 2953 | 35 | 3 | 31 | 0 | 69 | 34 | 982 | 17 | 17 | 1050 | 4072 |
| % App. Total | | | | | | | | | | | | | | | | | | | | | |
| PHF | .000 | .000 | .000 | .000 | .000 | .943 | .932 | .806 | .417 | .943 | .795 | .375 | .705 | .000 | .719 | .773 | .847 | .708 | .472 | .841 | .982 |
| Cars | 0 | 0 | 0 | 0 | 0 | 163 | 2696 | 54 | 5 | 2918 | 20 | 1 | 12 | 0 | 33 | 29 | 917 | 15 | 16 | 977 | 3928 |
| % Cars | 0 | 0 | 0 | 0 | 0 | 98.2 | 99.0 | 93.1 | 100 | 98.8 | 57.1 | 33.3 | 38.7 | 0 | 47.8 | 85.3 | 93.4 | 88.2 | 94.1 | 93.0 | 96.5 |
| Heavy Vehicles | | | | | | | | | | | | | | | | | | | | | |
| % Heavy Vehicles | 0 | 0 | 0 | 0 | 0 | 1.8 | 1.0 | 6.9 | 0 | 1.2 | 42.9 | 66.7 | 61.3 | 0 | 52.2 | 14.7 | 6.6 | 11.8 | 5.9 | 7.0 | 3.5 |



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N/S: Jughandle/Kingman Street
E/W: Lynnway (Route 1A)
City, State: Lynn, MA
Client: VHB/K. Keen

File Name : 144179 C
Site Code : 11942.03
Start Date : 11/18/2014
Page No : 1

Groups Printed- Cars

| Start Time | Jughandle From North | | | | Lynnway (Route 1A) From East | | | | Kingman Street From South | | | | Lynnway (Route 1A) From West | | | | Int. Total |
|-------------|----------------------|------|------|--------|------------------------------|------|------|--------|---------------------------|------|------|--------|------------------------------|------|------|--------|------------|
| | Right | Thru | Left | U-Turn | Right | Thru | Left | U-Turn | Right | Thru | Left | U-Turn | Right | Thru | Left | U-Turn | |
| 07:00 AM | 0 | 0 | 0 | 0 | 39 | 721 | 9 | 0 | 3 | 0 | 3 | 0 | 8 | 183 | 1 | 2 | 969 |
| 07:15 AM | 0 | 0 | 0 | 0 | 43 | 719 | 11 | 0 | 8 | 1 | 3 | 0 | 7 | 210 | 5 | 1 | 1008 |
| 07:30 AM | 0 | 0 | 0 | 0 | 41 | 626 | 16 | 3 | 5 | 0 | 2 | 0 | 6 | 250 | 3 | 9 | 961 |
| 07:45 AM | 0 | 0 | 0 | 0 | 40 | 630 | 18 | 2 | 4 | 0 | 4 | 0 | 8 | 274 | 6 | 4 | 990 |
| Total | 0 | 0 | 0 | 0 | 163 | 2696 | 54 | 5 | 20 | 1 | 12 | 0 | 29 | 917 | 15 | 16 | 3928 |
| 08:00 AM | 0 | 0 | 0 | 0 | 44 | 531 | 19 | 5 | 2 | 0 | 13 | 0 | 15 | 230 | 5 | 13 | 877 |
| 08:15 AM | 0 | 0 | 0 | 0 | 37 | 557 | 20 | 5 | 5 | 0 | 6 | 0 | 15 | 227 | 5 | 2 | 879 |
| 08:30 AM | 0 | 0 | 0 | 0 | 39 | 461 | 25 | 0 | 3 | 1 | 6 | 0 | 29 | 240 | 12 | 8 | 824 |
| 08:45 AM | 1 | 0 | 1 | 0 | 31 | 437 | 28 | 3 | 7 | 0 | 6 | 0 | 13 | 235 | 5 | 5 | 772 |
| Total | 1 | 0 | 1 | 0 | 151 | 1986 | 92 | 13 | 17 | 1 | 31 | 0 | 72 | 932 | 27 | 28 | 3352 |
| Grand Total | 1 | 0 | 1 | 0 | 314 | 4682 | 146 | 18 | 37 | 2 | 43 | 0 | 101 | 1849 | 42 | 44 | 7280 |
| Apprch % | 50 | 0 | 50 | 0 | 6.1 | 90.7 | 2.8 | 0.3 | 45.1 | 2.4 | 52.4 | 0 | 5 | 90.8 | 2.1 | 2.2 | |
| Total % | 0 | 0 | 0 | 0 | 4.3 | 64.3 | 2 | 0.2 | 0.5 | 0 | 0.6 | 0 | 1.4 | 25.4 | 0.6 | 0.6 | |

| Start Time | Jughandle From North | | | | | Lynnway (Route 1A) From East | | | | | Kingman Street From South | | | | | Lynnway (Route 1A) From West | | | | | Int. Total |
|--|----------------------|------|------|--------|------------|------------------------------|------|------|--------|------------|---------------------------|------|------|--------|------------|------------------------------|------|------|--------|------------|------------|
| | Right | Thru | Left | U-Turn | App. Total | Right | Thru | Left | U-Turn | App. Total | Right | Thru | Left | U-Turn | App. Total | Right | Thru | Left | U-Turn | App. Total | |
| Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1 | | | | | | | | | | | | | | | | | | | | | |
| Peak Hour for Entire Intersection Begins at 07:00 AM | | | | | | | | | | | | | | | | | | | | | |
| 07:00 AM | 0 | 0 | 0 | 0 | 0 | 39 | 721 | 9 | 0 | 769 | 3 | 0 | 3 | 0 | 6 | 8 | 183 | 1 | 2 | 194 | 969 |
| 07:15 AM | 0 | 0 | 0 | 0 | 0 | 43 | 719 | 11 | 0 | 773 | 8 | 1 | 3 | 0 | 12 | 7 | 210 | 5 | 1 | 223 | 1008 |
| 07:30 AM | 0 | 0 | 0 | 0 | 0 | 41 | 626 | 16 | 3 | 686 | 5 | 0 | 2 | 0 | 7 | 6 | 250 | 3 | 9 | 268 | 961 |
| 07:45 AM | 0 | 0 | 0 | 0 | 0 | 40 | 630 | 18 | 2 | 690 | 4 | 0 | 4 | 0 | 8 | 8 | 274 | 6 | 4 | 292 | 990 |
| Total Volume | 0 | 0 | 0 | 0 | 0 | 163 | 2696 | 54 | 5 | 2918 | 20 | 1 | 12 | 0 | 33 | 29 | 917 | 15 | 16 | 977 | 3928 |
| % App. Total | | | | | | | | | | | | | | | | | | | | | |
| PHF | .000 | .000 | .000 | .000 | .000 | .948 | .935 | .750 | .417 | .944 | .625 | .250 | .750 | .000 | .688 | .906 | .837 | .625 | .444 | .836 | .974 |



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N/S: Jughandle/Kingman Street
E/W: Lynnway (Route 1A)
City, State: Lynn, MA
Client: VHB/K. Keen

File Name : 144179 C
Site Code : 11942.03
Start Date : 11/18/2014
Page No : 1

Groups Printed- Heavy Vehicles

| Start Time | Jughandle From North | | | | Lynnway (Route 1A) From East | | | | Kingman Street From South | | | | Lynnway (Route 1A) From West | | | | Int. Total |
|-------------|----------------------|------|------|--------|------------------------------|------|------|--------|---------------------------|------|------|--------|------------------------------|------|------|--------|------------|
| | Right | Thru | Left | U-Turn | Right | Thru | Left | U-Turn | Right | Thru | Left | U-Turn | Right | Thru | Left | U-Turn | |
| 07:00 AM | 0 | 0 | 0 | 0 | 2 | 10 | 2 | 0 | 3 | 0 | 5 | 0 | 1 | 16 | 2 | 0 | 41 |
| 07:15 AM | 0 | 0 | 0 | 0 | 1 | 6 | 1 | 0 | 3 | 1 | 8 | 0 | 1 | 8 | 0 | 0 | 29 |
| 07:30 AM | 0 | 0 | 0 | 0 | 0 | 6 | 1 | 0 | 4 | 1 | 4 | 0 | 0 | 25 | 0 | 0 | 41 |
| 07:45 AM | 0 | 0 | 0 | 0 | 0 | 6 | 0 | 0 | 5 | 0 | 2 | 0 | 3 | 16 | 0 | 1 | 33 |
| Total | 0 | 0 | 0 | 0 | 3 | 28 | 4 | 0 | 15 | 2 | 19 | 0 | 5 | 65 | 2 | 1 | 144 |
| 08:00 AM | 0 | 0 | 0 | 0 | 0 | 11 | 1 | 0 | 3 | 0 | 1 | 0 | 2 | 11 | 0 | 0 | 29 |
| 08:15 AM | 0 | 0 | 0 | 0 | 2 | 11 | 1 | 0 | 11 | 0 | 7 | 0 | 1 | 10 | 0 | 0 | 43 |
| 08:30 AM | 0 | 0 | 0 | 0 | 2 | 13 | 1 | 0 | 2 | 0 | 4 | 0 | 1 | 17 | 0 | 0 | 40 |
| 08:45 AM | 0 | 0 | 0 | 0 | 2 | 10 | 2 | 0 | 0 | 0 | 2 | 0 | 1 | 12 | 0 | 0 | 29 |
| Total | 0 | 0 | 0 | 0 | 6 | 45 | 5 | 0 | 16 | 0 | 14 | 0 | 5 | 50 | 0 | 0 | 141 |
| Grand Total | 0 | 0 | 0 | 0 | 9 | 73 | 9 | 0 | 31 | 2 | 33 | 0 | 10 | 115 | 2 | 1 | 285 |
| Apprch % | 0 | 0 | 0 | 0 | 9.9 | 80.2 | 9.9 | 0 | 47 | 3 | 50 | 0 | 7.8 | 89.8 | 1.6 | 0.8 | |
| Total % | 0 | 0 | 0 | 0 | 3.2 | 25.6 | 3.2 | 0 | 10.9 | 0.7 | 11.6 | 0 | 3.5 | 40.4 | 0.7 | 0.4 | |

| Start Time | Jughandle From North | | | | | Lynnway (Route 1A) From East | | | | | Kingman Street From South | | | | | Lynnway (Route 1A) From West | | | | | Int. Total |
|--|----------------------|------|------|--------|------------|------------------------------|------|------|--------|------------|---------------------------|------|------|--------|------------|------------------------------|------|------|--------|------------|------------|
| | Right | Thru | Left | U-Turn | App. Total | Right | Thru | Left | U-Turn | App. Total | Right | Thru | Left | U-Turn | App. Total | Right | Thru | Left | U-Turn | App. Total | |
| Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1 | | | | | | | | | | | | | | | | | | | | | |
| Peak Hour for Entire Intersection Begins at 07:30 AM | | | | | | | | | | | | | | | | | | | | | |
| 07:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 6 | 1 | 0 | 7 | 4 | 1 | 4 | 0 | 9 | 0 | 25 | 0 | 0 | 25 | 41 |
| 07:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 6 | 0 | 0 | 6 | 5 | 0 | 2 | 0 | 7 | 3 | 16 | 0 | 1 | 20 | 33 |
| 08:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 11 | 1 | 0 | 12 | 3 | 0 | 1 | 0 | 4 | 2 | 11 | 0 | 0 | 13 | 29 |
| 08:15 AM | 0 | 0 | 0 | 0 | 0 | 2 | 11 | 1 | 0 | 14 | 11 | 0 | 7 | 0 | 18 | 1 | 10 | 0 | 0 | 11 | 43 |
| Total Volume | 0 | 0 | 0 | 0 | 0 | 2 | 34 | 3 | 0 | 39 | 23 | 1 | 14 | 0 | 38 | 6 | 62 | 0 | 1 | 69 | 146 |
| % App. Total | 0 | 0 | 0 | 0 | 0 | 5.1 | 87.2 | 7.7 | 0 | | 60.5 | 2.6 | 36.8 | 0 | | 8.7 | 89.9 | 0 | 1.4 | | |
| PHF | .000 | .000 | .000 | .000 | .000 | .250 | .773 | .750 | .000 | .696 | .523 | .250 | .500 | .000 | .528 | .500 | .620 | .000 | .250 | .690 | .849 |



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N/S: Jughandle/Kingman Street
E/W: Lynnway (Route 1A)
City, State: Lynn, MA
Client: VHB/K. Keen

File Name : 144179 C
Site Code : 11942.03
Start Date : 11/18/2014
Page No : 1

Groups Printed- Peds and Bikes

| Start Time | Jughandle From North | | | | | Lynnway (Route 1A) From East | | | | | Kingman Street From South | | | | | Lynnway (Route 1A) From West | | | | | Int. Total |
|-------------|----------------------|------|------|---------|---------|------------------------------|------|------|---------|---------|---------------------------|------|------|---------|---------|------------------------------|------|------|---------|---------|------------|
| | Right | Thru | Left | Peds EB | Peds WB | Right | Thru | Left | Peds SB | Peds NB | Right | Thru | Left | Peds WB | Peds EB | Right | Thru | Left | Peds NB | Peds SB | |
| 07:00 AM | 0 | 0 | 0 | 2 | 2 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 8 |
| 07:15 AM | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 4 |
| 07:30 AM | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 5 |
| 07:45 AM | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 3 |
| Total | 0 | 0 | 0 | 4 | 5 | 0 | 0 | 0 | 3 | 1 | 0 | 0 | 0 | 6 | 0 | 0 | 0 | 0 | 1 | 0 | 20 |
| 08:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 3 |
| 08:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| 08:30 AM | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 6 |
| 08:45 AM | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 4 |
| Total | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 4 | 1 | 0 | 0 | 0 | 5 | 2 | 0 | 0 | 0 | 1 | 0 | 15 |
| Grand Total | 0 | 0 | 0 | 5 | 6 | 0 | 0 | 0 | 7 | 2 | 0 | 0 | 0 | 11 | 2 | 0 | 0 | 0 | 2 | 0 | 35 |
| Apprch % | 0 | 0 | 0 | 45.5 | 54.5 | 0 | 0 | 0 | 77.8 | 22.2 | 0 | 0 | 0 | 84.6 | 15.4 | 0 | 0 | 0 | 100 | 0 | |
| Total % | 0 | 0 | 0 | 14.3 | 17.1 | 0 | 0 | 0 | 20 | 5.7 | 0 | 0 | 0 | 31.4 | 5.7 | 0 | 0 | 0 | 5.7 | 0 | |

| Start Time | Jughandle From North | | | | | | Lynnway (Route 1A) From East | | | | | | Kingman Street From South | | | | | | Lynnway (Route 1A) From West | | | | | | Int. Total | | | | | | |
|--|----------------------|------|------|---------|---------|------------|------------------------------|------|------|---------|---------|------------|---------------------------|------|------|---------|---------|------------|------------------------------|------|------|---------|---------|------------|------------|------|------|------|------|------|----|
| | Right | Thru | Left | Peds EB | Peds WB | App. Total | Right | Thru | Left | Peds SB | Peds NB | App. Total | Right | Thru | Left | Peds WB | Peds EB | App. Total | Right | Thru | Left | Peds NB | Peds SB | App. Total | | | | | | | |
| Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Peak Hour for Entire Intersection Begins at 07:00 AM | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 07:00 AM | 0 | 0 | 0 | 2 | 2 | 4 | 0 | 0 | 0 | 2 | 0 | 2 | 0 | 0 | 0 | 2 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 8 |
| 07:15 AM | 0 | 0 | 0 | 2 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 4 |
| 07:30 AM | 0 | 0 | 0 | 0 | 2 | 2 | 0 | 0 | 0 | 1 | 1 | 2 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 |
| 07:45 AM | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 |
| Total Volume | 0 | 0 | 0 | 4 | 5 | 9 | 0 | 0 | 0 | 3 | 1 | 4 | 0 | 0 | 0 | 6 | 0 | 6 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 1 | 20 |
| % App. Total | 0 | 0 | 0 | 44.4 | 55.6 | 0 | 0 | 0 | 75 | 25 | 0 | 0 | 0 | 100 | 0 | 0 | 0 | 0 | 100 | 0 | 0 | 0 | 0 | 100 | 0 | 0 | 0 | 0 | 100 | 0 | |
| PHF | .000 | .000 | .000 | .500 | .625 | .563 | .000 | .000 | .000 | .375 | .250 | .500 | .000 | .000 | .000 | .750 | .000 | .750 | .000 | .000 | .000 | .250 | .000 | .250 | .000 | .000 | .000 | .250 | .000 | .625 | |



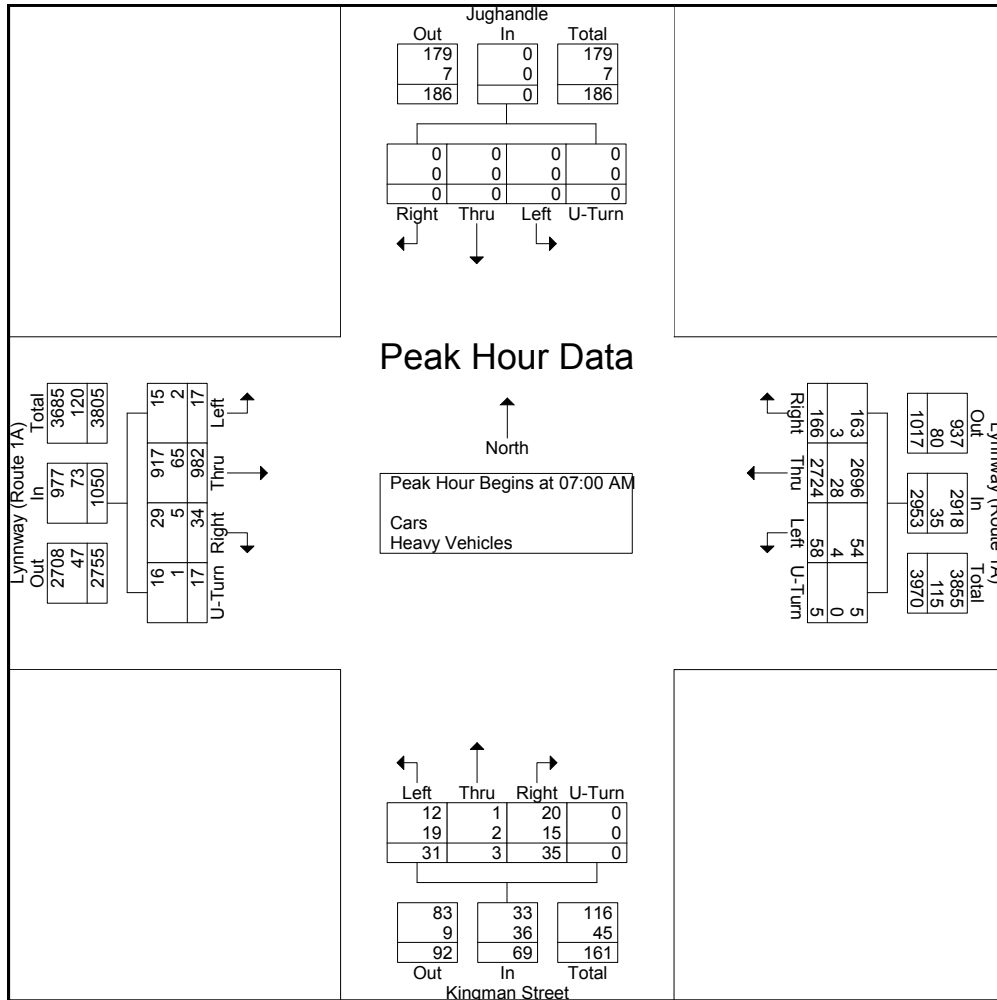
PRECISION
D A T A
INDUSTRIES, LLC

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Office: 508.481.3999 Fax: 508.545.1234
Email: datarequests@pdillc.com

N/S: Jughandle/Kingman Street
E/W: Lynnway (Route 1A)
City, State: Lynn, MA
Client: VHB/K. Keen

File Name : 144179 C
Site Code : 11942.03
Start Date : 11/18/2014
Page No : 1

| Start Time | Jughandle From North | | | | | Lynnway (Route 1A) From East | | | | | Kingman Street From South | | | | | Lynnway (Route 1A) From West | | | | | Int. Total |
|--|----------------------|------|------|--------|------------|------------------------------|------|------|--------|------------|---------------------------|------|------|--------|------------|------------------------------|------|------|--------|------------|------------|
| | Right | Thru | Left | U-Turn | App. Total | Right | Thru | Left | U-Turn | App. Total | Right | Thru | Left | U-Turn | App. Total | Right | Thru | Left | U-Turn | App. Total | |
| Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1 | | | | | | | | | | | | | | | | | | | | | |
| Peak Hour for Entire Intersection Begins at 07:00 AM | | | | | | | | | | | | | | | | | | | | | |
| 07:00 AM | 0 | 0 | 0 | 0 | 0 | 41 | 731 | 11 | 0 | 783 | 6 | 0 | 8 | 0 | 14 | 9 | 199 | 3 | 2 | 213 | 1010 |
| 07:15 AM | 0 | 0 | 0 | 0 | 0 | 44 | 725 | 12 | 0 | 781 | 11 | 2 | 11 | 0 | 24 | 8 | 218 | 5 | 1 | 232 | 1037 |
| 07:30 AM | 0 | 0 | 0 | 0 | 0 | 41 | 632 | 17 | 3 | 693 | 9 | 1 | 6 | 0 | 16 | 6 | 275 | 3 | 9 | 293 | 1002 |
| 07:45 AM | 0 | 0 | 0 | 0 | 0 | 40 | 636 | 18 | 2 | 696 | 9 | 0 | 6 | 0 | 15 | 11 | 290 | 6 | 5 | 312 | 1023 |
| Total Volume | 0 | 0 | 0 | 0 | 0 | 166 | 2724 | 58 | 5 | 2953 | 35 | 3 | 31 | 0 | 69 | 34 | 982 | 17 | 17 | 1050 | 4072 |
| % App. Total | .000 | .000 | .000 | .000 | .000 | .943 | .932 | .806 | .417 | .943 | .795 | .375 | .705 | .000 | .719 | .773 | .847 | .708 | .472 | .841 | .982 |
| PHF | .000 | .000 | .000 | .000 | .000 | .943 | .932 | .806 | .417 | .943 | .795 | .375 | .705 | .000 | .719 | .773 | .847 | .708 | .472 | .841 | .982 |
| Cars | 0 | 0 | 0 | 0 | 0 | 163 | 2696 | 54 | 5 | 2918 | 20 | 1 | 12 | 0 | 33 | 29 | 917 | 15 | 16 | 977 | 3928 |
| % Cars | 0 | 0 | 0 | 0 | 0 | 98.2 | 99.0 | 93.1 | 100 | 98.8 | 57.1 | 33.3 | 38.7 | 0 | 47.8 | 85.3 | 93.4 | 88.2 | 94.1 | 93.0 | 96.5 |
| Heavy Vehicles | 0 | 0 | 0 | 0 | 0 | 1.8 | 1.0 | 6.9 | 0 | 1.2 | 42.9 | 66.7 | 61.3 | 0 | 52.2 | 14.7 | 6.6 | 11.8 | 5.9 | 7.0 | 3.5 |
| % Heavy Vehicles | 0 | 0 | 0 | 0 | 0 | 1.8 | 1.0 | 6.9 | 0 | 1.2 | 42.9 | 66.7 | 61.3 | 0 | 52.2 | 14.7 | 6.6 | 11.8 | 5.9 | 7.0 | 3.5 |





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N/S: Jughandle/Kingman Street
E/W: Lynnway (Route 1A)
City, State: Lynn, MA
Client: VHB/K. Keen

File Name : 144179 CC
Site Code : 11942.03
Start Date : 11/18/2014
Page No : 1

Groups Printed- Cars - Heavy Vehicles

| Start Time | Jughandle From North | | | | Lynnway (Route 1A) From East | | | | Kingman Street From South | | | | Lynnway (Route 1A) From West | | | | Int. Total |
|------------------|----------------------|------|------|--------|------------------------------|------|------|--------|---------------------------|------|------|--------|------------------------------|------|------|--------|------------|
| | Right | Thru | Left | U-Turn | Right | Thru | Left | U-Turn | Right | Thru | Left | U-Turn | Right | Thru | Left | U-Turn | |
| 04:00 PM | 0 | 0 | 0 | 0 | 9 | 314 | 14 | 6 | 23 | 0 | 34 | 0 | 3 | 439 | 2 | 7 | 851 |
| 04:15 PM | 0 | 0 | 0 | 0 | 13 | 297 | 7 | 5 | 11 | 0 | 24 | 0 | 7 | 467 | 1 | 8 | 840 |
| 04:30 PM | 0 | 1 | 0 | 0 | 4 | 303 | 8 | 3 | 21 | 1 | 16 | 0 | 11 | 534 | 12 | 11 | 925 |
| 04:45 PM | 1 | 0 | 0 | 0 | 12 | 315 | 19 | 5 | 20 | 0 | 25 | 0 | 12 | 549 | 3 | 11 | 972 |
| Total | 1 | 1 | 0 | 0 | 38 | 1229 | 48 | 19 | 75 | 1 | 99 | 0 | 33 | 1989 | 18 | 37 | 3588 |
| 05:00 PM | 0 | 0 | 0 | 0 | 7 | 321 | 13 | 4 | 47 | 0 | 59 | 0 | 2 | 564 | 2 | 20 | 1039 |
| 05:15 PM | 0 | 0 | 0 | 0 | 8 | 345 | 10 | 4 | 17 | 1 | 33 | 0 | 3 | 609 | 3 | 10 | 1043 |
| 05:30 PM | 1 | 0 | 0 | 0 | 6 | 291 | 14 | 2 | 14 | 0 | 24 | 0 | 5 | 587 | 2 | 7 | 953 |
| 05:45 PM | 0 | 0 | 0 | 0 | 7 | 255 | 17 | 0 | 14 | 0 | 14 | 0 | 5 | 622 | 3 | 9 | 946 |
| Total | 1 | 0 | 0 | 0 | 28 | 1212 | 54 | 10 | 92 | 1 | 130 | 0 | 15 | 2382 | 10 | 46 | 3981 |
| Grand Total | 2 | 1 | 0 | 0 | 66 | 2441 | 102 | 29 | 167 | 2 | 229 | 0 | 48 | 4371 | 28 | 83 | 7569 |
| Apprch % | 66.7 | 33.3 | 0 | 0 | 2.5 | 92.5 | 3.9 | 1.1 | 42 | 0.5 | 57.5 | 0 | 1.1 | 96.5 | 0.6 | 1.8 | |
| Total % | 0 | 0 | 0 | 0 | 0.9 | 32.2 | 1.3 | 0.4 | 2.2 | 0 | 3 | 0 | 0.6 | 57.7 | 0.4 | 1.1 | |
| Cars | 2 | 1 | 0 | 0 | 65 | 2377 | 74 | 29 | 162 | 1 | 214 | 0 | 37 | 4321 | 25 | 83 | 7391 |
| % Cars | 100 | 100 | 0 | 0 | 98.5 | 97.4 | 72.5 | 100 | 97 | 50 | 93.4 | 0 | 77.1 | 98.9 | 89.3 | 100 | 97.6 |
| Heavy Vehicles | 0 | 0 | 0 | 0 | 1 | 64 | 28 | 0 | 5 | 1 | 15 | 0 | 11 | 50 | 3 | 0 | 178 |
| % Heavy Vehicles | 0 | 0 | 0 | 0 | 1.5 | 2.6 | 27.5 | 0 | 3 | 50 | 6.6 | 0 | 22.9 | 1.1 | 10.7 | 0 | 2.4 |

| Start Time | Jughandle From North | | | | | Lynnway (Route 1A) From East | | | | | Kingman Street From South | | | | | Lynnway (Route 1A) From West | | | | | Int. Total |
|--|----------------------|------|------|--------|------------|------------------------------|------|------|--------|------------|---------------------------|------|------|--------|------------|------------------------------|------|------|--------|------------|------------|
| | Right | Thru | Left | U-Turn | App. Total | Right | Thru | Left | U-Turn | App. Total | Right | Thru | Left | U-Turn | App. Total | Right | Thru | Left | U-Turn | App. Total | |
| Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1 | | | | | | | | | | | | | | | | | | | | | |
| Peak Hour for Entire Intersection Begins at 04:45 PM | | | | | | | | | | | | | | | | | | | | | |
| 04:45 PM | 1 | 0 | 0 | 0 | 1 | 12 | 315 | 19 | 5 | 351 | 20 | 0 | 25 | 0 | 45 | 12 | 549 | 3 | 11 | 575 | 972 |
| 05:00 PM | 0 | 0 | 0 | 0 | 0 | 7 | 321 | 13 | 4 | 345 | 47 | 0 | 59 | 0 | 106 | 2 | 564 | 2 | 20 | 588 | 1039 |
| 05:15 PM | 0 | 0 | 0 | 0 | 0 | 8 | 345 | 10 | 4 | 367 | 17 | 1 | 33 | 0 | 51 | 3 | 609 | 3 | 10 | 625 | 1043 |
| 05:30 PM | 1 | 0 | 0 | 0 | 1 | 6 | 291 | 14 | 2 | 313 | 14 | 0 | 24 | 0 | 38 | 5 | 587 | 2 | 7 | 601 | 953 |
| Total Volume | 2 | 0 | 0 | 0 | 2 | 33 | 1272 | 56 | 15 | 1376 | 98 | 1 | 141 | 0 | 240 | 22 | 2309 | 10 | 48 | 2389 | 4007 |
| % App. Total | | | | | | | | | | | | | | | | | | | | | |
| PHF | .500 | .000 | .000 | .000 | .500 | .688 | .922 | .737 | .750 | .937 | .521 | .250 | .597 | .000 | .566 | .458 | .948 | .833 | .600 | .956 | .960 |
| Cars | 2 | 0 | 0 | 0 | 2 | 32 | 1241 | 42 | 15 | 1330 | 95 | 0 | 135 | 0 | 230 | 16 | 2286 | 10 | 48 | 2360 | 3922 |
| % Cars | 100 | 0 | 0 | 0 | 100 | 97.0 | 97.6 | 75.0 | 100 | 96.7 | 96.9 | 0 | 95.7 | 0 | 95.8 | 72.7 | 99.0 | 100 | 100 | 98.8 | 97.9 |
| Heavy Vehicles | 0 | 0 | 0 | 0 | 0 | 3.0 | 2.4 | 25.0 | 0 | 3.3 | 3.1 | 100 | 4.3 | 0 | 4.2 | 27.3 | 1.0 | 0 | 0 | 1.2 | 2.1 |
| % Heavy Vehicles | 0 | 0 | 0 | 0 | 0 | 3.0 | 2.4 | 25.0 | 0 | 3.3 | 3.1 | 100 | 4.3 | 0 | 4.2 | 27.3 | 1.0 | 0 | 0 | 1.2 | 2.1 |



PRECISION
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Email: datarequests@pdillc.com

N/S: Jughandle/Kingman Street
E/W: Lynnway (Route 1A)
City, State: Lynn, MA
Client: VHB/K. Keen

File Name : 144179 CC
Site Code : 11942.03
Start Date : 11/18/2014
Page No : 1

Groups Printed- Cars

| Start Time | Jughandle From North | | | | Lynnway (Route 1A) From East | | | | Kingman Street From South | | | | Lynnway (Route 1A) From West | | | | Int. Total |
|-------------|----------------------|------|------|--------|------------------------------|------|------|--------|---------------------------|------|------|--------|------------------------------|------|------|--------|------------|
| | Right | Thru | Left | U-Turn | Right | Thru | Left | U-Turn | Right | Thru | Left | U-Turn | Right | Thru | Left | U-Turn | |
| 04:00 PM | 0 | 0 | 0 | 0 | 9 | 304 | 11 | 6 | 23 | 0 | 30 | 0 | 3 | 434 | 2 | 7 | 829 |
| 04:15 PM | 0 | 0 | 0 | 0 | 13 | 285 | 7 | 5 | 11 | 0 | 21 | 0 | 5 | 457 | 0 | 8 | 812 |
| 04:30 PM | 0 | 1 | 0 | 0 | 4 | 294 | 5 | 3 | 20 | 1 | 14 | 0 | 10 | 529 | 10 | 11 | 902 |
| 04:45 PM | 1 | 0 | 0 | 0 | 12 | 309 | 14 | 5 | 20 | 0 | 25 | 0 | 11 | 542 | 3 | 11 | 953 |
| Total | 1 | 1 | 0 | 0 | 38 | 1192 | 37 | 19 | 74 | 1 | 90 | 0 | 29 | 1962 | 15 | 37 | 3496 |
| 05:00 PM | 0 | 0 | 0 | 0 | 6 | 313 | 11 | 4 | 46 | 0 | 55 | 0 | 1 | 559 | 2 | 20 | 1017 |
| 05:15 PM | 0 | 0 | 0 | 0 | 8 | 336 | 9 | 4 | 15 | 0 | 32 | 0 | 1 | 605 | 3 | 10 | 1023 |
| 05:30 PM | 1 | 0 | 0 | 0 | 6 | 283 | 8 | 2 | 14 | 0 | 23 | 0 | 3 | 580 | 2 | 7 | 929 |
| 05:45 PM | 0 | 0 | 0 | 0 | 7 | 253 | 9 | 0 | 13 | 0 | 14 | 0 | 3 | 615 | 3 | 9 | 926 |
| Total | 1 | 0 | 0 | 0 | 27 | 1185 | 37 | 10 | 88 | 0 | 124 | 0 | 8 | 2359 | 10 | 46 | 3895 |
| Grand Total | 2 | 1 | 0 | 0 | 65 | 2377 | 74 | 29 | 162 | 1 | 214 | 0 | 37 | 4321 | 25 | 83 | 7391 |
| Apprch % | 66.7 | 33.3 | 0 | 0 | 2.6 | 93.4 | 2.9 | 1.1 | 43 | 0.3 | 56.8 | 0 | 0.8 | 96.8 | 0.6 | 1.9 | |
| Total % | 0 | 0 | 0 | 0 | 0.9 | 32.2 | 1 | 0.4 | 2.2 | 0 | 2.9 | 0 | 0.5 | 58.5 | 0.3 | 1.1 | |

| Start Time | Jughandle From North | | | | | Lynnway (Route 1A) From East | | | | | Kingman Street From South | | | | | Lynnway (Route 1A) From West | | | | | Int. Total |
|--|----------------------|------|------|--------|------------|------------------------------|------|------|--------|------------|---------------------------|------|------|--------|------------|------------------------------|------|------|--------|------------|------------|
| | Right | Thru | Left | U-Turn | App. Total | Right | Thru | Left | U-Turn | App. Total | Right | Thru | Left | U-Turn | App. Total | Right | Thru | Left | U-Turn | App. Total | |
| Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1 | | | | | | | | | | | | | | | | | | | | | |
| Peak Hour for Entire Intersection Begins at 04:45 PM | | | | | | | | | | | | | | | | | | | | | |
| 04:45 PM | 1 | 0 | 0 | 0 | 1 | 12 | 309 | 14 | 5 | 340 | 20 | 0 | 25 | 0 | 45 | 11 | 542 | 3 | 11 | 567 | 953 |
| 05:00 PM | 0 | 0 | 0 | 0 | 0 | 6 | 313 | 11 | 4 | 334 | 46 | 0 | 55 | 0 | 101 | 1 | 559 | 2 | 20 | 582 | 1017 |
| 05:15 PM | 0 | 0 | 0 | 0 | 0 | 8 | 336 | 9 | 4 | 357 | 15 | 0 | 32 | 0 | 47 | 1 | 605 | 3 | 10 | 619 | 1023 |
| 05:30 PM | 1 | 0 | 0 | 0 | 1 | 6 | 283 | 8 | 2 | 299 | 14 | 0 | 23 | 0 | 37 | 3 | 580 | 2 | 7 | 592 | 929 |
| Total Volume | 2 | 0 | 0 | 0 | 2 | 32 | 1241 | 42 | 15 | 1330 | 95 | 0 | 135 | 0 | 230 | 16 | 2286 | 10 | 48 | 2360 | 3922 |
| % App. Total | | | | | | | | | | | | | | | | | | | | | |
| PHF | .500 | .000 | .000 | .000 | .500 | .667 | .923 | .750 | .750 | .931 | .516 | .000 | .614 | .000 | .569 | .364 | .945 | .833 | .600 | .953 | .958 |



PRECISION
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File Name : 144179 CC
Site Code : 11942.03
Start Date : 11/18/2014
Page No : 1

N/S: Jughandle/Kingman Street
E/W: Lynnway (Route 1A)
City, State: Lynn, MA
Client: VHB/K. Keen

Groups Printed- Heavy Vehicles

| Start Time | Jughandle From North | | | | Lynnway (Route 1A) From East | | | | Kingman Street From South | | | | Lynnway (Route 1A) From West | | | | Int. Total |
|-------------|----------------------|------|------|--------|------------------------------|------|------|--------|---------------------------|------|------|--------|------------------------------|------|------|--------|------------|
| | Right | Thru | Left | U-Turn | Right | Thru | Left | U-Turn | Right | Thru | Left | U-Turn | Right | Thru | Left | U-Turn | |
| 04:00 PM | 0 | 0 | 0 | 0 | 0 | 10 | 3 | 0 | 0 | 0 | 4 | 0 | 0 | 5 | 0 | 0 | 22 |
| 04:15 PM | 0 | 0 | 0 | 0 | 0 | 12 | 0 | 0 | 0 | 0 | 3 | 0 | 2 | 10 | 1 | 0 | 28 |
| 04:30 PM | 0 | 0 | 0 | 0 | 0 | 9 | 3 | 0 | 1 | 0 | 2 | 0 | 1 | 5 | 2 | 0 | 23 |
| 04:45 PM | 0 | 0 | 0 | 0 | 0 | 6 | 5 | 0 | 0 | 0 | 0 | 0 | 1 | 7 | 0 | 0 | 19 |
| Total | 0 | 0 | 0 | 0 | 0 | 37 | 11 | 0 | 1 | 0 | 9 | 0 | 4 | 27 | 3 | 0 | 92 |
| 05:00 PM | 0 | 0 | 0 | 0 | 1 | 8 | 2 | 0 | 1 | 0 | 4 | 0 | 1 | 5 | 0 | 0 | 22 |
| 05:15 PM | 0 | 0 | 0 | 0 | 0 | 9 | 1 | 0 | 2 | 1 | 1 | 0 | 2 | 4 | 0 | 0 | 20 |
| 05:30 PM | 0 | 0 | 0 | 0 | 0 | 8 | 6 | 0 | 0 | 0 | 1 | 0 | 2 | 7 | 0 | 0 | 24 |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 2 | 8 | 0 | 1 | 0 | 0 | 0 | 2 | 7 | 0 | 0 | 20 |
| Total | 0 | 0 | 0 | 0 | 1 | 27 | 17 | 0 | 4 | 1 | 6 | 0 | 7 | 23 | 0 | 0 | 86 |
| Grand Total | 0 | 0 | 0 | 0 | 1 | 64 | 28 | 0 | 5 | 1 | 15 | 0 | 11 | 50 | 3 | 0 | 178 |
| Apprch % | 0 | 0 | 0 | 0 | 1.1 | 68.8 | 30.1 | 0 | 23.8 | 4.8 | 71.4 | 0 | 17.2 | 78.1 | 4.7 | 0 | |
| Total % | 0 | 0 | 0 | 0 | 0.6 | 36 | 15.7 | 0 | 2.8 | 0.6 | 8.4 | 0 | 6.2 | 28.1 | 1.7 | 0 | |

| Start Time | Jughandle From North | | | | | Lynnway (Route 1A) From East | | | | | Kingman Street From South | | | | | Lynnway (Route 1A) From West | | | | | Int. Total |
|--|----------------------|------|------|--------|------------|------------------------------|------|------|--------|------------|---------------------------|------|------|--------|------------|------------------------------|------|------|--------|------------|------------|
| | Right | Thru | Left | U-Turn | App. Total | Right | Thru | Left | U-Turn | App. Total | Right | Thru | Left | U-Turn | App. Total | Right | Thru | Left | U-Turn | App. Total | |
| Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1 | | | | | | | | | | | | | | | | | | | | | |
| Peak Hour for Entire Intersection Begins at 04:00 PM | | | | | | | | | | | | | | | | | | | | | |
| 04:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 10 | 3 | 0 | 13 | 0 | 0 | 4 | 0 | 4 | 0 | 5 | 0 | 0 | 5 | 22 |
| 04:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 12 | 0 | 0 | 12 | 0 | 0 | 3 | 0 | 3 | 2 | 10 | 1 | 0 | 13 | 28 |
| 04:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 9 | 3 | 0 | 12 | 1 | 0 | 2 | 0 | 3 | 1 | 5 | 2 | 0 | 8 | 23 |
| 04:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 6 | 5 | 0 | 11 | 0 | 0 | 0 | 0 | 0 | 1 | 7 | 0 | 0 | 8 | 19 |
| Total Volume | 0 | 0 | 0 | 0 | 0 | 0 | 37 | 11 | 0 | 48 | 1 | 0 | 9 | 0 | 10 | 4 | 27 | 3 | 0 | 34 | 92 |
| % App. Total | 0 | 0 | 0 | 0 | 0 | 0 | 77.1 | 22.9 | 0 | | 10 | 0 | 90 | 0 | | 11.8 | 79.4 | 8.8 | 0 | | |
| PHF | .000 | .000 | .000 | .000 | .000 | .000 | .771 | .550 | .000 | .923 | .250 | .000 | .563 | .000 | .625 | .500 | .675 | .375 | .000 | .654 | .821 |



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N/S: Jughandle/Kingman Street
E/W: Lynnway (Route 1A)
City, State: Lynn, MA
Client: VHB/K. Keen

File Name : 144179 CC
Site Code : 11942.03
Start Date : 11/18/2014
Page No : 1

Groups Printed- Peds and Bikes

| Start Time | Jughandle From North | | | | | Lynnway (Route 1A) From East | | | | | Kingman Street From South | | | | | Lynnway (Route 1A) From West | | | | | Int. Total |
|-------------|----------------------|------|------|---------|---------|------------------------------|------|------|---------|---------|---------------------------|------|------|---------|---------|------------------------------|------|------|---------|---------|------------|
| | Right | Thru | Left | Peds EB | Peds WB | Right | Thru | Left | Peds SB | Peds NB | Right | Thru | Left | Peds WB | Peds EB | Right | Thru | Left | Peds NB | Peds SB | |
| 04:00 PM | 0 | 0 | 0 | 2 | 4 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 8 |
| 04:15 PM | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| 04:30 PM | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 6 |
| 04:45 PM | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| Total | 0 | 0 | 0 | 5 | 6 | 0 | 0 | 0 | 2 | 2 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 18 |
| 05:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| 05:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 2 |
| 05:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 2 |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 5 |
| Total | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 6 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 2 | 0 | 11 |
| Grand Total | 0 | 0 | 0 | 5 | 6 | 0 | 0 | 0 | 3 | 8 | 0 | 0 | 0 | 1 | 4 | 0 | 0 | 0 | 2 | 0 | 29 |
| Apprch % | 0 | 0 | 0 | 45.5 | 54.5 | 0 | 0 | 0 | 27.3 | 72.7 | 0 | 0 | 0 | 20 | 80 | 0 | 0 | 0 | 100 | 0 | |
| Total % | 0 | 0 | 0 | 17.2 | 20.7 | 0 | 0 | 0 | 10.3 | 27.6 | 0 | 0 | 0 | 3.4 | 13.8 | 0 | 0 | 0 | 6.9 | 0 | |

| Start Time | Jughandle From North | | | | | | Lynnway (Route 1A) From East | | | | | | Kingman Street From South | | | | | | Lynnway (Route 1A) From West | | | | | | Int. Total | | | | | | | |
|--|----------------------|------|------|---------|---------|------------|------------------------------|------|------|---------|---------|------------|---------------------------|------|------|---------|---------|------------|------------------------------|------|------|---------|---------|------------|------------|------|------|------|------|------|----|--|
| | Right | Thru | Left | Peds EB | Peds WB | App. Total | Right | Thru | Left | Peds SB | Peds NB | App. Total | Right | Thru | Left | Peds WB | Peds EB | App. Total | Right | Thru | Left | Peds NB | Peds SB | App. Total | | | | | | | | |
| Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Peak Hour for Entire Intersection Begins at 04:00 PM | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 04:00 PM | 0 | 0 | 0 | 2 | 4 | 6 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 8 | |
| 04:15 PM | 0 | 0 | 0 | 2 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | |
| 04:30 PM | 0 | 0 | 0 | 0 | 2 | 2 | 0 | 0 | 0 | 0 | 2 | 2 | 0 | 0 | 0 | 0 | 2 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6 | |
| 04:45 PM | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | |
| Total Volume | 0 | 0 | 0 | 5 | 6 | 11 | 0 | 0 | 0 | 2 | 2 | 4 | 0 | 0 | 0 | 0 | 3 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 18 | |
| % App. Total | 0 | 0 | 0 | 45.5 | 54.5 | 0 | 0 | 0 | 50 | 50 | 0 | 0 | 0 | 0 | 100 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| PHF | .000 | .000 | .000 | .625 | .375 | .458 | .000 | .000 | .000 | .500 | .250 | .500 | .000 | .000 | .000 | .000 | .375 | .375 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .563 | | |



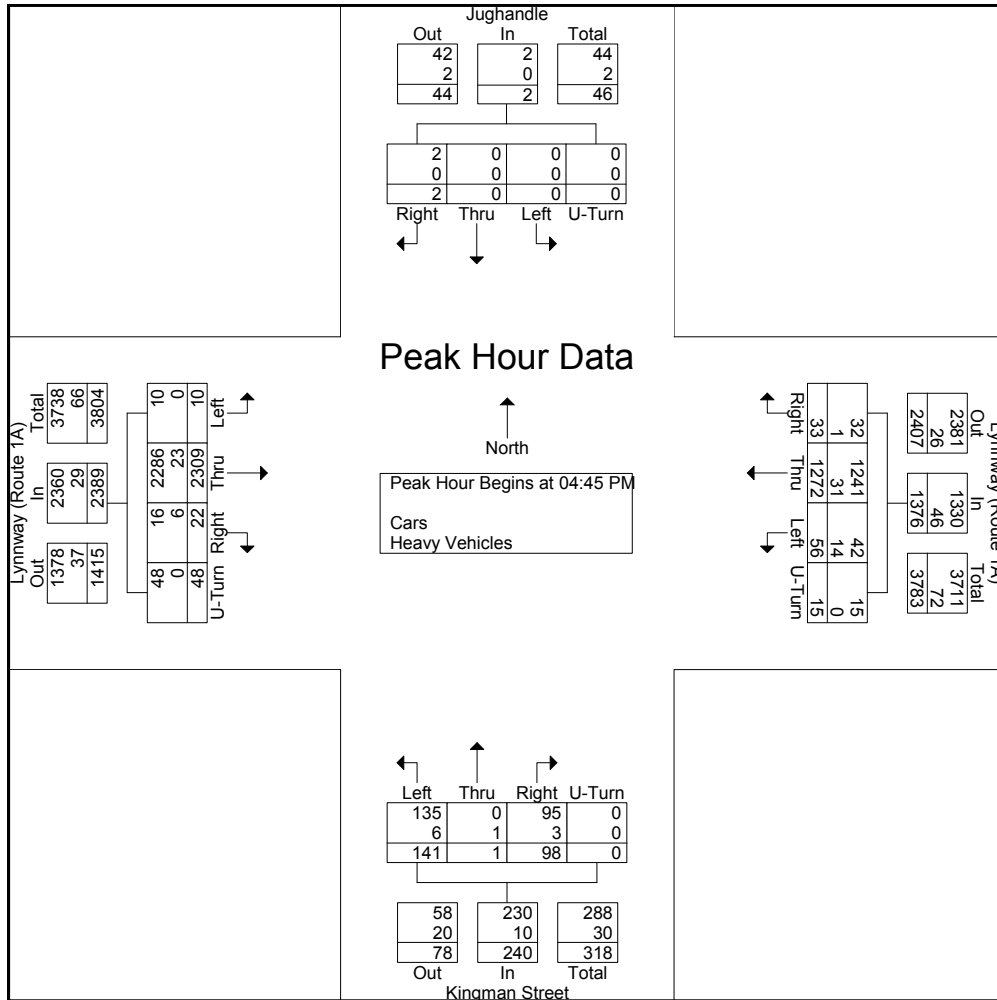
PRECISION
D A T A
INDUSTRIES, LLC

P.O. Box 301 Berlin, MA 01503
Office: 508.481.3999 Fax: 508.545.1234
Email: datarequests@pdillc.com

N/S: Jughandle/Kingman Street
E/W: Lynnway (Route 1A)
City, State: Lynn, MA
Client: VHB/K. Keen

File Name : 144179 CC
Site Code : 11942.03
Start Date : 11/18/2014
Page No : 1

| Start Time | Jughandle From North | | | | | Lynnway (Route 1A) From East | | | | | Kingman Street From South | | | | | Lynnway (Route 1A) From West | | | | | Int. Total |
|--|----------------------|------|------|--------|------------|------------------------------|------|------|--------|------------|---------------------------|------|------|--------|------------|------------------------------|------|------|--------|------------|------------|
| | Right | Thru | Left | U-Turn | App. Total | Right | Thru | Left | U-Turn | App. Total | Right | Thru | Left | U-Turn | App. Total | Right | Thru | Left | U-Turn | App. Total | |
| Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1 | | | | | | | | | | | | | | | | | | | | | |
| Peak Hour for Entire Intersection Begins at 04:45 PM | | | | | | | | | | | | | | | | | | | | | |
| 04:45 PM | 1 | 0 | 0 | 0 | 1 | 12 | 315 | 19 | 5 | 351 | 20 | 0 | 25 | 0 | 45 | 12 | 549 | 3 | 11 | 575 | 972 |
| 05:00 PM | 0 | 0 | 0 | 0 | 0 | 7 | 321 | 13 | 4 | 345 | 47 | 0 | 59 | 0 | 106 | 2 | 564 | 2 | 20 | 588 | 1039 |
| 05:15 PM | 0 | 0 | 0 | 0 | 0 | 8 | 345 | 10 | 4 | 367 | 17 | 1 | 33 | 0 | 51 | 3 | 609 | 3 | 10 | 625 | 1043 |
| 05:30 PM | 1 | 0 | 0 | 0 | 1 | 6 | 291 | 14 | 2 | 313 | 14 | 0 | 24 | 0 | 38 | 5 | 587 | 2 | 7 | 601 | 953 |
| Total Volume | 2 | 0 | 0 | 0 | 2 | 33 | 1272 | 56 | 15 | 1376 | 98 | 1 | 141 | 0 | 240 | 22 | 2309 | 10 | 48 | 2389 | 4007 |
| % App. Total | .500 | .000 | .000 | .000 | .500 | .688 | .922 | .737 | .750 | .937 | .521 | .250 | .597 | .000 | .566 | .458 | .948 | .833 | .600 | .956 | .960 |
| Cars | 2 | 0 | 0 | 0 | 2 | 32 | 1241 | 42 | 15 | 1330 | 95 | 0 | 135 | 0 | 230 | 16 | 2286 | 10 | 48 | 2360 | 3922 |
| % Cars | 100 | 0 | 0 | 0 | 100 | 97.0 | 97.6 | 75.0 | 100 | 96.7 | 96.9 | 0 | 95.7 | 0 | 95.8 | 72.7 | 99.0 | 100 | 100 | 98.8 | 97.9 |
| Heavy Vehicles | 0 | 0 | 0 | 0 | 0 | 3.0 | 2.4 | 25.0 | 0 | 3.3 | 3.1 | 100 | 4.3 | 0 | 4.2 | 27.3 | 1.0 | 0 | 0 | 1.2 | 2.1 |
| % Heavy Vehicles | 0 | 0 | 0 | 0 | 0 | 3.0 | 2.4 | 25.0 | 0 | 3.3 | 3.1 | 100 | 4.3 | 0 | 4.2 | 27.3 | 1.0 | 0 | 0 | 1.2 | 2.1 |



2014 Lynn to Boston Ferry Schedule

Lynn to Boston Ferry Schedule

Monday through Friday Service

May 19, 2014 through September 12, 2014

Inbound

Depart Lynn (Blossom Street) Arrive Boston (Central Wharf)

| | |
|---------|---------|
| 6:30 am | 7:05 am |
| 8:00 am | 8:35 am |
| 6:30 pm | 7:05 pm |

Outbound

Depart Boston (Central Wharf) Arrive Lynn (Blossom Street)

| | |
|---------|---------|
| 7:15 am | 7:45 am |
| 5:45 pm | 6:20 pm |
| 7:15 pm | 7:50 pm |



Rates

One way: \$7.00

Children (3-12) and Seniors: \$3.50

Children under three years of age and under: FREE

MBTA Zone 2 pass or higher



Lynn Commuter Ferry Ridership Data

BOSTON HARBOR CRUISES
RIDERSHIP BY DAY OF THE WEEK BY TIME
THE LYNN FERRY

September-14

| DEPARTING | mon 9/1 | tue 9/2 | wed 9/3 | thu 9/4 | thu 9/4 | fri 9/5 | mon 9/8 | tue 9/9 | wed 9/10 | thu 9/11 | fri 9/12 | mon 9/15 | tue 9/16 | wed 9/17 | thu 9/18 | fri 9/19 | mon 9/22 | tue 9/23 | wed 9/24 | thu 9/25 | fri 9/26 | mon 9/29 | tue 9/30 | TOTAL |
|-----------------------|------------|------------|------------|------------|------------|------------|------------|------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------|
| 06:30 AM | 18 | 24 | 24 | 23 | 16 | 15 | 15 | 18 | 17 | 18 | 18 | 16 | 19 | 15 | 13 | 19 | 15 | 12 | 15 | 9 | 15 | 15 | 0 | 312 |
| 08:00 AM | 48 | 51 | 51 | 54 | 49 | 45 | 48 | 40 | 37 | 47 | 47 | 48 | 37 | 42 | 35 | 56 | 43 | 37 | 47 | 36 | 41 | 41 | 0 | 841 |
| 06:30 PM | 0 | 2 | 2 | 5 | 8 | 9 | 4 | 2 | 7 | 13 | 13 | 0 | 0 | 0 | 0 | 3 | 0 | 6 | 0 | 0 | 7 | 0 | 0 | 66 |
| Total Lynn Departures | 0 | 66 | 77 | 82 | 73 | 69 | 67 | 60 | 61 | 61 | 78 | 64 | 56 | 57 | 48 | 78 | 58 | 55 | 62 | 45 | 63 | 0 | 0 | 1,219 |

| DEPARTING | 9/1 | 9/2 | 9/3 | 9/4 | 9/5 | 9/8 | 9/9 | 9/10 | 9/11 | 9/12 | 9/15 | 9/16 | 9/17 | 9/18 | 9/19 | 9/22 | 9/23 | 9/24 | 9/25 | 9/26 | 9/29 | 9/30 | TOTAL |
|-------------------------|-----|-----|-----|-----|-----|-----|-----|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|-------|
| 07:15 AM | 4 | 4 | 4 | 0 | 3 | 3 | 3 | 1 | 0 | 1 | 0 | 1 | 1 | 0 | 2 | 1 | 0 | 2 | 1 | 3 | 0 | 0 | 30 |
| 05:45 PM | 64 | 54 | 54 | 57 | 57 | 49 | 47 | 40 | 49 | 60 | 41 | 41 | 46 | 35 | 61 | 52 | 49 | 43 | 39 | 41 | 41 | 0 | 925 |
| 07:15 PM | 9 | 22 | 22 | 20 | 18 | 30 | 10 | 13 | 13 | 21 | 13 | 12 | 10 | 14 | 6 | 6 | 10 | 8 | 3 | 17 | 17 | 0 | 255 |
| Total Boston Departures | 0 | 77 | 80 | 77 | 78 | 82 | 60 | 54 | 62 | 82 | 54 | 54 | 57 | 49 | 69 | 59 | 59 | 53 | 43 | 61 | 0 | 0 | 1,210 |

| | | | | | | | | | | | | | | | | | | | | | | | |
|--------------|---|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|----|-----|-----|-----|-----|----|-----|---|---|-------|
| TOTAL RIDERS | 0 | 143 | 157 | 159 | 151 | 151 | 127 | 114 | 123 | 160 | 118 | 110 | 114 | 97 | 147 | 117 | 114 | 115 | 88 | 124 | 0 | 0 | 2,429 |
|--------------|---|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|----|-----|-----|-----|-----|----|-----|---|---|-------|

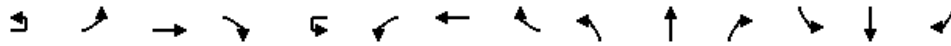
| | | | | | | | | | | | | | | | | | | | | | | | |
|---------------|---|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|---|---|-------|
| Subtotal A.M. | 0 | 70 | 79 | 77 | 68 | 63 | 66 | 59 | 54 | 66 | 64 | 57 | 58 | 48 | 77 | 59 | 49 | 64 | 46 | 59 | 0 | 0 | 1,183 |
| Subtotal P.M. | 0 | 73 | 78 | 82 | 83 | 88 | 61 | 55 | 69 | 94 | 54 | 53 | 56 | 49 | 70 | 58 | 65 | 51 | 42 | 65 | 0 | 0 | 1,246 |

| | | | | |
|------------------|-----|-----|-----|-----|
| Weekly Ridership | 610 | 675 | 586 | 558 |
|------------------|-----|-----|-----|-----|

END DATE EXTENDED PERIOD

Cumulative ridership from inception 13,136

Intersection Capacity Analyses



| Lane Group | EBU | EBL | EBT | EBR | WBU | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|-------------------------|-------|-------|-------|------|-------|-------|-------|------|-------|-------|------|-------|-------|------|
| Lane Configurations | | ↔ | ↔↔↔ | | | ↔ | ↔↔↔ | | | ↔ | | | ↔ | |
| Volume (vph) | 5 | 35 | 1040 | 15 | 75 | 5 | 2395 | 50 | 10 | 10 | 10 | 25 | 0 | 20 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Storage Length (ft) | | 200 | | 0 | | 350 | | 0 | 0 | | 0 | 0 | | 0 |
| Storage Lanes | | 1 | | 0 | | 1 | | 0 | 0 | | 0 | 0 | | 0 |
| Taper Length (ft) | | 25 | | | | 25 | | | 25 | | | 25 | | |
| Satd. Flow (prot) | 0 | 1687 | 4836 | 0 | 0 | 1770 | 5067 | 0 | 0 | 1056 | 0 | 0 | 1328 | 0 |
| Fit Permitted | | 0.950 | | | | 0.950 | | | | 0.871 | | | 0.802 | |
| Satd. Flow (perm) | 0 | 1686 | 4836 | 0 | 0 | 1767 | 5067 | 0 | 0 | 934 | 0 | 0 | 1094 | 0 |
| Right Turn on Red | | | | Yes | | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | | 3 | | | | 4 | | | 15 | | | 65 | |
| Link Speed (mph) | | | 30 | | | | 30 | | | 30 | | | 30 | |
| Link Distance (ft) | | | 520 | | | | 631 | | | 362 | | | 232 | |
| Travel Time (s) | | | 11.8 | | | | 14.3 | | | 8.2 | | | 5.3 | |
| Confl. Peds. (#/hr) | | 8 | | 3 | | 3 | | 8 | 2 | | | | | 2 |
| Peak Hour Factor | 0.83 | 0.83 | 0.83 | 0.83 | 0.94 | 0.94 | 0.94 | 0.94 | 0.65 | 0.65 | 0.65 | 1.00 | 1.00 | 1.00 |
| Heavy Vehicles (%) | 7% | 7% | 7% | 7% | 2% | 2% | 2% | 2% | 69% | 69% | 69% | 30% | 30% | 30% |
| Shared Lane Traffic (%) | | | | | | | | | | | | | | |
| Lane Group Flow (vph) | 0 | 48 | 1271 | 0 | 0 | 85 | 2601 | 0 | 0 | 45 | 0 | 0 | 45 | 0 |
| Turn Type | Prot | Prot | NA | | Prot | Prot | NA | | Perm | NA | | Perm | NA | |
| Protected Phases | 1 | 1 | 6 | | 5 | 5 | 2 | | | 4 | | | 4 | |
| Permitted Phases | | | | | | | | | 4 | | | 4 | | 4 |
| Detector Phase | 1 | 1 | 6 | | 5 | 5 | 2 | | 4 | 4 | | 4 | 4 | |
| Switch Phase | | | | | | | | | | | | | | |
| Minimum Initial (s) | 7.0 | 7.0 | 15.0 | | 7.0 | 7.0 | 15.0 | | 7.0 | 7.0 | | 7.0 | 7.0 | |
| Minimum Split (s) | 12.0 | 12.0 | 20.0 | | 12.0 | 12.0 | 20.0 | | 27.0 | 27.0 | | 27.0 | 27.0 | |
| Total Split (s) | 25.0 | 25.0 | 65.0 | | 25.0 | 25.0 | 65.0 | | 27.0 | 27.0 | | 27.0 | 27.0 | |
| Total Split (%) | 21.4% | 21.4% | 55.6% | | 21.4% | 21.4% | 55.6% | | 23.1% | 23.1% | | 23.1% | 23.1% | |
| Yellow Time (s) | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| All-Red Time (s) | 2.0 | 2.0 | 2.0 | | 2.0 | 2.0 | 2.0 | | 2.0 | 2.0 | | 2.0 | 2.0 | |
| Lost Time Adjust (s) | | 0.0 | 0.0 | | | 0.0 | 0.0 | | | 0.0 | | | 0.0 | |
| Total Lost Time (s) | | 5.0 | 5.0 | | | 5.0 | 5.0 | | | 6.0 | | | 6.0 | |
| Lead/Lag | Lead | Lead | Lag | | Lead | Lead | Lag | | | | | | | |
| Lead-Lag Optimize? | | | | | | | | | | | | | | |
| Recall Mode | None | None | Max | | None | None | Max | | None | None | | None | None | |
| Act Effect Green (s) | | 8.0 | 65.4 | | | 9.3 | 69.2 | | | 10.0 | | | 10.0 | |
| Actuated g/C Ratio | | 0.09 | 0.70 | | | 0.10 | 0.74 | | | 0.11 | | | 0.11 | |
| v/c Ratio | | 0.34 | 0.38 | | | 0.49 | 0.70 | | | 0.40 | | | 0.26 | |
| Control Delay | | 50.0 | 9.2 | | | 51.6 | 12.3 | | | 40.0 | | | 8.6 | |
| Queue Delay | | 0.0 | 0.0 | | | 0.0 | 0.0 | | | 0.0 | | | 0.0 | |
| Total Delay | | 50.0 | 9.2 | | | 51.6 | 12.3 | | | 40.0 | | | 8.6 | |
| LOS | | D | A | | | D | B | | | D | | | A | |
| Approach Delay | | | 10.7 | | | | 13.5 | | | 40.0 | | | 8.6 | |
| Approach LOS | | | B | | | | B | | | D | | | A | |
| Queue Length 50th (ft) | | 27 | 114 | | | 48 | 330 | | | 17 | | | 0 | |
| Queue Length 95th (ft) | | 65 | 208 | | | 107 | 648 | | | 34 | | | 19 | |
| Internal Link Dist (ft) | | | 440 | | | | 551 | | | 282 | | | 152 | |
| Turn Bay Length (ft) | | 200 | | | | 350 | | | | | | | | |
| Base Capacity (vph) | | 363 | 3370 | | | 381 | 3739 | | | 223 | | | 298 | |
| Starvation Cap Reductn | | 0 | 0 | | | 0 | 0 | | | 0 | | | 0 | |
| Spillback Cap Reductn | | 0 | 0 | | | 0 | 0 | | | 0 | | | 0 | |
| Storage Cap Reductn | | 0 | 0 | | | 0 | 0 | | | 0 | | | 0 | |
| Reduced v/c Ratio | | 0.13 | 0.38 | | | 0.22 | 0.70 | | | 0.20 | | | 0.15 | |

Intersection Summary

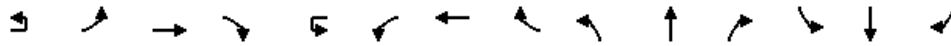
Area Type: Other
 Cycle Length: 117
 Actuated Cycle Length: 93.8
 Natural Cycle: 90
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.70
 Intersection Signal Delay: 12.9
 Intersection Capacity Utilization 73.2%
 Analysis Period (min) 15
 Intersection LOS: B
 ICU Level of Service D

Splits and Phases: 1: Marine Boulevard/Shepard Street & Lynnway (Route 1A)

| | | |
|------------|------------|------------|
| φ1 25 s | φ2 65 s | φ4 27 s |
| φ5 25 s | φ6 65 s | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|-----------------------------------|-------------|-------------|-------------|-------------|----------------------|-------------|-------------|-------------|-------------|------|------|------|
| Lane Configurations | | ↑↑↑ | | | ↑↑↑ | | | | ↑ | | | ↑ |
| Volume (veh/h) | 0 | 1005 | 145 | 0 | 2550 | 145 | 0 | 0 | 75 | 0 | 0 | 40 |
| Sign Control | | Free | | | Free | | | Stop | | | Stop | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Peak Hour Factor | 0.83 | 0.83 | 0.83 | 0.95 | 0.95 | 0.95 | 0.75 | 0.75 | 0.75 | 0.68 | 0.68 | 0.68 |
| Hourly flow rate (vph) | 0 | 1211 | 175 | 0 | 2684 | 153 | 0 | 0 | 100 | 0 | 0 | 59 |
| Pedestrians | | 3 | | | 1 | | | 1 | | | 10 | |
| Lane Width (ft) | | 12.0 | | | 12.0 | | | 12.0 | | | 12.0 | |
| Walking Speed (ft/s) | | 4.0 | | | 4.0 | | | 4.0 | | | 4.0 | |
| Percent Blockage | | 0 | | | 0 | | | 0 | | | 1 | |
| Right turn flare (veh) | | | | | | | | | | | | |
| Median type | | None | | | None | | | | | | | |
| Median storage (veh) | | | | | | | | | | | | |
| Upstream signal (ft) | | 631 | | | 594 | | | | | | | |
| pX, platoon unblocked | 0.44 | | | 0.95 | | | 0.46 | 0.46 | 0.95 | 0.46 | 0.46 | 0.44 |
| vC, conflicting volume | 2847 | | | 1387 | | | 2256 | 4146 | 392 | 3174 | 4157 | 984 |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 745 | | | 1168 | | | 0 | 2928 | 126 | 829 | 2952 | 0 |
| tC, single (s) | 4.2 | | | 4.1 | | | 7.7 | 6.7 | 7.1 | 7.6 | 6.6 | 7.0 |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 2.3 | | | 2.2 | | | 3.6 | 4.1 | 3.4 | 3.6 | 4.1 | 3.4 |
| p0 queue free % | 100 | | | 100 | | | 100 | 100 | 88 | 100 | 100 | 87 |
| cM capacity (veh/h) | 361 | | | 567 | | | 401 | 6 | 838 | 102 | 6 | 465 |
| Direction, Lane # | EB 1 | EB 2 | EB 3 | EB 4 | WB 1 | WB 2 | WB 3 | NB 1 | SB 1 | | | |
| Volume Total | 346 | 346 | 346 | 348 | 1074 | 1074 | 689 | 100 | 59 | | | |
| Volume Left | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | | |
| Volume Right | 0 | 0 | 0 | 175 | 0 | 0 | 153 | 100 | 59 | | | |
| cSH | 1700 | 1700 | 1700 | 1700 | 1700 | 1700 | 1700 | 838 | 465 | | | |
| Volume to Capacity | 0.20 | 0.20 | 0.20 | 0.20 | 0.63 | 0.63 | 0.41 | 0.12 | 0.13 | | | |
| Queue Length 95th (ft) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 10 | 11 | | | |
| Control Delay (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 9.9 | 13.9 | | | |
| Lane LOS | | | | | | | | A | B | | | |
| Approach Delay (s) | 0.0 | | | | 0.0 | | | 9.9 | 13.9 | | | |
| Approach LOS | | | | | | | | A | B | | | |
| Intersection Summary | | | | | | | | | | | | |
| Average Delay | | | | 0.4 | | | | | | | | |
| Intersection Capacity Utilization | | | 63.5% | | ICU Level of Service | | | | B | | | |
| Analysis Period (min) | | | 15 | | | | | | | | | |



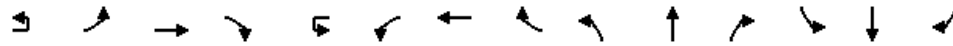
| Lane Group | EBU | EBL | EBT | EBR | WBU | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|-------------------------|-------|-------|-------|------|-------|-------|-------|------|-------|-------|-------|------|------|------|
| Lane Configurations | | | | | | | | | | | | | | |
| Volume (vph) | 15 | 15 | 985 | 35 | 5 | 60 | 2775 | 165 | 30 | 5 | 35 | 0 | 0 | 0 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Storage Length (ft) | | 0 | | 0 | | 275 | | 0 | 0 | | 50 | 0 | | 0 |
| Storage Lanes | | 1 | | 0 | | 1 | | 0 | 0 | | 1 | 0 | | 0 |
| Taper Length (ft) | | 25 | | | | 25 | | 25 | | | | 25 | | |
| Satd. Flow (prot) | 0 | 1687 | 4818 | 0 | 0 | 1787 | 5084 | 0 | 0 | 1199 | 1062 | 0 | 0 | 0 |
| Fit Permitted | | 0.950 | | | | 0.950 | | | | 0.959 | | | | |
| Satd. Flow (perm) | 0 | 1687 | 4818 | 0 | 0 | 1783 | 5084 | 0 | 0 | 1198 | 1062 | 0 | 0 | 0 |
| Right Turn on Red | | | | Yes | | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | | 6 | | | | 11 | | | | 67 | | | |
| Link Speed (mph) | | | 30 | | | | 30 | | | 30 | | | 30 | |
| Link Distance (ft) | | | 594 | | | | 410 | | | 266 | | | 157 | |
| Travel Time (s) | | | 13.5 | | | | 9.3 | | | 6.0 | | | 3.6 | |
| Confl. Peds. (#/hr) | | 9 | | 6 | | 6 | | 9 | 1 | | 4 | 4 | | 1 |
| Peak Hour Factor | 0.84 | 0.84 | 0.84 | 0.84 | 0.94 | 0.94 | 0.94 | 0.94 | 0.72 | 0.72 | 0.72 | 0.92 | 0.92 | 0.92 |
| Heavy Vehicles (%) | 7% | 7% | 7% | 7% | 1% | 1% | 1% | 1% | 52% | 52% | 52% | 2% | 2% | 2% |
| Shared Lane Traffic (%) | | | | | | | | | | | | | | |
| Lane Group Flow (vph) | 0 | 36 | 1215 | 0 | 0 | 69 | 3128 | 0 | 0 | 49 | 49 | 0 | 0 | 0 |
| Turn Type | Prot | Prot | NA | | Prot | Prot | NA | | Split | NA | Prot | | | |
| Protected Phases | 1 | 1 | 6 | | 5 | 5 | 2 | | 4 | 4 | 4 | | | |
| Permitted Phases | | | | | | | | | | | | | | |
| Detector Phase | 1 | 1 | 6 | | 5 | 5 | 2 | | 4 | 4 | 4 | | | |
| Switch Phase | | | | | | | | | | | | | | |
| Minimum Initial (s) | 7.0 | 7.0 | 7.0 | | 7.0 | 7.0 | 7.0 | | 7.0 | 7.0 | 7.0 | | | |
| Minimum Split (s) | 11.0 | 11.0 | 26.0 | | 11.0 | 11.0 | 26.0 | | 26.0 | 26.0 | 26.0 | | | |
| Total Split (s) | 24.0 | 24.0 | 24.0 | | 24.0 | 24.0 | 24.0 | | 34.0 | 34.0 | 34.0 | | | |
| Total Split (%) | 29.3% | 29.3% | 29.3% | | 29.3% | 29.3% | 29.3% | | 41.5% | 41.5% | 41.5% | | | |
| Yellow Time (s) | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | | | |
| All-Red Time (s) | 1.0 | 1.0 | 1.0 | | 1.0 | 1.0 | 1.0 | | 1.0 | 1.0 | 1.0 | | | |
| Lost Time Adjust (s) | | 0.0 | 0.0 | | | 0.0 | 0.0 | | | 0.0 | 0.0 | | | |
| Total Lost Time (s) | | 4.0 | 4.0 | | | 4.0 | 4.0 | | | 4.0 | 4.0 | | | |
| Lead/Lag | Lead | Lead | Lag | | Lead | Lead | Lag | | | | | | | |
| Lead-Lag Optimize? | | | | | | | | | | | | | | |
| Recall Mode | None | None | Max | | None | None | Min | | None | None | None | | | |
| Act Effect Green (s) | | 7.3 | 31.7 | | | 7.6 | 34.1 | | | 9.5 | 9.5 | | | |
| Actuated g/C Ratio | | 0.15 | 0.65 | | | 0.16 | 0.70 | | | 0.20 | 0.20 | | | |
| v/c Ratio | | 0.14 | 0.39 | | | 0.25 | 0.88 | | | 0.21 | 0.19 | | | |
| Control Delay | | 23.3 | 10.0 | | | 23.5 | 20.2 | | | 19.1 | 5.4 | | | |
| Queue Delay | | 0.0 | 0.0 | | | 0.0 | 0.0 | | | 0.0 | 0.0 | | | |
| Total Delay | | 23.3 | 10.0 | | | 23.5 | 20.2 | | | 19.1 | 5.4 | | | |
| LOS | | C | B | | | C | C | | | B | A | | | |
| Approach Delay | | | 10.4 | | | | 20.2 | | | 12.3 | | | | |
| Approach LOS | | | B | | | | C | | | B | | | | |
| Queue Length 50th (ft) | | 9 | 82 | | | 17 | 186 | | | 12 | 0 | | | |
| Queue Length 95th (ft) | | 35 | 182 | | | 58 | #797 | | | 27 | 8 | | | |
| Internal Link Dist (ft) | | | 514 | | | | 330 | | | 186 | | | 77 | |
| Turn Bay Length (ft) | | | | | | 275 | | | | | 50 | | | |
| Base Capacity (vph) | | 712 | 3134 | | | 754 | 3567 | | | 759 | 697 | | | |
| Starvation Cap Reductn | | 0 | 0 | | | 0 | 0 | | | 0 | 0 | | | |
| Spillback Cap Reductn | | 0 | 0 | | | 0 | 0 | | | 0 | 0 | | | |
| Storage Cap Reductn | | 0 | 0 | | | 0 | 0 | | | 0 | 0 | | | |
| Reduced v/c Ratio | | 0.05 | 0.39 | | | 0.09 | 0.88 | | | 0.06 | 0.07 | | | |

Intersection Summary

Area Type: Other
 Cycle Length: 82
 Actuated Cycle Length: 48.7
 Natural Cycle: 100
 Control Type: Semi Act-Uncoord
 Maximum v/c Ratio: 0.88
 Intersection Signal Delay: 17.4
 Intersection LOS: B
 Intersection Capacity Utilization 73.8%
 ICU Level of Service D
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 3: Kingman Street/Jughandle & Lynnway (Route 1A)

| | | |
|------|------|------|
| ø1 | ø2 | ø4 |
| 24 s | 24 s | 34 s |
| ø5 | ø6 | |
| 24 s | 24 s | |



| Lane Group | EBU | EBL | EBT | EBR | WBU | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|-------------------------|-------|-------|-------|------|-------|-------|-------|------|-------|-------|------|-------|-------|------|
| Lane Configurations | | | | | | | | | | | | | | |
| Volume (vph) | 10 | 100 | 2305 | 15 | 55 | 0 | 1180 | 50 | 10 | 5 | 10 | 45 | 0 | 15 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Storage Length (ft) | | 200 | | 0 | | 350 | | 0 | 0 | | 0 | 0 | | 0 |
| Storage Lanes | | 1 | | 0 | | 1 | | 0 | 0 | | 0 | 0 | | 0 |
| Taper Length (ft) | | 25 | | | | 25 | | | 25 | | | 25 | | |
| Satd. Flow (prot) | 0 | 1770 | 5080 | 0 | 0 | 1752 | 5001 | 0 | 0 | 1694 | 0 | 0 | 1729 | 0 |
| Fit Permitted | | 0.950 | | | | 0.950 | | | | 0.878 | | | 0.832 | |
| Satd. Flow (perm) | 0 | 1768 | 5080 | 0 | 0 | 1752 | 5001 | 0 | 0 | 1515 | 0 | 0 | 1492 | 0 |
| Right Turn on Red | | | | Yes | | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | | 1 | | | | 8 | | | 25 | | | 65 | |
| Link Speed (mph) | | | 30 | | | | 30 | | | 30 | | | 30 | |
| Link Distance (ft) | | | 520 | | | | 631 | | | 362 | | | 232 | |
| Travel Time (s) | | | 11.8 | | | | 14.3 | | | 8.2 | | | 5.3 | |
| Confl. Peds. (#/hr) | | 2 | | 2 | | 2 | | 2 | 3 | | | | | 3 |
| Peak Hour Factor | 0.98 | 0.98 | 0.98 | 0.98 | 0.92 | 0.92 | 0.92 | 0.92 | 0.38 | 0.38 | 0.38 | 0.82 | 0.82 | 0.82 |
| Heavy Vehicles (%) | 2% | 2% | 2% | 2% | 3% | 3% | 3% | 3% | 4% | 4% | 4% | 2% | 2% | 2% |
| Shared Lane Traffic (%) | | | | | | | | | | | | | | |
| Lane Group Flow (vph) | 0 | 112 | 2367 | 0 | 0 | 60 | 1337 | 0 | 0 | 65 | 0 | 0 | 73 | 0 |
| Turn Type | Prot | Prot | NA | | Prot | Prot | NA | | Perm | NA | | Perm | NA | |
| Protected Phases | 1 | 1 | 6 | | 5 | 5 | 2 | | | 4 | | | 4 | |
| Permitted Phases | | | | | | | | | 4 | | | 4 | | 4 |
| Detector Phase | 1 | 1 | 6 | | 5 | 5 | 2 | | 4 | 4 | | 4 | 4 | |
| Switch Phase | | | | | | | | | | | | | | |
| Minimum Initial (s) | 7.0 | 7.0 | 15.0 | | 7.0 | 7.0 | 15.0 | | 7.0 | 7.0 | | 7.0 | 7.0 | |
| Minimum Split (s) | 12.0 | 12.0 | 20.0 | | 12.0 | 12.0 | 20.0 | | 27.0 | 27.0 | | 27.0 | 27.0 | |
| Total Split (s) | 25.0 | 25.0 | 65.0 | | 25.0 | 25.0 | 65.0 | | 27.0 | 27.0 | | 27.0 | 27.0 | |
| Total Split (%) | 21.4% | 21.4% | 55.6% | | 21.4% | 21.4% | 55.6% | | 23.1% | 23.1% | | 23.1% | 23.1% | |
| Yellow Time (s) | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| All-Red Time (s) | 2.0 | 2.0 | 2.0 | | 2.0 | 2.0 | 2.0 | | 2.0 | 2.0 | | 2.0 | 2.0 | |
| Lost Time Adjust (s) | | 0.0 | 0.0 | | | 0.0 | 0.0 | | | 0.0 | | | 0.0 | |
| Total Lost Time (s) | | 5.0 | 5.0 | | | 5.0 | 5.0 | | | 6.0 | | | 6.0 | |
| Lead/Lag | Lead | Lead | Lag | | Lead | Lead | Lag | | | | | | | |
| Lead-Lag Optimize? | | | | | | | | | | | | | | |
| Recall Mode | None | None | Max | | None | None | Max | | None | None | | None | None | |
| Act Effect Green (s) | | 10.6 | 67.2 | | | 8.4 | 60.9 | | | 9.7 | | | 9.7 | |
| Actuated g/C Ratio | | 0.11 | 0.71 | | | 0.09 | 0.65 | | | 0.10 | | | 0.10 | |
| v/c Ratio | | 0.56 | 0.65 | | | 0.38 | 0.41 | | | 0.37 | | | 0.34 | |
| Control Delay | | 53.0 | 12.2 | | | 51.1 | 10.2 | | | 33.6 | | | 17.2 | |
| Queue Delay | | 0.0 | 0.0 | | | 0.0 | 0.0 | | | 0.0 | | | 0.0 | |
| Total Delay | | 53.0 | 12.2 | | | 51.1 | 10.2 | | | 33.6 | | | 17.2 | |
| LOS | | D | B | | | D | B | | | C | | | B | |
| Approach Delay | | | 14.0 | | | | 12.0 | | | 33.6 | | | 17.2 | |
| Approach LOS | | | B | | | | B | | | C | | | B | |
| Queue Length 50th (ft) | | 64 | 277 | | | 34 | 125 | | | 23 | | | 4 | |
| Queue Length 95th (ft) | | 134 | 551 | | | 85 | 257 | | | 17 | | | 37 | |
| Internal Link Dist (ft) | | | 440 | | | | 551 | | | 282 | | | 152 | |
| Turn Bay Length (ft) | | 200 | | | | 350 | | | | | | | | |
| Base Capacity (vph) | | 380 | 3623 | | | 377 | 3232 | | | 361 | | | 387 | |
| Starvation Cap Reductn | | 0 | 0 | | | 0 | 0 | | | 0 | | | 0 | |
| Spillback Cap Reductn | | 0 | 0 | | | 0 | 0 | | | 0 | | | 0 | |
| Storage Cap Reductn | | 0 | 0 | | | 0 | 0 | | | 0 | | | 0 | |
| Reduced v/c Ratio | | 0.29 | 0.65 | | | 0.16 | 0.41 | | | 0.18 | | | 0.19 | |

Intersection Summary

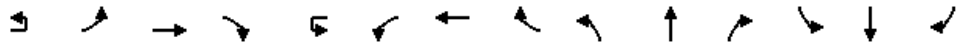
Area Type: Other
 Cycle Length: 117
 Actuated Cycle Length: 94.3
 Natural Cycle: 80
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.65
 Intersection Signal Delay: 13.7
 Intersection Capacity Utilization 71.2%
 Analysis Period (min) 15
 Intersection LOS: B
 ICU Level of Service C

Splits and Phases: 1: Marine Boulevard/Shepard Street & Lynnway (Route 1A)

| | | |
|------|------|------|
| 25 s | 65 s | 27 s |
| 25 s | 65 s | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|-----------------------------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|------|------|------|
| Lane Configurations | | ↑↑↑ | | | ↑↑↑ | | | | ↑ | | | ↑ |
| Volume (veh/h) | 0 | 2360 | 55 | 0 | 1360 | 165 | 0 | 0 | 115 | 0 | 0 | 40 |
| Sign Control | | Free | | | Free | | | Stop | | | Stop | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Peak Hour Factor | 0.99 | 0.99 | 0.99 | 0.91 | 0.91 | 0.91 | 0.83 | 0.83 | 0.83 | 0.66 | 0.66 | 0.66 |
| Hourly flow rate (vph) | 0 | 2384 | 56 | 0 | 1495 | 181 | 0 | 0 | 139 | 0 | 0 | 61 |
| Pedestrians | | 1 | | | 1 | | | | | | 9 | |
| Lane Width (ft) | | 12.0 | | | 12.0 | | | | | | 12.0 | |
| Walking Speed (ft/s) | | 4.0 | | | 4.0 | | | | | | 4.0 | |
| Percent Blockage | | 0 | | | 0 | | | | | | 1 | |
| Right turn flare (veh) | | | | | | | | | | | | |
| Median type | | None | | | None | | | | | | | |
| Median storage (veh) | | | | | | | | | | | | |
| Upstream signal (ft) | | 631 | | | 594 | | | | | | | |
| pX, platoon unblocked | 0.81 | | | 0.78 | | | 0.87 | 0.87 | 0.78 | 0.87 | 0.87 | 0.81 |
| vC, conflicting volume | 1685 | | | 2439 | | | 2971 | 4096 | 625 | 2330 | 4034 | 599 |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 1014 | | | 1412 | | | 874 | 2163 | 0 | 138 | 2091 | 0 |
| tC, single (s) | 4.1 | | | 4.1 | | | 7.5 | 6.5 | 6.9 | 7.6 | 6.6 | 7.0 |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 2.2 | | | 2.2 | | | 3.5 | 4.0 | 3.3 | 3.5 | 4.0 | 3.3 |
| p0 queue free % | 100 | | | 100 | | | 100 | 100 | 84 | 100 | 100 | 93 |
| cM capacity (veh/h) | 550 | | | 372 | | | 197 | 40 | 841 | 582 | 43 | 861 |
| Direction, Lane # | EB 1 | EB 2 | EB 3 | EB 4 | WB 1 | WB 2 | WB 3 | NB 1 | SB 1 | | | |
| Volume Total | 681 | 681 | 681 | 396 | 598 | 598 | 480 | 139 | 61 | | | |
| Volume Left | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | | |
| Volume Right | 0 | 0 | 0 | 56 | 0 | 0 | 181 | 139 | 61 | | | |
| cSH | 1700 | 1700 | 1700 | 1700 | 1700 | 1700 | 1700 | 841 | 861 | | | |
| Volume to Capacity | 0.40 | 0.40 | 0.40 | 0.23 | 0.35 | 0.35 | 0.28 | 0.16 | 0.07 | | | |
| Queue Length 95th (ft) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 15 | 6 | | | |
| Control Delay (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 10.1 | 9.5 | | | |
| Lane LOS | | | | | | | | B | A | | | |
| Approach Delay (s) | 0.0 | | | | 0.0 | | | 10.1 | 9.5 | | | |
| Approach LOS | | | | | | | | B | A | | | |
| Intersection Summary | | | | | | | | | | | | |
| Average Delay | | | | 0.5 | | | | | | | | |
| Intersection Capacity Utilization | | | 49.2% | | | | | | | A | | |
| Analysis Period (min) | | | 15 | | | | | | | | | |

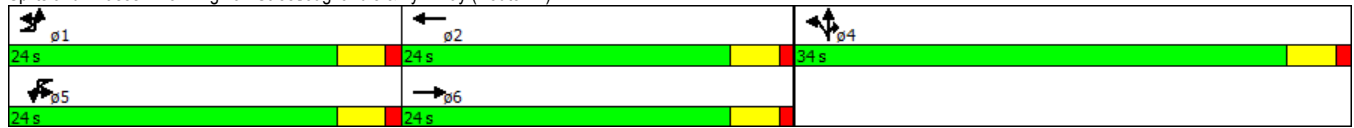


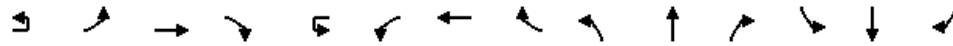
| Lane Group | EBU | EBL | EBT | EBR | WBU | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|-------------------------|-------|-------|-------|------|-------|-------|-------|------|-------|-------|-------|------|------|------|
| Lane Configurations | | ↕ | ↕↕↕ | | | ↕ | ↕↕↕ | | | ↕ | ↕ | | | |
| Volume (vph) | 55 | 10 | 2370 | 20 | 15 | 55 | 1285 | 35 | 140 | 0 | 100 | 0 | 0 | 0 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Storage Length (ft) | | 0 | | 0 | | 275 | | 0 | 0 | | 50 | 0 | | 0 |
| Storage Lanes | | 1 | | 0 | | 1 | | 0 | 0 | | 1 | 0 | | 0 |
| Taper Length (ft) | | 25 | | | | 25 | | | 25 | | | 25 | | |
| Satd. Flow (prot) | 0 | 1787 | 5130 | 0 | 0 | 1752 | 5013 | 0 | 0 | 1736 | 1553 | 0 | 0 | 0 |
| Fit Permitted | | 0.950 | | | | 0.950 | | | | 0.950 | | | | |
| Satd. Flow (perm) | 0 | 1787 | 5130 | 0 | 0 | 1752 | 5013 | 0 | 0 | 1734 | 1553 | 0 | 0 | 0 |
| Right Turn on Red | | | | Yes | | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | | 1 | | | | 5 | | | | 148 | | | |
| Link Speed (mph) | | | 30 | | | | 30 | | | 30 | | | 30 | |
| Link Distance (ft) | | | 594 | | | | 410 | | | 266 | | | 157 | |
| Travel Time (s) | | | 13.5 | | | | 9.3 | | | 6.0 | | | 3.6 | |
| Confl. Peds. (#/hr) | | 1 | | 1 | | 1 | | 1 | 1 | | 5 | 5 | | 1 |
| Peak Hour Factor | 0.96 | 0.96 | 0.96 | 0.96 | 0.94 | 0.94 | 0.94 | 0.94 | 0.57 | 0.57 | 0.57 | 0.92 | 0.92 | 0.92 |
| Heavy Vehicles (%) | 1% | 1% | 1% | 1% | 3% | 3% | 3% | 3% | 4% | 4% | 4% | 2% | 2% | 2% |
| Shared Lane Traffic (%) | | | | | | | | | | | | | | |
| Lane Group Flow (vph) | 0 | 67 | 2490 | 0 | 0 | 75 | 1404 | 0 | 0 | 246 | 175 | 0 | 0 | 0 |
| Turn Type | Prot | Prot | NA | | Prot | Prot | NA | | Split | NA | Prot | | | |
| Protected Phases | 1 | 1 | 6 | | 5 | 5 | 2 | | 4 | 4 | 4 | | | |
| Permitted Phases | | | | | | | | | | | | | | |
| Detector Phase | 1 | 1 | 6 | | 5 | 5 | 2 | | 4 | 4 | 4 | | | |
| Switch Phase | | | | | | | | | | | | | | |
| Minimum Initial (s) | 7.0 | 7.0 | 7.0 | | 7.0 | 7.0 | 7.0 | | 7.0 | 7.0 | 7.0 | | | |
| Minimum Split (s) | 11.0 | 11.0 | 26.0 | | 11.0 | 11.0 | 26.0 | | 26.0 | 26.0 | 26.0 | | | |
| Total Split (s) | 24.0 | 24.0 | 24.0 | | 24.0 | 24.0 | 24.0 | | 34.0 | 34.0 | 34.0 | | | |
| Total Split (%) | 29.3% | 29.3% | 29.3% | | 29.3% | 29.3% | 29.3% | | 41.5% | 41.5% | 41.5% | | | |
| Yellow Time (s) | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | | | |
| All-Red Time (s) | 1.0 | 1.0 | 1.0 | | 1.0 | 1.0 | 1.0 | | 1.0 | 1.0 | 1.0 | | | |
| Lost Time Adjust (s) | | 0.0 | 0.0 | | | 0.0 | 0.0 | | | 0.0 | 0.0 | | | |
| Total Lost Time (s) | | 4.0 | 4.0 | | | 4.0 | 4.0 | | | 4.0 | 4.0 | | | |
| Lead/Lag | Lead | Lead | Lag | | Lead | Lead | Lag | | | | | | | |
| Lead-Lag Optimize? | | | | | | | | | | | | | | |
| Recall Mode | None | None | Max | | None | None | Min | | None | None | None | | | |
| Act Effect Green (s) | | 7.7 | 23.3 | | | 7.9 | 23.5 | | | 12.5 | 12.5 | | | |
| Actuated g/C Ratio | | 0.15 | 0.46 | | | 0.16 | 0.47 | | | 0.25 | 0.25 | | | |
| v/c Ratio | | 0.25 | 1.05 | | | 0.27 | 0.60 | | | 0.57 | 0.35 | | | |
| Control Delay | | 25.1 | 54.3 | | | 25.2 | 14.1 | | | 23.2 | 7.2 | | | |
| Queue Delay | | 0.0 | 0.0 | | | 0.0 | 0.0 | | | 0.0 | 0.0 | | | |
| Total Delay | | 25.1 | 54.3 | | | 25.2 | 14.1 | | | 23.2 | 7.2 | | | |
| LOS | | C | D | | | C | B | | | C | A | | | |
| Approach Delay | | | 53.5 | | | | 14.7 | | | 16.6 | | | | |
| Approach LOS | | | D | | | | B | | | B | | | | |
| Queue Length 50th (ft) | | 19 | ~355 | | | 22 | 122 | | | 70 | 7 | | | |
| Queue Length 95th (ft) | | 58 | #619 | | | 62 | 238 | | | 77 | 12 | | | |
| Internal Link Dist (ft) | | | 514 | | | | 330 | | | 186 | | | 77 | |
| Turn Bay Length (ft) | | | | | | 275 | | | | | 50 | | | |
| Base Capacity (vph) | | 738 | 2369 | | | 723 | 2331 | | | 1075 | 1018 | | | |
| Starvation Cap Reductn | | 0 | 0 | | | 0 | 0 | | | 0 | 0 | | | |
| Spillback Cap Reductn | | 0 | 0 | | | 0 | 0 | | | 0 | 0 | | | |
| Storage Cap Reductn | | 0 | 0 | | | 0 | 0 | | | 0 | 0 | | | |
| Reduced v/c Ratio | | 0.09 | 1.05 | | | 0.10 | 0.60 | | | 0.23 | 0.17 | | | |

Intersection Summary

Area Type: Other
 Cycle Length: 82
 Actuated Cycle Length: 50.5
 Natural Cycle: 80
 Control Type: Semi Act-Uncoord
 Maximum v/c Ratio: 1.05
 Intersection Signal Delay: 37.1
 Intersection LOS: D
 Intersection Capacity Utilization 77.1%
 ICU Level of Service D
 Analysis Period (min) 15
 ~ Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 3: Kingman Street/Jughandle & Lynnway (Route 1A)





| Lane Group | EBU | EBL | EBT | EBR | WBU | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|-------------------------|-------|-------|-------|------|-------|-------|-------|------|-------|-------|------|-------|-------|------|
| Lane Configurations | | | | | | | | | | | | | | |
| Volume (vph) | 5 | 35 | 1040 | 15 | 25 | 5 | 2395 | 50 | 10 | 10 | 10 | 25 | 0 | 20 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Storage Length (ft) | | 200 | | 0 | | 350 | | 0 | 0 | | 0 | 0 | | 0 |
| Storage Lanes | | 1 | | 0 | | 1 | | 0 | 0 | | 0 | 0 | | 0 |
| Taper Length (ft) | | 25 | | | | 25 | | | 25 | | | 25 | | |
| Satd. Flow (prot) | 0 | 1687 | 4836 | 0 | 0 | 1770 | 5067 | 0 | 0 | 1056 | 0 | 0 | 1328 | 0 |
| Fit Permitted | | 0.950 | | | | 0.950 | | | | 0.871 | | | 0.802 | |
| Satd. Flow (perm) | 0 | 1686 | 4836 | 0 | 0 | 1767 | 5067 | 0 | 0 | 934 | 0 | 0 | 1094 | 0 |
| Right Turn on Red | | | | Yes | | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | | 3 | | | | 4 | | | 15 | | | 65 | |
| Link Speed (mph) | | | 30 | | | | 30 | | | 30 | | | 30 | |
| Link Distance (ft) | | | 520 | | | | 631 | | | 362 | | | 232 | |
| Travel Time (s) | | | 11.8 | | | | 14.3 | | | 8.2 | | | 5.3 | |
| Confl. Peds. (#/hr) | | 8 | | 3 | | 3 | | 8 | 2 | | | | | 2 |
| Peak Hour Factor | 0.83 | 0.83 | 0.83 | 0.83 | 0.94 | 0.94 | 0.94 | 0.94 | 0.65 | 0.65 | 0.65 | 1.00 | 1.00 | 1.00 |
| Heavy Vehicles (%) | 7% | 7% | 7% | 7% | 2% | 2% | 2% | 2% | 69% | 69% | 69% | 30% | 30% | 30% |
| Shared Lane Traffic (%) | | | | | | | | | | | | | | |
| Lane Group Flow (vph) | 0 | 48 | 1271 | 0 | 0 | 32 | 2601 | 0 | 0 | 45 | 0 | 0 | 45 | 0 |
| Turn Type | Prot | Prot | NA | | Prot | Prot | NA | | Perm | NA | | Perm | NA | |
| Protected Phases | 1 | 1 | 6 | | 5 | 5 | 2 | | | 4 | | | 4 | |
| Permitted Phases | | | | | | | | | 4 | | | 4 | | |
| Detector Phase | 1 | 1 | 6 | | 5 | 5 | 2 | | 4 | 4 | | 4 | 4 | |
| Switch Phase | | | | | | | | | | | | | | |
| Minimum Initial (s) | 7.0 | 7.0 | 15.0 | | 7.0 | 7.0 | 15.0 | | 7.0 | 7.0 | | 7.0 | 7.0 | |
| Minimum Split (s) | 12.0 | 12.0 | 20.0 | | 12.0 | 12.0 | 20.0 | | 27.0 | 27.0 | | 27.0 | 27.0 | |
| Total Split (s) | 25.0 | 25.0 | 65.0 | | 25.0 | 25.0 | 65.0 | | 27.0 | 27.0 | | 27.0 | 27.0 | |
| Total Split (%) | 21.4% | 21.4% | 55.6% | | 21.4% | 21.4% | 55.6% | | 23.1% | 23.1% | | 23.1% | 23.1% | |
| Yellow Time (s) | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| All-Red Time (s) | 2.0 | 2.0 | 2.0 | | 2.0 | 2.0 | 2.0 | | 2.0 | 2.0 | | 2.0 | 2.0 | |
| Lost Time Adjust (s) | | 0.0 | 0.0 | | | 0.0 | 0.0 | | | 0.0 | | | 0.0 | |
| Total Lost Time (s) | | 5.0 | 5.0 | | | 5.0 | 5.0 | | | 6.0 | | | 6.0 | |
| Lead/Lag | Lead | Lead | Lag | | Lead | Lead | Lag | | | | | | | |
| Lead-Lag Optimize? | | | | | | | | | | | | | | |
| Recall Mode | None | None | Max | | None | None | Max | | None | None | | None | None | |
| Act Effect Green (s) | | 7.9 | 65.8 | | | 7.4 | 65.3 | | | 9.9 | | | 9.9 | |
| Actuated g/C Ratio | | 0.09 | 0.73 | | | 0.08 | 0.73 | | | 0.11 | | | 0.11 | |
| v/c Ratio | | 0.32 | 0.36 | | | 0.22 | 0.71 | | | 0.39 | | | 0.25 | |
| Control Delay | | 47.8 | 7.3 | | | 46.4 | 12.7 | | | 38.1 | | | 8.4 | |
| Queue Delay | | 0.0 | 0.0 | | | 0.0 | 0.0 | | | 0.0 | | | 0.0 | |
| Total Delay | | 47.8 | 7.3 | | | 46.4 | 12.7 | | | 38.1 | | | 8.4 | |
| LOS | | D | A | | | D | B | | | D | | | A | |
| Approach Delay | | | 8.8 | | | | 13.1 | | | 38.1 | | | 8.4 | |
| Approach LOS | | | A | | | | B | | | D | | | A | |
| Queue Length 50th (ft) | | 27 | 105 | | | 18 | 328 | | | 17 | | | 0 | |
| Queue Length 95th (ft) | | 64 | 186 | | | 52 | 648 | | | 33 | | | 19 | |
| Internal Link Dist (ft) | | | 440 | | | | 551 | | | 282 | | | 152 | |
| Turn Bay Length (ft) | | 200 | | | | 350 | | | | | | | | |
| Base Capacity (vph) | | 380 | 3545 | | | 399 | 3684 | | | 232 | | | 309 | |
| Starvation Cap Reductn | | 0 | 0 | | | 0 | 0 | | | 0 | | | 0 | |
| Spillback Cap Reductn | | 0 | 0 | | | 0 | 0 | | | 0 | | | 0 | |
| Storage Cap Reductn | | 0 | 0 | | | 0 | 0 | | | 0 | | | 0 | |
| Reduced v/c Ratio | | 0.13 | 0.36 | | | 0.08 | 0.71 | | | 0.19 | | | 0.15 | |

Intersection Summary

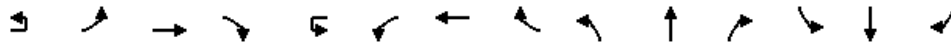
Area Type: Other
 Cycle Length: 117
 Actuated Cycle Length: 89.8
 Natural Cycle: 90
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.71
 Intersection Signal Delay: 11.9
 Intersection Capacity Utilization 63.2%
 Analysis Period (min) 15
 Intersection LOS: B
 ICU Level of Service B

Splits and Phases: 1: Marine Boulevard/Shepard Street & Lynnway (Route 1A)

| | | |
|------|------|------|
| 25 s | 65 s | 27 s |
| 25 s | 65 s | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|-----------------------------------|-------------|-------------|-------------|-------------|----------------------|-------------|-------------|-------------|-------------|------|------|------|
| Lane Configurations | | ↑↑↑ | | ↔ | ↑↑↑ | | | | ↔ | | | ↔ |
| Volume (veh/h) | 0 | 1005 | 95 | 50 | 2500 | 145 | 0 | 0 | 75 | 0 | 0 | 40 |
| Sign Control | | Free | | | Free | | | Stop | | | Stop | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Peak Hour Factor | 0.83 | 0.83 | 0.83 | 0.92 | 0.95 | 0.95 | 0.75 | 0.75 | 0.75 | 0.68 | 0.68 | 0.68 |
| Hourly flow rate (vph) | 0 | 1211 | 114 | 54 | 2632 | 153 | 0 | 0 | 100 | 0 | 0 | 59 |
| Pedestrians | | 3 | | | 1 | | | 1 | | | 10 | |
| Lane Width (ft) | | 12.0 | | | 12.0 | | | 12.0 | | | 12.0 | |
| Walking Speed (ft/s) | | 4.0 | | | 4.0 | | | 4.0 | | | 4.0 | |
| Percent Blockage | | 0 | | | 0 | | | 0 | | | 1 | |
| Right turn flare (veh) | | | | | | | | | | | | |
| Median type | | None | | | None | | | | | | | |
| Median storage (veh) | | | | | | | | | | | | |
| Upstream signal (ft) | | 631 | | | 594 | | | | | | | |
| pX, platoon unblocked | 0.44 | | | 0.91 | | | 0.49 | 0.49 | 0.91 | 0.49 | 0.49 | 0.44 |
| vC, conflicting volume | 2794 | | | 1326 | | | 2317 | 4172 | 463 | 3331 | 4153 | 967 |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 661 | | | 1012 | | | 0 | 2587 | 63 | 869 | 2548 | 0 |
| tC, single (s) | 4.2 | | | 4.1 | | | 7.7 | 6.7 | 7.1 | 7.6 | 6.6 | 7.0 |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 2.3 | | | 2.2 | | | 3.6 | 4.1 | 3.4 | 3.6 | 4.1 | 3.4 |
| p0 queue free % | 100 | | | 91 | | | 100 | 100 | 89 | 100 | 100 | 87 |
| cM capacity (veh/h) | 392 | | | 619 | | | 396 | 10 | 878 | 95 | 11 | 470 |
| Direction, Lane # | EB 1 | EB 2 | EB 3 | WB 1 | WB 2 | WB 3 | WB 4 | NB 1 | SB 1 | | | |
| Volume Total | 484 | 484 | 357 | 54 | 1053 | 1053 | 679 | 100 | 59 | | | |
| Volume Left | 0 | 0 | 0 | 54 | 0 | 0 | 0 | 0 | 0 | | | |
| Volume Right | 0 | 0 | 114 | 0 | 0 | 0 | 153 | 100 | 59 | | | |
| cSH | 1700 | 1700 | 1700 | 619 | 1700 | 1700 | 1700 | 878 | 470 | | | |
| Volume to Capacity | 0.28 | 0.28 | 0.21 | 0.09 | 0.62 | 0.62 | 0.40 | 0.11 | 0.13 | | | |
| Queue Length 95th (ft) | 0 | 0 | 0 | 7 | 0 | 0 | 0 | 10 | 11 | | | |
| Control Delay (s) | 0.0 | 0.0 | 0.0 | 11.4 | 0.0 | 0.0 | 0.0 | 9.6 | 13.8 | | | |
| Lane LOS | | | | B | | | | A | B | | | |
| Approach Delay (s) | 0.0 | | | 0.2 | | | | 9.6 | 13.8 | | | |
| Approach LOS | | | | | | | | A | B | | | |
| Intersection Summary | | | | | | | | | | | | |
| Average Delay | | | | 0.6 | | | | | | | | |
| Intersection Capacity Utilization | | | 62.5% | | ICU Level of Service | | | | B | | | |
| Analysis Period (min) | | | 15 | | | | | | | | | |

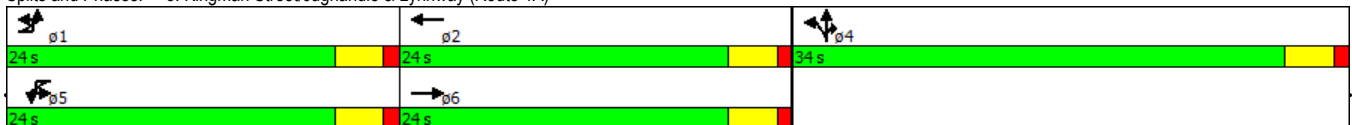


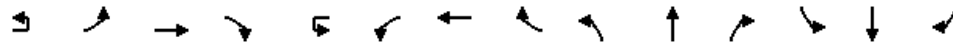
| Lane Group | EBU | EBL | EBT | EBR | WBU | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|-------------------------|-------|-------|-------|------|-------|-------|-------|------|-------|-------|-------|------|------|------|
| Lane Configurations | | | | | | | | | | | | | | |
| Volume (vph) | 15 | 15 | 985 | 35 | 5 | 60 | 2775 | 165 | 30 | 5 | 35 | 0 | 0 | 0 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Storage Length (ft) | | 250 | | 0 | | 275 | | 0 | 0 | | 50 | 0 | | 0 |
| Storage Lanes | | 1 | | 0 | | 1 | | 0 | 0 | | 1 | 0 | | 0 |
| Taper Length (ft) | | 25 | | | | 25 | | | 25 | | | 25 | | |
| Satd. Flow (prot) | 0 | 1687 | 4818 | 0 | 0 | 1787 | 5084 | 0 | 0 | 1199 | 1062 | 0 | 0 | 0 |
| Fit Permitted | | 0.950 | | | | 0.950 | | | | 0.959 | | | | |
| Satd. Flow (perm) | 0 | 1687 | 4818 | 0 | 0 | 1783 | 5084 | 0 | 0 | 1198 | 1062 | 0 | 0 | 0 |
| Right Turn on Red | | | | Yes | | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | | 6 | | | | 11 | | | | 67 | | | |
| Link Speed (mph) | | | 30 | | | | 30 | | | 30 | | | 30 | |
| Link Distance (ft) | | | 594 | | | | 410 | | | 266 | | | 157 | |
| Travel Time (s) | | | 13.5 | | | | 9.3 | | | 6.0 | | | 3.6 | |
| Confl. Peds. (#/hr) | | 9 | | 6 | | 6 | | 9 | 1 | | 4 | 4 | | 1 |
| Peak Hour Factor | 0.84 | 0.84 | 0.84 | 0.84 | 0.94 | 0.94 | 0.94 | 0.94 | 0.72 | 0.72 | 0.72 | 0.92 | 0.92 | 0.92 |
| Heavy Vehicles (%) | 7% | 7% | 7% | 7% | 1% | 1% | 1% | 1% | 52% | 52% | 52% | 2% | 2% | 2% |
| Shared Lane Traffic (%) | | | | | | | | | | | | | | |
| Lane Group Flow (vph) | 0 | 36 | 1215 | 0 | 0 | 69 | 3128 | 0 | 0 | 49 | 49 | 0 | 0 | 0 |
| Turn Type | Prot | Prot | NA | | Prot | Prot | NA | | Split | NA | Prot | | | |
| Protected Phases | 1 | 1 | 6 | | 5 | 5 | 2 | | 4 | 4 | 4 | | | |
| Permitted Phases | | | | | | | | | | | | | | |
| Detector Phase | 1 | 1 | 6 | | 5 | 5 | 2 | | 4 | 4 | 4 | | | |
| Switch Phase | | | | | | | | | | | | | | |
| Minimum Initial (s) | 7.0 | 7.0 | 7.0 | | 7.0 | 7.0 | 7.0 | | 7.0 | 7.0 | 7.0 | | | |
| Minimum Split (s) | 11.0 | 11.0 | 26.0 | | 11.0 | 11.0 | 26.0 | | 26.0 | 26.0 | 26.0 | | | |
| Total Split (s) | 24.0 | 24.0 | 24.0 | | 24.0 | 24.0 | 24.0 | | 34.0 | 34.0 | 34.0 | | | |
| Total Split (%) | 29.3% | 29.3% | 29.3% | | 29.3% | 29.3% | 29.3% | | 41.5% | 41.5% | 41.5% | | | |
| Yellow Time (s) | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | | | |
| All-Red Time (s) | 1.0 | 1.0 | 1.0 | | 1.0 | 1.0 | 1.0 | | 1.0 | 1.0 | 1.0 | | | |
| Lost Time Adjust (s) | | 0.0 | 0.0 | | | 0.0 | 0.0 | | | 0.0 | 0.0 | | | |
| Total Lost Time (s) | | 4.0 | 4.0 | | | 4.0 | 4.0 | | | 4.0 | 4.0 | | | |
| Lead/Lag | Lead | Lead | Lag | | Lead | Lead | Lag | | | | | | | |
| Lead-Lag Optimize? | | | | | | | | | | | | | | |
| Recall Mode | None | None | Max | | None | None | Min | | None | None | None | | | |
| Act Effect Green (s) | | 7.3 | 31.7 | | | 7.6 | 34.1 | | | 9.5 | 9.5 | | | |
| Actuated g/C Ratio | | 0.15 | 0.65 | | | 0.16 | 0.70 | | | 0.20 | 0.20 | | | |
| v/c Ratio | | 0.14 | 0.39 | | | 0.25 | 0.88 | | | 0.21 | 0.19 | | | |
| Control Delay | | 23.3 | 10.0 | | | 23.5 | 20.2 | | | 19.1 | 5.4 | | | |
| Queue Delay | | 0.0 | 0.0 | | | 0.0 | 0.0 | | | 0.0 | 0.0 | | | |
| Total Delay | | 23.3 | 10.0 | | | 23.5 | 20.2 | | | 19.1 | 5.4 | | | |
| LOS | | C | B | | | C | C | | | B | A | | | |
| Approach Delay | | | 10.4 | | | | 20.2 | | | 12.3 | | | | |
| Approach LOS | | | B | | | | C | | | B | | | | |
| Queue Length 50th (ft) | | 9 | 82 | | | 17 | 186 | | | 12 | 0 | | | |
| Queue Length 95th (ft) | | 35 | 182 | | | 58 | #797 | | | 27 | 8 | | | |
| Internal Link Dist (ft) | | | 514 | | | | 330 | | | 186 | | | 77 | |
| Turn Bay Length (ft) | | 250 | | | | 275 | | | | | 50 | | | |
| Base Capacity (vph) | | 712 | 3134 | | | 754 | 3567 | | | 759 | 697 | | | |
| Starvation Cap Reductn | | 0 | 0 | | | 0 | 0 | | | 0 | 0 | | | |
| Spillback Cap Reductn | | 0 | 0 | | | 0 | 0 | | | 0 | 0 | | | |
| Storage Cap Reductn | | 0 | 0 | | | 0 | 0 | | | 0 | 0 | | | |
| Reduced v/c Ratio | | 0.05 | 0.39 | | | 0.09 | 0.88 | | | 0.06 | 0.07 | | | |

Intersection Summary

Area Type: Other
 Cycle Length: 82
 Actuated Cycle Length: 48.7
 Natural Cycle: 100
 Control Type: Semi Act-Uncoord
 Maximum v/c Ratio: 0.88
 Intersection Signal Delay: 17.4
 Intersection LOS: B
 Intersection Capacity Utilization 73.8%
 ICU Level of Service D
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 3: Kingman Street/Jughandle & Lynnway (Route 1A)





| Lane Group | EBU | EBL | EBT | EBR | WBU | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|-------------------------|-------|-------|-------|------|-------|-------|-------|------|-------|-------|------|-------|-------|------|
| Lane Configurations | | ↔ | ↔↔↔ | | | ↔ | ↔↔↔ | | | ↔ | | | ↔ | |
| Volume (vph) | 10 | 100 | 2305 | 15 | 40 | 0 | 1180 | 50 | 10 | 5 | 10 | 45 | 0 | 15 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Storage Length (ft) | | 200 | | 0 | | 350 | | 0 | 0 | | 0 | 0 | | 0 |
| Storage Lanes | | 1 | | 0 | | 1 | | 0 | 0 | | 0 | 0 | | 0 |
| Taper Length (ft) | | 25 | | | | 25 | | | 25 | | | 25 | | |
| Satd. Flow (prot) | 0 | 1770 | 5080 | 0 | 0 | 1752 | 5001 | 0 | 0 | 1694 | 0 | 0 | 1729 | 0 |
| Fit Permitted | | 0.950 | | | | 0.950 | | | | 0.878 | | | 0.831 | |
| Satd. Flow (perm) | 0 | 1768 | 5080 | 0 | 0 | 1752 | 5001 | 0 | 0 | 1515 | 0 | 0 | 1491 | 0 |
| Right Turn on Red | | | | Yes | | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | | 1 | | | | 8 | | | 25 | | | 65 | |
| Link Speed (mph) | | | 30 | | | | 30 | | | 30 | | | 30 | |
| Link Distance (ft) | | | 520 | | | | 631 | | | 362 | | | 232 | |
| Travel Time (s) | | | 11.8 | | | | 14.3 | | | 8.2 | | | 5.3 | |
| Confl. Peds. (#/hr) | | 2 | | 2 | | 2 | | 2 | 3 | | | | | 3 |
| Peak Hour Factor | 0.98 | 0.98 | 0.98 | 0.98 | 0.92 | 0.92 | 0.92 | 0.92 | 0.38 | 0.38 | 0.38 | 0.82 | 0.82 | 0.82 |
| Heavy Vehicles (%) | 2% | 2% | 2% | 2% | 3% | 3% | 3% | 3% | 4% | 4% | 4% | 2% | 2% | 2% |
| Shared Lane Traffic (%) | | | | | | | | | | | | | | |
| Lane Group Flow (vph) | 0 | 112 | 2367 | 0 | 0 | 43 | 1337 | 0 | 0 | 65 | 0 | 0 | 73 | 0 |
| Turn Type | Prot | Prot | NA | | Prot | Prot | NA | | Perm | NA | | Perm | NA | |
| Protected Phases | 1 | 1 | 6 | | 5 | 5 | 2 | | | 4 | | | 4 | |
| Permitted Phases | | | | | | | | | 4 | | | 4 | | |
| Detector Phase | 1 | 1 | 6 | | 5 | 5 | 2 | | 4 | 4 | | 4 | 4 | |
| Switch Phase | | | | | | | | | | | | | | |
| Minimum Initial (s) | 7.0 | 7.0 | 15.0 | | 7.0 | 7.0 | 15.0 | | 7.0 | 7.0 | | 7.0 | 7.0 | |
| Minimum Split (s) | 12.0 | 12.0 | 20.0 | | 12.0 | 12.0 | 20.0 | | 27.0 | 27.0 | | 27.0 | 27.0 | |
| Total Split (s) | 25.0 | 25.0 | 65.0 | | 25.0 | 25.0 | 65.0 | | 27.0 | 27.0 | | 27.0 | 27.0 | |
| Total Split (%) | 21.4% | 21.4% | 55.6% | | 21.4% | 21.4% | 55.6% | | 23.1% | 23.1% | | 23.1% | 23.1% | |
| Yellow Time (s) | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| All-Red Time (s) | 2.0 | 2.0 | 2.0 | | 2.0 | 2.0 | 2.0 | | 2.0 | 2.0 | | 2.0 | 2.0 | |
| Lost Time Adjust (s) | | 0.0 | 0.0 | | | 0.0 | 0.0 | | | 0.0 | | | 0.0 | |
| Total Lost Time (s) | | 5.0 | 5.0 | | | 5.0 | 5.0 | | | 6.0 | | | 6.0 | |
| Lead/Lag | Lead | Lead | Lag | | Lead | Lead | Lag | | | | | | | |
| Lead-Lag Optimize? | | | | | | | | | | | | | | |
| Recall Mode | None | None | Max | | None | None | Max | | None | None | | None | None | |
| Act Effect Green (s) | | 10.6 | 70.3 | | | 7.8 | 60.9 | | | 9.7 | | | 9.7 | |
| Actuated g/C Ratio | | 0.11 | 0.75 | | | 0.08 | 0.65 | | | 0.10 | | | 0.10 | |
| v/c Ratio | | 0.56 | 0.62 | | | 0.30 | 0.41 | | | 0.37 | | | 0.34 | |
| Control Delay | | 53.0 | 10.4 | | | 49.9 | 10.2 | | | 33.6 | | | 17.2 | |
| Queue Delay | | 0.0 | 0.0 | | | 0.0 | 0.0 | | | 0.0 | | | 0.0 | |
| Total Delay | | 53.0 | 10.4 | | | 49.9 | 10.2 | | | 33.6 | | | 17.2 | |
| LOS | | D | B | | | D | B | | | C | | | B | |
| Approach Delay | | | 12.3 | | | | 11.5 | | | 33.6 | | | 17.2 | |
| Approach LOS | | | B | | | | B | | | C | | | B | |
| Queue Length 50th (ft) | | 64 | 270 | | | 25 | 125 | | | 23 | | | 4 | |
| Queue Length 95th (ft) | | 134 | 531 | | | 67 | 257 | | | 17 | | | 37 | |
| Internal Link Dist (ft) | | | 440 | | | | 551 | | | 282 | | | 152 | |
| Turn Bay Length (ft) | | 200 | | | | 350 | | | | | | | | |
| Base Capacity (vph) | | 380 | 3789 | | | 377 | 3232 | | | 361 | | | 387 | |
| Starvation Cap Reductn | | 0 | 0 | | | 0 | 0 | | | 0 | | | 0 | |
| Spillback Cap Reductn | | 0 | 0 | | | 0 | 0 | | | 0 | | | 0 | |
| Storage Cap Reductn | | 0 | 0 | | | 0 | 0 | | | 0 | | | 0 | |
| Reduced v/c Ratio | | 0.29 | 0.62 | | | 0.11 | 0.41 | | | 0.18 | | | 0.19 | |

Intersection Summary

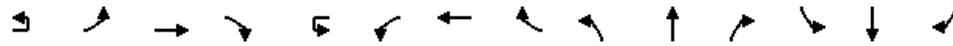
Area Type: Other
 Cycle Length: 117
 Actuated Cycle Length: 94.3
 Natural Cycle: 80
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.62
 Intersection Signal Delay: 12.5
 Intersection Capacity Utilization 71.2%
 Analysis Period (min) 15
 Intersection LOS: B
 ICU Level of Service C

Splits and Phases: 1: Marine Boulevard/Shepard Street & Lynnway (Route 1A)

| | | |
|------------|------------|------------|
| φ1 25 s | φ2 65 s | φ4 27 s |
| φ5 25 s | φ6 65 s | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|-----------------------------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|------|------|------|
| Lane Configurations | | ↑↑↑ | | ↑ | ↑↑↑ | | | | ↑ | | | ↑ |
| Volume (veh/h) | 0 | 2360 | 40 | 15 | 1345 | 165 | 0 | 0 | 115 | 0 | 0 | 40 |
| Sign Control | | Free | | | Free | | | Stop | | | Stop | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Peak Hour Factor | 0.99 | 0.99 | 0.99 | 0.92 | 0.91 | 0.91 | 0.83 | 0.83 | 0.83 | 0.66 | 0.66 | 0.66 |
| Hourly flow rate (vph) | 0 | 2384 | 40 | 16 | 1478 | 181 | 0 | 0 | 139 | 0 | 0 | 61 |
| Pedestrians | | 1 | | | 1 | | | | | | 9 | |
| Lane Width (ft) | | 12.0 | | | 12.0 | | | | | | 12.0 | |
| Walking Speed (ft/s) | | 4.0 | | | 4.0 | | | | | | 4.0 | |
| Percent Blockage | | 0 | | | 0 | | | | | | 1 | |
| Right turn flare (veh) | | | | | | | | | | | | |
| Median type | | None | | | None | | | | | | | |
| Median storage (veh) | | | | | | | | | | | | |
| Upstream signal (ft) | | 631 | | | 594 | | | | | | | |
| pX, platoon unblocked | 0.81 | | | 0.73 | | | 0.82 | 0.82 | 0.73 | 0.82 | 0.82 | 0.81 |
| vC, conflicting volume | 1668 | | | 2424 | | | 2991 | 4105 | 816 | 2544 | 4035 | 593 |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 1004 | | | 1648 | | | 1108 | 2462 | 0 | 565 | 2376 | 0 |
| tC, single (s) | 4.1 | | | 4.1 | | | 7.5 | 6.5 | 6.9 | 7.6 | 6.6 | 7.0 |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 2.2 | | | 2.2 | | | 3.5 | 4.0 | 3.3 | 3.5 | 4.0 | 3.3 |
| p0 queue free % | 100 | | | 94 | | | 100 | 100 | 82 | 100 | 100 | 93 |
| cM capacity (veh/h) | 556 | | | 283 | | | 120 | 23 | 789 | 257 | 25 | 863 |
| Direction, Lane # | EB 1 | EB 2 | EB 3 | WB 1 | WB 2 | WB 3 | WB 4 | NB 1 | SB 1 | | | |
| Volume Total | 954 | 954 | 517 | 16 | 591 | 591 | 477 | 139 | 61 | | | |
| Volume Left | 0 | 0 | 0 | 16 | 0 | 0 | 0 | 0 | 0 | | | |
| Volume Right | 0 | 0 | 40 | 0 | 0 | 0 | 181 | 139 | 61 | | | |
| cSH | 1700 | 1700 | 1700 | 283 | 1700 | 1700 | 1700 | 789 | 863 | | | |
| Volume to Capacity | 0.56 | 0.56 | 0.30 | 0.06 | 0.35 | 0.35 | 0.28 | 0.18 | 0.07 | | | |
| Queue Length 95th (ft) | 0 | 0 | 0 | 5 | 0 | 0 | 0 | 16 | 6 | | | |
| Control Delay (s) | 0.0 | 0.0 | 0.0 | 18.5 | 0.0 | 0.0 | 0.0 | 10.5 | 9.5 | | | |
| Lane LOS | | | | C | | | | B | A | | | |
| Approach Delay (s) | 0.0 | | | 0.2 | | | | 10.5 | 9.5 | | | |
| Approach LOS | | | | | | | | B | A | | | |
| Intersection Summary | | | | | | | | | | | | |
| Average Delay | | | | 0.5 | | | | | | | | |
| Intersection Capacity Utilization | | | 60.6% | | | | | | | B | | |
| Analysis Period (min) | | | 15 | | | | | | | | | |

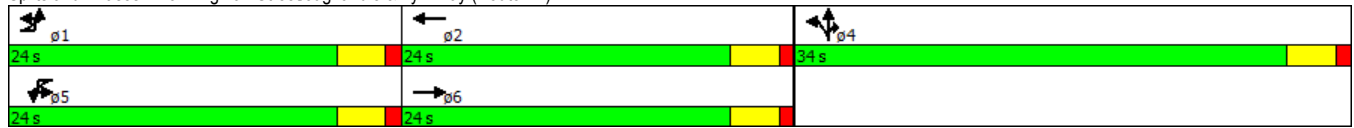


| Lane Group | EBU | EBL | EBT | EBR | WBU | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|-------------------------|-------|-------|-------|------|-------|-------|-------|------|-------|-------|-------|------|------|------|
| Lane Configurations | | ↔ | ↔↔↔ | | | ↔ | ↔↔↔ | | | ↔ | ↔ | | | |
| Volume (vph) | 55 | 10 | 2370 | 20 | 15 | 55 | 1285 | 35 | 140 | 0 | 100 | 0 | 0 | 0 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Storage Length (ft) | | 250 | | 0 | | 275 | | 0 | 0 | | 50 | 0 | | 0 |
| Storage Lanes | | 1 | | 0 | | 1 | | 0 | 0 | | 1 | 0 | | 0 |
| Taper Length (ft) | | 25 | | | | 25 | | | 25 | | | 25 | | |
| Satd. Flow (prot) | 0 | 1787 | 5130 | 0 | 0 | 1752 | 5013 | 0 | 0 | 1736 | 1553 | 0 | 0 | 0 |
| Fit Permitted | | 0.950 | | | | 0.950 | | | | 0.950 | | | | |
| Satd. Flow (perm) | 0 | 1787 | 5130 | 0 | 0 | 1752 | 5013 | 0 | 0 | 1734 | 1553 | 0 | 0 | 0 |
| Right Turn on Red | | | | Yes | | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | | 1 | | | | 5 | | | | 148 | | | |
| Link Speed (mph) | | | 30 | | | | 30 | | | 30 | | | 30 | |
| Link Distance (ft) | | | 594 | | | | 410 | | | 266 | | | 157 | |
| Travel Time (s) | | | 13.5 | | | | 9.3 | | | 6.0 | | | 3.6 | |
| Confl. Peds. (#/hr) | | 1 | | 1 | | 1 | | 1 | 1 | | 5 | 5 | | 1 |
| Peak Hour Factor | 0.96 | 0.96 | 0.96 | 0.96 | 0.94 | 0.94 | 0.94 | 0.94 | 0.57 | 0.57 | 0.57 | 0.92 | 0.92 | 0.92 |
| Heavy Vehicles (%) | 1% | 1% | 1% | 1% | 3% | 3% | 3% | 3% | 4% | 4% | 4% | 2% | 2% | 2% |
| Shared Lane Traffic (%) | | | | | | | | | | | | | | |
| Lane Group Flow (vph) | 0 | 67 | 2490 | 0 | 0 | 75 | 1404 | 0 | 0 | 246 | 175 | 0 | 0 | 0 |
| Turn Type | Prot | Prot | NA | | Prot | Prot | NA | | Split | NA | Prot | | | |
| Protected Phases | 1 | 1 | 6 | | 5 | 5 | 2 | | 4 | 4 | 4 | | | |
| Permitted Phases | | | | | | | | | | | | | | |
| Detector Phase | 1 | 1 | 6 | | 5 | 5 | 2 | | 4 | 4 | 4 | | | |
| Switch Phase | | | | | | | | | | | | | | |
| Minimum Initial (s) | 7.0 | 7.0 | 7.0 | | 7.0 | 7.0 | 7.0 | | 7.0 | 7.0 | 7.0 | | | |
| Minimum Split (s) | 11.0 | 11.0 | 26.0 | | 11.0 | 11.0 | 26.0 | | 26.0 | 26.0 | 26.0 | | | |
| Total Split (s) | 24.0 | 24.0 | 24.0 | | 24.0 | 24.0 | 24.0 | | 34.0 | 34.0 | 34.0 | | | |
| Total Split (%) | 29.3% | 29.3% | 29.3% | | 29.3% | 29.3% | 29.3% | | 41.5% | 41.5% | 41.5% | | | |
| Yellow Time (s) | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | | | |
| All-Red Time (s) | 1.0 | 1.0 | 1.0 | | 1.0 | 1.0 | 1.0 | | 1.0 | 1.0 | 1.0 | | | |
| Lost Time Adjust (s) | | 0.0 | 0.0 | | | 0.0 | 0.0 | | | 0.0 | 0.0 | | | |
| Total Lost Time (s) | | 4.0 | 4.0 | | | 4.0 | 4.0 | | | 4.0 | 4.0 | | | |
| Lead/Lag | Lead | Lead | Lag | | Lead | Lead | Lag | | | | | | | |
| Lead-Lag Optimize? | | | | | | | | | | | | | | |
| Recall Mode | None | None | Max | | None | None | Min | | None | None | None | | | |
| Act Effect Green (s) | | 7.7 | 23.3 | | | 7.9 | 23.5 | | | 12.5 | 12.5 | | | |
| Actuated g/C Ratio | | 0.15 | 0.46 | | | 0.16 | 0.47 | | | 0.25 | 0.25 | | | |
| v/c Ratio | | 0.25 | 1.05 | | | 0.27 | 0.60 | | | 0.57 | 0.35 | | | |
| Control Delay | | 25.1 | 54.3 | | | 25.2 | 14.1 | | | 23.2 | 7.2 | | | |
| Queue Delay | | 0.0 | 0.0 | | | 0.0 | 0.0 | | | 0.0 | 0.0 | | | |
| Total Delay | | 25.1 | 54.3 | | | 25.2 | 14.1 | | | 23.2 | 7.2 | | | |
| LOS | | C | D | | | C | B | | | C | A | | | |
| Approach Delay | | | 53.5 | | | | 14.7 | | | 16.6 | | | | |
| Approach LOS | | | D | | | | B | | | B | | | | |
| Queue Length 50th (ft) | | 19 | ~355 | | | 22 | 122 | | | 70 | 7 | | | |
| Queue Length 95th (ft) | | 58 | #619 | | | 62 | 238 | | | 77 | 12 | | | |
| Internal Link Dist (ft) | | | 514 | | | | 330 | | | 186 | | | 77 | |
| Turn Bay Length (ft) | | 250 | | | | 275 | | | | | 50 | | | |
| Base Capacity (vph) | | 738 | 2369 | | | 723 | 2331 | | | 1075 | 1018 | | | |
| Starvation Cap Reductn | | 0 | 0 | | | 0 | 0 | | | 0 | 0 | | | |
| Spillback Cap Reductn | | 0 | 0 | | | 0 | 0 | | | 0 | 0 | | | |
| Storage Cap Reductn | | 0 | 0 | | | 0 | 0 | | | 0 | 0 | | | |
| Reduced v/c Ratio | | 0.09 | 1.05 | | | 0.10 | 0.60 | | | 0.23 | 0.17 | | | |

Intersection Summary

Area Type: Other
 Cycle Length: 82
 Actuated Cycle Length: 50.5
 Natural Cycle: 80
 Control Type: Semi Act-Uncoord
 Maximum v/c Ratio: 1.05
 Intersection Signal Delay: 37.1
 Intersection Capacity Utilization 77.1%
 Analysis Period (min) 15
 ~ Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 3: Kingman Street/Jughandle & Lynnway (Route 1A)



Preliminary Cost Estimates



Vanasse Hangen Brustlin, Inc.

**Transportation
Land Development
Environmental
Services**

101 Walnut Street
Post Office Box 9151
Watertown
Massachusetts 02471
617 924 1770

**LYNN - LYNNWAY AT BLOSSOM ST
CONCEPTUAL CONSTRUCTION COST ESTIMATE
SUMMARY**

Construction Items

| <u>Description</u> | <u>Unit Price</u> | <u>Quantity</u> | <u>Total Cost</u> |
|--------------------------------------|-------------------|--------------------------------------|---------------------|
| Full Depth Pavement | \$86.00 /SY | 210 SY | \$18,060.00 |
| Full Depth Pavement - Less than 4.0' | \$117.00 /SY | 10 SY | \$1,170.00 |
| Cement Concrete Median | \$73.00 /SY | 510 SY | \$37,230.00 |
| Granite Curb | \$39.00 /FT | 920 FT | \$35,880.00 |
| Signing & Striping | \$2,800.00 /LS | 1 LS | \$2,800.00 |
| Drainage | \$11,500.00 /LS | 1 LS | \$11,500.00 |
| | | SUBTOTAL: | \$106,640.00 |
| | | Police Detail (10%) | \$10,664 |
| | | Mobilization (3%) | \$3,199 |
| | | Construction Traffic Management (5%) | \$5,332 |
| | | TOTAL: | \$125,835 |
| | | Contingencies (15%): | \$18,875 |
| | | Construction TOTAL: | \$144,710 |

NOTE:

1. Prices were determined from the MassDOT Weighted Average Bid Prices web site.



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LYNN - LYNNWAY AT BLOSSOM ST
CONCEPTUAL CONSTRUCTION COST ESTIMATE
SUMMARY - FLASHING WARNING BEACON ALTERNATIVE

Construction Items

| <u>Description</u> | <u>Unit Price</u> | <u>Quantity</u> | <u>Total Cost</u> |
|--------------------------------------|-------------------|--------------------------------------|---------------------|
| Full Depth Pavement | \$86.00 /SY | 210 SY | \$18,060.00 |
| Full Depth Pavement - Less than 4.0' | \$117.00 /SY | 10 SY | \$1,170.00 |
| Cement Concrete Median | \$73.00 /SY | 510 SY | \$37,230.00 |
| Granite Curb | \$39.00 /FT | 920 FT | \$35,880.00 |
| Signing & Striping | \$2,800.00 /LS | 1 LS | \$2,800.00 |
| Drainage | \$11,500.00 /LS | 1 LS | \$11,500.00 |
| Flashing Warning Beacon | \$44,000.00 /LS | 1 LS | \$44,000.00 |
| | | SUBTOTAL: | \$150,640.00 |
| | | Police Detail (10%) | \$15,064 |
| | | Mobilization (3%) | \$4,519 |
| | | Construction Traffic Management (5%) | \$7,532 |
| | | TOTAL: | \$177,755 |
| | | Contingencies (15%): | \$26,663 |
| | | Construction TOTAL: | \$204,418 |

NOTE:

1. Prices were determined from the MassDOT Weighted Average Bid Prices web site.



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**LYNN - LYNNWAY AT BLOSSOM ST
CONCEPTUAL CONSTRUCTION COST ESTIMATE
SUMMARY - TRAFFIC SIGNAL ALTERNATIVE**

Construction Items

| <u>Description</u> | <u>Unit Price</u> | <u>Quantity</u> | <u>Total Cost</u> |
|--------------------------------------|-------------------|--------------------------------------|---------------------|
| Full Depth Pavement | \$86.00 /SY | 210 SY | \$18,060.00 |
| Full Depth Pavement - Less than 4.0' | \$117.00 /SY | 10 SY | \$1,170.00 |
| Cement Concrete Median | \$73.00 /SY | 510 SY | \$37,230.00 |
| Granite Curb | \$39.00 /FT | 920 FT | \$35,880.00 |
| Signing & Striping | \$2,800.00 /LS | 1 LS | \$2,800.00 |
| Drainage | \$11,500.00 /LS | 1 LS | \$11,500.00 |
| Traffic Signal | \$86,500.00 /LS | 1 LS | \$86,500.00 |
| | | SUBTOTAL: | \$193,140.00 |
| | | Police Detail (10%) | \$19,314 |
| | | Mobilization (3%) | \$5,794 |
| | | Construction Traffic Management (5%) | \$9,657 |
| | | TOTAL: | \$227,905 |
| | | Contingencies (15%): | \$34,186 |
| | | Construction TOTAL: | \$262,091 |

NOTE:

1. Prices were determined from the MassDOT Weighted Average Bid Prices web site.

Signal Warrant Worksheet

2009 MUTCD

TRAFFIC SIGNAL WARRANT ANALYSIS (VOLUME BASED)

Intersection: **Lynnway (Route 1A) at Blossom Street**

Major Street Direction: Eastbound-Westbound ▼

Year: **2014** Condition: **Existing with Ferry Traffic (WBL assumed to be minor street approach)**

Operating speed on major roadway: **35 mph**
 Number of approaches: **4**

Required approach volumes

| Warrant 1 | EIGHT-HOUR VEHICULAR VOLUME | Minimum* | Adjusted Minimum** |
|--|---|------------|--------------------|
| Warrant 1A | MINIMUM VEHICULAR VOLUME (8 hours of day) | | |
| | Major Street : 3 Lane(s) on each approach | 600 | 600 |
| | Minor Street : 1 Lane(s) on each approach | 150 | 150 |
| Warrant 1B | INTERRUPTION OF CONTINUOUS TRAFFIC (8 hours of day) | | |
| | Major Street : 3 Lane(s) on each approach | 900 | 900 |
| | Minor Street : 1 Lane(s) on each approach | 75 | 75 |
| 80 PERCENT SATISFACTION OF WARRANT 1A AND WARRANT 1B | | Warrant 1A | Warrant 1B |
| | Major Street : 3 Lane(s) on each approach | 480 | 720 |
| | Minor Street : 1 Lane(s) on each approach | 120 | 60 |

| Warrant 2 | FOUR HOUR VEHICULAR VOLUME | |
|-----------|---|--|
| | Major Street : 3 Lane(s) on each approach | If "verify" indicated, see Figure 4C-1 or 4C-2. 25 = accuracy of regression equations |
| | Minor Street : 1 Lane(s) on each approach | |

| Warrant 3 | PEAK HOUR VOLUME | |
|-----------|---|--|
| | Major Street : 3 Lane(s) on each approach | If "verify" indicated, see Figure 4C-3 or 4C-4. 25 = accuracy of regression equations |
| | Minor Street : 1 Lane(s) on each approach | |

| Hour | Entering Vol. Minor Road+ | Entering Vol. on Major Road | | Tot. Ent. Vol. On Major Rd | Meets the following volume-based warrants? | | | | | |
|------------------|---------------------------|-----------------------------|-----------|----------------------------|--|-----------|------------|-----------|-----------|----------|
| | | Eastbound | Westbound | | 1A | 1B | 80%(1A&1B) | 2 | 3 | |
| 6:00 - 7:00 AM | 0 | 0 | 0 | 0 | No | No | No | 0 | 0 | |
| 7:00 - 8:00 AM | 50 | 1100 | 0 | 1100 | No | No | No | 0 | 0 | |
| 8:00 - 9:00 AM | 0 | 0 | 0 | 0 | No | No | No | 0 | 0 | |
| 9:00 - 10:00 AM | 0 | 0 | 0 | 0 | No | No | No | 0 | 0 | |
| 10:00 - 11:00 AM | 0 | 0 | 0 | 0 | No | No | No | 0 | 0 | |
| 11:00 - 12:00 AM | 0 | 0 | 0 | 0 | No | No | No | 0 | 0 | |
| 12:00 - 1:00 PM | 0 | 0 | 0 | 0 | No | No | No | 0 | 0 | |
| 1:00 - 2:00 PM | 0 | 0 | 0 | 0 | No | No | No | 0 | 0 | |
| 2:00 - 3:00 PM | 0 | 0 | 0 | 0 | No | No | No | 0 | 0 | |
| 3:00 - 4:00 PM | 0 | 0 | 0 | 0 | No | No | No | 0 | 0 | |
| 4:00 - 5:00 PM | 0 | 0 | 0 | 0 | No | No | No | 0 | 0 | |
| 5:00 - 6:00 PM | 15 | 2400 | 0 | 2400 | No | No | No | 0 | 0 | |
| 6:00 - 7:00 PM | 0 | 0 | 0 | 0 | No | No | No | 0 | 0 | |
| | | | | | No | No | No | No | No | |
| | | | | | Warrants Met? | 1 | 2 | 3 | 2 | 3 |
| | | | | | | NO | | No | No | |

*From the criteria described for the warrant in the MUTCD.

**If the operating speed is higher than 40mph then the volumes can be adjusted to 70%. (If no adjusted minimum, the minimum from the previous column is shown)

+If more than one approach, report the approach that has the higher volume.

NON-VOLUME-BASED WARRANTS

Warrant 4, Minimum Pedestrian Volume: No
 Peak Four Hour Pedestrian Volumes: 0
 (non-concurrent) 0
0
0

Warrant 5, School Crossing:
 See MUTCD for details.

Warrant 6, Coordinated Signal System:
 See MUTCD for details.

Warrant 7, Crash Experience: No
 # of accidents "correctable by
 signalization" occurring in the last 12 months: 0

Warrant 8, Roadway Network:
 See MUTCD for details.



Route 1A/Lynnway/Carroll Parkway

Federal Fiscal Year 2015 Priority Corridors for Long-Range Transportation Plan (LRTP) Needs Assessment

April 17, 2015

Seth Asante

Boston Region Metropolitan Planning Organization

Purpose of Priority Corridors Study

- **Improve safety**
- **Reduce congestion**
- **Provide efficient traffic operations**
- **Encourage multimodal accommodation**
- **Provide better access management**
- **Promote healthy transportation**

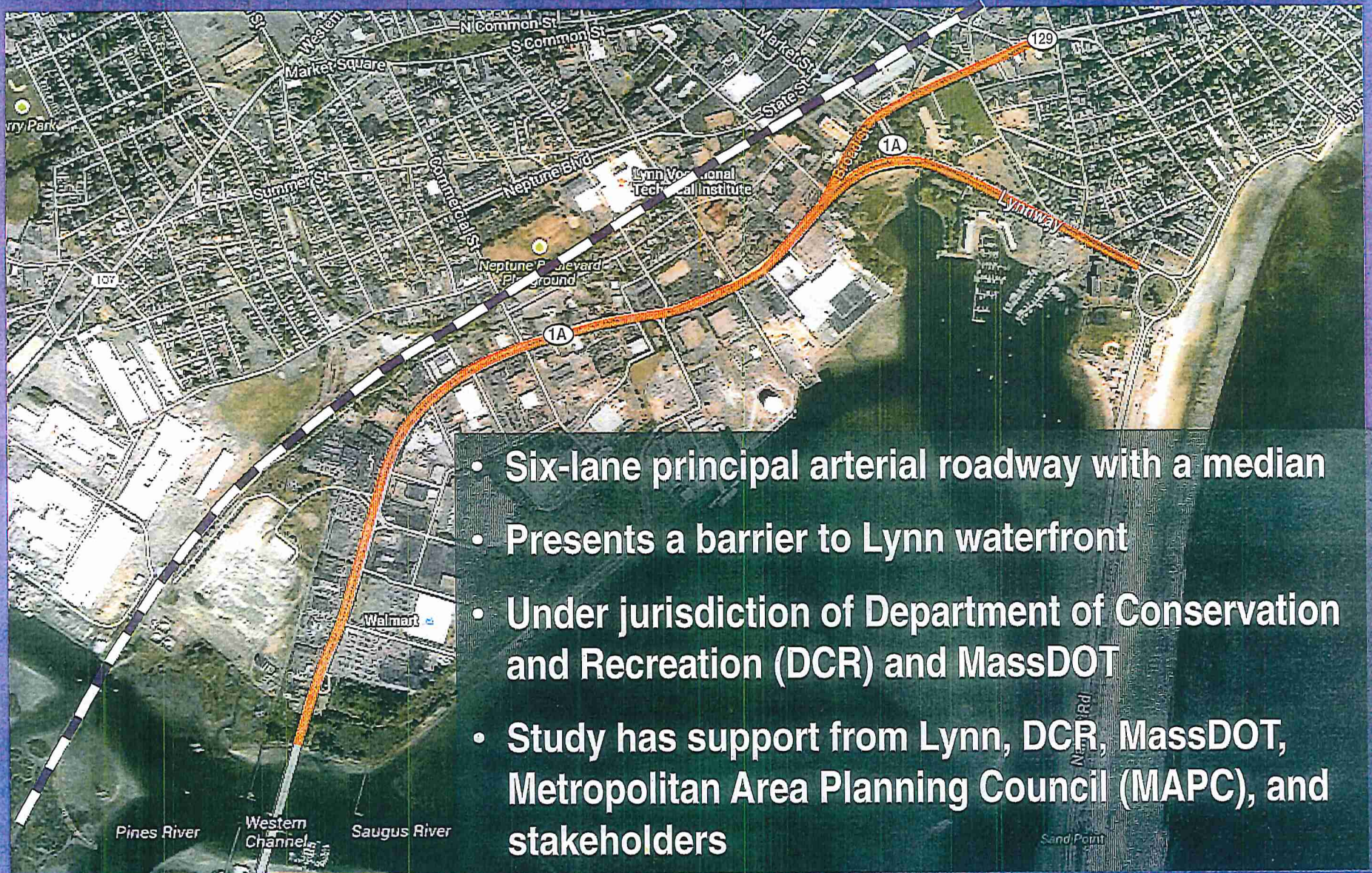


Selection Criteria

- **Safety conditions**
- **Multimodal significance**
- **Congestion**
- **Regional or subregional significance**
- **Implementation potential**
- **Regional equity**



Route 1A/Lynnway/Carroll Parkway



- Six-lane principal arterial roadway with a median
- Presents a barrier to Lynn waterfront
- Under jurisdiction of Department of Conservation and Recreation (DCR) and MassDOT
- Study has support from Lynn, DCR, MassDOT, Metropolitan Area Planning Council (MAPC), and stakeholders

Route 1A/Lynnway/Carroll Parkway and Lynn Waterfront

- **Vision**
- **Goals and objectives**

Vision for Lynn Waterfront

- **Connect the City with the waterfront**
 - **Create open spaces along the waterfront**
 - **Design mixed use neighborhood**
 - **Transform the Lynnway into a pedestrian friendly boulevard**
 - **Upgrade the traffic system to be more pedestrian-friendly**
 - **Create a walkable, livable community that promotes human interaction**
-



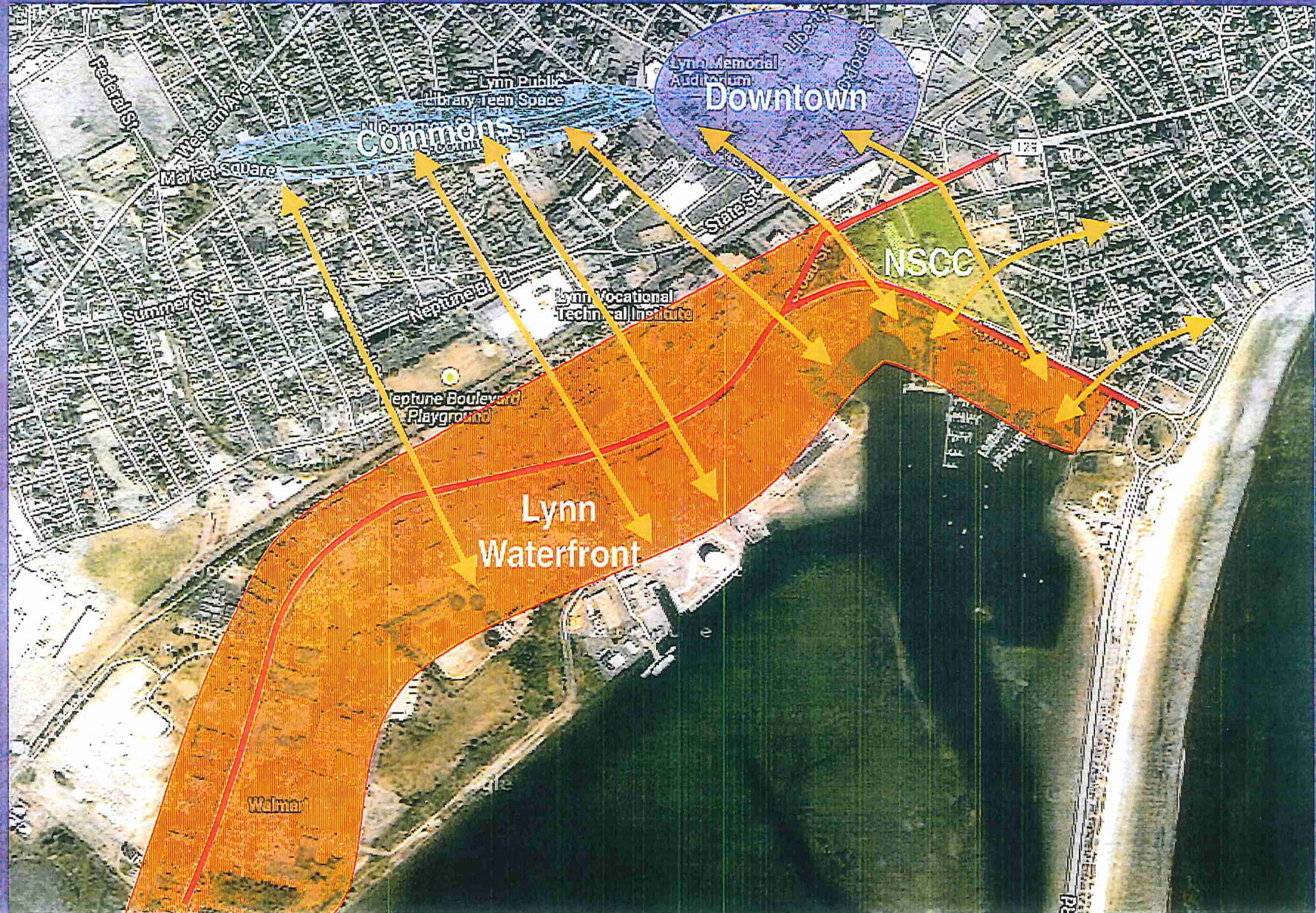
Goals and Objectives

Route 1A/Lynnway/Carroll Parkway

- **Serve through or regional traffic**
- **Balance the needs of through traffic with the needs:**
 - **Pedestrians**
 - **Bicyclists**
 - **Local traffic access to the waterfront**



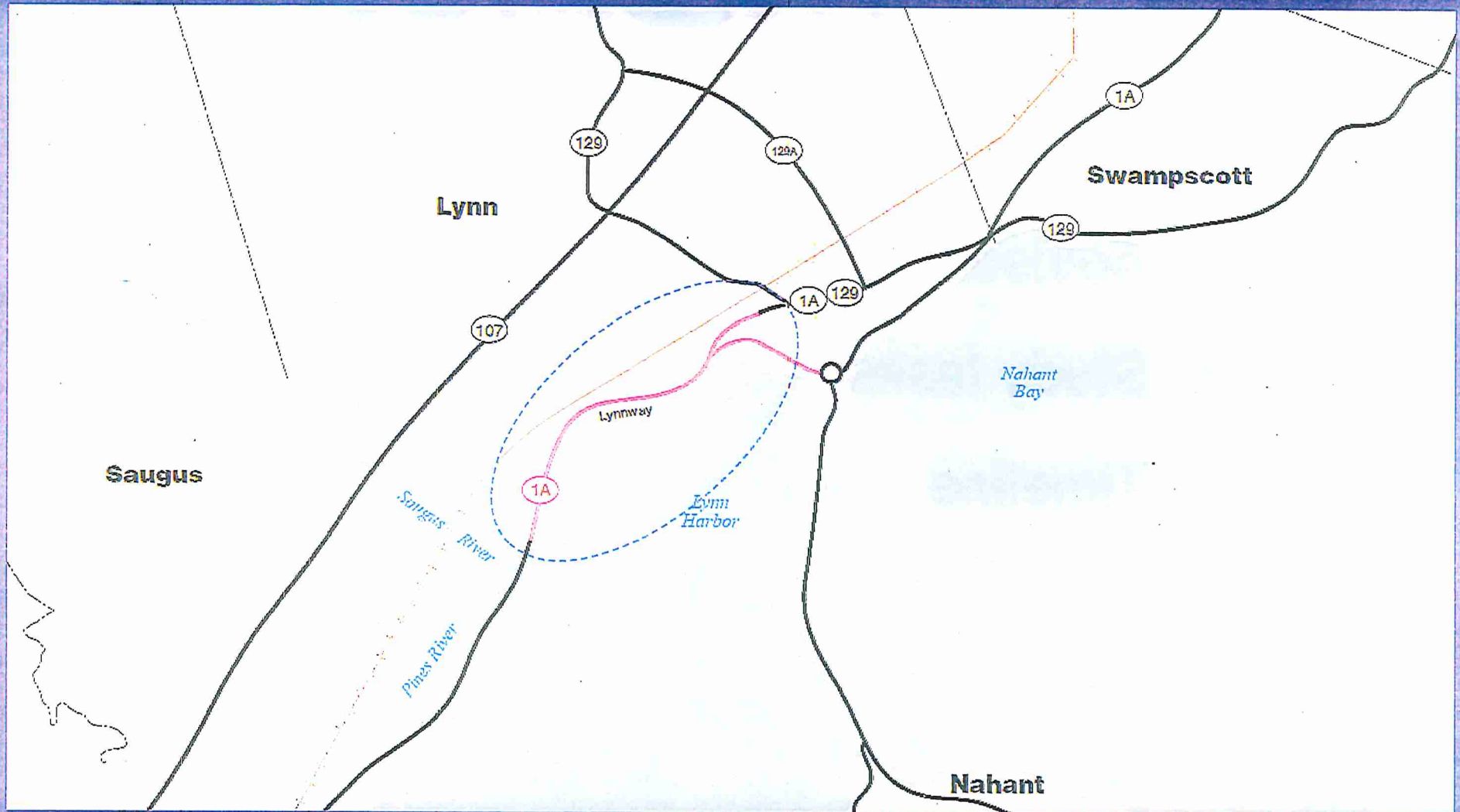
Transportation and Land Use Interaction



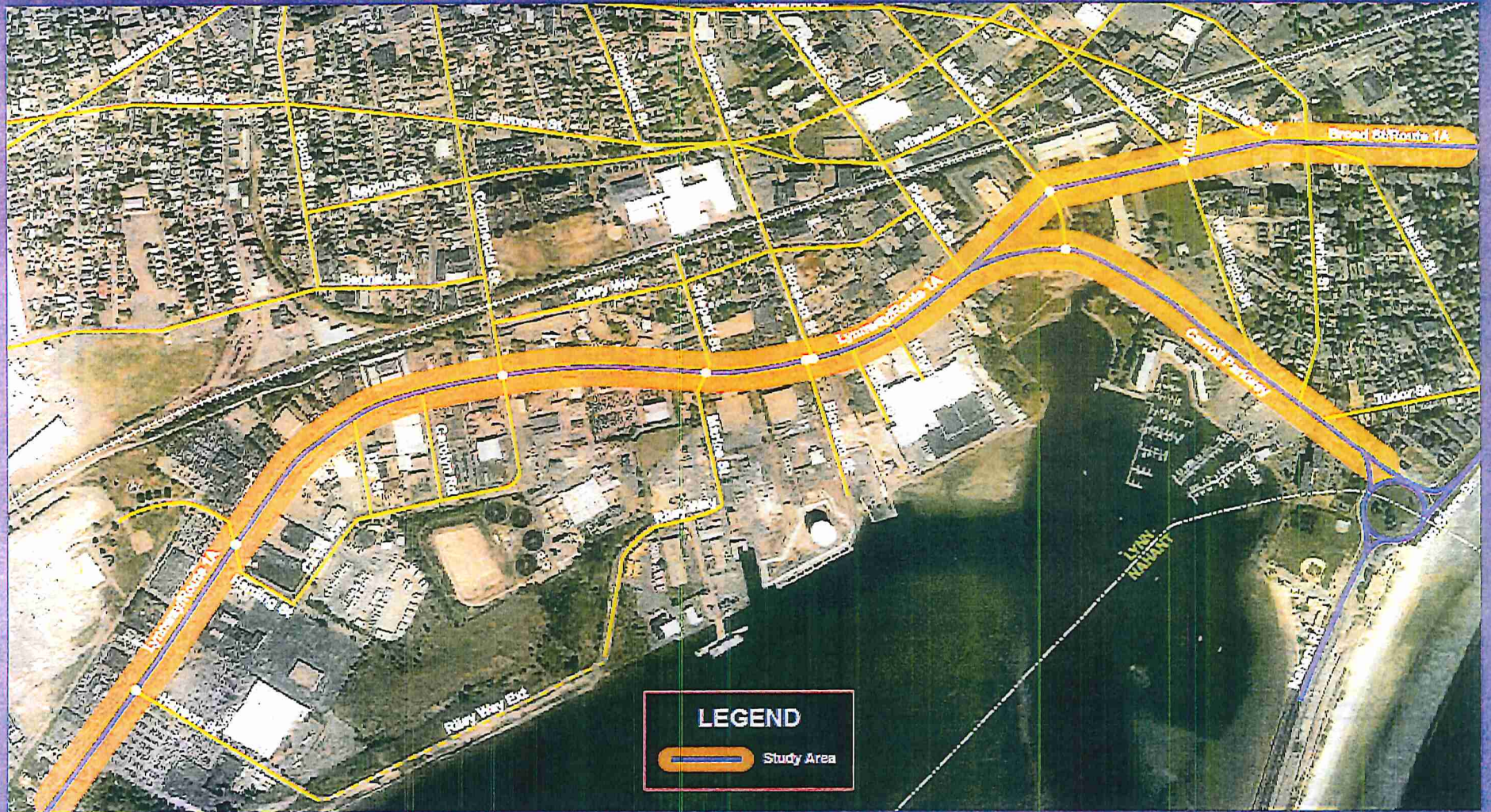
Scope of Study

- **Study area**
- **Advisory task force**
- **Study tasks**
- **Timeline**

Study Area Map



Study Limits



Advisory Task Force

- **City of Lynn**
- **Department of Conservation and Recreation**
- **MassDOT Highway Division District 4**
- **MassDOT Office of Planning and Transportation**
- **Metropolitan Area Planning Council**



Study Tasks

- **Data collection**
- **Existing conditions analyses**
- **Forecast future traffic**
- **Develop and analyze alternatives**
- **Document study**



Data Collection

- Land use
- Traffic volumes
- Speed data
- Crash data
- Traffic signal data
- Bus service data



Existing Conditions

- **Land Uses**
 - Inventory of corridor uses and businesses in the project area
 - Identification of major development opportunities, including vacant or underused sites.
- **Pedestrian and bicycle needs**
 - Sidewalks, crosswalks, and pedestrian signals
 - Bike lanes and detectors and signs



Existing Conditions

- **Safety conditions**
 - Total crashes (vehicular, pedestrian, and bicyclist)
 - Crash rates (intersection and roadway)
 - Collision diagrams
 - **Traffic patterns and operations**
 - Peak period conditions
 - Levels of service (delays and queues)
 - Travel speeds
 - Signal equipment
-



Future Traffic Forecasts

- **Forecast horizon (2030 or 2040)**
- **Regional travel demand model set**
- **Calibrated for 101 cities and towns in the Boston Region MPO area**
- **Adopted for the Long-Range Transportation Plan**



Develop and Analyze Alternatives

- **As many as 3 alternatives**
- **Road diet concepts (reconfiguring roadway to improve safety and operations)**
- **Complete street concepts (safe, convenient, and comfortable access for all users)**
- **Traffic circulation (efficient traffic operations)**

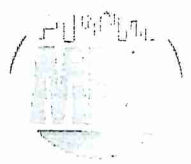
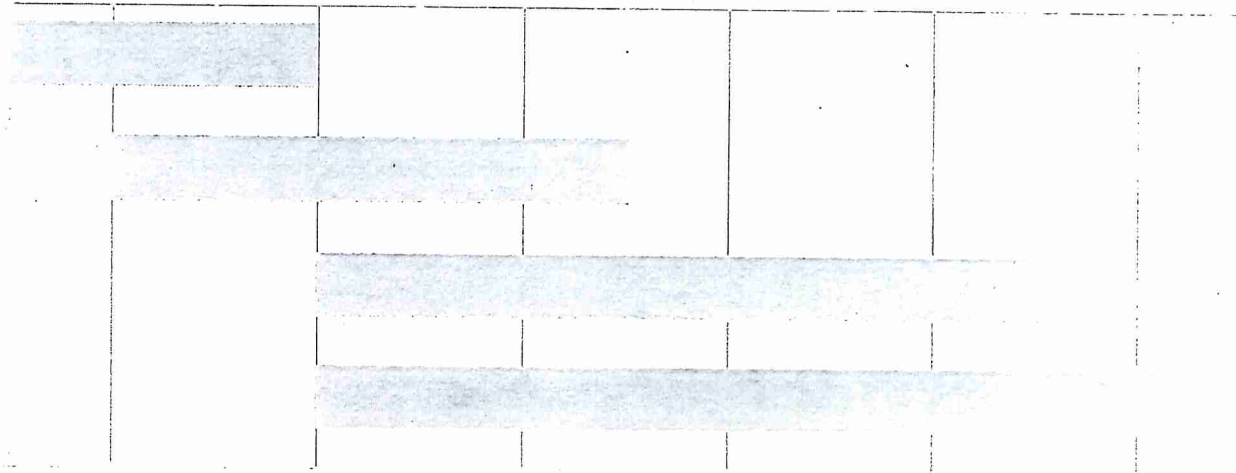


Document Study

- **Present products of study tasks**
- **Prepare draft document for review**
- **Address comments and feedback**
- **Finalize report**



Estimated Schedule



Thank you!

Questions?



To: City of Lynn

Date: September 9, 2015

Memorandum

Project #: 11942.03

From: Nicolette Hastings, PE
Kathleen Keen, EIT

Re: Lynnway at Blossom Street
Conceptual Improvements

Introduction

VHB evaluated a conceptual improvement option for the intersection of Lynnway (Route 1A) at Blossom Street in Lynn, Massachusetts. The evaluation considered impacts to traffic flow and operations along the Lynnway as a result of a potential improvement option at Blossom Street to improve access to the Lynn Commuter Ferry Terminal. This memorandum summarizes the results of this evaluation and includes a sketch level conceptual improvement plan and order of magnitude cost estimates for the City's consideration.

Existing Conditions

The existing conditions evaluation consisted of field inventories (including signal timing/phasing), the collection of peak period traffic volumes, and an operational analysis at the study area intersections.

Study Area

This memorandum evaluates the Lynnway in the vicinity of Blossom Street. The Lynnway is a principal arterial under the Department of Conservation and Recreation (DCR) jurisdiction and is oriented in an east-west direction within the study area. The Lynnway consists of three travel lanes in each direction with no shoulders. Eastbound and westbound traffic are separated by a concrete median. The posted speed limit in the vicinity of Blossom Street is 35 miles per hour (mph) eastbound and westbound. The study area consists of the following three intersections:

- **Lynnway (Route 1A) at Shepard Street/Marine Boulevard:** Signalized intersection with Shepard Street intersecting the Lynnway from the north and Marine Boulevard intersecting the Lynnway from the south. The Lynnway eastbound and westbound approaches consist of an exclusive left-turn storage lane, two through travel lanes, and a shared through/right-turn lane. There is a u-turn restriction for trucks on the Lynnway eastbound approach. The Shepard Street southbound approach and the Marine Boulevard northbound approach both consist of a single general purpose lane accommodating all movements. Sidewalks exist on both sides of the Lynnway and Shepard Street. Crosswalks are present across the eastbound, northbound, and southbound approaches.
- **Lynnway (Route 1A) at Blossom Street:** Unsignalized intersection with Blossom Street intersecting the Lynnway from the north and south. The Blossom Street northbound and southbound approaches are under STOP control and are right-in/right-out with the Lynnway eastbound and westbound traffic separated by a concrete median. The Lynnway eastbound approach consists of an exclusive left-turn storage lane for the downstream intersection with Kingman Street, two through travel lanes, and a shared through/right-turn lane. The Lynnway westbound approach consists of two through travel lanes and a shared through/right-turn lane. Sidewalks are present on all corners of the intersection with the exception of the western side of Blossom Street south of the Lynnway. Crosswalks exist on both the northbound and

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southbound approaches of Blossom Street; there are no pedestrian accommodations across the Lynnway at this location

- **Lynnway (Route 1A) at Kingman Street/jughandle:** Signalized intersection with Kingman Street intersecting the Lynnway from the south and a one-way northbound driveway intersecting the Lynnway from the north. The Lynnway eastbound and westbound approaches consist of an exclusive left-turn storage lane, two through travel lanes, and a shared through/right-turn lane. The Kingman Street approach consists of shared through/left-turn lane and an exclusive right-turn lane. Sidewalks are present on both sides of the Lynnway and crosswalks exist across the westbound, northbound, and southbound approaches.

Traffic Volumes

Manual turning movement counts (TMCs) were conducted at the three study area intersections during the weekday morning from 7:00 AM to 9:00 AM and during the weekday evening from 4:00 PM to 6:00 PM in November 2014. It should be noted that the TMCs were conducted during a time when the Lynn ferry service was not operational. A review of the data collected indicate the weekday morning peak hour is from 7:00 AM to 8:00 AM and the weekday evening peak hour is from 4:45 PM to 5:45 PM.

Lynn Commuter Ferry Service

The Lynn commuter ferry terminal is located at the southern end of Blossom Street. The Lynn to Boston ferry service operated seasonally in 2014 (the first year of a two year pilot program), from mid-May to mid-September. During this period, service was offered on weekday mornings and weekday evenings with two trips departing from Lynn in the morning and two trips departing from Boston during the evening.

The City of Lynn provided ferry ridership data for the month of September 2014 which was used to establish typical weekday morning and weekday evening peak hour traffic volumes at the study area intersections while the ferry service is operational. Table 1 shows the total number of vehicle trips added to the weekday morning and weekday evening existing traffic volumes.



Table 1 Peak Hour Ferry Ridership

| | <u>Weekday Morning</u> | <u>Weekday Evening</u> |
|-------------|------------------------|------------------------|
| Enter | 56 | 13 |
| <u>Exit</u> | <u>4</u> | <u>64</u> |
| Total | 60 | 77 |

Source: Lynn ferry ridership data, September 2014.

The trips in Table 1 were distributed onto the existing roadway network assuming 90 percent of the trips are coming to/from points north/east and 10 percent of trips are coming to/from points south/west. These assumptions are based on information provided by the City of Lynn. Figure 1 shows the resulting 2014 Existing Conditions (with ferry traffic) traffic volumes during the weekday morning and weekday evening peak hours at the study area intersections.

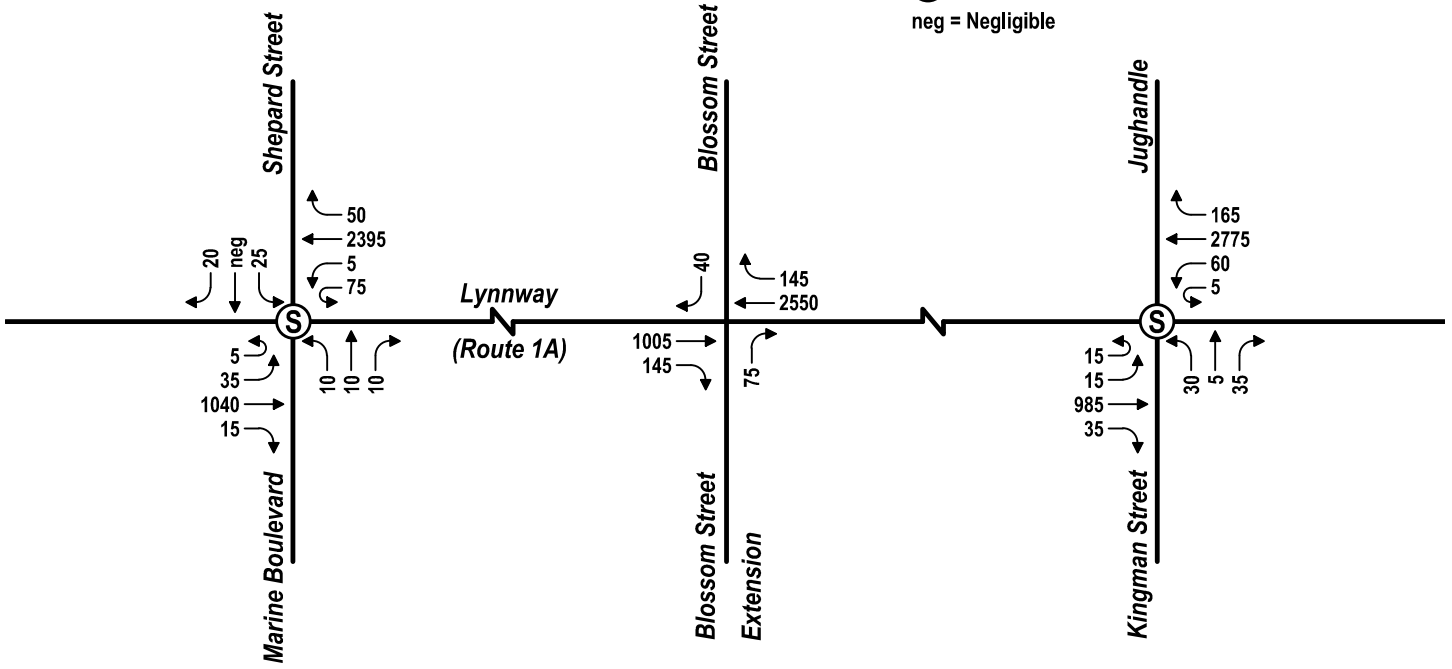
Traffic Operations Analysis

VHB conducted capacity analyses using SYNCHRO 8 software. The percentile delay method (SYNCHRO outputs) was used to evaluate how the signalized intersections accommodate the traffic demands, consistent with current MassDOT standards. Methods from the 2000 Highway Capacity Manual (HCM)¹ were used to evaluate how the unsignalized intersections accommodate the traffic demands as the HCM 2010 methodology does not support more than three through lanes on a major street approach. The capacity analyses were used to evaluate operations of the study area intersections and to provide a baseline to assess the operational benefits of the improvement options. Tables 2 and 3 show the results of the operations analysis at the signalized and unsignalized study area intersections, respectively.

¹ 2000 Highway Capacity Manual; Transportation Research Board: Washington, D.C.

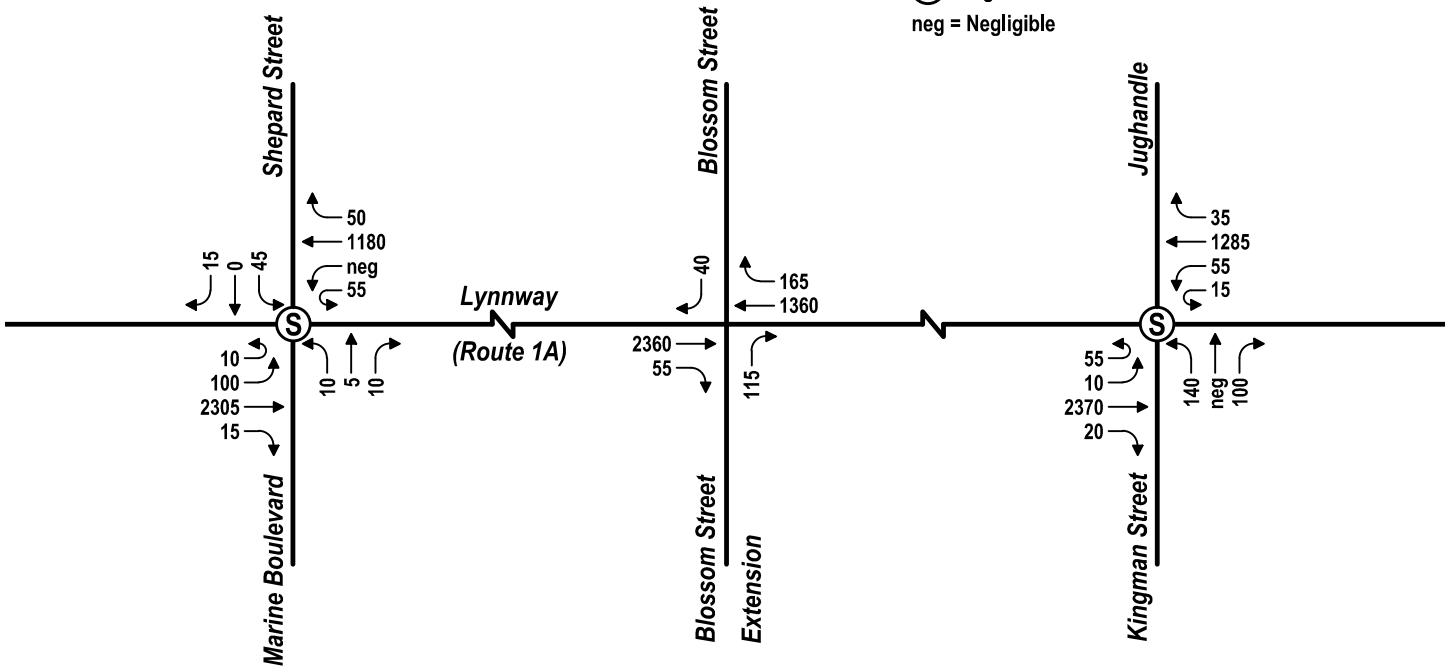
WEEKDAY MORNING PEAK HOUR

Ⓢ Signalized Intersection
neg = Negligible



WEEKDAY EVENING PEAK HOUR

Ⓢ Signalized Intersection
neg = Negligible



Vanasse Hangen Brustlin, Inc.

2014 Existing Conditions
Peak Hour Traffic Volumes
with Ferry Traffic

Figure 1



Not to Scale

Blossom Street Improvements
Lynn, Massachusetts



Table 2 Signalized Intersection Capacity Analyses

| | | 2014 Existing Conditions with Ferry Traffic | | | | | | | | | |
|---|----------------------|---|------------------|------------------|-------------------|-------------------|---------------------------|-----------|----------|------|------|
| Intersection | Movement | Weekday Morning Peak Hour | | | | | Weekday Evening Peak Hour | | | | |
| | | V/C ¹ | Del ² | LOS ³ | 50 Q ⁴ | 95 Q ⁵ | V/C | Del | LOS | 50 Q | 95 Q |
| 1: Lynnway (Route 1A) at Shepard Street/ Marine Boulevard | Lynnway EB L | 0.34 | 50 | D | 27 | 65 | 0.56 | 53 | D | 64 | 134 |
| | Lynnway EB T/R | 0.38 | 9 | A | 114 | 208 | 0.65 | 12 | B | 277 | 551 |
| | Lynnway WB L | 0.49 | 52 | D | 48 | 107 | 0.38 | 51 | D | 34 | 85 |
| | Lynnway WB T/R | 0.70 | 12 | B | 330 | 648 | 0.41 | 10 | B | 125 | 257 |
| | Marine Blvd NB L/T/R | 0.40 | 40 | D | 17 | 34 | 0.37 | 34 | C | 23 | 17 |
| | Shepard St SB L/T/R | 0.26 | 9 | A | 0 | 19 | 0.34 | 17 | B | 4 | 37 |
| | Overall | | 13 | B | | | | 14 | B | | |
| 3: Lynnway (Route 1A) at Kingman Street/ jughandle | Lynnway EB L | 0.14 | 23 | C | 9 | 35 | 0.25 | 25 | C | 19 | 58 |
| | Lynnway EB T/R | 0.39 | 10 | B | 82 | 182 | 1.05 | 54 | D | ~355 | #619 |
| | Lynnway WB L | 0.25 | 24 | C | 17 | 58 | 0.27 | 25 | C | 22 | 62 |
| | Lynnway WB T/R | 0.88 | 20 | C | 186 | #797 | 0.60 | 14 | B | 122 | 238 |
| | Kingman St NB L/T | 0.21 | 19 | B | 12 | 27 | 0.57 | 23 | C | 70 | 77 |
| | Kingman St NB R | 0.19 | 5 | A | 0 | 8 | 0.35 | 7 | A | 7 | 12 |
| | Overall | | 17 | B | | | | 37 | D | | |

Source: VHB, Inc. using SYNCHRO 8 software

| | | | |
|---|--|---|---|
| 1 | Volume-to-capacity ratio, based on theoretical capacity. | 4 | 50th percentile queue length estimate, in feet |
| 2 | Average delay, in seconds per vehicle | 5 | 95th percentile queue length estimate, in feet. |
| 3 | Level of service | ~ | Volume exceeds capacity, queue is theoretically infinite |
| | | # | 95th percentile volumes exceeds capacity, queue may be longer |

Table 3 Unsignalized Intersection Capacity Analyses

| | | 2014 Existing Conditions with Ferry Traffic | | | | | | | | | |
|--|---------------------|---|------------------|------------------|------------------|-------------------|---------------------------|------|-----|-----|------|
| Intersection | Critical Movements | Weekday Morning Peak Hour | | | | | Weekday Evening Peak Hour | | | | |
| | | D ¹ | V/C ² | Del ³ | LOS ⁴ | 95 Q ⁵ | D | V/C | Del | LOS | 95 Q |
| 2: Lynnway (Route 1A) at Blossom Street | Blossom St Ext NB R | 75 | 0.12 | 10 | A | 10 | 115 | 0.16 | 10 | B | 15 |
| | Blossom St SB R | 40 | 0.13 | 14 | B | 11 | 40 | 0.07 | 10 | A | 6 |

Source: VHB, Inc. using SYNCHRO 8 software.

| | | |
|---|---|--|
| Note: The HCM 2010 methodology does not support more than three through lanes on a major street approach, results reported are based on HCM 2000 methodology. | 1 | Demand, in vehicles |
| | 2 | Volume-to-capacity ratio, based on theoretical capacity. |
| | 3 | Average delay, in seconds per vehicle |
| | 4 | Level of service |
| | 5 | 95th percentile queue length estimate, in feet |



As shown in Tables 2 and 3, all three study area intersections operate at an acceptable LOS D or better during both the weekday morning and weekday evening peak hours.

Conceptual Improvement Evaluation

In coordination with the City of Lynn, VHB developed and evaluated a conceptual improvement option to add a Lynnway westbound left-turn lane at Blossom Street. The following section includes a discussion of the conceptual improvement option, summarizes impacts to traffic operations, and provides a preliminary lump sum cost estimate.

As shown in Figure 2, the conceptual improvement option includes a westbound left-turn lane along the Lynnway at the Blossom Street intersection. To accommodate the left-turn lane, the existing eastbound left-turn lane at Kingman Street would be shortened and the existing median would be relocated. The westbound left-turn lane at Blossom Street would be approximately 100 feet and the remaining eastbound left-turn lane at Kingman Street would be approximately 310 feet. The revised median design shown in the concept plan would serve to discourage left-turn and through movements from Blossom Street in both directions. In addition, a diverter island is proposed on the Blossom Street southbound approach to reinforce right-in/right-out operations. The preliminary lump sum cost estimate for this improvement option is approximately \$145,000.

As part of the conceptual improvement option, commuter ferry traffic currently making a westbound u-turn at the Lynnway and Shepard Street/Maine Boulevard intersection would be relocated to make a westbound left-turn at Blossom Street. Figure 3 shows the resulting weekday morning and weekday evening peak hour traffic volumes.

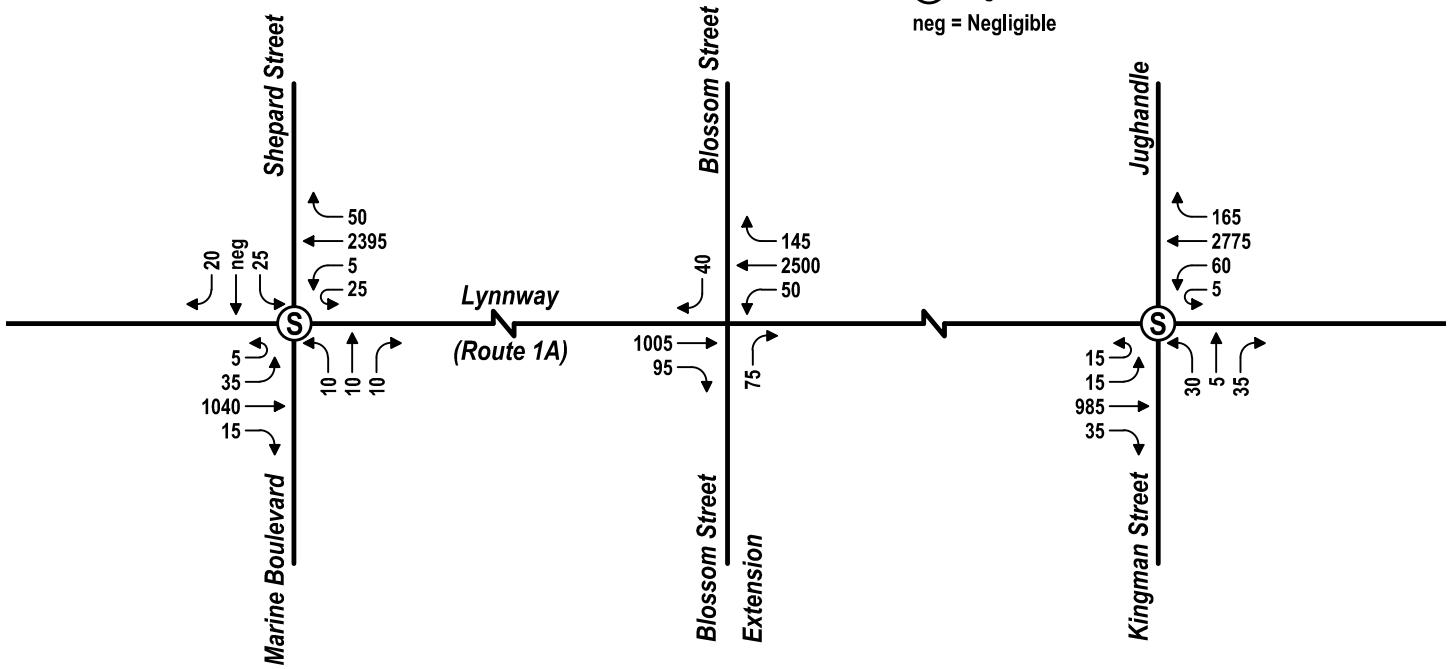
Tables 4 and 5 summarize the traffic operations under the conceptual improvement option for the signalized and unsignalized intersections, respectively. This analysis assumes that the Lynnway at Blossom Street intersection would remain unsignalized; no signal timing changes at the Lynnway and Shepard Street/Marine Boulevard intersection are assumed. No changes in operations would occur at intersection of Lynnway and Kingman Street/jughandle. As shown in Table 4, overall operations at the intersection of Lynnway and Shepard Street/Marine Boulevard are expected to improve during both peak hours under the conceptual improvement option, which may be attributed to the reduction in the westbound u-turn volume. As shown in Table 5, the westbound left-turn lane at the intersection of Lynnway and Blossom Street is expected to operate at LOS C or better during both peak hours with minimal queues under the conceptual improvement option. It should be noted that the revised turn lane lengths at the intersections with Blossom Street and Kingman Street discussed above can adequately accommodate the projected weekday morning and weekday evening peak hour queue demands at both locations.



Figure 2
Conceptual Improvement Option
Blossom Street Improvements
Lynn, Massachusetts

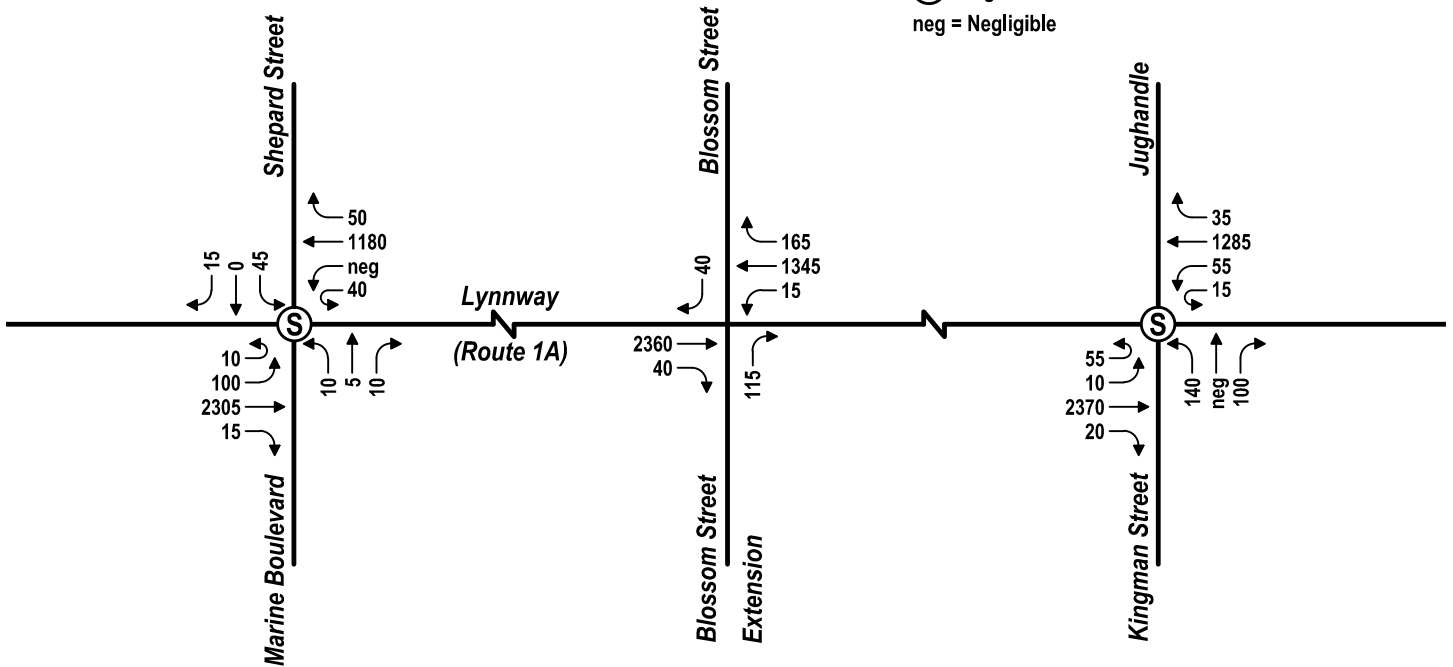
WEEKDAY MORNING PEAK HOUR

Ⓢ Signalized Intersection
neg = Negligible



WEEKDAY EVENING PEAK HOUR

Ⓢ Signalized Intersection
neg = Negligible



Vanasse Hangen Brustlin, Inc.

2014 Existing Conditions
Peak Hour Traffic Volumes
with Ferry Traffic and Future Geometry

Figure 3



Not to Scale

Blossom Street Improvements
Lynn, Massachusetts



Table 4 Signalized Intersection Capacity Analyses

| | | Improvement Option: Westbound Left-Turn Lane | | | | | | | | | |
|---|----------------------|--|------------------|------------------|-------------------|-------------------|---------------------------|-----------|----------|------|------|
| | | Weekday Morning Peak Hour | | | | | Weekday Evening Peak Hour | | | | |
| Intersection | Movement | V/C ¹ | Del ² | LOS ³ | 50 Q ⁴ | 95 Q ⁵ | V/C | Del | LOS | 50 Q | 95 Q |
| 1: Lynnway (Route 1A) at Shepard Street/ Marine Boulevard | Lynnway EB L | 0.32 | 48 | D | 27 | 64 | 0.56 | 53 | D | 64 | 134 |
| | Lynnway EB T/R | 0.36 | 7 | A | 105 | 186 | 0.62 | 10 | B | 270 | 531 |
| | Lynnway WB L | 0.22 | 46 | D | 18 | 52 | 0.30 | 50 | D | 25 | 67 |
| | Lynnway WB T/R | 0.71 | 13 | B | 328 | 648 | 0.41 | 10 | B | 125 | 257 |
| | Marine Blvd NB L/T/R | 0.39 | 38 | D | 17 | 33 | 0.37 | 34 | C | 23 | 17 |
| | Shepard St SB L/T/R | 0.25 | 8 | A | 0 | 19 | 0.34 | 17 | B | 4 | 37 |
| Overall | | | 12 | B | | | | 13 | B | | |

Source: VHB, Inc. using SYNCHRO 8 software

1 Volume-to-capacity ratio, based on theoretical capacity.

2 Average delay, in seconds per vehicle

3 Level of service

4 50th percentile queue length estimate, in feet

5 95th percentile queue length estimate, in feet.

~ Volume exceeds capacity, queue is theoretically infinite

95th percentile volumes exceeds capacity, queue may be longer

Table 5 Unsignalized Intersection Capacity Analyses

| | | Improvement Option: Westbound Left-Turn Lane | | | | | | | | | |
|--|---------------------|--|------------------|------------------|------------------|-------------------|-------------------|------|-----|-----|------|
| | | Morning Peak Hour | | | | | Evening Peak Hour | | | | |
| Intersection | Critical Movements | D ¹ | V/C ² | Del ³ | LOS ⁴ | 95 Q ⁵ | D | V/C | Del | LOS | 95 Q |
| 2: Lynnway (Route 1A) at Blossom Street | Lynnway WB L | 50 | 0.09 | 11 | B | 7 | 15 | 0.06 | 19 | C | 5 |
| | Blossom St Ext NB R | 75 | 0.11 | 10 | A | 10 | 115 | 0.18 | 11 | B | 16 |
| | Blossom St SB R | 40 | 0.13 | 14 | B | 11 | 40 | 0.07 | 10 | A | 6 |

Source: VHB, Inc. using SYNCHRO 8 software.

Note: The HCM 2010 methodology does not support more than three through lanes on a major street approach, results reported are based on HCM 2000 methodology.

1 Demand, in vehicles

2 Volume-to-capacity ratio, based on theoretical capacity.

3 Average delay, in seconds per vehicle

4 Level of service

5 95th percentile queue length estimate, in feet

To increase awareness of the Lynnway westbound left-turn movement at Blossom Street, an intersection control beacon could be installed in accordance with the standards established in the Manual on Uniform Traffic Control Devices² (MUTCD). The beacon would have flashing yellow signal heads directed toward the Lynnway eastbound and have flashing red signal heads directed towards the Blossom Street northbound approach and Lynnway westbound

² MUTCD, Part 4 – Highway Traffic Signals, USDOT/FHWA, December 2009.



left-turn lane. The preliminary lump sum cost estimate to install an intersection control beacon is approximately \$60,000, in addition to the cost of the geometric improvements.

Signal Warrant Analysis

VHB performed a traffic signal warrant analysis at the intersection of Lynnway at Blossom Street, assuming the improvements proposed as part of the conceptual improvement option. The MUTCD lists specific criteria, or warrants, for the consideration of installation of a traffic signal at an intersection. The MUTCD also notes that, "the satisfaction of a traffic signal warrant or warrants shall not, in itself, require the installation of a traffic control signal." The traffic signal warrant analysis provides guidance as to locations where signals would not be appropriate and locations where they could be considered further.

A traffic signal warrant analysis was performed for the volume-based Warrant 3: Peak Hour Volume for the weekday morning and weekday evening peak hours. The warrant analysis was performed in a manner that considers the Lynnway westbound left-turn volume as the "minor street" volume and the opposing traffic on the Lynnway eastbound as the "major street" volume, as allowed by the MUTCD. The warrant is not met at the intersection for either of the peak hours. The City of Lynn has noted the possibility of expanding ferry services in the future. It is recommended that traffic volumes at the intersection continue to be monitored and if the signal warrant is met in the future, the installation of a signal at the Lynnway and Blossom Street intersection should be re-evaluated. The preliminary lump sum cost estimate for the installation of a signal is approximately \$117,000.

Summary

VHB, in coordination with the City of Lynn, has developed and evaluated a conceptual improvement option along the Lynnway within the vicinity of Blossom Street which would improve access to the Lynn Commuter Ferry Terminal. The improvement option considers a Lynnway westbound left-turn lane at Blossom Street.

VHB evaluated traffic operations under the conceptual improvement option. Overall traffic operations are expected to improve within the study area and minimal queues are expected in the proposed Lynnway westbound left-turn lane at Blossom Street. In addition, VHB performed a signal warrant analysis for the intersection of Lynnway at Blossom Street assuming the improvement proposed as part of the conceptual improvement option; a signal is not warranted at this time. The intersection should continue to be monitored and if the warrant is met in the future with potential increased ferry service, the installation of a traffic signal at this location should be re-evaluated. While a traffic signal is not currently warranted, an intersection control beacon could be installed to increase awareness of the intersection.

The preliminary lump sum cost estimate of the geometric improvements under the conceptual improvement option is approximately \$145,000. The installation of an intersection control beacon would have an additional cost of approximately \$60,000. In the future, if a traffic signal is warranted, the installation of a traffic signal would cost approximately \$117,000.