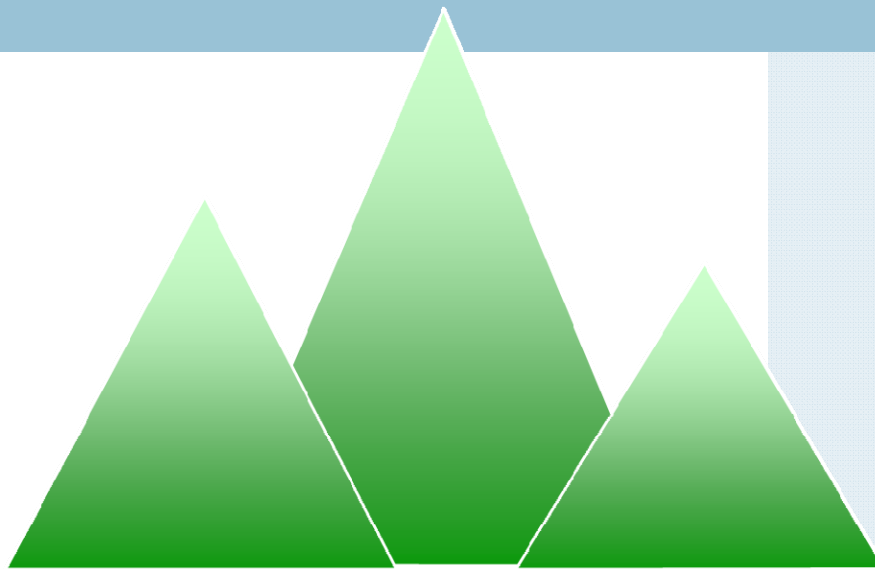




MONTACHUSETT REGIONAL PLANNING COMMISSION

Walkability Report

2012



For the town of
Westminster

September 2012

Walkability Study For Westminster, MA



Main Street, Westminster

Prepared for the town of Westminster

Prepared in cooperation with the Massachusetts Department of Transportation and the U.S. Department of Transportation. The views and opinions of the Montachusett Regional Planning Commission expressed herein do not necessarily state or reflect those of the Massachusetts Department of Transportation or the U.S. Department of Transportation.
Contract # 69656

September 2012

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I. EXECUTIVE SUMMARY

The purpose of this report is to assist the town of Westminster with a Walkability Study. Walkability is a measure of how friendly an area is for walking. There are many factors that influence walkability such as the presence of sidewalks or footpaths, roadway and traffic conditions and safety, accessibility for all users, etc. A walkable community not only benefits people by providing increased accessibility for walkers, it also has been known to provide health benefits for its residents, increased social interaction, reduction in crime, an increased sense of pride and volunteerism.

A study area was developed, which incorporated critical infrastructure locations provided by the Westminster Planning Department, within the downtown area and a 1000' buffer was placed around those locations. Data that was collected within the study area included traffic volume, speed and classification counts, turning movement counts, sidewalks and related sign inventory as well as public input.

The residents and business owners were invited to participate in a walking audit where they had the opportunity to walk as a group within the study area and provide their personal experiences and thoughts regarding how walkable they felt the town is. Topic areas included sidewalks, roadways, crosswalks, trails, parks and public gathering spots, shade trees and benches, parking and local attractions. All comments and feedback are provided throughout the document as well as a more detailed attachment is provided at the conclusion of the report.

Based on the data collected, a recommendations section was included. These recommendations comprised of sidewalk maintenance and connections, traffic calming measures for speeding and crosswalk locations, improved roadway striping for school zones, additional and improved parking, and town policy changes that will incorporate walkability.

II. INTRODUCTION

A walkable community is one that allows residents access to major community elements that are generally within a 10 minute walking distance. Those community elements may include shopping centers, town hall, library, post office, and the senior center. The term “Walkability” refers to how friendly an area is to walking. Factors that make a community walkable include street connectivity and design, pedestrian features, access for all roadway users (vehicles and pedestrians), desirable streetscapes, and pedestrian safety features. Being a walkable community doesn’t necessarily refer to only transportation features; aspects like socialization and walking for exercise can also play a part.

This report will outline the process of how the town of Westminster was evaluated for walkability as well as providing some recommendations to help boost pedestrian friendliness within the study area.

III. STUDY PROCESS

A. Study Area

The study area for this report was determined by the Town of Westminster’s Planning Department and MRPC staff. This area is located within the Westminster town center and included key community elements such as town hall, public safety building, elementary schools, parks, religious facilities, library, post office, senior center, shopping centers, banks, restaurants, etc. A 1,000 foot buffer was placed around these locations (see Map Figure 1). This selected area was broad enough to incorporate all the key locations and have it be realistic for walkers.

B. Walking Audit

Once the study area was established, the MRPC and the Westminster Planning Department led a walking audit of the study area in downtown Westminster on May 19, 2012 (see flyer and handout in Appendix A). The walking audit was conducted to provide an assessment of walkability within the study area. Participants met in the town hall and walked north on South Street to Main Street and then traveled west along Main Street to Brooks Avenue. They then returned back down Main Street and continued up Academy Hill Road to the Town Common.



Walkability Audit Volunteers, May 19, 2012

During the walkability audit participants were asked to observe the following:

- Sidewalks – Are there sidewalks within the study area? Is the width/condition acceptable (at least 4 feet wide)? Do they have handicap access ramps at each crossing and crosswalk? Are there large cracks, bumps, dips, etc. present?
- Roadways – Are the current roadways in good condition? Is speeding a problem? Are large trucks an issue? Are drivers able to see pedestrians in crosswalks – is there adequate sight distance?
- Crosswalks – Are the current crosswalks adequate? Do you feel safe while crossing at the crosswalks? Are vehicles parked closer than 10 feet to the crosswalks? Are there “no parking” zones near crosswalks? Is the striping on the crosswalk visible?
- Trails – Are the trails in the area accessible to the study area? Are there guide signs to help people navigate to those trails and trail parking areas?
- Parks/Public Gathering spots – Are these located nearby? Are they accessible? Is the number of parks/gathering spots adequate for the area?
- Shade Trees/Benches – Are there sufficient areas to take a rest? Will you be walking in the sun most of the time or are their shaded areas to cool off in the summer?
- Parking – Is there ample parking available within the study area? Are parked cars a problem within the study area? Are there guide signs to show where the parking areas are?
- Attractions – What are the local attractions or key destinations that you walked pasted (ex. library, parks, shops)? Is there a local attraction guide or signs for visitors?

Other questions to consider were:

1. What are the positive aspects of your walking route?
2. Would this walk be adequate for a young child, elderly person, or a disabled person?
3. What would make this area more walkable for all users?
4. What would encourage more walking in the area? What is missing?
5. What are the concerns regarding walking within the study area?
6. Are the neighborhoods in the area considered mixed income? Is there a variety of housing types in the area?
7. Did you see other people out walking within the study area?

After the walking audit was conducted, participants were asked to provide feedback, both positive and negative, based on their walking experiences. All comments made by the participants have been documented and included in this report in Appendix B.

Summary of Findings Based Upon Input

The following summarizes a sample of the responses that participants developed regarding the positives and negatives of walkability for the Westminster study area based on the observation topics mentioned above.

Sidewalks - Overall, most of the major roadways downtown have sidewalks which are wide and plowed in the winter. However, there could be improvements made to the areas along Main Street in front of the Senior Center and pharmacy. There also lacks a sidewalk or walkway connection to the plaza behind Vincent's Market and Dunkin Donuts as well as on Nichols Street (Post Office side), Main Street (Westminster Café side) and Eaton Street to the VFW. There was also concern regarding a potential future development for Senior Housing occurring on Adams Street where there are currently no sidewalks and the roadway is extremely narrow. Inconsistent curbing along existing sidewalks was also mentioned as a negative.

Note: A major concern during the walk was a lack of sidewalks along South Street. This issue will be resolved after a major roadway project is completed in 2013.



In front of Post Office – no sidewalk



In front of Westminster Café- no sidewalk or crosswalk



Eaton Street- No sidewalk to VFW



Adams Street – Narrow roadway without sidewalks

Roadways – Main Street is in good condition although there is a problem with speeding due to the width of the roadway. There is a lack of signage at the entrances to Vincent's Market and Dunkin Donuts making it confusing for drivers and the large number of curb cuts in that area makes walking unsafe.

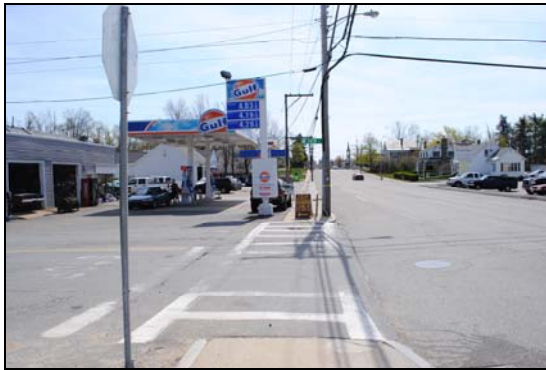


In front of Dunkin Donuts drive thru



Multiple entrances at Vincent's/Dunkin Donuts

Crosswalks – The crosswalks within the study area were in good condition although a few were faded (reflective crosswalks were preferred by the group). There are a high number of curb cuts throughout Main Street which creates a dangerous situation for pedestrians. Cars parked too close to the crosswalks create a sight distance problem for both drivers and pedestrians. Bump outs and raised crosswalks were recommended to make pedestrians more visible and slowing vehicles down.



Crosswalk at Adams Street



Crosswalk at South Street

Trails – There are no known trails mentioned within the study area.

Parks/Public Gathering spots- One of the positive comments that came up at the Walkability audit is that there is lots to do in downtown Westminster. The playground, basketball courts, ball fields, Town Common and VFW fields are all within walking distance from the town center.



Elementary School Playground



Town Common

Shade Trees/Benches – There is a lack of shade trees along Main Street which was considered a negative aspect of the walking audit. There are at least two benches that were noted along Main Street as well as eight more that will be installed throughout the town.



Bench along Main Street



One of the few shade trees along Main Street

Parking – It was mentioned that there is not adequate parking available at the athletic fields and basketball court. A designated municipal lot (other than the town hall parking lot) with parking signs would be beneficial. Vehicles parking along Main Street are not always appropriate but painting parking designated spaces in this area would be helpful. There was also confusion as to the jurisdiction of the roadway and if cars are actually allowed to park on street or not. It turns out that most of Main Street is MassDOT's jurisdiction and the town would have to communicate with MassDOT-District 3 as to the parking regulations for that stretch of roadway.

Attractions – Most people felt that there were an abundance of attractions and shops in the area. Many local businesses, restaurants, cafes and parks exist. The study area is also located in the historic district.



Westminster Cracker Factory



Bandstand at the Town Common

C. Data Collection

1. Traffic Volume Data:

The following traffic volumes were conducted as part of the MRPC's yearly count program. See Appendix C for more detailed data.

Location	Average Traffic Volume (Vehicles per Day)	Year of Count	Peak Morning/ Afternoon Hours
Academy Hill Road south of Main Street	900	2012	8:00am/3:00pm
Bacon Street north of Main St	2300	2012	6:00am/3:00pm
Main Street east of South Street	12,300	2012	6:00am/4:00pm
Main Street west of Church	12,300	2012	7:00am/5:00pm
Nichols Street southwest of Main Street	3,500	2012	11:00am/4:00pm
South Street south of Main Street	3,200	2012	8:00am/5:00pm
State Road West west of Main Street	4,600	2012	8:00am/5:00pm
West Main St north of Main Street	5,800	2012	7:00am/4:00pm

Traffic volumes along Main Street (Rt. 2A) average 12,300 and then drops significantly to 4,600 on State Road West (Rt. 2A). The side streets have a much lower volume that range from 900-5,800 vehicles per day.

2. Turning Movement Counts:

Turning Movement counts were conducted at specified intersections within the study area during the morning and afternoon peak hours. The peak hour times of 7:00-9:00AM and 4:00-6:00PM were used for each location. (See Appendix D for full turning movement counts) The highest peak hour, which was the PM peak hour, was used when determining the level of service.

From the TMC data collected, a Level of Service (LOS) analysis was conducted. The LOS of a roadway traffic facility represents the quality of traffic flow and is used to assess the operation of that traffic facility. LOS analyses are based on the methods in the *Highway Capacity Manual (2010)* (HCM). LOS is defined differently for each type of traffic facility, such as an unsignalized intersection, signalized intersection, two-lane road, or multi-lane road. For intersections, the LOS criteria are defined by the average amount of delay experienced by a vehicle at the intersection due to the traffic controls (i.e., signs or signals). Usually each approach is assessed independently, since the LOS of the major and minor approaches may differ greatly. Table 1 summarized the LOS average control delay criteria for intersections controlled by STOP signs and those controlled by traffic signals.

LOS	Average Control Delay (seconds per vehicle)	
	Stop-Controlled	Signalized
A	≤10.0	≤10.0
B	10.1 - 15.0	10.1 - 20.0
C	15.1 - 25.0	20.1 - 35.0
D	25.1 - 35.0	35.1 - 55.0
E	35.1 - 50.0	55.1 - 80.0
F	>50.0	>80.0

The following LOS descriptions apply to intersections:

- **LOS A** describes operations with little or no delay due to very low major street traffic with many acceptable gaps and traffic flows easily.
- **LOS B** describes operations where stopped vehicles experience short traffic delays but there are still many acceptable gaps in the major street traffic.
- **LOS C** describes operations where stopped vehicles experience average traffic delays due to less frequent acceptable gaps in the major street traffic.
- **LOS D** describes operations where stopped vehicles experience long traffic delays due to a limited number of acceptable gaps in the major street traffic.
- **LOS E** describes operations where stopped vehicles experience very long traffic delays due to a very small number of acceptable gaps in the major street traffic. This level is considered by many agencies to be the limit of acceptable delay.
- **LOS F** describes operations where stopped vehicles experience extreme traffic delays due to virtually no acceptable gaps in the major street traffic. This level, considered to be unacceptable to most drivers, often occurs with **oversaturation**, that is, when arrival flow rates exceed the capacity of the intersection.

2012 Peak Hour Turning Movement Volumes & LOS
(vehicles per hour)

Intersection at Main Street (Rt. 2A) and South Street

<i>Approach</i>	<i>Left Turn</i>	<i>Through</i>	<i>Right Turn</i>	<i>Peds</i>	<i>Total</i>	<i>LOS</i>
Main Street Rt. 2A- West bound	171	613	-	10	794	A
Main Street Rt. 2A- Eastbound	-	447	84	1	532	-
South St - Northbound	40	-	58	0	98	E

Analysis at this intersection shows that the vehicles traveling in and out of South Street during the peak hour (which doesn't reflect the school time peak hours which could be significantly higher) will have a delay that ranges from 31-50 seconds due to the high number of vehicles traveling along Main Street.

Intersection at Main Street (Rt. 2A) and Academy/Leominster Rd

<i>Approach</i>	<i>Left Turn</i>	<i>Through</i>	<i>Right Turn</i>	<i>Peds</i>	<i>Total</i>	<i>LOS</i>
Main Street Rt. 2A- West bound	9	763	-	10	782	A
Main Street Rt. 2A- Eastbound	-	437	69	1	507	-
Academy/Leominster St - SW bound	21	-	1	0	22	D

This intersection has a low number of vehicles coming in and out of Academy/Leominster Road which helps it to have a LOS of A on the Main Street approach. The D LOS on the minor approach is due to the high number of vehicles traveling along Main Street during the peak hour.

Intersection at Main Street (Rt. 2A) and Bacon Street

<i>Approach</i>	<i>Left Turn</i>	<i>Through</i>	<i>Right Turn</i>	<i>Peds</i>	<i>Total</i>	<i>LOS</i>
Main St Rt. 2A – Eastbound	77	384	-	0	467	A
Main St Rt. 2A – Westbound	-	549	13	6	568	A
Bacon Street - Southbound	69	-	79	0	148	D

This is currently a actuated signalized intersection. There is minimal delay on the major roadway (Route 2A). On Bacon Street the delay is higher due to the signal light and narrow road width. Cars are not able to create two lanes at the light for left turns and right turns which makes for right turns on red difficult. Parking on Main Street in this area also prevents cars from going around those turning left or right onto Bacon Street.

Intersection at Main Street (Rt. 2A) and Nichols Street

<i>Approach</i>	<i>Left Turn</i>	<i>Through</i>	<i>Right Turn</i>	<i>Peds</i>	<i>Total</i>	<i>LOS</i>
Main St Rt. 2A – Eastbound	6	396	47	1	450	A
Main St Rt. 2A – Westbound	144	469	43	0	656	A
Nichols St – Northbound	46	13	99	0	158	D
Eaton St - Southbound	19	12	10	0	41	F

At this location it is clearly understood that the east and westbound traffic will have minimal delay while traveling through the intersection although the minor street approaches will have quite a bit more delay due to the heavy traffic along Main Street.

3. Traffic Speed Data:

Generally when determining the speed limit for a roadway the 85th percentile speed is used. This is considered the speed at or below which most drivers feel safe driving. See Appendix E for more detailed speed count information. The speed data that was collected was done so during the last week of school before summer break. This could affect the speeds during school hours which we used as between 7:00am and 3:00pm.

Main Street west of Church Street

	Speed Range (MPH)							
	1-15	16-20	21-25	26-30	31-35	36-40	41-45	46-50+
% of Vehicles in 24 hrs	12.3%	10.6%	25.5%	35.0%	14.7%	1.9%	0.1%	0%
% of Vehicles during school hrs	13.7%	13.3%	29.5%	33.7%	9%	0.7%	0%	0%

Speed Limit on Main Street: 30 mph. 85th Percentile Speed – 30 mph

The traffic along this stretch of roadway seem to be traveling at an acceptable rate of speed. The count data shows that the majority of vehicles were traveling at the posted speed limit of 30 mph.

4. Traffic Classification Data:

- Classification data is based on the FHWA Vehicle Classification Scheme F (see Appendix C for a graphical representation of the classes)

Main Street west of Church Street

	Classification									
	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axle Double	5 Axle Double +	Not Classified
% of Vehicles in 24 hrs	1.5%	71%	16%	0.3%	2.3%	0.4%	0%	0.5%	0.3%	7.6%

Summary: 2.2% of heavy vehicles (3 axle or more).

It is not surprising that the majority of vehicles traveling along Main Streets are generally cars. There are also a fair number of heavy vehicles (2.2%). The large trucks could relate to the

number of businesses along Main Street as well as the Aubuchon Hardware warehouse on West Main Street.

5. Crash History

The MRPC has accident data available from the Massachusetts Department of Transportation (MassDOT) for the years of 2007-2009. All recorded crashes in the study area were mapped in Map Figure 2. For the town of Westminster there were 40 total crashes recorded within the study area. Of those 40 reported crashes, zero were reported as fatal injury crashes, 5 were considered non-fatal injury crashes, and 35 were considered property damage only. Out of the 40 total crashes, none involved a cyclist or pedestrian.

As shown on the map, there are crash clusters at at least three major intersections within the study area. Those intersections include Main Street/West Main Street, Main Street/Nichols Street, and Main Street and South Street.

6. Inventory of Road Facilities

This inventory incorporated all roadways (local streets, collectors, arterials, and highways) and any pedestrian-related infrastructure that may exist. Data that was collected included sidewalks, crosswalks, and signage. (See Map Figure 3)

Sidewalks are probably one of the most important aspects of a walkable community. In most downtown areas, simply walking along the side of the road with traffic is far too dangerous for most pedestrians. Since the average daily traffic through downtown Westminster is 12,300 it is imperative that sidewalks exist and are in good condition to accommodate pedestrians of all ages and abilities.

MRPC staff rated each existing sidewalk as good, fair and poor. Locations that did not currently have a sidewalk were also inventoried.

Sidewalk analysis was based on the following-

1. Adequate Width

All existing sidewalks were observed and analyzed to see if there is an adequate width to accommodate all roadway users. The Americans with Disabilities Act (ADA) requires that sidewalks be at least five feet in width.

2. Obstructions

Obstructions that were observed in this study included utility poles, drainage culverts, fire hydrants, vegetation, signs, etc. These items were noted if they obstructed more than 25% of the width of the sidewalk and would be impassible by a wheelchair.

3. Sidewalk Ramps/Handicap Access

Sidewalk ramps provide a nice smooth transition from the sidewalk onto the street or parking area. These ramps are required to meet the American with Disabilities Act (ADA) standards. This information can be found in the Federal Highway Administration (FHWA) publication, “Designing Sidewalks and Trails for Access, Part I of II, Review of Existing Guidelines and Practices” chapter 4. (<http://www.fhwa.dot.gov/environment/sidewalks/chap4a.htm>)

4. Sidewalk Surface

The sidewalk surface condition was determined by the percentage of cracking that occurred on the sidewalk, the smoothness (bumps, dips, depressions) of the sidewalk and the amount of loose pavement, gravel or sand located on the sidewalk.

The overall Sidewalk Condition Map was created based on all of the safety factors listed above and was then divided up into three categories:

Good - Sidewalks that were considered good had safety factors that equaled less than 25% of the entire sidewalk area.

Fair - Sidewalks that were considered fair had safety factors that equaled between 25%-50% of the entire sidewalk area.

Poor – Sidewalks that were considered poor had safety factors that were greater than 50% of the entire sidewalk area.

MRPC staff rated each existing sidewalk as good, fair and poor. Locations that did not currently have a sidewalk were also inventoried. Within the study area there were sidewalks on 44% of the roadways. The conditions of those sidewalks were broken down as follows:

Good - 72%

Fair - 28%

Poor - 0%

There are many miles of sidewalk within the study area and a majority of those are in good condition. Sidewalks are needed along side streets that would connect up to Main Street.

D. Recommendations

When streets and town centers are designed only for cars, they become barriers for pedestrians of all abilities, who cannot get from point A to point B safely. As a result, many people end up in their cars, missing out on opportunities for much needed fresh air, socialization and physical activity.

Based upon the data collected and the analysis conducted, the following Recommendations resulted: (Numbered recommendations can be referenced as examples on map Figure 4)

1. Infrastructure Improvements

Sidewalks

- Relocate all obstacles hindering the travel of pedestrians and people with disabilities along the sidewalks (utility poles, trash barrels, signs).
- Repair all damaged, cracked, chipped and uneven portions of the existing sidewalks (#1).
- Continue the sidewalk up Academy Hill Road to the common (#2).
- Continue to maintain existing sidewalks, keeping them free of debris, vegetation, snow, etc.
- Mandate sidewalks in all developments, and bicycle lanes where appropriate.

Crosswalks

- Consider traffic calming techniques such as road narrowing or adding bump outs at major crosswalk locations along Main Street (#3).
- Place “No Parking” signs for areas within 10 feet of a crosswalk or driveway.
- Keep crosswalk striping bright and visible year round (#4).

Roadways

- Re-align the intersection of Main Street and South Street/Academy (this is being done currently)
- Provide designated parking spaces along Main Street (#5).
- Consider turning lanes along Main Street for dangerous areas (Dunkin Donuts, Bacon Street, and Nichols Street) to prevent drivers from dangerously pulling around left turning vehicles (#6).
- Consider Bike Lanes (#7).
- Reduce the number of curb cuts along Main Street by providing designated channelized entrance/exit areas for shopping plazas (#8 Figure 4-B).
- Clear away vegetation and obstructions to allow improved sight distance at all intersections and driveway entrances and exits
- Add/improve striping and signage within the school zones to improve safety for children walking to school (#9).

- Warning signs look great and should continue to be placed and maintained in the school area to warn all drivers of pedestrians, cyclists and children. Placement of all regulatory and guidance signs should conform to guidelines established by Massachusetts Department of Transportation (MassDOT) – Highway Division and the “Manual on Uniform Traffic Control Devices” (MUTCD).

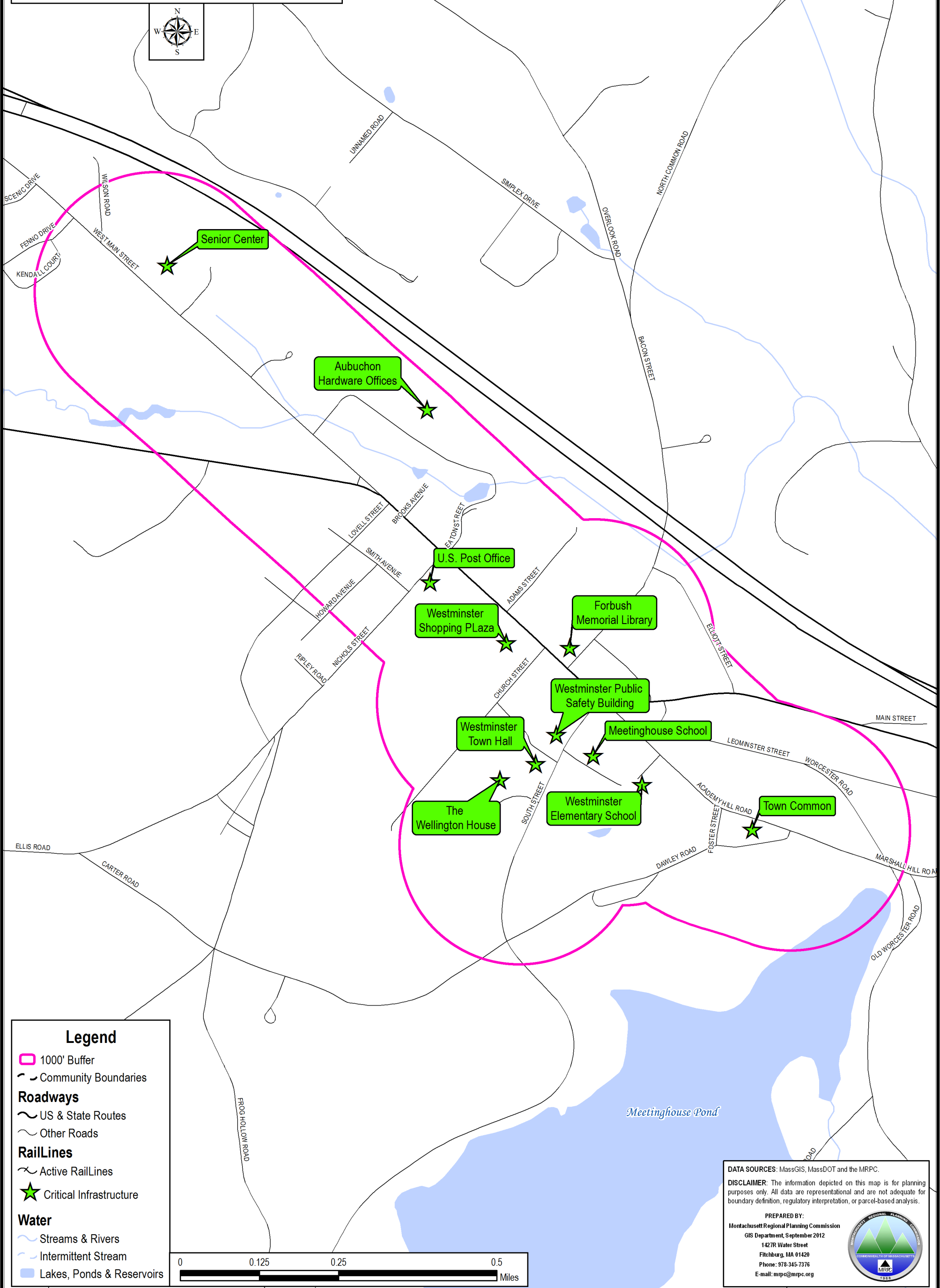
Other

- Provide and maintain pedestrian lighting.
- Pursue the idea of having trash barrels located next to major businesses.
- Study the placement of parking for future businesses along Main Street.
- Municipal parking lot locations should be considered.
- Changes to town policy that would be geared toward a more walkable community (ex. new business development regulations that would put a store front closer to the street and parking areas would be in the back. This creates a safer connection for pedestrians) More information regarding this can be found on the Complete Streets website (www.completestreets.org).

MAP FIGURES

Westminster, MA: Walkability Study Base Map with Major Infrastructure


Figure 1



DATA SOURCES: MassGIS, MassDOT and the MRPC.

DISCLAIMER: The information depicted on this map is for planning purposes only. All data are representational and are not adequate for boundary definition, regulatory interpretation, or parcel-based analysis.

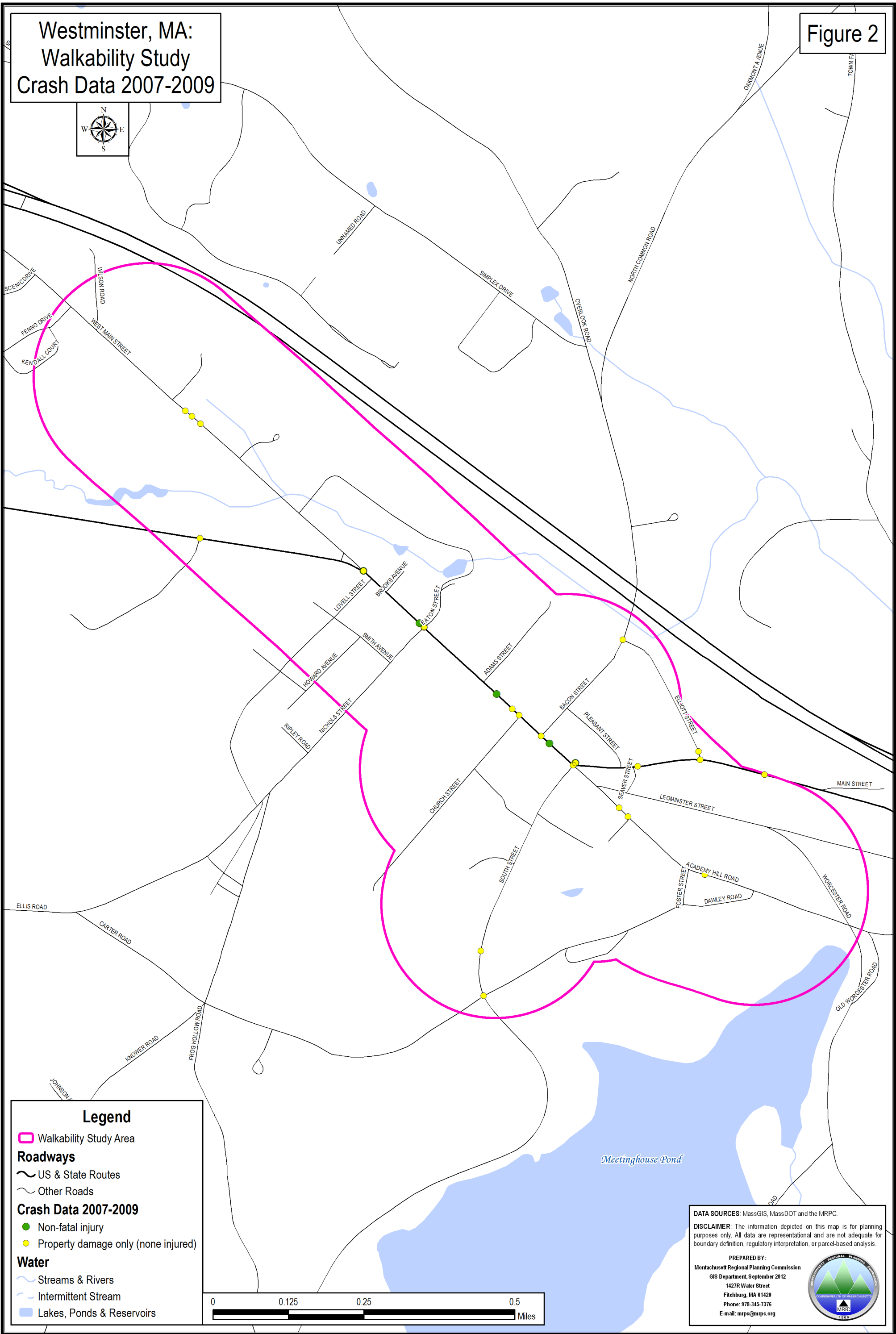
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Westminster, MA:
Walkability Study
Crash Data 2007-2009



Figure 2



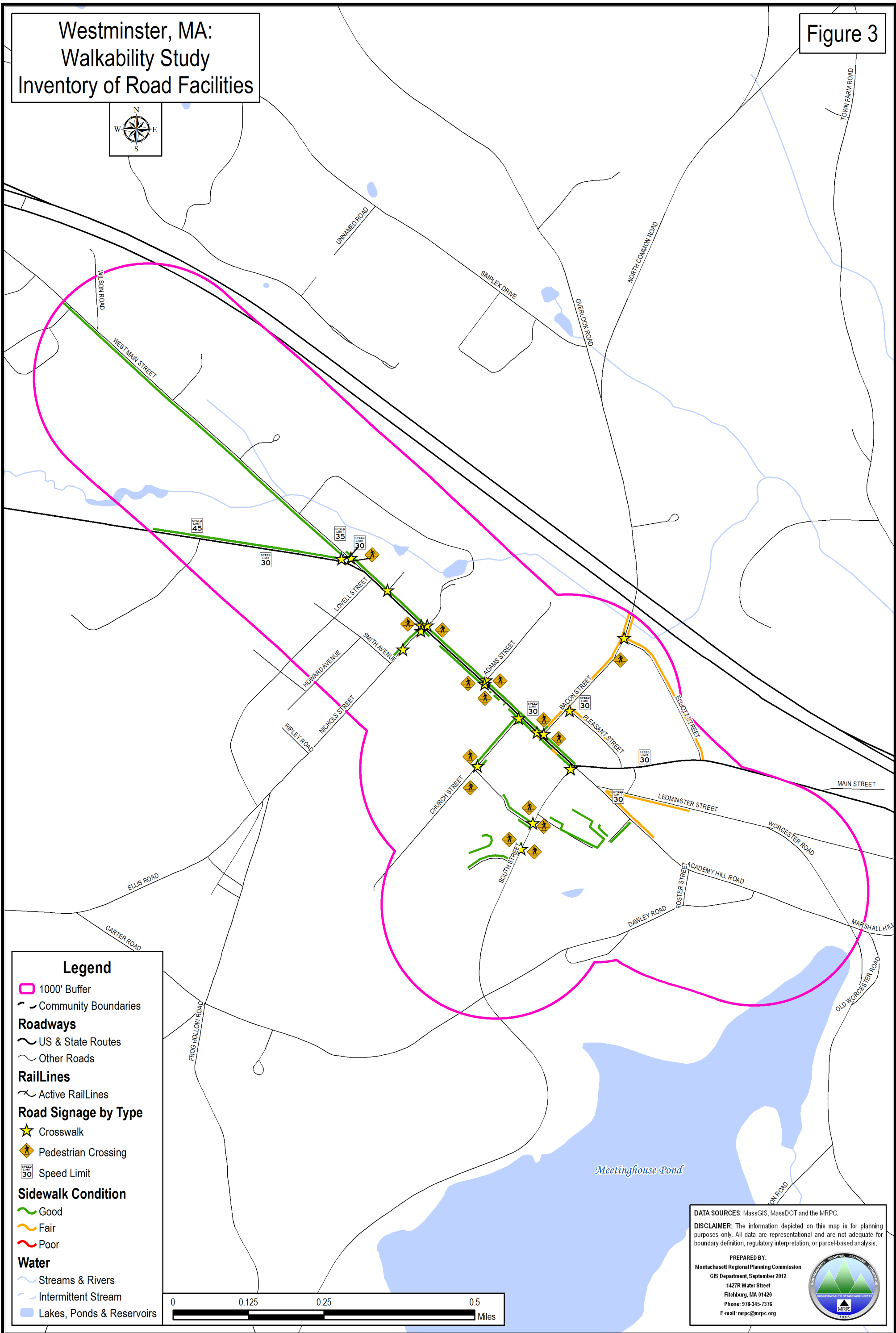
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Westminster, MA:
Walkability Study
Inventory of Road Facilities

Figure 3



Legend

- 1000' Buffer
- Community Boundaries

Roadways

- US & State Routes
- Other Roads

RailLines

- Active RailLines

Road Signage by Type

- Crosswalk
- Pedestrian Crossing
- Speed Limit

Sidewalk Condition

- Good
- Fair
- Poor

Water

- Streams & Rivers
- Intermittent Stream
- Lakes, Ponds & Reservoirs

DATA SOURCES: MassGIS, MassDOT and the MRPC.

DISCLAIMER: The information depicted on this map is for planning purposes only. All data are representational and are not adequate for boundary definition, regulatory interpretation, or parcel-based analysis.

PREPARED BY:
Montachusett Regional Planning Commission
GIS Department, September 2012
1427R Water Street
Fitchburg, MA 01420
Phone: 978-345-7376
E-mail: mrpc@mrpc.org

Westminster, MA: Walkability Study Recommendations



Figure 4A



Recommendation #4



Recommendation #3



Recommendation #7



Recommendations #9



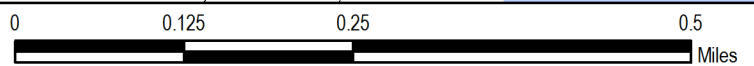
Recommendation #1



Recommendation #2



- Legend**
- 1000' Buffer
 - Sidewalk Addition Priorities
 - Roadways**
 - US & State Routes
 - Other Roads
 - RailLines**
 - Active RailLines
 - Water**
 - Streams & Rivers
 - Intermittent Stream
 - Lakes, Ponds & Reservoirs



DATA SOURCES: MassGIS, MassDOT and the MRPC.

DISCLAIMER: The information depicted on this map is for planning purposes only. All data are representational and are not adequate for boundary definition, regulatory interpretation, or parcel-based analysis.

PREPARED BY:
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GIS Department, September 2012
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Phone: 978-345-7376
E-mail: mrpc@mrpc.org

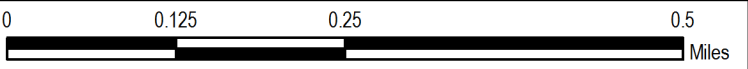
Westminster, MA:
Walkability Study
Recommendations

Figure 4B



Legend

- 1000' Buffer
- Roadways**
 - US & State Routes
 - Other Roads
- RailLines**
 - Active RailLines
- Water**
 - Streams & Rivers
 - Intermittent Stream
 - Lakes, Ponds & Reservoirs



DATA SOURCES: MassGIS, MassDOT and the MRPC.

DISCLAIMER: The information depicted on this map is for planning purposes only. All data are representational and are not adequate for boundary definition, regulatory interpretation, or parcel-based analysis.

PREPARED BY:
Montachusett Regional Planning Commission
GIS Department, September 2012
1427R Water Street
Fitchburg, MA 01420
Phone: 978-345-7376
E-mail: mrpc@mrpc.org

APPENDIX A – Walking Audit Flyer and Handout

WALK WESTMINSTER!

Are you interested in making Westminster a more Walkable community? Come join us as we “Walk Westminster” on May 19th and learn how you can help!



When: MAY 19, 9:00 AM *(Rain Date 5/20)* **Where: WESTMINSTER TOWN HALL**

By walking the streets of downtown Westminster we can identify positive and negative aspects affecting pedestrian travel and prioritizing specific solutions that will increase safety and accessibility for pedestrians. Potential solutions could include addressing missing sidewalk links, intersections, crosswalks, signage and traffic calming. Come let us know how Westminster can be more pedestrian friendly!

Agenda

9:00-9:15 – Introduction & project overview

9:15-10:45 – Walking audit

11:00-11:45 – Review findings, come up with possible solutions, wrap up

All Westminster residents, business owners, public officials, young & old! All are welcome!



Montachusett Regional Planning Commission

What to look for while conducting a Walkability Audit:

Sidewalks – Are there sidewalks within the study area? Is the width/condition acceptable (at least 4 feet wide)? Do they have handicap access ramps at each crossing & crosswalk? Are there large cracks, bumps, dips, etc. present?

Roadways – Are the current roadways in good condition? Is speeding a problem? Are large trucks an issue? Are drivers able to see pedestrians in crosswalks – is there adequate sight distance?

Crosswalks – Are the current crosswalks adequate? Do you feel safe while crossing at the crosswalks? Are vehicles parked closer than 10 feet to the crosswalks? Are there no parking zones near crosswalks? Is the striping on the crosswalk visible?

Trails – Are the trails in the area accessible to the study area? Are there guide signs to help people navigate to those trails & trail parking areas?

Parks/Public Gathering spots – Are these located nearby? Are they accessible? Is the number of parks/gathering spots adequate for the area?

Shade Trees/Benches – Are there sufficient areas to take a rest? Will you be walking in the sun most of the time or are there shaded areas to cool off in the summer?

Parking – Is there ample parking available within the study area? Are parked cars a problem within the study area? Are there guide signs to show where the parking areas are?

Attractions – What are the local attractions or key destinations that you walked by? (ex. library, parks, shops) Is there a local attraction guide or signs for visitors?

Other questions to consider-

1. What are the positive aspects of your walking route?
2. Would this walk be adequate for a young child, elderly person, or a disabled person?
3. What would make this area more walkable for all users?
4. What would encourage more walking in the area? What's missing?
5. What are the concerns regarding walking within the study area?
6. Are the neighborhoods in the area considered mixed income? Is there a variety of housing types in the area?
7. Did you see other people out walking within the study area?

APPENDIX B – Walking Audit Comments

Westminster Walkability Notes

Positives-

(Numbers 1-8 are listed by priority from the stars on the poster board)

1. Beautiful Architecture
2. The downtown is generally walkable
3. Wide sidewalks
4. Beautiful homes/landscaping
5. Lots of potential
6. Attractions – businesses, food, recreation, etc
7. Many activities going on downtown
8. The town center includes a good mix of housing/income
9. The sidewalks are plowed in the winter
10. Existing sidewalks are in good condition
11. Many crosswalks
12. Many walkers and bikers downtown
13. Adequate parking along Main Street
14. Existing benches to sit down

Negatives & Issues-

(Numbers 1- 7 are listed by priority from the stars on the poster board)

1. Lacking trees/shaded areas
2. Main Street is too wide which causes speeding
3. Signs to warn drivers are needed, traffic calming
4. Move athletic fields out of the downtown (ex. Move to Hagar Park)
5. No pedestrian access to the Joseph's Bistro plaza
6. Inconsistent curbing along sidewalks
7. Too many curb cuts near Vincent's Market & Dunkin Donuts. Wide open areas make more conflict points for drivers and pedestrians
8. Sidewalks needed on both sides of Main Street from Nichols St to State Road West
9. Sidewalks needed on south side of Nichols street from Main Street to the Post Office
10. Parking too close to crosswalks – no buffer
11. Bump outs along crosswalks may help slow vehicles
12. Municipal parking lot needed

13. Parking for athletic fields needed
14. Cars parked on roadside create blind spots
15. No trash barrels available within the study area (except town common) – Discussion about asking businesses to provide trash & recycling bins outside their establishments
16. Obstructions on sidewalks (utility poles, mail boxes, residents trash barrels)
17. No designated parking spaces (lines) along Main Street
18. Concerns regarding “No Parking” signs that appeared on Main Street – No one seems to know where they came from...
19. Turning lanes into businesses (ie. Dunkin Donuts) would be helpful
20. Sidewalks in poor condition in front of the Senior Center & Pharmacy
21. Crosswalk needed at the Westminster Café plaza
22. Reflective crosswalks are needed
23. Sidewalks needed to VFW/fields
24. Lack of planning for downtown – Business should have parking in the back instead of close to the street.

APPENDIX C – Traffic Volume Counts

Montachusett Regional Planning Commission

Page 1

Community: Westminster
Street: Academy Hill Road
Location: S. of Main Street
Functional Class: U-0

1427R Water Street
Fitchburg, MA 01420
Tel: (978) 345-7376 Email: mrpc@mrpc.org

Site Code: 33220124322
Station ID:

Latitude: 0' 0.000 Undefined

Start Time	11-Jun-12 Mon	NW	SE	Combined Total	
12:00 AM		1	2	3	
01:00		0	0	0	
02:00		0	0	0	
03:00		0	2	2	
04:00		0	0	0	
05:00		1	3	4	
06:00		2	4	6	
07:00		21	37	58	
08:00		66	108	174	
09:00		39	51	90	
10:00		14	26	40	
11:00		17	14	31	
12:00 PM		28	17	45	
01:00		22	18	40	
02:00		21	25	46	
03:00		66	62	128	
04:00		37	40	77	
05:00		46	56	102	
06:00		32	27	59	
07:00		19	25	44	
08:00		18	19	37	
09:00		2	8	10	
10:00		2	4	6	
11:00		1	2	3	
Total		455	550		
Percent		45.3%	54.7%		
Grand Total		455	550		
Percentage		45.3%	54.7%		
ADT		ADT 1,010		AADT 1,010	

Montachusett Regional Planning Commission

Page 1

Community: Westminster
 Street: Bacon Street
 Location: N. of Main Street (2A)
 Functional Class: U-5

1427R Water Street
 Fitchburg, MA 01420
 Tel: (978) 345-7376 Email: mrpc@mrpc.org

Site Code: 3322012965
 Station ID:

Latitude: 0' 0.000 Undefined

Start Time	11-Jun-12 Mon	NE	SW	Combined Total	
12:00 AM		0	2	2	
01:00		0	0	0	
02:00		1	1	2	
03:00		3	8	11	■
04:00		10	13	23	■
05:00		83	63	146	■
06:00		104	143	247	■
07:00		60	94	154	■
08:00		56	86	142	■
09:00		50	91	141	■
10:00		66	128	194	■
11:00		74	103	177	■
12:00 PM		82	76	158	■
01:00		93	98	191	■
02:00		103	105	208	■
03:00		84	127	211	■
04:00		68	134	202	■
05:00		39	49	88	■
06:00		69	63	132	■
07:00		40	44	84	■
08:00		17	22	39	■
09:00		16	12	28	■
10:00		3	1	4	■
11:00		2	3	5	■
Total		1123	1466		
Percent		43.4%	56.6%		
Grand Total		1123	1466		
Percentage		43.4%	56.6%		
ADT		Not Calculated			

Montachusett Regional Planning Commission

Page 1

Community: Westminster
Street: Main Street (2A)
Location: E. of South Street
Functional Class: U-5

1427R Water Street
Fitchburg, MA 01420
Tel: (978) 345-7376 Email: mrpc@mrpc.org

Site Code: 33220124319
Station ID:

Latitude: 0' 0.000 Undefined

Start Time	11-Jun-12 Mon	E	W	Combined Total	
12:00 AM		15	11	26	■
01:00		8	6	14	■
02:00		12	8	20	■
03:00		101	4	105	■
04:00		388	44	432	■
05:00		698	139	837	■
06:00		848	195	1043	■
07:00		648	277	925	■
08:00		498	203	701	■
09:00		386	250	636	■
10:00		417	261	678	■
11:00		460	293	753	■
12:00 PM		411	307	718	■
01:00		486	351	837	■
02:00		534	583	1117	■
03:00		526	657	1183	■
04:00		481	788	1269	■
05:00		369	423	792	■
06:00		295	279	574	■
07:00		200	212	412	■
08:00		145	135	280	■
09:00		91	73	164	■
10:00		40	66	106	■
11:00		14	27	41	■
Total		8071	5592		
Percent		59.1%	40.9%		
Grand Total		8071	5592		
Percentage		59.1%	40.9%		
ADT		ADT 13,638		AADT 13,638	

Montachusett Regional Planning Commission

Page 1

Community: Westminster
 Street: Main Street (2A)
 Location: W. of Church Street
 Functional Class: U-5

1427R Water Street
 Fitchburg, MA 01420
Tel: (978) 345-7376 Email: mrpc@mrpc.org

Site Code: 33220124318
 Station ID:

Latitude: 0' 0.000 Undefined

Start Time	11-Jun-12 Mon	SE	NW	Combined Total	
12:00 AM		19	24	43	■
01:00		21	13	34	■
02:00		6	5	11	■
03:00		13	10	23	■
04:00		83	7	90	■
05:00		334	61	395	■
06:00		649	124	773	■
07:00		778	210	988	■
08:00		632	264	896	■
09:00		493	249	742	■
10:00		401	290	691	■
11:00		464	319	783	■
12:00 PM		493	405	898	■
01:00		469	333	802	■
02:00		532	362	894	■
03:00		504	530	1034	■
04:00		524	542	1066	■
05:00		450	649	1099	■
06:00		415	402	817	■
07:00		335	321	656	■
08:00		257	220	477	■
09:00		184	132	316	■
10:00		97	76	173	■
11:00		46	60	106	■
Total		8199	5608		
Percent		59.4%	40.6%		
Grand Total		8199	5608		
Percentage		59.4%	40.6%		
ADT		ADT 13,787		AADT 13,787	

Montachusett Regional Planning Commission

Page 1

Community: Westminster
 Street: Nichols Street
 Location: SW of Main Street (2A/140)
 Functional Class: U-0

1427R Water Street
 Fitchburg, MA 01420
 Tel: (978) 345-7376 Email: mrpc@mrpc.org

Site Code: 33220124222
 Station ID:

Latitude: 0' 0.000 Undefined

Start Time	11-Jun-12 Mon	SW	NE	Combined Total	
12:00 AM		9	2	11	■
01:00		5	4	9	■
02:00		1	3	4	■
03:00		3	4	7	■
04:00		2	6	8	■
05:00		16	34	50	■
06:00		23	93	116	■
07:00		74	163	237	■
08:00		109	171	280	■
09:00		102	123	225	■
10:00		112	119	231	■
11:00		176	141	317	■
12:00 PM		139	132	271	■
01:00		132	135	267	■
02:00		141	126	267	■
03:00		162	139	301	■
04:00		207	144	351	■
05:00		178	107	285	■
06:00		159	92	251	■
07:00		101	86	187	■
08:00		84	46	130	■
09:00		78	32	110	■
10:00		41	20	61	■
11:00		23	5	28	■
Total		2077	1927		
Percent		51.9%	48.1%		
Grand Total		2077	1927		
Percentage		51.9%	48.1%		
ADT		Not Calculated			

Montachusett Regional Planning Commission

Page 1

Community: Westminster
 Street: South Street
 Location: S. of Main Street
 Functional Class: U-5

1427R Water Street
 Fitchburg, MA 01420
 Tel: (978) 345-7376 Email: mrpc@mrpc.org

Site Code: 3322012982
 Station ID:

Latitude: 0' 0.000 Undefined

Start Time	11-Jun-12 Mon	NE	SW	Combined Total	
12:00 AM		5	15	20	■
01:00		0	6	6	■
02:00		1	1	2	■
03:00		1	2	3	■
04:00		6	0	6	■
05:00		14	40	54	■
06:00		120	44	164	■
07:00		54	182	236	■
08:00		144	184	328	■
09:00		101	79	180	■
10:00		65	106	171	■
11:00		36	84	120	■
12:00 PM		7	150	157	■
01:00		14	140	154	■
02:00		29	171	200	■
03:00		50	253	303	■
04:00		94	220	314	■
05:00		120	235	355	■
06:00		97	192	289	■
07:00		60	145	205	■
08:00		58	142	200	■
09:00		29	64	93	■
10:00		21	31	52	■
11:00		6	16	22	■
Total		1132	2502		
Percent		31.2%	68.8%		
Grand Total		1132	2502		
Percentage		31.2%	68.8%		
ADT		Not Calculated			

Montachusett Regional Planning Commission

Page 1

Community: Westminster
Street: State Road West (2A)
Location: W. of Main Street
Functional Class: U-5

1427R Water Street
Fitchburg, MA 01420
Tel: (978) 345-7376 Email: mrpc@mrpc.org

Site Code: 33220124316
Station ID:

Latitude: 0' 0.000 Undefined

Start Time	11-Jun-12 Mon	NW	SE	Combined Total	
12:00 AM		18	10	28	■
01:00		8	5	13	■
02:00		7	5	12	■
03:00		0	2	2	
04:00		7	4	11	■
05:00		6	24	30	■
06:00		15	73	88	■
07:00		52	157	209	■
08:00		93	212	305	■
09:00		119	155	274	■
10:00		133	124	257	■
11:00		147	151	298	■
12:00 PM		162	163	325	■
01:00		195	147	342	■
02:00		180	137	317	■
03:00		225	157	382	■
04:00		306	154	460	■
05:00		385	151	536	■
06:00		408	120	528	■
07:00		166	98	264	■
08:00		168	94	262	■
09:00		69	74	143	■
10:00		37	31	68	■
11:00		31	18	49	■
Total		2937	2266		
Percent		56.4%	43.6%		
Grand Total		2937	2266		
Percentage		56.4%	43.6%		
ADT		ADT 5,170		AADT 5,170	

Montachusett Regional Planning Commission

Page 1

Community: Westminster
 Street: West Main Street (140)
 Location: N. of Main Street
 Functional Class: U-5

1427R Water Street
 Fitchburg, MA 01420
 Tel: (978) 345-7376 Email: mrpc@mrpc.org

Site Code: 3322012988
 Station ID:

Latitude: 0' 0.000 Undefined

Start Time	11-Jun-12 Mon	N	S	Combined Total	
12:00 AM		6	11	17	■
01:00		5	7	12	■
02:00		4	12	16	■
03:00		1	24	25	■
04:00		19	137	156	■■■■■
05:00		72	336	408	■■■■■■■■■■
06:00		108	380	488	■■■■■■■■■■■■■■
07:00		182	333	515	■■■■■■■■■■■■■■■■
08:00		122	301	423	■■■■■■■■■■■■■■■
09:00		75	237	312	■■■■■■■■■■■■■
10:00		106	241	347	■■■■■■■■■■■■■■
11:00		168	206	374	■■■■■■■■■■■■■■■
12:00 PM		111	218	329	■■■■■■■■■■■■■■■
01:00		116	214	330	■■■■■■■■■■■■■■■
02:00		162	265	427	■■■■■■■■■■■■■■■■
03:00		164	304	468	■■■■■■■■■■■■■■■■■■
04:00		201	327	528	■■■■■■■■■■■■■■■■■■■
05:00		164	290	454	■■■■■■■■■■■■■■■■■■
06:00		98	193	291	■■■■■■■■■■■■■■■
07:00		89	168	257	■■■■■■■■■■■■■■■
08:00		50	109	159	■■■■■■■■■■■■■
09:00		40	106	146	■■■■■■■■■■■■■
10:00		20	52	72	■■■■■■■■■■■
11:00		17	19	36	■■■■■■■■■■■
Total		2100	4490		
Percent		31.9%	68.1%		
Grand Total		2100	4490		
Percentage		31.9%	68.1%		
ADT		Not Calculated			

APPENDIX D – Turning Movement Counts

Montachusett Regional Planning Commission

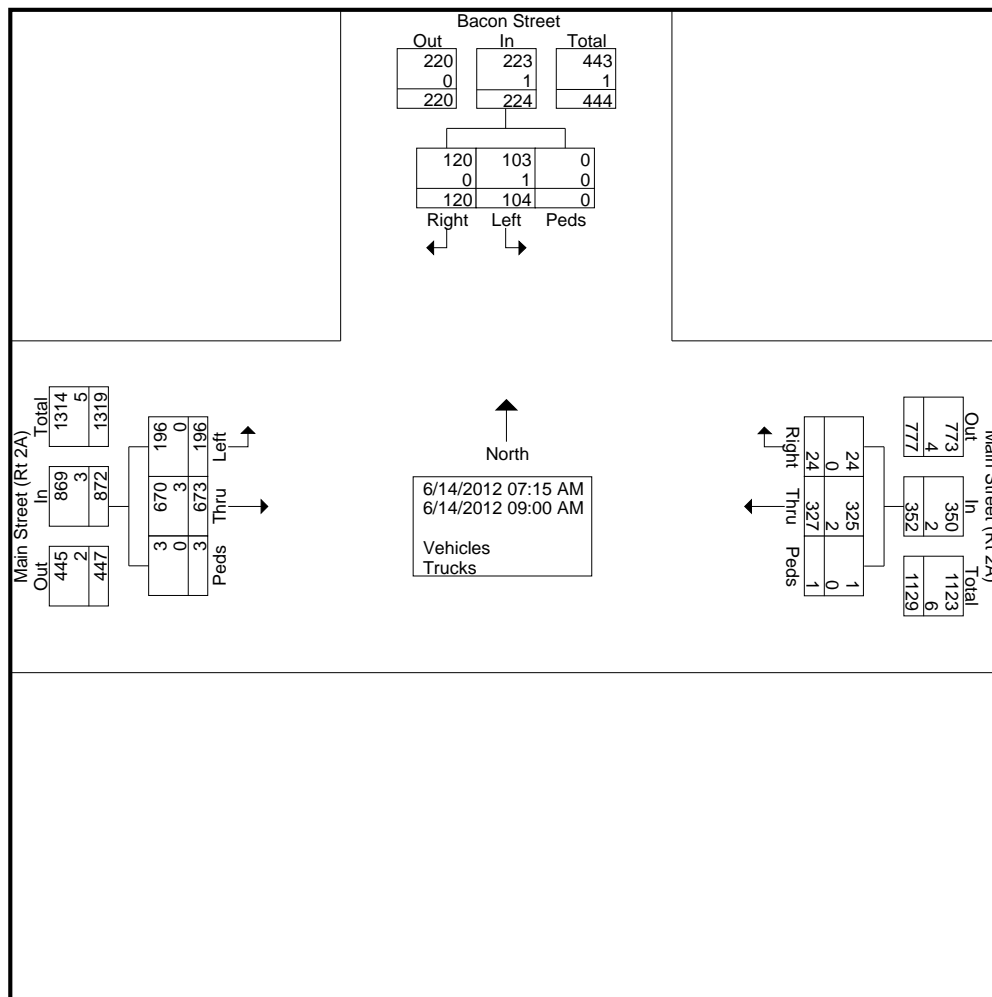
R1427 Water Street
Fitchburg, MA 01420
Tel: (978) 345-7376 Email: mrpc@mrpc.org

Community: Westminster
Street: Main Street (Rt 2A)
Location: Bacon Street
Functional Class: U-5

File Name : 332-2012-4318 AM
Site Code : 00004318
Start Date : 6/14/2012
Page No : 1

Groups Printed- Vehicles - Trucks

	Bacon Street From North				Main Street (Rt 2A) From East				Main Street (Rt 2A) From West				
Start Time	Right	Left	Peds	App. Total	Right	Thru	Peds	App. Total	Thru	Left	Peds	App. Total	Int. Total
07:15 AM	10	6	0	16	1	26	0	27	79	18	0	97	140
07:30 AM	12	13	0	25	1	29	0	30	75	20	0	95	150
07:45 AM	8	19	0	27	5	28	0	33	82	27	0	109	169
Total	30	38	0	68	7	83	0	90	236	65	0	301	459
08:00 AM	16	20	0	36	3	45	0	48	75	51	0	126	210
08:15 AM	16	14	0	30	2	49	0	51	100	34	0	134	215
08:30 AM	12	10	0	22	5	45	0	50	87	15	0	102	174
08:45 AM	23	12	0	35	5	44	0	49	82	17	2	101	185
Total	67	56	0	123	15	183	0	198	344	117	2	463	784
09:00 AM	23	10	0	33	2	61	1	64	93	14	1	108	205
Grand Total	120	104	0	224	24	327	1	352	673	196	3	872	1448
Apprch %	53.6	46.4	0		6.8	92.9	0.3		77.2	22.5	0.3		
Total %	8.3	7.2	0	15.5	1.7	22.6	0.1	24.3	46.5	13.5	0.2	60.2	
Vehicles	120	103	0	223	24	325	1	350	670	196	3	869	1442
% Vehicles	100	99	0	99.6	100	99.4	100	99.4	99.6	100	100	99.7	99.6
Trucks	0	1	0	1	0	2	0	2	3	0	0	3	6
% Trucks	0	1	0	0.4	0	0.6	0	0.6	0.4	0	0	0.3	0.4



Montachusett Regional Planning Commission

R1427 Water Street

Fitchburg, MA 01420

Tel: (978) 345-7376 Email: mrpc@mrpc.org

Community: Westminster
Street: Main Street (Rt 2A)
Location: Bacon Street
Functional Class: U-5

File Name : 332-2012-4318 AM
Site Code : 00004318
Start Date : 6/14/2012
Page No : 2

	Bacon Street From North				Main Street (Rt 2A) From East				Main Street (Rt 2A) From West				
Start Time	Right	Left	Peds	App. Total	Right	Thru	Peds	App. Total	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:15 AM to 09:00 AM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 08:00 AM													
08:00 AM	16	20	0	36	3	45	0	48	75	51	0	126	210
08:15 AM	16	14	0	30	2	49	0	51	100	34	0	134	215
08:30 AM	12	10	0	22	5	45	0	50	87	15	0	102	174
08:45 AM	23	12	0	35	5	44	0	49	82	17	2	101	185
Total Volume	67	56	0	123	15	183	0	198	344	117	2	463	784
% App. Total	54.5	45.5	0		7.6	92.4	0		74.3	25.3	0.4		
PHF	.728	.700	.000	.854	.750	.934	.000	.971	.860	.574	.250	.864	.912

Montachusett Regional Planning Commission

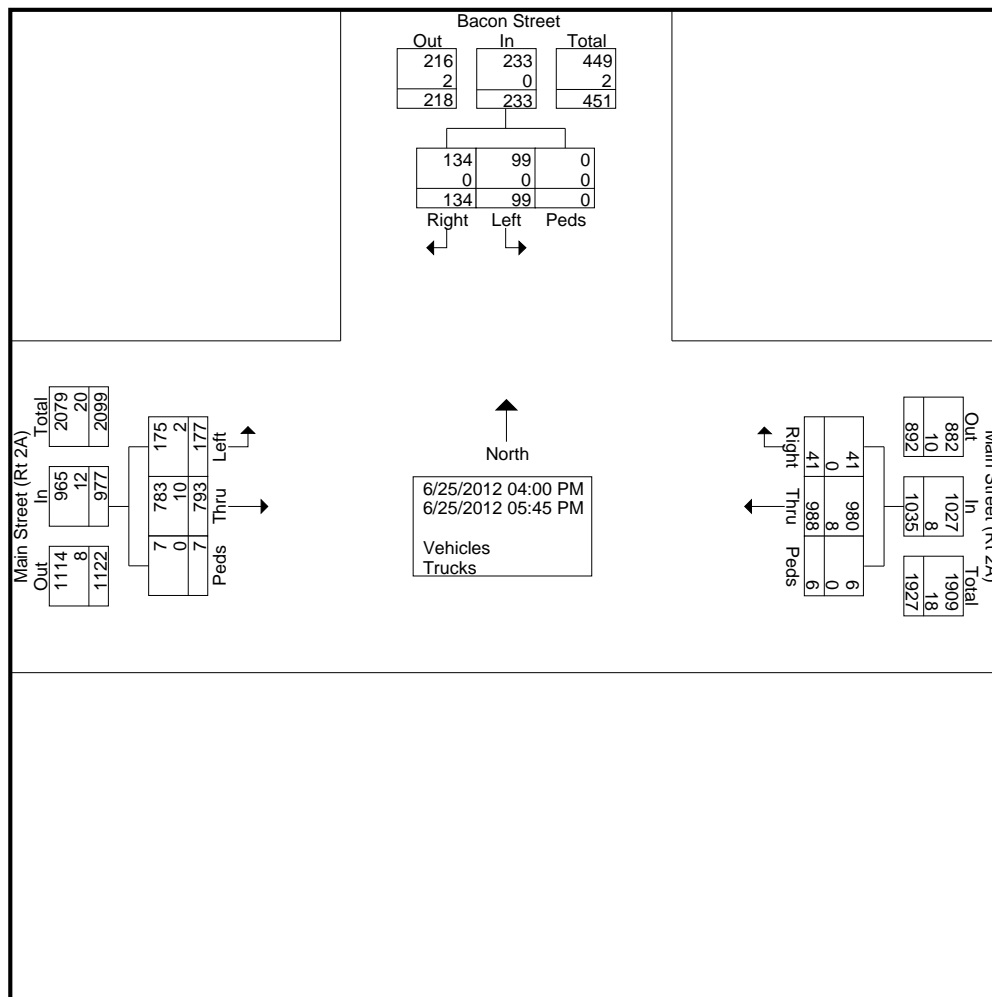
R1427 Water Street
Fitchburg, MA 01420
Tel: (978) 345-7376 Email: mrpc@mrpc.org

Community: Westminster
Street: Main Street (Rt 2A)
Location: Bacon Street
Functional Class: U-5

File Name : 332-2012-4318 PM
Site Code : 00004318
Start Date : 6/25/2012
Page No : 1

Groups Printed- Vehicles - Trucks

	Bacon Street From North				Main Street (Rt 2A) From East				Main Street (Rt 2A) From West				
Start Time	Right	Left	Peds	App. Total	Right	Thru	Peds	App. Total	Thru	Left	Peds	App. Total	Int. Total
04:00 PM	13	11	0	24	6	136	0	142	131	28	0	159	325
04:15 PM	21	7	0	28	2	116	0	118	115	22	0	137	283
04:30 PM	14	7	0	21	9	93	0	102	88	34	0	122	245
04:45 PM	7	5	0	12	11	94	0	105	75	16	1	92	209
Total	55	30	0	85	28	439	0	467	409	100	1	510	1062
05:00 PM	17	34	0	51	3	108	0	111	99	23	1	123	285
05:15 PM	26	20	0	46	3	166	6	175	91	14	0	105	326
05:30 PM	20	4	0	24	6	158	0	164	93	24	4	121	309
05:45 PM	16	11	0	27	1	117	0	118	101	16	1	118	263
Total	79	69	0	148	13	549	6	568	384	77	6	467	1183
Grand Total	134	99	0	233	41	988	6	1035	793	177	7	977	2245
Apprch %	57.5	42.5	0		4	95.5	0.6		81.2	18.1	0.7		
Total %	6	4.4	0	10.4	1.8	44	0.3	46.1	35.3	7.9	0.3	43.5	
Vehicles	134	99	0	233	41	980	6	1027	783	175	7	965	2225
% Vehicles	100	100	0	100	100	99.2	100	99.2	98.7	98.9	100	98.8	99.1
Trucks	0	0	0	0	0	8	0	8	10	2	0	12	20
% Trucks	0	0	0	0	0	0.8	0	0.8	1.3	1.1	0	1.2	0.9



Montachusett Regional Planning Commission

R1427 Water Street
Fitchburg, MA 01420
Tel: (978) 345-7376 Email: mrpc@mrpc.org

Community: Westminster
Street: Main Street (Rt 2A)
Location: Bacon Street
Functional Class: U-5

File Name : 332-2012-4318 PM
Site Code : 00004318
Start Date : 6/25/2012
Page No : 2

	Bacon Street From North				Main Street (Rt 2A) From East				Main Street (Rt 2A) From West				
Start Time	Right	Left	Peds	App. Total	Right	Thru	Peds	App. Total	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 05:00 PM													
05:00 PM	17	34	0	51	3	108	0	111	99	23	1	123	285
05:15 PM	26	20	0	46	3	166	6	175	91	14	0	105	326
05:30 PM	20	4	0	24	6	158	0	164	93	24	4	121	309
05:45 PM	16	11	0	27	1	117	0	118	101	16	1	118	263
Total Volume	79	69	0	148	13	549	6	568	384	77	6	467	1183
% App. Total	53.4	46.6	0		2.3	96.7	1.1		82.2	16.5	1.3		
PHF	.760	.507	.000	.725	.542	.827	.250	.811	.950	.802	.375	.949	.907

Montachusett Regional Planning Commission

1427R Water Street

Fitchburg, MA 01420

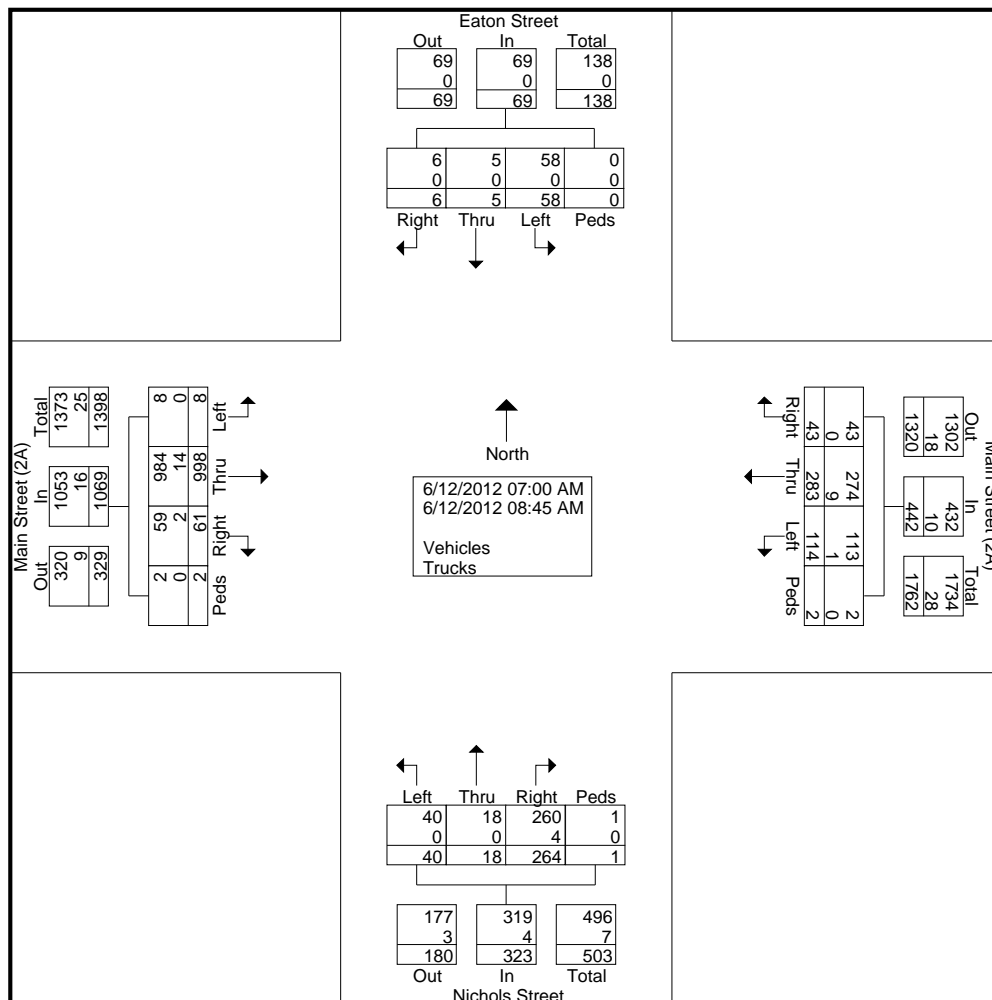
Tel: (978) 345-7376 Email: mrpc@mrpc.org

Community: Westminster
Street: Main Street (2A)
Location: At Nichols Street
Functional Class: U-5

File Name : 332-2012-4317 AM
Site Code : 00004317
Start Date : 6/12/2012
Page No : 1

Groups Printed- Vehicles - Trucks

	Eaton Street From North					Main Street (2A) From East					Nichols Street From South					Main Street (2A) From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
07:00 AM	0	1	10	0	11	6	26	7	0	39	47	2	5	0	54	4	151	0	0	155	259
07:15 AM	1	0	6	0	7	5	30	13	0	48	40	2	2	0	44	7	149	1	0	157	256
07:30 AM	1	2	4	0	7	5	35	17	0	57	31	1	7	0	39	10	168	1	0	179	282
07:45 AM	1	0	8	0	9	8	34	16	0	58	32	2	4	0	38	10	141	0	1	152	257
Total	3	3	28	0	34	24	125	53	0	202	150	7	18	0	175	31	609	2	1	643	1054
08:00 AM	2	0	9	0	11	6	32	14	1	53	38	3	10	0	51	14	92	1	1	108	223
08:15 AM	1	1	6	0	8	6	45	12	0	63	26	3	6	0	35	4	112	1	0	117	223
08:30 AM	0	1	8	0	9	5	47	19	1	72	26	1	3	1	31	4	99	1	0	104	216
08:45 AM	0	0	7	0	7	2	34	16	0	52	24	4	3	0	31	8	86	3	0	97	187
Total	3	2	30	0	35	19	158	61	2	240	114	11	22	1	148	30	389	6	1	426	849
Grand Total	6	5	58	0	69	43	283	114	2	442	264	18	40	1	323	61	998	8	2	1069	1903
Apprch %	8.7	7.2	84.1	0		9.7	64	25.8	0.5		81.7	5.6	12.4	0.3		5.7	93.4	0.7	0.2		
Total %	0.3	0.3	3	0	3.6	2.3	14.9	6	0.1	23.2	13.9	0.9	2.1	0.1	17	3.2	52.4	0.4	0.1	56.2	
Vehicles	6	5	58	0	69	43	274	113	2	432	260	18	40	1	319	59	984	8	2	1053	1873
% Vehicles	100	100	100	0	100	100	96.8	99.1	100	97.7	98.5	100	100	100	98.8	96.7	98.6	100	100	98.5	98.4
Trucks	0	0	0	0	0	0	9	1	0	10	4	0	0	0	4	2	14	0	0	16	30
% Trucks	0	0	0	0	0	0	3.2	0.9	0	2.3	1.5	0	0	0	1.2	3.3	1.4	0	0	1.5	1.6



Montachusett Regional Planning Commission

1427R Water Street

Fitchburg, MA 01420

Tel: (978) 345-7376 Email: mrpc@mrpc.org

Community: Westminster
Street: Main Street (2A)
Location: At Nichols Street
Functional Class: U-5

File Name : 332-2012-4317 AM
Site Code : 00004317
Start Date : 6/12/2012
Page No : 2

	Eaton Street From North					Main Street (2A) From East					Nichols Street From South					Main Street (2A) From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:00 AM																					
07:00 AM	0	1	10	0	11	6	26	7	0	39	47	2	5	0	54	4	151	0	0	155	259
07:15 AM	1	0	6	0	7	5	30	13	0	48	40	2	2	0	44	7	149	1	0	157	256
07:30 AM	1	2	4	0	7	5	35	17	0	57	31	1	7	0	39	10	168	1	0	179	282
07:45 AM	1	0	8	0	9	8	34	16	0	58	32	2	4	0	38	10	141	0	1	152	257
Total Volume	3	3	28	0	34	24	125	53	0	202	150	7	18	0	175	31	609	2	1	643	1054
% App. Total	8.8	8.8	82.4	0		11.9	61.9	26.2	0		85.7	4	10.3	0		4.8	94.7	0.3	0.2		
PHF	.750	.375	.700	.000	.773	.750	.893	.779	.000	.871	.798	.875	.643	.000	.810	.775	.906	.500	.250	.898	.934

Montachusett Regional Planning Commission

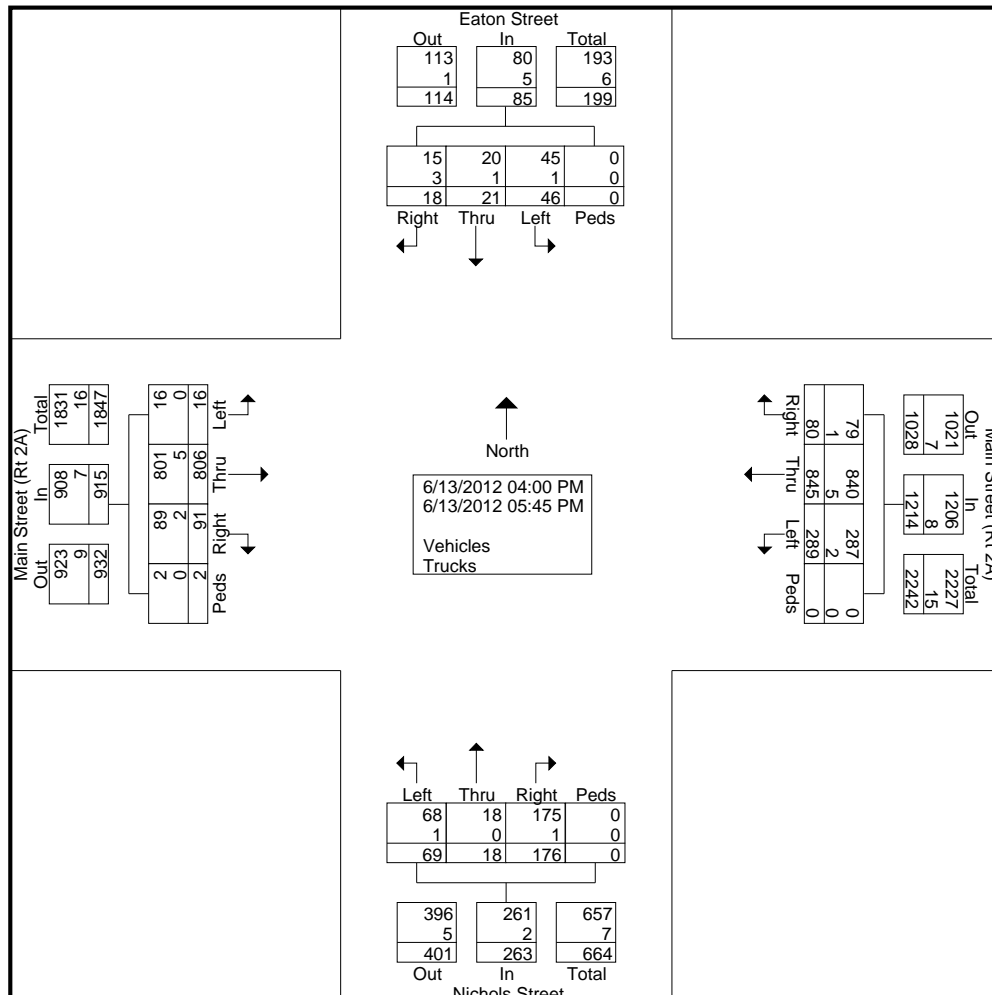
R1427 Water Street
Fitchburg, MA 01420
Tel: (978) 345-7376 Email: mrpc@mrpc.org

Community: Westminster
Street: Main Street (Rt 2A)
Location: Nichols Street
Functional Class: U-5

File Name : 332-2012-4317 PM
Site Code : 00004317
Start Date : 6/13/2012
Page No : 1

Groups Printed- Vehicles - Trucks

	Eaton Street From North					Main Street (Rt 2A) From East					Nichols Street From South					Main Street (Rt 2A) From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
04:00 PM	2	3	7	0	12	7	96	40	0	143	21	1	9	0	31	11	101	3	1	116	302
04:15 PM	4	4	8	0	16	8	84	40	0	132	22	1	6	0	29	8	95	1	0	104	281
04:30 PM	4	2	5	0	11	15	106	40	0	161	22	4	10	0	36	13	113	2	1	129	337
04:45 PM	2	5	4	0	11	9	101	43	0	153	26	3	13	0	42	8	103	1	0	112	318
Total	12	14	24	0	50	39	387	163	0	589	91	9	38	0	138	40	412	7	2	461	1238
05:00 PM	2	3	2	0	7	11	125	37	0	173	21	3	13	0	37	11	90	3	0	104	321
05:15 PM	2	2	8	0	12	8	137	24	0	169	30	3	10	0	43	15	90	0	0	105	329
05:30 PM	0	1	6	0	7	15	102	25	0	142	14	0	5	0	19	5	98	5	0	108	276
05:45 PM	2	1	6	0	9	7	94	40	0	141	20	3	3	0	26	20	116	1	0	137	313
Total	6	7	22	0	35	41	458	126	0	625	85	9	31	0	125	51	394	9	0	454	1239
Grand Total	18	21	46	0	85	80	845	289	0	1214	176	18	69	0	263	91	806	16	2	915	2477
Apprch %	21.2	24.7	54.1	0		6.6	69.6	23.8	0		66.9	6.8	26.2	0		9.9	88.1	1.7	0.2		
Total %	0.7	0.8	1.9	0	3.4	3.2	34.1	11.7	0	49	7.1	0.7	2.8	0	10.6	3.7	32.5	0.6	0.1	36.9	
Vehicles	15	20	45	0	80	79	840	287	0	1206	175	18	68	0	261	89	801	16	2	908	2455
% Vehicles	83.3	95.2	97.8	0	94.1	98.8	99.4	99.3	0	99.3	99.4	100	98.6	0	99.2	97.8	99.4	100	100	99.2	99.1
Trucks	3	1	1	0	5	1	5	2	0	8	1	0	1	0	2	2	5	0	0	7	22
% Trucks	16.7	4.8	2.2	0	5.9	1.2	0.6	0.7	0	0.7	0.6	0	1.4	0	0.8	2.2	0.6	0	0	0.8	0.9



Montachusett Regional Planning Commission

R1427 Water Street

Fitchburg, MA 01420

Tel: (978) 345-7376 Email: mrpc@mrpc.org

Community: Westminster
Street: Main Street (Rt 2A)
Location: Nichols Street
Functional Class: U-5

File Name : 332-2012-4317 PM
Site Code : 00004317
Start Date : 6/13/2012
Page No : 2

	Eaton Street From North					Main Street (Rt 2A) From East					Nichols Street From South					Main Street (Rt 2A) From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:30 PM																					
04:30 PM	4	2	5	0	11	15	106	40	0	161	22	4	10	0	36	13	113	2	1	129	337
04:45 PM	2	5	4	0	11	9	101	43	0	153	26	3	13	0	42	8	103	1	0	112	318
05:00 PM	2	3	2	0	7	11	125	37	0	173	21	3	13	0	37	11	90	3	0	104	321
05:15 PM	2	2	8	0	12	8	137	24	0	169	30	3	10	0	43	15	90	0	0	105	329
Total Volume	10	12	19	0	41	43	469	144	0	656	99	13	46	0	158	47	396	6	1	450	1305
% App. Total	24.4	29.3	46.3	0		6.6	71.5	22	0		62.7	8.2	29.1	0		10.4	88	1.3	0.2		
PHF	.625	.600	.594	.000	.854	.717	.856	.837	.000	.948	.825	.813	.885	.000	.919	.783	.876	.500	.250	.872	.968

Montachusett Regional Planning Commission

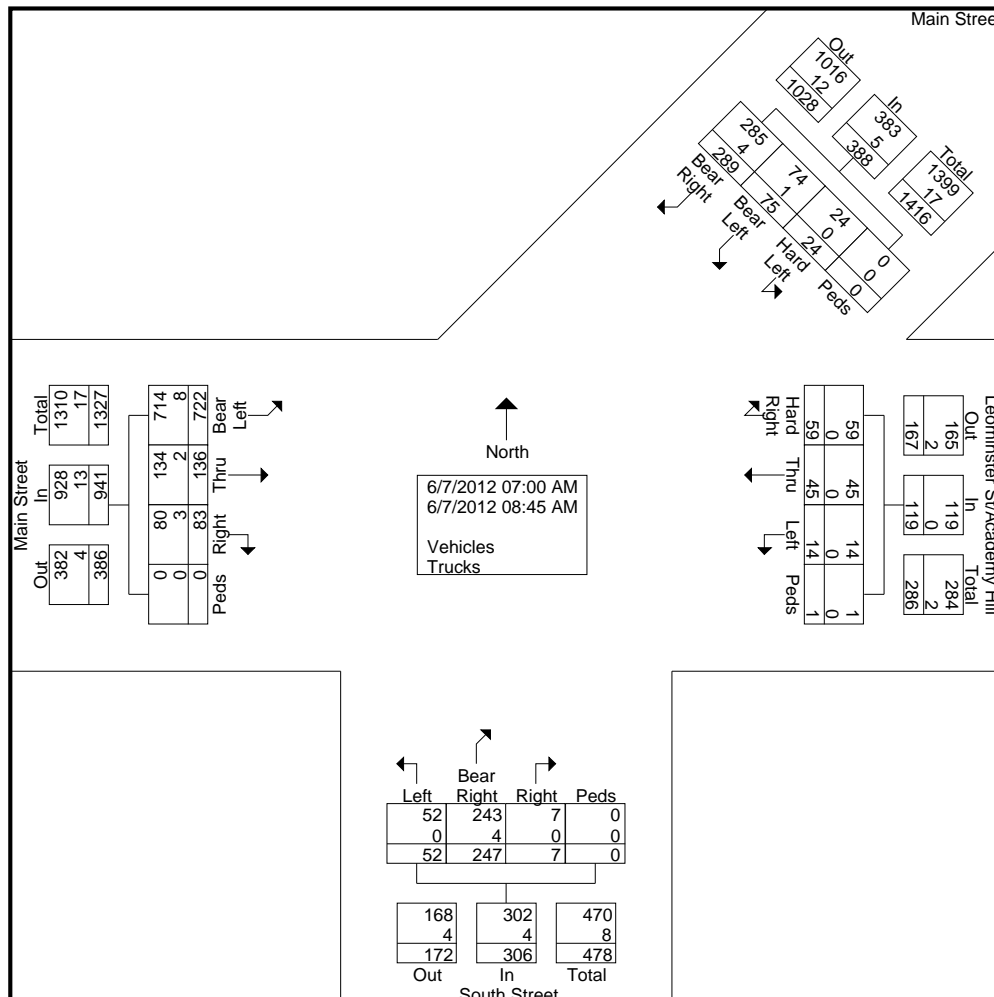
R1427 Water Street
Fitchburg, MA 01420
Tel: (978) 345-7376 Email: mrpc@mrpc.org

Community: Westminster
Street: Main Street (Rt. 2A)
Location: At South Street
Functional Class: U-5

File Name : 332-2012-4320 am
Site Code : 00004320
Start Date : 6/7/2012
Page No : 1

Groups Printed- Vehicles - Trucks

	Main Street From Northeast					Main Street From West					Leominster St/Academy Hill From East					South Street From South					
Start Time	Bear Right	Bear Left	Hard Left	Peds	App. Total	Right	Thru	Bear Left	Peds	App. Total	Hard Right	Thru	Left	Peds	App. Total	Right	Bear Right	Left	Peds	App. Total	Int. Total
07:00 AM	29	6	1	0	36	6	7	105	0	118	9	4	0	0	13	1	29	11	0	41	208
07:15 AM	30	4	4	0	38	7	21	111	0	139	4	7	1	0	12	0	36	9	0	45	234
07:30 AM	32	5	0	0	37	8	21	118	0	147	5	4	0	0	9	0	25	6	0	31	224
07:45 AM	36	8	1	0	45	16	17	101	0	134	4	5	0	0	9	1	23	7	0	31	219
Total	127	23	6	0	156	37	66	435	0	538	22	20	1	0	43	2	113	33	0	148	885
08:00 AM	39	9	8	0	56	16	30	91	0	137	12	7	2	0	21	0	31	5	0	36	250
08:15 AM	48	28	8	0	84	10	30	75	0	115	18	8	8	0	34	2	40	4	0	46	279
08:30 AM	47	10	1	0	58	17	6	69	0	92	6	5	3	1	15	1	36	7	0	44	209
08:45 AM	28	5	1	0	34	3	4	52	0	59	1	5	0	0	6	2	27	3	0	32	131
Total	162	52	18	0	232	46	70	287	0	403	37	25	13	1	76	5	134	19	0	158	869
Grand Total	289	75	24	0	388	83	136	722	0	941	59	45	14	1	119	7	247	52	0	306	1754
Apprch %	74.5	19.3	6.2	0		8.8	14.5	76.7	0		49.6	37.8	11.8	0.8		2.3	80.7	17	0		
Total %	16.5	4.3	1.4	0	22.1	4.7	7.8	41.2	0	53.6	3.4	2.6	0.8	0.1	6.8	0.4	14.1	3	0	17.4	
Vehicles	285	74	24	0	383	80	134	714	0	928	59	45	14	1	119	7	243	52	0	302	1732
% Vehicles	98.6	98.7	100	0	98.7	96.4	98.5	98.9	0	98.6	100	100	100	100	100	100	98.4	100	0	98.7	98.7
Trucks	4	1	0	0	5	3	2	8	0	13	0	0	0	0	0	0	4	0	0	4	22
% Trucks	1.4	1.3	0	0	1.3	3.6	1.5	1.1	0	1.4	0	0	0	0	0	0	1.6	0	0	1.3	1.3



Montachusett Regional Planning Commission

R1427 Water Street

Fitchburg, MA 01420

Tel: (978) 345-7376 Email: mrpc@mrpc.org

Community: Westminster
Street: Main Street (Rt. 2A)
Location: At South Street
Functional Class: U-5

File Name : 332-2012-4320 am
Site Code : 00004320
Start Date : 6/7/2012
Page No : 2

	Main Street From Northeast					Main Street From West					Leominster St/Academy Hill From East					South Street From South					
Start Time	Bear Right	Bear Left	Hard Left	Peds	App. Total	Right	Thru	Bear Left	Peds	App. Total	Hard Right	Thru	Left	Peds	App. Total	Right	Bear Right	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:30 AM																					
07:30 AM	32	5	0	0	37	8	21	118	0	147	5	4	0	0	9	0	25	6	0	31	224
07:45 AM	36	8	1	0	45	16	17	101	0	134	4	5	0	0	9	1	23	7	0	31	219
08:00 AM	39	9	8	0	56	16	30	91	0	137	12	7	2	0	21	0	31	5	0	36	250
08:15 AM	48	28	8	0	84	10	30	75	0	115	18	8	8	0	34	2	40	4	0	46	279
Total Volume	155	50	17	0	222	50	98	385	0	533	39	24	10	0	73	3	119	22	0	144	972
% App. Total	69.8	22.5	7.7	0		9.4	18.4	72.2	0		53.4	32.9	13.7	0		2.1	82.6	15.3	0		
PHF	.807	.446	.531	.000	.661	.781	.817	.816	.000	.906	.542	.750	.313	.000	.537	.375	.744	.786	.000	.783	.871

Montachusett Regional Planning Commission

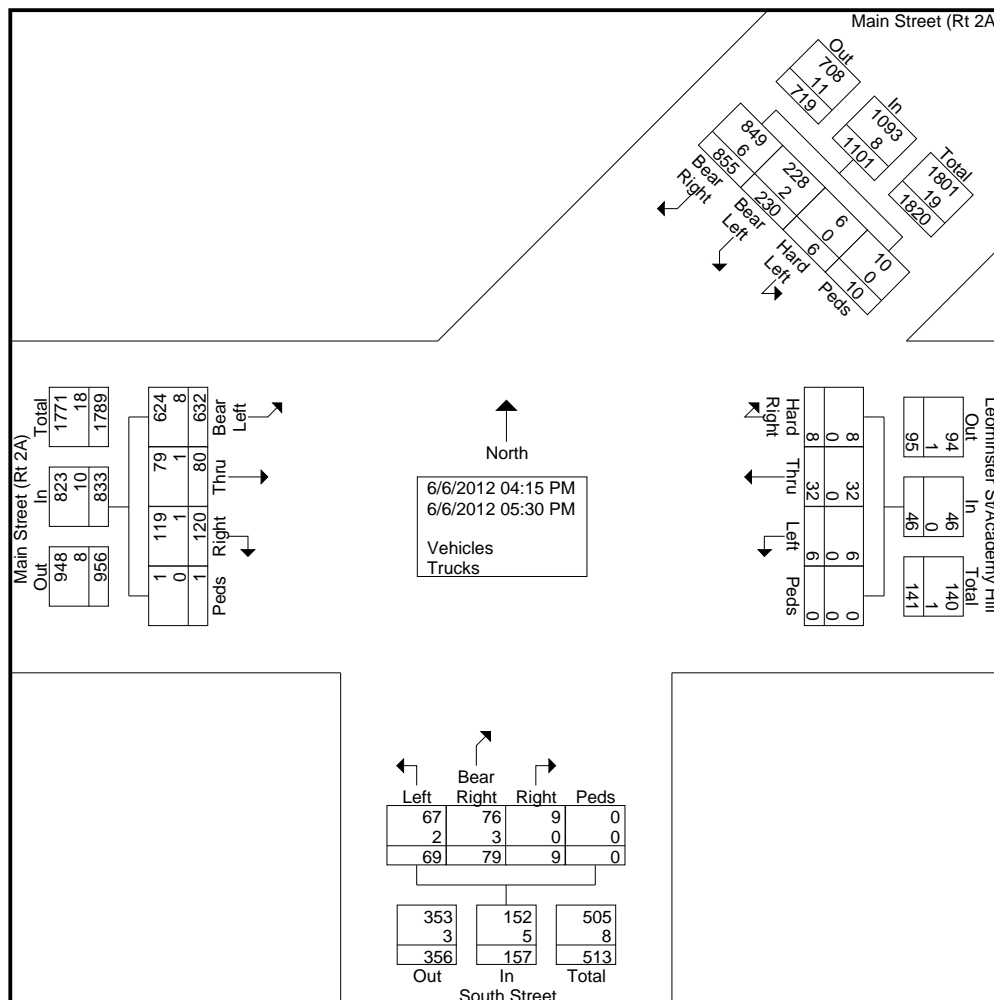
R1427 Water Street
Fitchburg, MA 01420
Tel: (978) 345-7376 Email: mrpc@mrpc.org

Community: Westminster
Street: Main Street (Rt 2A)
Location: South Street
Functional Class: U-5

File Name : 332-2012-4320 PM
Site Code : 00043211
Start Date : 6/6/2012
Page No : 1

Groups Printed- Vehicles - Trucks

	Main Street (Rt 2A) From Northeast					Leominster St/Academy Hill From East					South Street From South					Main Street (Rt 2A) From West					
Start Time	Bear Right	Bear Left	Hard Left	Peds	App. Total	Hard Right	Thru	Left	Peds	App. Total	Right	Bear Right	Left	Peds	App. Total	Right	Thru	Bear Left	Peds	App. Total	Int. Total
04:15 PM	125	30	2	0	157	0	8	2	0	10	1	13	18	0	32	21	4	125	0	150	349
04:30 PM	139	32	1	0	172	7	6	1	0	14	2	14	11	0	27	16	14	122	0	152	365
04:45 PM	140	40	0	0	180	1	7	0	0	8	2	13	13	0	28	24	14	93	0	131	347
Total	404	102	3	0	509	8	21	3	0	32	5	40	42	0	87	61	32	340	0	433	1061
05:00 PM	144	33	1	3	181	0	5	0	0	5	0	11	9	0	20	17	19	120	1	157	363
05:15 PM	154	47	2	3	206	0	5	3	0	8	0	17	8	0	25	20	18	60	0	98	337
05:30 PM	153	48	0	4	205	0	1	0	0	1	4	11	10	0	25	22	11	112	0	145	376
Grand Total	855	230	6	10	1101	8	32	6	0	46	9	79	69	0	157	120	80	632	1	833	2137
Apprch %	77.7	20.9	0.5	0.9		17.4	69.6	13	0		5.7	50.3	43.9	0		14.4	9.6	75.9	0.1		
Total %	40	10.8	0.3	0.5	51.5	0.4	1.5	0.3	0	2.2	0.4	3.7	3.2	0	7.3	5.6	3.7	29.6	0	39	
Vehicles	849	228	6	10	1093	8	32	6	0	46	9	76	67	0	152	119	79	624	1	823	2114
% Vehicles	99.3	99.1	100	100	99.3	100	100	100	0	100	100	96.2	97.1	0	96.8	99.2	98.8	98.7	100	98.8	98.9
Trucks	6	2	0	0	8	0	0	0	0	0	0	3	2	0	5	1	1	8	0	10	23
% Trucks	0.7	0.9	0	0	0.7	0	0	0	0	0	0	3.8	2.9	0	3.2	0.8	1.2	1.3	0	1.2	1.1



Montachusett Regional Planning Commission

R1427 Water Street

Fitchburg, MA 01420

Tel: (978) 345-7376 Email: mrpc@mrpc.org

Community: Westminster
Street: Main Street (Rt 2A)
Location: South Street
Functional Class: U-5

File Name : 332-2012-4320 PM
Site Code : 00043211
Start Date : 6/6/2012
Page No : 2

	Main Street (Rt 2A) From Northeast					Leominster St/Academy Hill From East					South Street From South					Main Street (Rt 2A) From West					
Start Time	Bear Right	Bear Left	Hard Left	Peds	App. Total	Hard Right	Thru	Left	Peds	App. Total	Right	Bear Right	Left	Peds	App. Total	Right	Thru	Bear Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 04:15 PM to 05:30 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:15 PM																					
04:15 PM	125	30	2	0	157	0	8	2	0	10	1	13	18	0	32	21	4	125	0	150	349
04:30 PM	139	32	1	0	172	7	6	1	0	14	2	14	11	0	27	16	14	122	0	152	365
04:45 PM	140	40	0	0	180	1	7	0	0	8	2	13	13	0	28	24	14	93	0	131	347
05:00 PM	144	33	1	3	181	0	5	0	0	5	0	11	9	0	20	17	19	120	1	157	363
Total Volume	548	135	4	3	690	8	26	3	0	37	5	51	51	0	107	78	51	460	1	590	1424
% App. Total	79.4	19.6	0.6	0.4		21.6	70.3	8.1	0		4.7	47.7	47.7	0		13.2	8.6	78	0.2		
PHF	.951	.844	.500	.250	.953	.286	.813	.375	.000	.661	.625	.911	.708	.000	.836	.813	.671	.920	.250	.939	.975

Montachusett Regional Planning Commission

R1427 Water Street

Fitchburg, MA 01420

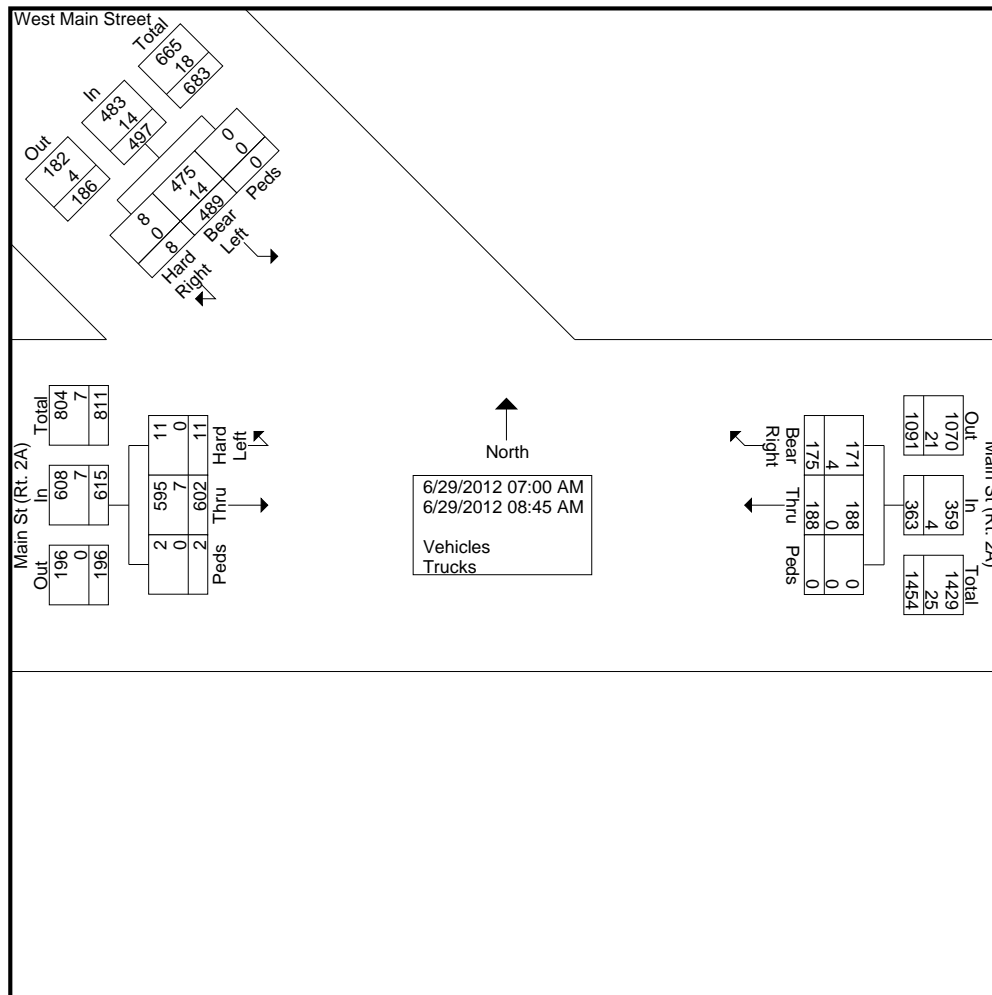
Tel: (978) 345-7376 Email: mrpc@mrpc.org

Community: Westminster
Street: Main St (Rt. 2A)
Location: At West Main St
Functional Class: U05

File Name : 332-2012-4319 AM
Site Code : 00004319
Start Date : 6/29/2012
Page No : 1

Groups Printed- Vehicles - Trucks

	West Main Street From Northwest				Main St (Rt. 2A) From East				Main St (Rt. 2A) From West				
Start Time	Hard Right	Bear Left	Peds	App. Total	Bear Right	Thru	Peds	App. Total	Thru	Hard Left	Peds	App. Total	Int. Total
07:00 AM	2	76	0	78	14	13	0	27	79	1	0	80	185
07:15 AM	0	63	0	63	16	18	0	34	76	1	0	77	174
07:30 AM	0	64	0	64	31	23	0	54	66	3	0	69	187
07:45 AM	1	69	0	70	21	17	0	38	67	1	0	68	176
Total	3	272	0	275	82	71	0	153	288	6	0	294	722
08:00 AM	2	61	0	63	14	26	0	40	94	2	0	96	199
08:15 AM	1	44	0	45	33	34	0	67	72	2	0	74	186
08:30 AM	2	66	0	68	16	26	0	42	67	1	1	69	179
08:45 AM	0	46	0	46	30	31	0	61	81	0	1	82	189
Total	5	217	0	222	93	117	0	210	314	5	2	321	753
Grand Total	8	489	0	497	175	188	0	363	602	11	2	615	1475
Apprch %	1.6	98.4	0		48.2	51.8	0		97.9	1.8	0.3		
Total %	0.5	33.2	0	33.7	11.9	12.7	0	24.6	40.8	0.7	0.1	41.7	
Vehicles	8	475	0	483	171	188	0	359	595	11	2	608	1450
% Vehicles	100	97.1	0	97.2	97.7	100	0	98.9	98.8	100	100	98.9	98.3
Trucks	0	14	0	14	4	0	0	4	7	0	0	7	25
% Trucks	0	2.9	0	2.8	2.3	0	0	1.1	1.2	0	0	1.1	1.7



Montachusett Regional Planning Commission

R1427 Water Street

Fitchburg, MA 01420

Tel: (978) 345-7376 Email: mrpc@mrpc.org

Community: Westminster

Street: Main St (Rt. 2A)

Location: At West Main St

Functional Class: U05

File Name : 332-2012-4319 AM

Site Code : 00004319

Start Date : 6/29/2012

Page No : 2

	West Main Street From Northwest				Main St (Rt. 2A) From East				Main St (Rt. 2A) From West				
Start Time	Hard Right	Bear Left	Peds	App. Total	Bear Right	Thru	Peds	App. Total	Thru	Hard Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 08:00 AM													
08:00 AM	2	61	0	63	14	26	0	40	94	2	0	96	199
08:15 AM	1	44	0	45	33	34	0	67	72	2	0	74	186
08:30 AM	2	66	0	68	16	26	0	42	67	1	1	69	179
08:45 AM	0	46	0	46	30	31	0	61	81	0	1	82	189
Total Volume	5	217	0	222	93	117	0	210	314	5	2	321	753
% App. Total	2.3	97.7	0		44.3	55.7	0		97.8	1.6	0.6		
PHF	.625	.822	.000	.816	.705	.860	.000	.784	.835	.625	.500	.836	.946

Montachusett Regional Planning Commission

R1427 Water Street

Fitchburg, MA 01420

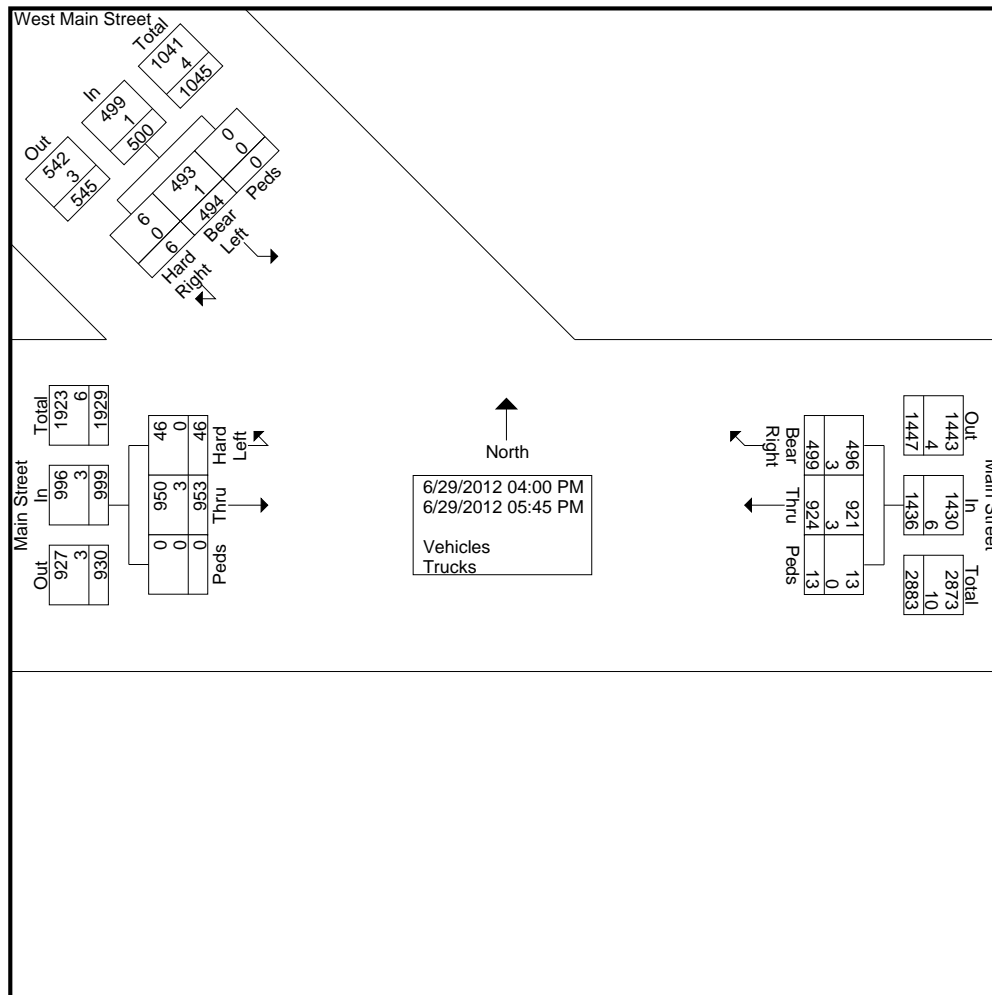
Tel: (978) 345-7376 Email: mrpc@mrpc.org

Community: Westminster
Street: Main St (Rt. 2A)
Location: At West Main St
Functional Class: U-5

File Name : Not Named 5
Site Code : 00004319
Start Date : 6/29/2012
Page No : 1

Groups Printed- Vehicles - Trucks

	West Main Street From Northwest				Main Street From East				Main Street From West				
Start Time	Hard Right	Bear Left	Peds	App. Total	Bear Right	Thru	Peds	App. Total	Thru	Hard Left	Peds	App. Total	Int. Total
04:00 PM	0	62	0	62	49	107	0	156	92	2	0	94	312
04:15 PM	1	46	0	47	53	74	9	136	85	4	0	89	272
04:30 PM	0	49	0	49	87	69	4	160	89	5	0	94	303
04:45 PM	0	55	0	55	65	162	0	227	140	4	0	144	426
Total	1	212	0	213	254	412	13	679	406	15	0	421	1313
05:00 PM	5	43	0	48	50	105	0	155	136	6	0	142	345
05:15 PM	0	44	0	44	63	119	0	182	114	8	0	122	348
05:30 PM	0	83	0	83	64	150	0	214	93	6	0	99	396
05:45 PM	0	112	0	112	68	138	0	206	204	11	0	215	533
Total	5	282	0	287	245	512	0	757	547	31	0	578	1622
Grand Total	6	494	0	500	499	924	13	1436	953	46	0	999	2935
Apprch %	1.2	98.8	0		34.7	64.3	0.9		95.4	4.6	0		
Total %	0.2	16.8	0	17	17	31.5	0.4	48.9	32.5	1.6	0	34	
Vehicles	6	493	0	499	496	921	13	1430	950	46	0	996	2925
% Vehicles	100	99.8	0	99.8	99.4	99.7	100	99.6	99.7	100	0	99.7	99.7
Trucks	0	1	0	1	3	3	0	6	3	0	0	3	10
% Trucks	0	0.2	0	0.2	0.6	0.3	0	0.4	0.3	0	0	0.3	0.3



Montachusett Regional Planning Commission

R1427 Water Street

Fitchburg, MA 01420

Tel: (978) 345-7376 Email: mrpc@mrpc.org

Community: Westminster

Street: Main St (Rt. 2A)

Location: At West Main St

Functional Class: U-5

File Name : Not Named 5

Site Code : 00004319

Start Date : 6/29/2012

Page No : 2

	West Main Street From Northwest				Main Street From East				Main Street From West				
Start Time	Hard Right	Bear Left	Peds	App. Total	Bear Right	Thru	Peds	App. Total	Thru	Hard Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 05:00 PM													
05:00 PM	5	43	0	48	50	105	0	155	136	6	0	142	345
05:15 PM	0	44	0	44	63	119	0	182	114	8	0	122	348
05:30 PM	0	83	0	83	64	150	0	214	93	6	0	99	396
05:45 PM	0	112	0	112	68	138	0	206	204	11	0	215	533
Total Volume	5	282	0	287	245	512	0	757	547	31	0	578	1622
% App. Total	1.7	98.3	0		32.4	67.6	0		94.6	5.4	0		
PHF	.250	.629	.000	.641	.901	.853	.000	.884	.670	.705	.000	.672	.761

APPENDIX E – Speed Counts

Montachusett Regional Planning Commission

1427R Water Street

Fitchburg, MA 01420

Tel: (978) 345-7376 Email: mrpc@mrpc.org

Community: Westminster
Street: Main Street (2A)
Location: W. of Church Street
Functional Class: U-5

Site Code: 33220124318

Station ID:

Latitude: 0' 0.000 Undefined

SE

Start Time	15	16	21	26	31	36	41	46	51	56	61	66	71	76	999	Total	Pace Speed	Number in Pace
06/11/12	0	1	0	9	8	1	0	0	0	0	0	0	0	0	0	19	26-35	15
01:00	1	1	2	8	6	3	0	0	0	0	0	0	0	0	0	21	26-35	12
02:00	0	0	0	1	1	4	0	0	0	0	0	0	0	0	0	6	31-40	5
03:00	0	0	0	4	7	1	1	0	0	0	0	0	0	0	0	13	27-36	10
04:00	0	0	5	34	33	11	0	0	0	0	0	0	0	0	0	83	26-35	61
05:00	1	1	13	108	160	49	2	0	0	0	0	0	0	0	0	334	27-36	247
06:00	35	29	66	272	220	27	0	0	0	0	0	0	0	0	0	649	25-34	418
07:00	166	166	199	188	55	3	1	0	0	0	0	0	0	0	0	778	19-28	296
08:00	131	103	190	161	44	3	0	0	0	0	0	0	0	0	0	632	20-29	266
09:00	46	62	133	195	54	3	0	0	0	0	0	0	0	0	0	493	22-31	267
10:00	40	50	116	153	39	3	0	0	0	0	0	0	0	0	0	401	21-30	217
11:00	54	63	165	155	25	2	0	0	0	0	0	0	0	0	0	464	20-29	252
12 PM	55	87	164	149	36	2	0	0	0	0	0	0	0	0	0	493	20-29	249
13:00	55	56	136	156	63	3	0	0	0	0	0	0	0	0	0	469	21-30	235
14:00	79	117	148	147	40	1	0	0	0	0	0	0	0	0	0	532	20-29	231
15:00	86	84	157	138	37	2	0	0	0	0	0	0	0	0	0	504	20-29	227
16:00	100	59	95	188	77	5	0	0	0	0	0	0	0	0	0	524	23-32	228
17:00	112	54	113	123	45	2	1	0	0	0	0	0	0	0	0	450	21-30	174
18:00	39	26	96	163	85	6	0	0	0	0	0	0	0	0	0	415	23-32	230
19:00	32	35	77	134	52	4	0	1	0	0	0	0	0	0	0	335	23-32	178
20:00	17	15	63	114	46	2	0	0	0	0	0	0	0	0	0	257	23-32	157
21:00	12	8	36	81	40	7	0	0	0	0	0	0	0	0	0	184	24-33	111
22:00	0	0	13	35	44	4	1	0	0	0	0	0	0	0	0	97	26-35	72
23:00	0	1	6	11	19	9	0	0	0	0	0	0	0	0	0	46	27-36	29
Total	1061	1018	1993	2727	1236	157	6	1	0	0	0	0	0	0	0	8199		
Percent	12.9%	12.4%	24.3%	33.3%	15.1%	1.9%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%			
AM Peak	07:00	07:00	07:00	06:00	06:00	05:00	05:00										07:00	
Vol.	166	166	199	272	220	49	2										778	
PM Peak	17:00	14:00	12:00	16:00	18:00	23:00	17:00	19:00									14:00	
Vol.	112	117	164	188	85	9	1	1									532	
Total	1061	1018	1993	2727	1236	157	6	1	0	0	0	0	0	0	0	8199		
Percent	12.9%	12.4%	24.3%	33.3%	15.1%	1.9%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%			

15th Percentile : 10 MPH
50th Percentile : 23 MPH
85th Percentile : 30 MPH
95th Percentile : 33 MPH

Stats
10 MPH Pace Speed : 22-31 MPH
Number in Pace : 3835
Percent in Pace : 46.8%
Number of Vehicles > 30 MPH : 1355
Percent of Vehicles > 30 MPH : 16.5%
Mean Speed(Average) : 22 MPH

Montachusett Regional Planning Commission

Community: Westminster
 Street: Main Street (2A)
 Location: W. of Church Street
 Functional Class: U-5

1427R Water Street
 Fitchburg, MA 01420
 Tel: (978) 345-7376 Email: mrpc@mrpc.org

Site Code: 33220124318
 Station ID:

Latitude: 0' 0.000 Undefined

NW

Start Time	1	16	21	26	31	36	41	46	51	56	61	66	71	76	Total	Pace Speed	Number in Pace
06/11/12	1	0	0	11	12	0	0	0	0	0	0	0	0	0	24	26-35	20
01:00	0	0	3	6	4	0	0	0	0	0	0	0	0	0	13	24-33	10
02:00	0	0	0	1	4	0	0	0	0	0	0	0	0	0	5	27-36	5
03:00	0	0	3	3	4	0	0	0	0	0	0	0	0	0	10	24-33	7
04:00	1	0	1	1	3	1	0	0	0	0	0	0	0	0	7	27-36	4
05:00	4	2	4	18	24	9	0	0	0	0	0	0	0	0	61	27-36	37
06:00	13	1	16	42	38	11	3	0	0	0	0	0	0	0	124	25-34	68
07:00	31	14	47	81	32	5	0	0	0	0	0	0	0	0	210	22-31	106
08:00	39	20	58	95	44	8	0	0	0	0	0	0	0	0	264	23-32	128
09:00	24	13	57	113	37	5	0	0	0	0	0	0	0	0	249	23-32	147
10:00	24	9	71	134	47	5	0	0	0	0	0	0	0	0	290	23-32	181
11:00	36	19	100	142	21	1	0	0	0	0	0	0	0	0	319	22-31	195
12 PM	36	27	139	157	43	3	0	0	0	0	0	0	0	0	405	21-30	243
13:00	32	18	77	157	45	4	0	0	0	0	0	0	0	0	333	23-32	200
14:00	28	38	138	137	20	1	0	0	0	0	0	0	0	0	362	21-30	223
15:00	98	79	188	146	17	2	0	0	0	0	0	0	0	0	530	20-29	254
16:00	100	62	138	189	51	2	0	0	0	0	0	0	0	0	542	21-30	250
17:00	78	73	217	213	64	4	0	0	0	0	0	0	0	0	649	21-30	343
18:00	33	21	76	157	101	14	0	0	0	0	0	0	0	0	402	24-33	227
19:00	27	34	100	93	56	11	0	0	0	0	0	0	0	0	321	21-30	161
20:00	19	12	42	101	40	6	0	0	0	0	0	0	0	0	220	23-32	130
21:00	6	4	29	58	30	5	0	0	0	0	0	0	0	0	132	24-33	83
22:00	5	1	12	23	29	6	0	0	0	0	0	0	0	0	76	26-35	45
23:00	1	0	6	24	22	6	1	0	0	0	0	0	0	0	60	26-35	41
Total	636	447	1522	2102	788	109	4	0	0	0	0	0	0	0	5608		
Percent	11.3%	8.0%	27.1%	37.5%	14.1%	1.9%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%			
AM Peak	08:00	08:00	11:00	11:00	10:00	06:00	06:00								11:00		
Vol.	39	20	100	142	47	11	3								319		
PM Peak	16:00	15:00	17:00	17:00	18:00	18:00	23:00								17:00		
Vol.	100	79	217	213	101	14	1								649		
Total	636	447	1522	2102	788	109	4	0	0	0	0	0	0	0	5608		
Percent	11.3%	8.0%	27.1%	37.5%	14.1%	1.9%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%			
			15th Percentile :		11 MPH												
			50th Percentile :		24 MPH												
			85th Percentile :		30 MPH												
			95th Percentile :		33 MPH												

Stats
 10 MPH Pace Speed : 22-31 MPH
 Number in Pace : 2991
 Percent in Pace : 53.3%
 Number of Vehicles > 30 MPH : 936
 Percent of Vehicles > 30 MPH : 16.7%
 Mean Speed(Average) : 23 MPH

Montachusett Regional Planning Commission

1427R Water Street

Fitchburg, MA 01420

Tel: (978) 345-7376 Email: mrpc@mrpc.org

Community: Westminster
Street: Main Street (2A)
Location: W. of Church Street
Functional Class: U-5

Site Code: 33220124318

Station ID:

Latitude: 0' 0.000 Undefined

SE, NW	1	16	21	26	31	36	41	46	51	56	61	66	71	76	Total	Pace Speed	Number in Pace
Start Time	15	20	25	30	35	40	45	50	55	60	65	70	75	999			
06/11/12	1	1	0	20	20	1	0	0	0	0	0	0	0	0	43	26-35	34
01:00	1	1	5	14	10	3	0	0	0	0	0	0	0	0	34	25-34	22
02:00	0	0	0	2	5	4	0	0	0	0	0	0	0	0	11	31-40	8
03:00	0	0	3	7	11	1	1	0	0	0	0	0	0	0	23	27-36	16
04:00	1	0	6	35	36	12	0	0	0	0	0	0	0	0	90	26-35	64
05:00	5	3	17	126	184	58	2	0	0	0	0	0	0	0	395	27-36	283
06:00	48	30	82	314	258	38	3	0	0	0	0	0	0	0	773	25-34	485
07:00	197	180	246	269	87	8	1	0	0	0	0	0	0	0	988	20-29	390
08:00	170	123	248	256	88	11	0	0	0	0	0	0	0	0	896	21-30	384
09:00	70	75	190	308	91	8	0	0	0	0	0	0	0	0	742	22-31	413
10:00	64	59	187	287	86	8	0	0	0	0	0	0	0	0	691	22-31	395
11:00	90	82	265	297	46	3	0	0	0	0	0	0	0	0	783	21-30	446
12 PM	91	114	303	306	79	5	0	0	0	0	0	0	0	0	898	21-30	488
13:00	87	74	213	313	108	7	0	0	0	0	0	0	0	0	802	22-31	434
14:00	107	155	286	284	60	2	0	0	0	0	0	0	0	0	894	20-29	448
15:00	184	163	345	284	54	4	0	0	0	0	0	0	0	0	1034	20-29	482
16:00	200	121	233	377	128	7	0	0	0	0	0	0	0	0	1066	22-31	476
17:00	190	127	330	336	109	6	1	0	0	0	0	0	0	0	1099	21-30	514
18:00	72	47	172	320	186	20	0	0	0	0	0	0	0	0	817	24-33	455
19:00	59	69	177	227	108	15	0	1	0	0	0	0	0	0	656	22-31	339
20:00	36	27	105	215	86	8	0	0	0	0	0	0	0	0	477	23-32	287
21:00	18	12	65	139	70	12	0	0	0	0	0	0	0	0	316	24-33	194
22:00	5	1	25	58	73	10	1	0	0	0	0	0	0	0	173	26-35	116
23:00	1	1	12	35	41	15	1	0	0	0	0	0	0	0	106	27-36	69
Total	1697	1465	3515	4829	2024	266	10	1	0	0	0	0	0	0	13807		
Percent	12.3%	10.6%	25.5%	35.0%	14.7%	1.9%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%			
AM Peak	07:00	07:00	11:00	06:00	06:00	05:00	06:00								07:00		
Vol.	197	180	265	314	258	58	3								988		
PM Peak	16:00	15:00	15:00	16:00	18:00	18:00	17:00	19:00							17:00		
Vol.	200	163	345	377	186	20	1	1							1099		
Total	1697	1465	3515	4829	2024	266	10	1	0	0	0	0	0	0	13807		
Percent	12.3%	10.6%	25.5%	35.0%	14.7%	1.9%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%			
			15th Percentile :		10 MPH												
			50th Percentile :		23 MPH												
			85th Percentile :		30 MPH												
			95th Percentile :		33 MPH												

Stats

10 MPH Pace Speed :	22-31 MPH
Number in Pace :	6819
Percent in Pace :	49.4%
Number of Vehicles > 30 MPH :	2291
Percent of Vehicles > 30 MPH :	16.6%
Mean Speed(Average) :	22 MPH

APPENDIX F – Classification Data

Montachusett Regional Planning Commission
1427R Water Street
Fitchburg, MA 01420
Tel: (978) 345-7376 Email: mrpc@mrpc.org

Page 1

Community: Westminster
Street: Main Street (2A)
Location: W. of Church Street
Functional Class: U-5

Site Code: 33220124318
Station ID:

SE

Latitude: 0' 0.000 Undefined

Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Not Classed	Total
06/11/12	0	13	5	0	0	0	0	1	0	0	0	0	0	0	19
01:00	0	13	7	0	0	0	0	0	0	0	0	0	0	1	21
02:00	0	5	1	0	0	0	0	0	0	0	0	0	0	0	6
03:00	1	9	1	0	0	1	0	0	1	0	0	0	0	0	13
04:00	3	52	24	0	3	0	1	0	0	0	0	0	0	0	83
05:00	8	219	83	0	18	2	0	2	1	0	0	0	0	1	334
06:00	9	452	143	4	18	2	0	2	2	1	1	0	0	15	649
07:00	2	560	116	5	17	2	0	7	2	0	0	0	0	67	778
08:00	5	446	99	2	16	1	0	4	2	0	0	0	0	57	632
09:00	3	362	81	1	16	2	1	3	2	0	0	0	0	22	493
10:00	7	275	73	1	16	4	2	0	3	0	0	0	0	20	401
11:00	4	318	96	3	10	1	1	1	1	0	0	0	0	29	464
12 PM	12	357	71	1	14	1	0	1	0	0	0	0	0	36	493
13:00	9	342	70	0	12	5	0	2	1	0	0	0	0	28	469
14:00	6	371	92	10	11	3	0	4	1	0	0	0	0	34	532
15:00	7	357	77	0	10	4	0	4	2	0	0	0	0	43	504
16:00	4	370	81	0	9	0	0	1	1	0	0	0	0	58	524
17:00	1	293	72	1	7	0	0	3	0	0	0	0	0	73	450
18:00	9	308	61	0	7	0	0	1	1	0	0	0	0	28	415
19:00	7	251	50	0	5	0	0	1	1	0	0	0	0	20	335
20:00	3	191	45	0	7	0	0	0	0	0	0	0	0	11	257
21:00	4	142	24	0	4	0	0	0	0	0	0	0	0	10	184
22:00	0	81	13	0	2	0	0	0	1	0	0	0	0	0	97
23:00	0	42	3	0	0	0	0	0	1	0	0	0	0	0	46
Total	104	5829	1388	28	202	28	5	37	23	1	1	0	0	553	8199
Percent	1.3%	71.1%	16.9%	0.3%	2.5%	0.3%	0.1%	0.5%	0.3%	0.0%	0.0%	0.0%	0.0%	6.7%	
AM Peak	06:00	07:00	06:00	07:00	05:00	10:00	10:00	07:00	10:00	06:00	06:00			07:00	
Vol.	9	560	143	5	18	4	2	7	3	1	1			67	
PM Peak	12:00	14:00	14:00	14:00	12:00	13:00		14:00	15:00					17:00	
Vol.	12	371	92	10	14	5		4	2					73	
Grand Total	104	5829	1388	28	202	28	5	37	23	1	1	0	0	553	8199
Percent	1.3%	71.1%	16.9%	0.3%	2.5%	0.3%	0.1%	0.5%	0.3%	0.0%	0.0%	0.0%	0.0%	6.7%	

Montachusett Regional Planning Commission

1427R Water Street

Fitchburg, MA 01420

Tel: (978) 345-7376 Email: mrpc@mrpc.org

Community: Westminster
Street: Main Street (2A)
Location: W. of Church Street
Functional Class: U-5

Site Code: 33220124318

Station ID:

NW

Latitude: 0' 0.000 Undefined

Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Not Classed	Total
06/11/12	0	19	3	0	1	0	0	0	0	0	0	0	0	1	24
01:00	0	12	1	0	0	0	0	0	0	0	0	0	0	0	13
02:00	0	4	0	0	1	0	0	0	0	0	0	0	0	0	5
03:00	0	8	2	0	0	0	0	0	0	0	0	0	0	0	10
04:00	0	4	1	0	1	0	0	0	0	0	0	0	0	1	7
05:00	0	35	15	1	5	0	0	0	1	0	0	0	0	4	61
06:00	2	70	33	1	4	1	0	1	1	0	0	0	0	11	124
07:00	1	142	27	1	6	1	0	1	1	0	0	0	0	30	210
08:00	4	151	59	4	8	2	0	1	1	0	0	0	0	34	264
09:00	1	177	38	1	7	2	0	2	3	0	0	0	0	18	249
10:00	6	214	44	1	4	1	0	0	2	0	0	0	0	18	290
11:00	2	239	40	1	8	0	0	4	1	0	0	0	0	24	319
12 PM	8	282	59	2	13	3	0	4	2	0	0	0	0	32	405
13:00	10	243	39	0	9	1	0	2	3	0	0	0	0	26	333
14:00	3	263	54	1	8	3	0	1	3	0	0	0	0	26	362
15:00	12	349	78	1	12	4	0	4	1	0	0	0	0	69	530
16:00	13	371	79	1	9	1	0	4	0	0	0	0	0	64	542
17:00	13	473	81	0	12	3	0	1	1	0	0	0	0	65	649
18:00	10	305	54	1	4	0	0	0	0	0	0	0	0	28	402
19:00	10	243	37	0	5	0	0	1	1	0	0	0	0	24	321
20:00	1	169	35	0	2	0	0	0	0	0	0	0	0	13	220
21:00	2	102	23	0	1	0	0	0	0	0	0	0	0	4	132
22:00	3	57	11	0	0	0	0	0	0	0	0	0	0	5	76
23:00	0	43	12	0	1	0	0	0	3	0	0	0	0	1	60
Total	101	3975	825	16	121	22	0	26	24	0	0	0	0	498	5608
Percent	1.8%	70.9%	14.7%	0.3%	2.2%	0.4%	0.0%	0.5%	0.4%	0.0%	0.0%	0.0%	0.0%	8.9%	
AM Peak	10:00	11:00	08:00	08:00	08:00	08:00		11:00	09:00					08:00	
Vol.	6	239	59	4	8	2		4	3					34	
PM Peak	16:00	17:00	17:00	12:00	12:00	15:00		12:00	13:00					15:00	
Vol.	13	473	81	2	13	4		4	3					69	
Grand Total	101	3975	825	16	121	22	0	26	24	0	0	0	0	498	5608
Percent	1.8%	70.9%	14.7%	0.3%	2.2%	0.4%	0.0%	0.5%	0.4%	0.0%	0.0%	0.0%	0.0%	8.9%	

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Fitchburg, MA 01420

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SE, NW

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Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Not Classed	Total
06/11/12	0	32	8	0	1	0	0	1	0	0	0	0	0	1	43
01:00	0	25	8	0	0	0	0	0	0	0	0	0	0	1	34
02:00	0	9	1	0	1	0	0	0	0	0	0	0	0	0	11
03:00	1	17	3	0	0	1	0	0	1	0	0	0	0	0	23
04:00	3	56	25	0	4	0	1	0	0	0	0	0	0	1	90
05:00	8	254	98	1	23	2	0	2	2	0	0	0	0	5	395
06:00	11	522	176	5	22	3	0	3	3	1	1	0	0	26	773
07:00	3	702	143	6	23	3	0	8	3	0	0	0	0	97	988
08:00	9	597	158	6	24	3	0	5	3	0	0	0	0	91	896
09:00	4	539	119	2	23	4	1	5	5	0	0	0	0	40	742
10:00	13	489	117	2	20	5	2	0	5	0	0	0	0	38	691
11:00	6	557	136	4	18	1	1	5	2	0	0	0	0	53	783
12 PM	20	639	130	3	27	4	0	5	2	0	0	0	0	68	898
13:00	19	585	109	0	21	6	0	4	4	0	0	0	0	54	802
14:00	9	634	146	11	19	6	0	5	4	0	0	0	0	60	894
15:00	19	706	155	1	22	8	0	8	3	0	0	0	0	112	1034
16:00	17	741	160	1	18	1	0	5	1	0	0	0	0	122	1066
17:00	14	766	153	1	19	3	0	4	1	0	0	0	0	138	1099
18:00	19	613	115	1	11	0	0	1	1	0	0	0	0	56	817
19:00	17	494	87	0	10	0	0	2	2	0	0	0	0	44	656
20:00	4	360	80	0	9	0	0	0	0	0	0	0	0	24	477
21:00	6	244	47	0	5	0	0	0	0	0	0	0	0	14	316
22:00	3	138	24	0	2	0	0	0	1	0	0	0	0	5	173
23:00	0	85	15	0	1	0	0	0	4	0	0	0	0	1	106
Total	205	9804	2213	44	323	50	5	63	47	1	1	0	0	1051	13807
Percent	1.5%	71.0%	16.0%	0.3%	2.3%	0.4%	0.0%	0.5%	0.3%	0.0%	0.0%	0.0%	0.0%	7.6%	
AM Peak	10:00	07:00	06:00	07:00	08:00	10:00	10:00	07:00	09:00	06:00	06:00			07:00	
Vol.	13	702	176	6	24	5	2	8	5	1	1			97	
PM Peak	12:00	17:00	16:00	14:00	12:00	15:00		15:00	13:00					17:00	
Vol.	20	766	160	11	27	8		8	4					138	
Grand Total	205	9804	2213	44	323	50	5	63	47	1	1	0	0	1051	13807
Percent	1.5%	71.0%	16.0%	0.3%	2.3%	0.4%	0.0%	0.5%	0.3%	0.0%	0.0%	0.0%	0.0%	7.6%	