Project Need Form (PNF)

Washington Street (Route 53) @ the Universtiy Sports Complex at Starland, Hanover, Massachusetts

Prepared for **Town of Hanover**

Prepared by **Vanasse Hangen Brustlin, Inc.**
Watertown, Massachusetts

October 1, 2014

Transportation
Land Development
Environmental
Services

VHB imagination | innovation | energy Creating results for our clients and benefits for our communities

October 1, 2014

Vanasse Hangen Brustlin, Inc.

Ref: 81466.14

Mary Joe Perry
District Highway Director
District 5 Office
Highway Division
Massachusetts Department of Transportation
1000 County Street
Taunton, MA 02780

Re: Hanover: Washington Street (Route 53)/University Sports Complex
Transportation Improvement Program Project Needs Form.

Dear Ms. Perry;

On behalf of our client, the Town of Hanover, Vanasse Hangen, Brustlin, Inc. (VHB) is pleased to submit the enclosed two (2) copies of the Project Needs Form (PNF) for the above referenced project for your consideration.

The Town of Hanover, acting through the office of the Town Manager, is embarking on a Transportation Improvement Program (TIP) project intended to improve traffic operations along Washington Street (Route 53) at the entrance to the University Sports Complex located at 645 Washington Street. The University Sports Complex is an indoor/outdoor multi-sport complex offering sports programs for baseball, basketball, futsal, soccer, football, volleyball and lacrosse for all ages. The facility also offers laser tag, go karts, miniature golf, rock walls, bumper cars, batting cages, and an arcade.

The vast number of activities offered combined with a large population of participants arriving and departing throughout the week (and weekends), results in significant traffic delay along Route 53 at the approaches to the Complex.

101 Walnut Street, P.O. Box 9151
Watertown, Massachusetts 02471-9151
617.924.1770 ▪ FAX 617.924.2286
email: info@vhb.com
www.vhb.com

The Office of Community Development, the Department of Public Works and the Police Department have been working with representatives of the Complex to institute interim traffic solutions to minimize disruption to traffic flow on Washington Street; however, a more permanent solution is needed. This Project Notification Form has been prepared to solicit technical and funding support for the construction of a continuous two-way left-turn lane (TWLTL) for improved traffic operations at both entrances to the Complex. The PNF includes a comprehensive traffic report that outlines proposed alternatives and provides justification for the preferred alternative selected by the Town.

Please do not hesitate to contact me should you have questions or require additional information regarding this PNF.

Very truly yours,

Vanasse Hangen Brustlin, Inc.

Joseph D. Magni, Jr. P.E.
Principal

Cc: Troy Clarkson, Town Manager; Victor Diniak, DPW Director; Anthony Marino, Director of Community Services; Nicolette Hastings, VHB; Laura Castelli; VHB

Commonwealth of Massachusetts
Department of Transportation
Project Notification Form
March 5, 2014

This form is intended to provide preliminary information about the proposed project. It is not expected that all information that is asked for is available or known but applicants are encouraged to complete the form as fully as possible.

Proponent: Troy Clarkson Title: Town Manager

Municipality/Organization Town of Hanover

PNF completed by: Joseph Magni (Vanasse Hangen Brustlin, Inc.). Title: Senior Project Manager

Phone: 617-607-2719 Email: jmagni@vhb.com

Date: March 3, 2014

Part I – Facility Location and General Information

Municipality: Town of Hanover

Route and/or Street(s): Washington Street/State Highway Route 53 @ University Sport Complex Drive (Starland)

MassDOT District: 5 MPO Region: Boston

Estimated project limits by mile marker, station or other distinguishing landmarks such as cross street(s). **Please include a locus map of the project. (See Figure 1 – Locus Map)**

Start: Station 159+00 approximately 1000 feet south of the Starland entrance

End: Station 139+00 approximately 1000 feet north of the Starland entrance

Total Mileage: Approximately 2000 feet

Locus Map
Project Notification Form
Route 53 at Starland
Hanover, MA

Figure 1

Study Area
Project Notification Form
Route 53 at Starland
Hanover, Massachusetts

Figure 2

What is the federal functional classification of the road? Identify each section.

❑ Interstate	❑ Urban Collector	❑ Rural Major Collector
☒ Urban Principal Arterial	❑ Rural Principal Arterial	❑ Rural Minor Collector
❑ Urban Minor Arterial	❑ Rural Minor Arterial	❑ Other Classification _____

Is the proposed project on the National Highway System? ☒ Yes ❑ No

Is the proposed project eligible for Transportation Alternatives? ☒ Yes ❑ No

Who owns the roadway/facility? Commonwealth of Massachusetts Department of Transportation
Route 53 is part of the National Highway System

Project Need: Briefly describe or characterize, in general terms, the primary project need or goal (e.g. rehabilitate a roadway, improve safety at an intersection, reduce corridor congestion, improve pedestrian facilities, or provide bike accommodation).

The Town of Hanover evaluated the transportation conditions of Washington Street (Route 53) at the University Sports Complex at Starland (Starland) northern and southern driveways. Congestion and safety concerns along State Highway Route 53 have been observed by the Town DPW and Safety Officer related to weekend and tournament activity at Starland. To alleviate these concerns, the Hanover Police Department, together with the Starland representatives, set up an interim traffic configuration that requires that the northern and southern Starland driveways operate as a one-way pair, with the southern driveway as an entrance only and the northern driveway as an exit only during the peak hours and on tournament days. (See Figure 2 for location of drive entrances) In addition, a police detail is present during tournaments to assist in enforcing the one-way pattern. This is perceived as a temporary mitigation measure and all stakeholders recognize that more long term permanent structural improvements are required.

The Town commissioned a traffic study at the Starland/Route 53 intersection to assess traffic operational and safety needs and develop permanent improvement plans to relieve congestion and improve safety along Route 53 (See Appendix 1 for the Traffic Study). Two (2) improvement options were developed that consider roadway modifications along Route 53 within the study area as follows:

- **Option 1:** Route 53 southbound left-turn lanes and northbound right-turn lanes at both the northern and southern Starland driveways (See Figure 3 for Option 1)
- **Option 2:** Route 53 two-way (center) left-turn lane (TWLTL) from the northern to the southern Starland driveways. (See Figure 4 for Option 2)

Traffic operations were evaluated under both Option 1 and Option 2. While traffic operations are projected to remain relatively consistent when compared with existing conditions, safety and mobility can be improved under both options by providing storage lanes for turning vehicles.

It should be noted that both concepts consider widening Route 53 to the east (towards Starland) to avoid impacts to utility poles along the west side of the roadway. Widening to the east would likely have right-of-way impacts to the Starland property and adjacent parcels.

Based on discussions with the Town of Hanover, Option 2 is the preferred alternative. Left-turns into parcels along both sides of Route 53 were observed to be particularly difficult and are the primary concern for the Town. Right-turns into the parcels were not observed to be a significant issue. As such, Option 2 more adequately addresses this condition and would more equitably improve safety and mobility for parcels along both sides of Route 53 when compared to Option 1. Option 2 would also prepare this section of the Route 53 corridor for potential future development by reserving right-of-way for a potential future TWLTL. As discussed, Route 53 is under MassDOT jurisdiction and is an NHS roadway. As such, the roadway is subject to specific design standards. If the Town of Hanover advances Option 2 design exception request(s) would need to be prepared and accepted by MassDOT and/or FHWA.

Identify the **Primary Asset** included in the project area (e.g. roadway, intersection, bridge, bike trail, structure). The primary asset is a section of Massachusetts State Highway

Figure 3 – Option 1 Route 53 southbound left-turn lanes and northbound right-turn lanes at both the northern and southern Starland driveways

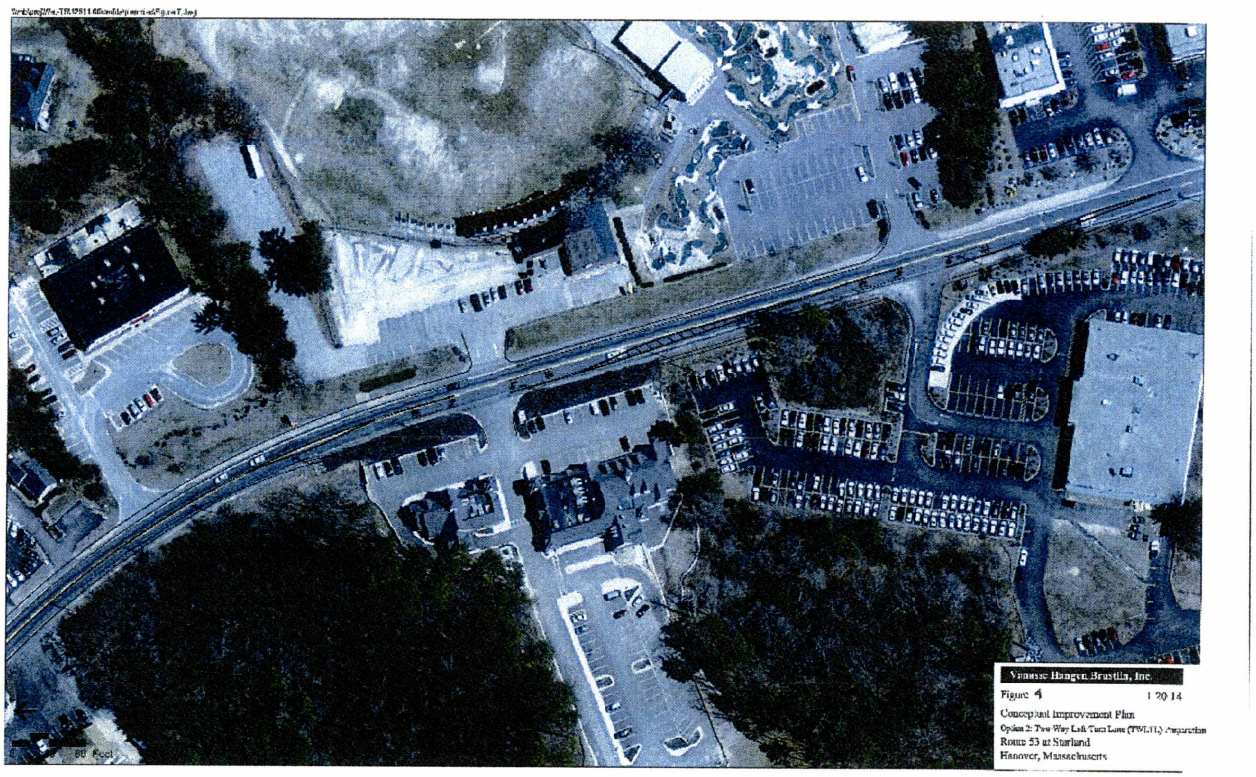


Figure 4 – Option 2 Route 53 two-way (center) left-turn lane (TWLTL) from the northern to the southern Starland driveways.

Part II: Project or Program Description

Provide whatever information is available to characterize the existing, general attributes of the facility.

CHARACTERISTIC	DATA	Comments
Number of Lanes	One in each direction	
Lane Width	12'-0"	
Shoulder Width	2'-0" and varies	See Note # 1
Existing Right of Way	60'	(See Appendix 2 for ROW Plan)
Annual Daily Traffic (ADT)	21,000 vehicles/day	
Percent Truck Traffic	Weekdays=4.3%	3.6% NB; 4.9% SB
Traffic Control (signal, flash, signs, etc.)	None	
Roadway Lighting	None	
Posted Speed Limit	35 mph(Northbound) 40 mph (Southbound)	
Transit Routes & Facilities	None	

Note #1: Right Turn lane existing for northbound motorists entering Starland

In what type of area is the project located? *Project limits may include more than one type of area. For a definition of areas, please refer to Chapter 3 of the Guidebook.*

- ❑ Rural Natural
- ❑ Rural Village
- ❑ Rural Developed
- ☒ Suburban Low Density
- ❑ Suburban High Density
- ❑ Suburban Village/Town Center
- ❑ Urban Residential or CBD

How does the roadway/facility function in the community?

- ❑ High-speed, primary corridor with limited access
- ☒ Moderate speed, major corridor between towns/regions
- ❑ Low to moderate speed corridor between towns/regions
- ❑ Moderate speed, major street connecting residential areas to a town center or major connector
- ❑ Low to moderate speed street connecting residential areas with other streets
- ❑ Primarily or exclusively a residential street
- ❑ Exclusive pedestrian/bicycle facility

Regional Considerations: Identify any regional use of the roadway (Characterize how neighboring communities use the roadway, what kind of link it provides to major arterials or highways).

Route 53 provides regional connections to State Highway Route 3 for both Pembroke and Hanover. Route 53 also serves as an evacuation route for these communities and a Route 3 bi-pass route in the event of an emergency situation or major construction.

Part III: Identification of Problem, Need or Opportunity

A. Condition of Existing Facilities - Problem, Need, or Opportunity

1. Please describe the condition of the roadway, path, or other horizontal facility, such as type and extent of cracking, ride-ability, utility patching or other surface defects such as rutting, raveling, shoving, bleeding, etc. This may be based on visual inspection or automatic detection methods. Are deformations

related to the pavement structure, indicating road sub-base issues? Include any PMS (Pavement Management System) ratings, PCI (Pavement Condition Index) data and/or photos, if available.

The section of Route 53 in the project area was constructed in 1939. A 2½ inch hot mix asphalt overlay was constructed in 1969 and a ¾" Surface Treatment (ST) course was placed in 1988. As shown in Photo #1, the road structure is in poor condition. Block cracking combined with longitudinal and transvers cracks are continuous throughout the project area. Photo #2 illustrates warn shoulders on the southbound side of the road as a result of vehicle maneuvering around left turn vehicles accessing Starland.

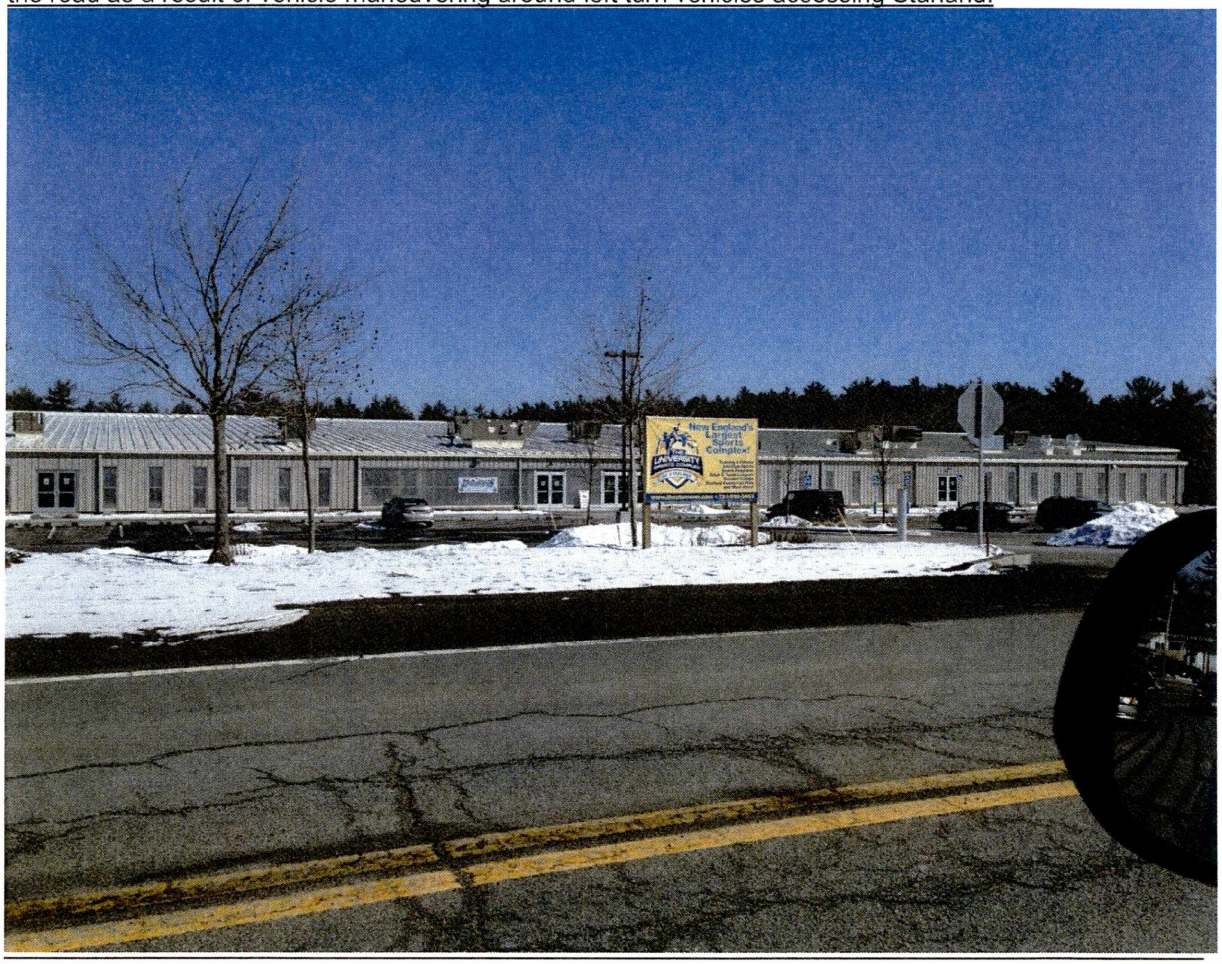


Photo #1: Pavement Distresses

Photo 2 – Southbound Shoulder Damage

2. Please describe the condition of facility appurtenances, such as signs, signals, lighting, median barriers, guardrail, pavement markings, curbing, landscaping, fences, ITS components, etc.

There is one section of guardrail on the southbound side of the road at the southerly limit of the project. This facility is in good condition. Pavement markings, which include a double yellow centerline and solid white edge lines, are in fair condition. Regulatory (Speed limit) signs are in good condition. There are no traffic signals, highway lighting, median barrier, curbing, formal landscaping, or fencing within the project limits.

3. Please describe any specific concerns related to the existing drainage system. If there is a history of flooding in the project area, describe the potential solutions under consideration, such as increased maintenance, repair/replacement of drainage infrastructure, raising the vertical profile, or culvert replacement, etc. Are there opportunities for improving storm water management, including drainage outfalls, within the project limits?

The Starland entrance drive is nearly at the top of a vertical crest curve. There is no visual or MassDOT record information demonstrating the existence of catch basins and/or manholes within the study area. (See Appendix 3 for MassDOT construction plans and highway drainage sketches for the project area). There are very limited formal drainage systems within the project limits.

4. Please describe the condition of any other structures, or equipment (retaining walls, buildings, noise barriers, bus shelters, bike racks, etc.)

Not Applicable

5. If the project/program includes a bridge or bridges, please describe the condition, such as bridge ratings, dates of inspection, weight restrictions, closings, structural adequacy, functional obsolescence, condition of other bridge elements, etc. Identify the bridge location and ID number (if known).

There are no bridges located on Route 53 within the project limits.

6. Please describe the condition of any existing pedestrian facilities. Include the limits and width of any existing sidewalks and identify any obstructions. Are the existing sidewalks ADA/AAB compliant? In addition, please characterize the pedestrian need, including any indication that pedestrians use the corridor beyond existing sidewalks (rutted paths, pedestrian using the roadway shoulder, etc.). ● GreenDOT

There are no pedestrian facilities on Route 53 within the project limits.

7. Please describe the existing bike accommodation (4' minimum shoulder width, bike lane, or shared use path), including the limits and width of any existing facility. In addition, please characterize existing bike traffic. ● GreenDOT

At 2'-0" in width, the existing shoulder is insufficient in width to support bicycle accommodation. (See Photo # 2)

8. Identify and locate any underground utilities (water, sewer, gas, other) and overhead utilities (electric phone, cable). Identify any larger utility appurtenances, above ground or underground, such as cabinets or vaults. Identify any active or inactive railroad crossings.

Water supply exists within the project area. Communication and electric utilities are located overhead on utility poles. (See Photo #3)

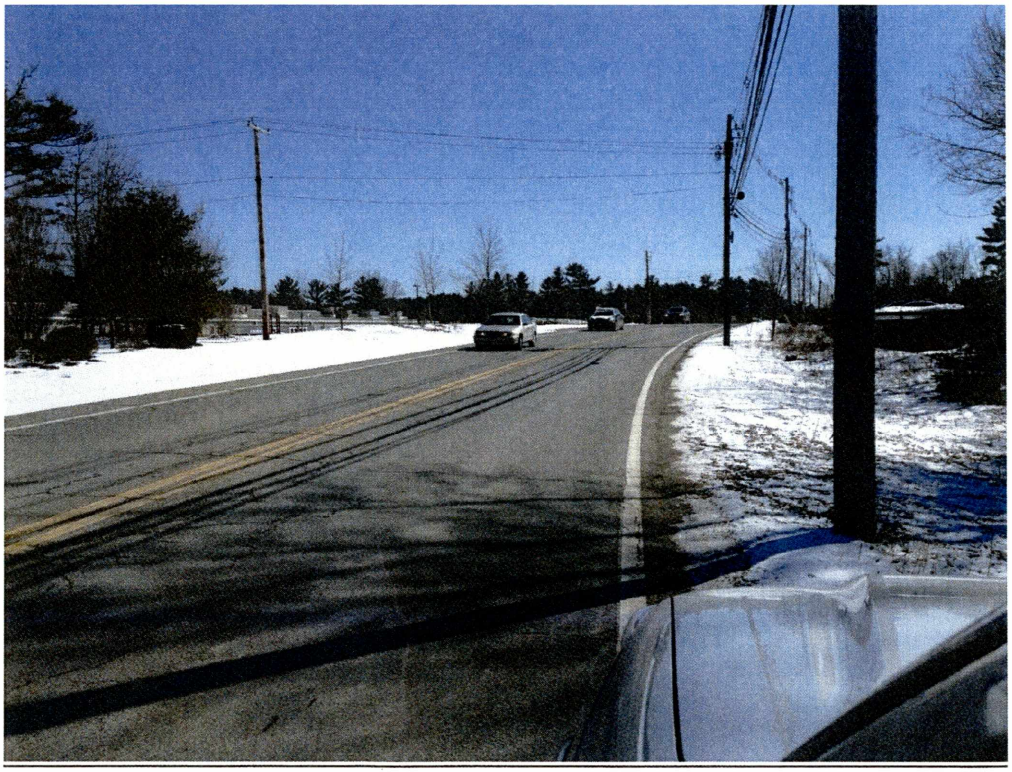


Photo #3- Overhead Utilities

9. Describe any repair or preventive maintenance to the roadway or appurtenances. Include the extent of the work (resurfacing, rehabilitation, reconstruction or replacement) and when the last repair was done? ● GreenDOT

The section of Route 53 in the project area was constructed in 1939. A 2½ inch hot mix asphalt overlay was constructed in 1969 and a ¾" Surface Treatment (ST) course was placed in 1988.

B. Mobility - Problem, Need, or Opportunity

1. Please describe any existing or prospective highway congestion issues. Identify the nature and extent of congestion, including when it occurs and whether there is queuing. Include any traffic analysis, including LOS (Level of Service) data, if available. ● GreenDOT

Traffic Operations Analysis

VHB conducted capacity analyses using SYNCHRO 8 software, which is based on the criteria recommended in the 2010 Highway Capacity Manual (HCM)[1], to evaluate operations of the existing driveways and provide a baseline to assess the operational benefits of the improvement options. (See Appendix 1 for results of the operations analysis at the two unsignalized study area intersections)

As shown in Table 4 of the Attachment 1, the Route 53 approaches to the intersections operate an acceptable LOS D or better during the weekday evening, Saturday midday, and Sunday midday peak hours. All driveway approaches at both Starland driveway intersectionss operate at an unacceptable LOS F during all three peak hours; with the exception of the eastbound approach of the Subaru driveway, which operates at an acceptable LOS C under the Sunday midday peak hour. Poor operations at the Starland driveways and the two adjacent driveways can be attributed to high traffic volumes along Route 53 with minimal gaps in traffic to allow movements out of the driveways.

Discussions with the Hanover Police Department indicated that queuing issues exist on Route 53 due to left-turning vehicles into Starland. These queuing issues are worst on tournament days, where traffic to the Starland facility comes in waves, corresponding to the beginning of games.

Signal Warrant Analysis

A traffic signal warrant analysis at each of the two unsignalized study area intersections. The Manual on Uniform Traffic Control Devices (MUTCD)[2] 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.

Traffic signal warrant analyses were performed for three volume-based warrants (Warrant 1: Eight-Hour Vehicular Volume; Warrant 2: Four-Hour Vehicular Volume; and Warrant 3: Peak Hour Volume) for the weekday evening peak period. Traffic signal warrant analyses for the Saturday midday and Sunday midday peak periods were performed for Warrant 3 (Peak Hour Volume) only. The results of all the signal warrant analyses are displayed in Table 1 and are included in an attachment to this memorandum. As shown, none of the warrants are met at either study area intersection for any of the peak hours. Additionally, none of the unsignalized intersections meet the traffic signal warrants based on pedestrian volumes or history of vehicle crashes.

1 Highway Capacity Manual, Transportation Research Board, Washington D.C. [2010].
2 MUTCD, Part 4 – Highway Traffic Signals, USDOT/FHWA, December 2009.

Table 1 Signal Warrants Analysis Summary

		Warrant Met?		
		Warrant 1:	Warrant 2:	Warrant 3:
Intersection	Peak Period	Eight-Hour Volume	Four-Hour Volume	Peak Hour Volume
Route 53 at Northern	Weekday Evening	No	No	No
Starland Driveway	Saturday Midday	n/a	n/a	No
Driveway	Sunday Midday	n/a	n/a	No
Route 53 at Southern	Weekday Evening	No	No	No
Starland Driveway	Saturday Midday	n/a	n/a	No
	Sunday Midday	n/a	n/a	No

Source: Vanasse Hangen Brustlin, Inc.

2. Please describe any need or opportunity for greater connectivity or improved access along the corridor or to particular points along the facility. Identify any missing connection or constraint in access that could be improved for greater mobility. ● GreenDOT

Not Applicable

3. Please identify any mobility issues for pedestrians, bicyclists and transit users. Identify if roadway is included in any local, regional or statewide bicycle routes. Include any obstacles or missing connection of existing pedestrian facilities, as well as any impediments that effect pedestrian access and mobility. Include any pedestrian or bicycle data, including bicycle LOS (Level of Service) analysis, or user count data, if available. ● GreenDOT

Based on review of the MassDOT 2011 Bicycle Inventory Facility Report, there are no pedestrian, transit or bicycle facilities existing along the section of Route 53 in the study area. Route 53 is, however, identified in the **"Every Trail"** Web Site as an acceptable regional bike route connecting Plymouth to Quincy. There has been no visual evidence that this section of Route 53 supports significant bicycle activity.

C. Safety and Security - Problem, Need, or Opportunity

1. Please describe any safety concerns on the facility. Provide any crash history within the project limits, including number and severity of crashes, type of crashes and whether there have been any fatalities. Include the calculated crash rate, if available.

To identify potential vehicle crash trends in the study area, reported vehicular crash data for the study-area intersections was obtained from MassDOT for the years 2009 through 2011, the most recent three-year history available. The current MassDOT average crash rates for unsignalized intersections in District 5 (the MassDOT district designation for Hanover) is 0.58. Neither of the study area intersections exceeds this threshold. It should also be noted that the study area intersections are not included in MassDOT's 2011 Top Crash Locations Report and are not designated Highway Safety Improvement Program (HSIP) eligible locations. (see Appendix 4 for vehicle crash summary table and the MassDOT Intersection Crash Rate Worksheet)

2. Please describe adjacent significant activity centers (schools, senior centers, places of assembly, industrial operations, or parks). Please describe any safety issues for other users such as pedestrians, bicyclists, persons with disabilities, transit riders, trucks, school children, etc. ● GreenDOT

There are no schools, senior centers, places of assembly, industrial operations, or park within the project area.

3. Please describe whether there are any known evacuation routes identified at the state, local or private level.
Route 53 is on the National Highway System and therefore is important to the area as an emergency evacuation route connecting Pembroke and Hanover to State Highway Route 3. Furthermore, Route 53 serves as a Route 3 by-pass route for traffic to circumvent road maintenance and emergencies on Route 3.

D. Economic Development - Problem, Need, or Opportunity

1. Please describe any current, planned, or potential economic development opportunities within the project limits, that would be supported by improvements to the facility. Do these developments reflect Smart Growth Development and Sustainable Development principles? ● GreenDOT

N/A

2. Identify any need or opportunity to improve access to services, promote industry clusters, and facilitate affordable housing or job creation within the area. ● GreenDOT

N/A

E. Environmental - Problem, Need, or Opportunity

Please describe any need or opportunity associated with environmental aspects, as listed below. Links to guidance clarifying the resource areas are provided in brackets.

1. Wetland(s) [http://www.mass.gov/dep/water/waterres.htm]

Based on a review of Mass GIS Data, there are no there are no known regulated wetlands in the project area.

2. Water Supply Watershed(s) [http://www.mass.gov/dep/water/drinking/sourcewa.htm]

Based on a review of Mass GIS Data, there are no Water Supply Watersheds within the project limits

3. Impaired Water Body(ies) [http://www.mass.gov/dep/water/resources/10list3.pdf]

Based on a review of Mass GIS Data, the 3rd Herring Brook is classified as an impaired water body.

4. Priority Habitat(s) [http://www.mass.gov/dfwele/dfw/nhesp/gis_resources.htm]

Based on a review of Mass GIS Data, there are no priority habitats in the project area.

5. Historic/Cultural/Scenic Resource(s): Are there listed or eligible properties, any archeological resources or scenic by-ways within or adjacent to the project area?

The Massachusetts Historical Commission's *Inventory of Historical and Archaeological Assets of the Commonwealth* lists no previously recorded archaeological or above-ground resources in or adjacent to the project area. In addition; there are no state-designated Scenic Byways adjacent to the project area.

6. Air Quality and Greenhouse Gases: Is there a potential to reduce greenhouse gases, through construction methods; operational modifications; changes in connectivity, access, or travel behavior; or other methods? ● GreenDOT

Introduction of Option 2; a two-way (center) left-turn lane (TWLTL) from the northern to the southern Starland driveways, would reduce vehicular delay for northbound and southbound through vehicles, that currently queue behind left-turning vehicles, thereby reducing vehicle emissions.

7. Hazardous Materials: Are there concerns about hazardous materials within the project limits or on any adjacent properties? Could any prior use of adjacent properties be an issue?

Based on a review of Mass GIS Data, the following sites are located on adjacent properties:

1. Planet Subaru
2. Haddon Lincoln Mercury
3. Sullivan Brothers Used Cars.

F. Community - Problem, Need, or Opportunity

Please provide some background about the area where the facility is located and describe any need or opportunity that may be may address or impact the community or neighborhood, as outlined below.

1. Please characterize the abutting land use in the area surrounding the facility. How does the facility function within the area? Please note if some or all of the area falls within an environmental justice (EJ) area.

The land abutting Route 3 in the project area is commercial. Based on a review of the Mass 2010 Environmental Justice Population mapping, the project is not located in an Environmental Justice Area.

2. Are there opportunities to promote healthy transportation modes of walking, biking or transit use by improving pedestrian, bicycle or public transit infrastructure or operations? ● GreenDOT

Based on review of the MassDOT 2011 Bicycle Inventory Facility Report, there are no pedestrian facilities existing along the section of Route 53 in the study area.

3. Identify any need or opportunity to improve access to services, jobs, housing, transit or recreation for residents within the area. ● GreenDOT

N/A

G. Transportation Enhancements - Problem, Need, or Opportunity

1. Identify any need or opportunity to incorporate transportation alternatives, such as provisions and programs related to pedestrians, bicyclists or rail trail facilities or education; landscaping; scenic/historic acquisition, beautification, preservation, programs, or facilities; outdoor advertising management; archeological planning and research; environmental mitigation or wildlife mortality reduction efforts.

N/A

H. Planning and Public Outreach - Problem, Need, or Opportunity

1. Describe any Public Outreach that has occurred so far on the proposed improvements, including public informational meetings, local mailings, workshops, etc.

N/A

2. Are there any special needs that need to be accommodated to fully engage the public with respect to public outreach?

There are no known special needs that need to be accommodated to fully engage the public with respect to public outreach.

3. Identify any local or regional planning documents that identify the problem, need or opportunity outlined within this PNF.

There are no local or regional planning documents that identify the problem, need or opportunity outlined within this PNF.

4. Identify efforts to coordinate with relevant government agencies, including RTA(s), DCR, regulatory agencies, or neighboring municipalities.

N/A

Thank you for completing this form. Please submit the PNF to the Regional MPO/RPA and the MassDOT Highway Division District office.

Transportation
Land Development
Environmental
Services

Vanasse Hangen Brustlin, Inc.

101 Walnut Street
P. O. Box 9151
Watertown, MA 02471-9151
617 924 1770
FAX 617 924 2286

Memorandum

To: Victor Diniak
Hanover DPW Director
40 Pond Street
Hanover, MA 02339

Date: February 6, 2014

Project No.: 12511.00

From: Nicolette Hastings, P.E.

Re: Route 53 at Starland
Transportation Improvements

INTRODUCTION

Vanasse Hangen Brustlin, Inc. (VHB), at the request of the Town of Hanover, has evaluated the transportation conditions of Washington Street (Route 53) at the University Sports Complex at Starland (Starland) northern and southern driveways. Congestion and safety concerns along State Highway Route 53 have been observed by the Town related to weekend and tournament activity at Starland. To alleviate these concerns, the Hanover Police Department has recommended that the northern and southern Starland driveways operate as a one-way pair, with the southern driveway as an entrance only and the northern driveway as an exit only during the peak hours and on tournament days. In addition, a police detail is present during tournaments to assist in enforcing the one-way pattern.

VHB has evaluated the intersections of Route 53 at the Starland driveways and has developed potential permanent improvement plans to relieve congestion and improve safety along Route 53. This memorandum summarizes the results of this evaluation and includes sketch level conceptual improvement plans for the Town's consideration.

EXISTING CONDITIONS

The existing conditions evaluation consisted of an inventory of intersection geometry, a review of Starland operations, and the collection of daily and peak period traffic volumes. Input from various stakeholders has informed the existing conditions evaluation presented herein. These stakeholders include the Town of Hanover Department of Public Works, Town planning staff, Hanover Police Department, and Starland operators.

Study Area

This memorandum evaluates Washington Street (Route 53) in the vicinity of the Starland athletic complex, as shown in Figure 1. Route 53 is an urban principal arterial under State jurisdiction and generally runs in a north-south direction. Additionally, Route 53 is part of the National Highway System (NHS) which consists of roadways important to the nation's economy, defense, and mobility. NHS roadways are subject to unique design requirements. Designs that deviate from the NHS

design standards may be considered based on the conditions, context, and consequences of a project. A design exception states the reason(s) for a specific deviation from an established standard for a specific highway feature and may also include features to mitigate any negative effects.

Route 53 consists of one travel lane in each direction with striped shoulders of varying width. Speed limits are posted as 35 miles per hour (mph) northbound and 40 mph southbound in the vicinity of the two Starland driveways. The study area includes the following two intersections:

- **Route 53 at Starland northern driveway/shopping plaza:** Unsignalized intersection with the Starland and shopping plaza driveway approaches under STOP-control. The Starland northern driveway consists of a left-turn and right-turn only lane while the shopping plaza driveway consists of one general purpose lane.
- **Route 53 at Starland southern driveway/car dealership:** Unsignalized intersection with the Starland and car dealership driveway approaches, each consisting of one general purpose lane under STOP-control.

Starland Driveway Operations

During the peak hours and on tournament days, the northern and southern Starland driveways operate as a one-way pair, with all vehicles entering the southern driveway and exiting the northern driveway. The entrance lane of the northern driveway is coned off and a sign directs vehicles to use the southern driveway to enter the facility. On tournament days (in addition to the cones and signage) a police detail is present for the length of the tournament to assist in enforcing the one-way pattern.

Traffic Volumes

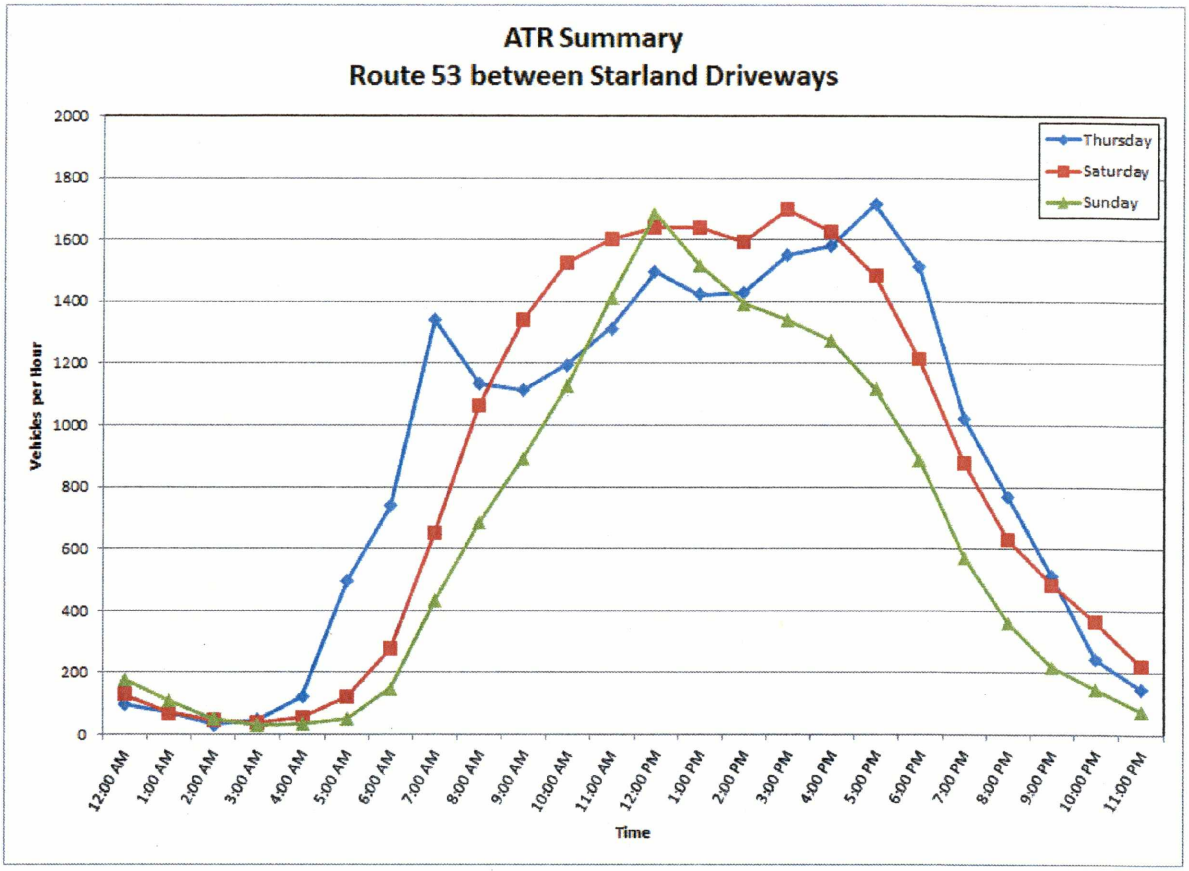
Automatic traffic recorder (ATR) counts were conducted along Route 53 between the Starland driveways for a 4-day period (Thursday to Sunday) in October 2013. A summary of the ATR traffic data are presented in Table 1 and summarized graphically in Figure 2. As shown, Route 53 carries approximately 20,000 to 21,000 vehicles per day on both weekdays and Saturdays. Daily volumes on Sunday are less with Route 53 carrying approximately 15,700 vehicles. All three peak hours show a higher directional distribution southbound, ranging from 52 percent to 59 percent of the peak hour traffic volumes.

Table 1 ATR Summary

Location	Peak Hour	Daily [a]	Volume [b]	K Factor [c]	Dir. Dist. [d]
Route 53 between Starland Driveways	Weekday Evening	21,100	1,725	8.2%	59% SB
	Saturday Midday	20,400	1,695	8.3%	54% SB
	Sunday Midday	15,700	1,690	10.7%	52% SB

Source: Vanasse Hangen Brustlin, Inc. Based on automatic traffic recorder (ATR) counts conducted in October 2013
a average daily traffic (ADT) volume expressed in vehicles per day
b peak period traffic volumes expressed in vehicles per hour
c percent of daily traffic that occurs during the peak period
d directional distribution of peak period traffic
Note: peak hours do not necessarily coincide with the peak hours of the individual intersection turning movement counts

Figure 2 ATR Summary



Source: Vanasse Hangen Brustlin, Inc. Based on automatic traffic recorder (ATR) counts conducted in October 2013

Manual turning movement counts (TMCs) were also conducted at both study area intersections during the weekday from 7:00 AM to 6:00 PM; and during a Saturday and Sunday midday from 11:00 AM to 1:00 PM. The weekday counts were conducted to assist in evaluating traffic signal warrants. Only the weekday evening peak period (4:00 PM to 6:00 PM) is evaluated herein, as Starland is not open prior to 3:00 PM during the week and has no influence on morning peak hour traffic operations. Although open at 3:00, the facility has minimal after school activities from 3:00 to 5:00 PM[1]. On Saturdays and Sundays, the facility opens at 10:00 AM and 11:00 AM, respectively, and has a consistent traffic flow throughout the day. On tournament days, Starland opens as early as 8:00 or 9:00 AM.

A review of the data collected indicate that the weekday evening peak hour is from 5:00 to 6:00 PM, the Saturday midday peak hour is from 11:30 AM to 12:30 PM and the Sunday midday peak hour is from 12:00 to 1:00 PM. Figures 3 through 5 show the peak hour turning movements for each of the three peak periods.

At the request of the Town of Hanover, traffic counts were also conducted in December 2013 during a tournament at the Starland facility to capture traffic volumes on a worst case scenario day. The

[1] Based on information provided by Starland.

counts were conducted in the same locations as the October 2013 counts, with TMCs at both the Starland driveways and an ATR between the two Starland driveways. In addition, TMCs were conducted at the intersection of Route 53 at East Street and an ATR was placed on Route 53 south of East Street. Comparisons between the October 2013 and December 2013 counts showed only minor differences. Traffic volumes entering and exiting the Starland driveways were similar, as well as through traffic along Route 53. Given the minimal difference, the October data was used in the analysis.

Vehicular Speeds

Vehicular speed data along Route 53 was also collected concurrent with traffic volume data. Table 2 summarizes the travel speeds. The 85th percentile speed is the speed at or below which 85 percent of vehicles travel. The 85th percentile speed is used extensively in the field of traffic engineering and is a dominant factor in establishing posted speed limits. As shown, the highest 85th percentile speeds are on weekdays (45 mph northbound and 43 mph southbound) and the lowest are on Saturday (40 mph northbound and 39 mph southbound). The posted speed limits of 35 mph in the northbound direction and 40 mph in the southbound direction are all exceeded by the 85th percentile speeds with the exception of the southbound direction on Saturday.

Table 2 Vehicular Speeds

	85th Percentile Speed (mph)					
	Weekday		Saturday		Sunday	
Location	NB	SB	NB	SB	NB	SB
Route 53 between the Starland Driveways	45	43	40	39	43	43

Source: Vanasse Hangen Brustlin, Inc. Based on automatic traffic recorder (ATR) counts conducted in October 2013

TRANSPORTATION EVALUATION

VHB evaluated the available sight distance for the Starland driveways, reviewed recent vehicular crash history, evaluated intersection operations, and performed a signal warrant analysis using data collected as part of this effort.

Sight Distance Evaluation

Sight distance analysis, in conformance with guidelines of American Association of State Highway and Transportation Officials (AASHTO)[2] was performed for the two unsignalized study area intersections. Speed observations recorded during the data collection (Table 2) were used to calculate the required stopping sight distance (SSD) and intersection sight distance (ISD). SSD is the distance required for a vehicle approaching an intersection from either direction to perceive, react, and come to a complete stop before colliding with the exiting vehicle from a driveway or minor street. ISD is the distance that is based on the time required for perception, reaction and completion of the desired critical exiting maneuver (in this case, a left turn) once the driver on a minor street approach or driveway decides to execute the maneuver. Calculation for the critical ISD includes the time to (1) turn left, and to clear the near half of the intersection without conflicting with the vehicles approaching from the left; and (2) upon turning left, to accelerate to the operating speed on the roadway without causing approaching vehicles on the main road to unduly reduce their speed.

2 A Policy on the Geometric Design of Highways and Streets, American Association of State Highway and Transportation Officials, 2011

Table 3 summarizes the available and required SSD and ISD for the two unsignalized study area intersections.

Table 3 Sight Distance Analysis Summary

	Stopping Sight Distance			Intersection Sight Distance		
Intersection	Traveling	Required [a]	Measured [b]	Looking	Required	Measured
Route 53 at Northern Starland Driveway	northbound	360	500+	left	500	700+
	southbound	340	500	right	475	500
Route 53 at Southern Starland Driveway	northbound	360	500	left	500	700+
	southbound	340	500	right	475	500

Source: based on guidelines established in A Policy on the Geometric Design of Highways and Streets, American Association of State Highway and Transportation Officials [AASHTO], 2011

a required sight distance in feet, based on an 85th percentile speed of 45 mph traveling northbound and 43 mph traveling southbound

b in feet

The sight distance measurements summarized in Table 3 indicate that both the northern and southern Starland driveways exceed the required stopping sight distance. The desirable intersection sight distance requirements are met or exceeded for left turns out of both the northern and southern Starland Driveways.

Vehicular Crash History

To identify potential vehicle crash trends in the study area, reported vehicular crash data for the study-area intersections was obtained from MassDOT for the years 2009 through 2011, the most recent three-year history available. The current MassDOT average crash rates for unsignalized intersections in District 5 (the MassDOT district designation for Hanover) is 0.58. Neither of the study area intersections exceeds this threshold. It should also be noted that the study area intersections are not included in MassDOT's 2011 Top Crash Locations Report and are not designated Highway Safety Improvement Program (HSIP) eligible locations. A summary table of the MassDOT vehicle crash history is included in the attachment to this memorandum.

Traffic Operations Analysis

VHB conducted capacity analyses using SYNCHRO 8 software, which is based on the criteria recommended in the 2010 Highway Capacity Manual (HCM)[3], to evaluate operations of the existing driveways and provide a baseline to assess the operational benefits of the improvement options. Table 4 shows the results of the operations analysis at the two unsignalized study area intersections.

3 Highway Capacity Manual, Transportation Research Board, Washington D.C. [2010].

Table 4 Unsignalized Intersection Capacity Analysis Summary – Existing Conditions

		2013 Existing Conditions											
		Weekday Evening Peak Hour				Saturday Midday Peak Hour				Sunday Midday Peak Hour			
Intersection	Movement	V/C[1]	Delay[2]	LOS[3]	Q[4]	V/C	Delay	LOS	Q	V/C	Delay	LOS	Q
Route 53 at Northern	Village Sq EB L/T/R	0.37	61	F	1	>1.20	>120	F	4	0.74	>120	F	2
Starland driveway/	Starland WB L/T	0.86	>120	F	3	>1.20	>120	F	8	0.85	>120	F	5
Village Square	Starland WB R	0.06	13	B	0	0.45	26	D	2	0.39	26	D	2
	Route 53 NB L	0.02	12	B	0	0.02	11	B	0	0.01	11	B	0
	Route 53 SB L	0.05	9	A	0	0.00	0	A	0	0.01	10	B	0
Route 53 at Southern	Subaru EB L/T/R	0.34	54	F	1	0.43	108	F	2	0.06	18	C	0
Starland driveway/	Starland WB L/T/R	0.35	>120	F	1	0.37	>120	F	1	0.50	>120	F	1
Subaru dealership	Route 53 NB L	0.01	12	B	0	0.02	10	B	0	0.01	10	B	0
	Route 53 SB L	0.01	9	A	0	0.17	11	B	1	0.17	11	B	1

Source: VHB, Inc. using Synchro 8 software.
Note: Shaded cells denote LOS E/F conditions.
1 V/C – Volume-to-capacity ratio. V/C ratios range from 1.0 when demand equals capacity to 0 when demand is zero. Values over 1.0 indicate demand in excess of capacity.
2 Delay – Control delay per vehicle, expressed in seconds, includes initial deceleration delay, queue move-up time, stopped delay, and final acceleration delay.
3 LOS – Level-of-Service. LOS A indicates free flow conditions with minimal delays. LOS E and F indicate congested conditions.
4 Q – 95th percentile queue length estimate, in vehicles
NB = Northbound; SB = Southbound; EB = Eastbound; WB = Westbound L = Left-turn; T = Through; R = Right-turn

As shown in Table 4, the Route 53 approaches to the intersections operate an acceptable LOS D or better during the weekday evening, Saturday midday, and Sunday midday peak hours. All driveway approaches at both Starland driveway intersectionss operate at an unacceptable LOS F during all three peak hours; with the exception of the eastbound approach of the Subaru driveway, which operates at an acceptable LOS C under the Sunday midday peak hour. Poor operations at the Starland driveways and the two adjacent driveways can be attributed to high traffic volumes along Route 53 with minimal gaps in traffic to allow movements out of the driveways.

Discussions with the Hanover Police Department indicated that queuing issues exist on Route 53 due to left-turning vehicles into Starland. These queuing issues are worst on tournament days, where traffic to the Starland facility comes in waves, corresponding to the beginning of games.

Signal Warrant Analysis

VHB performed a traffic signal warrant analysis at each of the two unsignalized study area intersections. The Manual on Uniform Traffic Control Devices (MUTCD)[4] 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.

Traffic signal warrant analyses were performed for three volume-based warrants (Warrant 1: Eight-Hour Vehicular Volume; Warrant 2: Four-Hour Vehicular Volume; and Warrant 3: Peak Hour Volume) for the weekday evening peak period. Traffic signal warrant analyses for the Saturday midday and Sunday midday peak periods were performed for Warrant 3 (Peak Hour Volume) only. The results of all the signal warrant analyses are displayed in Table 5 and are included in an attachment to this memorandum. As shown, none of the warrants are met at either study area intersection for any of the peak hours. Additionally, none of the unsignalized intersections meet the traffic signal warrants based on pedestrian volumes or history of vehicle crashes.

Table 5 Signal Warrants Analysis Summary

		Warrant Met?		
		Warrant 1:	Warrant 2:	Warrant 3:
Intersection	Peak Period	Eight-Hour Volume	Four-Hour Volume	Peak Hour Volume
Route 53 at Northern	Weekday Evening	No	No	No
Starland Driveway	Saturday Midday	n/a	n/a	No
Driveway	Sunday Midday	n/a	n/a	No
Route 53 at Southern	Weekday Evening	No	No	No
Starland Driveway	Saturday Midday	n/a	n/a	No
	Sunday Midday	n/a	n/a	No

Source: Vanasse Hangen Brustlin, Inc.

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

IMPROVEMENT OPTIONS

In coordination with the Town of Hanover, two improvement options were developed that consider roadway modifications along Route 53 within the study area:

- **Option 1:** Route 53 southbound left-turn lanes and northbound right-turn lanes at both the northern and southern Starland driveways
- **Option 2:** Route 53 two-way (center) left-turn lane (TWLTL) from the northern to the southern Starland driveways

As discussed, Route 53 is under MassDOT jurisdiction and is an NHS roadway. As such, the roadway is subject to specific design standards. Considering these requirements, the following assumptions were made when evaluating the two improvement options in terms of the conceptual layout:

- Minimum 50-foot long turn lanes;
- Minimum 11-foot wide lanes. It should be noted that the minimum lane width on an NHS principal arterial roadway is 12-feet. Review and approval by MassDOT of a design exception for lane widths less than this minimum would be required;
- Minimum 5-foot wide shoulders. This shoulder would be of sufficient width to accommodate bicycles. No additional bicycle accommodations are assumed. It should be noted that the minimum shoulder width on an NHS principal arterial roadway is 8-feet. Review and approval by MassDOT of a design exception for shoulder widths less than this minimum would be required;
- To minimize impacts to the utility poles along the west side of Route 53, both concepts consider widening Route 53 to the east (towards Starland). Widening to the east would likely have right-of-way impacts to the Starland property and adjacent parcels; and
- Sidewalks are not included because there are none currently in the study area. It should be noted that a draft Engineering Directive for Design Criteria for MassDOT Highway Division Projects [5] has been issued by MassDOT which introduces new controlling criteria for pedestrian accommodation. The draft directive states that "wherever adjacent land uses include commercial or residential development greater than 5 units per acre, a sidewalk shall be provided along the roadway adjacent to the use. " If this draft directive is adopted in its current form, a design exception request would need to be prepared and accepted by MassDOT for the exclusion of sidewalks.

The following sections include a discussion of each improvement option and summarize impacts to traffic operations and preliminary lump sum cost estimates.

[5] Draft Engineering Directive; Design Criteria for MassDOT Highway Division Projects; MassDOT; December 18, 2013.

Option 1: Left- and Right-Turn Lanes

As shown in Figure 6, Option 1 includes southbound left-turn lanes and northbound right-turn lanes along Route 53 at both the northern and southern Starland driveways. To accommodate these turn lanes, widening of Route 53 would be required. The preliminary lump sum cost estimate for Option 1 is approximately $525,000. This cost estimate does not include right-of-way acquisition.

As shown in Table 6, traffic operations under Option 1 generally remain the same as under existing conditions. The northbound and southbound approaches of Route 53 at both intersections continue to operate at an acceptable LOS D or better. Operations at the northern and southern Starland driveways and the adjacent driveways continue to operate at an unacceptable LOS F. It should be noted that although Option 1 maintains the same level of operations as existing conditions, safety and mobility along Route 53 can be improved by providing storage lanes for vehicles waiting to turn into the Starland site.

Option 2: Two-Way (Center) Left-Turn Lane Preparation

As shown in Figure 7, Option 2 includes preparation of this section of Route 53 for a two-way (center) left-turn lane (TWLTL). As described in the MassDOT Project Development and Design Guide[6], "The TWLTL is a special application of a flush median which allows turning movements along its entire length. The treatment may be appropriate in areas with frequent driveway spacing in highly developed or commercialized areas." North of the study area, a TWLTL is provided along Route 53 from Route 3 to Old Washington Street to serve the various developments along the corridor. It is envisioned a TWLTL along Route 53 from Old Washington Street to the Pembroke Town Line will be evaluated in detail as part of a subsequent Route 53 corridor study.

Option 2 includes northbound and southbound left-turn lanes along Route 53 at both the northern and southern Starland driveways and would prepare this segment of Route 53 for a potential future TWLTL. To accommodate these turn lanes, widening of Route 53 would be required. The preliminary lump sum cost estimate for Option 2 is approximately $470,000. This cost estimate does not include right-of-way acquisition.

As shown in Table 7, traffic operations under Option 2 change minimally when compared with existing conditions. Operations in the northbound and southbound directions along Route 53 continue to operate at an acceptable LOS D or better. Similarly, operations at the northern and southern Starland Driveways and the adjacent driveways continue to operate at an unacceptable LOS F. It should be noted that although Option 2 maintains the same level of operations as existing conditions, safety and mobility can be improved by providing storage lanes for vehicles waiting to turn left into the Starland, Village Square, and Subaru driveways.

[6] MassDOT Project Development and Design Guide, MassDOT, January 2006.

Table 6 Unsignalized Intersection Capacity Analysis Summary – Option 1

		Option 1: Left- and Right-Turn Lanes											
		Weekday Evening Peak Hour				Saturday Midday Peak Hour				Sunday Midday Peak Hour			
Intersection	Movement	V/C[1]	Delay[2]	LOS[3]	Q[4]	V/C	Delay	LOS	Q	V/C	Delay	LOS	Q
Route 53 at Northern	Village Sq EB L/T/R	0.33	53	F	1	>1.20	>120	F	4	0.74	>120	F	2
Starland driveway/	Starland WB L/T	0.75	>120	F	3	>1.20	>120	F	8	0.85	>120	F	5
Village Square	Starland WB R	0.06	13	B	0	0.45	26	D	2	0.39	26	D	2
	Route 53 NB L	0.02	12	B	0	0.02	11	B	0	0.01	11	B	0
	Route 53 SB L	0.05	9	A	0	0.00	0	A	0	0.01	10	B	0
Route 53 at Southern	Subaru EB L/T/R	0.33	53	F	1	0.36	84	F	1	0.06	18	C	0
Starland driveway/	Starland WB L/T/R	0.35	>120	F	1	0.30	110	F	1	0.41	>120	F	1
Subaru dealership	Route 53 NB L	0.01	12	B	0	0.02	10	B	0	0.01	10	B	0
	Route 53 SB L	0.01	9	A	0	0.16	11	B	1	0.17	11	B	1

Source: VHB, Inc. using Synchro 8 software.

Note: Shaded cells denote LOS E/F conditions.

1 V/C – Volume-to-capacity ratio. V/C ratios range from 1.0 when demand equals capacity to 0 when demand is zero. Values over 1.0 indicate demand in excess of capacity.

2 Delay – Control delay per vehicle, expressed in seconds, includes initial deceleration delay, queue move-up time, stopped delay, and final acceleration delay.

3 LOS – Level-of-Service. LOS A indicates free flow conditions with minimal delays. LOS E and F indicate congested conditions.

4 Q – 95th percentile queue length estimate, in vehicles

NB = Northbound; SB = Southbound; EB = Eastbound; WB = Westbound L = Left-turn; T = Through; R = Right-turn

Table 7 Unsignalized Intersection Capacity Analysis Summary – Option 2

		Option 2: Two-Way (Center) Left-Turn Lane Preparation											
		Weekday Evening Peak Hour				Saturday Midday Peak Hour				Sunday Midday Peak Hour			
Intersection	Movement	V/C[1]	Delay[2]	LOS[3]	Q[4]	V/C	Delay	LOS	Q	V/C	Delay	LOS	Q
Route 53 at Northern	Village Sq EB L/T/R	0.34	56	F	1	>1.20	>120	F	4	0.74	>120	F	2
Starland driveway/	Starland WB L/T	0.79	>120	F	3	>1.20	>120	F	8	0.85	>120	F	5
Village Square	Starland WB R	0.06	13	B	0	0.45	26	D	2	0.39	26	D	2
	Route 53 NB L	0.02	12	B	0	0.02	11	B	0	0.01	11	B	0
	Route 53 SB L	0.05	9	A	0	0.00	0	A	0	0.01	10	B	0
Route 53 at Southern	Subaru EB L/T/R	0.34	54	F	1	0.36	84	F	1	0.06	18	C	0
Starland driveway/	Starland WB L/T/R	0.34	>120	F	1	0.32	116	F	1	0.39	>120	F	1
Subaru dealership	Route 53 NB L	0.01	12	B	0	0.02	10	B	0	0.01	10	B	0
	Route 53 SB L	0.01	9	A	0	0.17	11	B	1	0.17	11	B	1

Source: VHB, Inc. using Synchro 8 software.
Note: Shaded cells denote LOS E/F conditions.
1 V/C – Volume-to-capacity ratio. V/C ratios range from 1.0 when demand equals capacity to 0 when demand is zero. Values over 1.0 indicate demand in excess of capacity.
2 Delay – Control delay per vehicle, expressed in seconds, includes initial deceleration delay, queue move-up time, stopped delay, and final acceleration delay.
3 LOS – Level-of-Service. LOS A indicates free flow conditions with minimal delays. LOS E and F indicate congested conditions.
4 Q – 95th percentile queue length estimate, in vehicles
NB = Northbound; SB = Southbound; EB = Eastbound; WB = Westbound L = Left-turn; T = Through; R = Right-turn

SUMMARY

VHB has evaluated the intersections of Route 53 at the Starland driveways and has developed potential permanent improvements to relieve congestion and improve safety along Route 53. In coordination with the Town of Hanover, two improvement options were developed that consider roadway modifications along Route 53 within the study area:

- **Option 1:** Route 53 southbound left-turn lanes and northbound right-turn lanes at both the northern and southern Starland driveways
- **Option 2:** Route 53 two-way (center) left-turn lane (TWLTL) from the northern to the southern Starland driveways

VHB evaluated traffic operations under both Option 1 and Option 2. While traffic operations are projected to remain relatively consistent when compared with existing conditions, safety and mobility can be improved under both options by providing storage lanes for turning vehicles.

Based on preliminary conceptual improvement plans presented in Figure 6, the lump sum cost estimate for Option 1 is $525,000. The lump sum cost estimate for Option 2, presented in Figure 7, is $470,000. It should be noted that both concepts consider widening Route 53 to the east (towards Starland) to avoid impacts to utility poles along the west side of the roadway. Widening to the east would likely have right-of-way impacts to the Starland property and adjacent parcels.

Based on discussions with the Town of Hanover, Option 2 is the preferred alternative. Left-turns into parcels along both sides of Route 53 were observed to be particularly difficult and are the primary concern for the Town. Right-turns into the parcels were not observed to be a significant issue. As such, Option 2 more adequately addresses this condition and would more equitably improve safety and mobility for parcels along both sides of Route 53 when compared to Option 1. Option 2 would also prepare this section of the Route 53 corridor for potential future development by reserving right-of-way for a potential future TWLTL. As discussed, Route 53 is under MassDOT jurisdiction and is an NHS roadway. As such, the roadway is subject to specific design standards. If the Town of Hanover advances Option 2 design exception request(s) would need to be prepared and accepted by MassDOT and/or FHWA.

Washington Street (Route 53)
between Starland Driveways
City, State: Hanover, MA
Client: VHB / K. Keen

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

133596 A Speed
Site Code: 12511.00
Date Start: 17-Oct-13

NB

Start Time	1 14	15 19	20 24	25 29	30 34	35 39	40 44	45 49	50 54	55 59	60 64	65 69	70 9999	Total	85th % ile	Ave Speed
10/18/ 13	0	0	0	0	0	8	9	6	1	0	**1**	0	0	25	47	43
01:00	0	0	0	0	1	2	7	4	2	0	0	0	0	16	48	43
02:00	0	0	1	1	0	5	3	1	0	0	0	0	0	11	43	37
03:00	0	0	0	0	1	3	14	8	4	0	0	0	0	30	48	44
04:00	0	0	0	0	0	11	54	28	5	0	0	0	0	98	47	43
05:00	0	0	1	1	3	39	223	**150**	**31**	0	0	0	0	448	47	44
06:00	0	0	0	0	2	112	273	115	13	0	1	0	0	516	46	42
07:00	0	0	0	1	10	150	405	130	10	0	0	0	0	706	45	42
08:00	0	0	0	1	24	202	**421**	137	10	0	0	0	0	**795**	45	41
09:00	**24**	**6**	**16**	**16**	**97**	215	318	89	9	**1**	0	0	0	791	44	37
10:00	0	0	1	10	42	182	364	102	7	0	0	0	0	708	44	41
11:00	0	0	1	12	61	**256**	320	82	10	0	0	0	0	742	44	40
12 PM	0	0	3	27	101	**308**	281	**83**	5	**3**	0	0	0	**811**	43	39
13:00	0	0	1	14	86	252	**295**	71	3	0	0	0	0	722	43	39
14:00	2	3	1	37	90	236	276	56	5	0	0	0	0	706	43	38
15:00	0	1	4	31	84	239	251	60	**6**	1	0	0	0	677	43	39
16:00	0	0	**8**	22	68	251	241	65	6	0	**1**	0	**1**	663	43	39
17:00	0	1	14	**54**	**140**	227	201	34	2	0	0	0	0	673	42	37
18:00	**4**	**13**	**37**	47	92	212	121	18	2	2	0	0	0	548	41	35
19:00	0	4	11	25	71	143	103	29	4	0	0	0	0	390	42	37
20:00	0	2	5	12	18	80	103	22	4	0	0	0	0	246	43	39
21:00	0	0	3	10	22	63	73	16	3	1	0	0	0	191	43	39
22:00	1	0	2	2	4	29	74	21	3	1	0	0	0	137	45	41
23:00	0	0	0	1	1	8	27	22	6	0	0	0	0	65	48	44
%	0.3%	0.3%	1.0%	3.0%	9.5%	30.2%	41.6%	12.6%	1.4%	0.1%	0.0%	0.0%	0.0%			
AM Peak	09:00	09:00	09:00	09:00	09:00	11:00	08:00	05:00	05:00	09:00	00:00			08:00		
Vol.	24	6	16	16	97	256	421	150	31	1	1			795		
PM Peak	18:00	18:00	18:00	17:00	17:00	12:00	13:00	12:00	15:00	12:00	16:00		16:00	12:00		
Vol.	4	13	37	54	140	308	295	83	6	3	1		1	811		
Total	31	30	109	324	1018	3233	4457	1349	151	9	3	0	1	10715	1067	

Percent

15th Percentile : 33 MPH
50th Percentile : 39 MPH
85th Percentile : 44 MPH
95th Percentile : 47 MPH

Stats

10 MPH Pace Speed : 36-45 MPH
Number in Pace : 7076
Percent in Pace : 66.0%
Number of Vehicles > 40 MPH : 4646
Percent of Vehicles > 40 MPH : 43.4%
Mean Speed(Average) : 39 MPH

Washington Street (Route 53)
between Starland Driveways
City, State: Hanover, MA
Client: VHB / K. Keen

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

133596 A Speed
Site Code: 12511.00
Date Start: 17-Oct-13

NB

Start Time	1 14	15 19	20 24	25 29	30 34	35 39	40 44	45 49	50 54	55 59	60 64	65 69	70 9999	Total	85th % ile	Ave Speed
10/19/ 13	0	0	0	0	2	10	17	8	3	0	0	**2**	0	42	47	43
01:00	0	0	0	0	2	5	6	3	5	0	0	0	0	21	50	43
02:00	0	0	0	0	0	0	5	2	1	0	0	0	0	8	48	45
03:00	0	0	0	0	0	6	12	4	2	0	0	0	0	24	46	42
04:00	0	0	0	0	0	3	12	11	7	**2**	0	0	0	35	51	46
05:00	0	0	0	0	1	14	42	34	11	0	0	0	0	102	48	44
06:00	0	0	0	0	1	32	94	**72**	**16**	0	0	0	0	215	48	44
07:00	0	0	0	14	19	87	**162**	62	8	1	0	0	0	353	45	41
08:00	0	0	5	60	224	189	52	11	0	0	0	0	0	541	38	34
09:00	0	0	3	78	329	**260**	45	1	0	0	0	0	0	716	37	34
10:00	1	7	27	195	**365**	166	32	3	0	0	0	0	0	796	36	32
11:00	**28**	**40**	**120**	**253**	293	67	12	1	0	0	0	0	0	**814**	33	27
12 PM	**12**	**51**	**100**	**256**	258	66	5	1	0	0	0	0	0	**749**	33	27
13:00	5	16	61	187	**320**	135	7	0	0	0	0	0	0	731	35	30
14:00	1	4	75	238	234	81	1	0	0	0	0	0	0	634	34	29
15:00	7	16	50	82	183	225	113	19	0	0	0	0	0	695	40	33
16:00	0	8	29	72	164	**277**	124	16	1	0	0	0	0	691	40	35
17:00	0	1	25	52	153	261	**137**	**28**	0	0	0	0	0	657	41	36
18:00	4	15	21	62	133	181	70	23	1	0	0	0	0	510	40	34
19:00	2	4	7	31	60	123	104	15	2	0	0	0	0	348	42	36
20:00	1	0	2	8	20	88	89	20	1	0	0	0	0	229	43	39
21:00	0	0	4	8	20	78	66	17	1	1	0	0	0	195	43	39
22:00	0	0	1	5	18	47	57	15	**4**	0	0	0	0	147	44	39
23:00	0	0	0	1	2	18	27	14	2	**2**	0	0	0	66	46	42
%	0.7%	1.7%	5.7%	17.2%	30.1%	26.0%	13.9%	4.1%	0.7%	0.1%	0.0%	0.0%	0.0%			
AM Peak	11:00	11:00	11:00	11:00	10:00	09:00	07:00	06:00	06:00	04:00		00:00		11:00		
Vol.	28	40	120	253	365	260	162	72	16	2		2		814		
PM Peak	12:00	12:00	12:00	12:00	13:00	16:00	17:00	17:00	22:00	23:00				12:00		
Vol.	12	51	100	256	320	277	137	28	4	2				749		
Total	61	162	530	1602	2801	2419	1291	380	65	6	0	2	0	9319	1008	

Percent

15th Percentile : 25 MPH
50th Percentile : 33 MPH
85th Percentile : 40 MPH
95th Percentile : 44 MPH

Stats

10 MPH Pace Speed : 29-38 MPH
Number in Pace : 4899
Percent in Pace : 52.6%
Number of Vehicles > 40 MPH : 1409
Percent of Vehicles > 40 MPH : 15.1%
Mean Speed(Average) : 33 MPH

Washington Street (Route 53)
between Starland Driveways
City, State: Hanover, MA
Client: VHB / K. Keen

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

133596 A Speed
Site Code: 12511.00
Date Start: 17-Oct-13

NB

Start	1	15	20	25	30	35	40	45	50	55	60	65	70	Total	85th	Ave
Time	14	19	24	29	34	39	44	49	54	59	64	69	9999		% ile	Speed
10/20/																
13	0	0	0	0	1	13	25	13	5	1	0	0	0	58	48	43
01:00	0	0	0	0	2	2	8	3	1	0	0	0	0	16	46	42
02:00	0	0	0	0	1	5	4	3	1	0	0	0	0	14	47	41
03:00	0	0	0	0	0	0	6	5	2	0	0	0	0	13	49	45
04:00	0	0	0	0	0	8	8	8	1	0	0	0	0	25	47	42
05:00	0	0	0	0	0	7	11	12	4	2	0	0	0	36	50	45
06:00	0	0	0	0	2	11	51	36	**14**	0	0	0	0	114	48	44
07:00	**1**	2	0	3	6	30	83	**43**	8	**5**	0	0	0	181	47	42
08:00	1	2	2	12	26	111	124	33	8	0	0	0	0	319	44	39
09:00	0	0	0	11	70	170	157	40	4	0	0	0	0	452	43	39
10:00	0	**7**	**4**	19	75	268	174	33	1	0	0	0	0	581	42	38
11:00	0	0	1	**35**	**158**	**305**	**200**	25	0	0	0	0	0	**724**	41	37
12 PM	**2**	**6**	**29**	**132**	**210**	304	99	9	0	0	0	0	0	**791**	39	34
13:00	0	1	19	66	177	**323**	143	19	0	0	0	0	0	748	40	36
14:00	1	2	16	56	103	226	147	28	1	0	0	0	0	580	42	36
15:00	0	1	11	30	63	193	**201**	**50**	3	0	0	0	0	552	43	38
16:00	0	0	5	22	71	239	187	48	0	0	0	0	0	572	43	38
17:00	0	1	1	20	67	178	172	40	1	**1**	0	0	0	481	43	38
18:00	1	0	1	22	55	128	**114**	23	3	0	0	0	0	347	43	38
19:00	0	1	**4**	7	11	61	90	29	**6**	0	0	0	0	209	45	40
20:00	0	0	1	3	8	49	71	17	4	0	0	0	0	153	44	40
21:00	0	0	0	0	3	21	36	17	1	0	0	0	0	78	45	41
22:00	0	0	0	2	2	15	20	11	2	0	0	0	0	52	46	41
23:00	0	0	0	0	0	6	6	8	3	0	0	0	0	23	49	44
%	0.1%	0.3%	1.3%	6.2%	15.6%	37.5%	30.0%	7.8%	1.0%	0.1%	0.0%	0.0%	0.0%			
AM Peak	07:00	10:00	10:00	11:00	11:00	11:00	11:00	07:00	06:00	07:00				11:00		
Vol.	1	7	4	35	158	305	200	43	**14**	5				724		
PM Peak	12:00	12:00	12:00	12:00	12:00	13:00	15:00	15:00	19:00	17:00				12:00		
Vol.	2	6	29	132	210	323	201	50	6	1				791		
Total	6	23	**94**	440	1111	2673	2137	553	73	9	0	0	0	7119	1074	
Percent																

15th Percentile : 31 MPH
50th Percentile : 37 MPH
85th Percentile : 43 MPH
95th Percentile : 46 MPH

Stats

10 MPH Pace Speed : 34-43 MPH
Number in Pace : 4469
Percent in Pace : 62.8%
Number of Vehicles > 40 MPH : 2173
Percent of Vehicles > 40 MPH : 30.5%
Mean Speed(Average) : 38 MPH

Washington Street (Route 53)
between Starland Driveways
City, State: Hanover, MA
Client: VHB / K. Keen

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

133596 A Speed
Site Code: 12511.00
Date Start: 17-Oct-13

SB

Start	1	15	20	25	30	35	40	45	50	55	60	65	70	Total	85th	Ave
Time	14	19	24	29	34	39	44	49	54	59	64	69	9999		% ile	Speed
10/17/																
13	0	0	0	0	1	6	21	25	1	**2**	0	0	0	56	48	44
01:00	0	0	0	0	3	7	17	15	2	1	0	0	0	45	47	43
02:00	0	0	0	0	0	1	6	6	2	0	0	0	0	15	49	45
03:00	0	0	0	0	0	4	9	4	1	0	0	0	0	18	46	43
04:00	0	0	0	0	0	4	0	3	2	0	0	0	0	9	50	44
05:00	0	0	0	0	0	11	22	8	4	1	0	0	0	46	47	43
06:00	0	0	0	0	4	29	55	21	2	0	0	0	0	111	45	41
07:00	0	0	0	1	5	61	134	56	**6**	0	0	0	0	263	46	42
08:00	0	0	0	0	11	91	196	62	5	0	0	0	0	365	45	41
09:00	0	0	0	0	11	117	231	**66**	5	0	0	0	0	430	44	41
10:00	0	0	0	1	27	182	246	56	5	0	0	0	0	517	44	40
11:00	0	0	0	**3**	**34**	**234**	**306**	63	3	0	0	0	0	**643**	43	40
12 PM	0	0	1	13	108	312	301	57	2	0	0	0	0	794	43	39
13:00	0	0	0	12	79	292	314	78	3	0	0	0	0	778	43	39
14:00	0	0	0	14	82	316	331	67	**4**	0	0	0	0	814	43	39
15:00	0	**1**	1	11	86	378	358	**87**	**4**	**1**	0	0	0	927	43	39
16:00	0	0	**4**	24	114	382	**389**	59	3	0	0	0	0	975	43	39
17:00	0	0	**6**	**71**	294	**465**	252	32	1	0	0	0	0	**1121**	41	36
18:00	0	0	6	47	**359**	399	148	9	0	0	0	0	0	968	39	35
19:00	0	0	6	42	157	316	123	23	1	0	0	0	0	668	40	36
20:00	0	0	0	40	107	199	173	28	4	0	0	0	0	551	42	37
21:00	0	0	1	8	42	113	167	41	3	0	0	0	0	375	44	40
22:00	0	0	1	2	10	39	78	37	**6**	0	0	0	0	173	46	41
23:00	0	0	0	1	1	15	51	44	5	1	0	0	0	118	47	44
%	0.0%	0.0%	0.2%	2.7%	14.2%	36.9%	36.4%	8.8%	0.7%	0.1%	0.0%	0.0%	0.0%			
AM Peak				11:00	11:00	11:00	11:00	09:00	07:00	00:00				11:00		
Vol.				3	34	234	306	66	6	2				643		
PM Peak		15:00	17:00	17:00	18:00	17:00	16:00	15:00	22:00	15:00				17:00		
Vol.		1	6	71	359	465	389	87	6	1				1121		
Total	0	1	26	290	1535	3973	3928	947	74	6	0	0	0	10780	1068	
Percent																

15th Percentile : 32 MPH
50th Percentile : 38 MPH
85th Percentile : 43 MPH
95th Percentile : 46 MPH

Stats

10 MPH Pace Speed : 35-44 MPH
Number in Pace : 7250
Percent in Pace : 67.3%
Number of Vehicles > 40 MPH : 3813
Percent of Vehicles > 40 MPH : 35.4%
Mean Speed(Average) : 39 MPH

Washington Street (Route 53)
between Starland Driveways
City, State: Hanover, MA
Client: VHB / K. Keen

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

133596 A Speed
Site Code: 12511.00
Date Start: 17-Oct-13

SB

Start	1	15	20	25	30	35	40	45	50	55	60	65	70	Total	85th	Ave
Time	14	19	24	29	34	39	44	49	54	59	64	69	9999		% ile	Speed
10/18/																
13	0	0	0	0	3	7	29	30	5	1	0	0	0	75	48	44
01:00	0	0	0	0	0	2	15	10	0	0	0	0	0	27	46	43
02:00	0	0	2	0	1	7	6	1	0	0	0	0	0	17	42	37
03:00	0	0	0	0	2	2	6	1	2	0	0	0	0	13	48	42
04:00	0	0	0	0	1	3	7	2	0	0	0	0	0	13	44	41
05:00	0	0	0	0	0	8	14	8	2	1	2	0	0	35	49	44
06:00	0	0	0	0	1	26	46	45	1	0	0	0	0	119	47	43
07:00	0	0	1	0	1	60	146	61	**18**	0	0	0	0	287	46	43
08:00	0	0	0	0	3	53	195	**119**	12	**2**	0	0	0	384	47	43
09:00	**1**	0	**5**	7	19	120	257	62	10	0	1	0	0	482	44	41
10:00	0	0	0	7	24	198	309	90	5	0	0	0	0	633	44	41
11:00	0	0	0	**8**	**63**	**229**	**344**	66	7	0	0	0	0	**717**	43	40
12 PM	0	1	2	3	89	343	351	66	4	0	0	0	0	859	43	39
13:00	0	0	0	10	114	331	**377**	76	3	1	0	0	0	912	43	39
14:00	0	0	3	15	106	361	375	60	4	0	0	0	0	924	43	39
15:00	0	0	0	8	92	403	364	**77**	1	0	0	0	0	945	43	39
16:00	0	0	1	26	154	484	341	43	4	**2**	0	0	0	1055	42	38
17:00	0	0	3	44	**272**	**494**	289	25	1	0	0	0	0	**1128**	41	37
18:00	**2**	**5**	**20**	**88**	269	341	137	14	0	0	0	0	0	876	39	35
19:00	0	4	7	37	154	304	122	22	2	0	0	0	0	652	40	36
20:00	0	0	3	32	66	168	175	28	2	1	0	0	0	475	43	38
21:00	0	0	4	10	30	87	160	60	4	0	0	0	0	355	45	40
22:00	0	0	3	11	18	62	137	46	4	0	0	0	**1**	282	45	40
23:00	0	1	0	2	8	29	79	40	**9**	1	0	0	0	169	47	42
%	0.0%	0.1%	0.5%	2.7%	13.0%	36.1%	37.4%	9.2%	0.9%	0.1%	0.0%	0.0%	0.0%			
AM Peak	09:00		09:00	11:00	11:00	11:00	11:00	08:00	07:00	08:00	05:00			11:00		
Vol.	1		5	8	63	229	344	119	18	2	2			717		
PM Peak	18:00	18:00	18:00	18:00	17:00	17:00	13:00	15:00	23:00	16:00			22:00	17:00		
Vol.	2	5	20	88	272	494	377	77	9	2			1	1128		
Total	3	11	54	308	1490	4122	4281	1052	100	9	3	0	1	11434	1062	

Percent

15th Percentile : 33 MPH
50th Percentile : 38 MPH
85th Percentile : 43 MPH
95th Percentile : 46 MPH

Stats

10 MPH Pace Speed : 35-44 MPH
Number in Pace : 7695
Percent in Pace : 67.3%
Number of Vehicles > 40 MPH : 4194
Percent of Vehicles > 40 MPH : 36.7%
Mean Speed(Average) : 39 MPH

Washington Street (Route 53)
between Starland Driveways
City, State: Hanover, MA
Client: VHB / K. Keen

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Email: datarequests@pdillc.com

133596 A Speed
Site Code: 12511.00
Date Start: 17-Oct-13

SB

Start	1	15	20	25	30	35	40	45	50	55	60	65	70	Total	85th	Ave
Time	14	19	24	29	34	39	44	49	54	59	64	69	9999		% ile	Speed
10/19/																
13	0	0	0	2	3	6	50	22	3	0	0	0	0	86	46	43
01:00	0	0	0	0	1	6	29	11	2	0	0	0	0	49	46	43
02:00	0	0	0	0	1	4	17	11	4	0	0	0	0	37	48	44
03:00	0	0	0	0	0	0	6	6	2	0	**1**	0	0	15	50	47
04:00	0	0	0	0	1	0	10	4	3	**1**	1	0	0	20	52	46
05:00	0	0	0	0	0	4	6	5	4	0	0	0	0	19	50	44
06:00	0	0	0	1	1	9	29	19	2	1	0	0	0	62	47	43
07:00	0	0	4	25	63	84	68	**49**	**7**	0	0	0	0	300	45	38
08:00	23	23	43	108	131	128	54	11	0	0	0	0	0	521	38	30
09:00	7	19	40	61	193	**224**	**74**	5	2	0	0	0	0	625	39	33
10:00	20	31	59	130	**254**	169	57	9	1	0	0	0	0	730	37	30
11:00	**32**	**70**	**186**	**200**	202	85	12	0	0	0	0	0	0	**787**	33	26
12 PM	84	108	213	192	180	89	21	2	0	0	0	0	0	889	33	23
13:00	54	86	169	**238**	225	110	23	1	0	0	0	0	0	906	33	25
14:00	**85**	**146**	**234**	200	209	69	14	0	0	0	0	0	0	957	32	23
15:00	16	55	89	223	287	223	97	12	2	0	0	0	0	**1004**	38	30
16:00	1	4	34	145	**305**	**305**	126	14	1	0	0	0	0	935	39	34
17:00	12	5	34	143	231	252	130	17	3	0	0	0	0	827	40	33
18:00	4	23	55	138	189	205	84	7	1	0	0	0	0	706	38	32
19:00	2	8	48	75	91	151	126	25	3	0	0	0	0	529	41	34
20:00	0	5	16	20	61	123	**141**	33	3	0	0	0	0	402	43	37
21:00	1	1	1	12	41	83	122	28	2	0	0	0	0	291	43	39
22:00	0	0	0	2	19	61	86	**46**	3	0	0	0	0	217	45	41
23:00	0	0	1	3	6	30	71	40	**7**	0	0	0	0	158	46	42
%	3.1%	5.3%	11.1%	17.3%	24.3%	21.9%	13.1%	3.4%	0.5%	0.0%	0.0%	0.0%	0.0%			
AM Peak	11:00	11:00	11:00	11:00	10:00	09:00	09:00	07:00	07:00	04:00	03:00			11:00		
Vol.	32	70	186	200	254	224	74	49	7	1	1			787		
PM Peak	14:00	14:00	14:00	13:00	16:00	16:00	20:00	22:00	23:00					15:00		
Vol.	85	146	234	238	305	305	141	46	7					1004		
Total	341	584	1226	1918	2694	2420	1453	377	55	2	2	0	0	11072	1002	

Percent

15th Percentile : 20 MPH
50th Percentile : 31 MPH
85th Percentile : 39 MPH
95th Percentile : 43 MPH

Stats

10 MPH Pace Speed : 29-38 MPH
Number in Pace : 4718
Percent in Pace : 42.6%
Number of Vehicles > 40 MPH : 1459
Percent of Vehicles > 40 MPH : 13.2%
Mean Speed(Average) : 31 MPH

Washington Street (Route 53)
between Starland Driveways
City, State: Hanover, MA
Client: VHB / K. Keen

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133596 A Speed
Site Code: 12511.00
Date Start: 17-Oct-13

SB

Start Time	1 14	15 19	20 24	25 29	30 34	35 39	40 44	45 49	50 54	55 59	60 64	65 69	70 9999	Total	85th % ile	Ave Speed
10/20/13	0	0	0	3	2	14	49	39	10	1	0	0	0	118	48	43
01:00	0	0	0	0	3	12	44	30	4	0	0	0	0	93	47	43
02:00	0	0	0	0	1	4	13	11	5	**4**	0	0	0	38	52	46
03:00	0	0	0	0	0	1	9	3	3	0	0	0	0	16	50	44
04:00	0	0	0	0	0	1	3	5	1	0	0	0	0	10	48	45
05:00	0	0	0	0	0	3	6	7	0	0	0	0	0	16	47	43
06:00	0	0	0	0	0	4	13	15	3	1	0	0	0	36	49	45
07:00	0	0	0	14	49	83	61	36	7	**1**	0	0	0	251	45	39
08:00	**1**	3	4	25	101	102	71	44	**16**	1	0	0	0	368	44	37
09:00	0	0	4	50	96	106	111	**63**	11	0	0	0	0	441	44	38
10:00	0	2	6	32	115	175	**164**	52	1	0	0	0	0	547	43	38
11:00	0	**7**	**19**	**65**	**158**	**224**	163	47	5	0	0	0	0	**688**	42	36
12 PM	**21**	**43**	**59**	**126**	**271**	252	102	21	0	0	0	0	0	**895**	39	31
13:00	4	**4**	29	96	189	248	158	35	6	1	0	0	0	770	41	35
14:00	8	11	41	100	238	241	145	28	2	0	0	0	0	814	40	34
15:00	8	6	19	82	171	249	184	58	8	**2**	0	0	0	787	42	36
16:00	0	0	2	56	127	**262**	198	49	6	0	**1**	0	0	701	42	38
17:00	0	0	2	14	88	224	**228**	**70**	9	1	0	0	0	636	44	39
18:00	0	0	1	31	106	178	179	41	5	1	0	0	0	542	43	38
19:00	0	0	0	11	42	96	158	50	6	0	0	0	0	363	44	40
20:00	0	0	1	11	28	40	77	44	6	0	0	0	0	207	46	40
21:00	0	0	0	5	2	16	74	40	5	0	0	0	0	142	46	43
22:00	0	0	0	1	4	9	34	35	**11**	0	0	0	0	94	48	44
23:00	0	0	0	0	0	6	24	16	6	1	1	0	0	54	49	45
%	0.5%	0.9%	2.2%	8.4%	20.8%	29.6%	26.3%	9.7%	1.6%	0.2%	0.0%	0.0%	0.0%			
AM Peak	08:00	11:00	11:00	11:00	11:00	11:00	10:00	09:00	08:00	02:00				11:00		
Vol.	1	7	19	65	158	224	164	63	16	4				688		
PM Peak	12:00	12:00	12:00	12:00	12:00	16:00	17:00	17:00	22:00	15:00	16:00			12:00		
Vol.	21	43	59	126	271	262	228	70	11	2	1			895		
Total	42	76	187	722	1791	2550	2268	839	136	14	2	0	0	8627	1083	
Percent																

15th Percentile : 29 MPH
50th Percentile : 36 MPH
85th Percentile : 43 MPH
95th Percentile : 47 MPH

Stats

10 MPH Pace Speed : 34-43 MPH
Number in Pace : 4599
Percent in Pace : 53.3%
Number of Vehicles > 40 MPH : 2632
Percent of Vehicles > 40 MPH : 30.5%
Mean Speed(Average) : 37 MPH

Washington Street (Route 53)
between Starland Driveways
City, State: Hanover, MA
Client: VHB / K. Keen

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

133596 A Class
Site Code: 12511.00
Date Start: 17-Oct-13

NB

Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Total
10/17/1 3	0	35	3	0	1	0	0	0	0	0	0	0	0	39
01:00	0	18	2	0	3	1	0	0	2	0	0	0	0	26
02:00	0	14	1	0	1	1	0	0	1	0	0	0	0	18
03:00	0	19	7	0	3	0	0	0	1	0	0	0	0	30
04:00	1	67	35	1	9	1	0	0	0	0	0	0	0	114
05:00	1	296	123	0	29	1	0	0	0	0	0	0	0	450
06:00	5	455	130	2	35	1	0	0	1	0	0	0	0	629
07:00	4	831	204	4	33	0	0	1	1	0	0	0	0	1078
08:00	1	573	148	2	37	2	0	4	2	0	0	0	0	769
09:00	1	523	138	2	17	1	0	2	0	0	0	0	0	684
10:00	1	516	129	4	24	2	0	2	1	0	0	0	0	679
11:00	1	522	121	1	22	0	0	3	0	0	0	0	0	670
12 PM	3	553	122	3	19	1	0	1	1	0	0	0	0	703
13:00	4	525	99	2	11	1	0	2	0	0	0	0	0	644
14:00	4	459	131	4	12	1	0	3	0	0	0	0	0	614
15:00	2	503	101	1	15	1	0	1	1	0	0	0	0	625
16:00	4	479	100	0	21	0	0	1	0	0	0	0	0	605
17:00	4	485	91	2	8	2	0	1	1	0	0	0	0	594
18:00	1	437	96	1	9	0	0	3	0	0	0	0	0	547
19:00	1	290	58	0	4	1	0	0	0	0	0	0	0	354
20:00	2	171	38	0	3	2	0	0	0	0	0	0	0	216
21:00	0	108	28	1	1	0	0	0	0	0	0	0	0	138
22:00	1	58	10	0	1	0	0	0	2	0	0	0	0	72
23:00	0	27	3	0	0	0	0	1	0	0	0	0	0	31
Total	41	7964	1918	30	318	19	0	25	14	0	0	0	0	10329
Percent	0.4%	77.1%	18.6%	0.3%	3.1%	0.2%	0.0%	0.2%	0.1%	0.0%	0.0%	0.0%	0.0%	
AM Peak	06:00	07:00	07:00	07:00	08:00	08:00		08:00	01:00					07:00
Vol.	5	831	204	4	37	2		4	2					1078
PM Peak	13:00	12:00	14:00	14:00	16:00	17:00		14:00	22:00					12:00
Vol.	4	553	131	4	21	2		3	2					703

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133596 A Class
Site Code: 12511.00
Date Start: 17-Oct-13

NB

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10/18/1														
3	0	19	4	0	2	0	0	0	0	0	0	0	0	25
01:00	0	13	3	0	0	0	0	0	0	0	0	0	0	16
02:00	1	2	4	0	1	1	0	0	2	0	0	0	0	11
03:00	0	22	5	0	3	0	0	0	0	0	0	0	0	30
04:00	0	64	25	0	8	0	0	0	1	0	0	0	0	98
05:00	1	296	135	2	12	1	0	1	0	0	0	0	0	448
06:00	3	359	130	1	21	2	0	0	0	0	0	0	0	516
07:00	0	544	142	2	16	1	0	1	0	0	0	0	0	706
08:00	3	611	147	1	28	0	0	3	2	0	0	0	0	795
09:00	1	617	146	2	15	1	0	7	1	1	0	0	0	791
10:00	0	549	136	3	14	5	0	1	0	0	0	0	0	708
11:00	2	574	145	1	17	0	0	3	0	0	0	0	0	742
12 PM	4	622	154	3	18	5	0	1	4	0	0	0	0	811
13:00	4	578	117	4	17	1	0	0	1	0	0	0	0	722
14:00	0	559	119	3	19	3	0	0	2	0	0	1	0	706
15:00	2	541	120	2	7	0	0	5	0	0	0	0	0	677
16:00	5	526	119	1	11	0	0	1	0	0	0	0	0	663
17:00	3	551	110	2	5	0	0	1	1	0	0	0	0	673
18:00	0	449	90	1	8	0	0	0	0	0	0	0	0	548
19:00	3	309	67	1	9	0	0	0	1	0	0	0	0	390
20:00	0	203	35	0	7	1	0	0	0	0	0	0	0	246
21:00	0	154	31	0	4	1	0	0	1	0	0	0	0	191
22:00	0	118	18	0	0	0	0	0	1	0	0	0	0	137
23:00	1	52	10	0	1	0	0	0	1	0	0	0	0	65
Total	33	8332	2012	29	243	22	0	24	18	1	0	1	0	10715
Percent	0.3%	77.8%	18.8%	0.3%	2.3%	0.2%	0.0%	0.2%	0.2%	0.0%	0.0%	0.0%	0.0%	
AM Peak	06:00	09:00	08:00	10:00	08:00	10:00		09:00	02:00	09:00				08:00
Vol.	3	617	147	3	28	5		7	2	1				795
PM Peak	16:00	12:00	12:00	13:00	14:00	12:00		15:00	12:00			14:00		12:00
Vol.	5	622	154	4	19	5		5	4			1		811

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10/19/1														
3	0	35	6	1	0	0	0	0	0	0	0	0	0	42
01:00	0	17	4	0	0	0	0	0	0	0	0	0	0	21
02:00	0	6	1	0	1	0	0	0	0	0	0	0	0	8
03:00	0	17	4	0	3	0	0	0	0	0	0	0	0	24
04:00	0	24	8	0	3	0	0	0	0	0	0	0	0	35
05:00	0	69	29	0	3	0	0	0	1	0	0	0	0	102
06:00	0	163	44	0	6	0	0	1	1	0	0	0	0	215
07:00	1	261	77	1	11	0	0	1	1	0	0	0	0	353
08:00	2	444	79	1	12	0	0	3	0	0	0	0	0	541
09:00	0	565	126	2	17	3	0	3	0	0	0	0	0	716
10:00	3	630	142	1	16	1	0	3	0	0	0	0	0	796
11:00	3	672	117	0	15	4	0	3	0	0	0	0	0	814
12 PM	1	614	119	0	6	5	0	4	0	0	0	0	0	749
13:00	3	597	115	1	7	7	0	1	0	0	0	0	0	731
14:00	3	530	87	0	7	6	0	1	0	0	0	0	0	634
15:00	6	587	89	0	13	0	0	0	0	0	0	0	0	695
16:00	0	570	113	0	6	1	0	1	0	0	0	0	0	691
17:00	0	554	94	0	7	1	0	1	0	0	0	0	0	657
18:00	0	427	76	0	5	1	0	0	1	0	0	0	0	510
19:00	0	278	63	1	6	0	0	0	0	0	0	0	0	348
20:00	1	194	28	0	5	1	0	0	0	0	0	0	0	229
21:00	1	157	33	0	3	0	0	0	1	0	0	0	0	195
22:00	0	133	14	0	0	0	0	0	0	0	0	0	0	147
23:00	0	51	10	0	4	0	0	0	1	0	0	0	0	66
Total	24	7595	1478	8	156	30	0	22	6	0	0	0	0	9319
Percent	0.3%	81.5%	15.9%	0.1%	1.7%	0.3%	0.0%	0.2%	0.1%	0.0%	0.0%	0.0%	0.0%	
AM Peak	10:00	11:00	10:00	09:00	09:00	11:00		08:00	05:00					11:00
Vol.	3	672	142	2	17	4		3	1					814
PM Peak	15:00	12:00	12:00	13:00	15:00	13:00		12:00	18:00					12:00
Vol.	6	614	119	1	13	7		4	1					749

Washington Street (Route 53)
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133596 A Class
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NB

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10/20/1														
3	0	48	10	0	0	0	0	0	0	0	0	0	0	58
01:00	0	16	0	0	0	0	0	0	0	0	0	0	0	16
02:00	0	10	3	0	1	0	0	0	0	0	0	0	0	14
03:00	0	10	2	0	1	0	0	0	0	0	0	0	0	13
04:00	2	21	2	0	0	0	0	0	0	0	0	0	0	25
05:00	0	29	6	0	1	0	0	0	0	0	0	0	0	36
06:00	1	88	20	0	4	0	0	0	1	0	0	0	0	114
07:00	0	141	36	0	3	0	0	0	1	0	0	0	0	181
08:00	2	243	67	1	5	0	0	1	0	0	0	0	0	319
09:00	2	353	85	1	8	0	0	2	1	0	0	0	0	452
10:00	3	464	103	0	8	0	0	3	0	0	0	0	0	581
11:00	3	590	117	0	12	1	0	1	0	0	0	0	0	724
12 PM	4	644	135	0	7	1	0	0	0	0	0	0	0	791
13:00	1	603	136	0	6	1	0	1	0	0	0	0	0	748
14:00	2	478	93	0	6	1	0	0	0	0	0	0	0	580
15:00	2	472	75	0	3	0	0	0	0	0	0	0	0	552
16:00	3	466	97	0	5	1	0	0	0	0	0	0	0	572
17:00	5	392	80	0	2	1	0	1	0	0	0	0	0	481
18:00	3	292	47	0	5	0	0	0	0	0	0	0	0	347
19:00	0	178	28	0	3	0	0	0	0	0	0	0	0	209
20:00	0	123	25	0	5	0	0	0	0	0	0	0	0	153
21:00	0	52	24	0	1	0	0	0	1	0	0	0	0	78
22:00	0	45	7	0	0	0	0	0	0	0	0	0	0	52
23:00	0	21	2	0	0	0	0	0	0	0	0	0	0	23
Total	33	5779	1200	2	86	6	0	9	4	0	0	0	0	7119
Percent	0.5%	81.2%	16.9%	0.0%	1.2%	0.1%	0.0%	0.1%	0.1%	0.0%	0.0%	0.0%	0.0%	
AM Peak	10:00	11:00	11:00	08:00	11:00	11:00		10:00	06:00					11:00
Vol.	3	590	117	1	12	1		3	1					724
PM Peak	17:00	12:00	13:00		12:00	12:00		13:00	21:00					12:00
Vol.	5	644	136		7	1		1	1					791
Total		29670	6608	69	803	77	0	80	42	1	0	1	0	37482

Washington Street (Route 53)
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SB

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10/17/1														
3	0	42	13	0	1	0	0	0	0	0	0	0	0	56
01:00	1	38	5	0	1	0	0	0	0	0	0	0	0	45
02:00	0	12	1	0	2	0	0	0	0	0	0	0	0	15
03:00	0	13	3	0	0	1	0	0	1	0	0	0	0	18
04:00	0	7	1	1	0	0	0	0	0	0	0	0	0	9
05:00	0	30	7	2	5	1	0	0	1	0	0	0	0	46
06:00	0	79	22	0	8	1	0	0	1	0	0	0	0	111
07:00	1	199	48	4	9	1	0	1	0	0	0	0	0	263
08:00	0	279	65	4	15	2	0	0	0	0	0	0	0	365
09:00	0	320	88	2	16	1	0	3	0	0	0	0	0	430
10:00	0	365	122	3	20	1	0	3	3	0	0	0	0	517
11:00	2	500	111	3	24	1	0	2	0	0	0	0	0	643
12 PM	1	599	156	1	33	2	0	1	0	1	0	0	0	794
13:00	2	589	145	2	33	1	0	4	2	0	0	0	0	778
14:00	4	598	160	2	41	3	0	5	1	0	0	0	0	814
15:00	2	692	178	1	47	3	0	4	0	0	0	0	0	927
16:00	4	704	217	0	48	0	0	2	0	0	0	0	0	975
17:00	3	860	201	1	53	0	0	2	1	0	0	0	0	1121
18:00	3	762	156	1	45	0	0	1	0	0	0	0	0	968
19:00	2	512	121	0	32	0	0	0	1	0	0	0	0	668
20:00	0	404	127	0	20	0	0	0	0	0	0	0	0	551
21:00	0	296	65	0	12	0	0	1	1	0	0	0	0	375
22:00	2	126	37	0	7	0	0	1	0	0	0	0	0	173
23:00	0	80	29	0	8	0	0	1	0	0	0	0	0	118
Total	27	8106	2078	27	480	18	0	31	12	1	0	0	0	10780
Percent	0.3%	75.2%	19.3%	0.3%	4.5%	0.2%	0.0%	0.3%	0.1%	0.0%	0.0%	0.0%	0.0%	
AM Peak	11:00	11:00	10:00	07:00	11:00	08:00		09:00	10:00					11:00
Vol.	2	500	122	4	24	2		3	3					643
PM Peak	14:00	17:00	16:00	13:00	17:00	14:00		14:00	13:00	12:00				17:00
Vol.	4	860	217	2	53	3		5	2	1				1121

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10/18/1														
3	0	56	13	0	4	0	0	0	2	0	0	0	0	75
01:00	0	21	5	0	1	0	0	0	0	0	0	0	0	27
02:00	1	13	1	0	1	1	0	0	0	0	0	0	0	17
03:00	0	5	6	0	1	0	0	0	1	0	0	0	0	13
04:00	0	10	1	0	1	0	0	0	1	0	0	0	0	13
05:00	0	22	8	2	2	1	0	0	0	0	0	0	0	35
06:00	0	87	19	0	13	0	0	0	0	0	0	0	0	119
07:00	3	198	61	3	16	3	0	3	0	0	0	0	0	287
08:00	0	257	96	2	22	2	1	4	0	0	0	0	0	384
09:00	0	347	104	2	25	0	0	1	3	0	0	0	0	482
10:00	0	454	137	4	30	3	0	3	2	0	0	0	0	633
11:00	1	521	154	2	32	3	0	1	3	0	0	0	0	717
12 PM	4	622	176	4	44	6	0	2	1	0	0	0	0	859
13:00	2	672	187	5	41	2	0	3	0	0	0	0	0	912
14:00	2	677	183	3	51	0	0	4	4	0	0	0	0	924
15:00	5	683	202	0	50	0	0	5	0	0	0	0	0	945
16:00	4	768	228	1	51	0	0	3	0	0	0	0	0	1055
17:00	5	878	189	0	52	1	0	2	1	0	0	0	0	1128
18:00	2	661	172	2	38	0	0	1	0	0	0	0	0	876
19:00	2	485	123	2	38	1	0	1	0	0	0	0	0	652
20:00	0	347	106	0	19	0	0	2	1	0	0	0	0	475
21:00	2	271	62	0	19	0	0	0	1	0	0	0	0	355
22:00	0	215	52	0	14	0	0	0	1	0	0	0	0	282
23:00	0	129	31	1	8	0	0	0	0	0	0	0	0	169
Total	33	8399	2316	33	573	23	1	35	21	0	0	0	0	11434
Percent	0.3%	73.5%	20.3%	0.3%	5.0%	0.2%	0.0%	0.3%	0.2%	0.0%	0.0%	0.0%	0.0%	
AM Peak	07:00	11:00	11:00	10:00	11:00	07:00	08:00	08:00	09:00					11:00
Vol.	3	521	154	4	32	3	1	4	3					717
PM Peak	15:00	17:00	16:00	13:00	17:00	12:00		15:00	14:00					17:00
Vol.	5	878	228	5	52	6		5	4					1128

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10/19/1														
3	0	59	21	0	6	0	0	0	0	0	0	0	0	86
01:00	0	35	12	0	2	0	0	0	0	0	0	0	0	49
02:00	0	27	7	0	3	0	0	0	0	0	0	0	0	37
03:00	0	14	1	0	0	0	0	0	0	0	0	0	0	15
04:00	0	15	1	0	3	0	0	0	1	0	0	0	0	20
05:00	0	10	4	0	4	0	0	0	1	0	0	0	0	19
06:00	1	39	15	1	5	1	0	0	0	0	0	0	0	62
07:00	1	190	78	1	28	1	0	0	1	0	0	0	0	300
08:00	0	373	123	0	23	1	0	1	0	0	0	0	0	521
09:00	2	478	116	2	21	3	0	2	1	0	0	0	0	625
10:00	1	573	124	2	29	0	0	1	0	0	0	0	0	730
11:00	2	622	141	1	17	0	0	4	0	0	0	0	0	787
12 PM	2	728	135	3	16	2	0	3	0	0	0	0	0	889
13:00	2	740	138	1	18	2	0	4	1	0	0	0	0	906
14:00	1	804	130	2	15	2	0	3	0	0	0	0	0	957
15:00	1	776	187	1	36	0	0	3	0	0	0	0	0	1004
16:00	7	735	168	0	24	0	0	1	0	0	0	0	0	935
17:00	2	657	139	1	27	0	0	0	1	0	0	0	0	827
18:00	0	554	130	0	21	0	0	1	0	0	0	0	0	706
19:00	0	403	112	0	14	0	0	0	0	0	0	0	0	529
20:00	0	301	85	0	16	0	0	0	0	0	0	0	0	402
21:00	0	224	53	1	12	0	0	1	0	0	0	0	0	291
22:00	0	155	50	0	12	0	0	0	0	0	0	0	0	217
23:00	0	112	41	0	5	0	0	0	0	0	0	0	0	158
Total	22	8624	2011	16	357	12	0	24	6	0	0	0	0	11072
Percent	0.2%	77.9%	18.2%	0.1%	3.2%	0.1%	0.0%	0.2%	0.1%	0.0%	0.0%	0.0%	0.0%	
AM Peak	09:00	11:00	11:00	09:00	10:00	09:00		11:00	04:00					11:00
Vol.	2	622	141	2	29	3		4	1					787
PM Peak	16:00	14:00	15:00	12:00	15:00	12:00		13:00	13:00					15:00
Vol.	7	804	187	3	36	2		4	1					1004

Washington Street (Route 53)
between Starland Driveways
City, State: Hanover, MA
Client: VHB / K. Keen

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

133596 A Class
Site Code: 12511.00
Date Start: 17-Oct-13

SB

Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Total
10/20/1														
3	0	93	20	0	5	0	0	0	0	0	0	0	0	118
01:00	0	73	18	0	2	0	0	0	0	0	0	0	0	93
02:00	0	26	11	0	1	0	0	0	0	0	0	0	0	38
03:00	1	12	3	0	0	0	0	0	0	0	0	0	0	16
04:00	0	9	1	0	0	0	0	0	0	0	0	0	0	10
05:00	0	12	2	0	1	0	0	0	1	0	0	0	0	16
06:00	0	21	11	0	3	0	0	0	1	0	0	0	0	36
07:00	1	164	69	0	17	0	0	0	0	0	0	0	0	251
08:00	2	247	96	0	22	0	0	1	0	0	0	0	0	368
09:00	0	306	102	0	32	0	0	1	0	0	0	0	0	441
10:00	3	401	120	1	21	0	0	1	0	0	0	0	0	547
11:00	5	542	117	0	23	0	0	1	0	0	0	0	0	688
12 PM	3	685	170	0	35	2	0	0	0	0	0	0	0	895
13:00	1	596	143	0	30	0	0	0	0	0	0	0	0	770
14:00	3	627	162	1	16	1	0	3	1	0	0	0	0	814
15:00	0	602	156	0	28	0	0	1	0	0	0	0	0	787
16:00	1	535	139	0	24	2	0	0	0	0	0	0	0	701
17:00	4	498	116	0	16	0	0	1	1	0	0	0	0	636
18:00	2	403	115	0	20	1	0	1	0	0	0	0	0	542
19:00	2	268	74	0	18	0	0	1	0	0	0	0	0	363
20:00	0	142	56	0	8	0	0	0	0	1	0	0	0	207
21:00	1	108	20	1	12	0	0	0	0	0	0	0	0	142
22:00	0	69	18	0	6	0	0	1	0	0	0	0	0	94
23:00	0	42	10	0	2	0	0	0	0	0	0	0	0	54
Total	29	6481	1749	3	342	6	0	12	4	1	0	0	0	8627
Percent	0.3%	75.1%	20.3%	0.0%	4.0%	0.1%	0.0%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	
AM Peak	11:00	11:00	10:00	10:00	09:00			08:00	05:00					11:00
Vol.	5	542	120	1	32			1	1					688
PM Peak	17:00	12:00	12:00	14:00	12:00	12:00		14:00	14:00	20:00				12:00
Vol.	4	685	170	1	35	2		3	1	1				895
Total		31610	8154	79	1752	59	1	102	43	2	0	0	0	41913

Washington Street (Route 53)
between Starland Driveways
City, State: Hanover, MA
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PRECISION DATA INDUSTRIES, LLC
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133596 A Volume
Site Code: 12511.00
Date Start: 17-Oct-13

Start	NB				SB				Combined				17-Oct-13
Time	A.M.		P.M.		A.M.		P.M.		A.M.		P.M.		Thu
12:00	10		175		13		200		23		375		
12:15	7		166		19		200		26		366		
12:30	14		187		15		187		29		374		
12:45	8	39	175	703	9	56	207	794	17	95	382	1497	
01:00	6		160		18		168		24		328		
01:15	10		156		10		209		20		365		
01:30	6		176		4		212		10		388		
01:45	4	26	152	644	13	45	189	778	17	71	341	1422	
02:00	8		142		4		211		12		353		
02:15	3		162		6		186		9		348		
02:30	5		150		2		214		7		364		
02:45	2	18	160	614	3	15	203	814	5	33	363	1428	
03:00	1		143		5		216		6		359		
03:15	4		158		4		233		8		391		
03:30	11		160		5		244		16		404		
03:45	14	30	164	625	4	18	234	927	18	48	398	1552	
04:00	10		150		1		234		11		384		
04:15	22		134		3		256		25		390		
04:30	34		168		3		255		37		423		
04:45	48	114	153	605	2	9	230	975	50	123	383	1580	
05:00	86		157		6		277		92		434		
05:15	129		164		8		297		137		461		
05:30	118		147		15		277		133		424		
05:45	117	450	126	594	17	46	270	1121	134	496	396	1715	
06:00	155		164		9		282		164		446		
06:15	125		143		14		239		139		382		
06:30	158		120		37		227		195		347		
06:45	191	629	120	547	51	111	220	968	242	740	340	1515	
07:00	294		82		46		172		340		254		
07:15	280		99		57		169		337		268		
07:30	272		87		75		174		347		261		
07:45	232	1078	86	354	85	263	153	668	317	1341	239	1022	
08:00	207		73		82		181		289		254		
08:15	191		48		90		137		281		185		
08:30	183		46		90		126		273		172		
08:45	188	769	49	216	103	365	107	551	291	1134	156	767	
09:00	192		29		83		95		275		124		
09:15	160		38		106		92		266		130		
09:30	159		39		117		121		276		160		
09:45	173	684	32	138	124	430	67	375	297	1114	99	513	
10:00	171		31		112		67		283		98		
10:15	166		19		127		36		293		55		
10:30	171		13		137		39		308		52		
10:45	171	679	9	72	141	517	31	173	312	1196	40	245	
11:00	166		10		150		37		316		47		
11:15	162		3		159		23		321		26		
11:30	162		9		147		26		309		35		
11:45	180	670	9	31	187	643	32	118	367	1313	41	149	
Total	5186		5143		2518		8262		7704		13405		
Percent	67.3%		38.4%		32.7%		61.6%						
Day Total			10329				10780				21109		
Peak	07:00	-	12:00	-	11:00	-	05:15	-	07:00	-	05:15	-	- -
Vol.	1078	-	703	-	643	-	1126	-	1341	-	1727	-	- -
P.H.F.	0.917		0.940		0.860		0.948		0.966		0.937		

Washington Street (Route 53)
between Starland Driveways
City, State: Hanover, MA
Client: VHB / K. Keen

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

133596 A Volume
Site Code: 12511.00
Date Start: 17-Oct-13

Start	NB				SB				Combined				18-Oct-13
Time	A.M.		P.M.		A.M.		P.M.		A.M.		P.M.		Fri
12:00	9		192		21		209		30		401		
12:15	4		212		16		218		20		430		
12:30	7		202		18		217		25		419		
12:45	5	25	205	811	20	75	215	859	25	100	420	1670	
01:00	6		193		9		218		15		411		
01:15	4		182		9		228		13		410		
01:30	5		181		3		228		8		409		
01:45	1	16	166	722	6	27	238	912	7	43	404	1634	
02:00	2		163		2		231		4		394		
02:15	2		167		5		236		7		403		
02:30	4		175		6		225		10		400		
02:45	3	11	201	706	4	17	232	924	7	28	433	1630	
03:00	4		166		2		233		6		399		
03:15	2		188		4		213		6		401		
03:30	9		151		6		249		15		400		
03:45	15	30	172	677	1	13	250	945	16	43	422	1622	
04:00	8		149		2		277		10		426		
04:15	18		177		3		248		21		425		
04:30	28		164		4		281		32		445		
04:45	44	98	173	663	4	13	249	1055	48	111	422	1718	
05:00	79		158		2		289		81		447		
05:15	113		180		11		319		124		499		
05:30	122		185		8		271		130		456		
05:45	134	448	150	673	14	35	249	1128	148	483	399	1801	
06:00	110		148		19		242		129		390		
06:15	125		131		20		221		145		352		
06:30	136		116		32		234		168		350		
06:45	145	516	153	548	48	119	179	876	193	635	332	1424	
07:00	159		109		60		169		219		278		
07:15	188		112		60		166		248		278		
07:30	176		98		74		162		250		260		
07:45	183	706	71	390	93	287	155	652	276	993	226	1042	
08:00	183		74		97		137		280		211		
08:15	222		65		76		118		298		183		
08:30	186		48		104		99		290		147		
08:45	204	795	59	246	107	384	121	475	311	1179	180	721	
09:00	212		68		109		95		321		163		
09:15	216		52		114		97		330		149		
09:30	183		38		133		91		316		129		
09:45	180	791	33	191	126	482	72	355	306	1273	105	546	
10:00	177		52		131		87		308		139		
10:15	165		47		147		76		312		123		
10:30	186		23		177		66		363		89		
10:45	180	708	15	137	178	633	53	282	358	1341	68	419	
11:00	185		12		176		43		361		55		
11:15	171		16		164		47		335		63		
11:30	180		20		187		49		367		69		
11:45	206	742	17	65	190	717	30	169	396	1459	47	234	
Total	4886		5829		2802		8632		7688		14461		
Percent	63.6%		40.3%		36.4%		59.7%						
Day Total			10715				11434				22149		
Peak	08:15	-	00:15	-	11:00	-	04:30	-	11:00	-	04:45	-	-	-
Vol.	824	-	812	-	717	-	1138	-	1459	-	1824	-	-	-
P.H.F.	0.928		0.958		0.943		0.892		0.921		0.914			

Washington Street (Route 53)
between Starland Driveways
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PRECISION
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133596 A Volume
Site Code: 12511.00
Date Start: 17-Oct-13

Start	NB				SB				Combined				19-Oct-13
Time	A.M.		P.M.		A.M.		P.M.		A.M.		P.M.		Sat
12:00	13		191		21		204		34		395		
12:15	10		158		20		226		30		384		
12:30	11		211		25		221		36		432		
12:45	8	42	189	749	20	86	238	889	28	128	427	1638	
01:00	8		209		16		234		24		443		
01:15	4		176		17		219		21		395		
01:30	3		149		9		230		12		379		
01:45	6	21	197	731	7	49	223	906	13	70	420	1637	
02:00	1		143		11		256		12		399		
02:15	2		168		11		226		13		394		
02:30	3		155		9		233		12		388		
02:45	2	8	168	634	6	37	242	957	8	45	410	1591	
03:00	1		173		5		231		6		404		
03:15	7		202		4		225		11		427		
03:30	12		165		2		264		14		429		
03:45	4	24	155	695	4	15	284	1004	8	39	439	1699	
04:00	7		177		4		239		11		416		
04:15	6		167		6		232		12		399		
04:30	10		179		3		224		13		403		
04:45	12	35	168	691	7	20	240	935	19	55	408	1626	
05:00	29		180		4		240		33		420		
05:15	15		167		5		191		20		358		
05:30	20		157		6		204		26		361		
05:45	38	102	153	657	4	19	192	827	42	121	345	1484	
06:00	44		147		7		191		51		338		
06:15	45		120		14		166		59		286		
06:30	57		123		9		194		66		317		
06:45	69	215	120	510	32	62	155	706	101	277	275	1216	
07:00	57		111		34		150		91		261		
07:15	78		89		70		122		148		211		
07:30	93		77		116		133		209		210		
07:45	125	353	71	348	80	300	124	529	205	653	195	877	
08:00	125		71		104		128		229		199		
08:15	122		52		142		96		264		148		
08:30	150		57		146		95		296		152		
08:45	144	541	49	229	129	521	83	402	273	1062	132	631	
09:00	142		55		152		89		294		144		
09:15	187		49		160		79		347		128		
09:30	177		46		139		55		316		101		
09:45	210	716	45	195	174	625	68	291	384	1341	113	486	
10:00	195		35		171		60		366		95		
10:15	182		53		181		56		363		109		
10:30	198		36		196		60		394		96		
10:45	221	796	23	147	182	730	41	217	403	1526	64	364	
11:00	199		19		188		59		387		78		
11:15	191		25		188		32		379		57		
11:30	211		11		197		37		408		48		
11:45	213	814	11	66	214	787	30	158	427	1601	41	224	
Total	3667		5652		3251		7821		6918		13473		
Percent	53.0%		42.0%		47.0%		58.0%						
Day Total			9319				11072				20391		
Peak	10:45	-	00:30	-	11:00	-	03:30	-	11:00	-	03:15	-	-	-
Vol.	822	-	785	-	787	-	1019	-	1601	-	1711	-	-	-
P.H.F.	0.930		0.930		0.919		0.897		0.937		0.974			

Washington Street (Route 53)
between Starland Driveways
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Client: VHB / K. Keen

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133596 A Volume
Site Code: 12511.00
Date Start: 17-Oct-13

Start		NB				SB				Combined			20-Oct-13
Time	A.M.		P.M.		A.M.		P.M.		A.M.		P.M.		Sun
12:00	12		182		22		213		34		395		
12:15	22		173		36		227		58		400		
12:30	16		224		24		202		40		426		
12:45	8	58	212	791	36	118	253	895	44	176	465	1686	
01:00	5		206		28		195		33		401		
01:15	5		176		23		177		28		353		
01:30	5		177		25		200		30		377		
01:45	1	16	189	748	17	93	198	770	18	109	387	1518	
02:00	1		135		19		208		20		343		
02:15	8		156		8		220		16		376		
02:30	1		134		7		214		8		348		
02:45	4	14	155	580	4	38	172	814	8	52	327	1394	
03:00	0		140		8		195		8		335		
03:15	0		147		3		182		3		329		
03:30	4		142		2		194		6		336		
03:45	9	13	123	552	3	16	216	787	12	29	339	1339	
04:00	7		138		2		178		9		316		
04:15	3		120		2		175		5		295		
04:30	8		165		2		160		10		325		
04:45	7	25	149	572	4	10	188	701	11	35	337	1273	
05:00	8		150		4		169		12		319		
05:15	7		122		0		173		7		295		
05:30	12		109		5		163		17		272		
05:45	9	36	100	481	7	16	131	636	16	52	231	1117	
06:00	29		103		10		140		39		243		
06:15	24		86		9		154		33		240		
06:30	22		70		5		124		27		194		
06:45	39	114	88	347	12	36	124	542	51	150	212	889	
07:00	36		51		28		117		64		168		
07:15	43		54		65		92		108		146		
07:30	37		58		79		90		116		148		
07:45	65	181	46	209	79	251	64	363	144	432	110	572	
08:00	68		56		61		74		129		130		
08:15	90		29		120		55		210		84		
08:30	75		35		94		33		169		68		
08:45	86	319	33	153	93	368	45	207	179	687	78	360	
09:00	92		25		99		55		191		80		
09:15	123		17		126		38		249		55		
09:30	115		22		99		26		214		48		
09:45	122	452	14	78	117	441	23	142	239	893	37	220	
10:00	127		22		129		29		256		51		
10:15	119		10		136		31		255		41		
10:30	171		6		131		18		302		24		
10:45	164	581	14	52	151	547	16	94	315	1128	30	146	
11:00	160		4		159		8		319		12		
11:15	178		4		167		14		345		18		
11:30	185		9		177		24		362		33		
11:45	201	724	6	23	185	688	8	54	386	1412	14	77	
Total	2533		4586		2622		6005		5155		10591		
Percent	49.1%		43.3%		50.9%		56.7%						
Day Total			7119				8627				15746		
Peak	11:00	-	00:30	-	11:00	-	12:00	-	11:00	-	00:15	-	-	-
Vol.	724	-	818	-	688	-	895	-	1412	-	1692	-	-	-
P.H.F.	0.900		0.913		0.930		0.884		0.915		0.910			

Washington Street (Route 53)
between Starland Driveways
City, State: Hanover, MA
Client: VHB / K. Keen

PRECISION DATA INDUSTRIES, LLC
PO Box 301 Berlin, MA 01503
Office: 508.481.3999 Fax: 508.545.1234
Email: datarequests@pdillc.com

133596 A Volume
Site Code: 12511.00
Date Start: 17-Oct-13

Start	17-Oct-13		18-Oct-13		19-Oct-13		20-Oct-13		21-Oct-13		22-Oct-13		23-Oct-13		Week Average	
Time	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB
12:00 AM	39	56	25	75	42	86	58	118	-	-	-	-	-	-	41	84
01:00	26	45	16	27	21	49	16	53	-	-	-	-	-	-	20	54
02:00	18	15	11	17	8	37	14	38	-	-	-	-	-	-	13	27
03:00	30	18	30	13	24	15	13	16	-	-	-	-	-	-	24	16
04:00	114	9	98	13	35	20	25	10	-	-	-	-	-	-	68	13
05:00	450	46	448	35	102	19	36	16	-	-	-	-	-	-	259	29
06:00	629	111	516	119	215	62	114	36	-	-	-	-	-	-	368	82
07:00	**1078**	263	706	287	353	300	181	251	-	-	-	-	-	-	580	275
08:00	769	365	**795**	384	541	521	319	368	-	-	-	-	-	-	606	410
09:00	584	430	791	482	716	625	452	441	-	-	-	-	-	-	661	494
10:00	679	517	706	633	796	730	581	547	-	-	-	-	-	-	691	607
11:00	670	**643**	742	**717**	**814**	**787**	**724**	**688**	-	-	-	-	-	-	**738**	**709**
12:00 PM	**703**	794	**811**	859	**749**	889	**791**	**895**	-	-	-	-	-	-	**764**	859
01:00	644	778	722	912	731	906	748	770	-	-	-	-	-	-	711	842
02:00	614	814	706	924	634	957	580	814	-	-	-	-	-	-	634	877
03:00	625	927	677	945	695	**1004**	552	787	-	-	-	-	-	-	637	916
04:00	605	975	663	1055	691	935	572	701	-	-	-	-	-	-	633	916
05:00	594	**1121**	673	**1128**	657	827	481	636	-	-	-	-	-	-	601	**928**
06:00	547	968	548	876	510	706	347	542	-	-	-	-	-	-	488	773
07:00	354	698	390	652	346	529	209	363	-	-	-	-	-	-	325	553
08:00	216	551	246	475	229	402	153	207	-	-	-	-	-	-	211	409
09:00	138	375	191	355	195	291	78	142	-	-	-	-	-	-	150	291
10:00	72	173	137	282	147	217	52	84	-	-	-	-	-	-	102	192
11:00	31	118	65	169	66	158	23	54	-	-	-	-	-	-	46	125
Total	10329	10780	10715	11434	9319	11072	7119	8627	0	0	0	0	0	0	9371	10481
Day	21109		22149		20391		15746		0		0		0		19852	
AM Peak	07:00	11:00	08:00	11:00	11:00	11:00	11:00	11:00	-	-	-	-	-	-	11:00	11:00
Vol.	1078	643	795	717	814	787	724	688	-	-	-	-	-	-	738	709
PM Peak	12:00	17:00	12:00	17:00	12:00	15:00	12:00	12:00	-	-	-	-	-	-	12:00	17:00
Vol.	703	1121	811	1128	749	1004	791	895	-	-	-	-	-	-	764	928

Comb. Total	21109	22149	20391	15746	0	0	0	19852
ADT	ADT 19,849	AADT 19,849					

N/S: Washington Street (Route 53)
E/W: Starland Driveway N/ Village Plaza
City, State: Hanover, MA
Client: VHB/ K.Keen

PRECISION DATA INDUSTRIES, LLC
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Email: datarequests@pdillc.com

File Name : 133596 A
Site Code : 12511.00
Start Date : 10/17/2013
Page No : 1

Groups Printed- Cars - Heavy Vehicles

	Washington Street (Route 53) From North				Starland Driveway North From East				Washington Street (Route 53) From South				Village Plaza From West				
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Int. Total
07:00 AM	0	49	0	0	0	0	0	0	0	297	0	0	0	0	0	0	346
07:15 AM	0	60	0	0	0	0	0	0	0	279	0	0	0	0	0	0	339
07:30 AM	1	75	1	0	0	0	0	0	0	282	0	0	0	0	0	0	359
07:45 AM	0	92	0	0	0	0	0	0	1	237	0	0	0	0	0	0	330
Total	1	276	1	0	0	0	0	0	1	1095	0	0	0	0	0	0	1374
08:00 AM	0	82	1	0	0	0	0	0	0	215	0	0	0	0	0	0	298
08:15 AM	0	94	0	0	0	0	0	0	0	202	0	0	0	0	0	0	296
08:30 AM	0	95	0	0	0	0	0	0	0	178	0	0	0	0	0	0	273
08:45 AM	0	103	1	0	0	0	0	0	0	196	0	0	0	0	0	0	300
Total	0	374	2	0	0	0	0	0	0	791	0	0	0	0	0	0	1167
09:00 AM	1	85	1	0	0	0	0	0	0	192	0	0	0	0	0	0	279
09:15 AM	0	107	0	0	0	0	1	0	1	160	0	0	0	0	0	0	269
09:30 AM	0	121	2	0	0	0	0	0	1	163	0	0	0	0	0	0	287
09:45 AM	2	125	0	0	2	0	0	0	1	176	1	0	0	0	1	0	308
Total	3	438	3	0	2	0	1	0	3	691	1	0	0	0	1	0	1143
10:00 AM	1	108	2	0	0	0	0	0	0	174	0	0	0	0	1	0	286
10:15 AM	2	128	1	0	0	0	0	0	1	171	0	0	0	0	0	0	303
10:30 AM	0	145	0	0	1	0	0	0	0	167	0	0	0	0	1	0	314
10:45 AM	1	145	2	0	1	0	0	0	1	169	0	0	1	0	0	0	320
Total	4	526	5	0	2	0	0	0	2	681	0	0	1	0	2	0	1223
11:00 AM	9	145	0	0	2	0	0	0	1	181	1	0	3	0	0	0	342
11:15 AM	3	167	1	0	2	0	0	0	0	154	3	0	3	0	3	0	336
11:30 AM	2	152	0	0	1	0	1	0	0	163	3	0	2	0	0	0	324
11:45 AM	3	188	0	0	0	0	0	0	1	179	2	0	1	0	2	0	376
Total	17	652	1	0	5	0	1	0	2	677	9	0	9	0	5	0	1378
12:00 PM	5	203	0	0	0	0	1	0	0	171	3	0	6	0	1	0	390
12:15 PM	5	195	1	0	1	0	1	0	0	173	2	0	8	0	1	0	387
12:30 PM	2	194	0	0	1	0	1	0	1	185	3	0	4	0	3	0	394
12:45 PM	6	210	2	0	2	0	0	0	2	180	1	0	5	0	0	0	408
Total	18	802	3	0	4	0	3	0	3	709	9	0	23	0	5	0	1579
01:00 PM	2	172	0	0	2	0	0	0	1	157	2	0	1	0	2	0	339
01:15 PM	4	204	1	0	0	0	0	0	0	158	3	0	0	0	3	0	373
01:30 PM	2	210	0	0	2	0	0	0	0	174	0	0	0	0	0	0	388
01:45 PM	1	222	0	0	0	0	0	0	1	169	2	0	0	0	0	0	395
Total	9	808	1	0	4	0	0	0	2	658	7	0	1	0	5	0	1495
02:00 PM	3	218	0	0	0	0	1	0	0	144	3	0	5	0	5	0	379
02:15 PM	2	189	2	0	0	0	0	0	0	157	5	0	2	0	4	0	361
02:30 PM	1	220	0	0	2	0	1	0	0	165	0	0	2	0	1	0	392
02:45 PM	4	212	1	0	0	0	0	0	2	161	0	0	0	0	3	0	383
Total	10	839	3	0	2	0	2	0	2	627	8	0	9	0	13	0	1515
03:00 PM	2	217	0	0	0	0	0	0	1	147	1	0	2	0	2	0	372
03:15 PM	4	240	1	0	0	0	1	0	1	158	1	0	1	0	0	0	407
03:30 PM	1	251	0	0	1	0	0	0	1	163	1	0	1	0	0	0	419
03:45 PM	2	229	0	0	0	0	0	0	3	160	2	0	5	0	1	0	402
Total	9	937	1	0	1	0	1	0	6	628	5	0	9	0	3	0	1600
04:00 PM	1	246	1	0	1	0	1	0	0	156	2	0	1	0	1	0	410
04:15 PM	6	261	1	0	3	0	1	0	1	138	3	0	2	0	0	0	416
04:30 PM	2	267	2	0	1	0	1	0	2	171	4	0	4	0	1	0	455
04:45 PM	1	246	1	0	4	0	1	0	3	154	2	0	1	0	2	0	415
Total	10	1020	5	0	9	0	4	0	6	619	11	0	8	0	4	0	1696

N/S: Washington Street (Route 53)
E/W: Starland Driveway N/ Village Plaza
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File Name : 133596 A
Site Code : 12511.00
Start Date : 10/17/2013
Page No : 2

Groups Printed- Cars - Heavy Vehicles

	Washington Street (Route 53) From North				Starland Driveway North From East				Washington Street (Route 53) From South				Village Plaza From West				
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Int. Total
05:00 PM	0	279	2	0	2	0	1	0	2	159	4	0	5	0	1	0	455
05:15 PM	7	308	9	0	4	0	4	0	13	157	6	0	6	1	2	0	517
05:30 PM	1	275	10	0	10	0	3	0	9	145	0	0	5	0	2	0	460
05:45 PM	5	263	26	0	9	1	7	0	11	126	1	0	3	0	0	0	452
Total	13	1125	47	0	25	1	15	0	35	587	11	0	19	1	5	0	1884
Grand Total	94	7797	72	0	54	1	27	0	62	7763	61	0	79	1	43	0	16054
Apprch %	1.2	97.9	0.9	0	65.9	1.2	32.9	0	0.8	98.4	0.8	0	64.2	0.8	35	0	
Total %	0.6	48.6	0.4	0	0.3	0	0.2	0	0.4	48.4	0.4	0	0.5	0	0.3	0	
Cars	90	7623	72	0	54	1	27	0	62	7610	60	0	75	1	39	0	15714
% Cars	95.7	97.8	100	0	100	100	100	0	100	98	98.4	0	94.9	100	90.7	0	97.9
Heavy Vehicles	4	174	0	0	0	0	0	0	0	153	1	0	4	0	4	0	340
% Heavy Vehicles	4.3	2.2	0	0	0	0	0	0	0	2	1.6	0	5.1	0	9.3	0	2.1

	Washington Street (Route 53) From North					Starland Driveway North From East					Washington Street (Route 53) From South					Village Plaza From West					
Start Time	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	Int. Total
Peak Hour Analysis From 07:00 AM to 09:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:00 AM																					
07:00 AM	0	49	0	0	49	0	0	0	0	0	0	297	0	0	297	0	0	0	0	0	346
07:15 AM	0	60	0	0	60	0	0	0	0	0	0	279	0	0	279	0	0	0	0	0	339
07:30 AM	1	75	1	0	77	0	0	0	0	0	0	282	0	0	282	0	0	0	0	0	359
07:45 AM	0	92	0	0	92	0	0	0	0	0	1	237	0	0	238	0	0	0	0	0	330
Total Volume	1	276	1	0	278	0	0	0	0	0	1	1095	0	0	1096	0	0	0	0	0	1374
% App. Total	0.4	99.3	0.4	0		0	0	0	0		0.1	99.9	0	0		0	0	0	0		
PHF	.250	.750	.250	.000	.755	.000	.000	.000	.000	.000	.250	.922	.000	.000	.923	.000	.000	.000	.000	.000	.957
Cars	1	258	1	0	260	0	0	0	0	0	1	1077	0	0	1078	0	0	0	0	0	1338
% Cars	100	93.5	100	0	93.5	0	0	0	0	0	100	98.4	0	0	98.4	0	0	0	0	0	97.4
Heavy Vehicles	0	18	0	0	18	0	0	0	0	0	0	18	0	0	18	0	0	0	0	0	36
% Heavy Vehicles	0	6.5	0	0	6.5	0	0	0	0	0	0	1.6	0	0	1.6	0	0	0	0	0	2.6
Peak Hour Analysis From 10:00 AM to 01:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 12:00 PM																					
12:00 PM	5	203	0	0	208	0	0	1	0	1	0	171	3	0	174	6	0	1	0	7	390
12:15 PM	5	195	1	0	201	1	0	1	0	2	0	173	2	0	175	8	0	1	0	9	387
12:30 PM	2	194	0	0	196	1	0	1	0	2	1	185	3	0	189	4	0	3	0	7	394
12:45 PM	6	210	2	0	218	2	0	0	0	2	2	180	1	0	183	5	0	0	0	5	408
Total Volume	18	802	3	0	823	4	0	3	0	7	3	709	9	0	721	23	0	5	0	28	1579
% App. Total	2.2	97.4	0.4	0		57.1	0	42.9	0		0.4	98.3	1.2	0		82.1	0	17.9	0		
PHF	.750	.955	.375	.000	.944	.500	.000	.750	.000	.875	.375	.958	.750	.000	.954	.719	.000	.417	.000	.778	.968
Cars	16	784	3	0	803	4	0	3	0	7	3	690	9	0	702	21	0	5	0	26	1538
% Cars	88.9	97.8	100	0	97.6	100	0	100	0	100	100	97.3	100	0	97.4	91.3	0	100	0	92.9	97.4
Heavy Vehicles	2	18	0	0	20	0	0	0	0	0	0	19	0	0	19	2	0	0	0	2	41
% Heavy Vehicles	11.1	2.2	0	0	2.4	0	0	0	0	0	0	2.7	0	0	2.6	8.7	0	0	0	7.1	2.6
Peak Hour Analysis From 02:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 05:00 PM																					
05:00 PM	0	279	2	0	281	2	0	1	0	3	2	159	4	0	165	5	0	1	0	6	455
05:15 PM	7	308	9	0	324	4	0	4	0	8	13	157	6	0	176	6	1	2	0	9	517
05:30 PM	1	275	10	0	286	10	0	3	0	13	9	145	0	0	154	5	0	2	0	7	460
05:45 PM	5	263	26	0	294	9	1	7	0	17	11	126	1	0	138	3	0	0	0	3	452
Total Volume	13	1125	47	0	1185	25	1	15	0	41	35	587	11	0	633	19	1	5	0	25	1884
% App. Total	1.1	94.9	4	0		61	2.4	36.6	0		5.5	92.7	1.7	0		76	4	20	0		
PHF	.464	.913	.452	.000	.914	.625	.250	.536	.000	.603	.673	.923	.458	.000	.899	.792	.250	.625	.000	.694	.911
Cars	13	1117	47	0	1177	25	1	15	0	41	35	581	11	0	627	18	1	5	0	24	1869
% Cars	100	99.3	100	0	99.3	100	100	100	0	100	100	99.0	100	0	99.1	94.7	100	100	0	96.0	99.2
Heavy Vehicles	0	8	0	0	8	0	0	0	0	0	0	6	0	0	6	1	0	0	0	1	15
% Heavy Vehicles	0	0.7	0	0	0.7	0	0	0	0	0	0	1.0	0	0	0.9	5.3	0	0	0	4.0	0.8

N/S: Washington Street (Route 53)
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File Name : 133596 A
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Groups Printed- Cars

	Washington Street (Route 53) From North				Starland Driveway North From East				Washington Street (Route 53) From South				Village Plaza From West				
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Int. Total
07:00 AM	0	46	0	0	0	0	0	0	0	288	0	0	0	0	0	0	334
07:15 AM	0	54	0	0	0	0	0	0	0	275	0	0	0	0	0	0	329
07:30 AM	1	71	1	0	0	0	0	0	0	279	0	0	0	0	0	0	352
07:45 AM	0	87	0	0	0	0	0	0	1	235	0	0	0	0	0	0	323
Total	1	258	1	0	0	0	0	0	1	1077	0	0	0	0	0	0	1338
08:00 AM	0	78	1	0	0	0	0	0	0	208	0	0	0	0	0	0	287
08:15 AM	0	91	0	0	0	0	0	0	0	196	0	0	0	0	0	0	287
08:30 AM	0	88	0	0	0	0	0	0	0	172	0	0	0	0	0	0	260
08:45 AM	0	102	1	0	0	0	0	0	0	193	0	0	0	0	0	0	296
Total	0	359	2	0	0	0	0	0	0	769	0	0	0	0	0	0	1130
09:00 AM	1	82	1	0	0	0	0	0	0	191	0	0	0	0	0	0	275
09:15 AM	0	106	0	0	0	0	1	0	1	157	0	0	0	0	0	0	265
09:30 AM	0	115	2	0	0	0	0	0	1	162	0	0	0	0	0	0	280
09:45 AM	1	117	0	0	2	0	0	0	1	174	1	0	0	0	1	0	297
Total	2	420	3	0	2	0	1	0	3	684	1	0	0	0	1	0	1117
10:00 AM	1	99	2	0	0	0	0	0	0	169	0	0	0	0	0	0	271
10:15 AM	2	124	1	0	0	0	0	0	1	165	0	0	0	0	0	0	293
10:30 AM	0	142	0	0	1	0	0	0	0	161	0	0	0	0	1	0	305
10:45 AM	0	142	2	0	1	0	0	0	1	167	0	0	0	0	0	0	313
Total	3	507	5	0	2	0	0	0	2	662	0	0	0	0	1	0	1182
11:00 AM	9	143	0	0	2	0	0	0	1	180	1	0	3	0	0	0	339
11:15 AM	3	164	1	0	2	0	0	0	0	150	3	0	3	0	3	0	329
11:30 AM	2	146	0	0	1	0	1	0	0	163	3	0	2	0	0	0	318
11:45 AM	3	183	0	0	0	0	0	0	1	178	2	0	1	0	2	0	370
Total	17	636	1	0	5	0	1	0	2	671	9	0	9	0	5	0	1356
12:00 PM	4	199	0	0	0	0	1	0	0	167	3	0	5	0	1	0	380
12:15 PM	4	190	1	0	1	0	1	0	0	170	2	0	7	0	1	0	377
12:30 PM	2	189	0	0	1	0	1	0	1	176	3	0	4	0	3	0	380
12:45 PM	6	206	2	0	2	0	0	0	2	177	1	0	5	0	0	0	401
Total	16	784	3	0	4	0	3	0	3	690	9	0	21	0	5	0	1538
01:00 PM	2	168	0	0	2	0	0	0	1	156	2	0	1	0	2	0	334
01:15 PM	4	195	1	0	0	0	0	0	0	153	3	0	0	0	3	0	359
01:30 PM	2	205	0	0	2	0	0	0	0	169	0	0	0	0	0	0	378
01:45 PM	1	222	0	0	0	0	0	0	1	166	2	0	0	0	0	0	392
Total	9	790	1	0	4	0	0	0	2	644	7	0	1	0	5	0	1463
02:00 PM	3	212	0	0	0	0	1	0	0	132	3	0	5	0	5	0	361
02:15 PM	2	189	2	0	0	0	0	0	0	155	5	0	2	0	3	0	358
02:30 PM	1	213	0	0	2	0	1	0	0	164	0	0	2	0	0	0	383
02:45 PM	4	206	1	0	0	0	0	0	2	156	0	0	0	0	3	0	372
Total	10	820	3	0	2	0	2	0	2	607	8	0	9	0	11	0	1474
03:00 PM	2	215	0	0	0	0	0	0	1	146	1	0	2	0	2	0	369
03:15 PM	4	232	1	0	0	0	1	0	1	157	1	0	1	0	0	0	398
03:30 PM	1	246	0	0	1	0	0	0	1	161	1	0	1	0	0	0	412
03:45 PM	2	225	0	0	0	0	0	0	3	156	1	0	5	0	1	0	393
Total	9	918	1	0	1	0	1	0	6	620	4	0	9	0	3	0	1572
04:00 PM	1	243	1	0	1	0	1	0	0	152	2	0	1	0	1	0	403
04:15 PM	6	260	1	0	3	0	1	0	1	136	3	0	2	0	0	0	413
04:30 PM	2	265	2	0	1	0	1	0	2	169	4	0	4	0	0	0	450
04:45 PM	1	246	1	0	4	0	1	0	3	148	2	0	1	0	2	0	409
Total	10	1014	5	0	9	0	4	0	6	605	11	0	8	0	3	0	1675

N/S: Washington Street (Route 53)
E/W: Starland Driveway N/ Village Plaza
City, State: Hanover, MA
Client: VHB/ K.Keen

PRECISION DATA INDUSTRIES, LLC
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File Name : 133596 A
Site Code : 12511.00
Start Date : 10/17/2013
Page No : 2

Groups Printed- Cars

	Washington Street (Route 53) From North				Starland Driveway North From East				Washington Street (Route 53) From South				Village Plaza From West				
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Int. Total
05:00 PM	0	277	2	0	2	0	1	0	2	158	4	0	5	0	1	0	452
05:15 PM	7	308	9	0	4	0	4	0	13	155	6	0	5	1	2	0	514
05:30 PM	1	271	10	0	10	0	3	0	9	143	0	0	5	0	2	0	454
05:45 PM	5	261	26	0	9	1	7	0	11	125	1	0	3	0	0	0	449
Total	13	1117	47	0	25	1	15	0	35	581	11	0	18	1	5	0	1869
Grand Total	90	7623	72	0	54	1	27	0	62	7610	60	0	75	1	39	0	15714
Apprch %	1.2	97.9	0.9	0	65.9	1.2	32.9	0	0.8	98.4	0.8	0	65.2	0.9	33.9	0	
Total %	0.6	48.5	0.5	0	0.3	0	0.2	0	0.4	48.4	0.4	0	0.5	0	0.2	0	

	Washington Street (Route 53) From North					Starland Driveway North From East					Washington Street (Route 53) From South					Village Plaza From West					
Start Time	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	Int. Total
Peak Hour Analysis From 07:00 AM to 09:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:00 AM																					
07:00 AM	0	46	0	0	46	0	0	0	0	0	0	288	0	0	288	0	0	0	0	0	334
07:15 AM	0	54	0	0	54	0	0	0	0	0	0	275	0	0	275	0	0	0	0	0	329
07:30 AM	1	71	1	0	73	0	0	0	0	0	0	279	0	0	279	0	0	0	0	0	352
07:45 AM	0	87	0	0	87	0	0	0	0	0	1	235	0	0	236	0	0	0	0	0	323
Total Volume	1	258	1	0	260	0	0	0	0	0	1	1077	0	0	1078	0	0	0	0	0	1338
% App. Total	0.4	99.2	0.4	0		0	0	0	0		0.1	99.9	0	0		0	0	0	0		
PHF	.250	.741	.250	.000	.747	.000	.000	.000	.000	.000	.250	.935	.000	.000	.936	.000	.000	.000	.000	.000	.950
Peak Hour Analysis From 10:00 AM to 01:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 12:00 PM																					
12:00 PM	4	199	0	0	203	0	0	1	0	1	0	167	3	0	170	5	0	1	0	6	380
12:15 PM	4	190	1	0	195	1	0	1	0	2	0	170	2	0	172	7	0	1	0	8	377
12:30 PM	2	189	0	0	191	1	0	1	0	2	1	176	3	0	180	4	0	3	0	7	380
12:45 PM	6	206	2	0	214	2	0	0	0	2	2	177	1	0	180	5	0	0	0	5	401
Total Volume	16	784	3	0	803	4	0	3	0	7	3	690	9	0	702	21	0	5	0	26	1538
% App. Total	2	97.6	0.4	0		57.1	0	42.9	0		0.4	98.3	1.3	0		80.8	0	19.2	0		
PHF	.667	.951	.375	.000	.938	.500	.000	.750	.000	.875	.375	.975	.750	.000	.975	.750	.000	.417	.000	.813	.959
Peak Hour Analysis From 02:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 05:00 PM																					
05:00 PM	0	277	2	0	279	2	0	1	0	3	2	158	4	0	164	5	0	1	0	6	452
05:15 PM	7	308	9	0	324	4	0	4	0	8	13	155	6	0	174	5	1	2	0	8	514
05:30 PM	1	271	10	0	282	10	0	3	0	13	9	143	0	0	152	5	0	2	0	7	454
05:45 PM	5	261	26	0	292	9	1	7	0	17	11	125	1	0	137	3	0	0	0	3	449
Total Volume	13	1117	47	0	1177	25	1	15	0	41	35	581	11	0	627	18	1	5	0	24	1869
% App. Total	1.1	94.9	4	0		61	2.4	36.6	0		5.6	92.7	1.8	0		75	4.2	20.8	0		
PHF	.464	.907	.452	.000	.908	.625	.250	.536	.000	.603	.673	.919	.458	.000	.901	.900	.250	.625	.000	.750	.909

N/S: Washington Street (Route 53)
E/W: Starland Driveway N/ Village Plaza
City, State: Hanover, MA
Client: VHB/ K.Keen

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File Name : 133596 A
Site Code : 12511.00
Start Date : 10/17/2013
Page No : 1

Groups Printed- Heavy Vehicles

	Washington Street (Route 53) From North				Starland Driveway North From East				Washington Street (Route 53) From South				Village Plaza From West				
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Int. Total
07:00 AM	0	3	0	0	0	0	0	0	0	9	0	0	0	0	0	0	12
07:15 AM	0	6	0	0	0	0	0	0	0	4	0	0	0	0	0	0	10
07:30 AM	0	4	0	0	0	0	0	0	0	3	0	0	0	0	0	0	7
07:45 AM	0	5	0	0	0	0	0	0	0	2	0	0	0	0	0	0	7
Total	0	18	0	0	0	0	0	0	0	18	0	0	0	0	0	0	36
08:00 AM	0	4	0	0	0	0	0	0	0	7	0	0	0	0	0	0	11
08:15 AM	0	3	0	0	0	0	0	0	0	6	0	0	0	0	0	0	9
08:30 AM	0	7	0	0	0	0	0	0	0	6	0	0	0	0	0	0	13
08:45 AM	0	1	0	0	0	0	0	0	0	3	0	0	0	0	0	0	4
Total	0	15	0	0	0	0	0	0	0	22	0	0	0	0	0	0	37
09:00 AM	0	3	0	0	0	0	0	0	0	1	0	0	0	0	0	0	4
09:15 AM	0	1	0	0	0	0	0	0	0	3	0	0	0	0	0	0	4
09:30 AM	0	6	0	0	0	0	0	0	0	1	0	0	0	0	0	0	7
09:45 AM	1	8	0	0	0	0	0	0	0	2	0	0	0	0	0	0	11
Total	1	18	0	0	0	0	0	0	0	7	0	0	0	0	0	0	26
10:00 AM	0	9	0	0	0	0	0	0	0	5	0	0	0	0	1	0	15
10:15 AM	0	4	0	0	0	0	0	0	0	6	0	0	0	0	0	0	10
10:30 AM	0	3	0	0	0	0	0	0	0	6	0	0	0	0	0	0	9
10:45 AM	1	3	0	0	0	0	0	0	0	2	0	0	1	0	0	0	7
Total	1	19	0	0	0	0	0	0	0	19	0	0	1	0	1	0	41
11:00 AM	0	2	0	0	0	0	0	0	0	1	0	0	0	0	0	0	3
11:15 AM	0	3	0	0	0	0	0	0	0	4	0	0	0	0	0	0	7
11:30 AM	0	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6
11:45 AM	0	5	0	0	0	0	0	0	0	1	0	0	0	0	0	0	6
Total	0	16	0	0	0	0	0	0	0	6	0	0	0	0	0	0	22
12:00 PM	1	4	0	0	0	0	0	0	0	4	0	0	1	0	0	0	10
12:15 PM	1	5	0	0	0	0	0	0	0	3	0	0	1	0	0	0	10
12:30 PM	0	5	0	0	0	0	0	0	0	9	0	0	0	0	0	0	14
12:45 PM	0	4	0	0	0	0	0	0	0	3	0	0	0	0	0	0	7
Total	2	18	0	0	0	0	0	0	0	19	0	0	2	0	0	0	41
01:00 PM	0	4	0	0	0	0	0	0	0	1	0	0	0	0	0	0	5
01:15 PM	0	9	0	0	0	0	0	0	0	5	0	0	0	0	0	0	14
01:30 PM	0	5	0	0	0	0	0	0	0	5	0	0	0	0	0	0	10
01:45 PM	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	3
Total	0	18	0	0	0	0	0	0	0	14	0	0	0	0	0	0	32
02:00 PM	0	6	0	0	0	0	0	0	0	12	0	0	0	0	0	0	18
02:15 PM	0	0	0	0	0	0	0	0	0	2	0	0	0	0	1	0	3
02:30 PM	0	7	0	0	0	0	0	0	0	1	0	0	0	0	1	0	9
02:45 PM	0	6	0	0	0	0	0	0	0	5	0	0	0	0	0	0	11
Total	0	19	0	0	0	0	0	0	0	20	0	0	0	0	2	0	41
03:00 PM	0	2	0	0	0	0	0	0	0	1	0	0	0	0	0	0	3
03:15 PM	0	8	0	0	0	0	0	0	0	1	0	0	0	0	0	0	9
03:30 PM	0	5	0	0	0	0	0	0	0	2	0	0	0	0	0	0	7
03:45 PM	0	4	0	0	0	0	0	0	0	4	1	0	0	0	0	0	9
Total	0	19	0	0	0	0	0	0	0	8	1	0	0	0	0	0	28
04:00 PM	0	3	0	0	0	0	0	0	0	4	0	0	0	0	0	0	7
04:15 PM	0	1	0	0	0	0	0	0	0	2	0	0	0	0	0	0	3
04:30 PM	0	2	0	0	0	0	0	0	0	2	0	0	0	0	1	0	5
04:45 PM	0	0	0	0	0	0	0	0	0	6	0	0	0	0	0	0	6
Total	0	6	0	0	0	0	0	0	0	14	0	0	0	0	1	0	21

N/S: Washington Street (Route 53)
E/W: Starland Driveway N/ Village Plaza
City, State: Hanover, MA
Client: VHB/ K.Keen

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File Name : 133596 A
Site Code : 12511.00
Start Date : 10/17/2013
Page No : 2

Groups Printed- Heavy Vehicles

	Washington Street (Route 53) From North				Starland Driveway North From East				Washington Street (Route 53) From South				Village Plaza From West				
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Int. Total
05:00 PM	0	2	0	0	0	0	0	0	0	1	0	0	0	0	0	0	3
05:15 PM	0	0	0	0	0	0	0	0	0	2	0	0	1	0	0	0	3
05:30 PM	0	4	0	0	0	0	0	0	0	2	0	0	0	0	0	0	6
05:45 PM	0	2	0	0	0	0	0	0	0	1	0	0	0	0	0	0	3
Total	0	8	0	0	0	0	0	0	0	6	0	0	1	0	0	0	15
Grand Total	4	174	0	0	0	0	0	0	0	153	1	0	4	0	4	0	340
Apprch %	2.2	97.8	0	0	0	0	0	0	0	99.4	0.6	0	50	0	50	0	
Total %	1.2	51.2	0	0	0	0	0	0	0	45	0.3	0	1.2	0	1.2	0	

	Washington Street (Route 53) From North					Starland Driveway North From East					Washington Street (Route 53) From South					Village Plaza From West					
Start Time	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	Int. Total
Peak Hour Analysis From 07:00 AM to 09:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:45 AM																					
07:45 AM	0	5	0	0	5	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	7
08:00 AM	0	4	0	0	4	0	0	0	0	0	0	7	0	0	7	0	0	0	0	0	11
08:15 AM	0	3	0	0	3	0	0	0	0	0	0	6	0	0	6	0	0	0	0	0	9
08:30 AM	0	7	0	0	7	0	0	0	0	0	0	6	0	0	6	0	0	0	0	0	13
Total Volume	0	19	0	0	19	0	0	0	0	0	0	21	0	0	21	0	0	0	0	0	40
% App. Total	0	100	0	0		0	0	0	0		0	100	0	0		0	0	0	0		
PHF	.000	.679	.000	.000	.679	.000	.000	.000	.000	.000	.000	.750	.000	.000	.750	.000	.000	.000	.000	.000	.769
Peak Hour Analysis From 10:00 AM to 01:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 10:00 AM																					
10:00 AM	0	9	0	0	9	0	0	0	0	0	0	5	0	0	5	0	0	1	0	1	15
10:15 AM	0	4	0	0	4	0	0	0	0	0	0	6	0	0	6	0	0	0	0	0	10
10:30 AM	0	3	0	0	3	0	0	0	0	0	0	6	0	0	6	0	0	0	0	0	9
10:45 AM	1	3	0	0	4	0	0	0	0	0	0	2	0	0	2	1	0	0	0	1	7
Total Volume	1	19	0	0	20	0	0	0	0	0	0	19	0	0	19	1	0	1	0	2	41
% App. Total	5	95	0	0		0	0	0	0		0	100	0	0		50	0	50	0		
PHF	.250	.528	.000	.000	.556	.000	.000	.000	.000	.000	.000	.792	.000	.000	.792	.250	.000	.250	.000	.500	.683
Peak Hour Analysis From 02:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 02:00 PM																					
02:00 PM	0	6	0	0	6	0	0	0	0	0	0	12	0	0	12	0	0	0	0	0	18
02:15 PM	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	0	0	1	0	1	3
02:30 PM	0	7	0	0	7	0	0	0	0	0	0	1	0	0	1	0	0	1	0	1	9
02:45 PM	0	6	0	0	6	0	0	0	0	0	0	5	0	0	5	0	0	0	0	0	11
Total Volume	0	19	0	0	19	0	0	0	0	0	0	20	0	0	20	0	0	2	0	2	41
% App. Total	0	100	0	0		0	0	0	0		0	100	0	0		0	0	100	0		
PHF	.000	.679	.000	.000	.679	.000	.000	.000	.000	.000	.000	.417	.000	.000	.417	.000	.000	.500	.000	.500	.569

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Groups Printed- Peds and Bikes

	Washington Street (Route 53) From North				Starland Driveway North From East				Washington Street (Route 53) From South				Village Plaza From West				
Start Time	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Int. Total
07:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:30 AM	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	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
09:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
09:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
09:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
09:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:15 PM	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1
12:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1
01:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:45 PM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Total	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
03:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:45 PM	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1
Total	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1
04:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:15 PM	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	2
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	2

N/S: Washington Street (Route 53)
E/W: Starland Driveway N/ Village Plaza
City, State: Hanover, MA
Client: VHB/ K.Keen

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File Name : 133596 A
Site Code : 12511.00
Start Date : 10/17/2013
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Groups Printed- Peds and Bikes

	Washington Street (Route 53) From North				Starland Driveway North From East				Washington Street (Route 53) From South				Village Plaza From West				
Start Time	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Int. Total
05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	0	1	0	0	0	0	0	2	0	0	0	2	0	0	0	0	5
Apprch %	0	100	0	0	0	0	0	100	0	0	0	100	0	0	0	0	
Total %	0	20	0	0	0	0	0	40	0	0	0	40	0	0	0	0	

	Washington Street (Route 53) From North					Starland Driveway North From East					Washington Street (Route 53) From South					Village Plaza From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 09:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:00 AM																					
07:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0	0	0		0	0	0	0		0	0	0	0		0	0	0	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
Peak Hour Analysis From 10:00 AM to 01:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 11:30 AM																					
11:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0	0	0		0	0	0	0		0	0	0	0		0	0	0	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
Peak Hour Analysis From 02:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 03:30 PM																					
03:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	1
04:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2	0	0	0	0	0	2
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	3	3	0	0	0	0	0	3
% App. Total	0	0	0	0		0	0	0	0		0	0	0	100		0	0	0	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.375	.375	.000	.000	.000	.000	.000	.375

N/S: Washington Street (Route 53)
E/W: Starland Driveway N/ Village Plaza
City, State: Hanover, MA
Client: VHB/ K.Keen

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File Name : 133596 A
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Start Date : 10/17/2013
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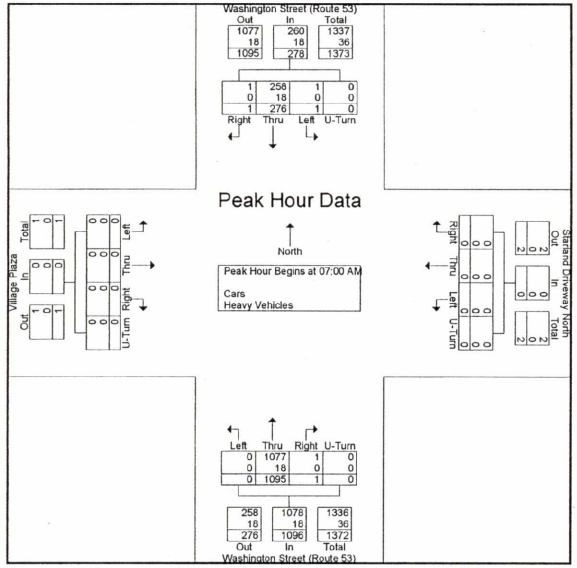
	Washington Street (Route 53) From North					Starland Driveway North From East					Washington Street (Route 53) From South					Village Plaza From West					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 09:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:00 AM																					
07:00 AM	0	49	0	0	49	0	0	0	0	0	0	297	0	0	297	0	0	0	0	0	346
07:15 AM	0	60	0	0	60	0	0	0	0	0	0	279	0	0	279	0	0	0	0	0	339
07:30 AM	1	75	1	0	77	0	0	0	0	0	0	282	0	0	282	0	0	0	0	0	359
07:45 AM	0	92	0	0	92	0	0	0	0	0	1	237	0	0	238	0	0	0	0	0	330
Total Volume	1	276	1	0	278	0	0	0	0	0	1	1095	0	0	1096	0	0	0	0	0	1374
% App. Total	0.4	99.3	0.4	0		0	0	0	0		0.1	99.9	0	0		0	0	0	0		
PHF	.250	.750	.250	.000	.755	.000	.000	.000	.000	.000	.250	.922	.000	.000	.923	.000	.000	.000	.000	.000	.957
Cars	1	258	1	0	260	0	0	0	0	0	1	1077	0	0	1078	0	0	0	0	0	1338
% Cars	100	93.5	100	0	93.5	0	0	0	0	0	100	98.4	0	0	98.4	0	0	0	0	0	97.4
Heavy Vehicles	0	18	0	0	18	0	0	0	0	0	0	18	0	0	18	0	0	0	0	0	36
% Heavy Vehicles	0	6.5	0	0	6.5	0	0	0	0	0	0	1.6	0	0	1.6	0	0	0	0	0	2.6



N/S: Washington Street (Route 53)
E/W: Starland Driveway N/ Village Plaza
City, State: Hanover, MA
Client: VHB/ K.Keen

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File Name : 133596 A
Site Code : 12511.00
Start Date : 10/17/2013
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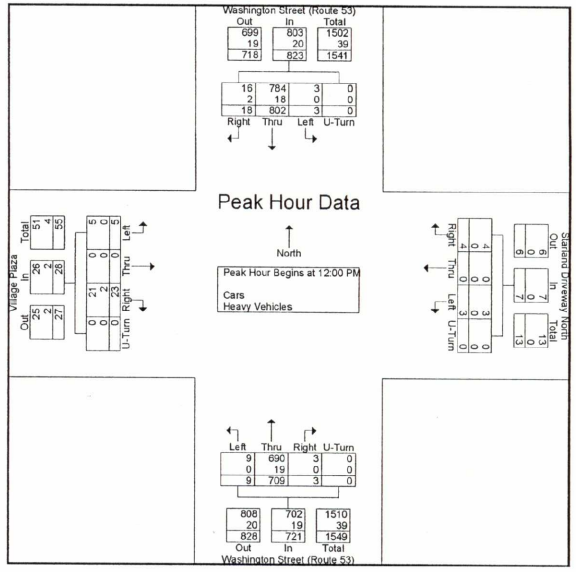
	Washington Street (Route 53) From North					Starland Driveway North From East					Washington Street (Route 53) From South					Village Plaza From West					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 10:00 AM to 01:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 12:00 PM																					
12:00 PM	5	203	0	0	208	0	0	1	0	1	0	171	3	0	174	6	0	1	0	7	390
12:15 PM	5	195	1	0	201	1	0	1	0	2	0	173	2	0	175	8	0	1	0	9	387
12:30 PM	2	194	0	0	196	1	0	1	0	2	1	185	3	0	189	4	0	3	0	7	394
12:45 PM	6	210	2	0	218	2	0	0	0	2	2	180	1	0	183	5	0	0	0	5	408
Total Volume	18	802	3	0	823	4	0	3	0	7	3	709	9	0	721	23	0	5	0	28	1579
% App. Total	2.2	97.4	0.4	0		57.1	0	42.9	0		0.4	98.3	1.2	0		82.1	0	17.9	0		
PHF	.750	.955	.375	.000	.944	.500	.000	.750	.000	.875	.375	.958	.750	.000	.954	.719	.000	.417	.000	.778	.968
Cars	16	784	3	0	803	4	0	3	0	7	3	690	9	0	702	21	0	5	0	26	1538
% Cars	88.9	97.8	100	0	97.6	100	0	100	0	100	100	97.3	100	0	97.4	91.3	0	100	0	92.9	97.4
Heavy Vehicles	2	18	0	0	20	0	0	0	0	0	0	19	0	0	19	2	0	0	0	2	41
% Heavy Vehicles	11.1	2.2	0	0	2.4	0	0	0	0	0	0	2.7	0	0	2.6	8.7	0	0	0	7.1	2.6



N/S: Washington Street (Route 53)
E/W: Starland Driveway N/ Village Plaza
City, State: Hanover, MA
Client: VHB/ K.Keen

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File Name : 133596 A
Site Code : 12511.00
Start Date : 10/17/2013
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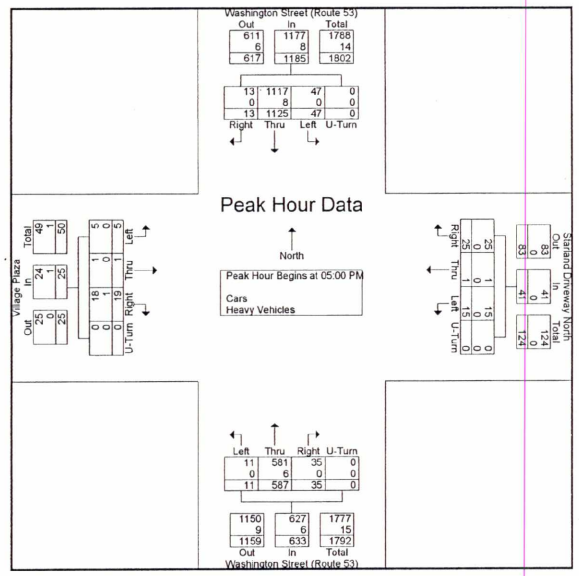
	Washington Street (Route 53) From North					Starland Driveway North From East					Washington Street (Route 53) From South					Village Plaza From West					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 02:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 05:00 PM																					
05:00 PM	0	279	2	0	281	2	0	1	0	3	2	159	4	0	165	5	0	1	0	6	455
05:15 PM	7	308	9	0	324	4	0	4	0	8	13	157	6	0	176	6	1	2	0	9	517
05:30 PM	1	275	10	0	286	10	0	3	0	13	9	145	0	0	154	5	0	2	0	7	460
05:45 PM	5	263	26	0	294	9	1	7	0	17	11	126	1	0	138	3	0	0	0	3	452
Total Volume	13	1125	47	0	1185	25	1	15	0	41	35	587	11	0	633	19	1	5	0	25	1884
% App. Total	1.1	94.9	4	0		61	2.4	36.6	0		5.5	92.7	1.7	0		76	4	20	0		
PHF	.464	.913	.452	.000	.914	.625	.250	.536	.000	.603	.673	.923	.458	.000	.899	.792	.250	.625	.000	.694	.911
Cars	13	1117	47	0	1177	25	1	15	0	41	35	581	11	0	627	18	1	5	0	24	1869
% Cars	100	99.3	100	0	99.3	100	100	100	0	100	100	99.0	100	0	99.1	94.7	100	100	0	96.0	99.2
Heavy Vehicles	0	8	0	0	8	0	0	0	0	0	0	6	0	0	6	1	0	0	0	1	15
% Heavy Vehicles	0	0.7	0	0	0.7	0	0	0	0	0	0	1.0	0	0	0.9	5.3	0	0	0	4.0	0.8



N/S: Washington Street (Route 53)
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File Name : 133596 AA
Site Code : 12511.00
Start Date : 10/19/2013
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Groups Printed- Cars - Heavy Vehicles

	Washington Street (Route 53) From North				Starland Driveway North From East				Washington Street (Route 53) From South				Village Plaza From West				
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Int. Total
11:00 AM	10	198	0	0	62	0	4	0	1	214	0	0	3	0	0	0	492
11:15 AM	4	222	1	0	12	0	1	0	1	227	2	0	3	0	1	0	474
11:30 AM	0	230	0	0	31	0	4	0	1	247	1	0	2	0	2	0	518
11:45 AM	6	233	0	0	46	1	8	0	0	239	6	0	3	0	2	0	544
Total	20	883	1	0	151	1	17	0	3	927	9	0	11	0	5	0	2028
12:00 PM	4	250	1	0	48	0	12	0	0	241	3	0	4	0	2	0	565
12:15 PM	7	280	1	0	13	0	0	0	0	208	0	0	1	0	2	0	512
12:30 PM	2	234	0	0	8	0	1	0	1	230	0	0	1	0	1	0	478
12:45 PM	5	264	0	0	47	2	5	0	0	230	1	1	2	0	1	0	558
Total	18	1028	2	0	116	2	18	0	1	909	4	1	8	0	6	0	2113
Grand Total	38	1911	3	0	267	3	35	0	4	1836	13	1	19	0	11	0	4141
Apprch %	1.9	97.9	0.2	0	87.5	1	11.5	0	0.2	99	0.7	0.1	63.3	0	36.7	0	
Total %	0.9	46.1	0.1	0	6.4	0.1	0.8	0	0.1	44.3	0.3	0	0.5	0	0.3	0	
Cars	37	1889	3	0	267	3	35	0	4	1825	12	1	18	0	10	0	4104
% Cars	97.4	98.8	100	0	100	100	100	0	100	99.4	92.3	100	94.7	0	90.9	0	99.1
Heavy Vehicles	1	22	0	0	0	0	0	0	0	11	1	0	1	0	1	0	37
% Heavy Vehicles	2.6	1.2	0	0	0	0	0	0	0	0.6	7.7	0	5.3	0	9.1	0	0.9

	Washington Street (Route 53) From North					Starland Driveway North From East					Washington Street (Route 53) From South					Village Plaza From West					
Start Time	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	Int. Total
Peak Hour Analysis From 11:00 AM to 12:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 11:30 AM																					
11:30 AM	0	230	0	0	230	31	0	4	0	35	1	247	1	0	249	2	0	2	0	4	518
11:45 AM	6	233	0	0	239	46	1	8	0	55	0	239	6	0	245	3	0	2	0	5	544
12:00 PM	4	250	1	0	255	48	0	12	0	60	0	241	3	0	244	4	0	2	0	6	565
12:15 PM	7	280	1	0	288	13	0	0	0	13	0	208	0	0	208	1	0	2	0	3	512
Total Volume	17	993	2	0	1012	138	1	24	0	163	1	935	10	0	946	10	0	8	0	18	2139
% App. Total	1.7	98.1	0.2	0		84.7	0.6	14.7	0		0.1	98.8	1.1	0		55.6	0	44.4	0		
PHF	.607	.887	.500	.000	.878	.719	.250	.500	.000	.679	.250	.946	.417	.000	.950	.625	.000	1.00	.000	.750	.946
Cars	16	977	2	0	995	138	1	24	0	163	1	930	9	0	940	9	0	7	0	16	2114
% Cars	94.1	98.4	100	0	98.3	100	100	100	0	100	100	99.5	90.0	0	99.4	90.0	0	87.5	0	88.9	98.8
Heavy Vehicles	1	16	0	0	17	0	0	0	0	0	0	5	1	0	6	1	0	1	0	2	25
% Heavy Vehicles	5.9	1.6	0	0	1.7	0	0	0	0	0	0	0.5	10.0	0	0.6	10.0	0	12.5	0	11.1	1.2

N/S: Washington Street (Route 53)
E/W: Starland Driveway N/ Village Plaza
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Client: VHB/ K. Keen

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Page No : 1

Groups Printed- Cars

	Washington Street (Route 53) From North				Starland Driveway North From East				Washington Street (Route 53) From South				Village Plaza From West				
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Int. Total
11:00 AM	10	195	0	0	62	0	4	0	1	213	0	0	3	0	0	0	488
11:15 AM	4	220	1	0	12	0	1	0	1	226	2	0	3	0	1	0	471
11:30 AM	0	225	0	0	31	0	4	0	1	244	0	0	2	0	2	0	509
11:45 AM	6	229	0	0	46	1	8	0	0	238	6	0	2	0	2	0	538
Total	20	869	1	0	151	1	17	0	3	921	8	0	10	0	5	0	2006
12:00 PM	3	245	1	0	48	0	12	0	0	241	3	0	4	0	1	0	558
12:15 PM	7	278	1	0	13	0	0	0	0	207	0	0	1	0	2	0	509
12:30 PM	2	234	0	0	8	0	1	0	1	227	0	0	1	0	1	0	475
12:45 PM	5	263	0	0	47	2	5	0	0	229	1	1	2	0	1	0	556
Total	17	1020	2	0	116	2	18	0	1	904	4	1	8	0	5	0	2098
Grand Total	37	1889	3	0	267	3	35	0	4	1825	12	1	18	0	10	0	4104
Apprch %	1.9	97.9	0.2	0	87.5	1	11.5	0	0.2	99.1	0.7	0.1	64.3	0	35.7	0	
Total %	0.9	46	0.1	0	6.5	0.1	0.9	0	0.1	44.5	0.3	0	0.4	0	0.2	0	

	Washington Street (Route 53) From North					Starland Driveway North From East					Washington Street (Route 53) From South					Village Plaza From West					
Start Time	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	Int. Total
Peak Hour Analysis From 11:00 AM to 12:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 11:30 AM																					
11:30 AM	0	225	0	0	225	31	0	4	0	35	1	244	0	0	245	2	0	2	0	4	509
11:45 AM	6	229	0	0	235	46	1	8	0	55	0	238	6	0	244	2	0	2	0	4	538
12:00 PM	3	245	1	0	249	48	0	12	0	60	0	241	3	0	244	4	0	1	0	5	558
12:15 PM	7	278	1	0	286	13	0	0	0	13	0	207	0	0	207	1	0	2	0	3	509
Total Volume	16	977	2	0	995	138	1	24	0	163	1	930	9	0	940	9	0	7	0	16	2114
% App. Total	1.6	98.2	0.2	0		84.7	0.6	14.7	0		0.1	98.9	1	0		56.2	0	43.8	0		
PHF	.571	.879	.500	.000	.870	.719	.250	.500	.000	.679	.250	.953	.375	.000	.959	.563	.000	.875	.000	.800	.947

N/S: Washington Street (Route 53)
E/W: Starland Driveway N/ Village Plaza
City, State: Hanover, MA
Client: VHB/ K. Keen

PRECISION DATA INDUSTRIES, LLC
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File Name : 133596 AA
Site Code : 12511.00
Start Date : 10/19/2013
Page No : 1

Groups Printed- Heavy Vehicles

	Washington Street (Route 53) From North				Starland Driveway North From East				Washington Street (Route 53) From South				Village Plaza From West				
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Int. Total
11:00 AM	0	3	0	0	0	0	0	0	0	1	0	0	0	0	0	0	4
11:15 AM	0	2	0	0	0	0	0	0	0	1	0	0	0	0	0	0	3
11:30 AM	0	5	0	0	0	0	0	0	0	3	1	0	0	0	0	0	9
11:45 AM	0	4	0	0	0	0	0	0	0	1	0	0	1	0	0	0	6
Total	0	14	0	0	0	0	0	0	0	6	1	0	1	0	0	0	22
12:00 PM	1	5	0	0	0	0	0	0	0	0	0	0	0	0	1	0	7
12:15 PM	0	2	0	0	0	0	0	0	0	1	0	0	0	0	0	0	3
12:30 PM	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	3
12:45 PM	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	2
Total	1	8	0	0	0	0	0	0	0	5	0	0	0	0	1	0	15
Grand Total	1	22	0	0	0	0	0	0	0	11	1	0	1	0	1	0	37
Apprch %	4.3	95.7	0	0	0	0	0	0	0	91.7	8.3	0	50	0	50	0	
Total %	2.7	59.5	0	0	0	0	0	0	0	29.7	2.7	0	2.7	0	2.7	0	

	Washington Street (Route 53) From North					Starland Driveway North From East					Washington Street (Route 53) From South					Village Plaza From West					
Start Time	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	Int. Total
Peak Hour Analysis From 11:00 AM to 12:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 11:15 AM																					
11:15 AM	0	2	0	0	2	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	3
11:30 AM	0	5	0	0	5	0	0	0	0	0	0	3	1	0	4	0	0	0	0	0	9
11:45 AM	0	4	0	0	4	0	0	0	0	0	0	1	0	0	1	1	0	0	0	1	6
12:00 PM	1	5	0	0	6	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	7
Total Volume	1	16	0	0	17	0	0	0	0	0	0	5	1	0	6	1	0	1	0	2	25
% App. Total	5.9	94.1	0	0		0	0	0	0		0	83.3	16.7	0		50	0	50	0		
PHF	.250	.800	.000	.000	.708	.000	.000	.000	.000	.000	.000	.417	.250	.000	.375	.250	.000	.250	.000	.500	.694

N/S: Washington Street (Route 53)
E/W: Starland Driveway N/ Village Plaza
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File Name : 133596 AA
Site Code : 12511.00
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Page No : 1

Groups Printed- Peds and Bikes

	Washington Street (Route 53) From North				Starland Driveway North From East				Washington Street (Route 53) From South				Village Plaza From West				
Start Time	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Int. Total
11:00 AM	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	2	5
11:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:30 AM	0	0	0	3	0	0	0	3	0	0	0	0	0	0	0	0	6
11:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	3	0	0	0	3	0	0	0	3	0	0	0	2	11
12:00 PM	0	0	0	0	0	0	0	0	0	0	0	4	0	0	0	0	4
12:15 PM	0	1	0	0	0	0	0	0	0	0	0	4	0	0	0	0	5
12:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	1	0	0	0	0	0	0	0	0	0	8	0	0	0	0	9
Grand Total	0	1	0	3	0	0	0	3	0	0	0	11	0	0	0	2	20
Apprch %	0	25	0	75	0	0	0	100	0	0	0	100	0	0	0	100	
Total %	0	5	0	15	0	0	0	15	0	0	0	55	0	0	0	10	

	Washington Street (Route 53) From North					Starland Driveway North From East					Washington Street (Route 53) From South					Village Plaza From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 11:00 AM to 12:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 11:30 AM																					
11:30 AM	0	0	0	3	3	0	0	0	3	3	0	0	0	0	0	0	0	0	0	0	6
11:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	4	4	0	0	0	0	0	4
12:15 PM	0	1	0	0	1	0	0	0	0	0	0	0	0	4	4	0	0	0	0	0	5
Total Volume	0	1	0	3	4	0	0	0	3	3	0	0	0	8	8	0	0	0	0	0	15
% App. Total	0	25	0	75		0	0	0	100		0	0	0	100		0	0	0	0		
PHF	.000	.250	.000	.250	.333	.000	.000	.000	.250	.250	.000	.000	.000	.500	.500	.000	.000	.000	.000	.000	.625

N/S: Washington Street (Route 53)
E/W: Starland Driveway N/ Village Plaza
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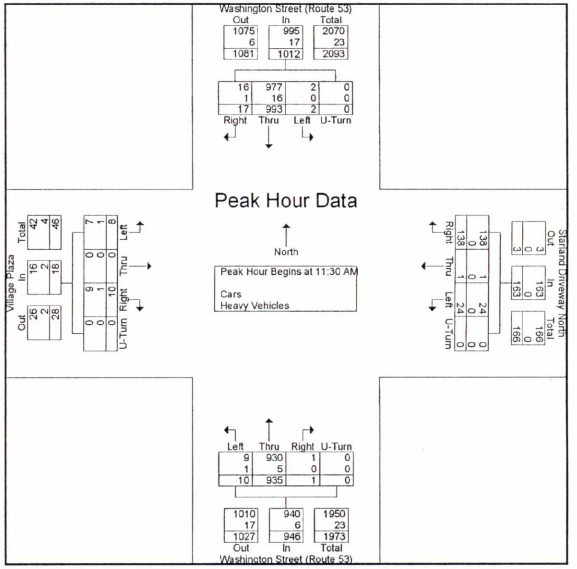
	Washington Street (Route 53) From North					Starland Driveway North From East					Washington Street (Route 53) From South					Village Plaza From West					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 11:00 AM to 12:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 11:30 AM																					
11:30 AM	0	230	0	0	230	31	0	4	0	35	1	247	1	0	249	2	0	2	0	4	518
11:45 AM	6	233	0	0	239	46	1	8	0	55	0	239	6	0	245	3	0	2	0	5	544
12:00 PM	4	250	1	0	255	48	0	12	0	60	0	241	3	0	244	4	0	2	0	6	565
12:15 PM	7	280	1	0	288	13	0	0	0	13	0	208	0	0	208	1	0	2	0	3	512
Total Volume	17	993	2	0	1012	138	1	24	0	163	1	935	10	0	946	10	0	8	0	18	2139
% App. Total	1.7	98.1	0.2	0		84.7	0.6	14.7	0		0.1	98.8	1.1	0		55.6	0	44.4	0		
PHF	.607	.887	.500	.000	.878	.719	.250	.500	.000	.679	.250	.946	.417	.000	.950	.625	.000	1.00	.000	.750	.946
Cars	16	977	2	0	995	138	1	24	0	163	1	930	9	0	940	9	0	7	0	16	2114
% Cars	94.1	98.4	100	0	98.3	100	100	100	0	100	100	99.5	90.0	0	99.4	90.0	0	87.5	0	88.9	98.8
Heavy Vehicles	1	16	0	0	17	0	0	0	0	0	0	5	1	0	6	1	0	1	0	2	25
% Heavy Vehicles	5.9	1.6	0	0	1.7	0	0	0	0	0	0	0.5	10.0	0	0.6	10.0	0	12.5	0	11.1	1.2



N/S: Washington Street (Route 53)
E/W: Starland Driveway N/ Village Plaza
City, State: Hanover, MA
Client: VHB/ K. Keen

PRECISION DATA INDUSTRIES, LLC
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File Name : 133596 AAA
Site Code : 12511.00
Start Date : 10/20/2013
Page No : 1

Groups Printed- Cars - Heavy Vehicles

	Washington Street (Route 53) From North				Starland Driveway North From East				Washington Street (Route 53) From South				Village Plaza From West				
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Int. Total
11:00 AM	0	156	0	0	41	0	9	0	0	161	1	0	1	0	1	0	370
11:15 AM	1	167	1	0	5	0	0	0	0	182	1	0	0	0	1	0	358
11:30 AM	4	178	0	0	12	0	2	0	0	185	0	0	0	0	0	0	381
11:45 AM	1	193	2	0	33	0	0	0	1	210	0	0	1	0	0	0	441
Total	6	694	3	0	91	0	11	0	1	738	2	0	2	0	2	0	1550
12:00 PM	0	213	3	0	43	0	3	0	0	193	2	1	2	0	0	0	460
12:15 PM	1	242	2	0	17	0	4	0	0	183	1	1	0	0	2	0	453
12:30 PM	0	216	1	0	32	0	1	0	1	230	0	0	0	0	0	0	481
12:45 PM	0	273	0	0	22	1	6	0	1	259	2	0	3	0	1	0	568
Total	1	944	6	0	114	1	14	0	2	865	5	2	5	0	3	0	1962
Grand Total	7	1638	9	0	205	1	25	0	3	1603	7	2	7	0	5	0	3512
Apprch %	0.4	99	0.5	0	88.7	0.4	10.8	0	0.2	99.3	0.4	0.1	58.3	0	41.7	0	
Total %	0.2	46.6	0.3	0	5.8	0	0.7	0	0.1	45.6	0.2	0.1	0.2	0	0.1	0	
Cars	7	1631	9	0	205	1	25	0	3	1598	7	2	7	0	5	0	3500
% Cars	100	99.6	100	0	100	100	100	0	100	99.7	100	100	100	0	100	0	99.7
Heavy Vehicles	0	7	0	0	0	0	0	0	0	5	0	0	0	0	0	0	12
% Heavy Vehicles	0	0.4	0	0	0	0	0	0	0	0.3	0	0	0	0	0	0	0.3

	Washington Street (Route 53) From North					Starland Driveway North From East					Washington Street (Route 53) From South					Village Plaza From West					
Start Time	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	Int. Total
Peak Hour Analysis From 11:00 AM to 12:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 12:00 PM																					
12:00 PM	0	213	3	0	216	43	0	3	0	46	0	193	2	1	196	2	0	0	0	2	460
12:15 PM	1	242	2	0	245	17	0	4	0	21	0	183	1	1	185	0	0	2	0	2	453
12:30 PM	0	216	1	0	217	32	0	1	0	33	1	230	0	0	231	0	0	0	0	0	481
12:45 PM	0	273	0	0	273	22	1	6	0	29	1	259	2	0	262	3	0	1	0	4	568
Total Volume	1	944	6	0	951	114	1	14	0	129	2	865	5	2	874	5	0	3	0	8	1962
% App. Total	0.1	99.3	0.6	0		88.4	0.8	10.9	0		0.2	99	0.6	0.2		62.5	0	37.5	0		
PHF	.250	.864	.500	.000	.871	.663	.250	.583	.000	.701	.500	.835	.625	.500	.834	.417	.000	.375	.000	.500	.864
Cars	1	938	6	0	945	114	1	14	0	129	2	864	5	2	873	5	0	3	0	8	1955
% Cars	100	99.4	100	0	99.4	100	100	100	0	100	100	99.9	100	100	99.9	100	0	100	0	100	99.6
Heavy Vehicles	0	6	0	0	6	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	7
% Heavy Vehicles	0	0.6	0	0	0.6	0	0	0	0	0	0	0.1	0	0	0.1	0	0	0	0	0	0.4

N/S: Washington Street (Route 53)
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Groups Printed- Cars

	Washington Street (Route 53) From North				Starland Driveway North From East				Washington Street (Route 53) From South				Village Plaza From West				
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Int. Total
11:00 AM	0	156	0	0	41	0	9	0	0	160	1	0	1	0	1	0	369
11:15 AM	1	167	1	0	5	0	0	0	0	182	1	0	0	0	1	0	358
11:30 AM	4	177	0	0	12	0	2	0	0	184	0	0	0	0	0	0	379
11:45 AM	1	193	2	0	33	0	0	0	1	208	0	0	1	0	0	0	439
Total	6	693	3	0	91	0	11	0	1	734	2	0	2	0	2	0	1545
12:00 PM	0	212	3	0	43	0	3	0	0	193	2	1	2	0	0	0	459
12:15 PM	1	239	2	0	17	0	4	0	0	183	1	1	0	0	2	0	450
12:30 PM	0	215	1	0	32	0	1	0	1	230	0	0	0	0	0	0	480
12:45 PM	0	272	0	0	22	1	6	0	1	258	2	0	3	0	1	0	566
Total	1	938	6	0	114	1	14	0	2	864	5	2	5	0	3	0	1955
Grand Total	7	1631	9	0	205	1	25	0	3	1598	7	2	7	0	5	0	3500
Apprch %	0.4	99	0.5	0	88.7	0.4	10.8	0	0.2	99.3	0.4	0.1	58.3	0	41.7	0	
Total %	0.2	46.6	0.3	0	5.9	0	0.7	0	0.1	45.7	0.2	0.1	0.2	0	0.1	0	

	Washington Street (Route 53) From North					Starland Driveway North From East					Washington Street (Route 53) From South					Village Plaza From West					
Start Time	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	Int. Total
Peak Hour Analysis From 11:00 AM to 12:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 12:00 PM																					
12:00 PM	0	212	3	0	215	43	0	3	0	46	0	193	2	1	196	2	0	0	0	2	459
12:15 PM	1	239	2	0	242	17	0	4	0	21	0	183	1	1	185	0	0	2	0	2	450
12:30 PM	0	215	1	0	216	32	0	1	0	33	1	230	0	0	231	0	0	0	0	0	480
12:45 PM	0	272	0	0	272	22	1	6	0	29	1	258	2	0	261	3	0	1	0	4	566
Total Volume	1	938	6	0	945	114	1	14	0	129	2	864	5	2	873	5	0	3	0	8	1955
% App. Total	0.1	99.3	0.6	0		88.4	0.8	10.9	0		0.2	99	0.6	0.2		62.5	0	37.5	0		
PHF	.250	.862	.500	.000	.869	.663	.250	.583	.000	.701	.500	.837	.625	.500	.836	.417	.000	.375	.000	.500	.864

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Groups Printed- Heavy Vehicles

	Washington Street (Route 53) From North				Starland Driveway North From East				Washington Street (Route 53) From South				Village Plaza From West				
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Int. Total
11:00 AM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
11:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:30 AM	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	2
11:45 AM	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	2
Total	0	1	0	0	0	0	0	0	0	4	0	0	0	0	0	0	5
12:00 PM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
12:15 PM	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
12:30 PM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
12:45 PM	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	2
Total	0	6	0	0	0	0	0	0	0	1	0	0	0	0	0	0	7
Grand Total	0	7	0	0	0	0	0	0	0	5	0	0	0	0	0	0	12
Apprch %	0	100	0	0	0	0	0	0	0	100	0	0	0	0	0	0	
Total %	0	58.3	0	0	0	0	0	0	0	41.7	0	0	0	0	0	0	

	Washington Street (Route 53) From North					Starland Driveway North From East					Washington Street (Route 53) From South					Village Plaza From West					
Start Time	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	Int. Total
Peak Hour Analysis From 11:00 AM to 12:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 11:30 AM																					
11:30 AM	0	1	0	0	1	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	2
11:45 AM	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	2
12:00 PM	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
12:15 PM	0	3	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
Total Volume	0	5	0	0	5	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	8
% App. Total	0	100	0	0		0	0	0	0		0	100	0	0		0	0	0	0		
PHF	.000	.417	.000	.000	.417	.000	.000	.000	.000	.000	.000	.375	.000	.000	.375	.000	.000	.000	.000	.000	.667

N/S: Washington Street (Route 53)
E/W: Starland Driveway N/ Village Plaza
City, State: Hanover, MA
Client: VHB/ K. Keen

PRECISION DATA INDUSTRIES, LLC
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File Name : 133596 AAA
Site Code : 12511.00
Start Date : 10/20/2013
Page No : 1

Groups Printed- Peds and Bikes

	Washington Street (Route 53) From North				Starland Driveway North From East				Washington Street (Route 53) From South				Village Plaza From West				
Start Time	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Int. Total
11:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Apprch %	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Total %																	

	Washington Street (Route 53) From North					Starland Driveway North From East					Washington Street (Route 53) From South					Village Plaza From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 11:00 AM to 12:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 11:00 AM																					
11:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0	0	0		0	0	0	0		0	0	0	0		0	0	0	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

N/S: Washington Street (Route 53)
E/W: Starland Driveway N/ Village Plaza
City, State: Hanover, MA
Client: VHB/ K. Keen

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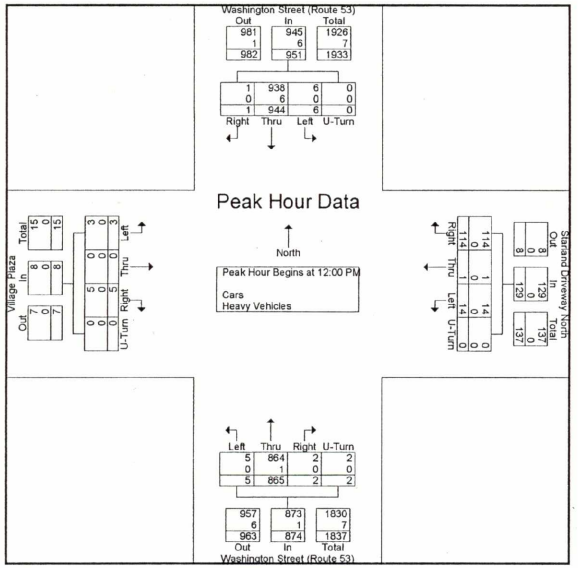
	Washington Street (Route 53) From North					Starland Driveway North From East					Washington Street (Route 53) From South					Village Plaza From West					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 11:00 AM to 12:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 12:00 PM																					
12:00 PM	0	213	3	0	216	43	0	3	0	46	0	193	2	1	196	2	0	0	0	2	460
12:15 PM	1	242	2	0	245	17	0	4	0	21	0	183	1	1	185	0	0	2	0	2	453
12:30 PM	0	216	1	0	217	32	0	1	0	33	1	230	0	0	231	0	0	0	0	0	481
12:45 PM	0	273	0	0	273	22	1	6	0	29	1	259	2	0	262	3	0	1	0	4	568
Total Volume	1	944	6	0	951	114	1	14	0	129	2	865	5	2	874	5	0	3	0	8	1962
% App. Total	0.1	99.3	0.6	0		88.4	0.8	10.9	0		0.2	99	0.6	0.2		62.5	0	37.5	0		
PHF	.250	.864	.500	.000	.871	.663	.250	.583	.000	.701	.500	.835	.625	.500	.834	.417	.000	.375	.000	.500	.864
Cars	1	938	6	0	945	114	1	14	0	129	2	864	5	2	873	5	0	3	0	8	1955
% Cars	100	99.4	100	0	99.4	100	100	100	0	100	100	99.9	100	100	99.9	100	0	100	0	100	99.6
Heavy Vehicles	0	6	0	0	6	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	7
% Heavy Vehicles	0	0.6	0	0	0.6	0	0	0	0	0	0	0.1	0	0	0.1	0	0	0	0	0	0.4



N/S: Washington Street (Route 53)
E/W: Starland Driveway S/ Dealership Dr
City, State: Hanover, MA
Client: VHB/ K.Keen

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File Name : 133596 B
Site Code : 12511.00
Start Date : 10/17/2013
Page No : 1

Groups Printed- Cars - Heavy Vehicles

	Washington Street (Route 53) From North				Starland Driveway South From East				Washington Street (Route 53) From South				Dealership Driveway From West				
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Int. Total
07:00 AM	0	49	0	0	0	0	0	0	0	295	0	0	0	0	0	0	344
07:15 AM	0	60	0	0	0	0	0	0	0	281	1	0	0	0	0	0	342
07:30 AM	2	78	0	0	0	0	0	0	0	280	5	0	1	0	0	0	366
07:45 AM	4	85	0	0	0	0	0	0	0	236	5	0	0	0	2	0	332
Total	6	272	0	0	0	0	0	0	0	1092	11	0	1	0	2	0	1384
08:00 AM	4	80	0	0	0	0	0	0	0	211	7	0	3	0	0	0	305
08:15 AM	3	89	0	0	0	0	0	0	0	194	2	0	2	0	0	0	290
08:30 AM	2	97	0	0	1	0	0	0	0	184	2	0	1	0	1	0	288
08:45 AM	5	98	0	0	0	0	0	0	0	191	7	0	3	0	1	0	305
Total	14	364	0	0	1	0	0	0	0	780	18	0	9	0	2	0	1188
09:00 AM	2	81	0	0	0	0	0	0	0	194	7	0	6	0	0	0	290
09:15 AM	3	104	0	0	0	0	0	0	0	159	2	0	3	0	1	0	272
09:30 AM	2	117	0	0	0	0	0	0	0	161	3	0	4	0	2	0	289
09:45 AM	3	117	0	0	0	0	0	0	0	179	2	0	4	0	1	0	306
Total	10	419	0	0	0	0	0	0	0	693	14	0	17	0	4	0	1157
10:00 AM	1	111	0	0	0	0	0	0	0	170	3	0	4	0	3	0	292
10:15 AM	2	125	0	0	0	0	0	0	0	170	2	0	0	0	0	0	299
10:30 AM	4	140	0	1	0	0	0	0	2	170	3	0	5	0	1	0	326
10:45 AM	3	144	0	0	0	0	0	0	0	170	2	0	3	0	1	0	323
Total	10	520	0	1	0	0	0	0	2	680	10	0	12	0	5	0	1240
11:00 AM	2	152	1	0	1	0	0	0	1	176	1	0	2	0	1	0	337
11:15 AM	6	155	1	0	1	0	0	0	0	164	4	0	7	0	1	0	339
11:30 AM	1	150	0	0	0	0	0	0	0	164	3	0	5	0	2	0	325
11:45 AM	4	183	0	0	1	0	0	0	0	178	7	0	7	0	2	0	382
Total	13	640	2	0	3	0	0	0	1	682	15	0	21	0	6	0	1383
12:00 PM	3	206	0	0	0	0	0	0	0	175	3	0	8	0	2	0	397
12:15 PM	1	202	1	0	0	0	0	0	0	167	4	0	4	0	4	0	383
12:30 PM	1	196	0	0	0	0	1	0	1	184	4	0	1	0	0	0	388
12:45 PM	3	212	2	0	1	0	0	0	0	182	4	0	6	0	2	0	412
Total	8	816	3	0	1	0	1	0	1	708	15	0	19	0	8	0	1580
01:00 PM	2	169	1	0	2	0	1	0	1	154	2	0	1	0	2	0	335
01:15 PM	8	203	0	0	0	0	0	0	1	157	0	0	0	0	3	0	372
01:30 PM	3	216	0	0	0	0	0	0	0	177	2	0	0	0	3	0	401
01:45 PM	3	191	0	0	0	0	0	0	0	162	1	0	0	0	1	0	358
Total	16	779	1	0	2	0	1	0	2	650	5	0	1	0	9	0	1466
02:00 PM	0	216	0	0	0	0	0	0	0	148	5	0	5	0	1	0	375
02:15 PM	5	187	1	0	1	0	0	0	0	163	5	0	7	0	3	0	372
02:30 PM	3	215	1	0	0	0	0	0	0	157	2	0	4	0	3	0	385
02:45 PM	3	208	1	0	1	0	0	0	1	160	2	0	1	0	1	0	378
Total	11	826	3	0	2	0	0	0	1	628	14	0	17	0	8	0	1510
03:00 PM	4	218	0	0	0	0	0	0	0	146	3	0	7	0	0	0	378
03:15 PM	2	236	0	0	0	0	0	0	0	169	3	0	9	0	0	0	419
03:30 PM	0	251	0	0	0	0	0	0	0	157	2	0	4	0	1	0	415
03:45 PM	2	241	0	0	0	0	1	0	2	168	5	0	3	0	1	0	423
Total	8	946	0	0	0	0	1	0	2	640	13	0	23	0	2	0	1635
04:00 PM	2	243	0	0	0	0	0	0	0	154	1	0	3	0	2	0	405
04:15 PM	2	260	0	0	1	0	0	0	0	141	3	0	4	0	1	0	412
04:30 PM	0	271	3	0	1	0	0	0	0	174	1	0	3	0	0	0	453
04:45 PM	1	243	0	0	0	0	0	0	2	160	1	0	5	0	0	0	412
Total	5	1017	3	0	2	0	0	0	2	629	6	0	15	0	3	0	1682

N/S: Washington Street (Route 53)
E/W: Starland Driveway S/ Dealership Dr
City, State: Hanover, MA
Client: VHB/ K.Keen

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File Name : 133596 B
Site Code : 12511.00
Start Date : 10/17/2013
Page No : 2

Groups Printed- Cars - Heavy Vehicles

	Washington Street (Route 53) From North				Starland Driveway South From East				Washington Street (Route 53) From South				Dealership Driveway From West				
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Int. Total
05:00 PM	1	285	1	0	0	0	0	0	0	162	1	0	6	0	4	0	460
05:15 PM	1	316	1	0	0	0	0	0	1	177	2	0	3	0	2	0	503
05:30 PM	0	281	2	0	0	0	1	0	2	153	2	0	4	0	0	0	445
05:45 PM	0	277	1	0	0	0	2	0	0	133	0	0	3	0	0	0	416
Total	2	1159	5	0	0	0	3	0	3	625	5	0	16	0	6	0	1824
Grand Total	103	7758	17	1	11	0	6	0	14	7807	126	0	151	0	55	0	16049
Apprch %	1.3	98.5	0.2	0	64.7	0	35.3	0	0.2	98.2	1.6	0	73.3	0	26.7	0	
Total %	0.6	48.3	0.1	0	0.1	0	0	0	0.1	48.6	0.8	0	0.9	0	0.3	0	
Cars	99	7581	17	1	11	0	6	0	14	7641	125	0	148	0	52	0	15695
% Cars	96.1	97.7	100	100	100	0	100	0	100	97.9	99.2	0	98	0	94.5	0	97.8
Heavy Vehicles	4	177	0	0	0	0	0	0	0	166	1	0	3	0	3	0	354
% Heavy Vehicles	3.9	2.3	0	0	0	0	0	0	0	2.1	0.8	0	2	0	5.5	0	2.2

	Washington Street (Route 53) From North					Starland Driveway South From East					Washington Street (Route 53) From South					Dealership Driveway From West					
Start Time	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	Int. Total
Peak Hour Analysis From 07:00 AM to 09:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:00 AM																					
07:00 AM	0	49	0	0	49	0	0	0	0	0	0	295	0	0	295	0	0	0	0	0	344
07:15 AM	0	60	0	0	60	0	0	0	0	0	0	281	1	0	282	0	0	0	0	0	342
07:30 AM	2	78	0	0	80	0	0	0	0	0	0	280	5	0	285	1	0	0	0	1	366
07:45 AM	4	85	0	0	89	0	0	0	0	0	0	236	5	0	241	0	0	2	0	2	332
Total Volume	6	272	0	0	278	0	0	0	0	0	0	1092	11	0	1103	1	0	2	0	3	1384
% App. Total	2.2	97.8	0	0		0	0	0	0		0	99	1	0		33.3	0	66.7	0		
PHF	.375	.800	.000	.000	.781	.000	.000	.000	.000	.000	.000	.925	.550	.000	.935	.250	.000	.250	.000	.375	.945
Cars	6	255	0	0	261	0	0	0	0	0	0	1073	11	0	1084	1	0	2	0	3	1348
% Cars	100	93.8	0	0	93.9	0	0	0	0	0	0	98.3	100	0	98.3	100	0	100	0	100	97.4
Heavy Vehicles	0	17	0	0	17	0	0	0	0	0	0	19	0	0	19	0	0	0	0	0	36
% Heavy Vehicles	0	6.3	0	0	6.1	0	0	0	0	0	0	1.7	0	0	1.7	0	0	0	0	0	2.6
Peak Hour Analysis From 10:00 AM to 01:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 12:00 PM																					
12:00 PM	3	206	0	0	209	0	0	0	0	0	0	175	3	0	178	8	0	2	0	10	397
12:15 PM	1	202	1	0	204	0	0	0	0	0	0	167	4	0	171	4	0	4	0	8	383
12:30 PM	1	196	0	0	197	0	0	1	0	1	1	184	4	0	189	1	0	0	0	1	388
12:45 PM	3	212	2	0	217	1	0	0	0	1	0	182	4	0	186	6	0	2	0	8	412
Total Volume	8	816	3	0	827	1	0	1	0	2	1	708	15	0	724	19	0	8	0	27	1580
% App. Total	1	98.7	0.4	0		50	0	50	0		0.1	97.8	2.1	0		70.4	0	29.6	0		
PHF	.667	.962	.375	.000	.953	.250	.000	.250	.000	.500	.250	.962	.938	.000	.958	.594	.000	.500	.000	.675	.959
Cars	7	797	3	0	807	1	0	1	0	2	1	689	15	0	705	18	0	8	0	26	1540
% Cars	87.5	97.7	100	0	97.6	100	0	100	0	100	100	97.3	100	0	97.4	94.7	0	100	0	96.3	97.5
Heavy Vehicles	1	19	0	0	20	0	0	0	0	0	0	19	0	0	19	1	0	0	0	1	40
% Heavy Vehicles	12.5	2.3	0	0	2.4	0	0	0	0	0	0	2.7	0	0	2.6	5.3	0	0	0	3.7	2.5
Peak Hour Analysis From 02:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:30 PM																					
04:30 PM	0	271	3	0	274	1	0	0	0	1	0	174	1	0	175	3	0	0	0	3	453
04:45 PM	1	243	0	0	244	0	0	0	0	0	2	160	1	0	163	5	0	0	0	5	412
05:00 PM	1	285	1	0	287	0	0	0	0	0	0	162	1	0	163	6	0	4	0	10	460
05:15 PM	1	316	1	0	318	0	0	0	0	0	1	177	2	0	180	3	0	2	0	5	503
Total Volume	3	1115	5	0	1123	1	0	0	0	1	3	673	5	0	681	17	0	6	0	23	1828
% App. Total	0.3	99.3	0.4	0		100	0	0	0		0.4	98.8	0.7	0		73.9	0	26.1	0		
PHF	.750	.882	.417	.000	.883	.250	.000	.000	.000	.250	.375	.951	.625	.000	.946	.708	.000	.375	.000	.575	.909
Cars	3	1106	5	0	1114	1	0	0	0	1	3	660	5	0	668	17	0	6	0	23	1806
% Cars	100	99.2	100	0	99.2	100	0	0	0	100	100	98.1	100	0	98.1	100	0	100	0	100	98.8
Heavy Vehicles	0	9	0	0	9	0	0	0	0	0	0	13	0	0	13	0	0	0	0	0	22
% Heavy Vehicles	0	0.8	0	0	0.8	0	0	0	0	0	0	1.9	0	0	1.9	0	0	0	0	0	1.2

N/S: Washington Street (Route 53)
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File Name : 133596 B
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Page No : 1

Groups Printed- Cars

	Washington Street (Route 53) From North				Starland Driveway South From East				Washington Street (Route 53) From South				Dealership Driveway From West				
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Int. Total
07:00 AM	0	46	0	0	0	0	0	0	0	286	0	0	0	0	0	0	332
07:15 AM	0	55	0	0	0	0	0	0	0	277	1	0	0	0	0	0	333
07:30 AM	2	75	0	0	0	0	0	0	0	277	5	0	1	0	0	0	360
07:45 AM	4	79	0	0	0	0	0	0	0	233	5	0	0	0	2	0	323
Total	6	255	0	0	0	0	0	0	0	1073	11	0	1	0	2	0	1348
08:00 AM	4	76	0	0	0	0	0	0	0	203	7	0	3	0	0	0	293
08:15 AM	3	86	0	0	0	0	0	0	0	190	2	0	2	0	0	0	283
08:30 AM	2	90	0	0	1	0	0	0	0	178	2	0	1	0	1	0	275
08:45 AM	5	97	0	0	0	0	0	0	0	187	7	0	3	0	1	0	300
Total	14	349	0	0	1	0	0	0	0	758	18	0	9	0	2	0	1151
09:00 AM	2	78	0	0	0	0	0	0	0	191	7	0	6	0	0	0	284
09:15 AM	3	103	0	0	0	0	0	0	0	156	2	0	3	0	1	0	268
09:30 AM	1	114	0	0	0	0	0	0	0	160	3	0	4	0	2	0	284
09:45 AM	3	108	0	0	0	0	0	0	0	175	2	0	4	0	0	0	292
Total	9	403	0	0	0	0	0	0	0	682	14	0	17	0	3	0	1128
10:00 AM	1	103	0	0	0	0	0	0	0	166	2	0	4	0	3	0	279
10:15 AM	2	121	0	0	0	0	0	0	0	165	2	0	0	0	0	0	290
10:30 AM	4	137	0	1	0	0	0	0	2	167	3	0	5	0	0	0	319
10:45 AM	3	140	0	0	0	0	0	0	0	168	2	0	3	0	1	0	317
Total	10	501	0	1	0	0	0	0	2	666	9	0	12	0	4	0	1205
11:00 AM	2	149	1	0	1	0	0	0	1	175	1	0	2	0	1	0	333
11:15 AM	5	153	1	0	1	0	0	0	0	158	4	0	6	0	1	0	329
11:30 AM	1	145	0	0	0	0	0	0	0	162	3	0	5	0	1	0	317
11:45 AM	4	178	0	0	1	0	0	0	0	175	7	0	7	0	2	0	374
Total	12	625	2	0	3	0	0	0	1	670	15	0	20	0	5	0	1353
12:00 PM	2	202	0	0	0	0	0	0	0	172	3	0	8	0	2	0	389
12:15 PM	1	196	1	0	0	0	0	0	0	164	4	0	3	0	4	0	373
12:30 PM	1	191	0	0	0	0	1	0	1	174	4	0	1	0	0	0	373
12:45 PM	3	208	2	0	1	0	0	0	0	179	4	0	6	0	2	0	405
Total	7	797	3	0	1	0	1	0	1	689	15	0	18	0	8	0	1540
01:00 PM	2	165	1	0	2	0	1	0	1	153	2	0	1	0	2	0	330
01:15 PM	7	195	0	0	0	0	0	0	1	153	0	0	0	0	3	0	359
01:30 PM	3	211	0	0	0	0	0	0	0	171	2	0	0	0	3	0	390
01:45 PM	3	191	0	0	0	0	0	0	0	159	1	0	0	0	1	0	355
Total	15	762	1	0	2	0	1	0	2	636	5	0	1	0	9	0	1434
02:00 PM	0	211	0	0	0	0	0	0	0	136	5	0	5	0	1	0	358
02:15 PM	5	187	1	0	1	0	0	0	0	158	5	0	7	0	3	0	367
02:30 PM	3	206	1	0	0	0	0	0	0	155	2	0	4	0	3	0	374
02:45 PM	3	202	1	0	1	0	0	0	1	155	2	0	1	0	1	0	367
Total	11	806	3	0	2	0	0	0	1	604	14	0	17	0	8	0	1466
03:00 PM	4	215	0	0	0	0	0	0	0	145	3	0	7	0	0	0	374
03:15 PM	2	228	0	0	0	0	0	0	0	167	3	0	9	0	0	0	409
03:30 PM	0	246	0	0	0	0	0	0	0	155	2	0	4	0	1	0	408
03:45 PM	2	237	0	0	0	0	1	0	2	163	5	0	3	0	1	0	414
Total	8	926	0	0	0	0	1	0	2	630	13	0	23	0	2	0	1605
04:00 PM	2	241	0	0	0	0	0	0	0	151	1	0	2	0	2	0	399
04:15 PM	2	259	0	0	1	0	0	0	0	139	3	0	4	0	1	0	409
04:30 PM	0	268	3	0	1	0	0	0	0	170	1	0	3	0	0	0	446
04:45 PM	1	242	0	0	0	0	0	0	2	154	1	0	5	0	0	0	405
Total	5	1010	3	0	2	0	0	0	2	614	6	0	14	0	3	0	1659

N/S: Washington Street (Route 53)
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Site Code : 12511.00
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Groups Printed- Cars

	Washington Street (Route 53) From North				Starland Driveway South From East				Washington Street (Route 53) From South				Dealership Driveway From West				
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Int. Total
05:00 PM	1	283	1	0	0	0	0	0	0	161	1	0	6	0	4	0	457
05:15 PM	1	313	1	0	0	0	0	0	1	175	2	0	3	0	2	0	498
05:30 PM	0	276	2	0	0	0	1	0	2	151	2	0	4	0	0	0	438
05:45 PM	0	275	1	0	0	0	2	0	0	132	0	0	3	0	0	0	413
Total	2	1147	5	0	0	0	3	0	3	619	5	0	16	0	6	0	1806
Grand Total	99	7581	17	1	11	0	6	0	14	7641	125	0	148	0	52	0	15695
Apprch %	1.3	98.5	0.2	0	64.7	0	35.3	0	0.2	98.2	1.6	0	74	0	26	0	
Total %	0.6	48.3	0.1	0	0.1	0	0	0	0.1	48.7	0.8	0	0.9	0	0.3	0	

	Washington Street (Route 53) From North					Starland Driveway South From East					Washington Street (Route 53) From South					Dealership Driveway From West					
Start Time	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	Int. Total
Peak Hour Analysis From 07:00 AM to 09:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:00 AM																					
07:00 AM	0	46	0	0	46	0	0	0	0	0	0	286	0	0	286	0	0	0	0	0	332
07:15 AM	0	55	0	0	55	0	0	0	0	0	0	277	1	0	278	0	0	0	0	0	333
07:30 AM	2	75	0	0	77	0	0	0	0	0	0	277	5	0	282	1	0	0	0	1	360
07:45 AM	4	79	0	0	83	0	0	0	0	0	0	233	5	0	238	0	0	2	0	2	323
Total Volume	6	255	0	0	261	0	0	0	0	0	0	1073	11	0	1084	1	0	2	0	3	1348
% App. Total	2.3	97.7	0	0		0	0	0	0		0	99	1	0		33.3	0	66.7	0		
PHF	.375	.807	.000	.000	.786	.000	.000	.000	.000	.000	.000	.938	.550	.000	.948	.250	.000	.250	.000	.375	.936
Peak Hour Analysis From 10:00 AM to 01:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 12:00 PM																					
12:00 PM	2	202	0	0	204	0	0	0	0	0	0	172	3	0	175	8	0	2	0	10	389
12:15 PM	1	196	1	0	198	0	0	0	0	0	0	164	4	0	168	3	0	4	0	7	373
12:30 PM	1	191	0	0	192	0	0	1	0	1	1	174	4	0	179	1	0	0	0	1	373
12:45 PM	3	208	2	0	213	1	0	0	0	1	0	179	4	0	183	6	0	2	0	8	405
Total Volume	7	797	3	0	807	1	0	1	0	2	1	689	15	0	705	18	0	8	0	26	1540
% App. Total	0.9	98.8	0.4	0		50	0	50	0		0.1	97.7	2.1	0		69.2	0	30.8	0		
PHF	.583	.958	.375	.000	.947	.250	.000	.250	.000	.500	.250	.962	.938	.000	.963	.563	.000	.500	.000	.650	.951
Peak Hour Analysis From 02:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:30 PM																					
04:30 PM	0	268	3	0	271	1	0	0	0	1	0	170	1	0	171	3	0	0	0	3	446
04:45 PM	1	242	0	0	243	0	0	0	0	0	2	154	1	0	157	5	0	0	0	5	405
05:00 PM	1	283	1	0	285	0	0	0	0	0	0	161	1	0	162	6	0	4	0	10	457
05:15 PM	1	313	1	0	315	0	0	0	0	0	1	175	2	0	178	3	0	2	0	5	498
Total Volume	3	1106	5	0	1114	1	0	0	0	1	3	660	5	0	668	17	0	6	0	23	1806
% App. Total	0.3	99.3	0.4	0		100	0	0	0		0.4	98.8	0.7	0		73.9	0	26.1	0		
PHF	.750	.883	.417	.000	.884	.250	.000	.000	.000	.250	.375	.943	.625	.000	.938	.708	.000	.375	.000	.575	.907

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Groups Printed- Heavy Vehicles

	Washington Street (Route 53) From North				Starland Driveway South From East				Washington Street (Route 53) From South				Dealership Driveway From West				
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Int. Total
07:00 AM	0	3	0	0	0	0	0	0	0	9	0	0	0	0	0	0	12
07:15 AM	0	5	0	0	0	0	0	0	0	4	0	0	0	0	0	0	9
07:30 AM	0	3	0	0	0	0	0	0	0	3	0	0	0	0	0	0	6
07:45 AM	0	6	0	0	0	0	0	0	0	3	0	0	0	0	0	0	9
Total	0	17	0	0	0	0	0	0	0	19	0	0	0	0	0	0	36
08:00 AM	0	4	0	0	0	0	0	0	0	8	0	0	0	0	0	0	12
08:15 AM	0	3	0	0	0	0	0	0	0	4	0	0	0	0	0	0	7
08:30 AM	0	7	0	0	0	0	0	0	0	6	0	0	0	0	0	0	13
08:45 AM	0	1	0	0	0	0	0	0	0	4	0	0	0	0	0	0	5
Total	0	15	0	0	0	0	0	0	0	22	0	0	0	0	0	0	37
09:00 AM	0	3	0	0	0	0	0	0	0	3	0	0	0	0	0	0	6
09:15 AM	0	1	0	0	0	0	0	0	0	3	0	0	0	0	0	0	4
09:30 AM	1	3	0	0	0	0	0	0	0	1	0	0	0	0	0	0	5
09:45 AM	0	9	0	0	0	0	0	0	0	4	0	0	0	0	1	0	14
Total	1	16	0	0	0	0	0	0	0	11	0	0	0	0	1	0	29
10:00 AM	0	8	0	0	0	0	0	0	0	4	1	0	0	0	0	0	13
10:15 AM	0	4	0	0	0	0	0	0	0	5	0	0	0	0	0	0	9
10:30 AM	0	3	0	0	0	0	0	0	0	3	0	0	0	0	1	0	7
10:45 AM	0	4	0	0	0	0	0	0	0	2	0	0	0	0	0	0	6
Total	0	19	0	0	0	0	0	0	0	14	1	0	0	0	1	0	35
11:00 AM	0	3	0	0	0	0	0	0	0	1	0	0	0	0	0	0	4
11:15 AM	1	2	0	0	0	0	0	0	0	6	0	0	1	0	0	0	10
11:30 AM	0	5	0	0	0	0	0	0	0	2	0	0	0	0	1	0	8
11:45 AM	0	5	0	0	0	0	0	0	0	3	0	0	0	0	0	0	8
Total	1	15	0	0	0	0	0	0	0	12	0	0	1	0	1	0	30
12:00 PM	1	4	0	0	0	0	0	0	0	3	0	0	0	0	0	0	8
12:15 PM	0	6	0	0	0	0	0	0	0	3	0	0	1	0	0	0	10
12:30 PM	0	5	0	0	0	0	0	0	0	10	0	0	0	0	0	0	15
12:45 PM	0	4	0	0	0	0	0	0	0	3	0	0	0	0	0	0	7
Total	1	19	0	0	0	0	0	0	0	19	0	0	1	0	0	0	40
01:00 PM	0	4	0	0	0	0	0	0	0	1	0	0	0	0	0	0	5
01:15 PM	1	8	0	0	0	0	0	0	0	4	0	0	0	0	0	0	13
01:30 PM	0	5	0	0	0	0	0	0	0	6	0	0	0	0	0	0	11
01:45 PM	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	3
Total	1	17	0	0	0	0	0	0	0	14	0	0	0	0	0	0	32
02:00 PM	0	5	0	0	0	0	0	0	0	12	0	0	0	0	0	0	17
02:15 PM	0	0	0	0	0	0	0	0	0	5	0	0	0	0	0	0	5
02:30 PM	0	9	0	0	0	0	0	0	0	2	0	0	0	0	0	0	11
02:45 PM	0	6	0	0	0	0	0	0	0	5	0	0	0	0	0	0	11
Total	0	20	0	0	0	0	0	0	0	24	0	0	0	0	0	0	44
03:00 PM	0	3	0	0	0	0	0	0	0	1	0	0	0	0	0	0	4
03:15 PM	0	8	0	0	0	0	0	0	0	2	0	0	0	0	0	0	10
03:30 PM	0	5	0	0	0	0	0	0	0	2	0	0	0	0	0	0	7
03:45 PM	0	4	0	0	0	0	0	0	0	5	0	0	0	0	0	0	9
Total	0	20	0	0	0	0	0	0	0	10	0	0	0	0	0	0	30
04:00 PM	0	2	0	0	0	0	0	0	0	3	0	0	1	0	0	0	6
04:15 PM	0	1	0	0	0	0	0	0	0	2	0	0	0	0	0	0	3
04:30 PM	0	3	0	0	0	0	0	0	0	4	0	0	0	0	0	0	7
04:45 PM	0	1	0	0	0	0	0	0	0	6	0	0	0	0	0	0	7
Total	0	7	0	0	0	0	0	0	0	15	0	0	1	0	0	0	23

N/S: Washington Street (Route 53)
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Groups Printed- Heavy Vehicles

	Washington Street (Route 53) From North				Starland Driveway South From East				Washington Street (Route 53) From South				Dealership Driveway From West				
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Int. Total
05:00 PM	0	2	0	0	0	0	0	0	0	1	0	0	0	0	0	0	3
05:15 PM	0	3	0	0	0	0	0	0	0	2	0	0	0	0	0	0	5
05:30 PM	0	5	0	0	0	0	0	0	0	2	0	0	0	0	0	0	7
05:45 PM	0	2	0	0	0	0	0	0	0	1	0	0	0	0	0	0	3
Total	0	12	0	0	0	0	0	0	0	6	0	0	0	0	0	0	18
Grand Total	4	177	0	0	0	0	0	0	0	166	1	0	3	0	3	0	354
Apprch %	2.2	97.8	0	0	0	0	0	0	0	99.4	0.6	0	50	0	50	0	
Total %	1.1	50	0	0	0	0	0	0	0	46.9	0.3	0	0.8	0	0.8	0	

	Washington Street (Route 53) From North					Starland Driveway South From East					Washington Street (Route 53) From South					Dealership Driveway From West					
Start Time	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	Int. Total
Peak Hour Analysis From 07:00 AM to 09:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:45 AM																					
07:45 AM	0	6	0	0	6	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	9
08:00 AM	0	4	0	0	4	0	0	0	0	0	0	8	0	0	8	0	0	0	0	0	12
08:15 AM	0	3	0	0	3	0	0	0	0	0	0	4	0	0	4	0	0	0	0	0	7
08:30 AM	0	7	0	0	7	0	0	0	0	0	0	6	0	0	6	0	0	0	0	0	13
Total Volume	0	20	0	0	20	0	0	0	0	0	0	21	0	0	21	0	0	0	0	0	41
% App. Total	0	100	0	0		0	0	0	0		0	100	0	0		0	0	0	0		
PHF	.000	.714	.000	.000	.714	.000	.000	.000	.000	.000	.000	.656	.000	.000	.656	.000	.000	.000	.000	.000	.788
Peak Hour Analysis From 10:00 AM to 01:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 11:45 AM																					
11:45 AM	0	5	0	0	5	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	8
12:00 PM	1	4	0	0	5	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	8
12:15 PM	0	6	0	0	6	0	0	0	0	0	0	3	0	0	3	1	0	0	0	1	10
12:30 PM	0	5	0	0	5	0	0	0	0	0	0	10	0	0	10	0	0	0	0	0	15
Total Volume	1	20	0	0	21	0	0	0	0	0	0	19	0	0	19	1	0	0	0	1	41
% App. Total	4 8	95.2	0	0		0	0	0	0		0	100	0	0		100	0	0	0		
PHF	.250	.833	.000	.000	.875	.000	.000	.000	.000	.000	.000	.475	.000	.000	.475	.250	.000	.000	.000	.250	.683
Peak Hour Analysis From 02:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 02:00 PM																					
02:00 PM	0	5	0	0	5	0	0	0	0	0	0	12	0	0	12	0	0	0	0	0	17
02:15 PM	0	0	0	0	0	0	0	0	0	0	0	5	0	0	5	0	0	0	0	0	5
02:30 PM	0	9	0	0	9	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	11
02:45 PM	0	6	0	0	6	0	0	0	0	0	0	5	0	0	5	0	0	0	0	0	11
Total Volume	0	20	0	0	20	0	0	0	0	0	0	24	0	0	24	0	0	0	0	0	44
% App. Total	0	100	0	0		0	0	0	0		0	100	0	0		0	0	0	0		
PHF	.000	.556	.000	.000	.556	.000	.000	.000	.000	.000	.000	.500	.000	.000	.500	.000	.000	.000	.000	.000	.647

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Page No : 1

Groups Printed- Peds and Bikes

	Washington Street (Route 53) From North				Starland Driveway South From East				Washington Street (Route 53) From South				Dealership Driveway From West				
Start Time	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Int. Total
07:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Total	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
08:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:30 AM	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	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
09:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
09:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
09:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
09:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:15 PM	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1
12:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1
01:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:45 PM	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1
Total	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1
04:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:45 PM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Total	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1

N/S: Washington Street (Route 53)
E/W: Starland Driveway S/ Dealership Dr
City, State: Hanover, MA
Client: VHB/ K.Keen

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

File Name : 133596 B
Site Code : 12511.00
Start Date : 10/17/2013
Page No : 2

Groups Printed- Peds and Bikes

	Washington Street (Route 53) From North				Starland Driveway South From East				Washington Street (Route 53) From South				Dealership Driveway From West				
Start Time	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Int. Total
05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	0	2	0	0	0	0	0	2	0	0	0	0	0	0	0	0	4
Apprch %	0	100	0	0	0	0	0	100	0	0	0	0	0	0	0	0	
Total %	0	50	0	0	0	0	0	50	0	0	0	0	0	0	0	0	

	Washington Street (Route 53) From North					Starland Driveway South From East					Washington Street (Route 53) From South					Dealership Driveway From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 09:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:00 AM																					
07:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Total Volume	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
% App. Total	0	100	0	0		0	0	0	0		0	0	0	0		0	0	0	0		
PHF	.000	.250	.000	.000	.250	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.250
Peak Hour Analysis From 10:00 AM to 01:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 11:30 AM																					
11:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:15 PM	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	1
Total Volume	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	1
% App. Total	0	0	0	0		0	0	100			0	0	0	0		0	0	0	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.250	.250	.250	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.250
Peak Hour Analysis From 02:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 03:00 PM																					
03:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:45 PM	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	1
Total Volume	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	1
% App. Total	0	0	0	0		0	0	100			0	0	0	0		0	0	0	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.250	.250	.250	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.250

N/S: Washington Street (Route 53)
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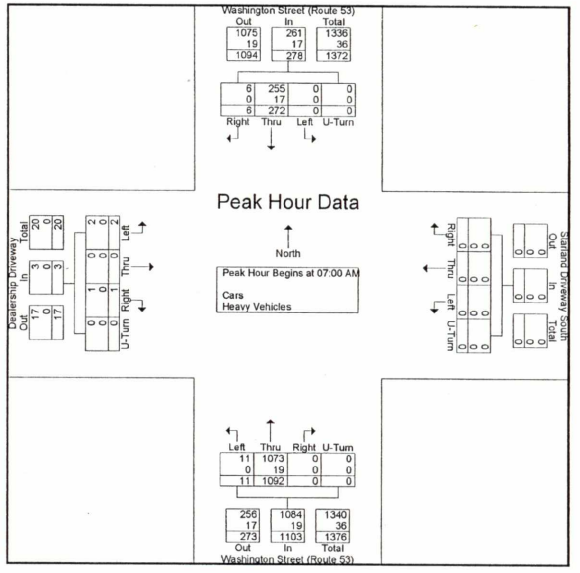
	Washington Street (Route 53) From North					Starland Driveway South From East					Washington Street (Route 53) From South					Dealership Driveway From West					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 09:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:00 AM																					
07:00 AM	0	49	0	0	49	0	0	0	0	0	0	295	0	0	295	0	0	0	0	0	344
07:15 AM	0	60	0	0	60	0	0	0	0	0	0	281	1	0	282	0	0	0	0	0	342
07:30 AM	2	78	0	0	80	0	0	0	0	0	0	280	5	0	285	1	0	0	0	1	366
07:45 AM	4	85	0	0	89	0	0	0	0	0	0	236	5	0	241	0	0	2	0	2	332
Total Volume	6	272	0	0	278	0	0	0	0	0	0	1092	11	0	1103	1	0	2	0	3	1384
% App. Total	2.2	97.8	0	0		0	0	0	0		0	99	1	0		33.3	0	66.7	0		
PHF	.375	.800	.000	.000	.781	.000	.000	.000	.000	.000	.000	.925	.550	.000	.935	.250	.000	.250	.000	.375	.945
Cars	6	255	0	0	261	0	0	0	0	0	0	1073	11	0	1084	1	0	2	0	3	1348
% Cars	100	93.8	0	0	93.9	0	0	0	0	0	0	98.3	100	0	98.3	100	0	100	0	100	97.4
Heavy Vehicles	0	17	0	0	17	0	0	0	0	0	0	19	0	0	19	0	0	0	0	0	36
% Heavy Vehicles	0	6.3	0	0	6.1	0	0	0	0	0	0	1.7	0	0	1.7	0	0	0	0	0	2.6



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PRECISION
D A T A
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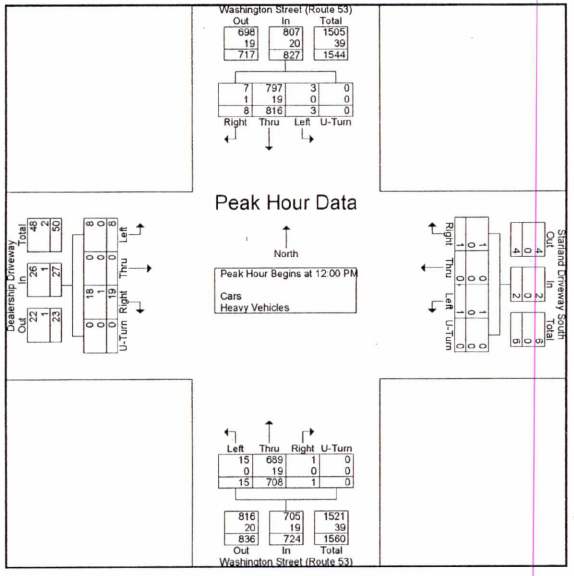
	Washington Street (Route 53) From North					Starland Driveway South From East					Washington Street (Route 53) From South					Dealership Driveway From West					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 10:00 AM to 01:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 12:00 PM																					
12:00 PM	3	206	0	0	209	0	0	0	0	0	0	175	3	0	178	8	0	2	0	10	397
12:15 PM	1	202	1	0	204	0	0	0	0	0	0	167	4	0	171	4	0	4	0	8	383
12:30 PM	1	196	0	0	197	0	0	1	0	1	1	184	4	0	189	1	0	0	0	1	388
12:45 PM	3	212	2	0	217	1	0	0	0	1	0	182	4	0	186	6	0	2	0	8	412
Total Volume	8	816	3	0	827	1	0	1	0	2	1	708	15	0	724	19	0	8	0	27	1580
% App. Total	1	98.7	0.4	0		50	0	50	0		0.1	97.8	2.1	0		70.4	0	29.6	0		
PHF	.667	.962	.375	.000	.953	.250	.000	.250	.000	.500	.250	.962	.938	.000	.958	.594	.000	.500	.000	.675	.959
Cars	7	797	3	0	807	1	0	1	0	2	1	689	15	0	705	18	0	8	0	26	1540
% Cars	87.5	97.7	100	0	97.6	100	0	100	0	100	100	97.3	100	0	97.4	94.7	0	100	0	96.3	97.5
Heavy Vehicles	1	19	0	0	20	0	0	0	0	0	0	19	0	0	19	1	0	0	0	1	40
% Heavy Vehicles	12.5	2.3	0	0	2.4	0	0	0	0	0	0	2.7	0	0	2.6	5.3	0	0	0	3.7	2.5



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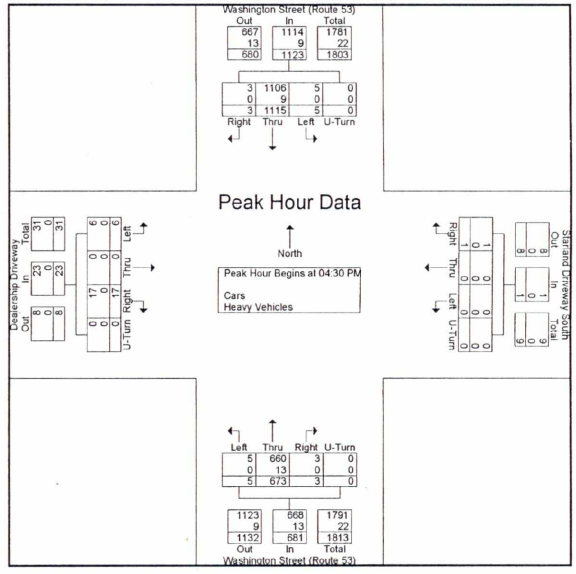
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 02:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:30 PM																					
04:30 PM	0	271	3	0	274	1	0	0	0	1	0	174	1	0	175	3	0	0	0	3	453
04:45 PM	1	243	0	0	244	0	0	0	0	0	2	160	1	0	163	5	0	0	0	5	412
05:00 PM	1	285	1	0	287	0	0	0	0	0	0	162	1	0	163	6	0	4	0	10	460
05:15 PM	1	316	1	0	318	0	0	0	0	0	1	177	2	0	180	3	0	2	0	5	503
Total Volume	3	1115	5	0	1123	1	0	0	0	1	3	673	5	0	681	17	0	6	0	23	1828
% App. Total	0.3	99.3	0.4	0		100	0	0	0		0.4	98.8	0.7	0		73.9	0	26.1	0		
PHF	.750	.882	.417	.000	.883	.250	.000	.000	.000	.250	.375	.951	.625	.000	.946	.708	.000	.375	.000	.575	.909
Cars	3	1106	5	0	1114	1	0	0	0	1	3	660	5	0	668	17	0	6	0	23	1806
% Cars	100	99.2	100	0	99.2	100	0	0	0	100	100	98.1	100	0	98.1	100	0	100	0	100	98.8
Heavy Vehicles	0	9	0	0	9	0	0	0	0	0	0	13	0	0	13	0	0	0	0	0	22
% Heavy Vehicles	0	0.8	0	0	0.8	0	0	0	0	0	0	1.9	0	0	1.9	0	0	0	0	0	1.2



N/S: Washington Street (Route 53)
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File Name : 133596 BB
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Groups Printed- Cars - Heavy Vehicles

	Washington Street (Route 53) From North				Starland Driveway South From East				Washington Street (Route 53) From South				Dealership Driveway From West				
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Int. Total
11:00 AM	4	180	22	0	3	0	3	0	8	212	3	0	4	0	1	0	440
11:15 AM	4	187	32	0	1	0	3	0	3	227	1	0	3	0	0	0	461
11:30 AM	3	206	31	0	1	0	2	0	5	246	2	0	0	0	0	0	496
11:45 AM	1	214	28	0	3	0	1	0	7	243	2	0	4	0	1	0	504
Total	12	787	113	0	8	0	9	0	23	928	8	0	11	0	2	0	1901
12:00 PM	4	244	20	0	0	0	3	0	4	238	1	0	1	0	3	0	518
12:15 PM	2	226	32	0	1	0	0	0	4	210	7	0	3	0	0	0	485
12:30 PM	0	211	22	0	0	0	1	0	12	223	2	0	3	0	0	0	474
12:45 PM	4	233	33	0	0	0	3	0	9	223	1	0	1	0	0	0	507
Total	10	914	107	0	1	0	7	0	29	894	11	0	8	0	3	0	1984
Grand Total	22	1701	220	0	9	0	16	0	52	1822	19	0	19	0	5	0	3885
Apprch %	1.1	87.5	11.3	0	36	0	64	0	2.7	96.2	1	0	79.2	0	20.8	0	
Total %	0.6	43.8	5.7	0	0.2	0	0.4	0	1.3	46.9	0.5	0	0.5	0	0.1	0	
Cars	22	1678	220	0	9	0	16	0	52	1812	19	0	19	0	5	0	3852
% Cars	100	98.6	100	0	100	0	100	0	100	99.5	100	0	100	0	100	0	99.2
Heavy Vehicles	0	23	0	0	0	0	0	0	0	10	0	0	0	0	0	0	33
% Heavy Vehicles	0	1.4	0	0	0	0	0	0	0	0.5	0	0	0	0	0	0	0.8

	Washington Street (Route 53) From North					Starland Driveway South From East					Washington Street (Route 53) From South					Dealership Driveway From West					
Start Time	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	Int. Total
Peak Hour Analysis From 11:00 AM to 12:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 11:30 AM																					
11:30 AM	3	206	31	0	240	1	0	2	0	3	5	246	2	0	253	0	0	0	0	0	496
11:45 AM	1	214	28	0	243	3	0	1	0	4	7	243	2	0	252	4	0	1	0	5	504
12:00 PM	4	244	20	0	268	0	0	3	0	3	4	238	1	0	243	1	0	3	0	4	518
12:15 PM	2	226	32	0	260	1	0	0	0	1	4	210	7	0	221	3	0	0	0	3	485
Total Volume	10	890	111	0	1011	5	0	6	0	11	20	937	12	0	969	8	0	4	0	12	2003
% App. Total	1	88	11	0		45.5	0	54.5	0		2.1	96.7	1.2	0		66.7	0	33.3	0		
PHF	.625	.912	.867	.000	.943	.417	.000	.500	.000	.688	.714	.952	.429	.000	.958	.500	.000	.333	.000	.600	.967
Cars	10	873	111	0	994	5	0	6	0	11	20	933	12	0	965	8	0	4	0	12	1982
% Cars	100	98.1	100	0	98.3	100	0	100	0	100	100	99.6	100	0	99.6	100	0	100	0	100	99.0
Heavy Vehicles	0	17	0	0	17	0	0	0	0	0	0	4	0	0	4	0	0	0	0	0	21
% Heavy Vehicles	0	1.9	0	0	1.7	0	0	0	0	0	0	0.4	0	0	0.4	0	0	0	0	0	1.0

N/S: Washington Street (Route 53)
E/W: Starland Driveway S/ Dealership Dr
City, State: Hanover, MA
Client: VHB/ K. Keen

PRECISION DATA INDUSTRIES, LLC
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File Name : 133596 BB
Site Code : 12511.00
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Groups Printed- Cars

	Washington Street (Route 53) From North				Starland Driveway South From East				Washington Street (Route 53) From South				Dealership Driveway From West				
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Int. Total
11:00 AM	4	177	22	0	3	0	3	0	8	211	3	0	4	0	1	0	436
11:15 AM	4	185	32	0	1	0	3	0	3	226	1	0	3	0	0	0	458
11:30 AM	3	202	31	0	1	0	2	0	5	243	2	0	0	0	0	0	489
11:45 AM	1	210	28	0	3	0	1	0	7	243	2	0	4	0	1	0	500
Total	12	774	113	0	8	0	9	0	23	923	8	0	11	0	2	0	1883
12:00 PM	4	238	20	0	0	0	3	0	4	238	1	0	1	0	3	0	512
12:15 PM	2	223	32	0	1	0	0	0	4	209	7	0	3	0	0	0	481
12:30 PM	0	211	22	0	0	0	1	0	12	220	2	0	3	0	0	0	471
12:45 PM	4	232	33	0	0	0	3	0	9	222	1	0	1	0	0	0	505
Total	10	904	107	0	1	0	7	0	29	889	11	0	8	0	3	0	1969
Grand Total	22	1678	220	0	9	0	16	0	52	1812	19	0	19	0	5	0	3852
Apprch %	1.1	87.4	11.5	0	36	0	64	0	2.8	96.2	1	0	79.2	0	20.8	0	
Total %	0.6	43.6	5.7	0	0.2	0	0.4	0	1.3	47	0.5	0	0.5	0	0.1	0	

	Washington Street (Route 53) From North					Starland Driveway South From East					Washington Street (Route 53) From South					Dealership Driveway From West					
Start Time	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	Int. Total
Peak Hour Analysis From 11:00 AM to 12:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 11:30 AM																					
11:30 AM	3	202	31	0	236	1	0	2	0	3	5	243	2	0	250	0	0	0	0	0	489
11:45 AM	1	210	28	0	239	3	0	1	0	4	7	243	2	0	252	4	0	1	0	5	500
12:00 PM	4	238	20	0	262	0	0	3	0	3	4	238	1	0	243	1	0	3	0	4	512
12:15 PM	2	223	32	0	257	1	0	0	0	1	4	209	7	0	220	3	0	0	0	3	481
Total Volume	10	873	111	0	994	5	0	6	0	11	20	933	12	0	965	8	0	4	0	12	1982
% App. Total	1	87.8	11.2	0		45.5	0	54.5	0		2.1	96.7	1.2	0		66.7	0	33.3	0		
PHF	.625	.917	.867	.000	.948	.417	.000	.500	.000	.688	.714	.960	.429	.000	.957	.500	.000	.333	.000	.600	.968

N/S: Washington Street (Route 53)
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File Name : 133596 BB
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Groups Printed- Heavy Vehicles

	Washington Street (Route 53) From North				Starland Driveway South From East				Washington Street (Route 53) From South				Dealership Driveway From West				
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Int. Total
11:00 AM	0	3	0	0	0	0	0	0	0	1	0	0	0	0	0	0	4
11:15 AM	0	2	0	0	0	0	0	0	0	1	0	0	0	0	0	0	3
11:30 AM	0	4	0	0	0	0	0	0	0	3	0	0	0	0	0	0	7
11:45 AM	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4
Total	0	13	0	0	0	0	0	0	0	5	0	0	0	0	0	0	18
12:00 PM	0	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6
12:15 PM	0	3	0	0	0	0	0	0	0	1	0	0	0	0	0	0	4
12:30 PM	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	3
12:45 PM	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	2
Total	0	10	0	0	0	0	0	0	0	5	0	0	0	0	0	0	15
Grand Total	0	23	0	0	0	0	0	0	0	10	0	0	0	0	0	0	33
Apprch %	0	100	0	0	0	0	0	0	0	100	0	0	0	0	0	0	
Total %	0	69.7	0	0	0	0	0	0	0	30.3	0	0	0	0	0	0	

	Washington Street (Route 53) From North					Starland Driveway South From East					Washington Street (Route 53) From South					Dealership Driveway From West					
Start Time	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	Int. Total
Peak Hour Analysis From 11:00 AM to 12:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 11:30 AM																					
11:30 AM	0	4	0	0	4	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	7
11:45 AM	0	4	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4
12:00 PM	0	6	0	0	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6
12:15 PM	0	3	0	0	3	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	4
Total Volume	0	17	0	0	17	0	0	0	0	0	0	4	0	0	4	0	0	0	0	0	21
% App. Total	0	100	0	0		0	0	0	0		0	100	0	0		0	0	0	0		
PHF	.000	.708	.000	.000	.708	.000	.000	.000	.000	.000	.000	.333	.000	.000	.333	.000	.000	.000	.000	.000	.750

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Groups Printed- Peds and Bikes

	Washington Street (Route 53) From North				Starland Driveway South From East				Washington Street (Route 53) From South				Dealership Driveway From West				
Start Time	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Int. Total
11:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:15 PM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
12:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Grand Total	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Apprch %	0	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Total %	0	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

	Washington Street (Route 53) From North					Starland Driveway South From East					Washington Street (Route 53) From South					Dealership Driveway From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 11:00 AM to 12:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 11:30 AM																					
11:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:15 PM	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Total Volume	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
% App. Total	0	100	0	0		0	0	0	0		0	0	0	0		0	0	0	0		
PHF	.000	.250	.000	.000	.250	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.250

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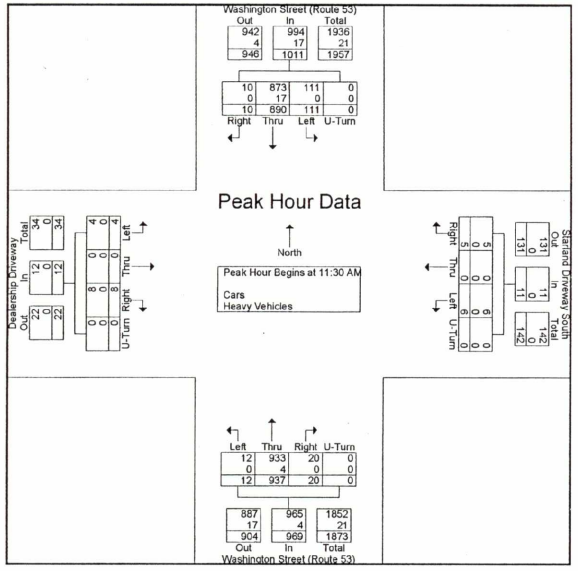
	Washington Street (Route 53) From North					Starland Driveway South From East					Washington Street (Route 53) From South					Dealership Driveway From West					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 11:00 AM to 12:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 11:30 AM																					
11:30 AM	3	206	31	0	240	1	0	2	0	3	5	246	2	0	253	0	0	0	0	0	496
11:45 AM	1	214	28	0	243	3	0	1	0	4	7	243	2	0	252	4	0	1	0	5	504
12:00 PM	4	244	20	0	268	0	0	3	0	3	4	238	1	0	243	1	0	3	0	4	518
12:15 PM	2	226	32	0	260	1	0	0	0	1	4	210	7	0	221	3	0	0	0	3	485
Total Volume	10	890	111	0	1011	5	0	6	0	11	20	937	12	0	969	8	0	4	0	12	2003
% App. Total	1	88	11	0		45.5	0	54.5	0		2.1	96.7	1.2	0		66.7	0	33.3	0		
PHF	.625	.912	.867	.000	.943	.417	.000	.500	.000	.688	.714	.952	.429	.000	.958	.500	.000	.333	.000	.600	.967
Cars	10	873	111	0	994	5	0	6	0	11	20	933	12	0	965	8	0	4	0	12	1982
% Cars	100	98.1	100	0	98.3	100	0	100	0	100	100	99.6	100	0	99.6	100	0	100	0	100	99.0
Heavy Vehicles	0	17	0	0	17	0	0	0	0	0	0	4	0	0	4	0	0	0	0	0	21
% Heavy Vehicles	0	1.9	0	0	1.7	0	0	0	0	0	0	0.4	0	0	0.4	0	0	0	0	0	1.0



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Groups Printed- Cars - Heavy Vehicles

	Washington Street (Route 53) From North				Starland Driveway South From East				Washington Street (Route 53) From South				Dealership Driveway From West				
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Int. Total
11:00 AM	1	144	17	1	0	0	0	0	4	162	0	0	1	0	0	0	330
11:15 AM	0	134	35	0	0	0	0	0	4	185	1	0	0	1	1	0	361
11:30 AM	5	159	21	0	0	0	1	0	11	181	1	0	2	0	0	0	381
11:45 AM	2	170	20	0	0	0	0	0	9	213	4	0	2	0	0	0	420
Total	8	607	93	1	0	0	1	0	28	741	6	0	5	1	1	0	1492
12:00 PM	3	189	26	0	1	0	1	0	5	190	0	0	1	0	0	0	416
12:15 PM	1	215	31	0	0	0	1	0	4	183	3	0	3	0	0	0	441
12:30 PM	3	191	21	0	1	0	1	0	9	237	2	0	5	0	0	0	470
12:45 PM	0	263	20	0	0	0	4	0	7	252	1	0	2	0	0	0	549
Total	7	858	98	0	2	0	7	0	25	862	6	0	11	0	0	0	1876
Grand Total	15	1465	191	1	2	0	8	0	53	1603	12	0	16	1	1	0	3368
Apprch %	0.9	87.6	11.4	0.1	20	0	80	0	3.2	96.1	0.7	0	88.9	5.6	5.6	0	
Total %	0.4	43.5	5.7	0	0.1	0	0.2	0	1.6	47.6	0.4	0	0.5	0	0	0	
Cars	15	1456	191	1	2	0	8	0	53	1598	12	0	16	1	1	0	3354
% Cars	100	99.4	100	100	100	0	100	0	100	99.7	100	0	100	100	100	0	99.6
Heavy Vehicles	0	9	0	0	0	0	0	0	0	5	0	0	0	0	0	0	14
% Heavy Vehicles	0	0.6	0	0	0	0	0	0	0	0.3	0	0	0	0	0	0	0.4

	Washington Street (Route 53) From North					Starland Driveway South From East					Washington Street (Route 53) From South					Dealership Driveway From West					
Start Time	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	Int. Total
Peak Hour Analysis From 11:00 AM to 12:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 12:00 PM																					
12:00 PM	3	189	26	0	218	1	0	1	0	2	5	190	0	0	195	1	0	0	0	1	416
12:15 PM	1	215	31	0	247	0	0	1	0	1	4	183	3	0	190	3	0	0	0	3	441
12:30 PM	3	191	21	0	215	1	0	1	0	2	9	237	2	0	248	5	0	0	0	5	470
12:45 PM	0	263	20	0	283	0	0	4	0	4	7	252	1	0	260	2	0	0	0	2	549
Total Volume	7	858	98	0	963	2	0	7	0	9	25	862	6	0	893	11	0	0	0	11	1876
% App. Total	0.7	89.1	10.2	0		22.2	0	77.8	0		2.8	96.5	0.7	0		100	0	0	0		
PHF	.583	.816	.790	.000	.851	.500	.000	.438	.000	.563	.694	.855	.500	.000	.859	.550	.000	.000	.000	.550	.854
Cars	7	850	98	0	955	2	0	7	0	9	25	861	6	0	892	11	0	0	0	11	1867
% Cars	100	99.1	100	0	99.2	100	0	100	0	100	100	99.9	100	0	99.9	100	0	0	0	100	99.5
Heavy Vehicles	0	8	0	0	8	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	9
% Heavy Vehicles	0	0.9	0	0	0.8	0	0	0	0	0	0	0.1	0	0	0.1	0	0	0	0	0	0.5

N/S: Washington Street (Route 53)
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Groups Printed- Cars

	Washington Street (Route 53) From North				Starland Driveway South From East				Washington Street (Route 53) From South				Dealership Driveway From West				
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Int. Total
11:00 AM	1	144	17	1	0	0	0	0	4	161	0	0	1	0	0	0	329
11:15 AM	0	134	35	0	0	0	0	0	4	185	1	0	0	1	1	0	361
11:30 AM	5	158	21	0	0	0	1	0	11	180	1	0	2	0	0	0	379
11:45 AM	2	170	20	0	0	0	0	0	9	211	4	0	2	0	0	0	418
Total	8	606	93	1	0	0	1	0	28	737	6	0	5	1	1	0	1487
12:00 PM	3	186	26	0	1	0	1	0	5	190	0	0	1	0	0	0	413
12:15 PM	1	213	31	0	0	0	1	0	4	183	3	0	3	0	0	0	439
12:30 PM	3	189	21	0	1	0	1	0	9	236	2	0	5	0	0	0	467
12:45 PM	0	262	20	0	0	0	4	0	7	252	1	0	2	0	0	0	548
Total	7	850	98	0	2	0	7	0	25	861	6	0	11	0	0	0	1867
Grand Total	15	1456	191	1	2	0	8	0	53	1598	12	0	16	1	1	0	3354
Apprch %	0.9	87.6	11.5	0.1	20	0	80	0	3.2	96.1	0.7	0	88.9	5.6	5.6	0	
Total %	0.4	43.4	5.7	0	0.1	0	0.2	0	1.6	47.6	0.4	0	0.5	0	0	0	

	Washington Street (Route 53) From North					Starland Driveway South From East					Washington Street (Route 53) From South					Dealership Driveway From West					
Start Time	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	Int. Total
Peak Hour Analysis From 11:00 AM to 12:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 12:00 PM																					
12:00 PM	3	186	26	0	215	1	0	1	0	2	5	190	0	0	195	1	0	0	0	1	413
12:15 PM	1	213	31	0	245	0	0	1	0	1	4	183	3	0	190	3	0	0	0	3	439
12:30 PM	3	189	21	0	213	1	0	1	0	2	9	236	2	0	247	5	0	0	0	5	467
12:45 PM	0	262	20	0	282	0	0	4	0	4	7	252	1	0	260	2	0	0	0	2	548
Total Volume	7	850	98	0	955	2	0	7	0	9	25	861	6	0	892	11	0	0	0	11	1867
% App. Total	0.7	89	10.3	0		22.2	0	77.8	0		2.8	96.5	0.7	0		100	0	0	0		
PHF	.583	.811	.790	.000	.847	.500	.000	.438	.000	.563	.694	.854	.500	.000	.858	.550	.000	.000	.000	.550	.852

N/S: Washington Street (Route 53)
E/W: Starland Driveway S/ Dealership Dr
City, State: Hanover, MA
Client: VHB/ K. Keen

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

File Name : 133596 BBB
Site Code : 12511.00
Start Date : 10/20/2013
Page No : 1

Groups Printed- Heavy Vehicles

	Washington Street (Route 53) From North				Starland Driveway South From East				Washington Street (Route 53) From South				Dealership Driveway From West				
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Int. Total
11:00 AM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
11:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:30 AM	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	2
11:45 AM	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	2
Total	0	1	0	0	0	0	0	0	0	4	0	0	0	0	0	0	5
12:00 PM	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
12:15 PM	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
12:30 PM	0	2	0	0	0	0	0	0	0	1	0	0	0	0	0	0	3
12:45 PM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Total	0	8	0	0	0	0	0	0	0	1	0	0	0	0	0	0	9
Grand Total	0	9	0	0	0	0	0	0	0	5	0	0	0	0	0	0	14
Apprch %	0	100	0	0	0	0	0	0	0	100	0	0	0	0	0	0	
Total %	0	64.3	0	0	0	0	0	0	0	35.7	0	0	0	0	0	0	

	Washington Street (Route 53) From North					Starland Driveway South From East					Washington Street (Route 53) From South					Dealership Driveway From West					
Start Time	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	Int. Total
Peak Hour Analysis From 11:00 AM to 12:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 11:45 AM																					
11:45 AM	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	2
12:00 PM	0	3	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
12:15 PM	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
12:30 PM	0	2	0	0	2	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	3
Total Volume	0	7	0	0	7	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	10
% App. Total	0	100	0	0		0	0	0	0		0	100	0	0		0	0	0	0		
PHF	.000	.583	.000	.000	.583	.000	.000	.000	.000	.000	.000	.375	.000	.000	.375	.000	.000	.000	.000	.000	.833

N/S: Washington Street (Route 53)
E/W: Starland Driveway S/ Dealership Dr
City, State: Hanover, MA
Client: VHB/ K. Keen

PRECISION D A T A INDUSTRIES, LLC
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File Name : 133596 BBB
Site Code : 12511.00
Start Date : 10/20/2013
Page No : 1

Groups Printed- Peds and Bikes

	Washington Street (Route 53) From North				Starland Driveway South From East				Washington Street (Route 53) From South				Dealership Driveway From West				
Start Time	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Int. Total
11:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:45 AM	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1
Total	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1
12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1
Apprch %	0	0	0	0	0	0	0	100	0	0	0	0	0	0	0	0	
Total %	0	0	0	0	0	0	0	100	0	0	0	0	0	0	0	0	

	Washington Street (Route 53) From North					Starland Driveway South From East					Washington Street (Route 53) From South					Dealership Driveway From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 11:00 AM to 12:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 11:00 AM																					
11:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:45 AM	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0	1
Total Volume	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0	1
% App. Total	0	0	0	0		0	0	100			0	0	0	0		0	0	0	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.250	.250	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.250

N/S: Washington Street (Route 53)
E/W: Starland Driveway S/ Dealership Dr
City, State: Hanover, MA
Client: VHB/ K. Keen

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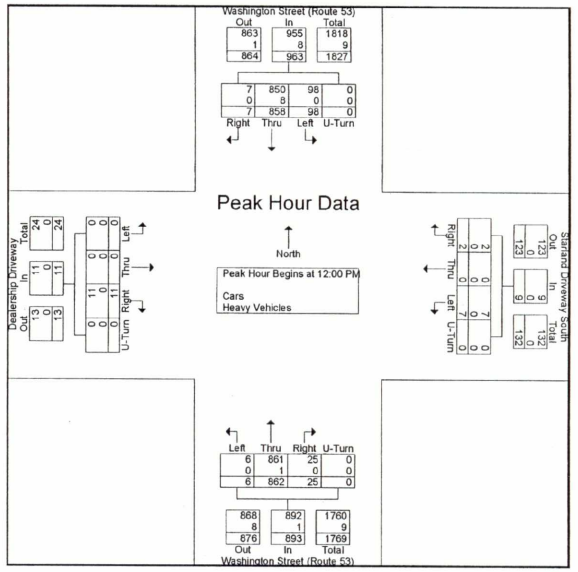
File Name : 133596 BBB
Site Code : 12511.00
Start Date : 10/20/2013
Page No : 1

	Washington Street (Route 53) From North					Starland Driveway South From East					Washington Street (Route 53) From South					Dealership Driveway From West					
Start Time	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	Int. Total
Peak Hour Analysis From 11:00 AM to 12:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 12:00 PM																					
12:00 PM	3	189	26	0	218	1	0	1	0	2	5	190	0	0	195	1	0	0	0	1	416
12:15 PM	1	215	31	0	247	0	0	1	0	1	4	183	3	0	190	3	0	0	0	3	441
12:30 PM	3	191	21	0	215	1	0	1	0	2	9	237	2	0	248	5	0	0	0	5	470
12:45 PM	0	263	20	0	283	0	0	4	0	4	7	252	1	0	260	2	0	0	0	2	549
Total Volume	7	858	98	0	963	2	0	7	0	9	25	862	6	0	893	11	0	0	0	11	1876
% App. Total	0.7	89.1	10.2	0		22.2	0	77.8	0		2.8	96.5	0.7	0		100	0	0	0		
PHF	.583	.816	.790	.000	.851	.500	.000	.438	.000	.563	.694	.855	.500	.000	.859	.550	.000	.000	.000	.550	.854
Cars	7	850	98	0	955	2	0	7	0	9	25	861	6	0	892	11	0	0	0	11	1867
% Cars	100	99.1	100	0	99.2	100	0	100	0	100	100	99.9	100	0	99.9	100	0	0	0	100	99.5
Heavy Vehicles	0	8	0	0	8	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	9
% Heavy Vehicles	0	0.9	0	0	0.8	0	0	0	0	0	0	0.1	0	0	0.1	0	0	0	0	0	0.5



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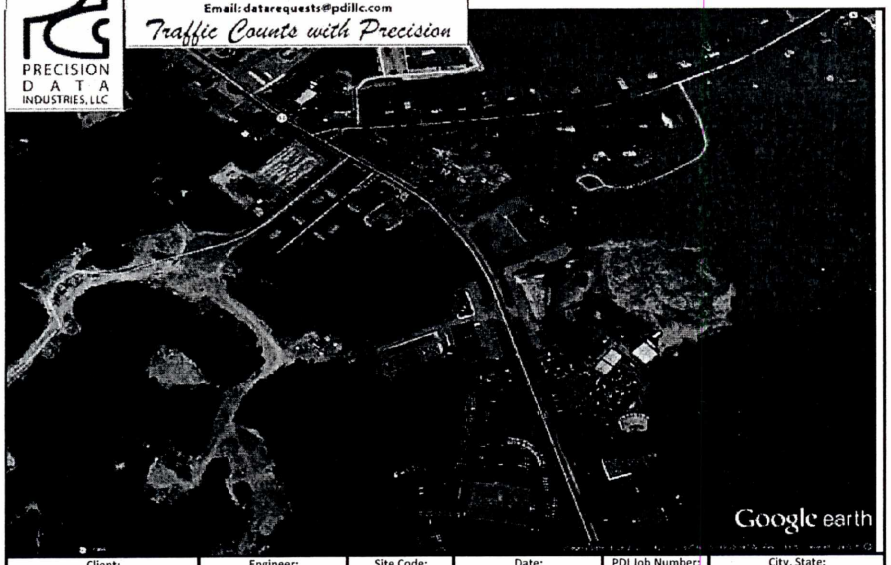
Traffic Counts with Precision



Client:	Engineer:	Site Code:	Date:	PDI Job Number:	City, State:
Town of Hanover	V. Diniak	TBA	Thurs 12/26 thru Sun 12/29/13	133679	Hanover, MA

N/S: Washington Street (Route 53)
E/W: Starland North Dr/ Village Square
City, State: Hanover, MA
Client: VHB/ K. Keen

PRECISION DATA INDUSTRIES, LLC
P.O.Box 301 Berlin, MA 01503
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File Name : 133679 A
Site Code : 12511.00
Start Date : 12/27/2013
Page No : 1

Groups Printed- Cars - Heavy Vehicles

	Washington Street Route 53) From North				Starland North Driveway From East				Washington Street Route 53) From South				Village Square From West				
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Int. Total
04:00 PM	4	321	16	0	5	0	2	0	9	200	0	0	4	0	0	0	561
04:15 PM	2	287	21	0	2	0	4	0	13	201	1	0	3	0	0	0	534
04:30 PM	4	247	33	0	4	0	0	0	11	167	2	0	7	0	0	0	475
04:45 PM	4	252	39	0	31	0	4	0	19	195	5	0	4	0	0	0	553
Total	14	1107	109	0	42.	0	10	0	52	763	8	0	18	0	0	0	2123
05:00 PM	9	259	18	0	67	0	25	0	10	140	2	0	6	0	0	0	536
05:15 PM	7	240	7	0	21	0	5	0	10	148	6	0	2	0	0	0	446
05:30 PM	5	216	22	0	12	0	4	0	7	122	2	0	4	0	1	0	395
05:45 PM	6	222	34	0	4	0	2	0	24	135	9	0	4	0	3	0	443
Total	27	937	81	0	104	0	36	0	51	545	19	0	16	0	4	0	1820
Grand Total	41	2044	190	0	146	0	46	0	103	1308	27	0	34	0	4	0	3943
Apprch %	1.8	89.8	8.4	0	76	0	24	0	7.2	91	1.9	0	89.5	0	10.5	0	
Total %	1	51.8	4.8	0	3.7	0	1.2	0	2.6	33.2	0.7	0	0.9	0	0.1	0	
Cars	41	2034	190	0	146	0	46	0	103	1300	27	0	33	0	4	0	3924
% Cars	100	99.5	100	0	100	0	100	0	100	99.4	100	0	97.1	0	100	0	99.5
Heavy Vehicles	0	10	0	0	0	0	0	0	0	8	0	0	1	0	0	0	19
% Heavy Vehicles	0	0.5	0	0	0	0	0	0	0	0.6	0	0	2.9	0	0	0	0.5

	Washington Street Route 53) From North					Starland North Driveway From East					Washington Street Route 53) From South					Village Square From West					
Start Time	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	Int. 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	**4**	**321**	16	0	**341**	5	0	2	0	7	9	200	0	0	209	4	0	0	0	4	**561**
04:15 PM	2	287	21	0	310	2	0	4	0	6	13	**201**	1	0	215	3	0	0	0	3	534
04:30 PM	4	247	33	0	284	4	0	0	0	4	11	167	2	0	180	**7**	0	0	0	**7**	475
04:45 PM	4	252	**39**	0	295	**31**	0	4	0	**35**	**19**	195	**5**	0	**219**	4	0	0	0	4	553
Total Volume	14	1107	109	0	1230	42	0	10	0	52	52	763	8	0	823	18	0	0	0	18	2123
% App. Total	1.1	90	8.9	0		80.8	0	19.2	0		6.3	92.7	1	0		100	0	0	0		
PHF	.875	.862	.699	.000	.902	.339	.000	.625	.000	.371	.684	.949	.400	.000	.939	.643	.000	.000	.000	.643	.946
Cars	14	1100	109	0	1223	42	0	10	0	52	52	757	8	0	817	17	0	0	0	17	2109
% Cars	100	99.4	100	0	99.4	100	0	100	0	100	100	99.2	100	0	99.3	94.4	0	0	0	94.4	99.3
Heavy Vehicles	0	7	0	0	7	0	0	0	0	0	0	6	0	0	6	1	0	0	0	1	14
% Heavy Vehicles	0	0.6	0	0	0.6	0	0	0	0	0	0	0.8	0	0	0.7	5.6	0	0	0	5.6	0.7

N/S: Washington Street (Route 53)
E/W: Starland North Dr/ Village Square
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File Name : 133679 A
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Start Date : 12/27/2013
Page No : 1

Groups Printed- Cars

	Washington Street Route 53) From North				Starland North Driveway From East				Washington Street Route 53) From South				Village Square From West				
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Int. Total
04:00 PM	4	319	16	0	5	0	2	0	9	200	0	0	3	0	0	0	558
04:15 PM	2	286	21	0	2	0	4	0	13	198	1	0	3	0	0	0	530
04:30 PM	4	244	33	0	4	0	0	0	11	166	2	0	7	0	0	0	471
04:45 PM	4	251	39	0	31	0	4	0	19	193	5	0	4	0	0	0	550
Total	14	1100	109	0	42	0	10	0	52	757	8	0	17	0	0	0	2109
05:00 PM	9	257	18	0	67	0	25	0	10	140	2	0	6	0	0	0	534
05:15 PM	7	240	7	0	21	0	5	0	10	147	6	0	2	0	0	0	445
05:30 PM	5	216	22	0	12	0	4	0	7	122	2	0	4	0	1	0	395
05:45 PM	6	221	34	0	4	0	2	0	24	134	9	0	4	0	3	0	441
Total	27	934	81	0	104	0	36	0	51	543	19	0	16	0	4	0	1815
Grand Total	41	2034	190	0	146	0	46	0	103	1300	27	0	33	0	4	0	3924
Apprch %	1.8	89.8	8.4	0	76	0	24	0	7.2	90.9	1.9	0	89.2	0	10.8	0	
Total %	1	51.8	4.8	0	3.7	0	1.2	0	2.6	33.1	0.7	0	0.8	0	0.1	0	

	Washington Street Route 53) From North					Starland North Driveway From East					Washington Street Route 53) From South					Village Square From West					
Start Time	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	Int. 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	**4**	**319**	16	0	**339**	5	0	2	0	7	9	**200**	0	0	209	3	0	0	0	3	**558**
04:15 PM	2	286	21	0	309	2	0	**4**	0	6	13	198	1	0	212	3	0	0	0	3	530
04:30 PM	4	244	33	0	281	**4**	0	0	0	4	11	166	2	0	179	**7**	0	0	0	**7**	471
04:45 PM	4	251	**39**	0	294	**31**	0	4	0	**35**	**19**	193	**5**	0	**217**	**4**	0	0	0	**4**	550
Total Volume	14	1100	109	0	1223	42	0	10	0	52	52	757	8	0	817	17	0	0	0	17	2109
% App. Total	1.1	89.9	8.9	0		80.8	0	19.2	0		6.4	92.7	1	0		100	0	0	0		
PHF	.875	.862	.699	.000	.902	.339	.000	.625	.000	.371	.684	.946	.400	.000	.941	.607	.000	.000	.000	.607	.945

N/S: Washington Street (Route 53)
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Page No : 1

Groups Printed- Heavy Vehicles

	Washington Street Route 53) From North				Starland North Driveway From East				Washington Street Route 53) From South				Village Square From West				
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Int. Total
04:00 PM	0	2	0	0	0	0	0	0	0	0	0	0	1	0	0	0	3
04:15 PM	0	1	0	0	0	0	0	0	0	3	0	0	0	0	0	0	4
04:30 PM	0	3	0	0	0	0	0	0	0	1	0	0	0	0	0	0	4
04:45 PM	0	1	0	0	0	0	0	0	0	2	0	0	0	0	0	0	3
Total	0	7	0	0	0	0	0	0	0	6	0	0	1	0	0	0	14
05:00 PM	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
05:15 PM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:45 PM	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	2
Total	0	3	0	0	0	0	0	0	0	2	0	0	0	0	0	0	5
Grand Total	0	10	0	0	0	0	0	0	0	8	0	0	1	0	0	0	19
Apprch %	0	100	0	0	0	0	0	0	0	100	0	0	100	0	0	0	
Total %	0	52.6	0	0	0	0	0	0	0	42.1	0	0	5.3	0	0	0	

	Washington Street Route 53) From North					Starland North Driveway From East					Washington Street Route 53) From South					Village Square From West					
Start Time	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	Int. 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	2	0	0	2	0	0	0	0	0	0	0	0	0	0	**1**	0	0	0	**1**	3
04:15 PM	0	1	0	0	1	0	0	0	0	0	0	**3**	0	0	**3**	0	0	0	0	0	**4**
04:30 PM	0	**3**	0	0	**3**	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	4
04:45 PM	0	1	0	0	1	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	3
Total Volume	0	7	0	0	7	0	0	0	0	0	0	6	0	0	6	1	0	0	0	1	14
% App. Total	0	100	0	0		0	0	0	0		0	100	0	0		100	0	0	0		
PHF	.000	.583	.000	.000	.583	.000	.000	.000	.000	.000	.000	.500	.000	.000	.500	.250	.000	.000	.000	.250	.875

N/S: Washington Street (Route 53)
E/W: Starland North Dr/ Village Square
City, State: Hanover, MA
Client: VHB/ K. Keen

PRECISION DATA INDUSTRIES, LLC
P.O.Box 301 Berlin, MA 01503
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File Name : 133679 A
Site Code : 12511.00
Start Date : 12/27/2013
Page No : 1

Groups Printed- Peds and Bicycles

	Washington Street Route 53) From North				Starland North Driveway From East				Washington Street Route 53) From South				Village Square From West				
Start Time	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Int. Total
04:00 PM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
04:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
Grand Total	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2
Apprch %	0	100	0	0	0	0	0	0	0	0	0	0	0	0	0	100	
Total %	0	50	0	0	0	0	0	0	0	0	0	0	0	0	0	50	

	Washington Street Route 53) From North					Starland North Driveway From East					Washington Street Route 53) From South					Village Square From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. 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	**1**	0	0	**1**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**1**
04:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
% App. Total	0	100	0	0		0	0	0	0		0	0	0	0		0	0	0	0		
PHF	.000	.250	.000	.000	.250	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.250

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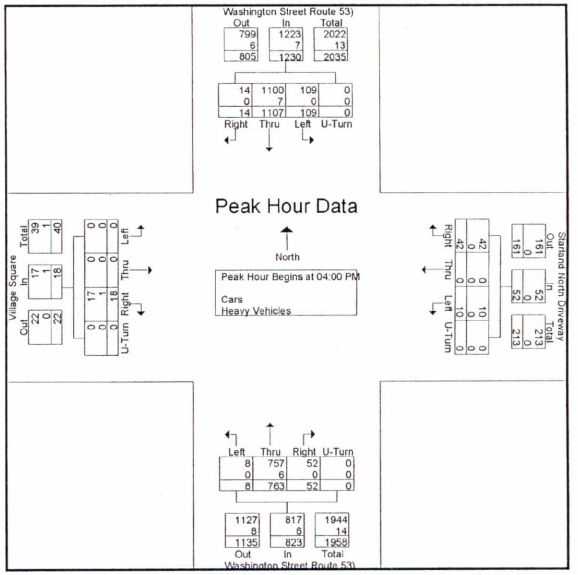
	Washington Street Route 53) From North					Starland North Driveway From East					Washington Street Route 53) From South					Village Square From West					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. 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	**4**	**321**	16	0	**341**	5	0	2	0	7	9	200	0	0	209	4	0	0	0	4	**561**
04:15 PM	2	287	21	0	310	2	0	**4**	0	6	13	**201**	1	0	215	3	0	0	0	3	534
04:30 PM	4	247	33	0	284	**4**	0	0	0	4	11	167	2	0	180	7	0	0	0	7	475
04:45 PM	4	252	**39**	0	295	**31**	0	4	0	**35**	**19**	195	**5**	0	**219**	4	0	0	0	4	553
Total Volume	14	1107	109	0	1230	42	0	10	0	52	52	763	8	0	823	18	0	0	0	18	2123
% App. Total	1.1	90	8.9	0		80.8	0	19.2	0		6.3	92.7	1	0		100	0	0	0		
PHF	.875	.862	.699	.000	.902	.339	.000	.625	.000	.371	.684	.949	.400	.000	.939	.643	.000	.000	.000	.643	.946
Cars	14	1100	109	0	1223	42	0	10	0	52	52	757	8	0	817	17	0	0	0	17	2109
% Cars	100	99.4	100	0	99.4	100	0	100	0	100	100	99.2	100	0	99.3	94.4	0	0	0	94.4	99.3
Heavy Vehicles	0	7	0	0	7	0	0	0	0	0	0	6	0	0	6	1	0	0	0	1	14
% Heavy Vehicles	0	0.6	0	0	0.6	0	0	0	0	0	0	0.8	0	0	0.7	5.6	0	0	0	5.6	0.7



N/S: Washington Street (Route 53)
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City, State: Hanover, MA
Client: VHB/ K. Keen

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File Name : 133679 AA
Site Code : 12511.00
Start Date : 12/28/2013
Page No : 1

Groups Printed- Cars - Heavy Vehicles

	Washington Street Route 53) From North				Starland North Driveway From East				Washington Street Route 53) From South				Village Square From West				
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Int. Total
11:00 AM	6	204	18	0	52	0	27	0	5	207	1	0	0	0	4	0	524
11:15 AM	4	198	9	0	15	5	7	0	7	199	2	0	1	0	5	0	452
11:30 AM	6	195	30	0	9	0	1	0	9	222	1	0	3	0	3	0	479
11:45 AM	2	209	37	0	8	1	5	0	26	234	4	0	5	6	0	0	537
Total	18	806	94	0	84	6	40	0	47	862	8	0	9	6	12	0	1992
12:00 PM	3	224	30	0	59	0	15	0	3	226	3	0	3	0	0	0	566
12:15 PM	0	220	21	0	53	1	6	0	7	254	4	0	2	0	1	0	569
12:30 PM	2	223	11	0	8	0	0	0	5	217	1	0	4	0	0	0	471
12:45 PM	1	229	29	0	13	0	2	0	6	234	4	0	6	0	1	0	525
Total	6	896	91	0	133	1	23	0	21	931	12	0	15	0	2	0	2131
Grand Total	24	1702	185	0	217	7	63	0	68	1793	20	0	24	6	14	0	4123
Apprch %	1.3	89.1	9.7	0	75.6	2.4	22	0	3.6	95.3	1.1	0	54.5	13.6	31.8	0	
Total %	0.6	41.3	4.5	0	5.3	0.2	1.5	0	1.6	43.5	0.5	0	0.6	0.1	0.3	0	
Cars	24	1688	185	0	216	7	63	0	68	1781	20	0	24	6	14	0	4096
% Cars	100	99.2	100	0	99.5	100	100	0	100	99.3	100	0	100	100	100	0	99.3
Heavy Vehicles	0	14	0	0	1	0	0	0	0	12	0	0	0	0	0	0	27
% Heavy Vehicles	0	0.8	0	0	0.5	0	0	0	0	0.7	0	0	0	0	0	0	0.7

	Washington Street Route 53) From North					Starland North Driveway From East					Washington Street Route 53) From South					Village Square From West					
Start Time	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	Int. Total
Peak Hour Analysis From 11:00 AM to 12:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 11:30 AM																					
11:30 AM	**6**	195	30	0	231	9	0	1	0	10	9	222	1	0	232	**3**	0	**3**	0	6	479
11:45 AM	2	209	**37**	0	248	8	**1**	5	0	14	**26**	234	**4**	0	264	**5**	**6**	0	0	**11**	537
12:00 PM	3	**224**	30	0	**257**	**59**	0	**15**	0	**74**	3	226	**3**	0	232	3	0	0	0	3	566
12:15 PM	0	220	21	0	241	53	1	6	0	60	7	**254**	**4**	0	**265**	2	0	1	0	3	**569**
Total Volume	11	848	118	0	977	129	2	27	0	158	45	936	12	0	993	13	6	4	0	23	2151
% App. Total	1.1	86.8	12.1	0		81.6	1.3	17.1	0		4.5	94.3	1.2	0		56.5	26.1	17.4	0		
PHF	.458	.946	.797	.000	.950	.547	.500	.450	.000	.534	.433	.921	.750	.000	.937	.650	.250	.333	.000	.523	.945
Cars	11	840	118	0	969	128	2	27	0	157	45	931	12	0	988	13	6	4	0	23	2137
% Cars	100	99.1	100	0	99.2	99.2	100	100	0	99.4	100	99.5	100	0	99.5	100	100	100	0	100	99.3
Heavy Vehicles	0	8	0	0	8	1	0	0	0	1	0	5	0	0	5	0	0	0	0	0	14
% Heavy Vehicles	0	0.9	0	0	0.8	0.8	0	0	0	0.6	0	0.5	0	0	0.5	0	0	0	0	0	0.7

N/S: Washington Street (Route 53)
E/W: Starland North Dr/ Village Square
City, State: Hanover, MA
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File Name : 133679 AA
Site Code : 12511.00
Start Date : 12/28/2013
Page No : 1

Groups Printed- Cars

	Washington Street Route 53) From North				Starland North Driveway From East				Washington Street Route 53) From South				Village Square From West				
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Int. Total
11:00 AM	6	201	18	0	52	0	27	0	5	203	1	0	0	0	4	0	517
11:15 AM	4	197	9	0	15	5	7	0	7	198	2	0	1	0	5	0	450
11:30 AM	6	191	30	0	9	0	1	0	9	222	1	0	3	0	3	0	475
11:45 AM	2	206	37	0	8	1	5	0	26	230	4	0	5	6	0	0	530
Total	18	795	94	0	84	6	40	0	47	853	8	0	9	6	12	0	1972
12:00 PM	3	223	30	0	58	0	15	0	3	226	3	0	3	0	0	0	564
12:15 PM	0	220	21	0	53	1	6	0	7	253	4	0	2	0	1	0	568
12:30 PM	2	222	11	0	8	0	0	0	5	216	1	0	4	0	0	0	469
12:45 PM	1	228	29	0	13	0	2	0	6	233	4	0	6	0	1	0	523
Total	6	893	91	0	132	1	23	0	21	928	12	0	15	0	2	0	2124
Grand Total	24	1688	185	0	216	7	63	0	68	1781	20	0	24	6	14	0	4096
Apprch %	1.3	89	9.8	0	75.5	2.4	22	0	3.6	95.3	1.1	0	54.5	13.6	31.8	0	
Total %	0.6	41.2	4.5	0	5.3	0.2	1.5	0	1.7	43.5	0.5	0	0.6	0.1	0.3	0	

	Washington Street Route 53) From North					Starland North Driveway From East					Washington Street Route 53) From South					Village Square From West					
Start Time	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	Int. Total
Peak Hour Analysis From 11:00 AM to 12:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 11:30 AM																					
11:30 AM	**6**	191	30	0	227	9	0	1	0	10	9	222	1	0	232	3	0	**3**	0	6	475
11:45 AM	2	206	**37**	0	245	8	**1**	5	0	14	**26**	230	**4**	0	260	**5**	**6**	0	0	**11**	530
12:00 PM	3	**223**	30	0	**256**	**58**	0	**15**	0	**73**	3	226	3	0	232	3	0	0	0	3	564
12:15 PM	0	220	21	0	241	53	1	6	0	60	7	**253**	4	0	**264**	2	0	1	0	3	**568**
Total Volume	11	840	118	0	969	128	2	27	0	157	45	931	12	0	988	13	6	4	0	23	2137
% App. Total	1.1	86.7	12.2	0		81.5	1.3	17.2	0		4.6	94.2	1.2	0		56.5	26.1	17.4	0		
PHF	.458	.942	.797	.000	.946	.552	.500	.450	.000	.538	.433	.920	.750	.000	.936	.650	.250	.333	.000	.523	.941

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Groups Printed- Heavy Vehicles

	Washington Street Route 53) From North				Starland North Driveway From East				Washington Street Route 53) From South				Village Square From West				
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Int. Total
11:00 AM	0	3	0	0	0	0	0	0	0	4	0	0	0	0	0	0	7
11:15 AM	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	2
11:30 AM	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4
11:45 AM	0	3	0	0	0	0	0	0	0	4	0	0	0	0	0	0	7
Total	0	11	0	0	0	0	0	0	0	9	0	0	0	0	0	0	20
12:00 PM	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	2
12:15 PM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
12:30 PM	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	2
12:45 PM	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	2
Total	0	3	0	0	1	0	0	0	0	3	0	0	0	0	0	0	7
Grand Total	0	14	0	0	1	0	0	0	0	12	0	0	0	0	0	0	27
Apprch %	0	100	0	0	100	0	0	0	0	100	0	0	0	0	0	0	
Total %	0	51.9	0	0	3.7	0	0	0	0	44.4	0	0	0	0	0	0	

	Washington Street Route 53) From North					Starland North Driveway From East					Washington Street Route 53) From South					Village Square From West					
Start Time	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	Int. Total
Peak Hour Analysis From 11:00 AM to 12:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 11:00 AM																					
11:00 AM	0	3	0	0	3	0	0	0	0	0	0	**4**	0	0	**4**	0	0	0	0	0	**7**
11:15 AM	0	1	0	0	1	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	2
11:30 AM	0	**4**	0	0	**4**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4
11:45 AM	0	3	0	0	3	0	0	0	0	0	0	4	0	0	4	0	0	0	0	0	7
Total Volume	0	11	0	0	11	0	0	0	0	0	0	9	0	0	9	0	0	0	0	0	20
% App. Total	0	100	0	0		0	0	0	0		0	100	0	0		0	0	0	0		
PHF	.000	.688	.000	.000	.688	.000	.000	.000	.000	.000	.000	.563	.000	.000	.563	.000	.000	.000	.000	.000	.714

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Groups Printed- Peds and Bicycles

	Washington Street Route 53) From North				Starland North Driveway From East				Washington Street Route 53) From South				Village Square From West				
Start Time	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Int. Total
11:00 AM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1
11:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:45 AM	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	2
Total	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	3
12:00 PM	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	2
12:15 PM	0	0	0	6	0	0	0	0	0	0	0	6	0	0	0	0	12
12:30 PM	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	2
12:45 PM	0	0	0	0	0	0	0	0	0	0	0	9	0	0	0	0	9
Total	0	0	0	8	0	0	0	0	0	0	0	17	0	0	0	0	25
Grand Total	0	0	0	8	0	0	0	0	0	0	0	20	0	0	0	0	28
Apprch %	0	0	0	100	0	0	0	0	0	0	0	100	0	0	0	0	
Total %	0	0	0	28.6	0	0	0	0	0	0	0	71.4	0	0	0	0	

	Washington Street Route 53) From North					Starland North Driveway From East					Washington Street Route 53) From South					Village Square From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 11:00 AM to 12:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 12:00 PM																					
12:00 PM	0	0	0	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
12:15 PM	0	0	0	**6**	**6**	0	0	0	0	0	0	0	0	6	6	0	0	0	0	0	**12**
12:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2	0	0	0	0	0	2
12:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	**9**	**9**	0	0	0	0	0	9
Total Volume	0	0	0	8	8	0	0	0	0	0	0	0	0	17	17	0	0	0	0	0	25
% App. Total	0	0	0	100		0	0	0	0		0	0	0	100		0	0	0	0		
PHF	.000	.000	.000	.333	.333	.000	.000	.000	.000	.000	.000	.000	.000	.472	.472	.000	.000	.000	.000	.000	.521

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Start Date : 12/28/2013
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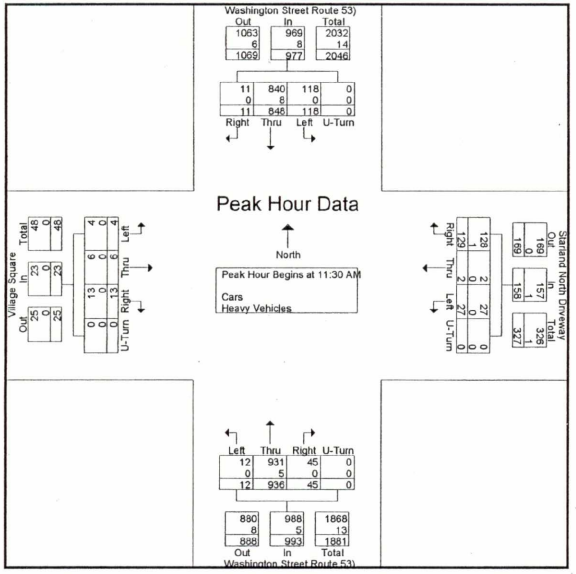
	Washington Street Route 53) From North					Starland North Driveway From East					Washington Street Route 53) From South					Village Square From West					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 11:00 AM to 12:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 11:30 AM																					
11:30 AM	**6**	195	30	0	231	9	0	1	0	10	9	222	1	0	232	3	0	**3**	0	6	479
11:45 AM	2	209	**37**	0	248	8	**1**	5	0	14	**26**	234	**4**	0	264	**5**	**6**	0	0	**11**	537
12:00 PM	3	**224**	30	0	**257**	**59**	0	**15**	0	**74**	3	226	3	0	232	3	0	0	0	3	566
12:15 PM	0	220	21	0	241	53	1	6	0	60	7	**254**	4	0	**265**	2	0	1	0	3	**569**
Total Volume	11	848	118	0	977	129	2	27	0	158	45	936	12	0	993	13	6	4	0	23	2151
% App. Total	1.1	86.8	12.1	0		81.6	1.3	17.1	0		4.5	94.3	1.2	0		56.5	26.1	17.4	0		
PHF	.458	.946	.797	.000	.950	.547	.500	.450	.000	.534	.433	.921	.750	.000	.937	.650	.250	.333	.000	.523	.945
Cars	11	840	118	0	969	128	2	27	0	157	45	931	12	0	988	13	6	4	0	23	2137
% Cars	100	99.1	100	0	99.2	99.2	100	100	0	99.4	100	99.5	100	0	99.5	100	100	100	0	100	99.3
Heavy Vehicles	0	8	0	0	8	1	0	0	0	1	0	5	0	0	5	0	0	0	0	0	14
% Heavy Vehicles	0	0.9	0	0	0.8	0.8	0	0	0	0.6	0	0.5	0	0	0.5	0	0	0	0	0	0.7



N/S: Washington Street (Route 53)
E/W: Starland North Dr/ Village Square
City, State: Hanover, MA
Client: VHB/ K. Keen

PRECISION DATA INDUSTRIES, LLC
P.O. Box 301 Berlin, MA 01503
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Email: datarequests@pdillc.com

File Name : 133679 AAA
Site Code : 12511.00
Start Date : 12/29/2013
Page No : 1

Groups Printed- Cars - Heavy Vehicles

	Washington Street Route 53) From North				Starland North Driveway From East				Washington Street Route 53) From South				Village Square From West				
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Int. Total
11:00 AM	0	147	0	0	20	0	7	0	0	153	0	0	0	0	0	0	327
11:15 AM	0	146	0	0	26	0	3	0	0	177	0	0	0	0	0	0	352
11:30 AM	5	141	0	0	25	0	7	0	0	177	0	0	0	0	0	0	355
11:45 AM	0	159	0	0	10	0	1	0	1	186	3	1	3	0	0	0	364
Total	5	593	0	0	81	0	18	0	1	693	3	1	3	0	0	0	1398
12:00 PM	0	210	0	0	4	0	1	0	0	204	2	0	1	0	0	0	422
12:15 PM	2	216	0	0	23	0	2	0	0	207	2	0	3	0	0	0	455
12:30 PM	2	224	0	0	51	0	16	0	1	188	2	1	4	0	0	0	489
12:45 PM	0	201	0	0	8	0	5	0	0	184	3	1	2	0	0	0	404
Total	4	851	0	0	86	0	24	0	1	783	9	2	10	0	0	0	1770
Grand Total	9	1444	0	0	167	0	42	0	2	1476	12	3	13	0	0	0	3168
Apprch %	0.6	99.4	0	0	79.9	0	20.1	0	0.1	98.9	0.8	0.2	100	0	0	0	
Total %	0.3	45.6	0	0	5.3	0	1.3	0	0.1	46.6	0.4	0.1	0.4	0	0	0	
Cars	9	1437	0	0	167	0	42	0	2	1472	12	3	13	0	0	0	3157
% Cars	100	99.5	0	0	100	0	100	0	100	99.7	100	100	100	0	0	0	99.7
Heavy Vehicles	0	7	0	0	0	0	0	0	0	4	0	0	0	0	0	0	11
% Heavy Vehicles	0	0.5	0	0	0	0	0	0	0	0.3	0	0	0	0	0	0	0.3

	Washington Street Route 53) From North					Starland North Driveway From East					Washington Street Route 53) From South					Village Square From West					
Start Time	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	Int. Total
Peak Hour Analysis From 11:00 AM to 12:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 12:00 PM																					
12:00 PM	0	210	0	0	210	4	0	1	0	5	0	204	2	0	206	1	0	0	0	1	422
12:15 PM	**2**	216	0	0	218	23	0	2	0	25	0	**207**	2	0	**209**	3	0	0	0	3	455
12:30 PM	2	**224**	0	0	**226**	**51**	0	**16**	0	**67**	**1**	188	2	**1**	192	**4**	0	0	0	**4**	**489**
12:45 PM	0	201	0	0	201	8	0	5	0	13	0	184	**3**	1	188	2	0	0	0	2	404
Total Volume	4	851	0	0	855	86	0	24	0	110	1	783	9	2	795	10	0	0	0	10	1770
% App. Total	0.5	99.5	0	0		78.2	0	21.8	0		0.1	98.5	1.1	0.3		100	0	0	0		
PHF	.500	.950	.000	.000	.946	.422	.000	.375	.000	.410	.250	.946	.750	.500	.951	.625	.000	.000	.000	.625	.905
Cars	4	849	0	0	853	86	0	24	0	110	1	780	9	2	792	10	0	0	0	10	1765
% Cars	100	99.8	0	0	99.8	100	0	100	0	100	100	99.6	100	100	99.6	100	0	0	0	100	99.7
Heavy Vehicles	0	2	0	0	2	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	5
% Heavy Vehicles	0	0.2	0	0	0.2	0	0	0	0	0	0	0.4	0	0	0.4	0	0	0	0	0	0.3

N/S: Washington Street (Route 53)
E/W: Starland North Dr/ Village Square
City, State: Hanover, MA
Client: VHB/ K. Keen

PRECISION D A T A INDUSTRIES, LLC
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File Name : 133679 AAA
Site Code : 12511.00
Start Date : 12/29/2013
Page No : 1

Groups Printed- Cars

	Washington Street Route 53) From North				Starland North Driveway From East				Washington Street Route 53) From South				Village Square From West				
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Int. Total
11:00 AM	0	147	0	0	20	0	7	0	0	152	0	0	0	0	0	0	326
11:15 AM	0	144	0	0	26	0	3	0	0	177	0	0	0	0	0	0	350
11:30 AM	5	139	0	0	25	0	7	0	0	177	0	0	0	0	0	0	353
11:45 AM	0	158	0	0	10	0	1	0	1	186	3	1	3	0	0	0	363
Total	5	588	0	0	81	0	18	0	1	692	3	1	3	0	0	0	1392
12:00 PM	0	210	0	0	4	0	1	0	0	204	2	0	1	0	0	0	422
12:15 PM	2	216	0	0	23	0	2	0	0	205	2	0	3	0	0	0	453
12:30 PM	2	223	0	0	51	0	16	0	1	187	2	1	4	0	0	0	487
12:45 PM	0	200	0	0	8	0	5	0	0	184	3	1	2	0	0	0	403
Total	4	849	0	0	86	0	24	0	1	780	9	2	10	0	0	0	1765
Grand Total	9	1437	0	0	167	0	42	0	2	1472	12	3	13	0	0	0	3157
Apprch %	0.6	99.4	0	0	79.9	0	20.1	0	0.1	98.9	0.8	0.2	100	0	0	0	
Total %	0.3	45.5	0	0	5.3	0	1.3	0	0.1	46.6	0.4	0.1	0.4	0	0	0	

	Washington Street Route 53) From North					Starland North Driveway From East					Washington Street Route 53) From South					Village Square From West					
Start Time	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	Int. Total
Peak Hour Analysis From 11:00 AM to 12:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 12:00 PM																					
12:00 PM	0	210	0	0	210	4	0	1	0	5	0	204	2	0	206	1	0	0	0	1	422
12:15 PM	**2**	216	0	0	218	23	0	2	0	25	0	**205**	2	0	**207**	3	0	0	0	3	453
12:30 PM	2	**223**	0	0	**225**	**51**	0	**16**	0	**67**	**1**	187	2	**1**	191	**4**	0	0	0	**4**	**487**
12:45 PM	0	200	0	0	200	8	0	5	0	13	0	184	**3**	1	188	2	0	0	0	2	403
Total Volume	4	849	0	0	853	86	0	24	0	110	1	780	9	2	792	10	0	0	0	10	1765
% App. Total	0.5	99.5	0	0		78.2	0	21.8	0		0.1	98.5	1.1	0.3		100	0	0	0		
PHF	.500	.952	.000	.000	.948	.422	.000	.375	.000	.410	.250	.951	.750	.500	.957	.625	.000	.000	.000	.625	.906

N/S: Washington Street (Route 53)
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File Name : 133679 AAA
Site Code : 12511.00
Start Date : 12/29/2013
Page No : 1

Groups Printed- Heavy Vehicles

	Washington Street Route 53) From North				Starland North Driveway From East				Washington Street Route 53) From South				Village Square From West				
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Int. Total
11:00 AM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
11:15 AM	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
11:30 AM	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
11:45 AM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Total	0	5	0	0	0	0	0	0	0	1	0	0	0	0	0	0	6
12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:15 PM	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	2
12:30 PM	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	2
12:45 PM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Total	0	2	0	0	0	0	0	0	0	3	0	0	0	0	0	0	5
Grand Total	0	7	0	0	0	0	0	0	0	4	0	0	0	0	0	0	11
Apprch %	0	100	0	0	0	0	0	0	0	100	0	0	0	0	0	0	
Total %	0	63.6	0	0	0	0	0	0	0	36.4	0	0	0	0	0	0	

	Washington Street Route 53) From North					Starland North Driveway From East					Washington Street Route 53) From South					Village Square From West					
Start Time	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	Int. Total
Peak Hour Analysis From 11:00 AM to 12:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 11:00 AM																					
11:00 AM	0	0	0	0	0	0	0	0	0	0	0	**1**	0	0	**1**	0	0	0	0	0	1
11:15 AM	0	**2**	0	0	**2**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**2**
11:30 AM	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
11:45 AM	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Total Volume	0	5	0	0	5	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	6
% App. Total	0	100	0	0		0	0	0	0		0	100	0	0		0	0	0	0		
PHF	.000	.625	.000	.000	.625	.000	.000	.000	.000	.000	.000	.250	.000	.000	.250	.000	.000	.000	.000	.000	.750

N/S: Washington Street (Route 53)
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File Name : 133679 AAA
Site Code : 12511.00
Start Date : 12/29/2013
Page No : 1

Groups Printed- Peds and Bicycles

	Washington Street Route 53) From North				Starland North Driveway From East				Washington Street Route 53) From South				Village Square From West				
Start Time	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Int. Total
11:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Apprch %	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Total %																	

	Washington Street Route 53) From North					Starland North Driveway From East					Washington Street Route 53) From South					Village Square From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 11:00 AM to 12:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 11:00 AM																					
11:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0	0	0		0	0	0	0		0	0	0	0		0	0	0	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

N/S: Washington Street (Route 53)
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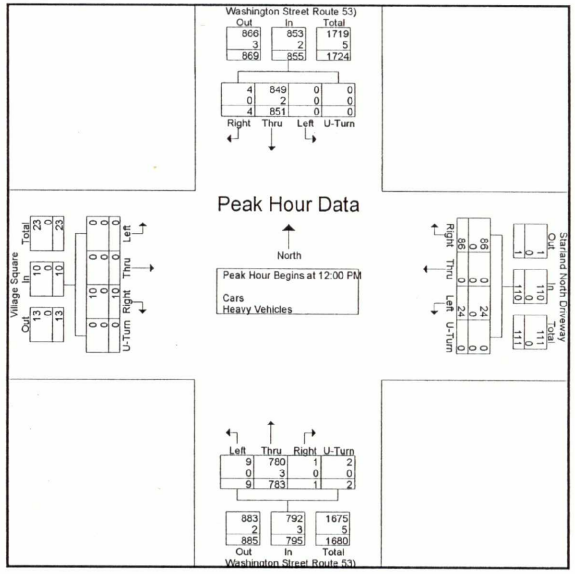
	Washington Street Route 53) From North					Starland North Driveway From East					Washington Street Route 53) From South					Village Square From West					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 11:00 AM to 12:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 12:00 PM																					
12:00 PM	0	210	0	0	210	4	0	1	0	5	0	204	2	0	206	1	0	0	0	1	422
12:15 PM	2	216	0	0	218	23	0	2	0	25	0	**207**	2	0	**209**	3	0	0	0	3	455
12:30 PM	2	**224**	0	0	**226**	**51**	0	**16**	0	**67**	**1**	188	2	**1**	192	**4**	0	0	0	**4**	**489**
12:45 PM	0	201	0	0	201	8	0	5	0	13	0	184	3	1	188	2	0	0	0	2	404
Total Volume	4	851	0	0	855	86	0	24	0	110	1	783	9	2	795	10	0	0	0	10	1770
% App. Total	0.5	99.5	0	0		78.2	0	21.8	0		0.1	98.5	1.1	0.3		100	0	0	0		
PHF	.500	.950	.000	.000	.946	.422	.000	.375	.000	.410	.250	.946	.750	.500	.951	.625	.000	.000	.000	.625	.905
Cars	4	849	0	0	853	86	0	24	0	110	1	780	9	2	792	10	0	0	0	10	1765
% Cars	100	99.8	0	0	99.8	100	0	100	0	100	100	99.6	100	100	99.6	100	0	0	0	100	99.7
Heavy Vehicles	0	2	0	0	2	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	5
% Heavy Vehicles	0	0.2	0	0	0.2	0	0	0	0	0	0	0.4	0	0	0.4	0	0	0	0	0	0.3



N/S: Washington Street (Route 53)
E/W: Starland South Dr/ Dealership Dr
City, State: Hanover, MA
Client: VHB/ K. Keen

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File Name : 133679 B
Site Code : 12511.00
Start Date : 12/27/2013
Page No : 1

Groups Printed- Cars - Heavy Vehicles

	Washington Street Route 53) From North				Starland South Driveway From East				Washington Street Route 53) From South				Car Dealership Driveway From West				
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Int. Total
04:00 PM	2	322	0	3	0	0	0	0	0	174	2	0	6	0	1	0	510
04:15 PM	7	286	1	0	0	0	0	0	4	206	3	0	10	0	2	0	519
04:30 PM	2	249	5	1	0	0	0	0	5	175	5	0	5	0	1	0	448
04:45 PM	2	252	2	0	0	0	0	0	8	201	5	0	13	0	2	0	485
Total	13	1109	8	4	0	0	0	0	17	756	15	0	34	0	6	0	1962
05:00 PM	1	291	3	0	0	0	0	0	1	145	0	1	11	0	2	0	455
05:15 PM	1	247	0	1	0	0	0	0	0	162	2	0	2	0	1	0	416
05:30 PM	0	219	1	1	0	0	0	0	0	130	0	0	3	0	1	0	355
05:45 PM	1	231	2	0	1	0	0	0	0	164	0	0	4	0	1	0	404
Total	3	988	6	2	1	0	0	0	1	601	2	1	20	0	5	0	1630
Grand Total	16	2097	14	6	1	0	0	0	18	1357	17	1	54	0	11	0	3592
Apprch %	0.8	98.3	0.7	0.3	100	0	0	0	1.3	97.4	1.2	0.1	83.1	0	16.9	0	
Total %	0.4	58.4	0.4	0.2	0	0	0	0	0.5	37.8	0.5	0	1.5	0	0.3	0	
Cars	15	2084	14	6	1	0	0	0	18	1352	16	1	53	0	9	0	3569
% Cars	93.8	99.4	100	100	100	0	0	0	100	99.6	94.1	100	98.1	0	81.8	0	99.4
Heavy Vehicles	1	13	0	0	0	0	0	0	0	5	1	0	1	0	2	0	23
% Heavy Vehicles	6.2	0.6	0	0	0	0	0	0	0	0.4	5.9	0	1.9	0	18.2	0	0.6

	Washington Street Route 53) From North					Starland South Driveway From East					Washington Street Route 53) From South					Car Dealership Driveway From West					
Start Time	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	Int. 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	2	**322**	0	**3**	**327**	0	0	0	0	0	0	174	2	0	176	6	0	1	0	7	510
04:15 PM	7	286	1	0	294	0	0	0	0	0	4	**206**	3	0	213	10	0	**2**	0	12	**519**
04:30 PM	2	249	**5**	1	257	0	0	0	0	0	5	175	**5**	0	185	5	0	1	0	6	448
04:45 PM	2	252	2	0	256	0	0	0	0	0	**8**	201	5	0	**214**	**13**	0	2	0	**15**	485
Total Volume	13	1109	8	4	1134	0	0	0	0	0	17	756	15	0	788	34	0	6	0	40	1962
% App. Total	1.1	97.8	0.7	0.4		0	0	0	0		2.2	95.9	1.9	0		85	0	15	0		
PHF	.464	.861	.400	.333	.867	.000	.000	.000	.000	.000	.531	.917	.750	.000	.921	.654	.000	.750	.000	.667	.945
Cars	12	1101	8	4	1125	0	0	0	0	0	17	754	14	0	785	33	0	4	0	37	1947
% Cars	92.3	99.3	100	100	99.2	0	0	0	0	0	100	99.7	93.3	0	99.6	97.1	0	66.7	0	92.5	99.2
Heavy Vehicles	1	8	0	0	9	0	0	0	0	0	0	2	1	0	3	1	0	2	0	3	15
%Heavy Vehicles	7.7	0.7	0	0	0.8	0	0	0	0	0	0	0.3	6.7	0	0.4	2.9	0	33.3	0	7.5	0.8

N/S: Washington Street (Route 53)
E/W: Starland South Dr/ Dealership Dr
City, State: Hanover, MA
Client: VHB/ K. Keen

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Site Code : 12511.00
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Groups Printed- Cars

	Washington Street Route 53) From North				Starland South Driveway From East				Washington Street Route 53) From South				Car Dealership Driveway From West				
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Int. Total
04:00 PM	2	321	0	3	0	0	0	0	0	174	2	0	6	0	1	0	509
04:15 PM	6	284	1	0	0	0	0	0	4	205	3	0	9	0	1	0	513
04:30 PM	2	246	5	1	0	0	0	0	5	174	4	0	5	0	0	0	442
04:45 PM	2	250	2	0	0	0	0	0	8	201	5	0	13	0	2	0	483
Total	12	1101	8	4	0	0	0	0	17	754	14	0	33	0	4	0	1947
05:00 PM	1	289	3	0	0	0	0	0	1	145	0	1	11	0	2	0	453
05:15 PM	1	247	0	1	0	0	0	0	0	161	2	0	2	0	1	0	415
05:30 PM	0	218	1	1	0	0	0	0	0	129	0	0	3	0	1	0	353
05:45 PM	1	229	2	0	1	0	0	0	0	163	0	0	4	0	1	0	401
Total	3	983	6	2	1	0	0	0	1	598	2	1	20	0	5	0	1622
Grand Total	15	2084	14	6	1	0	0	0	18	1352	16	1	53	0	9	0	3569
Apprch %	0.7	98.3	0.7	0.3	100	0	0	0	1.3	97.5	1.2	0.1	85.5	0	14.5	0	
Total %	0.4	58.4	0.4	0.2	0	0	0	0	0.5	37.9	0.4	0	1.5	0	0.3	0	

	Washington Street Route 53) From North					Starland South Driveway From East					Washington Street Route 53) From South					Car Dealership Driveway From West					
Start Time	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	Int. 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	2	**321**	0	**3**	**326**	0	0	0	0	0	0	174	2	0	176	6	0	1	0	7	509
04:15 PM	**6**	284	1	0	291	0	0	0	0	0	4	**205**	3	0	212	9	0	1	0	10	**513**
04:30 PM	2	246	**5**	1	254	0	0	0	0	0	5	174	4	0	183	5	0	0	0	5	442
04:45 PM	2	250	2	0	254	0	0	0	0	0	**8**	201	**5**	0	**214**	**13**	0	**2**	0	**15**	483
Total Volume	12	1101	8	4	1125	0	0	0	0	0	17	754	14	0	785	33	0	4	0	37	1947
% App. Total	1.1	97.9	0.7	0.4		0	0	0	0		2.2	96.1	1.8	0		89.2	0	10.8	0		
PHF	.500	.857	.400	.333	.863	.000	.000	.000	.000	.000	.531	.920	.700	.000	.917	.635	.000	.500	.000	.617	.949

N/S: Washington Street (Route 53)
E/W: Starland South Dr/ Dealership Dr
City, State: Hanover, MA
Client: VHB/ K. Keen

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File Name : 133679 B
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Groups Printed- Heavy Vehicles

	Washington Street Route 53) From North				Starland South Driveway From East				Washington Street Route 53) From South				Car Dealership Driveway From West				
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Int. Total
04:00 PM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
04:15 PM	1	2	0	0	0	0	0	0	0	1	0	0	1	0	1	0	6
04:30 PM	0	3	0	0	0	0	0	0	0	1	1	0	0	0	1	0	6
04:45 PM	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
Total	1	8	0	0	0	0	0	0	0	2	1	0	1	0	2	0	15
05:00 PM	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
05:15 PM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
05:30 PM	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	2
05:45 PM	0	2	0	0	0	0	0	0	0	1	0	0	0	0	0	0	3
Total	0	5	0	0	0	0	0	0	0	3	0	0	0	0	0	0	8
Grand Total	1	13	0	0	0	0	0	0	0	5	1	0	1	0	2	0	23
Apprch %	7.1	92.9	0	0	0	0	0	0	0	83.3	16.7	0	33.3	0	66.7	0	
Total %	4.3	56.5	0	0	0	0	0	0	0	21.7	4.3	0	4.3	0	8.7	0	

	Washington Street Route 53) From North					Starland South Driveway From East					Washington Street Route 53) From South					Car Dealership Driveway From West					
Start Time	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	Int. 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	**1**	2	0	0	**3**	0	0	0	0	0	0	**1**	0	0	1	**1**	0	**1**	0	**2**	**6**
04:30 PM	0	**3**	0	0	3	0	0	0	0	0	0	1	**1**	0	**2**	0	0	1	0	1	6
04:45 PM	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
05:00 PM	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
Total Volume	1	9	0	0	10	0	0	0	0	0	0	2	1	0	3	1	0	2	0	3	16
% App. Total	10	90	0	0		0	0	0	0		0	66.7	33.3	0		33.3	0	66.7	0		
PHF	.250	.750	.000	.000	.833	.000	.000	.000	.000	.000	.000	.500	.250	.000	.375	.250	.000	.500	.000	.375	.667

N/S: Washington Street (Route 53)
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Groups Printed- Peds and Bicycles

	Washington Street Route 53) From North				Starland South Driveway From East				Washington Street Route 53) From South				Car Dealership Driveway From West				
Start Time	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Int. Total
04:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
Grand Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
Apprch %	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	100	
Total %	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	100	

	Washington Street Route 53) From North					Starland South Driveway From East					Washington Street Route 53) From South					Car Dealership Driveway From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. 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	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**1**	**1**	**1**
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1
% App. Total	0	0	0	0		0	0	0	0		0	0	0	0		0	0	0	100		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.250	.250	.250

N/S: Washington Street (Route 53)
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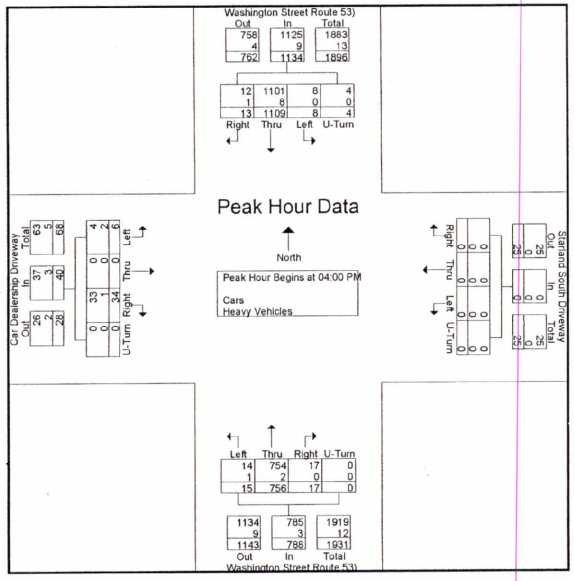
	Washington Street Route 53) From North					Starland South Driveway From East					Washington Street Route 53) From South					Car Dealership Driveway From West					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. 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	2	**322**	0	**3**	**327**	0	0	0	0	0	0	174	2	0	176	6	0	1	0	7	510
04:15 PM	**7**	286	1	0	294	0	0	0	0	0	4	**206**	3	0	213	10	0	**2**	0	12	**519**
04:30 PM	2	249	**5**	1	257	0	0	0	0	0	5	175	**5**	0	185	5	0	1	0	6	**448**
04:45 PM	2	252	2	0	256	0	0	0	0	0	**8**	201	5	0	**214**	**13**	0	2	0	**15**	485
Total Volume	13	1109	8	4	1134	0	0	0	0	0	17	756	15	0	788	34	0	6	0	40	1962
% App. Total	1.1	97.8	0.7	0.4		0	0	0	0		2.2	95.9	1.9	0		85	0	15	0		
PHF	.464	.861	.400	.333	.867	.000	.000	.000	.000	.000	.531	.917	.750	.000	.921	.654	.000	.750	.000	.667	.945
Cars	12	1101	8	4	1125	0	0	0	0	0	17	754	14	0	785	33	0	4	0	37	1947
% Cars	92.3	99.3	100	100	99.2	0	0	0	0	0	100	99.7	93.3	0	99.6	97.1	0	66.7	0	92.5	99.2
Heavy Vehicles	1	8	0	0	9	0	0	0	0	0	0	2	1	0	3	1	0	2	0	3	15
% Heavy Vehicles	7.7	0.7	0	0	0.8	0	0	0	0	0	0	0.3	6.7	0	0.4	2.9	0	33.3	0	7.5	0.8



N/S: Washington Street (Route 53)
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Groups Printed- Cars - Heavy Vehicles

	Washington Street Route 53) From North				Starland South Driveway From East				Washington Street Route 53) From South				Car Dealership Driveway From West				
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Int. Total
11:00 AM	2	225	1	0	0	0	0	0	6	212	4	0	9	0	1	0	460
11:15 AM	5	197	4	0	1	0	1	0	2	210	3	0	6	0	0	0	429
11:30 AM	1	198	1	0	0	0	0	0	4	229	4	0	7	0	1	0	445
11:45 AM	7	203	6	0	0	0	0	0	13	266	3	0	7	0	0	0	505
Total	15	823	12	0	1	0	1	0	25	917	14	0	29	0	2	0	1839
12:00 PM	3	237	4	0	3	0	2	0	9	232	4	0	4	0	0	0	498
12:15 PM	8	215	2	0	5	0	1	0	6	252	3	0	6	0	1	0	499
12:30 PM	5	221	3	0	2	0	2	0	3	217	3	0	6	0	5	0	467
12:45 PM	5	229	3	0	0	0	0	0	7	244	3	0	11	0	1	0	503
Total	21	902	12	0	10	0	5	0	25	945	13	0	27	0	7	0	1967
Grand Total	36	1725	24	0	11	0	6	0	50	1862	27	0	56	0	9	0	3806
Apprch %	2	96.6	1.3	0	64.7	0	35.3	0	2.6	96	1.4	0	86.2	0	13.8	0	
Total %	0.9	45.3	0.6	0	0.3	0	0.2	0	1.3	48.9	0.7	0	1.5	0	0.2	0	
Cars	35	1711	24	0	11	0	6	0	50	1849	27	0	55	0	9	0	3777
% Cars	97.2	99.2	100	0	100	0	100	0	100	99.3	100	0	98.2	0	100	0	99.2
Heavy Vehicles	1	14	0	0	0	0	0	0	0	13	0	0	1	0	0	0	29
% Heavy Vehicles	2.8	0.8	0	0	0	0	0	0	0	0.7	0	0	1.8	0	0	0	0.8

	Washington Street Route 53) From North					Starland South Driveway From East					Washington Street Route 53) From South					Car Dealership Driveway From West					
Start Time	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	Int. Total
Peak Hour Analysis From 11:00 AM to 12:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 11:45 AM																					
11:45 AM	7	203	**6**	0	216	0	0	0	0	0	**13**	**266**	3	0	**282**	7	0	0	0	7	**505**
12:00 PM	3	**237**	4	0	**244**	3	0	**2**	0	5	9	232	**4**	0	245	4	0	0	0	4	498
12:15 PM	**8**	215	2	0	225	**5**	0	1	0	**6**	6	252	3	0	261	6	0	1	0	7	499
12:30 PM	5	221	3	0	229	2	0	2	0	4	3	217	3	0	223	6	0	**5**	0	**11**	467
Total Volume	23	876	15	0	914	10	0	5	0	15	31	967	13	0	1011	23	0	6	0	29	1969
% App. Total	2.5	95.8	1.6	0		66.7	0	33.3	0		3.1	95.6	1.3	0		79.3	0	20.7	0		
PHF	.719	.924	.625	.000	.936	.500	.000	.625	.000	.625	.596	.909	.813	.000	.896	.821	.000	.300	.000	.659	.975
Cars	22	871	15	0	908	10	0	5	0	15	31	960	13	0	1004	22	0	6	0	28	1955
% Cars	95.7	99.4	100	0	99.3	100	0	100	0	100	100	99.3	100	0	99.3	95.7	0	100	0	96.6	99.3
Heavy Vehicles	1	5	0	0	6	0	0	0	0	0	0	7	0	0	7	1	0	0	0	1	14
% Heavy Vehicles	4.3	0.6	0	0	0.7	0	0	0	0	0	0	0.7	0	0	0.7	4.3	0	0	0	3.4	0.7

N/S: Washington Street (Route 53)
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Groups Printed- Cars

	Washington Street Route 53) From North				Starland South Driveway From East				Washington Street Route 53) From South				Car Dealership Driveway From West				
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Int. Total
11:00 AM	2	222	1	0	0	0	0	0	6	208	4	0	9	0	1	0	453
11:15 AM	5	196	4	0	1	0	1	0	2	209	3	0	6	0	0	0	427
11:30 AM	1	194	1	0	0	0	0	0	4	229	4	0	7	0	1	0	441
11:45 AM	6	201	6	0	0	0	0	0	13	262	3	0	7	0	0	0	498
Total	14	813	12	0	1	0	1	0	25	908	14	0	29	0	2	0	1819
12:00 PM	3	236	4	0	3	0	2	0	9	232	4	0	4	0	0	0	497
12:15 PM	8	214	2	0	5	0	1	0	6	250	3	0	5	0	1	0	495
12:30 PM	5	220	3	0	2	0	2	0	3	216	3	0	6	0	5	0	465
12:45 PM	5	228	3	0	0	0	0	0	7	243	3	0	11	0	1	0	501
Total	21	898	12	0	10	0	5	0	25	941	13	0	26	0	7	0	1958
Grand Total	35	1711	24	0	11	0	6	0	50	1849	27	0	55	0	9	0	3777
Apprch %	2	96.7	1.4	0	64.7	0	35.3	0	2.6	96	1.4	0	85.9	0	14.1	0	
Total %	0.9	45.3	0.6	0	0.3	0	0.2	0	1.3	49	0.7	0	1.5	0	0.2	0	

	Washington Street Route 53) From North					Starland South Driveway From East					Washington Street Route 53) From South					Car Dealership Driveway From West					
Start Time	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	Int. Total
Peak Hour Analysis From 11:00 AM to 12:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 12:00 PM																					
12:00 PM	3	**236**	**4**	0	**243**	3	0	**2**	0	5	**9**	232	**4**	0	245	4	0	0	0	4	497
12:15 PM	**8**	214	2	0	224	**5**	0	1	0	**6**	6	**250**	3	0	**259**	5	0	1	0	6	495
12:30 PM	5	220	3	0	228	2	0	2	0	4	3	216	3	0	222	6	0	**5**	0	11	465
12:45 PM	5	228	**3**	0	236	0	0	0	0	0	7	243	3	0	253	**11**	0	1	0	**12**	**501**
Total Volume	21	898	12	0	931	10	0	5	0	15	25	941	13	0	979	26	0	7	0	33	1958
% App. Total	2.3	96.5	1.3	0		66.7	0	33.3	0		2.6	96.1	1.3	0		78.8	0	21.2	0		
PHF	.656	.951	.750	.000	.958	.500	.000	.625	.000	.625	.694	.941	.813	.000	.945	.591	.000	.350	.000	.688	.977

N/S: Washington Street (Route 53)
E/W: Starland South Dr/ Dealership Dr
City, State: Hanover, MA
Client: VHB/ K. Keen

PRECISION DATA INDUSTRIES, LLC
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File Name : 133679 BB
Site Code : 12511.00
Start Date : 12/28/2013
Page No : 1

Groups Printed- Heavy Vehicles

	Washington Street Route 53) From North				Starland South Driveway From East				Washington Street Route 53) From South				Car Dealership Driveway From West				
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Int. Total
11:00 AM	0	3	0	0	0	0	0	0	0	4	0	0	0	0	0	0	7
11:15 AM	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	2
11:30 AM	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4
11:45 AM	1	2	0	0	0	0	0	0	0	4	0	0	0	0	0	0	7
Total	1	10	0	0	0	0	0	0	0	9	0	0	0	0	0	0	20
12:00 PM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
12:15 PM	0	1	0	0	0	0	0	0	0	2	0	0	1	0	0	0	4
12:30 PM	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	2
12:45 PM	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	2
Total	0	4	0	0	0	0	0	0	0	4	0	0	1	0	0	0	9
Grand Total	1	14	0	0	0	0	0	0	0	13	0	0	1	0	0	0	29
Apprch %	6.7	93.3	0	0	0	0	0	0	0	100	0	0	100	0	0	0	
Total %	3.4	48.3	0	0	0	0	0	0	0	44.8	0	0	3.4	0	0	0	

	Washington Street Route 53) From North					Starland South Driveway From East					Washington Street Route 53) From South					Car Dealership Driveway From West					
Start Time	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	Int. Total
Peak Hour Analysis From 11:00 AM to 12:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 11:00 AM																					
11:00 AM	0	3	0	0	3	0	0	0	0	0	0	**4**	0	0	**4**	0	0	0	0	0	7
11:15 AM	0	1	0	0	1	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	2
11:30 AM	0	**4**	0	0	**4**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4
11:45 AM	**1**	2	0	0	3	0	0	0	0	0	0	4	0	0	4	0	0	0	0	0	7
Total Volume	1	10	0	0	11	0	0	0	0	0	0	9	0	0	9	0	0	0	0	0	20
% App. Total	9.1	90.9	0	0		0	0	0	0		0	100	0	0		0	0	0	0		
PHF	.250	.625	.000	.000	.688	.000	.000	.000	.000	.000	.000	.563	.000	.000	.563	.000	.000	.000	.000	.000	.714

N/S: Washington Street (Route 53)
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File Name : 133679 BB
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Page No : 1

Groups Printed- Peds and Bicycles

	Washington Street Route 53) From North				Starland South Driveway From East				Washington Street Route 53) From South				Car Dealership Driveway From West				
Start Time	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Int. Total
11:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Apprch %	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Total %																	

	Washington Street Route 53) From North					Starland South Driveway From East					Washington Street Route 53) From South					Car Dealership Driveway From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 11:00 AM to 12:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 11:00 AM																					
11:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0	0	0		0	0	0	0		0	0	0	0		0	0	0	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

N/S: Washington Street (Route 53)
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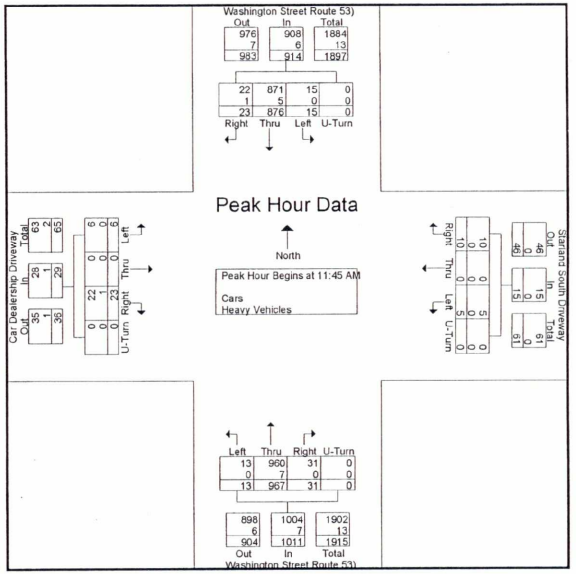
	Washington Street Route 53) From North					Starland South Driveway From East					Washington Street Route 53) From South					Car Dealership Driveway From West					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 11:00 AM to 12:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 11:45 AM																					
11:45 AM	7	203	**6**	0	216	0	0	0	0	0	**13**	**266**	3	0	**282**	7	0	0	0	7	**505**
12:00 PM	3	**237**	4	0	**244**	3	0	**2**	0	5	9	232	**4**	0	245	4	0	0	0	4	498
12:15 PM	**8**	215	2	0	225	**5**	0	1	0	**6**	6	252	3	0	261	6	0	1	0	7	499
12:30 PM	5	221	3	0	229	2	0	2	0	4	3	217	3	0	223	6	0	**5**	0	**11**	467
Total Volume	23	876	15	0	914	10	0	5	0	15	31	967	13	0	1011	23	0	6	0	29	1969
% App. Total	2.5	95.8	1.6	0		66.7	0	33.3	0		3.1	95.6	1.3	0		79.3	0	20.7	0		
PHF	.719	.924	.625	.000	.936	.500	.000	.625	.000	.625	.596	.909	.813	.000	.896	.821	.000	.300	.000	.659	.975
Cars	22	871	15	0	908	10	0	5	0	15	31	960	13	0	1004	22	0	6	0	28	1955
% Cars	95.7	99.4	100	0	99.3	100	0	100	0	100	100	99.3	100	0	99.3	95.7	0	100	0	96.6	99.3
Heavy Vehicles	1	5	0	0	6	0	0	0	0	0	0	7	0	0	7	1	0	0	0	1	14
% Heavy Vehicles	4.3	0.6	0	0	0.7	0	0	0	0	0	0	0.7	0	0	0.7	4.3	0	0	0	3.4	0.7



N/S: Washington Street (Route 53)
E/W: Starland South Dr/ Dealership Dr
City, State: Hanover, MA
Client: VHB/ K. Keen

PRECISION DATA INDUSTRIES, LLC
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File Name : 133679 BBB
Site Code : 12511.00
Start Date : 12/29/2013
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Groups Printed- Cars - Heavy Vehicles

	Washington Street Route 53) From North				Starland South Driveway From East				Washington Street Route 53) From South				Car Dealership Driveway From West				
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Int. Total
11:00 AM	0	139	14	0	1	0	1	0	3	148	2	0	0	0	0	0	308
11:15 AM	2	141	6	0	0	0	2	0	0	176	4	0	0	0	1	0	332
11:30 AM	3	129	12	0	1	0	0	0	2	175	2	0	1	0	0	0	325
11:45 AM	0	140	26	0	0	0	1	0	3	193	1	0	0	0	0	0	364
Total	5	549	58	0	2	0	4	0	8	692	9	0	1	0	1	0	1329
12:00 PM	0	156	32	0	1	0	0	0	16	205	6	0	1	0	0	0	417
12:15 PM	2	177	18	0	2	0	0	0	4	212	0	0	1	0	0	0	416
12:30 PM	0	219	12	0	5	0	3	0	4	183	1	0	1	0	0	0	428
12:45 PM	3	163	33	0	0	0	0	0	10	188	0	0	1	0	0	0	398
Total	5	715	95	0	8	0	3	0	34	788	7	0	4	0	0	0	1659
Grand Total	10	1264	153	0	10	0	7	0	42	1480	16	0	5	0	1	0	2988
Apprch %	0.7	88.6	10.7	0	58.8	0	41.2	0	2.7	96.2	1	0	83.3	0	16.7	0	
Total %	0.3	42.3	5.1	0	0.3	0	0.2	0	1.4	49.5	0.5	0	0.2	0	0	0	
Cars	10	1256	153	0	10	0	7	0	42	1476	16	0	5	0	1	0	2976
% Cars	100	99.4	100	0	100	0	100	0	100	99.7	100	0	100	0	100	0	99.6
Heavy Vehicles	0	8	0	0	0	0	0	0	0	4	0	0	0	0	0	0	12
% Heavy Vehicles	0	0.6	0	0	0	0	0	0	0	0.3	0	0	0	0	0	0	0.4

	Washington Street Route 53) From North					Starland South Driveway From East					Washington Street Route 53) From South					Car Dealership Driveway From West					
Start Time	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	Int. Total
Peak Hour Analysis From 11:00 AM to 12:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 12:00 PM																					
12:00 PM	0	156	32	0	188	1	0	0	0	1	**16**	205	**6**	0	**227**	**1**	0	0	0	**1**	417
12:15 PM	2	177	18	0	197	2	0	0	0	2	4	**212**	0	0	216	1	0	0	0	1	416
12:30 PM	0	**219**	12	0	**231**	**5**	0	**3**	0	**8**	4	183	1	0	188	1	0	0	0	1	**428**
12:45 PM	**3**	163	**33**	0	199	0	0	0	0	0	10	188	0	0	198	1	0	0	0	1	398
Total Volume	5	715	95	0	815	8	0	3	0	11	34	788	7	0	829	4	0	0	0	4	1659
% App. Total	0.6	87.7	11.7	0		72.7	0	27.3	0		4.1	95.1	0.8	0		100	0	0	0		
PHF	.417	.816	.720	.000	.882	.400	.000	.250	.000	.344	.531	.929	.292	.000	.913	1.00	.000	.000	.000	1.00	.969
Cars	5	712	95	0	812	8	0	3	0	11	34	785	7	0	826	4	0	0	0	4	1653
% Cars	100	99.6	100	0	99.6	100	0	100	0	100	100	99.6	100	0	99.6	100	0	0	0	100	99.6
Heavy Vehicles	0	3	0	0	3	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	6
% Heavy Vehicles	0	0.4	0	0	0.4	0	0	0	0	0	0	0.4	0	0	0.4	0	0	0	0	0	0.4

N/S: Washington Street (Route 53)
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Page No : 1

Groups Printed- Cars

	Washington Street Route 53) From North				Starland South Driveway From East				Washington Street Route 53) From South				Car Dealership Driveway From West				
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Int. Total
11:00 AM	0	139	14	0	1	0	1	0	3	147	2	0	0	0	0	0	307
11:15 AM	2	139	6	0	0	0	2	0	0	176	4	0	0	0	1	0	330
11:30 AM	3	127	12	0	1	0	0	0	2	175	2	0	1	0	0	0	323
11:45 AM	0	139	26	0	0	0	1	0	3	193	1	0	0	0	0	0	363
Total	5	544	58	0	2	0	4	0	8	691	9	0	1	0	1	0	1323
12:00 PM	0	156	32	0	1	0	0	0	16	205	6	0	1	0	0	0	417
12:15 PM	2	177	18	0	2	0	0	0	4	210	0	0	1	0	0	0	414
12:30 PM	0	217	12	0	5	0	3	0	4	182	1	0	1	0	0	0	425
12:45 PM	3	162	33	0	0	0	0	0	10	188	0	0	1	0	0	0	397
Total	5	712	95	0	8	0	3	0	34	785	7	0	4	0	0	0	1653
Grand Total	10	1256	153	0	10	0	7	0	42	1476	16	0	5	0	1	0	2976
Apprch %	0.7	88.5	10.8	0	58.8	0	41.2	0	2.7	96.2	1	0	83.3	0	16.7	0	
Total %	0.3	42.2	5.1	0	0.3	0	0.2	0	1.4	49.6	0.5	0	0.2	0	0	0	

	Washington Street Route 53) From North					Starland South Driveway From East					Washington Street Route 53) From South					Car Dealership Driveway From West					
Start Time	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	Int. Total
Peak Hour Analysis From 11:00 AM to 12:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 12:00 PM																					
12:00 PM	0	156	32	0	188	**1**	0	0	0	1	**16**	205	**6**	0	**227**	**1**	0	0	0	**1**	417
12:15 PM	2	177	18	0	197	2	0	0	0	2	4	**210**	0	0	214	1	0	0	0	1	414
12:30 PM	0	**217**	12	0	**229**	**5**	0	**3**	0	**8**	4	182	1	0	187	1	0	0	0	1	**425**
12:45 PM	**3**	162	**33**	0	198	0	0	0	0	0	10	188	0	0	198	1	0	0	0	1	397
Total Volume	5	712	95	0	812	8	0	3	0	11	34	785	7	0	826	4	0	0	0	4	1653
% App. Total	0.6	87.7	11.7	0		72.7	0	27.3	0		4.1	95	0.8	0		100	0	0	0		
PHF	.417	.820	.720	.000	.886	.400	.000	.250	.000	.344	.531	.935	.292	.000	.910	1.00	.000	.000	.000	1.00	.972

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Groups Printed- Heavy Vehicles

	Washington Street Route 53) From North				Starland South Driveway From East				Washington Street Route 53) From South				Car Dealership Driveway From West				
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Int. Total
11:00 AM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
11:15 AM	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
11:30 AM	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
11:45 AM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Total	0	5	0	0	0	0	0	0	0	1	0	0	0	0	0	0	6
12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:15 PM	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	2
12:30 PM	0	2	0	0	0	0	0	0	0	1	0	0	0	0	0	0	3
12:45 PM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Total	0	3	0	0	0	0	0	0	0	3	0	0	0	0	0	0	6
Grand Total	0	8	0	0	0	0	0	0	0	4	0	0	0	0	0	0	12
Apprch %	0	100	0	0	0	0	0	0	0	100	0	0	0	0	0	0	
Total %	0	66.7	0	0	0	0	0	0	0	33.3	0	0	0	0	0	0	

	Washington Street Route 53) From North					Starland South Driveway From East					Washington Street Route 53) From South					Car Dealership Driveway From West					
Start Time	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	Int. Total
Peak Hour Analysis From 11:00 AM to 12:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 11:00 AM																					
11:00 AM	0	0	0	0	0	0	0	0	0	0	0	**1**	0	0	**1**	0	0	0	0	0	1
11:15 AM	0	**2**	0	0	**2**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**2**
11:30 AM	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
11:45 AM	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Total Volume	0	5	0	0	5	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	6
% App. Total	0	100	0	0		0	0	0	0		0	100	0	0		0	0	0	0		
PHF	.000	.625	.000	.000	.625	.000	.000	.000	.000	.000	.000	.250	.000	.000	.250	.000	.000	.000	.000	.000	.750

N/S: Washington Street (Route 53)
E/W: Starland South Dr/ Dealership Dr
City, State: Hanover, MA
Client: VHB/ K. Keen

PRECISION DATA INDUSTRIES, LLC
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Site Code : 12511.00
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Groups Printed- Peds and Bicycles

	Washington Street Route 53) From North				Starland South Driveway From East				Washington Street Route 53) From South				Car Dealership Driveway From West				
Start Time	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Int. Total
11:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Apprch %	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Total %																	

	Washington Street Route 53) From North					Starland South Driveway From East					Washington Street Route 53) From South					Car Dealership Driveway From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 11:00 AM to 12:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 11:00 AM																					
11:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0	0	0		0	0	0	0		0	0	0	0		0	0	0	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

N/S: Washington Street (Route 53)
E/W: Starland South Dr/ Dealership Dr
City, State: Hanover, MA
Client: VHB/ K. Keen

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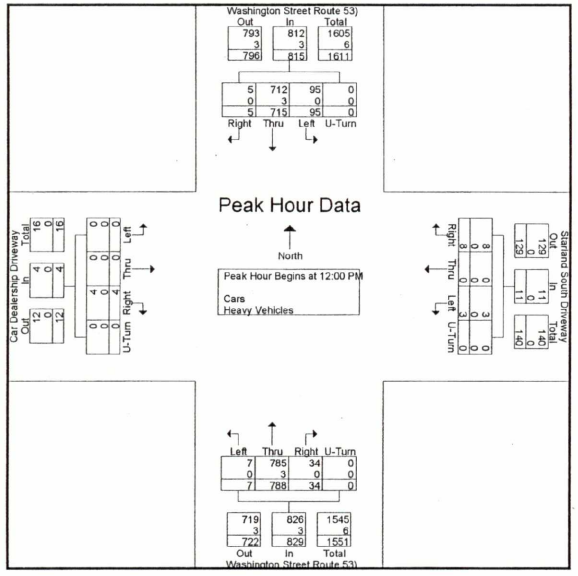
	Washington Street Route 53) From North					Starland South Driveway From East					Washington Street Route 53) From South					Car Dealership Driveway From West					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 11:00 AM to 12:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 12:00 PM																					
12:00 PM	0	156	32	0	188	1	0	0	0	1	**16**	205	**6**	0	**227**	**1**	0	0	0	**1**	417
12:15 PM	2	177	18	0	197	2	0	0	0	2	4	**212**	0	0	216	1	0	0	0	1	416
12:30 PM	0	**219**	12	0	**231**	**5**	0	**3**	0	**8**	4	183	1	0	188	1	0	0	0	1	**428**
12:45 PM	**3**	163	**33**	0	199	0	0	0	0	0	10	188	0	0	198	1	0	0	0	1	398
Total Volume	5	715	95	0	815	8	0	3	0	11	34	788	7	0	829	4	0	0	0	4	1659
% App. Total	0.6	87.7	11.7	0		72.7	0	27.3	0		4.1	95.1	0.8	0		100	0	0	0		
PHF	.417	.816	.720	.000	.882	.400	.000	.250	.000	.344	.531	.929	.292	.000	.913	1.00	.000	.000	.000	1.00	.969
Cars	5	712	95	0	812	8	0	3	0	11	34	785	7	0	826	4	0	0	0	4	1653
% Cars	100	99.6	100	0	99.6	100	0	100	0	100	100	99.6	100	0	99.6	100	0	0	0	100	99.6
Heavy Vehicles	0	3	0	0	3	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	6
% Heavy Vehicles	0	0.4	0	0	0.4	0	0	0	0	0	0	0.4	0	0	0.4	0	0	0	0	0	0.4



N/S: Washington Street (Route 53)
E: East Street
City, State: Hanover, MA
Client: VHB/ K. Keen

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File Name : 133679 C
Site Code : 12511.00
Start Date : 12/27/2013
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Groups Printed- Cars - Heavy Vehicles

	Washington Street Route 53) From North			East Street From East			Washington Street Route 53) From South			
Start Time	Thru	Left	U-Turn	Right	Left	U-Turn	Right	Thru	U-Turn	Int. Total
04:00 PM	332	18	0	23	6	0	7	182	0	568
04:15 PM	302	26	0	19	5	0	6	190	0	548
04:30 PM	291	25	0	26	8	0	12	156	0	518
04:45 PM	271	26	0	22	6	0	7	201	0	533
Total	1196	95	0	90	25	0	32	729	0	2167
05:00 PM	285	22	0	20	4	0	9	202	0	542
05:15 PM	244	19	0	20	8	0	9	167	0	467
05:30 PM	234	24	0	11	6	1	6	126	0	408
05:45 PM	267	21	0	17	9	0	6	144	0	464
Total	1030	86	0	68	27	1	30	639	0	1881
Grand Total	2226	181	0	158	52	1	62	1368	0	4048
Apprch %	92.5	7.5	0	74.9	24.6	0.5	4.3	95.7	0	
Total %	55	4.5	0	3.9	1.3	0	1.5	33.8	0	
Cars	2217	181	0	156	52	1	61	1363	0	4031
% Cars	99.6	100	0	98.7	100	100	98.4	99.6	0	99.6
Heavy Vehicles	9	0	0	2	0	0	1	5	0	17
% Heavy Vehicles	0.4	0	0	1.3	0	0	1.6	0.4	0	0.4

	Washington Street Route 53) From North				East Street From East				Washington Street Route 53) From South				
Start Time	Thru	Left	U-Turn	App. Total	Right	Left	U-Turn	App. Total	Right	Thru	U-Turn	App. Total	Int. 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	**332**	18	0	**350**	23	6	0	29	7	182	0	189	**568**
04:15 PM	302	**26**	0	328	19	5	0	24	6	190	0	196	548
04:30 PM	291	25	0	316	**26**	**8**	0	**34**	**12**	156	0	168	518
04:45 PM	271	26	0	297	22	6	0	28	7	**201**	0	**208**	533
Total Volume	1196	95	0	1291	90	25	0	115	32	729	0	761	2167
% App. Total	92.6	7.4	0		78.3	21.7	0		4.2	95.8	0		
PHF	.901	.913	.000	.922	.865	.781	.000	.846	.667	.907	.000	.915	.954
Cars	1190	95	0	1285	89	25	0	114	31	726	0	757	2156
% Cars	99.5	100	0	99.5	98.9	100	0	99.1	96.9	99.6	0	99.5	99.5
Heavy Vehicles	6	0	0	6	1	0	0	1	1	3	0	4	11
% Heavy Vehicles	0.5	0	0	0.5	1.1	0	0	0.9	3.1	0.4	0	0.5	0.5

N/S: Washington Street (Route 53)
E: East Street
City, State: Hanover, MA
Client: VHB/ K. Keen

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Groups Printed- Cars

	Washington Street Route 53) From North			East Street From East			Washington Street Route 53) From South			
Start Time	Thru	Left	U-Turn	Right	Left	U-Turn	Right	Thru	U-Turn	Int. Total
04:00 PM	330	18	0	23	6	0	7	182	0	566
04:15 PM	301	26	0	19	5	0	6	188	0	545
04:30 PM	289	25	0	26	8	0	11	156	0	515
04:45 PM	270	26	0	21	6	0	7	200	0	530
Total	1190	95	0	89	25	0	31	726	0	2156
05:00 PM	283	22	0	20	4	0	9	202	0	540
05:15 PM	244	19	0	20	8	0	9	166	0	466
05:30 PM	234	24	0	11	6	1	6	126	0	408
05:45 PM	266	21	0	16	9	0	6	143	0	461
Total	1027	86	0	67	27	1	30	637	0	1875
Grand Total	2217	181	0	156	52	1	61	1363	0	4031
Apprch %	92.5	7.5	0	74.6	24.9	0.5	4.3	95.7	0	
Total %	55	4.5	0	3.9	1.3	0	1.5	33.8	0	

	Washington Street Route 53) From North				East Street From East				Washington Street Route 53) From South				
Start Time	Thru	Left	U-Turn	App. Total	Right	Left	U-Turn	App. Total	Right	Thru	U-Turn	App. Total	Int. 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	**330**	18	0	**348**	23	6	0	29	7	182	0	189	**566**
04:15 PM	301	**26**	0	327	19	5	0	24	6	188	0	194	545
04:30 PM	289	25	0	314	**26**	**8**	0	**34**	**11**	156	0	167	515
04:45 PM	270	26	0	296	21	6	0	27	7	**200**	0	**207**	530
Total Volume	1190	95	0	1285	89	25	0	114	31	726	0	757	2156
% App. Total	92.6	7.4	0		78.1	21.9	0		4.1	95.9	0		
PHF	.902	.913	.000	.923	.856	.781	.000	.838	.705	.908	.000	.914	.952

N/S: Washington Street (Route 53)
E: East Street
City, State: Hanover, MA
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File Name : 133679 C
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Start Date : 12/27/2013
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Groups Printed- Heavy Vehicles

	Washington Street Route 53) From North			East Street From East			Washington Street Route 53) From South			
Start Time	Thru	Left	U-Turn	Right	Left	U-Turn	Right	Thru	U-Turn	Int. Total
04:00 PM	2	0	0	0	0	0	0	0	0	2
04:15 PM	1	0	0	0	0	0	0	2	0	3
04:30 PM	2	0	0	0	0	0	1	0	0	3
04:45 PM	1	0	0	1	0	0	0	1	0	3
Total	6	0	0	1	0	0	1	3	0	11
05:00 PM	2	0	0	0	0	0	0	0	0	2
05:15 PM	0	0	0	0	0	0	0	1	0	1
05:30 PM	0	0	0	0	0	0	0	0	0	0
05:45 PM	1	0	0	1	0	0	0	1	0	3
Total	3	0	0	1	0	0	0	2	0	6
Grand Total	9	0	0	2	0	0	1	5	0	17
Apprch %	100	0	0	100	0	0	16.7	83.3	0	
Total %	52.9	0	0	11.8	0	0	5.9	29.4	0	

	Washington Street Route 53) From North				East Street From East				Washington Street Route 53) From South				
Start Time	Thru	Left	U-Turn	App. Total	Right	Left	U-Turn	App. Total	Right	Thru	U-Turn	App. Total	Int. 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	**2**	0	0	**2**	0	0	0	0	0	0	0	0	2
04:15 PM	1	0	0	1	0	0	0	0	0	**2**	0	**2**	**3**
04:30 PM	2	0	0	2	0	0	0	0	**1**	0	0	1	3
04:45 PM	1	0	0	1	**1**	0	0	**1**	0	1	0	1	3
Total Volume	6	0	0	6	1	0	0	1	1	3	0	4	11
% App. Total	100	0	0		100	0	0		25	75	0		
PHF	.750	.000	.000	.750	.250	.000	.000	.250	.250	.375	.000	.500	.917

N/S: Washington Street (Route 53)
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Groups Printed- Peds and Bicycles

	Washington Street Route 53) From North			East Street From East			Washington Street Route 53) From South			
Start Time	Thru	Left	Peds	Right	Left	Peds	Right	Thru	Peds	Int. Total
04:00 PM	0	0	0	0	0	0	0	0	0	0
04:15 PM	0	0	0	0	0	0	0	0	0	0
04:30 PM	0	0	0	0	0	0	0	0	0	0
04:45 PM	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0
05:00 PM	0	0	0	0	0	0	0	0	0	0
05:15 PM	0	0	0	0	0	1	0	0	0	1
05:30 PM	0	0	0	0	0	0	0	0	0	0
05:45 PM	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	1	0	0	0	1
Grand Total	0	0	0	0	0	1	0	0	0	1
Apprch %	0	0	0	0	0	100	0	0	0	
Total %	0	0	0	0	0	100	0	0	0	

	Washington Street Route 53) From North				East Street From East				Washington Street Route 53) From South				
Start Time	Thru	Left	Peds	App. Total	Right	Left	Peds	App. Total	Right	Thru	Peds	App. Total	Int. 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	0	0	0	0	0	0	0	0	0	0	0	0	0
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
05:15 PM	0	0	0	0	0	0	**1**	**1**	0	0	0	0	**1**
Total Volume	0	0	0	0	0	0	1	1	0	0	0	0	1
% App. Total	0	0	0		0	0	100		0	0	0		
PHF	.000	.000	.000	.000	.000	.000	.250	.250	.000	.000	.000	.000	.250

N/S: Washington Street (Route 53)
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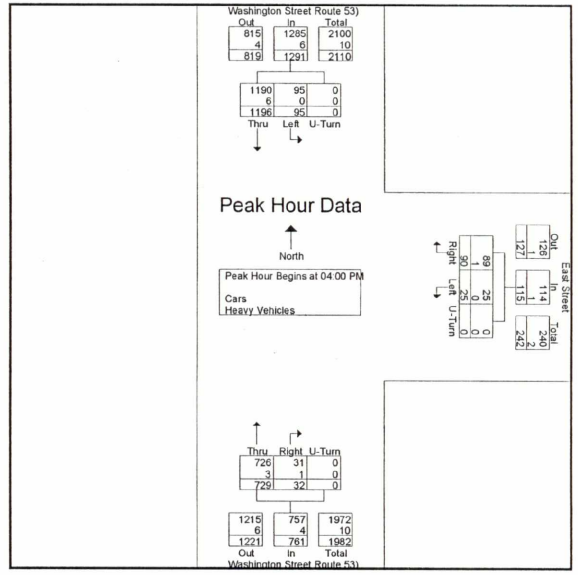
	Washington Street Route 53) From North				East Street From East				Washington Street Route 53) From South				
Start Time	Thru	Left	U-Turn	App. Total	Right	Left	U-Turn	App. Total	Right	Thru	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 04:00 PM													
04:00 PM	**332**	18	0	**350**	23	6	0	29	7	182	0	189	**568**
04:15 PM	302	**26**	0	328	19	5	0	24	6	190	0	196	548
04:30 PM	291	25	0	316	**26**	**8**	0	**34**	**12**	156	0	168	518
04:45 PM	271	26	0	297	22	6	0	28	7	**201**	0	**208**	533
Total Volume	1196	95	0	1291	90	25	0	115	32	729	0	761	2167
% App. Total	92.6	7.4	0		78.3	21.7	0		4.2	95.8	0		
PHF	.901	.913	.000	.922	.865	.781	.000	.846	.667	.907	.000	.915	.954
Cars	1190	95	0	1285	89	25	0	114	31	726	0	757	2156
% Cars	99.5	100	0	99.5	98.9	100	0	99.1	96.9	99.6	0	99.5	99.5
Heavy Vehicles	6	0	0	6	1	0	0	1	1	3	0	4	11
% Heavy Vehicles	0.5	0	0	0.5	1.1	0	0	0.9	3.1	0.4	0	0.5	0.5



N/S: Washington Street (Route 53)
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Groups Printed- Cars - Heavy Vehicles

	Washington Street Route 53) From North			East Street From East			Washington Street Route 53) From South			
Start Time	Thru	Left	U-Turn	Right	Left	U-Turn	Right	Thru	U-Turn	Int. Total
11:00 AM	216	11	0	30	5	0	9	250	0	521
11:15 AM	213	20	0	24	5	0	7	218	0	487
11:30 AM	216	18	0	24	8	0	8	225	0	499
11:45 AM	245	24	0	26	6	0	8	232	0	541
Total	890	73	0	104	24	0	32	925	0	2048
12:00 PM	239	19	0	25	7	0	7	274	0	571
12:15 PM	230	18	0	21	12	0	10	300	0	591
12:30 PM	221	17	0	32	7	0	5	225	0	507
12:45 PM	250	17	0	23	15	0	7	239	0	551
Total	940	71	0	101	41	0	29	1038	0	2220
Grand Total	1830	144	0	205	65	0	61	1963	0	4268
Apprch %	92.7	7.3	0	75.9	24.1	0	3	97	0	
Total %	42.9	3.4	0	4.8	1.5	0	1.4	46	0	
Cars	1817	142	0	203	65	0	61	1947	0	4235
% Cars	99.3	98.6	0	99	100	0	100	99.2	0	99.2
Heavy Vehicles	13	2	0	2	0	0	0	16	0	33
% Heavy Vehicles	0.7	1.4	0	1	0	0	0	0.8	0	0.8

	Washington Street Route 53) From North				East Street From East				Washington Street Route 53) From South				
Start Time	Thru	Left	U-Turn	App. Total	Right	Left	U-Turn	App. Total	Right	Thru	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 11:00 AM to 12:45 PM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 12:00 PM													
12:00 PM	239	**19**	0	258	25	7	0	32	7	274	0	281	571
12:15 PM	230	18	0	248	21	12	0	33	**10**	**300**	0	**310**	**591**
12:30 PM	221	17	0	238	**32**	7	0	**39**	5	225	0	230	507
12:45 PM	**250**	17	0	**267**	23	**15**	0	38	7	239	0	246	551
Total Volume	940	71	0	1011	101	41	0	142	29	1038	0	1067	2220
% App. Total	93	7	0		71.1	28.9	0		2.7	97.3	0		
PHF	.940	.934	.000	.947	.789	.683	.000	.910	.725	.865	.000	.860	.939
Cars	937	69	0	1006	100	41	0	141	29	1033	0	1062	2209
% Cars	99.7	97.2	0	99.5	99.0	100	0	99.3	100	99.5	0	99.5	99.5
Heavy Vehicles	3	2	0	5	1	0	0	1	0	5	0	5	11
% Heavy Vehicles	0.3	2.8	0	0.5	1.0	0	0	0.7	0	0.5	0	0.5	0.5

N/S: Washington Street (Route 53)
E: East Street
City, State: Hanover, MA
Client: VHB/ K. Keen

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

File Name : 133679 CC
Site Code : 12511.00
Start Date : 12/28/2013
Page No : 1

Groups Printed- Cars

	Washington Street Route 53) From North			East Street From East			Washington Street Route 53) From South			
Start Time	Thru	Left	U-Turn	Right	Left	U-Turn	Right	Thru	U-Turn	Int. Total
11:00 AM	214	11	0	30	5	0	9	247	0	516
11:15 AM	211	20	0	24	5	0	7	215	0	482
11:30 AM	213	18	0	23	8	0	8	225	0	495
11:45 AM	242	24	0	26	6	0	8	227	0	533
Total	880	73	0	103	24	0	32	914	0	2026
12:00 PM	238	19	0	25	7	0	7	273	0	569
12:15 PM	230	16	0	21	12	0	10	298	0	587
12:30 PM	220	17	0	31	7	0	5	224	0	504
12:45 PM	249	17	0	23	15	0	7	238	0	549
Total	937	69	0	100	41	0	29	1033	0	2209
Grand Total	1817	142	0	203	65	0	61	1947	0	4235
Apprch %	92.8	7.2	0	75.7	24.3	0	3	97	0	
Total %	42.9	3.4	0	4.8	1.5	0	1.4	46	0	

	Washington Street Route 53) From North				East Street From East				Washington Street Route 53) From South				
Start Time	Thru	Left	U-Turn	App. Total	Right	Left	U-Turn	App. Total	Right	Thru	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 11:00 AM to 12:45 PM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 12:00 PM													
12:00 PM	238	**19**	0	257	25	7	0	32	7	273	0	280	569
12:15 PM	230	16	0	246	21	12	0	33	**10**	**298**	0	**308**	**587**
12:30 PM	220	17	0	237	**31**	7	0	**38**	5	224	0	229	504
12:45 PM	**249**	17	0	**266**	23	**15**	0	38	7	238	0	245	549
Total Volume	937	69	0	1006	100	41	0	141	29	1033	0	1062	2209
% App. Total	93.1	6.9	0		70.9	29.1	0		2.7	97.3	0		
PHF	.941	.908	.000	.945	.806	.683	.000	.928	.725	.867	.000	.862	.941

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ATR Location : Washington Street (Route 53)
north of Starland South Driveway
City, State : Hanover, MA

Direction : Northbound

PDI File # : 133679 A
Client # : 12511.00
Client : VHB/ K. Keen

Thursday		1-14 MPH	15-19 MPH	20-24 MPH	25-29 MPH	30-34 MPH	35-39 MPH	40-44 MPH	45-49 MPH	50-54 MPH	55-59 MPH	60-64 MPH	65-69 MPH	70-74 MPH	75-79 MPH	80+ MPH	Total	Ave Speed	85th %	
12/26/2013	12:00 AM	0	0	0	0	0	1	5	11	3	0	0	0	0	0	0	20	45.0	48.9	12:00 AM
12/26/2013	1:00 AM	0	0	0	0	0	0	0	4	1	0	0	1	0	0	0	6	50.8	57.2	1:00 AM
12/26/2013	2:00 AM	0	0	0	0	1	1	2	2	0	0	0	0	0	0	0	6	41.0	45.4	2:00 AM
12/26/2013	3:00 AM	0	0	0	0	0	4	8	5	0	0	0	0	0	0	0	17	42.6	47.8	3:00 AM
12/26/2013	4:00 AM	0	0	0	0	0	7	24	40	11	1	0	0	0	0	0	83	45.5	49.2	4:00 AM
12/26/2013	5:00 AM	0	0	0	0	1	18	90	135	32	2	0	0	0	0	0	278	45.3	48.9	5:00 AM
12/26/2013	6:00 AM	0	0	0	0	1	31	152	112	20	1	0	0	0	0	0	318	43.9	47.9	6:00 AM
12/26/2013	7:00 AM	0	0	0	1	4	29	216	156	33	1	0	0	0	0	0	442	44.1	47.3	7:00 AM
12/26/2013	8:00 AM	0	1	1	2	22	127	275	172	12	1	0	2	1	0	0	616	42.3	46.8	8:00 AM
12/26/2013	9:00 AM	0	0	1	6	22	118	276	156	18	0	0	0	0	0	0	597	42.0	46.3	9:00 AM
12/26/2013	10:00 AM	0	0	0	11	20	171	357	132	14	1	0	0	0	0	0	708	41.3	45.3	10:00 AM
12/26/2013	11:00 AM	1	0	1	17	72	229	314	111	9	0	0	0	0	0	0	754	39.9	44.7	11:00 AM
12/26/2013	12:00 PM	4	1	3	14	99	291	307	88	8	2	0	0	0	0	0	817	39.2	43.9	12:00 PM
12/26/2013	1:00 PM	1	0	2	22	115	294	279	75	7	1	0	0	0	0	0	796	38.8	43.5	1:00 PM
12/26/2013	2:00 PM	3	3	8	23	130	265	236	33	5	0	0	0	0	0	0	706	37.6	42.4	2:00 PM
12/26/2013	3:00 PM	0	2	4	20	104	253	234	57	5	0	0	0	0	0	0	679	38.5	43.0	3:00 PM
12/26/2013	4:00 PM	0	1	3	23	119	199	174	35	2	0	0	0	0	0	0	556	37.7	42.4	4:00 PM
12/26/2013	5:00 PM	0	0	2	15	71	187	138	24	1	0	0	0	0	0	0	439	38.0	42.3	5:00 PM
12/26/2013	6:00 PM	0	1	4	18	62	191	112	16	1	0	0	0	0	0	0	405	37.6	41.5	6:00 PM
12/26/2013	7:00 PM	0	0	0	12	45	126	79	19	0	0	0	0	0	0	0	281	37.8	42.7	7:00 PM
12/26/2013	8:00 PM	0	0	2	6	26	80	88	10	1	0	0	0	0	0	0	213	38.5	42.6	8:00 PM
12/26/2013	9:00 PM	0	0	0	1	5	47	77	22	7	0	0	0	0	0	0	159	41.2	44.9	9:00 PM
12/26/2013	10:00 PM	0	0	0	0	7	31	34	15	0	0	0	0	0	0	0	87	40.5	45.1	10:00 PM
12/26/2013	11:00 PM	0	0	0	0	1	21	21	8	2	0	0	0	0	0	0	53	40.8	45.0	11:00 PM
	Totals	9	9	31	191	928	2724	3498	1440	192	10	0	3	1	0	0	9036	40.0	44.0	
		0.10%	0.10%	0.34%	2.11%	10.27%	30.15%	38.71%	15.94%	2.12%	0.11%	0.00%	0.03%	0.01%	0.00%	0.00%				
	AM Peak	11:00 AM	8:00 AM	8:00 AM	11:00 AM	11:00 AM	11:00 AM	10:00 AM	8:00 AM	7:00 AM	5:00 AM	12:00 AM	8:00 AM	8:00 AM	12:00 AM	12:00 AM	11:00 AM	1:00 AM	1:00 AM	
		1	1	1	17	72	229	357	172	33	2	0	2	1	0	0	754	50.8	57.2	
	PM Peak	12:00 PM	2:00 PM	2:00 PM	2:00 PM	2:00 PM	1:00 PM	12:00 PM	12:00 PM	12:00 PM	5:00 AM	12:00 PM	12:00 PM	12:00 PM	12:00 PM	12:00 PM	12:00 PM	9:00 PM	10:00 PM	
		4	3	8	23	130	294	307	88	8	2	0	0	0	0	0	817	41.2	45.1	

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ATR Location : Washington Street (Route 53)
north of Starland South Driveway
City, State : Hanover, MA

Direction : Northbound

PDI File # : 133679 A
Client # : 12511.00
Client : VHB/ K. Keen

Friday		1-14 MPH	15-19 MPH	20-24 MPH	25-29 MPH	30-34 MPH	35-39 MPH	40-44 MPH	45-49 MPH	50-54 MPH	55-59 MPH	60-64 MPH	65-69 MPH	70-74 MPH	75-79 MPH	80+ MPH	Total	Ave Speed	85th %	
12/27/2013	12:00 AM	0	0	0	0	1	8	10	8	0	0	0	0	0	0	0	27	41.5	45.6	12:00 AM
12/27/2013	1:00 AM	0	0	1	1	0	1	7	4	2	0	0	0	0	0	0	16	41.6	47.2	1:00 AM
12/27/2013	2:00 AM	0	0	0	2	2	3	4	4	0	0	0	0	0	0	0	15	39.2	44.6	2:00 AM
12/27/2013	3:00 AM	0	0	0	0	0	5	10	4	1	1	0	0	0	0	0	21	43.4	46.5	3:00 AM
12/27/2013	4:00 AM	0	0	0	0	0	13	32	33	7	0	0	0	0	0	0	85	44.0	47.5	4:00 AM
12/27/2013	5:00 AM	0	0	0	0	2	24	158	132	17	2	0	0	0	0	0	335	44.1	47.5	5:00 AM
12/27/2013	6:00 AM	0	0	1	3	4	67	176	78	17	0	0	0	0	0	0	346	42.3	46.4	6:00 AM
12/27/2013	7:00 AM	0	0	1	3	24	102	263	125	21	0	0	0	0	0	0	539	42.0	45.9	7:00 AM
12/27/2013	8:00 AM	0	0	1	5	31	235	310	139	11	1	0	0	0	0	0	733	41.0	45.2	8:00 AM
12/27/2013	9:00 AM	0	0	1	15	50	220	314	118	19	0	0	0	0	0	0	737	40.5	45.1	9:00 AM
12/27/2013	10:00 AM	0	3	2	15	87	241	328	117	11	2	0	0	0	0	0	806	39.8	44.7	10:00 AM
12/27/2013	11:00 AM	0	3	14	33	110	314	295	81	6	0	0	0	0	0	0	856	38.3	43.3	11:00 AM
12/27/2013	12:00 PM	1	2	15	29	127	313	273	69	5	1	0	0	0	0	0	835	38.0	43.0	12:00 PM
12/27/2013	1:00 PM	1	0	3	33	160	304	258	61	3	0	1	0	0	0	1	825	38.0	43.0	1:00 PM
12/27/2013	2:00 PM	0	2	8	38	124	257	247	57	4	0	0	0	0	0	0	737	38.9	42.9	2:00 PM
12/27/2013	3:00 PM	1	2	21	69	152	284	187	37	1	0	0	0	0	0	0	754	36.4	41.5	3:00 PM
12/27/2013	4:00 PM	3	6	17	63	137	217	167	32	2	0	0	0	0	0	0	644	36.1	41.5	4:00 PM
12/27/2013	5:00 PM	2	1	22	51	121	171	129	19	0	0	0	0	0	0	0	516	35.7	41.1	5:00 PM
12/27/2013	6:00 PM	0	4	8	29	84	156	135	19	4	0	0	0	0	0	0	439	37.2	42.4	6:00 PM
12/27/2013	7:00 PM	1	0	5	18	70	121	122	22	5	0	0	0	0	0	0	364	37.7	43.1	7:00 PM
12/27/2013	8:00 PM	0	0	0	5	27	55	117	41	4	0	0	0	0	0	0	249	40.4	44.8	8:00 PM
12/27/2013	9:00 PM	0	0	0	4	11	33	69	32	9	0	0	0	0	0	0	158	41.4	46.4	9:00 PM
12/27/2013	10:00 PM	0	0	0	0	6	33	65	21	7	1	0	0	0	0	0	133	41.7	45.6	10:00 PM
12/27/2013	11:00 PM	0	0	0	2	0	8	25	18	7	1	0	0	0	0	0	61	43.8	48.7	11:00 PM
	Totals	9	23	120	418	1330	3185	3701	1271	163	9	1	0	0	0	1	10231	39.0	44.7	
		0.10%	0.25%	1.33%	4.63%	14.72%	35.25%	40.96%	14.07%	1.80%	0.10%	0.01%	0.00%	0.00%	0.00%	0.01%				
	AM Peak	12:00 AM	10:00 AM	11:00 AM	11:00 AM	11:00 AM	11:00 AM	10:00 AM	8:00 AM	7:00 AM	5:00 AM	12:00 AM	12:00 AM	12:00 AM	12:00 AM	12:00 AM	11:00 AM	5:00 AM	5:00 AM	
		0	3	14	33	110	314	328	139	21	2	0	0	0	0	0	856	44.1	47.5	
	PM Peak	4:00 PM	4:00 PM	5:00 PM	3:00 PM	1:00 PM	12:00 PM	12:00 PM	12:00 PM	9:00 PM	5:00 AM	1:00 PM	12:00 PM	12:00 PM	12:00 PM	1:00 PM	12:00 PM	11:00 PM	11:00 PM	
		3	6	22	69	160	313	273	69	9	1	1	0	0	0	1	835	43.8	48.7	

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ATR Location : Washington Street (Route 53)
north of Starland South Driveway
City, State : Hanover, MA

PDI File # : 133679 A
Client # : 12511.00
Client : VHB/ K. Keen

Direction : Northbound

Saturday		1-14 MPH	15-19 MPH	20-24 MPH	25-29 MPH	30-34 MPH	35-39 MPH	40-44 MPH	45-49 MPH	50-54 MPH	55-59 MPH	60-64 MPH	65-69 MPH	70-74 MPH	75-79 MPH	80+ MPH	Total	Ave Speed	85th %	
12/28/2013	12:00 AM	0	0	1	0	1	10	12	14	2	1	0	0	0	0	0	41	42.4	47.2	12:00 AM
12/28/2013	1:00 AM	0	0	0	0	1	6	13	5	2	0	0	0	0	0	0	27	42.2	45.9	1:00 AM
12/28/2013	2:00 AM	0	0	0	0	1	0	3	3	2	1	0	0	0	0	0	10	46.1	50.7	2:00 AM
12/28/2013	3:00 AM	0	0	0	0	2	2	5	5	0	0	0	0	0	0	0	14	41.5	47.2	3:00 AM
12/28/2013	4:00 AM	0	0	0	0	0	3	17	15	5	0	2	0	0	0	0	42	45.1	49.5	4:00 AM
12/28/2013	5:00 AM	0	0	0	0	1	4	36	26	9	0	0	0	0	0	0	76	44.4	48.5	5:00 AM
12/28/2013	6:00 AM	0	0	0	0	1	16	91	51	9	0	0	0	0	0	0	188	43.0	47.2	6:00 AM
12/28/2013	7:00 AM	0	0	0	0	8	41	119	90	14	1	0	0	0	0	0	273	43.0	47.0	7:00 AM
12/28/2013	8:00 AM	0	0	1	5	18	91	212	121	19	1	0	0	0	0	0	468	42.1	46.5	8:00 AM
12/28/2013	9:00 AM	2	6	18	26	95	179	246	86	15	1	0	0	0	1	1	676	38.8	44.6	9:00 AM
12/28/2013	10:00 AM	1	2	6	41	110	310	243	57	5	0	0	0	0	0	0	775	37.9	42.7	10:00 AM
12/28/2013	11:00 AM	5	12	50	109	180	247	159	33	2	0	0	0	0	0	0	797	34.6	41.3	11:00 AM
12/28/2013	12:00 PM	10	46	44	73	160	233	166	35	1	0	0	0	0	0	0	768	34.2	41.7	12:00 PM
12/28/2013	1:00 PM	2	10	22	53	195	258	201	40	0	0	0	0	0	0	0	781	36.1	42.3	1:00 PM
12/28/2013	2:00 PM	1	4	29	69	184	251	177	38	1	0	0	0	0	0	0	754	35.9	41.7	2:00 PM
12/28/2013	3:00 PM	27	86	83	109	99	45	13	2	0	0	0	0	0	0	0	464	25.9	34.0	3:00 PM
12/28/2013	4:00 PM	39	58	59	108	102	41	9	2	0	0	0	0	0	0	0	418	26.0	34.1	4:00 PM
12/28/2013	5:00 PM	37	49	58	91	87	31	17	0	0	0	0	0	0	0	0	370	26.2	34.0	5:00 PM
12/28/2013	6:00 PM	0	6	9	39	129	179	134	24	2	0	1	0	0	0	0	524	36.4	42.2	6:00 PM
12/28/2013	7:00 PM	0	0	4	25	58	166	109	25	4	0	0	0	0	0	0	391	37.8	42.6	7:00 PM
12/28/2013	8:00 PM	0	1	2	2	10	76	114	49	9	0	0	0	0	0	0	263	40.9	45.4	8:00 PM
12/28/2013	9:00 PM	0	0	0	2	10	39	96	31	5	1	0	0	0	0	0	184	41.4	44.9	9:00 PM
12/28/2013	10:00 PM	0	0	0	0	2	29	87	39	5	1	0	0	0	0	0	163	42.6	46.2	10:00 PM
12/28/2013	11:00 PM	0	0	0	1	0	9	27	28	8	0	0	0	1	0	0	74	44.5	49.0	11:00 PM
Totals		124	280	386	753	1454	2286	2306	819	119	7	4	0	1	1	1	8541	36.1	44.0	
		1.37%	3.10%	4.27%	8.33%	16.09%	25.30%	25.52%	9.06%	1.32%	0.08%	0.04%	0.00%	0.01%	0.01%	0.01%				
AM Peak		11:00 AM	11:00 AM	11:00 AM	11:00 AM	11:00 AM	10:00 AM	9:00 AM	8:00 AM	8:00 AM	12:00 AM	4:00 AM	12:00 AM	12:00 AM	9:00 AM	9:00 AM	11:00 AM	2:00 AM	2:00 AM	
		5	12	50	109	180	310	246	121	19	1	2	0	0	1	1	797	46.1	50.7	
PM Peak		4:00 PM	1:00 PM	3:00 PM	3:00 PM	1:00 PM	1:00 PM	1:00 PM	8:00 PM	8:00 PM	7:00 AM	6:00 PM	12:00 PM	11:00 PM	12:00 PM	12:00 PM	1:00 PM	11:00 PM	11:00 PM	
		39	86	83	109	195	258	201	49	9	1	2	0	1	0	0	781	44.5	49.0	

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Direction : Northbound

Sunday		1-14 MPH	15-19 MPH	20-24 MPH	25-29 MPH	30-34 MPH	35-39 MPH	40-44 MPH	45-49 MPH	50-54 MPH	55-59 MPH	60-64 MPH	65-69 MPH	70-74 MPH	75-79 MPH	80+ MPH	Total	Ave Speed	85th %	
12/29/2013	12:00 AM	0	0	0	0	3	7	21	11	3	0	0	0	0	0	0	45	42.6	47.5	12:00 AM
12/29/2013	1:00 AM	0	0	0	0	1	6	6	5	2	0	0	1	0	0	0	21	43.6	48.2	1:00 AM
12/29/2013	2:00 AM	0	0	0	0	1	1	1	3	0	0	0	0	0	0	0	6	42.3	47.7	2:00 AM
12/29/2013	3:00 AM	0	0	0	0	1	1	8	8	0	0	0	0	0	0	0	18	43.3	47.3	3:00 AM
12/29/2013	4:00 AM	0	0	0	0	0	5	5	7	1	0	0	0	0	0	0	18	43.8	47.4	4:00 AM
12/29/2013	5:00 AM	0	0	0	0	0	1	20	20	7	0	0	0	0	0	0	48	45.2	49.1	5:00 AM
12/29/2013	6:00 AM	0	0	0	0	0	13	30	33	10	2	0	0	0	0	0	88	44.6	49.1	6:00 AM
12/29/2013	7:00 AM	0	0	0	0	3	12	78	53	8	1	0	0	0	0	0	155	43.6	47.5	7:00 AM
12/29/2013	8:00 AM	0	0	0	0	6	69	147	68	11	1	0	0	0	0	0	302	42.2	46.3	8:00 AM
12/29/2013	9:00 AM	0	0	1	3	41	152	186	82	13	1	0	0	1	0	0	480	40.6	45.6	9:00 AM
12/29/2013	10:00 AM	0	7	7	23	91	181	210	50	3	0	0	0	0	0	0	572	38.2	43.3	10:00 AM
12/29/2013	11:00 AM	0	11	12	33	98	244	211	49	3	0	0	0	0	0	0	661	37.6	43.1	11:00 AM
12/29/2013	12:00 PM	1	24	47	79	140	246	100	12	0	0	0	0	0	0	0	649	33.7	39.9	12:00 PM
12/29/2013	1:00 PM	4	10	18	74	179	224	131	37	0	0	0	0	0	0	0	697	35.0	40.9	1:00 PM
12/29/2013	2:00 PM	8	13	36	75	145	210	87	12	4	0	0	0	0	0	0	590	33.8	40.0	2:00 PM
12/29/2013	3:00 PM	0	7	8	32	122	361	240	41	3	0	0	0	0	0	0	814	37.5	41.9	3:00 PM
12/29/2013	4:00 PM	3	1	3	49	222	559	374	78	4	0	0	0	0	0	0	1293	37.7	42.3	4:00 PM
12/29/2013	5:00 PM	11	0	5	33	215	551	269	46	0	0	0	0	0	0	0	1140	36.7	41.4	5:00 PM
12/29/2013	6:00 PM	23	1	3	18	142	410	279	37	3	0	0	0	0	0	0	916	37.3	42.2	6:00 PM
12/29/2013	7:00 PM	8	1	3	6	96	270	252	31	2	0	0	0	0	0	0	669	38.1	42.4	7:00 PM
12/29/2013	8:00 PM	1	0	0	1	30	204	298	51	4	1	0	0	0	0	0	590	40.1	43.5	8:00 PM
12/29/2013	9:00 PM	2	0	0	0	14	109	167	59	5	0	0	0	0	0	0	356	40.9	45.0	9:00 PM
12/29/2013	10:00 PM	9	1	3	1	7	80	116	42	5	1	0	0	0	0	0	265	39.8	45.2	10:00 PM
12/29/2013	11:00 PM	0	0	1	0	0	35	81	29	4	0	1	0	0	0	0	151	42.1	45.3	11:00 PM
Totals		80	76	167	427	1557	3951	3317	864	95	7	1	1	1	0	0	10544	37.8	44.7	
		0.89%	0.84%	1.85%	4.73%	17.23%	43.73%	36.71%	9.56%	1.05%	0.08%	0.01%	0.01%	0.01%	0.00%	0.00%				
AM Peak		12:00 AM	11:00 AM	11:00 AM	11:00 AM	11:00 AM	11:00 AM	11:00 AM	9:00 AM	9:00 AM	6:00 AM	12:00 AM	1:00 AM	9:00 AM	12:00 AM	12:00 AM	11:00 AM	5:00 AM	5:00 AM	
		0	11	12	33	98	244	211	82	13	2	0	1	1	0	0	661	45.2	49.1	
PM Peak		6:00 PM	12:00 PM	12:00 PM	12:00 PM	4:00 PM	4:00 PM	4:00 PM	4:00 PM	9:00 PM	6:00 AM	11:00 PM	12:00 PM	12:00 PM	12:00 PM	12:00 PM	4:00 PM	11:00 PM	11:00 PM	
		23	24	47	79	222	559	374	78	5	1	1	0	0	0	0	1293	42.1	45.3	

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ATR Location : Washington Street (Route 53)
north of Starland South Driveway
City, State : Hanover, MA

PDI File # : 133679 A
Client # : 12511.00
Client : VHB/ K. Keen

Direction : Southbound

	Thursday 12/26/2013		Friday 12/27/2013		Saturday 12/28/2013		Sunday 12/29/2013								Average Day	
	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
12:00	11	191	27	210	33	242	41	191							28	209
12:15	10	187	15	233	30	234	34	194							22	212
12:30	10	221	19	223	24	215	26	222							20	220
12:45	6	205	15	214	13	238	13	210							12	217
1:00	5	169	8	253	15	213	21	228							12	216
1:15	6	224	8	231	9	253	19	186							11	224
1:30	2	204	6	252	8	237	11	240							7	233
1:45	1	217	1	221	11	214	16	191							7	211
2:00	2	235	4	258	6	237	6	187							5	229
2:15	2	224	5	259	4	247	9	219							5	237
2:30	3	237	2	273	8	271	4	232							4	253
2:45	2	242	2	281	7	244	6	200							4	242
3:00	2	239	3	271	1	268	2	245							2	256
3:15	0	238	3	269	7	265	6	211							4	246
3:30	0	230	2	262	0	261	1	217							1	243
3:45	2	220	2	269	0	230	3	216							2	234
4:00	2	232	0	327	2	250	3	183							2	248
4:15	2	204	2	294	3	253	1	172							2	231
4:30	4	200	3	273	4	219	2	143							3	209
4:45	1	218	1	252	4	195	1	127							2	198
5:00	5	246	5	279	3	221	2	131							4	219
5:15	5	253	6	249	7	208	1	139							5	212
5:30	8	196	8	226	7	202	4	123							7	187
5:45	7	189	10	232	8	204	5	118							8	186
6:00	9	182	15	243	7	236	6	139							9	200
6:15	13	174	18	243	14	165	9	107							14	172
6:30	13	194	17	213	13	134	11	96							14	159
6:45	28	172	30	184	16	164	11	80							21	150
7:00	23	136	33	191	16	151	17	81							22	140
7:15	24	120	45	184	27	148	26	81							31	133
7:30	52	124	41	148	35	123	24	67							38	116
7:45	63	113	76	113	62	123	38	56							60	101
8:00	68	107	77	118	59	130	32	81							59	109
8:15	72	102	68	136	57	123	36	68							58	107
8:30	100	87	92	125	82	102	46	50							80	91
8:45	81	82	93	92	84	93	60	38							80	76
9:00	97	95	96	93	117	108	56	57							92	88
9:15	80	77	135	106	112	111	66	50							98	86
9:30	116	70	111	91	115	81	79	37							105	70
9:45	120	61	150	76	146	43	101	21							129	50
10:00	99	51	135	72	139	45	116	32							122	50
10:15	136	41	141	64	160	58	108	24							136	47
10:30	129	42	150	62	170	50	119	24							142	45
10:45	152	30	180	50	173	42	142	14							162	34
11:00	151	30	206	68	240	39	150	30							187	42
11:15	155	24	172	36	206	39	145	18							170	29
11:30	168	28	201	36	210	25	153	18							183	27
11:45	198	30	243	37	216	48	170	17							207	33
Total	2245	7393	2682	8892	2690	8002	1958	5811							2394	7525
Day Total	9638		11574		10692		7769								9918	
Split %	23.3%	76.7%	23.2%	76.8%	25.2%	74.8%	25.2%	74.8%							24.1%	75.9%
Peak Hour	11:45	2:30	11:45	3:45	11:45	2:30	11:45	2:15							11:45	2:30
Volume	811	956	913	1163	903	1048	796	896							856	997
Peak Hour Factor	0.874	0.960	0.943	0.903	0.918	0.939	0.995	1.018							0.986	0.969

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ATR Location : Washington Street (Route 53)
north of Starland South Driveway
City, State : Hanover, MA

PDI File # : 133679 A
Client # : 12511.00
Client : VHB/ K. Keen

Direction : Northbound

	Thursday 12/26/2013		Friday 12/27/2013		Saturday 12/28/2013		Sunday 12/29/2013								Average Day	
	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
12:00	6	208	11	185	12	183	13	169							11	186
12:15	8	208	8	220	7	184	10	169							8	195
12:30	4	193	5	221	12	200	10	144							8	190
12:45	2	208	3	209	10	201	12	167							7	196
1:00	2	232	6	212	14	189	6	164							7	199
1:15	3	182	2	218	9	187	10	178							6	191
1:30	1	185	4	187	3	187	2	183							3	186
1:45	0	197	4	208	1	218	3	172							2	199
2:00	0	198	3	210	3	236	2	171							2	204
2:15	1	183	3	169	1	174	0	139							1	166
2:30	3	160	2	168	2	172	0	136							2	159
2:45	2	165	7	190	4	172	4	144							4	168
3:00	0	181	3	201	1	141	2	105							2	157
3:15	4	180	2	178	1	121	4	138							3	154
3:30	7	151	5	182	6	97	5	256							6	172
3:45	6	167	11	193	6	105	7	315							8	195
4:00	6	146	11	152	9	103	5	284							8	171
4:15	14	141	13	171	6	120	3	325							9	189
4:30	26	153	31	151	17	110	3	365							19	195
4:45	37	116	30	170	10	85	7	319							21	173
5:00	66	116	70	111	13	50	10	314							40	148
5:15	77	110	91	141	16	98	12	336							49	171
5:30	74	99	85	120	19	116	11	243							47	145
5:45	61	114	89	144	28	106	15	247							48	153
6:00	70	104	76	114	37	129	16	279							50	157
6:15	79	120	81	115	46	151	21	231							57	154
6:30	84	88	95	105	50	122	25	208							64	131
6:45	85	93	94	105	55	122	26	198							65	130
7:00	85	70	100	102	56	114	31	148							68	109
7:15	115	70	130	101	65	106	27	148							84	106
7:30	115	77	138	92	69	92	45	186							92	112
7:45	127	64	171	69	83	79	52	187							108	100
8:00	153	68	178	69	97	82	59	177							122	99
8:15	171	47	190	68	96	81	76	151							133	87
8:30	144	54	181	59	111	62	97	127							133	76
8:45	148	44	184	53	164	38	70	135							142	68
9:00	134	45	187	27	116	52	102	123							135	62
9:15	158	53	176	46	157	41	122	94							153	59
9:30	147	22	180	42	214	53	128	76							167	48
9:45	158	39	194	43	189	38	128	63							167	46
10:00	165	38	191	48	181	53	100	75							159	54
10:15	184	20	206	41	177	49	137	71							176	45
10:30	173	17	210	27	204	37	160	66							187	37
10:45	186	12	199	17	213	24	175	53							193	27
11:00	182	13	177	15	191	27	154	54							176	27
11:15	184	19	244	14	188	12	172	37							197	21
11:30	171	10	228	15	217	15	168	25							196	16
11:45	217	11	207	17	201	20	167	35							198	21
Total	3845	5191	4516	5715	3387	5154	2414	8130							3541	6048
Day Total	9036		10231		8541		10544								9588	
Split %	42.6%	57.4%	44.1%	55.9%	39.7%	60.3%	22.9%	77.1%							36.9%	63.1%
Peak Hour	11:45	12:15	11:45	12:15	10:45	1:15	11:30	4:30							11:45	12:15
Volume	826	841	857	862	809	828	673	1334							779	780
Peak Hour Factor	0.926	0.943	0.923	0.929	0.836	0.793	0.754	0.937							0.889	0.891

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ATR Location : Washington Street (Route 53) Just south of Park Drive
City, State : Hanover, MA

PDI File # : 133679 B
Client # : 12511.00
Client : VHB/ K. Keen

Direction : Southbound

Thursday		1-14 MPH	15-19 MPH	20-24 MPH	25-29 MPH	30-34 MPH	35-39 MPH	40-44 MPH	45-49 MPH	50-54 MPH	55-59 MPH	60-64 MPH	65-69 MPH	70-74 MPH	75-79 MPH	80+ MPH	Total	Ave Speed	85th %	
12/26/2013	12:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	12:00 AM
12/26/2013	1:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	1:00 AM
12/26/2013	2:00 AM	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1	31.2	31.2	2:00 AM
12/26/2013	3:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	3:00 AM
12/26/2013	4:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	4:00 AM
12/26/2013	5:00 AM	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	2	36.2	36.9	5:00 AM
12/26/2013	6:00 AM	0	0	0	0	5	3	4	2	0	0	0	0	0	0	0	14	37.8	44.0	6:00 AM
12/26/2013	7:00 AM	0	0	0	2	10	33	43	14	2	0	0	0	0	0	0	104	40.2	44.6	7:00 AM
12/26/2013	8:00 AM	0	2	0	6	20	90	135	32	4	1	0	0	0	0	0	290	40.0	44.3	8:00 AM
12/26/2013	9:00 AM	0	1	2	5	29	153	177	41	6	0	0	0	0	0	0	414	39.7	43.8	9:00 AM
12/26/2013	10:00 AM	0	1	4	16	96	183	194	40	1	0	0	0	0	0	0	535	38.3	43.3	10:00 AM
12/26/2013	11:00 AM	1	2	16	76	161	280	138	20	1	0	0	0	0	0	0	695	35.7	41.1	11:00 AM
12/26/2013	12:00 PM	0	1	5	28	155	381	193	30	4	0	0	0	0	0	0	795	37.2	41.3	12:00 PM
12/26/2013	1:00 PM	0	2	0	35	255	369	161	27	1	0	0	0	0	0	0	850	36.3	41.0	1:00 PM
12/26/2013	2:00 PM	0	1	12	82	344	390	110	6	1	0	0	0	0	0	0	946	34.7	38.9	2:00 PM
12/26/2013	3:00 PM	0	4	12	97	359	377	88	8	0	0	0	0	0	0	0	940	34.3	38.6	3:00 PM
12/26/2013	4:00 PM	0	1	5	34	311	390	114	10	1	0	0	0	0	0	0	866	35.4	39.3	4:00 PM
12/26/2013	5:00 PM	0	0	0	44	322	394	126	23	0	0	0	0	0	0	0	909	35.7	39.9	5:00 PM
12/26/2013	6:00 PM	0	1	3	41	238	305	127	8	1	0	0	0	0	0	0	724	35.7	40.0	6:00 PM
12/26/2013	7:00 PM	0	0	3	17	126	215	127	22	2	0	0	0	0	0	0	512	37.0	41.4	7:00 PM
12/26/2013	8:00 PM	0	0	1	12	34	177	136	22	1	0	0	0	0	0	0	383	38.6	42.6	8:00 PM
12/26/2013	9:00 PM	0	0	0	4	29	113	139	25	1	0	0	0	0	0	0	311	39.6	43.7	9:00 PM
12/26/2013	10:00 PM	0	0	1	2	12	48	80	15	2	0	0	0	0	0	0	160	40.2	44.1	10:00 PM
12/26/2013	11:00 PM	0	0	0	0	1	21	63	28	3	0	1	0	0	0	0	117	42.6	46.0	11:00 PM
	Totals	1	16	64	499	2508	3919	2155	373	31	1	1	0	0	0	0	9568	36.6	41.8	
		0.01%	0.17%	0.67%	5.22%	26.21%	40.96%	22.52%	3.90%	0.32%	0.01%	0.01%	0.00%	0.00%	0.00%	0.00%				
	AM Peak	11:00 AM	8:00 AM	11:00 AM	11:00 AM	11:00 AM	11:00 AM	10:00 AM	9:00 AM	9:00 AM	8:00 AM	12:00 AM	12:00 AM	12:00 AM	12:00 AM	12:00 AM	11:00 AM	7:00 AM	7:00 AM	
		1	2	16	76	161	280	194	41	6	1	0	0	0	0	0	695	40.2	44.6	
	PM Peak	12:00 PM	3:00 PM	2:00 PM	3:00 PM	3:00 PM	5:00 PM	12:00 PM	12:00 PM	12:00 PM	8:00 AM	11:00 PM	12:00 PM	12:00 PM	12:00 PM	12:00 PM	2:00 PM	11:00 PM	11:00 PM	
		0	4	12	97	359	394	193	30	4	0	1	0	0	0	0	946	42.6	46.0	

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Friday		1-14 MPH	15-19 MPH	20-24 MPH	25-29 MPH	30-34 MPH	35-39 MPH	40-44 MPH	45-49 MPH	50-54 MPH	55-59 MPH	60-64 MPH	65-69 MPH	70-74 MPH	75-79 MPH	80+ MPH	Total	Ave Speed	85th %	
12/27/2013	12:00 AM	0	0	0	0	1	22	30	18	3	0	0	0	0	0	0	74	42.0	47.5	12:00 AM
12/27/2013	1:00 AM	0	0	0	0	1	2	14	7	0	0	0	0	0	0	0	24	42.2	46.1	1:00 AM
12/27/2013	2:00 AM	0	0	0	0	0	3	5	4	1	0	0	0	0	0	0	13	43.0	47.6	2:00 AM
12/27/2013	3:00 AM	0	0	0	0	1	2	5	2	1	0	0	0	0	0	0	11	42.2	47.9	3:00 AM
12/27/2013	4:00 AM	0	0	0	0	0	3	1	2	0	0	0	0	0	0	0	6	41.3	46.2	4:00 AM
12/27/2013	5:00 AM	1	0	1	0	1	10	9	8	2	0	0	0	0	0	0	32	40.2	46.9	5:00 AM
12/27/2013	6:00 AM	0	1	1	2	7	27	39	8	3	0	0	0	0	0	0	88	39.6	44.3	6:00 AM
12/27/2013	7:00 AM	0	1	3	14	27	61	79	33	4	0	0	0	0	0	0	220	38.9	44.6	7:00 AM
12/27/2013	8:00 AM	0	3	6	27	40	105	120	49	4	0	0	0	0	0	0	354	38.5	44.5	8:00 AM
12/27/2013	9:00 AM	0	1	2	8	78	182	168	37	10	0	0	0	0	0	0	486	38.8	43.4	9:00 AM
12/27/2013	10:00 AM	0	3	5	26	133	276	157	19	2	0	0	0	0	0	0	621	37.9	41.7	10:00 AM
12/27/2013	11:00 AM	1	1	15	71	240	327	172	15	0	0	0	0	0	0	0	842	35.6	40.5	11:00 AM
12/27/2013	12:00 PM	1	4	10	57	248	382	179	21	1	0	0	0	0	0	0	903	35.9	40.6	12:00 PM
12/27/2013	1:00 PM	0	1	14	53	308	397	160	24	1	0	0	0	0	0	0	958	35.6	40.1	1:00 PM
12/27/2013	2:00 PM	1	2	29	127	366	404	145	5	1	0	0	0	0	0	0	1080	34.4	39.2	2:00 PM
12/27/2013	3:00 PM	9	21	75	289	390	245	43	7	1	0	0	0	0	0	0	1080	33.1	36.6	3:00 PM
12/27/2013	4:00 PM	3	23	60	215	533	299	59	3	1	0	0	0	0	0	0	1198	32.0	37.1	4:00 PM
12/27/2013	5:00 PM	1	27	58	104	370	326	108	11	1	0	0	0	0	0	0	1006	33.3	38.7	5:00 PM
12/27/2013	6:00 PM	0	0	9	45	201	391	203	36	3	0	0	0	0	0	0	888	36.8	41.4	6:00 PM
12/27/2013	7:00 PM	0	0	0	6	108	228	214	44	5	0	0	0	0	0	0	605	38.6	43.3	7:00 PM
12/27/2013	8:00 PM	0	0	0	2	14	122	202	43	5	1	0	0	0	0	0	389	40.7	43.9	8:00 PM
12/27/2013	9:00 PM	0	0	0	1	12	91	156	48	3	0	0	0	0	0	0	311	40.9	44.7	9:00 PM
12/27/2013	10:00 PM	0	0	0	1	7	43	98	41	5	1	0	0	0	0	0	196	41.7	45.8	10:00 PM
12/27/2013	11:00 PM	0	0	0	0	5	18	57	26	3	0	1	0	0	0	0	110	42.3	46.4	11:00 PM
	Totals	19	88	288	1048	3091	3966	2423	509	60	2	1	0	0	0	0	11495	35.7	43.3	
		0.20%	0.92%	3.01%	10.95%	32.31%	41.45%	25.32%	5.32%	0.63%	0.02%	0.01%	0.00%	0.00%	0.00%	0.00%				
	AM Peak	5:00 AM	8:00 AM	11:00 AM	11:00 AM	11:00 AM	11:00 AM	11:00 AM	8:00 AM	9:00 AM	12:00 AM	12:00 AM	12:00 AM	12:00 AM	12:00 AM	12:00 AM	11:00 AM	2:00 AM	3:00 AM	
		1	3	15	71	240	327	172	49	10	0	0	0	0	0	0	842	43.0	47.9	
	PM Peak	3:00 PM	5:00 PM	3:00 PM	3:00 PM	4:00 PM	2:00 PM	7:00 PM	9:00 PM	7:00 PM	3:00 AM	11:00 PM	12:00 PM	12:00 PM	12:00 PM	12:00 PM	4:00 PM	11:00 PM	11:00 PM	
		9	27	75	289	533	404	214	48	5	1	1	0	0	0	0	1198	42.3	46.4	

ATR Location : Washington Street (Route 53) just south of Park Drive
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PDI File # : 133679 B
Client # : 12511.00
Client : VHB/ K. Keen

Direction : Southbound

Saturday		1-14 MPH	15-19 MPH	20-24 MPH	25-29 MPH	30-34 MPH	35-39 MPH	40-44 MPH	45-49 MPH	50-54 MPH	55-59 MPH	60-64 MPH	65-69 MPH	70-74 MPH	75-79 MPH	80+ MPH	Total	Ave Speed	85th %	
12/28/2013	12:00 AM	0	0	0	0	2	14	9	13	1	2	0	0	0	0	0	41	41.9	46.2	12:00 AM
12/28/2013	1:00 AM	0	0	0	0	2	2	11	0	0	0	0	0	0	0	0	15	39.9	42.5	1:00 AM
12/28/2013	2:00 AM	0	0	0	0	1	1	0	3	0	1	0	0	0	0	0	6	44.1	48.2	2:00 AM
12/28/2013	3:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	3:00 AM
12/28/2013	4:00 AM	0	0	0	0	0	1	3	0	0	0	0	0	0	0	0	4	41.8	43.9	4:00 AM
12/28/2013	5:00 AM	0	0	0	0	0	1	4	0	0	0	0	0	0	0	0	5	42.5	43.9	5:00 AM
12/28/2013	6:00 AM	0	0	0	0	2	5	2	6	1	0	0	0	0	0	0	16	41.5	46.6	6:00 AM
12/28/2013	7:00 AM	0	0	0	0	7	22	56	19	1	0	0	0	0	0	0	105	41.5	45.8	7:00 AM
12/28/2013	8:00 AM	0	0	0	1	25	72	128	70	5	0	0	0	0	0	0	301	41.3	45.8	8:00 AM
12/28/2013	9:00 AM	0	2	0	16	141	247	151	39	3	0	0	0	0	0	0	599	37.4	42.1	9:00 AM
12/28/2013	10:00 AM	1	3	5	45	259	276	145	27	1	0	0	0	0	0	0	762	35.9	40.7	10:00 AM
12/28/2013	11:00 AM	1	0	15	79	299	376	139	18	1	0	0	0	0	0	0	928	35.2	39.7	11:00 AM
12/28/2013	12:00 PM	1	3	9	98	372	359	124	9	1	1	0	0	0	0	0	977	34.7	39.1	12:00 PM
12/28/2013	1:00 PM	1	2	22	97	340	342	130	18	0	0	0	0	0	0	0	952	34.6	39.5	1:00 PM
12/28/2013	2:00 PM	20	41	62	152	383	218	73	14	1	0	0	0	0	0	0	964	31.7	37.5	2:00 PM
12/28/2013	3:00 PM	37	99	122	118	167	144	59	9	0	0	0	0	0	0	0	755	28.5	37.7	3:00 PM
12/28/2013	4:00 PM	25	80	100	117	184	162	79	11	0	0	0	0	0	0	0	758	29.9	38.7	4:00 PM
12/28/2013	5:00 PM	48	59	38	61	150	164	102	9	1	1	0	0	0	0	0	633	31.0	39.9	5:00 PM
12/28/2013	6:00 PM	1	8	6	18	88	286	193	32	3	0	0	0	0	0	0	635	37.7	42.2	6:00 PM
12/28/2013	7:00 PM	0	0	1	7	49	204	194	42	2	0	0	0	0	0	0	499	39.1	43.1	7:00 PM
12/28/2013	8:00 PM	0	0	0	1	11	115	207	63	3	0	0	0	0	0	0	400	41.2	44.7	8:00 PM
12/28/2013	9:00 PM	0	0	0	4	6	56	170	43	0	1	0	0	0	0	0	280	41.3	44.5	9:00 PM
12/28/2013	10:00 PM	0	0	0	0	9	29	84	21	2	0	0	0	0	0	0	145	41.2	44.7	10:00 PM
12/28/2013	11:00 PM	0	0	0	0	0	15	46	28	3	0	0	0	0	0	0	92	43.0	46.0	11:00 PM
	Totals	135	297	380	814	2497	3111	2109	494	29	6	0	0	0	0	0	9872	35.0	41.0	
		1.41%	3.10%	3.97%	8.51%	26.10%	32.51%	22.04%	5.16%	0.30%	0.06%	0.00%	0.00%	0.00%	0.00%	0.00%				
	AM Peak	10:00 AM	10:00 AM	11:00 AM	11:00 AM	11:00 AM	11:00 AM	9:00 AM	8:00 AM	8:00 AM	12:00 AM	12:00 AM	12:00 AM	12:00 AM	12:00 AM	12:00 AM	11:00 AM	2:00 AM	2:00 AM	
		1	3	15	79	299	376	151	70	5	2	0	0	0	0	0	928	44.1	48.2	
	PM Peak	5:00 PM	3:00 PM	3:00 PM	2:00 PM	2:00 PM	12:00 PM	8:00 PM	8:00 PM	6:00 PM	12:00 PM	12:00 PM	12:00 PM	12:00 PM	12:00 PM	12:00 PM	12:00 PM	11:00 PM	11:00 PM	
		48	99	122	152	383	359	207	63	3	1	0	0	0	0	0	977	43.0	46.0	

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PDI File # : 133679 B
Client # : 12511.00
Client : VHB/ K. Keen

Direction : Southbound

Sunday		1-14 MPH	15-19 MPH	20-24 MPH	25-29 MPH	30-34 MPH	35-39 MPH	40-44 MPH	45-49 MPH	50-54 MPH	55-59 MPH	60-64 MPH	65-69 MPH	70-74 MPH	75-79 MPH	80+ MPH	Total	Ave Speed	85th %	
12/29/2013	12:00 AM	0	1	0	0	5	16	28	11	0	0	0	0	0	0	0	61	40.0	45.1	12:00 AM
12/29/2013	1:00 AM	0	0	0	1	0	12	14	3	1	0	0	0	0	0	0	31	40.3	43.1	1:00 AM
12/29/2013	2:00 AM	0	0	0	0	3	1	4	2	0	0	0	0	0	0	0	10	39.3	44.4	2:00 AM
12/29/2013	3:00 AM	0	0	0	0	1	2	3	0	0	0	0	0	0	0	0	6	39.1	43.5	3:00 AM
12/29/2013	4:00 AM	0	0	0	0	0	0	5	0	0	0	0	0	0	0	0	5	41.8	42.7	4:00 AM
12/29/2013	5:00 AM	0	0	0	0	0	0	1	2	0	0	0	0	0	0	0	3	44.4	47.1	5:00 AM
12/29/2013	6:00 AM	0	0	0	0	1	9	3	4	1	0	0	0	0	0	0	18	41.1	45.9	6:00 AM
12/29/2013	7:00 AM	0	0	0	1	3	19	36	22	0	0	0	0	0	0	0	81	41.7	45.4	7:00 AM
12/29/2013	8:00 AM	0	1	0	1	10	67	118	44	4	0	0	0	0	0	0	245	41.2	45.3	8:00 AM
12/29/2013	9:00 AM	0	0	0	2	20	139	151	45	5	0	0	0	0	0	0	362	40.1	44.2	9:00 AM
12/29/2013	10:00 AM	0	2	2	10	48	203	166	33	5	0	0	0	0	0	0	469	38.8	43.2	10:00 AM
12/29/2013	11:00 AM	0	0	1	18	106	241	201	31	2	0	0	0	0	0	0	600	38.0	42.0	11:00 AM
12/29/2013	12:00 PM	1	0	7	36	217	332	157	33	4	0	0	0	0	0	0	787	36.5	41.3	12:00 PM
12/29/2013	1:00 PM	1	3	9	45	220	364	166	19	3	0	0	0	0	0	0	830	36.1	40.6	1:00 PM
12/29/2013	2:00 PM	5	16	26	66	227	305	111	13	2	0	0	0	0	0	0	771	34.5	39.7	2:00 PM
12/29/2013	3:00 PM	1	1	3	33	244	391	148	24	3	0	0	0	0	0	0	848	36.2	40.3	3:00 PM
12/29/2013	4:00 PM	2	1	0	15	103	275	170	32	0	0	0	0	0	0	0	598	37.6	42.1	4:00 PM
12/29/2013	5:00 PM	0	0	0	12	83	245	119	20	0	0	0	0	0	0	0	479	37.6	41.8	5:00 PM
12/29/2013	6:00 PM	0	0	0	8	73	170	114	15	2	0	0	0	0	0	0	382	37.8	42.0	6:00 PM
12/29/2013	7:00 PM	0	0	1	2	32	100	100	12	1	0	0	0	0	0	0	248	38.8	42.9	7:00 PM
12/29/2013	8:00 PM	0	0	0	0	16	81	123	26	2	0	0	0	0	0	0	248	40.2	44.0	8:00 PM
12/29/2013	9:00 PM	0	0	0	0	5	42	70	38	4	0	0	0	0	0	0	159	41.8	46.3	9:00 PM
12/29/2013	10:00 PM	0	0	0	0	0	17	50	23	4	1	0	0	0	0	0	95	42.8	46.6	10:00 PM
12/29/2013	11:00 PM	0	0	1	0	0	13	46	17	3	0	1	0	0	0	0	81	42.5	45.6	11:00 PM
	Totals	10	25	50	250	1417	3044	2104	469	46	1	1	0	0	0	0	7417	37.6	43.5	
		0.10%	0.26%	0.52%	2.61%	14.81%	31.81%	21.99%	4.90%	0.48%	0.01%	0.01%	0.00%	0.00%	0.00%	0.00%				
	AM Peak	12:00 AM	10:00 AM	10:00 AM	11:00 AM	11:00 AM	11:00 AM	11:00 AM	9:00 AM	9:00 AM	12:00 AM	12:00 AM	12:00 AM	12:00 AM	12:00 AM	12:00 AM	11:00 AM	5:00 AM	5:00 AM	
		0	2	2	18	106	241	201	45	5	0	0	0	0	0	0	600	44.4	47.1	
	PM Peak	2:00 PM	2:00 PM	2:00 PM	2:00 PM	3:00 PM	3:00 PM	4:00 PM	9:00 PM	12:00 PM	3:00 AM	11:00 PM	12:00 PM	12:00 PM	12:00 PM	12:00 PM	3:00 PM	10:00 PM	10:00 PM	
		5	16	26	66	244	391	170	38	4	1	1	0	0	0	0	848	42.8	46.6	

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ATR Location : Washington Street (Route 53) Just south of Park Drive
City, State : Hanover, MA

PDI File # : 133679 B
Client # : 12511.00
Client : VHB/ K. Keen

Direction : Northbound

Thursday		1-14 MPH	15-19 MPH	20-24 MPH	25-29 MPH	30-34 MPH	35-39 MPH	40-44 MPH	45-49 MPH	50-54 MPH	55-59 MPH	60-64 MPH	65-69 MPH	70-74 MPH	75-79 MPH	80+ MPH	Total	Ave Speed	85th %	
12/26/2013	12:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	12:00 AM
12/26/2013	1:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	1:00 AM
12/26/2013	2:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	2:00 AM
12/26/2013	3:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	3:00 AM
12/26/2013	4:00 AM	0	0	0	0	0	0	3	2	0	0	0	0	0	0	0	5	43.6	45.5	4:00 AM
12/26/2013	5:00 AM	0	0	0	0	2	6	12	2	3	0	0	0	0	1	0	26	42.5	47.2	5:00 AM
12/26/2013	6:00 AM	0	0	0	0	2	7	28	10	1	0	0	0	0	0	0	48	41.9	45.2	6:00 AM
12/26/2013	7:00 AM	0	0	0	2	12	31	127	54	4	0	0	0	0	0	0	230	42.0	45.5	7:00 AM
12/26/2013	8:00 AM	0	1	4	8	54	171	221	60	2	0	2	0	0	0	0	523	39.7	44.0	8:00 AM
12/26/2013	9:00 AM	0	2	6	14	58	217	224	86	1	0	1	0	0	0	0	609	39.4	44.3	9:00 AM
12/26/2013	10:00 AM	0	2	2	14	59	284	284	50	6	0	0	0	0	0	0	701	39.2	43.0	10:00 AM
12/26/2013	11:00 AM	0	2	13	41	179	306	187	27	2	0	0	0	0	0	1	758	36.6	41.5	11:00 AM
12/26/2013	12:00 PM	1	3	7	30	168	329	245	55	0	1	0	0	0	0	0	839	37.5	42.4	12:00 PM
12/26/2013	1:00 PM	1	7	15	50	133	314	232	33	1	0	0	0	0	0	0	786	36.9	41.7	1:00 PM
12/26/2013	2:00 PM	5	0	11	43	193	325	133	17	1	0	0	0	0	0	0	728	35.7	40.6	2:00 PM
12/26/2013	3:00 PM	1	6	15	33	144	288	178	18	1	0	0	0	0	0	0	684	36.5	41.1	3:00 PM
12/26/2013	4:00 PM	0	1	8	15	134	253	149	17	0	0	0	0	0	0	0	577	36.9	41.6	4:00 PM
12/26/2013	5:00 PM	0	0	3	26	105	198	88	20	2	0	0	0	0	1	0	443	36.7	41.3	5:00 PM
12/26/2013	6:00 PM	0	0	1	30	129	184	73	7	0	0	0	0	0	0	0	424	35.8	40.0	6:00 PM
12/26/2013	7:00 PM	0	0	4	21	94	137	55	6	0	0	0	1	0	0	0	318	35.9	40.3	7:00 PM
12/26/2013	8:00 PM	0	0	1	5	58	90	69	8	0	0	0	0	0	0	0	231	37.2	41.7	8:00 PM
12/26/2013	9:00 PM	0	0	1	4	18	69	66	11	3	0	0	0	0	0	0	172	39.1	43.2	9:00 PM
12/26/2013	10:00 PM	0	0	0	1	12	29	38	7	0	0	0	0	0	0	0	87	39.2	43.1	10:00 PM
12/26/2013	11:00 PM	0	0	0	1	6	25	24	10	0	0	0	0	0	0	0	66	39.7	44.4	11:00 PM
	Totals	8	24	91	338	1560	3263	2436	500	27	1	3	1	0	2	1	8255	37.5	42.2	
		0.10%	0.29%	1.10%	4.09%	18.90%	39.53%	29.51%	6.06%	0.33%	0.01%	0.04%	0.01%	0.00%	0.02%	0.01%				
	AM Peak	12:00 AM	9:00 AM	11:00 AM	11:00 AM	11:00 AM	11:00 AM	10:00 AM	9:00 AM	10:00 AM	12:00 AM	8:00 AM	12:00 AM	12:00 AM	5:00 AM	11:00 AM	11:00 AM	4:00 AM	5:00 AM	
		0	2	13	41	179	306	284	86	6	0	2	0	0	1	1	758	43.6	47.2	
	PM Peak	2:00 PM	1:00 PM	1:00 PM	1:00 PM	2:00 PM	12:00 PM	12:00 PM	12:00 PM	9:00 PM	12:00 PM	12:00 PM	7:00 PM	12:00 PM	5:00 PM	12:00 PM	12:00 PM	11:00 PM	11:00 PM	
		5	7	15	50	193	329	245	55	3	1	0	1	0	1	0	839	39.7	44.4	

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Friday		1-14 MPH	15-19 MPH	20-24 MPH	25-29 MPH	30-34 MPH	35-39 MPH	40-44 MPH	45-49 MPH	50-54 MPH	55-59 MPH	60-64 MPH	65-69 MPH	70-74 MPH	75-79 MPH	80+ MPH	Total	Ave Speed	85th %	
12/27/2013	12:00 AM	0	0	0	1	3	14	11	2	0	0	0	0	0	0	0	31	39.0	43.2	12:00 AM
12/27/2013	1:00 AM	0	0	0	0	0	3	8	5	0	0	0	0	0	0	0	14	42.8	45.3	1:00 AM
12/27/2013	2:00 AM	0	0	0	0	1	8	7	1	0	0	0	0	0	0	0	17	39.3	43.1	2:00 AM
12/27/2013	3:00 AM	0	0	0	0	0	4	14	3	1	0	0	0	0	0	0	22	42.2	44.6	3:00 AM
12/27/2013	4:00 AM	0	0	0	1	3	9	47	21	3	0	0	0	0	0	0	84	42.8	46.5	4:00 AM
12/27/2013	5:00 AM	0	0	1	1	7	45	179	92	10	2	0	0	0	0	0	337	42.6	46.1	5:00 AM
12/27/2013	6:00 AM	1	1	0	1	26	101	177	48	3	0	0	0	0	0	0	360	40.2	44.0	6:00 AM
12/27/2013	7:00 AM	2	2	4	11	48	167	265	73	2	0	0	0	0	0	1	575	39.9	44.1	7:00 AM
12/27/2013	8:00 AM	0	1	3	19	68	301	289	61	3	1	0	0	0	0	1	747	39.0	43.3	8:00 AM
12/27/2013	9:00 AM	4	5	7	27	108	282	248	47	2	0	0	0	0	0	0	730	37.8	42.5	9:00 AM
12/27/2013	10:00 AM	2	10	34	73	168	325	185	23	0	0	1	0	0	0	0	821	35.6	40.9	10:00 AM
12/27/2013	11:00 AM	3	12	30	57	167	392	158	33	2	0	0	0	1	0	0	855	35.9	40.8	11:00 AM
12/27/2013	12:00 PM	0	5	21	53	163	354	215	46	2	0	0	0	0	0	0	859	36.7	41.9	12:00 PM
12/27/2013	1:00 PM	1	6	23	45	162	364	203	16	3	0	0	0	0	0	0	823	36.4	41.3	1:00 PM
12/27/2013	2:00 PM	2	8	20	54	165	309	179	17	1	0	0	0	0	0	0	755	35.9	40.7	2:00 PM
12/27/2013	3:00 PM	0	5	12	41	153	350	109	6	1	0	0	0	0	0	0	678	35.8	39.9	3:00 PM
12/27/2013	4:00 PM	0	1	15	49	187	275	105	9	1	0	0	0	0	0	0	642	35.3	39.9	4:00 PM
12/27/2013	5:00 PM	0	5	24	70	172	223	82	11	1	0	0	0	0	0	0	588	34.6	39.6	5:00 PM
12/27/2013	6:00 PM	0	1	2	27	130	225	149	16	0	0	0	0	0	0	0	550	36.9	41.2	6:00 PM
12/27/2013	7:00 PM	0	2	0	17	102	226	114	27	3	0	0	0	0	0	0	491	37.2	41.4	7:00 PM
12/27/2013	8:00 PM	0	0	1	15	89	169	104	24	2	0	0	0	0	0	0	404	37.4	42.4	8:00 PM
12/27/2013	9:00 PM	0	0	0	0	33	64	78	27	0	1	0	0	0	0	0	183	40.3	44.5	9:00 PM
12/27/2013	10:00 PM	0	0	2	2	14	36	63	10	4	0	0	0	0	0	0	131	39.7	43.6	10:00 PM
12/27/2013	11:00 PM	0	0	0	0	3	21	26	7	1	1	0	0	0	0	0	59	40.8	44.3	11:00 PM
	Totals	15	64	199	565	1952	4267	3015	625	45	5	1	0	1	0	2	10756	37.2	42.7	
		0.18%	0.78%	2.41%	6.84%	23.65%	51.69%	36.52%	7.57%	0.55%	0.06%	0.01%	0.00%	0.01%	0.00%	0.02%				
	AM Peak	9:00 AM	11:00 AM	10:00 AM	10:00 AM	10:00 AM	11:00 AM	8:00 AM	5:00 AM	5:00 AM	5:00 AM	10:00 AM	12:00 AM	11:00 AM	12:00 AM	7:00 AM	11:00 AM	1:00 AM	4:00 AM	
		4	12	34	73	168	392	289	92	10	2	1	0	1	0	1	855	42.8	46.5	
	PM Peak	2:00 PM	2:00 PM	5:00 PM	5:00 PM	4:00 PM	1:00 PM	12:00 PM	12:00 PM	10:00 PM	5:00 AM	12:00 PM	12:00 PM	12:00 PM	12:00 PM	12:00 PM	12:00 PM	11:00 PM	9:00 PM	
		2	8	24	70	187	364	215	46	4	1	0	0	0	0	0	859	40.8	44.5	

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City, State : Hanover, MA

PDI File # : 133679 B
Client # : 12511.00
Client : VHB/ K. Keen

Direction : Northbound

Saturday		1-14 MPH	15-19 MPH	20-24 MPH	25-29 MPH	30-34 MPH	35-39 MPH	40-44 MPH	45-49 MPH	50-54 MPH	55-59 MPH	60-64 MPH	65-69 MPH	70-74 MPH	75-79 MPH	80+ MPH	Total	Ave Speed	85th %	
12/28/2013	12:00 AM	0	0	0	1	1	7	10	9	1	1	0	0	0	0	0	30	42.0	46.9	12:00 AM
12/28/2013	1:00 AM	0	0	0	0	2	6	1	0	0	0	0	0	0	0	0	9	36.6	38.3	1:00 AM
12/28/2013	2:00 AM	0	0	0	0	0	1	3	0	0	0	0	0	0	0	0	4	41.0	43.4	2:00 AM
12/28/2013	3:00 AM	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	2	48.7	49.6	3:00 AM
12/28/2013	4:00 AM	0	0	0	0	0	3	4	4	0	0	0	0	0	0	0	11	41.9	46.0	4:00 AM
12/28/2013	5:00 AM	0	0	0	0	0	4	7	1	1	0	0	0	0	0	0	13	42.0	45.4	5:00 AM
12/28/2013	6:00 AM	0	0	0	0	4	9	21	3	0	0	0	0	0	0	0	37	40.2	43.1	6:00 AM
12/28/2013	7:00 AM	0	0	0	1	19	50	76	28	1	0	0	0	0	0	0	175	40.3	44.5	7:00 AM
12/28/2013	8:00 AM	0	0	0	5	24	108	224	66	7	0	0	0	0	0	0	434	40.9	44.7	8:00 AM
12/28/2013	9:00 AM	0	0	0	7	77	245	246	48	6	0	0	0	0	0	0	629	39.0	43.0	9:00 AM
12/28/2013	10:00 AM	0	0	4	35	118	391	205	22	2	1	0	0	0	0	1	799	37.3	41.4	10:00 AM
12/28/2013	11:00 AM	0	6	8	41	233	377	193	16	1	0	0	0	0	0	0	875	36.2	40.6	11:00 AM
12/28/2013	12:00 PM	1	16	42	102	230	348	164	11	3	0	0	0	0	0	0	917	34.6	40.0	12:00 PM
12/28/2013	1:00 PM	1	13	24	83	268	347	153	19	0	0	1	0	0	0	0	909	35.1	40.2	1:00 PM
12/28/2013	2:00 PM	0	5	18	62	237	345	131	6	1	0	0	0	0	0	0	805	35.3	39.9	2:00 PM
12/28/2013	3:00 PM	1	1	12	113	271	225	67	7	0	0	0	1	0	0	0	698	33.6	38.5	3:00 PM
12/28/2013	4:00 PM	0	3	6	45	252	285	65	1	0	0	0	0	0	0	0	657	34.7	38.5	4:00 PM
12/28/2013	5:00 PM	0	2	7	77	233	223	61	1	2	0	0	0	0	0	0	608	34.1	38.3	5:00 PM
12/28/2013	6:00 PM	0	0	1	14	172	248	179	26	3	1	0	0	0	0	0	594	37.6	41.9	6:00 PM
12/28/2013	7:00 PM	0	1	0	9	76	262	151	22	0	0	0	0	0	0	0	521	37.9	41.8	7:00 PM
12/28/2013	8:00 PM	0	0	1	2	26	100	139	27	3	0	0	0	0	0	0	298	39.8	43.4	8:00 PM
12/28/2013	9:00 PM	0	0	0	2	27	94	82	26	0	0	0	0	0	0	0	231	39.3	43.6	9:00 PM
12/28/2013	10:00 PM	0	0	0	0	3	59	75	25	2	0	0	0	0	0	0	164	40.9	44.5	10:00 PM
12/28/2013	11:00 PM	0	0	1	2	4	15	29	17	2	0	0	0	0	0	0	70	40.9	45.7	11:00 PM
Totals		3	47	124	601	2247	3754	2286	386	36	3	1	1	0	0	1	9490	36.5	42.6	
		0.04%	0.57%	1.50%	7.28%	27.22%	45.48%	27.69%	4.68%	0.44%	0.04%	0.01%	0.01%	0.00%	0.00%	0.01%				
AM Peak		12:00 AM	11:00 AM	11:00 AM	11:00 AM	11:00 AM	10:00 AM	9:00 AM	8:00 AM	8:00 AM	12:00 AM	12:00 AM	12:00 AM	12:00 AM	12:00 AM	10:00 AM	11:00 AM	3:00 AM	3:00 AM	
		0	6	8	41	233	391	246	66	7	1	0	0	0	0	1	875	48.7	49.6	
PM Peak		12:00 PM	12:00 PM	12:00 PM	3:00 PM	3:00 PM	12:00 PM	6:00 PM	8:00 PM	12:00 PM	10:00 AM	1:00 PM	3:00 PM	12:00 PM	12:00 PM	12:00 PM	12:00 PM	10:00 PM	11:00 PM	
		1	16	42	113	271	348	179	27	3	1	1	1	0	0	0	917	40.9	45.7	

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City, State : Hanover, MA

PDI File # : 133679 B
Client # : 12511.00
Client : VHB/ K. Keen

Direction : Northbound

Sunday		1-14 MPH	15-19 MPH	20-24 MPH	25-29 MPH	30-34 MPH	35-39 MPH	40-44 MPH	45-49 MPH	50-54 MPH	55-59 MPH	60-64 MPH	65-69 MPH	70-74 MPH	75-79 MPH	80+ MPH	Total	Ave Speed	85th %	
12/29/2013	12:00 AM	0	0	0	0	2	13	19	9	0	0	0	0	0	0	0	43	40.5	45.0	12:00 AM
12/29/2013	1:00 AM	0	0	1	0	1	5	4	4	0	0	0	0	0	0	0	15	39.4	45.5	1:00 AM
12/29/2013	2:00 AM	0	0	0	2	0	1	1	2	0	0	0	0	0	0	0	6	38.8	46.8	2:00 AM
12/29/2013	3:00 AM	0	0	0	0	0	0	5	4	0	0	0	0	0	0	0	9	44.4	45.6	3:00 AM
12/29/2013	4:00 AM	0	0	0	0	0	3	4	1	1	0	0	0	0	0	0	9	42.2	45.1	4:00 AM
12/29/2013	5:00 AM	0	0	0	0	1	1	15	9	3	0	0	0	0	0	0	29	43.7	48.5	5:00 AM
12/29/2013	6:00 AM	0	0	0	0	1	10	33	18	1	1	0	0	0	0	0	64	42.7	47.5	6:00 AM
12/29/2013	7:00 AM	0	0	0	0	9	35	61	31	2	0	0	0	0	0	0	138	41.2	45.1	7:00 AM
12/29/2013	8:00 AM	0	0	0	2	27	97	130	39	4	0	0	0	0	0	0	299	40.2	44.3	8:00 AM
12/29/2013	9:00 AM	0	0	1	4	40	163	199	46	6	0	0	0	0	0	0	459	39.9	43.9	9:00 AM
12/29/2013	10:00 AM	0	1	0	9	92	276	233	29	2	0	0	1	0	0	0	645	38.4	42.2	10:00 AM
12/29/2013	11:00 AM	0	1	1	24	138	356	227	17	3	0	0	0	0	0	0	767	37.4	41.5	11:00 AM
12/29/2013	12:00 PM	0	4	16	83	228	350	140	9	0	1	0	0	0	0	0	831	35.3	40.0	12:00 PM
12/29/2013	1:00 PM	4	10	15	50	224	362	132	16	3	0	0	0	0	0	0	816	35.4	40.1	1:00 PM
12/29/2013	2:00 PM	1	3	10	61	255	293	103	10	1	0	0	0	0	0	0	737	35.1	39.6	2:00 PM
12/29/2013	3:00 PM	10	8	4	32	136	419	250	32	3	0	0	0	0	0	0	914	36.9	41.6	3:00 PM
12/29/2013	4:00 PM	3	2	6	27	180	511	318	58	2	0	0	0	0	0	0	1107	37.7	42.2	4:00 PM
12/29/2013	5:00 PM	19	0	2	19	130	426	197	32	0	0	0	0	0	0	0	845	36.8	41.3	5:00 PM
12/29/2013	6:00 PM	19	1	1	17	103	306	190	30	2	0	0	0	0	0	0	669	37.1	42.1	6:00 PM
12/29/2013	7:00 PM	2	0	3	6	68	177	172	22	2	0	0	0	0	0	0	452	38.3	42.7	7:00 PM
12/29/2013	8:00 PM	1	0	0	0	24	143	220	37	3	0	0	0	0	0	0	428	40.0	43.6	8:00 PM
12/29/2013	9:00 PM	1	0	0	0	9	74	126	48	4	0	0	0	0	0	0	262	41.2	45.5	9:00 PM
12/29/2013	10:00 PM	7	1	2	1	3	50	90	30	4	1	0	0	0	0	0	189	40.0	45.2	10:00 PM
12/29/2013	11:00 PM	0	0	1	0	0	26	66	21	3	0	1	0	0	0	0	118	42.1	45.2	11:00 PM
Totals		67	33	63	337	1711	4057	2935	554	49	3	1	1	0	0	0	9851	37.6	43.8	
		0.81%	0.40%	0.76%	4.08%	20.73%	49.63%	35.55%	6.71%	0.59%	0.04%	0.01%	0.01%	0.00%	0.00%	0.00%				
AM Peak		12:00 AM	10:00 AM	1:00 AM	11:00 AM	11:00 AM	11:00 AM	10:00 AM	9:00 AM	9:00 AM	6:00 AM	12:00 AM	10:00 AM	12:00 AM	12:00 AM	12:00 AM	11:00 AM	3:00 AM	5:00 AM	
		0	3	1	24	138	356	233	46	6	1	0	1	0	0	0	767	44.4	48.5	
PM Peak		5:00 PM	1:00 PM	12:00 PM	12:00 PM	2:00 PM	4:00 PM	4:00 PM	4:00 PM	9:00 PM	6:00 AM	11:00 PM	12:00 PM	12:00 PM	12:00 PM	12:00 PM	4:00 PM	11:00 PM	5:00 PM	
		19	10	16	83	255	511	318	58	4	1	1	0	0	0	0	1107	42.1	45.5	

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ATR Location : Washington Street (Route 53) just south of Park Drive
City, State : Hanover, MA

PDI File # : 133679 B
Client # : 12511.00
Client : VHB/ K. Keen

Direction : Southbound

	Thursday 12/26/2013		Friday 12/27/2013		Saturday 12/28/2013		Sunday 12/29/2013								Average Day	
	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
12:00	0	195	26	213	19	244	21	182							17	209
12:15	0	177	13	242	14	246	20	197							12	216
12:30	0	217	20	232	5	218	13	200							10	217
12:45	0	206	15	216	3	269	7	208							6	225
1:00	0	174	9	253	4	227	10	217							6	218
1:15	0	234	8	244	2	270	13	196							6	236
1:30	0	211	6	242	5	234	3	224							4	228
1:45	0	231	1	219	4	221	5	193							3	216
2:00	0	237	4	261	3	248	3	183							3	232
2:15	0	228	5	267	1	242	5	209							3	237
2:30	0	249	2	262	1	216	0	189							1	229
2:45	1	232	2	290	1	258	2	190							2	243
3:00	0	248	3	224	0	251	2	220							1	236
3:15	0	249	3	287	0	279	2	212							1	257
3:30	0	228	2	285	0	115	1	215							1	210
3:45	0	217	3	284	0	110	1	201							1	203
4:00	0	218	0	322	0	136	2	156							1	208
4:15	0	203	2	283	1	203	0	166							1	214
4:30	0	221	3	305	3	234	2	144							2	226
4:45	0	224	1	288	0	185	1	132							1	207
5:00	1	259	5	282	1	129	0	129							2	200
5:15	1	255	8	258	2	133	1	126							3	193
5:30	0	193	8	239	2	206	1	115							3	188
5:45	0	202	11	227	0	165	1	109							3	176
6:00	0	176	18	233	1	173	1	114							5	174
6:15	3	175	21	226	7	164	5	101							9	167
6:30	5	193	17	223	4	144	7	93							8	163
6:45	6	180	32	206	4	154	5	74							12	154
7:00	6	144	33	200	6	140	11	64							14	137
7:15	12	131	49	171	16	113	19	62							24	119
7:30	36	118	44	139	27	130	20	66							32	113
7:45	50	119	94	95	56	116	31	56							58	97
8:00	53	99	77	97	56	106	39	86							56	97
8:15	67	107	80	103	65	114	57	71							67	99
8:30	97	90	91	106	91	96	80	52							90	86
8:45	73	87	106	83	89	84	69	39							84	73
9:00	92	102	102	82	112	87	64	53							93	81
9:15	80	79	130	95	151	82	77	45							110	75
9:30	114	70	104	79	161	78	96	38							119	66
9:45	128	60	150	55	175	33	125	23							145	43
10:00	100	51	137	59	156	35	107	32							125	44
10:15	128	38	144	61	184	47	103	25							140	43
10:30	142	41	155	36	226	34	125	23							162	34
10:45	165	30	185	40	196	29	134	15							170	29
11:00	159	30	200	39	229	25	146	29							184	31
11:15	167	28	180	26	218	23	149	18							179	24
11:30	177	29	220	21	242	15	152	19							198	21
11:45	192	30	242	24	239	29	153	15							207	25
Total	2055	7513	2771	8724	2782	7090	1891	5526							2375	7213
Day Total	9568		11495		9872		7417								9588	
Split %	21.5%	78.5%	24.1%	75.9%	28.2%	71.8%	25.5%	74.5%							24.8%	75.2%
Peak Hour	11:45	2:30	11:45	4:00	11:45	2:30	11:45	3:00							11:45	2:30
Volume	792	978	932	1198	972	1004	758	848							864	964

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	Thursday 12/26/2013		Friday 12/27/2013		Saturday 12/28/2013		Sunday 12/29/2013								Average Day	
	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
12:00	0	223	13	203	11	233	11	193							9	213
12:15	0	207	10	194	4	242	11	219							6	216
12:30	0	206	5	232	8	214	11	223							6	219
12:45	0	203	3	230	7	228	10	196							5	214
1:00	0	221	5	212	4	239	4	190							3	216
1:15	0	203	3	219	5	261	9	192							4	219
1:30	0	172	3	188	0	199	1	219							1	195
1:45	0	190	3	204	0	210	1	215							1	205
2:00	0	206	4	218	1	207	2	207							2	210
2:15	0	192	4	185	0	202	0	158							1	184
2:30	0	156	2	180	0	197	0	182							1	179
2:45	0	174	7	172	3	199	4	190							4	184
3:00	0	180	3	185	0	179	1	145							1	172
3:15	0	162	1	175	1	173	4	145							2	164
3:30	0	178	6	157	0	143	1	268							2	187
3:45	0	164	12	161	1	203	3	356							4	221
4:00	0	138	11	153	1	160	2	309							4	190
4:15	1	164	13	168	3	157	1	303							5	198
4:30	0	154	30	145	6	151	1	264							9	179
4:45	4	121	30	176	1	189	5	231							10	179
5:00	8	114	70	171	1	171	4	234							21	173
5:15	3	111	93	161	2	141	4	248							26	165
5:30	9	106	83	126	7	137	10	180							27	137
5:45	6	112	91	130	3	159	11	183							28	146
6:00	13	119	84	160	2	168	8	210							27	164
6:15	12	118	85	153	12	161	14	164							31	149
6:30	13	96	97	121	11	139	20	154							35	128
6:45	10	91	94	116	12	126	22	141							35	119
7:00	20	70	101	131	44	170	29	108							49	120
7:15	36	80	149	187	34	166	17	100							59	133
7:30	63	93	146	105	36	90	44	122							72	103
7:45	111	75	179	68	61	95	48	122							100	90
8:00	107	69	174	65	87	100	61	140							107	94
8:15	149	53	204	129	91	78	76	111							130	93
8:30	123	63	189	158	102	78	86	91							125	98
8:45	144	46	180	52	154	42	76	86							139	57
9:00	122	52	167	47	122	59	98	90							127	62
9:15	174	56	198	41	141	80	117	71							158	62
9:30	148	25	176	50	189	58	111	58							156	48
9:45	165	39	189	45	177	34	133	43							166	40
10:00	159	36	205	40	193	52	133	51							173	45
10:15	183	21	211	46	197	53	172	56							191	44
10:30	166	18	216	26	198	38	165	45							186	32
10:45	193	12	189	19	211	21	175	37							192	22
11:00	185	15	193	25	238	24	170	42							197	27
11:15	194	21	220	8	217	11	195	28							207	17
11:30	163	16	219	12	210	15	208	22							200	16
11:45	216	14	223	14	210	20	194	26							211	19
Total	2900	5355	4563	6163	3018	6472	2483	7368							3249	6340
Day Total	8255		10756		9490		9851								9588	
Split %	35.1%	64.9%	42.7%	57.3%	31.8%	68.2%	25.2%	74.8%							33.9%	66.1%
Peak Hour	11:45	12:00	11:45	12:30	11:30	12:30	11:45	3:30							11:45	12:30
Volume	832	839	879	893	895	942	832	1236							859	867

Stopping Sight Distance and Intersection Sight Distance Calculator [v0.97]
Based on 'A Policy on Geometric Design of Highways and Streets', AASHTO, 2004

Section I

Project Information

Project Number:	12511.00	**Analyst:**	VHB
City/Town, State:	Hanover, MA		
Location:	Route 53 at Starland northern driveway	**Client:**	

Street Names and Directions

Major Street name:	Route 53 at	NB/SB
Minor Street name:	Starland driveway	EB/WB
Minor Street intersects *from* the:		east
The minor street *predominantly* serves...		Passenger Cars
Sight distance location intersection is...		Existing
Total number of lanes on Major Street is...		2

Street Notes

Grade Information [enter down slope as a negative number]

Major Street Approach Grade:	0.00%	NB
	0.00%	SB
Minor Street Approach Grade:	0.00%	SB
	0.00%	NB

Major Street Speed Information

Posted		*Observed **
35	NB	45
35	SB	43

** note:* off-peak *85th percentile speeds*

Section II

ISD and SSD *Observations*

Instructions on how to observe and measure ISD and SSD are included on subsequent pages.

ISD - Intersection sight distance is the distance that is based on the time required for perception, reaction and completion of the desired critical exiting maneuver [typically, a left turn] once the driver on a minor street approach [or a site drive] decides to execute the maneuver. Calculation for the critical ISD includes the time to [1] turn left, and to clear the near half of the intersection without conflicting with the vehicles approaching from the left; and [2] upon turning left, to accelerate to the operating speed on the roadway without causing approaching vehicles on the main road to unduly reduce their speed. In this context, ISD can be considered as a *desirable* visibility criterion for the safe operation of an unsignalized intersection.

SSD - Stopping sight distance is the distance required for a vehicle approaching an intersection from either direction to perceive, react, and come to a complete stop before colliding with the exiting vehicle from a driveway. In this respect, SSD can be considered as the *minimum* visibility criterion for the safe operation of an unsignalized intersection.

		Limiting Factors:
***Observed* ISD:**	700+	looking left [south]
(rounded to nearest 5 feet)	500	looking right [north]
***Observed* SSD:**	500+	traveling NB
(rounded to nearest 5 feet)	500	traveling SB

Section III

ISD and SSD *Calculations* (rounded up to the next highest 5 feet) [sources: SSD - AASHTO, pp.110-117; ISD - AASHTO, pp. 650 - 664]

Cases are described in detail on subsequent pages. In summary...

B1: left turn from minor road, from stop control
B2: right turn from minor road, from stop control
B3: crossing maneuver from minor road, from stop control, assuming left- and right turns are not permitted *[otherwise, case B1 or B2 would supercede]*

Desirable Calculated...		Condition Met?
... ISD, case B1:	500	**Yes**
... ISD, case B2:	430	**Yes**
... ISD, case B3:	430	**Yes**

[note: if number of lanes crossed exceeds 6, or if grades are steep, consult the manual]

Minimum Calculated ...		Condition Met?
... ISD, case B1:	360	**Yes**
... ISD, case B2:	360	**Yes**
... ISD, case B3:	360	**Yes**

[note: minimum *ISD is equal to required SSD]*

Calculated ...			Condition Met?
... SSD:	360	traveling NB	**Yes**
	340	traveling SB	**Yes**

Section IV

AASHTO Guidance

Refer to AASHTO for specific guidance on SSD and ISD if presented with an unusual/atypical case.
Adequate ISD is not needed at signalized intersections, assuming traffic signal heads are visible on all approaches.
Any object that would obstruct the driver's view should be removed or lowered, if practical. Such objects include buildings, parked cars, highway structures, hedges/vegetation/trees/bushes/unmowed lawn, walls, fences, and terrain.
For ISD, an object should be considered an obstruction if it obstructs the vision of a driver whose eye height is 3.5 feet above the roadway surface and the object to be seen is 3.5 feet above the surface of the intersecting road.
Where horizontal sight restrictions occur on downgrades, particularly at the ends of long downgrades, it is desirable to provide SSD that exceeds those values indicated above (refer to page 114 of AASHTO).

Stopping Sight Distance and Intersection Sight Distance Calculator [v0.97]
Based on 'A Policy on Geometric Design of Highways and Streets', AASHTO, 2004

Section I

Project Information

Project Number:	12511.00	**Analyst:**	VHB
City/Town, State:	Hanover, MA		
Location:	Route 53 at Starland southern driveway	**Client:**	

Street Names and Directions

Major Street name:	Route 53 at	NB/SB
Minor Street name:	Starland driveway	EB/WB
Minor Street intersects *from* the:		east
The minor street *predominantly* serves...		Passenger Cars
Sight distance location intersection is...		Existing
Total number of lanes on Major Street is...		2

Street Notes

Grade Information [enter down slope as a negative number]

Major Street Approach Grade:	0.00%	NB
	0.00%	SB
Minor Street Approach Grade:	0.00%	SB
	0.00%	NB

Major Street Speed Information

Posted		*Observed **
35	NB	45
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** note:* off-peak *85th percentile speeds*

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(rounded to nearest 5 feet)	500	looking right [north]
***Observed* SSD:**	500	traveling NB
(rounded to nearest 5 feet)	500	traveling SB

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ISD and SSD *Calculations* (rounded up to the next highest 5 feet) [sources: SSD - AASHTO, pp.110-117; ISD - AASHTO, pp. 650 - 664]

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... ISD, case B2:	360	**Yes**
... ISD, case B3:	360	**Yes**

[note: minimum *ISD is equal to required SSD]*

Calculated ...			**Condition Met?**
... SSD:	360	traveling NB	**Yes**
	340	traveling SB	**Yes**

Section IV

AASHTO Guidance

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Where horizontal sight restrictions occur on downgrades, particularly at the ends of long downgrades, it is desirable to provide SSD that exceeds those values indicated above (refer to page 114 of AASHTO).

Table X Vehicle Crash Summary (2009 to 2011)

	Route 53 at Starland Driveway North	Route 53 at Starland Driveway South	Total
District 5 Average Crash Rate [1,2]	0.58	0.58	
MassDOT Calculated Crash Rate	0.26	0.05	
Year			
2009	2	0	2
2010	1	1	2
2011	3	0	3
Total	6	1	7
Average	2.00	0.33	2.33
Collision Type			
Angle	3	0	3
Head-on	1	0	1
Rear-end	2	1	3
Sideswipe, opposite direction	0	0	0
Sideswipe, same direction	0	0	0
Single vehicle crash	0	0	0
Unknown/Not Reported	0	0	0
Total	6	1	7
Crash Severity			
Fatal injury	0	0	0
Non-fatal injury	3	1	4
Property Damage Only (no injuries)	3	0	3
Unknown/Not Reported	0	0	0
Total	6	1	7
Time of Day			
Weekday, 7:00 AM - 9:00 AM	0	0	0
Weekday, 4:00 PM - 6:00 PM	3	0	3
Saturday, 11:00 AM - 2:00 PM	0	0	0
Weekday, other time	2	1	3
Weekend, other time	1	0	1
Total	6	1	7
Pavement Conditions			
Dry	6	1	7
Wet	0	0	0
Snow/Ice	0	0	0
Other	0	0	0
Unknown/Not Reported	0	0	0
Total	6	1	7
Non-Motorist (Bike, Pedestrian)	0	0	0

Source: Massachusetts Department of Transportation Crash Data 2009-2011.

1. Crash rate, expressed in crashes per million entering vehicles, determined using MassDOT methods.
2. MassDOT District 5 average crash rate for signalized and unsignalized intersections (http://www.mhd.state.ma.us).

Moving Massachusetts Forward. massDOT Highway

INTERSECTION CRASH RATE WORKSHEET

CITY/TOWN : Hanover, MA COUNT DATE : 10/17/2013

DISTRICT : 5 UNSIGNALIZED : X (0.58) SIGNALIZED : (0.77)

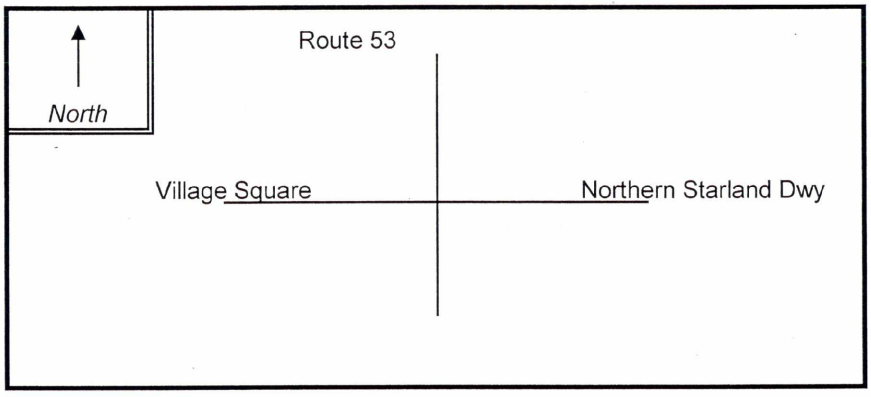
~ INTERSECTION DATA ~

MAJOR STREET : Route 53 (Washington Street)

MINOR STREET(S) : Northern Starland Driveway

Village Square

INTERSECTION DIAGRAM (Label Approaches)



PEAK HOUR VOLUMES

APPROACH :	1	2	3	4	5	Total Peak Hourly Approach Volume
DIRECTION :	NB	SB	EB	WB		
PEAK HOURLY VOLUMES (AM/PM) :	630	1,190	25	40		**1,885**

" K " FACTOR : **0.090**

INTERSECTION ADT (**V**) = TOTAL DAILY APPROACH VOLUME : **20,944**

TOTAL # OF CRASHES : 6

OF YEARS : 3

AVERAGE # OF CRASHES PER YEAR (**A**) : **2.00**

CRASH RATE CALCULATION : **0.26**

RATE = $\frac{(A * 1{,}000{,}000)}{(V * 365)}$

Comments : MassDOT Accident Data

Project Title & Date:

PRECISION DATA INDUSTRIES, LLC
PO Box 301 Berlin, MA 01503
Office: 508.481.3999 Fax: 508.345.1234
Email: datarequests@pdillc.com

ATR Location : Washington Street (Route 53)
north of Starland South Driveway
City, State : Hanover, MA

PDI File # : 133679 A
Client # : 12511.00
Client : VHB/ K. Keen

Direction : Southbound

Saturday		1-14 MPH	15-19 MPH	20-24 MPH	25-29 MPH	30-34 MPH	35-39 MPH	40-44 MPH	45-49 MPH	50-54 MPH	55-59 MPH	60-64 MPH	65-69 MPH	70-74 MPH	75-79 MPH	80+ MPH	Total	Ave Speed	85th %	
12/28/2013	12:00 AM	0	0	1	2	7	17	45	19	5	2	1	1	0	0	0	100	42.2	46.3	12:00 AM
12/28/2013	1:00 AM	0	0	0	1	2	9	17	10	3	1	0	0	0	0	0	43	42.6	47.8	1:00 AM
12/28/2013	2:00 AM	0	0	0	0	0	4	7	9	5	0	0	0	0	0	0	25	44.7	50.5	2:00 AM
12/28/2013	3:00 AM	0	0	0	0	0	0	7	1	0	0	0	0	0	0	0	8	43.5	44.3	3:00 AM
12/28/2013	4:00 AM	0	0	0	0	0	2	5	5	1	0	0	0	0	0	0	13	44.0	47.6	4:00 AM
12/28/2013	5:00 AM	0	0	0	0	0	2	14	6	3	0	0	0	0	0	0	25	43.5	48.3	5:00 AM
12/28/2013	6:00 AM	0	0	0	0	0	5	20	18	4	3	0	0	0	0	0	50	44.7	48.1	6:00 AM
12/28/2013	7:00 AM	0	0	0	0	0	11	68	48	11	2	0	0	0	0	0	140	44.2	48.4	7:00 AM
12/28/2013	8:00 AM	0	0	0	0	6	41	111	92	31	0	1	0	0	0	0	282	43.8	48.6	8:00 AM
12/28/2013	9:00 AM	0	0	0	12	53	193	178	49	5	2	0	0	0	0	0	490	39.1	43.8	9:00 AM
12/28/2013	10:00 AM	0	0	0	15	118	265	190	51	3	0	0	0	0	0	0	642	38.2	42.9	10:00 AM
12/28/2013	11:00 AM	0	1	10	64	195	389	189	23	1	0	0	0	0	0	0	872	36.3	41.0	11:00 AM
12/28/2013	12:00 PM	0	6	8	58	279	403	160	14	0	0	1	0	0	0	0	929	35.6	40.1	12:00 PM
12/28/2013	1:00 PM	0	0	7	52	237	415	177	29	0	0	0	0	0	0	0	917	36.4	40.9	1:00 PM
12/28/2013	2:00 PM	0	0	10	139	402	361	80	7	0	0	0	0	0	0	0	999	33.9	38.2	2:00 PM
12/28/2013	3:00 PM	5	20	128	360	359	142	10	0	0	0	0	0	0	0	0	1024	29.4	34.4	3:00 PM
12/28/2013	4:00 PM	2	12	83	296	360	155	8	1	0	0	0	0	0	0	0	917	30.2	34.9	4:00 PM
12/28/2013	5:00 PM	2	23	100	242	329	122	16	1	0	0	0	0	0	0	0	835	29.9	34.7	5:00 PM
12/28/2013	6:00 PM	0	0	5	45	162	280	188	18	0	1	0	0	0	0	0	699	36.6	41.3	6:00 PM
12/28/2013	7:00 PM	0	0	1	21	80	245	160	36	2	0	0	0	0	0	0	545	38.1	42.9	7:00 PM
12/28/2013	8:00 PM	0	0	0	2	31	163	192	57	3	0	0	0	0	0	0	448	40.0	44.3	8:00 PM
12/28/2013	9:00 PM	0	0	1	2	31	101	153	51	4	0	0	0	0	0	0	343	40.2	44.6	9:00 PM
12/28/2013	10:00 PM	0	0	0	1	4	39	99	44	8	0	0	0	0	0	0	195	42.0	46.0	10:00 PM
12/28/2013	11:00 PM	0	0	0	0	5	19	81	41	5	0	0	0	0	0	0	151	42.7	46.6	11:00 PM
	Totals	9	62	354	1312	2660	3383	2175	630	92	11	3	1	0	0	0	10692	35.6	43.6	
		0.09%	0.64%	3.67%	13.61%	27.60%	35.10%	22.57%	6.54%	0.95%	0.11%	0.03%	0.01%	0.00%	0.00%	0.00%				
	AM Peak	12:00 AM	11:00 AM	11:00 AM	11:00 AM	11:00 AM	11:00 AM	10:00 AM	8:00 AM	8:00 AM	6:00 AM	12:00 AM	12:00 AM	12:00 AM	12:00 AM	12:00 AM	11:00 AM	6:00 AM	2:00 AM	
		0	1	10	64	195	389	190	92	31	3	1	1	0	0	0	872	44.7	50.5	
	PM Peak	3:00 PM	5:00 PM	3:00 PM	3:00 PM	2:00 PM	1:00 PM	8:00 PM	8:00 PM	10:00 PM	6:00 AM	12:00 PM	12:00 PM	12:00 PM	12:00 PM	12:00 PM	3:00 PM	11:00 PM	11:00 PM	
		5	23	128	360	402	415	192	57	8	1	1	0	0	0	0	1024	42.7	46.6	

PRECISION DATA INDUSTRIES, LLC
PO Box 301 Berlin, MA 01503
Office: 508.481.3999 Fax: 508.345.1234
Email: datarequests@pdillc.com

ATR Location : Washington Street (Route 53)
north of Starland South Driveway
City, State : Hanover, MA

PDI File # : 133679 A
Client # : 12511.00
Client : VHB/ K. Keen

Direction : Southbound

Sunday		1-14 MPH	15-19 MPH	20-24 MPH	25-29 MPH	30-34 MPH	35-39 MPH	40-44 MPH	45-49 MPH	50-54 MPH	55-59 MPH	60-64 MPH	65-69 MPH	70-74 MPH	75-79 MPH	80+ MPH	Total	Ave Speed	85th %	
12/29/2013	12:00 AM	0	0	0	1	4	35	47	25	2	0	0	0	0	0	0	114	41.3	45.3	12:00 AM
12/29/2013	1:00 AM	0	0	0	0	1	10	42	13	1	0	0	0	0	0	0	67	42.3	45.4	1:00 AM
12/29/2013	2:00 AM	0	0	0	0	0	5	13	5	2	0	0	0	0	0	0	25	43.2	48.5	2:00 AM
12/29/2013	3:00 AM	0	0	0	0	0	3	5	3	0	1	0	0	0	0	0	12	43.0	45.7	3:00 AM
12/29/2013	4:00 AM	0	0	0	0	1	2	1	3	0	0	0	0	0	0	0	7	41.9	48.6	4:00 AM
12/29/2013	5:00 AM	0	0	0	0	0	4	1	6	1	0	0	0	0	0	0	12	44.0	49.2	5:00 AM
12/29/2013	6:00 AM	0	0	0	0	0	7	13	13	2	2	0	0	0	0	0	37	44.1	48.0	6:00 AM
12/29/2013	7:00 AM	0	0	0	0	4	14	41	41	5	0	0	0	0	0	0	105	43.5	47.8	7:00 AM
12/29/2013	8:00 AM	0	0	0	0	13	37	85	33	6	0	0	0	0	0	0	174	41.5	46.0	8:00 AM
12/29/2013	9:00 AM	0	0	1	9	27	93	126	40	5	1	0	0	0	0	0	302	40.0	44.5	9:00 AM
12/29/2013	10:00 AM	1	0	12	59	88	146	154	23	2	0	0	0	0	0	0	485	36.5	42.4	10:00 AM
12/29/2013	11:00 AM	2	1	17	68	120	234	154	21	1	0	0	0	0	0	0	618	36.0	41.2	11:00 AM
12/29/2013	12:00 PM	3	14	83	161	202	240	104	10	0	0	0	0	0	0	0	817	32.6	39.2	12:00 PM
12/29/2013	1:00 PM	1	7	52	164	279	232	91	18	1	0	0	0	0	0	0	845	33.0	38.8	1:00 PM
12/29/2013	2:00 PM	6	14	70	257	244	186	54	7	0	0	0	0	0	0	0	838	31.2	37.2	2:00 PM
12/29/2013	3:00 PM	0	3	19	134	306	269	135	22	1	0	0	0	0	0	0	889	34.4	39.8	3:00 PM
12/29/2013	4:00 PM	0	2	11	29	122	224	196	40	1	0	0	0	0	0	0	625	37.5	42.6	4:00 PM
12/29/2013	5:00 PM	0	1	4	16	64	223	172	31	0	0	0	0	0	0	0	511	38.1	42.1	5:00 PM
12/29/2013	6:00 PM	0	0	0	4	57	173	159	26	3	0	0	0	0	0	0	422	38.8	42.8	6:00 PM
12/29/2013	7:00 PM	1	0	0	1	18	111	125	29	0	0	0	0	0	0	0	285	39.6	43.6	7:00 PM
12/29/2013	8:00 PM	0	0	0	0	9	68	121	37	2	0	0	0	0	0	0	237	41.1	44.8	8:00 PM
12/29/2013	9:00 PM	0	0	0	1	2	35	85	35	7	0	0	0	0	0	0	165	42.3	46.3	9:00 PM
12/29/2013	10:00 PM	0	0	0	2	2	18	45	22	4	1	0	0	0	0	0	94	42.3	46.8	10:00 PM
12/29/2013	11:00 PM	0	0	0	0	2	11	46	19	5	0	0	0	0	0	0	83	42.7	45.7	11:00 PM
	Totals	14	42	269	906	1565	2380	2015	522	51	5	0	0	0	0	0	7769	36.2	44.3	
		0.15%	0.44%	2.79%	9.40%	16.24%	24.69%	20.91%	5.42%	0.53%	0.05%	0.00%	0.00%	0.00%	0.00%	0.00%				
	AM Peak	11:00 AM	11:00 AM	11:00 AM	11:00 AM	11:00 AM	11:00 AM	10:00 AM	7:00 AM	8:00 AM	6:00 AM	12:00 AM	12:00 AM	12:00 AM	12:00 AM	12:00 AM	11:00 AM	6:00 AM	5:00 AM	
		2	1	17	68	120	234	154	41	6	2	0	0	0	0	0	618	44.1	49.2	
	PM Peak	2:00 PM	12:00 PM	12:00 PM	2:00 PM	3:00 PM	3:00 PM	4:00 PM	4:00 PM	9:00 PM	6:00 AM	12:00 PM	12:00 PM	12:00 PM	12:00 PM	12:00 PM	3:00 PM	11:00 PM	10:00 PM	
		6	14	83	257	306	269	196	40	7	1	0	0	0	0	0	889	42.7	46.8	

PRECISION DATA INDUSTRIES, LLC
PO Box 301 Berlin, MA 01503
Office: 508.481.3999 Fax: 508.545.1234
Email: dataexpert@pdi-ic.com

ATR Location : Washington Street (Route 53)
north of Starland South Driveway
City, State : Hanover, MA

PDI File # : 133679 A
Client # : 12511.00
Client : VHB/ K. Keen

Direction : Southbound

Thursday		1-14 MPH	15-19 MPH	20-24 MPH	25-29 MPH	30-34 MPH	35-39 MPH	40-44 MPH	45-49 MPH	50-54 MPH	55-59 MPH	60-64 MPH	65-69 MPH	70-74 MPH	75-79 MPH	80+ MPH	Total	Ave Speed	85th %	
12/26/2013	12:00 AM	0	0	0	0	1	4	21	10	1	0	0	0	0	0	0	37	43.2	47.5	12:00 AM
12/26/2013	1:00 AM	0	0	0	0	0	3	3	6	0	2	0	0	0	0	0	14	45.4	49.3	1:00 AM
12/26/2013	2:00 AM	0	0	0	0	0	2	4	3	0	0	0	0	0	0	0	9	42.2	45.7	2:00 AM
12/26/2013	3:00 AM	0	0	0	0	0	0	0	3	1	0	0	0	0	0	0	4	42.9	45.5	3:00 AM
12/26/2013	4:00 AM	0	0	0	0	0	0	0	5	3	0	1	0	0	0	0	9	45.2	48.7	4:00 AM
12/26/2013	5:00 AM	0	0	0	0	0	4	13	8	0	0	0	0	0	0	0	25	42.2	46.2	5:00 AM
12/26/2013	6:00 AM	0	0	0	0	0	10	33	18	2	0	0	0	0	0	0	63	43.2	47.2	6:00 AM
12/26/2013	7:00 AM	1	0	0	3	10	22	65	52	8	1	0	0	0	0	0	162	42.4	47.4	7:00 AM
12/26/2013	8:00 AM	0	0	2	0	6	68	113	115	15	1	1	0	0	0	0	321	42.8	46.8	8:00 AM
12/26/2013	9:00 AM	0	0	0	3	18	95	214	73	9	1	0	0	0	0	0	413	41.4	45.1	9:00 AM
12/26/2013	10:00 AM	0	0	0	2	20	143	263	83	5	0	0	0	0	0	0	516	41.0	45.1	10:00 AM
12/26/2013	11:00 AM	0	1	11	10	83	253	259	52	3	0	0	0	0	0	0	672	38.8	43.5	11:00 AM
12/26/2013	12:00 PM	0	0	2	13	102	284	335	63	5	0	0	0	0	0	0	804	39.1	43.1	12:00 PM
12/26/2013	1:00 PM	0	0	0	6	107	360	299	38	4	0	0	0	0	0	0	814	38.6	42.2	1:00 PM
12/26/2013	2:00 PM	0	0	6	30	191	422	266	22	1	0	0	0	0	0	0	938	37.2	41.2	2:00 PM
12/26/2013	3:00 PM	0	0	0	10	143	472	273	28	1	0	0	0	0	0	0	927	37.9	41.8	3:00 PM
12/26/2013	4:00 PM	1	0	2	16	129	451	222	29	4	0	0	0	0	0	0	854	37.7	41.3	4:00 PM
12/26/2013	5:00 PM	0	0	4	56	205	422	182	14	1	0	0	0	0	0	0	884	36.3	40.6	5:00 PM
12/26/2013	6:00 PM	0	0	1	13	190	358	148	12	0	0	0	0	0	0	0	722	36.6	40.5	6:00 PM
12/26/2013	7:00 PM	0	0	0	14	99	239	122	19	0	0	0	0	0	0	0	493	37.3	41.3	7:00 PM
12/26/2013	8:00 PM	0	0	0	7	40	172	143	15	1	0	0	0	0	0	0	378	38.7	42.5	8:00 PM
12/26/2013	9:00 PM	0	0	0	1	26	102	140	34	0	0	0	0	0	0	0	303	39.8	43.9	9:00 PM
12/26/2013	10:00 PM	0	0	1	3	13	43	83	20	1	0	0	0	0	0	0	164	40.3	44.3	10:00 PM
12/26/2013	11:00 PM	0	0	0	0	2	20	55	29	5	1	0	0	0	0	0	112	42.8	47.5	11:00 PM
	Totals	2	1	29	187	1385	3949	3264	747	66	7	1	0	0	0	0	9638	38.6	42.8	
		0.02%	0.01%	0.30%	1.94%	14.37%	40.97%	33.87%	7.75%	0.68%	0.07%	0.01%	0.00%	0.00%	0.00%	0.00%				
	AM Peak	7:00 AM	11:00 AM	11:00 AM	11:00 AM	11:00 AM	11:00 AM	10:00 AM	8:00 AM	8:00 AM	1:00 AM	8:00 AM	12:00 AM	12:00 AM	12:00 AM	12:00 AM	11:00 AM	1:00 AM	1:00 AM	
		1	1	11	10	83	253	263	115	15	2	1	0	0	0	0	672	45.4	49.3	
	PM Peak	4:00 PM	12:00 PM	2:00 PM	5:00 PM	5:00 PM	3:00 PM	12:00 PM	12:00 PM	12:00 PM	4:00 AM	12:00 PM	12:00 PM	12:00 PM	12:00 PM	12:00 PM	2:00 PM	11:00 PM	11:00 PM	
		1	0	6	56	205	472	315	63	5	1	0	0	0	0	0	938	42.8	47.5	

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ATR Location : Washington Street (Route 53)
north of Starland South Driveway
City, State : Hanover, MA

PDI File # : 133679 A
Client # : 12511.00
Client : VHB/ K. Keen

Direction : Southbound

Friday		1-14 MPH	15-19 MPH	20-24 MPH	25-29 MPH	30-34 MPH	35-39 MPH	40-44 MPH	45-49 MPH	50-54 MPH	55-59 MPH	60-64 MPH	65-69 MPH	70-74 MPH	75-79 MPH	80+ MPH	Total	Ave Speed	85th %	
12/27/2013	12:00 AM	0	0	0	0	2	24	28	19	3	0	0	0	0	0	0	76	41.7	46.1	12:00 AM
12/27/2013	1:00 AM	0	0	0	0	0	4	12	7	0	0	0	0	0	0	0	23	42.4	46.0	1:00 AM
12/27/2013	2:00 AM	0	0	0	0	0	4	2	4	3	0	0	0	0	0	0	13	44.6	50.4	2:00 AM
12/27/2013	3:00 AM	0	0	0	0	0	2	5	3	0	0	0	0	0	0	0	10	42.5	45.2	3:00 AM
12/27/2013	4:00 AM	0	0	0	0	0	2	2	2	0	0	0	0	0	0	0	6	41.3	47.2	4:00 AM
12/27/2013	5:00 AM	0	0	0	1	0	6	13	7	2	0	0	0	0	0	0	29	42.8	48.1	5:00 AM
12/27/2013	6:00 AM	0	0	0	0	3	19	34	21	3	0	0	0	0	0	0	80	42.4	47.2	6:00 AM
12/27/2013	7:00 AM	0	0	0	1	4	25	93	63	7	2	0	0	0	0	0	195	43.1	47.1	7:00 AM
12/27/2013	8:00 AM	0	1	1	0	8	65	139	99	16	1	0	0	0	0	0	330	42.6	47.5	8:00 AM
12/27/2013	9:00 AM	0	0	0	0	11	91	259	115	15	1	0	0	0	0	0	492	42.4	46.3	9:00 AM
12/27/2013	10:00 AM	0	0	0	5	48	134	290	62	4	0	0	0	0	0	0	606	40.6	43.8	10:00 AM
12/27/2013	11:00 AM	0	0	1	23	133	312	274	75	4	0	0	0	0	0	0	822	38.6	43.4	11:00 AM
12/27/2013	12:00 PM	0	11	4	9	97	329	382	46	2	0	0	0	0	0	0	880	38.7	42.9	12:00 PM
12/27/2013	1:00 PM	0	0	1	29	163	410	300	51	3	0	0	0	0	0	0	957	38.0	42.2	1:00 PM
12/27/2013	2:00 PM	0	5	28	83	188	418	308	39	2	0	0	0	0	0	0	1071	36.6	41.9	2:00 PM
12/27/2013	3:00 PM	0	3	16	88	334	447	173	10	0	0	0	0	0	0	0	1071	35.2	39.7	3:00 PM
12/27/2013	4:00 PM	0	8	45	160	455	384	85	8	1	0	0	0	0	0	0	1146	33.4	38.0	4:00 PM
12/27/2013	5:00 PM	0	15	36	142	334	354	93	11	1	0	0	0	0	0	0	986	33.6	38.7	5:00 PM
12/27/2013	6:00 PM	1	4	14	54	274	351	173	12	0	0	0	0	0	0	0	883	35.6	40.5	6:00 PM
12/27/2013	7:00 PM	0	3	0	10	137	296	162	28	0	0	0	0	0	0	0	636	37.3	41.5	7:00 PM
12/27/2013	8:00 PM	0	0	3	4	40	143	232	47	2	0	0	0	0	0	0	471	39.9	43.8	8:00 PM
12/27/2013	9:00 PM	0	0	0	0	21	89	179	71	6	0	0	0	0	0	0	366	41.3	45.3	9:00 PM
12/27/2013	10:00 PM	0	0	0	2	8	55	117	59	6	1	0	0	0	0	0	248	42.0	46.2	10:00 PM
12/27/2013	11:00 PM	0	0	0	1	9	32	69	54	11	1	0	0	0	0	0	177	42.5	47.2	11:00 PM
	Totals	1	50	149	612	2269	4056	3424	916	91	6	0	0	0	0	0	11574	37.6	44.4	
		0.01%	0.52%	1.55%	6.35%	23.54%	42.08%	35.53%	9.50%	0.94%	0.06%	0.00%	0.00%	0.00%	0.00%	0.00%				
	AM Peak	12:00 AM	8:00 AM	8:00 AM	11:00 AM	11:00 AM	11:00 AM	10:00 AM	9:00 AM	8:00 AM	7:00 AM	12:00 AM	12:00 AM	12:00 AM	12:00 AM	12:00 AM	11:00 AM	2:00 AM	2:00 AM	
		0	1	1	23	133	312	290	115	16	2	0	0	0	0	0	822	44.6	50.4	
	PM Peak	6:00 PM	5:00 PM	4:00 PM	4:00 PM	4:00 PM	3:00 PM	12:00 PM	9:00 PM	11:00 PM	7:00 AM	12:00 PM	12:00 PM	12:00 PM	12:00 PM	12:00 PM	4:00 PM	11:00 PM	11:00 PM	
		1	15	45	160	455	447	382	71	11	1	0	0	0	0	0	1146	42.5	47.2	

N/S: Washington Street (Route 53)
E: East Street
City, State: Hanover, MA
Client: VHB/ K. Keen

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File Name : 133679 CCC
Site Code : 12511.00
Start Date : 12/29/2013
Page No : 1

Groups Printed- Peds and Bicycles

	Washington Street Route 53) From North			East Street From East			Washington Street Route 53) From South			
Start Time	Thru	Left	Peds	Right	Left	Peds	Right	Thru	Peds	Int. Total
11:00 AM	0	0	0	0	0	0	0	0	0	0
11:15 AM	0	0	0	0	0	0	0	0	0	0
11:30 AM	0	0	0	0	0	0	0	0	0	0
11:45 AM	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0
12:00 PM	0	0	0	0	0	0	0	0	0	0
12:15 PM	0	0	0	0	0	0	0	0	0	0
12:30 PM	0	0	0	0	0	0	0	0	0	0
12:45 PM	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0
Grand Total	0	0	0	0	0	0	0	0	0	0
Apprch %	0	0	0	0	0	0	0	0	0	
Total %										

	Washington Street Route 53) From North				East Street From East				Washington Street Route 53) From South				
Start Time	Thru	Left	Peds	App. Total	Right	Left	Peds	App. Total	Right	Thru	Peds	App. Total	Int. Total
Peak Hour Analysis From 11:00 AM to 12:45 PM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 11:00 AM													
11:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
11:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
11:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
11:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0	0		0	0	0		0	0	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

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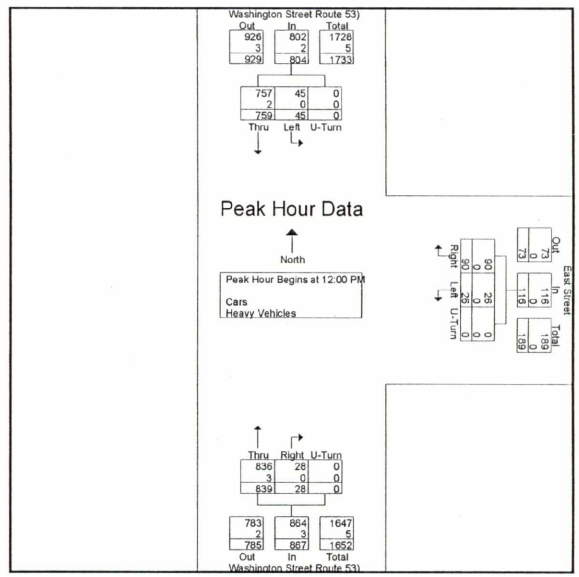
	Washington Street Route 53) From North				East Street From East				Washington Street Route 53) From South				
Start Time	Thru	Left	U-Turn	App. Total	Right	Left	U-Turn	App. Total	Right	Thru	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 11:00 AM to 12:45 PM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 12:00 PM													
12:00 PM	179	14	0	193	**25**	2	0	27	4	197	0	201	421
12:15 PM	**197**	8	0	205	25	7	0	**32**	**10**	221	0	231	468
12:30 PM	191	**15**	0	**206**	25	6	0	31	7	**231**	0	**238**	**475**
12:45 PM	192	8	0	200	15	**11**	0	26	7	190	0	197	423
Total Volume	759	45	0	804	90	26	0	116	28	839	0	867	1787
% App. Total	94.4	5.6	0		77.6	22.4	0		3.2	96.8	0		
PHF	.963	.750	.000	.976	.900	.591	.000	.906	.700	.908	.000	.911	.941
Cars	757	45	0	802	90	26	0	116	28	836	0	864	1782
% Cars	99.7	100	0	99.8	100	100	0	100	100	99.6	0	99.7	99.7
Heavy Vehicles	2	0	0	2	0	0	0	0	0	3	0	3	5
% Heavy Vehicles	0.3	0	0	0.2	0	0	0	0	0	0.4	0	0.3	0.3



N/S: Washington Street (Route 53)
E: East Street
City, State: Hanover, MA
Client: VHB/ K. Keen

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File Name : 133679 CCC
Site Code : 12511.00
Start Date : 12/29/2013
Page No : 1

Groups Printed- Cars

	Washington Street Route 53) From North			East Street From East			Washington Street Route 53) From South			
Start Time	Thru	Left	U-Turn	Right	Left	U-Turn	Right	Thru	U-Turn	Int. Total
11:00 AM	140	13	0	18	5	0	7	168	0	351
11:15 AM	138	15	0	13	7	0	11	196	0	380
11:30 AM	145	19	0	26	3	0	14	190	0	397
11:45 AM	154	15	0	14	3	1	8	183	0	378
Total	577	62	0	71	18	1	40	737	0	1506
12:00 PM	179	14	0	25	2	0	4	197	0	421
12:15 PM	197	8	0	25	7	0	10	219	0	466
12:30 PM	190	15	0	25	6	0	7	230	0	473
12:45 PM	191	8	0	15	11	0	7	190	0	422
Total	757	45	0	90	26	0	28	836	0	1782
Grand Total	1334	107	0	161	44	1	68	1573	0	3288
Apprch %	92.6	7.4	0	78.2	21.4	0.5	4.1	95.9	0	
Total %	40.6	3.3	0	4.9	1.3	0	2.1	47.8	0	

	Washington Street Route 53) From North				East Street From East				Washington Street Route 53) From South				
Start Time	Thru	Left	U-Turn	App. Total	Right	Left	U-Turn	App. Total	Right	Thru	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 11:00 AM to 12:45 PM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 12:00 PM													
12:00 PM	179	14	0	193	**25**	2	0	27	4	197	0	201	421
12:15 PM	**197**	8	0	**205**	25	7	0	**32**	**10**	219	0	229	466
12:30 PM	190	**15**	0	205	25	6	0	31	7	**230**	0	**237**	**473**
12:45 PM	191	8	0	199	15	**11**	0	26	7	190	0	197	422
Total Volume	757	45	0	802	90	26	0	116	28	836	0	864	1782
% App. Total	94.4	5.6	0		77.6	22.4	0		3.2	96.8	0		
PHF	.961	.750	.000	.978	.900	.591	.000	.906	.700	.909	.000	.911	.942

N/S: Washington Street (Route 53)
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File Name : 133679 CCC
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Groups Printed- Heavy Vehicles

	Washington Street Route 53) From North			East Street From East			Washington Street Route 53) From South			
Start Time	Thru	Left	U-Turn	Right	Left	U-Turn	Right	Thru	U-Turn	Int. Total
11:00 AM	0	0	0	0	0	0	0	0	0	0
11:15 AM	2	0	0	0	0	0	0	0	0	2
11:30 AM	2	0	0	0	0	0	0	0	0	2
11:45 AM	1	0	0	0	0	0	0	0	0	1
Total	5	0	0	0	0	0	0	0	0	5
12:00 PM	0	0	0	0	0	0	0	0	0	0
12:15 PM	0	0	0	0	0	0	0	2	0	2
12:30 PM	1	0	0	0	0	0	0	1	0	2
12:45 PM	1	0	0	0	0	0	0	0	0	1
Total	2	0	0	0	0	0	0	3	0	5
Grand Total	7	0	0	0	0	0	0	3	0	10
Apprch %	100	0	0	0	0	0	0	100	0	
Total %	70	0	0	0	0	0	0	30	0	

	Washington Street Route 53) From North				East Street From East				Washington Street Route 53) From South				
Start Time	Thru	Left	U-Turn	App. Total	Right	Left	U-Turn	App. Total	Right	Thru	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 11:00 AM to 12:45 PM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 11:00 AM													
11:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
11:15 AM	**2**	0	0	**2**	0	0	0	0	0	0	0	0	**2**
11:30 AM	2	0	0	2	0	0	0	0	0	0	0	0	2
11:45 AM	1	0	0	1	0	0	0	0	0	0	0	0	1
Total Volume	5	0	0	5	0	0	0	0	0	0	0	0	5
% App. Total	100	0	0		0	0	0		0	0	0		
PHF	.625	.000	.000	.625	.000	.000	.000	.000	.000	.000	.000	.000	.625

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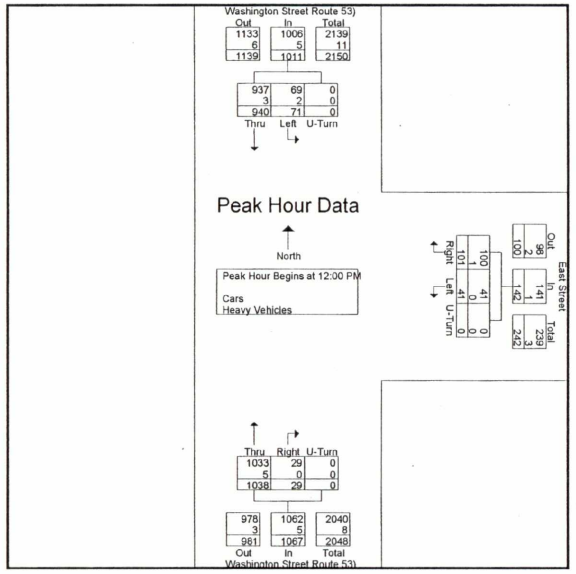
	Washington Street Route 53) From North				East Street From East				Washington Street Route 53) From South				
Start Time	Thru	Left	U-Turn	App. Total	Right	Left	U-Turn	App. Total	Right	Thru	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 11:00 AM to 12:45 PM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 12:00 PM													
12:00 PM	239	**19**	0	258	25	7	0	32	7	274	0	281	571
12:15 PM	230	18	0	248	21	12	0	33	**10**	**300**	0	**310**	**591**
12:30 PM	221	17	0	238	**32**	7	0	**39**	5	225	0	230	507
12:45 PM	**250**	17	0	**267**	23	**15**	0	38	7	239	0	246	551
Total Volume	940	71	0	1011	101	41	0	142	29	1038	0	1067	2220
% App. Total	93	7	0		71.1	28.9	0		2.7	97.3	0		
PHF	.940	.934	.000	.947	.789	.683	.000	.910	.725	.865	.000	.860	.939
Cars	937	69	0	1006	100	41	0	141	29	1033	0	1062	2209
% Cars	99.7	97.2	0	99.5	99.0	100	0	99.3	100	99.5	0	99.5	99.5
Heavy Vehicles	3	2	0	5	1	0	0	1	0	5	0	5	11
% Heavy Vehicles	0.3	2.8	0	0.5	1.0	0	0	0.7	0	0.5	0	0.5	0.5



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Groups Printed- Cars - Heavy Vehicles

	Washington Street Route 53) From North			East Street From East			Washington Street Route 53) From South			
Start Time	Thru	Left	U-Turn	Right	Left	U-Turn	Right	Thru	U-Turn	Int. Total
11:00 AM	140	13	0	18	5	0	7	168	0	351
11:15 AM	140	15	0	13	7	0	11	196	0	382
11:30 AM	147	19	0	26	3	0	14	190	0	399
11:45 AM	155	15	0	14	3	1	8	183	0	379
Total	582	62	0	71	18	1	40	737	0	1511
12:00 PM	179	14	0	25	2	0	4	197	0	421
12:15 PM	197	8	0	25	7	0	10	221	0	468
12:30 PM	191	15	0	25	6	0	7	231	0	475
12:45 PM	192	8	0	15	11	0	7	190	0	423
Total	759	45	0	90	26	0	28	839	0	1787
Grand Total	1341	107	0	161	44	1	68	1576	0	3298
Apprch %	92.6	7.4	0	78.2	21.4	0.5	4.1	95.9	0	
Total %	40.7	3.2	0	4.9	1.3	0	2.1	47.8	0	
Cars	1334	107	0	161	44	1	68	1573	0	3288
% Cars	99.5	100	0	100	100	100	100	99.8	0	99.7
Heavy Vehicles	7	0	0	0	0	0	0	3	0	10
% Heavy Vehicles	0.5	0	0	0	0	0	0	0.2	0	0.3

	Washington Street Route 53) From North				East Street From East				Washington Street Route 53) From South				
Start Time	Thru	Left	U-Turn	App. Total	Right	Left	U-Turn	App. Total	Right	Thru	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 11:00 AM to 12:45 PM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 12:00 PM													
12:00 PM	179	14	0	193	**25**	2	0	27	4	197	0	201	421
12:15 PM	**197**	8	0	205	25	7	0	**32**	**10**	221	0	231	468
12:30 PM	191	**15**	0	**206**	25	6	0	31	7	**231**	0	**238**	**475**
12:45 PM	192	8	0	200	15	**11**	0	26	7	190	0	197	423
Total Volume	759	45	0	804	90	26	0	116	28	839	0	867	1787
% App. Total	94.4	5.6	0		77.6	22.4	0		3.2	96.8	0		
PHF	.963	.750	.000	.976	.900	.591	.000	.906	.700	.908	.000	.911	.941
Cars	757	45	0	802	90	26	0	116	28	836	0	864	1782
% Cars	99.7	100	0	99.8	100	100	0	100	100	99.6	0	99.7	99.7
Heavy Vehicles	2	0	0	2	0	0	0	0	0	3	0	3	5
% Heavy Vehicles	0.3	0	0	0.2	0	0	0	0	0	0.4	0	0.3	0.3

N/S: Washington Street (Route 53)
E: East Street
City, State: Hanover, MA
Client: VHB/ K. Keen

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

File Name : 133679 CC
Site Code : 12511.00
Start Date : 12/28/2013
Page No : 1

Groups Printed- Heavy Vehicles

	Washington Street Route 53) From North			East Street From East			Washington Street Route 53) From South			
Start Time	Thru	Left	U-Turn	Right	Left	U-Turn	Right	Thru	U-Turn	Int. Total
11:00 AM	2	0	0	0	0	0	0	3	0	5
11:15 AM	2	0	0	0	0	0	0	3	0	5
11:30 AM	3	0	0	1	0	0	0	0	0	4
11:45 AM	3	0	0	0	0	0	0	5	0	8
Total	10	0	0	1	0	0	0	11	0	22
12:00 PM	1	0	0	0	0	0	0	1	0	2
12:15 PM	0	2	0	0	0	0	0	2	0	4
12:30 PM	1	0	0	1	0	0	0	1	0	3
12:45 PM	1	0	0	0	0	0	0	1	0	2
Total	3	2	0	1	0	0	0	5	0	11
Grand Total	13	2	0	2	0	0	0	16	0	33
Apprch %	86.7	13.3	0	100	0	0	0	100	0	
Total %	39.4	6.1	0	6.1	0	0	0	48.5	0	

	Washington Street Route 53) From North				East Street From East				Washington Street Route 53) From South				
Start Time	Thru	Left	U-Turn	App. Total	Right	Left	U-Turn	App. Total	Right	Thru	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 11:00 AM to 12:45 PM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 11:00 AM													
11:00 AM	2	0	0	2	0	0	0	0	0	3	0	3	5
11:15 AM	2	0	0	2	0	0	0	0	0	3	0	3	5
11:30 AM	**3**	0	0	**3**	**1**	0	0	**1**	0	0	0	0	4
11:45 AM	3	0	0	3	0	0	0	0	0	**5**	0	**5**	**8**
Total Volume	10	0	0	10	1	0	0	1	0	11	0	11	22
% App. Total	100	0	0		100	0	0		0	100	0		
PHF	.833	.000	.000	.833	.250	.000	.000	.250	.000	.550	.000	.550	.688

N/S: Washington Street (Route 53)
E: East Street
City, State: Hanover, MA
Client: VHB/ K. Keen

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

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Groups Printed- Peds and Bicycles

	Washington Street Route 53) From North			East Street From East			Washington Street Route 53) From South			
Start Time	Thru	Left	Peds	Right	Left	Peds	Right	Thru	Peds	Int. Total
11:00 AM	0	0	0	0	0	0	0	0	1	1
11:15 AM	0	0	0	0	0	0	0	0	0	0
11:30 AM	0	0	0	0	0	1	0	0	0	1
11:45 AM	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	1	0	0	1	2
12:00 PM	0	0	0	0	0	0	0	0	0	0
12:15 PM	0	0	0	0	0	0	0	0	0	0
12:30 PM	0	0	0	0	0	0	0	0	0	0
12:45 PM	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0
Grand Total	0	0	0	0	0	**1**	0	0	1	2
Apprch %	0	0	0	0	0	100	0	0	100	
Total %	0	0	0	0	0	50	0	0	50	

	Washington Street Route 53) From North				East Street From East				Washington Street Route 53) From South				
Start Time	Thru	Left	Peds	App. Total	Right	Left	Peds	App. Total	Right	Thru	Peds	App. Total	Int. Total
Peak Hour Analysis From 11:00 AM to 12:45 PM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 11:00 AM													
11:00 AM	0	0	0	0	0	0	0	0	0	0	**1**	**1**	**1**
11:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
11:30 AM	0	0	0	0	0	0	**1**	**1**	0	0	0	0	1
11:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	1	1	0	0	1	1	2
% App. Total	0	0	0		0	0	100		0	0	100		
PHF	.000	.000	.000	.000	.000	.000	.250	.250	.000	.000	.250	.250	.500

Moving Massachusetts Forward. massDOT Highway

INTERSECTION CRASH RATE WORKSHEET

CITY/TOWN : Hanover, MA COUNT DATE : 10/17/2013

DISTRICT : 5 UNSIGNALIZED : X (0.58) SIGNALIZED : (0.77)

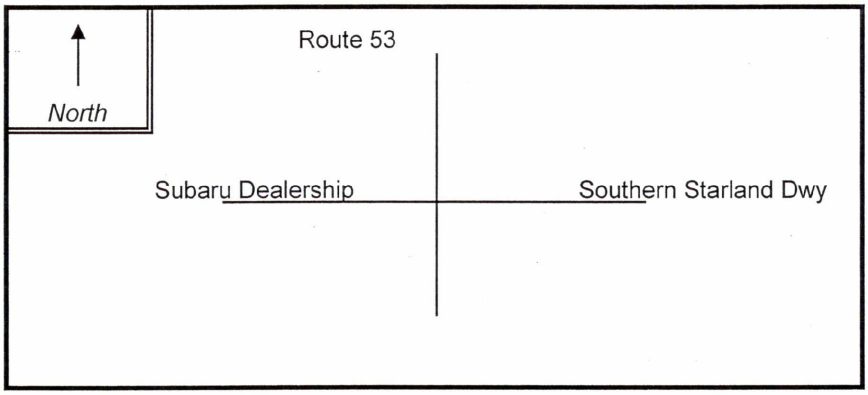
~ INTERSECTION DATA ~

MAJOR STREET : Route 53 (Washington Street)

MINOR STREET(S) : Southern Starland Driveway

Subaru Dealership

INTERSECTION DIAGRAM (Label Approaches)



PEAK HOUR VOLUMES

APPROACH :	1	2	3	4	5	Total Peak Hourly Approach Volume
DIRECTION :	NB	SB	EB	WB		
PEAK HOURLY VOLUMES (AM/PM) :	635	1,165	20	5		**1,825**

" K " FACTOR : **0.090**

INTERSECTION ADT (**V**) = TOTAL DAILY APPROACH VOLUME : **20,278**

TOTAL # OF CRASHES : 1

OF YEARS : 3

AVERAGE # OF CRASHES PER YEAR (**A**) : **0.33**

CRASH RATE CALCULATION : 0.05

RATE = $\frac{(A * 1{,}000{,}000)}{(V * 365)}$

Comments : MassDOT Accident Data

Project Title & Date:

Sub Group	Crash ID	Town	Year	Crash Date	Crash Time	Crash Severity	Total Vehicles	Total Injured	Total Fatals	Collision manner	Road Surface	Lighting	Weather	Street	Intersection	Distance From Nearest Intersection	Vehicles Travel Directions	Most Harmful Events	Vehicle Action Prior to Crash	Vehicle Configuration	Crash Data Id
Route 53 at Northern Starland																					
Route 53 at Northern Starland Driveway	2552109	HANOVER	2009	2/25/2009	12:00 PM	Non-fatal injury	2	1	0	Angle	Dry	Daylight	Cloudy			644 WASHINGTON STREET Rte 53	V1:Northbound / V2:Northbound	V1: Not reported / V2: Not reported	V1: Travelling straight ahead / V2:Turning left	V1: Passenger car / V2:Passenger car	3349966
Route 53 at Northern Starland Driveway	2486008	HANOVER	2009	6/12/2009	5:05 PM	Property damage only (none injured)	2	0	0	Rear-end	Dry	Daylight	Cloudy/Cloudy			673 WASHINGTON STREET / Rte 53	V1:Northbound / V2:Not reported	V1: Not reported / V2: Unknown	V1: Travelling straight ahead / V2:Slowing or stopped in traffic	V1: Passenger car / V2:Light truck(van, mini-van, panel, pickup, sport utility) with only four tires	3350035
Route 53 at Northern Starland Driveway	2671175	HANOVER	2010	11/20/2010	4:43 PM	Non-fatal injury	2	2	0	Head-on	Dry	Dark - unknown roadway lighting	Clear/Clear			644 WASHINGTON STREET Rte 53 N	V1:Northbound / V2:Southbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic	V1: Travelling straight ahead / V2:Turning left	V1: Passenger car / V2:Passenger car	3499314
Route 53 at Northern Starland Driveway	2792498	HANOVER	2011	8/29/2011	5:03 PM	Property damage only (none injured)	2	0	0	Angle	Dry	Daylight	Clear/Clear			685 WASHINGTON STREET / Rte 53	V1:Westbound / V2:Northbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic	V1: Turning left / V2:Travelling straight ahead	V1: Passenger car / V2:Passenger car	3615547
Route 53 at Northern Starland Driveway	2788428	HANOVER	2011	9/27/2011	7:05 PM	Property damage only (none injured)	2	0	0	Angle	Dry	Dark - lighted roadway	Cloudy/Cloudy			644 WASHINGTON STREET	V1:Eastbound / V2:Southbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic	V1: Turning left / V2:Travelling straight ahead	V1: Passenger car / V2:Passenger car	3615562
Route 53 at Northern Starland Driveway	2835560	HANOVER	2011	12/9/2011	5:58 PM	Non-fatal injury	2	1	0	Rear-end	Dry	Dark - roadway not lighted	Clear/Clear			644 WASHINGTON STREET / Rte 53	V1:Northbound / V2:Northbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic	V1: Slowing or stopped in traffic / V2:Travelling straight ahead	V1: Light truck(van, mini-van, panel, pickup, sport utility) with only four tires / V2:Passenger car	3615610
Route 53 at Southern Starland Driveway																					
Route 53 at Southern Starland Driveway	2844744	HANOVER	2010	8/9/2010	11:56 AM	Non-fatal injury	4	1	0	Rear-end	Dry	Daylight	Clear/Clear			645 WASHINGTON STREET Rte 53 N	V1:Northbound / V2:Northbound / V3:Northbound / V4:Northbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic / V3: Collision with motor vehicle in traffic / V4: Collision with motor vehicle in traffic	V1: Travelling straight ahead / V2:Travelling straight ahead / V3:Travelling straight ahead / V4:Travelling straight ahead	V1: Light truck(van, mini-van, panel, pickup, sport utility) with only four tires / V2:Passenger car / V3:Passenger car / V4:Light truck(van, mini-van, panel, pickup, sport utility) with only four tires	3499236

2009 MUTCD

TRAFFIC SIGNAL WARRANT ANALYSIS (VOLUME BASED)

Intersection: Route 53 at Northern Starland Driveway/Village Square

Major Street Direction: Northbound-Southbound

Year: 2013 **Condition:** Existing - Weekday Evening

Operating speed on major roadway: 45 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 :	1 Lane(s) on each approach	500	350
	Minor Street :	1 Lane(s) on each approach	150	105
Warrant 1B	INTERRUPTION OF CONTINUOUS TRAFFIC (8 hours of day)			
	Major Street :	1 Lane(s) on each approach	750	525
	Minor Street :	1 Lane(s) on each approach	75	53
80 PERCENT SATISFACTION OF WARRANT 1A **AND** WARRANT 1B			Warrant 1A	Warrant 1B
	Major Street :	1 Lane(s) on each approach	400	600
	Minor Street :	1 Lane(s) on each approach	120	60

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

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

Hour	Entering Vol. Minor Road+	Entering Vol. on Major Road Northbound	Entering Vol. on Major Road Southbound	Tot. Ent. Vol. On Major Rd	Meets the following volume-based warrants? 1A	1B	80%(1A&1B)	2	3
6:00 - 7:00 AM	0	0	0	0	No	No	No	No	No
7:00 - 8:00 AM	0	1096	278	1374	No	No	No	No	No
8:00 - 9:00 AM	0	791	376	1167	No	No	No	No	No
9:00 - 10:00 AM	1	695	444	1139	No	No	No	No	No
10:00 - 11:00 AM	3	683	535	1218	No	No	No	No	No
11:00 - 12:00 AM	14	688	670	1358	No	No	No	No	No
12:00 - 1:00 PM	28	721	823	1544	No	No	No	No	No
1:00 - 2:00 PM	6	667	818	1485	No	No	No	No	No
2:00 - 3:00 PM	22	637	852	1489	No	No	No	No	No
3:00 - 4:00 PM	12	639	947	1586	No	No	No	No	No
4:00 - 5:00 PM	12	636	1035	1671	No	No	No	No	No
5:00 - 6:00 PM	25	633	1185	1818	No	No	No	No	No
6:00 - 7:00 PM	0	0	0	0	No	No	No	No	No
					No	**No**	**No**	**No**	**No**
			Warrants Met?		**1**			**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" occuring in the last 12 months: 0

Warrant 8, Roadway Network:
See MUTCD for details.

Source: *Manual on Uniform Traffic Control Devices* (MUTCD); 2009 Edition [2009]

2009 MUTCD

TRAFFIC SIGNAL WARRANT ANALYSIS (VOLUME BASED)

Intersection: Route 53 at Northern Starland Driveway/Village Square

Major Street Direction: Northbound-Southbound

Year: 2013 **Condition:** Existing - Saturday Midday

Operating speed on major roadway: 40 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 :	1 Lane(s) on each approach	500	500
	Minor Street :	2 Lane(s) on each approach	200	200
Warrant 1B	INTERRUPTION OF CONTINUOUS TRAFFIC (8 hours of day)			
	Major Street :	1 Lane(s) on each approach	750	750
	Minor Street :	2 Lane(s) on each approach	100	100
80 PERCENT SATISFACTION OF WARRANT 1A **AND** WARRANT 1B			Warrant 1A	Warrant 1B
	Major Street :	1 Lane(s) on each approach	400	600
	Minor Street :	2 Lane(s) on each approach	160	80

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

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

Hour	Entering Vol. Minor Road+	Entering Vol. on Major Road Northbound	Entering Vol. on Major Road Southbound	Tot. Ent. Vol. On Major Rd	Meets the following volume-based warrants? 1A	1B	80%(1A&1B)	2	3
6:00 - 7:00 AM	0	0	0	0	No	No	No	No	No
7:00 - 8:00 AM	0	0	0	0	No	No	No	No	No
8:00 - 9:00 AM	0	0	0	0	No	No	No	No	No
9:00 - 10:00 AM	0	0	0	0	No	No	No	No	No
10:00 - 11:00 AM	0	0	0	0	No	No	No	No	No
11:00 - 12:00 AM	94	939	904	1843	No	No	No	Verify	No
12:00 - 1:00 PM	78	915	1048	1963	No	No	No	No	No
1:00 - 2:00 PM	0	0	0	0	No	No	No	No	No
2:00 - 3:00 PM	0	0	0	0	No	No	No	No	No
3:00 - 4:00 PM	0	0	0	0	No	No	No	No	No
4:00 - 5:00 PM	0	0	0	0	No	No	No	No	No
5:00 - 6:00 PM	0	0	0	0	No	No	No	No	No
6:00 - 7:00 PM	0	0	0	0	No	No	No	No	No
					No	**No**	**No**	**No**	**No**
			Warrants Met?			1 **NO**		2 **No**	3 **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" occuring in the last 12 months: 0

Warrant 8, Roadway Network:
See MUTCD for details.

Source: *Manual on Uniform Traffic Control Devices* (MUTCD); 2009 Edition [2009]

last updated: 08/05/05 [version]

2009 MUTCD

TRAFFIC SIGNAL WARRANT ANALYSIS (VOLUME BASED)

Intersection: Route 53 at Northern Starland Driveway/Village Square

Major Street Direction: Northbound-Southbound

Year: 2013 **Condition:** Existing - Sunday Midday

Operating speed on major roadway: 43 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 :	1 Lane(s) on each approach	500	350
	Minor Street :	2 Lane(s) on each approach	200	140
Warrant 1B	INTERRUPTION OF CONTINUOUS TRAFFIC (8 hours of day)			
	Major Street :	1 Lane(s) on each approach	750	525
	Minor Street :	2 Lane(s) on each approach	100	70
80 PERCENT SATISFACTION OF WARRANT 1A **AND** WARRANT 1B			Warrant 1A	Warrant 1B
	Major Street :	1 Lane(s) on each approach	400	600
	Minor Street :	2 Lane(s) on each approach	160	80

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

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

Hour	Entering Vol. Minor Road+	Entering Vol. on Major Road Northbound	Entering Vol. on Major Road Southbound	Tot. Ent. Vol. On Major Rd	Meets the following volume-based warrants? 1A	1B	80%(1A&1B)	2	3
6:00 - 7:00 AM	0	0	0	0	No	No	No	No	No
7:00 - 8:00 AM	0	0	0	0	No	No	No	No	No
8:00 - 9:00 AM	0	0	0	0	No	No	No	No	No
9:00 - 10:00 AM	0	0	0	0	No	No	No	No	No
10:00 - 11:00 AM	0	0	0	0	No	No	No	No	No
11:00 - 12:00 AM	57	741	703	1444	No	No	No	No	No
12:00 - 1:00 PM	72	874	951	1825	No	Yes	No	Verify	No
1:00 - 2:00 PM	0	0	0	0	No	No	No	No	No
2:00 - 3:00 PM	0	0	0	0	No	No	No	No	No
3:00 - 4:00 PM	0	0	0	0	No	No	No	No	No
4:00 - 5:00 PM	0	0	0	0	No	No	No	No	No
5:00 - 6:00 PM	0	0	0	0	No	No	No	No	No
6:00 - 7:00 PM	0	0	0	0	No	No	No	No	No
					No	No	No	No	No
			Warrants Met?			1 NO		2 No	3 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" occuring in the last 12 months: 0

Warrant 8, Roadway Network:

See MUTCD for details.

Source: *Manual on Uniform Traffic Control Devices* (MUTCD); 2009 Edition [2009]

2009 MUTCD

TRAFFIC SIGNAL WARRANT ANALYSIS (VOLUME BASED)

Intersection: Route 53 at Southern Starland Driveway/Village Square

Major Street Direction: Northbound-Southbound

Year: 2013 **Condition:** Existing - Weekday Evening

Operating speed on major roadway: 45 mph

Number of approaches: 4

Warrant 1 EIGHT-HOUR VEHICULAR VOLUME		Required approach volumes Minimum*	Adjusted Minimum**
Warrant 1A MINIMUM VEHICULAR VOLUME (8 hours of day)			
Major Street :	1 Lane(s) on each approach	500	350
Minor Street :	1 Lane(s) on each approach	150	105
Warrant 1B INTERRUPTION OF CONTINUOUS TRAFFIC (8 hours of day)			
Major Street :	1 Lane(s) on each approach	750	525
Minor Street :	1 Lane(s) on each approach	75	53
80 PERCENT SATISFACTION OF WARRANT 1A **AND** WARRANT 1B		Warrant 1A	Warrant 1B
Major Street :	1 Lane(s) on each approach	400	600
Minor Street :	1 Lane(s) on each approach	120	60

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

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

Hour	Entering Vol. Minor Road+	Entering Vol. on Major Road Northbound	Entering Vol. on Major Road Southbound	Tot. Ent. Vol. On Major Rd	Meets the following volume-based warrants? 1A	1B	80%(1A&1B)	2	3
6:00 - 7:00 AM	0	0	0	0	No	No	No	No	No
7:00 - 8:00 AM	3	1103	278	1381	No	No	No	No	No
8:00 - 9:00 AM	11	798	378	1176	No	No	No	No	No
9:00 - 10:00 AM	21	707	429	1136	No	No	No	No	No
10:00 - 11:00 AM	17	692	531	1223	No	No	No	No	No
11:00 - 12:00 AM	27	698	655	1353	No	No	No	No	No
12:00 - 1:00 PM	27	724	827	1551	No	No	No	No	No
1:00 - 2:00 PM	10	657	796	1453	No	No	No	No	No
2:00 - 3:00 PM	25	643	840	1483	No	No	No	No	No
3:00 - 4:00 PM	25	655	954	1609	No	No	No	No	No
4:00 - 5:00 PM	18	637	1025	1662	No	No	No	No	No
5:00 - 6:00 PM	22	633	1166	1799	No	No	No	No	No
6:00 - 7:00 PM	0	0	0	0	No	No	No	No	No
					No	**No**	**No**	**No**	**No**
				Warrants Met?		**1**		**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" occuring in the last 12 months: 0

Warrant 8, Roadway Network:
See MUTCD for details.

Source: *Manual on Uniform Traffic Control Devices* (MUTCD); 2009 Edition [2009]

last updated: 08/05/05 [version]

2009 MUTCD

TRAFFIC SIGNAL WARRANT ANALYSIS (VOLUME BASED)

Intersection: Route 53 at Southern Starland Driveway/Village Square

Major Street Direction: Northbound-Southbound

Year: 2013 **Condition:** Existing - Saturday Midday

Operating speed on major roadway: 40 mph

Number of approaches: 4

			Required approach volumes	
			Minimum*	Adjusted Minimum**
Warrant 1	**EIGHT-HOUR VEHICULAR VOLUME**			
Warrant 1A	MINIMUM VEHICULAR VOLUME (8 hours of day)			
	Major Street :	1 Lane(s) on each approach	500	500
	Minor Street :	1 Lane(s) on each approach	150	150
Warrant 1B	INTERRUPTION OF CONTINUOUS TRAFFIC (8 hours of day)			
	Major Street :	1 Lane(s) on each approach	750	750
	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 :	1 Lane(s) on each approach	400	600
	Minor Street :	1 Lane(s) on each approach	120	60

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

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

Hour	Entering Vol. Minor Road+	Entering Vol. on Major Road Northbound	Entering Vol. on Major Road Southbound	Tot. Ent. Vol. On Major Rd	Meets the following volume-based warrants? 1A	1B	80%(1A&1B)	2	3
6:00 - 7:00 AM	0	0	0	0	No	No	No	No	No
7:00 - 8:00 AM	0	0	0	0	No	No	No	No	No
8:00 - 9:00 AM	0	0	0	0	No	No	No	No	No
9:00 - 10:00 AM	0	0	0	0	No	No	No	No	No
10:00 - 11:00 AM	0	0	0	0	No	No	No	No	No
11:00 - 12:00 AM	13	959	912	1871	No	No	No	No	No
12:00 - 1:00 PM	11	934	1031	1965	No	No	No	No	No
1:00 - 2:00 PM	0	0	0	0	No	No	No	No	No
2:00 - 3:00 PM	0	0	0	0	No	No	No	No	No
3:00 - 4:00 PM	0	0	0	0	No	No	No	No	No
4:00 - 5:00 PM	0	0	0	0	No	No	No	No	No
5:00 - 6:00 PM	0	0	0	0	No	No	No	No	No
6:00 - 7:00 PM	0	0	0	0	No	No	No	No	No
					No	**No**	**No**	**No**	**No**
			Warrants Met?			**1**		**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" occuring in the last 12 months: 0

Warrant 8, Roadway Network:
See MUTCD for details.

Source: *Manual on Uniform Traffic Control Devices* (MUTCD); 2009 Edition [2009]

2009 MUTCD

TRAFFIC SIGNAL WARRANT ANALYSIS (VOLUME BASED)

Intersection: Route 53 at Southern Starland Driveway/Village Square

Major Street Direction: Northbound-Southbound

Year: 2013 **Condition:** Existing - Sunday Midday

Operating speed on major roadway: 43 mph

Number of approaches: 4

Warrant 1 EIGHT-HOUR VEHICULAR VOLUME		Required approach volumes Minimum*	Adjusted Minimum**
Warrant 1A MINIMUM VEHICULAR VOLUME (8 hours of day)			
Major Street :	1 Lane(s) on each approach	500	350
Minor Street :	1 Lane(s) on each approach	150	105
Warrant 1B INTERRUPTION OF CONTINUOUS TRAFFIC (8 hours of day)			
Major Street :	1 Lane(s) on each approach	750	525
Minor Street :	1 Lane(s) on each approach	75	53
80 PERCENT SATISFACTION OF WARRANT 1A **AND** WARRANT 1B		Warrant 1A	Warrant 1B
Major Street :	1 Lane(s) on each approach	400	600
Minor Street :	1 Lane(s) on each approach	120	60

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

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

Hour	Entering Vol. Minor Road+	Entering Vol. on Major Road Northbound	Entering Vol. on Major Road Southbound	Tot. Ent. Vol. On Major Rd	Meets the following volume-based warrants? 1A	1B	80%(1A&1B)	2	3
6:00 - 7:00 AM	0	0	0	0	No	No	No	No	No
7:00 - 8:00 AM	0	0	0	0	No	No	No	No	No
8:00 - 9:00 AM	0	0	0	0	No	No	No	No	No
9:00 - 10:00 AM	0	0	0	0	No	No	No	No	No
10:00 - 11:00 AM	0	0	0	0	No	No	No	No	No
11:00 - 12:00 AM	7	775	709	1484	No	No	No	No	No
12:00 - 1:00 PM	11	893	963	1856	No	No	No	No	No
1:00 - 2:00 PM	0	0	0	0	No	No	No	No	No
2:00 - 3:00 PM	0	0	0	0	No	No	No	No	No
3:00 - 4:00 PM	0	0	0	0	No	No	No	No	No
4:00 - 5:00 PM	0	0	0	0	No	No	No	No	No
5:00 - 6:00 PM	0	0	0	0	No	No	No	No	No
6:00 - 7:00 PM	0	0	0	0	No	No	No	No	No
					No	**No**	**No**	**No**	**No**
				Warrants		**1**		**2**	**3**
				Met?		**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" occuring in the last 12 months: 0

Warrant 8, Roadway Network:
See MUTCD for details.

Source: *Manual on Uniform Traffic Control Devices* (MUTCD); 2009 Edition [2009]

last updated: 08/05/05 [version]

Intersection	
Intersection Delay, s/veh	5.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	5	0	20	15	0	25	10	585	35	45	1130	15
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	0	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	69	69	69	60	60	60	90	90	90	91	91	91
Heavy Vehicles, %	0	0	5	0	0	0	0	1	0	0	1	0
Mvmt Flow	7	0	29	25	0	42	11	650	39	49	1242	16

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	2041	2060	1250	2055	2049	669	1258	0	0	689	0	0
Stage 1	1349	1349	-	692	692	-	-	-	-	-	-	-
Stage 2	692	711	-	1363	1357	-	-	-	-	-	-	-
Follow-up Headway	3.5	4	3.345	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Capacity-1 Maneuver	42	56	208	41	56	461	560	-	-	915	-	-
Stage 1	188	221	-	437	448	-	-	-	-	-	-	-
Stage 2	437	439	-	184	219	-	-	-	-	-	-	-
Time blocked-Platoon, %								-	-		-	-
Mov Capacity-1 Maneuver	32	45	208	30	45	461	560	-	-	915	-	-
Mov Capacity-2 Maneuver	32	45	-	30	45	-	-	-	-	-	-	-
Stage 1	182	181	-	423	434	-	-	-	-	-	-	-
Stage 2	385	425	-	130	180	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	61	141.8	0.2	0.3
HCM LOS	F	F		

Minor Lane / Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	560	-	-	99	45	461	915	-	-
HCM Lane V/C Ratio	0.02	-	-	0.366	0.864	0.06	0.054	-	-
HCM Control Delay (s)	11.559	0	-	61	233.5	13.3	9.159	0	-
HCM Lane LOS	B	A		F	F	B	A	A	
HCM 95th %tile Q(veh)	0.061	-	-	1.46	3.456	0.192	0.171	-	-

Notes

~ : Volume Exceeds Capacity; $: Delay Exceeds 300 Seconds; Error : Computation Not Defined

Intersection	
Intersection Delay, s/veh	1.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	5	0	15	5	0	0	5	625	5	5	1160	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	55	55	55	38	38	38	88	88	88	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0	0	1	0	0	1	0
Mvmt Flow	9	0	27	13	0	0	6	710	6	5	1261	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1996	1999	1261	2009	1996	713	1261	0	0	716	0	0
Stage 1	1272	1272	-	724	724	-	-	-	-	-	-	-
Stage 2	724	727	-	1285	1272	-	-	-	-	-	-	-
Follow-up Headway	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Capacity-1 Maneuver	45	61	210	45	61	435	558	-	-	894	-	-
Stage 1	208	241	-	420	433	-	-	-	-	-	-	-
Stage 2	420	432	-	204	241	-	-	-	-	-	-	-
Time blocked-Platoon, %								-	-		-	-
Mov Capacity-1 Maneuver	44	59	210	38	59	435	558	-	-	894	-	-
Mov Capacity-2 Maneuver	44	59	-	38	59	-	-	-	-	-	-	-
Stage 1	204	236	-	412	425	-	-	-	-	-	-	-
Stage 2	412	424	-	174	236	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	54.4	143.4	0.1	0
HCM LOS	F	F		

Minor Lane / Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	558	-	-	108	38	894	-	-
HCM Lane V/C Ratio	0.01	-	-	0.337	0.346	0.006	-	-
HCM Control Delay (s)	11.518	0	-	54.4	143.4	9.051	0	-
HCM Lane LOS	B	A		F	F	A	A	
HCM 95th %tile Q(veh)	0.031	-	-	1.326	1.158	0.018	-	-

Notes

~ : Volume Exceeds Capacity; $: Delay Exceeds 300 Seconds; Error : Computation Not Defined

Intersection	
Intersection Delay, s/veh	22.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	10	0	10	25	0	140	10	935	0	0	995	15
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	0	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	75	75	75	68	68	68	95	95	95	88	88	88
Heavy Vehicles, %	13	0	10	0	0	0	10	1	0	0	2	6
Mvmt Flow	13	0	13	37	0	206	11	984	0	0	1131	17

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	2144	2144	1139	2151	2153	984	1148	0	0	984	0	0
Stage 1	1139	1139	-	1005	1005	-	-	-	-	-	-	-
Stage 2	1005	1005	-	1146	1148	-	-	-	-	-	-	-
Follow-up Headway	3.617	4	3.39	3.5	4	3.3	2.29	-	-	2.2	-	-
Pot Capacity-1 Maneuver	33	49	236	# 35	49	304	580	-	-	710	-	-
Stage 1	233	278	-	294	322	-	-	-	-	-	-	-
Stage 2	278	322	-	245	276	-	-	-	-	-	-	-
Time blocked-Platoon, %								-	-		-	-
Mov Capacity-1 Maneuver	# 10	47	236	# 32	47	304	580	-	-	710	-	-
Mov Capacity-2 Maneuver	# 10	47	-	# 32	47	-	-	-	-	-	-	-
Stage 1	223	278	-	282	308	-	-	-	-	-	-	-
Stage 2	86	308	-	231	276	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	$ 642.9	155.4	0.1	0
HCM LOS	F	F		

Minor Lane / Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	580	-	-	19	77	304	710	-	-
HCM Lane V/C Ratio	0.018	-	-	1.404	1.369	0.451	-	-	-
HCM Control Delay (s)	11.322	0	-	$ 642.9	$ 323.6	26.2	0	-	-
HCM Lane LOS	B	A		F	F	D	A		
HCM 95th %tile Q(veh)	0.055	-	-	3.678	8.307	2.231	0	-	-

Notes

~ : Volume Exceeds Capacity; $: Delay Exceeds 300 Seconds; Error : Computation Not Defined

Intersection	
Intersection Delay, s/veh	2.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	5	0	10	5	0	5	10	935	20	110	910	10
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	60	60	60	69	69	69	96	96	96	94	94	94
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	2	0
Mvmt Flow	8	0	17	7	0	7	10	974	21	117	968	11

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	2216	2223	973	2221	2218	984	979	0	0	995	0	0
Stage 1	1207	1207	-	1005	1005	-	-	-	-	-	-	-
Stage 2	1009	1016	-	1216	1213	-	-	-	-	-	-	-
Follow-up Headway	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Capacity-1 Maneuver	32	44	309	31	44	304	713	-	-	703	-	-
Stage 1	226	259	-	294	322	-	-	-	-	-	-	-
Stage 2	292	318	-	223	257	-	-	-	-	-	-	-
Time blocked-Platoon, %								-	-		-	-
Mov Capacity-1 Maneuver	22	27	309	21	27	304	713	-	-	703	-	-
Mov Capacity-2 Maneuver	22	27	-	21	27	-	-	-	-	-	-	-
Stage 1	219	164	-	285	312	-	-	-	-	-	-	-
Stage 2	276	308	-	134	163	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	107.7	144.1	0.1	1.2
HCM LOS	F	F		

Minor Lane / Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	713	-	-	58	39	703	-	-
HCM Lane V/C Ratio	0.015	-	-	0.431	0.372	0.166	-	-
HCM Control Delay (s)	10.124	0	-	107.7	144.1	11.141	0	-
HCM Lane LOS	B	A		F	F	B	A	
HCM 95th %tile Q(veh)	0.044	-	-	1.629	1.258	0.594	-	-

Notes

~ : Volume Exceeds Capacity; $: Delay Exceeds 300 Seconds; Error : Computation Not Defined

Intersection	
Intersection Delay, s/veh	8.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	5	0	5	15	0	115	5	865	0	5	945	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	0	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	50	50	50	70	70	70	83	83	83	87	87	87
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	1	0
Mvmt Flow	10	0	10	21	0	164	6	1042	0	6	1086	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	2152	2152	1086	2157	2152	1042	1086	0	0	1042	0	0
Stage 1	1098	1098	-	1054	1054	-	-	-	-	-	-	-
Stage 2	1054	1054	-	1103	1098	-	-	-	-	-	-	-
Follow-up Headway	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Capacity-1 Maneuver	35	49	265	35	49	281	650	-	-	675	-	-
Stage 1	260	291	-	276	305	-	-	-	-	-	-	-
Stage 2	276	305	-	259	291	-	-	-	-	-	-	-
Time blocked-Platoon, %								-	-		-	-
Mov Capacity-1 Maneuver	14	47	265	33	47	281	650	-	-	675	-	-
Mov Capacity-2 Maneuver	14	47	-	33	47	-	-	-	-	-	-	-
Stage 1	254	285	-	270	298	-	-	-	-	-	-	-
Stage 2	112	298	-	244	285	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	298.7	72.1	0.1	0.1
HCM LOS	F	F		

Minor Lane / Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	650	-	-	27	90	281	675	-	-
HCM Lane V/C Ratio	0.009	-	-	0.741	0.847	0.39	0.009	-	-
HCM Control Delay (s)	10.59	0	-	298.7	138.7	25.8	10.379	0	-
HCM Lane LOS	B	A		F	F	D	B	A	
HCM 95th %tile Q(veh)	0.028	-	-	2.336	4.551	1.77	0.026	-	-

Notes

~ : Volume Exceeds Capacity; $: Delay Exceeds 300 Seconds; Error : Computation Not Defined

Intersection	
Intersection Delay, s/veh	2.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	0	0	10	5	0	0	5	870	25	100	860	5
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	55	55	55	56	56	56	86	86	86	85	85	85
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	1	0
Mvmt Flow	0	0	18	9	0	0	6	1012	29	118	1012	6

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	2288	2302	1015	2297	2291	1026	1018	0	0	1041	0	0
Stage 1	1250	1250	-	1038	1038	-	-	-	-	-	-	-
Stage 2	1038	1052	-	1259	1253	-	-	-	-	-	-	-
Follow-up Headway	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Capacity-1 Maneuver	28	39	292	28	40	288	689	-	-	676	-	-
Stage 1	214	247	-	281	311	-	-	-	-	-	-	-
Stage 2	281	306	-	211	246	-	-	-	-	-	-	-
Time blocked-Platoon, %								-	-		-	-
Mov Capacity-1 Maneuver	19	23	292	18	23	288	689	-	-	676	-	-
Mov Capacity-2 Maneuver	19	23	-	18	23	-	-	-	-	-	-	-
Stage 1	210	148	-	275	304	-	-	-	-	-	-	-
Stage 2	275	300	-	118	147	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	18.1	$ 331.4	0.1	1.2
HCM LOS	C	F		

Minor Lane / Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	689	-	-	292	18	676	-	-
HCM Lane V/C Ratio	0.008	-	-	0.062	0.496	0.174	-	-
HCM Control Delay (s)	10.269	0	-	18.1	$ 331.4	11.444	0	-
HCM Lane LOS	B	A		C	F	B	A	
HCM 95th %tile Q(veh)	0.026	-	-	0.198	1.349	0.626	-	-

Notes

~ : Volume Exceeds Capacity; $: Delay Exceeds 300 Seconds; Error : Computation Not Defined

Intersection	
Intersection Delay, s/veh	4.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	5	0	20	15	0	25	10	585	35	45	1130	15
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	0	-	-	0	0	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	69	69	69	60	60	60	90	90	90	91	91	91
Heavy Vehicles, %	0	0	5	0	0	0	0	1	0	0	1	0
Mvmt Flow	7	0	29	25	0	42	11	650	39	49	1242	16

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	2021	2021	1250	2035	2029	650	1258	0	0	650	0	0
Stage 1	1349	1349	-	672	672	-	-	-	-	-	-	-
Stage 2	672	672	-	1363	1357	-	-	-	-	-	-	-
Follow-up Headway	3.5	4	3.345	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Capacity-1 Maneuver	44	59	208	43	58	473	560	-	-	946	-	-
Stage 1	188	221	-	449	458	-	-	-	-	-	-	-
Stage 2	449	458	-	184	219	-	-	-	-	-	-	-
Time blocked-Platoon, %								-	-		-	-
Mov Capacity-1 Maneuver	38	54	208	35	53	473	560	-	-	946	-	-
Mov Capacity-2 Maneuver	38	54	-	35	53	-	-	-	-	-	-	-
Stage 1	182	210	-	435	443	-	-	-	-	-	-	-
Stage 2	396	443	-	150	208	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	53	110.6	0.2	0.3
HCM LOS	F	F		

Minor Lane / Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	560	-	-	110	52	473	946	-	-
HCM Lane V/C Ratio	0.02	-	-	0.329	0.748	0.059	0.052	-	-
HCM Control Delay (s)	11.559	0	-	53	180.3	13.1	9.015	-	-
HCM Lane LOS	B	A		F	F	B	A		
HCM 95th %tile Q(veh)	0.061	-	-	1.292	3.086	0.187	0.165	-	-

Notes

~ : Volume Exceeds Capacity; $: Delay Exceeds 300 Seconds; Error : Computation Not Defined

Intersection	
Intersection Delay, s/veh	1.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	5	0	15	5	0	0	5	625	5	5	1160	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	0	0	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	55	55	55	38	38	38	88	88	88	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0	0	1	0	0	1	0
Mvmt Flow	9	0	27	13	0	0	6	710	6	5	1261	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1994	1994	1261	2007	1994	710	1261	0	0	710	0	0
Stage 1	1272	1272	-	722	722	-	-	-	-	-	-	-
Stage 2	722	722	-	1285	1272	-	-	-	-	-	-	-
Follow-up Headway	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Capacity-1 Maneuver	46	61	210	45	61	437	558	-	-	899	-	-
Stage 1	208	241	-	421	434	-	-	-	-	-	-	-
Stage 2	421	434	-	204	241	-	-	-	-	-	-	-
Time blocked-Platoon, %								-	-		-	-
Mov Capacity-1 Maneuver	45	60	210	38	60	437	558	-	-	899	-	-
Mov Capacity-2 Maneuver	45	60	-	38	60	-	-	-	-	-	-	-
Stage 1	204	240	-	413	426	-	-	-	-	-	-	-
Stage 2	413	426	-	177	240	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	53.1	143.4	0.1	0
HCM LOS	F	F		

Minor Lane / Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	558	-	-	110	38	899	-	-
HCM Lane V/C Ratio	0.01	-	-	0.331	0.346	0.006	-	-
HCM Control Delay (s)	11.518	0	-	53.1	143.4	9.029	-	-
HCM Lane LOS	B	A		F	F	A		
HCM 95th %tile Q(veh)	0.031	-	-	1.298	1.158	0.018	-	-

Notes

~ : Volume Exceeds Capacity; $: Delay Exceeds 300 Seconds; Error : Computation Not Defined

Intersection	
Intersection Delay, s/veh	22.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	10	0	10	25	0	140	10	935	0	0	995	15
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	0	-	-	0	0	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	75	75	75	68	68	68	95	95	95	88	88	88
Heavy Vehicles, %	13	0	10	0	0	0	10	1	0	0	2	6
Mvmt Flow	13	0	13	37	0	206	11	984	0	0	1131	17

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	2144	2144	1139	2151	2153	984	1148	0	0	984	0	0
Stage 1	1139	1139	-	1005	1005	-	-	-	-	-	-	-
Stage 2	1005	1005	-	1146	1148	-	-	-	-	-	-	-
Follow-up Headway	3.617	4	3.39	3.5	4	3.3	2.29	-	-	2.2	-	-
Pot Capacity-1 Maneuver	33	49	236	# 35	49	304	580	-	-	710	-	-
Stage 1	233	278	-	294	322	-	-	-	-	-	-	-
Stage 2	278	322	-	245	276	-	-	-	-	-	-	-
Time blocked-Platoon, %								-	-		-	-
Mov Capacity-1 Maneuver	# 10	47	236	# 32	47	304	580	-	-	710	-	-
Mov Capacity-2 Maneuver	# 10	47	-	# 32	47	-	-	-	-	-	-	-
Stage 1	223	278	-	282	308	-	-	-	-	-	-	-
Stage 2	86	308	-	231	276	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	$ 642.9	155.4	0.1	0
HCM LOS	F	F		

Minor Lane / Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	580	-	-	19	77	304	710	-	-
HCM Lane V/C Ratio	0.018	-	-	1.404	1.369	0.451	-	-	-
HCM Control Delay (s)	11.322	0	-	$ 642.9	$ 323.6	26.2	0	-	-
HCM Lane LOS	B	A		F	F	D	A		
HCM 95th %tile Q(veh)	0.055	-	-	3.678	8.307	2.231	0	-	-

Notes

~ : Volume Exceeds Capacity; $: Delay Exceeds 300 Seconds; Error : Computation Not Defined

Intersection	
Intersection Delay, s/veh	2.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	5	0	10	5	0	5	10	935	20	110	910	10
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	0	0	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	60	60	60	69	69	69	96	96	96	94	94	94
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	2	0
Mvmt Flow	8	0	17	7	0	7	10	974	21	117	968	11

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	2205	2202	973	2211	2208	974	979	0	0	974	0	0
Stage 1	1207	1207	-	995	995	-	-	-	-	-	-	-
Stage 2	998	995	-	1216	1213	-	-	-	-	-	-	-
Follow-up Headway	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Capacity-1 Maneuver	32	45	309	32	45	308	713	-	-	716	-	-
Stage 1	226	259	-	297	325	-	-	-	-	-	-	-
Stage 2	296	325	-	223	257	-	-	-	-	-	-	-
Time blocked-Platoon, %								-	-		-	-
Mov Capacity-1 Maneuver	27	36	309	26	36	308	713	-	-	716	-	-
Mov Capacity-2 Maneuver	27	36	-	26	36	-	-	-	-	-	-	-
Stage 1	219	217	-	287	315	-	-	-	-	-	-	-
Stage 2	280	315	-	176	215	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	84.3	109.6	0.1	1.2
HCM LOS	F	F		

Minor Lane / Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	713	-	-	69	48	716	-	-
HCM Lane V/C Ratio	0.015	-	-	0.362	0.302	0.163	-	-
HCM Control Delay (s)	10.124	0	-	84.3	109.6	11.008	-	-
HCM Lane LOS	B	A		F	F	B		
HCM 95th %tile Q(veh)	0.044	-	-	1.366	1.04	0.582	-	-

Notes

~ : Volume Exceeds Capacity; $: Delay Exceeds 300 Seconds; Error : Computation Not Defined

Intersection	
Intersection Delay, s/veh	8.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	5	0	5	15	0	115	5	865	0	5	945	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	0	-	-	0	0	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	50	50	50	70	70	70	83	83	83	87	87	87
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	1	0
Mvmt Flow	10	0	10	21	0	164	6	1042	0	6	1086	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	2152	2152	1086	2157	2152	1042	1086	0	0	1042	0	0
Stage 1	1098	1098	-	1054	1054	-	-	-	-	-	-	-
Stage 2	1054	1054	-	1103	1098	-	-	-	-	-	-	-
Follow-up Headway	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Capacity-1 Maneuver	35	49	265	35	49	281	650	-	-	675	-	-
Stage 1	260	291	-	276	305	-	-	-	-	-	-	-
Stage 2	276	305	-	259	291	-	-	-	-	-	-	-
Time blocked-Platoon, %								-	-		-	-
Mov Capacity-1 Maneuver	14	47	265	33	47	281	650	-	-	675	-	-
Mov Capacity-2 Maneuver	14	47	-	33	47	-	-	-	-	-	-	-
Stage 1	254	288	-	270	298	-	-	-	-	-	-	-
Stage 2	112	298	-	247	288	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	298.7	72.1	0.1	0.1
HCM LOS	F	F		

Minor Lane / Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	650	-	-	27	90	281	675	-	-
HCM Lane V/C Ratio	0.009	-	-	0.741	0.847	0.39	0.009	-	-
HCM Control Delay (s)	10.59	0	-	298.7	138.7	25.8	10.379	-	-
HCM Lane LOS	B	A		F	F	D	B		
HCM 95th %tile Q(veh)	0.028	-	-	2.336	4.551	1.77	0.026	-	-

Notes

~ : Volume Exceeds Capacity; $: Delay Exceeds 300 Seconds; Error : Computation Not Defined

Intersection	
Intersection Delay, s/veh	1.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	0	0	10	5	0	0	5	870	25	100	860	5
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	0	0	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	55	55	55	56	56	56	86	86	86	85	85	85
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	1	0
Mvmt Flow	0	0	18	9	0	0	6	1012	29	118	1012	6

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	2273	2273	1015	2282	2276	1012	1018	0	0	1012	0	0
Stage 1	1250	1250	-	1023	1023	-	-	-	-	-	-	-
Stage 2	1023	1023	-	1259	1253	-	-	-	-	-	-	-
Follow-up Headway	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Capacity-1 Maneuver	29	41	292	28	41	293	689	-	-	693	-	-
Stage 1	214	247	-	287	316	-	-	-	-	-	-	-
Stage 2	287	316	-	211	246	-	-	-	-	-	-	-
Time blocked-Platoon, %								-	-		-	-
Mov Capacity-1 Maneuver	25	33	292	22	33	293	689	-	-	693	-	-
Mov Capacity-2 Maneuver	25	33	-	22	33	-	-	-	-	-	-	-
Stage 1	210	205	-	281	309	-	-	-	-	-	-	-
Stage 2	281	309	-	164	204	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	18.1	253.5	0.1	1.2
HCM LOS	C	F		

Minor Lane / Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	689	-	-	292	22	693	-	-
HCM Lane V/C Ratio	0.008	-	-	0.062	0.406	0.17	-	-
HCM Control Delay (s)	10.269	0	-	18.1	253.5	11.254	-	-
HCM Lane LOS	B	A		C	F	B		
HCM 95th %tile Q(veh)	0.026	-	-	0.198	1.187	0.608	-	-

Notes

~ : Volume Exceeds Capacity; $: Delay Exceeds 300 Seconds; Error : Computation Not Defined

Intersection	
Intersection Delay, s/veh	5.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	5	0	20	15	0	25	10	585	35	45	1130	15
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	0	0	-	-	0	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	69	69	69	60	60	60	90	90	90	91	91	91
Heavy Vehicles, %	0	0	5	0	0	0	0	1	0	0	1	0
Mvmt Flow	7	0	29	25	0	42	11	650	39	49	1242	16

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	2041	2060	1250	2055	2049	669	1258	0	0	689	0	0
Stage 1	1349	1349	-	692	692	-	-	-	-	-	-	-
Stage 2	692	711	-	1363	1357	-	-	-	-	-	-	-
Follow-up Headway	3.5	4	3.345	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Capacity-1 Maneuver	42	56	208	41	56	461	560	-	-	915	-	-
Stage 1	188	221	-	437	448	-	-	-	-	-	-	-
Stage 2	437	439	-	184	219	-	-	-	-	-	-	-
Time blocked-Platoon, %								-	-		-	-
Mov Capacity-1 Maneuver	36	52	208	33	52	461	560	-	-	915	-	-
Mov Capacity-2 Maneuver	36	52	-	33	52	-	-	-	-	-	-	-
Stage 1	184	209	-	428	439	-	-	-	-	-	-	-
Stage 2	390	430	-	150	207	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	55.7	122.5	0.2	0.3
HCM LOS	F	F		

Minor Lane / Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	560	-	-	106	49	461	915	-	-
HCM Lane V/C Ratio	0.02	-	-	0.342	0.794	0.06	0.054	-	-
HCM Control Delay (s)	11.559	-	-	55.7	200.5	13.3	9.159	-	-
HCM Lane LOS	B			F	F	B	A		
HCM 95th %tile Q(veh)	0.061	-	-	1.349	3.239	0.192	0.171	-	-

Notes

~ : Volume Exceeds Capacity; $: Delay Exceeds 300 Seconds; Error : Computation Not Defined

Intersection	
Intersection Delay, s/veh	1.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	5	0	15	5	0	0	5	625	5	5	1160	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	0	-	-	0	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	55	55	55	38	38	38	88	88	88	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0	0	1	0	0	1	0
Mvmt Flow	9	0	27	13	0	0	6	710	6	5	1261	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1996	1999	1261	2009	1996	713	1261	0	0	716	0	0
Stage 1	1272	1272	-	724	724	-	-	-	-	-	-	-
Stage 2	724	727	-	1285	1272	-	-	-	-	-	-	-
Follow-up Headway	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Capacity-1 Maneuver	45	61	210	45	61	435	558	-	-	894	-	-
Stage 1	208	241	-	420	433	-	-	-	-	-	-	-
Stage 2	420	432	-	204	241	-	-	-	-	-	-	-
Time blocked-Platoon, %								-	-		-	-
Mov Capacity-1 Maneuver	44	60	210	39	60	435	558	-	-	894	-	-
Mov Capacity-2 Maneuver	44	60	-	39	60	-	-	-	-	-	-	-
Stage 1	206	240	-	415	428	-	-	-	-	-	-	-
Stage 2	415	427	-	177	240	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	54.4	138.6	0.1	0
HCM LOS	F	F		

Minor Lane / Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	558	-	-	108	39	894	-	-
HCM Lane V/C Ratio	0.01	-	-	0.337	0.337	0.006	-	-
HCM Control Delay (s)	11.518	-	-	54.4	138.6	9.051	-	-
HCM Lane LOS	B			F	F	A		
HCM 95th %tile Q(veh)	0.031	-	-	1.326	1.131	0.018	-	-

Notes

~ : Volume Exceeds Capacity; $: Delay Exceeds 300 Seconds; Error : Computation Not Defined

Intersection	
Intersection Delay, s/veh	22.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	10	0	10	25	0	140	10	935	0	0	995	15
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	0	0	-	-	0	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	75	75	75	68	68	68	95	95	95	88	88	88
Heavy Vehicles, %	13	0	10	0	0	0	10	1	0	0	2	6
Mvmt Flow	13	0	13	37	0	206	11	984	0	0	1131	17

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	2144	2144	1139	2151	2153	984	1148	0	0	984	0	0
Stage 1	1139	1139	-	1005	1005	-	-	-	-	-	-	-
Stage 2	1005	1005	-	1146	1148	-	-	-	-	-	-	-
Follow-up Headway	3.617	4	3.39	3.5	4	3.3	2.29	-	-	2.2	-	-
Pot Capacity-1 Maneuver	33	49	236	# 35	49	304	580	-	-	710	-	-
Stage 1	233	278	-	294	322	-	-	-	-	-	-	-
Stage 2	278	322	-	245	276	-	-	-	-	-	-	-
Time blocked-Platoon, %								-	-		-	-
Mov Capacity-1 Maneuver	# 10	48	236	# 33	48	304	580	-	-	710	-	-
Mov Capacity-2 Maneuver	# 10	48	-	# 33	48	-	-	-	-	-	-	-
Stage 1	229	278	-	288	316	-	-	-	-	-	-	-
Stage 2	88	316	-	231	276	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	$ 642.9	148.3	0.1	0
HCM LOS	F	F		

Minor Lane / Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	580	-	-	19	79	304	710	-	-
HCM Lane V/C Ratio	0.018	-	-	1.404	1.334	0.451	-	-	-
HCM Control Delay (s)	11.322	-	-	$ 642.9	$ 307.4	26.2	0	-	-
HCM Lane LOS	B			F	F	D	A		
HCM 95th %tile Q(veh)	0.055	-	-	3.678	8.149	2.231	0	-	-

Notes

~ : Volume Exceeds Capacity; $: Delay Exceeds 300 Seconds; Error : Computation Not Defined

Intersection	
Intersection Delay, s/veh	2.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	5	0	10	5	0	5	10	935	20	110	910	10
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	0	-	-	0	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	60	60	60	69	69	69	96	96	96	94	94	94
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	2	0
Mvmt Flow	8	0	17	7	0	7	10	974	21	117	968	11

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	2216	2223	973	2221	2218	984	979	0	0	995	0	0
Stage 1	1207	1207	-	1005	1005	-	-	-	-	-	-	-
Stage 2	1009	1016	-	1216	1213	-	-	-	-	-	-	-
Follow-up Headway	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Capacity-1 Maneuver	32	44	309	31	44	304	713	-	-	703	-	-
Stage 1	226	259	-	294	322	-	-	-	-	-	-	-
Stage 2	292	318	-	223	257	-	-	-	-	-	-	-
Time blocked-Platoon, %								-	-		-	-
Mov Capacity-1 Maneuver	27	36	309	25	36	304	713	-	-	703	-	-
Mov Capacity-2 Maneuver	27	36	-	25	36	-	-	-	-	-	-	-
Stage 1	223	216	-	290	317	-	-	-	-	-	-	-
Stage 2	281	314	-	176	214	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	84.3	115.8	0.1	1.2
HCM LOS	F	F		

Minor Lane / Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	713	-	-	69	46	703	-	-
HCM Lane V/C Ratio	0.015	-	-	0.362	0.315	0.166	-	-
HCM Control Delay (s)	10.124	-	-	84.3	115.8	11.141	-	-
HCM Lane LOS	B			F	F	B		
HCM 95th %tile Q(veh)	0.044	-	-	1.366	1.082	0.594	-	-

Notes

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Intersection	
Intersection Delay, s/veh	8.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	5	0	5	15	0	115	5	865	0	5	945	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	0	0	-	-	0	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	50	50	50	70	70	70	83	83	83	87	87	87
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	1	0
Mvmt Flow	10	0	10	21	0	164	6	1042	0	6	1086	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	2152	2152	1086	2157	2152	1042	1086	0	0	1042	0	0
Stage 1	1098	1098	-	1054	1054	-	-	-	-	-	-	-
Stage 2	1054	1054	-	1103	1098	-	-	-	-	-	-	-
Follow-up Headway	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Capacity-1 Maneuver	35	49	265	35	49	281	650	-	-	675	-	-
Stage 1	260	291	-	276	305	-	-	-	-	-	-	-
Stage 2	276	305	-	259	291	-	-	-	-	-	-	-
Time blocked-Platoon, %								-	-		-	-
Mov Capacity-1 Maneuver	14	48	265	33	48	281	650	-	-	675	-	-
Mov Capacity-2 Maneuver	14	48	-	33	48	-	-	-	-	-	-	-
Stage 1	258	288	-	273	302	-	-	-	-	-	-	-
Stage 2	114	302	-	247	288	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	298.7	72.1	0.1	0.1
HCM LOS	F	F		

Minor Lane / Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	650	-	-	27	90	281	675	-	-
HCM Lane V/C Ratio	0.009	-	-	0.741	0.847	0.39	0.009	-	-
HCM Control Delay (s)	10.59	-	-	298.7	138.7	25.8	10.379	-	-
HCM Lane LOS	B			F	F	D	B		
HCM 95th %tile Q(veh)	0.028	-	-	2.336	4.551	1.77	0.026	-	-

Notes

~ : Volume Exceeds Capacity; $: Delay Exceeds 300 Seconds; Error : Computation Not Defined

Intersection	
Intersection Delay, s/veh	1.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	0	0	10	5	0	0	5	870	25	100	860	5
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	0	-	-	0	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	55	55	55	56	56	56	86	86	86	85	85	85
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	1	0
Mvmt Flow	0	0	18	9	0	0	6	1012	29	118	1012	6

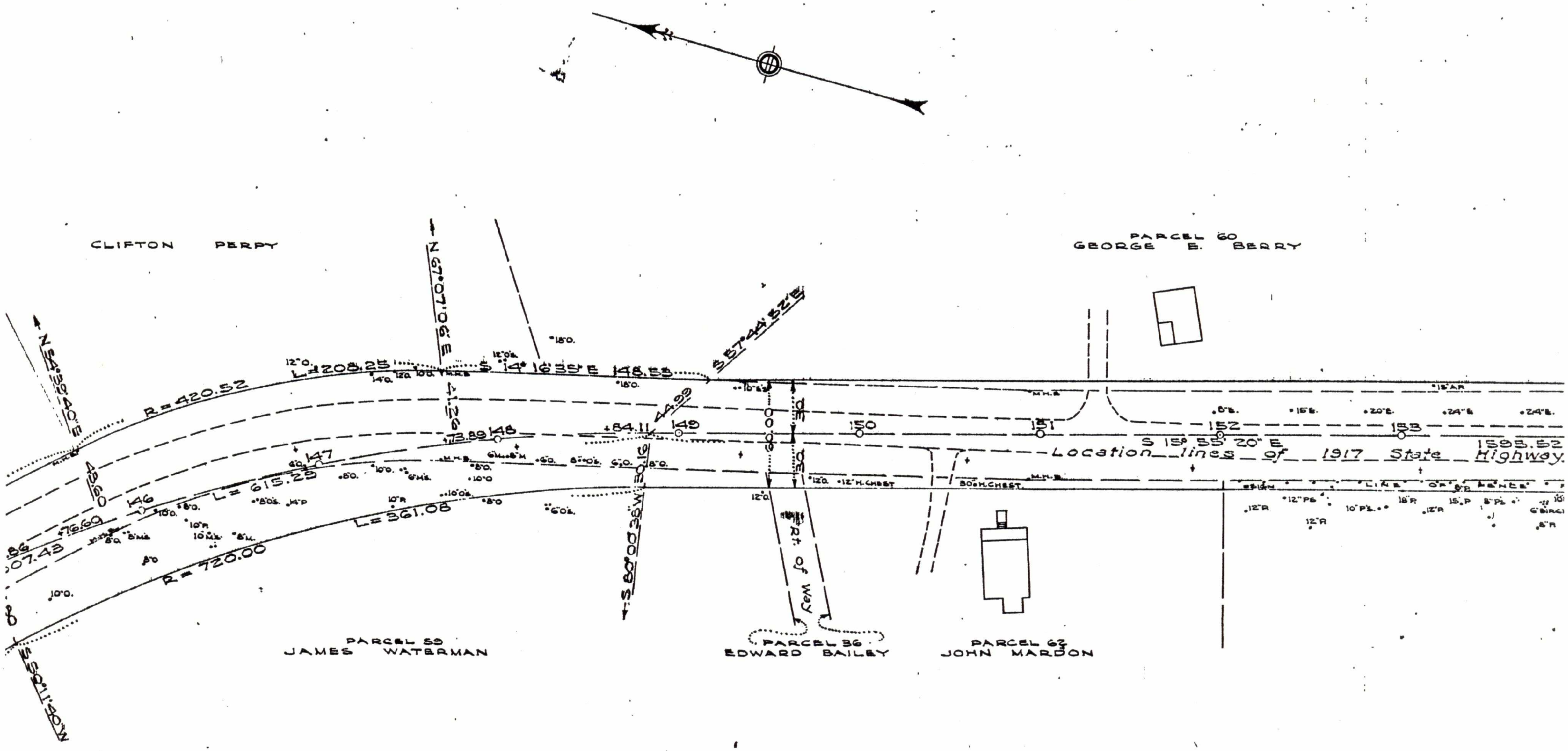
Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	2288	2302	1015	2297	2291	1026	1018	0	0	1041	0	0
Stage 1	1250	1250	-	1038	1038	-	-	-	-	-	-	-
Stage 2	1038	1052	-	1259	1253	-	-	-	-	-	-	-
Follow-up Headway	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Capacity-1 Maneuver	28	39	292	28	40	288	689	-	-	676	-	-
Stage 1	214	247	-	281	311	-	-	-	-	-	-	-
Stage 2	281	306	-	211	246	-	-	-	-	-	-	-
Time blocked-Platoon, %								-	-		-	-
Mov Capacity-1 Maneuver	24	32	292	23	33	288	689	-	-	676	-	-
Mov Capacity-2 Maneuver	24	32	-	23	33	-	-	-	-	-	-	-
Stage 1	212	204	-	279	308	-	-	-	-	-	-	-
Stage 2	279	303	-	163	203	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	18.1	239	0.1	1.2
HCM LOS	C	F		

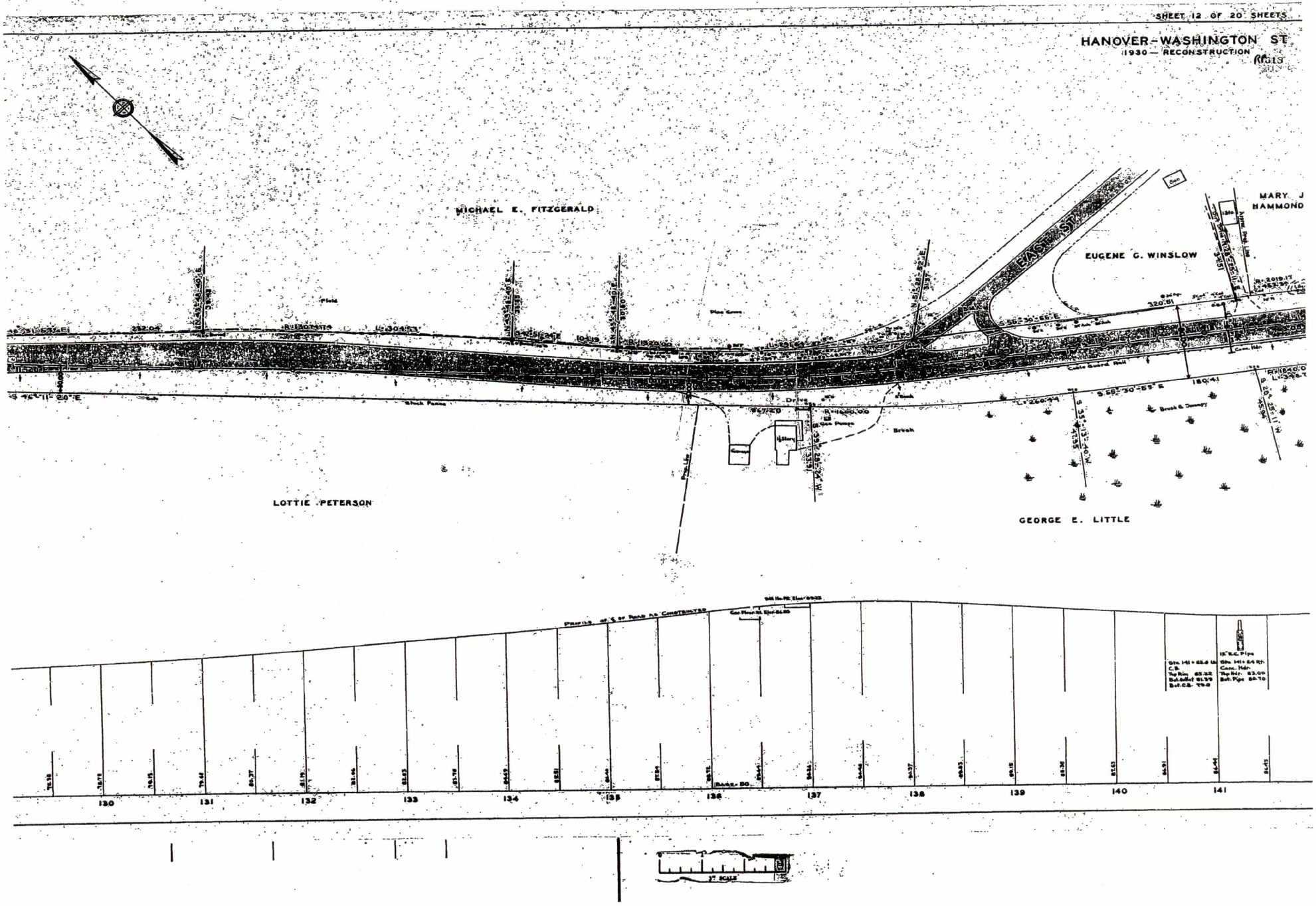
Minor Lane / Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	689	-	-	292	23	676	-	-
HCM Lane V/C Ratio	0.008	-	-	0.062	0.388	0.174	-	-
HCM Control Delay (s)	10.269	-	-	18.1	239	11.444	-	-
HCM Lane LOS	B			C	F	B		
HCM 95th %tile Q(veh)	0.026	-	-	0.198	1.151	0.626	-	-

Notes

~ : Volume Exceeds Capacity; $: Delay Exceeds 300 Seconds; Error : Computation Not Defined

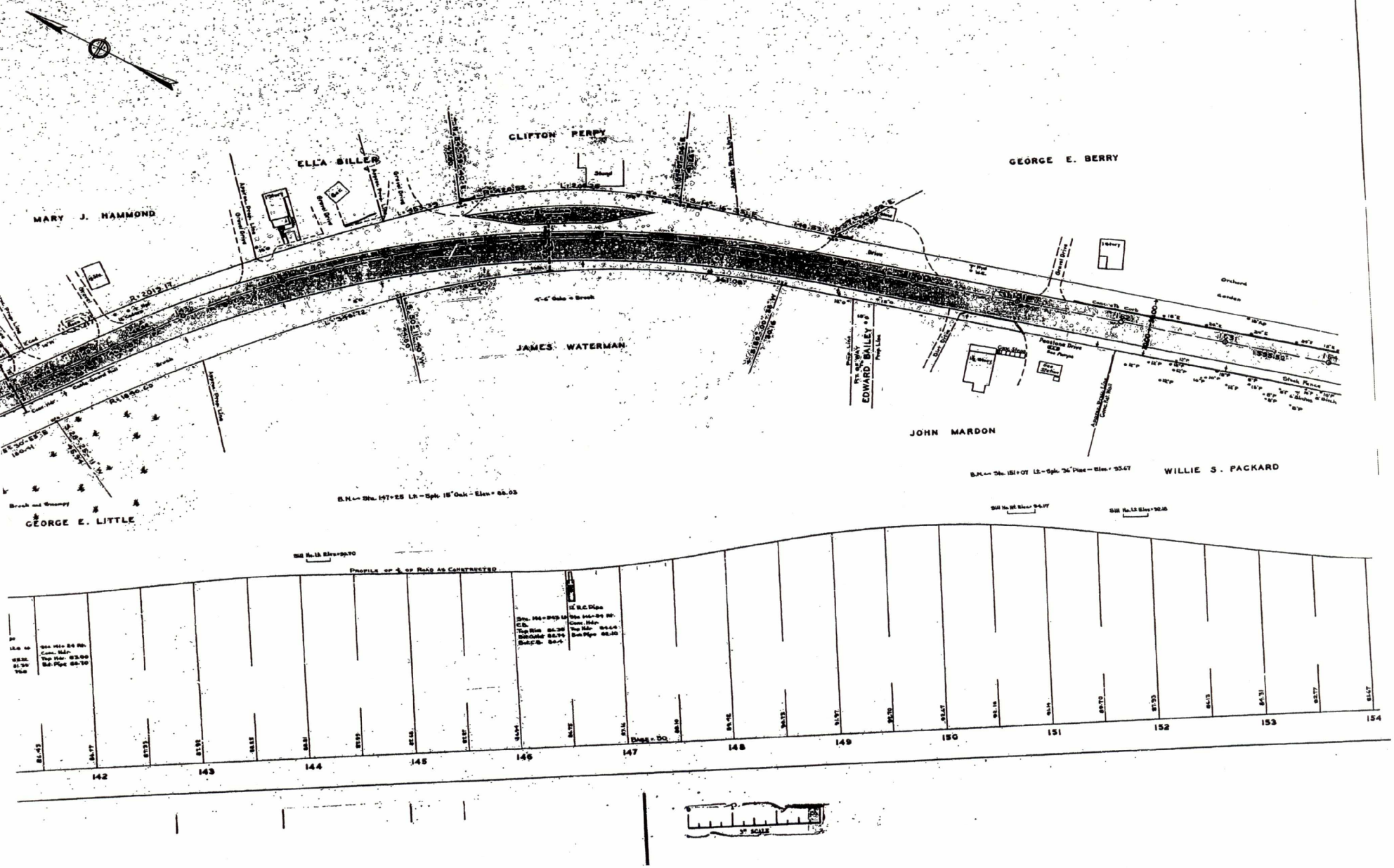

CLIFTON PERRY
PARCEL 60 GEORGE E. BERRY
PARCEL 59 JAMES WATERMAN
PARCEL 36 EDWARD BAILEY
PARCEL 63 JOHN MARDON
Location lines of 1917 State Highway
S 15° 55' 20" E
1598.52
Rt. of Way
S 14° 16' 35" E 148.55
N 67°07'06" E
N 54°39'40" E
L=1208.25
R=420.52
L=615.25
R=720.00
L=361.08

HANOVER – WASHINGTON ST
1930 – RECONSTRUCTION

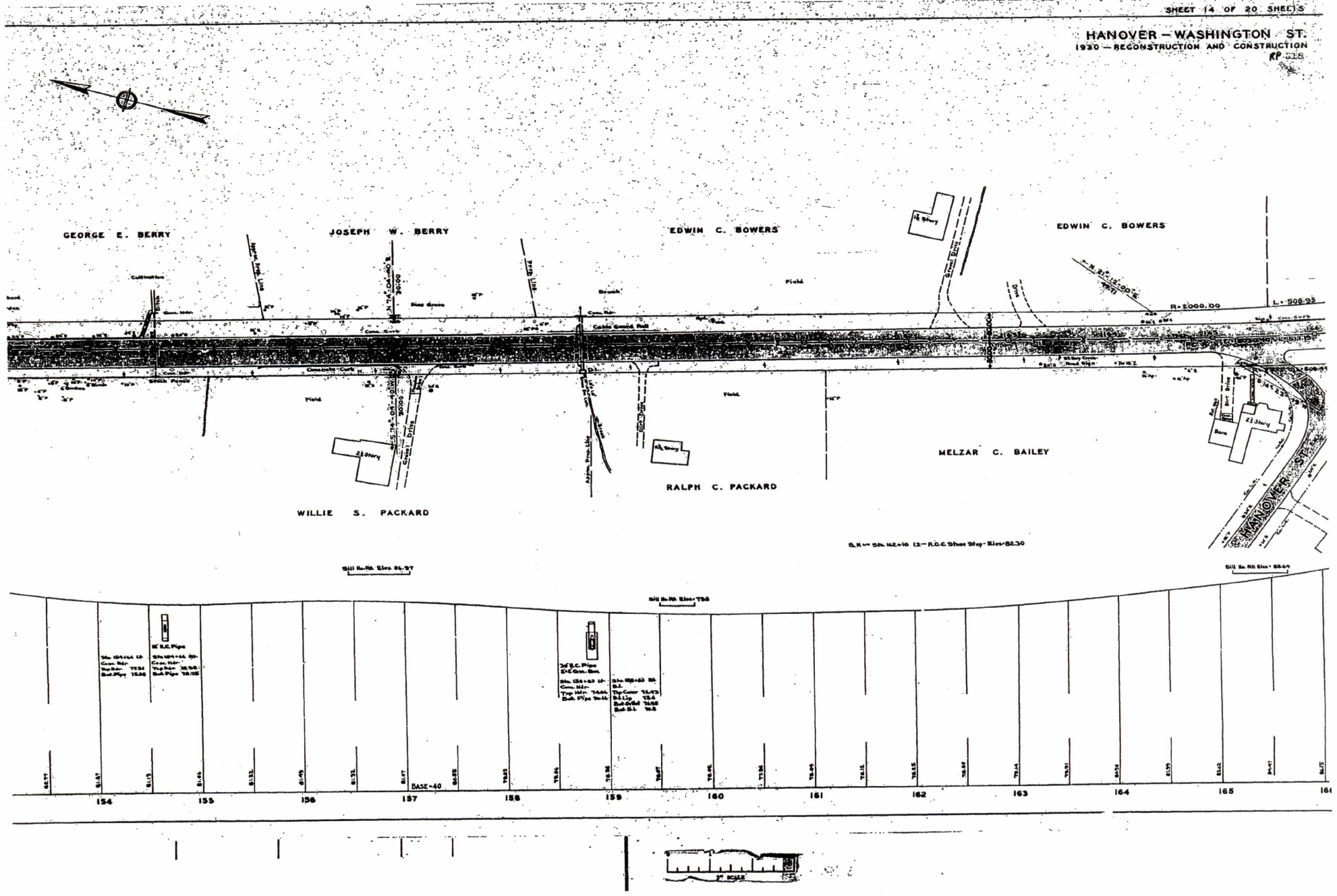


HANOVER - WASHINGTON ST.

1930 — RECONSTRUCTION



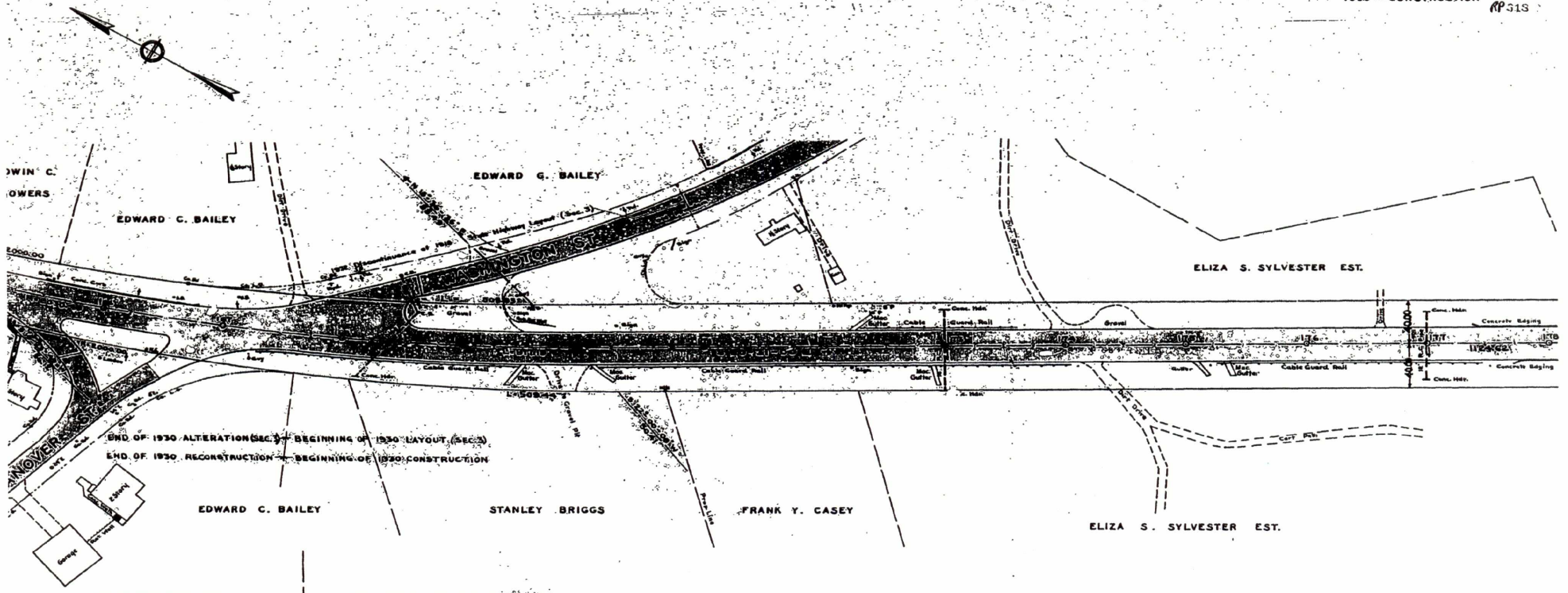
HANOVER – WASHINGTON ST.
1930 – RECONSTRUCTION AND CONSTRUCTION
RP-338

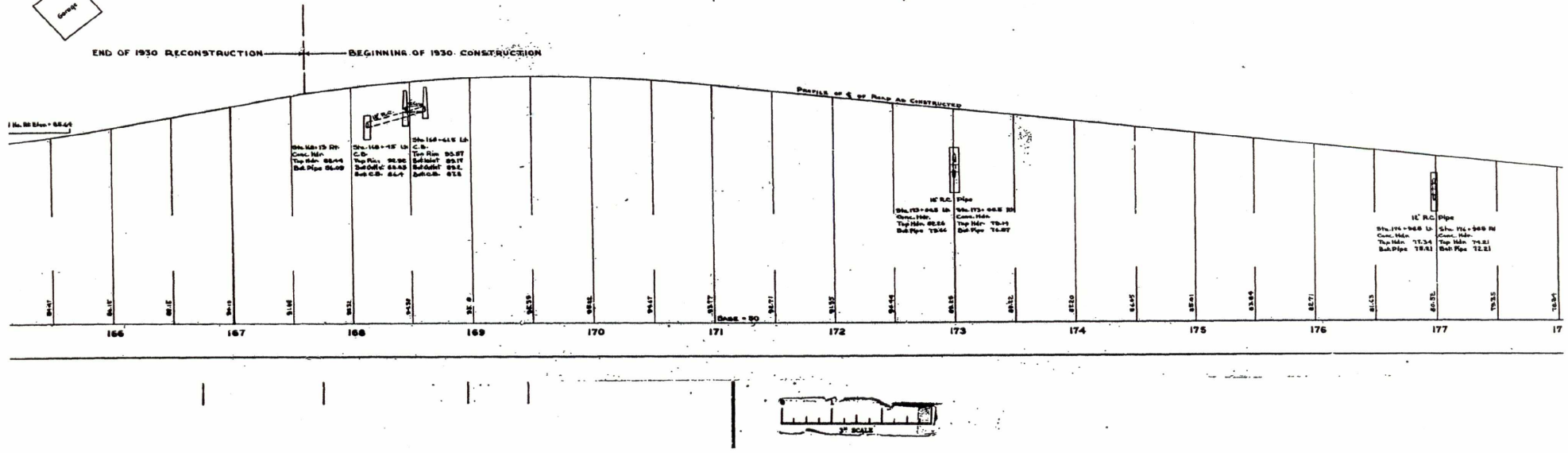


HANOVER — WASHINGTON ST.

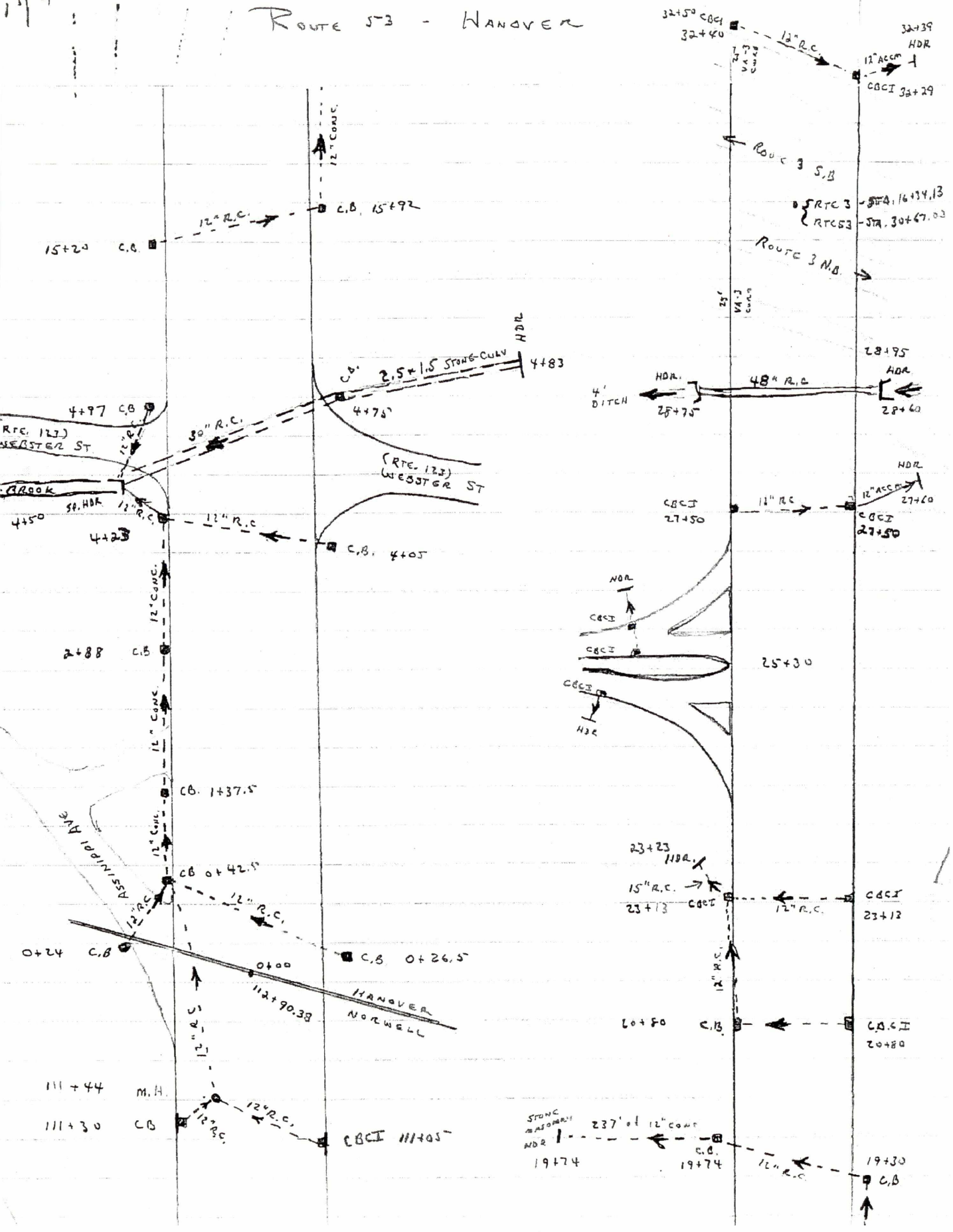
1930 — CONSTRUCTION

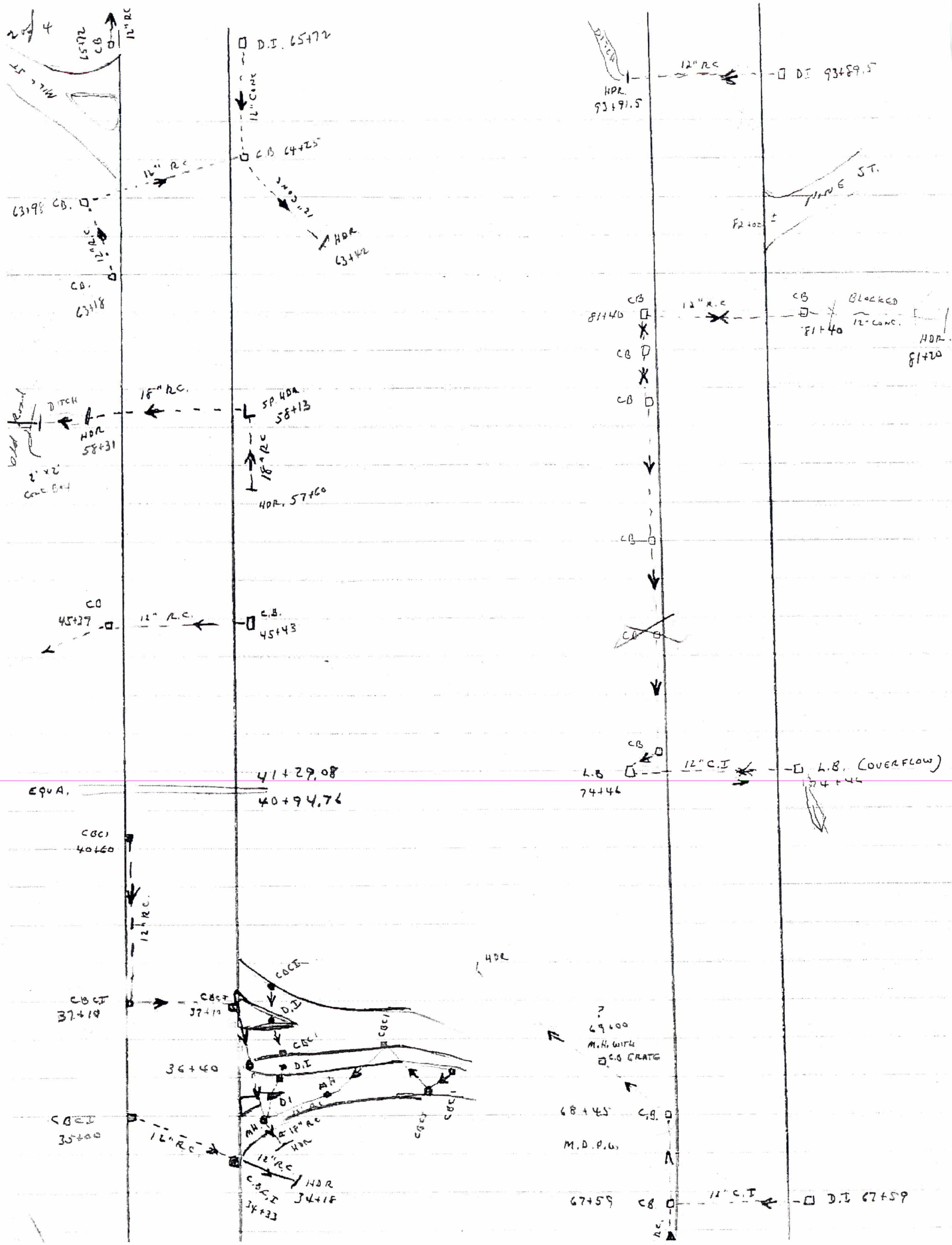
RP 518



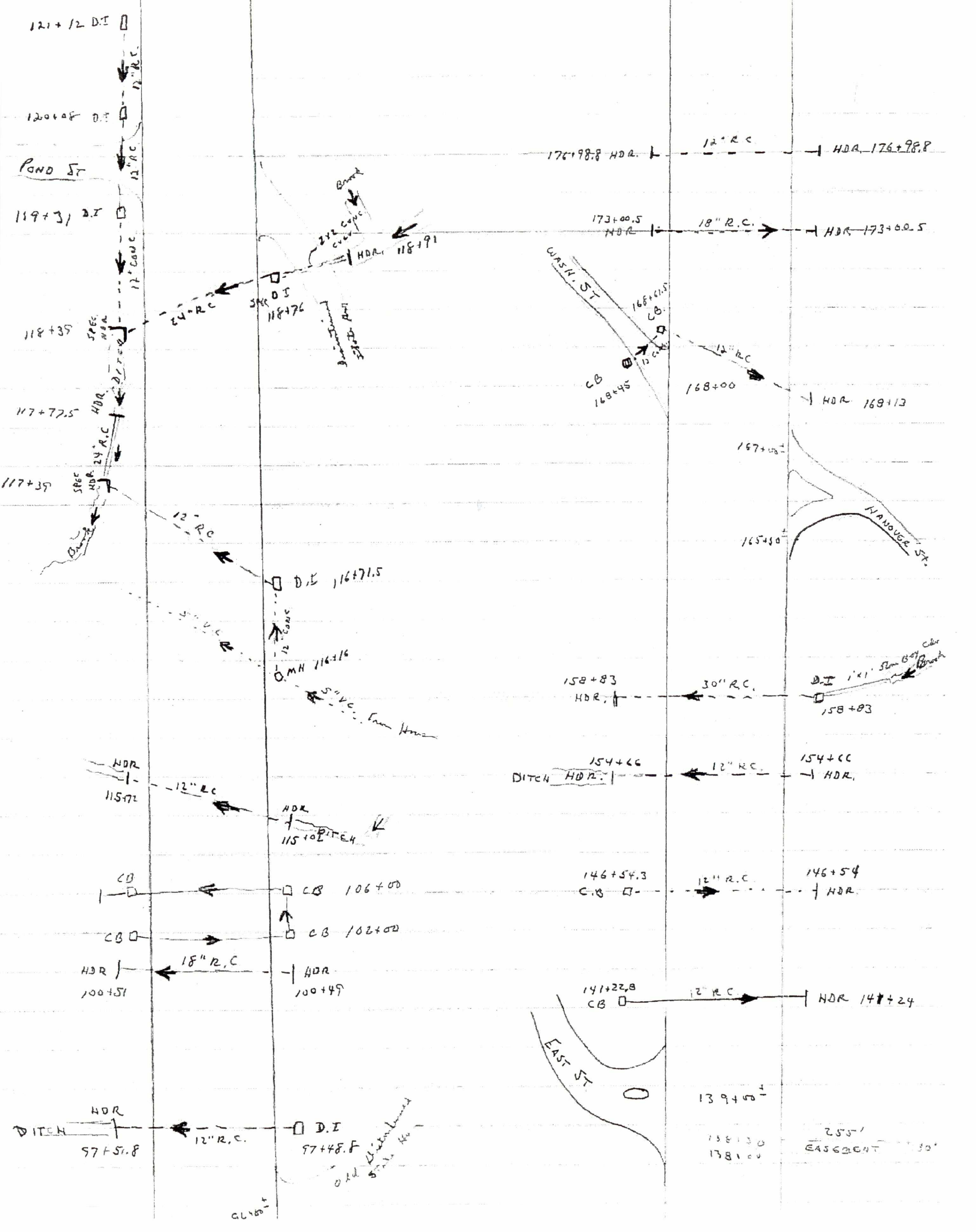


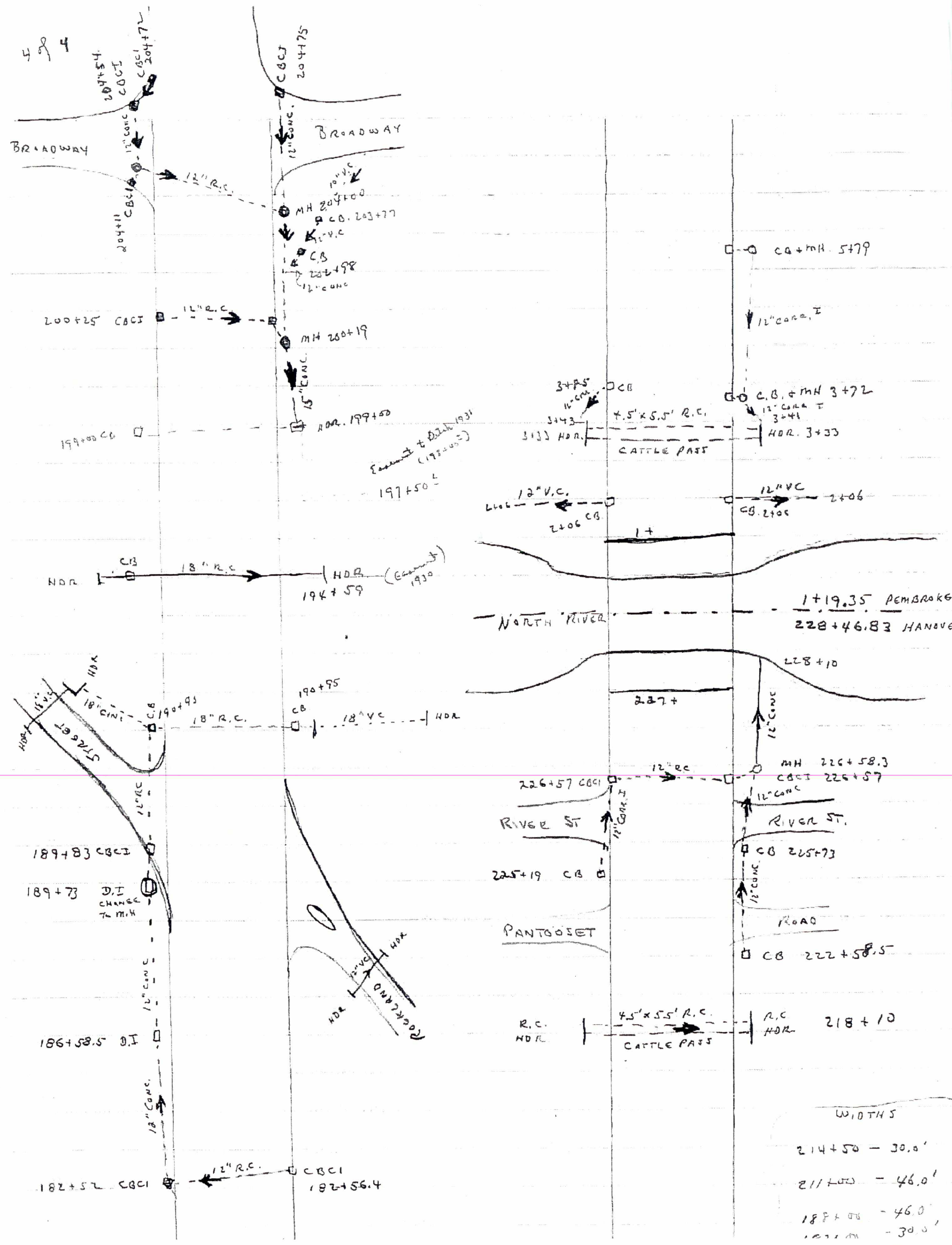
ROUTE 53 - HANOVER



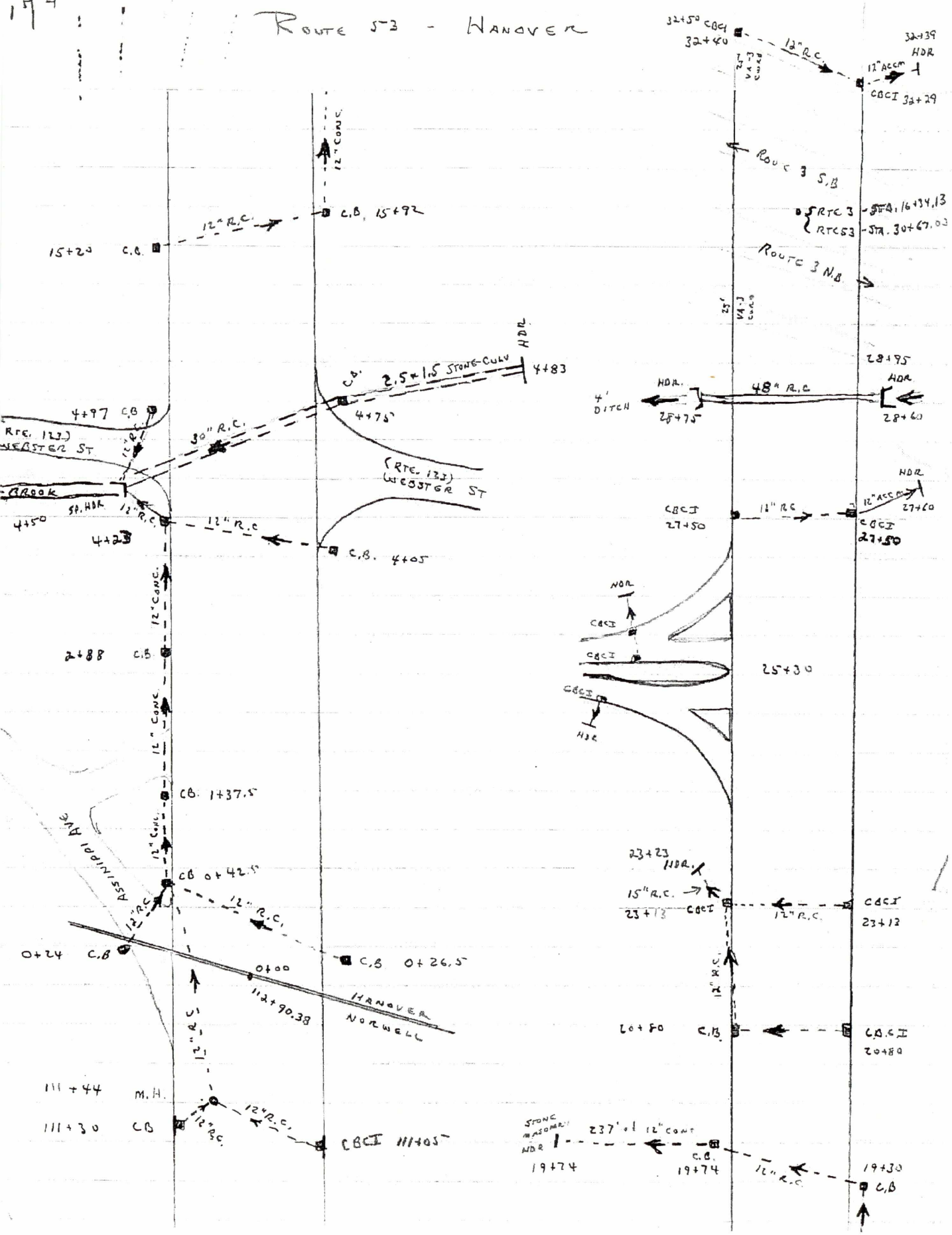


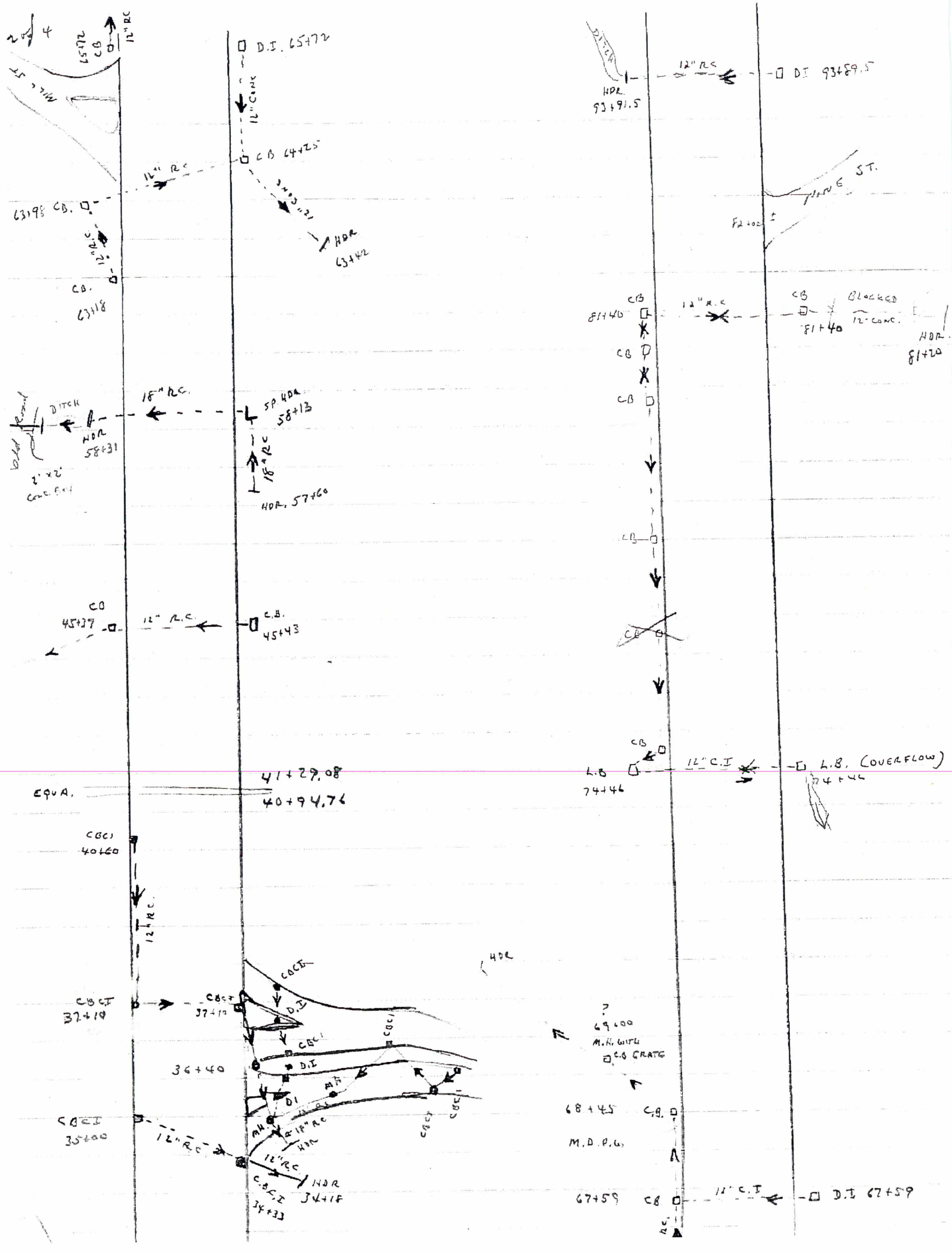
D.I. 65+72
12" CONC
CB 64+25
12" R.C.
63+98 CB.
12" CONC
HDR 63+42
12" R.C.
CB. 63+18
18" R.C.
SP. HDR. 58+13
DITCH
HDR 58+31
2' x 2' CONC BOX
18" R.C
HDR. 57+60
CB 45+37
12" R.C.
C.B. 45+43
41+29.08
EQUA.
40+94.76
CBCI 40+60
12" R.C.
CBCI 37+10
CBCI 37+10
D.I
CBCI
36+40
D.I
DI
MH
18" RC
HDR
CBCI 35+00
12" R.C.
12" R.C.
HDR 34+18
C.B.C.I 34+33
HDR
12" RC
DI 93+89.5
HDR. 93+91.5
LANE ST.
CB 81+40
12" R.C
CB 81+40
BLOCKED
12" CONC.
HDR. 81+20
CB
CB
CB
CB
CB
L.B 74+46
12" C.I
L.B. (OVERFLOW)
?
69+00
M.H. WITH C.B GRATE
68+45
C.B.
M.D.P.G.
67+59
CB
12" C.I
D.I 67+59

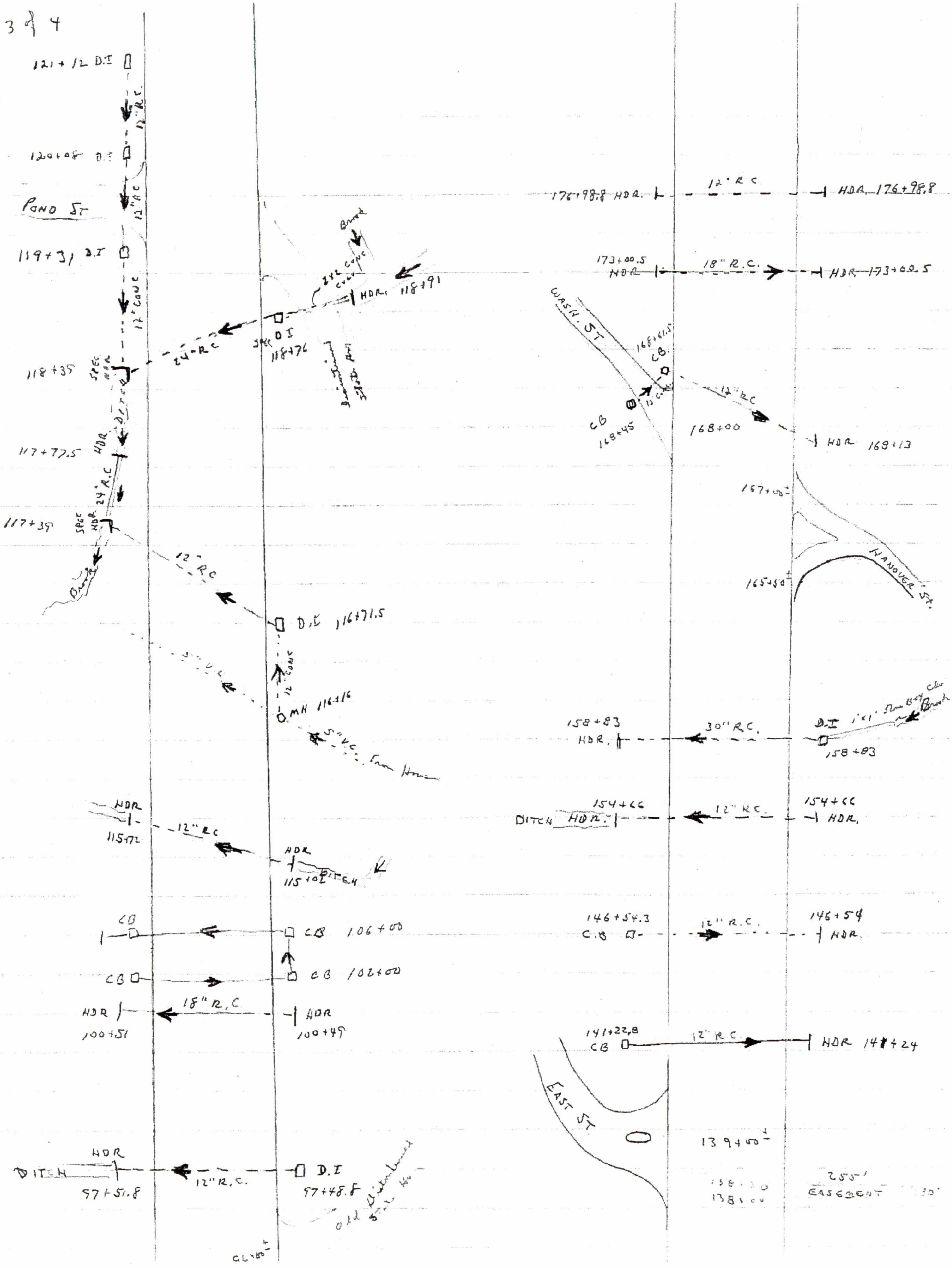

121+12 D.I
12" R.C.
120+08 D.I
POND ST
12" R.C.
119+31 D.I
12" CONC
118+35
SPEC HDR
DITCH
117+72.5 HDR
24" R.C
117+39
SPEC HDR
Brook
24" R.C
SPEC D.I 118+76
HDR. 118+91
Brook
12" R.C
D.I 116+71.5
12" CONC
MH 116+16
HDR
115+72
12" R.C
HDR
115+10
DITCH
CB
CB 106+00
CB
CB 102+00
HDR
100+51
18" R.C
HDR
100+49
HDR
DITCH
97+51.8
12" R.C.
D.I
97+48.8
176+98.8 HDR.
12" R.C
HDR 176+98.8
173+00.5 HDR
18" R.C.
HDR 173+00.5
WASH. ST
168+61.5 CB.
CB 168+45
12" R.C
168+00
HDR 169+13
167+00±
165+50±
HANOVER ST.
158+83 HDR.
30" R.C.
D.I
158+83
154+66
DITCH HDR.
12" R.C.
154+66
HDR.
146+54.3
C.B
12" R.C
146+54
HDR
141+22.8
CB
12" R.C
HDR 141+24
EAST ST
139+00±
255'
EASEMENT

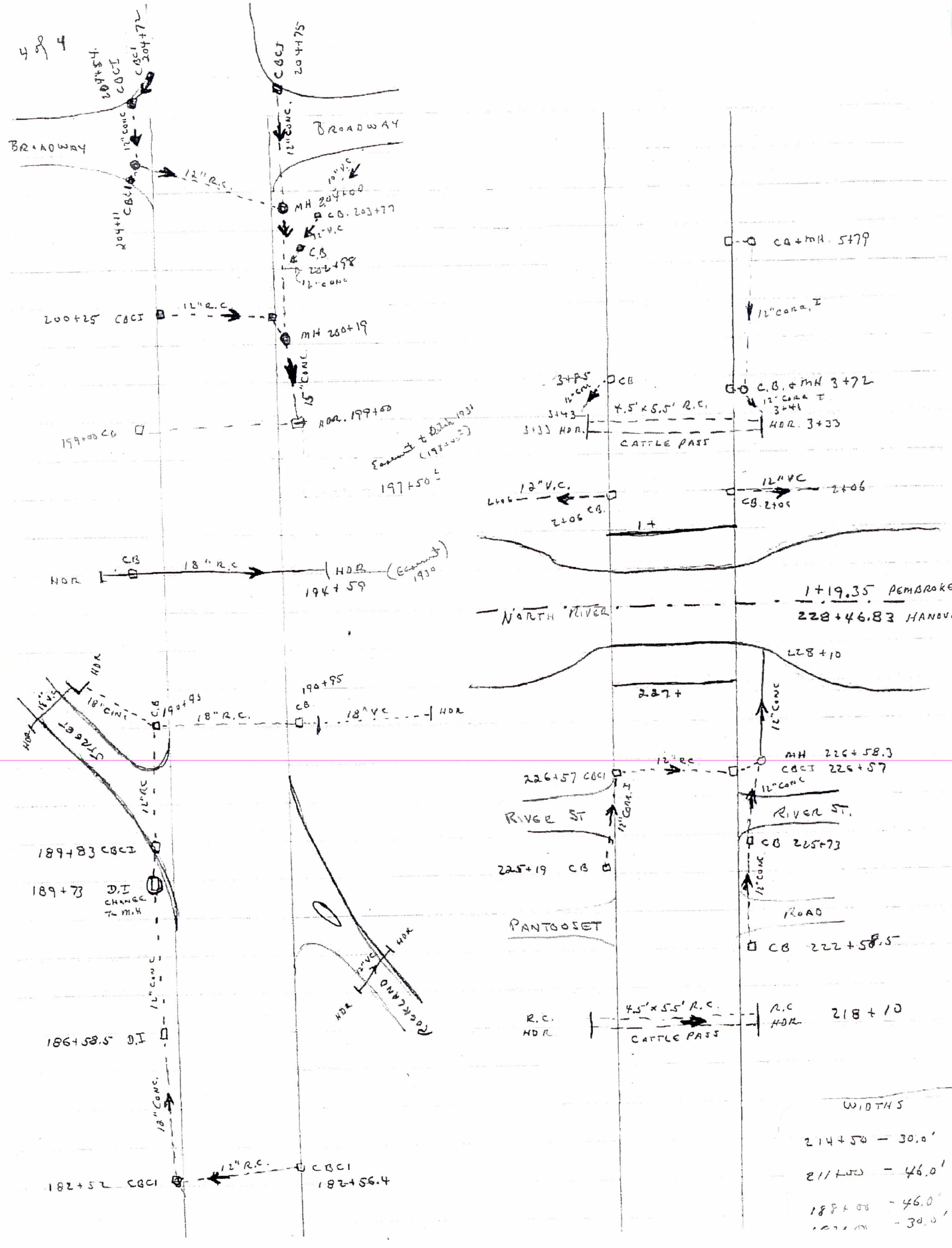

BROADWAY
BROADWAY
204+54 CBCI
CBCI 204+72
CBCI 204+75
12" CONC.
12" R.C.
204+11 CBCI
MH 204+00
CB. 203+77
C.B
12" CONC
200+25 CBCI
12" R.C.
MH 200+19
15" CONC.
199+00 CB
HDR. 199+50
197+50
CB
18" R.C.
HDR
HDR
194+59
HDR
18" CONC
190+93
18" R.C.
CB
190+95
18" VC
HDR
STREET
12" RC
189+83 CBCI
189+73
D.I
CHANGE TO M.H
12" CONC
186+58.5 D.I
18" CONC.
182+52 CBCI
12" R.C.
CBCI
182+56.4
HDR
HDR
ROCKLAND
CB + MH. 5+79
12" CONC. I
3+85 CB
12" CONC
C.B. + MH 3+72
3+43
3+33 HDR.
4.5' x 5.5' R.C.
CATTLE PASS
3+41
HDR. 3+33
12" V.C.
2+06
12" VC
2+06
CB. 2+06
2+06 CB
1+
NORTH RIVER
1+19.35 PEMBROKE
228+46.83 HANOVER
228+10
227+
12" CONC
MH 226+58.3
12" RC
226+57 CBCI
CBCI 226+57
12" CONC
12" CONC. I
RIVER ST
RIVER ST.
CB 225+73
225+19 CB
12" CONC.
PANTOOSET
ROAD
CB 222+58.5
R.C. HDR
4.5' x 5.5' R.C.
CATTLE PASS
R.C HDR
218+10
WIDTHS
214+50 - 30.0'
211+00 - 46.0'
188+00 - 46.0'
- 30.0'

ROUTE 53 - HANOVER




2 of 4
CB 65+72
12" RC
D.I. 65+72
12" CONC.
CB 64+25
12" RC
63+98 CB.
HDR 63+42
12" RC
CB. 63+18
DITCH
18" R.C.
SP. HDR. 58+13
HDR 58+31
18" RC
HDR. 57+60
2'x2'
CB 45+37
12" R.C.
C.B. 45+43
EQUA.
41+29.08
40+94.76
CBCI 40+60
12" RC
CBCI 37+10
CBCI 37+10
CBCI
D.I
CBCI
D.I
36+40
D.I
MH
MH
18" RC
HDR
CBCI 35+00
12" R.C.
12" R.C.
HDR 34+18
C.B.C.I 34+33
HDR
DITCH
12" RC
DI 93+59.5
HDR. 93+91.5
PINE ST.
CB 81+40
12" R.C.
CB 81+40
BLOCKED
12" CONC.
HDR. 81+20
CB
CB
CB
CB
12" C.I
L.B. (OVERFLOW) 74+46
L.B 74+46
?
69+00
M.H. WITH C.B GRATE
68+45
C.B.
M.D.P.G.
67+59
CB
12" C.I
D.I 67+59


121+12 D.I
12" R.C.
120+08 D.I
12" R.C.
POND ST
119+31 D.I
12" CONC
HDR 118+91
Brook
SPEC D I
118+76
24" R.C
118+35
SPEC HDR
DITCH
117+77.5
HDR
24" R.C
117+35
SPEC HDR
Brook
12" R.C
D.I 116+71.5
12" CONC
MH 116+16
from House
HDR
115+72
12" R.C
HDR
115+02
DITCH
CB
CB 106+00
CB
CB 102+00
HDR
100+51
18" R.C
HDR
100+49
HDR
DITCH
97+51.8
12" R.C.
D.I
97+48.8
176+98.8 HDR.
12" R.C
HDR 176+98.8
173+00.5
HDR
18" R.C.
HDR 173+00.5
WASH. ST
CB
12" R.C
168+00
HDR 168+13
CB
168+45
167+00±
HANOVER ST.
165+50±
158+83
HDR.
30" R.C.
D.I
158+83
Brook
154+66
DITCH HDR.
12" R.C.
154+66
HDR.
146+54.3
C.B
12" R.C.
146+54
HDR.
141+22.8
CB
12" R.C
HDR 141+24
EAST ST.
139+00±
EASEMENT


4 of 4
Broadway
204+74 CBCI
CBCI 204+72
12" Conc.
CBCI 204+11
12" R.C.
CBCI 204+75
12" Conc.
10" V.C.
MH 204+00
CB. 203+77
12" V.C.
C.B 202+98
12" Conc
200+25 CBCI
12" R.C.
MH 200+19
15" Conc.
199+00 CB
HDR. 199+50
Easement + Drain 1931 (198+00)
197+50 ±
HDR
CB
18" R.C.
HDR
(Easement 1930)
194+59
HDR
18" V.C.
HDR
18" Conc
C.B 190+93
18" R.C.
CB 190+95
18" V.C.
HDR
Street
12" RC
189+83 CBCI
189+73 D.I change to M.H
12" Conc.
186+58.5 D.I
18" Conc.
182+52 CBCI
12" R.C.
CBCI 182+56.4
HDR
12" V.C.
HDR
Rockland
CB + MH 5+79
12" Conc. I
3+85 CB
12" Conc
3+43
3+33 HDR.
4.5' x 5.5' R.C.
C.B. + MH 3+72
12" Conc I 3+41
HDR. 3+33
Cattle Pass
12" V.C.
2+06
2+06 C.B.
12" VC
CB. 2+06
2+06
1+
North River
1+19.35 Pembroke
228+46.83 Hanover
228+10
227+
12" Conc
12" RC
MH 226+58.3
CBCI 226+57
226+57 CBCI
12" Conc.
12" Conc. I
River St
River St.
225+19 CB
CB 225+73
12" Conc
Pantooset
Road
CB 222+58.5
R.C. HDR
4.5' x 5.5' R.C.
Cattle Pass
R.C. HDR
218+10
Widths
214+50 - 30.0'
211+00 - 46.0'
188+00 - 46.0'
- 30.0'

Moving Massachusetts Forward. massDOT Highway

INTERSECTION CRASH RATE WORKSHEET

CITY/TOWN : Hanover, MA COUNT DATE : 10/17/2013

DISTRICT : 5 UNSIGNALIZED : X (0.58) SIGNALIZED : (0.77)

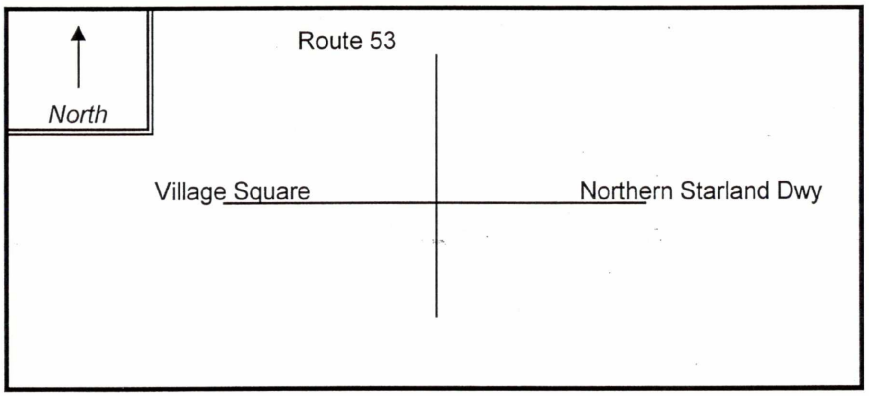
~ INTERSECTION DATA ~

MAJOR STREET : Route 53 (Washington Street)

MINOR STREET(S) : Northern Starland Driveway

Village Square

INTERSECTION DIAGRAM (Label Approaches)



PEAK HOUR VOLUMES

APPROACH :	1	2	3	4	5	Total Peak Hourly Approach Volume
DIRECTION :	NB	SB	EB	WB		
PEAK HOURLY VOLUMES (AM/PM) :	630	1,190	25	40		1,885

" K " FACTOR : 0.090

INTERSECTION ADT (**V**) = TOTAL DAILY APPROACH VOLUME : 20,944

TOTAL # OF CRASHES : 6

OF YEARS : 3

AVERAGE # OF CRASHES PER YEAR (**A**) : 2.00

CRASH RATE CALCULATION : 0.26

$$\text{RATE} = \frac{(A * 1{,}000{,}000)}{(V * 365)}$$

Comments : MassDOT Accident Data

Project Title & Date:

Moving Massachusetts Forward. massDOT Highway

INTERSECTION CRASH RATE WORKSHEET

CITY/TOWN : Hanover, MA COUNT DATE : 10/17/2013

DISTRICT : 5 UNSIGNALIZED : X (0.58) SIGNALIZED : (0.77)

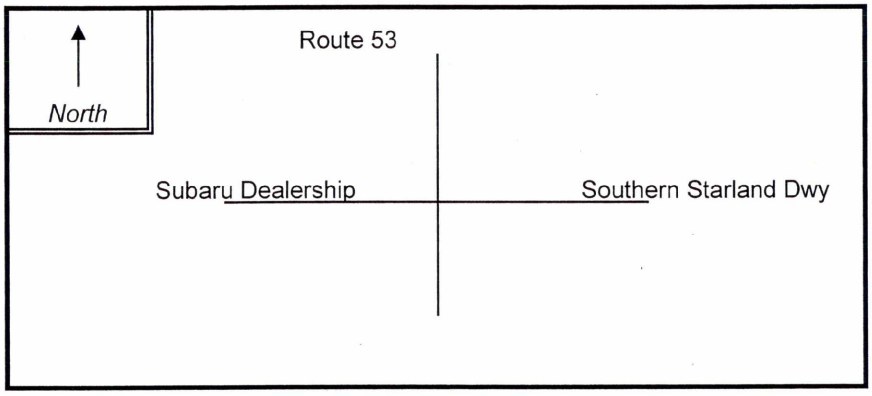
~ INTERSECTION DATA ~

MAJOR STREET : Route 53 (Washington Street)

MINOR STREET(S) : Southern Starland Driveway

Subaru Dealership

INTERSECTION DIAGRAM (Label Approaches)



PEAK HOUR VOLUMES

APPROACH :	1	2	3	4	5	Total Peak Hourly Approach Volume
DIRECTION :	NB	SB	EB	WB		
PEAK HOURLY VOLUMES (AM/PM) :	635	1,165	20	5		**1,825**

" K " FACTOR : **0.090**

INTERSECTION ADT (**V**) = TOTAL DAILY APPROACH VOLUME : **20,278**

TOTAL # OF CRASHES : 1

OF YEARS : 3

AVERAGE # OF CRASHES PER YEAR (**A**) : **0.33**

CRASH RATE CALCULATION : 0.05

$$\text{RATE} = \frac{(A * 1{,}000{,}000)}{(V * 365)}$$

Comments : MassDOT Accident Data

Project Title & Date:

Table X Vehicle Crash Summary (2009 to 2011)

	Route 53 at Starland Driveway North	Route 53 at Starland Driveway South	Total
District 5 Average Crash Rate [1,2]	0.58	0.58	
MassDOT Calculated Crash Rate	0.26	0.05	
Year			
2009	2	0	2
2010	1	1	2
2011	3	0	3
Total	6	1	7
Average	2.00	0.33	2.33
Collision Type			
Angle	3	0	3
Head-on	1	0	1
Rear-end	2	1	3
Sideswipe, opposite direction	0	0	0
Sideswipe, same direction	0	0	0
Single vehicle crash	0	0	0
Unknown/Not Reported	0	0	0
Total	6	1	7
Crash Severity			
Fatal injury	0	0	0
Non-fatal injury	3	1	4
Property Damage Only (no injuries)	3	0	3
Unknown/Not Reported	0	0	0
Total	6	1	7
Time of Day			
Weekday, 7:00 AM - 9:00 AM	0	0	0
Weekday, 4:00 PM - 6:00 PM	3	0	3
Saturday, 11:00 AM - 2:00 PM	0	0	0
Weekday, other time	2	1	3
Weekend, other time	1	0	1
Total	6	1	7
Pavement Conditions			
Dry	6	1	7
Wet	0	0	0
Snow/Ice	0	0	0
Other	0	0	0
Unknown/Not Reported	0	0	0
Total	6	1	7
Non-Motorist (Bike, Pedestrian)	0	0	0

Source: Massachusetts Department of Transportation Crash Data 2009-2011.

1. Crash rate, expressed in crashes per million entering vehicles, determined using MassDOT methods.
2. MassDOT District 5 average crash rate for signalized and unsignalized intersections (http://www.mhd.state.ma.us).