Appendices

APPENDIX A

1. Review Comments
2. Selection of Study Locations
3. Public Participation

1. Review Comments

Seth Asante

From: Pervez, Hameed (DOT)
Sent: Friday, December 15, 2017 2:47 PM
To: 'Seth Asante'
Cc: Kulen, Raj (DOT)
Subject: RE: Route 138 Priority Corridor Study in Canton

Hi Seth:

Corridor Study Report is very extensive. We concur with the findings of the Report. Following are minor comments:

1. Total crashes at the intersection of Route 138 and Royall Street/ Blue Hill River Road per Table 9 is 126, whereas Figure 16 indicates 125. Revise Figure 16 to include one fatality at the intersection.
2. Figure 28 shall show Route 138 NB, east of Royall Street as two lanes extending till Park and Ride Lot.
3. Table 3 includes restrictions of left turns from Mangolia Way, Greenlodge Street and Ponkapoag Way during AM and PM peak periods to improve safety and congestion at the intersection of Route 138 and Washington Street intersection. This may not be feasible since Mangolia Way is a dead end street and there may not be easily accessible alternate routes.

Regards, Hameed

Hameed Pervez | Asst. Dist Traffic Operations Engineer| MassDOT – Highway Division
185 Kneeland Street, Boston, MA 02111 | phone 857.368.6307| cell 617-290-0693|
email hameed.pervez@state.ma.us

From: Seth Asante [mailto:sasante@ctps.org]
Sent: Friday, December 15, 2017 10:33 AM
To: Clark, Michael (DOT); Dwyer, Courtney (DOT); Britland, Ethan (DOT); Pounds, Bryan (DOT); Kulen, Raj (DOT); Lipton, Amitai (DOT); Vatan, Geraldine (DOT); Aspinwall, Charles; Smead, Laura; Trotta, Michael; Grega, Lisa; Gascon, Cassandra (DOT); Feeney, Kevin; Porter, Mark; Polin, Bonnie (DOT); Pervez, Hameed (DOT)
Cc: Mark Abbott
Subject: Route 138 Priority Corridor Study in Canton

Good morning,

I wanted to remind you that comments about the Route 138 Priority Corridor Study in Canton is due today.

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https://www.dropbox.com/sh/osvhvphdpiqrd5y/AAAqjYzwy-pwnAUy_l5UZob9a?dl=0

Also, let me know if you have no comment. Please ignore this reminder if you had already sent in your comments.

Thank you,
Seth

Seth A. Asante, P.E. | Chief Transportation Planner
CENTRAL TRANSPORTATION PLANNING STAFF
857.702.3644 | sasante@ctps.org
www.ctps.org/bostonmpo

Seth Asante

From: Dwyer, Courtney (DOT)
Sent: Friday, December 15, 2017 3:59 PM
To: 'Seth Asante'
Cc: Vatan, Geraldine (DOT); Kulen, Raj (DOT); Pervez, Hameed (DOT)
Subject: RE: Route 138 Priority Corridor Study in Canton

Good Afternoon Seth,
Thank you for the opportunity to review the draft Route 138 Priority Corridor Study in Canton. Overall, I thought the study text and figures to be very useful and informative. Below are comments for consideration in preparing the final document:

1. Table 7, Sidewalk Presence: These percentage numbers seem low for amount of sidewalk requiring replacement. Please define what you are using to determine "Presence" of sidewalk. MassDOT requires 5' min; ADA-Accessible
2. Figures 29 & 36 (pgs 101 & 108) – Existing condition has two left-turn lanes from Route 138 NB to JW Foster Blvd.
3. Existing & Proposed Figures (General Comment) – Please add a note or clarification to what definition you used to consider "existing sidewalk" (solid orange line). Many of these locations are non ADA compliant and will need to be reconstructed.
4. Figure 42 (pg 114) – Proposed Sharrows are not considered as providing adequate bike accommodation for a roadway facility with this type of volume and number of lanes. Recommend proposing designated bike facilities by widening. Widening may be needed, if there are no structures at the back of sidewalk.

Hope you have a nice weekend,
Courtney

From: Seth Asante [mailto:sasante@ctps.org]
Sent: Friday, December 15, 2017 10:33 AM
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Seth

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Seth Asante

From: Chan, Elsa (DOT)
Sent: Friday, December 15, 2017 2:38 PM
To: 'sasante@ctps.org'
Subject: Route 138 Priority Corridor Study in Canton

Hi Seth,

I have some minor comments on the Route 138 Priority Corridor Study in Canton:

Page 17, Table 2 Item 3– should this be both MassDOT (along Route 138) and DCR ?
Page 18 , Table 2 Item 9 – add "based on MUTCD standards". Please also add time frame, cost and responsible agency.
Page 18 , Table 2 Item 14 - MassDOT/Property owners?
Page 18 , Table 2 Item 17 – Is there sight distance issues that lead to NTOR?
Page 19, Table 3, item 5 – should this be Town rather than MassDOT if it's installing crosswalks across all town owned streets?
Page 20 , Table 3 Item 22, MassDOT/ Property owners?
Page 21, Table 4 Item 8 - should this be Town rather than MassDOT?
Page 22 , Table 5 Item 5, MassDOT/ Property owners?
Page 22, Table 5 Item 7 - should this be Town rather than MassDOT?
Page 23, Table 6 Item 4 - should this be Town rather than MassDOT?
Page 24, Table 6 Item 8 – Does this mean adding signage within the local business and Route 138?
Page 49, crash rates range between 0.64 and 1.58?
Figure 42 – The NB/SB right most lanes should be shared through/right, it's showing only through lanes

Please let me know if you have any questions.

Thanks,

Elsa

Elsa Chan
MassDOT Highway Division – Safety
10 Park Plaza, Suite 7210, Boston MA 02116
Phone: 857-368-9648 | **Email:** elsa.chan@dot.state.ma.us

Seth Asante

From: Kulen, Raj (DOT)
Sent: Monday, December 18, 2017 7:19 AM
To: Dwyer, Courtney (DOT); 'Seth Asante'
Cc: Vatan, Geraldine (DOT); Pervez, Hameed (DOT)
Subject: RE: Route 138 Priority Corridor Study in Canton

Existing condition on figure 26 and 36 are correct, it has only one left turn lane. This was changed last year.

Raj

From: Dwyer, Courtney (DOT)
Sent: Friday, December 15, 2017 3:59 PM
To: 'Seth Asante'
Cc: Vatan, Geraldine (DOT); Kulen, Raj (DOT); Pervez, Hameed (DOT)
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Thank you,
Seth

Seth A. Asante, P.E. | Chief Transportation Planner
CENTRAL TRANSPORTATION PLANNING STAFF
857.702.3644 | sasante@ctps.org
www.ctps.org/bostonmpo

Seth Asante

From: Smead, Laura
Sent: Friday, December 15, 2017 2:31 PM
To: Seth Asante
Subject: RE: Route 138 Priority Corridor Study in Canton

Hi Seth,

Here are my comments:

Pg. 3. Either show a north arrow, or orient with north towards the top of the page

Generally, I think the suggested recommendations are good with the following concerns:
Pg. 21 – Route 138 Segment at Randolph Street intersection

- I have concerns about prohibiting left turns from Randolph Street and redirecting traffic through slow speed residential neighborhoods
- I would prefer widening Randolph Street to include a left-turn lane
- I have concerns about retrofitting Randolph street to a roundabout since the construction impacts alone would be a big problem (one of the main east-west roads in town); plus signal/geometry changes seem to do a similar job of improving the intersection

Pg. 22 – Route 138 Segment at Del Pond Drive

- I would include a crosswalk around the area of Canton Point Rd and/or Arboretum Way – these are both vulnerable populations and multi-family housing (Canton Point is seniors, Arboretum Way/ Turtle Brook Rd are some low-income)

Pg. 36-37 – Recent Developments and/or Developments Housing Vulnerable Populations, plus planned developments – let's discuss this one further to see if there are some that should be included/excluded

- E.g. Turtle Creek development
- Exclude Stillwater Estates? And/or Include the Preserve at Canton?
- Windsor Woods

Pg. 61 – Route 138 Segment at Washington Street Intersection

- I have concerns about left turn lane prohibitions
    - Could work for Ponkapoag
    - Won't work for Magnolia Way – they have no other way to go
    - Maybe for Greenlodge – but I have concerns about diverting traffic through neighborhoods

Pg. 62 – Route 138 Segment at Randolph

- Concerns diverting traffic though neighbohroods
- Prefer widening with left-turn lane
- Should include vulnerable populations at Arboretum Way/ Turtle Brook Rd

Figure 2- Town recently accepted New Boston Drive as a public way
Figure 3 – Please label all highlighted roads
Figure 9 – let's discuss

Figure 10 – let's discuss
Figure 30 – there's potential condos at Connor's Wayside Furniture

Figures 33- 34 – add multi-family housing (highlight)
Figures 44 – Crosswalk at Canton point rd/ Arboretum Way?
Figure 45 – continue left turn lane more southern?

Thanks,
Laura

Laura Smead , AICP
Town Planner

Town Hall
801 Washington Street
Canton, MA 02021
lsmead@town.canton.ma.us
781-575-6575

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Thank you,
Seth

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CENTRAL TRANSPORTATION PLANNING STAFF
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Seth Asante

From: Smead, Laura
Sent: Tuesday, December 19, 2017 10:55 AM
To: Seth Asante
Subject: RE: Route 138 Priority Corridor Study in Canton

Dear Seth,

As we discussed:

Pg. 21 – Comments resolved
Pg. 22 – Comments resolved, add crosswalk at Arboretum Way

Pg. 36-37 Recent Developments, Vulnerable Populations, and Proposed developments

Developments with Vulnerable Populations (5 years + old):

- *Lamplighter Village* **–** One Stagecoach Road
  81 one-and two- bedroom apartments for residents 62 or older, including affordable housing
- *Coppermill Park Apartments - Stagecoach Village/ Indian Woods* **–** Stage Coach Road
  56 units, 14 affordable units
- *Indian Woods Condominiums* – 16 Indian Woods Way
  56 two-bedroom condominiums, including affordable housing
- *Canton Woods Apartments* – Windsor Woods Lane
  159 units, including affordable housing
- *Woodfield Commons/Canton Arboretum* – One Arboretum Way
  156 units, including affordable housing
- *Turtle Brook Village Condos* **–** Turtle Brook Road/ Spotted Turtle Path
  80 units, includes affordable housing

Recent Developments (<5 years old):

- *Brightview Canton*- 125 Turnpike Street
  A retirement community of 160 apartment homes; 95 independent living, 40 assisted living, 25 dedicated to Alzheimer's care
  Development opened in 2016; Constructed in a mixed-use overlay district
- *Orchard Cove* – Del Pond Drive
  A 45 unit senior housing and assisted living housing complex; Development opened in 2016; Constructed in a Village Housing overlay district
- *Canton Point* – Canton Point Rd, Kelly Way, and Iris Court
  53 Townhouses and condos for residents over age 55; Constructed in a Village Housing overlay district
- *Homewood Suites* – 50 Royall Street; A hotel constructed in a Hotel Overlay District

Planned and Prospective Developments:

- *Hilton Garden Inn* – 110 Royall Street; A hotel located in a Hotel Overlay District
  Approved 2015-16, construction not yet started as of December 2017
- ~~*Stillwater Estates* – between Indian Lane and Industrial Drive~~
  ~~A proposed 40-lot flexible development subdivision (single family homes) on a 90+ acre site; Approval pending by the Town of Canton's Planning Board as of December 2017~~
- *Best Western* – 925 Turnpike Street

A 100 room hotel with a restaurant and auto-repair shop, in addition to the gas station/car wash existing on the site; Approval pending by the Town of Canton's Planning Board as of December 2017

- *(former) Connor's Wayside Furniture building – 2239 Washington Street, Canton, MA 02021*
  Proposed 20 condo units; Approved by the Planning Board, construction not underway
- *Former Metropolis Skating Rink* – 2167 Washington Street
  The state is considering reconstructing the site (but several other sites are being considered)

pg. 61 – comments resolved
pg. 62 – comments resolved

Figure 2 – comments resolved
Figure 3 – comments resolved
Figure 9 – comments resolved
Figure 10 –
Change so three colors:
Recent Development (red)
Planned Development (green)
Vulnerable populations (blue)

See revised listing above for additions.
Also, remove Stillwater Estates from list, since no longer propsed access to Turnpike Street.

Figure 30 – Add note about propsed condos at the Connor's Wayside Furniture (2239 Washington Street Canton, MA)
Figures 33-34 – add notes about multi-family housing (see list above)
Figure 44 – Crosswalk at Arboretum Way
Figure 45 – comment resolved

Thanks,
Laura

Laura Smead , AICP
Town Planner

Town Hall
801 Washington Street
Canton, MA 02021
lsmead@town.canton.ma.us
781-575-6575

From: Seth Asante [mailto:sasante@ctps.org]
Sent: Friday, December 15, 2017 3:56 PM
To: Smead, Laura
Subject: RE: Route 138 Priority Corridor Study in Canton

Hi Laura,

Thank you for the comments. I will call you sometime next week to discuss.

Thanks,
Seth

Seth A. Asante, P.E. | Chief Transportation Planner
CENTRAL TRANSPORTATION PLANNING STAFF
857.702.3644 | sasante@ctps.org
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Seth

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Seth Asante

From: Porter, Mark
Sent: Monday, December 18, 2017 9:46 AM
To: Seth Asante
Cc: Smead, Laura; Feeney, Kevin; Aspinwall, Charles
Subject: RE: Route 138 Priority Corridor Study in Canton

Seth,
Thank you for all of this and apologies for the late reply. This mostly looks great, especially the crossings at the Blue Hills. Thank you.

With regards to the Randolph / 138 intersection, speaking as one member of the BOS, I would oppose the idea of routing traffic down Wentworth Rd with a left turn restriction northbound onto 138. This is a residental neighborhood who have already bourne the brunt of traffic issues and it would not be fair to them to direct more rush hour traffic down their street.

Have a great holiday!
Mark

From: Seth Asante [sasante@ctps.org]
Sent: Friday, December 15, 2017 10:33 AM
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Seth Asante

From: Gascon, Cassandra (DOT)
Sent: Monday, December 18, 2017 3:57 PM
To: Seth Asante
Cc: Clark, Michael (DOT)
Subject: RE: Route 138 Priority Corridor Study in Canton

Hi Seth,

Please see our comments below:

- Regarding the table of recommendations in the Executive Summary, we recommend changing the title of the column "responsible agency" to "jurisdiction." Using that language implies that agency *must* implement that recommendation, which is not true. I also recommend including some language that speaks to the fact that MassDOT and municipalities aren't necessarily obligated to make these improvements, but if improvements on this road were sought, this would be a good guide. This can be said in a few sections. The final page (69) does this somewhat.
- On the same note, there are a couple places where the language about who *needs* to do what can be softened a bit:
    - Page 13 – "must be reconstructed" to "could be reconstructed" (or might just be "programmed" for 2021)
    - Page 28 – "goal" could be "would like"
    - Page 57 – safe access to golf course "would be" important, DCR's plans are only conceptual
- Page 28 (middle paragraph) states that MassDOT "envisions" Route 138 transforming into a complete street. While this comes straight from our Healthy Transportation Compact, phrasing it like that makes it sound like we are committing to all of the related recommendations, which we can't say. Rephrase to say something like "MassDOT has recently shown a commitment to supporting alternative transportation options through the Healthy Transportation Compact" or something like that.
    - Page 41/42 – same issue- it states that MassDOT is "prioritizing" Route 138. This might have been mentioned in our soon to be published Pedestrian Plan, it is not yet DOT policy, and should be removed.
- Public Survey- it would be more useful to put the survey results here instead of the survey itself
- Chapter 7 should have a bit more narration instead of a bullet list of improvements. It might be more effective if improvements are discussed more categorically (paragraph on sidewalks, paragraph on operations, paragraph on speeds, etc.). Particularly for those with two alternatives (signalized and roundabouts) – there is some discussion on the operational changes but what are the benefits/negatives of each?
    - Many solutions rely on ROW expansion. It needs to be made explicit that this is costly and long-term. CTPS can't estimate those costs but it needs to be made clear that this is a significant constraint. Don't change the recommendation but elaborate on that cost aspect.
    - Address the need for enforcement at Pond Road
    - For some intersections, stop lines can be pulled back to allow turning bicyclists to transition from shoulder to turn lane out of traffic
    - Since there are so many improvement options, a list prioritizing them would be useful. Or use the existing list for each segment's improvements but list them in order of importance. Between all of our suggestions for this section there's a lot of opportunity for revision here
- A few grammatical issues you might find during final proofread:
    - 18 – blank box
    - 28- some bullet points have periods, some don't
    - 31 – 3.1.5 sounds weird
    - 36 – punctuation
    - 43 – spell out numbers under 10

- 52, 1st paragraph- "neighborhoods adjacent to THE corridor"
- 54 – "click her"

- Other comments:
  - 27 – footnote should define what travel time index is
  - 31- add a footnote with brief description of MassDOT's sidewalk standards
  - 42 – a bit of a description is also needed on PLOS. How does this score compare overall?
  - 51 – report notes that three signal warrants are satisfied – so what's next? Does that mean a signal should be installed, or is it not justified?
  - Figure 9 – label some of the sites mentioned where this is brought up in the report
  - Figures 24/25 – note "weekday AM/PM"
  - Figure 27 – define units (assuming respondents)
  - Figure 29 – "138" symbol obscured
  - Throughout study there is a lot of discussion on signage and signal control – the reader would benefit from a graphic or some other type of primer on what the terminology corresponds to
  - Cost is only discussed in the executive summary but it's pretty important… include again in recommendations section, or elaborate on the short discussion of cost that is in the conclusion.

- Just a note for future CTPS studies- we think that it would be advantageous to include a lot of the graphics, tables, etc., in the body of the study instead of at the end. It would make it a lot easier to read and understand!

Thanks for your patience as we drafted these! Let me know if you want to talk more about any of these comments.

Cassandra

Cassandra Gascon
Transportation Program Planner II
Office of Transportation Planning
Massachusetts Department of Transportation
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857-368-8852 I cassandra.gascon@dot.state.ma.us

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Cc: Mark Abbott
Subject: Route 138 Priority Corridor Study in Canton

Good afternoon,

The attached report—Route 138 Priority Corridor Study in Canton is available for review. Please review the report and provide me with comments by **December 15, 2017**. The executive summary provides a condense presentation of the data collection, analyses, problems, and the proposed improvements for readers to quickly become acquainted with the results of the study. The remaining chapters provide detailed descriptions of the study area, analyses, and the improvements.

Please note that I have also sent you a Dropbox link to download the report and appendix.

Thank you,
Seth

2. Selection of Study Locations

BOSTON REGION METROPOLITAN PLANNING ORGANIZATION

Stephanie Pollack, MassDOT Secretary and CEO and MPO Chair
Karl H. Quackenbush, Executive Director, MPO Staff

TECHNICAL MEMORANDUM

DATE: **May 18, 2017**
TO: **Boston Region Metropolitan Planning Organization**
FROM: **Seth Asante, MPO Staff**
RE: **Selection of Study Locations for the FFY 2017 *Addressing Priority Corridors for the Long-Range Transportation Plan Needs Assessment* Study**

1 BACKGROUND

During the development of the Boston region's Long-Range Transportation Plan (LRTP), *Charting Progress to 2040*, the staff of the Boston Region Metropolitan Planning Organization (MPO) identified the existing needs for all transportation modes in the Boston region.[1] The results were compiled in the LRTP Needs Assessment, which is used to guide the MPO's decision-making process for selecting transportation projects to fund in future Transportation Improvement Programs (TIPs).

Some of the current mobility requirements of the Boston region that were identified in the LRTP Needs Assessment include the following:

- Maintaining and modernizing roadways that currently have high levels of congestion and safety problems
- Increasing the mode share of walking and bicycling, and improving the quality of pedestrian and bicycling facilities
- Improving the efficiency of transit service and adherence to schedules

Based on previous and ongoing transportation-planning work—including the MPO's Congestion Management Process and planning studies—MPO staff identified several priority arterial roadway segments that require maintenance, modernization, and safety and mobility improvements. These locations are documented in the LRTP Needs Assessment.

To address problems on some of these arterial segments, the *Addressing Priority Corridors from the Long-Range Transportation Plan Needs Assessment* study was included in the federal fiscal year (FFY) 2017 Unified Planning Work

[1] Boston Region Metropolitan Planning Organization, *Charting Progress to 2040: The New Long-Range Transportation Plan of the Boston Region Metropolitan Planning Organization,* endorsed by the Boston Region MPO on July 30, 2015.

Program (UPWP).[2] This memorandum presents the results of Task 2 of the work program for that study.[3] Task 2 involves presenting a recommendation for locations to study to the MPO board for discussion.

By focusing on arterial segments rather than intersections, planners can evaluate multimodal transportation needs comprehensively (with the goal of creating "complete streets"). A holistic approach to analyzing problems and forming recommendations ensures that the needs of all public transportation users—including pedestrians, bicyclists, and motorists—are considered. Ultimately, this approach will result in roadways where it is safe to cross the street and walk or cycle to shops, schools, train stations, and recreational facilities, and where buses can run on time. Typically, the recommended improvements are within a roadway's right-of-way. They take into account the needs of abutters and users, and the interests and support of stakeholders.

2 PROCEDURE FOR SELECTING STUDY LOCATIONS

The process for selecting study locations consisted of three steps. First, MPO staff assembled data about the arterial segments identified in the LRTP Needs Assessment and used the data to prioritize the roadway segments. Next, MPO staff examined the arterial segments more closely by applying specific criteria. Finally, staff scored each arterial segment and assigned a priority of *low*, *medium*, or *high* to each segment. Details about each step in the process are provided below.

2.1 Gathering Data

MPO staff identified 53 arterial segments in 39 municipalities in the Boston region based on the following data sources:

- The Massachusetts Department of Transportation (MassDOT) 2016 Road Inventory File and 2010–14 crash database was used to assemble the following information for each arterial segment: roadway jurisdiction, National Highway System status, average daily traffic (ADT), high-crash locations, and crash rates.
- The MPO's Congestion Management Process data on arterial congestion were used to determine average travel speeds, travel time index (travel

[2] Boston Region Metropolitan Planning Organization, Unified Planning Work Program, Federal Fiscal Year 2017, endorsed by the Boston Region Metropolitan Planning Organization on July 28, 2016.

[3] Karl H. Quackenbush, CTPS Executive Director, memorandum of a work program to the Boston Region Metropolitan Organization, "Addressing Priority Corridors for the Long-Range Transportation Plan Needs Assessment: Federal Fiscal Year (FFY) 2017," December 15, 2016.

time in the peak period divided by travel time at free-flow conditions), and speed index (average travel speed divided by the speed limit) on each arterial segment.

- The MPO's data on gaps in the bike network and data on the location of MassDOT bike facilities were used to identify needs for the bicycle mode, including locations where connectivity between bicycle facilities could be improved and where bicyclists' accommodations could be improved.
- Data on MBTA bus service performance and passenger loads were used to determine the percentage of bus trips that do not adhere to the schedule (in other words, that provide late service) or do not adhere to passenger load standards (resulting in crowding).
- Data on MBTA bus routes, subway lines, and commuter rail lines were used to identify which arterial segments serve MBTA buses or stations.
- Data on the MPO's Environmental Justice (EJ) transportation analysis zones were used to identify areas of concern as relates to environmental justice.
- Data selected from MassDOT's project-information database, the MPO's FFY 2017–21 TIP projects, MPO planning studies and other studies, and municipal websites were used to obtain data on projects, studies, and TIP projects that are planned or programmed for each arterial segment.

Table 1 (attached) presents, the data and information gathered on each arterial segment, including the following:

- municipality
- Metropolitan Area Planning Council (MAPC) subregion
- jurisdiction
- MassDOT district office
- crash rate per million vehicle-miles traveled
- number of top-200 high-crash locations
- number of crash clusters that are eligible for Highway Safety Improvement Program (HSIP) funding
- travel time index
- transit service performance
- proximity to an EJ transportation analysis zone (within a half mile distance)
- relevant studies or projects within or near the segment

Table 1 also includes the score and priority rating that were determined by applying the selection criteria. The processes for scoring and assigning priority ratings to segments are described below.

2.2 Applying Criteria

MPO staff examined the arterial segments more closely by applying the following six criteria and assigning points based on the number of criteria that apply to each location:

- *Safety Conditions, 0–4 points (each of the four criteria is worth one point)*
  - Location has a higher-than-average crash rate for its functional class
  - Location contains an HSIP-eligible crash cluster
  - Location is identified in the Massachusetts *Top High Crash Locations Report*
  - Location has a significant number of pedestrian and bicycle crashes per year (two or more per mile) or contains one or more HSIP-eligible bike-pedestrian crash cluster

- *Congested Conditions, 0–2 points (each of the two criteria is worth one point)*
  - Travel time index is at least 1.3
  - Travel time index is at least 2.0

- *Multimodal Significance, 0–3 points (each of the three criteria is worth one point)*
  - Location currently supports transit, bicycle, or pedestrian activities
  - Location needs to have improved transit, bicycle, or pedestrian facilities
  - Location has a high volume of truck traffic serving regional commerce

- *Regional Significance, 0–4 points (each of the four criteria is worth one point*)
  - Location is in the National Highway System
  - Location carries a significant portion of regional traffic (ADT is greater than 20,000)
  - Location lies within 0.5 miles of an EJ transportation analysis zone
  - Location is essential for the region's economic, cultural, or recreational development

- *Regional Equity, 0–2 points (each of the two criteria is worth one point)*
  - Location is in an MAPC subregion for which there has not been a Priority Corridors study
  - Location is in an MAPC subregion for which there has not been a Priority Corridors study in the previous three years.

- *Implementation Potential, 0–3 points (each of the three criteria is worth one point)*
    - Location is proposed or endorsed for study by the agency that administers the roadway
    - Location is proposed or endorsed by its MAPC subregional group and is a priority for that subregional group
    - Other stakeholders strongly support improvements for the location

2.3 Scoring and Rating

Arterial segments that have a total score of 10 or fewer points were rated *low* priority; those with a score of 11 to 12 points were rated *medium* priority; and those with a total score 13 or more points were rated *high* priority. Thirteen arterial segments were given a high-priority rating by MPO staff based on safety and operational needs, multimodal and regional significance, regional equity, and support for improvements from agencies and municipalities. The high-priority segments were then examined more closely, and arterials that had projects meeting any of the following criteria were excluded from further consideration for this cycle of the Priority Corridors study: recently completed, in construction, in design, under study, or programmed in the TIP with the 25 percent design completed.

The three arterial segments with the highest scores were

- Route 138 in Canton;
- Route 3A in Weymouth; and
- Routes 4 and 225 in Bedford and Lexington.

Staff also evaluated the pedestrian accommodation and safety improvement needs for these segments by applying the MPO's recently developed Pedestrian Report Card Assessment.[4] All three locations highly qualify based on pedestrian accommodation or safety improvement requirements. Appendix A contains detailed results of the assessments. Based on this evaluation, MPO staff recommend studying the segment on Route 138 in Canton.

3 ARTERIAL SEGMENT SELECTED FOR STUDY: ROUTE 138 IN CANTON

Route 138 in Canton runs parallel to Route 24; it serves several communities including Milton to the north and Stoughton and Easton to the south. In Canton, the roadway serves varying land uses including, residential, recreational,

[4] Ryan Hicks and Casey-Marie Claude, Boston Region Metropolitan Organization, *Pedestrian Level-of-Service Memorandum*, January 19, 2017.

commercial and industrial, and educational uses. Presently, the evaluation results indicate that there are safety, capacity, and mobility problems in the segment. Four locations along the segment contain HSIP-eligible crash clusters and the segment has a higher-than-average crash rate for its functional class. Several intersections in the segment are congested, which leads to long traffic queues during peak travel periods. Accommodations for pedestrians and bicyclists are poor.

MassDOT Highway Division District 6 supports this study and asked the MPO staff to identify problems related to safety and operations, and to identify solutions that could be implemented by MassDOT in tandem with a future roadway resurfacing project. The Town of Canton is considering pedestrian improvements in the corridor and has expressed support for and willingness to participate in a study of this arterial segment (see Appendix B).

The recommended arterial segment on Route 138 in Canton meets the selection criteria of this study, especially by supporting the transportation improvement priorities of the MPO's LRTP. While the work program for this study assumed that "as many as two" arterial segments would be selected, the MPO staff does not propose studying a second arterial segment because Route 138 in Canton is about five miles long and this study would require considerable resources for evaluating alternative improvement plans.

Figure 1 shows the general locations of previous Priority Corridor studies, and the location identified for this year's study. Note that the arterial segment selected for this year's study is located in a subregion in which there has never been a Priority Corridor study.

4 NEXT STEPS

After the MPO board discusses this recommendation, staff will meet with officials from the Town of Canton, MassDOT, MAPC, and other stakeholders to discuss the study specifics, conduct field visits, collect data, identify needs, and develop solutions.

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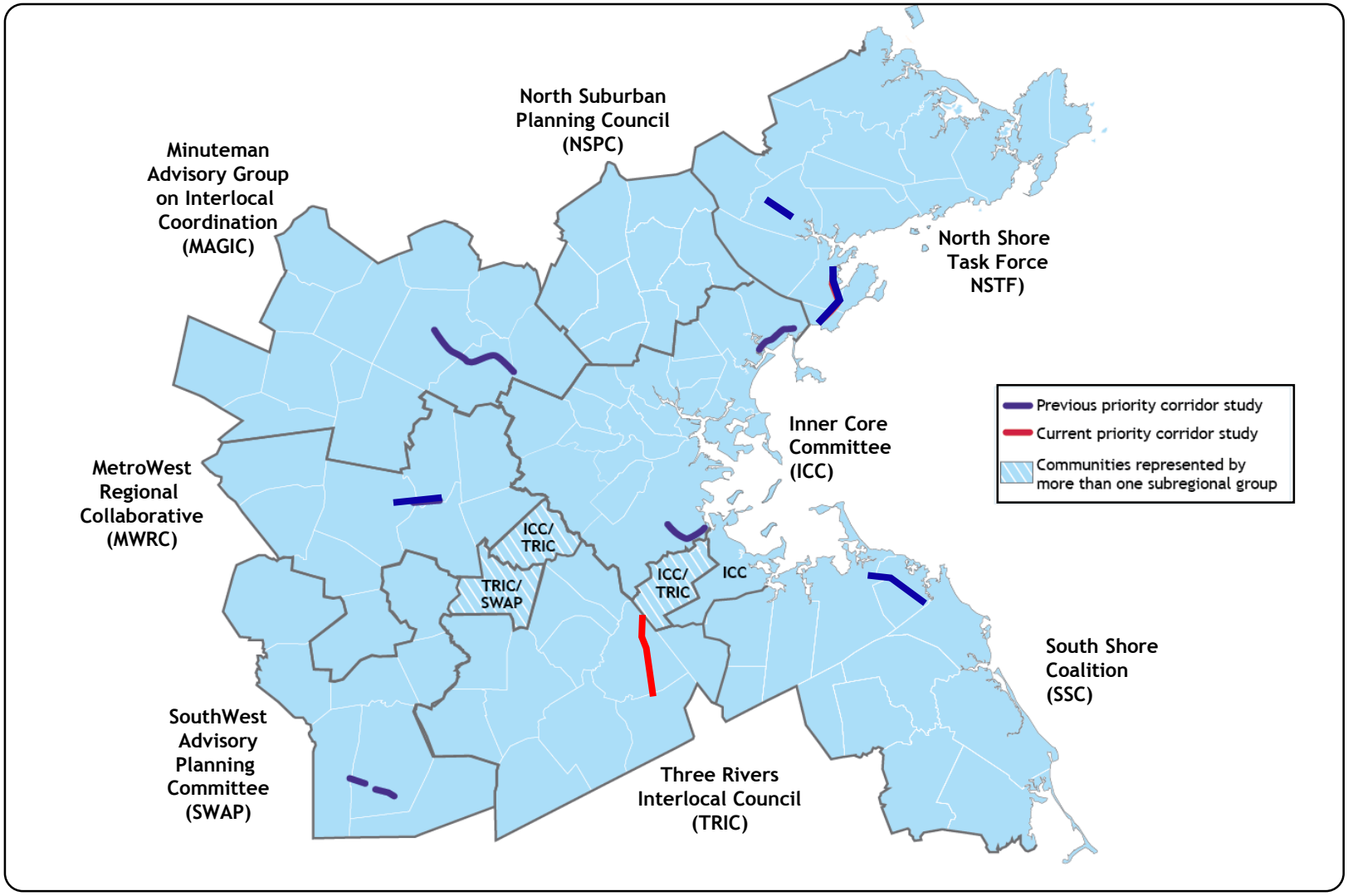

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FIGURE 1
Previous and Current LRTP Priority Corridor Studies By MAPC Subregion

Route 138
LRTP Priority Corridors Study

TABLE 1
Arterial Segments Considered for Study: Priority Corridors for Long-Range Transportation Plan Needs Assessment Study
(Arterial Segment Selected for Study Is Highlighted in Green)

Arterial Segment	Community	MAPC Subregion	MassDOT District	Jurisdiction	National Highway System	Functional Class*	Crash Rate (MVMT)	Number of Top-200 High-Crash Locations 2012–14	Number of HSIP-Eligible Crash Clusters 2012–14**	Travel Time Index	Transit Service	Crowded or Late Bus	In or Near Environmental Justice Zone	Study, Project, or TIP Project	Safety Conditions	Congested Conditions	Multimodal Significance	Regional Significance	Regional Equity	Implementation Potential	Score	Priority Rating	Summary of Comments
Route 138	Canton	TRIC	6	MassDOT	Yes	3, 2	3.8	0	4	2.26	MBTA Commuter Rail at Route 128, Canton Junction, and Canton Center	N/A	None	MassDOT Project #603883, Reconstruction on Route 138, from I-93 to Dan Road; in preliminary design MassDOT Project #605807, Improvements on Route 138 from Randolph Street to Washington Street; completed in 2011 MassDOT Project #602745, Improvements and Signalization, Route 138 at Washington Street and at Randolph Street; completed in spring 2009 Route 138 Corridor Study, CTPS study (July 2001)	3	2	3	3	2	3	16	High	Many locations in the segment need pedestrian and bicycle improvements. In addition, several intersections in the segment have congestion and safety issues. The Town of Canton is looking at pedestrian improvements in the corridor and has expressed unanimous support for the study. MassDOT Highway District 6 is in support of this study to identify problems and solutions that can be implemented in tandem with a future resurfacing project in the segment.
Route 16 (Revere Beach Parkway and Mystic Valley Parkway)	Medford	ICC	4	DCR	Yes	2, 3	3.8	2	4	2.59	MBTA bus Routes 90, 97, 99, 100, 106, 108, 110, 112, and 134 MBTA Rapid Transit on the Orange Line at Wellington and on the Red Line at Porter Square MBTA Commuter Rail at West Medford and Porter Square	Yes	Yes EJ zones are located at the ends of the segment in Somerville and Everett and 0.2 miles away in Medford.	DCR announced a $500,000 comprehensive study of the parkway system for bike lanes in FFY 2015. The goals of the study include updating traffic information, assessing parkway conditions, and assessing and understanding deficiencies along the heavily cycled parkways.	4	2	3	4	0	1	14	High	This arterial segment was not selected because it is part of the Mystic River Working Group Study. In addition, the Wynn Everett DEIR (2015) includes intersection improvements and mitigated traffic operations for Revere Beach Parkway and Mystic Valley Parkway.
Route 3A	Weymouth	SSC	6	MassDOT	Yes	3	3.5	0	3	1.30	30 MBTA bus stops MBTA bus Routes 220, 221, and 222 MBTA Commuter Rail at Quincy Center, Weymouth Landing/ East Braintree, and West Hingham Ferry service	Yes	Yes An EJ zone in Quincy is 0.2 miles from the segment.	MassDOT Project #608321, The intent of this project is to reconstruct Route 3A and address poor traffic operations along the corridor. The project will also upgrade accomodations for bicyclists and pedestrians; in preliminary design MassDOT Project #604382, Route 3A (Washington Street) Bridge; construction ends winter 2016/2017 MassDOT Project #608483, Work consists of resurfacing on Route 3A; in preliminary design MassDOT Project #602703, Bridge Rehabilitation, Route 3A (Lincoln Street) over the Weymouth Back River; completed in autumn 2006	3	1	2	4	1	3	14	High	A road safety audit was completed for Route 3A in Weymouth in September 2016. The audit identified the problems and needs on the roadway, and suggested short-, medium-, and long-term improvements. MassDOT District 6 indicated that a study would probably be redundant as the audit provided the information needed to advance Project #608321 in design.
Routes 4 and 225	Bedford and Lexington	MAGIC	4	MassDOT and Town	Yes (part)	3, 5	4.2	1	3	1.30	Three MBTA bus stops MBTA bus Route 62	Yes	None	Great Road Project: Master Plan and Conceptual Design, prepared by VHB for the Town of Bedford in 2011, in preliminary design The MassDOT-administered section, from I-95 to Hartwell Avenue, was the subject of a Town study (Hartwell Avenue Traffic Mitigation Plan -- Bedford Street Concept Plan), and a road safety audit was performed for this segment in November 2011	3	1	2	3	2	2	13	High	This arterial segment was not selected because it did not have the support of MassDOT District 4 and also sections of it had already been studied. The Town of Bedford requested in FFY 2017 that the MPO study this arterial segment from I-95 in Lexington to Loomis Street in Bedford. The MAGIC subregion requested that the FFY 2012 UPWP and FFY 2013 UPWP include a study of Routes 4 and 225. The MassDOT section from I-95 to Hartwell Avenue was the subject of a Town study.
Route 16 (Revere Beach Parkway)	Everett	ICC	4	DCR	Yes	2	3.7	1	7	1.38	MBTA bus Routes 97, 99, 106, 110, 112, 104, 105, and 109 MBTA Orange Line Rapid Transit at Wellington and MBTA Commuter Rail at Chelsea	Yes	Yes The entire segment lies within EJ zones.	DCR announced a $500,000 comprehensive study of the parkway system for bike lanes in FFY 2015. The goals of the study include updated traffic information, assessment of parkway conditions, and assessment and understanding of deficiencies along the heavily cycled parkways.	4	1	3	4	0	1	13	High	This arterial segment was not selected because it is part of the Mystic River Working Group Study. In addition, the Wynn Everett DEIR (2015) includes intersection improvements and mitigated traffic operations for Revere Beach Parkway and Mystic Valley Parkway.
Route 9	Framingham	MWRC	3	MassDOT	Yes	2	2.8	0	7	2.23	MWRTA bus Routes 1, 2, 3, 7, and 9	None	Yes Over half the route lies within or adjacent to an EJ zone.	MAPC Land Use/Route 9 Corridor Study (fall 2013) MassDOT Project #603865 is located in Framingham at the intersection of Route 9 and Temple Street; in preliminary design MassDOT Project #608006 Pedestrian Hybrid Beacon Installation at Route 9 and Maynard Road; 25% design stage MassDOT Project #604991, Resurfacing and Related Work on Route 9, includes wheelchair ramp upgrades, additional sidewalks/repairs, and signal improvements; completed in autumn 2011	2	2	3	4	1	1	13	High	This arterial segment was not selected because according to MassDOT District 3, most of the intersections on this corridor have already been studied. In addition, MPO staff studied Route 30 in Framingham and Natick under the FFY 2013 Priority Corridors for LRTP Needs Assessment.
Route 9	Natick	MWRC	3	MassDOT	Yes	2	4.4	1	10	2.32	MWRTA bus Routes 1, 4, 9, and 10	None	Yes One EJ zone is 0.5 miles away.	MAPC Land Use/Route 9 Corridor Study (fall 2013) MassDOT Project #608821, Installation of adaptive traffic control signal equipment, vehicle detection, communication equipment, and managing software at 5 traffic signals (3 in Framingham and 2 in Natick) on Route 9; in construction. MassDOT Project #605091, Work consists of bridge repairs on 4 bridges over Route 9 and Speen Street, in preliminary design MassDOT Project #601586 was completed in autumn 2015. MassDOT Project #605313 will reconstruct the Route 9/Route 27 interchange; 25% project design stage. MassDOT Project #604991, Resurfacing and Related Work on Route 9, includes wheelchair ramp upgrades, additional sidewalks/repairs, and signal improvements; completed in 2011	4	2	1	4	1	1	13	High	This segment was not selected because according to MassDOT District 3, the installation of an adaptive traffic control system for five signals and the reconstruction of the Route 9 and Oak Street intersection are currently under construction. The Route 9 and Route 27 interchange is currently in design.

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Route 1	Norwood	TRIC	5	MassDOT	Yes	3	0.8	1	4	2.69	MBTA Commuter Rail at Islington, Dedham Corp Center, Endicott, Norwood Depot, Norwood Central, Windsor Gardens, and Plimptonville	N/A	Yes One EJ zones lies adjacent to the southern end of the segment.	MassDOT's I-95 South Corridor Study, provided a comprehensive evaluation of the I-95 and Route 1 corridors south of Route 128 that included a recommended plan of short-term and long-term improvements (June 2010) MassDOT Project #608052, Route 1 at Morse Street (approved by PRC Nov. 2014); in preliminary design MassDOT Project #605857, Route 1 at University Avenue and Everett Street; Town design is at pre-25% MassDOT Project #605321, Bridge Preservation, Route 1 over the Neponset River; in design stage	2	2	2	4	2	1	13	High	The location has MassDOT projects and studies and it is not recommended for study.
Route 3A	Quincy	ICC	6	MassDOT, DCR, and City	Yes	3	5.0	1	4	1.31	MBTA bus Routes 201, 202, 210, 211, 212, 217, 275, 276 and 217 MBTA Red Line Rapid Transit at Quincy Center, Wollaston, and North Quincy MBTA Commuter Rail at Quincy Center	Yes	Yes The entire segment lies within or near EJ zones.	MassDOT Project #605729, Intersection and signal improvements at Hancock Street and East/West Squantum streets. The project consists of widening and improvements to the intersection of Hancock Street with East and West Squantum Streets and improvements along Hancock Street to the MBTA access drive; completed in fall 2015. MassDOT Project #606518. As part of the Quincy Redevelopment project, the city plans to construct a new bridge over the existing MBTA tracks that will connect the downtown area at Market Square and Hancock Street. The main goal of the new bridge will be improved pedestrian conditions along Hancock Street; 25% package received (as of 12/16/2016) An FFY 2012 CTPS safety and operations study addressed problems at Route 3A and Coddington Street intersection.	4	1	2	4	0	2	13	High	Route 3A (Hancock Street) is part of the Quincy Redevelopment project; study completed in April 2011
Route 28	Randolph	TRIC	6	MassDOT and Town	Yes	3	4.6	0	6	1.46	50 MBTA bus stops MBTA bus Routes 240 and 238 MBTA Commuter Rail at Holbrook/Randolph BAT Route 12	Yes	Yes The entire segment lies within EJ Zones.	MassDOT Project #603716, Resurfacing and Related Work on a Section of Route 28; completed 2007/2008 Conceptual TIP #1002, Route 28 (N. Main Street) Bridge Conceptual TIP #1010, Route 28 (N. Main Street) and Liberty Street intersections Conceptual TIP #1011, Route 28 (N. Main Street) and West Street intersection FFY 2008 Safety and Operations Analyses at Intersections study Arterial Coordination Study, CTPS study (2010)	3	1	2	4	2	1	13	High	The location has several MassDOT projects and CTPS studies and it is not recommended for study.
Route 114	Salem	NSTF	4	MassDOT and City	Yes	2, 3	10.4	1	5	1.35	18 MBTA bus stops MBTA bus Routes 450, 451, 455, 456, 459, and 465 MBTA Commuter Rail at Salem and Beverly Ferry service	Yes	Yes Half the segment abuts EJ zones.	Transportation Improvement Study for Routes 1A, 114, and 107 and Other Roadways in Downtown Salem, 2005 CTPS study MassDOT Project #605332, Bridge Replacement (Route 114) North Street over North River; in preliminary design	4	1	2	4	0	2	13	High	This arterial segment was not selected because of regional equity--the NSTF subregion was the recepient of the FFY 2016 LRTP Priority Corridor study. This location was suggested for study in 2012 UPWP outreach via an NSTF letter. NSTF suggested that a study on Routes 114/1A and Route 127 from Swampscott to Gloucester would include suggestions about how to improve bike facilities and bike-to-rail connections in this heavily traveled tourist region. This builds on the NSTF's primary recommendation for that year and the anticipated popularity of the Essex Coastal Scenic Byway in the region.
Route 1	Walpole	TRIC	5	MassDOT	Yes	3	1.2	1	3	1.38	MBTA Commuter Rail at Sharon and Walpole	N/A	Yes One EJ zones lies adjacent to the southern end of the segment.	MassDOT's I-95 South Corridor Study presented a comprehensive evaluation of the I-95 and Route 1 corridors south of Route 128 and included a recommended plan of short-term and long-term improvements (June 2010) MassDOT Project #608480, Resurfacing and related work on Route 1; in preliminary design MassDOT Project #608599, Stormwater Improvements to treat discharges from Route 1, I-95 and Route 1A to the Neponset River and an Unnamed Tributary; in preliminary design	2	1	3	4	2	1	13	High	The location has MassDOT projects and studies and was not recommended for study by MassDOT Highway District 5.
Route 18	Weymouth	SSC	6	MassDOT	Yes	3	6.5	0	10	1.44	Nine MBTA bus stops MBTA bus Route 225 MBTA Commuter Rail at South Weymouth	Yes	Yes EJ zones lie adjacent to the segment.	Programmed TIP (2017) and MassDOT Project #601630, Reconstruction and Widening on Route 18 (Main Street), from Highland Place to Route 139; construction begins summer 2017 MassDOT Project #603161, Signalization and Improvements on Route 18 (Three Locations) at West Street, Park Avenue, and Columbian Street; completed in spring 2009 MassDOT Project #603738, Traffic Signal Improvements on Route 18 at Pond Street and Pleasant Street; completed in summer 2006	3	1	3	4	1	1	13	High	This arterial segment was not selected because according to MassDOT District 6, a MassDOT project is underway, and no project is needed at this time.

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(Arterial Segment Selected for Study Is Highlighted in Green)

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Alewife Brook Parkway	Cambridge	ICC	6	DCR	Yes	2	9.3	0	3	2.41	MBTA bus Routes 79, 350, 62, 67, 74, 76, 78, 84, and 351 MBTA Rapid Transit on the Red Line MBTA Commuter Rail at Porter Square	Yes	Yes Most of the segment lies within or adjacent to EJ zones.	Alewife Studies, Phase II, CTPS study (2009). DCR announced a comprehensive study of the parkway system for bike lanes. MassDOT Project #605637, Improvements at Route 2 and Route 16. The purpose of this project is to perform minor widening, eliminate a merge condition, and improve throughput capacity and vehicle queue storage at the intersection of Route 2 and Route 16 (Alewife Brook Parkway); under construction.	3	2	2	4	0	1	12	Medium	The Fresh Pond Residents Alliance identified Fresh Pond Parkway and Alewife Brook Parkway as locations in need of transportation improvements. Concerns include pedestrian safety of young students who walk to Shady Hill School because of high traffic volumes, environmental issues, and lack of livability.
Route 16	Holliston	MWRC	3	MassDOT and Town	Yes	3	4.6	1	2	1.46	MWRTA bus Route 6	None	None	MassDOT Project #605745, Reconstruction of Route 16 from Quail Run to the Sherborn town line; in preliminary design MassDOT Project #602462 will enhance safety and improve efficiency by installing a new traffic signal at the intersection of Route 16 at Route 126 and at Oak Street in Holliston; 25% design stage (as of 12/08/1999) 2011 CTPS study, Route 126 Corridor: Transportation Improvement Study 2008 CTPS study, Washington Street (Route 16/126) at Hollis Street	4	1	1	3	1	2	12	Medium	Location has MassDOT projects and CTPS studies, which have not been implemented. The 495/MetroWest Partnership expressed interest in a Route 16 study. The section that experiences the most crashes is the town center portion (under Town jurisdiction). A road safety audit was performed for the town center portion in December 2012.
Route 107	Lynn	ICC	4	MassDOT and Town	Yes	3	20.6	3	21	1.19	MBTA bus Routes 424,426, 436, 441, 442, 450, 455, 456, 459, 429, and 435 MBTA Commuter Rail at River Works, Lynn/Central Square, and Swampscott Ferry service	Yes	Yes The entire segment lies within EJ zones.	MassDOT Project #604952, Bridge Replacement, Route 107 over the Saugus River; Design exception submitted (as of 01/26/2017); The construction will begin in autumn 2018. MassDOT Project #26710, Bridge Replacement, Route 107 over the Saugus River (Fox Hill Bridge); completed spring 2013 MassDOT Project #603938, Western Avenue Bridge over Saugus River (Fox Hill Bridge) TIP Project #374, Lynn Garage (transit)	4	0	3	4	0	1	12	Medium	This arterial segment was not selected for study because there is an ongoing Route 107 Corridor Study in Lynn and Salem, which is being conducted by MassDOT in conjunction with Lynn and Salem.
Route 16	Newton	ICC	6	MassDOT and City	Yes	3	4.2	0	4	1.52	MBTA Routes 59, 170, 505, 553, 554, and 556 MBTA Green Line Rapid Transit MBTA Commuter Rail at West Newton	Yes	Yes An EJ zone lies adjacent to the segment.	MassDOT Project #606780, Bridge Rehabilitation, Route 16 (Washington Street) over I-90, MBTA/CSX Corporation and Access Road; 25% package comments to DE (as of 02/19/2016). Conceptual TIP #1067, Washington Street (Phase 2), from Commonwealth Avenue to Perkins Street	3	1	2	4	0	2	12	Medium	In FFY 2014, a subregional study was conducted on Washington Street in Newton. The location was suggested in 2014 LRTP outreach through verbal comments at a 495/MetroWest Partnership meeting.
Route 114	Peabody	NSTF	4	MassDOT and Town	Yes	2	4.0	2	8	1.30	Three MBTA bus stops MBTA bus Routes 435, 465	Yes	Yes Half the segment abuts an EJ zone.	MassDOT Project # 608567, Improvements at Route 114 at Sylvan Street, Cross Street, Northshore Mall, Loris Road, Route 128 Interchange and Esquire Drive, in design	4	1	2	3	0	2	12	Medium	Route 114 in Peabody was listed as a potential corridor in need of signal progression and improvements to accommodate pedestrians and bicyclists. However, the arterial segment was not selected because according to MassDOT Highway District 4, a road safety audit was completed for the segment in August 2016 and a consultant is started design work as part of project #608567.
Route 1A	Swampscott	NSTF	4	MassDOT and Town	Yes	2	3.0	0	2	1.30	27 MBTA bus stops MBTA bus Routes 441 and 448 MBTA Commuter Rail at Swampscott and Lynn/Central Square	Yes	Yes	MassDOT Project #607761, Intersection and Signal Improvement at Route 1A (Paradise Road) at Swampscott Mall; in preliminary design	2	1	2	4	0	3	12	Medium	FFY 2016 LRTP Priority Corridor Study The Towns of Swampscott and Marblehead and the City of Salem requested this study to identify problems and solutions that can be implemented in tandem with MassDOT and the communities. Location was suggested in 2016 UPWP and TIP outreach. MassDOT Highway Division District 4 has jurisdiction of Route 1A and supports this study. The NSTF supports this study.
Route 16	Wellesley	MWRC	6	MassDOT and Town	Yes	4	7.8	0	5	1.45	MBTA Commuter Rail at Wellesley Square, Wellesley Hills, and Wellesley Farms MWRTA Route 8	N/A	Yes The southern end of the segment lies in an EJ zone.	MassDOT Project #94762, Bridge Rehabilitation, Route 16 (Washington Street) over Route 9, including relocation of retaining wall; completed summer 2010. MassDOT Project #600712, Reconstruction of Route 16 from Grantland Road to the Newton City Line. The work consisted of paving, drainage improvements, sidewalk reconstruction, traffic signals, and ornamental lighting on Route 16. A signal was installed at the Washington Street/Walnut Street intersection, and the pedestrian crossing 150 feet south of Hillside Road was upgraded, completed in 2004.	3	1	2	3	1	2	12	Medium	The location was suggested in 2014 LRTP outreach through verbal comments at a 495/MetroWest Partnership meeting.
Route 20	Weston	MWRC	6	MassDOT	Yes	3	2.6	0	2	2.43	MBTA bus Route 70 MBTA Commuter Rail at Waltham and Kendal Green	Yes	Yes An EJ Zone is located 0.1 mi from the end of the segment.	No projects	1	2	2	4	1	2	12	Medium	A congestion study was suggested through UPWP and LRTP outreach in 2012, 2013, and 2014 by MAGIC; a formal letter was submitted and verbal comments were made at an MWRC subregion meeting. The location was resubmitted in a comment on Draft FFY 2014 UPWP.

TABLE 1
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Arterial Segment	Community	MAPC Subregion	MassDOT District	Jurisdiction	National Highway System	Functional Class*	Crash Rate (MVMT)	Number of Top-200 High-Crash Locations 2012–14	Number of HSIP-Eligible Crash Clusters 2012–14**	Travel Time Index	Transit Service	Crowded or Late Bus	In or Near Environmental Justice Zone	Study, Project, or TIP Project	Safety Conditions	Congested Conditions	Multimodal Significance	Regional Significance	Regional Equity	Implementation Potential	Score	Priority Rating	Summary of Comments
Route 129	Wilmington	NSPC	4	MassDOT and Town	Yes	3	6.1	0	7	1.30	MBTA Commuter Rail at Wilmington, North Wilmington, Anderson/Woburn, and Reading	N/A	None	MassDOT Project #601732, Rehabilitation, Route 129 (Lowell Street) from Route 38 (Main Street) to Woburn Street. The project includes full-depth reconstruction and widening, accessible (ADA-compliant) sidewalks, new tree plantings, and bicycle accommodation within the newly paved shoulders. The intersection of Route 129 and 38 was realigned with new traffic signals and the bridge over Maple Meadow Brook was replaced; completed in 2009. MassDOT Project #608051 will reconstruct Route 38 from Route 62 to the Woburn city line and will add bike lanes, sidewalks, turn lanes, and signal upgrades; in preliminary design.	3	1	2	3	2	1	12	Medium	N/A
Route 2	Acton	MAGIC	3	MassDOT	Yes	2	1.3	0	1	3.35	MBTA Commuter Rail at South Acton and West Concord	N/A	Yes	MassDOT Project #604472, Resurfacing and Related Work on Route 2 (includes all of Acton); completed in spring 2014 MassDOT Project #607748, Intersection and Signal Improvements on Route 2 and Route 111 at Piper Road and Taylor Road; in preliminary design MassDOT Project #604609, Traffic Sign Replacement and Safety Improvements on Route 2; completed in summer 2009 TIP Project #606223, Bruce Freeman Rail Trail Construction (Phase II-B) in Acton and Concord to connect the trail across Route 2, programmed in FFY 2018 TIP	1	2	2	4	1	1	11	Medium	Location has MassDOT projects. A MassDOT road safety audit is scheduled for the Piper Road/Taylor Road intersection; the project is in the preliminary design phase. The MAGIC subregion expressed interest in a Route 2 study.
Route 60	Arlington	ICC	4	Town	Yes	3	5.7	0	1	1.34	Eight MBTA bus stops MBTA bus Routes 67, 62, 76, 77, 78, 79, 80, 84, and 350	Yes	Yes	CTPS and MAPC Community Transportation Technical Assistance Program evaluated the high-crash location at the intersection at Massachusetts Avenue, March 2010. MassDOT Project #606885, The contractor is planning to finish the rest of the bike route symbols and electric work, weather permitting (as of 01/06/2017); in construction.	3	1	3	3	0	1	11	Medium	N/A
Route 2 (Fresh Pond Parkway)	Cambridge	ICC	6	DCR	Yes	2	1.8	1	3	1.51	MBTA bus Routes 75, 71, 72, 73, 74, and 78 MBTA Red Line Rapid Transit MBTA Commuter Rail at Porter Square	Yes	Yes Two EJ zones are located within 0.5 miles of the segment.	DCR announced that the agency will conduct a traffic study of several intersections along Mount Auburn Street and Fresh Pond Parkway, in partnership with the City of Cambridge and the MBTA. The study will focus on safety measures, bus prioritization, and accessibility. Conceptual TIP project #987 would acquire Minuteman Path right-of-way in Watertown to connect Minuteman Bikeway from Arlington, Cambridge, and Watertown to Dr. Paul Dudley White Bike Path in Boston.	3	1	2	4	0	1	11	Medium	The Fresh Pond Residents Alliance identified Fresh Pond Parkway and Alewife Brook Parkway as locations in need of transportation improvements. Concerns include pedestrian safety of young students who walk to Shady Hill School because of high traffic volumes, environmental issues, and lack of livability.
Route 16 (Revere Beach Parkway)	Chelsea	ICC	6	DCR	Yes	2	2.9	2	3	1.77	MBTA bus Routes 112 and 111 MBTA Commuter Rail at Chelsea	Yes	Yes The entire segment lies within EJ zone.	The Lower North Shore Transportation Improvement Study, CTPS study (2000) DCR announced a comprehensive study of the parkway system for bike lanes.	3	1	3	4	0	0	11	Medium	This arterial segment was not selected because it is part of the Mystic River Working Group Study. In addition, the Wynn Everett DEIR (2015) includes intersection improvements and mitigated traffic operations for Revere Beach Parkway and Mystic Valley Parkway.
Route 99	Everett	ICC	4	City	Yes	3	2.6	0	3	2.40	40 MBTA bus stops MBTA bus Routes 97, 104, 105, 109, 110, 112, 99, and 106	Yes	Yes The entire segment lies within EJ zones.	MassDOT Project #602383 reconstructed Route 99 with a traffic signal upgrade, from Second Street to the Malden city line in 2008; completed autumn 2007; All work is complete except punch list work (as of 02/15/2008) MassDOT Project #601580 reconstructed Route 99 from Sweetser Circle to Second Street in 2004; completed in summer 2004. MassDOT Project #602382 reconstructed Route 99 from Sweetser Circle to the Alford Street Bridge in 2013; completed spring 2013.	2	2	2	4	0	1	11	Medium	Not recommended for study because the MassDOT projects listed completely reconstructed Route 99 with signal improvements from Alford Street Bridge to the Malden city line.
Route 3A	Hingham	SSC	5	MassDOT	Yes	3	1.6	0	1	1.30	MBTA Commuter Rail at Cohasset, Nantasket Junction, West Hingham, and East Weymouth Ferry service	N/A	None	There are two approved projects that are not advancing in design: MassDOT Project #603137, Intersection Improvements on Route 3A at Kirby Street. There has been local interest in installing a traffic signal at this intersection; in preliminary design. MassDOT Project #605168, Intersection Improvements at Route 3A/Summer Street Rotary. The Town 's consultant prepared preliminary concepts for proposals at this location; in preliminary design.	1	1	2	3	1	3	11	Medium	In FFY 2015, a subregional priority roadway study was conducted for Route 3A in Hingham and Hull. The location received strong support from the Towns of Hingham and Hull, as well as the South Shore Coalition and the MassDOT Highway Division District 5 Office.
Route 1A (Lynnway)	Lynn	ICC	4	MassDOT and DCR	Yes	2, 3, and 5	1.5	1	6	1.36	35 MBTA bus stops MBTA bus Routes 426, 439, 441, 442, 448, 449 MBTA Commuter Rail at River Works, Lynn/ Central Square, and Swampscott Ferry service	Yes	Yes The entire segment lies within EJ zones.	TIP Project #1321, Route 1A Lynnway at Blossom Street; conceptual TIP Project #1322, Route 1A Lynnway intersection at Market Street; conceptual	3	1	2	4	0	1	11	Medium	This arterial segment was not selected because it was the subject of an MPO corridor study under the FFY 2015 Priority Corridors Study for LRTP Needs Assessment.

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Arterial Segment	Community	MAPC Subregion	MassDOT District	Jurisdiction	National Highway System	Functional Class*	Crash Rate (MVMT)	Number of Top-200 High-Crash Locations 2012–14	Number of HSIP-Eligible Crash Clusters 2012–14**	Travel Time Index	Transit Service	Crowded or Late Bus	In or Near Environmental Justice Zone	Study, Project, or TIP Project	Safety Conditions	Congested Conditions	Multimodal Significance	Regional Significance	Regional Equity	Implementation Potential	Score	Priority Rating	Summary of Comments
Route 28	Milton	ICC and TRIC	6	MassDOT and Town	Yes	3	4.2	0	1	1.30	51 MBTA bus stops MBTA bus Routes 240, 245, 24, 28, 26, 30, 31, and 33 MBTA Red Line Rapid Transit at Mattapan/Ashmont Station BAT Route 12	Yes	Yes EJ zones are located at the northern end.	MassDOT Project #607342, Intersection and Signal Improvements at Route 28 (Randolph Avenue) and Chickatawbut Road; in preliminary design MassDOT Project #106901, Roadway Reconstruction on Route 28 (Randolph Avenue) from Reedsdale Road to Milton/Quincy town line; completed 2008 Conceptual TIP #1008, Reconstruct the Intersection of Blue Hills Parkway and Brook Road	2	1	2	3	1	2	11	Medium	This arterial segment was not selected because there have been several improvements in this segment in recent years.
Route 138	Milton	ICC and TRIC	6	MassDOT	Yes	2	4.2	0	1	1.58	MBTA bus Route 245 MBTA Commuter Rail at Route 128 Station MBTA Red Line Rapid Transit at Mattapan Station	Yes	Yes Half of the segment is contained within EJ zones.	MassDOT Project #607763, Intersection and Signal Improvements at Two Locations: Route 138 (Blue Hill Avenue) at Atherton Street and Bradlee Road and Route 138 (Blue Hill Avenue) at Milton Street and Dollar Lane, programmed in FFY 2019 TIP; in the preliminary design phase.	3	1	2	3	1	1	11	Medium	Congestion issues have been identified on this route, from the I-93 interchange to Mattapan Square.
Route 9	Newton	ICC	6	MassDOT	Yes	2	2.3	0	8	1.73	Six MBTA bus stops MBTA bus Routes 60, 52, and 59 MBTA Green Line	Yes	Yes An EJ zone in Brookline is 0.3 mi from the segment.	MassDOT Project #604327, Resurfacing and Related Work on Route 9 (Boylston Street) from the Wellesley/Newton city line to Newton/Brookline city line; completed in summer 2012 MassDOT Project #601704, Reconstruction and Signal Improvements on Walnut Street, from Homer Street to Route 9; in design; 25% package received (as of 12/23/2013) MassDOT Project #606635, Reconstruction of Highland Avenue, Needham Street, and Charles River Bridge, from Webster Street to Route 9; 75% package received (as of 09/23/2016). MassDOT Project #604327, resurfaced this segment, including updates to guardrails and improvements to the existing drainage structures; construction was completed in 2012.	2	1	3	4	0	1	11	Medium	According to MassDOT District 6, improvements were recently made to accommodate new developments. An analysis of the new existing conditions would be helpful to compare with the future projected conditions.
Route 1A	Revere	ICC	4	MassDOT	Yes	2	2.1	0	1	3.17	15 MBTA bus stops MBTA bus Routes 110, 116, 117, 411, 424, 426, 439, 441, 442, 448, 449, 450, and 455 MBTA Rapid Transit on Blue Line MBTA Commuter Rail at Chelsea and River Works	Yes	Yes The entire segment lies within EJ zones.	CTPS Lower North Shore Transportation Improvement Study proposed improvements for Route 1A in Revere in October 2000; an update may be necessary. Conceptual TIP Project #982, Mahoney Circle (Bell Circle) Grade Separation	2	2	2	4	0	1	11	Medium	This arterial segment was not selected because it is part of the Mystic River Working Group Study. In addition, the Wynn Everett DEIR (2015) includes intersection improvements and mitigated traffic operations for Revere Beach Parkway and Mystic Valley Parkway.
Route 16 (Revere Beach Parkway)	Revere	ICC	4	DCR	Yes	2	1.8	0	4	1.43	MBTA bus Routes 110, 116, 117, 119, 424, 426, 428, 448, 449, 450, 455, and 459 MBTA Rapid Transit on Blue Line MBTA Commuter Rail at Chelsea	Yes	Yes The entire segment lies within EJ Zones.	DCR announced a $500,000 comprehensive study of the parkway system for bike lanes in FFY 2015. The goals of the study include updating traffic information, assessing parkway conditions, and assessing and understanding deficiencies along the heavily cycled parkways. The Wynn Everett DEIR (2015) includes intersection improvements and mitigated traffic operations for Revere Beach Parkway and Mystic Valley Parkway.	2	1	3	4	0	1	11	Medium	This arterial segment was not selected because it is part of the Mystic River Working Group Study. In addition, the Wynn Everett DEIR (2015) includes intersection improvements and mitigated traffic operations for Revere Beach Parkway and Mystic Valley Parkway.
Route 1A	Salem	NSTF	4	MassDOT and Town	Yes	2	7.1	0	1	1.32	16 MBTA bus stops MBTA bus Routes 455 and 459 MBTA Commuter Rail at Salem Ferry service	Yes	Yes The entire segment lies within EJ zones.	CTPS Lower North Shore Transportation Improvement Study proposed improvements for Route 1A in Revere in October 2000; an update may be necessary.	3	1	2	4	0	1	11	Medium	This arterial segment was not selected because the southern end of this arterial segment is included in the study of Route 1A at Vinnin Square in Marblehead and in Swampscott; this location was selected as the subject of the FFY 2016 Priority Corridors Study.
Route 135	Wellesley	MWRC	6	MassDOT and Town	Yes	3	7.3	0	2	1.30	MBTA Commuter Rail at Natick, Wellesley Square, and Wellesley Hills MWRTA bus Route 8	None	Yes Most of the segment lies adjacent to EJ zones.	No projects	3	1	2	3	1	1	11	Medium	None
Memorial Drive (Routes 2 and 3)	Cambridge	ICC	6	DCR	Yes	2	3.6	0	4	1.30	MBTA bus Routes 747, 1, 47, 64, 66, 70, 70A, 71, 73, 86, and 701 MBTA Rapid Transit available on the Red and Green Lines MBTA Commuter Rail at North Station, Back Bay, Yawkey, Porter Square, and Belmont	Yes	Yes Most of the segment lies within or adjacent to EJ Zones.	DCR announced a $500,000 comprehensive study of the parkway system for bike lanes in FFY 2015. The goals of the study include updating traffic information, assessing parkway conditions, and assessing and understanding deficiencies along the heavily cycled parkways.	3	1	2	4	0	0	10	Low	None

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Route 2	Concord	MAGIC	4	MassDOT	Yes	2	1.0	0	7	2.68	MBTA Commuter Rail at West Concord, Concord, and Lincoln	N/A	Yes. One EJ zone is adjacent to the segment.	MassDOT Project #602894, Crosby's Corner (Route 2 at Route 2A) Improvements; under construction; MassDOT Project #602091, Concord Rotary; in preliminary design MassDOT Project #604069, Bridge Replacement over Sudbury River; in preliminary design MassDOT Project #604630, Resurfacing and Related Work on Route 2; completed in 2010 MassDOT Project #604472, Resurfacing and Related Work on Route 2; completed in 2014 Programmed (March 2014) TIP Project #606223: Bruce Freeman Rail Trail Construction (Phase II-B) in Acton and Concord, will connect the trail across Route 2, in preliminary design	1	2	2	4	1	0	10	Low	FFY 2013 Priority Corridors for LRTP Needs Assessment Study (Concord and Lincoln) Route 2 was suggested during MPO outreach as a route experiencing congestion that affects MAGIC communities as well as Cambridge. There are many projects and studies conducted for this corridor, including the Route 2 (Crosby's Corner) improvements and Concord Rotary upgrade and improvements.
Route 135	Natick	MWRC	3	Town	Yes	3	7.9	1	3	1.33	MWRTA bus Routes 10 and 11 MBTA Commuter Rail at Natick and West Natick	None	None	MassDOT Project #600573 reconstructed Route 135 in Natick in 2008. More extensive improvements were proposed in the downtown area, on East Central Street between North Main Street and Union Street, including signal upgrades, new sidewalks, pavement rehabilitation, and shoulders; Contract #32302 was completed; all construction operations have been suspended (as of 06/30/2007) 2010 CTPS study, West Central Street (Route 135) at Speen Street.	4	1	2	1	1	1	10	Low	Congestion in the downtown area; likely focus area would be on the intersection of Route 135 at Route 27 and the intersection of Route 135 at Speen Street because of the crash history of those locations.
Route 1	Sharon	TRIC	5	MassDOT	Yes	3	1.3	0	1	1.38	MBTA Commuter Rail at Sharon and Walpole	N/A	None	MassDOT's I-95 South Corridor Study, provided a comprehensive evaluation of the I-95 and Route 1 corridors south of Route 128 that included a recommended plan of short-term and long-term improvements (June 2010) MassDOT Project #603622, Bridge Rehabilitations, Route 1/Route I-95; completed in 2010	1	1	3	2	2	1	10	Low	Segment has MassDOT projects and studies.
Route 9	Wellesley	MWRC	6	MassDOT	Yes	2	3.8	0	11	1.31	MBTA Commuter Rail at Wellesley Hills and Wellesley Farms MWRTA bus Route 1	None	None	MassDOT Project #601586, Intersection Improvements at Route 9 (Worchester Street) and Oak Street, from 1500 feet West of Oak Street to 300 feet East of Overbrook Drive; construction ended in spring 2015 MassDOT Project #607340, Resurfacing on Route 9, from Dearborn Street to the Natick town line; in preliminary design MassDOT Project #606530, Drainage Improvements along Route 9 Boulder Creek Culvert (Design Only); 25% design stage (as of 06/10/2015) CTPS study: Route 9 Corridor in Wellesley, 2003 MAPC Land Use/Corridor Study (fall 2013)	2	1	2	3	1	1	10	Low	MassDOT has a preliminary assessment of this corridor that will develop into 25% design plans for roadway improvements.
Route 62	Bedford	MAGIC	4	MassDOT and Town	No	5	7.0	0	0	1.31	Three MBTA bus stops MBTA bus Route 62	Yes	None	Great Road Project: Master Plan and Conceptual Design, prepared by Vanasse Hagen Brustlin Inc. (VHB) for the Town of Bedford in 2011. The plan was to improve pedestrian and bicycle access, recommend streetscape improvements that would highlight the "Center" of Bedford while taking into consideration traffic flow through the area, crosswalk locations, intersection and traffic control improvements, property access, and parking.	2	1	2	2	1	1	9	Low	Forms part of Routes 4 and 225 arterial segment.
Route 30 between I-90 and Route 9	Framingham	MWRC	3	Town	Yes (part)	3	1.4	0	1	1.30	MWRTA bus Routes 10 and 11 MBTA Commuter Rail at Natick and West Natick	None	Yes. The southern leg of the segment lies within an EJ Zone.	FFY 2013 Priority Corridors for LRTP Needs Assessment Study MassDOT Project #86450, Roadway Reconstruction and Related Work on sections of Route 126 and Route 30 (includes traffic signal improvements at the intersection); construction ended in summer 2005.	1	1	2	3	1	1	9	Low	This location is not recommended for study because of an FFY 2013 Priority Corridors for LRTP Needs Assessment Study that was performed for the corridor. Framingham and Natick have advanced some of the recommendations into projects.
Route 2	Lincoln	MAGIC	4	MassDOT	Yes	2	0.6	0	3	2.68	MBTA Commuter Rail at Concord and Lincoln	N/A	None	MassDOT Project #602894, Crosby's Corner (2 at 2A) Improvements; under construction MassDOT Project #604629, Resurfacing and Related Work on Route 2; completed in 2010 FFY 2013 Priority Corridors for LRTP Needs Assessment Study (Concord and Lincoln)	1	2	2	2	1	1	9	Low	Route 2 was suggested during MPO outreach as a route experiencing congestion that affects MAGIC communities and Cambridge. There are many projects and studies conducted for this corridor, including the Route 2 (Crosby's Corner) improvements.
Route 129	Reading	NSPC	4	MassDOT and Town	Yes	3	3.9	0	1	1.56	11 MBTA bus stops MBTA bus Route 136 MBTA Commuter Rail at Wakefield, Reading, and Woburn	Yes	None	No projects	2	1	2	1	2	1	9	Low	None

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Route 1	Westwood	TRIC	6	MassDOT	Yes	3	1.2	0	0	1.30	None	N/A	None	MassDOT's I-95 South Corridor Study provided a comprehensive evaluation of the I-95 and Route 1 corridors south of Route 128 and included a recommended plan of short-term and long-term improvements (June 2010) MassDOT Project #603162, Route 128 Add-a-Lane Bridges (Bridge III), Route 1 and 1A over I-95/128; completed in 2012	0	1	2	3	2	1	9	Low	Segment has MassDOT projects and studies.
Route 3A	Cohasset	SSC	5	MassDOT	Yes	3	4.0	0	2	1.09	MBTA Commuter Rail at Nantasket Junction, Cohasset, and North Scituate	N/A	None	FFY 2013 Subregional Priority Corridor Study. MassDOT Project #608007, Corridor Improvements and Related Work on Justice Cushing Highway (Route 3A), from Beechwood Street to the Scituate town line, includes new traffic signal equipment and pedestrian and bicycle accommodation; preliminary design The corridor is within the limits of MassDOT Project #605664, Resurfacing and Related Work on Route 3A (Duxbury town line northerly to Scituate town line); 100% design stage; no construction funding identified	2	0	2	2	1	1	8	Low	FFY 2013 Subregional Priority Corridor study was conducted within the segment. MassDOT District 5 comments note two approved projects: MassDOT Projects #608007 (in preliminary design stage) and Project #605664 (100% design stage).
Route 16	Natick	MWRC	3	Town	Yes	3	1.5	0	0	1.19	None	N/A	Yes	No projects	0	0	2	3	1	2	8	Low	The 495/MetroWest Partnership expressed interest in a Route 16 study. Specific issues in this segments include improvements to accommodate pedestrians and bicyclists.
Route 62	Concord	MAGIC	4	Town	Yes	3	4.3	0	0	1.31	MBTA Commuter Rail at Concord and West Concord	N/A	None	No projects	2	1	1	1	1	1	7	Low	None
Route 3A	Marshfield	SSC	5	MassDOT	Yes	3	2.2	0	2	1.09	GATRA bus MBTA Commuter Rail at Greenbush	None	None	The corridor is within the limits of MassDOT Project #605664, Resurfacing and Related Work on Route 3A (Duxbury town line northerly to Scituate town line), work includes patching and microsurfacing, shoulder reconstruction, and drainage structures; 100% design stage; no construction funding identified	1	0	2	2	1	1	7	Low	None
Route 16	Sherborn	SWAP	3	Town	Yes	3	1.7	0	1	1.35	None	N/A	None	2002 CTPS study, Traffic Congestion in SWAP Subregion: Sherborn Town Center Traffic-Flow Improvement Study Conceptual TIP #915, Washington Street (Route 16)	1	1	1	2	0	2	7	Low	Location was suggested in 2014 LRTP outreach at a 495/MetroWest Partnership meeting. The section that experiences the most crashes and congestion is the town center portion, where Route 16 and Route 27 combine and split.
Route 9	Southborough	MWRC	3	MassDOT	Yes	2	1.5	0	0	1.83	MWRTA bus Route 7	None	None	MAPC Land Use/Route 9 Corridor Study (fall 2013). The CTPS Safety and Operations at Intersections study evaluated congestion and safety issues at the Route 9/Oak Hill Road/Central Street intersection in FFY 2012. MassDOT's I-495/Route 9 study, November 2013. The western section of Route 9 in Southborough between the I-95 interchange and Crystal Pond Road was evaluated for short-term and long-term improvements as part of this study. MassDOT Project #607172, Resurfacing and Related Work on Route 9, from Westborough to just west of White Bagley Road; construction ends in summer 2016	0	1	2	2	1	0	6	Low	Most of the intersections on this corridor have already been studied, as MassDOT District 3 has noted.
Route 3A	Scituate	SSC	5	MassDOT	Yes	3	1.1	0	0	1.04	MBTA Commuter Rail at Greenbush, North Scituate, and Cohasset	N/A	None	FFY 2013 Subregional Priority Corridor Study The corridor is within the limits of MassDOT Project #605664, Resurfacing and Related Work on Route 3A (Duxbury town line northerly to Scituate town line); no construction funding identified. Work includes patching and microsurfacing, shoulder reconstruction, and drainage structures; 100% design stage.	0	0	2	1	1	1	5	Low	The FFY 2013 Subregional Priority Corridors Study was conducted within the segment. MassDOT District 5 comments refer to MassDOT Project #605664 (in the 100% design stage).

Selection Criteria
Safety Conditions: Segment has a high crash rate for its functional class, contains an HSIP-eligible crash location, a top-200 high-crash location, and/or a significant number or HSIP-eligible clusters of pedestrian or bicycle crashes.
Congested Conditions: Segment has a Travel Time Index of at least 1.3 and/or of at least 2.0, i.e., which signify that it experiences delays during peak periods.
Multimodal Significance: Segment supports transit or bicycle or pedestrian activities, has a need to improve these activities, and/or has a high volume of truck traffic serving regional commerce.
Regional Significance: Segment is in the National Highway System, carries a significant proportion of regional traffic, lies within 0.5 miles of Environmental Justice transportation analysis zones, and/or is essential for regional economic, cultural, or recreational development in the area.
Regional Equity: Location is in a subregion that has not had a priority corridor study before, or location is in a subregion that has not had a priority corridor study in the in last three years.
Implementation Potential: Improvements to the segment are proposed or endorsed by the roadway administrative agency (agencies), proposed or endorsed by the subregion and are a priority for the subregion, and/or have strong support from other stakeholders.

***Functional Class**
2 = principal arterial; 3 = principal arterial other (rural minor arterial or urban principal arterial); 5 = minor arterial (urban minor arterial or rural major collector)

Abbreviations
AADT = Annual average daily traffic. ADA = Americans with Disabilities Act. ADT = Average daily traffic. BAT = Brockton Areas Transit Authority. CTPS = Central Transportation Planning Staff. DCR = Department of Conservation and Recreation. DEIR = Draft Environmental Impact Report. EJ = Environmental justice. ENHC = Essex National Heritage Commission. EPDO = Equivalent property damage only. FFY = Federal fiscal year. GATRA = Greater Attleboro Taunton Regional Transit Authority. HSIP = Highway Safety Improvement Program. ICC = Inner Core Committee. LRTP = Long-Range Transportation Plan. MAGIC = Minuteman Advisory Group on Interlocal Coordination. MAPC = Metropolitan Area Planning Council. MassDOT = Massachusetts Department of Transportation. MBTA = Massachusetts Bay Transportation Authority. MPO = Boston Region Metropolitan Planning Organization. MVMT = Million vehicle-miles traveled. MWRC = MetroWest Regional Collaborative. MWRTA = MetroWest Regional Transit Authority. NSPC = North Suburban Planning Council. NSTF = North Shore Task Force. PRC = MassDOT Project Review Committee. RSA = Road safety audit. RTA = Regional transit authority. SSC = South Shore Coalition. SWAP = South West Advisory Planning Committee. TIP = Transportation Improvement Program. TRIC = Three Rivers Interlocal Council. UPWP = Unified Planning Work Program.

Number of HSIP-eligible crash clusters
**HSIP-eligible crash clusters are defined by MassDOT as crash clusters that rank within the top five percent of crash clusters for each regional planning agency, based on the Equivalent Property Damage Only (EDPO) index. In the EDPO index, property damage only crashes are awarded one point each, crashes involving injuries are given five points each, and fatal crashes are given ten points each. In the Boston region the 896 intersections in the top five percent have crash clusters with a minimum EDPO value of 42.

Source: Central Transportation Planning Staff.

3. Public Participation

Town of Canton, Massachusetts
Office of the Selectmen

Board of Selectmen

Upper Memorial Hall
801 Washington Street
Canton, MA 02021

Police Commissioners
Board of Public Works
Licensing Board

Tel: (781) 821-5000
Fax: (781) 821-2935
Email: caspinwall@town.canton.ma.us

Town Administrator
Charles J. Aspinwall

April 12, 2017

Seth A. Asante
Chief Transportation Planner
Central transportation Planning Staff
Ten Park Plaza
Suite 2150
Boston, MA 02116

Dear Mr. Asante:

The Canton Board of Selectmen discussed the Rt. 138 corridor planning study offered by the MPO/CTPS. The Board unanimously and wholeheartedly approved the support of and participation in the study.

Please let us know how and when we may be involved in the project. Thank you for the work that the MPO/CTPS has done and continues to do in Canton.

Very truly yours,

Charles J. Aspinwall
Town Administrator

Cc: M. Trotta
L. Smead

Route 138 Priority Corridor Study in Canton
Initial Scoping Meeting
Town Hall Salah Meeting Room
May 17, 2017

Meeting Minutes

The initial scoping meeting was held on Wednesday, May 17 at 10:00 AM in the Salah Meeting room in Town Hall, 801 Washington Street. The meeting agenda is as follows:

1. Introductions
2. Study background
3. Scope of study—presentation and discussion
4. Other matters

The meeting began with introductions (see attached attendance sheet). Mark Abbott, staff of the Boston Region Metropolitan Planning Organization (MPO) presented the background of the study. M. Abbott stated that the Boston Region Metropolitan Planning Organization (MPO) selected Route 138 in the Town of Canton as the subject of a corridor study in federal fiscal year (FFY) 2017. He said that the study focuses on one of the locations identified in a regional needs assessment—conducted as part of the MPO's Long-Range Transportation Plan, *Charting Progress to 2040*.

Seth Asante, MPO staff, presented the scope of the study and stated that the MPO prioritized this location for study after considering a number of factors: the need to address poor safety conditions and traffic congestion; the interest in developing Complete Streets solutions to enhance multimodal transportation; the need to maintain regional travel capacity; and the potential for recommendations from the study to be implemented. S. Asante discussed the study limits, segments of focus, study tasks, and timeline for the study. He mentioned that an advisory task force composed of representatives from Canton, MassDOT Highway Division, MassDOT Office of Transportation Planning would be established to guide the study.

The following problems and issues in the corridor were mentioned or discussed at the meeting:

1. A lack of crosswalks at midblock locations throughout the corridor, especially in the Blue Hills Reservation Area and in the residential and business areas along the corridor
2. A lack of connected and continuous bicycle lanes connecting the Blue Hills Reservation Area and the Ponkapoag neighborhoods
3. Gaps in the sidewalk network, obstructions in sidewalks, and narrow and substandard sidewalks that do not comply with the Americans with Disabilities Act (ADA)
4. Poor street lighting in the Route 138 corridor reduces visibility and create safety problems during nighttime
5. Access to and egress from the Ponkapoag Golf Course is confusing and unsafe.
6. High vehicle speeds and volumes have been the source of many complaints from residents in the corridor, especially those on Green Lodge Street, Ponkapoag Way, and Magnolia Way. These factors have made it very difficult for residents to make left turns and pull out of side streets, and caused many crashes.
7. Motorists find it very difficult to turn left or pull out of side streets and business driveways during peak travel periods, especially at the side streets and business driveways between Meetinghouse Road and Arboretum Way, and between New Boston Drive and Windsor Woods Lane.

8. A lack of left-turn lanes creates traffic queues and causes a high number of crashes on Route 138, especially in the vicinity of Del Pond Drive, where vulnerable seniors are also at risk.
9. Roadway configuration that creates inequity by placing too much emphasis on vehicular use
10. High-crash locations—four HSIP crash clusters—are located in the vicinity of these Route 138 intersections: Royall Street/Blue Hill River Road, Interstate 93 ramps, Washington Street, and Randolph Street
11. High volumes of traffic and inadequate capacity at the signalized intersections creates congestion at the these locations
12. Traffic merges from two lanes to one lane at several locations in the corridor and such lane drops cause congestion and contribute to crashes.

M. Abbott said at the end of the meeting that MPO staff will work with MassDOT to collect data for analyses and at the next meeting present the existing conditions and improvements for discussion and feedback. The meeting was adjourned at 12:00 pm.

Route 138 Priority Corridor Study in Canton

Initial Scoping Meeting

Town Hall, Salah Meeting Room

May 17, 2017

Attendance Sheet

Name	Affiliation	Email
Charles Aspinwall	Town of Canton	caspinwall@town.canton.ma.us
Laura Smead	Town of Canton	lsmead@town.canton.ma.us
Michael Trotta	Town of Canton	mtrotta@town.canton.ma.us
Vacation James Donovan	Town of Canton	jdonovan@town.canton.ma.us
Lisa Grega	Town of Canton	lgrega@town.canton.ma.us
Michael Clark	MassDOT—Planning	michael.clark@state.ma.us
Courtney Dwyer	MassDOT—District 6	courtney.dwyer@state.ma.us
Geraldine Vatan	MassDOT—District 6	geraldine.vatan@state.ma.us
Amitai Lipton	MassDOT—District 6	amitai.lipton@state.ma.us
Ethan Britland	MassDOT—Planning	ethan.britland@state.ma.us
Bryan Pounds	MassDOT—Planning	bryan.pounds@state.ma.us
Raj Kulen	MassDOT—District 6	raj.kulen@state.ma.us
Mark Abbott	Boston Region MPO	mabbott@ctps.org
Seth Asante	Boston Region MPO	sasante@ctps.org
Kevin Feeney	Selectman Canton	kvn.feeney@gmail.com
Mark Porter	BOS	mporter@town.canton.ma.us

Route 138 Priority Corridor Study in Canton
Town Hall Salah Meeting Room
September 14, 2017

Meeting Minutes

The meeting was held on Thursday, September 14 at 1:00 PM in the Salah Meeting Room in Town Hall, 801 Washington Street. The meeting agenda is as follows:

1. Introductions
2. Existing conditions
3. Suggested improvements
4. Other matters

The meeting began with introductions (see attached attendance sheet). Mark Abbott, staff of the Boston Region Metropolitan Planning Organization (MPO) gave a brief introduction of the study.
Seth Asante, MPO staff, presented the results of the existing conditions analyses. S. Asante presented a series of maps showing the roadway characteristics, the general land-use designations for the area surrounding Route 138, and the recent and planned development projects in the corridor. Other maps of the study area included the roadway's width of right-of-way and paved shoulders, and location of with or without sidewalks.

MPO staff conducted safety and traffic operations analyses to assess safety, traffic conditions, and transportation needs of the roadway. As part of the assessment, S. Asante presented maps showing locations of crashes, average weekday traffic volumes, hourly traffic-volume distributions, and turning movement volumes at the major intersections. The analyses indicated that Route 138 has several high crash locations including four HSIP crash clusters and high traffic volumes create congestion during the peak travel periods. He concluded the existing conditions with a map of showing the existing level of service provided by intersections on Route 138 during the AM and PM peak periods.

Following the existing conditions, S. Asante described the preliminary improvements that MPO staff developed to address the problems, issues, and concerns in the corridor. For the purposes of this study, the corridor was divided into several segments. He stated that the improvements would transform Route 138 into a pedestrian- and bicyclist-friendly roadway that serves all modes of transportation and maintains regional travel capacity. They include Complete Streets solutions such as upgrading sidewalks and curb ramps to MassDOT's standards, closing gaps in the sidewalk network, expanding bicycle lanes and providing well-defined roadway shoulders to accommodate bicycles. Additional improvements are enhancing street lighting, reducing traffic congestion, and improving safety at the high-crash locations.

There following ideas were suggested or discussed at the meeting:

1. Consider a redesigned signalized intersection or roundabout alternative for the Route 138 and Washington Street intersection.
2. Address congestion issues at Route 138 and Randolph Street intersection—widen to include additional southbound lane
3. Some of the existing sidewalks do not meet MassDOT standards and need to be reconstructed
4. Consider separated bicycle lanes in the segments with wide shoulders and few curb cuts such as in the Blue Hills Reservation area
5. Add a midblock crosswalk for the Skyline Trail in the Blue Hills Reservation Area
6. The proposed midblock crosswalks and sidewalks are welcomed improvements.

The meeting was adjourned at 2:30 pm

Route 138 Priority Corridor Study in Canton

Town Hall, Salah Meeting Room

September 14, 2017

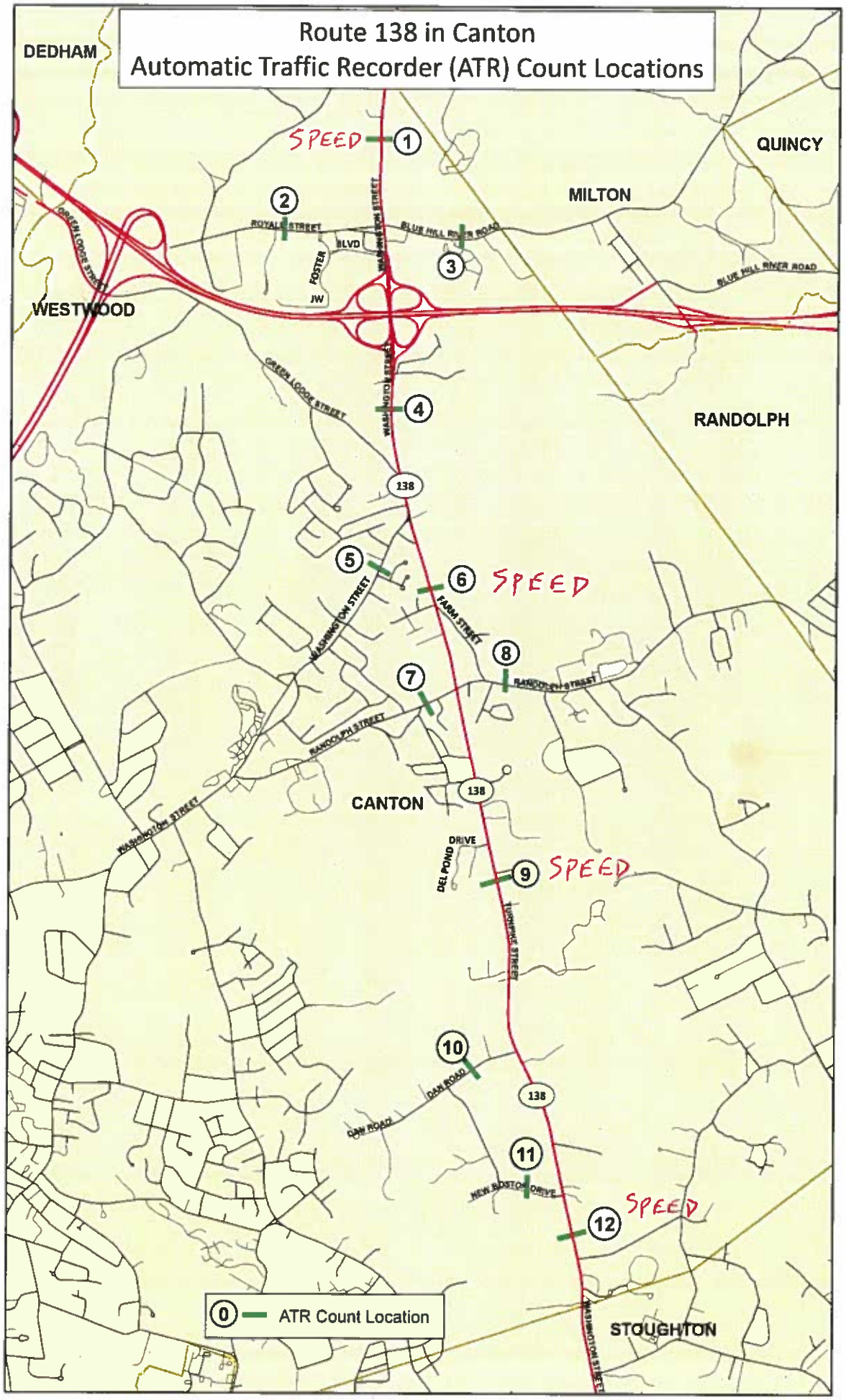
Name	Affiliation
Charles Aspinwall	Town of Canton
Laura Smead	Town of Canton
Michael Trotta	Town of Canton
James Donovan	Town of Canton
Lisa Grega	Town of Canton
Mark Porter	Town of Canton
Kevin Feeney	Town of Canton
Michael Clark	MassDOT—Planning
Cassandra Gascon	MassDOT—Planning
Ethan Britland	MassDOT—Planning
Bryan Pounds	MassDOT—Planning
Raj Kulen	MassDOT—District 6
Courtney Dwyer	MassDOT—District 6
Geraldine Vatan	MassDOT—District 6
Amitai Lipton	MassDOT—District 6
Hameed Pervez	MassDOT—District 6
Mark Abbott	Boston Region MPO
Seth Asante	Boston Region MPO

Pierre Allen MADOT 6

APPENDIX B

Traffic Data

Automatic Traffic Recorder Counts


Route 138 in Canton
Automatic Traffic Recorder (ATR) Count Locations
DEDHAM
QUINCY
MILTON
WESTWOOD
RANDOLPH
CANTON
STOUGHTON
SPEED
SPEED
SPEED
SPEED
1
2
3
4
5
6
7
8
9
10
11
12
138
ROYALL STREET
BLVD
FOSTER
JW
BLUE HILL RIVER ROAD
WASHINGTON STREET
GREEN LODGE STREET
FARM STREET
RANDOLPH STREET
DEL POND DRIVE
TURNPIKE STREET
DAN ROAD
NEW BOSTON DRIVE
0 — ATR Count Location

MassDOT Highway Division
WEEKLY SUMMARY FOR LANE
Starting: 5/22/2017

STA. 1

TOTAL

Site Reference: 170210000601
Site ID: 000000000101
Location: RTE.138 N OF ROYALL ST. & BH RIVER RD.
Direction: ROAD TOTAL

File: SPD1.prn
City: CANTON
County: SPEED NB&SB

TIME	MON 22	TUE 23	WED 24	THU 25	FRI	WKDAY AVG	SAT	SUN	WEEK AVG	TOTAL
01:00		317	418	372		369			369	1107
02:00		142	307	161		203			203	610
03:00		105	143	115		121			121	363
04:00		125	129	145		133			133	399
05:00		348	344	349		347			347	1041
06:00		1211	1180	1188		1193			1193	3579
07:00		1701	1589	1733		1674			1674	5023
08:00		1869	1815	1859		1847			1847	5543
09:00		1925	1989	1865		1926			1926	5779
10:00		1907	1769			1838			1838	3676
11:00		1688	1702			1695			1695	3390
12:00	1602	1674	1696			1657			1657	4972
13:00	1694	1711	1746			1717			1717	5151
14:00	1683	1868	1813			1788			1788	5364
15:00	1942	2041	2048			2010			2010	6031
16:00	2071	2116	2044			2077			2077	6231
17:00	2040	2033	2059			2044			2044	6132
18:00	2030	1934	2033			1999			1999	5997
19:00	1979	2056	1973			2002			2002	6008
20:00	1517	1789	1741			1682			1682	5047
21:00	1154	1430	1451			1345			1345	4035
22:00	963	1181	1226			1123			1123	3370
23:00	670	818	877			788			788	2365
24:00	558	746	706			670			670	2010
TOTALS	19903	32735	32798	7787	0	32248	0	0	32248	93223
% AVG WKDY	61.7	101.5	101.7	24.1						
% AVG WEEK	61.7	101.5	101.7	24.1						
AM Times	12:00	09:00	09:00	09:00		09:00			09:00	
AM Peaks	1602	1925	1989	1865		1926			1926	
PM Times	16:00	16:00	17:00			16:00			16:00	
PM Peaks	2071	2116	2059			2077			2077	
D%	55	55	55	50						
K%	10	6	6	24						

U2

COMB AWD 32248

FAC .93

COMB ADT 30,000

MassDOT Highway Division
WEEKLY SUMMARY FOR LANE 1
Starting: 5/22/2017

STA. 1 NB

Site Reference: 170210000601
Site ID: 000000000101
Location: RTE.138 N OF ROYALL ST. & BH RIVER RD.
Direction: NORTH

File: SPD1.prn
City: CANTON
County: SPEED NB&SB

TIME	MON 22	TUE 23	WED 24	THU 25	FRI	WKDAY AVG	SAT	SUN	WEEK AVG	TOTAL
01:00		146	236	170		184			184	552
02:00		65	199	81		115			115	345
03:00		54	67	52		57			57	173
04:00		74	73	75		74			74	222
05:00		231	224	228		227			227	683
06:00		853	820	808		827			827	2481
07:00		1012	926	1050		996			996	2988
08:00		908	879	904		897			897	2691
09:00		1043	1049	957		1016			1016	3049
10:00		1022	920			971			971	1942
11:00		879	904			891			891	1783
12:00	773	809	821			801			801	2403
13:00	811	813	839			821			821	2463
14:00	815	907	859			860			860	2581
15:00	917	935	905			919			919	2757
16:00	942	1002	975			973			973	2919
17:00	880	936	948			921			921	2764
18:00	941	942	964			949			949	2847
19:00	793	787	862			814			814	2442
20:00	618	760	721			699			699	2099
21:00	587	637	687			637			637	1911
22:00	503	596	610			569			569	1709
23:00	359	387	430			392			392	1176
24:00	245	358	297			300			300	900
TOTALS	9184	16156	16215	4325	0	15910	0	0	15910	45880
% AVG WKDY	57.7	101.5	101.9	27.1						
% AVG WEEK	57.7	101.5	101.9	27.1						
AM Times	12:00	09:00	09:00	07:00		09:00			09:00	
AM Peaks	773	1043	1049	1050		1016			1016	
PM Times	16:00	16:00	16:00			16:00			16:00	
PM Peaks	942	1002	975			973			973	

STA .1 SB

Site Reference: 170210000601
Site ID: 000000000101
Location: RTE.138 N OF ROYALL ST. & BH RIVER RD.
Direction: SOUTH

File: SPD1.prn
City: CANTON
County: SPEED NB&SB

TIME	MON 22	TUE 23	WED 24	THU 25	FRI	WKDAY AVG	SAT	SUN	WEEK AVG	TOTAL
01:00		171	182	202		185			185	555
02:00		77	108	80		88			88	265
03:00		51	76	63		63			63	190
04:00		51	56	70		59			59	177
05:00		117	120	121		119			119	358
06:00		358	360	380		366			366	1098
07:00		689	663	683		678			678	2035
08:00		961	936	955		950			950	2852
09:00		882	940	908		910			910	2730
10:00		885	849			867			867	1734
11:00		809	798			803			803	1607
12:00	829	865	875			856			856	2569
13:00	883	898	907			896			896	2688
14:00	868	961	954			927			927	2783
15:00	1025	1106	1143			1091			1091	3274
16:00	1129	1114	1069			1104			1104	3312
17:00	1160	1097	1111			1122			1122	3368
18:00	1089	992	1069			1050			1050	3150
19:00	1186	1269	1111			1188			1188	3566
20:00	899	1029	1020			982			982	2948
21:00	567	793	764			708			708	2124
22:00	460	585	616			553			553	1661
23:00	311	431	447			396			396	1189
24:00	313	388	409			370			370	1110
TOTALS	10719	16579	16583	3462	0	16331	0	0	16331	47343
% AVG WKDY	65.6	101.5	101.5	21.1						
% AVG WEEK	65.6	101.5	101.5	21.1						
AM Times	12:00	08:00	09:00	08:00		08:00			08:00	
AM Peaks	829	961	940	955		950			950	
PM Times	19:00	19:00	15:00			19:00			19:00	
PM Peaks	1186	1269	1143			1188			1188	

STA 2

TOTAL

Site Reference: 170210000727
Site ID: 000000000203
Location: ROYALL ST. WEST OF RTE. 138
Direction: ROAD TOTAL

File: V20304.prn
City: CANTON
County: VOLUME EB&WB

TIME	MON 22	TUE 23	WED 24	THU 25	FRI	WKDAY AVG	SAT	SUN	WEEK AVG	TOTAL
01:00		10	11	14		11			11	35
02:00		2	9	1		4			4	12
03:00		2	2	2		2			2	6
04:00		4	8	9		7			7	21
05:00		17	23	20		20			20	60
06:00		96	88	86		90			90	270
07:00		296	303	300		299			299	899
08:00		539	546	564		549			549	1649
09:00		1025	989	931		981			981	2945
10:00		480	538			509			509	1018
11:00		206	211			208			208	417
12:00	199	219	227			215			215	645
13:00	295	355	327			325			325	977
14:00	283	280	296			286			286	859
15:00	265	253	234			250			250	752
16:00	396	397	363			385			385	1156
17:00	632	714	707			684			684	2053
18:00	828	833	881			847			847	2542
19:00	307	328	292			309			309	927
20:00	120	127	114			120			120	361
21:00	50	64	58			57			57	172
22:00	79	79	69			75			75	227
23:00	19	27	20			22			22	66
24:00	45	44	45			44			44	134
TOTALS	3518	6397	6361	1927	0	6299	0	0	6299	18203
% AVG WKDY	55.8	101.5	100.9	30.5						
% AVG WEEK	55.8	101.5	100.9	30.5						
AM Times	12:00	09:00	09:00	09:00		09:00			09:00	
AM Peaks	199	1025	989	931		981			981	
PM Times	18:00	18:00	18:00			18:00			18:00	
PM Peaks	828	833	881			847			847	
D%	90	95	90	90						
K%	24	16	16	48						

NO

COMB AWD 6299

FAC .92(.93)

COMB ADT 5,400

MassDOT Highway Division
WEEKLY SUMMARY FOR LANE 1 Page: 1
Starting: 5/22/2017

STA. 2 EB

Site Reference: 170210000727
Site ID: 000000000203
Location: ROYALL ST. WEST OF RTE. 138
Direction: EAST

File: V20304.prn
City: CANTON
County: VOLUME EB&WB

TIME	MON 22	TUE 23	WED 24	THU 25	FRI	WKDAY AVG	SAT	SUN	WEEK AVG	TOTAL
01:00		8	7	10		8			8	25
02:00		0	4	0		1			1	4
03:00		1	1	1		1			1	3
04:00		2	4	3		3			3	9
05:00		1	4	4		3			3	9
06:00		12	12	10		11			11	34
07:00		37	35	31		34			34	103
08:00		62	52	69		61			61	183
09:00		74	78	88		80			80	240
10:00		47	96			71			71	143
11:00		86	85			85			85	171
12:00	110	123	120			117			117	353
13:00	161	180	180			173			173	521
14:00	131	127	138			132			132	396
15:00	169	166	165			166			166	500
16:00	303	319	301			307			307	923
17:00	576	640	634			616			616	1850
18:00	740	738	775			751			751	2253
19:00	268	279	245			264			264	792
20:00	100	96	85			93			93	281
21:00	32	37	39			36			36	108
22:00	57	58	48			54			54	163
23:00	12	16	12			13			13	40
24:00	39	39	39			39			39	117
TOTALS	2698	3148	3159	216	0	3119	0	0	3119	9221
% AVG WKDY	86.5	100.9	101.2	6.9						
% AVG WEEK	86.5	100.9	101.2	6.9						
AM Times	12:00	12:00	12:00	09:00		12:00			12:00	
AM Peaks	110	123	120	88		117			117	
PM Times	18:00	18:00	18:00			18:00			18:00	
PM Peaks	740	738	775			751			751	

STA 2 WB

Site Reference: 170210000727
Site ID: 000000000203
Location: ROYALL ST. WEST OF RTE. 138
Direction: WEST

File: V20304.prn
City: CANTON
County: VOLUME EB&WB

TIME	MON 22	TUE 23	WED 24	THU 25	FRI	WKDAY AVG	SAT	SUN	WEEK AVG	TOTAL
01:00		2	4	4		3			3	10
02:00		2	5	1		2			2	8
03:00		1	1	1		1			1	3
04:00		2	4	6		4			4	12
05:00		16	19	16		17			17	51
06:00		84	76	76		78			78	236
07:00		259	268	269		265			265	796
08:00		477	494	495		488			488	1466
09:00		951	911	843		901			901	2705
10:00		433	442			437			437	875
11:00		120	126			123			123	246
12:00	89	96	107			97			97	292
13:00	134	175	147			152			152	456
14:00	152	153	158			154			154	463
15:00	96	87	69			84			84	252
16:00	93	78	62			77			77	233
17:00	56	74	73			67			67	203
18:00	88	95	106			96			96	289
19:00	39	49	47			45			45	135
20:00	20	31	29			26			26	80
21:00	18	27	19			21			21	64
22:00	22	21	21			21			21	64
23:00	7	11	8			8			8	26
24:00	6	5	6			5			5	17
TOTALS	820	3249	3202	1711	0	3172	0	0	3172	8982
% AVG WKDY	25.8	102.4	100.9	53.9						
% AVG WEEK	25.8	102.4	100.9	53.9						
AM Times	12:00	09:00	09:00	09:00		09:00			09:00	
AM Peaks	89	951	911	843		901			901	
PM Times	14:00	13:00	14:00			14:00			14:00	
PM Peaks	152	175	158			154			154	

STA. 3
TOTAL

Site Reference: 170210000543
Site ID: 000000000303
Location: BLUE HILL RIVER RD. EAST OF RTE. 138
Direction: ROAD TOTAL

File: V30304.prn
City: CANTON
County: VOLUME EB&WB

TIME	MON 22	TUE 23	WED 24	THU 25	FRI	WKDAY AVG	SAT	SUN	WEEK AVG	TOTAL
01:00		17	28	14		19			19	59
02:00		9	16	13		12			12	38
03:00		2	6	9		5			5	17
04:00		12	16	11		13			13	39
05:00		25	27	21		24			24	73
06:00		108	111	120		113			113	339
07:00		362	360	348		356			356	1070
08:00		622	564	581		589			589	1767
09:00		743	732	770		748			748	2245
10:00		405	388			396			396	793
11:00		299	240			269			269	539
12:00	238	333	259			276			276	830
13:00	291	352	299			314			314	942
14:00	282	355	343			326			326	980
15:00	309	394	362			355			355	1065
16:00	484	561	550			531			531	1595
17:00	593	661	790			681			681	2044
18:00	693	745	715			717			717	2153
19:00	424	559	518			500			500	1501
20:00	145	293	266			234			234	704
21:00	99	123	157			126			126	379
22:00	82	106	109			99			99	297
23:00	40	40	64			48			48	144
24:00	32	43	40			38			38	115
TOTALS	3712	7169	6960	1887	0	6789	0	0	6789	19728
% AVG WKDY	54.6	105.5	102.5	27.7						
% AVG WEEK	54.6	105.5	102.5	27.7						
AM Times	12:00	09:00	09:00	09:00		09:00			09:00	
AM Peaks	238	743	732	770		748			748	
PM Times	18:00	18:00	17:00			18:00			18:00	
PM Peaks	693	745	790			717			717	
D%	60	60	65	50						
K%	19	10	11	41						

US

COMB AWD 6789

FAC .92(.93)

COMB ADT 5,800

MassDOT Highway Division
WEEKLY SUMMARY FOR LANE 1
Starting: 5/22/2017

STA. 3 EB

Site Reference: 170210000543
Site ID: 000000000303
Location: BLUE HILL RIVER RD. EAST OF RTE. 138
Direction: EAST

File: V30304.prn
City: CANTON
County: VOLUME EB&WB

TIME	MON 22	TUE 23	WED 24	THU 25	FRI	WKDAY AVG	SAT	SUN	WEEK AVG	TOTAL
01:00		7	14	9		10			10	30
02:00		3	5	3		3			3	11
03:00		1	4	2		2			2	7
04:00		6	8	5		6			6	19
05:00		7	12	9		9			9	28
06:00		60	52	62		58			58	174
07:00		167	154	164		161			161	485
08:00		268	248	251		255			255	767
09:00		291	312	391		331			331	994
10:00		199	203			201			201	402
11:00		129	107			118			118	236
12:00	112	168	110			130			130	390
13:00	131	178	142			150			150	451
14:00	135	158	165			152			152	458
15:00	126	170	157			151			151	453
16:00	258	309	299			288			288	866
17:00	369	368	529			422			422	1266
18:00	418	458	443			439			439	1319
19:00	222	302	265			263			263	789
20:00	71	106	91			89			89	268
21:00	36	54	65			51			51	155
22:00	40	48	46			44			44	134
23:00	14	17	21			17			17	52
24:00	14	20	19			17			17	53
TOTALS	1946	3494	3471	896	0	3367	0	0	3367	9807
% AVG WKDY	57.7	103.7	103	26.6						
% AVG WEEK	57.7	103.7	103	26.6						
AM Times	12:00	09:00	09:00	09:00		09:00			09:00	
AM Peaks	112	291	312	391		331			331	
PM Times	18:00	18:00	17:00			18:00			18:00	
PM Peaks	418	458	529			439			439	

STA. 3 WB

Site Reference: 170210000543
Site ID: 000000000303
Location: BLUE HILL RIVER RD. EAST OF RTE. 138
Direction: WEST

File: V30304.prn
City: CANTON
County: VOLUME EB&WB

TIME	MON 22	TUE 23	WED 24	THU 25	FRI	WKDAY AVG	SAT	SUN	WEEK AVG	TOTAL
01:00		10	14	5		9			9	29
02:00		6	11	10		9			9	27
03:00		1	2	7		3			3	10
04:00		6	8	6		6			6	20
05:00		18	15	12		15			15	45
06:00		48	59	58		55			55	165
07:00		195	206	184		195			195	585
08:00		354	316	330		333			333	1000
09:00		452	420	379		417			417	1251
10:00		206	185			195			195	391
11:00		170	133			151			151	303
12:00	126	165	149			146			146	440
13:00	160	174	157			163			163	491
14:00	147	197	178			174			174	522
15:00	183	224	205			204			204	612
16:00	226	252	251			243			243	729
17:00	224	293	261			259			259	778
18:00	275	287	272			278			278	834
19:00	202	257	253			237			237	712
20:00	74	187	175			145			145	436
21:00	63	69	92			74			74	224
22:00	42	58	63			54			54	163
23:00	26	23	43			30			30	92
24:00	18	23	21			20			20	62
TOTALS	1766	3675	3489	991	0	3415	0	0	3415	9921
% AVG WKDY	51.7	107.6	102.1	29						
% AVG WEEK	51.7	107.6	102.1	29						
AM Times	12:00	09:00	09:00	09:00		09:00			09:00	
AM Peaks	126	452	420	379		417			417	
PM Times	18:00	17:00	18:00			18:00			18:00	
PM Peaks	275	293	272			278			278	

STA 4

TOTAL

Site Reference: 170210000523
Site ID: 000000000401
Location: RTE. 138 NORTH OF GREEN LODGE ST.
Direction: ROAD TOTAL

File: V40102.prn
City: CANTON
County: VOLUME NB&SB

TIME	MON 22	TUE 23	WED	THU	FRI	WKDAY AVG	SAT	SUN	WEEK AVG	TOTAL
01:00		254				254			254	254
02:00		147				147			147	147
03:00		85				85			85	85
04:00		136				136			136	136
05:00		312				312			312	312
06:00		1265				1265			1265	1265
07:00		2285				2285			2285	2285
08:00		2549				2549			2549	2549
09:00		2590				2590			2590	2590
10:00		2187				2187			2187	2187
11:00		1895				1895			1895	1895
12:00	1786	1935				1860			1860	3721
13:00	1884	2110				1997			1997	3994
14:00	1920	2047				1983			1983	3967
15:00	2210	2385				2297			2297	4595
16:00	2637	2764				2700			2700	5401
17:00	2851	2708				2779			2779	5559
18:00	2607	2710				2658			2658	5317
19:00	2523	2403				2463			2463	4926
20:00	1414	1840				1627			1627	3254
21:00	1057	1408				1232			1232	2465
22:00	795	1032				913			913	1827
23:00	621	713				667			667	1334
24:00	513	765				639			639	1278
TOTALS	22818	38525	0	0	0	37520	0	0	37520	61343
% AVG WKDY	60.8	102.6								
% AVG WEEK	60.8	102.6								
AM Times	12:00	09:00				09:00			09:00	
AM Peaks	1786	2590				2590			2590	
PM Times	17:00	16:00				17:00			17:00	
PM Peaks	2851	2764				2779			2779	
D%	60	50								
K%	12	7								

U3

COMB AWD 37520

FAC .93(.96)

COMB ADT 33,500

MassDOT Highway Division
WEEKLY SUMMARY FOR LANE 1
Starting: 5/22/2017

STA. 4 NB

Site Reference: 170210000523
Site ID: 000000000401
Location: RTE. 138 NORTH OF GREEN LODGE ST.
Direction: NORTH

File: V40102.prn
City: CANTON
County: VOLUME NB&SB

TIME	MON 22	TUE 23	WED	THU	FRI	WKDAY AVG	SAT	SUN	WEEK AVG	TOTAL
01:00		104				104			104	104
02:00		58				58			58	58
03:00		35				35			35	35
04:00		81				81			81	81
05:00		198				198			198	198
06:00		890				890			890	890
07:00		1642				1642			1642	1642
08:00		1587				1587			1587	1587
09:00		1532				1532			1532	1532
10:00		1290				1290			1290	1290
11:00		1013				1013			1013	1013
12:00	882	970				926			926	1852
13:00	933	1037				985			985	1970
14:00	940	981				960			960	1921
15:00	1085	1134				1109			1109	2219
16:00	1157	1334				1245			1245	2491
17:00	1070	1175				1122			1122	2245
18:00	1076	1093				1084			1084	2169
19:00	794	860				827			827	1654
20:00	540	752				646			646	1292
21:00	455	604				529			529	1059
22:00	356	465				410			410	821
23:00	265	308				286			286	573
24:00	217	196				206			206	413
TOTALS	9770	19339	0	0	0	18765	0	0	18765	29109
% AVG WKDY	52	103								
% AVG WEEK	52	103								
AM Times	12:00	07:00				07:00			07:00	
AM Peaks	882	1642				1642			1642	
PM Times	16:00	16:00				16:00			16:00	
PM Peaks	1157	1334				1245			1245	

STA. 4 SB

Site Reference: 170210000523
Site ID: 000000000401
Location: RTE. 138 NORTH OF GREEN LODGE ST.
Direction: SOUTH

File: V40102.prn
City: CANTON
County: VOLUME NB&SB

TIME	MON 22	TUE 23	WED	THU	FRI	WKDAY AVG	SAT	SUN	WEEK AVG	TOTAL
01:00		150				150			150	150
02:00		89				89			89	89
03:00		50				50			50	50
04:00		55				55			55	55
05:00		114				114			114	114
06:00		375				375			375	375
07:00		643				643			643	643
08:00		962				962			962	962
09:00		1058				1058			1058	1058
10:00		897				897			897	897
11:00		882				882			882	882
12:00	904	965				934			934	1869
13:00	951	1073				1012			1012	2024
14:00	980	1066				1023			1023	2046
15:00	1125	1251				1188			1188	2376
16:00	1480	1430				1455			1455	2910
17:00	1781	1533				1657			1657	3314
18:00	1531	1617				1574			1574	3148
19:00	1729	1543				1636			1636	3272
20:00	874	1088				981			981	1962
21:00	602	804				703			703	1406
22:00	439	567				503			503	1006
23:00	356	405				380			380	761
24:00	296	569				432			432	865
TOTALS	13048	19186	0	0	0	18753	0	0	18753	32234
% AVG WKDY	69.5	102.3								
% AVG WEEK	69.5	102.3								
AM Times	12:00	09:00				09:00			09:00	
AM Peaks	904	1058				1058			1058	
PM Times	17:00	18:00				17:00			17:00	
PM Peaks	1781	1617				1657			1657	

STA. 5

TOTAL

Site Reference: 170210000603
Site ID: 000000000501
Location: WASHINGTON ST. SOUTH OF HUBBARD ST.
Direction: ROAD TOTAL

File: V50102.prn
City: CANTON
County: VOLUME NB&SB

TIME	MON 22	TUE 23	WED 24	THU 25	FRI	WKDAY AVG	SAT	SUN	WEEK AVG	TOTAL
01:00		96	111	106		104			104	313
02:00		56	53	57		55			55	166
03:00		23	33	29		28			28	85
04:00		32	43	38		37			37	113
05:00		109	100	99		102			102	308
06:00		446	458	430		444			444	1334
07:00		941	965	963		956			956	2869
08:00		1112	1195	996		1101			1101	3303
09:00		1192	1082	971		1081			1081	3245
10:00		848	878			863			863	1726
11:00		717	671			694			694	1388
12:00	693	741	733			722			722	2167
13:00	650	760	787			732			732	2197
14:00	699	783	795			759			759	2277
15:00	899	966	893			919			919	2758
16:00	978	1054	1093			1041			1041	3125
17:00	1001	1066	1135			1067			1067	3202
18:00	1045	1170	1203			1139			1139	3418
19:00	891	961	942			931			931	2794
20:00	631	817	749			732			732	2197
21:00	432	595	547			524			524	1574
22:00	286	440	451			392			392	1177
23:00	204	296	326			275			275	826
24:00	159	215	238			204			204	612
TOTALS	8568	15436	15481	3689	0	14902	0	0	14902	43174
% AVG WKDY	57.4	103.5	103.8	24.7						
% AVG WEEK	57.4	103.5	103.8	24.7						
AM Times	12:00	09:00	08:00	08:00		08:00			08:00	
AM Peaks	693	1192	1195	996		1101			1101	
PM Times	18:00	18:00	18:00			18:00			18:00	
PM Peaks	1045	1170	1203			1139			1139	
D%	60	65	60	65						
K%	12	8	8	27						

U3

COMB AWD 14902

FAC .92(.93)

COMB ADT 12,800

MassDOT Highway Division
WEEKLY SUMMARY FOR LANE 1
Starting: 5/22/2017

STA. 5 NB

Site Reference: 170210000603
Site ID: 000000000501
Location: WASHINGTON ST. SOUTH OF HUBBARD ST.
Direction: NORTH

File: V50102.prn
City: CANTON
County: VOLUME NB&SB

TIME	MON 22	TUE 23	WED 24	THU 25	FRI	WKDAY AVG	SAT	SUN	WEEK AVG	TOTAL
01:00		36	28	26		30			30	90
02:00		18	21	16		18			18	55
03:00		9	16	12		12			12	37
04:00		21	24	20		21			21	65
05:00		71	66	75		70			70	212
06:00		335	333	323		330			330	991
07:00		741	741	718		733			733	2200
08:00		727	780	632		713			713	2139
09:00		780	686	613		693			693	2079
10:00		537	542			539			539	1079
11:00		412	397			404			404	809
12:00	372	396	388			385			385	1156
13:00	311	375	429			371			371	1115
14:00	339	338	358			345			345	1035
15:00	425	474	417			438			438	1316
16:00	467	508	525			500			500	1500
17:00	432	470	483			461			461	1385
18:00	419	470	509			466			466	1398
19:00	331	361	357			349			349	1049
20:00	226	312	304			280			280	842
21:00	183	239	225			215			215	647
22:00	121	185	179			161			161	485
23:00	66	120	99			95			95	285
24:00	47	40	67			51			51	154
TOTALS	3739	7975	7974	2435	0	7680	0	0	7680	22123
% AVG WKDY	48.6	103.8	103.8	31.7						
% AVG WEEK	48.6	103.8	103.8	31.7						
AM Times	12:00	09:00	08:00	07:00		07:00			07:00	
AM Peaks	372	780	780	718		733			733	
PM Times	16:00	16:00	16:00			16:00			16:00	
PM Peaks	467	508	525			500			500	

MassDOT Highway Division
WEEKLY SUMMARY FOR LANE 2
Starting: 5/22/2017

STA. 5 SB

Site Reference: 170210000603
Site ID: 000000000501
Location: WASHINGTON ST. SOUTH OF HUBBARD ST.
Direction: SOUTH

File: V50102.prn
City: CANTON
County: VOLUME NB&SB

TIME	MON 22	TUE 23	WED 24	THU 25	FRI	WKDAY AVG	SAT	SUN	WEEK AVG	TOTAL
01:00		60	83	80		74			74	223
02:00		38	32	41		37			37	111
03:00		14	17	17		16			16	48
04:00		11	19	18		16			16	48
05:00		38	34	24		32			32	96
06:00		111	125	107		114			114	343
07:00		200	224	245		223			223	669
08:00		385	415	364		388			388	1164
09:00		412	396	358		388			388	1166
10:00		311	336			323			323	647
11:00		305	274			289			289	579
12:00	321	345	345			337			337	1011
13:00	339	385	358			360			360	1082
14:00	360	445	437			414			414	1242
15:00	474	492	476			480			480	1442
16:00	511	546	568			541			541	1625
17:00	569	596	652			605			605	1817
18:00	626	700	694			673			673	2020
19:00	560	600	585			581			581	1745
20:00	405	505	445			451			451	1355
21:00	249	356	322			309			309	927
22:00	165	255	272			230			230	692
23:00	138	176	227			180			180	541
24:00	112	175	171			152			152	458
TOTALS	4829	7461	7507	1254	0	7213	0	0	7213	21051
% AVG WKDY	66.9	103.4	104	17.3						
% AVG WEEK	66.9	103.4	104	17.3						
AM Times	12:00	09:00	08:00	08:00		08:00			08:00	
AM Peaks	321	412	415	364		388			388	
PM Times	18:00	18:00	18:00			18:00			18:00	
PM Peaks	626	700	694			673			673	

STA. 6
TOTAL

Site Reference: 170210000638
Site ID: 000000000601
Location: RTE.138 NORTH OF FARM ST.
Direction: ROAD TOTAL

File: SPD6.prn
City: CANTON
County: SPEED NB&SB

TIME	MON 22	TUE 23	WED 24	THU 25	FRI	WKDAY AVG	SAT	SUN	WEEK AVG	TOTAL
01:00		167	253	204		208			208	624
02:00		93	127	89		103			103	309
03:00		68	69	71		69			69	208
04:00		100	84	96		93			93	280
05:00		194	194	202		196			196	590
06:00		814	778	814		802			802	2406
07:00		1367	1329	1365		1353			1353	4061
08:00		1457	1464	1443		1454			1454	4364
09:00		1486	1476	1544		1502			1502	4506
10:00		1366	1337			1351			1351	2703
11:00		1192	1247			1219			1219	2439
12:00	1018	1261	1265			1181			1181	3544
13:00	1247	1441	1339			1342			1342	4027
14:00	1275	1353	1397			1341			1341	4025
15:00	1382	1551	1553			1495			1495	4486
16:00	1603	1704	1726			1677			1677	5033
17:00	1634	1722	1768			1708			1708	5124
18:00	1625	1622	1709			1652			1652	4956
19:00	1404	1568	1500			1490			1490	4472
20:00	894	1167	1134			1065			1065	3195
21:00	687	851	868			802			802	2406
22:00	533	652	669			618			618	1854
23:00	418	398	480			432			432	1296
24:00	344	550	425			439			439	1319
TOTALS	14064	24144	24191	5828	0	23592	0	0	23592	68227
% AVG WKDY	59.6	102.3	102.5	24.7						
% AVG WEEK	59.6	102.3	102.5	24.7						
AM Times	12:00	09:00	09:00	09:00		09:00			09:00	
AM Peaks	1018	1486	1476	1544		1502			1502	
PM Times	17:00	17:00	17:00			17:00			17:00	
PM Peaks	1634	1722	1768			1708			1708	
D%	55	50	55	55						
K%	12	7	7	26						

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COMB AWD 23592
FAC .92
COMB ADT 21,700

MassDOT Highway Division
WEEKLY SUMMARY FOR LANE 1 Page: 1
Starting: 5/22/2017

STA. 6 NB

Site Reference: 170210000638
Site ID: 000000000601
Location: RTE.138 NORTH OF FARM ST.
Direction: NORTH

File: SPD6.prn
City: CANTON
County: SPEED NB&SB

TIME	MON 22	TUE 23	WED 24	THU 25	FRI	WKDAY AVG	SAT	SUN	WEEK AVG	TOTAL
01:00		71	83	91		81			81	245
02:00		45	58	38		47			47	141
03:00		28	31	32		30			30	91
04:00		56	47	47		50			50	150
05:00		122	112	130		121			121	364
06:00		585	546	571		567			567	1702
07:00		937	896	920		917			917	2753
08:00		826	814	829		823			823	2469
09:00		831	785	834		816			816	2450
10:00		742	735			738			738	1477
11:00		607	658			632			632	1265
12:00	515	654	644			604			604	1813
13:00	639	745	664			682			682	2048
14:00	632	678	717			675			675	2027
15:00	702	789	765			752			752	2256
16:00	736	901	861			832			832	2498
17:00	751	824	814			796			796	2389
18:00	755	799	808			787			787	2362
19:00	529	588	613			576			576	1730
20:00	351	478	498			442			442	1327
21:00	305	371	425			367			367	1101
22:00	246	318	291			285			285	855
23:00	198	184	211			197			197	593
24:00	172	161	178			170			170	511
TOTALS	6531	12340	12254	3492	0	11987	0	0	11987	34617
% AVG WKDY	54.4	102.9	102.2	29.1						
% AVG WEEK	54.4	102.9	102.2	29.1						
AM Times	12:00	07:00	07:00	07:00		07:00			07:00	
AM Peaks	515	937	896	920		917			917	
PM Times	18:00	16:00	16:00			16:00			16:00	
PM Peaks	755	901	861			832			832	

STA. 6 SB

Site Reference: 170210000638
Site ID: 000000000601
Location: RTE.138 NORTH OF FARM ST.
Direction: SOUTH

File: SPD6.prn
City: CANTON
County: SPEED NB&SB

TIME	MON 22	TUE 23	WED 24	THU 25	FRI	WKDAY AVG	SAT	SUN	WEEK AVG	TOTAL
01:00		96	170	113		126			126	379
02:00		48	69	51		56			56	168
03:00		40	38	39		39			39	117
04:00		44	37	49		43			43	130
05:00		72	82	72		75			75	226
06:00		229	232	243		234			234	704
07:00		430	433	445		436			436	1308
08:00		631	650	614		631			631	1895
09:00		655	691	710		685			685	2056
10:00		624	602			613			613	1226
11:00		585	589			587			587	1174
12:00	503	607	621			577			577	1731
13:00	608	696	675			659			659	1979
14:00	643	675	680			666			666	1998
15:00	680	762	788			743			743	2230
16:00	867	803	865			845			845	2535
17:00	883	898	954			911			911	2735
18:00	870	823	901			864			864	2594
19:00	875	980	887			914			914	2742
20:00	543	689	636			622			622	1868
21:00	382	480	443			435			435	1305
22:00	287	334	378			333			333	999
23:00	220	214	269			234			234	703
24:00	172	389	247			269			269	808
TOTALS	7533	11804	11937	2336	0	11597	0	0	11597	33610
% AVG WKDY	64.9	101.7	102.9	20.1						
% AVG WEEK	64.9	101.7	102.9	20.1						
AM Times	12:00	09:00	09:00	09:00		09:00			09:00	
AM Peaks	503	655	691	710		685			685	
PM Times	17:00	19:00	17:00			19:00			19:00	
PM Peaks	883	980	954			914			914	

STA. 7

TOTAL

Site Reference: 170210000466
Site ID: 000000070304
Location: RANDOLPH ST. WEST OF RTE. 138
Direction: ROAD TOTAL

File: V70304.prn
City: CANTON
County: VOLUME EB&WB

TIME	MON 22	TUE 23	WED 24	THU 25	FRI	WKDAY AVG	SAT	SUN	WEEK AVG	TOTAL
01:00		24	36	39		33			33	99
02:00		16	38	23		25			25	77
03:00		12	28	15		18			18	55
04:00		38	31	24		31			31	93
05:00		49	43	43		45			45	135
06:00		210	230	195		211			211	635
07:00		713	749	685		715			715	2147
08:00		1326	1282	1167		1258			1258	3775
09:00		1211	1167	1166		1181			1181	3544
10:00		757	728			742			742	1485
11:00		573	513			543			543	1086
12:00		561	613			587			587	1174
13:00	606	669	636			637			637	1911
14:00	604	650	632			628			628	1886
15:00	837	806	776			806			806	2419
16:00	1029	1067	1022			1039			1039	3118
17:00	1028	1119	1151			1099			1099	3298
18:00	1102	1118	1114			1111			1111	3334
19:00	812	905	824			847			847	2541
20:00	445	629	580			551			551	1654
21:00	366	443	431			413			413	1240
22:00	265	293	304			287			287	862
23:00	113	133	124			123			123	370
24:00	110	113	111			111			111	334
TOTALS	7317	13435	13163	3357	0	13041	0	0	13041	37272
% AVG WKDY	56.1	103	100.9	25.7						
% AVG WEEK	56.1	103	100.9	25.7						
AM Times		08:00	08:00	08:00		08:00			08:00	
AM Peaks		1326	1282	1167		1258			1258	
PM Times	18:00	17:00	17:00			18:00			18:00	
PM Peaks	1102	1119	1151			1111			1111	
D%	55	60	55	55						
K%	15	10	10	35						

US

COMB AWD 13041

FAC .92

COMB ADT 12,000

MassDOT Highway Division
WEEKLY SUMMARY FOR LANE 1
Starting: 5/22/2017

STA. 7 EB

Site Reference: 170210000466
Site ID: 000000070304
Location: RANDOLPH ST. WEST OF RTE. 138
Direction: EAST

File: V70304.prn
City: CANTON
County: VOLUME EB&WB

TIME	MON 22	TUE 23	WED 24	THU 25	FRI	WKDAY AVG	SAT	SUN	WEEK AVG	TOTAL
01:00		13	23	24		20			20	60
02:00		10	15	16		13			13	41
03:00		7	12	7		8			8	26
04:00		16	14	10		13			13	40
05:00		24	22	22		22			22	68
06:00		100	109	99		102			102	308
07:00		301	297	295		297			297	893
08:00		558	589	520		555			555	1667
09:00		633	588	647		622			622	1868
10:00		434	416			425			425	850
11:00		280	270			275			275	550
12:00		290	298			294			294	588
13:00	319	350	293			320			320	962
14:00	301	348	366			338			338	1015
15:00	404	408	396			402			402	1208
16:00	605	611	619			611			611	1835
17:00	592	633	684			636			636	1909
18:00	596	624	665			628			628	1885
19:00	433	494	438			455			455	1365
20:00	217	294	322			277			277	833
21:00	210	253	197			220			220	660
22:00	148	151	166			155			155	465
23:00	51	60	51			54			54	162
24:00	53	53	51			52			52	157
TOTALS	3929	6945	6901	1640	0	6794	0	0	6794	19415
% AVG WKDY	57.8	102.2	101.5	24.1						
% AVG WEEK	57.8	102.2	101.5	24.1						
AM Times		09:00	08:00	09:00		09:00			09:00	
AM Peaks		633	589	647		622			622	
PM Times	16:00	17:00	17:00			17:00			17:00	
PM Peaks	605	633	684			636			636	

STA. 7 WB

Site Reference: 170210000466
Site ID: 000000070304
Location: RANDOLPH ST. WEST OF RTE. 138
Direction: WEST

File: V70304.prn
City: CANTON
County: VOLUME EB&WB

TIME	MON 22	TUE 23	WED 24	THU 25	FRI	WKDAY AVG	SAT	SUN	WEEK AVG	TOTAL
01:00		11	13	15		13			13	39
02:00		6	23	7		12			12	36
03:00		5	16	8		9			9	29
04:00		22	17	14		17			17	53
05:00		25	21	21		22			22	67
06:00		110	121	96		109			109	327
07:00		412	452	390		418			418	1254
08:00		768	693	647		702			702	2108
09:00		578	579	519		558			558	1676
10:00		323	312			317			317	635
11:00		293	243			268			268	536
12:00		271	315			293			293	586
13:00	287	319	343			316			316	949
14:00	303	302	266			290			290	871
15:00	433	398	380			403			403	1211
16:00	424	456	403			427			427	1283
17:00	436	486	467			463			463	1389
18:00	506	494	449			483			483	1449
19:00	379	411	386			392			392	1176
20:00	228	335	258			273			273	821
21:00	156	190	234			193			193	580
22:00	117	142	138			132			132	397
23:00	62	73	73			69			69	208
24:00	57	60	60			59			59	177
TOTALS	3388	6490	6262	1717	0	6238	0	0	6238	17857
% AVG WKDY	54.3	104	100.3	27.5						
% AVG WEEK	54.3	104	100.3	27.5						
AM Times		08:00	08:00	08:00		08:00			08:00	
AM Peaks		768	693	647		702			702	
PM Times	18:00	18:00	17:00			18:00			18:00	
PM Peaks	506	494	467			483			483	

STA 8
TOTAL

Site Reference: 170210000595
Site ID: 000000000803
Location: RANDOLPH ST. EAST OF RT.138
Direction: ROAD TOTAL

File: V80304.prn
City: CANTON
County: VOLUME EB&WB

TIME	MON 22	TUE 23	WED 24	THU 25	FRI	WKDAY AVG	SAT	SUN	WEEK AVG	TOTAL
01:00		69	73	77		73			73	219
02:00		35	40	34		36			36	109
03:00		19	26	23		22			22	68
04:00		27	20	23		23			23	70
05:00		50	59	53		54			54	162
06:00		258	293	263		271			271	814
07:00		836	857	813		835			835	2506
08:00		1476	1451	1324		1417			1417	4251
09:00		1177	1490	1194		1287			1287	3861
10:00		800	824	786		803			803	2410
11:00		610	695			652			652	1305
12:00		707	943			825			825	1650
13:00	639	735	945			773			773	2319
14:00	705	790	1106			867			867	2601
15:00	929	1017	1509			1151			1151	3455
16:00	1228	1321	1878			1475			1475	4427
17:00	1309	1381	2589			1759			1759	5279
18:00	1472	1560	2760			1930			1930	5792
19:00	1080	1353	1368			1267			1267	3801
20:00	622	823	817			754			754	2262
21:00	438	535	608			527			527	1581
22:00	331	402	479			404			404	1212
23:00	234	218	280			244			244	732
24:00	147	179	228			184			184	554
TOTALS	9134	16378	21338	4590	0	17633	0	0	17633	51440
% AVG WKDY	51.8	92.8	121	26						
% AVG WEEK	51.8	92.8	121	26						
AM Times		08:00	09:00	08:00		08:00			08:00	
AM Peaks		1476	1490	1324		1417			1417	
PM Times	18:00	18:00	18:00			18:00			18:00	
PM Peaks	1472	1560	2760			1930			1930	
D%	65	65	50	60						
K%	16	10	13	29						

US

COMB AWD 17633

FAC .92(.93)

COMB ADT 15,100

MassDOT Highway Division
WEEKLY SUMMARY FOR LANE 1
Starting: 5/22/2017

STA 8 EB

Site Reference: 170210000595
Site ID: 000000000803
Location: RANDOLPH ST. EAST OF RT.138
Direction: EAST

File: V80304.prn
City: CANTON
County: VOLUME EB&WB

TIME	MON 22	TUE 23	WED 24	THU 25	FRI	WKDAY AVG	SAT	SUN	WEEK AVG	TOTAL
01:00		43	52	53		49			49	148
02:00		22	26	26		24			24	74
03:00		12	12	13		12			12	37
04:00		9	5	10		8			8	24
05:00		16	23	19		19			19	58
06:00		66	81	77		74			74	224
07:00		266	266	266		266			266	798
08:00		590	608	528		575			575	1726
09:00		425	542	458		475			475	1425
10:00		356	350	344		350			350	1050
11:00		305	320			312			312	625
12:00		358	404			381			381	762
13:00	322	348	477			382			382	1147
14:00	342	401	497			413			413	1240
15:00	450	501	693			548			548	1644
16:00	733	765	881			793			793	2379
17:00	851	892	1273			1005			1005	3016
18:00	967	1000	1350			1105			1105	3317
19:00	679	837	821			779			779	2337
20:00	391	463	467			440			440	1321
21:00	253	339	323			305			305	915
22:00	217	235	275			242			242	727
23:00	138	136	146			140			140	420
24:00	98	118	112			109			109	328
TOTALS	5441	8503	10004	1794	0	8806	0	0	8806	25742
% AVG WKDY	61.7	96.5	113.6	20.3						
% AVG WEEK	61.7	96.5	113.6	20.3						
AM Times		08:00	08:00	08:00		08:00			08:00	
AM Peaks		590	608	528		575			575	
PM Times	18:00	18:00	18:00			18:00			18:00	
PM Peaks	967	1000	1350			1105			1105	

STA. 8WB

Site Reference: 170210000595
Site ID: 000000000803
Location: RANDOLPH ST. EAST OF RT.138
Direction: WEST

File: V80304.prn
City: CANTON
County: VOLUME EB&WB

TIME	MON 22	TUE 23	WED 24	THU 25	FRI	WKDAY AVG	SAT	SUN	WEEK AVG	TOTAL
01:00		26	21	24		23			23	71
02:00		13	14	8		11			11	35
03:00		7	14	10		10			10	31
04:00		18	15	13		15			15	46
05:00		34	36	34		34			34	104
06:00		192	212	186		196			196	590
07:00		570	591	547		569			569	1708
08:00		886	843	796		841			841	2525
09:00		752	948	736		812			812	2436
10:00		444	474	442		453			453	1360
11:00		305	375			340			340	680
12:00		349	539			444			444	888
13:00	317	387	468			390			390	1172
14:00	363	389	609			453			453	1361
15:00	479	516	816			603			603	1811
16:00	495	556	997			682			682	2048
17:00	458	489	1316			754			754	2263
18:00	505	560	1410			825			825	2475
19:00	401	516	547			488			488	1464
20:00	231	360	350			313			313	941
21:00	185	196	285			222			222	666
22:00	114	167	204			161			161	485
23:00	96	82	134			104			104	312
24:00	49	61	116			75			75	226
TOTALS	3693	7875	11334	2796	0	8818	0	0	8818	25698
% AVG WKDY	41.8	89.3	128.5	31.7						
% AVG WEEK	41.8	89.3	128.5	31.7						
AM Times		08:00	09:00	08:00		08:00			08:00	
AM Peaks		886	948	796		841			841	
PM Times	18:00	18:00	18:00			18:00			18:00	
PM Peaks	505	560	1410			825			825	

STA. 9
TOTAL

Site Reference: 170210000583
Site ID: 000000000901
Location: RT.138 SOUTH OF DEL POND DR.
Direction: ROAD TOTAL

File: SPD9.prn
City: CANTON
County: SPEED NB&SB

TIME	MON 22	TUE 23	WED 24	THU 25	FRI	WKDAY AVG	SAT	SUN	WEEK AVG	TOTAL
01:00		160	258	202		206			206	620
02:00		93	107	95		98			98	295
03:00		84	92	80		85			85	256
04:00		116	85	107		102			102	308
05:00		207	207	219		211			211	633
06:00		796	773	797		788			788	2366
07:00		1452	1553	1469		1491			1491	4474
08:00		1737	1706	1606		1683			1683	5049
09:00		1764	1667	1637		1689			1689	5068
10:00		1473	1443			1458			1458	2916
11:00		1292	1283			1287			1287	2575
12:00		1317	1339			1328			1328	2656
13:00	1475	1563	1528			1522			1522	4566
14:00	1404	1520	1514			1479			1479	4438
15:00	1469	1550	1557			1525			1525	4576
16:00	1638	1731	1738			1702			1702	5107
17:00	1776	1815	1783			1791			1791	5374
18:00	1695	1800	1844			1779			1779	5339
19:00	1333	1469	1491			1431			1431	4293
20:00	849	1157	1070			1025			1025	3076
21:00	693	830	837			786			786	2360
22:00	521	637	665			607			607	1823
23:00	383	398	423			401			401	1204
24:00	355	514	387			418			418	1256
TOTALS	13591	25475	25350	6212	0	24892	0	0	24892	70628
% AVG WKDY	54.5	102.3	101.8	24.9						
% AVG WEEK	54.5	102.3	101.8	24.9						
AM Times		09:00	08:00	09:00		09:00			09:00	
AM Peaks		1764	1706	1637		1689			1689	
PM Times	17:00	17:00	18:00			17:00			17:00	
PM Peaks	1776	1815	1844			1791			1791	
D%	50	50	50	50						
K%	13	7	7	26						

U3

COMB AWD 24892
FAC .92
COMB ADT 22,900

MassDOT Highway Division
WEEKLY SUMMARY FOR LANE 1 Page: 1
Starting: 5/22/2017

STA. 9 NB

Site Reference: 170210000583
Site ID: 000000000901
Location: RT.138 SOUTH OF DEL POND DR.
Direction: NORTH

File: SPD9.prn
City: CANTON
County: SPEED NB&SB

TIME	MON 22	TUE 23	WED 24	THU 25	FRI	WKDAY AVG	SAT	SUN	WEEK AVG	TOTAL
01:00		72	89	88		83			83	249
02:00		44	53	43		46			46	140
03:00		36	43	41		40			40	120
04:00		65	51	59		58			58	175
05:00		127	125	143		131			131	395
06:00		560	536	540		545			545	1636
07:00		981	1063	972		1005			1005	3016
08:00		1055	985	921		987			987	2961
09:00		905	892	842		879			879	2639
10:00		737	735			736			736	1472
11:00		641	653			647			647	1294
12:00		686	702			694			694	1388
13:00	730	799	786			771			771	2315
14:00	707	723	740			723			723	2170
15:00	737	798	737			757			757	2272
16:00	791	880	875			848			848	2546
17:00	859	950	895			901			901	2704
18:00	858	871	913			880			880	2642
19:00	552	596	647			598			598	1795
20:00	367	497	489			451			451	1353
21:00	299	383	409			363			363	1091
22:00	249	317	316			294			294	882
23:00	215	205	223			214			214	643
24:00	179	156	162			165			165	497
TOTALS	6543	13084	13119	3649	0	12816	0	0	12816	36395
% AVG WKDY	51	102	102.3	28.4						
% AVG WEEK	51	102	102.3	28.4						
AM Times		08:00	07:00	07:00		07:00			07:00	
AM Peaks		1055	1063	972		1005			1005	
PM Times	17:00	17:00	18:00			17:00			17:00	
PM Peaks	859	950	913			901			901	

MassDOT Highway Division
WEEKLY SUMMARY FOR LANE 2
Starting: 5/22/2017

STA. 9 SB

Site Reference: 170210000583
Site ID: 000000000901
Location: RT.138 SOUTH OF DEL POND DR.
Direction: SOUTH

File: SPD9.prn
City: CANTON
County: SPEED NB&SB

TIME	MON 22	TUE 23	WED 24	THU 25	FRI	WKDAY AVG	SAT	SUN	WEEK AVG	TOTAL
01:00		88	169	114		123			123	371
02:00		49	54	52		51			51	155
03:00		48	49	39		45			45	136
04:00		51	34	48		44			44	133
05:00		80	82	76		79			79	238
06:00		236	237	257		243			243	730
07:00		471	490	497		486			486	1458
08:00		682	721	685		696			696	2088
09:00		859	775	795		809			809	2429
10:00		736	708			722			722	1444
11:00		651	630			640			640	1281
12:00		631	637			634			634	1268
13:00	745	764	742			750			750	2251
14:00	697	797	774			756			756	2268
15:00	732	752	820			768			768	2304
16:00	847	851	863			853			853	2561
17:00	917	865	888			890			890	2670
18:00	837	929	931			899			899	2697
19:00	781	873	844			832			832	2498
20:00	482	660	581			574			574	1723
21:00	394	447	428			423			423	1269
22:00	272	320	349			313			313	941
23:00	168	193	200			187			187	561
24:00	176	358	225			253			253	759
TOTALS	7048	12391	12231	2563	0	12070	0	0	12070	34233
% AVG WKDY	58.3	102.6	101.3	21.2						
% AVG WEEK	58.3	102.6	101.3	21.2						
AM Times		09:00	09:00	09:00		09:00			09:00	
AM Peaks		859	775	795		809			809	
PM Times	17:00	18:00	18:00			18:00			18:00	
PM Peaks	917	929	931			899			899	

STA. 10
TOTAL

Site Reference: 170210000819
Site ID: 000000001003
Location: DAN RD. WEST OF RTE. 138
Direction: ROAD TOTAL

File: V100304.prn
City: CANTON
County: VOLUME EB&WB

TIME	MON 22	TUE 23	WED 24	THU 25	FRI	WKDAY AVG	SAT	SUN	WEEK AVG	TOTAL
01:00		39	49	47		45			45	135
02:00		26	10	14		16			16	50
03:00		12	2	13		9			9	27
04:00		12	23	10		15			15	45
05:00		39	38	56		44			44	133
06:00		156	167	158		160			160	481
07:00		271	315	307		297			297	893
08:00		386	408	383		392			392	1177
09:00		451	416	404		423			423	1271
10:00		291	336	254		293			293	881
11:00		238	222			230			230	460
12:00		328	277			302			302	605
13:00	391	394	390			391			391	1175
14:00	347	383	335			355			355	1065
15:00	303	307	301			303			303	911
16:00	449	483	446			459			459	1378
17:00	500	542	508			516			516	1550
18:00	383	413	397			397			397	1193
19:00	187	186	209			194			194	582
20:00	84	86	70			80			80	240
21:00	39	61	56			52			52	156
22:00	30	34	46			36			36	110
23:00	56	38	55			49			49	149
24:00	52	42	44			46			46	138
TOTALS	2821	5218	5120	1646	0	5104	0	0	5104	14805
% AVG WKDY	55.2	102.2	100.3	32.2						
% AVG WEEK	55.2	102.2	100.3	32.2						
AM Times		09:00	09:00	09:00		09:00			09:00	
AM Peaks		451	416	404		423			423	
PM Times	17:00	17:00	17:00			17:00			17:00	
PM Peaks	500	542	508			516			516	
D%	80	75	80	85						
K%	18	10	10	25						

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COMB AWD 5104
FAC .92(.93)
COMB ADT 4,400

MassDOT Highway Division
WEEKLY SUMMARY FOR LANE 1 Page: 1
Starting: 5/22/2017

STA. 10 EB

Site Reference: 170210000819
Site ID: 000000001003
Location: DAN RD. WEST OF RTE. 138
Direction: EAST

File: V100304.prn
City: CANTON
County: VOLUME EB&WB

TIME	MON 22	TUE 23	WED 24	THU 25	FRI	WKDAY AVG	SAT	SUN	WEEK AVG	TOTAL
01:00		38	49	38		41			41	125
02:00		15	4	12		10			10	31
03:00		7	2	8		5			5	17
04:00		7	12	6		8			8	25
05:00		13	11	26		16			16	50
06:00		32	41	34		35			35	107
07:00		47	61	48		52			52	156
08:00		59	70	51		60			60	180
09:00		64	73	57		64			64	194
10:00		62	83	67		70			70	212
11:00		104	99			101			101	203
12:00		180	150			165			165	330
13:00	210	201	192			201			201	603
14:00	144	170	155			156			156	469
15:00	166	175	161			167			167	502
16:00	341	365	336			347			347	1042
17:00	401	419	406			408			408	1226
18:00	307	325	312			314			314	944
19:00	147	138	156			147			147	441
20:00	57	53	50			53			53	160
21:00	31	39	33			34			34	103
22:00	15	23	24			20			20	62
23:00	40	24	40			34			34	104
24:00	32	24	21			25			25	77
TOTALS	1891	2584	2541	347	0	2533	0	0	2533	7363
% AVG WKDY	74.6	102	100.3	13.6						
% AVG WEEK	74.6	102	100.3	13.6						
AM Times		12:00	12:00	10:00		12:00			12:00	
AM Peaks		180	150	67		165			165	
PM Times	17:00	17:00	17:00			17:00			17:00	
PM Peaks	401	419	406			408			408	

MassDOT Highway Division
WEEKLY SUMMARY FOR LANE 2
Starting: 5/22/2017

STA. 10 WB

Site Reference: 170210000819
Site ID: 000000001003
Location: DAN RD. WEST OF RTE. 138
Direction: WEST

File: V100304.prn
City: CANTON
County: VOLUME EB&WB

TIME	MON 22	TUE 23	WED 24	THU 25	FRI	WKDAY AVG	SAT	SUN	WEEK AVG	TOTAL
01:00		1	0	9		3			3	10
02:00		11	6	2		6			6	19
03:00		5	0	5		3			3	10
04:00		5	11	4		6			6	20
05:00		26	27	30		27			27	83
06:00		124	126	124		124			124	374
07:00		224	254	259		245			245	737
08:00		327	338	332		332			332	997
09:00		387	343	347		359			359	1077
10:00		229	253	187		223			223	669
11:00		134	123			128			128	257
12:00		148	127			137			137	275
13:00	181	193	198			190			190	572
14:00	203	213	180			198			198	596
15:00	137	132	140			136			136	409
16:00	108	118	110			112			112	336
17:00	99	123	102			108			108	324
18:00	76	88	85			83			83	249
19:00	40	48	53			47			47	141
20:00	27	33	20			26			26	80
21:00	8	22	23			17			17	53
22:00	15	11	22			16			16	48
23:00	16	14	15			15			15	45
24:00	20	18	23			20			20	61
TOTALS	930	2634	2579	1299	0	2561	0	0	2561	7442
% AVG WKDY	36.3	102.8	100.7	50.7						
% AVG WEEK	36.3	102.8	100.7	50.7						
AM Times		09:00	09:00	09:00		09:00			09:00	
AM Peaks		387	343	347		359			359	
PM Times	14:00	14:00	13:00			14:00			14:00	
PM Peaks	203	213	198			198			198	

MassDOT Highway Division
WEEKLY SUMMARY FOR LANE
Starting: 5/22/2017

STA. 11

TOTAL

Site Reference: 170210000643
Site ID: 000000110304
Location: NEW BOSTON DR. WEST OF RTE. 138
Direction: ROAD TOTAL

File: V11.prn
City: CANTON
County: VOLUME EB&WB

TIME	MON 22	TUE 23	WED 24	THU 25	FRI	WKDAY AVG	SAT	SUN	WEEK AVG	TOTAL
01:00		2	0	6		2			2	8
02:00		12	12	7		10			10	31
03:00		2	5	3		3			3	10
04:00		12	5	7		8			8	24
05:00		15	22	16		17			17	53
06:00		58	78	68		68			68	204
07:00		198	192	252		214			214	642
08:00		273	300	350		307			307	923
09:00		288	281	283		284			284	852
10:00		127	122	159		136			136	408
11:00		72	87			79			79	159
12:00		134	119			126			126	253
13:00	249	217	264			243			243	730
14:00	167	176	208			183			183	551
15:00	127	149	159			145			145	435
16:00	153	186	161			166			166	500
17:00	219	258	252			243			243	729
18:00	203	294	250			249			249	747
19:00	92	147	131			123			123	370
20:00	59	78	102			79			79	239
21:00	35	78	41			51			51	154
22:00	24	44	36			34			34	104
23:00	14	19	30			21			21	63
24:00	17	16	7			13			13	40
TOTALS	1359	2855	2864	1151	0	2804	0	0	2804	8229
% AVG WKDY	48.4	101.8	102.1	41						
% AVG WEEK	48.4	101.8	102.1	41						
AM Times		09:00	08:00	08:00		08:00			08:00	
AM Peaks		288	300	350		307			307	
PM Times	13:00	18:00	13:00			18:00			18:00	
PM Peaks	249	294	264			249			249	
D%	50	70	90	90						
K%	18	10	10	30						

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COMB AWD 2804

FAC .92(.93)

COMB AWD 2,400

MassDOT Highway Division
WEEKLY SUMMARY FOR LANE 1 Page: 1
Starting: 5/22/2017

STA. 11 EB

Site Reference: 170210000643
Site ID: 000000110304
Location: NEW BOSTON DR. WEST OF RTE. 138
Direction: EAST

File: V11.prn
City: CANTON
County: VOLUME EB&WB

TIME	MON 22	TUE 23	WED 24	THU 25	FRI	WKDAY AVG	SAT	SUN	WEEK AVG	TOTAL
01:00		1	0	6		2			2	7
02:00		11	11	6		9			9	28
03:00		1	3	2		2			2	6
04:00		8	2	2		4			4	12
05:00		1	5	1		2			2	7
06:00		9	11	7		9			9	27
07:00		20	27	28		25			25	75
08:00		28	34	34		32			32	96
09:00		21	13	33		22			22	67
10:00		22	25	53		33			33	100
11:00		23	30			26			26	53
12:00		67	59			63			63	126
13:00	122	90	118			110			110	330
14:00	62	81	99			80			80	242
15:00	63	75	69			69			69	207
16:00	109	137	114			120			120	360
17:00	168	181	197			182			182	546
18:00	175	204	189			189			189	568
19:00	63	87	79			76			76	229
20:00	28	41	56			41			41	125
21:00	23	52	27			34			34	102
22:00	18	43	19			26			26	80
23:00	10	12	18			13			13	40
24:00	16	13	5			11			11	34
TOTALS	857	1228	1210	172	0	1180	0	0	1180	3467
% AVG WKDY	72.6	104	102.5	14.5						
% AVG WEEK	72.6	104	102.5	14.5						
AM Times		12:00	12:00	10:00		12:00			12:00	
AM Peaks		67	59	53		63			63	
PM Times	18:00	18:00	17:00			18:00			18:00	
PM Peaks	175	204	197			189			189	

STA. 11 WB

Site Reference: 170210000643
Site ID: 000000110304
Location: NEW BOSTON DR. WEST OF RTE. 138
Direction: WEST

File: V11.prn
City: CANTON
County: VOLUME EB&WB

TIME	MON 22	TUE 23	WED 24	THU 25	FRI	WKDAY AVG	SAT	SUN	WEEK AVG	TOTAL
01:00		1	0	0		0			0	1
02:00		1	1	1		1			1	3
03:00		1	2	1		1			1	4
04:00		4	3	5		4			4	12
05:00		14	17	15		15			15	46
06:00		49	67	61		59			59	177
07:00		178	165	224		189			189	567
08:00		245	266	316		275			275	827
09:00		267	268	250		261			261	785
10:00		105	97	106		102			102	308
11:00		49	57			53			53	106
12:00		67	60			63			63	127
13:00	127	127	146			133			133	400
14:00	105	95	109			103			103	309
15:00	64	74	90			76			76	228
16:00	44	49	47			46			46	140
17:00	51	77	55			61			61	183
18:00	28	90	61			59			59	179
19:00	29	60	52			47			47	141
20:00	31	37	46			38			38	114
21:00	12	26	14			17			17	52
22:00	6	1	17			8			8	24
23:00	4	7	12			7			7	23
24:00	1	3	2			2			2	6
TOTALS	502	1627	1654	979	0	1620	0	0	1620	4762
% AVG WKDY	30.9	100.4	102	60.4						
% AVG WEEK	30.9	100.4	102	60.4						
AM Times		09:00	09:00	08:00		08:00			08:00	
AM Peaks		267	268	316		275			275	
PM Times	13:00	13:00	13:00			13:00			13:00	
PM Peaks	127	127	146			133			133	

MassDOT Highway Division
WEEKLY SUMMARY FOR LANE
Starting: 5/22/2017

STA. 12

TOTAL

Site Reference: 170210000654
Site ID: 000000001201
Location: RTE. 138 SOUTH OF NEW BOSTON DR.
Direction: ROAD TOTAL

File: SPD12.prn
City: CANTON
County: SPEED NB&SB

TIME	MON 22	TUE 23	WED 24	THU 25	FRI	WKDAY AVG	SAT	SUN	WEEK AVG	TOTAL
01:00		157	230	170		185			185	557
02:00		76	122	97		98			98	295
03:00		89	86	70		81			81	245
04:00		101	87	100		96			96	288
05:00		184	181	199		188			188	564
06:00		684	667	677		676			676	2028
07:00		1354	1436	1415		1401			1401	4205
08:00		1650	1624	1570		1614			1614	4844
09:00		1670	1635	1523		1609			1609	4828
10:00		1239	1180	1232		1217			1217	3651
11:00		961	1091			1026			1026	2052
12:00		1186	1215			1200			1200	2401
13:00	1417	1491	1507			1471			1471	4415
14:00	1307	1405	1425			1379			1379	4137
15:00	1337	1452	1382			1390			1390	4171
16:00	1563	1638	1550			1583			1583	4751
17:00	1703	1737	1721			1720			1720	5161
18:00	1642	1742	1654			1679			1679	5038
19:00	1239	1371	1299			1303			1303	3909
20:00	809	1069	972			950			950	2850
21:00	635	774	792			733			733	2201
22:00	493	600	612			568			568	1705
23:00	354	367	393			371			371	1114
24:00	311	492	356			386			386	1159
TOTALS	12810	23489	23217	7053	0	22924	0	0	22924	66569
% AVG WKDY	55.8	102.4	101.2	30.7						
% AVG WEEK	55.8	102.4	101.2	30.7						
AM Times		09:00	09:00	08:00		08:00			08:00	
AM Peaks		1670	1635	1570		1614			1614	
PM Times	17:00	18:00	17:00			17:00			17:00	
PM Peaks	1703	1742	1721			1720			1720	
D%	70	70	70	80						
K%	13	7	7	22						

U3

COMB AWD 22924

FAC .92

COMB ADT 21,100

MassDOT Highway Division
WEEKLY SUMMARY FOR LANE 1 Page: 1
Starting: 5/22/2017

STA. 12 NB

Site Reference: 170210000654 File: SPD12.prn
Site ID: 000000001201 City: CANTON
Location: RTE. 138 SOUTH OF NEW BOSTON DR. County: SPEED NB&SB
Direction: NORTH

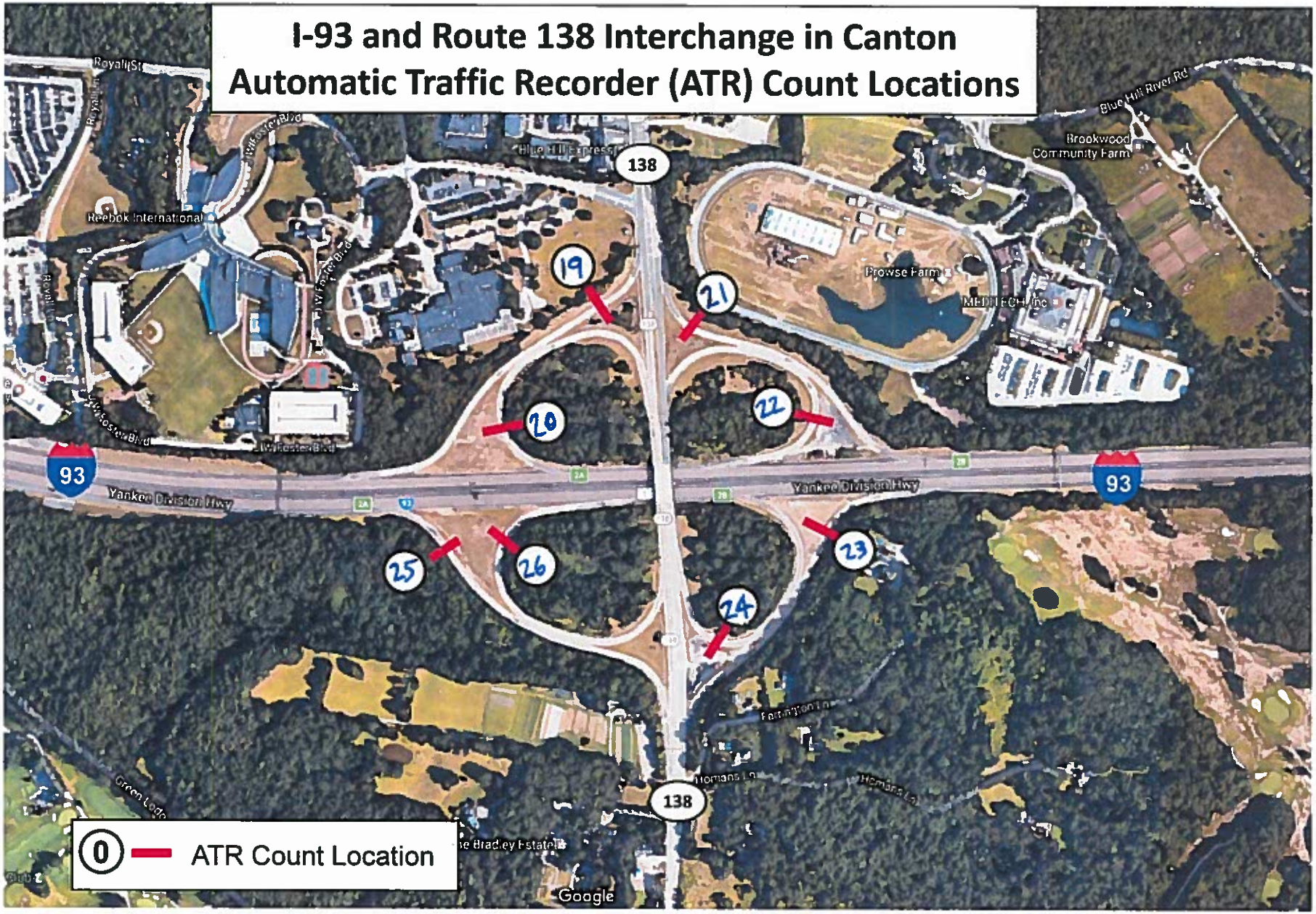
TIME	MON 22	TUE 23	WED 24	THU 25	FRI	WKDAY AVG	SAT	SUN	WEEK AVG	TOTAL
01:00		57	49	56		54			54	162
02:00		29	59	43		43			43	131
03:00		44	47	44		45			45	135
04:00		58	48	57		54			54	163
05:00		136	143	147		142			142	426
06:00		604	586	592		594			594	1782
07:00		1175	1240	1212		1209			1209	3627
08:00		1350	1324	1281		1318			1318	3955
09:00		1303	1276	1169		1249			1249	3748
10:00		770	754	772		765			765	2296
11:00		517	582			549			549	1099
12:00		576	601			588			588	1177
13:00	677	762	748			729			729	2187
14:00	651	657	694			667			667	2002
15:00	614	676	617			635			635	1907
16:00	534	585	544			554			554	1663
17:00	501	546	502			516			516	1549
18:00	473	534	511			506			506	1518
19:00	387	449	430			422			422	1266
20:00	329	390	394			371			371	1113
21:00	246	335	350			310			310	931
22:00	211	247	243			233			233	701
23:00	169	172	184			175			175	525
24:00	124	127	134			128			128	385
TOTALS	4916	12099	12060	5373	0	11856	0	0	11856	34448
% AVG WKDY	41.4	102	101.7	45.3						
% AVG WEEK	41.4	102	101.7	45.3						
AM Times		08:00	08:00	08:00		08:00			08:00	
AM Peaks		1350	1324	1281		1318			1318	
PM Times	13:00	13:00	13:00			13:00			13:00	
PM Peaks	677	762	748			729			729	

STA. 125 B

Site Reference: 170210000654
Site ID: 000000001201
Location: RTE. 138 SOUTH OF NEW BOSTON DR.
Direction: SOUTH

File: SPD12.prn
City: CANTON
County: SPEED NB&SB

TIME	MON 22	TUE 23	WED 24	THU 25	FRI	WKDAY AVG	SAT	SUN	WEEK AVG	TOTAL
01:00		100	181	114		131			131	395
02:00		47	63	54		54			54	164
03:00		45	39	26		36			36	110
04:00		43	39	43		41			41	125
05:00		48	38	52		46			46	138
06:00		80	81	85		82			82	246
07:00		179	196	203		192			192	578
08:00		300	300	289		296			296	889
09:00		367	359	354		360			360	1080
10:00		469	426	460		451			451	1355
11:00		444	509			476			476	953
12:00		610	614			612			612	1224
13:00	740	729	759			742			742	2228
14:00	656	748	731			711			711	2135
15:00	723	776	765			754			754	2264
16:00	1029	1053	1006			1029			1029	3088
17:00	1202	1191	1219			1204			1204	3612
18:00	1169	1208	1143			1173			1173	3520
19:00	852	922	869			881			881	2643
20:00	480	679	578			579			579	1737
21:00	389	439	442			423			423	1270
22:00	282	353	369			334			334	1004
23:00	185	195	209			196			196	589
24:00	187	365	222			258			258	774
TOTALS	7894	11390	11157	1680	0	11061	0	0	11061	32121
% AVG WKDY	71.3	102.9	100.8	15.1						
% AVG WEEK	71.3	102.9	100.8	15.1						
AM Times		12:00	12:00	10:00		12:00			12:00	
AM Peaks		610	614	460		612			612	
PM Times	17:00	18:00	17:00			17:00			17:00	
PM Peaks	1202	1208	1219			1204			1204	


I-93 and Route 138 Interchange in Canton
Automatic Traffic Recorder (ATR) Count Locations
138
19
21
20
22
93
Yankee Division Hwy
25
26
23
24
138
Reebok International
Brookwood Community Farm
Prowse Farm
Blue Hill River Rd
Google
0 ATR Count Location

MassDOT Highway Division
WEEKLY SUMMARY FOR LANE 1 Page: 1
Starting: 6/12/2017

STA. 19

Site Reference: 170100000466
Site ID: 000000012030
Location: ROUTE 138 SOUTH TO I-93 S
Direction: NORTH

File: R12030.prn
City: CANTON
County: VOLUME-RAMP

TIME	MON 12	TUE 13	WED 14	THU	FRI	WKDAY AVG	SAT	SUN	WEEK AVG	TOTAL
01:00		53	59			56			56	112
02:00		37	27			32			32	64
03:00		26	21			23			23	47
04:00		23	33			28			28	56
05:00		60	61			60			60	121
06:00		218	202			210			210	420
07:00		324	383			353			353	707
08:00		530	467			498			498	997
09:00		485	463			474			474	948
10:00		428	425			426			426	853
11:00		340	370			355			355	710
12:00	385	369	417			390			390	1171
13:00	456	453	494			467			467	1403
14:00	452	432	494			459			459	1378
15:00	544	523	526			531			531	1593
16:00	577	672	688			645			645	1937
17:00	723	700	697			706			706	2120
18:00	787	745	763			765			765	2295
19:00	621	564	609			598			598	1794
20:00	373	387				380			380	760
21:00	244	245				244			244	489
22:00	174	225				199			199	399
23:00	140	165				152			152	305
24:00	105	117				111			111	222
TOTALS	5581	8121	7199	0	0	8162	0	0	8162	20901
% AVG WKDY	68.3	99.4	88.2							
% AVG WEEK	68.3	99.4	88.2							
AM Times	12:00	08:00	08:00			08:00			08:00	
AM Peaks	385	530	467			498			498	
PM Times	18:00	18:00	18:00			18:00			18:00	
PM Peaks	787	745	763			765			765	

MassDOT Highway Division
WEEKLY SUMMARY FOR LANE 1 Page: 1
Starting: 6/12/2017

STA. 20

Site Reference: 170170000876 File: R12029.prn
Site ID: 000000012029 City: CANTON
Location: 93 S EXIT 2A TO RTE.138 S.STOUGHTON County: VOLUME-RAMP
Direction: NORTH

TIME	MON 12	TUE 13	WED 14	THU	FRI	WKDAY AVG	SAT	SUN	WEEK AVG	TOTAL
01:00		64	57			60			60	121
02:00		32	38			35			35	70
03:00		22	17			19			19	39
04:00		18	24			21			21	42
05:00		52	56			54			54	108
06:00		146	153			149			149	299
07:00		214	244			229			229	458
08:00		259	294			276			276	553
09:00		273	265			269			269	538
10:00		265	268			266			266	533
11:00		258	254			256			256	512
12:00	234	286	272			264			264	792
13:00	259	312	273			281			281	844
14:00	258	302	266			275			275	826
15:00	302	190	285			259			259	777
16:00	277	249	244			256			256	770
17:00	260	263	245			256			256	768
18:00	276	310	310			298			298	896
19:00	258	348	292			299			299	898
20:00	230	261				245			245	491
21:00	260	213				236			236	473
22:00	151	159				155			155	310
23:00	144	137				140			140	281
24:00	101	113				107			107	214
TOTALS	3010	4746	3857	0	0	4705	0	0	4705	11613
% AVG WKDY	63.9	100.8	81.9							
% AVG WEEK	63.9	100.8	81.9							
AM Times	12:00	12:00	08:00			08:00			08:00	
AM Peaks	234	286	294			276			276	
PM Times	15:00	19:00	18:00			19:00			19:00	
PM Peaks	302	348	310			299			299	

MassDOT Highway Division
WEEKLY SUMMARY FOR LANE 1 Page: 1
Starting: 6/12/2017

STA. 21

Site Reference: 170170000807 File: R12027.prn
Site ID: 000000012027 City: CANTON
Location: 93 S EXIT 2B TO RTE.138 N.MILTON County: VOLUME-RAMP
Direction: NORTH

TIME	MON 12	TUE 13	WED 14	THU	FRI	WKDAY AVG	SAT	SUN	WEEK AVG	TOTAL
01:00		62	76			69			69	138
02:00		21	46			33			33	67
03:00		17	34			25			25	51
04:00		18	39			28			28	57
05:00		112	143			127			127	255
06:00		362	348			355			355	710
07:00		313	412			362			362	725
08:00		489	576			532			532	1065
09:00		711	737			724			724	1448
10:00		472	492			482			482	964
11:00		319	305			312			312	624
12:00	261	286	320			289			289	867
13:00	310	351	297			319			319	958
14:00	264	269	291			274			274	824
15:00	263	226	289			259			259	778
16:00	273	281	288			280			280	842
17:00	242	227	266			245			245	735
18:00	237	260	247			248			248	744
19:00	227	240	230			232			232	697
20:00	203	205				204			204	408
21:00	219	207				213			213	426
22:00	212	198				205			205	410
23:00	152	249				200			200	401
24:00	79	128				103			103	207
TOTALS	2942	6023	5436	0	0	6120	0	0	6120	14401
% AVG WKDY	48	98.4	88.8							
% AVG WEEK	48	98.4	88.8							
AM Times	12:00	09:00	09:00			09:00			09:00	
AM Peaks	261	711	737			724			724	
PM Times	13:00	13:00	13:00			13:00			13:00	
PM Peaks	310	351	297			319			319	

MassDOT Highway Division
WEEKLY SUMMARY FOR LANE 1 Page: 1
Starting: 6/12/2017

STA.22

Site Reference: 170170000418
Site ID: 000000012028
Location: RTE.138 N TO I-93 S
Direction: NORTH

File: R12028.prn
City: CANTON
County: VOLUME-RAMP

TIME	MON 12	TUE 13	WED 14	THU	FRI	WKDAY AVG	SAT	SUN	WEEK AVG	TOTAL
01:00		45	27			36			36	72
02:00		13	13			13			13	26
03:00		18	18			18			18	36
04:00		24	35			29			29	59
05:00		69	49			59			59	118
06:00		310	295			302			302	605
07:00		493	518			505			505	1011
08:00		490	429			459			459	919
09:00		459	458			458			458	917
10:00		448	454			451			451	902
11:00	281	364	419			354			354	1064
12:00	323	325	369			339			339	1017
13:00	318	360	360			346			346	1038
14:00	371	347	379			365			365	1097
15:00	379	423	445			415			415	1247
16:00	448	460	300			402			402	1208
17:00	428	481	478			462			462	1387
18:00	412	457	439			436			436	1308
19:00	270	290	304			288			288	864
20:00	191	211				201			201	402
21:00	145	154				149			149	299
22:00	118	115				116			116	233
23:00	77	95				86			86	172
24:00	59	78				68			68	137
TOTALS	3820	6529	5789	0	0	6357	0	0	6357	16138
% AVG WKDY	60	102.7	91							
% AVG WEEK	60	102.7	91							
AM Times	12:00	07:00	07:00			07:00			07:00	
AM Peaks	323	493	518			505			505	
PM Times	16:00	17:00	17:00			17:00			17:00	
PM Peaks	448	481	478			462			462	

MassDOT Highway Division
WEEKLY SUMMARY FOR LANE 1 Page: 1
Starting: 6/12/2017

STA.23

Site Reference: 170170000580
Site ID: 000000012004
Location: RTE.138 N TO I-93 N
Direction: NORTH

File: R12004.prn
City: CANTON
County: VOLUME-RAMP

TIME	MON 12	TUE 13	WED 14	THU 15	FRI	WKDAY AVG	SAT	SUN	WEEK AVG	TOTAL
01:00		44	26	44		38			38	114
02:00		21	30	29		26			26	80
03:00		11	18	22		17			17	51
04:00		36	26	40		34			34	102
05:00		73	66	65		68			68	204
06:00		192	190	207		196			196	589
07:00		307	285	298		296			296	890
08:00		284	313	363		320			320	960
09:00		264	279	304		282			282	847
10:00		350	347	389		362			362	1086
11:00		339	320	344		334			334	1003
12:00	346	321	325	378		342			342	1370
13:00	291	303	310	356		315			315	1260
14:00	291	304	325	319		309			309	1239
15:00	288	266	327	316		299			299	1197
16:00	384	342	223	300		312			312	1249
17:00	246	318	332	309		301			301	1205
18:00	248	254	268	283		263			263	1053
19:00	219	214	261	234		232			232	928
20:00	217	223	221			220			220	661
21:00	161	182	218			187			187	561
22:00	107	127	138			124			124	372
23:00	99	120	106			108			108	325
24:00	72	70	83			75			75	225
TOTALS	2969	4965	5037	4600	0	5060	0	0	5060	17571
% AVG WKDY	58.6	98.1	99.5	90.9						
% AVG WEEK	58.6	98.1	99.5	90.9						
AM Times	12:00	10:00	10:00	10:00		10:00			10:00	
AM Peaks	346	350	347	389		362			362	
PM Times	16:00	16:00	17:00	13:00		13:00			13:00	
PM Peaks	384	342	332	356		315			315	

MassDOT Highway Division
WEEKLY SUMMARY FOR LANE 1 Page: 1
Starting: 6/12/2017

STA.24

Site Reference: 170170000768
Site ID: 000000012003
Location: I93 N EXIT 2B TO RTE.138 N.MILTON
Direction: NORTH

File: R12003.prn
City: CANTON
County: VOLUME-RAMP

TIME	MON 12	TUE 13	WED 14	THU 15	FRI	WKDAY AVG	SAT	SUN	WEEK AVG	TOTAL
01:00		63	60	79		67			67	202
02:00		41	42	57		46			46	140
03:00		34	33	49		38			38	116
04:00		29	29	39		32			32	97
05:00		80	75	83		79			79	238
06:00		359	339	342		346			346	1040
07:00		640	609	644		631			631	1893
08:00		916	810	651		792			792	2377
09:00		939	917	835		897			897	2691
10:00		693	701	698		697			697	2092
11:00		477	508	555		513			513	1540
12:00	395	398	483	569		461			461	1845
13:00	476	475	448	541		485			485	1940
14:00	492	443	525	503		490			490	1963
15:00	456	465	476	535		483			483	1932
16:00	535	557	673	606		592			592	2371
17:00	656	565	627	595		610			610	2443
18:00	681	694	657	665		674			674	2697
19:00	511	605	608	573		574			574	2297
20:00	344	358	364			355			355	1066
21:00	255	286	370			303			303	911
22:00	273	253	312			279			279	838
23:00	160	196	238			198			198	594
24:00	100	113	150			121			121	363
TOTALS	5334	9679	10054	8619	0	9763	0	0	9763	33686
% AVG WKDY	54.6	99.1	102.9	88.2						
% AVG WEEK	54.6	99.1	102.9	88.2						
AM Times	12:00	09:00	09:00	09:00		09:00			09:00	
AM Peaks	395	939	917	835		897			897	
PM Times	18:00	18:00	16:00	18:00		18:00			18:00	
PM Peaks	681	694	673	665		674			674	

MassDOT Highway Division
WEEKLY SUMMARY FOR LANE 1 Page: 1
Starting: 6/12/2017

STA. 25

Site Reference: 170170000594
Site ID: 000000012001
Location: I93 N EXIT 2A TO RTE.138 S.TOUGHTON
Direction: NORTH

File: R12001.prn
City: CANTON
County: VOLUME-RAMP

TIME	MON 12	TUE 13	WED 14	THU 15	FRI	WKDAY AVG	SAT	SUN	WEEK AVG	TOTAL
01:00		51	65	76		64			64	192
02:00		19	23	44		28			28	86
03:00		26	22	41		29			29	89
04:00		27	22	35		28			28	84
05:00		46	46	58		50			50	150
06:00		124	134	158		138			138	416
07:00		254	245	256		251			251	755
08:00		441	402	423		422			422	1266
09:00		412	514	431		452			452	1357
10:00		353	375	350		359			359	1078
11:00	279	333	346	496		363			363	1454
12:00	345	365	362	521		398			398	1593
13:00	360	374	501	482		429			429	1717
14:00	342	391	426	409		392			392	1568
15:00	439	423	442	491		448			448	1795
16:00	471	452	324	519		441			441	1766
17:00	527	540	515	470		513			513	2052
18:00	480	561	562	477		520			520	2080
19:00	466	547	560	516		522			522	2089
20:00	342	336	354			344			344	1032
21:00	211	247	287			248			248	745
22:00	193	192	241			208			208	626
23:00	119	181	137			145			145	437
24:00	89	94	115			99			99	298
TOTALS	4663	6789	7020	6253	0	6891	0	0	6891	24725
% AVG WKDY	67.6	98.5	101.8	90.7						
% AVG WEEK	67.6	98.5	101.8	90.7						
AM Times	12:00	08:00	09:00	12:00		09:00			09:00	
AM Peaks	345	441	514	521		452			452	
PM Times	17:00	18:00	18:00	16:00		19:00			19:00	
PM Peaks	527	561	562	519		522			522	

MassDOT Highway Division
WEEKLY SUMMARY FOR LANE 1
Starting: 6/12/2017

STA. 26

Site Reference: 170170000698
Site ID: 000000012002
Location: IRTE. 138 SOUTH TO I-93 NORTH
Direction: NORTH

File: R12002.prn
City: CANTON
County: VOLUME-RAMP

TIME	MON 12	TUE 13	WED 14	THU 15	FRI	WKDAY AVG	SAT	SUN	WEEK AVG	TOTAL
01:00		92	122	91		101			101	305
02:00		25	63	72		53			53	160
03:00		23	51	38		37			37	112
04:00		14	43	55		37			37	112
05:00		45	52	52		49			49	149
06:00		113	135	142		130			130	390
07:00		215	218	238		223			223	671
08:00		280	261	233		258			258	774
09:00		287	217	294		266			266	798
10:00		318	303	296		305			305	917
11:00		350	333	305		329			329	988
12:00	345	384	298	295		330			330	1322
13:00	385	424	371	384		391			391	1564
14:00	349	416	386	422		393			393	1573
15:00	443	448	465	430		446			446	1786
16:00	485	449	529	435		474			474	1898
17:00	375	429	409	411		406			406	1624
18:00	481	489	490	471		482			482	1931
19:00	358	406	399	343		376			376	1506
20:00	318	368	429			371			371	1115
21:00	253	291	408			317			317	952
22:00	195	236	356			262			262	787
23:00	129	223	239			197			197	591
24:00	117	191	159			155			155	467
TOTALS	4233	6516	6736	5007	0	6388	0	0	6388	22492
% AVG WKDY	66.2	102	105.4	78.3						
% AVG WEEK	66.2	102	105.4	78.3						
AM Times	12:00	12:00	11:00	11:00		12:00			12:00	
AM Peaks	345	384	333	305		330			330	
PM Times	16:00	18:00	16:00	18:00		18:00			18:00	
PM Peaks	485	489	529	471		482			482	

Turning Movement Volumes

Study Name	Canton - Route 138 at Royall Street and Blue Hill River Road TM1 TMC
Start Date	Wednesday, May 24, 2017 7:00 AM
End Date	Wednesday, May 24, 2017 6:00 PM
Site Code	

Report Summary

		Southbound						Westbound						Northbound						Eastbound								Crosswalk	
Time Period	**Class.**	**R**	**T**	**L**	**U**	**I**	**O**	**R**	**T**	**L**	**U**	**I**	**O**	**R**	**T**	**L**	**U**	**I**	**O**	**R**	**T**	**L**	**U**	**I**	**O**	**Total**		**Pedestrians**	**Total**
Peak 1	Motorcycles	0	1	0	0	1	1	0	0	0	0	0	1	1	1	0	0	2	1	0	0	0	0	0	0	3	N	0	0
Specified Period	%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%		0%	
7:00 AM - 9:00 AM	Cars	77	719	50	1	847	1155	48	196	114	0	358	278	198	1056	680	0	1934	941	108	30	50	0	188	953	3327	E	0	0
One Hour Peak	%	96%	83%	91%	100%	85%	84%	83%	97%	86%	0%	91%	89%	91%	84%	96%	0%	88%	84%	85%	75%	86%	0%	84%	96%	87%		0%	
8:00 AM - 9:00 AM	Light Goods Vehicles	1	76	4	0	81	119	8	6	17	0	31	28	16	109	20	0	145	103	10	8	2	0	20	27	277	S	0	0
	%	1%	9%	7%	0%	8%	9%	14%	3%	13%	0%	8%	9%	7%	9%	3%	0%	7%	9%	8%	20%	3%	0%	9%	3%	7%		0%	
	Buses	1	17	0	0	18	8	1	0	0	0	1	0	0	6	5	0	11	23	6	0	1	0	7	6	37	W	0	0
	%	1%	2%	0%	0%	2%	1%	2%	0%	0%	0%	0%	0%	0%	0%	1%	0%	1%	2%	5%	0%	2%	0%	3%	1%	1%		0%	
	Single-Unit Trucks	1	40	1	0	42	74	1	0	1	0	2	5	2	68	3	0	73	43	2	2	5	0	9	4	126		0	0
	%	1%	5%	2%	0%	4%	5%	2%	0%	1%	0%	1%	2%	1%	5%	0%	0%	3%	4%	2%	5%	9%	0%	4%	0%	3%			
	Articulated Trucks	0	11	0	0	11	21	0	0	1	0	1	0	0	21	0	0	21	13	1	0	0	0	1	0	34			
	%	0%	1%	0%	0%	1%	2%	0%	0%	1%	0%	0%	0%	0%	2%	0%	0%	1%	1%	1%	0%	0%	0%	0%	0%	1%			
	Bicycles on Road	0	1	0	0	1	1	0	0	0	0	0	0	0	1	0	0	1	1	0	0	0	0	0	0	2			
	%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%			
	Total	**80**	**865**	**55**	**1**	**1001**	**1379**	**58**	**202**	**133**	**0**	**393**	**312**	**217**	**1262**	**708**	**0**	**2187**	**1125**	**127**	**40**	**58**	**0**	**225**	**990**	**3806**			
	PHF	0.83	0.95	0.81	0.25	0.97	0.98	0.6	0.73	0.88	0	0.84	0.81	0.74	0.96	0.86	0	0.9	0.98	0.88	0.67	0.66	0	0.92	0.91	0.94			
	Approach %					26%	36%					10%	8%					57%	30%					6%	26%				
Peak 2	Motorcycles	0	5	0	0	5	2	0	0	1	0	1	0	0	2	0	0	2	6	0	0	0	0	0	0	8	N	0	0
Specified Period	%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%		0%	
4:00 PM - 6:00 PM	Cars	8	837	101	0	946	1101	37	9	182	0	228	424	191	947	102	0	1240	1545	526	132	117	0	775	119	3189	E	0	0
One Hour Peak	%	67%	81%	89%	0%	82%	89%	86%	90%	91%	0%	90%	91%	91%	89%	88%	0%	89%	86%	94%	93%	96%	0%	94%	86%	88%		0%	
4:30 PM - 5:30 PM	Light Goods Vehicles	3	138	11	0	152	97	5	0	15	0	20	32	14	89	7	0	110	181	28	7	3	0	38	10	320	S	2	2
	%	25%	13%	10%	0%	13%	8%	12%	0%	7%	0%	8%	7%	7%	8%	6%	0%	8%	10%	5%	5%	2%	0%	5%	7%	9%		100%	
	Buses	0	2	0	0	2	8	0	0	1	0	1	0	0	6	3	0	9	6	3	0	2	0	5	3	17	W	0	0
	%	0%	0%	0%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%	1%	1%	0%	1%	0%	1%	0%	2%	0%	1%	2%	0%		0%	
	Single-Unit Trucks	1	37	0	0	38	15	0	1	2	0	3	4	3	15	1	0	19	40	1	1	0	0	2	3	62		2	2
	%	8%	4%	0%	0%	3%	1%	0%	10%	1%	0%	1%	1%	1%	1%	1%	0%	1%	2%	0%	1%	0%	0%	0%	2%	2%			
	Articulated Trucks	0	9	0	0	9	8	0	0	0	0	0	0	0	8	3	0	11	10	1	0	0	0	1	3	21			
	%	0%	1%	0%	0%	1%	1%	0%	0%	0%	0%	0%	0%	0%	1%	3%	0%	1%	1%	0%	0%	0%	0%	0%	2%	1%			
	Bicycles on Road	0	0	1	0	1	2	1	0	0	0	1	4	1	1	0	0	2	0	0	2	0	0	2	0	6			
	%	0%	0%	1%	0%	0%	0%	2%	0%	0%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%	1%	0%	0%	0%	0%	0%			
	Total	**12**	**1028**	**113**	**0**	**1153**	**1233**	**43**	**10**	**201**	**0**	**254**	**464**	**209**	**1068**	**116**	**0**	**1393**	**1788**	**559**	**142**	**122**	**0**	**823**	**138**	**3623**			
	PHF	0.43	0.97	0.88	0	0.96	0.96	0.6	0.5	0.88	0	0.79	0.93	0.9	0.96	0.83	0	0.97	0.9	0.79	0.85	0.73	0	0.79	0.91	0.96			
	Approach %					32%	34%					7%	13%					38%	49%					23%	4%				

Study Name	Canton - Route 138 and J W Foster Boulevard TM2 TMC
Start Date	Wednesday, May 24, 2017 7:00 AM
End Date	Wednesday, May 24, 2017 6:00 PM
Site Code	

Report Summary

		Southbound					Northbound					Eastbound							Crosswalk	
Time Period	Class.	R	T	U	I	O	T	L	U	I	O	R	L	U	I	O	Total		Pedestrians	Total
Peak 1	Motorcycles	0	2	0	2	2	2	0	0	2	2	0	0	0	0	0	4	N	0	0
Specified Period	%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%		0%	
7:00 AM - 9:00 AM	Cars	17	981	0	998	1920	1920	176	0	2096	989	8	0	0	8	193	3102	S	0	0
One Hour Peak	%	94%	84%	0%	85%	90%	90%	96%	0%	90%	84%	80%	0%	0%	80%	96%	88%		0%	
8:00 AM - 9:00 AM	Light Goods Vehicles	0	100	0	100	125	125	5	0	130	101	1	0	0	1	5	231	W	0	0
	%	0%	9%	0%	8%	6%	6%	3%	0%	6%	9%	10%	0%	0%	10%	2%	7%		0%	
	Buses	1	24	0	25	9	9	1	0	10	25	1	0	0	1	2	36		0	0
	%	6%	2%	0%	2%	0%	0%	1%	0%	0%	2%	10%	0%	0%	10%	1%	1%			
	Single-Unit Trucks	0	43	0	43	62	62	0	0	62	43	0	0	0	0	0	105			
	%	0%	4%	0%	4%	3%	3%	0%	0%	3%	4%	0%	0%	0%	0%	0%	3%			
	Articulated Trucks	0	10	0	10	23	23	0	0	23	10	0	0	0	0	0	33			
	%	0%	1%	0%	1%	1%	1%	0%	0%	1%	1%	0%	0%	0%	0%	0%	1%			
	Bicycles on Road	0	1	0	1	0	0	2	0	2	1	0	0	0	0	2	3			
	%	0%	0%	0%	0%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%	1%	0%			
	Total	18	1161	0	1179	2141	2141	184	0	2325	1171	10	0	0	10	202	3514			
	PHF	0.5	0.98	0	0.98	0.95	0.95	0.75	0	0.93	0.99	0.62	0	0	0.62	0.75	0.95			
	Approach %				34%	61%				66%	33%				0%	6%				
Peak 2	Motorcycles	0	4	0	4	1	1	0	0	1	4	0	0	0	0	0	5	N	0	0
Specified Period	%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%		0%	
4:00 PM - 6:00 PM	Cars	7	1689	0	1696	1335	1335	5	0	1340	1928	239	0	0	239	12	3275	S	0	0
One Hour Peak	%	88%	88%	0%	88%	92%	92%	100%	0%	92%	89%	96%	0%	0%	96%	92%	90%		0%	
5:00 PM - 6:00 PM	Light Goods Vehicles	1	166	0	167	89	89	0	0	89	175	9	0	0	9	1	265	W	2	2
	%	13%	9%	0%	9%	6%	6%	0%	0%	6%	8%	4%	0%	0%	4%	8%	7%		100%	
	Buses	0	7	0	7	8	8	0	0	8	7	0	0	0	0	0	15		2	2
	%	0%	0%	0%	0%	1%	1%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%			
	Single-Unit Trucks	0	37	0	37	11	11	0	0	11	37	0	0	0	0	0	48			
	%	0%	2%	0%	2%	1%	1%	0%	0%	1%	2%	0%	0%	0%	0%	0%	1%			
	Articulated Trucks	0	10	0	10	8	8	0	0	8	10	0	0	0	0	0	18			
	%	0%	1%	0%	1%	1%	1%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%			
	Bicycles on Road	0	0	0	0	1	1	0	0	1	0	0	0	0	0	0	1			
	%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%			
	Total	8	1913	0	1921	1453	1453	5	0	1458	2161	248	0	0	248	13	3627			
	PHF	0.67	0.94	0	0.94	0.92	0.92	0.62	0	0.92	0.93	0.86	0	0	0.86	0.65	0.95			
	Approach %				53%	40%				40%	60%				7%	0%				

Study Name	Canton - Route 138 and Green Lodge Street TM3 TMC
Start Date	Wednesday, May 24, 2017 7:00 AM
End Date	Wednesday, May 24, 2017 6:00 PM
Site Code	

Report Summary

		Southbound					Northbound					Eastbound							Crosswalk	
Time Period	Class.	R	T	U	I	O	T	L	U	I	O	R	L	U	I	O	Total		Pedestrians	Total
Peak 1	Motorcycles	0	0	0	0	1	1	0	0	1	0	0	0	0	0	0	1	N	0	0
Specified Period	%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%		0%	
7:00 AM - 9:00 AM	Cars	47	838	0	885	1325	1314	16	0	1330	862	24	11	0	35	63	2250	S	0	0
One Hour Peak	%	87%	83%	0%	84%	85%	85%	89%	0%	85%	83%	86%	100%	0%	90%	88%	84%		0%	
7:15 AM - 8:15 AM	Light Goods Vehicles	3	105	0	108	160	160	2	0	162	106	1	0	0	1	5	271	W	0	0
	%	6%	10%	0%	10%	10%	10%	11%	0%	10%	10%	4%	0%	0%	3%	7%	10%		0%	
	Buses	1	8	0	9	4	4	0	0	4	10	2	0	0	2	1	15		0	0
	%	2%	1%	0%	1%	0%	0%	0%	0%	0%	1%	7%	0%	0%	5%	1%	1%			
	Single-Unit Trucks	3	35	0	38	55	55	0	0	55	36	1	0	0	1	3	94			
	%	6%	3%	0%	4%	4%	4%	0%	0%	4%	3%	4%	0%	0%	3%	4%	4%			
	Articulated Trucks	0	18	0	18	18	18	0	0	18	18	0	0	0	0	0	36			
	%	0%	2%	0%	2%	1%	1%	0%	0%	1%	2%	0%	0%	0%	0%	0%	1%			
	Bicycles on Road	0	1	0	1	0	0	0	0	0	1	0	0	0	0	0	1			
	%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%			
	Total	54	1005	0	1059	1563	1552	18	0	1570	1033	28	11	0	39	72	2668			
	PHF	0.84	0.98	0	0.98	0.97	0.97	0.64	0	0.97	0.98	0.88	0.69	0	0.89	0.86	0.99			
	Approach %				40%	59%				59%	39%				1%	3%				
Peak 2	Motorcycles	1	1	0	2	2	2	0	0	2	1	0	0	0	0	1	4	N	0	0
Specified Period	%	2%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	2%	0%		0%	
4:00 PM - 6:00 PM	Cars	42	1361	0	1403	1093	1084	17	0	1101	1413	52	9	0	61	59	2565	S	0	0
One Hour Peak	%	91%	89%	0%	89%	90%	90%	89%	0%	90%	89%	93%	82%	0%	91%	91%	89%		0%	
5:00 PM - 6:00 PM	Light Goods Vehicles	3	122	0	125	97	95	2	0	97	125	3	2	0	5	5	227	W	0	0
	%	7%	8%	0%	8%	8%	8%	11%	0%	8%	8%	5%	18%	0%	7%	8%	8%		0%	
	Buses	0	6	0	6	7	7	0	0	7	6	0	0	0	0	0	13		0	0
	%	0%	0%	0%	0%	1%	1%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%			
	Single-Unit Trucks	0	34	0	34	11	11	0	0	11	34	0	0	0	0	0	45			
	%	0%	2%	0%	2%	1%	1%	0%	0%	1%	2%	0%	0%	0%	0%	0%	2%			
	Articulated Trucks	0	9	0	9	5	5	0	0	5	9	0	0	0	0	0	14			
	%	0%	1%	0%	1%	0%	0%	0%	0%	0%	1%	0%	0%	0%	0%	0%	0%			
	Bicycles on Road	0	2	0	2	2	2	0	0	2	3	1	0	0	1	0	5			
	%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	2%	0%	0%	1%	0%	0%			
	Total	46	1535	0	1581	1217	1206	19	0	1225	1591	56	11	0	67	65	2873			
	PHF	0.68	0.98	0	0.99	0.9	0.9	0.68	0	0.91	0.98	0.74	0.69	0	0.73	0.81	0.95			
	Approach %				55%	42%				43%	55%				2%	2%				

Study Name	Canton - Route 138 at Washington Street and Ponkapoag Golf Course TM4 TMC
Start Date	Wednesday, May 24, 2017 7:00 AM
End Date	Wednesday, May 24, 2017 6:00 PM
Site Code	

Report Summary

		Southbound						Westbound						Northbound						Eastbound								Crosswalk	
Time Period	Class.	R	T	L	U	I	O	R	T	L	U	I	O	R	T	L	U	I	O	R	T	L	U	I	O	Total		Pedestrians	Total
Peak 1	Motorcycles	0	0	0	0	0	2	0	0	0	0	0	0	0	1	0	0	1	0	0	0	1	0	1	0	2	N	0	0
Specified Period	%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%		0%	
7:00 AM - 9:00 AM	Cars	303	575	10	0	888	1310	1	1	2	0	4	13	3	715	2	0	720	580	3	0	594	0	597	306	2209	E	0	0
One Hour Peak	%	90%	85%	100%	0%	86%	84%	100%	100%	67%	0%	80%	93%	75%	82%	100%	0%	82%	84%	50%	0%	86%	0%	86%	90%	85%		0%	
7:15 AM - 8:15 AM	Light Goods Vehicles	14	59	0	0	73	160	0	0	1	0	1	1	1	97	0	0	98	62	2	0	63	0	65	14	237	S	0	0
	%	4%	9%	0%	0%	7%	10%	0%	0%	33%	0%	20%	7%	25%	11%	0%	0%	11%	9%	33%	0%	9%	0%	9%	4%	9%		0%	
	Buses	2	7	0	0	9	4	0	0	0	0	0	0	0	1	0	0	1	7	0	0	3	0	3	2	13	W	0	0
	%	1%	1%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	0%	0%	0%	0%	0%	1%	0%		0%	
	Single-Unit Trucks	14	26	0	0	40	61	0	0	0	0	0	0	0	41	0	0	41	27	1	0	20	0	21	14	102		0	0
	%	4%	4%	0%	0%	4%	4%	0%	0%	0%	0%	0%	0%	0%	5%	0%	0%	5%	4%	17%	0%	3%	0%	3%	4%	4%			
	Articulated Trucks	5	12	0	0	17	18	0	0	0	0	0	0	0	12	0	0	12	12	0	0	6	0	6	5	35			
	%	1%	2%	0%	0%	2%	1%	0%	0%	0%	0%	0%	0%	0%	1%	0%	0%	1%	2%	0%	0%	1%	0%	1%	1%	1%			
	Bicycles on Road	0	1	0	0	1	2	0	0	0	0	0	0	0	2	0	0	2	1	0	0	0	0	0	0	3			
	%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%			
	Total	**338**	**680**	**10**	**0**	**1028**	**1557**	**1**	**1**	**3**	**0**	**5**	**14**	**4**	**869**	**2**	**0**	**875**	**689**	**6**	**0**	**687**	**0**	**693**	**341**	**2601**			
	PHF	0.95	0.96	0.5	0	0.98	0.98	0.25	0.25	0.38	0	0.42	0.5	0.5	0.91	0.5	0	0.91	0.95	0.75	0	0.87	0	0.87	0.95	0.99			
	Approach %					40%	60%					0%	1%					34%	26%					27%	13%				
Peak 2	Motorcycles	1	2	0	0	3	2	0	0	0	0	0	0	0	1	0	0	1	2	0	0	1	0	1	1	5	N	0	0
Specified Period	%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%		0%	
4:00 PM - 6:00 PM	Cars	587	772	19	1	1379	1104	26	4	2	0	32	22	3	701	31	0	735	804	30	0	376	0	406	622	2552	E	0	0
One Hour Peak	%	94%	87%	86%	100%	90%	89%	90%	100%	67%	0%	89%	81%	60%	91%	89%	0%	91%	87%	83%	0%	87%	0%	87%	94%	89%		0%	
4:30 PM - 5:30 PM	Light Goods Vehicles	21	85	3	0	109	100	2	0	1	0	3	5	2	55	4	0	61	92	6	0	43	0	49	25	222	S	0	0
	%	3%	10%	14%	0%	7%	8%	7%	0%	33%	0%	8%	19%	40%	7%	11%	0%	8%	10%	17%	0%	10%	0%	10%	4%	8%		0%	
	Buses	0	2	0	0	2	3	1	0	0	0	1	0	0	1	0	0	1	2	0	0	1	0	1	0	5	W	0	0
	%	0%	0%	0%	0%	0%	0%	3%	0%	0%	0%	3%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%		0%	
	Single-Unit Trucks	14	19	0	0	33	18	0	0	0	0	0	0	0	11	0	0	11	19	0	0	7	0	7	14	51		0	0
	%	2%	2%	0%	0%	2%	1%	0%	0%	0%	0%	0%	0%	0%	1%	0%	0%	1%	2%	0%	0%	2%	0%	1%	2%	2%			
	Articulated Trucks	2	8	0	0	10	6	0	0	0	0	0	0	0	2	0	0	2	8	0	0	4	0	4	2	16			
	%	0%	1%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	0%	0%	1%	0%	1%	0%	1%			
	Bicycles on Road	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	1			
	%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%			
	Total	**625**	**888**	**22**	**1**	**1536**	**1234**	**29**	**4**	**3**	**0**	**36**	**27**	**5**	**771**	**35**	**0**	**811**	**927**	**36**	**0**	**433**	**0**	**469**	**664**	**2852**			
	PHF	0.98	0.98	0.61	0.25	0.99	0.93	0.66	0.5	0.38	0	0.75	0.68	0.42	0.93	0.55	0	0.89	0.97	0.75	0	0.91	0	0.94	0.95	0.97			
	Approach %					54%	43%					1%	1%					28%	33%					16%	23%				

Study Name	Canton - Route138 and Randolph Street TM5 TMC
Start Date	Wednesday, May 24, 2017 7:00 AM
End Date	Wednesday, May 24, 2017 6:00 PM
Site Code	

Report Summary

		Southbound						Westbound						Northbound						Eastbound								Crosswalk	
Time Period	Class.	R	T	L	U	I	O	R	T	L	U	I	O	R	T	L	U	I	O	R	T	L	U	I	O	Total		Pedestrians	Total
Peak 1	Motorcycles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	1	0	1	N	0	0
Specified Period	%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%		0%	
7:00 AM - 9:00 AM	Cars	15	490	90	0	595	539	82	328	161	0	571	448	101	443	177	0	721	882	231	257	14	0	502	520	2389	E	0	0
One Hour Peak	%	68%	86%	81%	0%	85%	79%	77%	90%	90%	0%	88%	85%	83%	79%	84%	0%	81%	88%	92%	87%	88%	0%	89%	87%	85%		0%	
7:30 AM - 8:30 AM	Light Goods Vehicles	3	44	12	0	59	92	18	27	13	0	58	55	13	74	23	0	110	70	13	30	0	0	43	53	270	S	0	0
	%	14%	8%	11%	0%	8%	14%	17%	7%	7%	0%	9%	10%	11%	13%	11%	0%	12%	7%	5%	10%	0%	0%	8%	9%	10%		0%	
	Buses	1	0	1	0	2	0	0	4	0	0	4	7	0	0	1	0	1	1	1	6	0	0	7	6	14	W	0	0
	%	5%	0%	1%	0%	0%	0%	0%	1%	0%	0%	1%	1%	0%	0%	0%	0%	0%	0%	0%	2%	0%	0%	1%	1%	0%		0%	
	Single-Unit Trucks	3	21	8	0	32	37	6	4	4	0	14	19	7	31	7	0	45	29	4	4	0	0	8	14	99		**0**	**0**
	%	14%	4%	7%	0%	5%	5%	6%	1%	2%	0%	2%	4%	6%	6%	3%	0%	5%	3%	2%	1%	0%	0%	1%	2%	4%			
	Articulated Trucks	0	13	0	0	13	13	0	0	0	0	0	1	1	11	2	0	14	14	1	0	2	0	3	2	30			
	%	0%	2%	0%	0%	2%	2%	0%	0%	0%	0%	0%	0%	1%	2%	1%	0%	2%	1%	0%	0%	13%	0%	1%	0%	1%			
	Bicycles on Road	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	1	0	0	0	0	0	0	1			
	%	0%	0%	0%	0%	0%	0%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%			
	Total	**22**	**568**	**111**	**0**	**701**	**681**	**106**	**363**	**179**	**0**	**648**	**530**	**122**	**559**	**210**	**0**	**891**	**998**	**251**	**297**	**16**	**0**	**564**	**595**	**2804**			
	PHF	0.61	0.93	0.73	0	0.9	0.92	0.76	0.84	0.88	0	0.86	0.83	0.74	0.93	0.88	0	0.92	0.93	0.8	0.82	0.67	0	0.86	0.85	0.95			
	Approach %					25%	24%					23%	19%					32%	36%					20%	21%				
Peak 2	Motorcycles	0	2	0	0	2	1	0	0	0	0	0	2	0	1	0	0	1	2	0	2	0	0	2	0	5	N	1	1
Specified Period	%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%		100%	
4:00 PM - 6:00 PM	Cars	19	509	304	0	832	734	89	231	110	0	430	909	228	628	196	0	1052	736	117	377	17	0	511	446	2825	E	0	0
One Hour Peak	%	100%	86%	90%	0%	88%	91%	88%	91%	91%	0%	90%	90%	93%	91%	93%	0%	92%	87%	87%	89%	100%	0%	89%	92%	90%		0%	
4:30 PM - 5:30 PM	Light Goods Vehicles	0	58	31	0	89	62	11	22	10	0	43	82	13	51	10	0	74	75	7	38	0	0	45	32	251	S	0	0
	%	0%	10%	9%	0%	9%	8%	11%	9%	8%	0%	9%	8%	5%	7%	5%	0%	6%	9%	5%	9%	0%	0%	8%	7%	8%		0%	
	Buses	0	0	2	0	2	0	0	0	1	0	1	4	0	0	1	0	1	4	3	2	0	0	5	1	9	W	0	0
	%	0%	0%	1%	0%	0%	0%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	2%	0%	0%	0%	1%	0%	0%		0%	
	Single-Unit Trucks	0	17	1	0	18	8	1	2	0	0	3	8	3	7	1	0	11	21	4	4	0	0	8	3	40		**1**	**1**
	%	0%	3%	0%	0%	2%	1%	1%	1%	0%	0%	1%	1%	1%	1%	0%	0%	1%	2%	3%	1%	0%	0%	1%	1%	1%			
	Articulated Trucks	0	6	0	0	6	2	0	0	0	0	0	1	0	2	2	0	4	10	4	1	0	0	5	2	15			
	%	0%	1%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	0%	0%	1%	3%	0%	0%	0%	1%	0%	0%			
	Bicycles on Road	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	1			
	%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%			
	Total	**19**	**592**	**338**	**0**	**949**	**808**	**101**	**255**	**121**	**0**	**477**	**1006**	**244**	**690**	**210**	**0**	**1144**	**848**	**135**	**424**	**17**	**0**	**576**	**484**	**3146**			
	PHF	0.59	0.94	0.86	0	0.93	0.91	0.81	0.9	0.8	0	0.92	0.96	0.86	0.92	0.94	0	0.92	0.93	0.84	0.92	0.61	0	0.94	0.94	0.97			
	Approach %					30%	26%					15%	32%					36%	27%					18%	15%				

Study Name	Canton - Route 138 and Del Pond Drive TM6 TMC
Start Date	Wednesday, May 24, 2017 7:00 AM
End Date	Wednesday, May 24, 2017 6:00 PM
Site Code	

Report Summary

		Southbound						Westbound						Northbound						Eastbound								Crosswalk	
Time Period	**Class.**	R	T	L	U	I	O	R	T	L	U	I	O	R	T	L	U	I	O	R	T	L	U	I	O	**Total**		**Pedestrians**	**Total**
Peak 1	Motorcycles	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	2	N	0	0
Specified Period	%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%		0%	
7:00 AM - 9:00 AM	Cars	36	678	3	0	717	797	3	0	4	0	7	13	10	785	16	0	811	686	4	0	9	0	13	52	1548	E	0	0
One Hour Peak	%	97%	88%	100%	0%	88%	84%	75%	0%	57%	0%	64%	72%	67%	84%	94%	0%	84%	88%	80%	0%	100%	0%	93%	96%	86%		0%	
7:45 AM - 8:45 AM	Light Goods Vehicles	1	53	0	0	54	91	1	0	1	0	2	2	2	90	1	0	93	55	1	0	0	0	1	2	150	S	0	0
	%	3%	7%	0%	0%	7%	10%	25%	0%	14%	0%	18%	11%	13%	10%	6%	0%	10%	7%	20%	0%	0%	0%	7%	4%	8%		0%	
	Buses	0	3	0	0	3	3	0	0	0	0	0	0	0	3	0	0	3	3	0	0	0	0	0	0	6	W	0	0
	%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%		0%	
	Single-Unit Trucks	0	24	0	0	24	40	0	0	2	0	2	3	3	40	0	0	43	26	0	0	0	0	0	0	69		**0**	**0**
	%	0%	3%	0%	0%	3%	4%	0%	0%	29%	0%	18%	17%	20%	4%	0%	0%	4%	3%	0%	0%	0%	0%	0%	0%	4%			
	Articulated Trucks	0	11	0	0	11	12	0	0	0	0	0	0	0	12	0	0	12	11	0	0	0	0	0	0	23			
	%	0%	1%	0%	0%	1%	1%	0%	0%	0%	0%	0%	0%	0%	1%	0%	0%	1%	1%	0%	0%	0%	0%	0%	0%	1%			
	Bicycles on Road	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	1			
	%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%			
	Total	**37**	**771**	**3**	**0**	**811**	**944**	**4**	**0**	**7**	**0**	**11**	**18**	**15**	**931**	**17**	**0**	**963**	**783**	**5**	**0**	**9**	**0**	**14**	**54**	**1799**			
	PHF	0.92	0.9	0.75	0	0.91	0.89	0.5	0	0.44	0	0.46	0.56	0.54	0.88	0.71	0	0.89	0.9	0.62	0	0.56	0	0.58	0.9	0.95			
	Approach %					45%	52%					1%	1%					54%	44%					1%	3%				
Peak 2	Motorcycles	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	1	N	0	0
Specified Period	%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%		0%	
4:00 PM - 6:00 PM	Cars	12	781	14	0	807	884	9	0	11	0	20	22	8	850	1	0	859	807	15	0	25	0	40	13	1726	E	0	0
One Hour Peak	%	86%	86%	93%	0%	86%	92%	90%	0%	79%	0%	83%	96%	100%	92%	100%	0%	92%	86%	83%	0%	89%	0%	87%	87%	89%		0%	
5:00 PM - 6:00 PM	Light Goods Vehicles	0	83	1	0	84	58	1	0	3	0	4	1	0	56	0	0	56	88	2	0	1	0	3	0	147	S	0	0
	%	0%	9%	7%	0%	9%	6%	10%	0%	21%	0%	17%	4%	0%	6%	0%	0%	6%	9%	11%	0%	4%	0%	7%	0%	8%		0%	
	Buses	0	2	0	0	2	1	0	0	0	0	0	0	0	0	0	0	0	2	0	0	1	0	1	0	3	W	0	0
	%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	4%	0%	2%	0%	0%		0%	
	Single-Unit Trucks	2	32	0	0	34	7	0	0	0	0	0	0	0	6	0	0	6	33	1	0	1	0	2	2	42		**0**	**0**
	%	14%	4%	0%	0%	4%	1%	0%	0%	0%	0%	0%	0%	0%	1%	0%	0%	1%	4%	6%	0%	4%	0%	4%	13%	2%			
	Articulated Trucks	0	8	0	0	8	7	0	0	0	0	0	0	0	7	0	0	7	8	0	0	0	0	0	0	15			
	%	0%	1%	0%	0%	1%	1%	0%	0%	0%	0%	0%	0%	0%	1%	0%	0%	1%	1%	0%	0%	0%	0%	0%	0%	1%			
	Bicycles on Road	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	1			
	%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%			
	Total	**14**	**906**	**15**	**0**	**935**	**959**	**10**	**0**	**14**	**0**	**24**	**23**	**8**	**921**	**1**	**0**	**930**	**938**	**18**	**0**	**28**	**0**	**46**	**15**	**1935**			
	PHF	0.58	0.94	0.42	0	0.92	0.86	0.62	0	0.7	0	0.75	0.52	0.67	0.86	0.25	0	0.87	0.94	0.64	0	0.88	0	0.82	0.62	0.96			
	Approach %					48%	50%					1%	1%					48%	48%					2%	1%				

Study Name	Canton - Route 138 and Dan Road TM7 TMC
Start Date	Wednesday, May 24, 2017 7:00 AM
End Date	Wednesday, May 24, 2017 6:00 PM
Site Code	

Report Summary

		Southbound					Northbound					Eastbound							Crosswalk	
Time Period	Class.	R	T	U	I	O	T	L	U	I	O	R	L	U	I	O	Total		Pedestrians	Total
Peak 1	Motorcycles	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1	1	N	0	0
Specified Period	%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%		0%	
7:00 AM - 9:00 AM	Cars	256	272	0	528	847	818	109	1	928	294	21	29	0	50	365	1506	S	0	0
One Hour Peak	%	93%	78%	0%	84%	84%	85%	89%	100%	86%	78%	75%	60%	0%	66%	92%	84%		0%	
7:30 AM - 8:30 AM	Light Goods Vehicles	9	48	0	57	108	103	13	0	116	53	5	5	0	10	22	183	W	0	0
	%	3%	14%	0%	9%	11%	11%	11%	0%	11%	14%	18%	10%	0%	13%	6%	10%		0%	
	Buses	0	1	0	1	1	1	0	0	1	1	0	0	0	0	0	2		0	0
	%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%			
	Single-Unit Trucks	7	19	0	26	43	34	0	0	34	21	2	9	0	11	7	71			
	%	3%	5%	0%	4%	4%	4%	0%	0%	3%	6%	7%	19%	0%	14%	2%	4%			
	Articulated Trucks	3	10	0	13	8	3	0	0	3	10	0	5	0	5	3	21			
	%	1%	3%	0%	2%	1%	0%	0%	0%	0%	3%	0%	10%	0%	7%	1%	1%			
	Bicycles on Road	0	0	0	0	1	1	0	0	1	0	0	0	0	0	0	1			
	%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%			
	Total	276	350	0	626	1008	960	122	1	1083	379	28	48	0	76	398	1785			
	PHF	0.84	0.88	0	0.9	0.85	0.84	0.78	0.25	0.88	0.88	0.88	0.92	0	0.9	0.82	0.94			
	Approach %				35%	56%				61%	21%				4%	22%				
Peak 2	Motorcycles	0	1	0	1	1	1	0	0	1	1	0	0	0	0	0	2	N	0	0
Specified Period	%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%		0%	
4:00 PM - 6:00 PM	Cars	57	776	0	833	692	435	14	0	449	892	116	257	0	373	71	1655	S	0	0
One Hour Peak	%	81%	86%	0%	86%	90%	88%	82%	0%	88%	87%	91%	94%	0%	93%	82%	88%		0%	
4:30 PM - 5:30 PM	Light Goods Vehicles	7	101	0	108	62	48	2	0	50	107	6	14	0	20	9	178	W	0	0
	%	10%	11%	0%	11%	8%	10%	12%	0%	10%	10%	5%	5%	0%	5%	10%	9%		0%	
	Buses	0	2	0	2	0	0	0	0	0	2	0	0	0	0	0	2		0	0
	%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%			
	Single-Unit Trucks	5	16	0	21	10	8	1	0	9	18	2	2	0	4	6	34			
	%	7%	2%	0%	2%	1%	2%	6%	0%	2%	2%	2%	1%	0%	1%	7%	2%			
	Articulated Trucks	1	7	0	8	3	3	0	0	3	11	4	0	0	4	1	15			
	%	1%	1%	0%	1%	0%	1%	0%	0%	1%	1%	3%	0%	0%	1%	1%	1%			
	Bicycles on Road	0	0	0	0	1	0	0	0	0	0	0	1	0	1	0	1			
	%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%			
	Total	70	903	0	973	769	495	17	0	512	1031	128	274	0	402	87	1887			
	PHF	0.83	0.91	0	0.9	0.85	0.81	0.85	0	0.81	0.92	0.73	0.93	0	0.87	0.87	0.95			
	Approach %				52%	41%				27%	55%				21%	5%				

Study Name	Canton - Route 138 at Dan Road and Industrial Drive TM8 TMC
Start Date	Wednesday, May 24, 2017 7:00 AM
End Date	Wednesday, May 24, 2017 6:00 PM
Site Code	

Report Summary

		Southbound					Westbound					Northbound							Crosswalk	
Time Period	Class.	T	L	U	I	O	R	L	U	I	O	R	T	U	I	O	Total		Pedestrians	Total
Peak 1	Motorcycles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	N	0	0
Specified Period	%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%		0%	
7:00 AM - 9:00 AM	Cars	271	8	0	279	945	8	3	0	11	39	31	937	0	968	274	1258	E	0	0
One Hour Peak	%	78%	40%	0%	76%	85%	73%	43%	0%	61%	62%	72%	85%	0%	85%	78%	82%		0%	
7:30 AM - 8:30 AM	Light Goods Vehicles	50	4	0	54	122	0	1	0	1	13	9	122	0	131	51	186	S	0	0
	%	14%	20%	0%	15%	11%	0%	14%	0%	6%	21%	21%	11%	0%	11%	14%	12%		0%	
	Buses	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1	1		0	0
	%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%			
	Single-Unit Trucks	18	4	0	22	39	2	2	0	4	7	3	37	0	40	20	66			
	%	5%	20%	0%	6%	4%	18%	29%	0%	22%	11%	7%	3%	0%	3%	6%	4%			
	Articulated Trucks	6	4	0	10	5	1	1	0	2	4	0	4	0	4	7	16			
	%	2%	20%	0%	3%	0%	9%	14%	0%	11%	6%	0%	0%	0%	0%	2%	1%			
	Bicycles on Road	0	0	0	0	1	0	0	0	0	0	0	1	0	1	0	1			
	%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%			
	Total	346	20	0	366	1112	11	7	0	18	63	43	1101	0	1144	353	1528			
	PHF	0.85	0.83	0	0.86	0.89	0.55	0.58	0	0.75	0.79	0.77	0.9	0	0.91	0.86	0.95			
	Approach %				24%	73%				1%	4%				75%	23%				
Peak 2	Motorcycles	1	0	0	1	1	0	0	0	0	0	0	1	0	1	1	2	N	0	0
Specified Period	%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%		0%	
4:00 PM - 6:00 PM	Cars	918	8	0	926	437	14	16	0	30	22	14	423	0	437	934	1393	E	0	0
One Hour Peak	%	88%	50%	0%	87%	89%	88%	80%	0%	83%	67%	82%	89%	0%	88%	88%	88%		0%	
4:45 PM - 5:45 PM	Light Goods Vehicles	102	0	0	102	48	1	4	0	5	2	2	47	0	49	106	156	S	0	0
	%	10%	0%	0%	10%	10%	6%	20%	0%	14%	6%	12%	10%	0%	10%	10%	10%		0%	
	Buses	3	0	0	3	0	0	0	0	0	0	0	0	0	0	3	3		0	0
	%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%			
	Single-Unit Trucks	17	3	0	20	5	0	0	0	0	3	0	5	0	5	17	25			
	%	2%	19%	0%	2%	1%	0%	0%	0%	0%	9%	0%	1%	0%	1%	2%	2%			
	Articulated Trucks	2	5	0	7	2	1	0	0	1	6	1	1	0	2	2	10			
	%	0%	31%	0%	1%	0%	6%	0%	0%	3%	18%	6%	0%	0%	0%	0%	1%			
	Bicycles on Road	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
	%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%			
	Total	1043	16	0	1059	493	16	20	0	36	33	17	477	0	494	1063	1589			
	PHF	0.9	0.67	0	0.9	0.83	0.44	0.71	0	0.56	0.69	0.47	0.81	0	0.82	0.89	0.94			
	Approach %				67%	31%				2%	2%				31%	67%				

Spot Speed Data

MassDOT Highway Division
SPEED SUMMARY
Mon 5/22/2017

STA. 1 NB

Site Reference: 170210000601
Site ID: 000000000101
Location: RTE.138 N OF ROYALL ST. & BH RIVER RD.
Direction: NORTH
Lane: 1

File: SPD1.prn
City: CANTON
County: SPEED NB&SB

TIME	19	24	29	34	39	44	49	54	59	64	69	74	79	85	86+	Tota
12:00	47	73	97	207	204	105	39	1	0	0	0	0	0	0	0	773
13:00	66	91	155	200	193	77	24	5	0	0	0	0	0	0	0	811
14:00	159	116	122	161	169	80	8	0	0	0	0	0	0	0	0	815
15:00	71	102	156	239	214	115	19	1	0	0	0	0	0	0	0	917
16:00	297	215	131	136	109	43	9	2	0	0	0	0	0	0	0	942
17:00	232	204	154	155	87	37	10	0	1	0	0	0	0	0	0	880
18:00	260	210	167	148	108	46	2	0	0	0	0	0	0	0	0	941
19:00	115	98	158	172	161	65	19	4	1	0	0	0	0	0	0	793
20:00	2	37	74	137	188	133	35	12	0	0	0	0	0	0	0	618
21:00	0	2	22	140	233	141	37	7	2	1	2	0	0	0	0	587
22:00	2	7	29	140	180	117	23	5	0	0	0	0	0	0	0	503
23:00	1	4	24	90	137	70	29	3	1	0	0	0	0	0	0	359
24:00	0	0	8	56	82	71	20	7	1	0	0	0	0	0	0	245
DAY TOTAL	1252	1159	1297	1981	2065	1100	274	47	6	1	2	0	0	0	0	9184
PERCENTS	13.7%	12.7%	14.2%	21.6%	22.5%	11.9%	2.9%	0.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100%

Statistical Information...

15th Percentile Speed
19.6 mph

85th Percentile Speed
39.2 mph

Median Speed
31.2 mph

Average Speed
29.4 mph

10 MPH Pace Speed
29 mph to 39 mph
4046 vehicles in pace
Representing 44.0% of the total vehicles

Vehicles > 65 MPH
2
0.0%

Site Reference: 170210000601
Site ID: 000000000101
Location: RTE.138 N OF ROYALL ST. & BH RIVER RD.
Direction: NORTH
Lane: 1

File: SPD1.prn
City: CANTON
County: SPEED NB&SB

TIME	19	24	29	34	39	44	49	54	59	64	69	74	79	85	86+	Tota
01:00	0	0	2	28	55	39	15	5	0	0	0	0	0	0	2	146
02:00	0	1	1	4	16	27	12	4	0	0	0	0	0	0	0	65
03:00	0	0	0	5	13	19	11	6	0	0	0	0	0	0	0	54
04:00	0	0	0	5	16	27	18	8	0	0	0	0	0	0	0	74
05:00	0	0	4	13	56	72	55	27	2	0	2	0	0	0	0	231
06:00	49	46	92	165	221	182	74	22	2	0	0	0	0	0	0	853
07:00	416	148	117	122	123	64	18	2	2	0	0	0	0	0	0	1012
08:00	716	136	27	15	13	0	1	0	0	0	0	0	0	0	0	908
09:00	723	154	73	55	29	9	0	0	0	0	0	0	0	0	0	1043
10:00	224	179	193	212	151	48	13	2	0	0	0	0	0	0	0	1022
11:00	20	96	188	232	216	89	30	4	3	1	0	0	0	0	0	879
12:00	28	80	138	225	192	115	28	2	1	0	0	0	0	0	0	809
13:00	136	114	165	177	139	60	19	1	0	0	1	0	1	0	0	813
14:00	184	181	187	149	138	56	10	0	0	0	0	0	0	0	2	907
15:00	175	189	166	168	160	67	10	0	0	0	0	0	0	0	0	935
16:00	467	240	104	108	53	25	4	1	0	0	0	0	0	0	0	1002
17:00	367	214	132	123	70	24	5	1	0	0	0	0	0	0	0	936
18:00	333	234	130	119	93	28	5	0	0	0	0	0	0	0	0	942
19:00	166	134	141	154	129	50	7	6	0	0	0	0	0	0	0	787
20:00	48	72	123	171	200	107	35	4	0	0	0	0	0	0	0	760
21:00	4	10	43	156	237	131	45	7	3	1	0	0	0	0	0	637
22:00	9	7	41	129	226	135	36	8	0	2	2	0	1	0	0	596
23:00	1	0	6	59	135	110	57	16	3	0	0	0	0	0	0	387
24:00	0	0	5	36	106	143	58	8	2	0	0	0	0	0	0	358
DAY TOTAL	4066	2235	2078	2630	2787	1627	566	134	18	4	5	0	2	0	4	16156
PERCENTS	25.2%	13.9%	12.9%	16.3%	17.3%	10.0%	3.5%	0.8%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100%

Statistical Information...

15th Percentile Speed
11.3 mph

85th Percentile Speed
38.9 mph

Median Speed
28.3 mph

Average Speed
26.6 mph

10 MPH Pace Speed
29 mph to 39 mph
5417 vehicles in pace
Representing 33.5% of the total vehicles

Vehicles > 65 MPH
11
0.1%

Site Reference: 170210000601
Site ID: 000000000101
Location: RTE.138 N OF ROYALL ST. & BH RIVER RD.
Direction: NORTH
Lane: 1

File: SPD1.prn
City: CANTON
County: SPEED NB&SB

TIME	19	24	29	34	39	44	49	54	59	64	69	74	79	85	86+	Tota
01:00	0	1	1	16	71	86	47	13	1	0	0	0	0	0	0	236
02:00	0	0	0	4	48	76	48	20	2	0	1	0	0	0	0	199
03:00	0	0	1	7	13	28	14	4	0	0	0	0	0	0	0	67
04:00	0	0	1	6	15	26	16	8	1	0	0	0	0	0	0	73
05:00	0	0	5	7	49	78	57	25	2	1	0	0	0	0	0	224
06:00	60	33	108	156	196	178	72	15	2	0	0	0	0	0	0	820
07:00	455	123	67	99	100	55	20	6	1	0	0	0	0	0	0	926
08:00	681	119	40	25	14	0	0	0	0	0	0	0	0	0	0	879
09:00	623	243	105	49	20	8	1	0	0	0	0	0	0	0	0	1049
10:00	257	179	135	155	126	49	14	5	0	0	0	0	0	0	0	920
11:00	84	125	176	196	202	94	24	3	0	0	0	0	0	0	0	904
12:00	72	75	132	211	201	103	23	3	1	0	0	0	0	0	0	821
13:00	73	122	143	214	171	86	24	5	1	0	0	0	0	0	0	839
14:00	68	68	160	200	232	101	24	5	1	0	0	0	0	0	0	859
15:00	130	160	147	227	148	78	14	1	0	0	0	0	0	0	0	905
16:00	319	210	151	126	114	41	13	0	0	0	1	0	0	0	0	975
17:00	409	202	160	95	52	26	1	3	0	0	0	0	0	0	0	948
18:00	398	214	129	132	62	21	6	1	0	0	1	0	0	0	0	964
19:00	265	145	140	161	106	36	5	4	0	0	0	0	0	0	0	862
20:00	33	43	102	185	226	97	31	4	0	0	0	0	0	0	0	721
21:00	3	10	61	173	239	138	57	4	2	0	0	0	0	0	0	687
22:00	0	3	35	153	240	136	36	7	0	0	0	0	0	0	0	610
23:00	0	1	9	69	163	132	43	11	2	0	0	0	0	0	0	430
24:00	2	1	9	35	104	98	38	10	0	0	0	0	0	0	0	297
DAY TOTAL	3932	2077	2017	2701	2912	1771	628	157	16	1	3	0	0	0	0	16215
PERCENTS	24.3%	12.9%	12.5%	16.7%	18.0%	10.9%	3.8%	0.9%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100%

Statistical Information...

15th Percentile Speed
11.8 mph

85th Percentile Speed
39.4 mph

Median Speed
29.2 mph

Average Speed
27.1 mph

10 MPH Pace Speed
29 mph to 39 mph
5613 vehicles in pace
Representing 34.6% of the total vehicles

Vehicles > 65 MPH
3
0.0%

Site Reference: 170210000601
Site ID: 000000000101
Location: RTE.138 N OF ROYALL ST. & BH RIVER RD.
Direction: NORTH
Lane: 1

File: SPD1.prn
City: CANTON
County: SPEED NB&SB

TIME	19	24	29	34	39	44	49	54	59	64	69	74	79	85	86+	Tota
01:00	0	0	1	17	48	57	41	5	1	0	0	0	0	0	0	170
02:00	0	1	1	6	17	28	23	4	1	0	0	0	0	0	0	81
03:00	0	0	1	5	12	18	9	5	1	1	0	0	0	0	0	52
04:00	0	0	2	2	14	24	19	10	2	2	0	0	0	0	0	75
05:00	0	3	2	13	43	82	65	15	5	0	0	0	0	0	0	228
06:00	41	65	83	135	201	178	76	26	2	1	0	0	0	0	0	808
07:00	399	186	155	121	113	56	15	5	0	0	0	0	0	0	0	1050
08:00	768	105	16	8	4	2	1	0	0	0	0	0	0	0	0	904
09:00	813	92	30	17	4	1	0	0	0	0	0	0	0	0	0	957
DAY TOTAL	2021	452	291	324	456	446	249	70	12	4	0	0	0	0	0	4325
PERCENTS	46.8%	10.5%	6.8%	7.5%	10.6%	10.3%	5.7%	1.6%	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100%

Statistical Information...

15th Percentile Speed
6.1 mph

85th Percentile Speed
40.5 mph

Median Speed
20.6 mph

Average Speed
22.7 mph

10 MPH Pace Speed
9 mph to 19 mph
2021 vehicles in pace
Representing 46.7% of the total vehicles

Vehicles > 65 MPH
0
0.0%

MassDOT Highway Division
SPEED SUMMARY
Mon 5/22/2017

STA. 1 SB

Site Reference: 170210000601
Site ID: 000000000101
Location: RTE.138 N OF ROYALL ST. & BH RIVER RD.
Direction: SOUTH
Lane: 2

File: SPD1.prn
City: CANTON
County: SPEED NB&SB

TIME	19	24	29	34	39	44	49	54	59	64	69	74	79	85	86+	Tota
12:00	12	15	66	236	364	129	7	0	0	0	0	0	0	0	0	829
13:00	44	28	126	330	273	73	8	1	0	0	0	0	0	0	0	883
14:00	99	37	147	259	231	77	18	0	0	0	0	0	0	0	0	868
15:00	136	78	156	256	311	77	10	1	0	0	0	0	0	0	0	1025
16:00	451	317	214	116	30	1	0	0	0	0	0	0	0	0	0	1129
17:00	446	293	287	95	32	6	0	0	0	0	0	0	1	0	0	1160
18:00	608	250	154	71	6	0	0	0	0	0	0	0	0	0	0	1089
19:00	324	265	165	261	152	18	1	0	0	0	0	0	0	0	0	1186
20:00	0	0	24	181	466	202	25	1	0	0	0	0	0	0	0	899
21:00	1	2	13	56	231	208	51	5	0	0	0	0	0	0	0	567
22:00	0	0	4	57	188	164	41	5	1	0	0	0	0	0	0	460
23:00	0	2	12	42	95	112	38	9	1	0	0	0	0	0	0	311
24:00	0	2	2	27	114	120	39	7	2	0	0	0	0	0	0	313
DAY TOTAL	2121	1289	1370	1987	2493	1187	238	29	4	0	0	0	1	0	0	10719
PERCENTS	19.8%	12.1%	12.8%	18.6%	23.3%	11.0%	2.2%	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100%

Statistical Information...

15th Percentile Speed
14.4 mph

85th Percentile Speed
38.7 mph

Median Speed
30.5 mph

Average Speed
28.0 mph

10 MPH Pace Speed
29 mph to 39 mph
4480 vehicles in pace
Representing 41.7% of the total vehicles

Vehicles > 65 MPH
1
0.0%

Site Reference: 170210000601
Site ID: 000000000101
Location: RTE.138 N OF ROYALL ST. & BH RIVER RD.
Direction: SOUTH
Lane: 2

File: SPD1.prn
City: CANTON
County: SPEED NB&SB

TIME	19	24	29	34	39	44	49	54	59	64	69	74	79	85	86+	Tota
01:00	0	0	3	18	44	61	30	9	5	0	0	1	0	0	0	171
02:00	0	1	2	2	21	18	17	12	3	0	0	1	0	0	0	77
03:00	1	0	2	7	7	14	14	6	0	0	0	0	0	0	0	51
04:00	0	0	0	1	2	16	22	4	4	2	0	0	0	0	0	51
05:00	0	1	0	15	23	40	24	13	1	0	0	0	0	0	0	117
06:00	0	2	21	43	110	114	58	10	0	0	0	0	0	0	0	358
07:00	6	10	45	142	257	183	40	6	0	0	0	0	0	0	0	689
08:00	237	163	171	174	158	52	5	1	0	0	0	0	0	0	0	961
09:00	316	187	149	117	80	30	3	0	0	0	0	0	0	0	0	882
10:00	65	55	122	285	234	98	22	3	1	0	0	0	0	0	0	885
11:00	25	22	44	167	343	171	30	4	2	0	0	0	0	1	0	809
12:00	55	25	72	205	306	173	20	2	1	4	0	2	0	0	0	865
13:00	153	76	111	181	229	123	23	2	0	0	0	0	0	0	0	898
14:00	178	154	198	203	149	65	12	0	0	0	0	0	2	0	0	961
15:00	244	210	239	197	177	39	0	0	0	0	0	0	0	0	0	1106
16:00	355	421	270	65	3	0	0	0	0	0	0	0	0	0	0	1114
17:00	458	337	223	72	7	0	0	0	0	0	0	0	0	0	0	1097
18:00	511	239	175	62	5	0	0	0	0	0	0	0	0	0	0	992
19:00	248	296	358	259	102	5	1	0	0	0	0	0	0	0	0	1269
20:00	147	93	104	174	325	155	26	4	0	0	0	0	0	1	0	1029
21:00	1	2	14	125	395	228	24	4	0	0	0	0	0	0	0	793
22:00	1	1	15	91	255	175	44	3	0	0	0	0	0	0	0	585
23:00	0	2	6	43	186	154	34	5	1	0	0	0	0	0	0	431
24:00	0	2	4	34	103	145	89	9	1	1	0	0	0	0	0	388
DAY TOTAL	3001	2299	2348	2682	3521	2059	538	97	19	7	0	4	2	2	0	16579
PERCENTS	18.2%	13.9%	14.2%	16.2%	21.3%	12.4%	3.2%	0.5%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100%

Statistical Information...

15th Percentile Speed
15.8 mph

85th Percentile Speed
39.6 mph

Median Speed
30.2 mph

Average Speed
28.4 mph

10 MPH Pace Speed
29 mph to 39 mph
6203 vehicles in pace
Representing 37.4% of the total vehicles

Vehicles > 65 MPH
8
0.0%

Site Reference: 170210000601
Site ID: 000000000101
Location: RTE.138 N OF ROYALL ST. & BH RIVER RD.
Direction: SOUTH
Lane: 2

File: SPD1.prn
City: CANTON
County: SPEED NB&SB

TIME	19	24	29	34	39	44	49	54	59	64	69	74	79	85	86+	Tota
01:00	0	0	1	3	36	76	47	14	4	1	0	0	0	0	0	182
02:00	0	0	0	8	28	44	24	3	1	0	0	0	0	0	0	108
03:00	0	1	1	3	16	20	17	9	7	1	1	0	0	0	0	76
04:00	0	0	0	1	7	16	16	13	2	0	1	0	0	0	0	56
05:00	0	0	3	2	28	33	42	9	2	1	0	0	0	0	0	120
06:00	6	1	16	32	99	121	59	23	2	0	1	0	0	0	0	360
07:00	20	15	56	138	224	165	42	3	0	0	0	0	0	0	0	663
08:00	143	123	162	242	217	46	3	0	0	0	0	0	0	0	0	936
09:00	473	303	145	18	1	0	0	0	0	0	0	0	0	0	0	940
10:00	162	141	91	132	211	97	12	1	2	0	0	0	0	0	0	849
11:00	7	38	63	221	309	143	17	0	0	0	0	0	0	0	0	798
12:00	47	49	99	247	302	109	19	3	0	0	0	0	0	0	0	875
13:00	52	58	151	247	280	98	18	2	0	0	0	0	0	0	1	907
14:00	43	49	130	245	356	110	17	4	0	0	0	0	0	0	0	954
15:00	107	121	250	325	266	61	12	1	0	0	0	0	0	0	0	1143
16:00	536	287	199	44	3	0	0	0	0	0	0	0	0	0	0	1069
17:00	542	373	163	30	3	0	0	0	0	0	0	0	0	0	0	1111
18:00	541	301	187	38	2	0	0	0	0	0	0	0	0	0	0	1069
19:00	367	240	239	125	108	24	8	0	0	0	0	0	0	0	0	1111
20:00	21	33	91	258	444	152	20	1	0	0	0	0	0	0	0	1020
21:00	0	3	18	127	411	172	28	4	1	0	0	0	0	0	0	764
22:00	0	2	9	84	290	182	41	8	0	0	0	0	0	0	0	616
23:00	0	0	5	22	160	191	62	2	2	3	0	0	0	0	0	447
24:00	1	2	4	40	108	175	66	11	1	1	0	0	0	0	0	409
DAY TOTAL	3068	2140	2083	2632	3909	2035	570	111	24	7	3	0	0	0	1	16583
PERCENTS	18.6%	13.0%	12.6%	15.9%	23.6%	12.2%	3.4%	0.6%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100%

Statistical Information...

15th Percentile Speed
15.4 mph

85th Percentile Speed
39.7 mph

Median Speed
30.9 mph

Average Speed
28.6 mph

10 MPH Pace Speed
29 mph to 39 mph
6541 vehicles in pace
Representing 39.4% of the total vehicles

Vehicles > 65 MPH
4
0.0%

MassDOT Highway Division
SPEED SUMMARY
Thu 5/25/2017

Site Reference: 170210000601
Site ID: 000000000101
Location: RTE.138 N OF ROYALL ST. & BH RIVER RD.
Direction: SOUTH
Lane: 2

File: SPD1.prn
City: CANTON
County: SPEED NB&SB

TIME	19	24	29	34	39	44	49	54	59	64	69	74	79	85	86+	Tota
01:00	0	0	2	11	52	80	41	11	3	2	0	0	0	0	0	202
02:00	0	0	1	0	14	28	26	10	0	1	0	0	0	0	0	80
03:00	0	0	0	1	12	17	15	12	5	0	0	0	0	1	0	63
04:00	0	0	1	1	3	23	23	11	6	0	2	0	0	0	0	70
05:00	0	1	1	9	23	37	39	8	3	0	0	0	0	0	0	121
06:00	5	4	8	44	107	121	71	16	4	0	0	0	0	0	0	380
07:00	5	7	42	137	294	162	34	2	0	0	0	0	0	0	0	683
08:00	83	122	204	293	208	42	3	0	0	0	0	0	0	0	0	955
09:00	654	217	34	2	0	1	0	0	0	0	0	0	0	0	0	908
DAY TOTAL	747	351	293	498	713	511	252	70	21	3	2	0	0	1	0	3462
PERCENTS	21.6%	10.2%	8.5%	14.4%	20.6%	14.8%	7.3%	2.0%	0.6%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100%

Statistical Information...

15th Percentile Speed
13.2 mph

85th Percentile Speed
42.3 mph

Median Speed
32.4 mph

Average Speed
29.5 mph

10 MPH Pace Speed
34 mph to 44 mph
1224 vehicles in pace
Representing 35.3% of the total vehicles

Vehicles > 65 MPH
3
0.1%

MassDOT Highway Division
SPEED SUMMARY
Mon 5/22/2017

STA. 6 NB

Site Reference: 170210000638
Site ID: 000000000601
Location: RTE.138 NORTH OF FARM ST.
Direction: NORTH
Lane: 1

File: SPD6.prn
City: CANTON
County: SPEED NB&SB

TIME	19	24	29	34	39	44	49	54	59	64	69	74	79	85	86+	Tota
12:00	35	34	29	123	159	106	24	4	1	0	0	0	0	0	0	515
13:00	0	1	20	139	288	155	33	3	0	0	0	0	0	0	0	639
14:00	3	1	23	148	278	147	27	5	0	0	0	0	0	0	0	632
15:00	0	12	33	170	304	151	26	5	1	0	0	0	0	0	0	702
16:00	12	14	93	201	246	131	34	3	0	2	0	0	0	0	0	736
17:00	2	21	97	268	236	98	26	3	0	0	0	0	0	0	0	751
18:00	2	8	108	253	247	104	24	9	0	0	0	0	0	0	0	755
19:00	0	0	24	162	207	103	25	7	1	0	0	0	0	0	0	529
20:00	0	0	1	37	166	109	29	8	1	0	0	0	0	0	0	351
21:00	0	0	4	51	133	82	25	8	1	0	1	0	0	0	0	305
22:00	0	0	6	43	98	66	28	5	0	0	0	0	0	0	0	246
23:00	0	0	2	24	84	59	18	10	1	0	0	0	0	0	0	198
24:00	0	0	1	29	64	49	22	7	0	0	0	0	0	0	0	172
DAY TOTAL	54	91	441	1648	2510	1360	341	77	6	2	1	0	0	0	0	6531
PERCENTS	0.9%	1.4%	6.8%	25.3%	38.5%	20.8%	5.2%	1.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100%

Statistical Information...

15th Percentile Speed
30.2 mph

85th Percentile Speed
42.0 mph

Median Speed
36.1 mph

Average Speed
35.9 mph

10 MPH Pace Speed
29 mph to 39 mph
4158 vehicles in pace
Representing 63.6% of the total vehicles

Vehicles > 65 MPH
1
0.0%

Site Reference: 170210000638
Site ID: 000000000601
Location: RTE.138 NORTH OF FARM ST.
Direction: NORTH
Lane: 1

File: SPD6.prn
City: CANTON
County: SPEED NB&SB

TIME	19	24	29	34	39	44	49	54	59	64	69	74	79	85	86+	Tota
01:00	3	1	1	7	22	21	13	2	1	0	0	0	0	0	0	71
02:00	0	0	0	2	13	19	5	6	0	0	0	0	0	0	0	45
03:00	0	0	0	2	8	8	6	4	0	0	0	0	0	0	0	28
04:00	0	0	0	1	13	13	22	4	1	1	1	0	0	0	0	56
05:00	0	0	0	6	30	45	26	13	2	0	0	0	0	0	0	122
06:00	0	0	9	71	176	228	76	20	4	0	1	0	0	0	0	585
07:00	582	60	57	120	80	30	7	0	1	0	0	0	0	0	0	937
08:00	649	143	33	1	0	0	0	0	0	0	0	0	0	0	0	826
09:00	280	89	105	155	136	49	15	2	0	0	0	0	0	0	0	831
10:00	1	8	69	233	270	125	31	4	1	0	0	0	0	0	0	742
11:00	2	2	48	139	265	105	40	6	0	0	0	0	0	0	0	607
12:00	0	4	39	141	286	146	36	2	0	0	0	0	0	0	0	654
13:00	9	21	64	213	256	148	30	2	2	0	0	0	0	0	0	745
14:00	3	1	37	140	295	160	38	2	2	0	0	0	0	0	0	678
15:00	0	3	29	214	341	167	28	7	0	0	0	0	0	0	0	789
16:00	4	23	125	335	287	99	22	5	1	0	0	0	0	0	0	901
17:00	6	19	85	254	285	126	39	7	3	0	0	0	0	0	0	824
18:00	4	13	125	291	259	79	23	5	0	0	0	0	0	0	0	799
19:00	0	3	13	151	237	132	47	4	1	0	0	0	0	0	0	588
20:00	0	0	8	68	222	137	42	1	0	0	0	0	0	0	0	478
21:00	0	0	10	59	162	103	30	7	0	0	0	0	0	0	0	371
22:00	0	0	4	41	124	97	43	9	0	0	0	0	0	0	0	318
23:00	1	0	2	16	67	65	26	2	4	1	0	0	0	0	0	184
24:00	0	0	3	9	48	57	34	8	2	0	0	0	0	0	0	161
DAY TOTAL	1544	390	866	2669	3882	2159	679	122	25	2	2	0	0	0	0	12340
PERCENTS	12.6%	3.2%	7.1%	21.7%	31.4%	17.4%	5.5%	0.9%	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100%

Statistical Information...

15th Percentile Speed
22.9 mph

85th Percentile Speed
41.6 mph

Median Speed
34.9 mph

Average Speed
32.5 mph

10 MPH Pace Speed
29 mph to 39 mph
6551 vehicles in pace
Representing 53.0% of the total vehicles

Vehicles > 65 MPH
2
0.0%

Site Reference: 170210000638
Site ID: 000000000601
Location: RTE.138 NORTH OF FARM ST.
Direction: NORTH
Lane: 1

File: SPD6.prn
City: CANTON
County: SPEED NB&SB

TIME	19	24	29	34	39	44	49	54	59	64	69	74	79	85	86+	Tota
01:00	0	0	1	5	17	38	17	4	1	0	0	0	0	0	0	83
02:00	0	0	0	6	11	16	16	5	4	0	0	0	0	0	0	58
03:00	0	0	0	0	8	9	9	2	1	1	0	1	0	0	0	31
04:00	0	0	1	2	9	18	14	2	0	1	0	0	0	0	0	47
05:00	0	0	0	2	23	35	29	18	5	0	0	0	0	0	0	112
06:00	1	0	4	64	178	205	71	19	4	0	0	0	0	0	0	546
07:00	577	96	60	72	51	31	6	3	0	0	0	0	0	0	0	896
08:00	677	107	30	0	0	0	0	0	0	0	0	0	0	0	0	814
09:00	555	80	60	39	41	9	1	0	0	0	0	0	0	0	0	785
10:00	4	22	108	235	201	116	40	8	1	0	0	0	0	0	0	735
11:00	1	5	65	183	252	112	36	4	0	0	0	0	0	0	0	658
12:00	4	2	48	177	242	137	27	7	0	0	0	0	0	0	0	644
13:00	15	29	52	169	257	111	26	5	0	0	0	0	0	0	0	664
14:00	13	9	68	231	237	129	26	4	0	0	0	0	0	0	0	717
15:00	1	9	43	202	305	150	44	9	1	1	0	0	0	0	0	765
16:00	17	26	106	246	334	113	19	0	0	0	0	0	0	0	0	861
17:00	17	25	108	295	252	99	13	5	0	0	0	0	0	0	0	814
18:00	11	22	61	314	269	104	23	4	0	0	0	0	0	0	0	808
19:00	0	5	39	178	262	101	21	6	0	1	0	0	0	0	0	613
20:00	3	6	10	97	216	117	38	10	1	0	0	0	0	0	0	498
21:00	0	0	8	60	193	130	29	4	1	0	0	0	0	0	0	425
22:00	0	3	7	55	127	69	27	1	1	0	1	0	0	0	0	291
23:00	0	1	4	40	57	55	39	11	3	1	0	0	0	0	0	211
24:00	0	0	1	6	36	75	39	19	2	0	0	0	0	0	0	178
DAY TOTAL	1896	447	884	2678	3578	1979	610	150	25	5	1	1	0	0	0	12254
PERCENTS	15.5%	3.7%	7.3%	21.9%	29.2%	16.1%	4.9%	1.2%	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100%

Statistical Information...

15th Percentile Speed
18.4 mph

85th Percentile Speed
41.4 mph

Median Speed
34.3 mph

Average Speed
31.5 mph

10 MPH Pace Speed
29 mph to 39 mph
6256 vehicles in pace
Representing 51.0% of the total vehicles

Vehicles > 65 MPH
2
0.0%

Site Reference: 170210000638
Site ID: 000000000601
Location: RTE.138 NORTH OF FARM ST.
Direction: NORTH
Lane: 1

File: SPD6.prn
City: CANTON
County: SPEED NB&SB

TIME	19	24	29	34	39	44	49	54	59	64	69	74	79	85	86+	Tota
01:00	0	0	2	4	16	35	24	7	3	0	0	0	0	0	0	91
02:00	0	0	1	1	13	14	6	3	0	0	0	0	0	0	0	38
03:00	0	0	0	1	5	10	9	6	0	1	0	0	0	0	0	32
04:00	0	0	0	4	7	15	12	6	3	0	0	0	0	0	0	47
05:00	0	0	0	1	23	57	28	11	8	2	0	0	0	0	0	130
06:00	1	0	17	59	193	193	81	26	1	0	0	0	0	0	0	571
07:00	483	61	89	153	92	35	6	1	0	0	0	0	0	0	0	920
08:00	600	94	57	45	28	4	1	0	0	0	0	0	0	0	0	829
09:00	2	40	131	323	227	82	27	2	0	0	0	0	0	0	0	834
DAY TOTAL	1086	195	297	591	604	445	194	62	15	3	0	0	0	0	0	3492
PERCENTS	31.1%	5.6%	8.6%	17.0%	17.3%	12.8%	5.5%	1.7%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100%

Statistical Information...

15th Percentile Speed
9.2 mph

85th Percentile Speed
41.2 mph

Median Speed
30.4 mph

Average Speed
27.1 mph

10 MPH Pace Speed
29 mph to 39 mph
1195 vehicles in pace
Representing 34.2% of the total vehicles

Vehicles > 65 MPH
0
0.0%

STA 6SB

Site Reference: 170210000638
Site ID: 000000000601
Location: RTE.138 NORTH OF FARM ST.
Direction: SOUTH
Lane: 2

File: SPD6.prn
City: CANTON
County: SPEED NB&SB

TIME	19	24	29	34	39	44	49	54	59	64	69	74	79	85	86+	Tota
12:00	38	10	39	113	184	94	23	2	0	0	0	0	0	0	0	503
13:00	0	3	33	173	235	121	34	9	0	0	0	0	0	0	0	608
14:00	4	14	56	179	217	128	36	7	2	0	0	0	0	0	0	643
15:00	1	4	62	215	238	132	24	3	1	0	0	0	0	0	0	680
16:00	2	18	162	312	248	95	23	6	1	0	0	0	0	0	0	867
17:00	296	97	147	170	137	27	5	4	0	0	0	0	0	0	0	883
18:00	47	22	160	300	248	73	16	3	1	0	0	0	0	0	0	870
19:00	6	8	109	352	262	99	29	10	0	0	0	0	0	0	0	875
20:00	0	0	28	112	210	130	49	13	1	0	0	0	0	0	0	543
21:00	0	0	4	61	155	120	37	5	0	0	0	0	0	0	0	382
22:00	0	0	5	40	132	84	22	3	0	1	0	0	0	0	0	287
23:00	0	0	2	30	97	59	23	7	2	0	0	0	0	0	0	220
24:00	1	0	7	28	66	50	13	4	3	0	0	0	0	0	0	172
DAY TOTAL	395	176	814	2085	2429	1212	334	76	11	1	0	0	0	0	0	7533
PERCENTS	5.3%	2.4%	10.9%	27.7%	32.2%	16.0%	4.4%	1.0%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100%

Statistical Information...

15th Percentile Speed
27.4 mph

85th Percentile Speed
41.1 mph

Median Speed
34.6 mph

Average Speed
33.7 mph

10 MPH Pace Speed
29 mph to 39 mph
4514 vehicles in pace
Representing 59.9% of the total vehicles

Vehicles > 65 MPH
0
0.0%

Site Reference: 170210000638
Site ID: 000000000601
Location: RTE.138 NORTH OF FARM ST.
Direction: SOUTH
Lane: 2

File: SPD6.prn
City: CANTON
County: SPEED NB&SB

TIME	19	24	29	34	39	44	49	54	59	64	69	74	79	85	86+	Tota
01:00	0	1	4	8	26	40	12	5	0	0	0	0	0	0	0	96
02:00	0	0	1	5	14	16	10	1	1	0	0	0	0	0	0	48
03:00	0	0	0	3	10	11	11	5	0	0	0	0	0	0	0	40
04:00	0	0	0	4	3	10	21	5	1	0	0	0	0	0	0	44
05:00	0	0	1	4	19	28	13	5	1	0	1	0	0	0	0	72
06:00	0	0	1	18	52	90	54	11	1	0	2	0	0	0	0	229
07:00	1	0	17	97	166	103	38	5	3	0	0	0	0	0	0	430
08:00	8	18	105	199	187	86	23	5	0	0	0	0	0	0	0	631
09:00	5	44	128	204	181	78	15	0	0	0	0	0	0	0	0	655
10:00	1	4	81	172	228	98	33	5	2	0	0	0	0	0	0	624
11:00	6	7	38	115	216	134	57	12	0	0	0	0	0	0	0	585
12:00	2	0	35	138	246	146	32	7	1	0	0	0	0	0	0	607
13:00	4	3	79	239	222	113	33	3	0	0	0	0	0	0	0	696
14:00	2	1	44	184	264	133	39	7	1	0	0	0	0	0	0	675
15:00	1	16	102	268	220	122	26	7	0	0	0	0	0	0	0	762
16:00	122	42	197	217	137	69	16	3	0	0	0	0	0	0	0	803
17:00	14	34	199	301	222	96	31	1	0	0	0	0	0	0	0	898
18:00	543	118	57	56	34	9	6	0	0	0	0	0	0	0	0	823
19:00	119	87	205	288	192	64	19	5	0	1	0	0	0	0	0	980
20:00	2	9	42	189	272	120	45	9	0	0	1	0	0	0	0	689
21:00	0	4	17	116	190	116	26	8	3	0	0	0	0	0	0	480
22:00	0	0	9	54	135	94	37	4	1	0	0	0	0	0	0	334
23:00	0	1	1	26	78	62	39	5	1	1	0	0	0	0	0	214
24:00	1	0	2	47	162	112	50	12	3	0	0	0	0	0	0	389
DAY TOTAL	831	389	1365	2952	3476	1950	686	130	19	2	4	0	0	0	0	11804
PERCENTS	7.1%	3.3%	11.6%	25.1%	29.4%	16.5%	5.8%	1.1%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100%

Statistical Information...

15th Percentile Speed
26.0 mph

85th Percentile Speed
41.6 mph

Median Speed
34.5 mph

Average Speed
33.3 mph

10 MPH Pace Speed
29 mph to 39 mph
6428 vehicles in pace
Representing 54.4% of the total vehicles

Vehicles > 65 MPH
4
0.0%

Site Reference: 170210000638
Site ID: 000000000601
Location: RTE.138 NORTH OF FARM ST.
Direction: SOUTH
Lane: 2

File: SPD6.prn
City: CANTON
County: SPEED NB&SB

TIME	19	24	29	34	39	44	49	54	59	64	69	74	79	85	86+	Tota
01:00	0	0	5	9	39	61	45	9	1	1	0	0	0	0	0	170
02:00	0	0	1	11	21	20	12	4	0	0	0	0	0	0	0	69
03:00	0	0	0	0	12	13	9	4	0	0	0	0	0	0	0	38
04:00	0	0	1	3	5	13	12	1	2	0	0	0	0	0	0	37
05:00	0	0	0	7	18	32	16	9	0	0	0	0	0	0	0	82
06:00	0	0	0	10	59	94	52	12	5	0	0	0	0	0	0	232
07:00	0	0	17	111	172	103	25	4	0	1	0	0	0	0	0	433
08:00	0	26	117	215	197	68	26	1	0	0	0	0	0	0	0	650
09:00	53	38	156	229	168	41	5	1	0	0	0	0	0	0	0	691
10:00	61	6	45	195	169	99	22	3	1	0	1	0	0	0	0	602
11:00	2	16	40	155	221	120	26	9	0	0	0	0	0	0	0	589
12:00	0	11	42	174	237	121	29	7	0	0	0	0	0	0	0	621
13:00	0	11	97	302	194	55	16	0	0	0	0	0	0	0	0	675
14:00	1	17	110	245	181	96	25	5	0	0	0	0	0	0	0	680
15:00	1	4	73	271	258	143	27	9	2	0	0	0	0	0	0	788
16:00	2	52	182	257	214	122	26	9	0	1	0	0	0	0	0	865
17:00	361	103	129	205	105	34	12	3	2	0	0	0	0	0	0	954
18:00	406	111	97	162	84	36	5	0	0	0	0	0	0	0	0	901
19:00	310	70	152	139	150	56	8	1	0	1	0	0	0	0	0	887
20:00	3	0	44	145	253	137	45	9	0	0	0	0	0	0	0	636
21:00	1	0	10	91	175	114	44	7	1	0	0	0	0	0	0	443
22:00	0	0	7	71	145	109	39	6	1	0	0	0	0	0	0	378
23:00	0	0	6	36	88	102	33	3	1	0	0	0	0	0	0	269
24:00	0	2	3	26	77	96	35	6	1	1	0	0	0	0	0	247
DAY TOTAL	1201	467	1334	3069	3242	1885	594	122	17	5	1	0	0	0	0	11937
PERCENTS	10.1%	4.0%	11.2%	25.8%	27.2%	15.7%	4.9%	1.0%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100%

Statistical Information...

15th Percentile Speed
24.5 mph

85th Percentile Speed
41.2 mph

Median Speed
33.8 mph

Average Speed
32.3 mph

10 MPH Pace Speed
29 mph to 39 mph
6311 vehicles in pace
Representing 52.8% of the total vehicles

Vehicles > 65 MPH
1
0.0%

Site Reference: 170210000638
Site ID: 000000000601
Location: RTE.138 NORTH OF FARM ST.
Direction: SOUTH
Lane: 2

File: SPD6.prn
City: CANTON
County: SPEED NB&SB

TIME	19	24	29	34	39	44	49	54	59	64	69	74	79	85	86+	Tota
01:00	0	0	0	11	27	48	19	6	0	0	2	0	0	0	0	113
02:00	0	0	0	0	12	22	11	6	0	0	0	0	0	0	0	51
03:00	0	1	0	0	9	14	6	5	1	2	0	0	1	0	0	39
04:00	0	0	0	0	6	17	16	8	2	0	0	0	0	0	0	49
05:00	0	0	1	3	15	30	17	5	1	0	0	0	0	0	0	72
06:00	0	0	0	13	55	88	62	22	3	0	0	0	0	0	0	243
07:00	7	5	34	98	159	110	27	3	2	0	0	0	0	0	0	445
08:00	5	27	94	218	178	74	18	0	0	0	0	0	0	0	0	614
09:00	4	33	147	255	170	84	14	3	0	0	0	0	0	0	0	710
DAY TOTAL	16	66	276	598	631	487	190	58	9	2	2	0	1	0	0	2336
PERCENTS	0.7%	2.9%	11.9%	25.6%	27.1%	20.9%	8.2%	2.4%	0.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100%

Statistical Information...

15th Percentile Speed
28.9 mph

85th Percentile Speed
43.1 mph

Median Speed
35.7 mph

Average Speed
35.8 mph

10 MPH Pace Speed
29 mph to 39 mph
1229 vehicles in pace
Representing 52.6% of the total vehicles

Vehicles > 65 MPH
3
0.1%

MassDOT Highway Division
SPEED SUMMARY
Mon 5/22/2017

STA. 9 NB

Site Reference: 170210000583
Site ID: 000000000901
Location: RT.138 SOUTH OF DEL POND DR.
Direction: NORTH
Lane: 1

File: SPD9.prn
City: CANTON
County: SPEED NB&SB

TIME	19	24	29	34	39	44	49	54	59	64	69	74	79	85	86+	Tota
13:00	15	21	67	196	308	98	21	4	0	0	0	0	0	0	0	730
14:00	6	11	58	196	270	147	16	3	0	0	0	0	0	0	0	707
15:00	3	8	57	178	309	146	35	1	0	0	0	0	0	0	0	737
16:00	9	21	74	187	353	122	21	2	0	0	0	0	0	0	2	791
17:00	277	135	107	124	139	66	9	0	0	0	0	0	0	0	2	859
18:00	203	55	70	147	246	117	17	2	1	0	0	0	0	0	0	858
19:00	0	1	14	60	195	208	67	7	0	0	0	0	0	0	0	552
20:00	1	0	3	30	106	165	57	5	0	0	0	0	0	0	0	367
21:00	0	0	4	29	100	113	46	7	0	0	0	0	0	0	0	299
22:00	0	1	9	27	61	111	34	6	0	0	0	0	0	0	0	249
23:00	0	0	4	24	71	73	38	5	0	0	0	0	0	0	0	215
24:00	0	2	14	15	34	74	32	7	1	0	0	0	0	0	0	179
DAY TOTAL	514	255	481	1213	2192	1440	393	49	2	0	0	0	0	0	4	6543
PERCENTS	7.9%	3.9%	7.4%	18.6%	33.5%	22.0%	6.0%	0.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100%

Statistical Information...

15th Percentile Speed
26.2 mph

85th Percentile Speed
42.2 mph

Median Speed
35.9 mph

Average Speed
34.0 mph

10 MPH Pace Speed
34 mph to 44 mph
3632 vehicles in pace
Representing 55.5% of the total vehicles

Vehicles > 65 MPH
4
0.1%

Site Reference: 170210000583
Site ID: 000000000901
Location: RT.138 SOUTH OF DEL POND DR.
Direction: NORTH
Lane: 1

File: SPD9.prn
City: CANTON
County: SPEED NB&SB

TIME	19	24	29	34	39	44	49	54	59	64	69	74	79	85	86+	Tota
01:00	0	0	0	5	18	22	17	7	2	1	0	0	0	0	0	72
02:00	0	0	0	1	6	22	9	4	0	0	2	0	0	0	0	44
03:00	0	0	1	0	11	11	9	2	2	0	0	0	0	0	0	36
04:00	0	0	1	6	13	22	14	8	1	0	0	0	0	0	0	65
05:00	0	0	2	6	18	51	30	17	2	1	0	0	0	0	0	127
06:00	3	4	20	42	123	215	124	24	4	1	0	0	0	0	0	560
07:00	2	2	22	189	430	280	53	3	0	0	0	0	0	0	0	981
08:00	16	33	100	259	471	154	21	1	0	0	0	0	0	0	0	1055
09:00	19	13	58	208	363	210	26	6	0	1	0	0	0	1	0	905
10:00	32	32	97	186	249	119	17	1	2	0	0	0	1	1	0	737
11:00	19	12	73	163	229	119	16	5	0	1	0	0	2	0	2	641
12:00	42	14	54	177	254	117	9	5	0	1	4	5	0	1	3	686
13:00	40	26	91	246	263	100	10	0	0	0	1	5	4	6	7	799
14:00	79	31	68	179	239	91	22	2	0	1	1	3	0	2	5	723
15:00	33	9	84	253	284	102	17	2	1	1	3	2	1	4	2	798
16:00	70	71	152	226	244	87	10	2	2	1	2	2	6	1	4	880
17:00	126	91	153	244	248	66	9	0	1	0	0	3	1	3	5	950
18:00	66	31	96	272	269	99	17	0	0	0	0	2	3	8	8	871
19:00	29	1	7	87	250	162	40	4	0	0	1	0	0	2	13	596
20:00	20	6	4	89	156	144	62	4	0	0	0	0	1	2	9	497
21:00	4	2	4	45	149	129	49	1	0	0	0	0	0	0	0	383
22:00	1	1	3	26	118	117	48	3	0	0	0	0	0	0	0	317
23:00	4	2	4	23	41	73	44	9	3	2	0	0	0	0	0	205
24:00	0	3	8	11	33	48	40	9	2	2	0	0	0	0	0	156
DAY TOTAL	605	384	1102	2943	4479	2560	713	119	22	13	14	22	19	31	58	13084
PERCENTS	4.7%	3.0%	8.5%	22.5%	34.3%	19.6%	5.5%	0.9%	0.1%	0.0%	0.1%	0.1%	0.1%	0.2%	0.4%	100%

Statistical Information...

15th Percentile Speed
28.4 mph

85th Percentile Speed
42.2 mph

Median Speed
35.7 mph

Average Speed
34.9 mph

10 MPH Pace Speed
29 mph to 39 mph
7422 vehicles in pace
Representing 56.7% of the total vehicles

Vehicles > 65 MPH
144
1.1%

Site Reference: 170210000583
Site ID: 000000000901
Location: RT.138 SOUTH OF DEL POND DR.
Direction: NORTH
Lane: 1

File: SPD9.prn
City: CANTON
County: SPEED NB&SB

TIME	19	24	29	34	39	44	49	54	59	64	69	74	79	85	86+	Tota
01:00	2	0	0	3	17	28	23	11	0	3	0	0	0	0	2	89
02:00	0	0	0	2	9	12	17	11	1	1	0	0	0	0	0	53
03:00	0	0	0	2	2	14	20	2	1	0	2	0	0	0	0	43
04:00	0	1	2	2	11	16	11	7	0	0	1	0	0	0	0	51
05:00	0	1	1	8	16	44	35	15	5	0	0	0	0	0	0	125
06:00	7	3	5	28	114	224	125	27	3	0	0	0	0	0	0	536
07:00	11	22	66	310	416	209	26	3	0	0	0	0	0	0	0	1063
08:00	49	54	149	234	348	127	22	2	0	0	0	0	0	0	0	985
09:00	43	53	81	216	340	143	14	1	0	0	0	0	0	0	1	892
10:00	19	7	93	187	295	116	13	0	0	1	0	2	0	2	0	735
11:00	18	18	40	165	262	121	26	1	0	0	0	0	0	0	2	653
12:00	50	43	43	197	249	102	12	2	0	0	1	1	0	0	2	702
13:00	48	29	75	202	295	112	13	1	0	0	2	0	1	3	5	786
14:00	30	20	42	185	321	122	15	0	0	0	1	0	0	0	4	740
15:00	36	32	106	142	251	127	25	4	2	0	4	0	0	4	4	737
16:00	66	40	116	244	274	99	15	3	1	0	0	1	5	4	7	875
17:00	52	14	102	258	314	121	18	0	3	0	2	1	0	1	9	895
18:00	147	122	116	172	258	80	6	1	1	0	0	2	2	2	4	913
19:00	22	9	27	92	255	183	50	6	0	0	0	0	0	1	2	647
20:00	10	2	10	70	130	193	64	8	0	0	0	0	0	0	2	489
21:00	2	0	12	58	160	141	26	7	0	0	0	0	1	0	2	409
22:00	1	3	8	43	126	108	22	4	1	0	0	0	0	0	0	316
23:00	0	0	1	18	69	82	46	4	1	0	2	0	0	0	0	223
24:00	0	2	3	11	31	72	31	11	1	0	0	0	0	0	0	162
DAY TOTAL	613	475	1098	2849	4563	2596	675	131	20	5	15	7	9	17	46	13119
PERCENTS	4.7%	3.7%	8.4%	21.8%	34.8%	19.8%	5.2%	1.0%	0.1%	0.0%	0.1%	0.0%	0.0%	0.1%	0.3%	100%

Statistical Information...

15th Percentile Speed
28.0 mph

85th Percentile Speed
42.0 mph

Median Speed
35.7 mph

Average Speed
34.6 mph

10 MPH Pace Speed
29 mph to 39 mph
7412 vehicles in pace
Representing 56.4% of the total vehicles

Vehicles > 65 MPH
94
0.7%

STA. 9 NB

Site Reference: 170210000583
Site ID: 000000000901
Location: RT.138 SOUTH OF DEL POND DR.
Direction: NORTH
Lane: 1

File: SPD9.prn
City: CANTON
County: SPEED NB&SB

TIME	19	24	29	34	39	44	49	54	59	64	69	74	79	85	86+	Tota
01:00	1	0	1	3	19	27	26	11	0	0	0	0	0	0	0	88
02:00	0	1	2	3	4	14	14	4	0	1	0	0	0	0	0	43
03:00	0	0	0	0	7	11	13	6	3	0	0	1	0	0	0	41
04:00	0	0	2	2	7	19	19	9	1	0	0	0	0	0	0	59
05:00	1	0	3	8	22	47	45	16	1	0	0	0	0	0	0	143
06:00	4	5	14	29	115	221	121	27	4	0	0	0	0	0	0	540
07:00	25	27	69	226	388	199	35	3	0	0	0	0	0	0	0	972
08:00	10	25	138	298	317	119	11	3	0	0	0	0	0	0	0	921
09:00	12	26	111	244	336	103	10	0	0	0	0	0	0	0	0	842
DAY TOTAL	53	84	340	813	1215	760	294	79	9	1	0	1	0	0	0	3649
PERCENTS	1.5%	2.4%	9.4%	22.3%	33.3%	20.8%	8.0%	2.1%	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100%

Statistical Information...

15th Percentile Speed
29.4 mph

85th Percentile Speed
42.9 mph

Median Speed
36.2 mph

Average Speed
36.0 mph

10 MPH Pace Speed
29 mph to 39 mph
2028 vehicles in pace
Representing 55.5% of the total vehicles

Vehicles > 65 MPH
1
0.0%

STA. 95B

Site Reference: 170210000583
Site ID: 000000000901
Location: RT.138 SOUTH OF DEL POND DR.
Direction: SOUTH
Lane: 2

File: SPD9.prn
City: CANTON
County: SPEED NB&SB

TIME	19	24	29	34	39	44	49	54	59	64	69	74	79	85	86+	Tota
13:00	24	12	51	127	286	189	47	7	2	0	0	0	0	0	0	745
14:00	8	25	42	117	239	210	48	5	3	0	0	0	0	0	0	697
15:00	3	5	49	108	260	230	72	4	1	0	0	0	0	0	0	732
16:00	17	24	40	150	269	266	76	5	0	0	0	0	0	0	0	847
17:00	9	31	98	248	326	174	24	7	0	0	0	0	0	0	0	917
18:00	125	22	41	140	275	161	62	8	2	0	1	0	0	0	0	837
19:00	2	20	13	44	212	307	152	27	3	1	0	0	0	0	0	781
20:00	0	0	4	26	117	211	94	29	0	0	1	0	0	0	0	482
21:00	0	0	5	19	78	162	110	19	1	0	0	0	0	0	0	394
22:00	0	0	2	10	49	117	76	16	1	0	1	0	0	0	0	272
23:00	1	0	1	4	16	61	62	22	1	0	0	0	0	0	0	168
24:00	1	1	0	20	29	50	50	23	2	0	0	0	0	0	0	176
DAY TOTAL	190	140	346	1013	2156	2138	873	172	16	1	3	0	0	0	0	7048
PERCENTS	2.7%	2.0%	5.0%	14.4%	30.6%	30.4%	12.3%	2.4%	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100%

Statistical Information...

15th Percentile Speed
30.9 mph

85th Percentile Speed
44.1 mph

Median Speed
38.3 mph

Average Speed
37.5 mph

10 MPH Pace Speed
34 mph to 44 mph
4294 vehicles in pace
Representing 60.9% of the total vehicles

Vehicles > 65 MPH
3
0.0%

Site Reference: 170210000583
Site ID: 000000000901
Location: RT.138 SOUTH OF DEL POND DR.
Direction: SOUTH
Lane: 2

File: SPD9.prn
City: CANTON
County: SPEED NB&SB

TIME	19	24	29	34	39	44	49	54	59	64	69	74	79	85	86+	Tota
01:00	0	0	0	3	12	36	26	8	3	0	0	0	0	0	0	88
02:00	0	0	0	2	8	12	12	7	4	3	1	0	0	0	0	49
03:00	0	0	0	3	3	16	15	11	0	0	0	0	0	0	0	48
04:00	0	0	1	0	4	8	19	15	4	0	0	0	0	0	0	51
05:00	0	0	0	4	6	25	24	13	8	0	0	0	0	0	0	80
06:00	0	0	0	4	18	72	84	45	6	4	2	1	0	0	0	236
07:00	0	0	0	17	90	184	141	33	4	1	1	0	0	0	0	471
08:00	0	8	25	50	154	287	133	22	2	1	0	0	0	0	0	682
09:00	11	4	22	86	263	334	121	16	2	0	0	0	0	0	0	859
10:00	12	22	28	88	241	249	75	20	1	0	0	0	0	0	0	736
11:00	16	18	26	79	155	235	106	13	1	1	0	0	0	1	0	651
12:00	10	10	34	66	189	215	93	12	1	1	0	0	0	0	0	631
13:00	36	26	50	148	230	200	66	7	1	0	0	0	0	0	0	764
14:00	23	24	34	126	281	225	69	9	4	2	0	0	0	0	0	797
15:00	9	5	22	95	255	240	104	21	0	1	0	0	0	0	0	752
16:00	21	16	39	157	309	222	75	10	2	0	0	0	0	0	0	851
17:00	0	15	78	163	316	210	70	12	1	0	0	0	0	0	0	865
18:00	22	27	58	156	319	246	90	6	4	0	1	0	0	0	0	929
19:00	0	1	14	67	294	346	130	18	2	0	1	0	0	0	0	873
20:00	2	3	11	68	167	255	128	24	2	0	0	0	0	0	0	660
21:00	0	0	6	28	133	161	98	18	3	0	0	0	0	0	0	447
22:00	1	0	5	13	45	139	98	17	1	0	1	0	0	0	0	320
23:00	0	1	0	4	20	44	82	38	4	0	0	0	0	0	0	193
24:00	0	1	2	17	53	135	107	40	3	0	0	0	0	0	0	358
DAY TOTAL	163	181	455	1444	3565	4096	1966	435	63	14	7	1	0	1	0	12391
PERCENTS	1.4%	1.5%	3.7%	11.7%	28.8%	33.0%	15.8%	3.5%	0.5%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	100%

Statistical Information...

15th Percentile Speed
32.7 mph

85th Percentile Speed
45.6 mph

Median Speed
39.5 mph

Average Speed
38.9 mph

10 MPH Pace Speed
34 mph to 44 mph
7661 vehicles in pace
Representing 61.8% of the total vehicles

Vehicles > 65 MPH
9
0.1%

Site Reference: 170210000583
Site ID: 000000000901
Location: RT.138 SOUTH OF DEL POND DR.
Direction: SOUTH
Lane: 2

File: SPD9.prn
City: CANTON
County: SPEED NB&SB

TIME	19	24	29	34	39	44	49	54	59	64	69	74	79	85	86+	Tota
01:00	0	0	1	4	23	38	47	41	14	0	1	0	0	0	0	169
02:00	0	0	0	3	10	16	10	12	1	1	1	0	0	0	0	54
03:00	0	0	0	0	3	11	17	14	2	1	1	0	0	0	0	49
04:00	0	0	0	4	1	8	11	7	1	1	1	0	0	0	0	34
05:00	0	0	0	1	3	24	29	18	3	3	0	1	0	0	0	82
06:00	0	0	3	1	28	63	98	35	7	0	1	0	0	1	0	237
07:00	3	1	10	26	119	178	110	35	5	1	2	0	0	0	0	490
08:00	3	10	8	74	249	256	104	16	1	0	0	0	0	0	0	721
09:00	0	3	32	88	272	288	77	14	1	0	0	0	0	0	0	775
10:00	4	6	19	104	254	230	79	12	0	0	0	0	0	0	0	708
11:00	7	19	19	103	190	209	74	8	1	0	0	0	0	0	0	630
12:00	1	12	38	75	236	201	60	12	0	1	1	0	0	0	0	637
13:00	9	11	44	90	280	243	57	7	1	0	0	0	0	0	0	742
14:00	30	26	40	100	291	221	53	12	1	0	0	0	0	0	0	774
15:00	1	11	43	147	290	225	87	15	1	0	0	0	0	0	0	820
16:00	18	19	28	141	295	249	94	18	1	0	0	0	0	0	0	863
17:00	2	2	16	181	355	240	74	16	2	0	0	0	0	0	0	888
18:00	13	11	47	197	384	220	48	6	3	1	0	0	1	0	0	931
19:00	1	7	7	79	270	338	128	11	3	0	0	0	0	0	0	844
20:00	0	3	9	33	118	238	154	24	2	0	0	0	0	0	0	581
21:00	0	0	5	19	133	169	90	9	2	1	0	0	0	0	0	428
22:00	0	1	2	19	84	127	90	26	0	0	0	0	0	0	0	349
23:00	0	0	1	9	30	66	62	26	5	1	0	0	0	0	0	200
24:00	1	0	5	3	19	64	91	38	4	0	0	0	0	0	0	225
DAY TOTAL	93	142	377	1501	3937	3922	1744	432	61	11	8	1	1	1	0	12231
PERCENTS	0.8%	1.2%	3.1%	12.3%	32.2%	32.1%	14.3%	3.6%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100%

Statistical Information...

15th Percentile Speed
33.1 mph

85th Percentile Speed
45.2 mph

Median Speed
39.1 mph

Average Speed
38.9 mph

10 MPH Pace Speed
34 mph to 44 mph
7859 vehicles in pace
Representing 64.2% of the total vehicles

Vehicles > 65 MPH
11
0.1%

Site Reference: 170210000583
Site ID: 000000000901
Location: RT.138 SOUTH OF DEL POND DR.
Direction: SOUTH
Lane: 2

File: SPD9.prn
City: CANTON
County: SPEED NB&SB

TIME	19	24	29	34	39	44	49	54	59	64	69	74	79	85	86+	Tota
01:00	0	0	0	2	11	31	39	23	5	2	0	0	1	0	0	114
02:00	0	0	0	0	3	11	21	11	6	0	0	0	0	0	0	52
03:00	0	0	0	0	2	10	10	12	5	0	0	0	0	0	0	39
04:00	0	0	0	0	3	10	14	15	4	1	1	0	0	0	0	48
05:00	0	0	0	3	6	14	29	20	3	0	1	0	0	0	0	76
06:00	0	0	0	0	37	87	85	39	6	2	1	0	0	0	0	257
07:00	1	0	0	21	86	213	138	35	3	0	0	0	0	0	0	497
08:00	17	16	16	52	215	256	99	12	1	1	0	0	0	0	0	685
09:00	14	2	37	143	316	207	73	3	0	0	0	0	0	0	0	795
DAY TOTAL	32	18	53	221	679	839	508	170	33	6	3	0	1	0	0	2563
PERCENTS	1.3%	0.8%	2.1%	8.7%	26.5%	32.7%	19.8%	6.6%	1.2%	0.2%	0.1%	0.0%	0.0%	0.0%	0.0%	100%

Statistical Information...

15th Percentile Speed
34.5 mph

85th Percentile Speed
47.3 mph

Median Speed
40.7 mph

Average Speed
40.4 mph

10 MPH Pace Speed
34 mph to 44 mph
1518 vehicles in pace
Representing 59.2% of the total vehicles

Vehicles > 65 MPH
4
0.2%

MassDOT Highway Division
SPEED SUMMARY
Mon 5/22/2017

STA. 12 NB

Site Reference: 170210000654
Site ID: 000000001201
Location: RTE. 138 SOUTH OF NEW BOSTON DR.
Direction: NORTH
Lane: 1

File: SPD12.prn
City: CANTON
County: SPEED NB&SB

TIME	19	24	29	34	39	44	49	54	59	64	69	74	79	85	86+	Tota
13:00	12	9	13	119	307	174	33	9	1	0	0	0	0	0	0	677
14:00	5	1	18	137	293	173	24	0	0	0	0	0	0	0	0	651
15:00	4	0	13	86	280	184	40	4	2	0	1	0	0	0	0	614
16:00	0	1	8	95	231	135	49	14	1	0	0	0	0	0	0	534
17:00	3	3	12	100	215	128	35	2	2	1	0	0	0	0	0	501
18:00	0	6	13	83	181	134	43	8	4	1	0	0	0	0	0	473
19:00	3	3	1	24	127	162	53	13	1	0	0	0	0	0	0	387
20:00	0	0	0	29	122	113	51	11	2	1	0	0	0	0	0	329
21:00	0	0	5	29	99	82	26	4	1	0	0	0	0	0	0	246
22:00	1	0	4	23	72	64	40	7	0	0	0	0	0	0	0	211
23:00	0	2	0	14	50	62	28	9	2	2	0	0	0	0	0	169
24:00	0	0	0	12	38	45	18	9	2	0	0	0	0	0	0	124
DAY TOTAL	28	25	87	751	2015	1456	440	90	18	5	1	0	0	0	0	4916
PERCENTS	0.6%	0.6%	1.8%	15.3%	41.0%	29.6%	8.9%	1.8%	0.3%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	100%

Statistical Information...

15th Percentile Speed
33.0 mph

Median Speed
37.9 mph

10 MPH Pace Speed
34 mph to 44 mph
3471 vehicles in pace
Representing 70.6% of the total vehicles

85th Percentile Speed
43.4 mph

Average Speed
38.1 mph

Vehicles > 65 MPH
1
0.0%

Site Reference: 170210000654
Site ID: 000000001201
Location: RTE. 138 SOUTH OF NEW BOSTON DR.
Direction: NORTH
Lane: 1

File: SPD12.prn
City: CANTON
County: SPEED NB&SB

TIME	19	24	29	34	39	44	49	54	59	64	69	74	79	85	86+	Tota
01:00	0	0	1	5	13	21	9	6	2	0	0	0	0	0	0	57
02:00	0	0	0	2	6	10	8	1	0	2	0	0	0	0	0	29
03:00	0	0	0	0	13	8	15	6	2	0	0	0	0	0	0	44
04:00	0	0	0	2	8	21	12	12	3	0	0	0	0	0	0	58
05:00	0	0	0	6	12	52	40	23	3	0	0	0	0	0	0	136
06:00	4	0	4	13	125	230	182	35	8	1	2	0	0	0	0	604
07:00	8	3	24	188	538	333	73	8	0	0	0	0	0	0	0	1175
08:00	34	38	127	404	516	215	15	1	0	0	0	0	0	0	0	1350
09:00	11	17	89	338	597	208	38	3	1	1	0	0	0	0	0	1303
10:00	12	4	21	103	323	232	63	12	0	0	0	0	0	0	0	770
11:00	2	1	14	35	195	200	62	8	0	0	0	0	0	0	0	517
12:00	9	4	3	73	227	187	66	6	1	0	0	0	0	0	0	576
13:00	10	2	13	102	378	203	50	4	0	0	0	0	0	0	0	762
14:00	11	0	3	94	280	199	61	7	0	0	0	0	2	0	0	657
15:00	12	2	11	93	309	201	44	3	0	1	0	0	0	0	0	676
16:00	13	1	16	90	239	183	34	7	0	0	0	0	2	0	0	585
17:00	6	2	11	98	202	169	51	6	1	0	0	0	0	0	0	546
18:00	11	1	6	97	199	166	39	11	2	0	0	2	0	0	0	534
19:00	10	4	4	28	145	196	52	8	1	0	0	0	0	1	0	449
20:00	0	0	4	20	149	144	64	8	1	0	0	0	0	0	0	390
21:00	0	0	1	41	146	106	33	7	1	0	0	0	0	0	0	335
22:00	1	0	4	21	90	89	37	4	1	0	0	0	0	0	0	247
23:00	0	1	1	22	43	66	26	7	4	2	0	0	0	0	0	172
24:00	0	0	0	9	36	37	24	19	2	0	0	0	0	0	0	127
DAY TOTAL	154	80	357	1884	4789	3476	1098	212	33	7	2	2	2	3	0	12099
PERCENTS	1.3%	0.7%	3.0%	15.6%	39.6%	28.8%	9.1%	1.7%	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100%

Statistical Information...

15th Percentile Speed
32.3 mph

Median Speed
37.7 mph

10 MPH Pace Speed
34 mph to 44 mph
8265 vehicles in pace
Representing 68.3% of the total vehicles

85th Percentile Speed
43.4 mph

Average Speed
37.7 mph

Vehicles > 65 MPH
9
0.1%

Site Reference: 170210000654
Site ID: 000000001201
Location: RTE. 138 SOUTH OF NEW BOSTON DR.
Direction: NORTH
Lane: 1

File: SPD12.prn
City: CANTON
County: SPEED NB&SB

TIME	19	24	29	34	39	44	49	54	59	64	69	74	79	85	86+	Tota
01:00	0	0	2	1	11	14	13	6	2	0	0	0	0	0	0	49
02:00	0	0	0	4	12	10	21	9	3	0	0	0	0	0	0	59
03:00	0	0	0	1	8	21	9	4	3	0	1	0	0	0	0	47
04:00	0	0	0	2	7	18	9	10	2	0	0	0	0	0	0	48
05:00	0	1	0	2	22	45	44	22	4	3	0	0	0	0	0	143
06:00	1	0	2	30	125	239	140	40	8	1	0	0	0	0	0	586
07:00	4	12	29	211	559	343	78	4	0	0	0	0	0	0	0	1240
08:00	7	8	89	425	600	173	22	0	0	0	0	0	0	0	0	1324
09:00	12	14	61	299	612	253	20	5	0	0	0	0	0	0	0	1276
10:00	4	4	16	119	332	211	55	13	0	0	0	0	0	0	0	754
11:00	8	4	9	79	245	183	48	6	0	0	0	0	0	0	0	582
12:00	1	2	8	93	277	181	37	2	0	0	0	0	0	0	0	601
13:00	6	4	16	124	367	186	39	6	0	0	0	0	0	0	0	748
14:00	6	2	19	125	304	204	30	4	0	0	0	0	0	0	0	694
15:00	4	1	7	83	252	218	46	6	0	0	0	0	0	0	0	617
16:00	9	25	52	174	168	80	28	5	3	0	0	0	0	0	0	544
17:00	5	1	9	68	204	158	50	7	0	0	0	0	0	0	0	502
18:00	3	1	13	51	228	171	38	6	0	0	0	0	0	0	0	511
19:00	2	3	7	25	154	163	62	13	1	0	0	0	0	0	0	430
20:00	0	0	5	29	135	151	67	7	0	0	0	0	0	0	0	394
21:00	0	0	3	35	155	114	31	9	3	0	0	0	0	0	0	350
22:00	2	0	1	21	94	89	27	8	1	0	0	0	0	0	0	243
23:00	0	0	2	15	55	62	37	10	1	2	0	0	0	0	0	184
24:00	0	0	0	2	36	51	31	9	2	2	0	1	0	0	0	134
DAY TOTAL	74	82	350	2018	4962	3338	982	211	33	8	1	1	0	0	0	12060
PERCENTS	0.7%	0.7%	3.0%	16.8%	41.2%	27.6%	8.1%	1.7%	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100%

Statistical Information...

15th Percentile Speed
32.2 mph

Median Speed
37.5 mph

10 MPH Pace Speed
34 mph to 44 mph
8300 vehicles in pace
Representing 68.8% of the total vehicles

85th Percentile Speed
43.2 mph

Average Speed
37.7 mph

Vehicles > 65 MPH
2
0.0%

Site Reference: 170210000654
Site ID: 000000001201
Location: RTE. 138 SOUTH OF NEW BOSTON DR.
Direction: NORTH
Lane: 1

File: SPD12.prn
City: CANTON
County: SPEED NB&SB

TIME	19	24	29	34	39	44	49	54	59	64	69	74	79	85	86+	Tota
01:00	0	0	0	2	14	21	14	4	1	0	0	0	0	0	0	56
02:00	1	0	1	1	1	16	20	2	1	0	0	0	0	0	0	43
03:00	0	0	0	2	8	15	11	5	1	2	0	0	0	0	0	44
04:00	0	0	0	0	11	25	11	6	4	0	0	0	0	0	0	57
05:00	0	0	4	1	25	55	50	8	3	1	0	0	0	0	0	147
06:00	1	1	1	13	154	214	158	44	4	2	0	0	0	0	0	592
07:00	4	5	59	189	624	273	54	4	0	0	0	0	0	0	0	1212
08:00	25	47	88	419	540	147	14	1	0	0	0	0	0	0	0	1281
09:00	1	18	86	393	513	143	12	3	0	0	0	0	0	0	0	1169
10:00	12	11	28	146	377	164	30	1	2	1	0	0	0	0	0	772
DAY TOTAL	44	82	267	1166	2267	1073	374	78	16	6	0	0	0	0	0	5373
PERCENTS	0.9%	1.6%	5.0%	21.8%	42.2%	19.9%	6.9%	1.4%	0.2%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	100%

Statistical Information...

15th Percentile Speed
30.8 mph

Median Speed
36.5 mph

10 MPH Pace Speed
29 mph to 39 mph
3433 vehicles in pace
Representing 63.8% of the total vehicles

85th Percentile Speed
42.5 mph

Average Speed
36.5 mph

Vehicles > 65 MPH
0
0.0%

MassDOT Highway Division
SPEED SUMMARY
Mon 5/22/2017

STA. 12 SB

Site Reference: 170210000654
Site ID: 000000001201
Location: RTE. 138 SOUTH OF NEW BOSTON DR.
Direction: SOUTH
Lane: 2

File: SPD12.prn
City: CANTON
County: SPEED NB&SB

TIME	19	24	29	34	39	44	49	54	59	64	69	74	79	85	86+	Tota
13:00	9	14	48	166	315	161	23	4	0	0	0	0	0	0	0	740
14:00	29	13	34	108	290	149	28	5	0	0	0	0	0	0	0	656
15:00	5	1	20	137	333	191	26	7	3	0	0	0	0	0	0	723
16:00	16	17	52	314	447	169	14	0	0	0	0	0	0	0	0	1029
17:00	192	180	181	260	302	79	8	0	0	0	0	0	0	0	0	1202
18:00	206	198	177	245	256	83	4	0	0	0	0	0	0	0	0	1169
19:00	2	1	25	180	394	207	38	5	0	0	0	0	0	0	0	852
20:00	0	0	7	57	194	162	55	5	0	0	0	0	0	0	0	480
21:00	2	0	4	50	165	121	44	3	0	0	0	0	0	0	0	389
22:00	0	0	1	33	122	91	32	3	0	0	0	0	0	0	0	282
23:00	0	0	3	17	70	66	22	4	3	0	0	0	0	0	0	185
24:00	0	0	4	30	66	50	30	5	2	0	0	0	0	0	0	187
DAY TOTAL	461	424	556	1597	2954	1529	324	41	8	0	0	0	0	0	0	7894
PERCENTS	5.9%	5.4%	7.1%	20.2%	37.4%	19.3%	4.1%	0.5%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100%

Statistical Information...

15th Percentile Speed
26.7 mph

Median Speed
35.5 mph

10 MPH Pace Speed
29 mph to 39 mph
4551 vehicles in pace
Representing 57.6% of the total vehicles

85th Percentile Speed
41.4 mph

Average Speed
33.9 mph

Vehicles > 65 MPH
0
0.0%

Site Reference: 170210000654
Site ID: 000000001201
Location: RTE. 138 SOUTH OF NEW BOSTON DR.
Direction: SOUTH
Lane: 2

File: SPD12.prn
City: CANTON
County: SPEED NB&SB

TIME	19	24	29	34	39	44	49	54	59	64	69	74	79	85	86+	Tota
01:00	0	0	1	9	24	32	27	7	0	0	0	0	0	0	0	100
02:00	2	0	0	6	8	22	6	3	0	0	0	0	0	0	0	47
03:00	0	0	1	1	16	17	7	2	1	0	0	0	0	0	0	45
04:00	0	0	2	2	8	10	10	8	3	0	0	0	0	0	0	43
05:00	0	0	0	1	6	18	13	7	2	1	0	0	0	0	0	48
06:00	0	0	0	3	20	20	19	13	3	1	0	1	0	0	0	80
07:00	1	1	4	10	53	64	28	16	2	0	0	0	0	0	0	179
08:00	4	1	8	18	106	111	44	6	2	0	0	0	0	0	0	300
09:00	4	5	7	39	124	150	28	10	0	0	0	0	0	0	0	367
10:00	3	3	12	78	205	140	24	3	1	0	0	0	0	0	0	469
11:00	2	2	9	40	159	172	55	4	1	0	0	0	0	0	0	444
12:00	3	1	21	97	273	174	38	2	1	0	0	0	0	0	0	610
13:00	16	1	12	110	360	186	38	6	0	0	0	0	0	0	0	729
14:00	11	10	9	146	342	196	32	2	0	0	0	0	0	0	0	748
15:00	11	3	19	136	367	190	47	3	0	0	0	0	0	0	0	776
16:00	41	59	99	252	411	157	30	4	0	0	0	0	0	0	0	1053
17:00	112	81	144	370	344	123	14	3	0	0	0	0	0	0	0	1191
18:00	168	161	228	223	309	100	18	1	0	0	0	0	0	0	0	1208
19:00	8	3	25	147	402	287	44	6	0	0	0	0	0	0	0	922
20:00	1	4	12	69	302	236	48	6	0	1	0	0	0	0	0	679
21:00	0	1	9	61	206	125	34	2	1	0	0	0	0	0	0	439
22:00	0	0	3	65	129	120	29	7	0	0	0	0	0	0	0	353
23:00	0	0	4	26	52	70	35	7	1	0	0	0	0	0	0	195
24:00	1	0	15	78	117	99	47	6	2	0	0	0	0	0	0	365
DAY TOTAL	388	336	644	1987	4343	2819	715	134	20	3	0	1	0	0	0	11390
PERCENTS	3.5%	3.0%	5.7%	17.5%	38.2%	24.7%	6.2%	1.1%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100%

Statistical Information...

15th Percentile Speed
29.9 mph

85th Percentile Speed
42.5 mph

Median Speed
36.7 mph

Average Speed
35.8 mph

10 MPH Pace Speed
34 mph to 44 mph
7162 vehicles in pace
Representing 62.8% of the total vehicles

Vehicles > 65 MPH
1
0.0%

Site Reference: 170210000654
Site ID: 000000001201
Location: RTE. 138 SOUTH OF NEW BOSTON DR.
Direction: SOUTH
Lane: 2

File: SPD12.prn
City: CANTON
County: SPEED NB&SB

TIME	19	24	29	34	39	44	49	54	59	64	69	74	79	85	86+	Tota
01:00	0	0	3	16	46	71	36	8	1	0	0	0	0	0	0	181
02:00	0	0	2	9	23	17	7	3	2	0	0	0	0	0	0	63
03:00	0	0	0	2	7	10	13	2	4	1	0	0	0	0	0	39
04:00	0	0	1	4	14	8	3	5	2	2	0	0	0	0	0	39
05:00	0	0	0	3	4	14	9	5	1	1	1	0	0	0	0	38
06:00	0	1	2	4	19	28	14	12	1	0	0	0	0	0	0	81
07:00	0	2	4	7	59	82	32	10	0	0	0	0	0	0	0	196
08:00	2	3	8	29	120	82	46	10	0	0	0	0	0	0	0	300
09:00	2	2	11	23	143	123	48	7	0	0	0	0	0	0	0	359
10:00	2	2	10	41	150	178	40	3	0	0	0	0	0	0	0	426
11:00	5	6	18	98	194	148	36	3	1	0	0	0	0	0	0	509
12:00	5	10	21	77	246	218	35	1	1	0	0	0	0	0	0	614
13:00	4	3	40	174	347	162	26	3	0	0	0	0	0	0	0	759
14:00	6	5	24	145	365	164	22	0	0	0	0	0	0	0	0	731
15:00	2	7	30	109	381	182	47	7	0	0	0	0	0	0	0	765
16:00	98	89	165	266	293	84	9	1	1	0	0	0	0	0	0	1006
17:00	185	152	207	232	339	95	9	0	0	0	0	0	0	0	0	1219
18:00	117	67	154	334	340	123	8	0	0	0	0	0	0	0	0	1143
19:00	0	1	18	158	450	195	41	6	0	0	0	0	0	0	0	869
20:00	1	0	1	67	231	212	61	5	0	0	0	0	0	0	0	578
21:00	2	1	3	70	207	128	27	3	0	1	0	0	0	0	0	442
22:00	1	0	6	68	158	111	24	1	0	0	0	0	0	0	0	369
23:00	0	0	2	15	76	72	32	10	1	1	0	0	0	0	0	209
24:00	0	0	3	14	84	75	40	6	0	0	0	0	0	0	0	222
DAY TOTAL	432	351	733	1965	4296	2582	665	111	15	6	1	0	0	0	0	11157
PERCENTS	3.9%	3.2%	6.6%	17.7%	38.6%	23.1%	5.9%	0.9%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100%

Statistical Information...

15th Percentile Speed
29.4 mph

85th Percentile Speed
42.3 mph

Median Speed
36.5 mph

Average Speed
35.4 mph

10 MPH Pace Speed
34 mph to 44 mph
6878 vehicles in pace
Representing 61.6% of the total vehicles

Vehicles > 65 MPH
1
0.0%

Site Reference: 170210000654
Site ID: 000000001201
Location: RTE. 138 SOUTH OF NEW BOSTON DR.
Direction: SOUTH
Lane: 2

File: SPD12.prn
City: CANTON
County: SPEED NB&SB

TIME	19	24	29	34	39	44	49	54	59	64	69	74	79	85	86+	Tota
01:00	0	0	0	8	25	51	22	5	2	1	0	0	0	0	0	114
02:00	1	0	0	0	18	17	14	2	0	2	0	0	0	0	0	54
03:00	0	1	0	2	10	7	4	2	0	0	0	0	0	0	0	26
04:00	0	0	0	2	7	15	13	6	0	0	0	0	0	0	0	43
05:00	0	0	2	4	4	17	15	9	0	1	0	0	0	0	0	52
06:00	0	1	1	2	17	24	27	10	2	1	0	0	0	0	0	85
07:00	0	0	7	12	61	82	32	6	3	0	0	0	0	0	0	203
08:00	0	1	19	27	88	109	40	4	1	0	0	0	0	0	0	289
09:00	1	4	16	58	155	90	22	8	0	0	0	0	0	0	0	354
10:00	1	1	18	122	181	109	26	1	1	0	0	0	0	0	0	460
DAY TOTAL	3	8	63	237	566	521	215	53	9	5	0	0	0	0	0	1680
PERCENTS	0.2%	0.5%	3.8%	14.2%	33.7%	31.1%	12.7%	3.1%	0.5%	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%	100%

Statistical Information...

15th Percentile Speed
32.8 mph

85th Percentile Speed
44.7 mph

Median Speed
38.7 mph

Average Speed
38.8 mph

10 MPH Pace Speed
34 mph to 44 mph
1087 vehicles in pace
Representing 64.7% of the total vehicles

Vehicles > 65 MPH
0
0.0%

APPENDIX C

Traffic Signal Timing and Layout Information

CANTON
WASHINGTON STREET (ROUTE 138)

STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
MASS.	NFA	–	–	–
PROJECT FILE NO.				

TRAFFIC PLAN

EXISTING/**PROPOSED** SEQUENCE AND TIMING

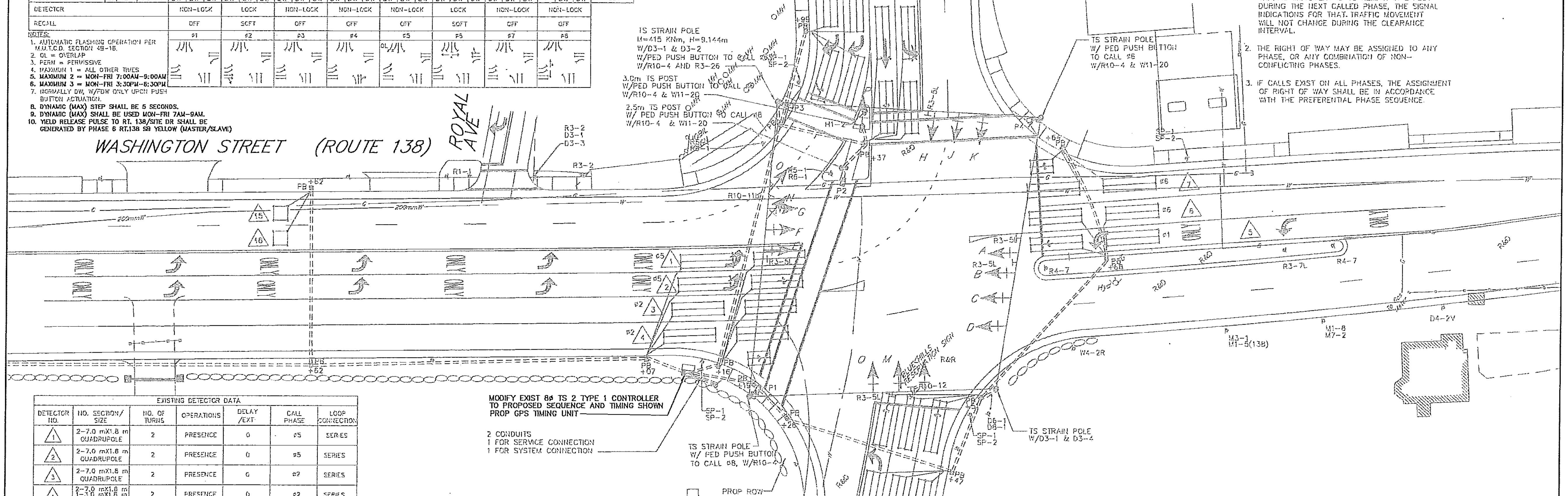
APPROACH	DIRECTION	HOUSING	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	FLASHING OPERATION
MINIMUM INTERVAL			6			12			6			6			6			12			6			6			
VEHICLE EXTENSION			3			3			3			3			3			3			3			3			
MAXIMUM 1			10			40			10			15			15			40			15			15			
MAXIMUM 2			15			30			15			15			40			45			20			25			
MAXIMUM 3			**15**			**40**			**15**			**20**			**20**			**40**			**20**			**20**			
YELLOW CLEARANCE				3			4			3			4			3			4			3			4		
RED CLEARANCE					2			1			2			1			2			1			2		.	1	
PED INTERVAL																		5/16						5/16			
DYNAMIC MAXIMUM LIMIT						**60**																					
ROUTE 138	NB	A,B	←R	←R	←R	←R	←R	←R	←R	←R	←R	←R	←R	←R	←G	←Y	←R	←R	←R	←R	←R	←R	←R	←R	←R	←R	F←R
ROUTE 138	NB	C	R	R	R	↑G	Y	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	FY
ROUTE 138	NB	D	R	R	R	G	Y	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	FY
ROUTE 138	SB	E	←G	←Y	←R	←R	←R	←R	←R	←R	←R	←R	←R	←R	←R	←R	←R	←R	←R	←R	←R	←R	←R	←R	←R	←R	F←R
ROUTE 138	SB	F	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	↑G	Y	R	R	R	R	R	R	R	FY
ROUTE 138	SB	G	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	G	Y	R	R	R	R	R	R	R	FY
BLUE HILL RIVER ROAD	WB	H	←R	←R	←R	←R	←R	←R	←R	←R	←R	←R	←R	←R	←R	←R	←R	←R	←R	←R	←G	←Y	←R	←R	←R	←R	F←R
BLUE HILL RIVER ROAD	WB	J,K	R	R	R	R	R	R	R	R	R	G	Y	R	R	R	R	R	R	R	R	R	R	R	R	R	FR
ROYALL STREET	EB	L	←R	←R	←R	←R	←R	←R	←G	←Y	←R	←R	←R	←R	←R	←R	←R	←R	←R	←R	←R	←R	←R	←R	←R	←R	F←R
ROYALL STREET	EB	M,O	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	G	Y	R	FR
ROYALL STREET	EB	N,O	R→	R→	R→	R→	R→	R→	R→	R→	R→	R→	R→	R→	G→	Y→	R→	R→	R→	R→	R→	R→	R→	G→	Y→	R→	F R→
ROYALL STREET	EB	P	R	R	R	R	R	R	R	R	R	R	R	R	R G→	R Y→	R	R	R	R	R	R	R	G G→	Y Y→	R	FR
PEDESTRIAN X-ING	NB/SB	P1-P2	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	*	DW	DW	DW	DW	DW	DW	DW	DW	OUT
PEDESTRIAN X-ING	EB/WB	P3-P4	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	*	DW	DW	OUT
DETECTOR			NON-LOCK			LOCK			NON-LOCK			NON-LOCK			NON-LOCK			LOCK			NON-LOCK			NON-LOCK			
RECALL			OFF			SOFT			OFF			OFF			OFF			SOFT			OFF			OFF			
			ϕ1			ϕ2			ϕ3			ϕ4			ϕ5			ϕ6			ϕ7			ϕ8			

NOTES:
1. AUTOMATIC FLASHING OPERATION PER M.U.T.C.D. SECTION 4B-18.
2. OL = OVERLAP
3. PERM = PERMISSIVE
4. MAXIMUM 1 = ALL OTHER TIMES
5. **MAXIMUM 2 = MON-FRI 7:00AM-9:00AM**
6. **MAXIMUM 3 = MON-FRI 3:30PM-6:30PM**
7. NORMALLY DW, W/FDW ONLY UPON PUSH BUTTON ACTUATION.
8. **DYNAMIC (MAX) STEP SHALL BE 5 SECONDS.**
9. **DYNAMIC (MAX) SHALL BE USED MON-FRI 7AM-9AM.**
10. **YIELD RELEASE PULSE TO RT. 138/SITE DR SHALL BE GENERATED BY PHASE 6 RT.138 SB YELLOW (MASTER/SLAVE)**

EXISTING/PROPOSED PREFERENTIAL PHASE SEQUENCE

ϕ1&ϕ6 → ϕ2&ϕ6 → ϕ2&ϕ5 → ϕ3&ϕ7 → ϕ4&ϕ7 → ϕ4&ϕ8 →

SEQUENCE & TIMING NOTES:
1. IF THE ASSIGNED RIGHT OF WAY FOR ANY TRAFFIC MOVEMENT IS TO REMAIN IN EFFECT DURING THE NEXT CALLED PHASE, THE SIGNAL INDICATIONS FOR THAT TRAFFIC MOVEMENT WILL NOT CHANGE DURING THE CLEARANCE INTERVAL.
2. THE RIGHT OF WAY MAY BE ASSIGNED TO ANY PHASE, OR ANY COMBINATION OF NON-CONFLICTING PHASES.
3. IF CALLS EXIST ON ALL PHASES, THE ASSIGNMENT OF RIGHT OF WAY SHALL BE IN ACCORDANCE WITH THE PREFERENTIAL PHASE SEQUENCE.



EXISTING DETECTOR DATA

DETECTOR NO.	NO. SECTION/ SIZE	NO. OF TURNS	OPERATIONS	DELAY /EXT	CALL PHASE	LOOP CONNECTION
1	2-7.0 mX1.8 m QUADRUPOLE	2	PRESENCE	0	ϕ5	SERIES
2	2-7.0 mX1.8 m QUADRUPOLE	2	PRESENCE	0	ϕ5	SERIES
3	2-7.0 mX1.8 m QUADRUPOLE	2	PRESENCE	0	ϕ2	SERIES
4	2-7.0 mX1.8 m 1-3.0 mX1.8 m QUADRUPOLE	2	PRESENCE	0	ϕ2	SERIES
5	2-7.0 mX1.8 m QUADRUPOLE	2	PRESENCE	0	ϕ1	SERIES
6	2-7.0 mX1.8 m QUADRUPOLE	2	PRESENCE	0	ϕ6	SERIES
7	2-7.0 mX1.8 m 1-3.0 mX1.8 m QUADRUPOLE	2	PRESENCE	0	ϕ6	SERIES
8	2-7.0 mX1.8 m QUADRUPOLE	2	PRESENCE	0	ϕ7	SERIES
9	2-7.0 mX1.8 m QUADRUPOLE	2	PRESENCE	0	ϕ4	SERIES
10	2-7.0 mX1.8 m QUADRUPOLE	2	PRESENCE	0	ϕ4	SERIES
11	2-7.0 mX1.8 m QUADRUPOLE	2	PRESENCE	0	ϕ3	SERIES
12	2-7.0 mX1.8 m QUADRUPOLE	2	PRESENCE	0	ϕ8	SERIES
13	2-7.0 mX1.8 m QUADRUPOLE	2	PRESENCE	0	ϕ8**	SERIES
14	2-7.0 mX1.8 m QUADRUPOLE	2	PRESENCE	0	ϕ8**	SERIES
15	1-1.8mX1.8m	3	PULSE	0	SYSTEM	SINGLE
16	1-1.8mX1.8m	3	PULSE	0	SYSTEM	SINGLE

** = EXTEND ϕ5

ITEM 816.01
TRAFFIC SIGNAL RECONSTRUCTION
ROUTE 138 AT ROYALL STREET/BLUE HILL RIVER ROAD
LIST OF MAJOR ITEMS REQUIRED

QUANTITY	DESCRIPTION
X	MODIFY EXIST 8ϕ TS 2 TYPE 1 CONTROLLER TO PROPOSED SEQUENCE AND TIMING SHOWN.
1	GPS TIME SYNC UNIT

PLUS NECESSARY DUCT, CABLE, LABOR, MISCELLANEOUS MATERIAL AND EQUIPMENT TO COMPLETE THE INSTALLATION AND PROVIDE AN OPERATING TRAFFIC CONTROL SIGNAL.

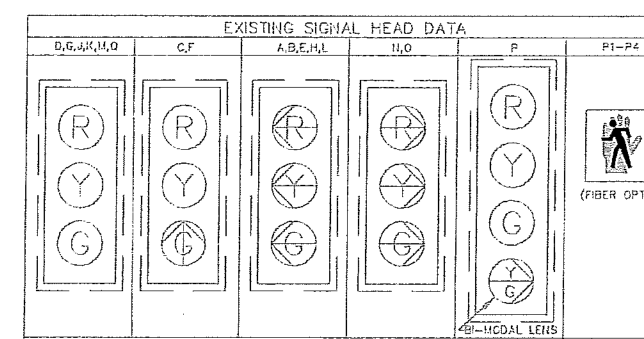
EXISTING COORDINATION NOTES:

ROUTE 138/SITE DRIVE INTERSECTION SHALL BE SET AS 'SLAVE' TO ROUTE 138/ROYALL STREET/BLUE HILL RIVER ROAD CONTROLLER MON. THRU FRI. 7AM-9AM AND 3:30PM-6PM.

AT THE END OF ϕ2&ϕ6 CLEARANCE FOR ROUTE 138/ROYALL STREET/BLUE HILL RIVER ROAD, START FIRST RELAY TIMER UNIT AT ROUTE 138/SITE DRIVE. INITIAL TIMER UNIT SETTING SHALL BE 12 SECONDS. AT THE EXPIRATION OF TIMER INTERVAL, THE CONTROLLER SHALL RELEASE THE ϕ6 HOLD AND YIELD TO ϕ5 FOR 5 SECONDS AS SET ON THE SECOND TIMER RELAY AT ROUTE 138/SITE DRIVE.

THE THIRD TIMER RELAY SHALL PROVIDE A SAFETY CIRCUIT IN THE EVENT THAT PHASE ϕ2&ϕ6 CLEARANCE AT ROYALL STREET DOES NOT OCCUR. THE INITIAL TIME SETTING WILL BE 100 SECONDS AFTER WHICH ROUTE 138/SITE DRIVE WILL YIELD TO ϕ5.

EXISTING SIGNAL HEAD DATA



NOTES: 1. ALL SIGNAL HEADS SHALL BE EQUIPPED WITH 125mm ± LOUVERED BACKPLATES.
2. ALL SIGNAL DISPLAYS SHALL BE EQUIPPED W/ L.E.D. LAMPS.

5 0 5 10 15 20
SCALE IN METERS

L:\05096\CAD\TE\5096TSIG P4

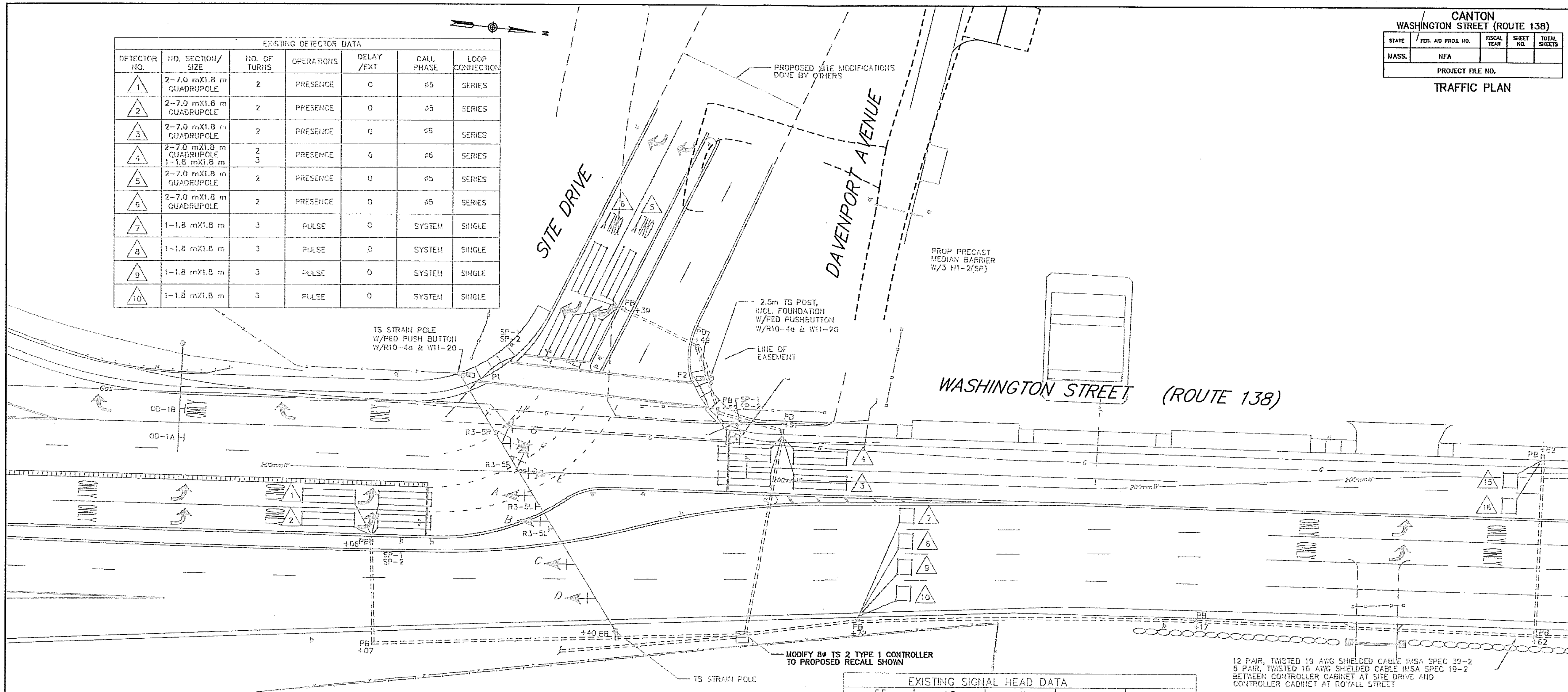
CANTON
WASHINGTON STREET (ROUTE 138)

STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
MASS.	NFA			
PROJECT FILE NO.				

TRAFFIC PLAN

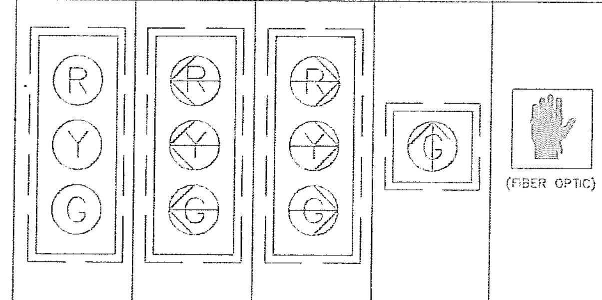
EXISTING DETECTOR DATA

DETECTOR NO.	NO. SECTION/ SIZE	NO. OF TURNS	OPERATIONS	DELAY /EXT	CALL PHASE	LOOP CONNECTION
1	2-7.0 mX1.8 m QUADRUPOLE	2	PRESENCE	0	ø5	SERIES
2	2-7.0 mX1.8 m QUADRUPOLE	2	PRESENCE	0	ø5	SERIES
3	2-7.0 mX1.8 m QUADRUPOLE	2	PRESENCE	0	ø6	SERIES
4	2-7.0 mX1.8 m QUADRUPOLE 1-1.8 mX1.8 m	2 3	PRESENCE	0	ø6	SERIES
5	2-7.0 mX1.8 m QUADRUPOLE	2	PRESENCE	0	ø5	SERIES
6	2-7.0 mX1.8 m QUADRUPOLE	2	PRESENCE	0	ø5	SERIES
7	1-1.8 mX1.8 m	3	PULSE	0	SYSTEM	SINGLE
8	1-1.8 mX1.8 m	3	PULSE	0	SYSTEM	SINGLE
9	1-1.8 mX1.8 m	3	PULSE	0	SYSTEM	SINGLE
10	1-1.8 mX1.8 m	3	PULSE	0	SYSTEM	SINGLE



EXISTING SIGNAL HEAD DATA

E,F	A,B	G,H	C,D	P1-P2
				(FIBER OPTIC)
ALL 300mm LENS				



NOTES: 1. ALL SIGNAL HEADS SHALL EQUIPPED WITH 125mm ± LOUVERED BACKPLATES.
2. ALL SIGNAL DISPLAYS SHALL BE EQUIPPED W/ L.E.D. LAMPS.

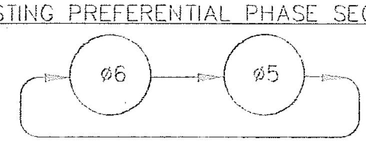
EXISTING/**PROPOSED** SEQUENCE AND TIMING

APPROACH	DIRECTION	HOUSING	1	2	3	4	5	6	13	14	15	FLASHING OPERATION
MINIMUM INTERVAL			6			12						
VEHICLE EXTENSION			3			3						
MAXIMUM 1			25			50						
MAXIMUM 2			30			70						
YELLOW CLEARANCE				4			4					
RED CLEARANCE					1			1				
PED INTERVAL						5/19						
ROUTE 138	NB	A,B	←G	←Y	←R	←R	←R	←R				F←R
ROUTE 138	NB	C,D	↖G	↖G	↖G	↖G	↖G	↖G				↖G
ROUTE 138	SB	E,F	R	R	R	G	Y	R				FY
SITE DRIVE	WB	G,H	G→	Y→	R→	R→	R→	R→				F R→
PEDESTRIAN X-ING	NB-SB	P1-P2	DW	DW	DW	*	DW	DW				OUT

DETECTOR	NON-LOCK	NON-LOCK	
RECALL	OFF	SOFT	
	ø5	ø6	
			ø1,ø2,ø3,ø4, ø7 & ø8 NOT USED

NOTES:
1. AUTOMATIC FLASHING OPERATION PER M.U.T.C.D. SECTION 4B-18.
2. MAXIMUM 1 = NORMAL OPERATION
3. MAXIMUM 2 = MON-FRI 7AM-9AM & 3:30PM-6:30PM
4. * NORMALLY DW, W/FDW ONLY UPON PUSHBUTTON ACTIVATION
5. **ø5 RECALL SHALL BE SET TO MAX MON-FRI 7:00AM- 9:00AM.**

EXISTING PREFERENTIAL PHASE SEQUENCE

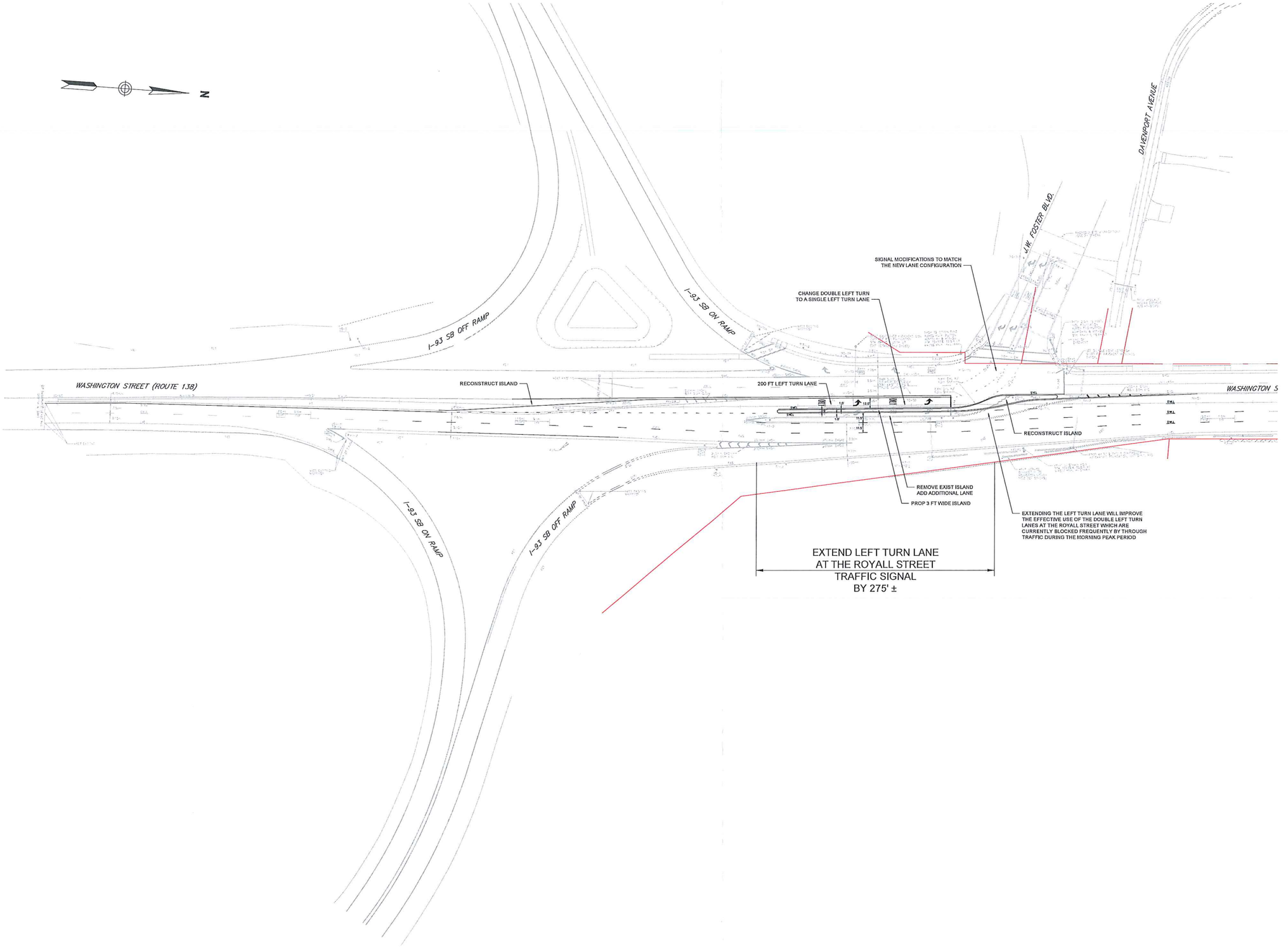


COORDINATION NOTES:
ROUTE 138/SITE DRIVE INTERSECTION SHALL BE SET AS 'SLAVE' TO ROUTE 138/ROYALL STREET/BLUE HILL RIVER ROAD CONTROLLER.

5 0 5 10 15 20
SCALE IN METERS

L:\05096\CAD\TE\5096TSIG P3

Saved Friday, January 22, 2016 1:38:28 PM ALONCAREVIC Plotted Friday, January 22, 2016 2:07:05 PM Loncarevic, Alex \\VHB\PROJ\WAT-LO\11761.03\CAD\TE\PLANMSC\2016 CONCEPTS\11761.03 - ROUTE 138 SHORT TERM MEASURES



Engineers
Scientists
Planners
Designers

vhb

101 Walnut Street
PO Box 9151
Watertown, MA 02471
617.924.1770
f 617.924.2286

No.	Revision	Date	Appvd.

Designed by AL | Drawn by AL | Checked by

CAD checked by | Approved by

Scale | Date January 22, 2016

Project Title

Modify Island at J.W. Foster Boulevard

Canton, Massachusetts

Issued for

Washington Street (Route 138)
Canton, MA

Not Approved for Construction

Drawing Title

11761.03 - Route 138 Short Term Measures.dwg

Drawing Number

Sheet 1 of 3

Project Number
11761.03

CANTON
TURNPIKE ST (ROUTE 138)
AT WASHINGTON ST

STATE	SIGNAL ID NO.	REVISION NO.	SHEET NO.	TOTAL SHEETS
MASS	0288		1	3

TITLE SHEET

THE COMMONWEALTH OF MASSACHUSETTS
MASSACHUSETTS HIGHWAY DEPARTMENT

TRAFFIC SIGNAL LAYOUT PLAN AND PERMIT
ROUTE 138 (TURNPIKE ST.) AT WASHINGTON STREET

IN THE TOWN OF

CANTON
NORFOLK COUNTY

Under authority of Chapter 89, Sec. 8 General Laws, Tercentenary Edition, the Massachusetts Highway Department hereby approves the following described traffic control signal installation, and auxiliary signs and surface markings, for the above location, provided that a permit for the opening of the road and the placing of structures thereon shall be received from the board or officer in charge of the road.

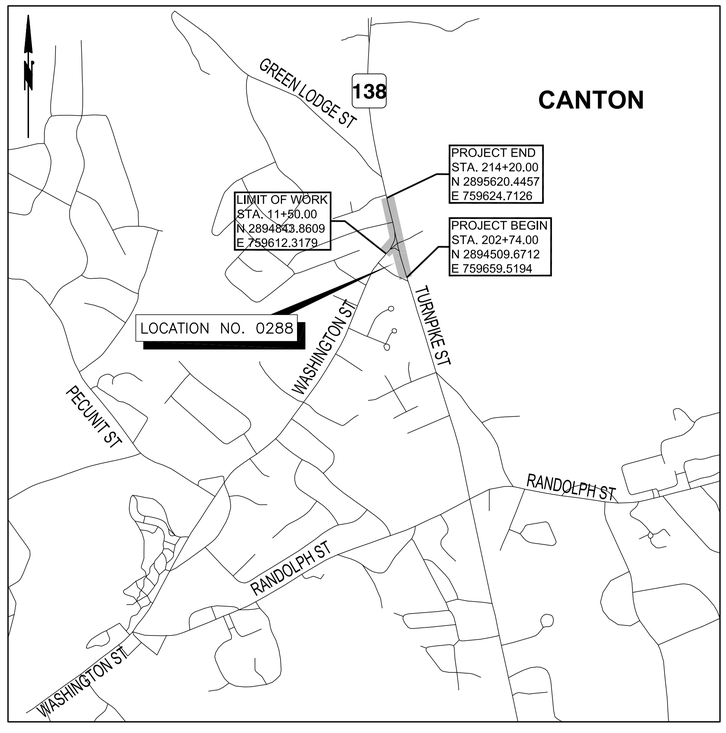
This permit is granted for the specific signal installation described herein and for its operation in accordance with the conditions set forth below and with the requirements of the Massachusetts Highway Department. The details for any material alterations or any continued* or substantial departure from the provisions of this permit must be submitted to the department for approval with data sufficient to justify such modification. Failure to comply with these requirements automatically voids this permit during such time as non–compliance exists.

I. STANDARDS OF INSTALLATION

The traffic control signal installation and all auxiliary signs and surface markings which are used in connection with such installation shall conform with the requirements of the Massachusetts Highway Department and with the sketch which is attached.

II. OPERATION OF SIGNALS

(a) Type of control: AUTOMATIC
(b) Coordination: NONE
(c) Special connection:
(d) Timing for automatic operation: SEE SHEET NO. 3
(e) Hours for Automatic Operation: CONTINUOUS
Signals may be operated automatically for a shorter period of time but not for a greater length of time than is here indicated except when unusual conditions arise which temporarily justify longer operation.
(f) Flashing Operation: Whenever a signal is not operating as a control device (stop and go), it must Flash Yellow or Flash Red as set forth in the signal sequence and at the rate of 50–60 flashes per minute unless otherwise specified in Part II(e) of this Permit.
(g) Manual Operation: Signals may be operated manually at any time irrespective of the hours designated in Part II(3) of this permit
(h) Discontinuance: Signals may be discontinued at any time. When this is done signal faces must be turned away from traffic, taken down or hooded, and the District Highway Engineer notified.



LOCUS MAP
(SCALE AS SHOWN)

HOR. SCALE IN FEET
0 500 1000 2000

REVISION NO. _____
DATE: _____
INSERT BY: _____
DATE: _____
FILE NAME: 0288T01.DWG

COMMENTS: _____

0288P01.DWG

massDOT
10 PARK PLAZA
BOSTON, MA 02116

MASSACHUSETTS
HIGHWAY DEPARTMENT

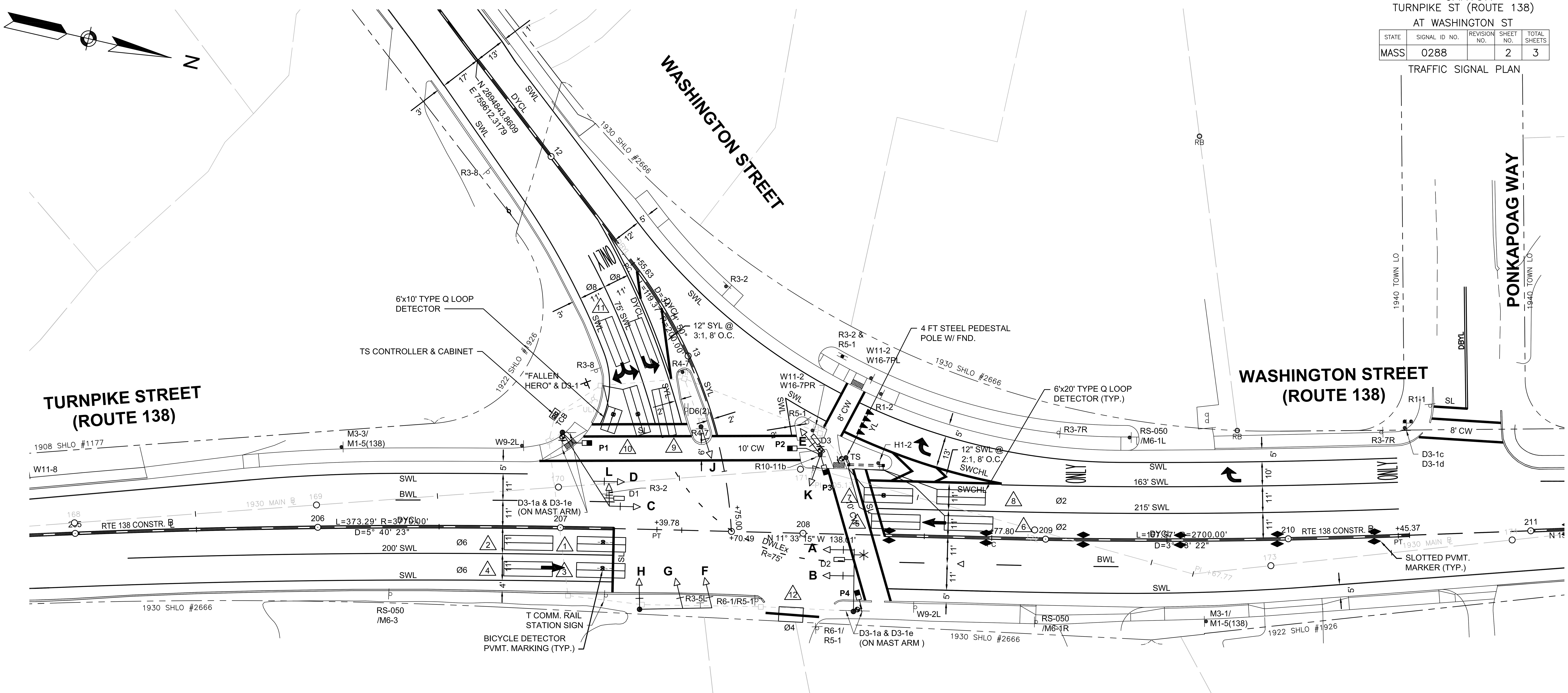
APPROVED BY:

STATE TRAFFIC ENGINEER Date

CANTON
TURNPIKE ST (ROUTE 138)
AT WASHINGTON ST

STATE	SIGNAL ID NO.	REVISION NO.	SHEET NO.	TOTAL SHEETS
MASS	0288		2	3

TRAFFIC SIGNAL PLAN



20 0 20 40
SCALE IN FEET

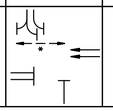
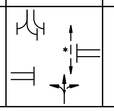
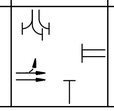
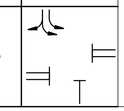
0288P0101.DWG

LEGEND

⊠	SIGNAL CONTROLLER
◁—+—	VEHICULAR SIGNAL
▶■—	VIDEO DETECTION CAMERA
▭—	FIRE PRE–EMPTION RECEIVER
✳—	FIRE PRE–EMPTION STROBE LIGHT
◧—	PEDESTRIAN SIGNAL
●	PEDESTRIAN PUSH BUTTON
■ OR ▬	PULL BOX (12"x12" OR 12"x24")

APPROVED BY:

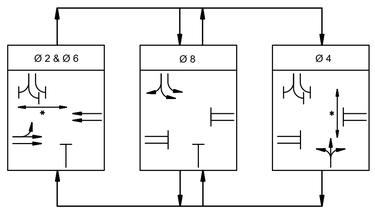
STATE TRAFFIC ENGINEER Date

ROUTE 138 / WASHINGTON ST / DRIVE-WAY	ø1	ø2	ø3	ø4	ø5	ø6	ø7	ø8
	NOT USED		NOT USED		NOT USED		NOT USED	

SEQUENCE AND TIMING FOR FULL ACTUATED CONTROL (ISOLATED)																									
STREET	DIRECTION	HOUSINGS	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	FLASH OPER.
TURNPIKE STREET (ROUTE 138)	NB	A,B				R	R	R				R	R	R				G	Y	R				R	R	R	FY
WASHINGTON STREET (ROUTE 138)	SB	C,D				G	Y	R				R	R	R				R	R	R				R	R	R	FY
WASHINGTON STREET	EB	E,F				~~R~~	~~R~~	~~R~~				~~R~~	~~R~~	~~R~~				~~R~~	~~R~~	~~R~~				~~G~~	~~Y~~	~~R~~	~~FR~~
WASHINGTON STREET	EB	G				R	R	R				R	R	R				R	R	R				~~G~~/G	Y	R	FR
WASHINGTON STREET	EB	H,L				~~R~~	~~R~~	~~R~~				~~R~~	~~R~~	~~R~~				~~R~~	~~R~~	~~R~~				~~G~~	~~Y~~	~~R~~	~~FR~~
DRIVEWAY	WB	J				R	R	R				G/~~G~~	Y	R				R	R	R				R	R	R	FR
DRIVEWAY	WB	K				R	R	R				G	Y	R				R	R	R				R	R	R	FR
PEDESTRIAN	ALL	P1–P4				W/FDW	DW	DW				W/FDW	DW	DW				DW	DW	DW				DW	DW	DW	OFF
TIMING IN SECONDS																											
MINIMUM GREEN (INITIAL)						10						6						10						10			EMERGENCY ONLY
PASSAGE TIME (VEHICLE)						2						2						2						2			
MAXIMUM 1						50						10						50						33			
MAXIMUM 2																											
YELLOW CLEARANCE							5						3.5						5						3		
RED CLEARANCE								1						1						1						3.5	
WALK (W)						7						7															
PEDESTRIAN CLEARANCE						24						13															
RECALL						SOFT						OFF						SOFT						OFF			
MEMORY						OFF						OFF						OFF						OFF			

NOTES: 1. FLASHING OPERATION PER M.U.T.C.D.
2. MAXIMUM 1 = NORMAL OPERATION
* UPON PEDESTRIAN PUSHBUTTON ACTUATION ONLY

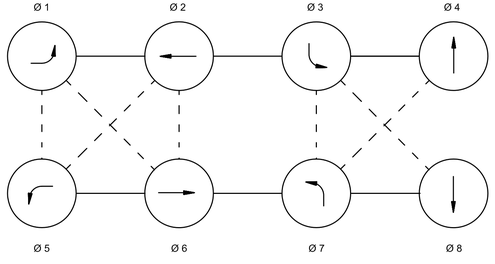
PREFERENTIAL PHASING SEQUENCE



NOTES: 1. ANY PHASE OR PHASE COMBINATION NOT CALLED SHALL BE SKIPPED.
2. VEHICLE TURNING MOVEMENTS NOT SUPPORTED BY ARROW INDICATIONS SHOWN AS DASHED ARROWS ON PLAN
3. THE CONTROLLER SHALL PROHIBIT DUAL ENTRY OF PHASES 4 AND 8.

* UPON PEDESTRIAN PUSHBUTTON ACTUATION ONLY

NEMA DUAL RING PHASING NOTES:



1. PHASES ASSOCIATED BY A SOLID LINE SHALL NOT OPERATE CONCURRENTLY.
2. PHASES ASSOCIATED BY A DASHED LINE MAY OPERATE CONCURRENTLY.
3. THROUGH MOVEMENTS MAY INCLUDE RIGHT TURNS.
4. IF THE ASSIGNED RIGHT OF WAY FOR ANY TRAFFIC MOVEMENT IS TO REMAIN IN EFFECT DURING THE NEXT CALLED PHASE, THE SIGNAL INDICATIONS FOR THAT TRAFFIC MOVEMENT SHALL NOT CHANGE DURING THE CHANGE INTERVAL(S) UNLESS OTHERWISE NOTED.

FIRE PREEMPTION SCHEDULE

DETECTOR	APPROACH	PREEMPTION PHASE	NEXT PHASE CALLED
D1	SOUTHBOUND	2	2+6
D2	NORTHBOUND	6	2+6
D3	EASTBOUND	8	2+6

EMERGENCY VEHICLE PREEMPTION OPERATION:

1. EMERGENCY VEHICLE PREEMPTION SHALL BE ACTUATED BY AN OPTICAL SIGNAL FROM AN OPTICAL EMITTER MOUNTED ON AN EMERGENCY VEHICLE AND RECEIVED BY AN OPTICAL DETECTOR LOCATED AT INTERSECTION. A SEPARATE RECEIVING DETECTOR IS REQUIRED FOR EACH DETECTED APPROACH.
2. PREEMPTION SIGNALS FROM MULTIPLE APPROACHES SHALL BE SERVICED ON A FIRST DETECTED FIRST SERVED BASIS.
3. IN RESPONSE TO A PREEMPTION SIGNAL RECEIVED AT AN INTERSECTION BY AN OPTICAL DETECTOR, THE CONTROLLER SHALL TIME THE CLEARANCE INTERVALS OF THE ACTIVE PHASE (IF DIFFERENT THAN TO BE SERVICED) AND ADVANCE TO AND/OR HOLD IN EMERGENCY VEHICLE PREEMPTION PHASE UNTIL PREEMPTION SIGNAL CEASES. THE CONTROLLER SHALL THEN TIME CLEARANCES AND SIMILARLY SERVICE OTHER EMERGENCY VEHICLE PREEMPTION SEQUENCES IN THE ORDER RECEIVED (IF RECEIVED) OTHERWISE, RESUME NORMAL PREFERENTIAL PHASE SEQUENCE.
4. PREEMPTION MINIMUM GREENS SHALL BE SIX SECONDS.
5. NORMAL CLEARANCES SHALL BE PROVIDED ON PHASES THAT ARE TERMINATED BY PREEMPTION DEMAND.
6. ACTUAL TIMING FOR PREEMPTION SHALL BE DETERMINED IN THE FIELD IN COORDINATION WITH THE FIRE DEPARTMENT AND SHALL BE APPROVED BY MASSDOT PRIOR TO OPERATION.

	MAJOR ITEMS REQUIRED	
PAY ITEM	QUANTITY	ITEM
816.02	1	REPROGRAM CONTROLLER W/TIMING & PHASING AS SHOWN AND MODIFY CABINET TO ACCEPT ADDITIONAL EQUIPMENT
	1	4 FT PEDESTAL POLE, STEEL W/FOUNDATION
	4	PEDESTRIAN SIGNAL HEAD (L.E.D.) W/COUNTDOWN TIMER & CAP VISOR
	4	APS PUSHBUTTON & SIGN W/AUDIBLE & VISIBLE INDICATOR, VIBRO–TACTILE ARROW AND SPEECH–WALK MESSAGE
	9	5" LOUVERED BACK PLATE (3–SECTION) W/2" YELLOW RETROREFLECTIVE BORDER
	2	5" LOUVERED BACK PLATE (4–SECTION) W/2" YELLOW RETROREFLECTIVE BORDER
	5	TYPE Q LOOP DETECTOR 6'x20' (2 TURNS)
	1	TYPE Q LOOP DETECTOR 6'x10' (2 TURNS)
	2	LOOP DETECTOR AMPLIFIER, 2–CHANNEL (SPARE)
	2	BUS INTERFACE UNIT (SPARE)
804.3	20 FT	3" SCHEDULE 80 PVC CONDUIT
		Plus all necessary duct, cable, labor, miscellaneous
		material and equipment to complete the installation.

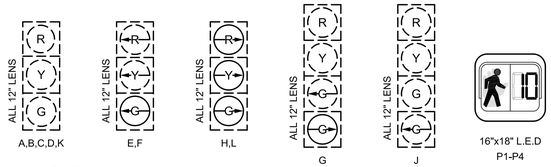
LOOP DETECTOR DATA

DELAY TIME EFFECTIVE ONLY DURING CALLED Ø RED. TIME IN SEC.

DETECTOR NUMBER	AMPLIFIER NUMBER	CHANNEL NUMBER	LOOP SIZE	NUM. OF TURNS	Ø CALLED	Ø EXT.	MODE A=PULSE B=PRES.	DELAY TIME	EXT. TIME
1 *	1	1	1-6'x23'	2-4-2	6	6	B	-	-
2	1	2	1-6'x23'	2-4-2	6	6	B	-	-
3 *	2	1	1-6'x23'	2-4-2	6	6	B	-	-
4	2	2	1-6'x23'	2-4-2	6	6	B	-	-
5	3	1	1-6'x20'	2-4-2	2	2	B	-	-
6	3	2	1-6'x20'	2-4-2	2	2	B	-	-
7 *	4	1	1-6'x20'	2-4-2	2	2	B	-	-
8	4	2	1-6'x20'	2-4-2	2	2	B	-	-
9	5	1	2-6'x23'	2-4-2	8	8	B	-	-
10 *	5	2	1-6'x20' 1-6'x10'	2-4-2	8	8	B	-	-
11	6	1	1-6'x23'	2-4-2	8	8	B	-	-
12	6	2	1-6'x10'	3	4	4	B	5 SEC.	-

* CAPABLE OF BICYCLE DETECTION

SIGNAL IDENTIFICATION



NOTES:

1. ALL VEHICLE SIGNALS ARE EXISTING.
2. THE CONTRACTOR SHALL REPLACE THE BACK PLATES ON ALL EXISTING SIGNAL HEADS TO REMAIN WITH 5" LOUVERED BACK PLATES WITH 2" YELLOW RETROREFLECTIVE BORDERS

CANTON
TURNPIKE ST (ROUTE 138)
AT WASHINGTON ST

STATE	SIGNAL ID NO.	REVISION NO.	SHEET NO.	TOTAL SHEETS
MASS	0288		3	3

DATA SHEET

CONTROLLER MAKE & MODEL: – NAZTEC SERIES 900 TS2
UTILITY POLE No. – NSTAR 1/212
METER No. – NSTAR 55 192 341
EMERGENCY PRE–EMPTION (TYPE): – OPTICOM

APPROVED BY:

STATE TRAFFIC ENGINEER **Date**

0288D01.DWG

CANTON
TURNPIKE ST (ROUTE 138)
AT RANDOLPH ST

STATE	SIGNAL ID NO.	REVISION NO.	SHEET NO.	TOTAL SHEETS
MASS	0051		1	3

TITLE SHEET

THE COMMONWEALTH OF MASSACHUSETTS
MASSACHUSETTS HIGHWAY DEPARTMENT

TRAFFIC SIGNAL LAYOUT PLAN AND PERMIT
ROUTE 138 (TURNPIKE ST.) AT RANDOLPH STREET

IN THE TOWN OF

CANTON
NORFOLK COUNTY

Under authority of Chapter 89, Sec. 8 General Laws, Tercentenary Edition, the Massachusetts Highway Department hereby approves the following described traffic control signal installation, and auxiliary signs and surface markings, for the above location, provided that a permit for the opening of the road and the placing of structures thereon shall be received from the board or officer in charge of the road.

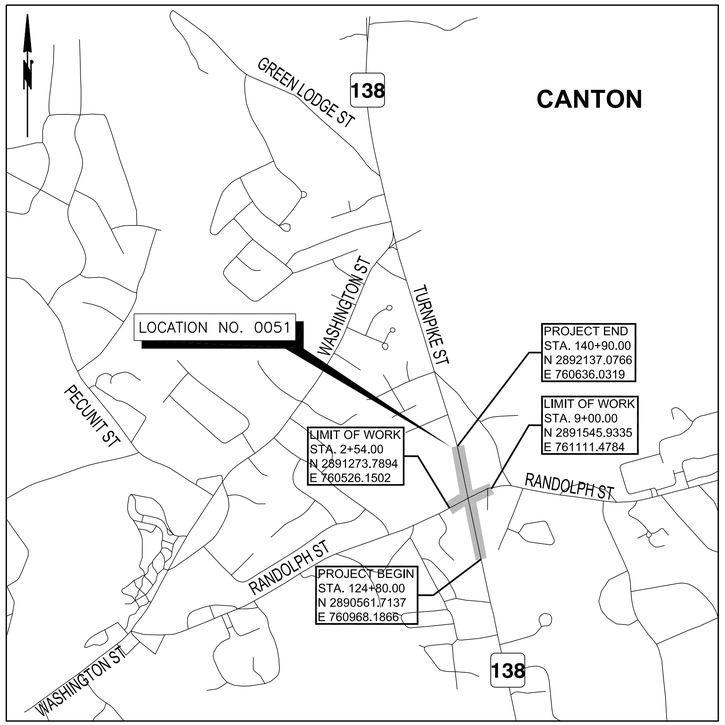
This permit is granted for the specific signal installation described herein and for its operation in accordance with the conditions set forth below and with the requirements of the Massachusetts Highway Department. The details for any material alterations or any continued* or substantial departure from the provisions of this permit must be submitted to the department for approval with data sufficient to justify such modification. Failure to comply with these requirements automatically voids this permit during such time as non–compliance exists.

I. STANDARDS OF INSTALLATION

The traffic control signal installation and all auxiliary signs and surface markings which are used in connection with such installation shall conform with the requirements of the Massachusetts Highway Department and with the sketch which is attached.

II. OPERATION OF SIGNALS

(a) Type of control: AUTOMATIC
(b) Coordination: NONE
(c) Special connection:
(d) Timing for automatic operation: SEE SHEET NO. 3
(e) Hours for Automatic Operation: CONTINUOUS
Signals may be operated automatically for a shorter period of time but not for a greater length of time than is here indicated except when unusual conditions arise which temporarily justify longer operation.
(f) Flashing Operation: Whenever a signal is not operating as a control device (stop and go), it must Flash Yellow or Flash Red as set forth in the signal sequence and at the rate of 50–60 flashes per minute unless otherwise specified in Part II(e) of this Permit.
(g) Manual Operation: Signals may be operated manually at any time irrespective of the hours designated in Part II(3) of this permit
(h) Discontinuance: Signals may be discontinued at any time. When this is done signal faces must be turned away from traffic, taken down or hooded, and the District Highway Engineer notified.



LOCUS MAP
(SCALE AS SHOWN)

HOR. SCALE IN FEET
0 500 1000 2000

0051T01.DWG

REVISION NO. _____
DATE: _____
INSERT BY: _____
DATE: _____
FILE NAME: 0051P01.DWG

COMMENTS: _____

massDOT

10 PARK PLAZA
BOSTON, MA 02116

MASSACHUSETTS
HIGHWAY DEPARTMENT

APPROVED BY:

_____ _____
STATE TRAFFIC ENGINEER **Date**

CANTON
TURNPIKE ST (ROUTE 138)
AT RANDOLPH ST

STATE	SIGNAL ID NO.	REVISION NO.	SHEET NO.	TOTAL SHEETS
MASS	0051		2	3

TRAFFIC SIGNAL PLAN

TURNPIKE STREET (ROUTE 138)

RANDOLPH STREET

RANDOLPH ST CONSTR. B

"DAVE'S MODEL RACING"

MASSASOIT COMMUNITY COLLEGE

ADOPT A HIGHWAY

ROW OF 8 TREES: 2"TRC

SCALE IN FEET
20 0 20 40

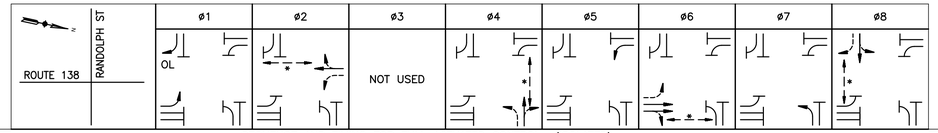
LEGEND

- SIGNAL CONTROLLER
- VEHICULAR SIGNAL
- VIDEO DETECTION CAMERA
- FIRE PRE-EMPTION RECEIVER
- FIRE PRE-EMPTION STROBE LIGHT
- PEDESTRIAN SIGNAL
- PEDESTRIAN PUSH BUTTON
- ■ OR ▬ PULL BOX (12"x12" OR 12"x24")

APPROVED BY:

STATE TRAFFIC ENGINEER **Date**

0051P0101.DWG

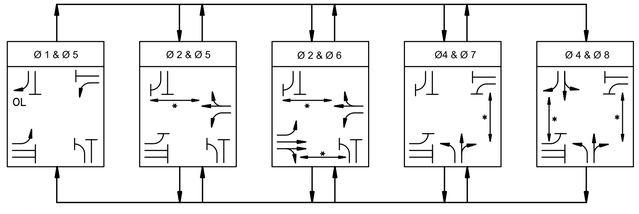


SEQUENCE AND TIMING FOR FULL ACTUATED CONTROL (ISOLATED)																										
STREET	DIRECTION	HOUSINGS	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	FLASH OPER.
TURNPIKE STREET (ROUTE 138)	SB	A,Q	RL	RL	RL	FYL	YL	RL				RL	RL	RL	GL	YL	**	RL	RL	RL	RL	RL	RL	RL	RL	RL	RL
TURNPIKE STREET (ROUTE 138)	SB	B,C	R	R	R	G	Y	R				R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	FY
TURNPIKE STREET (ROUTE 138)	NB	D	GL	YL	***	RL	RL	RL				RL	RL	RL	RL	RL	RL	FYL	YL	RL	RL	RL	RL	RL	RL	RL	RL
TURNPIKE STREET (ROUTE 138)	NB	E,F,G	R	R	R	R	R	R				R	R	R	R	R	R	G	Y	R	R	R	R	R	R	R	FY
RANDOLPH STREET	EB	H,N	R	R	R	R	R	R				R	R	R	R	R	R	R	R	R	R	R	R	G	Y	R	FR
RANDOLPH STREET	EB	J	R/G	R/Y	R	R	R	R				R	R	R	R	R	R	R	R	R	R	R	R	G	Y	R	FR
RANDOLPH STREET	WB	K	RL	RL	RL	RL	RL	RL				FYL	YL	RL	RL	RL	RL	RL	RL	RL	GL	YL	****	RL	RL	RL	RL
RANDOLPH STREET	WB	L,M	R	R	R	R	R	R				G	Y	R	R	R	R	R	R	R	R	R	R	R	R	R	FR
PEDESTRIAN	N–S	P1–P2	DW	DW	DW	W/FDW	DW	DW				DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	OFF
PEDESTRIAN	E–W	P3–P4	DW	DW	DW	DW	DW	DW				W/FDW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	OFF
PEDESTRIAN	N–S	P5–P6	DW	DW	DW	DW	DW	DW				DW	DW	DW	DW	DW	DW	W/FDW	DW	DW	DW	DW	DW	DW	DW	DW	OFF
PEDESTRIAN	E–W	P7–P8	DW	DW	DW	DW	DW	DW				DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	W/FDW	DW	DW	OFF
TIMING IN SECONDS																											
MINIMUM GREEN (INITIAL)			6			10						10			6			10			6			10			EMERGENCY ONLY
PASSAGE TIME (VEHICLE)			2			4						2			2			4			2			2			
MAXIMUM 1			10			42						42			10			42			10			32			
MAXIMUM 2			10			50						46			24			36			10			36			
YELLOW CLEARANCE				4			5.5						3			4			5.5			3			3		
RED CLEARANCE					3			1.5						1.5			3			1.5			4			1.5	
WALK (W)						7						7						7						7			
PEDESTRIAN CLEARANCE						24						14						16						13			
RECALL			OFF			SOFT						OFF			OFF			SOFT			OFF			OFF			
MEMORY			OFF			OFF						OFF			OFF			OFF			OFF			OFF			

NOTES:
1. FLASHING OPERATION PER M.U.T.C.D.
2. MAXIMUM 1 = NORMAL OPERATION
3. MAXIMUM 2 = MON–FRI, 3PM–7PM
4. THE PROPOSED L.E.D. W3–5a SIGN SHALL DISPLAY "RED" WHEN PHASE 6 (SIGNAL HEADS E,F,G) DISPLAYS "RED" AND SHALL BE BLANKED OUT WHEN PHASE 6 IS ACTIVE.
5. THE EXISTING L.E.D. W3–5a SIGN SHALL DISPLAY "RED" WHEN PHASE 2 (SIGNAL HEADS B,C) DISPLAYS "RED" AND SHALL BE BLANKED OUT WHEN PHASE 2 IS ACTIVE.

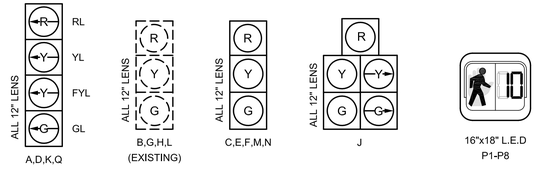
* UPON PEDESTRIAN PUSHBUTTON ACTUATION ONLY
** FYL IF PHASE 2 FOLLOWS, OTHERWISE RL ALL OTHER PHASES
*** FYL IF PHASE 6 FOLLOWS, OTHERWISE RL ALL OTHER PHASES
**** FYL IF PHASE 4 FOLLOWS, OTHERWISE RL ALL OTHER PHASES

PREFERENTIAL PHASING SEQUENCE



NOTES: 1. ANY PHASE OR PHASE COMBINATION NOT CALLED SHALL BE SKIPPED.
2. VEHICLE TURNING MOVEMENTS NOT SUPPORTED BY ARROW INDICATIONS SHOWN AS DASHED ARROWS ON PLAN
* UPON PEDESTRIAN PUSHBUTTON ACTUATION ONLY

SIGNAL IDENTIFICATION



NOTES:
1. ALL SIGNALS SHALL HAVE CUT AWAY VISORS.
2. ALL PROPOSED VEHICLE SIGNALS SHALL HAVE 12" LED WITH 5" LOUVERED BACK PLATES WITH 2" YELLOW RETROREFLECTIVE BORDERS.
3. THE CONTRACTOR SHALL REPLACE THE BACK PLATES ON ALL EXISTING SIGNAL HEADS TO REMAIN WITH 5" LOUVERED BACK PLATES WITH 2" YELLOW RETROREFLECTIVE BORDERS

FIRE PREEMPTION SCHEDULE

DETECTOR	APPROACH	PREEMPTION PHASE	NEXT PHASE CALLED
D1,D5	SOUTHBOUND	2+5	2+6
D2,D6	NORTHBOUND	1+6	2+6
D3	EASTBOUND	8	1+5
D4	WESTBOUND	4+7	4+8

LOOP DETECTOR DATA

SEE PLAN SHEET-LOOP DETECTOR DETAILS FOR LOOP CONSTRUCTION, SPLICING, DETAILS & NOTES. DELAY TIME EFFECTIVE ONLY DURING CALLED Ø RED. TIME IN SEC.

DETECTOR NUMBER	AMPLIFIER NUMBER	CHANNEL NUMBER	LOOP SIZE	NUM. OF TURNS	Ø CALLED	Ø EXT.	MODE A=PULSE B=PRES.	DELAY TIME	EXT. TIME
1*	1	1	1-6'x20'	2-4-2	5	2+5	B	-	-
2	1	2	1-6'x20'	2-4-2	5	2+5	B	-	-
3*	2	1	1-3'x6'	2-4-2	2	2	B	-	-
4	2	2	2-6'x20'	2-4-2	2	2	B	-	-
5*	3	1	1-6'x20'	2-4-2	1	1+6	B	-	-
6	3	2	1-6'x20'	2-4-2	1	1+6	B	-	-
7	4	1	2-6'x20'	2-4-2	6	6	B	-	-
8*	4	2	1-3'x6'	2-4-2	6	6	B	-	-
9	5	1	2-6'x20'	2-4-2	6	6	B	-	-
10*	5	2	1-6'x20'	2-4-2	8	8	B	-	-
11	6	1	1-6'x20'	2-4-2	8	8	B	-	-
12	6	2	2-6'x20'	2-4-2	8	8	B	5 SEC.	-
13*	7	1	1-6'x15'	2-4-2	8	8	B	5 SEC.	-
14*	7	2	1-6'x20'	2-4-2	7	4+7	B	-	-
15	8	1	1-6'x20'	2-4-2	7	4+7	B	-	-
16	8	2	2-6'x20'	2-4-2	4	4	B	-	-
17*	9	1	1-6'x15'	2-4-2	4	4	B	-	-

* CAPABLE OF BICYCLE DETECTION

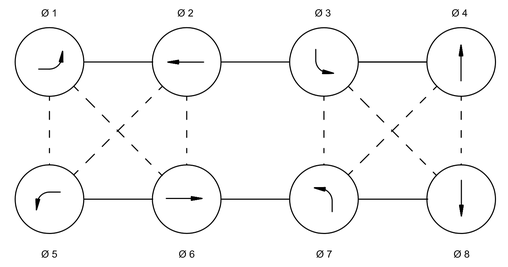
MAJOR ITEMS REQUIRED		
PAY ITEM	QUANTITY	ITEM
816.01	1	REPROGRAM CONTROLLER W/TIMING & PHASING AS SHOWN AND MODIFY CABINET TO ACCEPT ADDITIONAL EQUIPMENT INCLUDING ALL NECESSARY EQUIPMENT REQUIRED FOR FLASHING YELLOW ARROW OPERATIONS
	1	40 FT TYPE II GALV. STEEL MAST ARM W/FOUNDATION
	2	4 FT PEDESTAL POLE, STEEL W/FOUNDATION
	3	8 FT PEDESTAL POLE, STEEL W/FOUNDATION
	2	10 FT PEDESTAL POLE, STEEL W/FOUNDATION
	1	14 FT PEDESTAL POLE, STEEL W/FOUNDATION
	5	SIGNAL HEAD 3–SECTION 12" L.E.D. W/5" LOUVERED BACK PLATE & 2" YELLOW RETROREFLECTIVE BORDER
	4	SIGNAL HEAD 4–SECTION 12" L.E.D. W/5" LOUVERED BACK PLATE & 2" YELLOW RETROREFLECTIVE BORDER
	1	SIGNAL HEAD 5–SECTION 12" L.E.D. W/5" LOUVERED BACK PLATE & 2" YELLOW RETROREFLECTIVE BORDER
	4	5" LOUVERED BACK PLATE (3–SECTION) W/2" YELLOW RETROREFLECTIVE BORDER
	8	PEDESTRIAN SIGNAL HEAD (L.E.D.) W/COUNTDOWN TIMER & CAP VISOR
	8	APS PUSHBUTTON & SIGN W/AUDIBLE & VISIBLE INDICATOR, VIBRO–TACTILE ARROW AND SPEECH–WALK MESSAGE
	18	TYPE Q LOOP DETECTOR 6'x20' (2 TURNS)
	2	TYPE Q LOOP DETECTOR 6'x15' (2 TURNS)
	2	TYPE Q LOOP DETECTOR 3'x6' (2 TURNS)
	2	LOOP DETECTOR AMPLIFIER, 2–CHANNEL (SPARE)
	2	BUS INTERFACE UNIT (SPARE)
	4	EMERGENCY PREEMPTION OPTICAL DETECTOR
	1	EMERGENCY PREEMPTION STROBE (WHITE LENS)
	1	2–CHANNEL EMERGENCY PREEMPTION PHASE SELECTOR AND RACK
	1	W3–5a "RED SIGNAL AHEAD" SIGN (L.E.D.), 48" x 48"
832	3	R10–12a SIGN, 30" x 36"
804.3	970 FT	3" SCHEDULE 80 PVC CONDUIT
811.31	8	PULLBOX 12"x12" W/MASSDOT LOGO COVER
811.22	5	HANDHOLE 12"x24" W/MASSDOT LOGO COVER
		Plus all necessary duct, cable, labor, miscellaneous material and equipment to complete the installation.

CANTON
TURNPIKE ST (ROUTE 138)
AT RANDOLPH ST

STATE	SIGNAL ID NO.	REVISION NO.	SHEET NO.	TOTAL SHEETS
MASS	0051		3	3

DATA SHEET

NEMA DUAL RING PHASING NOTES:



1. PHASES ASSOCIATED BY A SOLID LINE SHALL NOT OPERATE CONCURRENTLY.
2. PHASES ASSOCIATED BY A DASHED LINE MAY OPERATE CONCURRENTLY.
3. THROUGH MOVEMENTS MAY INCLUDE RIGHT TURNS.
4. IF THE ASSIGNED RIGHT OF WAY FOR ANY TRAFFIC MOVEMENT IS TO REMAIN IN EFFECT DURING THE NEXT CALLED PHASE, THE SIGNAL INDICATIONS FOR THAT TRAFFIC MOVEMENT SHALL NOT CHANGE DURING THE CHANGE INTERVAL(S) UNLESS OTHERWISE NOTED.

EMERGENCY VEHICLE PREEMPTION OPERATION:

1. EMERGENCY VEHICLE PREEMPTION SHALL BE ACTUATED BY AN OPTICAL SIGNAL FROM AN OPTICAL EMITTER MOUNTED ON AN EMERGENCY VEHICLE AND RECEIVED BY AN OPTICAL DETECTOR LOCATED AT INTERSECTION. A SEPARATE RECEIVING DETECTOR IS REQUIRED FOR EACH DETECTED APPROACH.
2. PREEMPTION SIGNALS FROM MULTIPLE APPROACHES SHALL BE SERVICED ON A FIRST DETECTED FIRST SERVED BASIS.
3. IN RESPONSE TO A PREEMPTION SIGNAL RECEIVED AT AN INTERSECTION BY AN OPTICAL DETECTOR, THE CONTROLLER SHALL TIME THE CLEARANCE INTERVALS OF THE ACTIVE PHASE (IF DIFFERENT THAN TO BE SERVICED) AND ADVANCE TO AND/OR HOLD IN EMERGENCY VEHICLE PREEMPTION PHASE UNTIL PREEMPTION SIGNAL CEASES. THE CONTROLLER SHALL THEN TIME CLEARANCES AND SIMILARLY SERVICE OTHER EMERGENCY VEHICLE PREEMPTION SEQUENCES IN THE ORDER RECEIVED (IF RECEIVED) OTHERWISE, RESUME NORMAL PREFERENTIAL PHASE SEQUENCE.
4. PREEMPTION MINIMUM GREENS SHALL BE TEN SECONDS.
5. NORMAL CLEARANCES SHALL BE PROVIDED ON PHASES THAT ARE TERMINATED BY PREEMPTION DEMAND.
6. ACTUAL TIMING FOR PREEMPTION SHALL BE DETERMINED IN THE FIELD IN COORDINATION WITH THE FIRE DEPARTMENT AND SHALL BE APPROVED BY MASSDOT PRIOR TO OPERATION.

CONTROLLER MAKE & MODEL: – SIEMENS m50
UTILITY POLE No. – EDISON 36/9
METER No. – NSTAR 46 568 635
EMERGENCY PRE–EMPTION (TYPE): – OPTICOM

APPROVED BY:

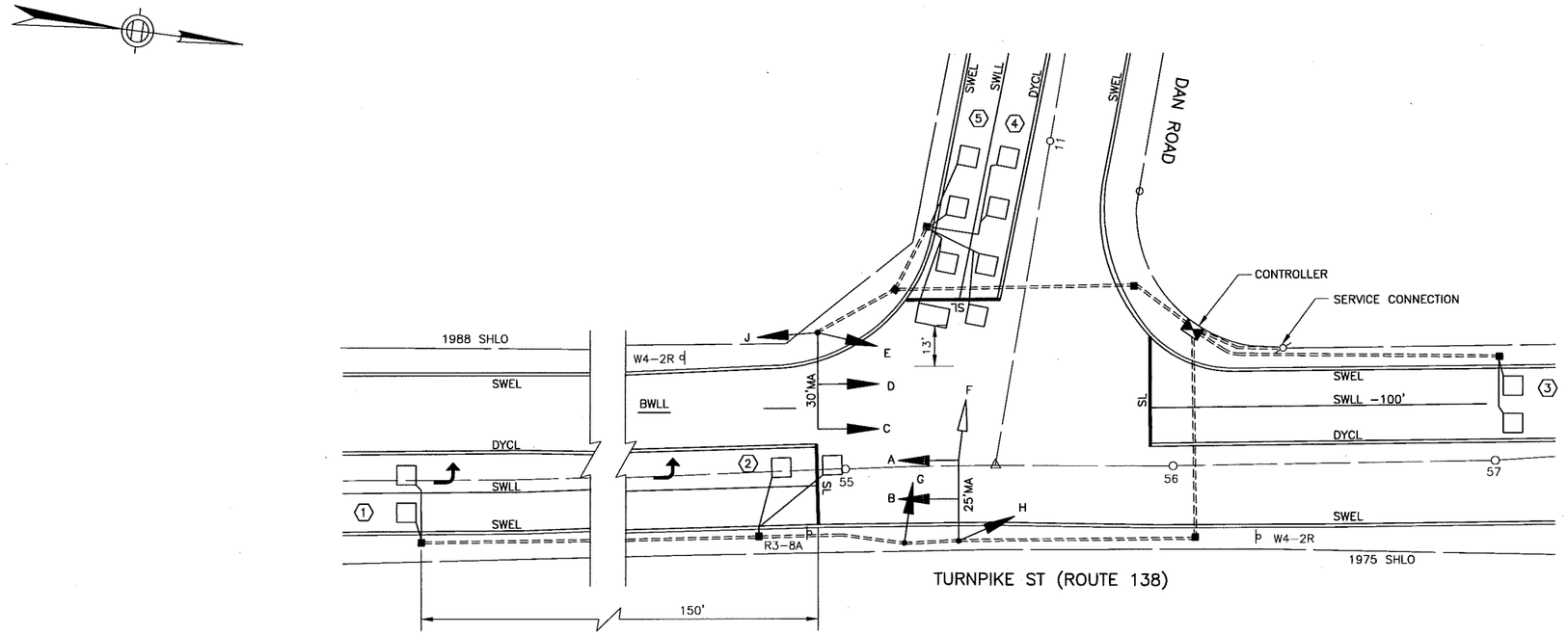
STATE TRAFFIC ENGINEER **Date**

0051D01.DWG

CANTON
ROUTE 138 AT DAN ROAD

STATE	SIGNAL ID NO.	REVISION NO.	SHEET NO.	TOTAL SHEETS
MASS	1095	01	2	

TRAFFIC SIGNAL PLAN



TURNPIKE ST (ROUTE 138)

0 20 50 100 FEET

1" = 20' HORIZONTAL

LEGEND

	SIGNAL CONTROLLER
	VEHICULAR SIGNAL
	OPTICALLY PROGRAMMED VEHICULAR SIGNAL
	FIRE PRE-EMPTION RECEIVER
*	FIRE PRE-EMPTION STROBE LIGHT
	PEDESTRIAN SIGNAL
	PEDESTRIAN PUSH BUTTON
	PULL BOX

APPROVED BY:

STATE TRAFFIC ENGINEER Date

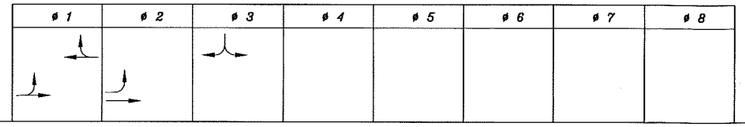
1095P0101.DWG

CANTON
ROUTE 138 AT DAN ROAD

STATE	SIGNAL ID NO.	REVISION NO.	SHEET NO.	TOTAL SHEETS
MASS	1095	01	3	

TRAFFIC SIGNAL DATA

APPROX. NORTH



SEQUENCE AND TIMING FOR FULLY ACTUATED CONTROL (ISOLATED)

STREET	DIRECTION	HOUSINGS	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	FLASH OPER.
TURNPIKE ST (RTE. 138)	NB LT	A,J	G	Y	R	GL/G	YL/Y	R	R	R	R																FY
TURNPIKE ST (RTE. 138)	NB	B	G	Y	R	G	Y	R	R	R	R																FY
TURNPIKE ST (RTE. 138)	SB	C,D,E,H	G	Y	Y	R	R	R	R	R	R																FY
DAN ROAD	EB	F,G	R	R	R	R	R	R	G	Y	R																FR
TIMING IN SECONDS																											
MINIMUM GREEN (INITIAL)			20			6			6																		
PASSAGE TIME (VEHICLE)			4			3			2																		
MAXIMUM 1 (FREE)			40			15			25																		
MAXIMUM 2 (COORD.)			40			15			25																		
YELLOW CLEARANCE				4			4			4																	
RED CLEARANCE					1			1			1																
WALK (W)																											
PEDESTRIAN CLEARANCE																											
RECALL			ON			OFF			OFF																		
MEMORY			LOCKING			NON-LOCKING			NON-LOCKING																		

EMERGENCY ONLY

MAJOR ITEMS REQUIRED

QUANTITY	ITEM
1	CONTROLLER TYPE BDW, CAB. & FDN.
1	SERVICE CONNECTION
1	10' SIGNAL POLE, BASE, & FDN.
1	MAST ARM ASSEMBLY 25', BASE & FDN.
1	MAST ARM ASSEMBLY 30', BASE & FDN.
5	1 WAY 3, 5 SECTION SIGNAL HEAD, 12" LENS
2	1 WAY 3, 5 SECTION SIGNAL HEAD, 12" LENS
3	DUAL CHANNEL LOOP DETECTOR AMPLIFIER
14	ROADWAY LOOP DETECTOR
7	12" x 12" PULL BOX
	Necessary duct, cable, labor, miscellaneous
	material and equipment to complete the installation.

NOTES:

SEQUENCE AND TIMING NOTES:

1. FLASHING OPERATION PER M.U.T.C.D. 4B-18.

NEMA DUAL RING PHASING NOTES:

1. PHASES ASSOCIATED BY A SOLID LINE SHALL NOT OPERATE CONCURRENTLY.
2. PHASES ASSOCIATED BY A DASHED LINE MAY OPERATE CONCURRENTLY.
3. THROUGH MOVEMENTS MAY INCLUDE RIGHT TURNS.
4. IF THE ASSIGNED RIGHT OF WAY FOR ANY TRAFFIC MOVEMENT IS TO REMAIN IN EFFECT DURING THE NEXT CALLED PHASE, THE SIGNAL INDICATIONS FOR THAT TRAFFIC MOVEMENT SHALL NOT CHANGE DURING THE CHANGE INTERVAL(S) UNLESS OTHERWISE NOTED.

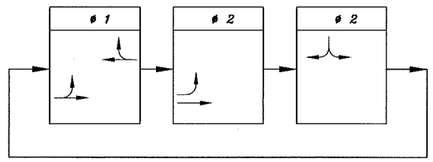
LOOP DETECTOR NOTES:

1. SEE LOOP DETECTOR DETAIL SHEET FROM DESIGN DOCUMENT FOR SPLICE PATTERN AND OTHER INFORMATION.
2. DELAY AND EXTENSION TIMES ARE IN SECONDS.
3. DELAY TIME SHALL BE EFFECTIVE ONLY DURING THE RED PORTION OF THE PHASE THAT IS CALLED BY THE DETECTOR.

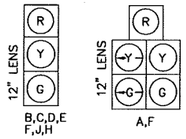
SIGNAL IDENTIFICATION NOTES:

1. ALL REDS ARE LED TYPE.

PREFERENTIAL PHASING SEQUENCE



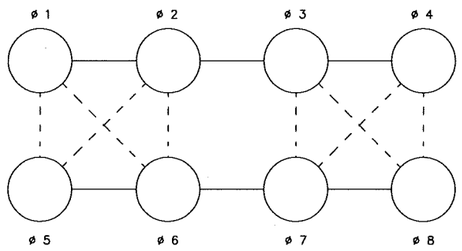
SIGNAL IDENTIFICATION



LOOP DETECTOR DATA

DETECTOR NUMBER	NUMBER OF SEGMENTS	LOOP SIZE	NUM. OF TURNS	ø CALLED	ø EXT.	MODE PULSE PRESENCE	DELAY TIME	EXT. TIME
1	2	6'X6'	2	ø1	ø1	PULSE	–	–
2	2	6'X6'	2	ø2	ø2	PRESENCE	–	–
3	2	6'X6'	2	ø1	ø1	PULSE	–	–
4	4	6'X6'	2	ø3	ø3	PRESENCE	–	–
5	3 1	6'X6' 6'X10'	2	ø3	ø3	PRESENCE	–	–
6	NOT USED							

NEMA DUAL RING PHASING NOTES:



CONTROLLER MAKE & MODEL:	EPAC 300
UTILITY POLE No.	56+65
METER No.	S-340882
EMERGENCY PRE-EMPTION (TYPE):	NONE

APPROVED BY:

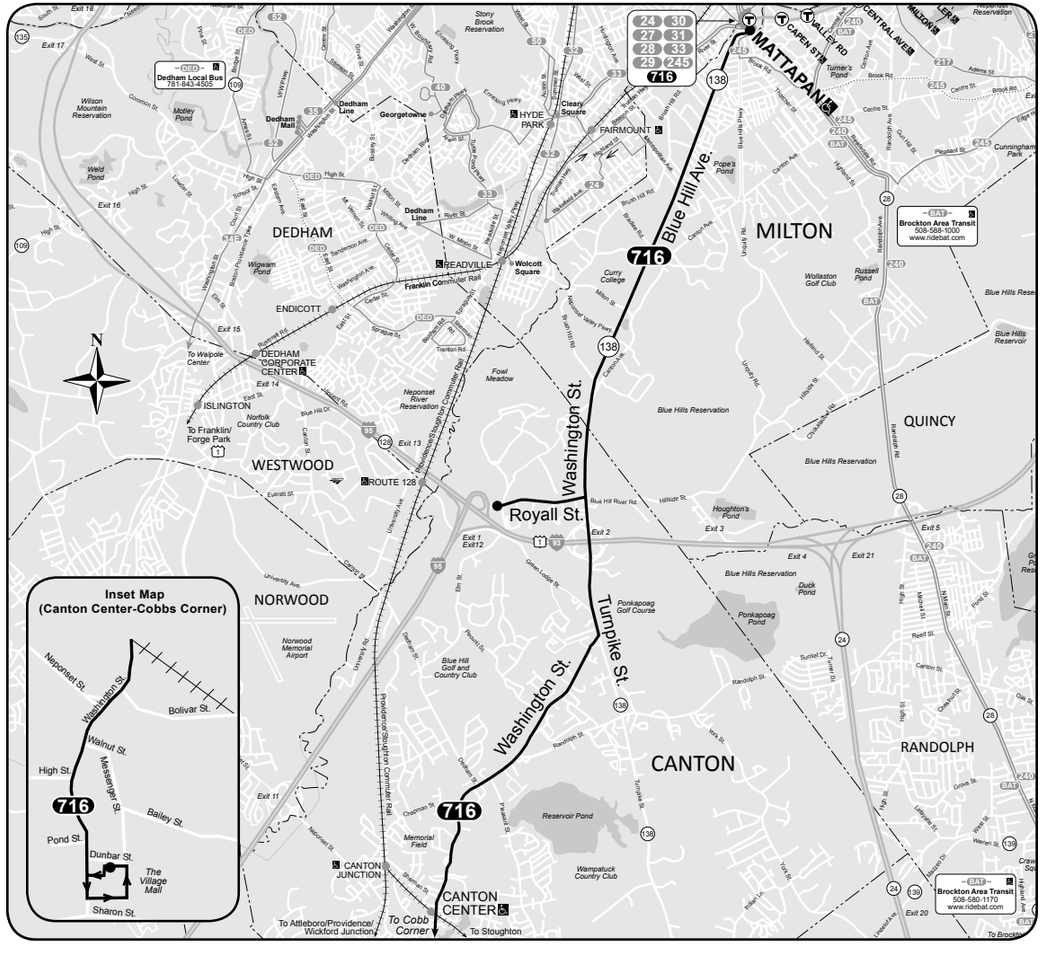
STATE TRAFFIC ENGINEER Date

1095D01.DWG

APPENDIX D

Bus Schedules

Route 716 Cobbs Corner - Mattapan Station



716

Fall September 1, 2017 - December 30, 2017

Cobbs Corner- Mattapan Station

Serving

- Curry College
- Fuller Village
- Canton Park-and-Ride Lot
- Royall Street
- Village Mall
- Providence/Stoughton Commuter Rail

Massachusetts Bay Transportation Authority

massDOT Massachusetts Department of Transportation

Information 617-222-3200 • 1-800-392-6100
(TTY) 617-222-5146 • www.mbta.com

716 Weekday

Inbound					Outbound				
Cobbs Corner	Canton Center	Royall St.	Curry College	Mattapan Station	Mattapan Station	Curry College	Royall St. Trailside Museum Park-n--Ride	Canton Center	Cobbs Corner
6:20A	6:25A	6:35A	6:45A	6:55A	5:50A	6:00A	6:05A	6:10A	6:15A
7:40	7:45	7:55	8:10	8:25	7:00	7:10	7:20	7:30	7:35
9:20	9:25	9:35	9:45	9:55	8:30	8:45	9:00	9:10	9:15
10:40	10:45	10:55	11:05	11:15	10:00	10:10	10:20	10:30	10:35
12:00N	**12:05P**	**12:15P**	**12:25P**	**12:35P**	11:20	11:30	11:40	11:50	11:55
2:45P	**2:50**	**3:00**	**3:10**	**3:20**	**2:05P**	**2:15P**	**2:25P**	**2:35P**	**2:40P**
4:15	**4:25**	**4:40**	**4:55**	**5:10**	**3:25**	**3:40**	**3:55**	**4:05**	**4:10**
6:05	**6:10**	**6:20**	**6:30**	**6:40**	**5:15**	**5:30**	**5:45**	**5:55**	**6:00**
					6:45	**6:55**	**7:05**	**7:15**	**7:20**

716 Saturday

Inbound					Outbound				
Cobbs Corner	Canton Center	Royall St.	Curry College	Mattapan Station	Mattapan Station	Curry College	Royall St. Trailside Museum Park-n--Ride	Canton Center	Cobbs Corner
8:30A	8:34A	8:42A	8:50A	8:55A	8:00A	8:04A	8:12A	8:20A	8:25A
9:30	9:34	9:42	9:50	9:55	9:00	9:04	9:12	9:20	9:25
10:30	10:34	10:42	10:50	10:55	10:00	10:04	10:12	10:20	10:25
11:30	11:34	11:42	11:50	11:55	11:00	11:04	11:12	11:20	11:25
1:30P	**1:34P**	**1:42P**	**1:50P**	**1:55P**	**1:00P**	**1:04P**	**1:12P**	**1:20P**	**1:25P**
2:30	**2:34**	**2:42**	**2:50**	**2:55**	**2:00**	**2:04**	**2:12**	**2:20**	**2:25**
3:30	**3:34**	**3:42**	**3:50**	**3:55**	**3:00**	**3:04**	**3:12**	**3:20**	**3:25**
4:30	**4:34**	**4:42**	**4:50**	**4:55**	**4:00**	**4:04**	**4:12**	**4:20**	**4:25**
5:30	**5:34**	**5:42**	**5:50**	**5:55**	**5:00**	**5:04**	**5:12**	**5:20**	**5:25**

All buses are accessible to persons with disabilities

Fall 2017 Holidays

October 9: see Weekday November 11: see Saturday

September 4, November 23 & December 25: see Sunday

No Service:
Sundays

This service is operated by A&A Metro, 800-437-3844, under contract to the MBTA.

Bus will stop at any safe location along the route, except Royall Street which has designated stops. Please signal to the driver if you wish to board.

Rt.138 is dark and the traffic moves quickly. If you want to board the bus at a location which you do not use daily, please call A&A Metro at 800-437-3844. The dispatcher will tell the driver to look for you.

Service subject to change.
In the event of weather emergency
please call the carrier.

Exact fare only.

FARE: **$1.70**
STUDENT: **$0.85***
SENIOR/TAP: **$0.85****

No transfers are given or accepted on this Route.

FREE FARES: Children 11 and under ride free when accompanied by an adult.
Blind Access CharlieCard holders ride free; if using a guide, the guide rides free.

*Available to students through participating middle schools and high schools.

**Available to Medicare cardholders, seniors 65+, and persons with disabilities.

The following MBTA passes are accepted:
Monthly Commuter Rail Zone 1A pass (or higher) - recommended for frequent subway/bus customers.

Monthly Local Bus Pass on CharlieTicket only.

Monthly Senior/TAP pass on CharlieTicket - available ONLY at the CharlieCard Store.
Call 617-222-3200 or 617-222-5854 (TTY) for more information.
1 Day and 7 Day Link Passes.

PROVIDENCE/STOUGHTON LINE Effective May 22, 2017

Massachusetts Bay Transportation Authority

Keolis

Monday to Friday

Inbound to Boston

ZONE	STATION	TRAIN #	AM															PM																					
	Bikes Allowed																																							
10	Wickford Junction		-	4:45	-	-	-	5:45	-	6:35	-	-	-	-	7:45	-	9:20	-	-	-	-	1:25	-	-	-	-	-	-	5:30	-	-	6:55	-	7:45	8:53	-	-	-
9	TF Green Airport		-	5:00	-	-	-	6:00	-	6:50	-	-	-	-	8:00	-	9:34	-	-	-	-	1:39	-	-	-	-	-	-	5:44	-	-	7:09	-	7:59	9:07	-	-	-
8	Providence		5:00	5:25	-	6:00	-	6:25	-	7:15	-	7:30	7:50	-	8:25	-	9:50	-	11:10	1:05	-	1:55	3:02	-	4:08	-	5:20	-	6:00	-	-	7:25	-	8:15	9:23	-	10:30	-
7	South Attleboro		5:09	5:34	-	6:09	-	6:34	-	7:25	-	7:39	7:59	-	8:34	-	9:59	-	11:19	1:16	-	2:06	3:13	-	4:20	-	5:29	-	6:09	-	-	7:34	-	8:24	9:34	-	10:39	-
7	Attleboro		5:19	5:44	-	6:19	-	6:44	7:12	7:35	-	7:49	8:09	-	8:44	-	10:09	-	11:29	1:26	-	2:16	3:23	-	4:30	-	5:39	-	6:19	-	-	7:44	-	8:34	9:44	-	10:49	-
6	Mansfield		5:29	5:54	-	6:29	-	6:54	7:22	7:45	-	7:59	8:19	-	8:54	-	10:19	-	11:39	1:36	-	2:26	3:33	-	4:40	-	5:48	-	6:28	-	-	7:54	-	8:44	9:54	-	10:59	-
4	Sharon		5:38	6:03	-	6:39	-	7:04	7:33		-	8:08	8:28	-	9:03	-	10:28	-	11:48	1:45	-	2:35	3:42	-	4:49	-	5:55	-	6:37	-	-	8:03	-	8:53	10:03	-	11:08	-
4	Stoughton		-	-	6:20	-	6:45	-	-	-	7:50	-	-	8:30	-	9:15	-	10:40	-	-	2:15	-	-	4:30	-	5:15	-	6:14	-	7:20	7:40	-	8:35	-	-	10:35	-	11:35
3	Canton Center		-	-	6:28	-	6:53	-	-	-	7:58	-	-	8:38	-	9:23	-	10:48	-	-	2:23	-	-	4:38	-	5:23	-	6:22	-	7:28	-	-	8:43	-	-	10:43	-	11:43
3	Canton Junction		5:45	6:10	6:31	-	6:56	-	7:40	-	8:01	-	-	8:41	9:10	9:26	-	10:51	11:55	1:53	2:26	-	3:50	-	4:56	5:26		6:24	-	7:32	-	8:10	8:46	9:00	10:10	10:46	11:15	11:46
2	Route 128		5:50	6:15	6:37	6:47	7:02	7:12	7:45	-	8:06	8:16	8:36	8:46	9:15	9:31	10:37	10:56	12:00	1:58	2:31	2:43	3:55	4:47	5:01	5:31	6:03	6:29	6:45	7:37	-	8:15	8:51	9:05	10:15	10:51	11:20	11:51
1	Hyde Park		5:55	6:20	6:43		7:08	-	7:51	-	-	8:21	-	8:51	9:20	9:36	-	11:01	12:05	2:03	-	2:48	4:00	-	5:06	5:36	-	6:34	-	7:42	-	8:20	-	9:10	10:20	10:56	11:25	11:56
1A	Ruggles		L 6:04	L 6:30	-	-	-	L 7:26	-	-	L 8:20	-	-	-	L 9:29	-	L 10:50	-	L 12:14	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1A	Back Bay		L 6:08	L 6:34	L 6:52	L 6:59	L 7:17	L 7:30	L 8:00	L 8:10	L 8:24	L 8:30	L 8:49	L 9:00	L 9:33	L 9:45	L 10:54	L 11:12	L 12:18	L 2:12	L 2:44	L 2:57	L 4:10	L 5:02	L 5:17	L 5:45	L 6:17	L 6:43	L 6:55	L 7:51	L 8:10	L 8:29	L 9:03	L 9:19	L 10:29	L 11:05	L 11:34	L 12:05
1A	SOUTH STATION		6:14	6:40	6:58	7:05	7:23	7:36	8:06	8:16	8:30	8:36	8:55	9:06	9:39	9:51	10:59	11:17	12:23	2:17	2:49	3:02	4:15	5:07	5:22	5:50	6:22	6:48	7:00	7:56	8:15	8:34	9:08	9:24	10:34	11:10	11:39	12:10

Trains in purple box indicate peak period trains.

Monday to Friday

Outbound from Boston

ZONE	STATION	TRAIN #	AM															PM																					
	Bikes Allowed																																							
1A	SOUTH STATION		-	-	5:20	5:30	-	6:18	6:31	6:59	7:25	7:35	8:23	9:35	9:45	10:25	11:25	1:20	1:43	2:30	3:25	3:35	3:55	4:20	4:30	4:55	5:12	5:40	5:50	6:10	6:30	6:50	7:20	7:30	8:30	9:40	10:00	10:40	11:00	11:59
1A	Back Bay		-	-	5:25	5:35	-	6:23	6:36	7:04	7:30	7:40	8:28	9:40	9:50	10:30	11:30	1:25	1:48	2:35	3:30	3:40	4:00	4:25	4:35	5:00	5:17	5:45	5:55	6:15	6:35	6:55	7:25	7:35	8:35	9:45	10:05	10:45	11:05	12:04
1A	Ruggles		-	-	-	-	-	-	6:39	-	7:33	-	-	9:44	9:53	10:33	11:33	1:28	1:52	2:38	3:34	3:43	4:04	4:29	4:39	5:04	5:21	5:49	5:59	6:19	6:39	6:58	7:28	7:38	8:38	9:48	10:08	10:48	11:08	12:07
1	Hyde Park		-	-	-	-	-	-	-	-	-	-	-	-	10:01	10:43	-	1:38	-	-	-	3:53	-	-	-	-	5:32	-	6:10	-	6:49	7:08	7:38	-	8:46	-	10:18	10:58	11:18	12:17
2	Route 128		-	-	5:37	5:49	-	6:37	6:51	7:19	7:45	7:55	8:43	9:56	10:08	10:48	11:45	1:43	2:04	2:51	-	3:58	-	4:42	4:53	5:18	5:43	-	6:16	-	6:54	7:13	7:43	7:52	8:51	10:02	10:23	11:03	11:23	12:22
3	Canton Junction		-	-	-	-	-	-	6:56	7:25	7:51	8:01	8:49	10:02	10:14	10:54	-	1:49	-	2:57	-	4:04	-	4:48	-	-	5:49	-	6:23	-	7:00	7:19	7:49	7:58	8:57	10:08	10:29	11:09	11:29	12:28
3	Canton Center		-	-	5:45	-	-	-	-	7:28	-	8:04	8:52	-	10:17	-	-	1:52	-	-	-	4:07	-	4:51	-	-	5:52	-	6:28	-	7:03	-	7:52	-	-	10:11	-	11:12	-	-
4	Stoughton		-	-	5:53	-	-	-	-	7:36	-	8:12	9:00	-	10:25	-	-	2:00	-	-	-	4:15	-	4:59	-	-	6:00	-	6:36	-	7:11	-	8:00	-	-	10:19	-	11:20	-	-
4	Sharon		-	-	-	5:57	-	-	7:02	-	7:57	-	-	10:08	-	11:00	11:53	-	2:12	3:03	3:51	-	4:22	-	5:01	5:26	-	6:07	-	6:37	-	7:25	-	8:04	9:03	-	10:35	-	11:35	12:34
6	Mansfield		-	-	-	6:04	-	-	7:09	-	8:05	-	-	10:16	-	11:08	12:00	-	2:20	3:11	3:59	-	4:30	-	5:09	5:34	-	6:15	-	6:45	-	7:33	-	8:12	9:11	-	10:43	-	11:43	12:42
7	Attleboro		-	-	-	6:12	-	6:55	7:17	-	8:13	-	-	10:24	-	11:16	12:08	-	2:28	3:19	4:07	-	4:38	-	5:17	5:44	-	6:23	-	6:53	-	7:41	-	8:20	9:19	-	10:51	-	11:51	12:50
7	South Attleboro		-	-	-	6:21	-	-	7:26	-	8:20	-	-	10:34	-	11:26	12:17	-	2:35	3:29	4:17	-	4:48	-	5:27	5:57	-	6:33	-	7:03	-	7:51	-	8:30	9:29	-	11:01	-	12:01	1:00
8	Providence		4:58	5:49	-	6:30	6:55	-	7:35	-	8:29	-	-	10:44	-	11:36	12:26	-	2:45	3:39	4:27	-	4:58	-	5:37	6:07	-	6:43	-	7:13	-	8:01	-	8:40	9:39	-	11:11	-	12:11	1:10
9	TF Green Airport		5:14	6:07	-	-	7:11	-	-	-	8:45	-	-	-	-	-	12:42	-	-	-	4:43	-	-	-	5:53	-	-	6:59	-	-	-	8:17	-	-	-	-	11:27	-	-	-
10	Wickford Junction		5:30	6:21	-	-	7:27	-	-	-	9:01	-	-	-	-	-	12:58	-	-	-	4:59	-	-	-	6:09	-	-	7:15	-	-	-	8:33	-	-	-	-	11:43	-	-	-

Trains in purple box indicate peak period trains.

Saturday & Sunday

Inbound to Boston

ZONE	STATION	SATURDAY TRAIN # / SUNDAY TRAIN #	AM			PM					
			1802	1804	1806	1808	1810	1812	1814	1816	1818
			SAT ONLY	SAT ONLY	2806	2808	2810	2812	2814	2816	2818
	Bikes Allowed										
8	Providence		6:35	8:35	11:20	12:55	2:56	4:56	7:05	8:52	10:00
7	South Attleboro		6:45	8:45	11:30	1:05	3:06	5:06	7:15	9:02	10:10
7	Attleboro		6:53	8:53	11:38	1:13	3:14	5:14	7:23	9:10	10:18
6	Mansfield		7:00	9:00	11:45	1:20	3:24	5:24	7:30	9:20	10:25
4	Sharon		7:08	9:08	11:53	1:28	3:32	5:32	7:38	9:28	10:33
3	Canton Junction		7:15	9:15	12:00	1:35	3:39	5:39	7:45	9:35	10:40
2	Route 128		7:20	9:20	12:05	1:40	3:44	5:44	7:50	9:40	10:45
1	Hyde Park		7:25	9:25	12:10	1:45	3:49	5:49	7:55	9:45	10:50
1A	Ruggles		L 7:35	L 9:35	L 12:22	L 1:55	L 3:59	L 5:59	L 8:05	L 9:55	L 11:00
1A	Back Bay		L 7:38	L 9:38	L 12:25	L 1:58	L 4:02	L 6:02	L 8:08	L 9:58	L 11:03
1A	SOUTH STATION		7:43	9:43	12:30	2:03	4:07	6:07	8:13	10:03	11:08

Trains 1802 and 1804 are Saturday only trains and will not operate on Sunday.

Saturday & Sunday

Outbound from Boston

ZONE	STATION	SATURDAY TRAIN # / SUNDAY TRAIN #	AM			PM					
			1801	1803	1805	1807	1809	1811	1813	1815	1817
			SAT ONLY	SAT ONLY	2805	2807	2809	2811	2813	2815	2817
	Bikes Allowed										
1A	SOUTH STATION		6:45	10:05	11:05	1:05	2:25	4:35	6:45	8:45	11:10
1A	Back Bay		6:50	10:10	11:10	1:10	2:30	4:40	6:50	8:50	11:15
1A	Ruggles		6:53	10:13	11:13	1:13	2:33	4:43	6:53	8:53	11:18
1	Hyde Park		7:01	10:21	11:21	1:21	2:41	4:51	7:01	9:01	11:26
2	Route 128		7:06	10:26	11:31	1:31	2:46	4:56	7:06	9:06	11:31
3	Canton Junction		7:11	10:31	11:36	1:36	2:51	5:01	7:11	9:11	11:36
4	Sharon		7:16	10:36	11:41	1:41	2:56	5:06	7:16	9:16	11:41
6	Mansfield		7:24	10:44	11:49	1:49	3:04	5:14	7:24	9:24	11:49
7	Attleboro		7:31	10:51	11:56	1:56	3:11	5:21	7:31	9:31	11:56
7	South Attleboro		7:40	11:00	12:05	2:05	3:20	5:30	7:40	9:40	12:05
8	Providence		7:50	11:10	12:15	2:15	3:30	5:40	7:50	9:50	12:15

Trains 1801 and 1803 are Saturday only trains and will not operate on Sunday.

Keep in Mind:

This schedule will be effective from May 22, 2017 and will replace the schedule of November 21, 2016.

Presidents' Day and 4th of July operate on a **Saturday service schedule.**

New Year's Day, Memorial Day, Labor Day, Thanksgiving Day, and Christmas Day operate on a **Sunday service schedule**.

For all other holiday schedules, please check MBTA.com or call 617-222-3200.

For additional service to Ruggles Station, refer to the Needham and Franklin Line schedules for particular trains.

For additional service to Hyde Park Station, refer to the Franklin Line schedule for particular trains.

Times in purple with "f" indicate a flag stop: Passengers must tell the conductor that they wish to leave. Passengers waiting to board must be visible on the platform for the train to stop.

Times in blue indicate an early departure (L stop): The train may leave ahead of schedule at these stops.

Bikes: Bicycles are allowed on trains with the bicycle symbol shown below the train number.

WEB052217V1

APPENDIX E

Traffic Safety Data

Route 138 Segment at Royall Street and Blue Hill River Road

Index	Crash Number	Crash Time	Crash Date	Crash Severity	Manner of Collision	Road Surface Condition	Ambient Light Condition	Weather Condition	Bike/ Ped	Vehicle Action	Driver Contribution Code
1	2555165	11:55 AM	12-Jan-2010	Possible	Rear-end	Dry	Daylight	Cloudy		V1: Turning right / V2: Travelling straight ahead	No improper driving
2	2559993	7:41 PM	24-Jan-2010	Non-incapacitating	Angle	Dry	Dark - lighted roadway	Clear		V1: Turning left / V2: Travelling straight ahead	Failed to yield to right of way
3	2563130	1:00 AM	30-Jan-2010	No injury	Rear-end	Ice	Dark - lighted roadway	Snow		V1: Travelling straight ahead / V2: Travelling straight ahead	No improper driving
4	2563120	2:40 PM	2-Feb-2010	No injury	Rear-end	Wet	Daylight	Clear		V1: Travelling straight ahead / V2: Travelling straight ahead / V3: Travelling straight ahead	No improper driving
5	2572200	6:27 AM	3-Mar-2010	No injury	Sideswipe, same direction	Wet	Daylight	Rain		V1: Travelling straight ahead	No improper driving
6	2581958	9:35 AM	31-Mar-2010	No injury	Rear-end	Wet	Daylight	Rain		V1: Travelling straight ahead / V2: Slowing or stopped / V3: Slowing or stopped / V4: Slowing or stopped	Inattention
7	2596145	8:56 AM	6-Apr-2010	No injury	Rear-end	Dry	Daylight	Clear		V1: Travelling straight ahead / V2: Travelling straight ahead	Swerving or avoiding due to wind, slippery surface, vehicle, object, non-motorist in roadway, etc…
8	2596155	5:16 PM	27-Apr-2010	No injury	Rear-end	Wet	Daylight	Rain		V1: Travelling straight ahead / V2: Slowing or stopped / V3: Slowing or stopped	Inattention
9	2597949	5:35 PM	7-May-2010	Possible	Angle	Dry	Daylight	Clear		V1: Travelling straight ahead / V2: Entering traffic lane	No improper driving
10	2600325	6:20 PM	17-May-2010	No injury	Sideswipe, same direction	Dry	Dusk	Clear		V1: Travelling straight ahead / V2: Travelling straight ahead	No improper driving
11	2609259	10:41 AM	10-Jun-2010	No injury	Sideswipe, opposite direction	Dry	Daylight	Cloudy		V1: Slowing or stopped / V2: Turning right	Operating vehicle in erratic, reckless, careless, negligent or aggressive manner
12	2614574	5:23 PM	28-Jun-2010	Possible	Rear-end	Dry	Daylight	Clear		V1: Travelling straight ahead / V2: Travelling straight ahead	No improper driving
13	2618138	6:36 PM	15-Jul-2010	No injury	Sideswipe, same direction	Dry	Daylight	Clear		V1: Travelling straight ahead / V2: Travelling straight ahead	Unknown
14	2622789	3:15 PM	26-Jul-2010	Possible	Rear-end	Dry	Daylight	Clear		V1: Slowing or stopped / V2: Slowing or stopped / V3: Travelling straight ahead	No improper driving
15	2622790	1:09 PM	28-Jul-2010	No injury	Rear-end	Dry	Daylight	Clear		V1: Travelling straight ahead / V2: Slowing or stopped	No improper driving
16	2642588	9:52 PM	11-Sep-2010	No injury	Sideswipe, same direction	Dry	Dark - lighted roadway	Clear		V1: Travelling straight ahead / V2: Slowing or stopped	No improper driving
17	2661146	6:29 PM	10-Nov-2010	No injury	Sideswipe, same direction	Dry	Dark - lighted roadway	Clear		V1: Travelling straight ahead / V2: Travelling straight ahead	Operating vehicle in erratic, reckless, careless, negligent or aggressive manner
18	2671793	11:13 AM	6-Dec-2010	No injury	Rear-end	Dry	Daylight	Clear		V1: Slowing or stopped / V2: Travelling straight ahead	Distracted
19	2671797	8:14 PM	8-Dec-2010	Non-incapacitating	Rear-end	Dry	Dark - lighted roadway	Clear		V1: Travelling straight ahead / V2: Travelling straight ahead	No improper driving
20	2673415	2:18 PM	20-Dec-2010	Possible	Rear-end	Snow	Daylight	Clear		V1: Slowing or stopped / V2: Travelling straight ahead	No improper driving
21	2677424	10:45 AM	31-Dec-2010	No injury	Rear-end	Dry	Daylight	Clear		V1: Travelling straight ahead / V2: Travelling straight ahead	No improper driving
22	2678762	4:42 PM	3-Jan-2011	No injury	Sideswipe, same direction	Dry	Daylight	Clear		V1: Turning left / V2: Travelling straight ahead	Unknown
23	2679614	4:31 PM	10-Jan-2011	No injury	Angle	Dry	Dusk	Clear		V1: Travelling straight ahead	No improper driving
24	2693206	11:20 AM	13-Feb-2011	No injury	Rear-end	Dry	Dawn	Clear		V1: Turning right / V2: Travelling straight ahead	Inattention
25	3284001	11:58 AM	22-Feb-2011	No injury	Sideswipe, same direction	Dry	Daylight	Clear		V1: Travelling straight ahead / V2: Turning left	No improper driving
26	3284071	9:38 AM	2-Mar-2011	No injury	Sideswipe, same direction	Dry	Daylight	Clear		V1: Changing lanes / V2: Travelling straight ahead	No improper driving
27	3283770	6:14 PM	6-Apr-2011	No injury	Angle	Dry	Daylight	Clear		V1: Travelling straight ahead / V2: Turning left	No improper driving
28	3283887	9:00 AM	19-Apr-2011	No injury	Sideswipe, same direction	Unknown	Daylight	Cloudy		V1: Slowing or stopped	No improper driving
29	3284553	3:09 PM	21-Apr-2011	Possible	Rear-end	Dry	Daylight	Clear		V1: Travelling straight ahead / V2: Slowing or stopped / V3: Travelling straight ahead	No improper driving
30	3283895	5:32 PM	29-Apr-2011	Non-incapacitating	Rear-end	Dry	Daylight	Clear		V1: Travelling straight ahead / V2: Travelling straight ahead / V3: Slowing or stopped	No improper driving
31	3283898	8:19 AM	4-May-2011	No injury	Sideswipe, same direction	Wet	Daylight	Cloudy		V1: Travelling straight ahead / V2: Travelling straight ahead	Operating vehicle in erratic, reckless, careless, negligent or aggressive manner
32	3283900	12:34 PM	6-May-2011	Non-incapacitating	Sideswipe, opposite direction	Dry	Daylight	Clear		V1: Travelling straight ahead / V2: Travelling straight ahead	No improper driving

Index	Crash Number	Crash Time	Crash Date	Crash Severity	Manner of Collision	Road Surface Condition	Ambient Light Condition	Weather Condition	Bike/ Ped	Vehicle Action	Driver Contribution Code
33	3283901	8:11 PM	6-May-2011	No injury	Rear-end	Dry	Dark - lighted roadway	Clear		V1: Travelling straight ahead / V2: Travelling straight ahead	No improper driving
34	3283919	8:43 AM	6-Jun-2011	Non-incapacitating	Rear-end	Dry	Daylight	Clear		V1: Travelling straight ahead / V2: Travelling straight ahead	No improper driving
35	3283927	8:07 AM	21-Jun-2011	No injury	Sideswipe, same direction	Dry	Daylight	Clear		V1: Travelling straight ahead / V2: Travelling straight ahead	No improper driving
37	3283947	4:51 PM	13-Jul-2011	No injury	Rear-end	Wet	Daylight	Rain		V1: Turning left / V2: Turning left	No improper driving
38	3283813	12:41 PM	24-Sep-2011	No injury	Rear-end	Dry	Daylight	Clear		V1: Slowing or stopped / V2: Travelling straight ahead	Operating vehicle in erratic, reckless, careless, negligent or aggressive manner
39	3283977	4:22 PM	2-Nov-2011	No injury	Rear-end	Dry	Daylight	Clear		V1: Slowing or stopped / V2: Slowing or stopped / V3: Travelling straight ahead	Inattention
40	3284035	6:52 AM	4-Nov-2011	No injury	Sideswipe, same direction	Wet	Daylight	Clear		V1: Travelling straight ahead / V2: Entering traffic lane	Failed to yield to right of way
41	3284037	8:29 AM	10-Nov-2011	No injury	Angle	Dry	Daylight	Cloudy		V1: Turning left / V2: Travelling straight ahead	No improper driving
42	3284041	6:47 PM	16-Nov-2011	No injury	Head on	Wet	Dark - lighted roadway	Rain		V1: Travelling straight ahead / V2: Turning left	No improper driving
43	3284051	8:38 PM	27-Nov-2011	No injury	Rear to rear	Wet	Dark - lighted roadway	Clear		V1: Backing / V2: Slowing or stopped	Inattention
44	3283993	10:13 AM	12-Dec-2011	No injury	Rear-end	Dry	Daylight	Clear		V1: Travelling straight ahead / V2: Travelling straight ahead	No improper driving
45	3284095	4:18 PM	16-Jan-2012	No injury	Angle	Dry	Dusk	Clear		V1: Travelling straight ahead / V2: Travelling straight ahead	No improper driving
46	3284104	8:41 AM	17-Jan-2012	Possible	Angle	Wet	Daylight	Cloudy		V1: Travelling straight ahead / V2: Slowing or stopped / V3: Entering traffic lane	No improper driving
47	3284200	4:13 PM	9-Apr-2012	No injury	Rear-end	Dry	Daylight	Clear		V1: Travelling straight ahead / V2: Travelling straight ahead	No improper driving
48	3284205	11:36 AM	14-Apr-2012	No injury	Rear-end	Dry	Daylight	Clear		V1: Travelling straight ahead / V2: Travelling straight ahead	No improper driving
49	3284091	8:33 PM	11-May-2012	No injury	Rear-end	Dry	Dark - lighted roadway	Clear		V1: Turning left / V2: Travelling straight ahead	Unknown
50	3284110	9:03 PM	7-Jun-2012	No injury	Rear-end	Dry	Dark - lighted roadway	Clear		V1: Slowing or stopped / V2: Travelling straight ahead	No improper driving
51	3284128	10:40 AM	22-Jun-2012	No injury	Sideswipe, same direction	Dry	Daylight	Clear		V1: Travelling straight ahead / V2: Travelling straight ahead	No improper driving
52	3284255	1:24 PM	29-Jul-2012	No injury	Angle	Dry	Daylight	Cloudy		V1: Turning left / V2: Travelling straight ahead	No improper driving
53	3284269	2:49 PM	15-Aug-2012	No injury	Rear-end	Dry	Daylight	Clear		V1: Travelling straight ahead / V2: Slowing or stopped	No improper driving
54	3284269	2:49 PM	15-Aug-2012	Incapacitating	Rear-end	Dry	Daylight	Clear		V1: Travelling straight ahead / V2: Slowing or stopped	No improper driving
55	3284270	6:54 PM	15-Aug-2012	Non-incapacitating	Angle	Dry	Daylight	Clear		V1: Travelling straight ahead / V2: Turning left	No improper driving
56	3736543	4:53 PM	24-Aug-2012	No injury	Rear-end	Dry	Daylight	Clear		V1: Travelling straight ahead / V2: Travelling straight ahead	No improper driving
57	3284288	9:58 AM	14-Sep-2012	No injury	Rear-end	Dry	Daylight	Clear		V1: Slowing or stopped / V2: Travelling straight ahead	No improper driving
58	3284147	11:44 AM	20-Sep-2012	Possible	Sideswipe, same direction	Dry	Daylight	Clear		V1: Travelling straight ahead / V2: Travelling straight ahead	No improper driving
59	3284294	6:51 AM	22-Sep-2012	No injury	Rear-end	Wet	Dawn	Rain		V1: Travelling straight ahead / V2: Turning right	No improper driving
60	3284295	1:45 PM	22-Sep-2012	No injury	Rear-end	Dry	Daylight	Clear		V1: Slowing or stopped / V2: Travelling straight ahead	Inattention
61	3321571	5:22 PM	12-Dec-2012	Possible	Sideswipe, same direction	Dry	Dark - lighted roadway	Clear	cyc	V1: Turning right	Unknown
62	3321572	9:53 AM	15-Dec-2012	No injury	Rear-end	Dry	Daylight	Clear		V1: Slowing or stopped / V2: Travelling straight ahead	No improper driving
63	3323054	4:27 PM	23-Dec-2012	No injury	Rear-end	Dry	Daylight	Clear		V1: Travelling straight ahead / V2: Travelling straight ahead	No improper driving
64	3351762	6:18 PM	14-Jan-2013	Possible	Single vehicle crash	Dry	Dark - lighted roadway	Clear	ped		0
65	3363019	4:01 PM	15-Feb-2013	No injury	Rear-end	Dry	Daylight	Clear		V1: Travelling straight ahead / V2: Travelling straight ahead	No improper driving
66	3373166	12:59 PM	8-Mar-2013	No injury	Rear-end	Snow	Daylight	Snow		V1: Slowing or stopped / V2: Slowing or stopped	No improper driving
68	3390788	3:27 PM	14-Apr-2013	Incapacitating	Rear-end	Dry	Daylight	Clear		V1: Slowing or stopped / V2: Travelling straight ahead	No improper driving

Index	Crash Number	Crash Time	Crash Date	Crash Severity	Manner of Collision	Road Surface Condition	Ambient Light Condition	Weather Condition	Bike/ Ped	Vehicle Action	Driver Contribution Code
69	3393630	3:55 PM	22-Apr-2013	No injury	Rear-end	Dry	Daylight	Clear		V1: Slowing or stopped / V2: Travelling straight ahead / V3: Travelling straight ahead	No improper driving
70	3422247	11:16 AM	8-May-2013	No injury	Rear-end	Wet	Daylight	Rain		V1: Slowing or stopped / V2: Travelling straight ahead	Followed too closely
71	3422176	6:05 PM	11-May-2013	No injury	Sideswipe, same direction	Wet	Daylight	Cloudy		V1: Overtaking/passing / V2: Travelling straight ahead	Inattention
72	3422177	8:13 PM	11-May-2013	No injury	Angle	Wet	Dark - lighted roadway	Rain		V1: Travelling straight ahead / V2: Entering traffic lane	Failed to yield to right of way
73	3422183	12:31 PM	18-May-2013	No injury	Rear-end	Dry	Daylight	Clear		V1: Slowing or stopped / V2: Travelling straight ahead	No improper driving
74	3432855	2:26 PM	26-May-2013	No injury	Rear-end	Dry	Daylight	Clear		V1: Turning left / V2: Travelling straight ahead	Made an improper turn
75	3526017	5:21 PM	2-Jul-2013	No injury	Rear-end	Dry	Daylight	Clear		V1: Slowing or stopped / V2: Slowing or stopped / V3: Travelling straight ahead	No improper driving
76	3534548	3:30 AM	15-Jul-2013	No injury	Single vehicle crash	Dry	Dark - lighted roadway	Cloudy		V1: Travelling straight ahead	No improper driving
77	3560166	1:09 PM	24-Jul-2013	No injury	Sideswipe, same direction	Dry	Daylight	Clear		V1: Slowing or stopped / V2: Turning left	Unknown
78	3577468	6:22 AM	6-Aug-2013	No injury	Sideswipe, same direction	Dry	Daylight	Cloudy		V1: Travelling straight ahead / V2: Travelling straight ahead	Unknown
79	3588030	9:46 AM	12-Sep-2013	Possible	Rear-end	Dry	Daylight	Clear		V1: Travelling straight ahead / V2: Travelling straight ahead / V3: Travelling straight ahead	No improper driving
80	3623412	9:52 AM	3-Oct-2013	No injury	Angle	Dry	Daylight	Clear		V1: Entering traffic lane / V2: Travelling straight ahead	Failed to yield to right of way
81	3623430	6:15 PM	22-Oct-2013	Possible	Single vehicle crash	Wet	Dark - roadway not lighted	Cloudy	ped	V1: Travelling straight ahead	No improper driving
82	3641341	2:54 PM	28-Oct-2013	Possible	Rear-end	Dry	Daylight	Clear		V1: Slowing or stopped / V2: Travelling straight ahead	No improper driving
83	3695000	2:20 PM	11-Dec-2013	Possible	Sideswipe, same direction	Dry	Daylight	Cloudy		V1: Slowing or stopped / V2: Turning left / V3: Travelling straight ahead	Operating vehicle in erratic, reckless, careless, negligent or aggressive manner
84	3710441	2:47 PM	11-Dec-2013	No injury	Rear-end	Dry	Daylight	Cloudy		V1: Travelling straight ahead / V2: Travelling straight ahead	No improper driving
85	3708874	3:04 PM	20-Dec-2013	Possible	Rear-end	Dry	Daylight	Clear		V1: Travelling straight ahead / V2: Slowing or stopped	Followed too closely
86	3730537	2:52 PM	17-Jan-2014	No injury	Rear-end	Dry	Daylight	Clear		V1: Slowing or stopped / V2: Travelling straight ahead	No improper driving
87	3732794	8:56 AM	4-Feb-2014	No injury	Rear-end	Wet	Daylight	Clear		V1: Travelling straight ahead / V2: Travelling straight ahead	No improper driving
88	3732644	9:24 AM	4-Feb-2014	No injury	Rear-end	Dry	Daylight	Clear		V1: Travelling straight ahead	No improper driving
89	3732611	6:58 PM	4-Feb-2014	No injury	Sideswipe, same direction	Dry	Dark - lighted roadway	Clear		V1: Travelling straight ahead / V2: Slowing or stopped	No improper driving
90	3741143	7:58 PM	22-Feb-2014	Possible	Rear-end	Dry	Dark - lighted roadway	Clear		V1: Slowing or stopped / V2: Travelling straight ahead	No improper driving
91	3756403	6:07 PM	5-Mar-2014	No injury	Rear-end	Dry	Dark - lighted roadway	Clear		V1: Travelling straight ahead / V2: Travelling straight ahead	No improper driving
92	3777159	8:18 AM	13-Mar-2014	No injury	Sideswipe, same direction	Wet	Daylight	Snow		V1: Slowing or stopped / V2: Slowing or stopped / V3: Slowing or stopped	Driving too fast for conditions
93	3777164	8:51 AM	20-Mar-2014	Non-incapacitating	Angle	Wet	Daylight	Rain		V1: Turning left / V2: Travelling straight ahead	Unknown
94	3777333	3:41 PM	20-Mar-2014	Non-incapacitating	Angle	Dry	Daylight	Clear		V1: Travelling straight ahead / V2: Entering traffic lane	Unknown
95	3781307	2:24 PM	29-Mar-2014	Non-incapacitating	Angle	Wet	Daylight	Rain		V1: Turning left / V2: Travelling straight ahead	Unknown
96	3957261	5:38 PM	8-May-2014	Fatal	Rear-end	Dry	Daylight	Clear		V1: Travelling straight ahead / V2: Travelling straight ahead	No improper driving
97	3881932	3:02 PM	15-Jun-2014	No injury	Rear-end	Dry	Daylight	Clear		V1: Travelling straight ahead / V2: Travelling straight ahead / V3: Travelling straight ahead	No improper driving
98	3899442	8:59 PM	19-Jun-2014	No injury	Rear-end	Dry	Dark - lighted roadway	Clear		V1: Slowing or stopped / V2: Travelling straight ahead	Followed too closely
99	3931986	12:50 PM	24-Aug-2014	Possible	Rear-end	Dry	Daylight	Clear		V1: Slowing or stopped / V2: Slowing or stopped / V3: Travelling straight ahead	Inattention
100	3950470	5:01 PM	27-Aug-2014	No injury	Rear-end	Dry	Daylight	Clear		V1: Travelling straight ahead / V2: Travelling straight ahead	No improper driving
101	3996133	8:42 AM	12-Sep-2014	Non-incapacitating	Rear-end	Dry	Daylight	Clear		V1: Slowing or stopped / V2: Travelling straight ahead	Distracted

Index	Crash Number	Crash Time	Crash Date	Crash Severity	Manner of Collision	Road Surface Condition	Ambient Light Condition	Weather Condition	Bike/ Ped	Vehicle Action	Driver Contribution Code
102	4025966	4:54 PM	23-Sep-2014	No injury	Sideswipe, same direction	Dry	Daylight	Clear		V1: Travelling straight ahead / V2: Travelling straight ahead	No improper driving
103	4025970	4:57 PM	25-Sep-2014	No injury	Sideswipe, same direction	Dry	Daylight	Clear		V1: Travelling straight ahead / V2: Travelling straight ahead	Unknown
104	4010985	6:34 AM	28-Oct-2014	No injury	Angle	Dry	Dawn	Clear		V1: Turning left / V2: Travelling straight ahead	No improper driving
105	4013716	7:09 AM	7-Nov-2014	No injury	Sideswipe, same direction	Dry	Daylight	Cloudy		V1: Travelling straight ahead / V2: Travelling straight ahead	No improper driving
106	4017356	6:10 PM	25-Nov-2014	No injury	Angle	Dry	Dark - lighted roadway	Clear		V1: Travelling straight ahead / V2: Turning left	No improper driving
107	4023626	6:17 PM	4-Dec-2014	Non-incapacitating	Rear-end	Dry	Dark - roadway not lighted	Clear		V1: Travelling straight ahead / V2: Slowing or stopped / V3: Slowing or stopped	Inattention
108	4023635	2:04 PM	11-Dec-2014	No injury	Sideswipe, same direction	Wet	Daylight	Snow		V1: Other / V2: Travelling straight ahead	Unknown
109	4023639	12:36 PM	15-Dec-2014	No injury	Rear-end	Dry	Daylight	Clear		V1: Slowing or stopped / V2: Travelling straight ahead	No improper driving
110	4023642	5:58 PM	16-Dec-2014	No injury	Rear-end	Dry	Dark - lighted roadway	Clear		V1: Slowing or stopped / V2: Slowing or stopped / V3: Slowing or stopped	No improper driving
111	4023644	11:12 AM	17-Dec-2014	No injury	Angle	Wet	Daylight	Cloudy		V1: Travelling straight ahead / V2: Other	No improper driving
112	4023645	4:35 PM	18-Dec-2014	No injury	Rear-end	Dry	Dusk	Clear		V1: Slowing or stopped / V2: Travelling straight ahead	No improper driving
113	4023648	7:22 PM	20-Dec-2014	No injury	Sideswipe, opposite direction	Wet	Dark - lighted roadway	Snow		V1: Travelling straight ahead / V2: Turning left	No improper driving
114	2559986	9:16 PM	22-Jan-2010	Incapacitating	Sideswipe, opposite direction	Dry	Dark - roadway not lighted	Clear		V1: Travelling straight ahead / V2: Making U-turn	Made an improper turn
115	2596157	12:49 PM	29-Apr-2010	Possible	Head on	Dry	Daylight	Clear		V1: Travelling straight ahead / V2: Travelling straight ahead	No improper driving
116	2693204	1:10 PM	10-Feb-2011	No injury	Rear-end	Dry	Daylight	Clear		V1: Travelling straight ahead / V2: Slowing or stopped	No improper driving
117	3283935	5:10 PM	28-Jun-2011	No injury	Rear-end	Dry	Daylight	Clear		V1: Travelling straight ahead / V2: Travelling straight ahead	No improper driving
118	2742787	4:28 AM	9-Jul-2011	No injury	Single vehicle crash	Dry	Dark - lighted roadway	Clear		V1: Backing	Disregarded traffic signs, signals, road markings
119	3284083	8:50 AM	2-May-2012	No injury	Rear-end	Wet	Daylight	Cloudy		V1: Travelling straight ahead / V2: Travelling straight ahead / V3: Travelling straight ahead	No improper driving
120	3373176	4:58 PM	15-Mar-2013	No injury	Angle	Dry	Daylight	Clear		V1: Turning left / V2: Travelling straight ahead	No improper driving
121	3373181	6:02 PM	22-Mar-2013	No injury	Angle	Dry	Daylight	Clear		V1: Travelling straight ahead / V2: Entering traffic lane	Failed to yield to right of way
122	3623438	5:50 PM	26-Oct-2013	No injury	Rear-end	Dry	Dusk	Clear		V1: Travelling straight ahead / V2: Travelling straight ahead / V3: Travelling straight ahead	No improper driving
123	3899441	4:08 PM	18-Jun-2014	No injury	Sideswipe, opposite direction	Dry	Daylight	Clear		V1: Travelling straight ahead / V2: Travelling straight ahead	No improper driving
124	3980923	5:40 PM	10-Jul-2014	No injury	Rear-end	Dry	Daylight	Clear		V1: Travelling straight ahead / V2: Travelling straight ahead	No improper driving
125	3984454	5:34 PM	7-Aug-2014	No injury	Rear-end	Dry	Daylight	Clear		V1: Slowing or stopped / V2: Travelling straight ahead	No improper driving
126	3987748	10:56 AM	27-Aug-2014	No injury	Angle	Dry	Daylight	Clear		V1: Travelling straight ahead / V2: Turning left	Unknown
127	4010981	1:55 PM	22-Oct-2014	No injury	Sideswipe, same direction	Wet	Daylight	Rain		V1: Changing lanes / V2: Travelling straight ahead	No improper driving
128	4013724	7:50 AM	11-Nov-2014	Non-incapacitating	Angle	Dry	Daylight	Clear		V1: Turning left / V2: Overtaking/passing	Disregarded traffic signs, signals, road markings

Route 138 Segment at I-93 Ramp-Arterial Junctions

Index	Crash Number	Crash Time	Crash Date	Crash Severity	Manner of Collision	Road Surface Condition	Ambient Light Condition	Weather Condition	Bike/ Ped	Vehicle Action	Driver Contribution Code
1	2562629	7:40 AM	1-Feb-2010	No injury	Rear-end	Dry	Daylight	Clear		V1: Slowing or stopped / V2: Travelling straight ahead	No improper driving
2	2568013	8:29 AM	2-Feb-2010	No injury	Single vehicle crash	Dry	Daylight	Clear		V1: Entering traffic lane	Failure to keep in proper lane or running off road
3	2582678	4:00 PM	1-Apr-2010	No injury	Sideswipe, same direction	Dry	Daylight	Clear		V1: Travelling straight ahead / V2: Turning right	No improper driving
5	2654637	6:52 AM	27-Oct-2010	No injury	Rear-end	Wet	Daylight	Rain		V1: Travelling straight ahead / V2: Slowing or stopped	Followed too closely
6	2693203	6:10 AM	10-Feb-2011	Non-incapacitating	Single vehicle crash	Ice	Dawn	Clear		V1: Travelling straight ahead	History heart/epilepsy/fainting
7	2701467	8:20 AM	12-Feb-2011	No injury	Single vehicle crash	Ice	Daylight	Cloudy		V1: Travelling straight ahead	No improper driving
8	3375461	7:53 AM	26-Jul-2011	No injury	Rear-end	Dry	Daylight	Clear		V1: Slowing or stopped / V2: Travelling straight ahead	No improper driving
9	3286132	10:55 AM	18-Oct-2012	No injury	Single vehicle crash	Dry	Daylight			V1: Entering traffic lane	Driving too fast for conditions
10	3299045	7:23 AM	2-Dec-2012	No injury	Single vehicle crash	Dry	Daylight	Clear		V1: Unknown	Inattention
11	3422170	2:21 PM	8-May-2013	No injury	Angle	Dry	Daylight	Cloudy		V1: Travelling straight ahead / V2: Changing lanes	Failed to yield to right of way
12	3584157	8:20 AM	30-Aug-2013	No injury	Rear-end	Dry	Daylight	Clear		V1: Travelling straight ahead / V2: Travelling straight ahead	Followed too closely
13	3624131	7:38 AM	15-Oct-2013	No injury	Rear-end	Dry	Daylight	Clear		V1: Slowing or stopped / V2: Travelling straight ahead	Inattention
14	3727934	8:34 PM	3-Jan-2014	No injury	Single vehicle crash	Ice	Dark - lighted roadway	Snow		V1: Travelling straight ahead	No improper driving
15	3809096	1:54 PM	3-May-2014	Incapacitating	Single vehicle crash	Dry	Daylight	Clear		V1: Entering traffic lane	Unknown
16	3980929	12:29 PM	16-Jul-2014	No injury	Single vehicle crash	Wet	Daylight	Rain		V1: Entering traffic lane	Operating defective equipment
17	3977141	3:50 PM	25-Nov-2014	No injury	Rear-end	Dry	Dusk	Clear		V1: Slowing or stopped / V2: Travelling straight ahead	Inattention
18	4023619	8:30 AM	2-Dec-2014	No injury	Sideswipe, same direction	Dry	Daylight	Clear		V1: Travelling straight ahead / V2: Entering traffic lane	Unknown
19	2602068	7:44 PM	23-May-2010	No injury	Angle	Dry	Dusk	Clear		V1: Travelling straight ahead / V2: Turning left	Unknown
20	2612285	3:55 PM	23-Jun-2010	No injury	Sideswipe, same direction	Dry	Daylight	Clear		V1: Overtaking/passing / V2: Travelling straight ahead	No improper driving
21	2653073	12:11 PM	11-Oct-2010	Non-incapacitating	Angle	Dry	Daylight	Clear		V1: Travelling straight ahead / V2: Turning left	Failed to yield to right of way
22	2663285	7:47 AM	17-Nov-2010	Non-incapacitating	Rear-end	Wet	Daylight	Cloudy		V1: Turning left / V2: Travelling straight ahead	No improper driving
23	3283897	5:25 PM	3-May-2011	No injury	Rear-end	Dry	Daylight	Clear		V1: Slowing or stopped / V2: Travelling straight ahead	No improper driving
24	3284042	10:55 AM	17-Nov-2011	No injury	Rear-end	Dry	Daylight	Clear		V1: Slowing or stopped / V2: Travelling straight ahead	Inattention
25	3284234	4:35 PM	6-Jul-2012	Possible	Rear-end	Dry	Daylight	Clear		V1: Slowing or stopped / V2: Slowing or stopped	Inattention
26	3526025	11:07 PM	15-Jul-2013	Possible	Angle	Dry	Dark - lighted roadway	Clear		V1: Travelling straight ahead / V2: Turning left	No improper driving
27	3732646	3:00 PM	6-Feb-2014	No injury	Rear-end	Dry	Daylight	Clear		V1: Slowing or stopped / V2: Slowing or stopped / V3: Slowing or stopped	Unknown
28	3792643	4:15 PM	18-Apr-2014	No injury	Rear-end	Dry	Daylight	Clear		V1: Turning left / V2: Travelling straight ahead	No improper driving
29	3957356	6:49 PM	6-May-2014	No injury	Sideswipe, same direction	Dry	Daylight	Clear		V1: Travelling straight ahead / V2: Travelling straight ahead	No improper driving
30	4001976	1:23 PM	17-Sep-2014	Possible	Single vehicle crash	Dry	Daylight	Clear		V1: Turning right	Unknown
31	4010983	8:17 AM	23-Oct-2014	No injury	Sideswipe, same direction	Wet	Daylight	Rain		V1: Travelling straight ahead / V2: Travelling straight ahead	No improper driving
32	4013712	8:53 AM	3-Nov-2014	No injury	Rear-end	Dry	Daylight	Clear		V1: Making U-turn / V2: Travelling straight ahead	Made an improper turn

Route 138 Segment at Greenlodge Street

Index	Crash Number	Crash Time	Crash Date	Crash Severity	Manner of Collision	Road Surface Condition	Ambient Light Condition	Weather Condition	Bike/Ped	Vehicle Action	Driver Contribution Code
1	2550370	3:57 PM	5-Jan-2010	Non-incapacitating	Angle	Dry	Daylight	Clear		V1: Turning left / V2: Travelling straight ahead	No improper driving
2	2559988	7:47 AM	22-Jan-2010	No injury	Angle	Dry	Daylight	Clear		V1: Travelling straight ahead / V2: Turning left	Made an improper turn
3	2638761	12:40 PM	31-Aug-2010	Non-incapacitating	Rear-end	Dry	Daylight	Clear		V1: Slowing or stopped / V2: Travelling straight ahead / V3: Travelling straight ahead	No improper driving
4	2663291	7:27 PM	21-Nov-2010	No injury	Rear-end	Dry	Dark - lighted roadway	Clear		V1: Turning left / V2: Overtaking/passing	No improper driving
5	2671864	8:52 AM	2-Dec-2010	No injury	Angle	Dry	Daylight	Clear		V1: Turning left / V2: Travelling straight ahead	Disregarded traffic signs, signals, road markings
6	2677425	8:20 PM	31-Dec-2010	No injury	Single vehicle crash	Wet	Dark - lighted roadway	Other		V1: Travelling straight ahead	No improper driving
7	3283892	5:27 PM	28-Apr-2011	No injury	Rear-end	Dry	Daylight	Clear		V1: Travelling straight ahead / V2: Travelling straight ahead	No improper driving
8	3283951	8:01 AM	21-Jul-2011	No injury	Rear-end	Dry	Daylight	Clear		V1: Travelling straight ahead / V2: Travelling straight ahead / V3: Travelling straight ahead	No improper driving
9	3283787	9:25 AM	18-Aug-2011	No injury	Rear-end	Dry	Daylight	Clear		V1: Turning left / V2: Overtaking/passing	Inattention
10	3284044	4:59 PM	17-Nov-2011	No injury	Angle	Wet	Dark - lighted roadway	Rain		V1: Entering traffic lane / V2: Travelling straight ahead	Failed to yield to right of way
11	3283997	4:44 PM	21-Dec-2011	No injury	Rear-end	Wet	Dusk	Rain		V1: Travelling straight ahead / V2: Travelling straight ahead	No improper driving
12	3284325	7:42 AM	7-Feb-2012	Possible	Rear-end	Dry	Daylight	Clear		V1: Travelling straight ahead / V2: Travelling straight ahead	No improper driving
13	3432853	8:30 PM	21-May-2013	No injury	Angle	Wet	Dark - lighted roadway	Cloudy		V1: Travelling straight ahead / V2: Turning left	No improper driving
14	3577347	5:16 PM	7-Aug-2013	No injury	Rear-end	Dry	Daylight	Clear		V1: Slowing or stopped / V2: Slowing or stopped / V3: Travelling straight ahead	No improper driving
15	3564767	3:21 PM	14-Aug-2013	No injury	Sideswipe, opposite direction	Dry	Daylight	Clear		V1: Turning left / V2: Travelling straight ahead	No improper driving
16	3577470	9:20 AM	26-Aug-2013	No injury	Rear-end	Dry	Daylight	Cloudy		V1: Travelling straight ahead / V2: Travelling straight ahead	No improper driving
17	3623413	7:57 AM	4-Oct-2013	No injury	Rear-end	Dry	Daylight	Clear		V1: Travelling straight ahead / V2: Turning left	No improper driving
18	3727923	12:38 PM	23-Jan-2014	No injury	Sideswipe, same direction	Dry	Daylight	Clear		V1: Travelling straight ahead / V2: Entering traffic lane	No improper driving
19	3732612	3:03 PM	6-Feb-2014	Possible	Rear-end	Dry	Daylight	Clear		V1: Travelling straight ahead / V2: Travelling straight ahead	Followed too closely
20	3964057	9:23 AM	12-May-2014	No injury	Rear-end	Dry	Daylight	Clear		V1: Slowing or stopped / V2: Travelling straight ahead	Unknown
21	3899445	4:04 PM	30-Jun-2014	Possible	Rear-end	Dry	Daylight	Clear		V1: Slowing or stopped / V2: Travelling straight ahead	Inattention
22	3980933	3:09 PM	24-Jul-2014	No injury	Rear-end	Dry	Daylight	Clear		V1: Slowing or stopped / V2: Travelling straight ahead	No improper driving
23	3925571	7:05 PM	4-Aug-2014	No injury	Rear-end	Dry	Daylight	Clear		V1: Slowing or stopped / V2: Travelling straight ahead	Inattention
24	3996439	11:01 AM	16-Sep-2014	Non-incapacitating	Single vehicle crash	Dry	Daylight	Clear		V1: Travelling straight ahead	Fatigued/asleep
25	4010980	7:09 AM	22-Oct-2014	No injury	Angle	Wet	Daylight	Cloudy		V1: Travelling straight ahead / V2: Travelling straight ahead	Failed to yield to right of way
26	4013727	9:40 AM	13-Nov-2014	No injury	Rear-end	Dry	Daylight	Clear		V1: Slowing or stopped / V2: Slowing or stopped / V3: Travelling straight ahead	Unknown
27	4023652	1:11 PM	23-Dec-2014	No injury	Rear-end	Wet	Daylight	Rain		V1: Travelling straight ahead / V2: Travelling straight ahead	Followed too closely

Route 138 Segment at Washington Street

Index	Crash Number	Crash Time	Crash Date	Crash Severity	Manner of Collision	Road Surface Condition	Ambient Light Condition	Weather Condition	Bike/ Ped	Vehicle Action	Driver Contribution Codes
1	2555185	11:16 AM	12-Jan-2010	No injury	Sideswipe, same direction	Dry	Daylight	Cloudy		V1: Travelling straight ahead / V2: Overtaking/passing	No improper driving
2	2559984	12:06 PM	20-Jan-2010	No injury	Rear-end	Dry	Daylight	Cloudy		V1: Travelling straight ahead / V2: Turning left	No improper driving
3	2560007	5:03 PM	27-Jan-2010	No injury	Rear-end	Dry	Daylight	Clear		V1: Slowing or stopped / V2: Slowing or stopped	Inattention
4	2563638	4:40 PM	5-Feb-2010	No injury	Sideswipe, same direction	Dry	Dark - lighted roadway	Clear		V1: Travelling straight ahead / V2: Overtaking/passing	No improper driving
5	2581955	8:25 AM	30-Mar-2010	No injury	Sideswipe, same direction	Wet	Daylight	Cloudy		V1: Travelling straight ahead / V2: Changing lanes	No improper driving
6	2596146	9:17 AM	8-Apr-2010	No injury	Sideswipe, same direction	Dry	Daylight	Clear		V1: Turning right / V2: Turning right	No improper driving
7	2596067	6:23 PM	14-Apr-2010	Non-incapacitating	Rear-end	Dry	Daylight	Clear		V1: Slowing or stopped / V2: Travelling straight ahead	Followed too closely
8	2597842	7:53 AM	10-May-2010	No injury	Angle	Dry	Daylight	Clear		V1: Turning left / V2: Travelling straight ahead	No improper driving
9	2601977	2:18 PM	24-May-2010	No injury	Sideswipe, same direction	Dry	Daylight	Clear		V1: Travelling straight ahead / V2: Travelling straight ahead	No improper driving
10	2609136	4:10 PM	2-Jun-2010	No injury	Sideswipe, same direction	Dry	Daylight	Clear		V1: Travelling straight ahead / V2: Travelling straight ahead	No improper driving
11	2609140	4:56 PM	8-Jun-2010	No injury	Angle	Dry	Daylight	Clear		V1: Travelling straight ahead / V2: Turning left	Inattention
12	2616061	2:39 PM	6-Jul-2010	No injury	Angle	Dry	Daylight	Clear		V1: Travelling straight ahead / V2: Turning left	Failed to yield to right of way
13	2620918	2:43 PM	26-Jul-2010	No injury	Angle	Dry	Daylight	Clear	cyc	V1: Entering traffic lane	Unknown
14	2673410	1:11 PM	16-Dec-2010	No injury	Sideswipe, same direction	Dry	Daylight	Clear		V1: Travelling straight ahead / V2: Entering traffic lane	No improper driving
15	2681420	1:18 PM	15-Jan-2011	No injury	Angle	Dry	Daylight	Clear		V1: Travelling straight ahead / V2: Entering traffic lane	No improper driving
16	2691353	11:21 AM	17-Jan-2011	No injury	Angle	Dry	Daylight	Clear		V1: Entering traffic lane / V2: Travelling straight ahead	Visibility obstructed
17	2691354	8:22 PM	17-Jan-2011	No injury	Angle	Dry	Dark - lighted roadway	Clear		V1: Travelling straight ahead / V2: Entering traffic lane	No improper driving
18	2691372	4:04 PM	28-Jan-2011	No injury	Angle	Dry	Daylight	Clear		V1: Travelling straight ahead / V2: Turning left	No improper driving
19	2693250	2:28 PM	4-Feb-2011	No injury	Angle	Wet	Daylight	Clear		V1: Turning left / V2: Travelling straight ahead	No improper driving
20	2693080	5:40 PM	16-Feb-2011	No injury	Angle	Dry	Dark - lighted roadway	Cloudy		V1: Travelling straight ahead / V2: Entering traffic lane	Visibility obstructed
21	3284575	2:35 PM	24-Feb-2011	Possible	Head on	Dry	Daylight	Cloudy		V1: Travelling straight ahead / V2: Turning left / V3: Travelling straight ahead	Swerving or avoiding due to wind, slippery surface, vehicle, object, non-motorist in roadway, etc…
22	3284010	3:59 PM	11-Mar-2011	No injury	Angle	Wet	Daylight	Rain		V1: Turning left / V2: Travelling straight ahead	No improper driving
23	3283885	8:29 AM	13-Apr-2011	No injury	Sideswipe, same direction	Wet	Daylight	Rain		V1: Travelling straight ahead / V2: Travelling straight ahead	Swerving or avoiding due to wind, slippery surface, vehicle, object, non-motorist in roadway, etc…
24	3283893	11:45 AM	29-Apr-2011	No injury	Rear-end	Dry	Daylight	Clear		V1: Travelling straight ahead / V2: Travelling straight ahead	No improper driving
25	3283916	9:36 AM	4-Jun-2011	No injury	Rear-end	Dry	Daylight	Clear		V1: Travelling straight ahead / V2: Slowing or stopped / V3: Slowing or stopped	No improper driving
26	3283930	6:05 PM	22-Jun-2011	No injury	Sideswipe, same direction	Wet	Daylight	Rain		V1: Changing lanes / V2: Travelling straight ahead	Unknown
27	3283978	3:46 PM	5-Nov-2011	No injury	Sideswipe, same direction	Dry	Daylight	Clear		V1: Travelling straight ahead / V2: Travelling straight ahead	No improper driving
28	3284572	11:33 AM	8-Nov-2011	Possible	Rear-end	Dry	Daylight	Clear		V1: Slowing or stopped / V2: Slowing or stopped / V3: Slowing or stopped / V4: Travelling straight ahead	Inattention
29	3284048	7:35 PM	23-Nov-2011	No injury	Single vehicle crash	Wet	Dark - lighted roadway	Sleet, hail, freezing rain		V1: Turning left	No improper driving

Index	Crash Number	Crash Time	Crash Date	Crash Severity	Manner of Collision	Road Surface Condition	Ambient Light Condition	Weather Condition	Bike/ Ped	Vehicle Action	Driver Contribution Codes
30	3283998	5:28 PM	21-Dec-2011	No injury	Rear-end	Wet	Dark - lighted roadway	Clear		V1: Travelling straight ahead / V2: Travelling straight ahead	No improper driving
31	3284328	4:11 AM	12-Feb-2012	No injury	Sideswipe, same direction	Dry	Daylight	Clear		V1: Slowing or stopped / V2: Travelling straight ahead	0
32	3284190	2:18 PM	26-Mar-2012	No injury	Sideswipe, same direction	Dry	Daylight	Clear		V1: Travelling straight ahead / V2: Changing lanes	Swerving or avoiding due to wind, slippery surface, vehicle, object, non-motorist in roadway, etc…
33	3284191	4:58 PM	28-Mar-2012	No injury	Angle	Dry	Daylight	Clear		V1: Turning left / V2: Travelling straight ahead	No improper driving
34	3284113	12:24 PM	10-Jun-2012	No injury	Sideswipe, same direction	Dry	Daylight	Clear		V1: Turning left / V2: Turning left	No improper driving
35	3284260	10:25 PM	4-Aug-2012	Non-incapacitating	Rear-end	Dry	Dark - lighted roadway	Clear		V1: Slowing or stopped / V2: Travelling straight ahead	Inattention
36	3323004	4:04 PM	26-Dec-2012	No injury	Angle	Dry	Dusk	Clear		V1: Turning left / V2: Travelling straight ahead	No improper driving
37	3363022	8:09 AM	21-Feb-2013	No injury	Rear to rear	Dry	Daylight	Clear		V1: Backing / V2: Slowing or stopped	No improper driving
38	3390783	1:12 PM	4-Apr-2013	No injury	Sideswipe, same direction	Dry	Daylight	Clear		V1: Slowing or stopped / V2: Travelling straight ahead	Failure to keep in proper lane or running off road
39	3390787	8:56 AM	12-Apr-2013	No injury	Angle	Dry	Daylight	Cloudy		V1: Travelling straight ahead / V2: Entering traffic lane	Failed to yield to right of way
40	3422167	2:51 PM	4-May-2013	Non-incapacitating	Rear-end	Dry	Daylight	Clear		V1: Travelling straight ahead / V2: Travelling straight ahead / V3: Travelling straight ahead	No improper driving
41	3422180	4:05 PM	14-May-2013	No injury	Angle	Dry	Daylight	Clear		V1: Travelling straight ahead / V2: Travelling straight ahead	No improper driving
42	3432852	6:02 PM	20-May-2013	Possible	Single vehicle crash	Dry	Daylight	Clear		V1: Travelling straight ahead	History heart/epilepsy/fainting
43	3560036	5:30 AM	30-Jul-2013	No injury	Sideswipe, same direction	Dry	Daylight	Clear		V1: Slowing or stopped / V2: Turning right	Inattention
44	3564761	12:52 PM	7-Aug-2013	No injury	Sideswipe, opposite direction	Dry	Daylight	Clear		V1: Travelling straight ahead / V2: Travelling straight ahead / V3: Travelling straight ahead	Failure to keep in proper lane or running off road
45	3564763	5:26 PM	7-Aug-2013	No injury	Rear-end	Dry	Daylight	Clear		V1: Slowing or stopped / V2: Travelling straight ahead	No improper driving
46	3603588	5:47 PM	13-Sep-2013	No injury	Angle	Dry	Daylight	Clear		V1: Turning left / V2: Travelling straight ahead	No improper driving
47	3623423	9:08 AM	15-Oct-2013	No injury	Rear-end	Dry	Daylight	Clear		V1: Changing lanes / V2: Travelling straight ahead	Unknown
48	3710381	7:17 AM	17-Dec-2013	No injury	Rear-end	Dry	Daylight	Clear		V1: Slowing or stopped / V2: Travelling straight ahead	No improper driving
49	3710387	8:50 AM	30-Dec-2013	No injury	Sideswipe, same direction	Wet	Daylight	Clear		V1: Turning left / V2: Turning left	Unknown
50	3736547	9:32 PM	10-Feb-2014	No injury	Angle	Dry	Dark - lighted roadway	Clear		V1: Travelling straight ahead / V2: Making U-turn	Operating vehicle in erratic, reckless, careless, negligent or aggressive manner
51	3738956	7:57 PM	20-Feb-2014	No injury	Angle	Wet	Dark - lighted roadway	Clear		V1: Entering traffic lane / V2: Travelling straight ahead	Failed to yield to right of way
52	3756619	12:40 PM	5-Mar-2014	No injury	Rear-end	Wet	Daylight	Cloudy		V1: Entering traffic lane / V2: Entering traffic lane	No improper driving
53	3789033	11:08 AM	11-Apr-2014	No injury	Sideswipe, same direction	Dry	Daylight	Clear		V1: Travelling straight ahead / V2: Travelling straight ahead	No improper driving
54	3970753	7:28 AM	3-Jun-2014	No injury	Head on	Dry	Daylight	Clear		V1: Travelling straight ahead / V2: Travelling straight ahead / V3: Travelling straight ahead	Failure to keep in proper lane or running off road
55	3900066	12:52 PM	20-Jun-2014	No injury	Rear to rear	Dry	Daylight	Clear		V1: Slowing or stopped / V2: Slowing or stopped	Inattention
56	3977521	9:11 AM	30-Jun-2014	No injury	Sideswipe, same direction	Dry	Daylight	Clear		V1: Changing lanes / V2: Travelling straight ahead	Failed to yield to right of way
57	3984452	11:48 AM	2-Aug-2014	No injury	Single vehicle crash	Wet	Daylight	Rain		V1: Travelling straight ahead	Physical impairment
58	4001978	7:35 AM	23-Sep-2014	No injury	Sideswipe, same direction	Dry	Daylight	Clear		V1: Changing lanes / V2: Travelling straight ahead	Unknown
59	4001982	8:42 PM	28-Sep-2014	No injury	Sideswipe, same direction	Dry	Dark - lighted roadway	Clear		V1: Travelling straight ahead / V2: Changing lanes	No improper driving

Index	Crash Number	Crash Time	Crash Date	Crash Severity	Manner of Collision	Road Surface Condition	Ambient Light Condition	Weather Condition	Bike/ Ped	Vehicle Action	Driver Contribution Codes
60	4007676	5:57 PM	19-Oct-2014	No injury	Single vehicle crash	Dry	Dark - lighted roadway	Clear		V1: Travelling straight ahead	No improper driving
61	4023622	1:12 PM	3-Dec-2014	No injury	Angle	Wet	Daylight	Cloudy		V1: Entering traffic lane / V2: Travelling straight ahead	No improper driving
62	4023623	3:42 PM	3-Dec-2014	Possible	Angle	Wet	Daylight	Clear		V1: Turning left / V2: Travelling straight ahead	Visibility obstructed

Route 138 Segment at Randolph Street

Index	Crash Number	Crash Time	Crash Date	Crash Severity	Manner of Collision	Road Surface Condition	Ambient Light Condition	Weather Condition	Bike/ Ped	Vehicle Action	Driver Contribution Code
1	2596152	1:26 AM	23-Apr-2010	Non-incapacitating	Angle	Dry	Dark - lighted roadway	Clear		V1: Turning left / V2: Travelling straight ahead	Failed to yield to right of way
2	2618308	2:14 PM	13-Jul-2010	No injury	Angle	Dry	Daylight	Clear		V1: Turning left / V2: Travelling straight ahead	Operating vehicle in erratic, reckless, careless, negligent or aggressive manner
3	2638766	11:16 AM	3-Sep-2010	No injury	Rear-end	Dry	Daylight	Clear		V1: Turning right / V2: Turning right	Inattention
4	2657848	4:32 PM	4-Nov-2010	Possible	Angle	Wet	Daylight	Cloudy		V1: Travelling straight ahead / V2: Turning left	No improper driving
5	2663284	6:07 PM	16-Nov-2010	No injury	Rear-end	Wet	Dark - lighted roadway	Rain		V1: Travelling straight ahead / V2: Travelling straight ahead / V3: Travelling straight ahead	No improper driving
6	2673763	10:53 AM	16-Dec-2010	No injury	Sideswipe, opposite direction	Dry	Daylight	Clear		V1: Turning right / V2: Slowing or stopped	Inattention
7	2675646	6:21 PM	20-Dec-2010	No injury	Sideswipe, same direction	Snow	Dark - lighted roadway	Snow		V1: Overtaking/passing / V2: Slowing or stopped	Failure to keep in proper lane or running off road
8	2693196	10:57 AM	4-Feb-2011	No injury	Rear-end	Ice	Daylight	Clear		V1: Travelling straight ahead / V2: Travelling straight ahead / V3: Travelling straight ahead	No improper driving
9	3283772	10:56 AM	19-Apr-2011	No injury	Angle	Wet	Daylight	Cloudy		V1: Turning left / V2: Travelling straight ahead	No improper driving
10	3283906	7:31 AM	17-May-2011	No injury	Sideswipe, same direction	Dry	Daylight	Cloudy		V1: Slowing or stopped / V2: Travelling straight ahead	Failure to keep in proper lane or running off road
11	3283941	1:34 PM	3-Jul-2011	Possible	Angle	Dry	Daylight	Clear		V1: Turning left / V2: Turning right / V3: Slowing or stopped	Failed to yield to right of way
12	3283954	2:27 PM	27-Jul-2011	No injury	Rear-end	Dry	Daylight	Clear		V1: Travelling straight ahead / V2: Travelling straight ahead	No improper driving
13	3283800	11:43 AM	11-Sep-2011	No injury	Angle	Dry	Daylight	Clear		V1: Travelling straight ahead / V2: Turning left	Inattention
14	3284040	5:24 PM	16-Nov-2011	No injury	Rear-end	Wet	Dark - lighted roadway	Rain		V1: Travelling straight ahead / V2: Travelling straight ahead	No improper driving
15	3284049	7:32 PM	24-Nov-2011	No injury	Rear-end	Dry	Dark - lighted roadway	Clear		V1: Travelling straight ahead / V2: Travelling straight ahead	No improper driving
16	3284339	5:18 PM	2-Mar-2012	No injury	Rear to rear	Dry	Daylight	Clear		V1: Unknown / V2: Travelling straight ahead	Operating vehicle in erratic, reckless, careless, negligent or aggressive manner
17	3284192	11:47 PM	29-Mar-2012	No injury	Angle	Dry	Dark - lighted roadway	Clear		V1: Travelling straight ahead	Unknown
18	3284199	9:12 AM	8-Apr-2012	No injury	Rear-end	Dry	Daylight	Clear		V1: Slowing or stopped / V2: Travelling straight ahead	Inattention
19	3284084	4:06 PM	2-May-2012	No injury	Rear-end	Dry	Daylight	Clear		V1: Slowing or stopped / V2: Slowing or stopped	No improper driving
20	3284088	6:14 PM	8-May-2012	No injury	Rear-end	Wet	Daylight	Rain		V1: Slowing or stopped / V2: Slowing or stopped / V3: Travelling straight ahead	No improper driving
21	3284103	8:49 PM	4-Jun-2012	Possible	Single vehicle crash	Wet	Dark - lighted roadway	Rain		V1: Travelling straight ahead	No improper driving
22	3284028	2:26 PM	20-Jun-2012	Non-incapacitating	Angle	Dry	Daylight	Clear		V1: Travelling straight ahead / V2: Travelling straight ahead	Disregarded traffic signs, signals, road markings
23	3284582	3:51 PM	9-Jul-2012	Possible	Rear-end	Dry	Daylight	Clear		V1: Slowing or stopped / V2: Travelling straight ahead	Driving too fast for conditions
24	3284143	4:19 PM	9-Jul-2012	Possible	Rear-end	Dry	Daylight	Clear		V1: Slowing or stopped / V2: Slowing or stopped / V3: Travelling straight ahead	Fatigued/asleep
25	3284257	8:42 PM	31-Jul-2012	No injury	Rear-end	Wet	Dark - lighted roadway	Rain		V1: Slowing or stopped / V2: Slowing or stopped	No improper driving
26	3284284	3:53 PM	6-Sep-2012	No injury	Angle	Dry	Daylight	Clear		V1: Entering traffic lane / V2: Travelling straight ahead	No improper driving
27	3284286	4:30 PM	9-Sep-2012	No injury	Single vehicle crash	Dry	Daylight	Clear		V1: Unknown	Physical impairment
28	3284314	6:31 PM	19-Oct-2012	No injury	Rear-end	Wet	Dark - lighted roadway	Rain		V1: Turning left / V2: Travelling straight ahead	No improper driving
29	3298927	3:57 PM	27-Nov-2012	No injury	Sideswipe, same direction	Wet	Dusk	Sleet, hail, freezing rain		V1: Turning right / V2: Overtaking/passing	Inattention
30	3373162	6:49 PM	7-Mar-2013	No injury	Rear-end	Snow	Dark - unknown roadway lighting	Snow		V1: Slowing or stopped / V2: Slowing or stopped / V3: Slowing or stopped / V4: Travelling straight ahead	No improper driving
31	3422171	5:16 PM	8-May-2013	No injury	Rear-end	Wet	Daylight	Rain		V1: Travelling straight ahead / V2: Slowing or stopped / V3: Slowing or stopped / V4: Slowing or stopped / V5: Slowing or stopped	No improper driving
32	3579135	6:03 AM	2-Aug-2013	Non-incapacitating	Single vehicle crash	Snow	Daylight	Rain		V1: Travelling straight ahead	Operating vehicle in erratic, reckless, careless, negligent or aggressive manner
33	3710376	6:02 PM	6-Dec-2013	No injury	Angle	Wet	Dark - lighted roadway	Cloudy		V1: Travelling straight ahead / V2: Turning left	No improper driving
34	3710443	8:06 AM	14-Dec-2013	No injury	Rear-end	Dry	Daylight	Cloudy		V1: Slowing or stopped / V2: Travelling straight ahead	Followed too closely
35	3712268	9:08 AM	27-Dec-2013	No injury	Angle	Dry	Daylight	Clear		V1: Travelling straight ahead / V2: Travelling straight ahead	Disregarded traffic signs, signals, road markings
36	3727729	10:07 AM	23-Jan-2014	No injury	Rear-end	Dry	Daylight	Clear		V1: Turning right / V2: Travelling straight ahead	Unknown
37	3777165	3:43 PM	20-Mar-2014	No injury	Sideswipe, same direction	Dry	Daylight	Clear		V1: Slowing or stopped / V2: Entering traffic lane	No improper driving
38	3784641	6:48 AM	1-Apr-2014	No injury	Rear-end	Dry	Daylight	Clear		V1: Travelling straight ahead / V2: Travelling straight ahead / V3: Travelling straight ahead	Followed too closely
39	3804894	6:15 PM	30-Apr-2014	No injury	Rear-end	Wet	Daylight	Rain		V1: Turning left / V2: Travelling straight ahead	No improper driving
40	3867654	9:02 PM	30-May-2014	No injury	Rear-end	Wet	Dark - lighted roadway	Rain		V1: Slowing or stopped / V2: Travelling straight ahead	No improper driving
41	3984455	8:53 AM	9-Aug-2014	Non-incapacitating	Single vehicle crash	Dry	Daylight	Clear		V1: Turning left / V2: Travelling straight ahead	Unknown
42	3987753	8:01 AM	3-Sep-2014	No injury	Sideswipe, opposite direction	Dry	Daylight	Clear		V1: Travelling straight ahead / V2: Turning left	No improper driving
43	4013714	6:02 AM	6-Nov-2014	No injury	Sideswipe, same direction	Dry	Dawn	Clear		V1: Travelling straight ahead / V2: Travelling straight ahead	No improper driving

Index	Crash Number	Crash Time	Crash Date	Crash Severity	Manner of Collision	Road Surface Condition	Ambient Light Condition	Weather Condition	Bike/ Ped	Vehicle Action	Driver Contribution Code
44	4013725	6:45 PM	11-Nov-2014	No injury	Rear-end	Dry	Dark - lighted roadway	Clear		V1: Travelling straight ahead / V2: Slowing or stopped	No improper driving
45	4013726	10:25 PM	12-Nov-2014	No injury	Rear-end	Dry	Dark - lighted roadway	Clear		V1: Slowing or stopped / V2: Travelling straight ahead	Followed too closely
46	4023649	11:51 AM	21-Dec-2014	No injury	Angle	Ice	Daylight	Sleet, hail, freezing rain		V1: Turning left / V2: Travelling straight ahead	Inattention

Route 138 Segment at Del Pond Drive

Index	Crash Number	Crash Time	Crash Date	Crash Severity	Manner of Collision	Road Surface Condition	Ambient Light Condition	Weather Condition	Bike/ Ped	Vehicle Action	Driver Contribution Code
1	2577490	11:43 PM	15-Mar-2010	No injury	Single vehicle crash	Wet	Dark - roadway not lighted	Rain		V1: Travelling straight ahead	No improper driving
2	2609143	8:24 AM	15-Jun-2010	No injury	Rear-end	Dry	Daylight	Clear		V1: Slowing or stopped / V2: Travelling straight ahead	No improper driving
3	2644563	3:33 PM	23-Sep-2010	No injury	Rear-end	Dry	Daylight	Clear		V1: Entering traffic lane / V2: Travelling straight ahead	Failed to yield to right of way
4	2654636	6:43 PM	22-Oct-2010	No injury	Rear-end	Dry	Dark - lighted roadway	Clear		V1: Slowing or stopped / V2: Travelling straight ahead	Inattention
5	2679617	9:44 AM	8-Jan-2011	No injury	Sideswipe, opposite direction	Snow	Daylight	Snow		V1: Changing lanes / V2: Travelling straight ahead	No improper driving
6	3283910	5:25 PM	19-May-2011	Possible	Angle	Wet	Daylight	Cloudy		V1: Entering traffic lane / V2: Travelling straight ahead	Inattention
7	3283943	2:39 PM	3-Jul-2011	No injury	Angle	Dry	Daylight	Clear		V1: Travelling straight ahead / V2: Entering traffic lane	Distracted
8	3284563	2:27 PM	6-Sep-2011	No injury	Rear-end	Wet	Daylight	Rain		V1: Travelling straight ahead / V2: Travelling straight ahead	Followed too closely
9	3284175	7:57 PM	13-Mar-2012	No injury	Head on	Dry	Dark - lighted roadway	Clear		V1: Travelling straight ahead / V2: Travelling straight ahead	Distracted
10	3284596	12:47 PM	21-Mar-2012	Non-incapacitating	Rear-end	Dry	Daylight	Clear		V1: Travelling straight ahead / V2: Travelling straight ahead / V3: Travelling straight ahead	Unknown
11	3284204	5:01 PM	13-Apr-2012	No injury	Rear-end	Dry	Daylight	Clear		V1: Travelling straight ahead / V2: Turning right	No improper driving
12	3284244	5:17 PM	19-Jul-2012	No injury	Sideswipe, same direction	Dry	Daylight	Clear		V1: Travelling straight ahead / V2: Travelling straight ahead	No improper driving
13	3284308	4:38 PM	12-Oct-2012	No injury	Sideswipe, same direction	Dry	Daylight	Clear		V1: Travelling straight ahead / V2: Overtaking/passing	Unknown
14	3284323	2:24 PM	26-Oct-2012	No injury	Angle	Dry	Daylight	Clear		V1: Entering traffic lane	Unknown
15	3292576	10:33 AM	20-Nov-2012	No injury	Rear-end	Dry	Daylight	Clear		V1: Slowing or stopped / V2: Travelling straight ahead	No improper driving
16	3299042	5:15 PM	27-Nov-2012	No injury	Angle	Wet	Dark - lighted roadway	Sleet, hail, freezing rain		V1: Entering traffic lane / V2: Travelling straight ahead	Inattention
17	3350782	9:00 AM	18-Jan-2013	No injury	Angle	Dry	Daylight	Clear		V1: Turning right / V2: Overtaking/passing	No improper driving
18	3350965	5:37 PM	18-Jan-2013	No injury	Rear-end	Unknown	Dark - unknown roadway lighting	Clear		V1: Travelling straight ahead / V2: Travelling straight ahead	No improper driving
19	3730532	6:38 AM	7-Jan-2014	No injury	Rear-end	Dry	Daylight	Clear		V1: Slowing or stopped / V2: Travelling straight ahead	Inattention
20	3730536	2:51 PM	15-Jan-2014	No injury	Angle	Dry	Daylight	Clear		V1: Travelling straight ahead / V2: Entering traffic lane	No improper driving
21	3931985	1:28 PM	19-Aug-2014	Possible	Rear-end	Dry	Daylight	Clear		V1: Travelling straight ahead / V2: Travelling straight ahead	No improper driving
22	3987749	9:43 PM	27-Aug-2014	No injury	Sideswipe, opposite direction	Wet	Dark - lighted roadway	Rain		V1: Travelling straight ahead / V2: Turning left / V3: Slowing or stopped	No improper driving
23	3955848	5:02 PM	10-Sep-2014	No injury	Angle	Dry	Daylight	Cloudy		V1: Travelling straight ahead / V2: Entering traffic lane	Failed to yield to right of way

Route 138 Segment at Dan Road

Index	Crash Number	Crash Time	Crash Date	Crash Severity	Manner of Collision	Road Surface Condition	Ambient Light Condition	Weather Condition	Bike/ Ped	Vehicle Action	Driver Contribution Code
1	2577492	5:48 AM	17-Mar-10	No injury	Rear-end	Ice	Dark - lighted roadway	Clear		V1: Travelling straight ahead / V2: Travelling straight ahead	No improper driving
2	2600229	9:20 AM	19-May-10	No injury	Angle	Dry	Daylight	Cloudy		V1: Slowing or stopped / V2: Turning right	Unknown
3	2678763	9:08 AM	6-Jan-11	No injury	Sideswipe, same direction	Dry	Daylight	Clear		V1: Travelling straight ahead / V2: Travelling straight ahead	No improper driving
4	2691362	6:49 PM	24-Jan-11	No injury	Sideswipe, opposite direction	Dry	Dark - lighted roadway	Clear		V1: Turning left / V2: Travelling straight ahead	Unknown
5	3283926	2:10 PM	15-Jun-11	No injury	Rear-end	Dry	Daylight	Clear		V1: Slowing or stopped / V2: Travelling straight ahead	No improper driving
6	3283815	1:08 PM	26-Sep-11	Incapacitating	Single vehicle crash	Dry	Daylight	Clear		V1: Travelling straight ahead	No improper driving
7	3283987	1:07 PM	28-Nov-11	No injury	Single vehicle crash	Dry	Daylight	Clear		V1: Travelling straight ahead	No improper driving
8	3284146	3:23 PM	23-Jan-12	No injury	Angle	Wet	Daylight	Clear		V1: Overtaking/passing / V2: Turning left	No improper driving
9	3284093	4:51 PM	15-May-12	No injury	Rear-end	Wet	Daylight	Rain		V1: Slowing or stopped / V2: Slowing or stopped / V3: Slowing or stopped / V4: Slowing or stopped / V5: Travelling straight ahead	Inattention
10	3299266	2:05 PM	3-Dec-12	No injury	Rear-end	Dry	Daylight	Clear		V1: Slowing or stopped / V2: Travelling straight ahead	No improper driving
11	3350971	4:22 PM	7-Jan-13	No injury	Angle	Dry	Daylight	Clear		V1: Turning right / V2: Travelling straight ahead	No improper driving
12	3422182	11:30 AM	18-May-13	No injury	Rear-end	Wet	Daylight	Clear		V1: Slowing or stopped / V2: Travelling straight ahead	No improper driving
13	3623422	6:00 PM	11-Oct-13	No injury	Sideswipe, same direction	Dry	Dusk	Cloudy		V1: Turning right / V2: Travelling straight ahead	No improper driving
14	3784492	3:07 PM	31-Mar-14	No injury	Angle	Wet	Daylight	Rain		V1: Travelling straight ahead / V2: Turning left	Unknown
15	3963531	4:12 PM	16-May-14	No injury	Angle	Wet	Dusk	Rain		V1: Turning left / V2: Travelling straight ahead	Unknown
16	3989916	9:06 AM	21-Aug-14	No injury	Sideswipe, same direction	Dry	Daylight	Clear		V1: Travelling straight ahead / V2: Travelling straight ahead	Disregarded traffic signs, signals, road markings
17	3987751	6:12 PM	2-Sep-14	No injury	Rear-end	Dry	Daylight	Clear		V1: Slowing or stopped / V2: Travelling straight ahead	No improper driving
18	4023629	7:27 AM	8-Dec-14	No injury	Rear-end	Dry	Daylight	Clear		V1: Slowing or stopped / V2: Travelling straight ahead	Followed too closely
19	4023654	5:56 PM	26-Dec-2014	No injury	Sideswipe, opposite direction	Dry	Dark - lighted roadway	Clear		V1: Travelling straight ahead / V2: Travelling straight ahead	Inattention

Crash Rate Worksheets

INTERSECTION CRASH RATE WORKSHEET

CITY/TOWN : Canton COUNT DATE :

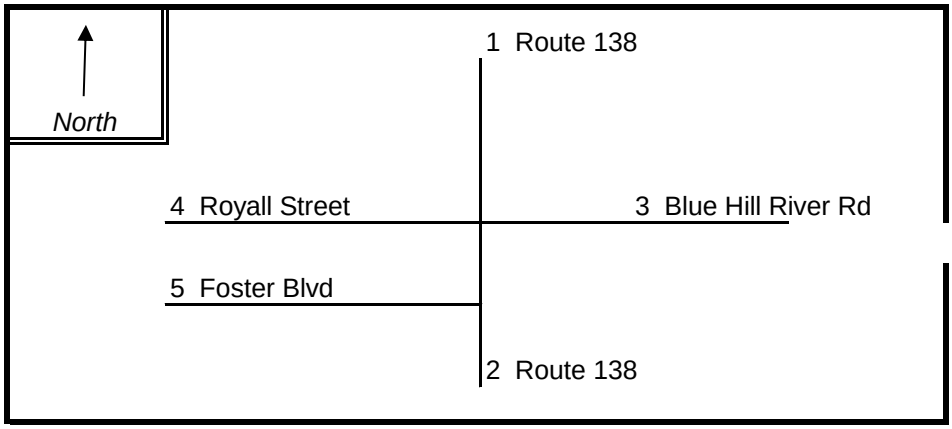
DISTRICT : 6 UNSIGNALIZED : SIGNALIZED : **Yes**

~ INTERSECTION DATA ~

MAJOR STREET : Route 138

MINOR STREET(S) : Royall Street and Blue Hill River Rd

INTERSECTION DIAGRAM (Label Approaches)



PEAK HOUR VOLUMES

APPROACH :	1	2	3	4	5	Total Peak Hourly Approach Volume
DIRECTION :	SB	NB	WB	EB	EB	
PEAK HOURLY VOLUMES (AM/PM) :	1,155	1,460	255	820	250	**3,940**

" K " FACTOR : **0.090** INTERSECTION ADT (**V**) = TOTAL DAILY APPROACH VOLUME : **43,778**

TOTAL # OF CRASHES : 126 # OF YEARS : 5 AVERAGE # OF CRASHES PER YEAR (**A**) : **25.20**

CRASH RATE CALCULATION : **1.58** RATE = $\frac{(A * 1{,}000{,}000)}{(V * 365)}$

Comments :

Project Title & Date: Route 138 Priority Corridor Study

INTERSECTION CRASH RATE WORKSHEET

CITY/TOWN : Canton COUNT DATE :

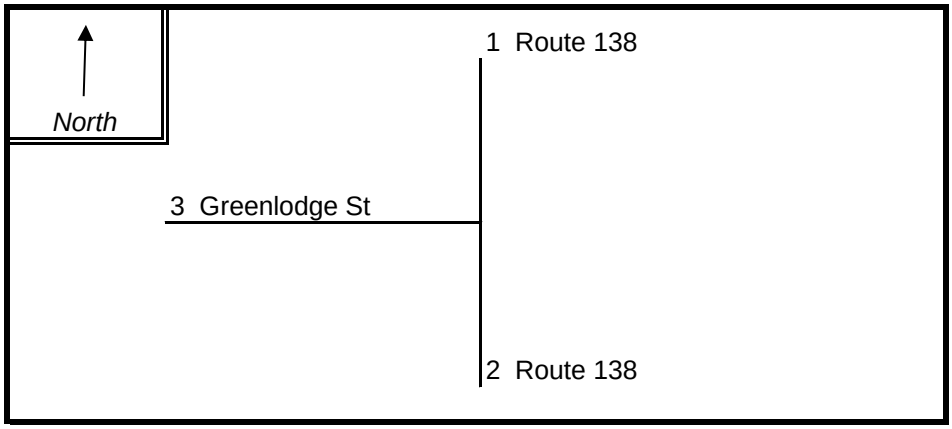
DISTRICT : 6 UNSIGNALIZED : yes SIGNALIZED :

~ INTERSECTION DATA ~

MAJOR STREET : Route 138

MINOR STREET(S) : Greenlogge Street

INTERSECTION DIAGRAM (Label Approaches)



PEAK HOUR VOLUMES

APPROACH :	**1**	**2**	**3**			**Total Peak Hourly Approach Volume**
DIRECTION :	SB	NB	WB			
PEAK HOURLY VOLUMES (AM/PM) :	1,580	1,225	65			**2,870**

" K " FACTOR : **0.090** INTERSECTION ADT (**V**) = TOTAL DAILY APPROACH VOLUME : **31,889**

TOTAL # OF CRASHES : 37 # OF YEARS : 5 AVERAGE # OF CRASHES PER YEAR (**A**) : **7.40**

CRASH RATE CALCULATION : **0.64** RATE = $\frac{(A * 1{,}000{,}000)}{(V * 365)}$

Comments :

Project Title & Date: Route 138 Priority Corridor Study

INTERSECTION CRASH RATE WORKSHEET

CITY/TOWN : Canton COUNT DATE :

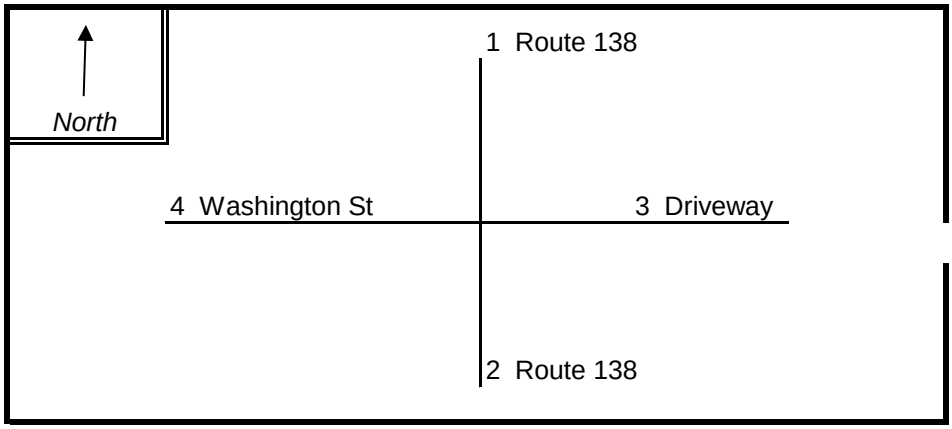
DISTRICT : 6 UNSIGNALIZED : SIGNALIZED : **Yes**

~ INTERSECTION DATA ~

MAJOR STREET : Route 138

MINOR STREET(S) : Washington Street

INTERSECTION DIAGRAM (Label Approaches)



PEAK HOUR VOLUMES

APPROACH :	**1**	**2**	**3**	**4**		**Total Peak Hourly Approach Volume**
DIRECTION :	SB	NB	WB	EB		
PEAK HOURLY VOLUMES (AM/PM) :	1,540	810	40	470		**2,860**

" K " FACTOR : **0.090** INTERSECTION ADT (**V**) = TOTAL DAILY APPROACH VOLUME : **31,778**

TOTAL # OF CRASHES : 79 # OF YEARS : 5 AVERAGE # OF CRASHES PER YEAR (**A**) : **15.80**

CRASH RATE CALCULATION : **1.36** RATE = $\frac{(A * 1{,}000{,}000)}{(V * 365)}$

Comments :

Project Title & Date: Route 138 Priority Corridor Study

INTERSECTION CRASH RATE WORKSHEET

CITY/TOWN : Canton COUNT DATE :

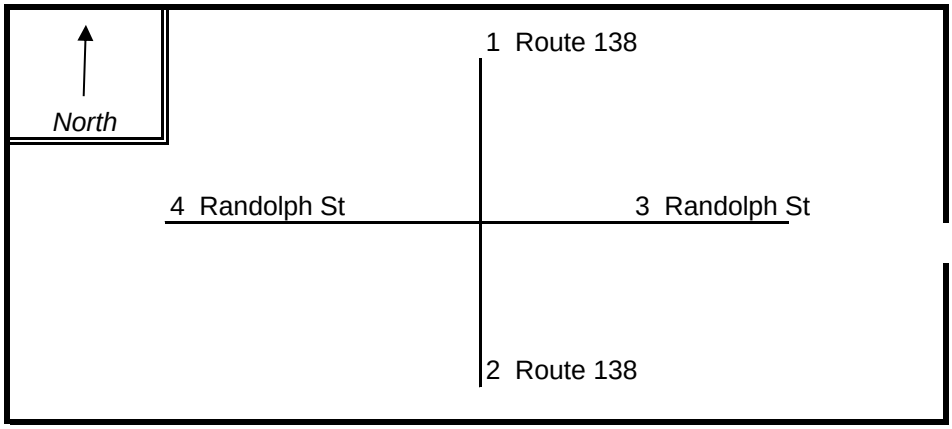
DISTRICT : 6 UNSIGNALIZED : SIGNALIZED : **Yes**

~ INTERSECTION DATA ~

MAJOR STREET : Route 138

MINOR STREET(S) : Randolph Street

INTERSECTION DIAGRAM (Label Approaches)



PEAK HOUR VOLUMES

APPROACH :	1	2	3	4		Total Peak Hourly Approach Volume
DIRECTION :	SB	NB	WB	EB		
PEAK HOURLY VOLUMES (AM/PM) :	950	1,145	475	575		**3,145**

" K " FACTOR : **0.090** INTERSECTION ADT (**V**) = TOTAL DAILY APPROACH VOLUME : **34,944**

TOTAL # OF CRASHES : 59 # OF YEARS : 5 AVERAGE # OF CRASHES PER YEAR (**A**) : **11.80**

CRASH RATE CALCULATION : **0.93** RATE = $\frac{(A * 1{,}000{,}000)}{(V * 365)}$

Comments :

Project Title & Date: Route 138 Priority Corridor Study

INTERSECTION CRASH RATE WORKSHEET

CITY/TOWN : Canton COUNT DATE :

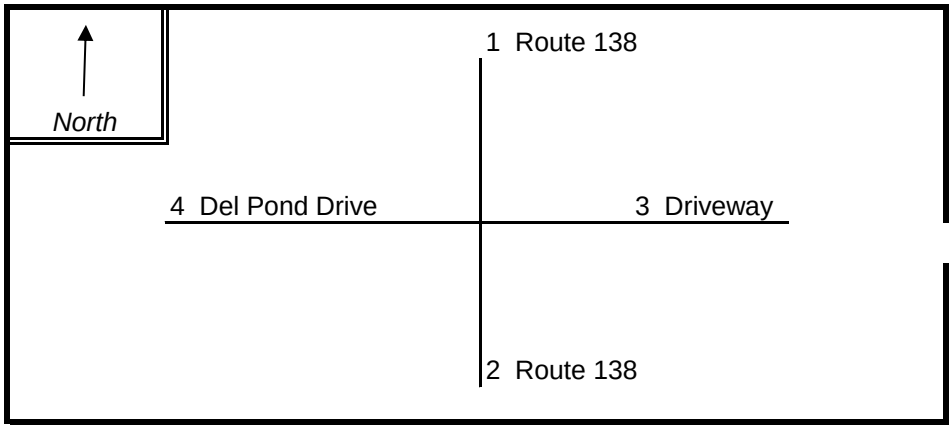
DISTRICT : 6 UNSIGNALIZED : Yes SIGNALIZED :

~ INTERSECTION DATA ~

MAJOR STREET : Route 138

MINOR STREET(S) : Del Pond Drive

INTERSECTION DIAGRAM (Label Approaches)



PEAK HOUR VOLUMES

APPROACH :	1	2	3	4		Total Peak Hourly Approach Volume
DIRECTION :	SB	NB	WB	EB		
PEAK HOURLY VOLUMES (AM/PM) :	935	930	40	40		**1,945**

" K " FACTOR : **0.090**

INTERSECTION ADT (**V**) = TOTAL DAILY APPROACH VOLUME : **21,611**

TOTAL # OF CRASHES : 46

OF YEARS : 5

AVERAGE # OF CRASHES PER YEAR (**A**) : **9.20**

CRASH RATE CALCULATION : **1.17**

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

Comments :

Project Title & Date: Route 138 Priority Corridor Study

INTERSECTION CRASH RATE WORKSHEET

CITY/TOWN : Canton COUNT DATE :

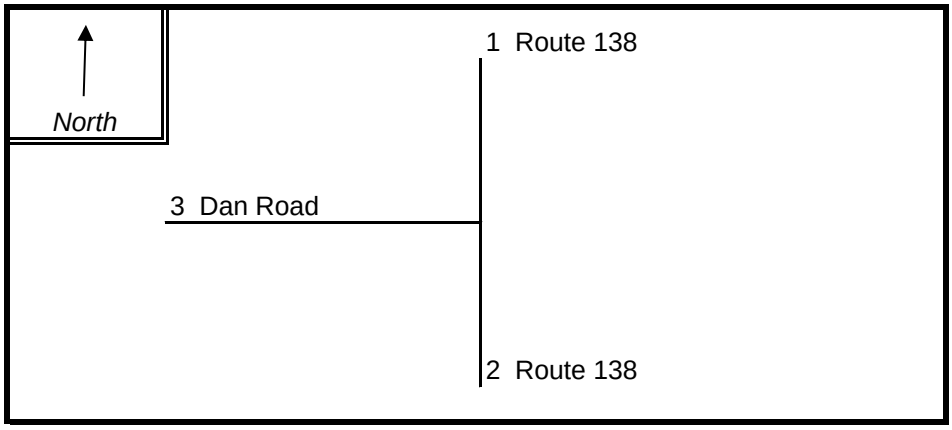
DISTRICT : 6 UNSIGNALIZED : SIGNALIZED : **Yes**

~ INTERSECTION DATA ~

MAJOR STREET : Route 138

MINOR STREET(S) : Del Pond Drive

INTERSECTION DIAGRAM (Label Approaches)



PEAK HOUR VOLUMES

APPROACH :	**1**	**2**	**3**			**Total Peak Hourly Approach Volume**
DIRECTION :	SB	NB	WB			
PEAK HOURLY VOLUMES (AM/PM) :	975	510	405			**1,890**

" K " FACTOR : **0.090** INTERSECTION ADT (**V**) = TOTAL DAILY APPROACH VOLUME : **21,000**

TOTAL # OF CRASHES : 36 # OF YEARS : 5 AVERAGE # OF CRASHES PER YEAR (**A**) : **7.20**

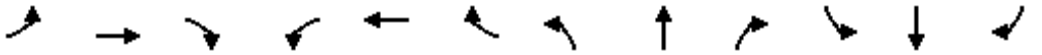
CRASH RATE CALCULATION : **0.94** RATE = $\frac{(A * 1{,}000{,}000)}{(V * 365)}$

Comments :

Project Title & Date: Route 138 Priority Corridor Study

APPENDIX F

Level of Service (LOS) Analysis
Existing Conditions



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	60	40	30	135	200	60	710	1265	220	55	865	80
Future Volume (veh/h)	60	40	30	135	200	60	710	1265	220	55	865	80
Number	3	8	18	7	4	14	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	50	100	0	0	10	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1810	1810	1810	1810	1810	1900	1810	1810	1900	1810	1810	1900
Adj Flow Rate, veh/h	64	43	32	144	213	64	755	1346	234	59	920	85
Adj No. of Lanes	1	1	2	1	2	0	2	2	0	1	2	0
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	5	5	5	5	5	5	5	5	5	5	5	5
Cap, veh/h	81	115	1221	265	283	83	1295	2045	221	75	1027	61
Arrive On Green	0.05	0.06	0.06	0.09	0.11	0.11	0.39	0.65	0.65	0.04	0.31	0.31
Sat Flow, veh/h	1723	1810	2707	1723	2624	769	3343	2935	505	1723	3183	294
Grp Volume(v), veh/h	64	43	32	144	138	139	755	782	798	59	497	508
Grp Sat Flow(s),veh/h/ln	1723	1810	1354	1723	1719	1674	1672	1719	1720	1723	1719	1758
Q Serve(g_s), s	4.8	3.0	0.2	9.8	10.1	10.5	23.2	37.8	39.2	4.4	36.6	36.6
Cycle Q Clear(g_c), s	4.8	3.0	0.2	9.8	10.1	10.5	23.2	37.8	39.2	4.4	36.6	36.6
Prop In Lane	1.00		1.00	1.00		0.46	1.00		0.29	1.00		0.17
Lane Grp Cap(c), veh/h	81	115	1221	265	185	180	1295	1120	1140	75	529	546
V/C Ratio(X)	0.79	0.37	0.03	0.54	0.74	0.77	0.58	0.70	0.70	0.78	0.94	0.93
Avail Cap(c_a), veh/h	133	285	1476	306	337	328	1295	1120	1121	133	529	541
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	61.3	58.4	9.0	48.9	56.3	56.5	34.6	19.3	19.2	61.6	44.6	44.4
Incr Delay (d2), s/veh	15.3	2.0	0.0	1.7	5.8	6.9	0.7	3.6	3.6	16.2	26.7	24.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	25.7	47.5	46.2	0.0	10.6	8.7
%ile BackOfQ(50%),veh/ln	2.6	1.5	0.2	4.8	5.1	5.2	20.1	46.8	46.9	2.4	23.8	23.8
LnGrp Delay(d),s/veh	76.6	60.4	9.0	50.7	62.1	63.4	61.0	70.5	68.9	77.7	81.9	77.7
LnGrp LOS	E	E	A	D	E	E	E	E	E	E	F	E
Approach Vol, veh/h		139			421			2335			1064	
Approach Delay, s/veh		56.0			58.6			66.9			79.7	
Approach LOS		E			E			E			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	10.7	89.7	11.1	18.5	55.4	45.0	16.9	12.8
Change Period (Y+Rc), s	5.0	* 5	5.0	4.5	5.0	5.0	5.0	4.5
Max Green Setting (Gmax), s	10.0	* 66	10.0	25.5	35.0	40.0	15.0	20.5
Max Q Clear Time (g_c+I1), s	6.4	41.2	6.8	12.5	25.2	38.6	11.8	5.0
Green Ext Time (p_c), s	0.0	16.0	0.0	1.5	6.5	0.8	0.1	1.6

Intersection Summary	
HCM 2010 Ctrl Delay	69.0
HCM 2010 LOS	E

Notes

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	10	185	0	1160	20
Future Volume (veh/h)	0	10	185	0	1160	20
Number	3	18	5	2	6	16
Initial Q (Qb), veh	0	5	0	150	50	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	0	1810	1810	1810	1810	1900
Adj Flow Rate, veh/h	0	11	197	0	1234	21
Adj No. of Lanes	0	2	1	3	2	0
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	0	5	5	5	5	5
Cap, veh/h	0	0	464	5220	2268	34
Arrive On Green	0.00	0.00	0.27	0.00	0.65	0.65
Sat Flow, veh/h	0		1723	5429	3550	59
Grp Volume(v), veh/h	0.0		197	0	613	642
Grp Sat Flow(s),veh/h/ln			1723	1810	1719	1799
Q Serve(g_s), s			12.3	0.0	24.9	25.0
Cycle Q Clear(g_c), s			12.3	0.0	24.9	25.0
Prop In Lane			1.00			0.03
Lane Grp Cap(c), veh/h			464	5220	1124	1177
V/C Ratio(X)			0.42	0.00	0.55	0.55
Avail Cap(c_a), veh/h			464	5220	1124	1176
HCM Platoon Ratio			1.00	1.00	1.00	1.00
Upstream Filter(I)			1.00	0.00	1.00	1.00
Uniform Delay (d), s/veh			39.2	0.0	14.1	14.0
Incr Delay (d2), s/veh			0.6	0.0	1.9	1.8
Initial Q Delay(d3),s/veh			0.0	0.0	7.8	7.1
%ile BackOfQ(50%),veh/ln			5.9	0.0	20.3	20.7
LnGrp Delay(d),s/veh			39.8	0.0	23.9	23.0
LnGrp LOS			D		C	C
Approach Vol, veh/h				197	1255	
Approach Delay, s/veh				39.8	23.4	
Approach LOS				D	C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2			5	6		
Phs Duration (G+Y+Rc), s		130.0			40.0	90.0		
Change Period (Y+Rc), s		* 5			5.0	5.0		
Max Green Setting (Gmax), s		* 1.2E2			25.0	85.0		
Max Q Clear Time (g_c+I1), s		0.0			14.3	27.0		
Green Ext Time (p_c), s		0.0			0.4	10.8		

Intersection Summary	
HCM 2010 Ctrl Delay	25.7
HCM 2010 LOS	C

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	125	145	560	200	10	45	115	1070	210	115	1030	15
Future Volume (veh/h)	125	145	560	200	10	45	115	1070	210	115	1030	15
Number	3	8	18	7	4	14	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	15	5	0	0	0	25	0	0	30	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1810	1810	1810	1810	1810	1900	1810	1810	1900	1810	1810	1900
Adj Flow Rate, veh/h	133	154	596	213	11	48	122	1138	223	122	1096	16
Adj No. of Lanes	1	1	2	1	2	0	2	2	0	1	2	0
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	5	5	5	5	5	5	5	5	5	5	5	5
Cap, veh/h	161	263	920	263	316	283	578	1360	88	150	1229	6
Arrive On Green	0.09	0.12	0.12	0.10	0.12	0.12	0.47	0.99	0.99	0.09	0.35	0.35
Sat Flow, veh/h	1723	1810	2707	1723	1719	1538	3343	2870	560	1723	3469	51
Grp Volume(v), veh/h	133	154	596	213	11	48	122	679	682	122	543	569
Grp Sat Flow(s),veh/h/ln	1723	1810	1354	1723	1719	1538	1672	1719	1711	1723	1719	1801
Q Serve(g_s), s	7.6	8.2	0.0	7.9	0.6	2.8	2.1	1.5	1.5	7.0	30.0	30.0
Cycle Q Clear(g_c), s	7.6	8.2	0.0	7.9	0.6	2.8	2.1	1.5	1.5	7.0	30.0	30.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.33	1.00		0.03
Lane Grp Cap(c), veh/h	161	263	920	263	316	283	578	710	736	150	602	632
V/C Ratio(X)	0.82	0.59	0.65	0.81	0.03	0.17	0.21	0.96	0.93	0.82	0.90	0.90
Avail Cap(c_a), veh/h	172	280	1050	331	352	315	779	853	849	172	602	630
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	44.5	39.9	29.0	42.2	33.6	34.5	28.1	8.7	8.5	44.9	32.5	32.4
Incr Delay (d2), s/veh	25.5	2.8	1.2	11.4	0.0	0.3	0.2	24.6	19.5	22.6	19.3	18.2
Initial Q Delay(d3),s/veh	0.0	0.0	5.4	13.6	0.0	0.0	0.0	43.6	28.5	0.0	45.9	40.5
%ile BackOfQ(50%),veh/ln	4.8	4.2	7.4	8.1	0.3	1.1	1.2	31.2	27.7	4.3	27.4	27.6
LnGrp Delay(d),s/veh	70.0	42.8	35.5	67.2	33.6	34.7	28.2	76.9	56.4	67.5	97.7	91.1
LnGrp LOS	E	D	D	E	C	C	C	E	E	E	F	F
Approach Vol, veh/h		883			272			1483			1234	
Approach Delay, s/veh		42.0			60.1			63.5			91.7	
Approach LOS		D			E			E			F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	13.7	54.6	14.4	17.4	28.3	40.0	15.3	16.4
Change Period (Y+Rc), s	5.0	* 5	5.0	* 5	5.0	5.0	5.0	4.5
Max Green Setting (Gmax), s	10.0	* 41	10.0	* 21	15.0	35.0	15.0	15.5
Max Q Clear Time (g_c+I1), s	9.0	3.5	9.6	4.8	4.1	32.0	9.9	10.2
Green Ext Time (p_c), s	0.0	12.5	0.0	0.8	6.6	1.8	0.4	1.7

Intersection Summary	
HCM 2010 Ctrl Delay	67.3
HCM 2010 LOS	E

Notes

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	250	5	0	1915	10
Future Volume (veh/h)	0	250	5	0	1915	10
Number	7	14	5	2	6	16
Initial Q (Qb), veh	0	20	0	30	30	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	0	1810	1810	1810	1810	1900
Adj Flow Rate, veh/h	0	266	5	0	2037	11
Adj No. of Lanes	0	2	1	3	2	0
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	0	5	5	5	5	5
Cap, veh/h	0	0	448	4644	2213	8
Arrive On Green	0.00	0.00	0.26	0.00	1.00	1.00
Sat Flow, veh/h	0		1723	5103	3597	19
Grp Volume(v), veh/h	0.0		5	0	998	1050
Grp Sat Flow(s),veh/h/ln			1723	1647	1719	1806
Q Serve(g_s), s			0.2	0.0	0.0	0.0
Cycle Q Clear(g_c), s			0.2	0.0	0.0	0.0
Prop In Lane			1.00			0.01
Lane Grp Cap(c), veh/h			448	4644	1083	1139
V/C Ratio(X)			0.01	0.00	0.92	0.92
Avail Cap(c_a), veh/h			448	4644	1083	1138
HCM Platoon Ratio			1.00	1.00	2.00	2.00
Upstream Filter(I)			1.00	0.00	0.54	0.54
Uniform Delay (d), s/veh			27.5	0.0	0.0	0.0
Incr Delay (d2), s/veh			0.0	0.0	8.5	8.2
Initial Q Delay(d3),s/veh			0.0	0.0	17.5	16.1
%ile BackOfQ(50%),veh/ln			0.1	0.0	7.8	7.7
LnGrp Delay(d),s/veh			27.5	0.0	26.0	24.4
LnGrp LOS			C		C	C
Approach Vol, veh/h				5	2048	
Approach Delay, s/veh				27.5	25.2	
Approach LOS				C	C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2			5	6		
Phs Duration (G+Y+Rc), s		100.0			32.0	68.0		
Change Period (Y+Rc), s		* 6			6.0	5.0		
Max Green Setting (Gmax), s		* 76			6.0	63.0		
Max Q Clear Time (g_c+I1), s		0.0			2.2	2.0		
Green Ext Time (p_c), s		0.0			0.0	30.6		

Intersection Summary	
HCM 2010 Ctrl Delay	25.2
HCM 2010 LOS	C

Notes

Movement	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	5	870	0	0	690	340	690	0	5	5	5	5
Future Volume (veh/h)	5	870	0	0	690	340	690	0	5	5	5	5
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	70	0	0	20	0	25	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1792	0	0	1792	1792	1792	1792	1900	1900	1792	1900
Adj Flow Rate, veh/h	5	879	0	0	697	0	702	0	0	5	5	5
Adj No. of Lanes	0	2	0	0	2	1	2	1	0	0	1	0
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Percent Heavy Veh, %	6	6	0	0	6	6	6	6	6	6	6	6
Cap, veh/h	51	1462	0	0	1513	821	948	477	0	13	13	13
Arrive On Green	0.44	0.44	0.00	0.00	0.44	0.00	0.25	0.00	0.00	0.02	0.02	0.02
Sat Flow, veh/h	4	3413	0	0	3495	1792	3585	1792	0	597	597	597
Grp Volume(v), veh/h	474	410	0	0	697	0	702	0	0	15	0	0
Grp Sat Flow(s),veh/h/ln	1786	1550	0	0	1703	1792	1792	1792	0	1792	0	0
Q Serve(g_s), s	0.0	12.0	0.0	0.0	8.6	0.0	10.9	0.0	0.0	0.5	0.0	0.0
Cycle Q Clear(g_c), s	12.0	12.0	0.0	0.0	8.6	0.0	10.9	0.0	0.0	0.5	0.0	0.0
Prop In Lane	0.01		0.00	0.00		1.00	1.00		0.00	0.33		0.33
Lane Grp Cap(c), veh/h	782	715	0	0	1513	821	948	477	0	39	0	0
V/C Ratio(X)	0.61	0.57	0.00	0.00	0.46	0.00	0.74	0.00	0.00	0.39	0.00	0.00
Avail Cap(c_a), veh/h	1372	1143	0	0	2512	1322	1563	781	0	180	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	0.00	1.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	18.8	16.5	0.0	0.0	12.6	0.0	23.8	0.0	0.0	33.4	0.0	0.0
Incr Delay (d2), s/veh	0.8	0.7	0.0	0.0	0.2	0.0	1.2	0.0	0.0	6.1	0.0	0.0
Initial Q Delay(d3),s/veh	36.5	40.5	0.0	0.0	2.3	0.0	19.3	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	20.0	18.6	0.0	0.0	5.8	0.0	10.2	0.0	0.0	0.3	0.0	0.0
LnGrp Delay(d),s/veh	56.1	57.7	0.0	0.0	15.2	0.0	44.3	0.0	0.0	39.5	0.0	0.0
LnGrp LOS	E	E			B		D			D		
Approach Vol, veh/h		884			697			702			15	
Approach Delay, s/veh		56.8			15.2			44.3			39.5	
Approach LOS		E			B			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		32.2		22.1		32.2		5.3
Change Period (Y+Rc), s		6.0		7.0		6.0		4.0
Max Green Setting (Gmax), s		44.0		26.0		44.0		6.0
Max Q Clear Time (g_c+I1), s		10.6		12.9		14.0		2.5
Green Ext Time (p_c), s		12.7		2.2		12.2		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	40.3
HCM 2010 LOS	D

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	15	300	251	180	365	110	210	560	125	110	570	25
Future Volume (veh/h)	15	300	251	180	365	110	210	560	125	110	570	25
Number	3	8	18	7	4	14	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1792	1792	980	1863	1900	1792	1792	1900	1792	1792	1900
Adj Flow Rate, veh/h	16	316	264	189	384	116	221	589	132	116	600	26
Adj No. of Lanes	0	1	1	1	1	0	1	2	0	1	1	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	6	6	6	2	2	2	6	6	6	6	6	6
Cap, veh/h	41	328	484	172	544	164	197	1002	224	301	584	25
Arrive On Green	0.27	0.27	0.27	0.06	0.38	0.38	0.07	0.35	0.35	0.06	0.34	0.34
Sat Flow, veh/h	13	1215	1792	980	1431	432	1792	2855	640	1792	1718	74
Grp Volume(v), veh/h	332	0	264	189	0	500	221	351	370	116	0	626
Grp Sat Flow(s),veh/h/ln	1228	0	1792	980	0	1863	1792	1703	1792	1792	0	1792
Q Serve(g_s), s	4.3	0.0	9.3	6.0	0.0	22.7	7.0	16.9	16.9	4.2	0.0	34.0
Cycle Q Clear(g_c), s	27.0	0.0	9.3	6.0	0.0	22.7	7.0	16.9	16.9	4.2	0.0	34.0
Prop In Lane	0.05		1.00	1.00		0.23	1.00		0.36	1.00		0.04
Lane Grp Cap(c), veh/h	369	0	484	172	0	708	197	597	629	301	0	609
V/C Ratio(X)	0.90	0.00	0.55	1.10	0.00	0.71	1.12	0.59	0.59	0.39	0.00	1.03
Avail Cap(c_a), veh/h	369	0	484	172	0	754	197	597	629	321	0	609
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	34.1	0.0	17.1	42.1	0.0	26.3	26.2	26.6	26.6	20.8	0.0	33.0
Incr Delay (d2), s/veh	23.3	0.0	0.7	98.7	0.0	2.3	99.7	1.8	1.7	0.3	0.0	43.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	11.5	0.0	5.4	9.4	0.0	12.1	9.0	8.2	8.6	2.1	0.0	24.1
LnGrp Delay(d),s/veh	57.4	0.0	17.8	140.7	0.0	28.6	125.8	28.4	28.3	21.1	0.0	76.6
LnGrp LOS	E		B	F		C	F	C	C	C		F
Approach Vol, veh/h		596			689			942			742	
Approach Delay, s/veh		39.9			59.3			51.2			67.9	
Approach LOS		D			E			D			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6	7	8
Phs Duration (G+Y+Rc), s	14.0	41.0		45.0	12.9	42.1	13.0	32.0
Change Period (Y+Rc), s	7.0	7.0		* 7	7.0	7.0	7.0	5.0
Max Green Setting (Gmax), s	7.0	34.0		* 41	7.0	34.0	6.0	27.0
Max Q Clear Time (g_c+I1), s	9.0	36.0		24.7	6.2	18.9	8.0	29.0
Green Ext Time (p_c), s	0.0	0.0		2.1	0.0	9.3	0.0	0.0

Intersection Summary		
HCM 2010 Ctrl Delay		55.0
HCM 2010 LOS		D

Notes

Intersection	
Int Delay, s/veh	0.3

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	30	20	1550	1005	55
Future Vol, veh/h	0	30	20	1550	1005	55
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	99	99	99	99	99	99
Heavy Vehicles, %	6	6	6	6	6	6
Mvmt Flow	0	30	20	1566	1015	56

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	2649	1043	1071	0	-	0
Stage 1	1043	-	-	-	-	-
Stage 2	1606	-	-	-	-	-
Critical Hdwy	6.46	6.26	4.16	-	-	-
Critical Hdwy Stg 1	5.46	-	-	-	-	-
Critical Hdwy Stg 2	5.46	-	-	-	-	-
Follow-up Hdwy	3.554	3.354	2.254	-	-	-
Pot Cap-1 Maneuver	25	274	636	-	-	-
Stage 1	334	-	-	-	-	-
Stage 2	177	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	19	274	636	-	-	-
Mov Cap-2 Maneuver	19	-	-	-	-	-
Stage 1	334	-	-	-	-	-
Stage 2	134	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	19.8	0.1	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	636	-	274	-	-
HCM Lane V/C Ratio	0.032	-	0.111	-	-
HCM Control Delay (s)	10.8	0	19.8	-	-
HCM Lane LOS	B	A	C	-	-
HCM 95th %tile Q(veh)	0.1	-	0.4	-	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	435	0	35	5	5	30	35	775	0	0	1015	625
Future Volume (veh/h)	435	0	35	5	5	30	35	775	0	0	1015	625
Number	3	8	18	7	4	14	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	20	0	0	40	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1792	1792	1900	1900	1792	1900	1900	1792	0	0	1792	1792
Adj Flow Rate, veh/h	493	0	0	5	5	32	37	816	0	0	1068	0
Adj No. of Lanes	2	1	0	0	1	0	0	2	0	0	2	1
Peak Hour Factor	0.95	0.95	0.95	0.95	1.00	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	6	6	6	6	6	6	6	6	0	0	6	6
Cap, veh/h	651	326	0	10	10	65	47	1554	0	0	1742	943
Arrive On Green	0.19	0.00	0.00	0.05	0.05	0.05	0.50	0.50	0.00	0.00	0.50	0.00
Sat Flow, veh/h	3585	1792	0	213	213	1366	71	3238	0	0	3495	1792
Grp Volume(v), veh/h	493	0	0	42	0	0	446	407	0	0	1068	0
Grp Sat Flow(s),veh/h/ln	1792	1792	0	1792	0	0	1678	1550	0	0	1703	1792
Q Serve(g_s), s	8.3	0.0	0.0	1.5	0.0	0.0	0.0	11.4	0.0	0.0	14.7	0.0
Cycle Q Clear(g_c), s	8.3	0.0	0.0	1.5	0.0	0.0	10.6	11.4	0.0	0.0	14.7	0.0
Prop In Lane	1.00		0.00	0.12		0.76	0.08		0.00	0.00		1.00
Lane Grp Cap(c), veh/h	651	326	0	86	0	0	474	783	0	0	1742	943
V/C Ratio(X)	0.76	0.00	0.00	0.49	0.00	0.00	0.94	0.52	0.00	0.00	0.61	0.00
Avail Cap(c_a), veh/h	1481	741	0	210	0	0	1194	1063	0	0	2336	1230
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00
Uniform Delay (d), s/veh	27.3	0.0	0.0	32.6	0.0	0.0	25.5	11.4	0.0	0.0	12.7	0.0
Incr Delay (d2), s/veh	1.8	0.0	0.0	4.3	0.0	0.0	9.6	0.5	0.0	0.0	0.4	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	49.2	2.4	0.0	0.0	9.8	0.0
%ile BackOfQ(50%),veh/ln	4.7	0.0	0.0	0.9	0.0	0.0	16.9	6.7	0.0	0.0	11.9	0.0
LnGrp Delay(d),s/veh	29.1	0.0	0.0	36.9	0.0	0.0	84.2	14.4	0.0	0.0	22.9	0.0
LnGrp LOS	C			D			F	B			C	
Approach Vol, veh/h		493			42			853			1068	
Approach Delay, s/veh		29.1			36.9			50.9			22.9	
Approach LOS		C			D			D			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		38.1		7.7		38.1		18.4
Change Period (Y+Rc), s		6.0		4.5		6.0		6.5
Max Green Setting (Gmax), s		44.0		7.5		44.0		26.5
Max Q Clear Time (g_c+I1), s		16.7		3.5		13.4		10.3
Green Ext Time (p_c), s		15.4		0.0		16.4		1.6

Intersection Summary	
HCM 2010 Ctrl Delay	34.1
HCM 2010 LOS	C

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	20	425	135	120	255	100	210	690	245	340	595	20
Future Volume (veh/h)	20	425	135	120	255	100	210	690	245	340	595	20
Number	3	8	18	7	4	14	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	15	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1792	1792	1792	1792	1900	1792	1792	1900	1792	1792	1900
Adj Flow Rate, veh/h	21	447	142	126	268	105	221	726	258	358	626	21
Adj No. of Lanes	0	1	1	1	1	0	1	2	0	1	1	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	6	6	6	6	6	6	6	6	6	6	6	6
Cap, veh/h	43	406	489	163	480	188	200	727	258	343	631	21
Arrive On Green	0.27	0.27	0.27	0.05	0.37	0.37	0.07	0.28	0.28	0.15	0.36	0.36
Sat Flow, veh/h	31	1488	1792	1792	1288	505	1792	2579	916	1792	1734	58
Grp Volume(v), veh/h	468	0	142	126	0	373	221	479	505	358	0	647
Grp Sat Flow(s),veh/h/ln	1519	0	1792	1792	0	1792	1792	1703	1792	1792	0	1792
Q Serve(g_s), s	11.9	0.0	5.2	3.5	0.0	18.1	8.0	31.0	31.0	17.0	0.0	39.5
Cycle Q Clear(g_c), s	30.0	0.0	5.2	3.5	0.0	18.1	8.0	31.0	31.0	17.0	0.0	39.5
Prop In Lane	0.04		1.00	1.00		0.28	1.00		0.51	1.00		0.03
Lane Grp Cap(c), veh/h	449	0	489	163	0	668	200	480	505	343	0	652
V/C Ratio(X)	1.04	0.00	0.29	0.77	0.00	0.56	1.11	1.00	1.00	1.04	0.00	0.99
Avail Cap(c_a), veh/h	449	0	489	163	0	709	200	480	505	343	0	652
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	40.9	0.0	18.6	49.9	0.0	27.3	32.2	39.5	39.5	33.4	0.0	34.9
Incr Delay (d2), s/veh	54.2	0.0	0.1	18.4	0.0	0.4	94.7	40.8	39.8	60.7	0.0	33.3
Initial Q Delay(d3),s/veh	0.0	0.0	9.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	20.3	0.0	5.4	4.6	0.0	9.0	5.3	20.0	20.9	16.2	0.0	25.4
LnGrp Delay(d),s/veh	95.1	0.0	28.3	68.3	0.0	27.8	126.9	80.3	79.2	94.0	0.0	68.2
LnGrp LOS	F		C	E		C	F	F	E	F		E
Approach Vol, veh/h		610			499			1205			1005	
Approach Delay, s/veh		79.6			38.0			88.4			77.4	
Approach LOS		E			D			F			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6	7	8
Phs Duration (G+Y+Rc), s	15.0	47.0		48.0	24.0	38.0	13.0	35.0
Change Period (Y+Rc), s	7.0	7.0		* 7	7.0	7.0	7.0	5.0
Max Green Setting (Gmax), s	8.0	40.0		* 44	17.0	31.0	6.0	30.0
Max Q Clear Time (g_c+I1), s	10.0	41.5		20.1	19.0	33.0	5.5	32.0
Green Ext Time (p_c), s	0.0	0.0		1.6	0.0	0.0	0.1	0.0

Intersection Summary	
HCM 2010 Ctrl Delay	75.9
HCM 2010 LOS	E

Notes

Intersection	
Int Delay, s/veh	3.9

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	10	60	20	1210	1535	50
Future Vol, veh/h	10	60	20	1210	1535	50
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	6	6	6	6	6	6
Mvmt Flow	11	63	21	1274	1616	53

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	2958	1642	1668	0	-	0
Stage 1	1642	-	-	-	-	-
Stage 2	1316	-	-	-	-	-
Critical Hdwy	6	6	4.16	-	-	-
Critical Hdwy Stg 1	5.46	-	-	-	-	-
Critical Hdwy Stg 2	5.46	-	-	-	-	-
Follow-up Hdwy	2.3	2.3	2	-	-	-
Pot Cap-1 Maneuver	25	164	402	-	-	-
Stage 1	209	-	-	-	-	-
Stage 2	314	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	21	164	402	-	-	-
Mov Cap-2 Maneuver	21	-	-	-	-	-
Stage 1	209	-	-	-	-	-
Stage 2	258	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	157.2	0.2	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	402	-	83	-	-
HCM Lane V/C Ratio	0.052	-	0.888	-	-
HCM Control Delay (s)	14.5	0	157.2	-	-
HCM Lane LOS	B	A	F	-	-
HCM 95th %tile Q(veh)	0.2	-	4.7	-	-

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	50	30	125	960	350	280
Future Volume (veh/h)	50	30	125	960	350	280
Number	3	18	1	6	2	12
Initial Q (Qb), veh	0	0	0	10	5	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1810	1810	1810	1810	1810	1810
Adj Flow Rate, veh/h	53	32	132	1011	368	295
Adj No. of Lanes	1	1	1	1	1	1
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	5	5	5	5	5	5
Cap, veh/h	129	115	656	1251	560	604
Arrive On Green	0.08	0.08	0.26	0.68	0.30	0.30
Sat Flow, veh/h	1723	1538	1723	1810	1810	1538
Grp Volume(v), veh/h	53	32	132	1011	368	295
Grp Sat Flow(s),veh/h/ln	1723	1538	1723	1810	1810	1538
Q Serve(g_s), s	1.2	0.8	0.0	16.6	7.3	0.6
Cycle Q Clear(g_c), s	1.2	0.8	0.0	16.6	7.3	0.6
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	129	115	656	1251	560	604
V/C Ratio(X)	0.41	0.28	0.20	0.81	0.66	0.49
Avail Cap(c_a), veh/h	838	748	676	2200	1540	1425
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	18.8	18.7	11.5	5.0	12.6	3.6
Incr Delay (d2), s/veh	2.1	1.3	0.1	1.3	1.3	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	2.4	1.7	0.0
%ile BackOfQ(50%),veh/ln	0.7	0.4	1.2	10.7	4.5	2.3
LnGrp Delay(d),s/veh	20.9	20.0	11.6	8.6	15.6	4.2
LnGrp LOS	C	B	B	A	B	A
Approach Vol, veh/h	85			1143	663	
Approach Delay, s/veh	20.6			9.0	10.5	
Approach LOS	C			A	B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	15.6	17.4				33.0		8.1
Change Period (Y+Rc), s	5.0	5.0				5.0		5.0
Max Green Setting (Gmax), s	10.0	35.0				50.0		20.0
Max Q Clear Time (g_c+I1), s	2.0	9.3				18.6		3.2
Green Ext Time (p_c), s	4.5	3.1				9.4		0.2

Intersection Summary	
HCM 2010 Ctrl Delay	10.1
HCM 2010 LOS	B

Intersection	
Int Delay, s/veh	1.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	10	0	5	5	5	5	15	930	15	5	770	40
Future Vol, veh/h	10	0	5	5	5	5	15	930	15	5	770	40
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	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	5	5	5	5	5	5	5	5	5	5	5	5
Mvmt Flow	11	0	5	5	5	5	16	979	16	5	811	42

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1866	1868	832	1863	1881	987	853	0	0	995	0	0
Stage 1	842	842	-	1018	1018	-	-	-	-	-	-	-
Stage 2	1024	1026	-	845	863	-	-	-	-	-	-	-
Critical Hdwy	7.15	6.55	6.25	7.15	6.55	6.25	4.15	-	-	4.15	-	-
Critical Hdwy Stg 1	6.15	5.55	-	6.15	5.55	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.15	5.55	-	6.15	5.55	-	-	-	-	-	-	-
Follow-up Hdwy	3.545	4.045	3.345	3.545	4.045	3.345	2.245	-	-	2.245	-	-
Pot Cap-1 Maneuver	55	71	365	55	70	296	773	-	-	683	-	-
Stage 1	355	376	-	283	311	-	-	-	-	-	-	-
Stage 2	280	308	-	353	367	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	48	67	365	52	66	296	773	-	-	683	-	-
Mov Cap-2 Maneuver	48	67	-	52	66	-	-	-	-	-	-	-
Stage 1	339	371	-	270	297	-	-	-	-	-	-	-
Stage 2	258	294	-	343	362	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	73.3	61.6	0.2	0.1
HCM LOS	F	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	773	-	-	68	79	683	-	-
HCM Lane V/C Ratio	0.02	-	-	0.232	0.2	0.008	-	-
HCM Control Delay (s)	9.8	0	-	73.3	61.6	10.3	0	-
HCM Lane LOS	A	A	-	F	F	B	A	-
HCM 95th %tile Q(veh)	0.1	-	-	0.8	0.7	0	-	-

Intersection	
Int Delay, s/veh	3.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	15	0	20	5	0	5	180	1100	0	0	350	60
Future Vol, veh/h	15	0	20	5	0	5	180	1100	0	0	350	60
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	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	5	5	5	5	5	5	5	5	5	5	5	5
Mvmt Flow	16	0	21	5	0	5	189	1158	0	0	368	63

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1939	1937	400	1948	1969	1158	432	0	0	1158	0	0
Stage 1	400	400	-	1537	1537	-	-	-	-	-	-	-
Stage 2	1539	1537	-	411	432	-	-	-	-	-	-	-
Critical Hdwy	6.8	6.55	6.25	6.8	6.55	6.25	4.15	-	-	4.15	-	-
Critical Hdwy Stg 1	6.15	5.55	-	6.15	5.55	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.15	5.55	-	6.15	5.55	-	-	-	-	-	-	-
Follow-up Hdwy	3.545	4.045	3.345	3.545	4.045	3.345	2.245	-	-	2.245	-	-
Pot Cap-1 Maneuver	58	64	643	58	61	235	1112	-	-	593	-	-
Stage 1	620	596	-	143	175	-	-	-	-	-	-	-
Stage 2	142	175	-	612	577	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	36	34	643	35	32	235	1112	-	-	593	-	-
Mov Cap-2 Maneuver	36	34	-	35	32	-	-	-	-	-	-	-
Stage 1	325	596	-	75	92	-	-	-	-	-	-	-
Stage 2	73	92	-	592	577	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	87	75.9	1.3	0
HCM LOS	F	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1112	-	-	78	61	593	-	-
HCM Lane V/C Ratio	0.17	-	-	0.472	0.173	-	-	-
HCM Control Delay (s)	8.9	0	-	87	75.9	0	-	-
HCM Lane LOS	A	A	-	F	F	A	-	-
HCM 95th %tile Q(veh)	0.6	-	-	1.9	0.6	0	-	-

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	130	275	20	495	905	70
Future Volume (veh/h)	130	275	20	495	905	70
Number	3	18	1	6	2	12
Initial Q (Qb), veh	0	0	0	0	5	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1810	1810	1810	1810	1810	1810
Adj Flow Rate, veh/h	137	289	21	521	953	74
Adj No. of Lanes	1	1	1	1	1	1
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	5	5	5	5	5	5
Cap, veh/h	331	374	206	1228	1059	1390
Arrive On Green	0.18	0.18	0.02	0.68	0.58	0.58
Sat Flow, veh/h	1810	1810	1810	1810	1810	1810
Grp Volume(v), veh/h	137	289	21	521	953	74
Grp Sat Flow(s),veh/h/ln	1810	1810	1810	1810	1810	1810
Q Serve(g_s), s	4.8	10.8	0.3	9.3	33.2	0.7
Cycle Q Clear(g_c), s	4.8	10.8	0.3	9.3	33.2	0.7
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	331	374	206	1228	1059	1390
V/C Ratio(X)	0.41	0.77	0.10	0.42	0.90	0.05
Avail Cap(c_a), veh/h	380	423	302	1392	1139	1470
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	26.1	27.0	14.7	5.2	13.5	2.0
Incr Delay (d2), s/veh	0.8	7.7	0.2	0.2	9.4	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	1.6	0.0
%ile BackOfQ(50%),veh/ln	2.5	6.2	0.2	4.7	20.6	0.3
LnGrp Delay(d),s/veh	26.9	34.7	14.9	5.5	24.4	2.0
LnGrp LOS	C	C	B	A	C	A
Approach Vol, veh/h	426			542	1027	
Approach Delay, s/veh	32.2			5.8	22.8	
Approach LOS	C			A	C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	6.7	46.7				53.4		18.1
Change Period (Y+Rc), s	5.0	5.0				5.0		5.0
Max Green Setting (Gmax), s	5.0	45.0				55.0		15.0
Max Q Clear Time (g_c+I1), s	2.3	35.2				11.3		12.8
Green Ext Time (p_c), s	0.0	6.5				15.0		0.3

Intersection Summary	
HCM 2010 Ctrl Delay	20.2
HCM 2010 LOS	C

Intersection	
Int Delay, s/veh	7.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	30	0	20	5	5	30	5	920	10	15	905	15
Future Vol, veh/h	30	0	20	5	5	30	5	920	10	15	905	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	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	5	5	5	5	5	5	5	5	5	5	5	5
Mvmt Flow	32	0	21	5	5	32	5	968	11	16	953	16

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1995	1981	961	1987	1984	974	968	0	0	979	0	0
Stage 1	992	992	-	984	984	-	-	-	-	-	-	-
Stage 2	1003	989	-	1003	1000	-	-	-	-	-	-	-
Critical Hdwy	7.15	6.55	6.25	7.15	6.55	6.25	4.15	-	-	4.15	-	-
Critical Hdwy Stg 1	6.15	5.55	-	6.15	5.55	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.15	5.55	-	6.15	5.55	-	-	-	-	-	-	-
Follow-up Hdwy	3.545	4.045	3.345	3.545	4.045	3.345	2.245	-	-	2.245	-	-
Pot Cap-1 Maneuver	44	60	307	45	60	302	700	-	-	693	-	-
Stage 1	292	320	-	295	323	-	-	-	-	-	-	-
Stage 2	288	321	-	288	317	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	35	56	307	40	56	302	700	-	-	693	-	-
Mov Cap-2 Maneuver	35	56	-	40	56	-	-	-	-	-	-	-
Stage 1	287	304	-	290	318	-	-	-	-	-	-	-
Stage 2	250	316	-	255	301	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	237.1	46.3	0.1	0.2
HCM LOS	F	E		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	700	-	-	54	128	693	-	-
HCM Lane V/C Ratio	0.008	-	-	0.975	0.329	0.023	-	-
HCM Control Delay (s)	10.2	0	-	237.1	46.3	10.3	0	-
HCM Lane LOS	B	A	-	F	E	B	A	-
HCM 95th %tile Q(veh)	0	-	-	4.4	1.3	0.1	-	-

Intersection	
Int Delay, s/veh	1.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	20	0	20	5	0	5	20	480	0	0	1160	20
Future Vol, veh/h	20	0	20	5	0	5	20	480	0	0	1160	20
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	150	-	0	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	5	5	5	5	5	5	5	5	5	5	5	5
Mvmt Flow	21	0	21	5	0	5	21	505	0	0	1221	21

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1782	-	1232	1779	1789	505	1242	0	-	-	-	0
Stage 1	1232	-	-	547	547	-	-	-	-	-	-	-
Stage 2	550	-	-	1232	1242	-	-	-	-	-	-	-
Critical Hdwy	7.15	-	6.25	7.15	6.55	6.25	4.15	-	-	-	-	-
Critical Hdwy Stg 1	6.15	-	-	6.15	5.55	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.15	-	-	6.15	5.55	-	-	-	-	-	-	-
Follow-up Hdwy	3.545	-	3.345	3.545	4.045	3.345	2.245	-	-	-	-	-
Pot Cap-1 Maneuver	63	0	213	63	80	561	550	-	0	0	-	-
Stage 1	214	0	-	516	513	-	-	-	0	0	-	-
Stage 2	514	0	-	214	243	-	-	-	0	0	-	-
Platoon blocked, %								-			-	-
Mov Cap-1 Maneuver	60	-	213	54	76	561	550	-	-	-	-	-
Mov Cap-2 Maneuver	60	-	-	54	76	-	-	-	-	-	-	-
Stage 1	203	-	-	489	486	-	-	-	-	-	-	-
Stage 2	482	-	-	193	243	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	59.1	45.6	0.5	0
HCM LOS	F	E		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	WBLn1	SBT	SBR
Capacity (veh/h)	550	-	60	213	99	-	-
HCM Lane V/C Ratio	0.038	-	0.351	0.099	0.106	-	-
HCM Control Delay (s)	11.8	0	94.5	23.7	45.6	-	-
HCM Lane LOS	B	A	F	C	E	-	-
HCM 95th %tile Q(veh)	0.1	-	1.3	0.3	0.3	-	-

Level of Service (LOS) Analysis
2040 Conditions

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	60	40	30	135	200	60	710	1265	220	55	865	80
Future Volume (veh/h)	60	40	30	135	200	60	710	1265	220	55	865	80
Number	3	8	18	7	4	14	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	50	100	0	0	10	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1810	1810	1810	1810	1810	1900	1810	1810	1900	1810	1810	1900
Adj Flow Rate, veh/h	67	45	34	151	223	67	793	1413	246	61	966	89
Adj No. of Lanes	1	1	2	1	2	0	2	2	0	1	2	0
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	5	5	5	5	5	5	5	5	5	5	5	5
Cap, veh/h	85	118	1170	272	291	85	1226	2041	204	78	1075	66
Arrive On Green	0.05	0.07	0.07	0.09	0.11	0.11	0.37	0.64	0.64	0.05	0.32	0.32
Sat Flow, veh/h	1723	1810	2707	1723	2624	769	3343	2936	504	1723	3184	293
Grp Volume(v), veh/h	67	45	34	151	144	146	793	819	840	61	522	533
Grp Sat Flow(s),veh/h/ln	1723	1810	1354	1723	1719	1674	1672	1719	1721	1723	1719	1758
Q Serve(g_s), s	5.0	3.1	0.2	10.3	10.6	11.0	25.6	42.0	44.1	4.6	38.3	38.3
Cycle Q Clear(g_c), s	5.0	3.1	0.2	10.3	10.6	11.0	25.6	42.0	44.1	4.6	38.3	38.3
Prop In Lane	1.00		1.00	1.00		0.46	1.00		0.29	1.00		0.17
Lane Grp Cap(c), veh/h	85	118	1170	272	191	186	1226	1108	1131	78	555	573
V/C Ratio(X)	0.79	0.38	0.03	0.56	0.76	0.79	0.65	0.74	0.74	0.79	0.94	0.93
Avail Cap(c_a), veh/h	146	271	1399	307	311	303	1226	1108	1109	133	555	568
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	61.1	58.2	9.8	48.5	56.1	56.3	37.4	20.8	20.7	61.5	43.5	43.3
Incr Delay (d2), s/veh	14.8	2.0	0.0	1.8	6.0	7.2	1.2	4.4	4.4	15.8	25.8	23.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	33.9	56.1	54.8	0.0	9.6	7.9
%ile BackOfQ(50%),veh/ln	2.7	1.6	0.2	5.0	5.4	5.5	22.5	52.0	52.5	2.5	24.6	24.6
LnGrp Delay(d),s/veh	75.9	60.2	9.8	50.3	62.1	63.4	72.5	81.3	79.9	77.3	78.8	75.1
LnGrp LOS	E	E	A	D	E	E	E	F	E	E	E	E
Approach Vol, veh/h		146			441			2452			1116	
Approach Delay, s/veh		55.7			58.5			78.0			77.0	
Approach LOS		E			E			E			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	10.9	88.8	11.4	18.9	52.7	47.0	17.3	13.0
Change Period (Y+Rc), s	5.0	* 5	5.0	4.5	5.0	5.0	5.0	4.5
Max Green Setting (Gmax), s	10.0	* 67	11.0	23.5	34.0	42.0	15.0	19.5
Max Q Clear Time (g_c+I1), s	6.6	46.1	7.0	13.0	27.6	40.3	12.3	5.1
Green Ext Time (p_c), s	0.0	14.9	0.0	1.4	3.6	1.0	0.1	1.6

Intersection Summary	
HCM 2010 Ctrl Delay	74.9
HCM 2010 LOS	E

Notes

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	10	185	0	1160	20
Future Volume (veh/h)	0	10	185	0	1160	20
Number	7	14	5	2	6	16
Initial Q (Qb), veh	0	5	0	150	50	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	0	1810	1810	1810	1810	1900
Adj Flow Rate, veh/h	0	11	207	0	1296	22
Adj No. of Lanes	0	2	1	3	2	0
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	0	5	5	5	5	5
Cap, veh/h	0	0	236	4747	2721	42
Arrive On Green	0.00	0.00	0.14	0.00	0.79	0.79
Sat Flow, veh/h	0		1723	5103	3550	59
Grp Volume(v), veh/h	0.0		207	0	644	674
Grp Sat Flow(s),veh/h/ln			1723	1647	1719	1799
Q Serve(g_s), s			15.1	0.0	16.5	16.5
Cycle Q Clear(g_c), s			15.1	0.0	16.5	16.5
Prop In Lane			1.00			0.03
Lane Grp Cap(c), veh/h			236	4747	1350	1413
V/C Ratio(X)			0.88	0.00	0.48	0.48
Avail Cap(c_a), veh/h			404	4747	1350	1412
HCM Platoon Ratio			1.00	1.00	1.00	1.00
Upstream Filter(I)			1.00	0.00	1.00	1.00
Uniform Delay (d), s/veh			54.2	0.0	6.0	5.9
Incr Delay (d2), s/veh			10.8	0.0	1.2	1.2
Initial Q Delay(d3),s/veh			0.0	0.0	4.7	4.3
%ile BackOfQ(50%),veh/ln			7.9	0.0	15.4	15.7
LnGrp Delay(d),s/veh			65.0	0.0	11.9	11.4
LnGrp LOS			E		B	B
Approach Vol, veh/h				207	1318	
Approach Delay, s/veh				65.0	11.7	
Approach LOS				E	B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2			5	6		
Phs Duration (G+Y+Rc), s		128.0			22.5	105.5		
Change Period (Y+Rc), s		* 5			5.0	5.0		
Max Green Setting (Gmax), s		* 1.1E2			30.0	79.0		
Max Q Clear Time (g_c+I1), s		0.0			17.1	18.5		
Green Ext Time (p_c), s		0.0			0.4	11.8		

Intersection Summary	
HCM 2010 Ctrl Delay	18.9
HCM 2010 LOS	B

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	125	145	560	200	10	45	115	1070	210	115	1030	15
Future Volume (veh/h)	125	145	560	200	10	45	115	1070	210	115	1030	15
Number	3	8	18	7	4	14	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	15	0	0	0	0	10	0	0	30	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	0.90	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1810	1810	1810	1810	1810	1900	1810	1810	1900	1810	1810	1900
Adj Flow Rate, veh/h	140	162	626	223	11	50	128	1195	235	128	1151	17
Adj No. of Lanes	1	1	2	1	2	0	2	2	0	1	2	0
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	5	5	5	5	5	5	5	5	5	5	5	5
Cap, veh/h	168	389	740	373	339	273	195	1376	122	156	1572	19
Arrive On Green	0.10	0.22	0.22	0.08	0.20	0.20	0.06	0.42	0.42	0.09	0.45	0.45
Sat Flow, veh/h	1723	1810	2707	1723	1719	1384	3343	2869	560	1723	3468	51
Grp Volume(v), veh/h	140	162	626	223	11	50	128	712	718	128	570	598
Grp Sat Flow(s),veh/h/ln	1723	1810	1354	1723	1719	1384	1672	1719	1711	1723	1719	1800
Q Serve(g_s), s	8.0	7.7	21.5	8.0	0.5	3.0	3.7	41.1	41.9	7.3	27.2	27.2
Cycle Q Clear(g_c), s	8.0	7.7	21.5	8.0	0.5	3.0	3.7	41.1	41.9	7.3	27.2	27.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.33	1.00		0.03
Lane Grp Cap(c), veh/h	168	389	740	373	339	273	195	721	738	156	777	814
V/C Ratio(X)	0.83	0.42	0.85	0.60	0.03	0.18	0.66	0.99	0.97	0.82	0.73	0.73
Avail Cap(c_a), veh/h	172	389	740	373	339	273	267	721	718	172	777	813
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	44.3	33.8	35.4	31.7	32.4	33.4	46.1	29.0	29.0	44.7	23.9	23.8
Incr Delay (d2), s/veh	27.3	0.7	9.0	2.6	0.0	0.3	3.7	30.7	27.1	24.2	6.1	5.8
Initial Q Delay(d3),s/veh	0.0	0.0	19.2	0.0	0.0	0.0	0.0	19.5	12.2	0.0	10.1	9.2
%ile BackOfQ(50%),veh/ln	5.1	3.9	12.1	5.2	0.2	1.2	1.8	29.9	28.3	4.5	18.8	19.3
LnGrp Delay(d),s/veh	71.6	34.6	63.6	34.3	32.5	33.7	49.8	79.3	68.4	68.9	40.2	38.9
LnGrp LOS	E	C	E	C	C	C	D	E	E	E	D	D
Approach Vol, veh/h		928			284			1558			1296	
Approach Delay, s/veh		59.8			34.1			71.8			42.4	
Approach LOS		E			C			E			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	14.1	46.9	14.8	24.2	10.8	50.2	13.0	26.0
Change Period (Y+Rc), s	5.0	* 5	5.0	4.5	5.0	5.0	5.0	4.5
Max Green Setting (Gmax), s	10.0	* 42	10.0	19.5	8.0	43.0	8.0	21.5
Max Q Clear Time (g_c+I1), s	9.3	43.9	10.0	5.0	5.7	29.2	10.0	23.5
Green Ext Time (p_c), s	0.0	0.0	0.0	3.6	0.1	11.6	0.0	0.0

Intersection Summary	
HCM 2010 Ctrl Delay	57.1
HCM 2010 LOS	E

Notes

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	250	5	0	1915	10
Future Volume (veh/h)	0	250	5	0	1915	10
Number	7	14	5	2	6	16
Initial Q (Qb), veh	0	100	0	0	100	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	0	1810	1810	0	1810	1900
Adj Flow Rate, veh/h	0	279	6	0	2139	11
Adj No. of Lanes	0	2	1	0	2	0
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	0	5	5	0	5	5
Cap, veh/h	0	0	16	0	3127	13
Arrive On Green	0.00	0.00	0.01	0.00	1.00	1.00
Sat Flow, veh/h	0		1723	6	3598	18
Grp Volume(v), veh/h	0.0		6	63.4	1047	1103
Grp Sat Flow(s),veh/h/ln			1723	E	1719	1806
Q Serve(g_s), s			0.3		0.0	0.0
Cycle Q Clear(g_c), s			0.3		0.0	0.0
Prop In Lane			1.00			0.01
Lane Grp Cap(c), veh/h			16		1531	1610
V/C Ratio(X)			0.38		0.68	0.69
Avail Cap(c_a), veh/h			103		1531	1609
HCM Platoon Ratio			1.00		2.00	2.00
Upstream Filter(I)			1.00		0.58	0.58
Uniform Delay (d), s/veh			49.3		0.0	0.0
Incr Delay (d2), s/veh			14.2		1.5	1.4
Initial Q Delay(d3),s/veh			0.0		24.3	22.1
%ile BackOfQ(50%),veh/ln			0.2		11.0	10.5
LnGrp Delay(d),s/veh			63.4		25.8	23.5
LnGrp LOS			E		C	C
Approach Vol, veh/h					2150	
Approach Delay, s/veh					24.6	
Approach LOS					C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs					5	6		
Phs Duration (G+Y+Rc), s					5.9	94.1		
Change Period (Y+Rc), s					5.0	5.0		
Max Green Setting (Gmax), s					6.0	64.0		
Max Q Clear Time (g_c+I1), s					2.3	2.0		
Green Ext Time (p_c), s					0.0	34.4		

Intersection Summary	
HCM 2010 Ctrl Delay	24.7
HCM 2010 LOS	C

Movement	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	5	870	0	15	690	340	690	5	5	5	5	5
Future Volume (veh/h)	5	870	0	15	690	340	690	5	5	5	5	5
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	50	0	0	20	0	25	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1792	1900	1792	1792	1792	1792	1792	1900	1792	1792	1900
Adj Flow Rate, veh/h	5	932	0	16	697	0	747	0	0	5	5	5
Adj No. of Lanes	0	2	0	1	2	1	2	1	0	1	1	0
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Percent Heavy Veh, %	6	6	6	6	6	6	6	6	6	6	6	6
Cap, veh/h	38	1335	0	33	1677	887	980	505	0	38	19	19
Arrive On Green	0.41	0.41	0.00	0.02	0.49	0.00	0.26	0.00	0.00	0.02	0.02	0.02
Sat Flow, veh/h	4	3416	0	1792	3406	1792	3585	1792	0	1792	896	896
Grp Volume(v), veh/h	502	435	0	16	697	0	747	0	0	5	0	10
Grp Sat Flow(s),veh/h/ln	1789	1550	0	1792	1703	1792	1792	1792	0	1792	0	1792
Q Serve(g_s), s	0.0	17.0	0.0	0.7	9.7	0.0	14.5	0.0	0.0	0.2	0.0	0.4
Cycle Q Clear(g_c), s	17.0	17.0	0.0	0.7	9.7	0.0	14.5	0.0	0.0	0.2	0.0	0.4
Prop In Lane	0.01		0.00	1.00		1.00	1.00		0.00	1.00		0.50
Lane Grp Cap(c), veh/h	664	656	0	33	1677	887	980	505	0	38	0	38
V/C Ratio(X)	0.76	0.66	0.00	0.48	0.42	0.00	0.76	0.00	0.00	0.13	0.00	0.27
Avail Cap(c_a), veh/h	1094	907	0	121	2429	1279	1640	820	0	145	0	145
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	0.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	28.4	22.7	0.0	42.0	13.2	0.0	28.4	0.0	0.0	41.5	0.0	41.6
Incr Delay (d2), s/veh	1.8	1.2	0.0	10.5	0.2	0.0	1.3	0.0	0.0	1.6	0.0	3.7
Initial Q Delay(d3),s/veh	42.0	31.0	0.0	0.0	1.8	0.0	19.7	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	23.5	18.2	0.0	0.5	6.6	0.0	12.4	0.0	0.0	0.1	0.0	0.3
LnGrp Delay(d),s/veh	72.1	54.8	0.0	52.5	15.1	0.0	49.4	0.0	0.0	43.1	0.0	45.3
LnGrp LOS	E	D		D	B		D			D		D
Approach Vol, veh/h		937			713			747			15	
Approach Delay, s/veh		64.1			16.0			49.4			44.6	
Approach LOS		E			B			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		8
Phs Duration (G+Y+Rc), s		42.6		26.2	5.9	36.6		5.6
Change Period (Y+Rc), s		6.0		7.0	4.5	6.0		4.0
Max Green Setting (Gmax), s		53.0		34.0	5.0	43.5		6.0
Max Q Clear Time (g_c+I1), s		11.7		16.5	2.7	19.0		2.4
Green Ext Time (p_c), s		14.3		2.6	0.0	11.6		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	45.2
HCM 2010 LOS	D

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	300	251	180	365	110	210	560	125	110	570	25
Future Volume (veh/h)	0	300	251	180	365	110	210	560	125	110	570	25
Number	3	8	18	7	4	14	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	0	1863	1863	980	1863	1900	1792	1792	1900	1792	1792	1900
Adj Flow Rate, veh/h	0	335	280	189	407	123	234	589	139	123	636	28
Adj No. of Lanes	0	1	1	1	1	0	1	2	0	1	2	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	2	2	2	2	2	6	6	6	6	6	6
Cap, veh/h	0	379	379	216	563	170	370	874	206	315	869	38
Arrive On Green	0.00	0.20	0.20	0.13	0.39	0.39	0.12	0.31	0.31	0.07	0.26	0.26
Sat Flow, veh/h	0	1863	1863	980	1430	432	1792	2828	667	1792	3348	147
Grp Volume(v), veh/h	0	335	280	189	0	530	234	355	373	123	323	341
Grp Sat Flow(s),veh/h/ln	0	1863	1863	980	0	1863	1792	1703	1792	1792	1703	1792
Q Serve(g_s), s	0.0	15.9	8.8	9.1	0.0	21.9	8.5	16.5	16.5	4.5	15.8	15.8
Cycle Q Clear(g_c), s	0.0	15.9	8.8	9.1	0.0	21.9	8.5	16.5	16.5	4.5	15.8	15.8
Prop In Lane	0.00		1.00	1.00		0.23	1.00		0.37	1.00		0.08
Lane Grp Cap(c), veh/h	0	379	379	216	0	733	370	526	554	315	442	465
V/C Ratio(X)	0.00	0.88	0.74	0.87	0.00	0.72	0.63	0.67	0.67	0.39	0.73	0.73
Avail Cap(c_a), veh/h	0	431	431	257	0	913	380	581	612	315	487	513
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	35.1	16.1	35.9	0.0	23.3	22.2	27.4	27.4	23.1	30.7	30.7
Incr Delay (d2), s/veh	0.0	16.2	4.6	21.4	0.0	1.4	2.4	3.2	3.0	0.3	5.7	5.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	9.9	11.4	5.9	0.0	11.5	4.4	8.2	8.7	2.2	8.1	8.5
LnGrp Delay(d),s/veh	0.0	51.3	20.7	57.3	0.0	24.8	24.6	30.6	30.4	23.4	36.4	36.1
LnGrp LOS		D	C	E		C	C	C	C	C	D	D
Approach Vol, veh/h		615			719			962			787	
Approach Delay, s/veh		37.4			33.3			29.0			34.3	
Approach LOS		D			C			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6	7	8
Phs Duration (G+Y+Rc), s	17.5	30.6		42.7	13.0	35.1	19.2	23.5
Change Period (Y+Rc), s	7.0	7.0		* 7	7.0	7.0	7.0	5.0
Max Green Setting (Gmax), s	11.0	26.0		* 45	6.0	31.0	16.0	21.0
Max Q Clear Time (g_c+I1), s	10.5	17.8		23.9	6.5	18.5	11.1	17.9
Green Ext Time (p_c), s	0.0	5.8		2.4	0.0	8.1	1.2	0.6

Intersection Summary		
HCM 2010 Ctrl Delay		33.0
HCM 2010 LOS		C

Notes

Intersection	
Int Delay, s/veh	0.3

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	30	20	1550	1005	55
Future Vol, veh/h	0	30	20	1550	1005	55
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	99	99	99	99	99	99
Heavy Vehicles, %	6	6	6	6	6	6
Mvmt Flow	0	32	21	1660	1076	59

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	2808	1106	1135	0	-	0
Stage 1	1106	-	-	-	-	-
Stage 2	1702	-	-	-	-	-
Critical Hdwy	6.46	6.26	4.16	-	-	-
Critical Hdwy Stg 1	5.46	-	-	-	-	-
Critical Hdwy Stg 2	5.46	-	-	-	-	-
Follow-up Hdwy	3.554	3.354	2.254	-	-	-
Pot Cap-1 Maneuver	19	251	601	-	-	-
Stage 1	311	-	-	-	-	-
Stage 2	158	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	10	251	601	-	-	-
Mov Cap-2 Maneuver	10	-	-	-	-	-
Stage 1	311	-	-	-	-	-
Stage 2	87	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	21.4	0.1	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	601	-	251	-	-
HCM Lane V/C Ratio	0.036	-	0.128	-	-
HCM Control Delay (s)	11.2	0	21.4	-	-
HCM Lane LOS	B	A	C	-	-
HCM 95th %tile Q(veh)	0.1	-	0.4	-	-

Intersection	
Int Delay, s/veh	6.7

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	10	60	20	1210	1535	50
Future Vol, veh/h	10	60	20	1210	1535	50
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	6	6	6	6	6	6
Mvmt Flow	11	63	22	1350	1713	56

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	3136	1741	1769	0	-	0
Stage 1	1741	-	-	-	-	-
Stage 2	1395	-	-	-	-	-
Critical Hdwy	6	6	4.16	-	-	-
Critical Hdwy Stg 1	5.46	-	-	-	-	-
Critical Hdwy Stg 2	5.46	-	-	-	-	-
Follow-up Hdwy	2.3	2.3	2	-	-	-
Pot Cap-1 Maneuver	19	142	366	-	-	-
Stage 1	185	-	-	-	-	-
Stage 2	285	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	14	142	366	-	-	-
Mov Cap-2 Maneuver	14	-	-	-	-	-
Stage 1	185	-	-	-	-	-
Stage 2	217	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	286.7	0.3	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	366	-	62	-	-
HCM Lane V/C Ratio	0.061	-	1.188	-	-
HCM Control Delay (s)	15.5	0	286.7	-	-
HCM Lane LOS	C	A	F	-	-
HCM 95th %tile Q(veh)	0.2	-	6	-	-

Intersection	
Int Delay, s/veh	6.7

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	10	60	20	1210	1535	50
Future Vol, veh/h	10	60	20	1210	1535	50
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	6	6	6	6	6	6
Mvmt Flow	11	63	22	1350	1713	56

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	3136	1741	1769	0	-	0
Stage 1	1741	-	-	-	-	-
Stage 2	1395	-	-	-	-	-
Critical Hdwy	6	6	4.16	-	-	-
Critical Hdwy Stg 1	5.46	-	-	-	-	-
Critical Hdwy Stg 2	5.46	-	-	-	-	-
Follow-up Hdwy	2.3	2.3	2	-	-	-
Pot Cap-1 Maneuver	19	142	366	-	-	-
Stage 1	185	-	-	-	-	-
Stage 2	285	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	14	142	366	-	-	-
Mov Cap-2 Maneuver	14	-	-	-	-	-
Stage 1	185	-	-	-	-	-
Stage 2	217	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	286.7	0.3	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	366	-	62	-	-
HCM Lane V/C Ratio	0.061	-	1.188	-	-
HCM Control Delay (s)	15.5	0	286.7	-	-
HCM Lane LOS	C	A	F	-	-
HCM 95th %tile Q(veh)	0.2	-	6	-	-

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	50	30	125	960	350	280
Future Volume (veh/h)	50	30	125	960	350	280
Number	3	18	1	6	2	12
Initial Q (Qb), veh	0	0	0	10	5	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1810	1810	1810	1810	1810	1810
Adj Flow Rate, veh/h	58	35	145	1112	405	324
Adj No. of Lanes	1	1	1	1	1	1
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	5	5	5	5	5	5
Cap, veh/h	127	113	686	1309	580	624
Arrive On Green	0.07	0.07	0.30	0.71	0.31	0.31
Sat Flow, veh/h	1723	1538	1723	1810	1810	1538
Grp Volume(v), veh/h	58	35	145	1112	405	324
Grp Sat Flow(s),veh/h/ln	1723	1538	1723	1810	1810	1538
Q Serve(g_s), s	1.5	1.0	0.0	21.6	9.4	1.6
Cycle Q Clear(g_c), s	1.5	1.0	0.0	21.6	9.4	1.6
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	127	113	686	1309	580	624
V/C Ratio(X)	0.46	0.31	0.21	0.85	0.70	0.52
Avail Cap(c_a), veh/h	727	649	714	1909	1336	1251
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	21.7	21.4	12.1	5.3	14.4	4.6
Incr Delay (d2), s/veh	2.6	1.5	0.2	2.6	1.5	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	2.8	1.8	0.0
%ile BackOfQ(50%),veh/ln	0.8	0.5	1.4	13.9	5.6	2.8
LnGrp Delay(d),s/veh	24.2	23.0	12.3	10.7	17.8	5.3
LnGrp LOS	C	C	B	B	B	A
Approach Vol, veh/h	93			1257	729	
Approach Delay, s/veh	23.8			10.8	12.2	
Approach LOS	C			B	B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	19.1	19.8				38.9		8.5
Change Period (Y+Rc), s	5.0	5.0				5.0		5.0
Max Green Setting (Gmax), s	10.0	35.0				50.0		20.0
Max Q Clear Time (g_c+I1), s	2.0	11.4				23.6		3.5
Green Ext Time (p_c), s	5.0	3.4				10.3		0.2

Intersection Summary	
HCM 2010 Ctrl Delay	11.9
HCM 2010 LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	15	0	20	5	0	5	180	1100	0	0	350	60
Future Volume (veh/h)	15	0	20	5	0	5	180	1100	0	0	350	60
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1810	1810	1900	1900	1810	1900	1810	1810	1900	1900	1810	1900
Adj Flow Rate, veh/h	17	0	21	6	0	6	208	1274	0	0	405	69
Adj No. of Lanes	1	1	0	0	1	0	1	1	0	0	2	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	5	5	5	5	5	5	5	5	5	5	5	5
Cap, veh/h	179	0	60	107	0	18	261	1443	0	0	1660	281
Arrive On Green	0.04	0.00	0.04	0.04	0.00	0.04	0.15	0.80	0.00	0.00	0.56	0.56
Sat Flow, veh/h	1364	0	1538	472	0	472	1723	1810	0	0	3034	498
Grp Volume(v), veh/h	17	0	21	12	0	0	208	1274	0	0	235	239
Grp Sat Flow(s),veh/h/ln	1364	0	1538	945	0	0	1723	1810	0	0	1719	1722
Q Serve(g_s), s	0.0	0.0	0.8	0.5	0.0	0.0	7.1	29.4	0.0	0.0	4.2	4.3
Cycle Q Clear(g_c), s	0.6	0.0	0.8	1.3	0.0	0.0	7.1	29.4	0.0	0.0	4.2	4.3
Prop In Lane	1.00		1.00	0.50		0.50	1.00		0.00	0.00		0.29
Lane Grp Cap(c), veh/h	179	0	60	125	0	0	261	1443	0	0	970	971
V/C Ratio(X)	0.10	0.00	0.35	0.10	0.00	0.00	0.80	0.88	0.00	0.00	0.24	0.25
Avail Cap(c_a), veh/h	573	0	504	540	0	0	565	1778	0	0	986	987
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	28.5	0.0	28.6	29.2	0.0	0.0	25.0	4.2	0.0	0.0	6.7	6.7
Incr Delay (d2), s/veh	0.2	0.0	3.5	0.3	0.0	0.0	5.6	4.8	0.0	0.0	0.1	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	0.0	0.4	0.2	0.0	0.0	3.8	15.7	0.0	0.0	2.0	2.0
LnGrp Delay(d),s/veh	28.7	0.0	32.1	29.6	0.0	0.0	30.6	9.0	0.0	0.0	6.8	6.9
LnGrp LOS	C		C	C			C	A			A	A
Approach Vol, veh/h		38			12			1482			474	
Approach Delay, s/veh		30.6			29.6			12.1			6.9	
Approach LOS		C			C			B			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4		6		8
Phs Duration (G+Y+Rc), s		7.4	14.2	39.4		7.4		53.7
Change Period (Y+Rc), s		5.0	5.0	5.0		5.0		5.0
Max Green Setting (Gmax), s		20.0	20.0	35.0		20.0		60.0
Max Q Clear Time (g_c+I1), s		2.8	9.1	6.3		3.3		31.4
Green Ext Time (p_c), s		0.1	0.4	17.3		0.1		17.2

Intersection Summary	
HCM 2010 Ctrl Delay	11.3
HCM 2010 LOS	B

Intersection	
Int Delay, s/veh	1.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	10	0	5	5	5	5	15	930	15	5	770	40
Future Vol, veh/h	10	0	5	5	5	5	15	930	15	5	770	40
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	-	-	-	-	-	-	100	-	-	100	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	5	5	5	5	5	5	5	5	5	5	5	5
Mvmt Flow	11	0	5	5	5	5	17	1077	17	6	892	46

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	2052	2055	915	2049	2069	1086	938	0	0	1094	0	0
Stage 1	926	926	-	1120	1120	-	-	-	-	-	-	-
Stage 2	1126	1129	-	929	949	-	-	-	-	-	-	-
Critical Hdwy	7.15	6.55	6.25	7.15	6.55	6.25	4.15	-	-	4.15	-	-
Critical Hdwy Stg 1	6.15	5.55	-	6.15	5.55	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.15	5.55	-	6.15	5.55	-	-	-	-	-	-	-
Follow-up Hdwy	2	2	2	2	2	2	2.245	-	-	2.245	-	-
Pot Cap-1 Maneuver	51	72	469	52	70	364	718	-	-	627	-	-
Stage 1	473	552	-	357	430	-	-	-	-	-	-	-
Stage 2	354	425	-	471	536	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	46	70	469	50	68	364	718	-	-	627	-	-
Mov Cap-2 Maneuver	46	70	-	50	68	-	-	-	-	-	-	-
Stage 1	462	547	-	349	420	-	-	-	-	-	-	-
Stage 2	336	415	-	461	531	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	75.9	60.7	0.2	0.1
HCM LOS	F	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	718	-	-	66	80	627	-	-
HCM Lane V/C Ratio	0.024	-	-	0.239	0.197	0.009	-	-
HCM Control Delay (s)	10.1	-	-	75.9	60.7	10.8	-	-
HCM Lane LOS	B	-	-	F	F	B	-	-
HCM 95th %tile Q(veh)	0.1	-	-	0.8	0.7	0	-	-

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	130	275	20	495	905	70
Future Volume (veh/h)	130	275	20	495	905	70
Number	3	18	1	6	2	12
Initial Q (Qb), veh	0	0	0	0	5	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1810	1810	1810	1810	1810	1810
Adj Flow Rate, veh/h	137	318	23	573	1048	81
Adj No. of Lanes	1	1	1	1	1	1
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	5	5	5	5	5	5
Cap, veh/h	349	395	139	1225	1062	1411
Arrive On Green	0.19	0.19	0.03	0.68	0.59	0.59
Sat Flow, veh/h	1810	1810	1810	1810	1810	1810
Grp Volume(v), veh/h	137	318	23	573	1048	81
Grp Sat Flow(s),veh/h/ln	1810	1810	1810	1810	1810	1810
Q Serve(g_s), s	5.1	12.8	0.4	11.5	43.7	0.8
Cycle Q Clear(g_c), s	5.1	12.8	0.4	11.5	43.7	0.8
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	349	395	139	1225	1062	1411
V/C Ratio(X)	0.39	0.80	0.17	0.47	0.99	0.06
Avail Cap(c_a), veh/h	354	399	221	1296	1061	1410
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	27.1	28.5	19.5	5.9	15.9	2.0
Incr Delay (d2), s/veh	0.7	11.3	0.6	0.3	24.4	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	11.2	0.0
%ile BackOfQ(50%),veh/ln	2.6	7.6	0.3	5.7	32.6	0.4
LnGrp Delay(d),s/veh	27.8	39.9	20.1	6.2	51.5	2.0
LnGrp LOS	C	D	C	A	D	A
Approach Vol, veh/h	455			596	1129	
Approach Delay, s/veh	36.2			6.7	47.9	
Approach LOS	D			A	D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	6.9	50.0				56.9		19.8
Change Period (Y+Rc), s	5.0	5.0				5.0		5.0
Max Green Setting (Gmax), s	5.0	45.0				55.0		15.0
Max Q Clear Time (g_c+I1), s	2.4	45.7				13.5		14.8
Green Ext Time (p_c), s	0.0	0.0				17.8		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	34.2
HCM 2010 LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	20	0	140	5	0	5	20	475	15	10	1105	20
Future Volume (veh/h)	20	0	140	5	0	5	20	475	15	10	1105	20
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1810	1810	1900	1810	1900	1810	1810	1900	1900	1810	1900
Adj Flow Rate, veh/h	21	0	162	6	0	6	23	550	17	12	1279	21
Adj No. of Lanes	0	1	1	0	1	0	1	1	0	0	2	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	5	5	5	5	5	5	5	5	5	5	5	5
Cap, veh/h	360	0	225	182	33	104	300	1177	36	80	1828	30
Arrive On Green	0.12	0.00	0.12	0.12	0.00	0.12	0.03	0.67	0.67	0.54	0.54	0.54
Sat Flow, veh/h	1709	0	1810	575	262	837	1810	1755	54	9	3384	55
Grp Volume(v), veh/h	21	0	162	12	0	0	23	0	567	686	0	626
Grp Sat Flow(s),veh/h/ln	1709	0	1810	1674	0	0	1810	0	1810	1802	0	1647
Q Serve(g_s), s	0.2	0.0	4.2	0.0	0.0	0.0	0.0	0.0	7.3	0.0	0.0	13.7
Cycle Q Clear(g_c), s	0.5	0.0	4.2	0.3	0.0	0.0	0.0	0.0	7.3	13.7	0.0	13.7
Prop In Lane	1.00		1.00	0.50		0.50	1.00		0.03	0.02		0.03
Lane Grp Cap(c), veh/h	360	0	225	319	0	0	300	0	1213	1049	0	890
V/C Ratio(X)	0.06	0.00	0.72	0.04	0.00	0.00	0.08	0.00	0.47	0.65	0.00	0.70
Avail Cap(c_a), veh/h	621	0	502	567	0	0	474	0	1914	1587	0	1386
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	18.9	0.0	20.5	18.8	0.0	0.0	14.6	0.0	3.9	8.3	0.0	8.3
Incr Delay (d2), s/veh	0.1	0.0	4.3	0.0	0.0	0.0	0.1	0.0	0.3	0.7	0.0	1.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	0.0	2.4	0.1	0.0	0.0	0.3	0.0	3.6	6.9	0.0	6.3
LnGrp Delay(d),s/veh	19.0	0.0	24.8	18.8	0.0	0.0	14.7	0.0	4.1	9.0	0.0	9.3
LnGrp LOS	B		C	B			B		A	A		A
Approach Vol, veh/h		183			12			590			1312	
Approach Delay, s/veh		24.1			18.8			4.5			9.2	
Approach LOS		C			B			A			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4		6		8
Phs Duration (G+Y+Rc), s		11.1	6.3	31.3		11.1		37.6
Change Period (Y+Rc), s		5.0	5.0	* 5		5.0		5.0
Max Green Setting (Gmax), s		13.5	6.0	* 41		13.5		51.5
Max Q Clear Time (g_c+I1), s		6.2	2.0	15.7		2.3		9.3
Green Ext Time (p_c), s		0.3	1.4	10.6		0.4		4.4

Intersection Summary	
HCM 2010 Ctrl Delay	9.2
HCM 2010 LOS	A

Notes

Intersection	
Int Delay, s/veh	1.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	30	0	20	5	5	30	5	920	10	15	905	15
Future Vol, veh/h	30	0	20	5	5	30	5	920	10	15	905	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	-	-	-	-	-	-	100	-	-	100	-	-
Veh in Median Storage, #	-	2	-	-	2	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	0	0	0	0	0	0	5	5	5	5	5	5
Mvmt Flow	32	0	21	5	5	32	6	1065	12	17	1048	17

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	2192	2179	1057	2185	2183	1071	1065	0	0	1077	0	0
Stage 1	1091	1091	-	1083	1083	-	-	-	-	-	-	-
Stage 2	1101	1088	-	1102	1100	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.15	-	-	4.15	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.245	-	-	2.245	-	-
Pot Cap-1 Maneuver	33	47	276	33	47	271	643	-	-	636	-	-
Stage 1	263	293	-	265	296	-	-	-	-	-	-	-
Stage 2	259	294	-	259	290	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	~ 28	45	276	30	45	271	643	-	-	636	-	-
Mov Cap-2 Maneuver	154	191	-	163	194	-	-	-	-	-	-	-
Stage 1	261	285	-	263	293	-	-	-	-	-	-	-
Stage 2	223	291	-	233	282	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	31.6	23.3	0.1	0.2
HCM LOS	D	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	643	-	-	187	239	636	-	-
HCM Lane V/C Ratio	0.009	-	-	0.281	0.176	0.027	-	-
HCM Control Delay (s)	10.7	-	-	31.6	23.3	10.8	-	-
HCM Lane LOS	B	-	-	D	C	B	-	-
HCM 95th %tile Q(veh)	0	-	-	1.1	0.6	0.1	-	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection	
Int Delay, s/veh	9.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	20	0	140	5	0	5	20	475	15	10	1105	20
Future Vol, veh/h	20	0	140	5	0	5	20	475	15	10	1105	20
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	-	-	200	-	-	-	200	-	-	-	-	150
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	5	5	5	5	5	5	5	5	5	5	5	5
Mvmt Flow	23	0	162	6	0	6	23	550	17	12	1279	23

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1911	1917	1279	1908	1908	559	1279	0	0	567	0	0
Stage 1	1303	1303	-	605	605	-	-	-	-	-	-	-
Stage 2	608	614	-	1303	1303	-	-	-	-	-	-	-
Critical Hdwy	7.15	6.55	6.25	7.15	6.55	6.25	4.15	-	-	4.15	-	-
Critical Hdwy Stg 1	6.15	5.55	-	6.15	5.55	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.15	5.55	-	6.15	5.55	-	-	-	-	-	-	-
Follow-up Hdwy	3.545	4.045	3.345	3.545	4.045	3.345	2.245	-	-	2.245	-	-
Pot Cap-1 Maneuver	51	66	200	51	67	523	533	-	-	990	-	-
Stage 1	195	227	-	479	483	-	-	-	-	-	-	-
Stage 2	478	478	-	195	227	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	47	60	200	9	61	523	533	-	-	990	-	-
Mov Cap-2 Maneuver	47	60	-	9	61	-	-	-	-	-	-	-
Stage 1	187	217	-	458	462	-	-	-	-	-	-	-
Stage 2	452	457	-	35	217	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	80.5	$ 378.4	0.5	0.1
HCM LOS	F	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	533	-	-	47	200	18	990	-	-
HCM Lane V/C Ratio	0.043	-	-	0.493	0.811	0.643	0.012	-	-
HCM Control Delay (s)	12.1	-	-	140.7	71.9	$ 378.4	8.7	0	-
HCM Lane LOS	B	-	-	F	F	F	A	A	-
HCM 95th %tile Q(veh)	0.1	-	-	1.8	5.8	1.7	0	-	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Level of Service (LOS) Analysis
2040 Roundabout Alternatives

MOVEMENT SUMMARY

Site: 101 [Randolph AM]

New Site
Roundabout

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: Route 138 NB											
3	L2	219	5.0	0.520	11.3	LOS B	3.0	77.3	0.65	0.66	30.6
8	T1	583	5.0	0.520	10.9	LOS B	3.0	77.3	0.63	0.64	31.4
18	R2	125	5.0	0.520	10.6	LOS B	2.9	76.2	0.63	0.63	31.1
Approach		927	5.0	0.520	10.9	LOS B	3.0	77.3	0.64	0.65	31.2
East: Randolph St WB											
1	L2	188	2.0	0.312	10.2	LOS B	1.2	31.3	0.66	0.67	30.1
6	T1	380	2.0	0.729	22.1	LOS C	5.2	132.6	0.84	1.00	27.5
16	R2	109	2.0	0.729	22.1	LOS C	5.2	132.6	0.84	1.00	26.9
Approach		677	2.0	0.729	18.8	LOS C	5.2	132.6	0.79	0.91	28.1
North: Route 138 SB											
7	L2	115	5.0	0.565	16.1	LOS C	3.0	78.5	0.75	0.84	29.0
4	T1	594	5.0	0.565	15.3	LOS C	3.0	78.7	0.74	0.83	29.7
14	R2	21	5.0	0.565	14.8	LOS B	3.0	78.7	0.74	0.82	29.4
Approach		729	5.0	0.565	15.4	LOS C	3.0	78.7	0.74	0.83	29.6
West: Randolph St											
5	L2	16	2.0	0.502	13.7	LOS B	2.5	63.0	0.73	0.80	30.6
2	T1	306	0.0	0.502	13.7	LOS B	2.5	63.0	0.73	0.80	30.6
12	R2	260	2.0	0.374	10.1	LOS B	1.6	40.7	0.66	0.69	31.5
Approach		582	0.9	0.502	12.1	LOS B	2.5	63.0	0.70	0.75	31.0
All Vehicles		2916	3.5	0.729	14.1	LOS B	5.2	132.6	0.71	0.77	30.0

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).
Roundabout Capacity Model: US HCM 6.
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.
Gap-Acceptance Capacity: Traditional M1.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [Randolph PM Roundabout]

New Site
Roundabout

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: Route 138 NB											
3	L2	219	5.0	1.045	78.8	LOS F	22.0	573.2	1.00	1.95	16.1
8	T1	719	5.0	1.045	77.0	LOS F	23.4	609.7	1.00	1.96	16.4
18	R2	255	5.0	1.045	75.3	LOS F	23.4	609.7	1.00	1.98	16.4
Approach		1193	5.0	1.045	77.0	LOS F	23.4	609.7	1.00	1.96	16.4
East: Randolph St WB											
1	L2	125	2.0	0.300	13.8	LOS B	1.3	32.8	0.76	0.77	28.8
6	T1	266	2.0	0.790	34.8	LOS D	5.6	142.9	0.92	1.09	23.8
16	R2	104	2.0	0.790	34.8	LOS D	5.6	142.9	0.92	1.09	23.3
Approach		495	2.0	0.790	29.5	LOS D	5.6	142.9	0.88	1.01	24.8
North: Route 138 SB											
7	L2	354	5.0	0.714	21.4	LOS C	5.4	140.4	0.86	0.99	26.6
4	T1	615	5.0	0.714	20.2	LOS C	5.4	141.6	0.86	0.97	27.9
14	R2	21	5.0	0.714	19.9	LOS C	5.4	141.6	0.85	0.97	27.6
Approach		990	5.0	0.714	20.6	LOS C	5.4	141.6	0.86	0.98	27.4
West: Randolph St											
5	L2	16	2.0	1.156	126.4	LOS F	28.3	718.2	1.00	2.36	12.2
2	T1	443	2.0	1.156	126.4	LOS F	28.3	718.2	1.00	2.36	12.2
12	R2	141	2.0	0.228	8.7	LOS A	1.0	24.3	0.67	0.67	32.1
Approach		599	2.0	1.156	98.7	LOS F	28.3	718.2	0.92	1.97	14.2
All Vehicles		3276	4.0	1.156	56.8	LOS F	28.3	718.2	0.92	1.52	19.2

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).
Roundabout Capacity Model: US HCM 6.
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.
Gap-Acceptance Capacity: Traditional M1.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [Randolph AM Roundabout - 2040]

New Site
Roundabout

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: Route 138 NB											
3	L2	232	5.0	0.617	15.1	LOS C	4.4	113.7	0.78	0.85	29.1
8	T1	618	5.0	0.617	14.5	LOS B	4.4	113.9	0.78	0.83	29.9
18	R2	133	5.0	0.617	14.2	LOS B	4.4	113.9	0.77	0.82	29.6
Approach		983	5.0	0.617	14.6	LOS B	4.4	113.9	0.78	0.84	29.7
East: Randolph St WB											
1	L2	199	2.0	0.421	15.2	LOS C	2.0	50.6	0.77	0.81	28.3
6	T1	403	2.0	0.981	62.4	LOS F	14.0	356.5	1.00	1.59	18.5
16	R2	116	2.0	0.981	62.4	LOS F	14.0	356.5	1.00	1.59	18.2
Approach		718	2.0	0.981	49.3	LOS E	14.0	356.5	0.94	1.37	20.4
North: Route 138 SB											
7	L2	121	5.0	0.744	29.4	LOS D	5.0	130.3	0.88	1.04	24.8
4	T1	629	5.0	0.744	27.9	LOS D	5.1	132.6	0.88	1.03	25.5
14	R2	22	5.0	0.744	26.9	LOS D	5.1	132.6	0.88	1.03	25.4
Approach		773	5.0	0.744	28.1	LOS D	5.1	132.6	0.88	1.03	25.4
West: Randolph St											
5	L2	17	2.0	0.696	26.0	LOS D	4.4	109.2	0.87	1.00	26.2
2	T1	325	0.0	0.696	26.0	LOS D	4.4	109.2	0.87	1.00	26.3
12	R2	276	2.0	0.493	15.0	LOS B	2.6	64.9	0.78	0.84	29.4
Approach		617	0.9	0.696	21.0	LOS C	4.4	109.2	0.83	0.92	27.6
All Vehicles		3091	3.5	0.981	27.3	LOS D	14.0	356.5	0.85	1.03	25.5

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).
Roundabout Capacity Model: US HCM 6.
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.
Gap-Acceptance Capacity: Traditional M1.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [Randolph PM Roundabout - 2040]

New Site
Roundabout

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: Route 138 NB											
3	L2	232	5.0	1.073	86.2	LOS F	26.5	689.9	1.00	2.14	15.3
8	T1	762	5.0	1.073	84.5	LOS F	28.4	738.5	1.00	2.17	15.6
18	R2	271	5.0	1.073	82.9	LOS F	28.4	738.5	1.00	2.19	15.5
Approach		1264	5.0	1.073	84.4	LOS F	28.4	738.5	1.00	2.17	15.5
East: Randolph St WB											
1	L2	133	2.0	0.331	15.0	LOS C	1.4	36.8	0.78	0.79	28.4
6	T1	282	2.0	0.868	45.8	LOS E	7.2	182.2	0.95	1.20	21.3
16	R2	110	2.0	0.868	45.8	LOS E	7.2	182.2	0.95	1.20	20.9
Approach		524	2.0	0.868	38.1	LOS E	7.2	182.2	0.91	1.10	22.7
North: Route 138 SB											
7	L2	375	5.0	0.785	27.1	LOS D	6.7	174.2	0.91	1.09	25.0
4	T1	651	5.0	0.785	25.5	LOS D	6.8	176.4	0.91	1.08	26.2
14	R2	22	5.0	0.785	25.2	LOS D	6.8	176.4	0.91	1.08	25.9
Approach		1049	5.0	0.785	26.1	LOS D	6.8	176.4	0.91	1.08	25.7
West: Randolph St											
5	L2	17	2.0	1.359	208.5	LOS F	48.3	1227.2	1.00	3.15	8.4
2	T1	469	2.0	1.359	208.5	LOS F	48.3	1227.2	1.00	3.15	8.4
12	R2	149	2.0	0.257	9.6	LOS A	1.1	27.7	0.70	0.70	31.7
Approach		635	2.0	1.359	161.8	LOS F	48.3	1227.2	0.93	2.57	10.2
All Vehicles		3473	4.0	1.359	74.0	LOS F	48.3	1227.2	0.95	1.75	16.7

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).
Roundabout Capacity Model: US HCM 6.
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.
Gap-Acceptance Capacity: Traditional M1.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 1 [Route 138 at Washington Street AM]

Route 138/Washington AM

Roundabout

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: Route 138											
3	L2	5	0.0	0.990	70.5	LOS F	13.7	355.2	0.99	1.59	17.4
8	T1	879	5.0	0.990	70.5	LOS F	13.7	355.2	0.99	1.59	17.3
18	R2	5	0.0	0.990	70.5	LOS F	13.7	355.2	0.99	1.59	17.1
Approach		889	4.9	0.990	70.5	LOS F	13.7	355.2	0.99	1.59	17.3
East: Driveway											
1	L2	5	0.0	0.057	14.6	LOS B	0.2	3.9	0.78	0.78	29.7
6	T1	5	0.0	0.057	14.6	LOS B	0.2	3.9	0.78	0.78	29.7
16	R2	5	0.0	0.057	14.6	LOS B	0.2	3.9	0.78	0.78	29.1
Approach		15	0.0	0.057	14.6	LOS B	0.2	3.9	0.78	0.78	29.5
North: Route 138											
7	L2	10	0.0	0.667	13.4	LOS B	6.5	170.2	0.20	0.06	30.8
4	T1	687	5.0	0.667	13.4	LOS B	6.5	170.2	0.20	0.06	30.7
14	R2	343	5.0	0.327	6.7	LOS A	1.8	45.7	0.09	0.02	32.9
Approach		1040	5.0	0.667	11.2	LOS B	6.5	170.2	0.17	0.05	31.4
West: Washington St											
5	L2	692	5.0	0.591	17.3	LOS C	2.7	69.1	0.67	0.73	27.6
2	T1	10	0.0	0.591	17.0	LOS C	2.6	66.8	0.66	0.72	27.8
12	R2	5	0.0	0.591	17.0	LOS C	2.6	66.8	0.66	0.72	27.2
Approach		707	4.9	0.591	17.3	LOS C	2.7	69.1	0.67	0.73	27.6
All Vehicles		2652	4.9	0.990	32.7	LOS D	13.7	355.2	0.58	0.75	24.0

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).
Roundabout Capacity Model: US HCM 2010.
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.
Gap-Acceptance Capacity: Traditional M1.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 1 [Route 138 at Washington Street PM]

Route 138/Washington AM

Roundabout

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: Route 138											
3	L2	36	0.0	0.725	24.5	LOS C	5.4	139.1	0.85	0.97	26.6
8	T1	794	5.0	0.725	24.6	LOS C	5.4	139.1	0.85	0.96	26.6
18	R2	5	0.0	0.725	24.6	LOS C	5.3	138.7	0.85	0.96	26.1
Approach		835	4.8	0.725	24.6	LOS C	5.4	139.1	0.85	0.96	26.6
East: Driveway											
1	L2	5	0.0	0.117	12.2	LOS B	0.3	8.4	0.72	0.72	31.1
6	T1	5	0.0	0.117	12.2	LOS B	0.3	8.4	0.72	0.72	31.1
16	R2	31	0.0	0.117	12.2	LOS B	0.3	8.4	0.72	0.72	30.4
Approach		41	0.0	0.117	12.2	LOS B	0.3	8.4	0.72	0.72	30.6
North: Route 138											
7	L2	36	0.0	0.947	37.3	LOS E	23.4	607.5	1.00	0.47	23.2
4	T1	918	5.0	0.947	37.3	LOS E	23.4	607.5	1.00	0.47	23.2
14	R2	644	5.0	0.638	12.8	LOS B	5.9	152.4	0.35	0.15	30.1
Approach		1598	4.9	0.947	27.4	LOS D	23.4	607.5	0.73	0.34	25.5
West: Washington St											
5	L2	448	5.0	0.763	43.3	LOS E	3.8	98.4	0.90	0.99	21.1
2	T1	10	0.0	0.763	42.2	LOS E	3.8	97.4	0.89	0.98	21.5
12	R2	36	0.0	0.763	42.2	LOS E	3.8	97.4	0.89	0.98	21.1
Approach		495	4.5	0.763	43.2	LOS E	3.8	98.4	0.90	0.99	21.1
All Vehicles		2969	4.7	0.947	29.0	LOS D	23.4	607.5	0.79	0.63	25.0

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).
Roundabout Capacity Model: US HCM 2010.
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.
Gap-Acceptance Capacity: Traditional M1.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 1 [Route 138 at Washington Street AM - 2040]

Route 138/Washington AM

Roundabout

Movement Performance - Vehicles												
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: Route 138											
3	L2	5	0.0	1.119	111.1	LOS F	26.0	676.3	1.00	2.22	13.2
8	T1	932	5.0	1.119	111.1	LOS F	26.0	676.3	1.00	2.22	13.2
18	R2	5	0.0	1.119	111.1	LOS F	26.0	676.3	1.00	2.22	13.1
Approach		942	4.9	1.119	111.1	LOS F	26.0	676.3	1.00	2.22	13.2
East: Driveway											
1	L2	5	0.0	0.059	14.5	LOS B	0.2	4.0	0.77	0.77	29.8
6	T1	5	0.0	0.059	14.5	LOS B	0.2	4.0	0.77	0.77	29.7
16	R2	5	0.0	0.059	14.5	LOS B	0.2	4.0	0.77	0.77	29.1
Approach		16	0.0	0.059	14.5	LOS B	0.2	4.0	0.77	0.77	29.6
North: Route 138											
7	L2	11	0.0	0.708	14.9	LOS B	7.7	200.8	0.23	0.07	30.2
4	T1	728	5.0	0.708	14.9	LOS B	7.7	200.8	0.23	0.07	30.1
14	R2	364	5.0	0.347	7.0	LOS A	1.9	49.4	0.09	0.02	32.7
Approach		1103	5.0	0.708	12.3	LOS B	7.7	200.8	0.18	0.05	30.9
West: Washington St											
5	L2	733	5.0	0.654	20.7	LOS C	3.2	82.5	0.71	0.79	26.5
2	T1	11	0.0	0.654	20.3	LOS C	3.1	80.0	0.70	0.78	26.7
12	R2	5	0.0	0.654	20.3	LOS C	3.1	80.0	0.70	0.78	26.2
Approach		749	4.9	0.654	20.7	LOS C	3.2	82.5	0.71	0.79	26.5
All Vehicles		2811	4.9	1.119	47.6	LOS E	26.0	676.3	0.60	0.98	20.7

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).
Roundabout Capacity Model: US HCM 2010.
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.
Gap-Acceptance Capacity: Traditional M1.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 1 [Route 138 at Washington Street PM - 2040]

Route 138/Washington AM

Roundabout

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: Route 138											
3	L2	38	0.0	0.802	31.8	LOS D	6.8	175.8	0.91	1.08	24.5
8	T1	841	5.0	0.802	31.9	LOS D	6.8	175.8	0.91	1.08	24.5
18	R2	5	0.0	0.802	31.9	LOS D	6.7	175.3	0.91	1.08	24.1
Approach		885	4.8	0.802	31.9	LOS D	6.8	175.8	0.91	1.08	24.5
East: Driveway											
1	L2	5	0.0	0.136	13.7	LOS B	0.4	9.8	0.75	0.75	30.5
6	T1	5	0.0	0.136	13.7	LOS B	0.4	9.8	0.75	0.75	30.4
16	R2	33	0.0	0.136	13.7	LOS B	0.4	9.8	0.75	0.75	29.8
Approach		44	0.0	0.136	13.7	LOS B	0.4	9.8	0.75	0.75	30.0
North: Route 138											
7	L2	38	0.0	1.008	50.9	LOS F	76.2	1979.2	1.00	0.57	20.4
4	T1	973	5.0	1.008	50.9	LOS F	76.2	1979.2	1.00	0.57	20.4
14	R2	683	5.0	0.679	14.2	LOS B	6.9	178.2	0.39	0.18	29.6
Approach		1694	4.9	1.008	36.1	LOS E	76.2	1979.2	0.76	0.41	23.2
West: Washington St											
5	L2	475	5.0	0.873	62.3	LOS F	4.9	128.1	0.94	1.10	18.0
2	T1	11	0.0	0.873	60.9	LOS F	4.9	127.0	0.94	1.10	18.3
12	R2	38	0.0	0.873	60.9	LOS F	4.9	127.0	0.94	1.10	18.0
Approach		525	4.5	0.873	62.2	LOS F	4.9	128.1	0.94	1.10	18.0
All Vehicles		3147	4.7	1.008	38.9	LOS E	76.2	1979.2	0.83	0.72	22.5

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).
Roundabout Capacity Model: US HCM 2010.
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.
Gap-Acceptance Capacity: Traditional M1.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Warrants Summary

Information

Analyst	Seth Asante	Intersection	Route 138 at New Boston Drive
Agency/Co	CTPS	Jurisdiction	MassDOT Highway District 4
Date Performed	8/31/2017	Units	U.S. Customary
Project ID	Route 138 Corridor Study	Time Period Analyzed	
East/West Street	New Boston Drive	North/South Street	Route 138
File Name	New Boston Drive	Major Street	East-West

Project Description *Route 138 Corridor Study*

General				Roadway Network	
Major Street Speed (mph)	45	☐	Population < 10,000	Two Major Routes	☐
Nearest Signal (ft)	3200	☐	Coordinated Signal System	Weekend Count	☐
Crashes (per year)	16	☐	Adequate Trials of Alternatives	5-yr Growth Factor	1

Geometry and Traffic	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of lanes, N	0	1	0	0	1	0	0	1	0	0	1	0
Lane usage		LTR			LTR			LTR			LTR	
Vehicle Volume Averages (vph)	0	79	0	0	0	0	0	773	0	0	724	0
Peds (ped/h) / Gaps (gaps/h)	--	0 / 0	--	--	0 / 0	--	--	0 / 0	--	--	0 / 0	--
Delay (s/veh) / (veh-hr)	--	12.2 / 0.2	--	--	10.2 / 0	--	--	0.3 / 0.1	--	--	0 / 0	--

Warrant 1: Eight-Hour Vehicular Volume	☐
1 A. Minimum Vehicular Volumes (Both major approaches --and-- higher minor approach) --or--	☐
1 B. Interruption of Continuous Traffic (Both major approaches --and-- higher minor approach) --or--	☐
1 (56%) Vehicular --and-- Interruption Volumes (Both major approaches --and-- higher minor approach)	☐
Warrant 2: Four-Hour Vehicular Volume	☑
2 A. Four-Hour Vehicular Volumes (Both major approaches --and-- higher minor approach)	☑
Warrant 3: Peak Hour	☑
3 A. Peak-Hour Conditions (Minor delay --and-- minor volume --and-- total volume) --or--	☐
3 B. Peak- Hour Vehicular Volumes (Both major approaches --and-- higher minor approach)	☑
Warrant 4: Pedestrian Volume	☐
4 A. Four Hour Volumes --or--	☐
4 B. One-Hour Volumes	☐
Warrant 5: School Crossing	☐
5. Student Volumes --and--	☐
5. Gaps Same Period	☐
Warrant 6: Coordinated Signal System	☐
6. Degree of Platooning (Predominant direction or both directions)	☐
Warrant 7: Crash Experience	☐
7 A. Adequate trials of alternatives, observance and enforcement failed --and--	☐
7 B. Reported crashes susceptible to correction by signal (12-month period) --and--	☑

7 C. (56%) Volumes for Warrants 1A, 1B --or-- 4 are satisfied	☐
Warrant 8: Roadway Network	☐
8 A. Weekday Volume (Peak hour total --and-- projected warrants 1, 2 or 3) --or--	☐
8 B. Weekend Volume (Five hours total)	☐
Warrant 9: Grade Crossing	☐
9 A. Grade Crossing within 140 ft --and--	☐
9 B. Peak-Hour Vehicular Volumes	☐

 HCS7™ Warrants Version 7.3 Generated: 11/7/2017 3:23 PM

APPENDIX G

Survey Comments

Route 138 Survey: Responses to Question 8

Question 8. Please use the space provided below to describe specific problem locations and improvements you would like to see implemented in the Route 138 corridor.

Index	Comment
1	Wider road for less congestion and bike lanes
2	Widen and add left turn lanes
3	Left turns create a high risk of crashes. This would be my top area of priority.
4	Turnpike st seems to back up from Randolph St routinely since the intersection was reconfigured and this was never a problem before. Consider making the left turn light to Randolph longer and lengthening it's left turn only lane over the crest of the hill at Ponkapoag Grange. Also there a 3 large apartment complexes just off 138 that school buses pick up large numbers of students. The buses stop on 138 which obviously stops the flow of traffic. Consider asking the bus company to pull into these developments to pick up and drop off the students so traffic can continue to flow.
5	The fact that 138 drops to 1 lane between Washington street and 93 makes very little logistical sense. It seems as though leaving it 2 lanes each way would rectify so many traffic issues that we have right there. It causes problems every morning and evening.
6	Pulling out or into Ponkapoag Way. It's death trap trying to cross traffic to get in or out of Ponkapoag Way.
7	Randolph St light is a mistimed mess with long wait times in the evening heading towards Stoughton and left turns from Randolph St heading toward Milton being far too dangerous.
8	Reduce the congestion. If you can increase the number of lanes
9	Way people walking to jobs or grocery store on 138 and there are not any sidewalks.
10	For some reason rather than use 138, semis use Washington Street in canton. Please make 138 more friendly to through trucking in order to keep them off Washington Street where people actually do want to walk and feel safe.
11	The light and lane redesign at the Randolph St/138 intersection is a major problem. It had resulted in more traffic backup because of the left turn only lane. Furthermore, Avalon Nlur Hillls had created much more traffic volume. Cars from the development drive 138 or cut down Farm St. Traffic backup on 138 during rush hour (which seems to be around 3:00 pm) has seemed to encourage people cutting through Farm Street in the wrong direction. It is a one way.
12	Better turning lanes
13	I drive from the old ice rink up to big new gas station on 138. Three times per week. The traffic is the very worst from the rink all the way up to the lights at Randolph street. It's a crawl or a stand still every time! Travel time is 4:30-5:30pm the worst. I do not know of other times having issues.
14	Very difficult for residents taking left out of side streets across traffic there needs to be a second lane between 93 and Washington St The new traffic pattern at Randolph St backs traffic back to Washington St on a regular basis
15	I think there should be two lanes coming into from 93 towards washington and a dedicated 3rd lane to take a right on Washington St. Sidewalks and bike lanes connecting washington st with the blue hills ski area would be ideal. If feasible it might make sense to have a lane that is shared bewteen both sides of 138. In the morning there would be two lanes going towards 93 and vice versa in the evening.
16	Access to Ponkapoag golf course / pond ... the traffic in and out of there is awful (light coming out particularly) ... also from 138 taking a left onto Washington street is death defying ... would like to be able to walk to Ponkapoag golf course from across 138 - currently it is unsafe
17	I am completely opposed to an East-West road cutting through established residential neighborhoods.
18	Turning left on to 138 during how's when the left turn is allowed is dangerous. Drivers speed up instead of seeing down at the blinking light. At the very least an updated larger yellow light might help.
19	The Bradley Estate, 2468 Washington Street (owned by The Trustees of Reservations) is being activated and will see a marked increase in visitorship soon. It is nearly impossible to turn left, and very difficult to turn right, out of the Estate driveway due to high traffic coming off of I-93. We are worried for the safety of our guests & staff.
20	When coming down 138 and turn onto Ponkapoag Way traffic behind me do not slow down and I feel that they are going to run into m
21	I would like to see more conections to other parts of canton such as Dan Rd being a through way. Also we need two lanes to lull traffic congestion. I am also a home owner on this rd for what it is worth.
22	Most of 138 needs widening. An extra lane especially northbound would make a huge difference. Too much traffic and major issues with intersections and merging lanes together.
23	I feel fixing the congestion issues between Randolph and 93 are a far bigger priority than thinking about pedestrian access and bike lanes. It would short sighted to design bike and pedestrian solutions between Randolph and 93 since that section of road does not have a need (e.g. local businesses, scenery) that warrant bike/foot traffic.
24	Site line approaching Randolph St north & southbound
25	The traffic merge at Washington street can be quite frustrating.
26	Center turn lane similar to those in Stoughton. Allowing vehicles a place to turn without impeding traffic.
27	In morning at the intersection of 138 and Randolph St, cars heading north block the intersection so I can't go straight through to continue on Randolph
28	Ever since they reconfigured the 138/Randolph St intersection traffic is a nightmare traveling south on 138 Traffic back up as far back as the 128 off ramp some nights
29	The speed of cars from I-93 to greenlodge st to wash st is too fast!!! It's a race way. Hard to get out of greenlodge st
30	Better police patrol at lights. Clean up the whole area,flooding in low areas,
31	Congestion approaching Central artery in Stoughton is also a big problem.

32	It seems to me that widening Route 138 the entire length of it in Canton would alleviate the congestion that builds at the intersections. The road is 2 lanes in each direction in Stoughton and traffic attempting to reach Route 128 has to funnel down for the length of the drive through Canton.
33	Dangerous
34	Save lives and get sidewalks.
35	The 138/Randolph St. Intersection coming in from the North is a disaster. People drive in the blocked lane at SUPER high speeds and without looking at people that are trying to follow the rule and come out only AFTER the left turn lane opens. People trying to exit from the Blue Hills Montessori are consistently almost rammed into when taking a left out by people driving super fast in an illegal lane. The police also do not monitor this at all.
36	Traffic backs up onto 128 in the afternoon and in the morning it goes from 2 lanes at Washington st to 1 lane heading towards 128 Traffic backs up and cars can't get out of side streets
37	The sidewalks are in poor condition with trash all over them and in the winter there are large snow banks that I can't get through with a stroller. The drivers are aggressive and make me worried for my safety even when I'm on the sidewalk. , I live off of 138 and the drivers will not let me turn out of my street even when they are stopped in traffic.
38	This street has very poor lighting at nighttime
39	If there are any side streets that can be used to reduce traffic on 138 it should be allowed.
40	Provide sidewalks from the Route 138 corridor going towards Randolph line, especially because there is Blue Hills Regional High School (Public School) and Massasoit Community college.
41	The two lane to one lane congestion at Washington St and Rte 138 cause traffic backup all the way to Rte 138 and Randolph intersection - widen road to allow two lane traffic to continue to I-93
42	Thank you for the survey. I use this road every week day and some weekends. I ride a bike. Use scooter and car. I do worry about the old making a left out of orcard cove. Also think if it were less ugly folks might slow up. But know it's no easy task. Thank you too for recent improvements which has helped. Leftt arrow onto Randolph etc is great.
43	CONNECT PLEASANT ST TO ROUTE 138
44	The area between windsor woods lane and stoughton it is hard to get in or out of businesses in that area The roadway in that area has a lot of potholes
45	The removal of the longer left turn lane at Randolph and Washington st. Has severely impacted the traffic coming from interchange heading towards stoughton. Traffics backs up all the way to the lights at Washington st. (Ponkapoag) during peak hours. The road should also be 2 lanes from Washington to interchange.
46	Intersection at York St. and 138. Difficult to turn left from 138 south onto York - a car may signal You out but the subsequent cars pass in the break down lane making for dangerous conditions for all. As one turns on to York from 138 S, cars coming over the hill travel at least the posted speed of45 mph and more often faster. The Short site distance and fast speed are dangerous. Lastly, more traffic as the neighborhoods expand and road closures occur. This intersection is THE ONLY option to get out of my neighborhood:. Stoughton made roads near the Dawe school one- way only and Canton chose to block off Tracywood with a gate to all traffic including abutters . Traffic congestion due to this sole means of egress is high at commuting times. Having been 17th in line waiting on York to turn right onto 138 n I finally made it To the front of the line only to have 72 cars pass before I had a chance to pull out. Lastly,, As the parent of a novice driver, I am extremely concerned for the safety of my child having to navigate such a challenging and dangerous intersection. An additional traffic challenge that I encounter is at the Milton and Canton border by the highways. The commuter congestion occurs when cars exit the highway and then cross to turn left on Royall st. I hope that a solution can be tied into the sale of the Reebok property. Perhaps construction of a flyover or alternate on and off ramp. Thank you for this study. It is desperately needed.
47	My business is located on Rte 138 across from the ICC and trying to make a left is nearly impossible most of the day. Traffic during the evening commute is horrendous trying to get to 93 from my location as well.
48	Difficult pulling out of side streets, too much traffic no one will allow you to go. At right hand Washington street turn the lanes are not clearly marked and drivers make 1-3 lanes of their own.
49	The new configuring from Crowells to Randolph St is a daily traffic jam nightmare 3pm-6pm. OTherwise, the problems come from terrible drivers with bad habits, you're not fixing that.
50	I live directly off of RT 138....Traffic congestion, as well of the rudeness of frustrated commuters has increased significantly with the housing increase/developments along 138. I find it nearly impossible to even get "onto" 138 from my "side street" as oncoming vehicles/drivers rarely give those of us who live along this corridor, the opportunity to even turn onto 138. Any efforts to reduce the congestion, as well improve safety efforts for those of us in Canton who access (or) walk along 138 would be immensely appreciated!
51	The left turn lane that was installed at Randolph when heading south on 138 is helpful, but plenty of traffic back up prior to the turn because the road is only 1 lane wide. Making 2 lanes from Washington St lights at the golf course, all the way to Randolph St would help
52	Additional lanes
53	Traffic signal before 465 turnpike st heading toward Dan Road Bike lane and better lite roadway.
54	Bottlenecks from 2 lanes down to one are rough, I understand the space constraints but would be good to try and mediate that somehow.
55	Would like to see evening lights at Randolph and Washington so u can take a left turn
56	I live in Turtle Brook Village. Taking a left on to 138 is often ridiculously difficult.
57	Taking a left onto138 from Washington Street in the morning is awful. Worst part of my commute to Quincy from Canton is right here in Canton!
58	More bike accessibility by the veterinarian office would be nice. Canton people kind of suck at not parking in the bike lanes though, such as by the middle school.

59	One accident and all of Canton is backed up; either all of 138 or all of Washington St or more commonly BOTH. That absolutely needs to change.
60	Need to slow people down near the parking lots for Blue Hill. So many people drive right up behind you when trying to take turns. Have been rear ended trying to turn in the past.
61	During rush hour 138 barely moves.
62	A stoplight or rotary so cars are slowed enough to pull out during rush hour.
63	Any street that connects to Route 138 should have some form of stoppage. I live on TracyWood Road and often have problems turning left towards Stoughton in the morning. It can take more than 5 minutes during rush hour to exit my street.
64	The I-93 interchange is especially hazardous for pedestrians and bicyclists. It would be helpful if the ramps could be squared up and new signals installed to reduce conflicts and improve safety for motorists as well as bikes/peds. A diamond interchange would do this, and could free up enough land to sell for development and potentially justify the cost of the change.
65	Lower speed limit to 35 mph. Post police anywhere on 138 to write tickets instead of b.s. left turn ticket from Pleasant St or westbound down hill from Bluehills Regional. Both tickets do NOTHING for my safety. Write red light tickets at Washington or Dan Rd. Also Right turn only sign missing on 138 South at Dan Rd. Drivers fly past waiting drivers in that right lane. Huge safety Hazzard here. Thank you
66	Rt 93 has limited crossings and rt 138 is one of the few connections in the Blue Hills reservation and without being able to walk or ride a bike it forces users of the blue hills to add the the congestion by driving. If people don't feel safe you will not encorage them to enter the reservation by some form of transportation other than a car. This puts added stress on the road and parking spend the recreation area.
67	It needs to be redone. Too many bad businesses. It's a cheap looking stretch of high traffic high speed disaster. Ugly too.
68	I have ridden much of this route on my bicycle tours. I would like to have MassDOT make this whole segment much safer to encourage more people to bike for transportation, fitness, affordability, and environmental reasons.
69	Clean up buisness along road and just put more buisness in
70	I would like to see a lot less congestion on 138. I live off 138 and work in town so a 5-10 minute ride to Royall St on some days can take me 45 minutes to get to work. There are many problems such as no courtesy of other drivers to let you out from a side street or business parking lot to enter onto 138. The intersections of 138 & Randolph St and 138 & Washington are grid lock almost every morning. Also, 138 on the other side of highway needs to be looked at again as there are some days I sit on the overpass between 15-20 minutes to get to the light as to take a left so I can get to work. Coming home is the same problem to the point I do not go 138 between Washington and Randolph St. I go Washington to Wentworth, to Randolph and them take the side roads to come out at 138 & Edwards street just to avoid the traffic and congestion. From Edwards St I have no other option but to take 138 all the way down past Dan Rd to get home. All of above are problems in good weather, when there is a snow storm it can take me hours to get home!
71	It has never been a beautiful road, but it's ethnically really awful now, and one that is down right dangerous for cyclists and runners.
72	Bike lanes!
73	There needs to be another road that connects 138 to pleasant street. Traffic is way to congested for Randolph and Washington streets to be the only two options to get into Canton. The lack of throughways does not decrease cut-through traffic, it only increases the commuting time for everyone, including the residents of canton.
74	Make it more accessible to cyclists. In the past it is a roadway I often use yet cars are extremely aggressive and lack of road space evident. Not a safe environment.
75	Bicycle traffic should be banned from this road.
76	The bike 'lane' already installed at Rte 93 ramps are idiotic and fail to consider bikes are actually going more than 10 mph there. Tons of space for dedicated bike infrastructure. I would ride a bike daily through there if it didn't feel like i'm on Rte 93 not 138.
77	The new (as of last year) bike lanes over I93 are a disaster where they cross the on/off ramps. They direct the cyclist to make eight sharp 90-degree zig-zag turns to stay on the "path", and in the case of the onramps they point the cyclist away from overtaking traffic, so cyclist has very poor visibility where it's needed the most. Also on the onramps the "path" is far enough around the corner that it's placed where drivers aren't expecting it, out of their sight lines, and where they're accelerating. This is a terrible design and needs to be fixed. Most every cyclist ignores the zig-zags and continues in a straight (and expected) path. Please repaint the lanes to match this safer course of action.
78	This is a major connection between the southern suburban communities and the City of Boston. Crossing over I-93 is very difficult and dangerous. Drivers don't give cyclist any respect and act aggressively towards cyclist. Hardly see any traffic enforcement and a lot of red light running. RT 138 needs a lot of complete street treatments to improve condition for pedestrians and bicycle since the corridor is so automobile oriented. There are very few places for cyclist to cross over 93 to get into Boston and 138 is one of these corridors. If better bicycle accommodation cannot be installed on RT 138 crossing over I-93, then an alternative bridge should be constructed for cyclist or Ponkapoag Pond Trail should be paved to accommodate bicycles with skinny tires.
79	better bike lanes I cycle here during the week and weekends and its scary to say the least . Cars do not slow down when there are coming to the on and off ramps in face they speed up . More signs for cars to share the lane . I appreciate any efforts to make this a safer area to bike more people would bike more if it were.
80	the cross walk striping where the bike lanes intersect with ramps is helpful, in that whole stretch however cars travel 50mph and faster. That stretch--just north and south of 93--is uphill if you heading south which makes maneuvering amongst the cars especially difficult, because the cars are going so fast and the cyclist is going slow (uphill)
81	left turns at lights are always tough for cyclist, one ends up standing in the middle of the road waiting for the light. The one northbound at Randolph street is tough, I have been mirrored there.

82	The 138 Blue Hill Ave and Canton Ave split is the worst section for me. I have been riding there for over a decade now and I no longer go straight on 138 to return home, where the bike lane is. Cars turning right there often misjudge a cyclist's speed and think they can safely pass. This is not the case, and I must always turn right down Canton (no bike lane, aggressive cars) to avoid getting "right hooked". This problem occurs at the parking lots to the ski area and observatory access road as well, but to a lesser degree. I would like to see more methods of decreasing traffic speed at this interchange, and signs warning cars to not turn in front of cyclists. People coming off the highway still try to travel at highway speed.
83	General lack of consideration of drivers to those who live in area. If you drive the speed limit, other drivers ride your bumper, pass when they are not allowed and are very aggressive. Traffic flies from 138 to the split into Canton Avenue and drivers are just as aggressive coming off of 138 into local roads.
84	Please implement bike lanes. It is incredibly dangerous to cycle on.
85	I would like to be able to go for a walk down the street I live on (138) but that is basically impossible now because there are no sidewalks and no room to walk. I also find it get difficult to turn out of my house
86	Please do not design 138 between Rnadolph and I93 around bicycles. The problem is traffic congestion. Solve that first, then and only then consider bicycle accommodation. There is no demand for bicycle travel on that section of road.
87	segregated bike lanes that prevent cars from entering them and putting cyclist in danger.
88	If possible, 2 lanes each way from Washington st to 93.
89	The northern section, leading to Milton, is designed like a California surface-level road with wide lanes and heavy traffic. The bicycle accommodation is comical. Furthermore, traffic moves much too quickly to make utilizing bus route 716 feel safe.
90	The addition of the left turn lane at the Randolph intersection (toward Stoughton) has increased backups. Although bike and pedestrian safety and accessibility is important, I believe making improvements that improve traffic should be the first priority. I live off of 138 and it has become a less convenient place to live in recent years due to traffic. 138 is the only outlet for my neighborhood.
91	Flexposts along he shoulder line to prevent vehicle encroachment, especially north of the intersection with Blue Hill River Rd. Lower speed limit and/or enforce it! Add flexposts near the entrances to the Blue Hills parking lots to slow vehicle movements and keep them out of the shoulder. Change the ramps to 128 to slow vehicles and not force cyclist to merge with highway traffic. Provide space for cyclists south of 128
92	At the Stoughton end of 138, while riding a bicycle, I've experienced a surprising amount of indifference on the part of drivers. I cycle throughout the Boston area and suburbs and this section of roadway is the one place where I feel invisible. It's not clear to me why.
93	128 ramps, Washington St exchange
94	There needs to be traffic lights at Indian Woods Way and Windsor wood Way many homes apts cars trying to get in and out
95	Between Randolph st and stoughton line there is no way for pedestrians to travel safely. So many multi unit complexes in that stretch and people who don't drive are stuck, or have to risk their lives to get somewhere. Public transportation is a HUGE need.
96	Problems are pulling into a business parking lot....Because of traffic, you will never get back out.
97	Remove bike lanes and Tour de France wannabe bikers from major roadway with highway access.
98	Bury the ugly power lines and put in sidewalks. Lots of businesses on this street pay their taxes and keep citizen's taxes low. In the future more quality businesses will move in.
99	The timing on the light at the Randolph St and Route 138 intersection creates major back up to Washington Street at peak hours of the day. It is VERY dangerous coming out of our street, Sunnybrook Lane, especially when making a left turn onto Route 138. We cannot see if cars are approaching from the south heading north when we try to pull out. We never had this problem until the light pattern/turning lane changed and were have been in this location since 1979. Also, entering Canton from Route 128 onto Route 138 there are major back ups as three lanes merge into one.
100	Route 138 is insufficient to carry volume of traffic utilizing roadway especially during winter weather. Can take hours to get out of Canton Commerce Park)Dan Road.
101	Speed and congestion as huge issues. Trffic begins at 4 Am with large trucks speeding. There should be a noise ordinance for the large trucks speeding and down shifting. We also experience a dozen of so vehicles daily, yes I said daily, that turn onto Greenlodge who are lost and park for long periods right after the turn, then turn around in our private driveways even though they are marked private property-no trespassing. I have experienced property damage and verbal assaults from drivers turning into my property. Something needs to be done.
102	New Lights on Green Lodge St intersection to enable safer entering RT 138, new street lights for safety at night, bicycle lanes and sidewalks need to be completed at least from I-93 to Washington St
103	Safer pedestrian crossings Reduced wait times at traffic lights,especially at the junction of Randolph Street and Route 138 Plowing of snow off sidewalks on route 138 during the winter so pedestrians can use them. Now one needs use of a car to use route 138 during the winter. Better night lighting on route 138

APPENDIX H

MassDOT Highway Division
Project Development Process

Overview of the Project Development Process

Transportation decision-making is complex and can be influenced by legislative mandates, environmental regulations, financial limitations, agency programmatic commitments, and partnering opportunities. Decision-makers and reviewing agencies, when consulted early and often throughout the project development process, can ensure that all participants understand the potential impact these factors can have on project implementation. Project development is the process that takes a transportation improvement from concept through construction.

The MassDOT Highway Division has developed a comprehensive project development process which is contained in Chapter 2 of the *MassDOT Highway Division's Project Development and Design Guide*. The eight-step process covers a range of activities extending from identification of a project need, through completion of a set of finished contract plans, to construction of the project. The sequence of decisions made through the project development process progressively narrows the project focus and, ultimately, leads to a project that addresses the identified needs. The descriptions provided below are focused on the process for a highway project, but the same basic process will need to be followed for non-highway projects as well.

1. Needs Identification

For each of the locations at which an improvement is to be implemented, MassDOT leads an effort to define the problem, establishes project goals and objectives, and defines the scope of the planning needed for implementation. To that end, it has to complete a Project Need Form (PNF), which states in general terms the deficiencies or needs related to the transportation facility or location. The PNF documents the problems and explains why corrective action is needed. For this study, the information defining the need for the project will be drawn primarily, perhaps exclusively, from the present report. Also, at this point in the process, MassDOT meets with potential participants, such as the Metropolitan Planning Organization (MPO) and community members, to allow for an informal review of the project.

The PNF is reviewed by the MassDOT Highway Division district office whose jurisdiction includes the location of the proposed project. MassDOT also sends the PNF to the MPO, for informational purposes. The outcome of this step determines whether the project requires further planning, whether it is already well supported by prior planning studies, and, therefore, whether it is ready to move forward into the design phase, or whether it should be dismissed from further consideration.

2. Planning

This phase will likely not be required for the implementation of the improvements proposed in this planning study, as this planning report should constitute the outcome of this step. However, in general, the purpose of this implementation step is for the project proponent to identify issues, impacts, and approvals that may need to be obtained, so that the subsequent design and permitting processes are understood.

The level of planning needed will vary widely, based on the complexity of the project. Typical tasks include: define the existing context, confirm project need, establish goals and objectives, initiate public outreach, define the project, collect data, develop and analyze alternatives, make recommendations, and provide documentation. Likely outcomes include consensus on the project definition to enable it to move forward into environmental documentation (if needed) and design, or a recommendation to delay the project or dismiss it from further consideration.

3. Project Initiation

At this point in the process, the proponent, MassDOT Highway Division, fills out a Project Initiation Form (PIF) for each improvement, which is reviewed by its Project Review Committee (PRC) and the MPO. The PRC is composed of the Chief Engineer, each District Highway Director, and representatives of the Project Management, Environmental, Planning, Right-of-Way, Traffic, and Bridge departments, and the MassDOT Federal Aid Program Office (FAPO). The PIF documents the project type and description, summarizes the project planning process, identifies likely funding and project management responsibility, and defines a plan for interagency and public participation. First the PRC reviews and evaluates the proposed project based on the MassDOT's statewide priorities and criteria. If the result is positive, MassDOT Highway Division moves the project forward to the design phase, and to programming review by the MPO. The PRC may provide a Project Management Plan to define roles and responsibilities for subsequent steps. The MPO review includes project evaluation based on the MPO's regional priorities and criteria. The MPO may assign project evaluation criteria score, a Transportation Improvement Program (TIP) year, a tentative project category, and a tentative funding category.

4. Environmental Permitting, Design, and Right-of-Way Process

This step has four distinct but closely integrated elements: public outreach, environmental documentation and permitting (if required), design, and right-of-way acquisition (if required). The outcome of this step is a fully designed and permitted project ready for construction. However, a project does not have to be fully designed in order for the MPO to program it in the TIP. The sections below provide more detailed information on the four elements of this step of the project development process.

Public Outreach

Continued public outreach in the design and environmental process is essential to maintain public support for the project and to seek meaningful input on the design elements. The public outreach is often in the form of required public hearings, but can also include less formal dialogues with those interested in and affected by a proposed project.

Environmental Documentation and Permitting

The project proponent, in coordination with the Environmental Services section of the MassDOT Highway Division, will be responsible for identifying and complying with all applicable federal, state, and local environmental laws and requirements. This includes determining the appropriate project category for both the Massachusetts Environmental Protection Act (MEPA) and the National Environmental Protection Act (NEPA). Environmental documentation and permitting is often completed in conjunction with the **Preliminary Design** phase described below.

Design

There are three major phases of design. The first is **Preliminary Design**, which is also referred to as the 25-percent submission. The major components of this phase include full survey of the project area, preparation of base plans, development of basic geometric layout, development of preliminary cost estimates, and submission of a functional design report. Preliminary Design, although not required to, is often completed in conjunction with the Environmental Documentation and Permitting. The next phase is **Final Design**, which is also referred to as the 75-percent and 100-percent submission. The major components of this phase include preparation of a subsurface exploratory plan (if required), coordination of utility relocations, development of traffic management plans through construction zones, development of final cost estimates, and refinement and finalization of the construction plans. Once Final Design is complete, a full set of **Plans, Specifications, and Estimates (PS&E)** is developed for the project.

Right-of-Way Acquisition
A separate set of Right-of-Way plans are required for any project that requires land acquisition or easements. The plans must identify the existing and proposed layout lines, easements, property lines, names of property owners, and the dimensions and areas of estimated takings and easements.

5. Programming (Identification of Funding)
Programming, which typically begins during the design phase, can actually occur at any time during the process, from planning to design. In this step, which is distinct from project initiation, the proponent requests that the MPO place the project in the region's Transportation Improvement Program (TIP). The proponent requesting the project's listing on the TIP can be the community or it can be one of the MPO member agencies (the Regional Planning Agency, MassDOT, and the Regional Transit Authority). The MPO then considers the project in terms of state and regional needs, evaluation criteria, and compliance with the regional Transportation Plan and decides whether to place it in the draft TIP for public review and then in the final TIP.

6. Procurement
Following project design and programming of a highway project, the MassDOT Highway Division publishes a request for proposals. It then reviews the bids and awards the contract to the qualified bidder with the lowest bid.

7. Construction
After a construction contract is awarded, MassDOT Highway Division and the contractor develop a public participation plan and a management plan for the construction process.

8. Project Assessment
The purpose of this step is to receive constituents' comments on the project development process and the project's design elements. MassDOT Highway Division can apply what is learned in this process to future projects.

Project Development Schematic Timetable

Description	Schedule Influence	Typical Duration
Step I: Problem/Need/Opportunity Identification The proponent completes a Project Need Form (PNF). This form is then reviewed by the MassDOT District office which provides guidance to the proponent on the subsequent steps of the process.	The Project Need Form has been developed so that it can be prepared quickly by the proponent, including any supporting data that is readily available. The District office shall return comments to the proponent within one month of PNF submission.	1 to 3 months
Step II: Planning Project planning can range from agreement that the problem should be addressed through a clear solution to a detailed analysis of alternatives and their impacts.	For some projects, no planning beyond preparation of the Project Need Form is required. Some projects require a planning study centered on specific project issues associated with the proposed solution or a narrow family of alternatives. More complex projects will likely require a detailed alternatives analysis.	Project Planning Report: 3 to 24+ months
Step III: Project Initiation The proponent prepares and submits a Project Initiation Form (PIF) and a Transportation Evaluation Criteria (TEC) form in this step. The PIF and TEC are informally reviewed by the Metropolitan Planning Organization (MPO) and MassDOT District office, and formally reviewed by the PRC.	The PIF includes refinement of the preliminary information contained in the PNF. Additional information summarizing the results of the planning process, such as the Project Planning Report, are included with the PIF and TEC. The schedule is determined by PRC staff review (dependent on project complexity) and meeting schedule.	1 to 4 months
Step IV: Design, Environmental, and Right of Way The proponent completes the project design. Concurrently, the proponent completes necessary environmental permitting analyses and files applications for permits. Any right of way needed for the project is identified and the acquisition process begins.	The schedule for this step is dependent upon the size of the project and the complexity of the design, permitting, and right-of-way issues. Design review by the MassDOT district and appropriate sections is completed in this step.	3 to 48+ months
Step V: Programming The MPO considers the project in terms of its regional priorities and determines whether or not to include the project in the draft Regional Transportation Improvement Program (TIP) which is then made available for public comment. The TIP includes a project description and funding source.	The schedule for this step is subject to each MPO's programming cycle and meeting schedule. It is also possible that the MPO will not include a project in its Draft TIP based on its review and approval procedures.	3 to 12+ months
Step VI: Procurement The project is advertised for construction and a contract awarded.	Administration of competing projects can influence the advertising schedule.	1 to 12 months
Step VII: Construction The construction process is initiated including public notification and any anticipated public involvement. Construction continues to project completion.	The duration for this step is entirely dependent upon project complexity and phasing.	3 to 60+ months
Step VIII: Project Assessment The construction period is complete and project elements and processes are evaluated on a voluntary basis.	The duration for this step is dependent upon the proponent's approach to this step and any follow-up required.	1 month

Source: MassDOT Highway Division Project Development and Design Guide