

AYER PARKING GARAGE

IMPACT ANALYSIS



**Conducted by the
Montachusett Regional Planning Commission
(MRPC)**

**For the
Montachusett Regional Transit Authority
(MART)**

December 2009

MONTACHUSETT REGIONAL PLANNING COMMISSION STAFF

Glenn Eaton, Executive Director
Brad Harris, Transportation Project Director
George Kahale, Transit Project Director
John Hume, Director of Planning and Development
Shelly Hatch, Director of Community Development
Chantell Wead, Regional Planner
Linda Parmenter, Principal Planner
George Snow, Principal Planner
Sheri Bean, Transportation Planner
Brian Doherty, Transportation Planner
Ann Carabba, Regional Planner
Nancy Belliveau, Fiscal Manager
Bobbi Jo Johnson, Fiscal Assistant
Jason Stanton, GIS Analyst
Renee Marion, GIS Analyst
Stephanie Brow, Administrative Secretary
Mariena Harris, Intern
Nicola Kahale, Intern

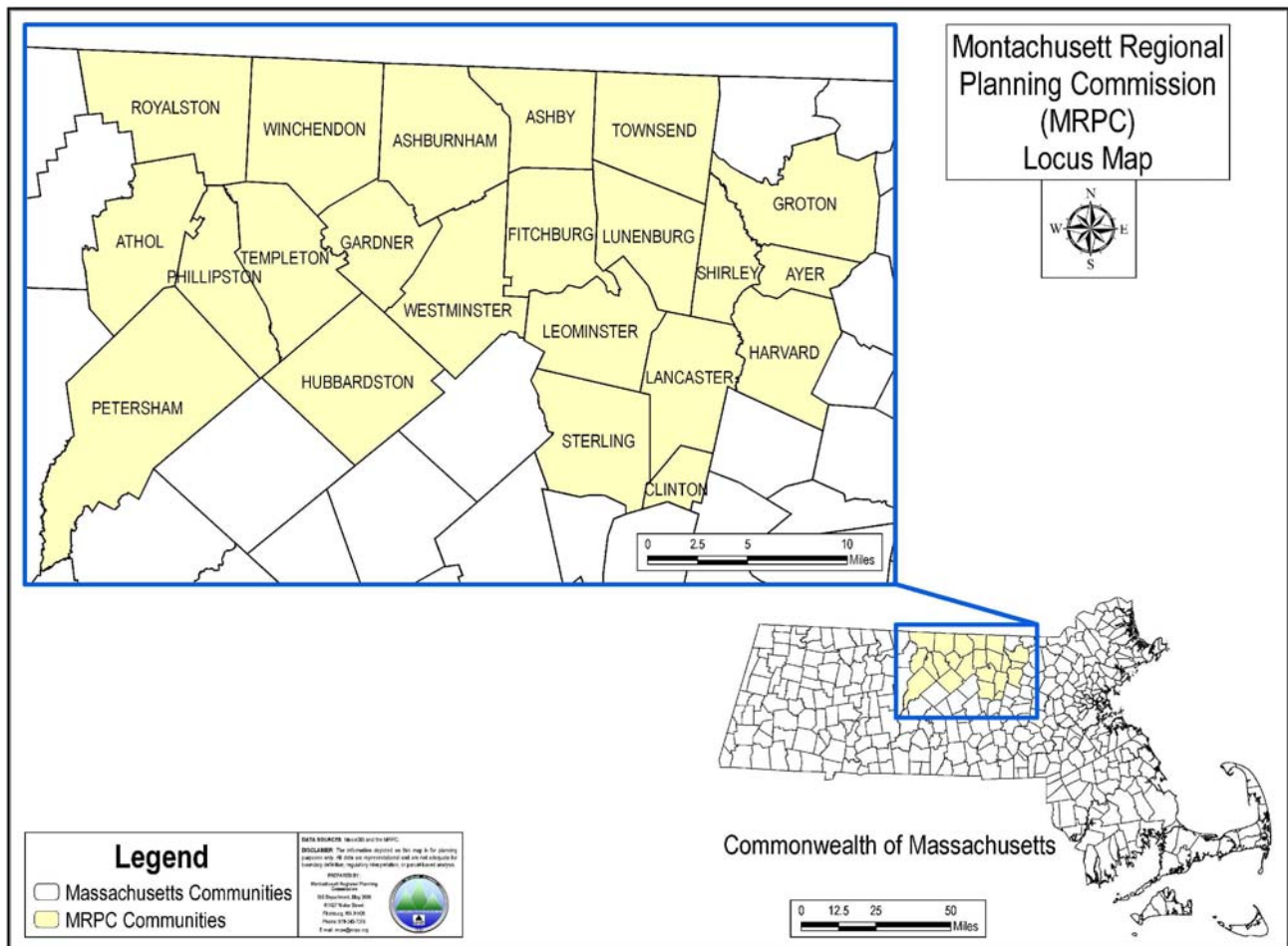


Table of Contents

Introduction.....	1
Commuter Rail Service and Station.....	1
Ayer Passenger Survey.....	8
Other Traffic Studies.....	16
Traffic Impact Analysis.....	19
Existing Conditions.....	23
Signal Warrant Analysis.....	30
Future Conditions.....	33
Future Build-out Conditions.....	39
Trip Distribution.....	42
Summary.....	49
Air Quality Review of New Commuter Rail Parking Garage.....	51
Pedestrian Analysis.....	53
Ridership.....	63
Conclusion.....	70
Comments and Responses to Draft.....	71
Appendix - Fitchburg Commuter Rail Line - License Plate Survey (Summary).....	74
Appendix - Air Quality Analysis.....	77
Appendix - Survey Respondent Written Comments.....	80
Appendix - Existing Traffic Counts.....	83
Appendix - Capacity Analysis.....	84
Appendix - Signal Warrant Analysis.....	85
Appendix - Ridership Data.....	86
Appendix - Automatic Traffic Recorder (ATR) Counts.....	89
Appendix - Town of Ayer Comment Letter.....	90

Introduction

The Montachusett Regional Planning Commission (MRPC) was contracted by the Montachusett Regional Transit Authority (MART) to review the impacts associated with the development of a new parking garage in the town of Ayer to service the Fitchburg Commuter Rail Line stop. A 400 vehicle parking garage is proposed to be constructed off of Park Street (Route 111/2A) on the site of a current parking lot primarily utilized for commuter rail patrons. This parking lot also serves as the end lot for the Nashua River Rail Trail, a bicycle/pedestrian trail that runs from Ayer north into Groton, Pepperell and Dunstable for approximately 11 miles. An analysis of current, future no build and future build conditions has been conducted for four identified intersections in the vicinity of the proposed parking garage. In addition, this study also examined past traffic studies conducted in the area to evaluate prior potential improvement alternatives and a survey of commuter rail riders at the Ayer Station was completed as well.

Commuter Rail Service and Station

MBTA Commuter Train Schedule – Fitchburg Line

Currently, the MBTA runs train service from Fitchburg into North Station in Boston that has a regularly scheduled stop in Ayer at a station located off of Main Street in the downtown area. Weekday service has 13 inbound (to Boston) stops running from 6:04 AM to 10:45 PM. Outbound service from Boston stops in Ayer 13 times also between 9:50 AM and 1:18 AM. Saturday and Sunday service also runs 6 in and out bound stops at the Ayer station. Refer to the MBTA schedule on the following pages.

FITCHBURG/ SOUTH ACTON LINE TO NORTH STATION: Weekday - INBOUND Effective 10/29/07

Train Number	404	406	408	410	412	454	456	418	420	422	424	466	468	426	434	436	438
	AM	AM	AM	AM	AM	AM	AM	AM	AM	PM	PM	PM	PM	PM	PM	PM	PM
Fitchburg	5:45	6:10	6:40	7:00	7:20			10:27	11:24	1:05	3:05			6:35	7:25	8:22	10:25
North Leominster	5:52	6:17	6:47	7:07	7:27			10:34	11:31	1:14	3:14			6:42	7:32	8:30	10:33
Shirley	5:59	6:25	6:54	7:14	7:35			10:41F	11:38F	1:21	3:21			6:49	7:39F	8:38	10:41F
Ayer	6:04	6:31	7:01	7:20	7:41			10:46F	11:43	1:26	3:26			6:54	7:44	8:42	10:45
Littleton/Rte 495	6:13	6:40	7:10	7:29	7:50			10:54	11:51	1:34F	3:34F			7:02	7:52F	8:50F	10:53F
South Acton	6:21	6:48	7:18	7:37	7:58	8:41	9:25	11:02	11:59	1:42	3:42	4:17	5:12	7:10	8:00	8:57	11:00
West Concord	6:26	6:53		7:42	8:03	8:46	9:30	11:07	12:04	1:47	3:47	4:22	5:17	7:15	8:05	9:02	11:06
Concord	6:32	6:59		7:49	8:09	8:52	9:36	11:13	12:10	1:53	3:53	4:28	5:23	7:21	8:11	9:08	11:12
Lincoln	6:38	7:05		7:55	8:15	8:58	9:42	11:19F	12:16F	1:59	3:59	4:34	5:29	7:27	8:17	9:14	11:16
Silver Hill		7:06			8:18												
Hastings	6:42	7:10			8:20		9:46F	11:23F									
Kendal Green	6:44	7:12			8:22	9:02	9:48F	11:25F		2:05	4:05	4:40	5:35	7:33	8:23F	9:20F	11:21F
Brandeis/ Roberts	6:47	7:16			8:26	9:05	9:51	11:28	12:24	2:08	4:08	4:43	5:38	7:36	8:26	9:23	11:25
Waltham	6:52	7:20		8:05	8:30	9:09	9:55	11:32	12:29	2:12	4:12	4:47	5:42	7:40	8:30	9:27	11:28
Waverley	6:57	7:25			8:35	9:14	10:00F	11:37F				4:51F	5:46F			9:32F	
Belmont	7:00	7:27			8:37	9:16	10:02F	11:39F	12:34F	2:17F	4:16F	4:54F	5:49F	7:46		9:34F	
Porter Square	7:06	7:33	7:50	8:14	8:43	9:21	10:07	11:44	12:39	2:22	4:22	4:59	5:54	7:51	8:39	9:39	11:37
North Station	7:17	7:44	8:00	8:25	8:54	9:32	10:18	11:55	12:50	2:33	4:33	5:10	6:05	8:02	8:50	9:50	11:48

Notes: F Indicates that the train stops to discharge passengers on notice to the Conductor and to pick up passengers on platform visible to Engineer. Shaded area indicates peak hour trains.

FITCHBURG/ SOUTH ACTON LINE TO NORTH STATION: Weekday - OUTBOUND Effective 10/29/07

Train Number	453	455	417	419	421	423	465	467	425	427	429	431	433	435	437	439	401
	AM	AM	AM	AM	AM	PM	PM	PM	PM	PM	PM	PM	PM	PM	PM	PM	AM
North Station	7:27	8:17	8:55	9:40	11:20	1:20	3:00	4:00	4:40	4:50	5:20	5:40	6:20	7:35	8:45	10:40	12:10
Porter Square	7:37	8:27	9:05	9:50	11:30	1:30	3:10	4:10	4:50	5:00	5:30	5:50	6:30	7:45	8:55	10:50	12:20
Belmont	7:42F	8:32F		9:55F		1:35F	3:15F	4:15		5:05		5:55	6:35	7:50F	8:59F	10:55F	12:25F
Waverley	7:44F	8:34F		9:57F			3:17F	4:17		5:07		5:57	6:37	7:52F	9:02F	10:57F	12:27F
Waltham	7:50	8:40	9:15	10:03	11:40	1:42	3:23	4:23		5:13	5:41	6:03	6:43	7:58	9:07	11:03	12:33
Brandeis/ Roberts	7:54F	8:44	9:19	10:07	11:44	1:46	3:27	4:27		5:17		6:08	6:48	8:03	9:11	11:07	12:37
Kendal Green	7:57	8:47F		10:10F	11:47F	1:49F	3:30F	4:30		5:20		6:10	6:50	8:06F	9:14	11:10F	12:40
Hastings				10:12F	11:49F			4:32F		5:22F		6:12F		8:08F			
Silver Hill												6:14	6:53	8:10			
Lincoln	8:04F	8:54F		10:16F	11:53F	1:55F	3:37F	4:38		5:28	5:53	6:20	7:00	8:13F	9:20F	11:16F	12:46F
Concord	8:10F	9:00	9:27	10:22	11:59	2:01	3:43	4:44		5:34	5:59	6:26	7:06	8:19	9:24	11:22	12:52
West Concord	8:14F	9:04		10:26F	12:03	2:05	3:47	4:48		5:38	6:03	6:30	7:10	8:23	9:28	11:26F	12:56F
South Acton	8:22	9:12	9:34	10:32	12:09	2:11	3:55	4:56	5:20	5:45	6:10	6:37	7:17	8:31	9:34	11:32	1:02
Littleton / Rte 495			9:42F	10:40F	12:16F	2:18			5:27	5:52	6:17	6:44	7:24	8:38	9:41	11:40F	01:10F
Ayer			9:50	10:48	12:24	2:26			5:35	6:00	6:25	6:52	7:32	8:47	9:50	11:48	1:18
Shirley			9:55	10:53F	12:29	2:31			5:40	6:05	6:30	6:57	7:37	8:52	9:55	11:53F	01:23F
North Leominster			10:02	11:00	12:36	2:38			5:47	6:14	6:37	7:04	7:44	8:59	10:02	12:00	1:30
Fitchburg			10:15	11:12	12:49	2:52			5:57	6:24	6:47	7:14	7:54	9:09	10:12	12:10	1:40

Notes: F Indicates that the train stops to discharge passengers on notice to the Conductor and to pick up passengers on platform visible to Engineer. Shaded area indicates peak hour trains.

FITCHBURG/ SOUTH ACTON LINE TO NORTH STATION: Saturday & Sunday - INBOUND Effective 10/29/07

Train Number	1402	1406	1408	1460	1410	1466	1412	1414
	AM	AM	AM	PM	PM	PM	PM	PM
Fitchburg	6:50	9:20	11:15		2:45		5:35	9:45
North Leominster	6:57	9:27	11:22		2:52		5:42	9:52
Shirley	7:04F	9:34F	11:29F		02:59F		05:49F	09:59F
Ayer	7:09	9:39	11:34		3:04		5:54	10:04
Littleton / Rte 495	7:17	9:47	11:42		3:12		6:02	10:12
South Acton	7:25	9:55	11:50	2:25	3:20	5:47	6:10	10:20
West Concord	7:30F	10:00F	11:55F	02:30F	03:25F	05:52F	06:15F	10:25F
Concord	7:34	10:04	11:59	2:34	3:29	5:56	6:19	10:29
Lincoln	7:40	10:10	12:05	2:40	3:35	6:02	6:25	10:35
Hastings								
Kendal Green	7:46F	10:16F	12:11F	02:46F	03:41F	06:08F	06:31F	10:41F
Brandeis/ Roberts	7:49F	10:19F	12:14F	02:49F	03:44F	06:11F	06:34F	10:44F
Waltham	7:53	10:23	12:18	2:53	3:48	6:15	6:38	10:48
Waverley	7:58F	10:28F	12:23F	02:58F	03:53F	06:20F	06:43F	10:53F
Belmont	8:00F	10:30F	12:25F	03:00F	03:55F	06:22F	06:45F	10:55F
Porter Square	8:05	10:35	12:30	3:05	4:00	6:27	6:50	11:00
North Station	8:16	10:46	12:41	3:16	4:11	6:38	7:00	11:10

Notes: F Indicates that the train stops to discharge passengers on notice to the Conductor and to pick up passengers on platform visible to Engineer. Shaded area indicates peak hour trains.

FITCHBURG/ SOUTH ACTON LINE TO NORTH STATION: Saturday & Sunday - OUTBOUND Effective 10/29/07

Train Number	1405	1407	1459	1409	1463	1411	1413	1415
	AM	AM	PM	PM	PM	PM	PM	PM
North Station	8:35	11:20	1:20	3:30	4:30	5:30	8:00	11:30
Porter Square	8:45	11:30	1:30	3:40	4:40	5:40	8:10	11:40
Belmont	8:50F	11:35F	1:35F	3:45F	4:45F	5:45F	8:15F	11:45F
Waverley	8:52F	11:37F	1:37F	3:47F	4:47F	5:47F	8:17F	11:47F
Waltham	8:58	11:43	1:43	3:53	4:53	5:53	8:23	11:53
Brandeis/ Roberts	9:03F	11:48F	1:48F	3:58F	4:58F	5:58F	8:28F	11:58F
Kendal Green	9:06F	11:51F	1:51F	4:01F	5:01F	6:01F	8:31F	12:01F
Hastings								
Silver Hill								
Lincoln	9:12	11:57	1:57	4:07	5:07	6:07	8:37	12:07
Concord	9:18	12:03	2:03	4:13	5:13	6:13	8:43	12:13
West Concord	9:22F	12:07F	2:07F	4:17F	5:17F	6:17F	8:47F	12:17F
South Acton	9:28	12:13	2:15	4:23	5:25	6:23	8:53	12:23
Littleton / Rte 495	9:36	12:21		4:31		6:31	9:01	12:31F
Ayer	9:44	12:29		4:39		6:39	9:09	12:39
Shirley	9:49F	12:34F		4:44F		6:44F	9:14F	12:44F
North Leominster	9:56	12:41		4:51		6:51	9:21	12:51
Fitchburg	10:06	12:51		5:02		7:02	9:31	1:01

Notes: F Indicates that the train stops to discharge passengers on notice to the Conductor and to pick up passengers on platform visible to Engineer. Shaded area indicates peak hour trains.

Current Ayer Commuter Rail Station

MBTA riders access the commuter rail at a train station located off of Main Street (Routes 2A/110/111) in the downtown area of Ayer. No parking is available adjacent to the station. All parking in the area, except for on street spaces, are privately owned and maintained.

MBTA Ayer Commuter Rail Station - Main Street (Rt 2A/110/111)



Existing Parking Facilities

Parking for commuters is provided by two off site existing lots and on street parking in and around Main Street. The lots are located off of Park Street (Route 111/2A) and currently contain approximately 94 spaces for commuters (74 in the Rail Trail Lot [84 total spaces minus 10 spaces reserved for actual Rail Trail users] and 20 in the Commuter Town Lot). Both lots are approximately 700 - 750 feet (just over 0.10 miles) from the train station.

Ayer Commuter Rail Parking Lots - Existing



Ayer Passenger Survey

An aspect of this study was to assess the service area of Ayer Station. In order to accomplish this, the MRPC conducted a field survey of riders.

Survey Process

The MRPC conducted a one day survey of commuter rail users at the Ayer Station regarding parking and access issues. The six question survey was individually handed out to rail passengers on Wednesday March 25, 2009 at the 6:04 AM, 6:31 AM, 7:01 AM, 7:20 AM, 7:41 AM, 10:46 AM, 11:43 AM, 1:26 PM and 3:26 PM trains. Respondents were asked to complete and return the survey while waiting at the station or to mail back the survey card.

The survey consisted of the following format and questions:

Station: <u>Ayer</u>	Montachusett Regional Planning Commission Ayer Commuter Rail Survey <hr/> <small>The MRPC, in cooperation with the Montachusett Regional Transit Authority (MART) is conducting this survey to assess parking issues at the Ayer Commuter Rail stop. Please take a few minutes to answer the following questions and then drop it in the mail to the MRPC. No stamp, signature or personal data is needed. Please return ASAP. Thank you for your help.</small>
Date: _____	
Boarding Time: _____	
1. Town and Zip Code of residence _____	4. If you drove where did you park? Rail Trail Lot <input type="checkbox"/> Commuter Lot <input type="checkbox"/> On Street <input type="checkbox"/> Other <input type="checkbox"/>
2. How did you get to the train station? Walked <input type="checkbox"/> Bike <input type="checkbox"/> Drove <input type="checkbox"/> Rode with someone taking the train <input type="checkbox"/> Rode with someone NOT taking the train <input type="checkbox"/>	5. Purpose of this trip? Work/Business <input type="checkbox"/> Medical/Hospital <input type="checkbox"/> Social/Recreation/Shopping <input type="checkbox"/> Other _____
3. How often do you use this train service? Less than once a week <input type="checkbox"/> 1 to 3 days a week <input type="checkbox"/> 4 or more days a week <input type="checkbox"/>	6. Your Age Group. 17 or under <input type="checkbox"/> 18 to 34 <input type="checkbox"/> 35 to 64 <input type="checkbox"/> 65 and over <input type="checkbox"/> Comments _____ _____ _____

Results

During the day of the survey, counts were recorded of how many cards were distributed for each train boarding time providing in essence a passenger usage count as well. For the entire 9 trains, 229 surveys were distributed. As anticipated, the

majority were distributed during the first 5 trains, i.e. the AM commuting trains. Overall, only 6 individuals boarding the train did not participate in receiving a survey. Individual counts for each train are as follows:

Ayer Commuter Rail Station - Passenger and Survey Count

Train Time	Surveys Distributed (Passenger Count)	Passengers Not Part of Survey Distribution	Total	Percent of Total
6:04 AM	42	0	42	17.87%
6:31 AM	25	0	25	10.64%
7:01 AM	74	1	75	31.91%
7:20 AM	39	2	41	17.45%
7:41 AM	26	1	27	11.49%
10:46 AM	8	0	8	3.40%
11:43 AM	5	0	5	2.13%
1:26 PM	5	0	5	2.13%
3:26 PM	5	2	7	2.98%
Totals	229	6	235	100.00%

As expected, the vast majority of passengers (approximately 89%) utilize the first 5 AM commuter trains. All of these trains are scheduled to enter North Station in Boston before 9:00 AM.

The following table presents a breakdown of the survey results for each train and for all trains combined.

Ayer Commuter Rail Station - Survey Results by Train

Survey Question		6:04 AM		6:31 AM		7:01 AM		7:20 AM		7:41 AM	
		Count	Percent of Total	Count	Percent of Total	Count	Percent of Total	Count	Percent of Total	Count	Percent of Total
2	How did you get to the train station?										
	Walked	4	11.76%	4	23.53%	7	12.07%	8	25.00%	5	35.71%
	Bike	0	0.00%	1	5.88%	1	1.72%	1	3.13%	0	0.00%
	Drove	29	85.29%	12	70.59%	47	81.03%	21	65.63%	5	35.71%
	Rode with someone taking the train	2	5.88%	1	5.88%	4	6.90%	0	0.00%	1	7.14%
	Rode with someone NOT taking the train	3	8.82%	1	5.88%	4	6.90%	6	18.75%	3	21.43%
3	How often do you use this service?										
	Less than once a week	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
	1 to 3 days a week	3	8.82%	0	0.00%	5	8.62%	5	15.63%	2	14.29%
	4 or more days a week	31	91.18%	17	100.00%	52	89.66%	27	84.38%	12	85.71%
4	If you drove where did you park?										
	Rail Trail Lot	21	61.76%	6	35.29%	27	46.55%	7	21.88%	2	14.29%
	Commuter Town Lot	4	11.76%	5	29.41%	4	6.90%	2	6.25%	0	0.00%
	On Street	2	5.88%	1	5.88%	17	29.31%	10	31.25%	5	35.71%
	Other	4	11.76%	1	5.88%	2	3.45%	0	0.00%	1	7.14%
5	Purpose of this trip?										
	Work/Business	33	97.06%	17	100.00%	57	98.28%	32	100.00%	14	100.00%
	Medical/Hospital	0	0.00%	0	0.00%	1	1.72%	0	0.00%	0	0.00%
	Social/Recreation/Shopping	0	0.00%	0	0.00%	1	1.72%	2	6.25%	0	0.00%
	Other	2	5.88%	0	0.00%	1	1.72%	1	3.13%	0	0.00%
6	Your Age Group										
	17 or under	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
	18 to 34	8	23.53%	4	23.53%	11	18.97%	10	31.25%	3	21.43%
	35 to 64	26	76.47%	12	70.59%	46	79.31%	16	50.00%	9	64.29%
	65 and over	0	0.00%	1	5.88%	0	0.00%	6	18.75%	2	14.29%

Ayer Commuter Rail Station - Survey Results by Train (cont.)

Survey Question	10:46 AM		11:43 AM		1:26 PM		3:26 PM		All Trains	
	Count	Percent of Total	Count	Percent of Total	Count	Percent of Total	Count	Percent of Total	Count	Percent of Total
2 How did you get to the train station?										
Walked	4	57.14%	3	75.00%	0	0.00%	1	20.00%	36	20.69%
Bike	1	14.29%	0	0.00%	0	0.00%	0	0.00%	4	2.30%
Drove	2	28.57%	1	25.00%	2	66.67%	3	60.00%	122	70.11%
Rode with someone taking the train	0	0.00%	0	0.00%	1	33.33%	3	60.00%	12	6.90%
Rode with someone NOT taking the train	0	0.00%	0	0.00%	1	33.33%	0	0.00%	18	10.34%
3 How often do you use this service?										
Less than once a week	2	28.57%	2	50.00%	2	66.67%	2	40.00%	8	4.60%
1 to 3 days a week	4	57.14%	1	25.00%	0	0.00%	2	40.00%	22	12.64%
4 or more days a week	1	14.29%	1	25.00%	1	33.33%	1	20.00%	143	82.18%
4 If you drove where did you park?										
Rail Trail Lot	2	28.57%	1	25.00%	1	33.33%	0	0.00%	67	38.51%
Commuter Town Lot	0	0.00%	0	0.00%	2	66.67%	0	0.00%	17	9.77%
On Street	0	0.00%	0	0.00%	0	0.00%	0	0.00%	35	20.11%
Other	0	0.00%	1	25.00%	0	0.00%	4	80.00%	13	7.47%
5 Purpose of this trip?										
Work/Business	3	42.86%	3	75.00%	1	33.33%	1	20.00%	161	92.53%
Medical/Hospital	0	0.00%	1	25.00%	1	33.33%	0	0.00%	3	1.72%
Social/Recreation/Shopping	1	14.29%	1	25.00%	1	33.33%	4	80.00%	10	5.75%
Other	2	28.57%	0	0.00%	0	0.00%	0	0.00%	6	3.45%
6 Your Age Group										
17 or under	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
18 to 34	2	28.57%	2	50.00%	2	66.67%	4	80.00%	46	26.44%
35 to 64	5	71.43%	2	50.00%	1	33.33%	1	20.00%	118	67.82%
65 and over	0	0.00%	0	0.00%	0	0.00%	0	0.00%	9	5.17%

Of the 229 surveys distributed, 174, or 75.98%, were returned either the day of the survey or through the mail. The breakdown of responses to each question is indicated above for each train as well as for all trains. Please note, that in some instances total responses exceed the total number of survey cards distributed. This is due to some individuals that indicated multiple responses for a question, ex. Question 2 might have been answered as Walked (to Station), Drove (from residence) and Rode with someone taking the train.

The survey results indicate:

- Seventy percent (70.11%) of rail users drove to the station;
- Eighty-two percent (82.18%) used the train 4 or more days a week;
- Almost forty-nine percent (48.28%) parked in either the Rail Trail or Commuter Town Lot;
- Ninety-three percent (92.53%) indicated that this was a Work/Business trip;
- Sixty-seven percent (67.82%) were between the ages of 35 to 64.

- Approximately twenty percent (20.11%) parked on the street.

Thus not surprisingly, based upon the survey results, the Ayer Commuter Rail Station is used primarily for work related purposes by a rather dedicated and consistent group of riders.

The community of residence for the respondents showed a majority from Ayer (35.06%), Groton (24.14%) and Pepperell (12.07%), approximately 71% of the total.

**Ayer Commuter Rail Station - Town of Residence Survey Results
ALL RESPONSES**

Community of Residence	No. of Responses	Percent of Total
Arlington	1	0.57%
Ayer	61	35.06%
Brookline, NH	2	1.15%
Clinton	1	0.57%
Devens	4	2.30%
Fitchburg	1	0.57%
Groton	42	24.14%
Harvard	11	6.32%
Lawrence	1	0.57%
Lunenburg	5	2.87%
Maynard	1	0.57%
Nashua, NH	1	0.57%
No Comment	2	1.15%
No Match	1	0.57%
Pepperell	21	12.07%
Phillipston	1	0.57%
Roxbury Crossing	1	0.57%
Shirley	7	4.02%
Townsend	9	5.17%
Winchendon	1	0.57%
Total	174	

Of the 174 surveys, 84 of the respondents indicated that they parked in either the Rail Trail Lot or the Commuter Town Lot. When examining their community of residence, the same three municipalities comprise the majority of responses. Ayer (22.62%), Groton (33.33%) and Pepperell (17.86%) account for approximately 74% of the users of the two parking lots.

As mentioned, 20% (or 35 of the 174 respondents) indicated that they utilized on street parking. Not surprisingly, all of these respondents travelled on the first 5 trains in the AM, i.e. the 6:04, 6:31, 7:01, 7:20 and 7:41 trains. If the number of on street parkers is examined by train time, the largest numbers occur at the 7:01 and 7:20 AM trains. Comparing these to the totals off street lot parkers for the first 4 train times, the Commuter Town Lot (with 20 spaces) and the Rail Trail Lot (with approximately 74

commuter spaces) would be approaching 75 and 82 percent capacity, respectively. For example, Commuter and Rail Trail Lot user respondents for the first four trains totaled 15 and 61, respectively (4/21, 5/6, 4/27 and 2/7). This equates to 75% and 82% capacity of the respective lots, thereby leaving the later arriving commuters with less parking options outside of on street spaces.

**Ayer Commuter Rail Station - Town of Residence Survey Results
RESPONSES THAT PARKED IN THE RAIL TRAIL OR COMMUTER TOWN LOT ONLY**

Community of Residence	No. of Responses	Percent of Total
Groton	28	33.33%
Ayer	19	22.62%
Pepperell	15	17.86%
Townsend	9	10.71%
Harvard	4	4.76%
Shirley	3	3.57%
Brookline, NH	2	2.38%
Lunenburg	2	2.38%
Clinton	1	1.19%
Devens	1	1.19%
Total	84	

A comparison of the results with those obtained from a recent vehicle license plate survey conducted of all of the parking lots along the Fitchburg Commuter Rail Line between Fitchburg and South Acton, show a similar pattern. The vehicle license plate survey conducted by the MRPC in February 2009, indicated that at the Ayer Rail Trail and Commuter Town Lots, the majority of vehicles were from Ayer, Groton and Pepperell (approximately 63% or the 83 identified vehicles.) See Appendix for License Survey data.

**Fitchburg Commuter Rail Line License Plate Survey - Location That Vehicle Is Garaged In
AYER RAIL TRAIL & COMMUTER TOWN LOTS**

Location Vehicle Garaged	No. of Vehicles	Percent of Total
Groton	25	30.12%
Pepperell	14	16.87%
Ayer	13	15.66%
Harvard	5	6.02%
Unmatched	5	6.02%
Shirley	4	4.82%
NH	4	4.82%
Other Out of State	4	4.82%
Lunenburg	3	3.61%
Townsend	3	3.61%
Boston	2	2.41%
Northbridge	1	1.20%
Total	83	

Source: Fitchburg Commuter Rail Line - License Plate Survey, MRPC March 2009

Written Comments

As part of the survey, respondents were given the opportunity to write in comments that they felt were appropriate. Of the 174 responses, 67, or 38.5%, contained written comments. The responses covered a number of issues but in order to analyze them general categories were identified and the comments grouped accordingly. The categories were as follows:

- Free Parking Needed
- More Parking Needed
- Negative Comment Regarding Parking
- Positive Comment Regarding Parking
- Negative Comment Regarding the Station
- Positive Comment Regarding the Station
- Negative Comment Regarding the Train Service
- Positive Comment Regarding the Train Service

As indicated in the table below, the total number of comments differs from the total number of survey cards with comments on them, 67. This is due to the fact that some comments contained multiple points and were categorized as such.

From the written comments received, the majority, by far, related to the parking situation at the current train station. Forty-four (44) comments were categorized as negative to the existing parking situation while only six (6) could be classified as positive towards existing parking. The second highest number of comments indicated that some increase in the number of parking spaces or options was needed. Thirty (30) comments fell into this category. In addition, although not identified as a separate category, several respondents commented on the need for closer parking at or near the current train platform. The need for shelters was also repeated by commuters.

In regards to train service, comments on the negative side outweighed the positive almost two to one, 9 negative comments to 5 positive. More than one individual commented on the need for an early return train from Boston to Ayer. In general, commuters appeared to indicate that the train service was helpful and needed but that improvements to station amenities were necessary.

Written Comments from Rail Passenger Survey – March 25, 2009

Train Time	No. of Comments	Free Parking Needed	More Parking Needed	Parking Negative	Parking Positive	Station Negative	Station Positive	Train Service Negative	Train Service Positive
6:04 AM	12	2	1	5	2	3	0	2	1
6:31 AM	7	2	3	5	1	1	0	1	0
7:01 AM	21	1	12	17	1	3	3	0	0
7:20 AM	16	0	12	14	0	2	0	3	1
7:41 AM	7	0	2	3	2	1	1	1	2
10:46 AM	2	0	0	0	0	0	0	2	0
11:43 AM	1	0	0	0	0	0	0	0	1
1:26 PM	0	0	0	0	0	0	0	0	0
3:26 PM	1	0	0	0	0	0	0	0	0
Total	67	5	30	44	6	10	4	9	5

Note: Some comments were recorded in multiple categories due to the nature of the comment.

Individual comments are listed in the Appendix.

Other Traffic Studies

The MRPC was asked to review and summarize prior traffic studies conducted that in the area of the proposed parking facility. After a brief search of files at the MRPC, two relevant studies were identified. Other studies related to the closure of then Fort Devens and subsequent traffic data summaries were felt to be too old to be relevant to current conditions. The studies, therefore, reviewed were:

- *Traffic Calming, Circulation and Access Report: Downtown Area and School Zones* by Weston & Sampson, Inc – February 2009
- *Parking and Town Center Sites in Downtown Ayer: Illustrative Sketches and Program Summary* by The Cecil Group, Inc. – October 2008
- *Devens Traffic Monitoring Program 2006 Biennial Traffic Report* by Earth Tech, Inc. - February 2007
- *Ayer Transit Parking Study Report* by The Cecil Group, Inc. - October 2005
- *Feasibility Study for a Downtown Parking Garage Facility* by McMahon Associates, Inc. - March 2004
- *Construction of a Commuter Rail Parking Facility in Ayer, MA* by MART - October 2003

Feasibility Study for a Downtown Parking Garage Facility by McMahon Associates

This study examined the feasibility and potential sites for a parking facility in Ayer. No traffic impacts or analysis were part of this report and therefore further review was not warranted.

Traffic Calming, Circulation and Access Report by Weston & Sampson Report

Weston & Sampson, Inc. was retained by the town of Ayer to address the following:

1. Traffic calming and speed control along Main Street, Central Avenue and Washington Street;
2. Reorientation of the Depot Square parking lot (current train station area) to improve access/egress for pedestrians and vehicles; and improve pedestrian movement and safety and future development;
3. Review additional parking area on Central Avenue;
4. Improve traffic flow at the Main Street/Park Street/West Main Street/Mill Street intersection.

This report examined several issues related to traffic flow along Main Street and potential pedestrian access to the Commuter Rail Station. Traffic calming measures

were identified for Main Street to reduce pavement widths and to remove the “perception” of speeding vehicles. In addition, pedestrian crossing issues were examined as related to Main Street and the potential development of Depot Square.

A review of the operational conditions at the Main Street/Park Street/West Main Street/Mill Street intersection was also conducted. Evaluations were run on several alternative geometric changes including a traffic signal and a roundabout.

Several key points were identified along with potential improvements to address traffic operational and pedestrian issues. The town should review the recommendations and give consideration to the various traffic calming measures identified to assist in the overall operation of Main Street for both parking and pedestrian crossings. These measures would provide direct benefits to any increased pedestrian activity resulting from the creation of a new, expanded parking garage for the commuter rail.

In addition, recommendations to address the Main Street/Park Street/West Main Street/Mill Street intersection should be considered by the town. This report conducted a signal warrant analysis for the intersection in question and determined that it did meet the criteria for the installation of a traffic signal. The Weston & Sampson study analysis showed improvements to the intersection due to the placement of a traffic signal. Additionally, a roundabout alternative also showed operational improvements however, some land taking may be required to accommodate a roundabout design. These types of intersection improvements will have a direct impact on a new parking garage on Park Street by helping to address anticipated vehicle impacts but also by providing potential benefits to commuter rail pedestrian attempting to cross Main Street. A signal or a roundabout would provide an opportunity to locate a pedestrian crosswalk where traffic would be stopped or slowed down considerably.

Parking and Town Center Sites in Downtown Ayer by The Cecil Group

The Cecil Group was hired by the town of Ayer to review site plan studies related to the development of two separate and small parking facilities in the downtown Ayer area. The study focused on site feasibility and planning and design characteristics of the two facilities. No traffic impacts or analysis was conducted as part of this study.

Various schemes were examined at the Central Avenue and Park Street sites that would provide from 348 to 389 parking spaces depending upon the scheme selected. The two Park Street schemes both included access points to the facility off of Park Street and Groton Street. Three schemes were presented for a Central Avenue structure just off of Columbia Street.

The development of two separate parking facilities would result in an impact and distribution pattern different from that associated with one large facility located off of Park Street. Location of access points to the facilities would be a key factor in

assessing any impacts. However, as can be seen later in this report, all of the study area intersections currently operate with some level of deficiency. Whether one, two or no facilities are constructed, these intersection issues should be addressed.

Traffic Impact Analysis

To assess the potential impact of a new commuter parking facility, an analysis of the existing traffic conditions around the Rail Trail site was conducted by the MRPC.

Study Area

The study area consists of the Main Street area of downtown Ayer in and around the current MBTA Station and the existing parking lots identified above. Major intersections potentially impacted within the study area included the following:

1. Main Street (Rt 2A/110/111)/Park Street (Rt 111/2A)/West Main Street/Mill Street
2. Park Street (Rt 111/2A)/Groton Street
3. Park Street (Rt 111/2A)/Groton School Road (Rt 111)/Fitchburg Road (Rt 2A)
4. Main Street (Rt 2A/110/111)/Columbia Street

All of these crossings are within 0.75 miles or less of the commuter rail station.

1. Main Street (Rt 2A/110/111)/Park Street (Rt 111/2A)/West Main Street/Mill Street

This intersection operates primarily as a 3 legged “T” crossing with a fourth leg, Mill Street, consisting of a driveway/access road to a commercial establishment. Main Street (Route 2A/110/111) runs east/west and is the eastern leg of the intersection while West Main Street acts as the opposite western leg. Park Street (Route 111/2A) runs north/south from the intersection and provides access from the downtown area to Groton and Fitchburg. A raised, elongated traffic island approximately 90 feet long separates the north and south bound lanes of Park Street immediately at the intersection. Traffic control consists of Stop signs on both Park Street and Mill Street. Crosswalks are present on all legs of the intersections. Abutting land uses include the Ayer Fire Department Fire Station on the northwest corner, a bank on the northeast corner, a gas station on the southeast quadrant and a small commercial establishment on the southwest corner.

1. Main Street (Rt 2A/110/111)/Park Street (Rt 111/2A)/West Main Street/Mill Street



2. Park Street (Rt 111/2A)/Groton Street

This is a 3 legged angle “T” intersection located approximately 920 feet north of the Main Street (Rt 2A/110/111)/Park Street (Rt 111/2A)/West Main Street/Mill Street crossing. Park Street is the major street running north/south through the intersection. Groton Street approaches from the east and intersects with Park Street at an approximate 60 degree angle. Groton Street provides access to the existing Rail Trail parking lot that is utilized by commuter rail riders and continues easterly to Pleasant Street and Washington Street. The street traverses an approximate 5% incline from Park Street to the entrance to the Rail Trail Lot. Traffic control consists of a Stop sign for the Groton Street approach. A gas station is located directly opposite Groton Street on the west side of Park Street and has access/egress through this intersection. Turning movement counts included vehicles entering and exiting the crossing and as a result analysis was conducted as if this was a 4 way intersection.

2. Park Street (Rt 111/2A)/Groton Street



3. Park Street (Rt 111/2A)/Groton School Road (Rt 111)/Fitchburg Road (Rt 2A)

This intersection is essentially a 3 legged “T” intersection located approximately 1,800 feet north of the Park Street/Groton Street crossing. Groton School Road enters the intersection at an acute angle and as a result “right turn” maneuvers operate more akin to a through movement. Consequently, northbound Park Street traffic continues more or less straight onto Groton School Road while traffic that heads onto Route 2A (Fitchburg Road) bear noticeably to the left. Groton School Road is stop controlled and runs north from this intersection as Route 111 and provides direct access to the town of Groton. Fitchburg Road runs principally east/west and becomes Route 2A at the intersection. An eating establishment is located on the triangular parcel situated between Groton School Road and Fitchburg Road. Parking and access for this commercial enterprise directly impacts and affects the operation of the intersection.

3. Park Street (Rt 111/2A)/Groton School Road (Rt 111)/Fitchburg Road (Rt 2A)



4. Main Street (Rt 2A/110/111)/Columbia Street

This intersection is a three legged “T” intersection located west of the existing commuter rail station. Main Street runs east/west through the crossing. Just west of Columbia Street, Main Street runs up an incline and bears to the south on a bridge that crosses over the adjacent railroad tracks. Columbia Street is stop controlled and runs north from Main Street and after Central Avenue (approximately 150 feet from Main Street) becomes a smaller residential type street. Ayer Town Hall and the Post Office are located on the west and east sides of Columbia Street at the intersection. Pedestrian crosswalks are present on Columbia Street and Main Street in front of the Town Hall.

4. Main Street (Rt 2A/110/111)/Columbia Street



Existing Conditions

In order to assess the potential impacts associated with the construction of a new parking garage on the identified study area intersections, it is necessary to establish current existing operating characteristics. Traffic data was therefore collected in the area consisting of Automated Traffic Recorder (ATR) counts on several streets and manual peak hour Turning Movement Counts (TMC) at the intersections.

Traffic Volumes

Traffic volume counts were conducted in June, October and November of 2008 at the following locations:

1. Park Street (Rt 2A/111) - North of Main Street
2. Main Street (Rt 2A/110/111) - East of Park Street
3. West Main Street - West of Park Street
4. Park Street (Rt 2A/111) - North of Groton Street
5. Groton Street - East of Park Street
6. Park Street (Rt 2A/111) - South of Groton School Road
7. Groton School Road (Rt 111) - North of Park Street
8. Fitchburg Road (Rt 2A) - West of Groton School Road
9. Main Street (Rt 2A/110/111) - East of Columbia Street
10. Main Street (Rt 2A/110/111) - West of Columbia Street
11. Columbia Street - North of Main Street

These counts resulted in the following traffic volumes:

Street	Location	Date	Direction 1 Volume		Direction 2 Volume		Total Volume
			NB	WB	SB	EB	
Park Street (Rt 2A/111)	North of Main Street	6/9/08	NB	7,374	SB	7,227	14,601
Main Street (Rt 2A/110/111)	East of Park Street	10/24/08	WB	8,881	EB	7,999	16,880
West Main Street	West of Park Street	6/9/08	EB	4,726	WB	4,469	9,195
Park Street (Rt 2A/111)	North of Groton Street	11/19/08	NB	4,538	SB	4,566	9,104
Groton Street	East of Park Street	10/24/08	SB	1,804	NB	1,715	3,519
Park Street (Rt 2A/111)	South of Groton School Road	10/23/08	NB	6,633	SB	5,028	11,661
Groton School Road (Rt 111)	North of Park Street	10/24/2008	NB	3,954	SB	3,250	7,204
Fitchburg Road (Rt 2A)	West of Groton School Road	10/24/08	NB	4,804	SB	4,889	9,693
Main Street (Rt 2A/110/111)	East of Columbia Street	11/17/08	EB	7,319	WB	7,578	14,897
Main Street (Rt 2A/110/111)	West of Columbia Street	11/19/08	EB	6,493	WB	7,047	13,540
Columbia Street	North of Main Street	10/24/08	NB	1,797	SB	2,415	4,212

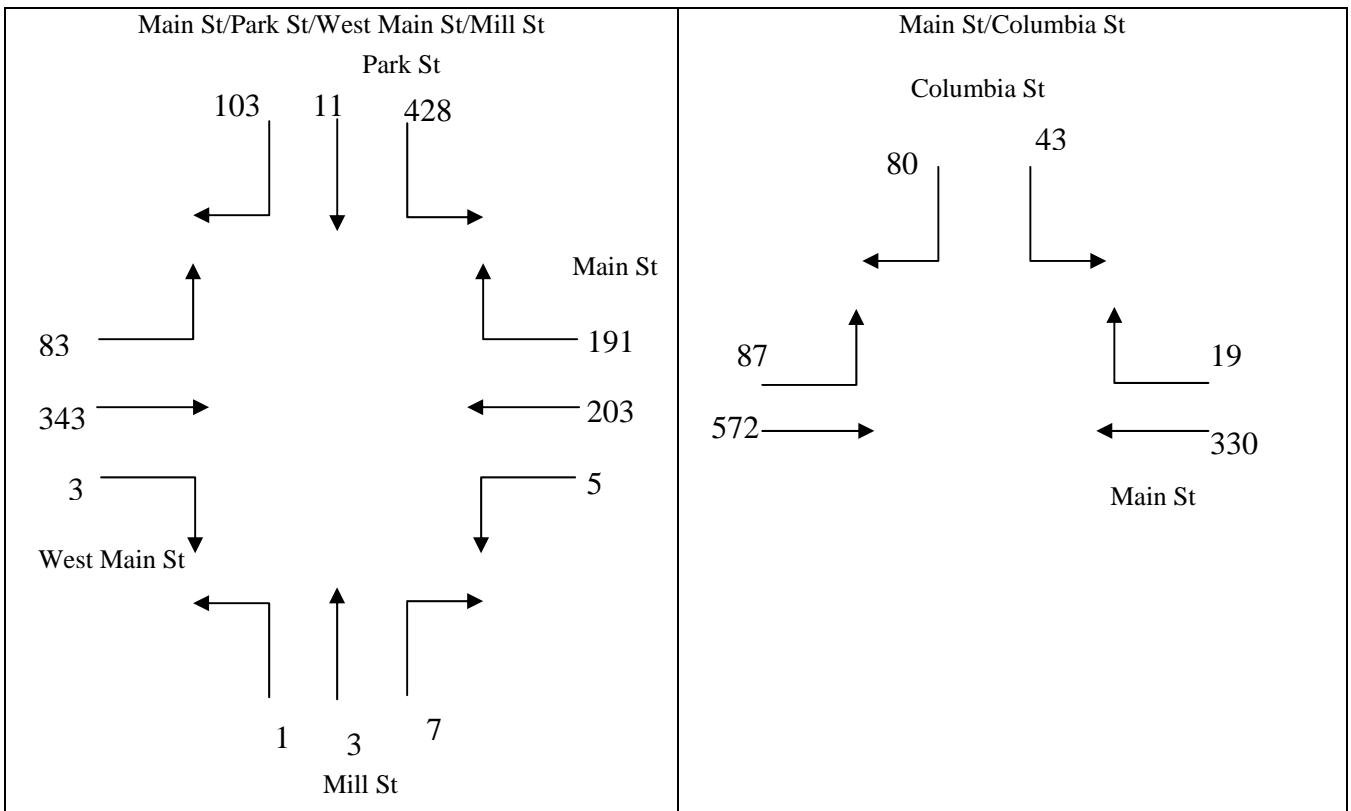
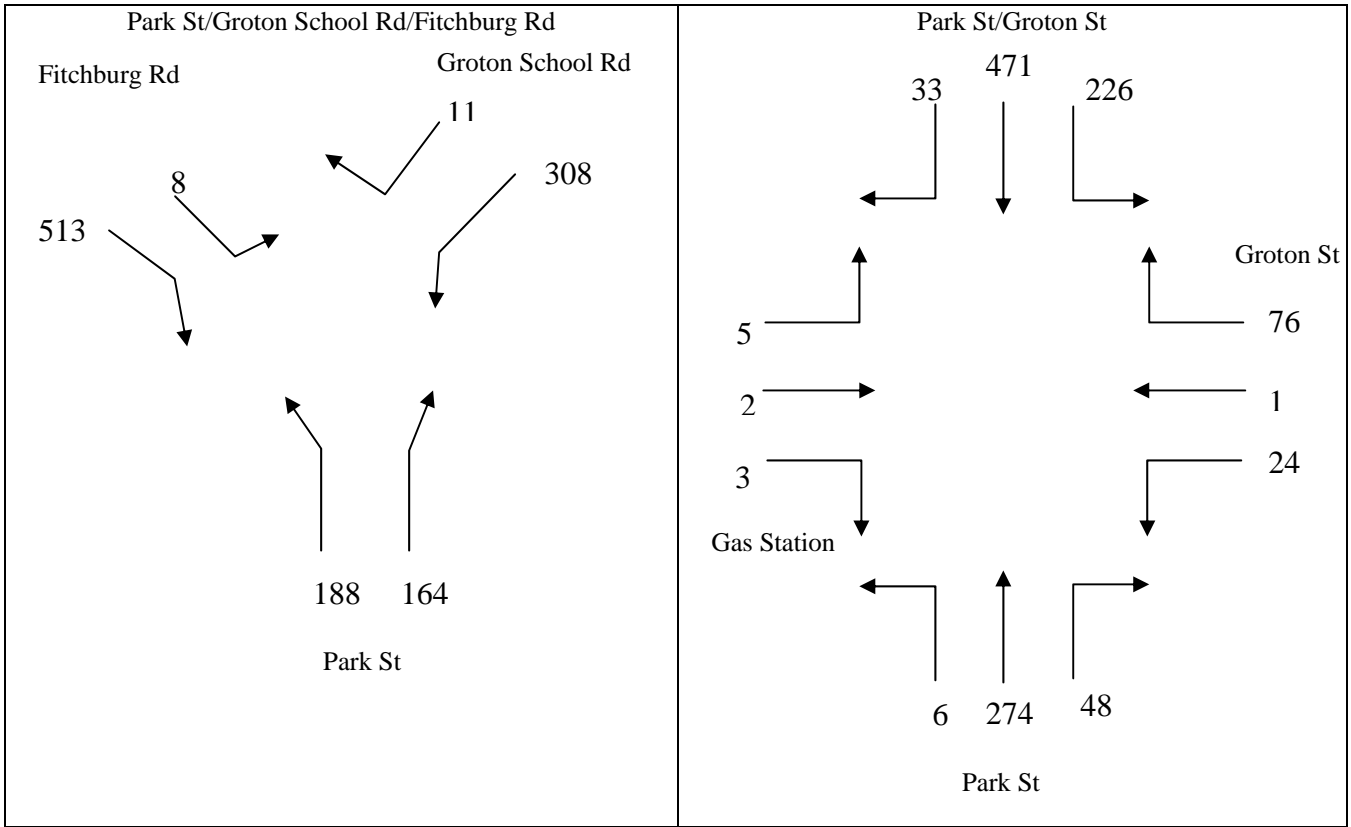
Turning Movement Counts

AM and PM peak hour turning movement counts (TMC) were conducted at the previously identified study area intersections.

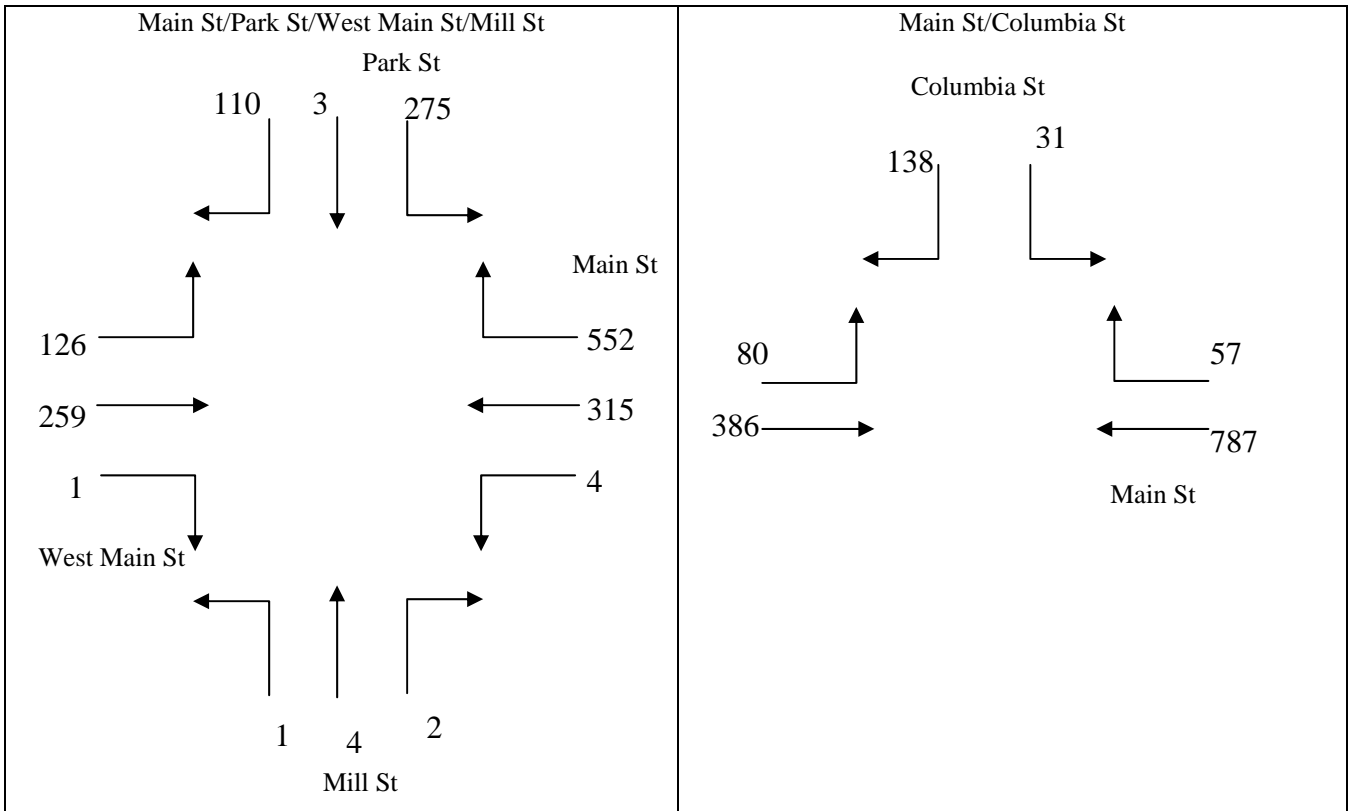
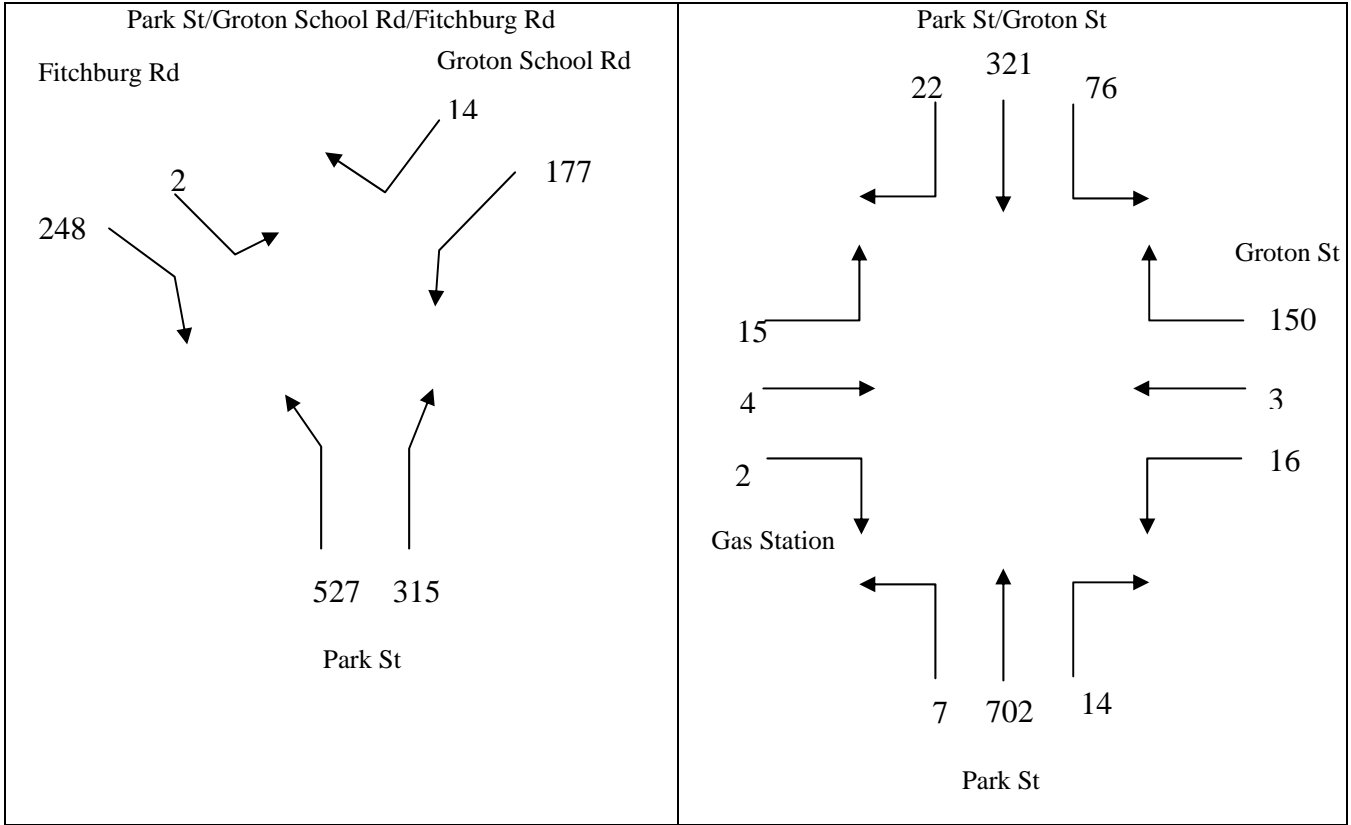
1. Main Street (Rt 2A/110/111)/Park Street (Rt 111/2A)/West Main Street/Mill Street
2. Park Street (Rt 111/2A)/Groton Street
3. Park Street (Rt 111/2A)/Groton School Road (Rt 111)/Fitchburg Road (Rt 2A)
4. Main Street (Rt 2A/110/111)/Columbia Street

Peak hours were determined from the ATR counts conducted on the area roadways. AM peak hour counts were conducted from 7:00 AM to 8:00 AM at Main Street/Park Street/West Main Street/Mill Street, Park Street/Groton Street and Park Street/Groton School Road/Fitchburg Road and from 7:30 AM to 8:30 AM at Main Street/Columbia Street. PM peak hour counts were conducted from 4:45 PM to 5:45 PM at Main Street/Park Street/West Main Street/Mill Street and Main Street/Columbia Street and from 5:00 PM to 6:00 PM at Park Street/Groton Street and Park Street/Groton School Road/Fitchburg Road.

Turning Movement Counts - Existing AM



Turning Movement Counts - Existing PM



Operational Analyses

An intersection may be improved to address poor traffic operation conditions. Operational conditions at an intersection are assessed based on the traffic flow that occurs during the peak hour (i.e., highest-volume hour) of a typical weekday. Analyses of current conditions are based on traffic data collected in the current year.

The Level Of Service (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 (2000)* (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. The table below summarizes the LOS average control delay criteria for intersections controlled by STOP signs and those controlled by traffic signals.

Where appropriate in evaluating improvement alternatives, LOS values and average control delay were estimated for each alternative and compared.

Average Control Delay

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.

AM and PM capacity analysis for the study intersections produced the following results:

1. Main Street (Rt 2A/110/111)/Park Street (Rt 111/2A)/West Main Street/Mill Street

			AM Peak Hour 7:00-8:00		PM Peak Hour 4:45-5:45	
			Existing		Existing	
			Volume	LOS	Volume	LOS
West Main St	Eastbound	Left	83	A	126	B
		Thru	343		259	
		Right	3		1	
Main St (Rt 2A/110/111)	Westbound	Left	5	A	4	A
		Thru	203		315	
		Right	191		552	
Mill St	Northbound	Left	1	B 14.9	1	E 35.5
		Thru	3		4	
		Right	7		2	
Park St (Rt 111/2A)	Southbound	Left	428	F 412.7	275	F 496.5
		Thru	11		3	
		Right	103		110	

As expected, the intersection suffers from failed conditions on Park Street in both the AM and PM peak hours. The LOS is F with excessive delay conditions. This can be attributed to the heavy left turn volumes from Park Street onto Main Street.

2. Park Street (Rt 111/2A)/Groton Street

			AM Peak Hour 7:00-8:00		PM Peak Hour 5:00-6:00	
			Existing		Existing	
			Volume	LOS	Volume	LOS
Gas Station	Eastbound	Left	5	E 39.3	15	F 68.4
		Thru	2		4	
		Right	3		2	
Groton St	Westbound	Left	24	D 26.2	16	D 29.8
		Thru	1		3	
		Right	76		150	
Park St (Rt 111/2A)	Northbound	Left	6	A	7	A
		Thru	274		702	
		Right	48		14	
	Southbound	Left	226	A	76	A
		Thru	471		321	
		Right	33		22	

Note: This location was analyzed as a four way intersection due to the gas station located opposite Groton Street.

The LOS (D) and delays (26.2 to 29.8 seconds) are highest for turning movements out of Groton Street both during the AM and PM peak hours. Movements out of the gas station due operate at a worse LOS, however, the volumes are considerably less and are therefore not as critical as Groton Street. These figures can be attributed to the volumes seen on Park Street.

3. *Park Street (Rt 111/2A)/Groton School Road (Rt 111)/Fitchburg Road (Rt 2A)*

			AM Peak Hour 7:00-8:00		PM Peak Hour 5:00-6:00	
			Existing		Existing	
			Volume	LOS	Volume	LOS
Fitchburg Rd (Rt 2A)	Eastbound	Left	8	A	21	A
		Thru	-		-	
		Right	513		248	
Park St (Rt 111/2A)	Northbound	Left	188	-	527	-
		Thru	164		315	
		Right	-		-	
Groton School Rd (Rt 111)	Southbound	Left	-	E	-	B
		Thru	308		177	
		Right	11		37.5	

This intersection operates as a three legged intersection, however the geometrics of the crossing greatly impacts the movements and flow of vehicles. Groton School traffic headed southbound operates as a through type maneuver and not as a typical stop controlled left turn typical of a normal 3 legged “T” intersection. LOS was calculated as E in the AM for this maneuver.

4. *Main Street (Rt 2A/110/111)/Columbia Street*

			AM Peak Hour 7:30-8:30		PM Peak Hour 4:45-5:45	
			Existing		Existing	
			Volume	LOS	Volume	LOS
Main St (Rt 2A/111)	Eastbound	Left	87	A	80	B
		Thru	572		386	
		Right	-		-	
	Westbound	Left	-	-	-	-
		Thru	330		787	
		Right	19		57	
Columbia St	Southbound	Left	43	C	31	E
		Thru	-		-	
		Right	80		20.0	

Movements out of Columbia Street in the PM peak hour suffer the longest delays and worse LOS at this intersection. Right turns out of Columbia Street are impacted, as expected, by the heavy volumes present along Main Street.

Overall, each of the intersections examined experience some level of operational issue with the worst occurring at the Main Street/Park Street/West Main Street/Mill Street crossing. The heavy turning volumes as well as the geometrics of this intersection result in the poor LOS and large delays seen during the peak hours.

Signal Warrant Analysis

As part of the review of existing conditions at the study area intersections, a signal warrant analysis was conducted at three of the crossings: Main Street/Park Street/West Main Street/Mill Street, Park Street/Groton School Road/Fitchburg Road and Main Street/Columbia Street. Park Street/Groton Street was not evaluated for a signal due to the perception that existing volumes, particularly on Groton Street, would not be sufficient to meet the requirements of the traffic signal warrants.

Qualification for Signal Warrants

The warrants for a traffic signal are established and identified in the “*Manual on Uniform Traffic Control Devices*” (MUTCD) “The MUTCD defines the standards used by road managers nationwide to install and maintain traffic control devices on all streets and highways. The MUTCD is published by the Federal Highway Administration (FHWA)” (source: FHWA website: <http://mutcd.fhwa.dot.gov/>)

Warrants for signalization are intended to create a minimum condition for which signalization may be the most appropriate treatment. Each of the warrants is based on simple volume, delay, or crash experience at the location before signalization is installed. None accounts for the specific design of the signal or the way it may be timed. (e.g., pre-timed versus actuated). As a result, an engineering evaluation should be conducted in conjunction with the evaluation of signal warrants to determine that the proposed signalization plan actually represents an improvement over existing conditions.

As noted in the MUTCD, “the satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal” (Section 4C.01, 10).

Signalization is not always the most appropriate form of traffic control for an intersection, and it is sometimes possible to create a larger benefit by removing a traffic signal than by retiming it.

The MUTCD acknowledges this by stating that “since vehicular delay and the frequency of some types of crashes are sometimes greater under traffic signal control than under STOP signs, consideration should be given to providing alternatives to traffic control signals even if one or more of the signal warrants has been satisfied.”

(10). Potential alternatives include the use of warning signs, flashing beacons, geometric modifications, and/or conversion of the intersection to a stop-controlled intersection or a roundabout.

Based upon a review of available data and applicable signal warrants, each of the three intersections examined satisfied one or more warrant as outlined in the MUTCD.

Signal Warrant Analysis Summary Tables

1. Main Street (Rt 2A/110/111)/Park Street (Rt 111/2A)/West Main Street/Mill Street

	Satisfied	Not Satisfied
Warrant 1: Eight-Hour Vehicular Volume	X	
1 A. Minimum Vehicular Volumes (both major approaches --and--higher minor approach) --or--	X	
1 B. Interruption of Continuous Traffic (Both major approaches --and-- higher minor approach) --or--	X	
1 80% Vehicular --and-- Interruption Volumes (Both major approaches --and-- higher minor approach)	X	
Warrant 2: Four Hour Vehicular Volume	X	
2 A Four-Hour Vehicular Volumes (Both major approaches --and-- higher minor approach)	X	
Warrant 3: Peak Hour	X	
3 A. Peak-Hour Conditions (Minor Delay --and--minor volume --and--total volume) --or--	X	
3 B. Peak-Hour Vehicular Volumes (Both major approaches --and-- higher minor approach)	X	
Warrant 4: Pedestrian Volume		X
4 A. Pedestrian Volumes (Four hours --or--one hour) --and--		X
4 B. Gaps same Period (Four hours --or-- one hour)		X
Warrant 5: School Crossing		X
5. Student Volumes --and--		X
5. Gaps Same Period		X
Warrant 6: Coordinated Signal System		X
6. Degree of Platooning (Predominant direction or both directions)		X
Warrant 7: Crash Experience		X
7 A. Adequate trials of alternatives, observance and enforcement failed --and--		X
7 B. Reported crashes susceptible to correctino by signal (12-month period) --and--		X
7 C. 80% Volumes for Warrants 1A, 1B --or-- 4 are satisfied	X	
Warrant 8: Roadway Network	X	
8 A. Weekday Volume (Peak hour total --and-- projected warrants 1, 2, or 3) --or--	X	
8 B. Weekend Volume (Five hours total)		X

2. Park Street (Rt 111/2A)/Groton Street

Not analyzed.

3. Park Street (Rt 111/2A)/Groton School Road (Rt 111)/Fitchburg Road (Rt 2A)

	Satisfied	Not Satisfied
Warrant 1: Eight-Hour Vehicular Volume	X	
1 A. Minimum Vehicular Volumes (both major approaches --and--higher minor approach) --or--	X	
1 B. Interruption of Continuous Traffic (Both major approaches --and-- higher minor approach) --or--		X
1 80% Vehicular --and-- Interruption Volumes (Both major approaches --and-- higher minor approach)		X
Warrant 2: Four Hour Vehicular Volume	X	
2 A Four-Hour Vehicular Volumes (Both major approaches --and-- higher minor approach)	X	
Warrant 3: Peak Hour	X	
3 A. Peak-Hour Conditions (Minor Delay --and--minor volume --and--total volume) --or--		X
3 B. Peak-Hour Vehicular Volumes (Both major approaches --and-- higher minor approach)	X	
Warrant 4: Pedestrian Volume		X
4 A. Pedestrian Volumes (Four hours --or--one hour) --and--		X
4 B. Gaps same Period (Four hours --or-- one hour)		X
Warrant 5: School Crossing		X
5. Student Volumes --and--		X
5. Gaps Same Period		X
Warrant 6: Coordinated Signal System		X
6. Degree of Platooning (Predominant direction or both directions)		X
Warrant 7: Crash Experience		X
7 A. Adequate trials of alternatives, observance and enforcement failed --and--		X
7 B. Reported crashes susceptible to correctino by signal (12-month period) --and--		X
7 C. 80% Volumes for Warrants 1A, 1B --or-- 4 are satisfied	X	
Warrant 8: Roadway Network	X	
8 A. Weekday Volume (Peak hour total --and-- projected warrants 1, 2, or 3) --or--	X	
8 B. Weekend Volume (Five hours total)		X

4. Main Street (Rt 2A/110/111)/Columbia Street

	Satisfied	Not Satisfied
Warrant 1: Eight-Hour Vehicular Volume	X	
1 A. Minimum Vehicular Volumes (both major approaches --and--higher minor approach) --or--		X
1 B. Interruption of Continuous Traffic (Both major approaches --and-- higher minor approach) --or--	X	
1 80% Vehicular --and-- Interruption Volumes (Both major approaches --and-- higher minor approach)	X	
Warrant 2: Four Hour Vehicular Volume	X	
2 A Four-Hour Vehicular Volumes (Both major approaches --and-- higher minor approach)	X	
Warrant 3: Peak Hour	X	
3 A. Peak-Hour Conditions (Minor Delay --and--minor volume --and--total volume) --or--		X
3 B. Peak-Hour Vehicular Volumes (Both major approaches --and-- higher minor approach)	X	
Warrant 4: Pedestrian Volume		X
4 A. Pedestrian Volumes (Four hours --or--one hour) --and--		X
4 B. Gaps same Period (Four hours --or-- one hour)		X
Warrant 5: School Crossing		X
5. Student Volumes --and--		X
5. Gaps Same Period		X
Warrant 6: Coordinated Signal System		X
6. Degree of Platooning (Predominant direction or both directions)		X
Warrant 7: Crash Experience		X
7 A. Adequate trials of alternatives, observance and enforcement failed --and--		X
7 B. Reported crashes susceptible to correctino by signal (12-month period) --and--		X
7 C. 80% Volumes for Warrants 1A, 1B --or-- 4 are satisfied	X	
Warrant 8: Roadway Network	X	
8 A. Weekday Volume (Peak hour total --and-- projected warrants 1, 2, or 3) --or--	X	
8 B. Weekend Volume (Five hours total)		X

As noted beforehand, even though a location does satisfy a signal warrant “the satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal” (MUTCD Section 4C.01, 10). A more detailed engineering study of the intersections should be under taken to determine the best possible alternative for addressing identified issues that will satisfy local concerns. What should be noted, is that each intersection under existing conditions does have identified problems with their operation due to current configurations. Additionally, increases to traffic resulting from the construction of a larger commuter parking facility has the potential to attract additional traffic through these intersections resulting in further delays and capacity issues.

Future Conditions

In order to assess the potential impacts associated with the construction of a new Commuter Rail Parking facility, a similar analysis process as conducted for existing conditions is undertaken. An assumption is made as to when the proposed project would be constructed and fully operational, commonly referred to as the “build-out” year. Existing traffic is projected for that build-out year based upon yearly traffic

growth factors. Operational conditions are then calculated to determine future year “no build” conditions. The amount of new traffic generated by the project is then determined and also added to the build-out year figures to determine a future year “full build” condition. Comparisons can then be made between “Existing Conditions”, “Future No Build Conditions” and “Future Build Conditions” in order to assess the impact of the potential project.

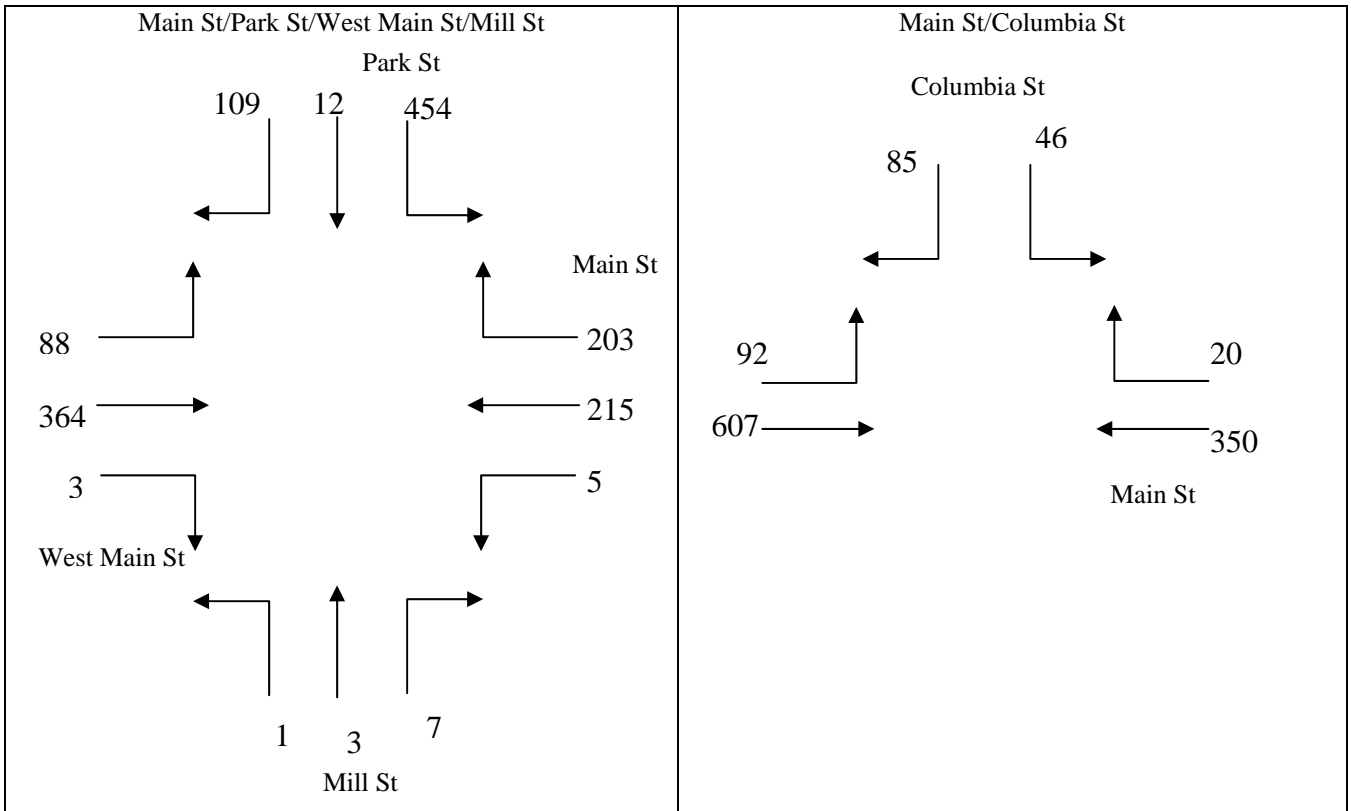
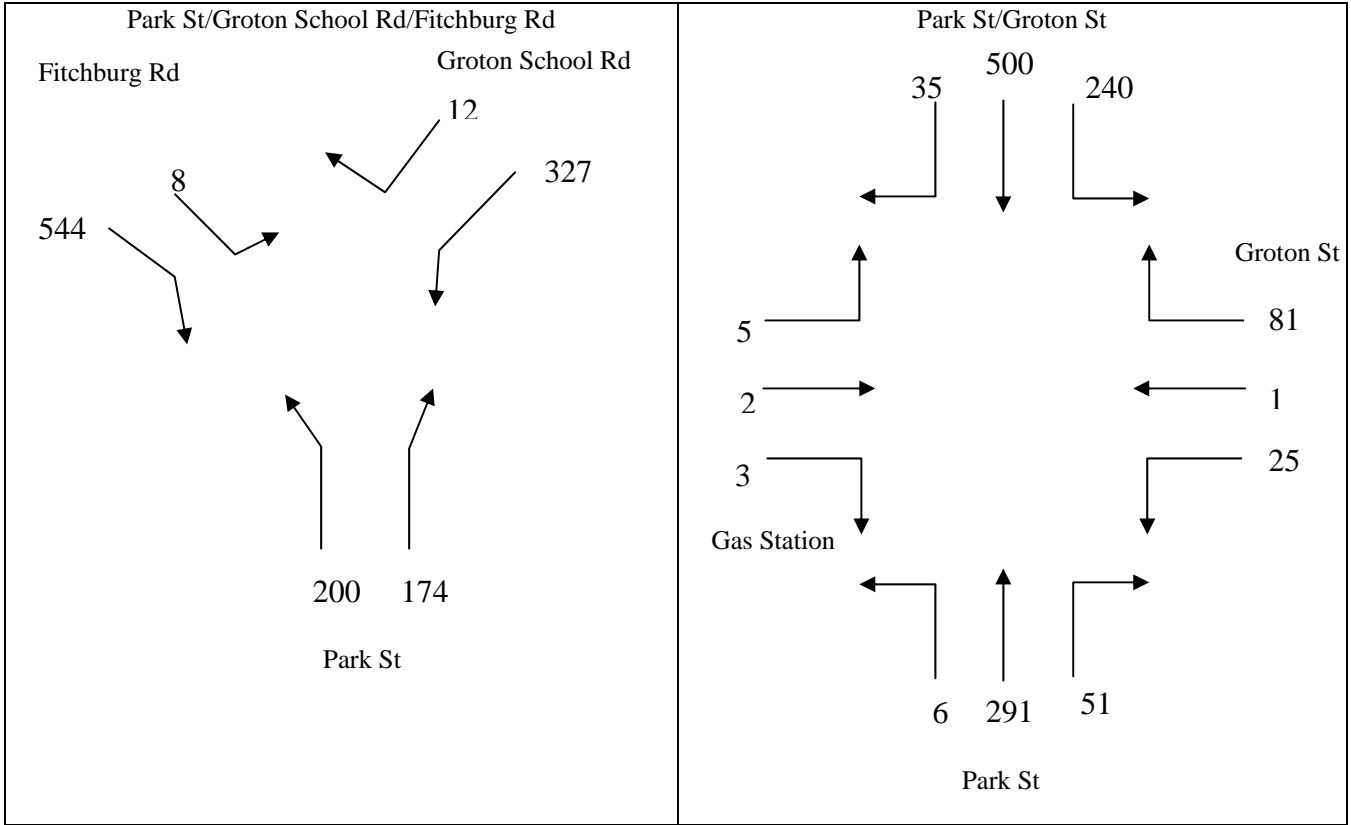
Proposed Parking Garage

To address concerns related to adequate parking at the Ayer Commute Rail Station a 400 car parking garage is proposed for the site of the current Nashua River Rail Trail parking lot. Of these 400 spaces, 50 will be designated for Rail Trail users. Currently, this lot contains 84 spaces for vehicle parking with 74 designated for commuter use. On most weekdays this lot is filled to capacity resulting in additional parking in a small Commuter Town Lot located on Park Street that contains approximately 20 spaces and on street along Main Street.

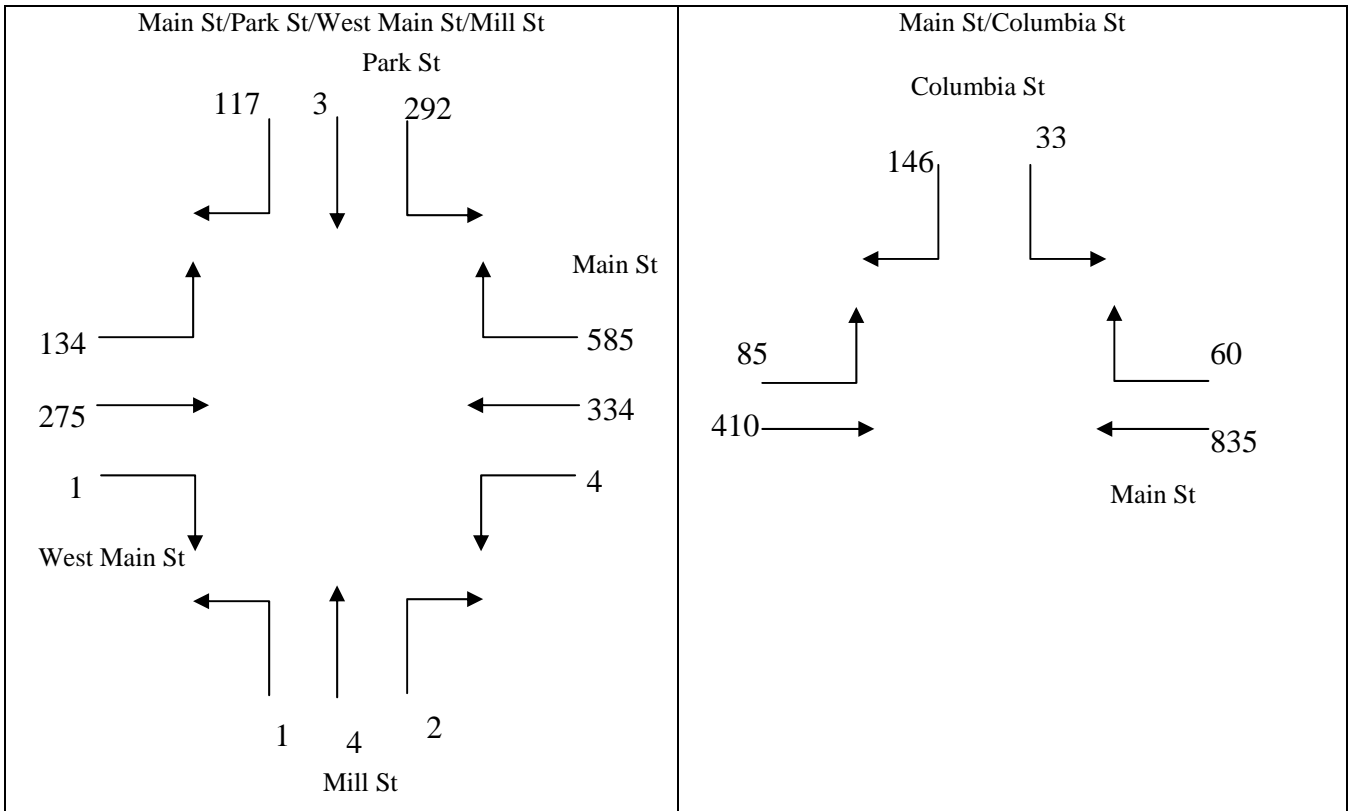
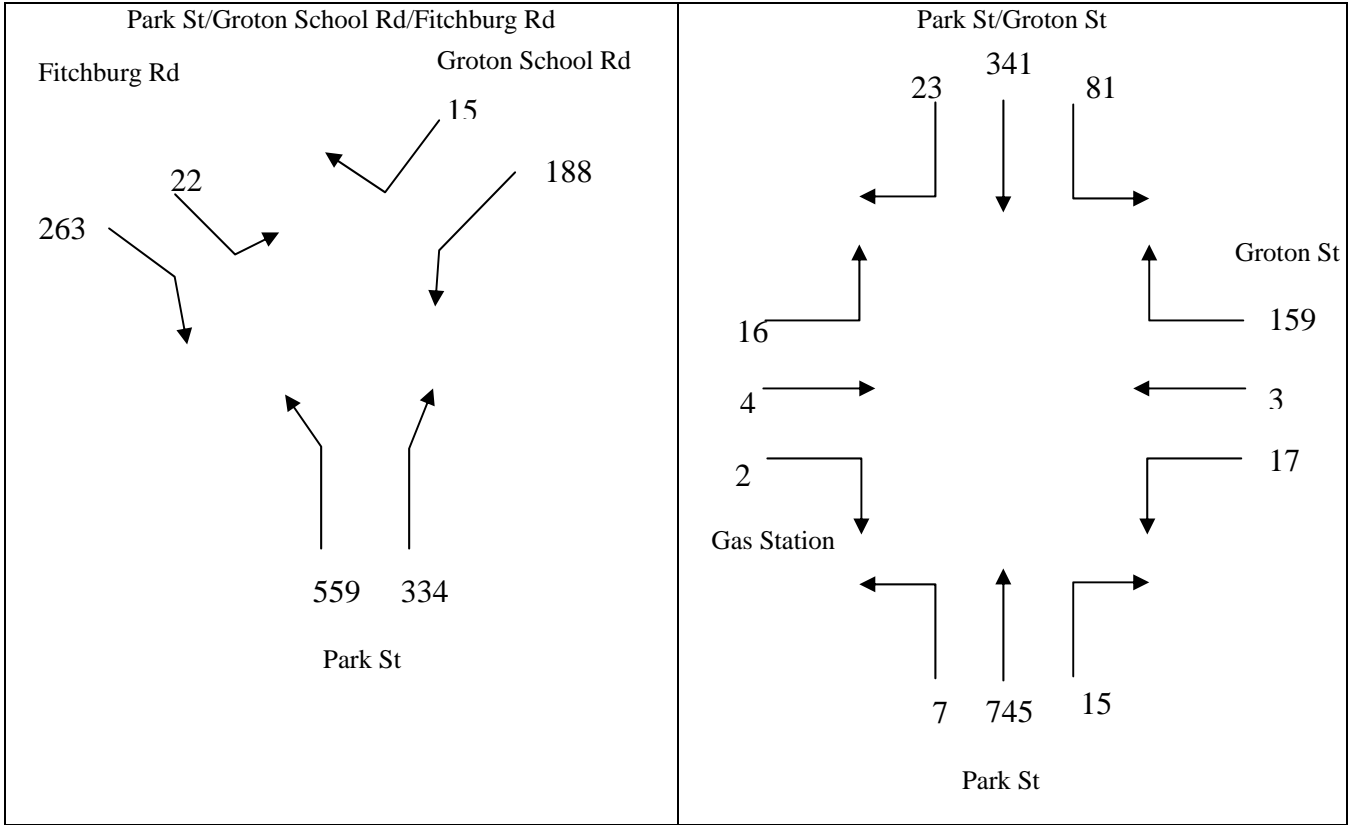
Future No Build Results

For analyses of future conditions, a growth factor of 1.18% based on historical trends in traffic volumes recorded in the MRPC region was used to predict future volumes. A build-out year of 2012 was estimated for completion of the facility.

Turning Movement Counts – Future No Build AM



Turning Movement Counts – Future No Build PM



1. Main Street (Rt 2A/110/111)/Park Street (Rt 111/2A)/West Main Street/Mill Street

			AM Peak Hour 7:00-8:00				PM Peak Hour 4:45-5:45			
			Existing		Future No Build		Existing		Future No Build	
			Volume	LOS	Volume	LOS	Volume	LOS	Volume	LOS
West Main St	Eastbound	Left	83	A	88	A	126	B	134	B
		Thru	343		364		259		275	
		Right	3		3		1		1	
Main St (Rt 2A/110/111)	Westbound	Left	5	A	5	A	4	A	4	A
		Thru	203		215		315		334	
		Right	191		203		552		585	
Mill St	Northbound	Left	1	B	1	C	1	E	1	E
		Thru	3		3		4		4	
		Right	7		14.9		7		15.7	
Park St (Rt 111/2A)	Southbound	Left	428	F	454	F	275	F	292	F
		Thru	11		12		3		3	
		Right	103		412.7		109		536.2	

Only one approach saw a change in LOS from existing conditions. Mill Street in the AM peak hour dropped one LOS from B to C (with an increase in delay from 14.9 seconds to 15.7 seconds). Although the AM and PM peak hour LOS did not change for Park Street, LOS F, the overall delay increased approximately 123 seconds in the AM and 183 seconds in the PM, thus indicating a potentially worsening of the overall operational condition of the intersection under future no build conditions.

2. Park Street (Rt 111/2A)/Groton Street

			AM Peak Hour 7:00-8:00				PM Peak Hour 5:00-6:00			
			Existing		Future No Build		Existing		Future No Build	
			Volume	LOS	Volume	LOS	Volume	LOS	Volume	LOS
Gas Station	Eastbound	Left	5	E	5	E	15	F	16	F
		Thru	2		2		4		4	
		Right	3		39.3		3		46.3	
Groton St	Westbound	Left	24	D	25	D	16	D	17	E
		Thru	1		1		3		3	
		Right	76		26.2		81		32.2	
Park St (Rt 111/2A)	Northbound	Left	6	A	6	A	7	A	7	A
		Thru	274		291		702		745	
		Right	48		51		14		15	
	Southbound	Left	226	A	240	A	76	A	81	A
		Thru	471		500		321		341	
		Right	33		35		22		23	

Groton Street traffic during the PM peak hour saw a drop in LOS, from D to E, from existing to future no build conditions. This change would be a result in an increase in Park Street traffic due to expected traffic growth.

3. Park Street (Rt 111/2A)/Groton School Road (Rt 111)/Fitchburg Road (Rt 2A)

			AM Peak Hour 7:00-8:00				PM Peak Hour 5:00-6:00			
			Existing		Future No Build		Existing		Future No Build	
			Volume	LOS	Volume	LOS	Volume	LOS	Volume	LOS
Fitchburg Rd (Rt 2A)	Eastbound	Left	8	A	8	A	21	A	22	A
		Thru	-		-		-		-	
		Right	513		544		248		263	
Park St (Rt 111/2A)	Northbound	Left	188	-	200	-	527	-	559	-
		Thru	164		174		315		334	
		Right	-		-		-		-	
Groton School Rd (Rt 111)	Southbound	Left	-	E	-	E	-	B	-	B
		Thru	308		327		177		188	
		Right	11		12		14		15	

This intersection saw no change in LOS between existing and future no build conditions.

4. Main Street (Rt 2A/110/111)/Columbia Street

			AM Peak Hour 7:30-8:30				PM Peak Hour 4:45-5:45			
			Existing		Future No Build		Existing		Future No Build	
			Volume	LOS	Volume	LOS	Volume	LOS	Volume	LOS
Main St (Rt 2A/111)	Eastbound	Left	87	A	92	A	80	B	85	B
		Thru	572		607		386		410	
		Right	-		-		-		-	
	Westbound	Left	-	-	-	-	-	-	-	-
		Thru	330		350		787		835	
		Right	19		20		57		60	
Columbia St	Southbound	Left	43	C	46	C	31	E	33	F
		Thru	-		-		-		-	
		Right	80		85		138		146	

Columbia Street traffic during the PM peak hour saw a reduction in the LOS, from E to F, and an increase in delay from 40.7 seconds to 56.6 seconds. Thus movements from this leg of the intersection fell into the failure category.

Overall, the majority of movements at the study area intersections saw no change in the LOS operation during the AM and PM peak hours between existing conditions and future no build conditions. A few approaches saw degradations with only one movement slipping into failed LOS. However, as expected delay times did increase as the volumes increased under future no build conditions and intersections that had problems continued to have issues. The Main Street/Park Street/West Main Street/Mill Street intersection remains the most critical due to volume, major turning movements and delays.

Future Build-Out Conditions

Trip Generation

In order to estimate the impact of a potential project, the Institute of Transportation Engineers (ITE) has developed a *Trip Generation Handbook* that provides formulas and factors to estimate the amount of traffic generated by any number of types of facilities and developments.

For this analysis, the MRPC utilized trip generation rates for Land Use Code 093, Light Rail Transit Station with Parking from the *Trip Generation Handbook 6th Edition*. In order to properly estimate the potential amount of new trips generated by a larger parking facility, the following method was used:

1. Total trips were estimated for the new facility based upon 350 commuter parking spaces (400 planned spaces minus 50 reserved for Rail Trail users).

Estimated Total Trips - New Commuter Rail Facility				
Time Period	Rate Variable	Rate	No. Parking Spaces for Commuters	Estimated No. Trips Generated
AM Weekday Peak Hour of Adjacent Street Traffic	No. Parking Spaces	1.07	350	375
PM Weekday Peak Hour of Adjacent Street Traffic	No. Parking Spaces	1.24	350	434
Weekday	No. Parking Spaces	2.51	350	879

2. Total trips were estimated for the existing Rail Trail lot based upon 74 parking spaces (84 spaces minus 10 spaces reserved for Rail Trail users).

Estimated Total Trips - Existing Rail Trail Lot				
Time Period	Rate Variable	Rate	No. Parking Spaces for Commuters	Estimated No. Trips Generated
AM Weekday Peak Hour of Adjacent Street Traffic	No. Parking Spaces	1.07	74	79
PM Weekday Peak Hour of Adjacent Street Traffic	No. Parking Spaces	1.24	74	92
Weekday	No. Parking Spaces	2.51	74	186

3. Total trips were estimated for the existing Commuter Town Lot on Park Street based upon 20 spaces. It is also assumed that when the new facility is opened this lot will no longer be utilized for commuter parking.

Estimated Total Trips - Existing Commuter Town Lot				
Time Period	Rate Variable	Rate	No. Parking Spaces for Commuters	Estimated No. Trips Generated
AM Weekday Peak Hour of Adjacent Street Traffic	No. Parking Spaces	1.07	20	21
PM Weekday Peak Hour of Adjacent Street Traffic	No. Parking Spaces	1.24	20	25
Weekday	No. Parking Spaces	2.51	20	50

4. Total trips were estimated for existing commuters that indicated on the rider survey that they currently park on the street in downtown Ayer or in another unspecified location. The survey results indicated that 35 respondents parked on the street and 13 parked in other locations.

Estimated Total Trips - Existing On Street & Other Locations				
Time Period	Rate Variable	Rate	No. Parking Spaces for Commuters	Estimated No. Trips Generated
AM Weekday Peak Hour of Adjacent Street Traffic	No. Parking Spaces	1.07	48	51
PM Weekday Peak Hour of Adjacent Street Traffic	No. Parking Spaces	1.24	48	60
Weekday	No. Parking Spaces	2.51	48	120

5. Total new trips for the proposed parking facility were then calculated by taking the figure calculated in step 1 and subtracting the figures calculated in steps 2, 3, 4 and 5. The resulting figure would then be the estimated NEW trips generated by the larger commuter parking facility and would therefore be added to the traffic volumes on the road network.

Estimated New Total Trips - New Commuter Rail Facility					
Time Period	New Commuter Rail Facility	Existing Rail Trail Lot	Existing Commuter Town Lot	Existing On Street & Other Locations	Total Estimated NEW Trips
AM Weekday Peak Hour of Adjacent Street Traffic	375	79	21	51	223
PM Weekday Peak Hour of Adjacent Street Traffic	434	92	25	60	258
Weekday	879	186	50	120	522

Trip Distribution

Once the number of trips generated by a project has been determined, these trips need to be distributed onto the road network serving the study area. To determine this distribution, the following method was utilized:

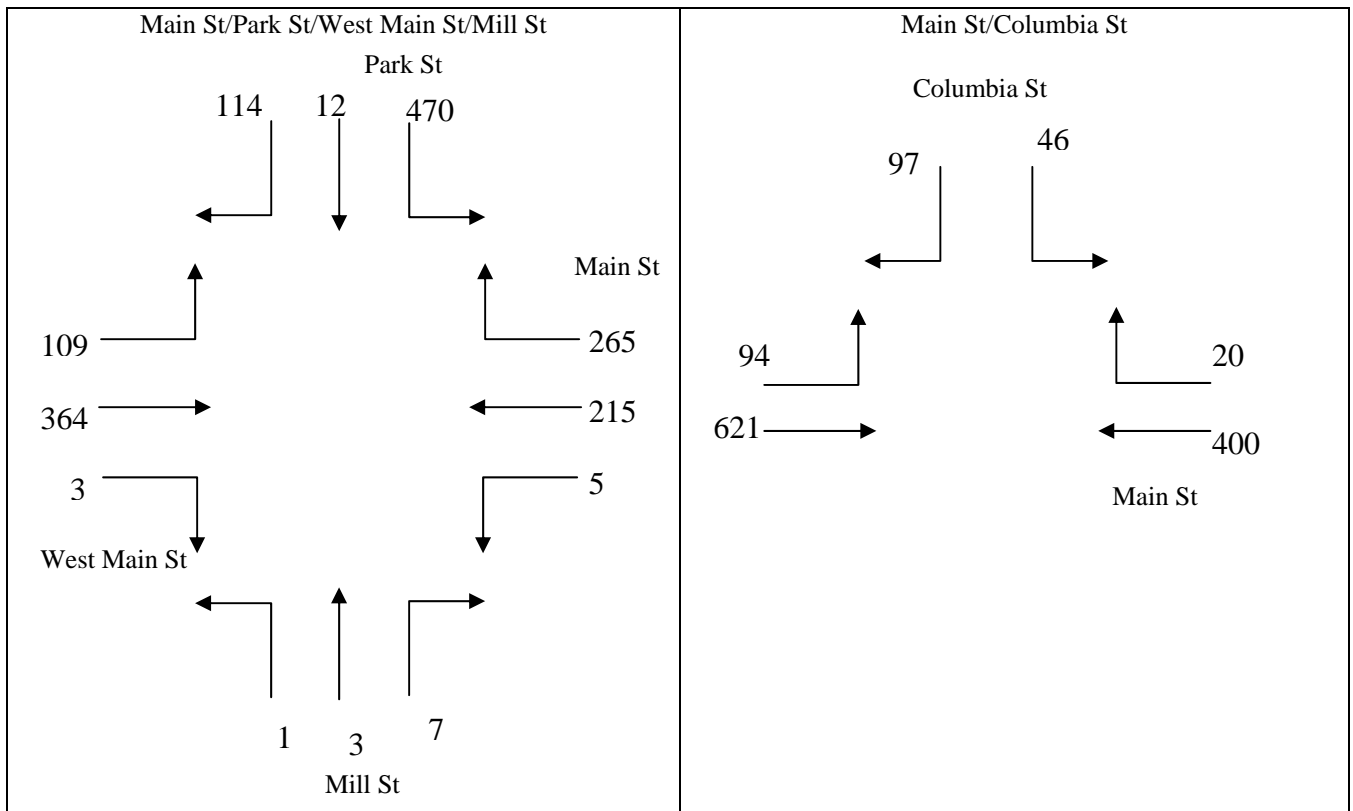
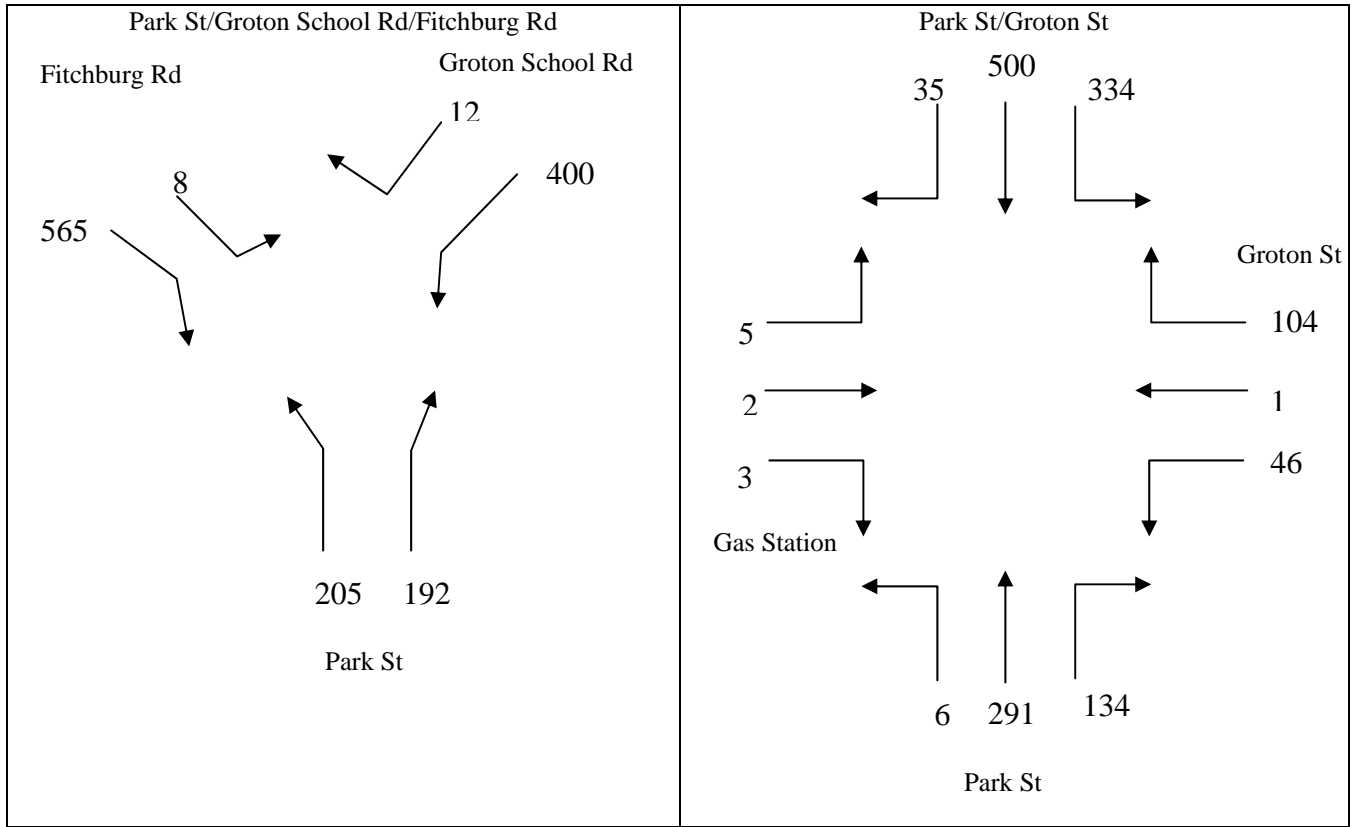
1. Community of origin was examined based upon respondents to the ridership survey conducted by the MRPC. Results were as follows:

Ayer Commuter Rail Station - Town of Residence Survey Results ALL RESPONSES

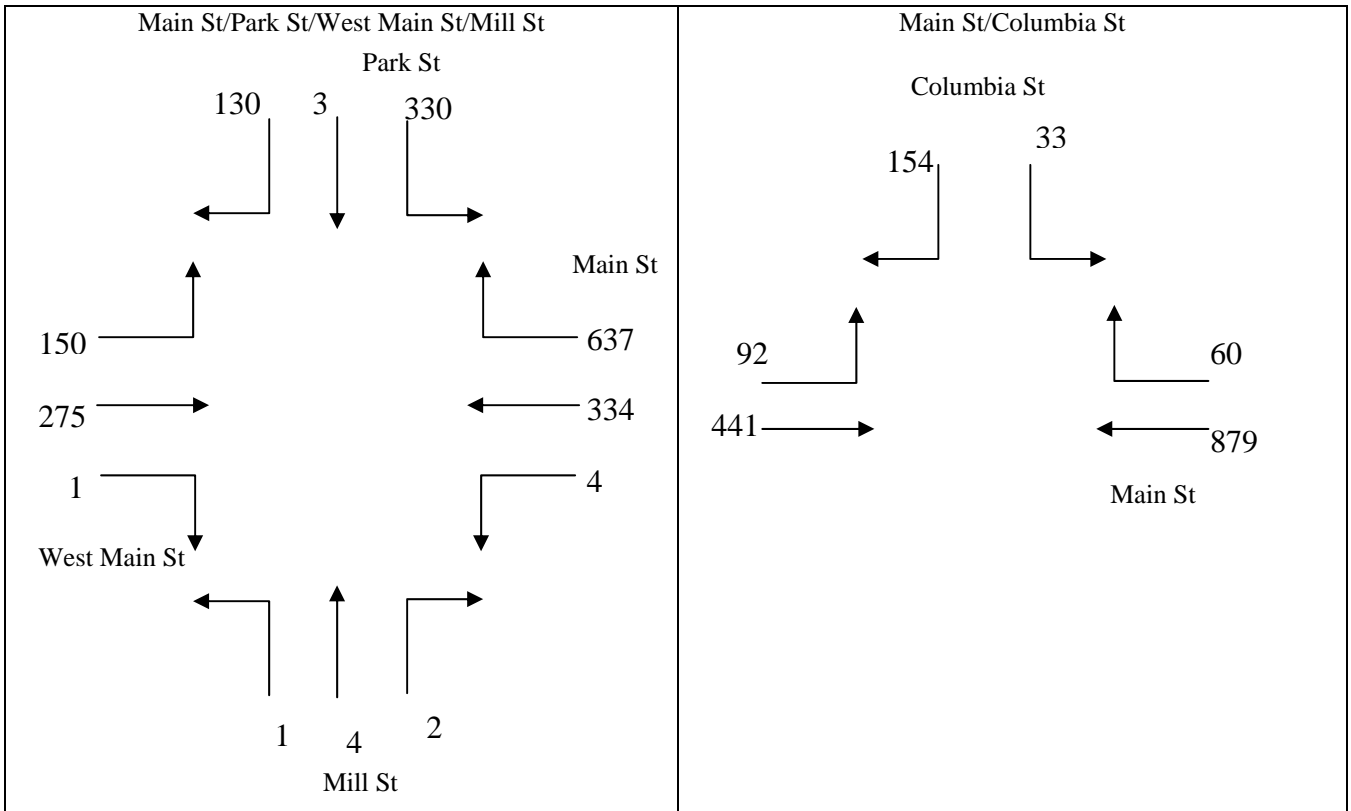
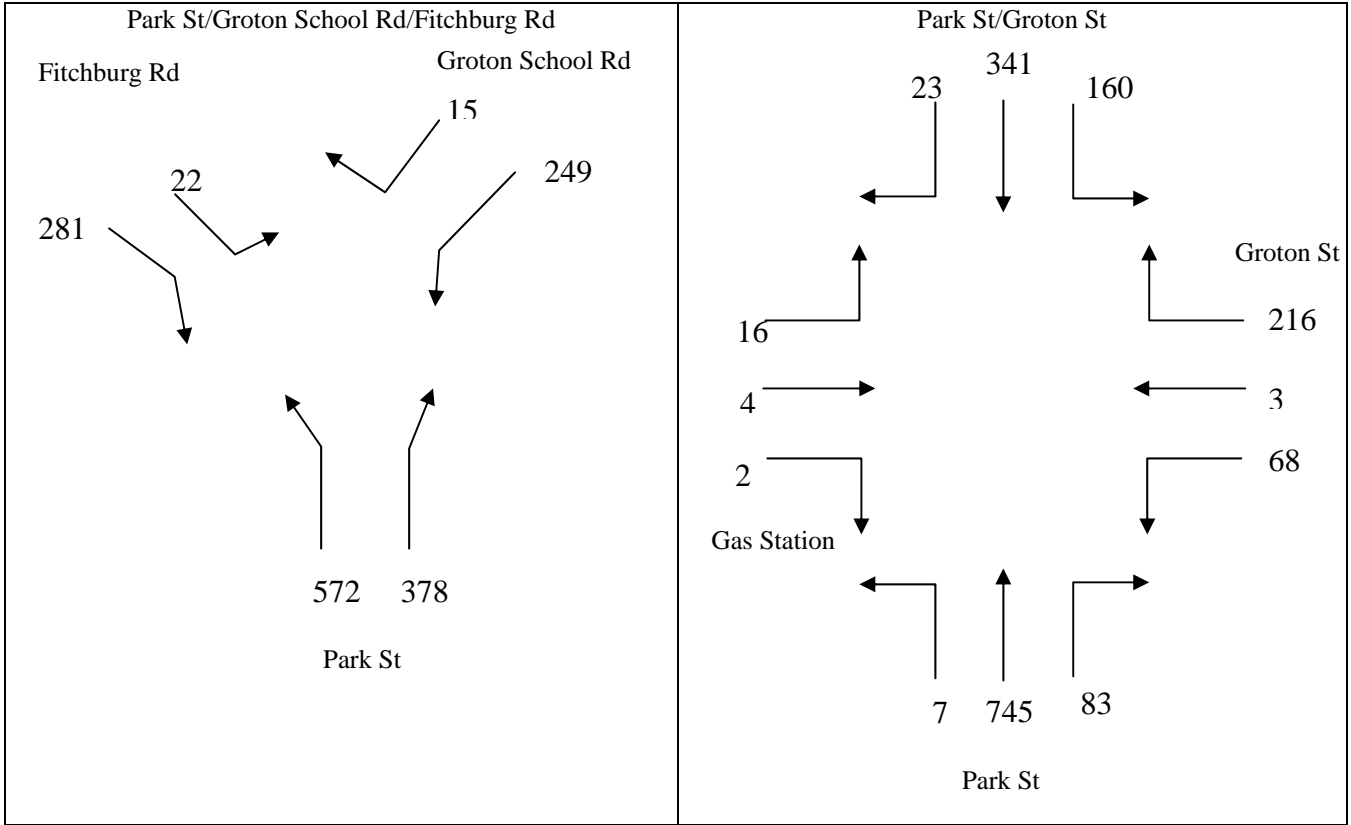
Community of Residence	No. of Responses	Percent of Total
Arlington	1	0.57%
Ayer	61	35.06%
Brookline, NH	2	1.15%
Clinton	1	0.57%
Devens	4	2.30%
Fitchburg	1	0.57%
Groton	42	24.14%
Harvard	11	6.32%
Lawrence	1	0.57%
Lunenburg	5	2.87%
Maynard	1	0.57%
Nashua, NH	1	0.57%
No Comment	2	1.15%
No Match	1	0.57%
Pepperell	21	12.07%
Phillipston	1	0.57%
Roxbury Crossing	1	0.57%
Shirley	7	4.02%
Townsend	9	5.17%
Winchendon	1	0.57%
Total	174	

2. The primary road network is comprised of Main Street, West Main Street, Park Street, Fitchburg Road and Groton School Road and was assumed to be the major roads to be used to access the parking garage.
3. Respondent communities were then located based upon the assumed primary roads to be used to reach the new garage and a percentage calculated for these roads.
4. Respondents that indicated Ayer and Groton as their community of origin were distributed based upon ATR traffic volume counts taken on Main Street and Park Street due to the potential to approach the site from several different directions. Refer to following diagram.
5. Peak hour distributions at the individual intersections were determined based upon the actual peak hour count volumes and the percent of total intersection volume for each turning maneuver. Refer to following diagrams.

Turning Movement Counts – Future Build AM



Turning Movement Counts – Future Build PM



Future Build Results

1. Main Street (Rt 2A/110/111)/Park Street (Rt 111/2A)/West Main Street/Mill Street

			AM Peak Hour 7:00-8:00					
			Existing		Future No Build		Future Build	
			Volume	LOS	Volume	LOS	Volume	LOS
West Main St	Eastbound	Left	83	A	88	A	109	A
		Thru	343		364		364	
		Right	3		3		3	
Main St (Rt 2A/110/111)	Westbound	Left	5	A	5	A	5	A
		Thru	203		215		215	
		Right	191		203		265	
Mill St	Northbound	Left	1	B	1	C	1	C
		Thru	3		3		3	
		Right	7		7		7	
Park St (Rt 111/2A)	Southbound	Left	428	F	454	F	470	F
		Thru	11		12		12	
		Right	103		109		114	

			PM Peak Hour 4:45-5:45					
			Existing		Future No Build		Future Build	
			Volume	LOS	Volume	LOS	Volume	LOS
West Main St	Eastbound	Left	126	B	134	B	150	B
		Thru	259		275		275	
		Right	1		1		1	
Main St (Rt 2A/110/111)	Westbound	Left	4	A	4	A	4	A
		Thru	315		334		334	
		Right	552		585		637	
Mill St	Northbound	Left	1	E	1	E	1	E
		Thru	4		4		4	
		Right	2		2		2	
Park St (Rt 111/2A)	Southbound	Left	275	F	292	F	330	F
		Thru	3		3		3	
		Right	110		117		130	

Examining the changes between Future No Build and Future Build conditions, there was no change in the overall LOS for any of the approaches. However, when looking at the delay figures, there are slight changes for Mill Street traffic (approximately 2 seconds in the Am and 9 seconds in the PM) but large increases for Park Street, 186.5 seconds in the AM and 310.5 seconds in the PM. This can be expected as additional traffic headed to and from the proposed garage would effect the critical movements of left and right turns out of Park Street.

2. Park Street (Rt 111/2A)/Groton Street

			AM Peak Hour 7:00-8:00					
			Existing		Future No Build		Future Build	
			Volume	LOS	Volume	LOS	Volume	LOS
Gas Station	Eastbound	Left	5	E	5	E	5	F
		Thru	2		2		2	
		Right	3		39.3		3	
Groton St	Westbound	Left	24	D	25	D	46	F
		Thru	1		1		1	
		Right	76		26.2		81	
Park St (Rt 111/2A)	Northbound	Left	6	A	6	A	6	A
		Thru	274		291		291	
		Right	48		51		134	
	Southbound	Left	226	A	240	A	334	A
		Thru	471		500		500	
		Right	33		35		35	

			PM Peak Hour 5:00-6:00					
			Existing		Future No Build		Future Build	
			Volume	LOS	Volume	LOS	Volume	LOS
Gas Station	Eastbound	Left	15	F	16	F	16	F
		Thru	4		4		4	
		Right	2		68.4		2	
Groton St	Westbound	Left	16	D	17	E	68	F
		Thru	3		3		3	
		Right	150		29.8		159	
Park St (Rt 111/2A)	Northbound	Left	7	A	7	A	7	A
		Thru	702		745		745	
		Right	14		15		83	
	Southbound	Left	76	A	81	A	160	B
		Thru	321		341		341	
		Right	22		23		23	

Based upon the trip distribution calculated, this intersection will see the largest number of vehicle additions as Groton Street remains the assumed primary access road to the proposed garage. Consequently, the minor street approaches of Groton Street and the current gas station see a drop in there LOS in the AM, from E to F for the gas station and D to F for Groton Street a drop of two LOS designations.

Correspondingly, delay increases for each approach with an increase of over 230 seconds per vehicle on Groton Street alone. The PM peak hour only sees Groton Street with a change in LOS (from E to F); however, there are significant increases in delay for each minor approach. The gas station delay increases from 96 seconds to 400 seconds, while Groton Street goes from 37 seconds to 448 seconds. Of these minor street approaches, Groton Street, logically, is the most critical due to its volumes and importance.

A second analysis of the Future Build condition was run with a different lane configuration for the intersection. Currently, Park Street and Groton Street operate

with only one lane approaches at the intersection with turning and through movements sharing the one lane. Option 1 added a left turn only lane to the Park Street southbound approach, a right turn only to the northbound approach and a left turn only lane and a shared right turn/through lane for Groton Street. Under this new configuration, the following LOS was calculated.

			AM Peak Hour 7:00-8:00				PM Peak Hour 5:00-6:00			
			Future Build		Future Build - Opt. 1		Future Build		Future Build - Opt. 1	
			Volume	LOS	Volume	LOS	Volume	LOS	Volume	LOS
Gas Station	Eastbound	Left	5	F	5	F	16	F	16	F
		Thru	2		2		4		4	
		Right	3		3		2		2	
Groton St	Westbound	Left	46	F	46	F	68	F	68	F
		Thru	1		1		3		3	
		Right	104		104		216		216	
Park St (Rt 111/2A)	Northbound	Left	6	A	6	A	7	A	7	A
		Thru	291		291		745		745	
		Right	134		134		83		83	
	Southbound	Left	334	A	334	A	160	B	160	B
		Thru	500		500		341		341	
		Right	35		35		23		23	

Although the overall LOS for each approach did not change from the Future Build conditions under the existing lane configuration, there are significant reductions in the calculated delays for the gas station and Groton Street. Delays for the gas station fell from 94.2 to 72.6 seconds in the AM (or -22.9%) and from 400.1 to 315.1 seconds (-21.24%) in the PM. Groton Street saw reductions of 199.9 seconds in the AM (from 263.3 to 63.4 seconds or -21.2%) and 374.9 seconds in the PM (from 448.9 to 74.0 seconds or -83.52%). Therefore, a reconfiguration of the intersection geometrics of the Park Street/Groton Street intersection show benefits to its overall operation. A more detailed engineering study may result in further improvements to this crossing.

3. Park Street (Rt 111/2A)/Groton School Road (Rt 111)/Fitchburg Road (Rt 2A)

			AM Peak Hour 7:00-8:00					
			Existing		Future No Build		Future Build	
			Volume	LOS	Volume	LOS	Volume	LOS
Fitchburg Rd (Rt 2A)	Eastbound	Left	8	A	8	A	8	A
		Thru	-		-		-	
		Right	513		544		565	
Park St (Rt 111/2A)	Northbound	Left	188	-	200	-	205	-
		Thru	164		174		192	
		Right	-		-		-	
Groton School Rd (Rt 111)	Southbound	Left	-	E	-	E	-	F
		Thru	308		327		400	
		Right	11		12		12	

		PM Peak Hour 5:00-6:00						
		Existing		Future No Build		Future Build		
		Volume	LOS	Volume	LOS	Volume	LOS	
Fitchburg Rd (Rt 2A)	Eastbound	Left	21	A	22	A	22	A
		Thru	-		-		-	
		Right	248		263		281	
Park St (Rt 111/2A)	Northbound	Left	527	-	559	-	572	-
		Thru	315		334		378	
		Right	-		-		-	
Groton School Rd (Rt 111)	Southbound	Left	-	B	-	B	-	B
		Thru	177		188		249	
		Right	14		15		15	

This intersection only saw a change in the LOS for one approach only, Groton School Road, in the AM. All other approaches remained the same between Future No Build and Future Build conditions. The Groton School Road approach dropped one LOS in the AM, from E to F, with a corresponding increase in delay from 49.8 seconds to 106.7 seconds due to the anticipated increase in traffic heading to the proposed garage. As mentioned before, the geometrics of this intersection cause this approach to operate more as a through movement and therefore it was analyzed as such. It is felt that the operational geometrics of this crossing should be further investigated in a detailed engineering analysis to address what is perceived to be a potential safety concern.

4. Main Street (Rt 2A/110/111)/Columbia Street

		AM Peak Hour 7:30-8:30						
		Existing		Future No Build		Future Build		
		Volume	LOS	Volume	LOS	Volume	LOS	
Main St (Rt 2A/111)	Eastbound	Left	87	A	92	A	94	A
		Thru	572		607		621	
		Right	-		-		-	
	Westbound	Left	-	-	-	-	-	-
		Thru	330		350		400	
		Right	19		20		20	
Columbia St	Southbound	Left	43	C	46	C	46	D
		Thru	-		-		-	
		Right	80		20.0		85	

		PM Peak Hour 4:45-5:45						
		Existing		Future No Build		Future Build		
		Volume	LOS	Volume	LOS	Volume	LOS	
Main St (Rt 2A/111)	Eastbound	Left	80	B	85	B	99	B
		Thru	386		410		441	
		Right	-		-		-	
	Westbound	Left	-	-	-	-	-	-
		Thru	787		835		879	
		Right	57		60		60	
Columbia St	Southbound	Left	31	E	33	F	33	F
		Thru	-		-		-	
		Right	138		40.7		146	

This intersection saw a change in LOS and/or delay for Columbia Street in both the AM and PM peak hours. LOS dropped from C to D, with an increase in delay from 22.5 seconds to 25.5 seconds in the AM, while delay increased from 56.6 to 78.5 seconds, without a change in LOS, for the PM peak hour.

Summary

The intersections evaluated in this impact study all experienced operational issues under current conditions. This is most evident at the Main Street/Park Street/West Main Street/Mill Street crossing. With the construction of a new commuter rail parking facility with an expanded number of spaces, it is likely that more riders will be attracted to the facility and consequently increase the operational issues identified at the study area intersections.

Signal warrant analysis indicated that three of the intersections, Main Street/Park Street/West Main Street/Mill Street, Park Street/Groton School Road/Fitchburg Road and Main Street/Columbia Street, met the warrants for a traffic signal. It is unlikely that the town would consider such a change to their current downtown character. However, the need for remediation at the Main Street/Park Street/West Main

Street/Mill Street intersection is apparent whether or not the proposed garage is constructed. A signal or roundabout, as highlighted and examined in the Weston & Sampson, Inc. traffic calming report, would potentially address some of the operational issues for this intersection. In addition, a signal or roundabout would potentially benefit issues related to pedestrian access to the rail station from the new garage by providing a potential designated pedestrian crossing. Any traffic signal would need to address pedestrians and include the appropriate hardware.

It should also be noted that the capacity analysis conducted were based upon the peak hour traffic volumes of the road network and not the peak hour of the MBTA commuter rail train service. The ridership counts, from the MRPC survey conducted for this study, showed that the first three trains at 6:04, 6:31 and 7:01 AM accounted for 68.4% of the total riders from the first 5 AM trains. When examining the survey results of those who responded that they drove alone or with someone else taking the train, this percentage jumps up to 79.2%. Therefore, it can be surmised that the heaviest traffic volumes associated with the commuter rail train service in the AM occur just outside or just before the peak hours of the road network. In the PM, only one train arrives in Ayer during the peak hours analyzed as part of this study, i.e. the 5:35 PM train. Thus, it is possible that the impacts associated with the proposed new parking facility will be less than outlined in the Future Build analysis. However, the study does show that the major intersections in question currently operate with deficiencies and that the new expanded parking facility will added to there operational problems.

It is recommended that detailed operational and engineering studies be conducted in cooperation with the Town of Ayer to identify improvement projects at the study area intersections to address identified issues and concerns.

Air Quality Review of New Commuter Rail Parking Garage

The construction of an expanded parking facility in Ayer is assumed to provide positive air quality benefits to the Commonwealth. By increasing the parking options for potential commuters, the facility has the potential to remove additional vehicles from the traffic system thus reducing emissions.

The following assumptions were made as part of this air quality estimate:

1. The new facility will have 400 parking spaces.
2. Fifty (50) of the 400 spaces will be reserved for users of the existing Rail Trail. Thus 350 spaces will be available to commuters.
3. Existing commuter rail parkers at the current rail trail lot and the identified second commuter town lot will remain as users of the new facility. From existing counts this is equal to 74 vehicles from the rail trail lot and 20 from the commuter town lot.
4. Respondents who indicated that they currently park on the street or at other unidentified locations are assumed to use the new expanded parking garage. This equates to 35 on street parkers and 13 at other locations.
5. The new expanded facility will be at 100 percent capacity. This would therefore result in 208 new vehicles (400 spaces – 50 spaces – 74 spaces – 35 spaces – 13 spaces (numbers from steps 1 to 4 above)).
6. New commuters are assumed to have as their final destination as Boston for work, recreation, etc.
7. The average distance that would normally be traveled by these vehicles commuting to Boston is based upon the community of residence information of the current users of the two lots as determined from the survey conducted by the MRPC. Based upon information collected from Mapquest.com, the average one way distance is estimated to be 50.43 miles.

Community of Residence	No. of Responses	Percent of Total	Estimated One Way Distance to Boston
Ayer	19	22.62%	47.25
Brookline, NH	2	2.38%	54.99
Clinton	1	1.19%	45.57
Devens	1	1.19%	47.55
Groton	28	33.33%	47.24
Harvard	4	4.76%	48.65
Lunenburg	2	2.38%	59.23
Pepperell	15	17.86%	44.50
Shirley	3	3.57%	54.10
Townsend	9	10.71%	55.22
	84		504.30
		Avg Distance	50.43

Source: Mapquest.com

8. The highway utilized for commuting to Boston is Route 2, a functionally classified Principle Arterial.
9. The average travel speed is estimated at 45 miles per hour based upon the primary road, Route 2.

From these assumptions, the estimated Vehicle Miles Travelled (VMT) that would be removed from the road/highway network each work day is calculated.

$$\begin{aligned} &(\text{No. of New Vehicle Users}) \times (\text{Avg. Miles Per Trip}) \times (2 \text{ Trips Per Vehicle}) = \text{VMT} \\ &(208 \text{ vehicles}) \times (50.43) \times (2) = 20,978.88 \text{ VMT} \end{aligned}$$

The total VMT reduced on a yearly basis is calculated from the above number multiplied by an estimated 250 work days per year, resulting in a yearly VMT reduction of 5,244,720.

The yearly reduction in vehicle emissions in NO_x (nitrogen oxides), VOC (volatile organic compounds) and CO (carbon monoxide) is calculated from the yearly VMT reduction and emission factors obtained from the Executive Office of Transportation Office of Transportation Planning from the program MOBILE6. These emission factors are based upon an arterial roadway and the assumed travel speed of 45 mph.

Therefore, the reduction in emissions was calculated as follows:

	Summer VOC	Summer NO _x	Summer CO
Emission Factors (grams/mile)	0.358	0.947	4.877
Emissions reductions in kilograms per year:	-1,877.6	-4,966.7	-25,578.5

For the complete analysis worksheet, refer to the Appendix.

Based upon these estimates, the construction of a new parking facility would produce positive air quality benefits to the region and the Commonwealth.

Pedestrian Analysis

A major concern related to the development of a new commuter rail parking facility at the current Rail Trail lot is that of pedestrian access to and from the Ayer Commuter Rail Station and in particular the safety of these pedestrians crossing Main Street.

To assess pedestrian access and safety, an analysis of the number of potential pedestrians generated by the development of a new commuter parking facility was conducted.

Pedestrian Estimates - Existing and New

Occupancy Rate

In order to estimate the number of pedestrians potentially generated by a new parking facility on a daily basis, a vehicle occupancy rate of passengers per vehicle (ppv) was calculated based upon collected data from the survey conducted by the MRPC at the Ayer Commuter Rail Station on March 25, 2009.

The survey counted 235 passengers utilizing the train service over the 9 inbound trains from 6:04 AM to 3:26 PM. See the following table.

Passenger Count - March 25, 2009

Train Time	Surveys Distributed (Passenger Count)	Passengers Not Part of Survey Distribution	Total
6:04 AM	42	0	42
6:31 AM	25	0	25
7:01 AM	74	1	75
7:20 AM	39	2	41
7:41 AM	26	1	27
10:46 AM	8	0	8
11:43 AM	5	0	5
1:26 PM	5	0	5
3:26 PM	5	2	7
Totals	229	6	235

Results of the survey also indicated where and how many individuals parked at the various lots as well as how the passengers commuted to the station. Refer to the following table.

	All Trains	
	Count	Percent of Total
How did you get to the train station?		
Walked	36	20.69%
Bike	4	2.30%
Drove	122	70.11%
Rode with someone taking the train	12	6.90%
Rode with someone NOT taking the train	18	10.34%
If you drove where did you park?		
Rail Trail Lot	67	38.51%
Commuter Town Lot	17	9.77%
On Street	35	20.11%
Other	13	7.47%

To estimate the number of passengers that utilized a vehicle that parked in Ayer, the total passenger count was reduced by those that: Walked, Biked or Rode with Someone Not Taking the Train. This results in an estimated 177 passengers (i.e. 235 passengers minus 36 that walked minus 4 that biked minus 18 that rode with someone not taking the train). Dividing this number of passengers with 132 vehicles parked in Ayer (i.e. 67 vehicles at the Rail Trail Lot plus 17 at the Commuter Town Lot plus 35 On Street plus 13 at Other locations) results in an average number of passengers per vehicle (ppv) of 1.34 (177 passengers divided by 132 vehicles equals 1.34 ppv).

Occupancy Rate	
Passengers	177
Parked Vehicles	÷ 132
Passengers per Vehicle (ppv)	1.34

Pedestrian Estimate - Daily

Utilizing this occupancy rate and the number of parking spaces to be designated for commuter rail users at the planned parking garage, 350, the number of potential pedestrians generated on a daily basis can be calculated.

Estimated Pedestrians - Daily	
Number of Parking Spaces	350
Occupancy Rate (ppv)	x 1.34
Number of Pedestrians	469

Pedestrian Estimate - Peak Hour

An estimate of the number of pedestrians generated during the peak hour by a new parking facility was also calculated based upon the survey data collected by the MRPC. Based upon the survey cards distributed and the manual passenger counts

conducted, volumes were fairly consistent between 6:04 to 7:41 AM, however, the 6:00 to 7:00 AM hour produced a slightly higher number of parked vehicles, 94.

	6:04 AM	6:31 AM	7:01 AM	7:20 AM	7:41 AM
Rail Trail Lot	21	6	27	7	2
Commuter Town Lot	4	5	4	2	5
On Street	2	1	17	10	5
Other	4	1	2	0	1
6:04 AM to 7:01 AM			94		
				6:31 AM to 7:20 AM	82
					7:01 AM to 7:41 AM
					82

The percentage of vehicles parked during the AM peak hour versus the entire day can then be calculated as follows:

$$\begin{array}{r}
 \text{No. of Vehicles Parked During AM Peak Hour} \quad 94 \\
 \text{No. of Total Parked Vehicles} \quad \underline{\div 132} \\
 \text{Percentage Parked During AM Peak Hour} \quad 71.2\%
 \end{array}$$

This percentage can then be used to estimate the number of vehicles parked in the AM peak hour for a newly expanded parking facility housing 350 vehicles. This results in an estimated 249 vehicles parked in the new commuter rail parking garage in the AM peak hour.

$$\begin{array}{r}
 \text{No. of Total Parked Vehicles - New Garage} \quad 350 \\
 \text{Estimated Percentage Parked During AM Peak Hour} \quad \underline{\times 71.2\%} \\
 \text{Estimated No. Vehicles Parked During the AM Peak Hour - New Garage} \quad 249
 \end{array}$$

Utilizing the previously calculated vehicle occupancy rate and the estimated number of vehicles from the 6:04 to 7:01 AM peak hour, the following number of pedestrians was calculated:

$$\begin{array}{r}
 \text{Estimated Pedestrians - AM Peak Hour} \\
 \text{Number of Parked Vehicles} \quad 249 \\
 \text{Occupancy Rate (ppv)} \quad \underline{\times 1.34} \\
 \text{Number of Pedestrians} \quad 334
 \end{array}$$

Therefore, on a typical weekday, the number of pedestrians estimated to be generated by the development of a new 350 vehicle commuter rail parking facility is 334 pedestrians during the AM peak hour and 469 pedestrians during the day.

Pedestrian Signal Analysis

The *Manual on Uniform Traffic Control Devices* (MUTCD) lists the analysis procedures needed to evaluate the potential installation or placement of a traffic control signal. The MUTCD states. "An engineering study of traffic conditions,

pedestrian characteristics, and physical characteristics of the location shall be performed to determine whether installation of a traffic control signal is justified at a particular location.” Included in the eight (8) established traffic signal warrants are the analysis procedures to address the installation of a pedestrian signal, i.e. Warrant 4 Pedestrian Volume. The warrant in its entirety states:

The Pedestrian Volume signal warrant is intended for application where the traffic volume on a major street is so heavy that pedestrians experience excessive delay in crossing the major street.

Standard:

The need for a traffic control signal at an intersection or midblock crossing shall be considered if an engineering study finds that both of the following criteria are met:

- A. The pedestrian volume crossing the major street at an intersection or midblock location during an average day is 100 or more for each of any 4 hours or 190 or more during any 1 hour; and
- B. There are fewer than 60 gaps per hour in the traffic stream of adequate length to allow pedestrians to cross during the same period when the pedestrian volume criterion is satisfied. Where there is a divided street having a median of sufficient width for pedestrians to wait, the requirement applies separately to each direction of vehicular traffic.

The Pedestrian Volume signal warrant shall not be applied at locations where the distance to the nearest traffic control signal along the major street is less than 90 m (300 ft), unless the proposed traffic control signal will not restrict the progressive movement of traffic.

If this warrant is met and a traffic control signal is justified by an engineering study, the traffic control signal shall be equipped with pedestrian signal heads conforming to requirements set forth in Chapter 4E.

Guidance:

If this warrant is met and a traffic control signal is justified by an engineering study, then:

- A. If at an intersection, the traffic control signal should be traffic-actuated and should include pedestrian detectors.
- B. If at a nonintersection crossing, the traffic control signal should be pedestrian-actuated, parking and other sight obstructions should be prohibited for at least 30 m (100 ft) in advance of and at least 6.1 m (20 ft) beyond the crosswalk, and the installation should include suitable standard signs and pavement markings.
- C. Furthermore, if installed within a signal system, the traffic control signal should be coordinated.

Option:

The criterion for the pedestrian volume crossing the major roadway may be reduced as much as 50 percent if the average crossing speed of pedestrians is less than 1.2 m/sec (4 ft/sec).

A traffic control signal may not be needed at the study location if adjacent coordinated traffic control signals consistently provide gaps of adequate length for pedestrians to cross the street, even if the rate of gap occurrence is less than one per minute.

Source: <http://mutcd.fhwa.dot.gov/HTM/2003r1/part4/part4c.htm#section4C05>

Signal Analysis

Based upon the pedestrian peak hour estimates and the traffic volume data collected, a pedestrian signal warrant analysis was conducted.

Accurate data related to the number of and size of gaps in the Main Street (Route 2A/110/111) traffic flow was not available. Therefore, gaps were estimated based upon the traffic count data collected.

Pedestrian Crossings vs. Available Gaps

In order to estimate the number of adequate gaps in the Main Street traffic, the following process was used:

1. Time needed to cross Main Street:
 - a. Main Street surface width: 44 feet (source: MassHighway Road inventory file - travel lane width: 42 feet plus 2 feet shoulder (one side only))
 - b. Average Walking Speed: 4 feet/second (source: MUTCD)
 - c. Average perception time: 3 seconds (i.e. time for pedestrian to recognize an acceptable gap in traffic and begin to cross the street)
 - d. Calculations:

Street Width	44 feet
Avg Walking Speed	÷ 4 feet/sec
<i>Time Needed to Cross Street</i>	<i>11 seconds</i>
Perception Time	+ 3 seconds
Total Time Needed to Cross Main Street	14 seconds

Result: Average pedestrian would need 14 seconds to cross Main Street.

2. Estimated gaps on Main Street
 - a. AM peak hour traffic volumes

Main Street AM Peak Hour:	6:00 AM to 7:00 AM
Location:	East of Park Street
Eastbound	457 vehicles
Westbound	165 Vehicles
Total	622 Vehicles

- b. Calculations:

Direction	Vehicles/Hr	Vehicles/Min	Vehicles/Sec	Equivalent to 1 Vehicle Every
Eastbound	457	7.62	0.13	7.88 seconds
Westbound	165	2.75	0.05	21.82 seconds
Total	622	10.37	0.17	5.79 seconds

Result: During the 6:00 to 7:00 AM peak hour, 1 vehicle passes an assumed pedestrian crossing location on Main Street every 5.79 seconds. Therefore, available gaps to cross Main Street are estimated at approximately 5.79 seconds.

Warrant Analysis Results

A comparison of available estimated data as described above with the Pedestrian Signal Warrant standards is as follows:

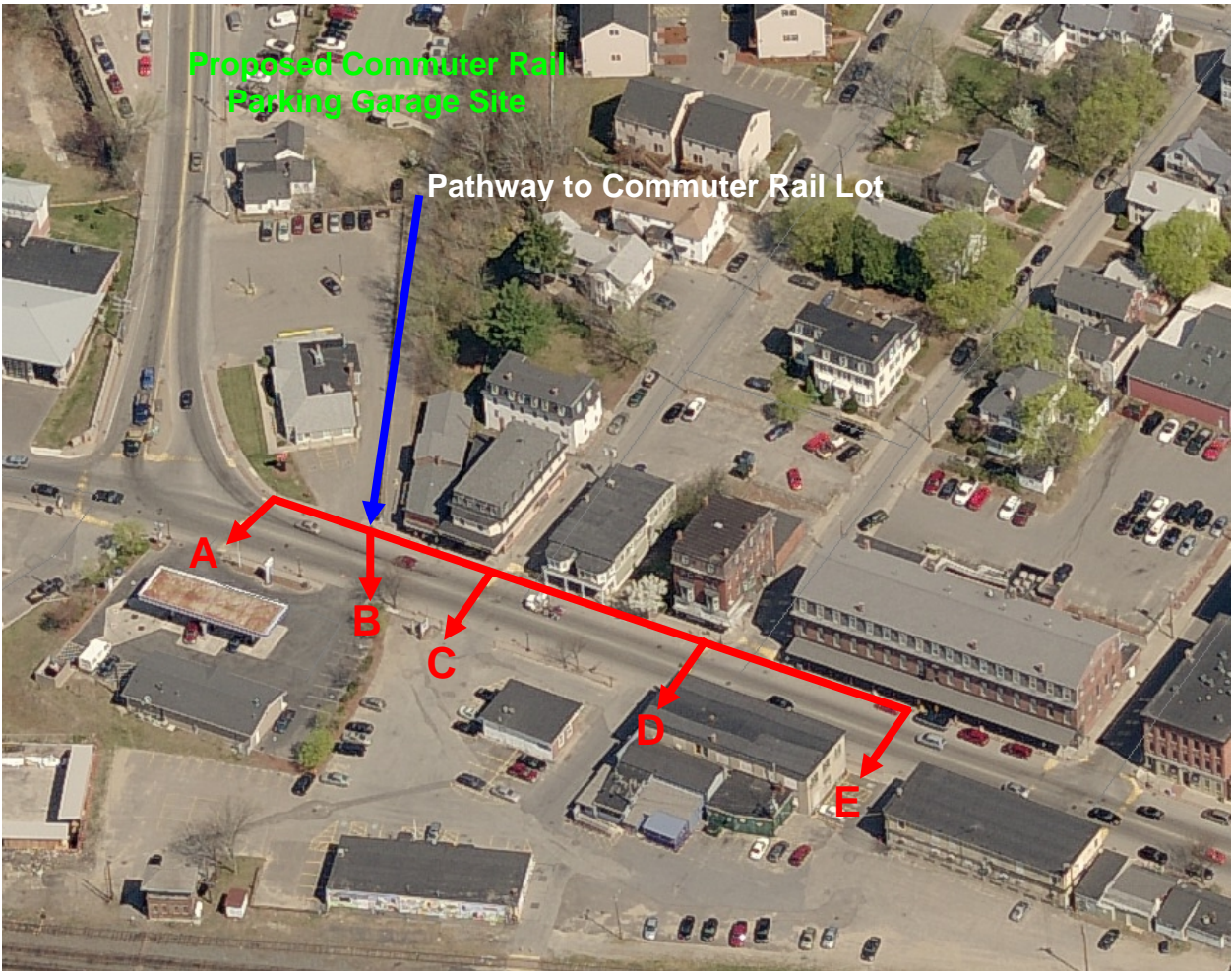
Criteria		Standard	Estimates		Criteria Met
A.	190 or more	Pedestrian volume crossing the major street at an intersection or midblock during an average day during any 1 hour	334	Pedestrians during AM Peak Hour (from New Garage Facility)	Yes
B.	Fewer than 60	Gaps per hour in the traffic stream of adequate length to allow pedestrians to cross the major street	0	Gaps/Hour of at least 14 seconds	Yes

Therefore, the criteria, or standards, for a pedestrian signal are satisfied and a pedestrian signal may be justified on Main Street based upon the estimates and calculations conducted for the proposed Commuter Rail Parking facility. Installation of such a device at a midblock location would likely result in significant changes and impacts to the parking situation along Main Street. MUTCD guidance for a midblock signal recommends that parking and “other sight obstructions should be prohibited for at least 30 m (100 ft) in advance of and at least 6.1 m (20 ft) beyond the crosswalk”. This of course would be for both sides of Main Street.

Pedestrian Crossing Locations on Main Street

The exact location for a potential pedestrian crossing and/or pedestrian signal needs to be examined and determined. Currently, a pathway exists between Main Street and the current commuter parking lot. It is assumed that this path will be maintained with the development of a new parking facility. However, the location for any crosswalk across Main Street would still need to be determined.

A review of Main Street has identified five (5) potential crossing locations, labeled A through E on the following illustration.



A - Crosswalk located approximately 60 feet west of the pathway to the commuter rail parking lot at the intersection of Main Street/Park Street/West Main Street/Mill Street.

B - Crosswalk located directly in front of the pathway crossing Main Street at an approximately 60 degree angle and just west of the driveway entrance to the gas station.

C - Crosswalk located approximately 70 feet west of the pathway at the intersection of West Street with Main Street.

D - Crosswalk located approximately 200 feet west of the pathway at the intersection of Pleasant Street with Main Street.

E - Crosswalk located approximately 315 feet west of the pathway midblock between the Pleasant Street and Washington Street intersections with Main Street.

Each potential crossing location has associated advantages and disadvantages. The following table seeks to summarize these points.

Crossing Option	Advantage	Disadvantage
A	<ul style="list-style-type: none"> • Intersection crossing • Potential improvements at the Main St/Park St intersection may provide opportunities for gaps and safe crossing design 	<ul style="list-style-type: none"> • Currently unsignalized • Indirect path to parking lot site • Pedestrians head west away from rail station • Need to cross 2 site drive openings for a gas station
B	<ul style="list-style-type: none"> • Directly in Line with Pathway • Avoids both gas station site drives 	<ul style="list-style-type: none"> • Midblock crossing • Angled crosswalk results in greater street surface to cross • Located approximately halfway between 2 unsignalized intersections • No real separation from eastern most gas station site drive
C	<ul style="list-style-type: none"> • Traditional crosswalk angle • Located at existing crosswalk • Connection to pathway more logical and direct • Proximity to intersection may improve gap situation if improvements are made to Main St/Park St • Potential location for a pedestrian signal 	<ul style="list-style-type: none"> • On street parking along Main St and at intersection with West St needs to be restricted • Pedestrian signal may be too close to other potential traffic control improvements (i.e. signal) at the Main St/Park St intersection
D	<ul style="list-style-type: none"> • Traditional crosswalk angle • Located at existing crosswalk • Potential location for a pedestrian signal 	<ul style="list-style-type: none"> • On street parking along Main St and at intersection with Pleasant St needs to be restricted • Pedestrian signal may be too close to other potential traffic control improvements (i.e. signal) at the Main St/Park St intersection • Location may not be logical to rail users, i.e. might lead to random crossings of Main St at unmarked locations
E	<ul style="list-style-type: none"> • Potential location for a midblock pedestrian signal • Location more than 300 feet from other potential traffic control improvements (i.e. signal) at the Main St/Park St intersection as required by the MUTCD 	<ul style="list-style-type: none"> • Midblock pedestrian signal • On street parking would need to be restricted 100 feet before and 20 feet beyond the crosswalk on both sides of Main St. This would effectively eliminate on street parking between Pleasant and Washington Streets on both sides of Main Street. • Location may not be logical to rail users, i.e. might lead to random crossings of Main St at unmarked locations

One clear concern with all of the crossing options identified is the need for a clearly defined access or path way to the current Rail Station. Once pedestrians have crossed Main Street, or have left the MBTA train, no current demarcation exists to guide commuter rail users to and from Main Street. Whether through a painted right-of-way or physical sidewalk, the town and or the MBTA needs to established the preferred access option for pedestrians. This will help to guide users to whichever possible crosswalk option is chosen.

Other Considerations

1. The study conducted by Weston & Sampson, Inc dated February 2009 for the town of Ayer entitled *Traffic Calming, Circulation and Access Report: Downtown Area and School Zones*, highlighted several possible traffic calming measures for improving Main Street, specifically to address the concerns related to vehicle speeds and pedestrians. Recommendations included reducing the travel lanes along Main Street by means of “neckdowns”.

Neckdowns are:

- Horizontal speed control measures.
- Curb extensions at intersections that reduce the roadway width and tighten the curb radii at the corner. This provides a shorter distance for pedestrians to cross and reduces the speed of turning vehicles.
- Also referred to as bulbouts, intersection narrowings, and nubs.

(Source: www.students.bucknell.edu/projects/trafficcalming/Measures/Neckdown.html)

Use of neckdowns as outlined in the Weston & Sampson study, would result in a new surface width for pedestrians to cross Main Street of approximately 22 feet (two 11 foot wide travel lanes and two 7 foot wide parking lanes - source: page 3 *Traffic Calming, Circulation and Access Report: Downtown Area and School Zones*). Following the analysis procedure conducted for the pedestrian signal, walkers would need 8.5 seconds (5.5 seconds to cross 22 feet surface width plus 3 seconds perception time) to cross a Main Street with neckdowns. Available gaps on Main Street remain, as estimated, at 1 vehicle every 5.79 seconds; therefore, although the neckdowns reduce the amount of time to cross Main Street, it still may not be adequate enough for the estimated number of pedestrians from the parking garage.

2. Improvements at the intersection of Main Street/Park Street/West Main Street/Mill Street will likely have an impact on the crossing situation for pedestrians. Installation of a traffic control device, i.e. signal or roundabout, may provide an opportunity for establishing a more controlled pedestrian crossing location outside of a midblock traffic signal. In addition, a traffic control device at this intersection could impact the placement of a midblock pedestrian signal if desired. The MUTCD states that the pedestrian volume signal warrant “shall not be applied at locations where the distance to the nearest traffic control signal along the major street is less than 90 m (300 feet), unless the proposed traffic control signal will not restrict the progressive movement of traffic.” Therefore, decisions made for the Main Street/Park Street/West Main Street/Mill Street intersection will help to drive decisions related to the pedestrian crossing issue.

Conclusion - Pedestrian Analysis

Based upon the data collected and analyzed, it is likely that the pedestrian signal warrant could be satisfied for Main Street (Route 2A/110/111) in the town of Ayer. The proposed commuter rail parking garage could potentially generate a significant number of pedestrians crossing Main Street during the AM peak hour. In addition, sufficient gaps in the Main Street traffic volumes do not appear to be present to allow for the safe crossing of pedestrians. A more detailed gap analysis and engineering study is necessary to further confirm this assumption.

Traffic calming methods, as outlined in the Weston & Sampson report, should be considered to address some of the pedestrian crossing issues. Neckdowns would reduce the surface width of Main Street to be crossed and therefore provide pedestrians with a safer situation. In addition, speeds along Main Street would likely be reduced due to the calming methods implemented. However, any changes are likely to have a significant impact on the on street parking situation. Currently, setbacks from the corners and crosswalks are not in line with recommended state and federal guidelines.

Finally, a clear path and/or right-of-way needs to be identified and established between the south side of Main Street and the current MBTA Commuter Rail Station. No matter which potential option is preferred for crossing Main Street, without a clearly defined connection to the station, pedestrians are likely to establish their own crossing locations resulting in numerous potential vehicle pedestrian conflict points. The town, in conjunction with other interested parties, should work to resolve this issue in order to then more clearly define the preferred pedestrian crossing option.

Ridership

Existing Conditions

The Ayer Commuter Rail Station is an intermediate station on the Fitchburg Line. There are approximately 375 one way riders who use this station each day to Boston according to the MBTA Railroad Operations Audit (See Appendix - Ridership Data). The ridership number is significantly greater than the space available for those wishing to park at the station. Ayer currently has two surface parking lots off Park Street which can accommodate up to 100 vehicles only. The overflow of vehicles park nearby on the street. The Town is responsible for plowing, snow removal and lighting at these existing commuter rail parking lots.

The existing commuter rail station platform has sheltered seating but it is not handicapped accessible and often elderly riders utilize a stool to board the train.

Ridership Analysis

The Montachusett Regional Planning Commission (MRPC) in cooperation with the Montachusett Regional Transit Authority (MART) conducted a commuter rail passenger survey in April 2004. At that time there was an average regional ridership of 950 one-way trips/day from the Fitchburg, Leominster, Shirley, Ayer and Littleton stations. Ridership from the Ayer Station was 222 riders. MBTA's recent Railroad Operations Audit of the ridership conducted in February 2009 indicates an increase to approximately 1,500-1,700 riders/day for the MART Region (See Appendix).

The study shows that current ridership at the Ayer station is about 350-400 daily passengers one way to Boston. Of this number 36% are local riders (from Ayer) with 64% coming from all directions around Ayer (i.e. Groton, Pepperell, Harvard, Townsend and New Hampshire). Of these riders, 63% drove their car to the Ayer Station. Also 33% of Ayer resident commuter train riders walk to the station, the highest percentage in the region (See Appendix).

According to the MBTA Railroad Operations Audit, an average of 375 riders used Ayer station each weekday during CY2009. Using the same percentage of riders who drove their cars to the station, 63% of 375 riders would result in a need for 237 parking spaces to meet current demand.

The need for additional parking was identified by the MRPC in a 1999 Commuter Rail Passenger Survey and Study. The passenger survey conducted at that time reported a strong passenger expression for the need for adequate parking at the Ayer Station due to the overcrowded parking conditions at Main Street.

The MBTA's audit of CY 1989 reported an average of 130 passengers boarding at Ayer station. Their audit of CY 2008 reported an average of 375 passengers boarding for an increase in ridership of over 188% (See Appendix).

The following are the passenger growth figures over 19 years according to MBTA Railroad Operations Audit.

*** Ayer Commuter Rail Station Passenger Counts 1989-2008**

Ayer Station		
Year	No. of one way passengers Yearly Average	Percent growth from previous year
1989	130	
1994	193	12.60%
1999	226	6.60%
2004	306	16.0%
2008	375	17.25%
Annualized		188.0 % Over 19 years

*Source: MBTA Railroad Operation Audit

The MRPC and MART expect to see continued growth in commuter rail ridership. The existing parking facilities do not meet the current demand and logically will not meet future demands. Adequate parking will also address the issue of the current overflow parking conditions at the adjacent on street parking that result from the overcrowded existing facilities.

Projection of Growth

There has been modest growth in the cities and towns served by the Fitchburg line. The main population center of Fitchburg and Leominster has been stable for the ten year period 1990 to 2000, with a combined increase in population of just over 1,000. Boxborough and Littleton had the largest percentage growth in population at 46% and 16% respectively, but in absolute numbers this is an increase of about 2,700. By comparison, the region's growth rate from 1990 to 2000 was 4.9% (Source: U.S. Census).

The Metropolitan Area Planning Council (MAPC) produced population and employment forecasts information for the 2008 MetroFuture Regional Plan and shows population and employment growth for 164 cities and towns within the Central Transportation Planning Staff (CTPS) area for 2025 and 2030. The MRPC has also developed forecasts for population and employment as part of their 2007 Regional Transportation Plan. Their forecasts are for their 22 cities and towns and are projected out to 2030.

Population Growth

MAPC is expecting the population in cities and towns serving the Fitchburg commuter Rail Line, excluding Boston, to remain stable to 2010. By 2025 these cities and towns are expected to grow by 3.7 percent. MRPC is anticipating an 8% growth in population for the 22 cities and towns in their planning area by 2010. Adjusting for

the overlap of towns being served by these two planning organizations, the average growth assumed for this corridor from 2010 to 2025 is 5 %.

Employment Growth

MAPC is expecting the employment in cities and towns serving the Fitchburg Commuter Rail Line, excluding Boston, to grow by 7% for 2010. By 2025 these cities and towns are expected to grow by 17%. MRPC is anticipating a 7% growth in employment for the 22 cities and towns in their planning area by 2010. By 2025 these cities and towns are expected to grow by 12%. Adjusting for the overlap of towns being served by these two planning organizations, the average growth assumed for this corridor from 2010 to 2025 is 7%.

Ridership Projection

The average ridership from MBTA Railroad Operations Audit for 2008 is:

February 28, 2008 - 427 riders
 June 26, 2008 - 357 riders
 December 4, 2008 - 343 riders
 Daily Average: $(427 + 357 + 343)/3 = 375$ passengers/day one-way to Boston

The following are the ridership growth and parking requirements at Ayer station using the assumption of 70% parking requirement and 5% growth rate projected out to 2025.

***Ridership and Parking Growth Estimates**

Year	Total Average Daily Riders at Ayer Station	Total Riders Requiring Parking
2008	375*	263
2009	394	276
2010	414	290
2011	435	305
2012	457	320
2013	480	336
2014	504	353
2015	530	371
2016	557	390
2017	585	410
2018	615	430
2019	646	452
2020	678	475
2021	712	499
2022	748	524
2023	785	550
2024	824	577
2025	865	606

* Source: Actual MBTA Average count from Railroad Operations Audit

Analysis and Requirement for the Parking Facility

The Ayer Station's proximity to Route 2 makes it an attractive station for commuters from neighboring communities. A commuters' choice of a particular station not only depends on the driving distance, but also the availability of parking. At the present time, the entire Montachusett Region area has commuter parking at a premium. From this we can conclude that there is a great demand for commuter rail service. This is indicated by the presence of riders from over 50 communities who utilize the service in the Montachusett Region. This also includes a number of New Hampshire towns, (i.e. Jaffrey, Manchester, New Ipswich, Rindge, Troy, Nashua, Hudson, Milford, Keene and Mason). The core ridership however comes from the surrounding communities to Ayer. These municipalities contribute 64% of the ridership.

The Ayer Station could immediately support a 400-500 car parking facility based upon the current one-way ridership of approximately 375 commuters (See Appendix). In addition, 50 parking spaces will be designated in any facility for Rail Trail users as required by the Department of Conservation and Recreation (DCR) and stated in their Memorandum of understanding (MOU) agreement with the Town of Ayer. A 60-70% occupancy rate is likely to take place by the end of the first year and also within a few years, that parking facility could be at maximum capacity.

The following criteria should be a requirement for any Parking Facility at the station:

1. At the present time, the Ayer Station is not handicapped accessible. Any improvements to the parking facility have to address pedestrians and physically challenged riders crossing Main Street safely. Also, the Train Station Platform accessibility issues need to be addressed.
2. Space for a 400-500 car parking facility is needed with a possible provision for future expansion to include two or more levels. Additionally 50 of these spaces will need to be designated for Rail Trail users as required by DCR.
3. The parking garage site should meet all requirements of Ayer conservation, environmental and historical criteria.
4. A traffic management system needs to be developed that will not seriously impact Main and Park Streets in Ayer.

Site Plan Evaluation

The Rail Trail Lot is located on the eastern side of Park Street, with frontages on Main Street of approximately 30 feet. Groton and Park Streets frontages are approximately 60 feet each. The parcel size of this property is approximately 88,471 square feet +/- abutted to the east by residential properties and to the west by commercial properties.

It is located approximately 1,100 feet from the furthest point of the site to the Train Station with no wetland constraints (See Appendix).

The irregular shape of this parcel limits the size of the parking structure that can be built on the site. Therefore several conceptual site plan alternatives have been developed as follows:

Alternative I

The site is long and very narrow, and that requires a long, narrow parking structure with one-way circulation on each level. This parcel would require 5 levels of parking to accommodate 350 parking spaces for commuters plus an additional 50 parking spaces for Rail Trail users. Refer to Figure I in the Appendix.

Alternative II

In order to build the parking structure on two levels, several commercial business properties on Park Street would need to be acquired in order to have an adequate area of land to accommodate 400 + parking spaces for commuters and Rail Trail users. Refer to Figure II in the Appendix.

Based upon a review of parcel information for the Town of Ayer (See Appendix), the following properties have been identified as needing to be obtained in the area of the proposed parking facility:

	*Parcel ID	Address	Land Area	Assessed Value FY 09
Lot 2	101	21 Park Street	0.27	\$289,800
Lot 3	102	15 Park Street	0.11	\$171,100
Lot 4	103	13 Park Street	0.08	\$214,900
Lot 5	104	Park Street	0.12	\$101,700
Lot 6	105	5 Park Street	0.12	\$137,200
Lot 7	344	3 Park Street	0.04	\$3,600

*Source: Town of Ayer Assessors Database, April 2009

Alternative III

Conceptual Site Plan III shows less commercial properties acquired in order to have an adequate area of land to build the parking structure on two levels to accommodate approximately 400 parking spaces for commuters and Rail Trail users. Refer to Figure III in the Appendix.

The following properties have been identified as needing to be obtained for this proposal for the parking facility:

	*Parcel ID	Address	Land Area	Assessed Value FY 09
Lot 2	101	21 Park Street	0.27	\$289,800
Lot 3	102	15 Park Street	0.11	\$171,100
Lot 4	103	13 Park Street	0.08	\$214,900
Lot 5	104	Park Street	0.12	\$101,700

*Source: Town of Ayer Assessors Database, April 2009

Alternative IV

Conceptual Site Plan IV shows less commercial properties acquired and different properties than Alternative III with less land area involved. Therefore, this proposal would require a two and a half level parking structure in order to accommodate approximately 400 parking spaces for commuters and Rail Trail users. Refer Figure IV in the Appendix.

The following properties have been identified as needing to be obtained for this proposal for the parking facility:

	*Parcel ID	Address	Land Area	Assessed Value FY 09
Lot 3	102	15 Park Street	0.11	\$171,100
Lot 4	103	13 Park Street	0.08	\$214,900
Lot 5	104	Park Street	0.12	\$101,700
Lot 6	105	5 Park Street	0.12	\$137,200
Lot 7	344	3 Park Street	0.04	\$3,600

*Source: Town of Ayer Assessors Database, April 2009

Ayer Parking Facility Preliminary Cost Estimate

<u>Real Estate and Parking Garage</u>	<u>Cost</u>
400 space parking Garage @ \$17,500/space	\$ 7,000,000
Property Acquisition	\$ 1,500,000
Tenant Relocation Costs	\$ 300,000
Demolition of Existing Structures on Acquired Properties	<u>\$ 200,000</u>
<u>Subtotal</u>	<u>\$ 9,000,000</u>
Design	\$ 900,000
Contingency	<u>\$ 1,000,000</u>
Subtotal Design and Contingency	<u>\$ 1,900,000</u>
Total	\$10,900,000
Federal Share Assistance Request (Approximately 80%)	\$ 8,720,000
State Share (Approximately 20%)	<u>\$ 2,180,000</u>
Total Project Cost	\$10,900,000

Notes: Design costs are estimated at 10% of construction cost

Conclusion

Based upon the information and data collected, the development and construction of a new Commuter Rail Parking Garage in Ayer will have obvious impacts to the traffic patterns in and around Main Street. However, these impacts can be addressed and likely mitigated to some extent in order to provide a safer and more efficient operation of the major intersections evaluated.

Operational analysis of the Main Street/Park Street/West Main Street/Mill Street, Park Street/Groton School Road/Fitchburg Road, Park Street/Groton Street and Main Street/Columbia Street intersections indicated that all experienced operational issues under current conditions. This is most evident at the Main Street/Park Street/West Main Street/Mill Street crossing. A signal warrant analysis conducted at three of the intersections, Main Street/Park Street/West Main Street/Mill Street, Park Street/Groton School Road/Fitchburg Road and Main Street/Columbia Street, also indicated that they met the warrants for a traffic signal under existing conditions thus highlighting current issues. The construction of a new commuter rail parking facility with an expanded number of spaces and the resulting increase in riders will result in increased operational issues and deficiencies at the study area intersections. Thus, there appears to be a need for remediation and/or mitigation at the four study area intersections currently and under future build conditions associated with the proposed garage.

In addition, issues related to increased pedestrian activity have been identified and a number of decisions are needed by the town and the transit authority to clarify the best solution for the crossing of Main Street in order to access the MBTA Rail Station. Potential improvements to the study area intersections will likely effect the decisions made as to where the most appropriate location will be to establish a crosswalk for rail users. In addition, further clarification is needed related to a designated pathway between the south side of Main Street, the Commuter Rail Station and the preferred crosswalk on Main Street. A clearly defined right of way will result in safer and more efficient pedestrian activity.

Therefore, it is recommended that more detailed operational and engineering studies be conducted to identify improvement and mitigation projects at the study area intersections and on Main Street in order to address the issues identified.

Comments and Responses to the Draft

General Comments from the Town of Ayer and *Response from MRPC*

The report provides a wealth of information and data that further highlights the need for additional parking for the commuter rail station. The most recent MBTA ridership totals indicate that Ayer's station was the busiest of all stations in MART's service area during the most recent reporting period. With the substantial improvements pending for the Fitchburg Line including rail upgrades, double-tracking and improved scheduling to allow for reverse commute operations, it is essential this project be advanced now to ensure continued access for regional commuters while also maintaining the vitality of Ayer's historic downtown station and business district.

The document references construction of a 400 vehicle parking garage on the site of the current surface lot for the Nashua River Rail Trail. My understanding is this total reflects an identified 350 vehicle demand plus a 50 vehicle set-aside for the rail trail users.

- ***Correct. Current design estimates are for a 400 vehicle parking garage (as required by MART) that includes 50 parking spaces designated for rail trail users as required by the Department of Conservation and Recreation and the town.***

As you know, the Board of Selectmen have adopted a series of findings endorsing the need for additional parking and specifically endorsing the so-called "hybrid" solution wherein the proposed 400-space parking demand would be shared between a structure constructed on the rail trail site and a complementary surface lot or parking deck constructed ideally along fallow land abutting Central Ave. and the railroad tracks.

- ***This study only addresses a proposed facility at the current rail trail lot.***

The Board of Selectmen's voted findings of March 20, 2007 reflect the preliminary planning, the need for parking, and the Board's vision for facilities that will fit the scale and character of the historic downtown district (copy attached).

Earlier this year, the Board of Selectmen endorsed further-developed concepts articulated in the October 2008 "Parking and Town Center Sites in Downtown Ayer" program summary by The Cecil Group, Inc., of Boston, and the May 2009 recommendation to "ensure the continuation of the Ayer train depot at its current location and the final design and construction of parking facilities and streetscape improvements" as recommended in the "Downtown Ayer Commercial Market Study Findings Report" by Larry Koff & Associates.

Most recently, as has been shared with MART and MRPC, the Board of Selectmen endorsed the June 2009 "Ayer: Downtown Planning and Transit Initiatives" compiled

illustrative plan (copy attached) which identifies the preferred Main Street crossing location and the proposed hybrid parking sites. Copies of all reports identified have previously been conveyed to MART.

In sum, the desire to site 400 spaces of parking at the rail trail site will require initiation of architectural and engineering work to allow a full public vetting of the size, scale, and design considerations of the parking structure together with mitigation of any traffic or Main Street crossing impacts. It is my understanding that completion of the MART/MRPC report will now afford access to the next phase of earmarked funds to retain qualified architectural and engineering resources to ensure a facility or facilities that meet both the regional needs and the local vision.

- ***MRPC encourages the town to work with MART, the Federal Transit Administration (FTA) and the State to ensure that the project moves to the next phase. MART, FTA and the State will have a better understanding of the process needed to advance this project.***

Lastly, in a related matter, the Town has provided to MART / MRPC staff information concerning a promising potential land acquisition in the “Depot Square” area that would provide a logical, perpetual and clearly defined corridor to access the train station directly from the end of the rail trail. The area is generally defined on the attached compiled plan. The actual crosswalk / crossing location would need to be determined through the report’s recommendation of additional operational and engineering review. It was my understanding that this option was to have been explored either within the report or as an addendum thereto.

- ***The Depot Square land acquisition was not part of the original scope of work for this report. Current MART funding limitations place this outside of the MRPC’s responsibility. The Town should work with MART explore and analyze the area further.***

At this point, it appears the project should move to the next phase through the retention of a qualified architectural and engineering firm that would work collaboratively with MART and the Board of Selectmen to design a mutually-preferred solution to the parking demand.

The Board of Selectmen eagerly awaits receipt of the final report for full public disclosure and vetting. It is fully anticipated that the report document itself be accompanied with your agency’s recommendations on the next steps and a timeline for procuring/retaining a qualified architectural and engineering firm.

- ***MRPC encourages the town to work with MART, the Federal Transit Administration and the Mass Department of Transportation to determine the next steps in this project from engineering and funding to advertisement and construction.***

Email comment related changes to a.m. train departures times.

- ***Recent proposed adjustments for January 11, 2010 to the Fitchburg commuter line train schedule at Ayer Station will not likely result in any significant changes to the analysis. AM peak hours for the intersections analyzed were approximately at 7:00 am to 8:00 am. While peak hours for the train commuters occurred from just before 6:00 a.m. to 7:00 a.m. The analysis conducted assumed the peak hours to occur simultaneously in order to simulate a “worst case scenario” at the area intersections. Refer to page 50 for more information related to this issue.***

APPENDIX

**FITCHBURG COMMUTER RAIL LINE - LICENSE PLATE SURVEY
(Summary)**

Introduction

The Montachusett Regional Planning Commission (MRPC) was contracted by the Montachusett Regional Transit Authority (MART), to conduct a survey of vehicles parked at several commuter rail stations along the MBTA Fitchburg Commuter Rail Line. The purpose of the survey was to attempt to determine the municipality of origin for those riders parked at the various commuter rail lots. The stations surveyed included: Fitchburg, North Leominster, Shirley, Ayer, Littleton and South Acton.

Results

Based upon the data compiled, the following summary table was developed.

FITCHBURG COMMUTER RAIL LINE PARKING FACILITY - LICENSE SURVEY SUMMARY RESULTS

Fitchburg Commuter Rail Line Parking Facility	Total No. of Vehicles Surveyed	No. of Vehicles Matched to a MA Garaged Community or Out of State	No. of Vehicles NOT Matched to a MA Garaged Community or Out of State	Percent of Matched Vehicles	No. of New Hampshire Vehicles	No. of Other Out of State Vehicles	Total No. of Out of State Vehicles
Fitchburg - ITC Garage	118	109	9	92.37%	12	1	13
Fitchburg - ITC Lot	39	32	7	82.05%	3	1	4
Total	157	141	16	89.81%	15	2	17
North Leominster							
North Leominster	122	106	16	86.89%	2	2	4
Total	122	106	16	86.89%	2	2	4
Shirley							
Shirley	87	82	5	94.25%	2	1	3
Total	87	82	5	94.25%	2	1	3
Ayer							
Ayer - Commuter Town Lot	20	17	3	85.00%	0	2	2
Ayer - Rail Trail Lot	63	61	2	96.83%	4	2	6
Total	83	78	5	93.98%	4	4	8
Littleton							
Littleton - MBTA Lot	65	63	2	96.92%	1	2	3
Littleton - Private Lot	59	55	4	93.22%	0	0	0
Total	124	118	6	95.16%	1	2	3
Acton							
Acton - MBTA Lot	26	25	1	96.15%	1	0	1
Acton - 52 School St Lot	20	20	0	100.00%	0	2	2
Acton - School St Lot	24	24	0	100.00%	0	0	0
Acton - Town Lot	269	258	11	95.91%	0	4	4
Total	339	327	12	96.46%	1	6	7
Systemwide Totals	912	852	60	93.42%	25	17	42

The overall percentage of vehicles matched by their license plate number to a community in which it is garaged for the survey was over 93% systemwide. Percentages for individual lots ranged from a low of 86% in North Leominster to a high of 100% in Acton at the two School Street lots. Unmatched vehicles are those Massachusetts vehicles that did not result in a match between the surveyed license plate number and the RMV database maintained by CTPS. Reasons for this could include transposed or

inaccurate license plate numbers or letters, unregistered vehicles and/or the timeframe of the database at CTPS (November 2008) versus the registration dates of the vehicles. Vehicles with out of state license plates were categorized as matched as they were clearly identifiable as not having a Massachusetts origin.

Ayer Commuter Rail Station

Lot	Location Vehicle Garaged	No. of Vehicles
Commuter Town Lot	Ayer	2
	Groton	3
	Harvard	2
	Pepperell	4
	Shirley	2
	Townsend	2
	Unmatched	3
	Other Out of State	2
Rail Trail Lot	Ayer	11
	Boston	2
	Groton	22
	Harvard	3
	Lunenburg	3
	Northbridge	1
	Pepperell	10
	Shirley	2
	Townsend	1
	Unmatched	2
	NH	4
	Other Out of State	2
	Total	

APPENDIX
AIR QUALITY ANALYSIS

CMAQ Air Quality Analysis Worksheet for Ayer Commuter Rail Parking Facility

Project: Construction of a 400 Vehicle Commuter Rail Parking Garage

Step 1: Calculate Estimated Reduction in Vehicle Miles Traveled (VMT):

A.	Number of Total Parking Spaces in Garage (P):	400	Spaces
B.	Number of Spaces Reserved for Existing Rail Trail (ERT):	50	Spaces
C.	Number of Existing Occupied Spaces at Existing Current Rail Trail Lot (ERTP)	74	Spaces
D.	Number of Spaces at Existing Commuter Town Lot (ECP)	20	Spaces
E.	Number of Existing On Street & Other Locations Spaces Used by Commuters (EOP)	48	Spaces
F.	Estimated Number of NEW Commuter Vehicles (NP): P-ERT-ECP-EOP	208	Vehicles
G.	Average Travel Distance to Boston of Current Rail Trail & Commuter Town Lot Users (M)	50.43	Miles

Step 2: Calculate the VMT Reduction Per Day:

A.	$((NP * M) * 2 = VMTR)$	20,978.88	VMTR Per Day	
B.	VMTR * Operating Days Per Year Assumed 250 working days per year.	20,978.88 * 250 =	5,244,720	VMTR Per Year

Step 3: MOBILE 6 Emission Factors for Average Commuter Travel Speed:

Note: Use 35 MPH as a default if average speed is not known.

Avg Speed Estimated at 45 mph
Route 2 classified as a Principal Arterial

Summer VOC Factor grams/mile	Summer NOx Factor grams/mile	Summer CO Factor grams/mile
0.358	0.947	4.877

Step 4: Calculate emissions reductions in kilograms per year (Seasonally Adjusted):

VOC	NOx	Summer CO
-1,877.6	-4,966.7	-25,578.5

Step 5: Calculate cost effectiveness (first year cost per kg of emissions reduced)

Assumed construction approximately \$5,000,000

Emission	Project Cost		Emission Reduction in kg per year	=	First year cost per kilogram
VOC	\$5,000,000	/	-1,877.6	=	\$2,663
NOx	\$5,000,000	/	-4,966.7	=	\$1,007
Summer CO	\$5,000,000	/	-25,578.5	=	\$195

Approximate Distance Between Community and Boston

Community of Residence	No. of Responses	Percent of Total	Estimated One Way Distance to Boston
Ayer	19	22.62%	47.25
Brookline, NH	2	2.38%	54.99
Clinton	1	1.19%	45.57
Devens	1	1.19%	47.55
Groton	28	33.33%	47.24
Harvard	4	4.76%	48.65
Lunenburg	2	2.38%	59.23
Pepperell	15	17.86%	44.50
Shirley	3	3.57%	54.10
Townsend	9	10.71%	55.22
	84		504.30
		Avg Distance	50.43

Source: Mapquest.com

APPENDIX
SURVEY RESPONDENT WRITTEN COMMENTS

Written comments from survey of commuters conducted on March 25, 2009.

Train Time	Comment
6:04 AM	<p>Need a 3PM Return Trip from Boston</p> <p>They have been on time lately.</p> <p>From mid-April to mid-November I will ride my bicycle on the Rail Trail instead of driving 2-4 days a week. I would like to see bike storage like in South Acton MBTA stop.</p> <p>Free parking is key to me taking the train</p> <p>If there was no Ayer station, I would never use the Fitchburg line.</p> <p>A parking garage & shelter close to the station would be nice. I slipped on ice and got hurt walking to station recently</p> <p>Appreciate how well the rail trail lot was plowed during the winter - better than the former lot.</p> <p>If start charging to park in Ayer will be driving to Boston w/2 other people who park in Ayer</p> <p>How about some stimulus money for covered parking?</p> <p>I park in the lot next to Dunkin Donuts facing Mobil gas station</p> <p>You need public parking</p> <p>The commuter train provides horrible service; I am still waiting for refund from two late trains. I waited for two hours on those two days before the train came</p>
6:31 AM	<p>If a pay parking lot goes in, I will not use it. I already spend \$3,000/year; I don't need \$40/mo on top of that</p> <p>Would like to see commuter lot built in Ayer Center to accommodate drivers and walkers.</p> <p>The lot by the station should open long before 8:00 am</p> <p>Need parking closer to tracks</p> <p>Want more riders? Get more parking. Lots of people drive because they don't want to chance parking.</p> <p>Free parking should be a priority to support ridership and green values</p> <p>Parking at this stop is great as is. If this has anything to do with limiting MBTA service -please rethink that-it's already limited enough</p>
7:01 AM	<p>Build both garages</p> <p>Keep this station stop</p> <p>Parking needs to improve in Ayer</p> <p>Littleton would be closer, but no parking</p> <p>There is no reason there should not be more convenient parking here. One has to compete for a space.</p> <p>I park in private lot with permission. Needs more parking</p> <p>Parking is ancient. Access to lot by train for drop off in am would be great.</p> <p>Please leave our station where it is</p> <p>Why can't we park behind Carlins before 8am? It's freezing when I get on and off and I feel that I pay a lot to use the train and I shouldn't have to go that for that early in the am</p> <p>Keep it free or at least reasonable with T services going up...</p> <p>Parking needed</p> <p>Would love lot closer to T and station too</p> <p>I drive in the winter; poor snow removal @ rail trail lot has reduced avail. Parking</p> <p>Walking to the train is a tremendous advantage for Ayer. It is critical that we have adequate parking to maintain station in its down town location</p> <p>More people coming to Ayer stop, need to keep in Ayer</p> <p>Help! Parking and station are inadequate</p> <p>There is not enough designated parking for town</p> <p>More parking is desperately needed</p> <p>Parking is terrible! And there is no shelter except for the inadequate thing they built on the wrong side of the tracks.</p> <p>Please keep the parking close to the station (no shuttle lots!)</p> <p>Often park on pleasant or central Ave. PD memo on parking on town website required reading</p>

Train Time	Comment
7:20 AM	More parking near station needed
	If you update parking please also update the station platform
	Need parking close to train; need access to board. Current parking lot very slippery and unavailable
	Shelter would be a good thing
	Parking at all stations a problem, deters us from using the commuter rail
	Ayer needs commuter parking
	I urge you not to put an end to this station stop. Thanks
	Ayer parking is bad N. Leominster is much worse
	The rail trail lot always fills by 7am
	I typically drive to Lowell 40 mins because I know I can find a spot. It is foolish I can't drive 15 mins to Ayer any day
	They should let us park in parking lot facing platform almost got frostbite waiting for late trains
	Enough surveys! Get some parking facilities
	Usually I drive and try to park at rail trail lot but that fills up before the 7:01 train so then it only leaves (if lucky) street parking. Put metered spaces or #spaces at the "Berry" lot & need a 3:00 pm out to Ayer
	I wish there were more parking spaces
	As a center resident, Please! Do something w/ the parking!
Would be nice to have parking at the train station lot	
7:41 AM	Keep the stop in Ayer
	I can live with free street parking
	Need new depot NOW! Before someone gets hurt
	1) I bike during the summer to the train 2) Station/Parking should stay in Ayer
	Want train to stay in Ayer. Need parking would pay for an assigned space
	Closer parking would be more convenient and safe, combining train stations to get more frequent service would also be great
	Parking is grossly limited. Station amenities don't provide adequately for regular riders, longest route - single track?
10:46 AM	Need more frequent service
	A train in the middle of the morning to Fitchburg would help
11:43 AM	I am in the military; I ride for free to drill. Thanks a lot
1:26 PM	
3:26 PM	Carlins

APPENDIX
EXISTING TRAFFIC COUNTS
ATR's & TMC's

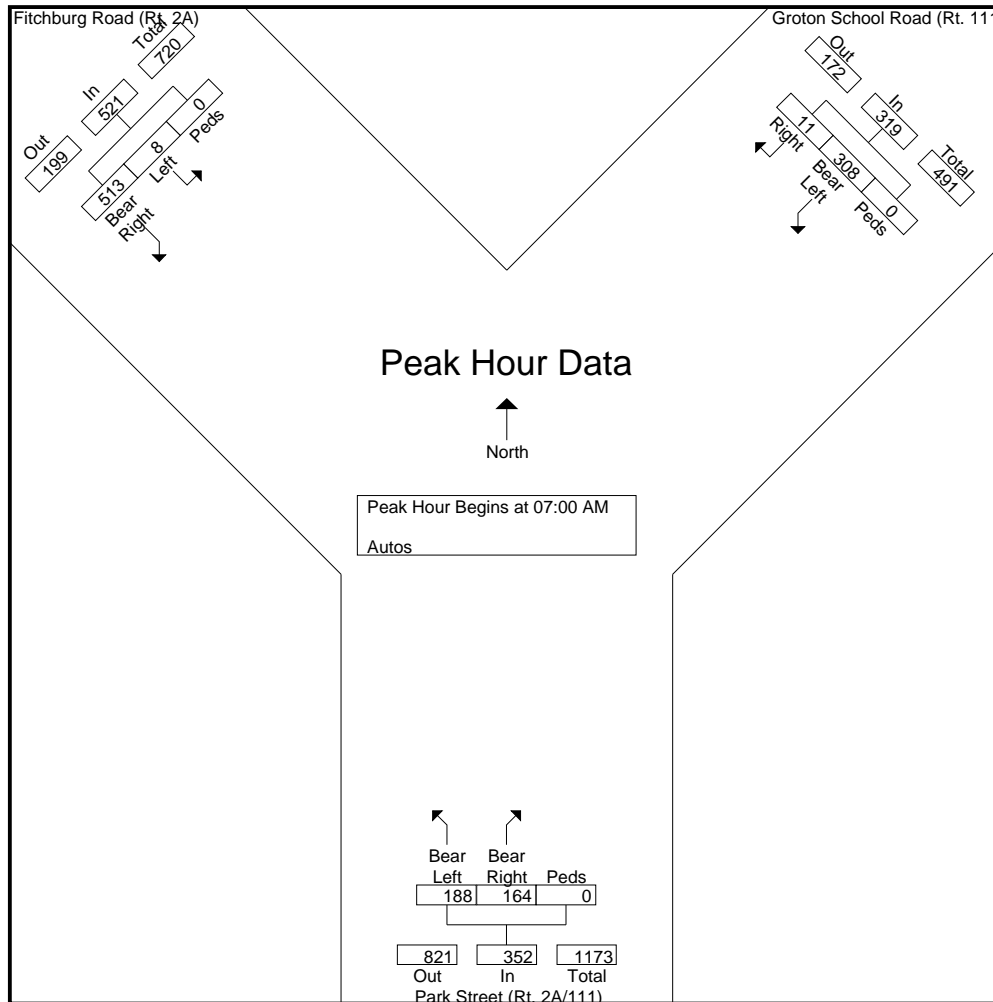
Montachusett Regional Planning Commission
 R1427 Water Street, Fitchburg, MA 01420
 P. 978-345-7376 F. 978-348-2490

Town: Ayer
 Street: Park Street (Rt. 2A/111)
 Location: Fitchburg Rd (Rt.2A)
 Time: 6:30-8:30AM

File Name : 019-2009-3686AM
 Site Code : 3686AM
 Start Date : 1/22/2009
 Page No : 2

Start Time	Fitchburg Road (Rt. 2A) From Northwest				Groton School Road (Rt. 111) From Northeast				Park Street (Rt. 2A/111) From South				Int. Total
	Bear Right	Left	Peds	App. Total	Right	Bear Left	Peds	App. Total	Bear Right	Bear Left	Peds	App. Total	
07:00 AM	117	2	0	119	1	81	0	82	42	40	0	82	283
07:15 AM	125	1	0	126	5	81	0	86	31	52	0	83	295
07:30 AM	129	1	0	130	5	67	0	72	35	39	0	74	276
07:45 AM	142	4	0	146	0	79	0	79	56	57	0	113	338
Total Volume	513	8	0	521	11	308	0	319	164	188	0	352	1192
% App. Total	98.5	1.5	0		3.4	96.6	0		46.6	53.4	0		
PHF	.903	.500	.000	.892	.550	.951	.000	.927	.732	.825	.000	.779	.882

Peak Hour Analysis From 06:30 AM to 08:15 AM - Peak 1 of 1
 Peak Hour for Entire Intersection Begins at 07:00 AM

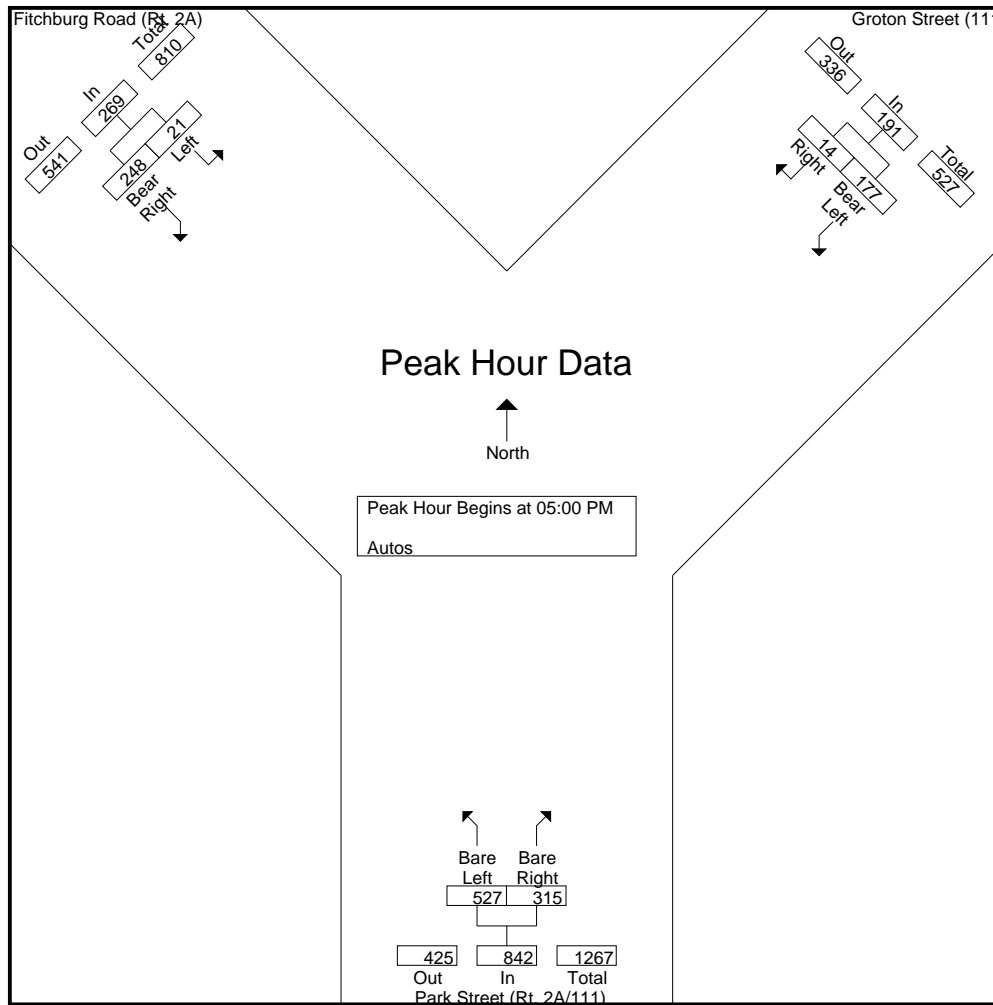


Montachusett Regional Planning Commission
 R1427 Water Street, Fitchburg, MA 01420
 P. 978-345-7376 F. 978-348-2490

Town: Ayer
 Street: Park Street (Rt. 2A/111)
 Location: Fitchburg Rd (Rt. 2A)
 Time: 4:30-6:30PM

File Name : 019-2009-3686PM
 Site Code : 3686PM
 Start Date : 1/21/2009
 Page No : 2

Start Time	Groton Street (111) From Northeast			Fitchburg Road (Rt. 2A) From Northwest			Park Street (Rt. 2A/111) From South			Int. Total
	Right	Bear Left	App. Total	Bear Right	Left	App. Total	Bare Right	Bare Left	App. Total	
Peak Hour Analysis From 04:30 PM to 06:15 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 05:00 PM										
05:00 PM	5	38	43	74	8	82	77	133	210	335
05:15 PM	6	42	48	55	5	60	77	124	201	309
05:30 PM	3	44	47	78	6	84	69	129	198	329
05:45 PM	0	53	53	41	2	43	92	141	233	329
Total Volume	14	177	191	248	21	269	315	527	842	1302
% App. Total	7.3	92.7		92.2	7.8		37.4	62.6		
PHF	.583	.835	.901	.795	.656	.801	.856	.934	.903	.972

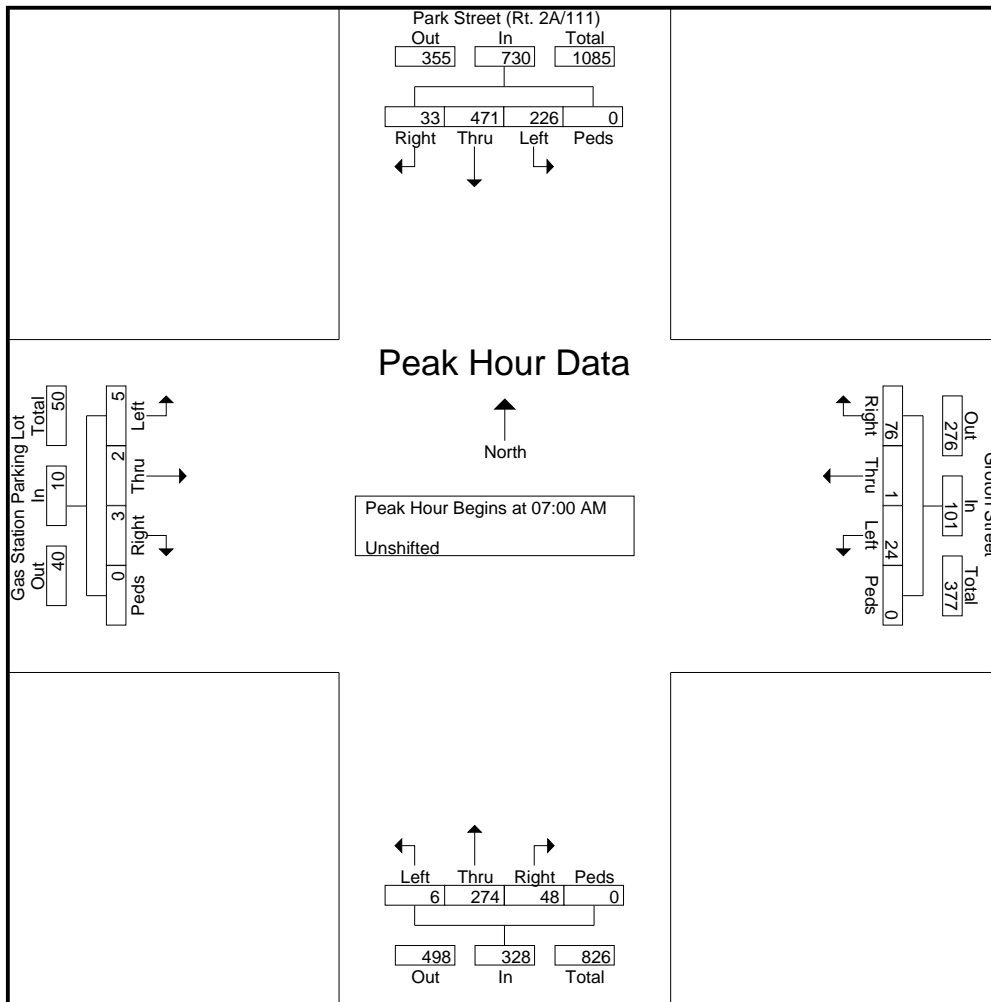


Montachusett Regional Planning Commission
 R1427 Water Street, Fitchburg, MA 01420
 P. 978-345-7376 F. 978-348-2490

Town: Ayer
 Street: Park Street (Rt. 2A/111)
 Location: Groton Street
 Time: 6:30-8:30AM

File Name : 019-2009-4118AM
 Site Code : 4118AM
 Start Date : 1/14/2009
 Page No : 2

Start Time	Park Street (Rt. 2A/111) From North					Groton Street From East					From South					Gas Station Parking Lot From West					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	
Peak Hour Analysis From 06:30 AM to 08:15 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:00 AM																					
07:00 AM	7	108	78	0	193	18	0	8	0	26	17	66	0	0	83	1	0	1	0	2	304
07:15 AM	13	109	57	0	179	23	0	6	0	29	16	61	3	0	80	2	1	0	0	3	291
07:30 AM	9	123	41	0	173	12	1	2	0	15	6	72	1	0	79	0	0	4	0	4	271
07:45 AM	4	131	50	0	185	23	0	8	0	31	9	75	2	0	86	0	1	0	0	1	303
Total Volume	33	471	226	0	730	76	1	24	0	101	48	274	6	0	328	3	2	5	0	10	1169
% App. Total	4.5	64.5	31	0		75.2	1	23.8	0		14.6	83.5	1.8	0		.375	.500	.313	.000	.625	
PHF	.635	.899	.724	.000	.946	.826	.250	.750	.000	.815	.706	.913	.500	.000	.953	.375	.500	.313	.000	.625	.961



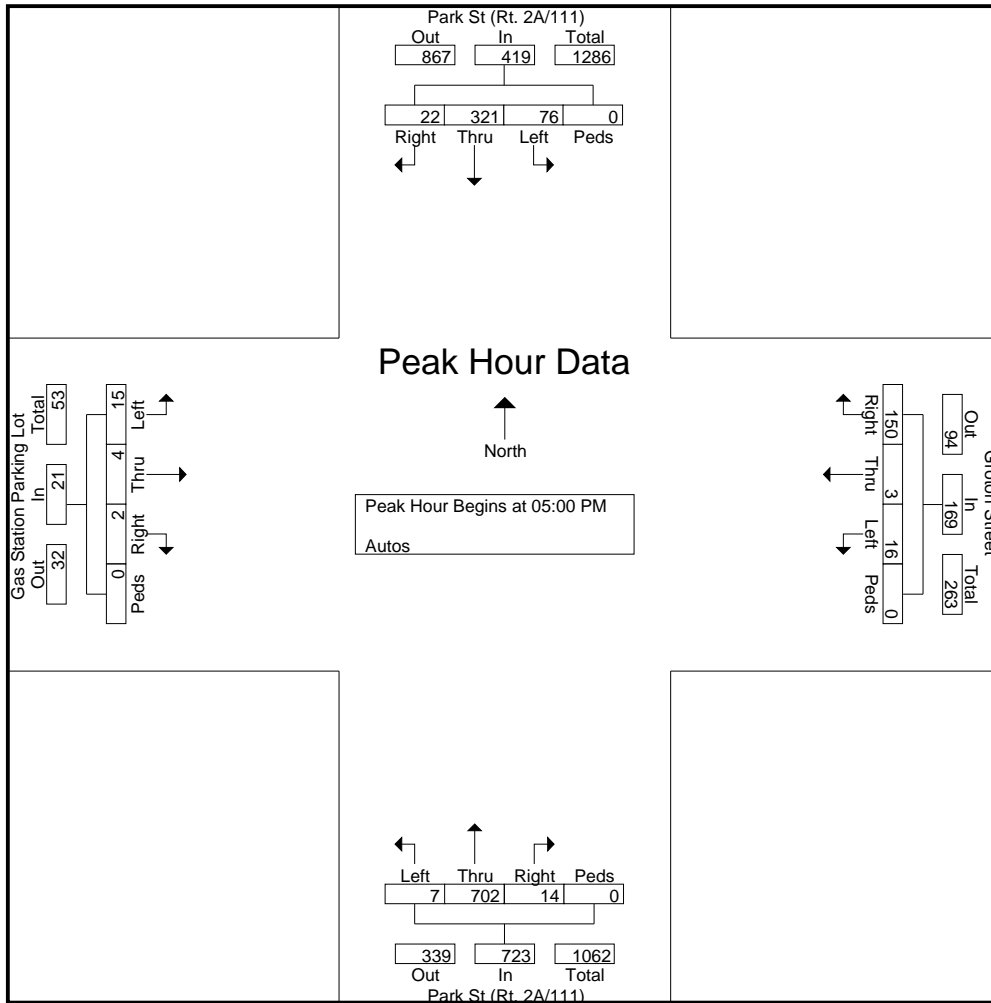
Montachusett Regional Planning Commission
 R1427 Water Street, Fitchburg, MA 01420
 P. 978-345-7376 F. 978-348-2490

Town: Ayer
 Street: Park Street (Rt.2A/111)
 Location: Groton Street
 Time: 4:30-6:30PM

File Name : 019-2009-4118PM
 Site Code : 4118PM
 Start Date : 1/21/2009
 Page No : 2

Start Time	Park St (Rt. 2A/111) From North					Groton Street From East					Park St (Rt. 2A/111) From South					Gas Station Parking Lot From West					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	
05:00 PM	5	74	15	0	94	31	1	4	0	36	2	183	3	0	188	0	1	6	0	7	325
05:15 PM	7	85	24	0	116	36	1	4	0	41	6	166	1	0	173	2	2	3	0	7	337
05:30 PM	9	71	17	0	97	20	0	4	0	24	1	186	2	0	189	0	1	2	0	3	313
05:45 PM	1	91	20	0	112	63	1	4	0	68	5	167	1	0	173	0	0	4	0	4	357
Total Volume	22	321	76	0	419	150	3	16	0	169	14	702	7	0	723	2	4	15	0	21	1332
% App. Total	5.3	76.6	18.1	0		88.8	1.8	9.5	0		1.9	97.1	1	0		9.5	19	71.4	0		
PHF	.611	.882	.792	.000	.903	.595	.750	1.000	.000	.621	.583	.944	.583	.000	.956	.250	.500	.625	.000	.750	.933

Peak Hour Analysis From 04:30 PM to 06:15 PM - Peak 1 of 1
 Peak Hour for Entire Intersection Begins at 05:00 PM



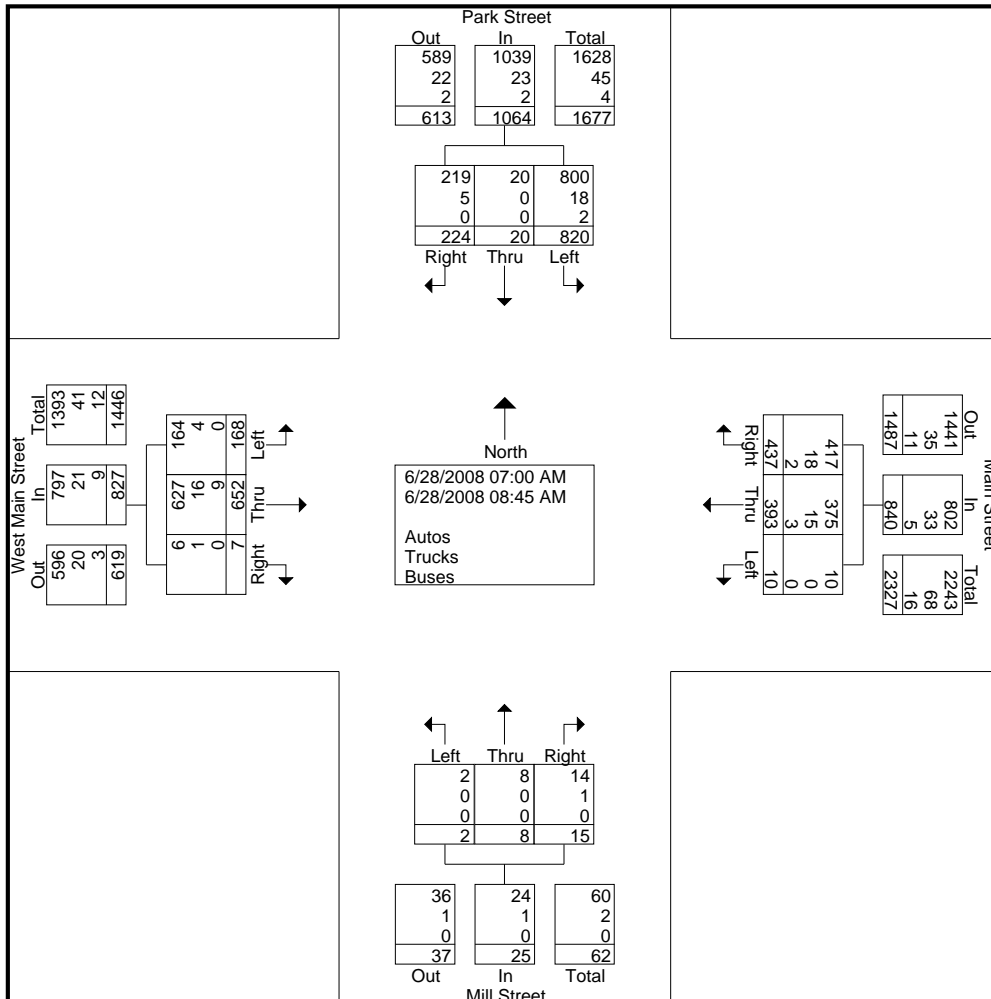
Montachusett Regional
Planning Commission
R1427 Water Street, Fitchburg, MA 01420
Turning Movement Count

Town: Ayer
Street: Main St (Rte 2A)
Location: Park St. (Rte 2A)
AM/PM: AM Peak Period

File Name : ayer_main & park st am 2
Site Code : 0000019
Start Date : 6/28/2008
Page No : 1

Groups Printed- Autos - Trucks - Buses

Start Time	Park Street From North				Main Street From East				Mill Street From South				West Main Street From West				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
07:00 AM	92	1	14	107	2	49	54	105	0	0	2	2	20	105	0	125	339
07:15 AM	107	4	37	148	1	50	48	99	1	2	2	5	25	90	1	116	368
07:30 AM	115	4	27	146	0	62	46	108	0	1	1	2	25	64	0	89	345
07:45 AM	114	2	25	141	2	42	43	87	0	0	2	2	13	84	2	99	329
Total	428	11	103	542	5	203	191	399	1	3	7	11	83	343	3	429	1381
08:00 AM	97	2	15	114	0	45	56	101	1	0	2	3	23	67	1	91	309
08:15 AM	122	2	32	156	1	49	60	110	0	2	2	4	19	85	0	104	374
08:30 AM	87	1	39	127	1	49	64	114	0	3	3	6	21	86	2	109	356
08:45 AM	86	4	35	125	3	47	66	116	0	0	1	1	22	71	1	94	336
Total	392	9	121	522	5	190	246	441	1	5	8	14	85	309	4	398	1375
Grand Total	820	20	224	1064	10	393	437	840	2	8	15	25	168	652	7	827	2756
Apprch %	77.1	1.9	21.1		1.2	46.8	52		8	32	60		20.3	78.8	0.8		
Total %	29.8	0.7	8.1	38.6	0.4	14.3	15.9	30.5	0.1	0.3	0.5	0.9	6.1	23.7	0.3	30	
Autos	800	20	219	1039	10	375	417	802	2	8	14	24	164	627	6	797	2662
% Autos	97.6	100	97.8	97.7	100	95.4	95.4	95.5	100	100	93.3	96	97.6	96.2	85.7	96.4	96.6
Trucks	18	0	5	23	0	15	18	33	0	0	1	1	4	16	1	21	78
% Trucks	2.2	0	2.2	2.2	0	3.8	4.1	3.9	0	0	6.7	4	2.4	2.5	14.3	2.5	2.8
Buses	2	0	0	2	0	3	2	5	0	0	0	0	0	9	0	9	16
% Buses	0.2	0	0	0.2	0	0.8	0.5	0.6	0	0	0	0	0	1.4	0	1.1	0.6



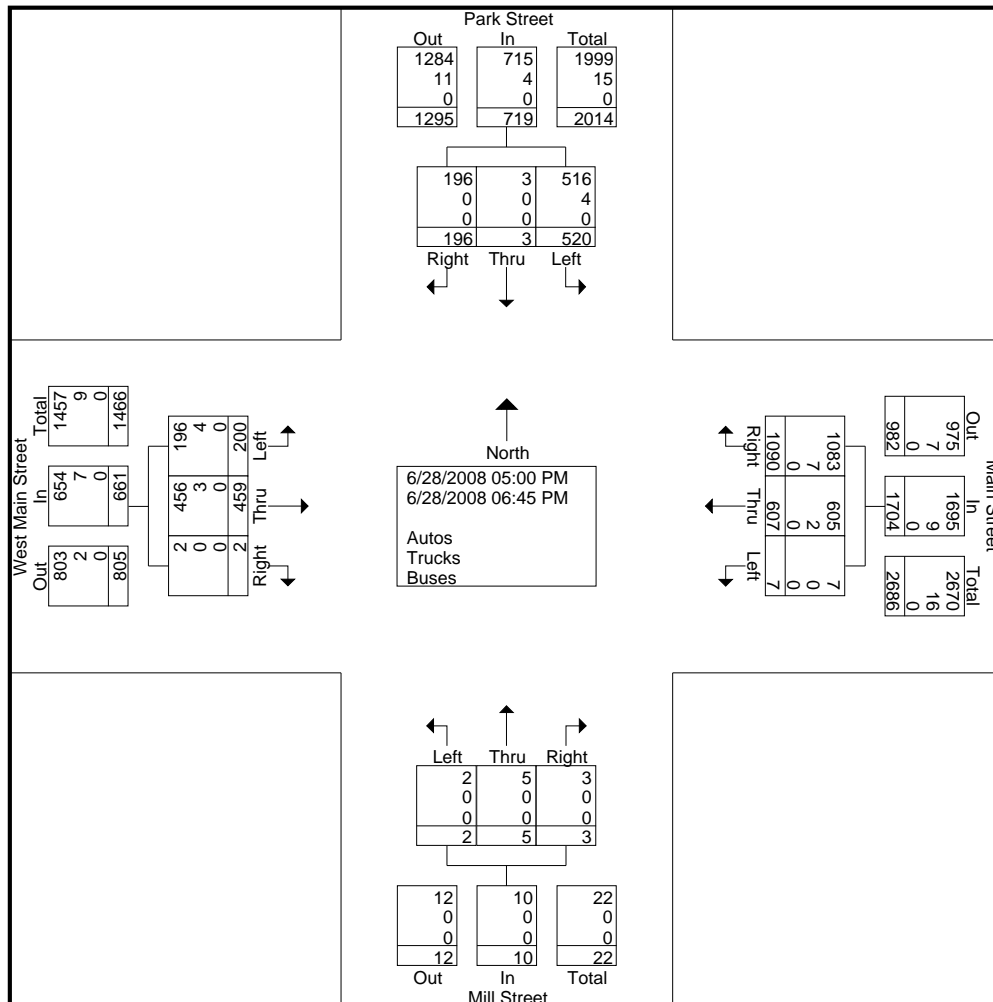
Montachusett Regional
 Planning Commission
 R1427 Water Street, Fitchburg, MA 01420
 Turning Movement Count

Town: Ayer
 Street: Main St. (Rte 2A)
 Location: Park St. (Rte 2A)
 AM/PM: PM Peak Period

File Name : Ayer_ Main & Park St PM 2
 Site Code : 0000002
 Start Date : 6/28/2008
 Page No : 1

Groups Printed- Autos - Trucks - Buses

Start Time	Park Street From North				Main Street From East				Mill Street From South				West Main Street From West				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
05:00 PM	65	1	20	86	1	76	150	227	0	2	2	4	35	69	1	105	422
05:15 PM	65	1	35	101	2	90	146	238	0	1	0	1	30	55	0	85	425
05:30 PM	69	1	23	93	0	69	138	207	0	0	0	0	27	61	0	88	388
05:45 PM	76	0	32	108	1	80	119	200	1	1	0	2	34	76	0	110	420
Total	275	3	110	388	4	315	553	872	1	4	2	7	126	261	1	388	1655
06:00 PM	62	0	30	92	0	72	133	205	0	0	0	0	11	55	0	66	363
06:15 PM	59	0	13	72	1	95	136	232	0	0	0	0	23	53	0	76	380
06:30 PM	68	0	27	95	0	77	148	225	0	0	1	1	20	45	1	66	387
06:45 PM	56	0	16	72	2	48	120	170	1	1	0	2	20	45	0	65	309
Total	245	0	86	331	3	292	537	832	1	1	1	3	74	198	1	273	1439
Grand Total	520	3	196	719	7	607	1090	1704	2	5	3	10	200	459	2	661	3094
Apprch %	72.3	0.4	27.3		0.4	35.6	64		20	50	30		30.3	69.4	0.3		
Total %	16.8	0.1	6.3	23.2	0.2	19.6	35.2	55.1	0.1	0.2	0.1	0.3	6.5	14.8	0.1	21.4	
Autos	516	3	196	715	7	605	1083	1695	2	5	3	10	196	456	2	654	3074
% Autos	99.2	100	100	99.4	100	99.7	99.4	99.5	100	100	100	100	98	99.3	100	98.9	99.4
Trucks	4	0	0	4	0	2	7	9	0	0	0	0	4	3	0	7	20
% Trucks	0.8	0	0	0.6	0	0.3	0.6	0.5	0	0	0	0	2	0.7	0	1.1	0.6
Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

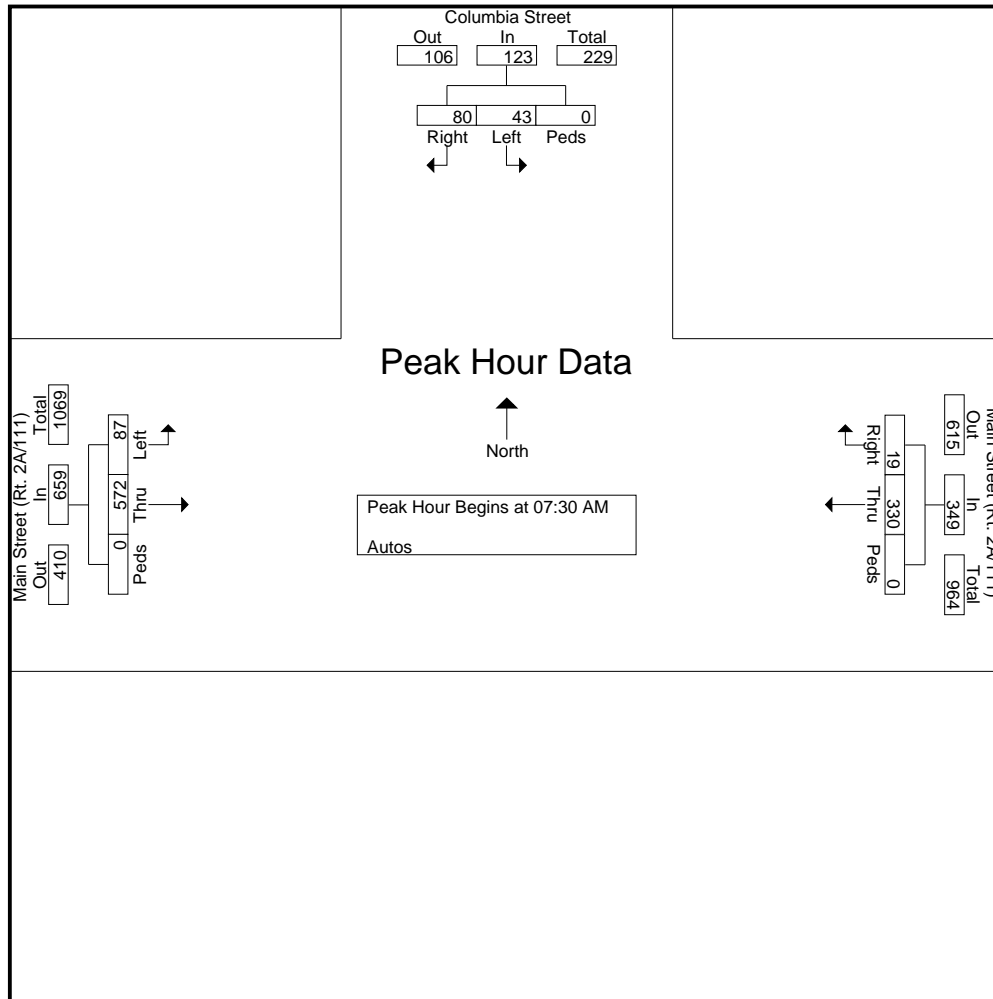


Montachusett Regional Planning Commission
 R1427 Water Street, Fitchburg, MA 01420
 P. 978-345-7376 F. 978-348-2490

Town: Ayer
 Street: Main St (Rt. 2A/111)
 Location: Columbia Street
 Time: 7:30-9:30AM

File Name : 019-2009-4117AM
 Site Code : 4117AM
 Start Date : 1/14/2009
 Page No : 2

Start Time	Columbia Street From North				Main Street (Rt. 2A/111) From East				Main Street (Rt. 2A/111) From West				Int. Total
	Right	Left	Peds	App. Total	Right	Thru	Peds	App. Total	Thru	Left	Peds	App. Total	
Peak Hour Analysis From 07:30 AM to 09:15 AM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 07:30 AM													
07:30 AM	19	21	0	40	5	87	0	92	144	33	0	177	309
07:45 AM	26	7	0	33	8	88	0	96	145	20	0	165	294
08:00 AM	19	7	0	26	3	88	0	91	141	13	0	154	271
08:15 AM	16	8	0	24	3	67	0	70	142	21	0	163	257
Total Volume	80	43	0	123	19	330	0	349	572	87	0	659	1131
% App. Total	65	35	0		5.4	94.6	0		86.8	13.2	0		
PHF	.769	.512	.000	.769	.594	.938	.000	.909	.986	.659	.000	.931	.915

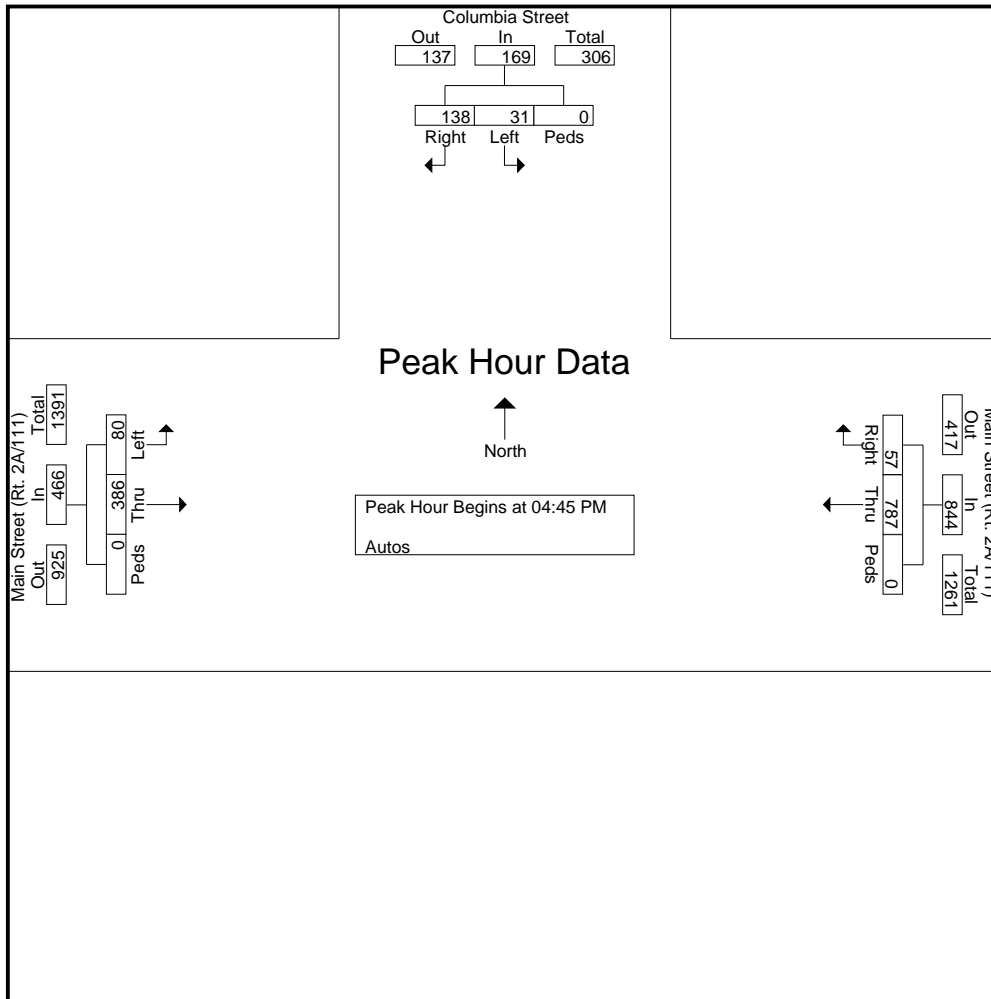


Montachusett Regional Planning Commission
 R1427 Water Street, Fitchburg, MA 01420
 P. 978-345-7376 F. 978-348-2490

Town: Ayer
 Street: Main Street (Rt. 2A/111)
 Location: Columbia Street
 Time: 4:30-6:30PM

File Name : 019-2009-4117PM
 Site Code : 4117PM
 Start Date : 1/14/2009
 Page No : 2

Start Time	Columbia Street From North				Main Street (Rt. 2A/111) From East				Main Street (Rt. 2A/111) From West				Int. Total
	Right	Left	Peds	App. Total	Right	Thru	Peds	App. Total	Thru	Left	Peds	App. Total	
Peak Hour Analysis From 04:30 PM to 06:15 PM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 04:45 PM													
04:45 PM	39	13	0	52	20	198	0	218	101	18	0	119	389
05:00 PM	35	8	0	43	15	200	0	215	97	19	0	116	374
05:15 PM	35	6	0	41	7	190	0	197	93	25	0	118	356
05:30 PM	29	4	0	33	15	199	0	214	95	18	0	113	360
Total Volume	138	31	0	169	57	787	0	844	386	80	0	466	1479
% App. Total	81.7	18.3	0		6.8	93.2	0		82.8	17.2	0		
PHF	.885	.596	.000	.813	.713	.984	.000	.968	.955	.800	.000	.979	.951



APPENDIX

CAPACITY ANALYSIS

Exiting, Future No Build & Future Build

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	<i>George Snow</i>	Intersection	<i>Park at Fitchburg & Groton</i>
Agency/Co.	<i>MRPC</i>	Jurisdiction	<i>Ayer, MA</i>
Date Performed	<i>03/23/09</i>	Analysis Year	2009
Analysis Time Period	<i>7:00 - 8:00 AM Peak</i>		

Project Description *Ayer Parking Garage*

East/West Street: *Fitchburg Road*

North/South Street: *Park/Groton*

Intersection Orientation: *East-West*

Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	<i>8</i>		<i>513</i>			
Peak-Hour Factor, PHF	<i>0.92</i>	<i>0.92</i>	<i>0.92</i>	<i>1.00</i>	<i>1.00</i>	<i>1.00</i>
Hourly Flow Rate, HFR (veh/h)	<i>8</i>	<i>0</i>	<i>557</i>	<i>0</i>	<i>0</i>	<i>0</i>
Percent Heavy Vehicles	<i>0</i>	<i>--</i>	<i>--</i>	<i>0</i>	<i>--</i>	<i>--</i>
Median Type	<i>Undivided</i>					
RT Channelized			<i>0</i>			<i>0</i>
Lanes	<i>1</i>	<i>0</i>	<i>1</i>	<i>0</i>	<i>0</i>	<i>0</i>
Configuration	<i>L</i>		<i>R</i>			
Upstream Signal		<i>0</i>			<i>0</i>	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	<i>188</i>	<i>164</i>			<i>308</i>	<i>11</i>
Peak-Hour Factor, PHF	<i>0.92</i>	<i>0.92</i>	<i>0.92</i>	<i>0.92</i>	<i>0.92</i>	<i>0.92</i>
Hourly Flow Rate, HFR (veh/h)	<i>204</i>	<i>178</i>	<i>0</i>	<i>0</i>	<i>334</i>	<i>11</i>
Percent Heavy Vehicles	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>
Percent Grade (%)		<i>0</i>			<i>0</i>	
Flared Approach		<i>N</i>			<i>N</i>	
Storage		<i>0</i>			<i>0</i>	
RT Channelized			<i>0</i>			<i>0</i>
Lanes	<i>1</i>	<i>1</i>	<i>0</i>	<i>0</i>	<i>1</i>	<i>0</i>
Configuration	<i>L</i>	<i>T</i>				<i>TR</i>

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	<i>L</i>		<i>L</i>	<i>T</i>				<i>TR</i>
v (veh/h)	<i>8</i>		<i>204</i>	<i>178</i>				<i>345</i>
C (m) (veh/h)	<i>1636</i>		<i>276</i>	<i>878</i>				<i>438</i>
v/c	<i>0.00</i>		<i>0.74</i>	<i>0.20</i>				<i>0.79</i>
95% queue length	<i>0.01</i>		<i>5.34</i>	<i>0.76</i>				<i>6.96</i>
Control Delay (s/veh)	<i>7.2</i>		<i>47.6</i>	<i>10.1</i>				<i>37.5</i>
LOS	<i>A</i>		<i>E</i>	<i>B</i>				<i>E</i>
Approach Delay (s/veh)	<i>--</i>	<i>--</i>	<i>30.1</i>			<i>37.5</i>		
Approach LOS	<i>--</i>	<i>--</i>	<i>D</i>			<i>E</i>		

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	George Snow	Intersection	Park at Fitchburg & Groton
Agency/Co.	MRPC	Jurisdiction	Ayer, MA
Date Performed	03/23/09	Analysis Year	2009
Analysis Time Period	5:00 - 6:00 PM Peak		

Project Description *Ayer Parking Garage*

East/West Street: *Fitchburg Road*

North/South Street: *Park/Groton*

Intersection Orientation: *East-West*

Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	21		248			
Peak-Hour Factor, PHF	0.92	0.92	0.92	1.00	1.00	1.00
Hourly Flow Rate, HFR (veh/h)	22	0	269	0	0	0
Percent Heavy Vehicles	0	--	--	0	--	--
Median Type	<i>Undivided</i>					
RT Channelized			1			0
Lanes	1	0	1	0	0	0
Configuration	L		R			
Upstream Signal		0			0	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	527	315			177	14
Peak-Hour Factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Hourly Flow Rate, HFR (veh/h)	572	342	0	0	192	15
Percent Heavy Vehicles	0	0	0	0	0	0
Percent Grade (%)		0			0	
Flared Approach		N			N	
Storage		0			0	
RT Channelized			0			0
Lanes	1	1	0	0	1	0
Configuration	L	T				TR

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	L		L	T				TR
v (veh/h)	22		572	342				207
C (m) (veh/h)	1636		664	841				855
v/c	0.01		0.86	0.41				0.24
95% queue length	0.04		9.98	1.99				0.95
Control Delay (s/veh)	7.2		34.7	12.2				10.6
LOS	A		D	B				B
Approach Delay (s/veh)	--	--	26.3			10.6		
Approach LOS	--	--	D			B		

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	George Snow	Intersection	Park at Groton
Agency/Co.	MRPC	Jurisdiction	Ayer, MA
Date Performed	03/23/09	Analysis Year	2009
Analysis Time Period	7:00 - 8:00 AM Peak		

Project Description: Ayer Parking Garage	
East/West Street: Groton Street & Gas Station	North/South Street: Park Street (Rte 2A/111)
Intersection Orientation: North-South	Study Period (hrs): 0.25

Vehicle Volumes and Adjustments						
Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	6	274	48	226	471	33
Peak-Hour Factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Hourly Flow Rate, HFR (veh/h)	5	2	3	26	1	82
Percent Heavy Vehicles	0	--	--	0	--	--
Median Type	Undivided					
RT Channelized			0			0
Lanes	0	1	0	0	1	0
Configuration	LTR			LTR		
Upstream Signal		0			0	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	5	2	3	24	1	76
Peak-Hour Factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Hourly Flow Rate, HFR (veh/h)	245	511	35	6	297	52
Percent Heavy Vehicles	0	0	0	1	0	0
Percent Grade (%)	0			0		
Flared Approach		N			N	
Storage		0			0	
RT Channelized			0			0
Lanes	0	1	0	0	1	0
Configuration		LTR			LTR	

Delay, Queue Length, and Level of Service								
Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	LTR		LTR			LTR		
v (veh/h)	6	245		109		10		
C (m) (veh/h)	1033	1221		277		115		
v/c	0.01	0.20		0.39		0.09		
95% queue length	0.02	0.75		1.79		0.28		
Control Delay (s/veh)	8.5	8.7		26.2		39.3		
LOS	A	A		D		E		
Approach Delay (s/veh)	--	--	26.2			39.3		
Approach LOS	--	--	D			E		

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	<i>George Snow</i>	Intersection	<i>Park at Groton</i>
Agency/Co.	<i>MRPC</i>	Jurisdiction	<i>Ayer, MA</i>
Date Performed	<i>03/23/09</i>	Analysis Year	2009
Analysis Time Period	<i>5:00 - 6:00 PM Peak</i>		

Project Description <i>Ayer Parking Garage</i>	
East/West Street: <i>Groton Street & Gas Station</i>	North/South Street: <i>Park Street (Rte 2A/111)</i>
Intersection Orientation: <i>North-South</i>	Study Period (hrs): <i>0.25</i>

Vehicle Volumes and Adjustments						
Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	7	702	14	76	321	22
Peak-Hour Factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Hourly Flow Rate, HFR (veh/h)	16	4	2	17	3	163
Percent Heavy Vehicles	0	--	--	0	--	--
Median Type	<i>Undivided</i>					
RT Channelized			0			0
Lanes	0	1	0	0	1	0
Configuration	<i>LTR</i>			<i>LTR</i>		
Upstream Signal		0			0	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	15	4	2	16	3	150
Peak-Hour Factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Hourly Flow Rate, HFR (veh/h)	82	348	23	7	763	15
Percent Heavy Vehicles	0	0	0	1	0	0
Percent Grade (%)	0			0		
Flared Approach		<i>N</i>			<i>N</i>	
Storage		0			0	
RT Channelized			0			0
Lanes	0	1	0	0	1	0
Configuration		<i>LTR</i>			<i>LTR</i>	

Delay, Queue Length, and Level of Service								
Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	<i>LTR</i>		<i>LTR</i>			<i>LTR</i>		
v (veh/h)	7	82	183			22		
C (m) (veh/h)	1199	848	323			78		
v/c	0.01	0.10	0.57			0.28		
95% queue length	0.02	0.32	3.30			1.03		
Control Delay (s/veh)	8.0	9.7	29.8			68.4		
LOS	A	A	D			F		
Approach Delay (s/veh)	--	--	29.8			68.4		
Approach LOS	--	--	D			F		

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	George Snow	Intersection	West Main/Main at Park/Mill
Agency/Co.	MRPC	Jurisdiction	Ayer, MA
Date Performed	03/19/09	Analysis Year	2008
Analysis Time Period	7:00 - 8:00 AM Peak		

Project Description *Ayer Parking Garage*

East/West Street: *West Main/Main Street*

North/South Street: *Park/Mill Street*

Intersection Orientation: *East-West*

Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	83	343	3	5	203	191
Peak-Hour Factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Hourly Flow Rate, HFR (veh/h)	90	372	3	5	220	207
Percent Heavy Vehicles	4	--	--	4	--	--
Median Type	<i>Undivided</i>					
RT Channelized			0			0
Lanes	0	1	0	0	1	0
Configuration	<i>LTR</i>			<i>LTR</i>		
Upstream Signal		0			0	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	1	3	7	428	11	103
Peak-Hour Factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Hourly Flow Rate, HFR (veh/h)	1	3	7	465	11	111
Percent Heavy Vehicles	0	0	0	2	0	0
Percent Grade (%)	0			0		
Flared Approach		<i>N</i>			<i>N</i>	
Storage		0			0	
RT Channelized			0			0
Lanes	0	1	0	0	1	1
Configuration		<i>LTR</i>		<i>LT</i>		<i>R</i>

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	<i>LTR</i>	<i>LTR</i>		<i>LTR</i>		<i>LT</i>		<i>R</i>
v (veh/h)	90	5		11		476		111
C (m) (veh/h)	1122	1173		374		236		722
v/c	0.08	0.00		0.03		2.02		0.15
95% queue length	0.26	0.01		0.09		35.09		0.54
Control Delay (s/veh)	8.5	8.1		14.9		506.4		10.9
LOS	A	A		B		F		B
Approach Delay (s/veh)	--	--	14.9			412.7		
Approach LOS	--	--	B			F		

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	George Snow	Intersection	West Main/Main at Park/Mill
Agency/Co.	MRPC	Jurisdiction	Ayer, MA
Date Performed	03/19/09	Analysis Year	2008
Analysis Time Period	4:45 - 5:45 PM Peak		

Project Description *Ayer Parking Garage*

East/West Street: *West Main/Main Street*

North/South Street: *Park/Mill Street*

Intersection Orientation: *East-West*

Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	126	259	1	4	315	552
Peak-Hour Factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Hourly Flow Rate, HFR (veh/h)	136	281	1	4	342	599
Percent Heavy Vehicles	3	--	--	1	--	--
Median Type	<i>Undivided</i>					
RT Channelized			0			0
Lanes	0	1	0	0	1	0
Configuration	<i>LTR</i>			<i>LTR</i>		
Upstream Signal		0			0	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	1	4	2	275	3	110
Peak-Hour Factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Hourly Flow Rate, HFR (veh/h)	1	4	2	298	3	119
Percent Heavy Vehicles	0	0	0	1	0	0
Percent Grade (%)	0			0		
Flared Approach		<i>N</i>			<i>N</i>	
Storage		0			0	
RT Channelized			0			0
Lanes	0	1	0	0	1	1
Configuration		<i>LTR</i>		<i>LT</i>		<i>R</i>

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	<i>LTR</i>	<i>LTR</i>		<i>LTR</i>		<i>LT</i>		<i>R</i>
v (veh/h)	136	4		7		301		119
C (m) (veh/h)	724	1286		125		128		478
v/c	0.19	0.00		0.06		2.35		0.25
95% queue length	0.69	0.01		0.18		25.97		0.97
Control Delay (s/veh)	11.1	7.8		35.5		686.9		15.0
LOS	<i>B</i>	<i>A</i>		<i>E</i>		<i>F</i>		<i>C</i>
Approach Delay (s/veh)	--	--	35.5			496.5		
Approach LOS	--	--	<i>E</i>			<i>F</i>		

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	<i>George Snow</i>	Intersection	<i>Main at Columbia</i>
Agency/Co.	<i>MRPC</i>	Jurisdiction	<i>Ayer, MA</i>
Date Performed	<i>03/23/09</i>	Analysis Year	2009
Analysis Time Period	<i>7:30 - 8:30 AM Peak</i>		

Project Description <i>Ayer Parking Garage</i>	
East/West Street: <i>Main St (Rte 2A/111)</i>	North/South Street: <i>Columbia</i>
Intersection Orientation: <i>East-West</i>	Study Period (hrs): <i>0.25</i>

Vehicle Volumes and Adjustments						
Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	<i>87</i>	<i>572</i>			<i>330</i>	<i>19</i>
Peak-Hour Factor, PHF	<i>0.92</i>	<i>0.92</i>	<i>0.92</i>	<i>0.92</i>	<i>0.92</i>	<i>0.92</i>
Hourly Flow Rate, HFR (veh/h)	<i>94</i>	<i>621</i>	<i>0</i>	<i>0</i>	<i>358</i>	<i>20</i>
Percent Heavy Vehicles	<i>0</i>	<i>--</i>	<i>--</i>	<i>0</i>	<i>--</i>	<i>--</i>
Median Type	<i>Undivided</i>					
RT Channelized			<i>0</i>			<i>1</i>
Lanes	<i>0</i>	<i>1</i>	<i>0</i>	<i>0</i>	<i>1</i>	<i>1</i>
Configuration	<i>LT</i>				<i>T</i>	<i>R</i>
Upstream Signal		<i>0</i>			<i>0</i>	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)				<i>43</i>		<i>80</i>
Peak-Hour Factor, PHF	<i>0.92</i>	<i>0.92</i>	<i>0.92</i>	<i>0.92</i>	<i>0.92</i>	<i>0.92</i>
Hourly Flow Rate, HFR (veh/h)	<i>0</i>	<i>0</i>	<i>0</i>	<i>46</i>	<i>0</i>	<i>86</i>
Percent Heavy Vehicles	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>
Percent Grade (%)	<i>0</i>			<i>0</i>		
Flared Approach		<i>N</i>			<i>N</i>	
Storage		<i>0</i>			<i>0</i>	
RT Channelized			<i>0</i>			<i>0</i>
Lanes	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>
Configuration					<i>LR</i>	

Delay, Queue Length, and Level of Service								
Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	<i>LT</i>						<i>LR</i>	
v (veh/h)	<i>94</i>						<i>132</i>	
C (m) (veh/h)	<i>1212</i>						<i>371</i>	
v/c	<i>0.08</i>						<i>0.36</i>	
95% queue length	<i>0.25</i>						<i>1.57</i>	
Control Delay (s/veh)	<i>8.2</i>						<i>20.0</i>	
LOS	<i>A</i>						<i>C</i>	
Approach Delay (s/veh)	<i>--</i>	<i>--</i>					<i>20.0</i>	
Approach LOS	<i>--</i>	<i>--</i>					<i>C</i>	

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	George Snow	Intersection	Main at Columbia
Agency/Co.	MRPC	Jurisdiction	Ayer, MA
Date Performed	03/23/09	Analysis Year	2009
Analysis Time Period	4:45 - 5:45 PM Peak		

Project Description *Ayer Parking Garage*

East/West Street: *Main St (Rte 2A/111)*

North/South Street: *Columbia*

Intersection Orientation: *East-West*

Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	80	386			787	57
Peak-Hour Factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Hourly Flow Rate, HFR (veh/h)	86	419	0	0	855	61
Percent Heavy Vehicles	0	--	--	0	--	--
Median Type	<i>Undivided</i>					
RT Channelized			0			1
Lanes	0	1	0	0	1	1
Configuration	<i>LT</i>				<i>T</i>	<i>R</i>
Upstream Signal		0			0	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)				31		138
Peak-Hour Factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Hourly Flow Rate, HFR (veh/h)	0	0	0	33	0	149
Percent Heavy Vehicles	0	0	0	0	0	0
Percent Grade (%)	0			0		
Flared Approach		<i>N</i>			<i>N</i>	
Storage		0			0	
RT Channelized			0			0
Lanes	0	0	0	0	0	0
Configuration					<i>LR</i>	

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	<i>LT</i>						<i>LR</i>	
v (veh/h)	86						182	
C (m) (veh/h)	793						274	
v/c	0.11						0.66	
95% queue length	0.36						4.32	
Control Delay (s/veh)	10.1						40.7	
LOS	<i>B</i>						<i>E</i>	
Approach Delay (s/veh)	--	--					40.7	
Approach LOS	--	--					<i>E</i>	

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	George Snow	Intersection	Park at Fitchburg & Groton
Agency/Co.	MRPC	Jurisdiction	Ayer, MA
Date Performed	03/23/09	Analysis Year	2012 Future No Build
Analysis Time Period	7:00 - 8:00 AM Peak		

Project Description *Ayer Parking Garage*

East/West Street: *Fitchburg Road*

North/South Street: *Park/Groton*

Intersection Orientation: *East-West*

Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	8		544			
Peak-Hour Factor, PHF	0.92	0.92	0.92	1.00	1.00	1.00
Hourly Flow Rate, HFR (veh/h)	8	0	591	0	0	0
Percent Heavy Vehicles	0	--	--	0	--	--
Median Type	<i>Undivided</i>					
RT Channelized			0			0
Lanes	1	0	1	0	0	0
Configuration	L		R			
Upstream Signal		0			0	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	200	174			327	12
Peak-Hour Factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Hourly Flow Rate, HFR (veh/h)	217	189	0	0	355	13
Percent Heavy Vehicles	0	0	0	0	0	0
Percent Grade (%)		0			0	
Flared Approach		N			N	
Storage		0			0	
RT Channelized			0			0
Lanes	1	1	0	0	1	0
Configuration	L	T				TR

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	L		L	T				TR
v (veh/h)	8		217	189				368
C (m) (veh/h)	1636		202	878				421
v/c	0.00		1.07	0.22				0.87
95% queue length	0.01		10.01	0.82				8.89
Control Delay (s/veh)	7.2		133.8	10.2				49.8
LOS	A		F	B				E
Approach Delay (s/veh)	--	--	76.3			49.8		
Approach LOS	--	--	F			E		

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	George Snow	Intersection	Park at Fitchburg & Groton
Agency/Co.	MRPC	Jurisdiction	Ayer, MA
Date Performed	03/23/09	Analysis Year	2012 Future No Build
Analysis Time Period	5:00 - 6:00 PM Peak		

Project Description *Ayer Parking Garage*

East/West Street: *Fitchburg Road*

North/South Street: *Park/Groton*

Intersection Orientation: *East-West*

Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	22		263			
Peak-Hour Factor, PHF	0.92	0.92	0.92	1.00	1.00	1.00
Hourly Flow Rate, HFR (veh/h)	23	0	285	0	0	0
Percent Heavy Vehicles	0	--	--	0	--	--
Median Type	<i>Undivided</i>					
RT Channelized			1			0
Lanes	1	0	1	0	0	0
Configuration	L		R			
Upstream Signal		0			0	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	559	334			188	15
Peak-Hour Factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Hourly Flow Rate, HFR (veh/h)	607	363	0	0	204	16
Percent Heavy Vehicles	0	0	0	0	0	0
Percent Grade (%)		0			0	
Flared Approach		N			N	
Storage		0			0	
RT Channelized			0			0
Lanes	1	1	0	0	1	0
Configuration	L	T				TR

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	L		L	T				TR
v (veh/h)	23		607	363				220
C (m) (veh/h)	1636		646	838				852
v/c	0.01		0.94	0.43				0.26
95% queue length	0.04		12.85	2.21				1.03
Control Delay (s/veh)	7.2		47.4	12.5				10.7
LOS	A		E	B				B
Approach Delay (s/veh)	--	--	34.4			10.7		
Approach LOS	--	--	D			B		

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	George Snow	Intersection	Park at Groton
Agency/Co.	MRPC	Jurisdiction	Ayer, MA
Date Performed	03/23/09	Analysis Year	2012 Future No Build
Analysis Time Period	7:00 - 8:00 AM Peak		

Project Description: Ayer Parking Garage	
East/West Street: Groton Street & Gas Station	North/South Street: Park Street (Rte 2A/111)
Intersection Orientation: North-South	Study Period (hrs): 0.25

Vehicle Volumes and Adjustments						
Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	6	291	51	240	500	35
Peak-Hour Factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Hourly Flow Rate, HFR (veh/h)	6	316	55	260	543	38
Percent Heavy Vehicles	0	--	--	0	--	--
Median Type	Undivided					
RT Channelized			0			0
Lanes	0	1	0	0	1	0
Configuration	LTR			LTR		
Upstream Signal		0			0	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	5	2	3	25	1	81
Peak-Hour Factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Hourly Flow Rate, HFR (veh/h)	5	2	3	27	1	88
Percent Heavy Vehicles	0	0	0	1	0	0
Percent Grade (%)	0			0		
Flared Approach		N			N	
Storage		0			0	
RT Channelized			0			0
Lanes	0	1	0	0	1	0
Configuration		LTR			LTR	

Delay, Queue Length, and Level of Service								
Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	LTR		LTR			LTR		
v (veh/h)	6	260		116		10		
C (m) (veh/h)	1003	1199		245		97		
v/c	0.01	0.22		0.47		0.10		
95% queue length	0.02	0.82		2.35		0.33		
Control Delay (s/veh)	8.6	8.8		32.2		46.3		
LOS	A	A		D		E		
Approach Delay (s/veh)	--	--	32.2			46.3		
Approach LOS	--	--	D			E		

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	George Snow	Intersection	Park at Groton
Agency/Co.	MRPC	Jurisdiction	Ayer, MA
Date Performed	03/23/09	Analysis Year	2012 Future No Build
Analysis Time Period	5:00 - 6:00 PM Peak		

Project Description: Ayer Parking Garage	
East/West Street: Groton Street & Gas Station	North/South Street: Park Street (Rte 2A/111)
Intersection Orientation: North-South	Study Period (hrs): 0.25

Vehicle Volumes and Adjustments						
Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	7	745	15	81	341	23
Peak-Hour Factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Hourly Flow Rate, HFR (veh/h)	7	809	16	88	370	24
Percent Heavy Vehicles	0	--	--	0	--	--
Median Type	Undivided					
RT Channelized			0			0
Lanes	0	1	0	0	1	0
Configuration	LTR			LTR		
Upstream Signal		0			0	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	16	4	2	17	3	159
Peak-Hour Factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Hourly Flow Rate, HFR (veh/h)	17	4	2	18	3	172
Percent Heavy Vehicles	0	0	0	1	0	0
Percent Grade (%)	0			0		
Flared Approach		N			N	
Storage		0			0	
RT Channelized			0			0
Lanes	0	1	0	0	1	0
Configuration		LTR			LTR	

Delay, Queue Length, and Level of Service								
Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	LTR		LTR			LTR		
v (veh/h)	7	88		193		23		
C (m) (veh/h)	1176	814		296		61		
v/c	0.01	0.11		0.65		0.38		
95% queue length	0.02	0.36		4.23		1.40		
Control Delay (s/veh)	8.1	10.0		37.3		96.1		
LOS	A	A		E		F		
Approach Delay (s/veh)	--	--	37.3			96.1		
Approach LOS	--	--	E			F		

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	George Snow	Intersection	West Main/Main at Park/Mill
Agency/Co.	MRPC	Jurisdiction	Ayer, MA
Date Performed	03/19/09	Analysis Year	2012 Future No Build
Analysis Time Period	7:00 - 8:00 AM Peak		

Project Description *Ayer Parking Garage*

East/West Street: *West Main/Main Street*

North/South Street: *Park/Mill Street*

Intersection Orientation: *East-West*

Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	88	364	3	5	215	203
Peak-Hour Factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Hourly Flow Rate, HFR (veh/h)	95	395	3	5	233	220
Percent Heavy Vehicles	4	--	--	4	--	--
Median Type	<i>Undivided</i>					
RT Channelized			0			0
Lanes	0	1	0	0	1	0
Configuration	<i>LTR</i>			<i>LTR</i>		
Upstream Signal		0			0	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	1	3	7	454	12	109
Peak-Hour Factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Hourly Flow Rate, HFR (veh/h)	1	3	7	493	13	118
Percent Heavy Vehicles	0	0	0	2	0	0
Percent Grade (%)	0			0		
Flared Approach		<i>N</i>			<i>N</i>	
Storage		0			0	
RT Channelized			0			0
Lanes	0	1	0	0	1	1
Configuration		<i>LTR</i>		<i>LT</i>		<i>R</i>

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	<i>LTR</i>	<i>LTR</i>		<i>LTR</i>		<i>LT</i>		<i>R</i>
v (veh/h)	95	5		11		506		118
C (m) (veh/h)	1097	1150		347		215		704
v/c	0.09	0.00		0.03		2.35		0.17
95% queue length	0.28	0.01		0.10		41.00		0.60
Control Delay (s/veh)	8.6	8.1		15.7		658.7		11.1
LOS	<i>A</i>	<i>A</i>		<i>C</i>		<i>F</i>		<i>B</i>
Approach Delay (s/veh)	--	--	15.7			536.2		
Approach LOS	--	--	<i>C</i>			<i>F</i>		

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	<i>George Snow</i>	Intersection	<i>West Main/Main at Park/Mill</i>
Agency/Co.	<i>MRPC</i>	Jurisdiction	<i>Ayer, MA</i>
Date Performed	<i>03/19/09</i>	Analysis Year	2012 Future No Build
Analysis Time Period	<i>4:45 - 5:45 PM Peak</i>		

Project Description *Ayer Parking Garage*

East/West Street: *West Main/Main Street*

North/South Street: *Park/Mill Street*

Intersection Orientation: *East-West*

Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	<i>134</i>	<i>275</i>	<i>1</i>	<i>4</i>	<i>334</i>	<i>585</i>
Peak-Hour Factor, PHF	<i>0.92</i>	<i>0.92</i>	<i>0.92</i>	<i>0.92</i>	<i>0.92</i>	<i>0.92</i>
Hourly Flow Rate, HFR (veh/h)	<i>145</i>	<i>298</i>	<i>1</i>	<i>4</i>	<i>363</i>	<i>635</i>
Percent Heavy Vehicles	<i>3</i>	<i>--</i>	<i>--</i>	<i>1</i>	<i>--</i>	<i>--</i>
Median Type	<i>Undivided</i>					
RT Channelized			<i>0</i>			<i>0</i>
Lanes	<i>0</i>	<i>1</i>	<i>0</i>	<i>0</i>	<i>1</i>	<i>0</i>
Configuration	<i>LTR</i>			<i>LTR</i>		
Upstream Signal		<i>0</i>			<i>0</i>	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	<i>1</i>	<i>4</i>	<i>2</i>	<i>292</i>	<i>3</i>	<i>117</i>
Peak-Hour Factor, PHF	<i>0.92</i>	<i>0.92</i>	<i>0.92</i>	<i>0.92</i>	<i>0.92</i>	<i>0.92</i>
Hourly Flow Rate, HFR (veh/h)	<i>1</i>	<i>4</i>	<i>2</i>	<i>317</i>	<i>3</i>	<i>127</i>
Percent Heavy Vehicles	<i>0</i>	<i>0</i>	<i>0</i>	<i>1</i>	<i>0</i>	<i>0</i>
Percent Grade (%)		<i>0</i>			<i>0</i>	
Flared Approach		<i>N</i>			<i>N</i>	
Storage		<i>0</i>			<i>0</i>	
RT Channelized			<i>0</i>			<i>0</i>
Lanes	<i>0</i>	<i>1</i>	<i>0</i>	<i>0</i>	<i>1</i>	<i>1</i>
Configuration		<i>LTR</i>		<i>LT</i>		<i>R</i>

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	<i>LTR</i>	<i>LTR</i>		<i>LTR</i>		<i>LT</i>		<i>R</i>
v (veh/h)	<i>145</i>	<i>4</i>		<i>7</i>		<i>320</i>		<i>127</i>
C (m) (veh/h)	<i>689</i>	<i>1268</i>		<i>106</i>		<i>110</i>		<i>454</i>
v/c	<i>0.21</i>	<i>0.00</i>		<i>0.07</i>		<i>2.91</i>		<i>0.28</i>
95% queue length	<i>0.79</i>	<i>0.01</i>		<i>0.21</i>		<i>30.22</i>		<i>1.13</i>
Control Delay (s/veh)	<i>11.6</i>	<i>7.8</i>		<i>41.4</i>		<i>944.1</i>		<i>16.0</i>
LOS	<i>B</i>	<i>A</i>		<i>E</i>		<i>F</i>		<i>C</i>
Approach Delay (s/veh)	<i>--</i>	<i>--</i>		<i>41.4</i>		<i>680.4</i>		<i>--</i>
Approach LOS	<i>--</i>	<i>--</i>		<i>E</i>		<i>F</i>		<i>--</i>

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	George Snow	Intersection	Main at Columbia
Agency/Co.	MRPC	Jurisdiction	Ayer, MA
Date Performed	03/23/09	Analysis Year	2012 Future No Build
Analysis Time Period	7:30 - 8:30 AM Peak		

Project Description *Ayer Parking Garage*

East/West Street: *Main St (Rte 2A/111)*

North/South Street: *Columbia*

Intersection Orientation: *East-West*

Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	92	607			350	20
Peak-Hour Factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Hourly Flow Rate, HFR (veh/h)	99	659	0	0	380	21
Percent Heavy Vehicles	0	--	--	0	--	--
Median Type	<i>Undivided</i>					
RT Channelized			0			1
Lanes	0	1	0	0	1	1
Configuration	<i>LT</i>				<i>T</i>	<i>R</i>
Upstream Signal		0			0	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)				46		85
Peak-Hour Factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Hourly Flow Rate, HFR (veh/h)	0	0	0	49	0	92
Percent Heavy Vehicles	0	0	0	0	0	0
Percent Grade (%)	0			0		
Flared Approach		<i>N</i>			<i>N</i>	
Storage		0			0	
RT Channelized			0			0
Lanes	0	0	0	0	0	0
Configuration					<i>LR</i>	

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	<i>LT</i>						<i>LR</i>	
v (veh/h)	99						141	
C (m) (veh/h)	1190						344	
v/c	0.08						0.41	
95% queue length	0.27						1.94	
Control Delay (s/veh)	8.3						22.5	
LOS	<i>A</i>						<i>C</i>	
Approach Delay (s/veh)	--	--					22.5	
Approach LOS	--	--					<i>C</i>	

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	<i>George Snow</i>	Intersection	<i>Main at Columbia</i>
Agency/Co.	<i>MRPC</i>	Jurisdiction	<i>Ayer, MA</i>
Date Performed	<i>03/23/09</i>	Analysis Year	2012 Future No Build
Analysis Time Period	<i>4:45 - 5:45 PM Peak</i>		

Project Description *Ayer Parking Garage*

East/West Street: *Main St (Rte 2A/111)*

North/South Street: *Columbia*

Intersection Orientation: *East-West*

Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
	1	2	3	4	5	6
Movement	L	T	R	L	T	R
Volume (veh/h)	<i>85</i>	<i>410</i>			<i>835</i>	<i>60</i>
Peak-Hour Factor, PHF	<i>0.92</i>	<i>0.92</i>	<i>0.92</i>	<i>0.92</i>	<i>0.92</i>	<i>0.92</i>
Hourly Flow Rate, HFR (veh/h)	<i>92</i>	<i>445</i>	<i>0</i>	<i>0</i>	<i>907</i>	<i>65</i>
Percent Heavy Vehicles	<i>0</i>	--	--	<i>0</i>	--	--
Median Type	<i>Undivided</i>					
RT Channelized			<i>0</i>			<i>1</i>
Lanes	<i>0</i>	<i>1</i>	<i>0</i>	<i>0</i>	<i>1</i>	<i>1</i>
Configuration	<i>LT</i>				<i>T</i>	<i>R</i>
Upstream Signal		<i>0</i>			<i>0</i>	

Minor Street	Northbound			Southbound		
	7	8	9	10	11	12
Movement	L	T	R	L	T	R
Volume (veh/h)				<i>33</i>		<i>146</i>
Peak-Hour Factor, PHF	<i>0.92</i>	<i>0.92</i>	<i>0.92</i>	<i>0.92</i>	<i>0.92</i>	<i>0.92</i>
Hourly Flow Rate, HFR (veh/h)	<i>0</i>	<i>0</i>	<i>0</i>	<i>35</i>	<i>0</i>	<i>158</i>
Percent Heavy Vehicles	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>
Percent Grade (%)	<i>0</i>			<i>0</i>		
Flared Approach		<i>N</i>			<i>N</i>	
Storage		<i>0</i>			<i>0</i>	
RT Channelized			<i>0</i>			<i>0</i>
Lanes	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>
Configuration					<i>LR</i>	

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
			7	8	9	10	11	12
Movement	1	4	7	8	9	10	11	12
Lane Configuration	<i>LT</i>						<i>LR</i>	
v (veh/h)	<i>92</i>						<i>193</i>	
C (m) (veh/h)	<i>759</i>						<i>248</i>	
v/c	<i>0.12</i>						<i>0.78</i>	
95% queue length	<i>0.41</i>						<i>5.74</i>	
Control Delay (s/veh)	<i>10.4</i>						<i>56.6</i>	
LOS	<i>B</i>						<i>F</i>	
Approach Delay (s/veh)	--	--					<i>56.6</i>	
Approach LOS	--	--					<i>F</i>	

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	George Snow	Intersection	Park at Fitchburg & Groton
Agency/Co.	MRPC	Jurisdiction	Ayer, MA
Date Performed	03/23/09	Analysis Year	2012 Future Build
Analysis Time Period	7:00 - 8:00 AM Peak		

Project Description *Ayer Parking Garage*

East/West Street: *Fitchburg Road*

North/South Street: *Park/Groton*

Intersection Orientation: *East-West*

Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	8		565			
Peak-Hour Factor, PHF	0.92	0.92	0.92	1.00	1.00	1.00
Hourly Flow Rate, HFR (veh/h)	8	0	614	0	0	0
Percent Heavy Vehicles	0	--	--	0	--	--
Median Type	<i>Undivided</i>					
RT Channelized			0			0
Lanes	1	0	1	0	0	0
Configuration	L		R			
Upstream Signal		0			0	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	205	192		400	12	
Peak-Hour Factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Hourly Flow Rate, HFR (veh/h)	222	208	0	0	434	13
Percent Heavy Vehicles	0	0	0	0	0	0
Percent Grade (%)		0			0	
Flared Approach		N			N	
Storage		0			0	
RT Channelized			0			0
Lanes	1	1	0	0	1	0
Configuration	L	T				TR

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	L		L	T				TR
v (veh/h)	8		222	208				447
C (m) (veh/h)	1636		0	878				406
v/c	0.00			0.24				1.10
95% queue length	0.01			0.92				15.76
Control Delay (s/veh)	7.2			10.4				106.7
LOS	A		F	B				F
Approach Delay (s/veh)	--	--				106.7		
Approach LOS	--	--				F		

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	George Snow	Intersection	Park at Fitchburg & Groton
Agency/Co.	MRPC	Jurisdiction	Ayer, MA
Date Performed	03/23/09	Analysis Year	2012 Future Build
Analysis Time Period	5:00 - 6:00 PM Peak		

Project Description *Ayer Parking Garage*

East/West Street: *Fitchburg Road*

North/South Street: *Park/Groton*

Intersection Orientation: *East-West*

Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	22		281			
Peak-Hour Factor, PHF	0.92	0.92	0.92	1.00	1.00	1.00
Hourly Flow Rate, HFR (veh/h)	23	0	305	0	0	0
Percent Heavy Vehicles	0	--	--	0	--	--
Median Type	<i>Undivided</i>					
RT Channelized			1			0
Lanes	1	0	1	0	0	0
Configuration	L		R			
Upstream Signal		0			0	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	572	378			249	15
Peak-Hour Factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Hourly Flow Rate, HFR (veh/h)	621	410	0	0	270	16
Percent Heavy Vehicles	0	0	0	0	0	0
Percent Grade (%)	0			0		
Flared Approach		N			N	
Storage		0			0	
RT Channelized			0			0
Lanes	1	1	0	0	1	0
Configuration	L	T				TR

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	L		L	T				TR
v (veh/h)	23		621	410				286
C (m) (veh/h)	1636		568	838				849
v/c	0.01		1.09	0.49				0.34
95% queue length	0.04		18.93	2.73				1.49
Control Delay (s/veh)	7.2		92.0	13.3				11.4
LOS	A		F	B				B
Approach Delay (s/veh)	--	--	60.7			11.4		
Approach LOS	--	--	F			B		

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	<i>George Snow</i>	Intersection	<i>Park at Groton</i>
Agency/Co.	<i>MRPC</i>	Jurisdiction	<i>Ayer, MA</i>
Date Performed	<i>03/23/09</i>	Analysis Year	2012 Future Build
Analysis Time Period	<i>7:00 - 8:00 AM Peak</i>		

Project Description <i>Ayer Parking Garage</i>	
East/West Street: <i>Groton Street & Gas Station</i>	North/South Street: <i>Park Street (Rte 2A/111)</i>
Intersection Orientation: <i>North-South</i>	Study Period (hrs): <i>0.25</i>

Vehicle Volumes and Adjustments						
Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	6	291	134	334	500	35
Peak-Hour Factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Hourly Flow Rate, HFR (veh/h)	6	316	145	363	543	38
Percent Heavy Vehicles	0	--	--	0	--	--
Median Type	<i>Undivided</i>					
RT Channelized			0			0
Lanes	0	1	0	0	1	0
Configuration	<i>LTR</i>			<i>LTR</i>		
Upstream Signal		0			0	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	5	2	3	46	1	104
Peak-Hour Factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Hourly Flow Rate, HFR (veh/h)	5	2	3	49	1	113
Percent Heavy Vehicles	0	0	0	1	0	0
Percent Grade (%)	0			0		
Flared Approach		<i>N</i>			<i>N</i>	
Storage		0			0	
RT Channelized			0			0
Lanes	0	1	0	0	1	0
Configuration		<i>LTR</i>			<i>LTR</i>	

Delay, Queue Length, and Level of Service								
Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	<i>LTR</i>	<i>LTR</i>		<i>LTR</i>			<i>LTR</i>	
v (veh/h)	6	363		163			10	
C (m) (veh/h)	1003	1111		122			50	
v/c	0.01	0.33		1.34			0.20	
95% queue length	0.02	1.43		10.79			0.66	
Control Delay (s/veh)	8.6	9.8		263.3			94.2	
LOS	A	A		F			F	
Approach Delay (s/veh)	--	--	263.3			94.2		
Approach LOS	--	--	F			F		

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	George Snow	Intersection	Park at Groton
Agency/Co.	MRPC	Jurisdiction	Ayer, MA
Date Performed	03/23/09	Analysis Year	2012 Future Build
Analysis Time Period	5:00 - 6:00 PM Peak		

Project Description: Ayer Parking Garage	
East/West Street: Groton Street & Gas Station	North/South Street: Park Street (Rte 2A/111)
Intersection Orientation: North-South	Study Period (hrs): 0.25

Vehicle Volumes and Adjustments						
Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	7	745	83	160	341	23
Peak-Hour Factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Hourly Flow Rate, HFR (veh/h)	7	809	90	173	370	24
Percent Heavy Vehicles	0	--	--	0	--	--
Median Type	Undivided					
RT Channelized			0			0
Lanes	0	1	0	0	1	0
Configuration	LTR			LTR		
Upstream Signal		0			0	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	16	4	2	68	3	216
Peak-Hour Factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Hourly Flow Rate, HFR (veh/h)	17	4	2	73	3	234
Percent Heavy Vehicles	0	0	0	1	0	0
Percent Grade (%)	0			0		
Flared Approach		N			N	
Storage		0			0	
RT Channelized			0			0
Lanes	0	1	0	0	1	0
Configuration		LTR			LTR	

Delay, Queue Length, and Level of Service								
Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	LTR	LTR		LTR			LTR	
v (veh/h)	7	173		310			23	
C (m) (veh/h)	1176	764		168			24	
v/c	0.01	0.23		1.85			0.96	
95% queue length	0.02	0.87		22.84			2.88	
Control Delay (s/veh)	8.1	11.1		448.9			400.1	
LOS	A	B		F			F	
Approach Delay (s/veh)	--	--	448.9			400.1		
Approach LOS	--	--	F			F		

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	<i>George Snow</i>	Intersection	<i>West Main/Main at Park/Mill</i>
Agency/Co.	<i>MRPC</i>	Jurisdiction	<i>Ayer, MA</i>
Date Performed	<i>03/19/09</i>	Analysis Year	<i>2012 Future Build</i>
Analysis Time Period	<i>7:00 - 8:00 AM Peak</i>		

Project Description <i>Ayer Parking Garage</i>	
East/West Street: <i>West Main/Main Street</i>	North/South Street: <i>Park/Mill Street</i>
Intersection Orientation: <i>East-West</i>	Study Period (hrs): <i>0.25</i>

Vehicle Volumes and Adjustments						
Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	<i>109</i>	<i>364</i>	<i>3</i>	<i>5</i>	<i>215</i>	<i>265</i>
Peak-Hour Factor, PHF	<i>0.92</i>	<i>0.92</i>	<i>0.92</i>	<i>0.92</i>	<i>0.92</i>	<i>0.92</i>
Hourly Flow Rate, HFR (veh/h)	<i>118</i>	<i>395</i>	<i>3</i>	<i>5</i>	<i>233</i>	<i>288</i>
Percent Heavy Vehicles	<i>4</i>	<i>--</i>	<i>--</i>	<i>4</i>	<i>--</i>	<i>--</i>
Median Type	<i>Undivided</i>					
RT Channelized			<i>0</i>			<i>0</i>
Lanes	<i>0</i>	<i>1</i>	<i>0</i>	<i>0</i>	<i>1</i>	<i>0</i>
Configuration	<i>LTR</i>			<i>LTR</i>		
Upstream Signal		<i>0</i>			<i>0</i>	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	<i>1</i>	<i>3</i>	<i>7</i>	<i>470</i>	<i>12</i>	<i>114</i>
Peak-Hour Factor, PHF	<i>0.92</i>	<i>0.92</i>	<i>0.92</i>	<i>0.92</i>	<i>0.92</i>	<i>0.92</i>
Hourly Flow Rate, HFR (veh/h)	<i>1</i>	<i>3</i>	<i>7</i>	<i>510</i>	<i>13</i>	<i>123</i>
Percent Heavy Vehicles	<i>0</i>	<i>0</i>	<i>0</i>	<i>2</i>	<i>0</i>	<i>0</i>
Percent Grade (%)	<i>0</i>			<i>0</i>		
Flared Approach		<i>N</i>			<i>N</i>	
Storage		<i>0</i>			<i>0</i>	
RT Channelized			<i>0</i>			<i>0</i>
Lanes	<i>0</i>	<i>1</i>	<i>0</i>	<i>0</i>	<i>1</i>	<i>1</i>
Configuration		<i>LTR</i>		<i>LT</i>		<i>R</i>

Delay, Queue Length, and Level of Service								
Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	<i>LTR</i>	<i>LTR</i>		<i>LTR</i>		<i>LT</i>		<i>R</i>
v (veh/h)	<i>118</i>	<i>5</i>		<i>11</i>		<i>523</i>		<i>123</i>
C (m) (veh/h)	<i>1035</i>	<i>1150</i>		<i>304</i>		<i>183</i>		<i>674</i>
v/c	<i>0.11</i>	<i>0.00</i>		<i>0.04</i>		<i>2.86</i>		<i>0.18</i>
95% queue length	<i>0.38</i>	<i>0.01</i>		<i>0.11</i>		<i>46.70</i>		<i>0.66</i>
Control Delay (s/veh)	<i>8.9</i>	<i>8.1</i>		<i>17.3</i>		<i>890.0</i>		<i>11.5</i>
LOS	<i>A</i>	<i>A</i>		<i>C</i>		<i>F</i>		<i>B</i>
Approach Delay (s/veh)	<i>--</i>	<i>--</i>		<i>17.3</i>		<i>722.7</i>		
Approach LOS	<i>--</i>	<i>--</i>		<i>C</i>		<i>F</i>		

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	George Snow	Intersection	West Main/Main at Park/Mill
Agency/Co.	MRPC	Jurisdiction	Ayer, MA
Date Performed	03/19/09	Analysis Year	2012 Future Build
Analysis Time Period	4:45 - 5:45 PM Peak		

Project Description *Ayer Parking Garage*

East/West Street: *West Main/Main Street*

North/South Street: *Park/Mill Street*

Intersection Orientation: *East-West*

Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	150	275	1	4	334	637
Peak-Hour Factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Hourly Flow Rate, HFR (veh/h)	163	298	1	4	363	692
Percent Heavy Vehicles	3	--	--	1	--	--
Median Type	<i>Undivided</i>					
RT Channelized			0			0
Lanes	0	1	0	0	1	0
Configuration	<i>LTR</i>			<i>LTR</i>		
Upstream Signal		0			0	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	1	4	2	330	3	130
Peak-Hour Factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Hourly Flow Rate, HFR (veh/h)	1	4	2	358	3	141
Percent Heavy Vehicles	0	0	0	1	0	0
Percent Grade (%)	0			0		
Flared Approach		<i>N</i>			<i>N</i>	
Storage		0			0	
RT Channelized			0			0
Lanes	0	1	0	0	1	1
Configuration		<i>LTR</i>		<i>LT</i>		<i>R</i>

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	<i>LTR</i>	<i>LTR</i>		<i>LTR</i>		<i>LT</i>		<i>R</i>
v (veh/h)	163	4		7		361		141
C (m) (veh/h)	656	1268		87		94		438
v/c	0.25	0.00		0.08		3.84		0.32
95% queue length	0.98	0.01		0.26		37.03		1.37
Control Delay (s/veh)	12.3	7.8		50.0		1371		17.1
LOS	<i>B</i>	<i>A</i>		<i>E</i>		<i>F</i>		<i>C</i>
Approach Delay (s/veh)	--	--	50.0			990.9		
Approach LOS	--	--	<i>E</i>			<i>F</i>		

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	George Snow	Intersection	Main at Columbia
Agency/Co.	MRPC	Jurisdiction	Ayer, MA
Date Performed	03/23/09	Analysis Year	2012 Future Build
Analysis Time Period	7:30 - 8:30 AM Peak		

Project Description *Ayer Parking Garage*

East/West Street: *Main St (Rte 2A/111)*

North/South Street: *Columbia*

Intersection Orientation: *East-West*

Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	94	621			400	20
Peak-Hour Factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Hourly Flow Rate, HFR (veh/h)	102	674	0	0	434	21
Percent Heavy Vehicles	0	--	--	0	--	--
Median Type	<i>Undivided</i>					
RT Channelized			0			1
Lanes	0	1	0	0	1	1
Configuration	<i>LT</i>				<i>T</i>	<i>R</i>
Upstream Signal		0			0	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)				46		97
Peak-Hour Factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Hourly Flow Rate, HFR (veh/h)	0	0	0	49	0	105
Percent Heavy Vehicles	0	0	0	0	0	0
Percent Grade (%)	0			0		
Flared Approach		<i>N</i>			<i>N</i>	
Storage		0			0	
RT Channelized			0			0
Lanes	0	0	0	0	0	0
Configuration					<i>LR</i>	

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	<i>LT</i>						<i>LR</i>	
v (veh/h)	102						154	
C (m) (veh/h)	1136						326	
v/c	0.09						0.47	
95% queue length	0.30						2.41	
Control Delay (s/veh)	8.5						25.5	
LOS	<i>A</i>						<i>D</i>	
Approach Delay (s/veh)	--	--					25.5	
Approach LOS	--	--					<i>D</i>	

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	George Snow	Intersection	Main at Columbia
Agency/Co.	MRPC	Jurisdiction	Ayer, MA
Date Performed	03/23/09	Analysis Year	2012 Future Build
Analysis Time Period	4:45 - 5:45 PM Peak		

Project Description *Ayer Parking Garage*

East/West Street: *Main St (Rte 2A/111)*

North/South Street: *Columbia*

Intersection Orientation: *East-West*

Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	92	441			879	60
Peak-Hour Factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Hourly Flow Rate, HFR (veh/h)	99	479	0	0	955	65
Percent Heavy Vehicles	0	--	--	0	--	--
Median Type	<i>Undivided</i>					
RT Channelized			0			1
Lanes	0	1	0	0	1	1
Configuration	<i>LT</i>				<i>T</i>	<i>R</i>
Upstream Signal		0			0	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)				33		154
Peak-Hour Factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Hourly Flow Rate, HFR (veh/h)	0	0	0	35	0	167
Percent Heavy Vehicles	0	0	0	0	0	0
Percent Grade (%)	0			0		
Flared Approach		<i>N</i>			<i>N</i>	
Storage		0			0	
RT Channelized			0			0
Lanes	0	0	0	0	0	0
Configuration					<i>LR</i>	

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	<i>LT</i>						<i>LR</i>	
v (veh/h)	99						202	
C (m) (veh/h)	728						228	
v/c	0.14						0.89	
95% queue length	0.47						7.23	
Control Delay (s/veh)	10.7						78.5	
LOS	<i>B</i>						<i>F</i>	
Approach Delay (s/veh)	--	--					78.5	
Approach LOS	--	--					<i>F</i>	

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	<i>George Snow</i>	Intersection	<i>Park at Groton</i>
Agency/Co.	<i>MRPC</i>	Jurisdiction	<i>Ayer, MA</i>
Date Performed	<i>03/23/09</i>	Analysis Year	<i>2012 Alternative Fut Build</i>
Analysis Time Period	<i>7:00 - 8:00 AM Peak</i>		

Project Description <i>Ayer Parking Garage</i>	
East/West Street: <i>Groton Street & Gas Station</i>	North/South Street: <i>Park Street (Rte 2A/111)</i>
Intersection Orientation: <i>North-South</i>	Study Period (hrs): <i>0.25</i>

Vehicle Volumes and Adjustments						
Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	6	291	134	334	500	35
Peak-Hour Factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Hourly Flow Rate, HFR (veh/h)	6	316	145	363	543	38
Percent Heavy Vehicles	0	--	--	0	--	--
Median Type	<i>Undivided</i>					
RT Channelized			0			0
Lanes	0	1	1	1	1	0
Configuration	<i>LT</i>		<i>R</i>	<i>L</i>		<i>TR</i>
Upstream Signal		0			0	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	5	2	3	46	1	104
Peak-Hour Factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Hourly Flow Rate, HFR (veh/h)	5	2	3	49	1	113
Percent Heavy Vehicles	0	0	0	1	0	0
Percent Grade (%)	0			0		
Flared Approach		<i>N</i>			<i>N</i>	
Storage		0			0	
RT Channelized			0			0
Lanes	0	1	0	0	1	1
Configuration		<i>LTR</i>		<i>LT</i>		<i>R</i>

Delay, Queue Length, and Level of Service								
Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	<i>LT</i>	<i>L</i>	<i>LT</i>		<i>R</i>		<i>LTR</i>	
v (veh/h)	6	363	50		113		10	
C (m) (veh/h)	1003	1111	60		729		63	
v/c	0.01	0.33	0.83		0.16		0.16	
95% queue length	0.02	1.43	3.75		0.55		0.52	
Control Delay (s/veh)	8.6	9.8	182.1		10.8		72.6	
LOS	<i>A</i>	<i>A</i>	<i>F</i>		<i>B</i>		<i>F</i>	
Approach Delay (s/veh)	--	--	63.4			72.6		
Approach LOS	--	--	<i>F</i>			<i>F</i>		

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	George Snow	Intersection	Park at Groton
Agency/Co.	MRPC	Jurisdiction	Ayer, MA
Date Performed	03/23/09	Analysis Year	2012 Alternative Future Build
Analysis Time Period	5:00 - 6:00 PM Peak		

Project Description: Ayer Parking Garage	
East/West Street: Groton Street & Gas Station	North/South Street: Park Street (Rte 2A/111)
Intersection Orientation: North-South	Study Period (hrs): 0.25

Vehicle Volumes and Adjustments						
Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	7	745	83	160	341	23
Peak-Hour Factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Hourly Flow Rate, HFR (veh/h)	7	809	90	173	370	24
Percent Heavy Vehicles	0	--	--	0	--	--
Median Type	Undivided					
RT Channelized			0			0
Lanes	0	1	1	1	1	0
Configuration	LT		R	L		TR
Upstream Signal		0			0	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	16	4	2	68	3	216
Peak-Hour Factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Hourly Flow Rate, HFR (veh/h)	17	4	2	73	3	234
Percent Heavy Vehicles	0	0	0	1	0	0
Percent Grade (%)	0			0		
Flared Approach		N			N	
Storage		0			0	
RT Channelized			0			0
Lanes	0	1	0	0	1	1
Configuration		LTR		LT		R

Delay, Queue Length, and Level of Service								
Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	LT	L	LT		R		LTR	
v (veh/h)	7	173	76		234		23	
C (m) (veh/h)	1176	764	73		384		28	
v/c	0.01	0.23	1.04		0.61		0.82	
95% queue length	0.02	0.87	5.53		3.88		2.64	
Control Delay (s/veh)	8.1	11.1	215.8		28.0		315.1	
LOS	A	B	F		D		F	
Approach Delay (s/veh)	--	--	74.0			315.1		
Approach LOS	--	--	F			F		

APPENDIX
SIGNAL WARRANT ANALYSIS

Warrants Summary

Information			
Analyst	George Snow	Intersection	Park Fitch Groton
Agency/Co	MRPC	Jurisdiction	Ayer
Date Performed	6/19/2009	Units	U.S. Customary
Project ID	Ayer Commuter Parking Garage	Time Period Analyzed	12:00 PM - 12:00 AM
East/West Street	Fitchburg (Rte 2A/111)	North/South Street	Park (Rt 2A/111) Groton
File Name	Park Fitch Groton Warrants.xhy	Major Street	North-South

Project Description *Ayer Commuter Parking Garage*

General				Roadway Network			
Major Street Speed (mph)	25	<input checked="" type="checkbox"/>	Population < 10,000	Two Major Routes	<input checked="" type="checkbox"/>		
Nearest Signal (ft)	0	<input type="checkbox"/>	Coordinated Signal System	Weekend Count	<input type="checkbox"/>		
Crashes (per year)	0	<input type="checkbox"/>	Adequate Trials of Alternatives	5-yr Growth Factor	0		

Geometry and Traffic	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of lanes, N	0	0	0	0	0	0	0	1	0	0	1	0
Lane usage		LR						LT			TR	
Vehicle Volume Averages (vph)	16	0	200	0	0	0	290	173	0	0	152	11
Peds (ped/h) / Gaps (gaps/h)	--	/	--	--	/	--	--	/	--	--	/	--
Delay (s/veh) / (veh-hr)	--	/	--	--	/	--	--	/	--	--	/	--

Warrant 1: Eight-Hour Vehicular Volume

1 A. Minimum Vehicular Volumes (Both major approaches --and-- higher minor approach) --or--	<input checked="" type="checkbox"/>
1 B. Interruption of Continuous Traffic (Both major approaches --and-- higher minor approach) --or--	<input type="checkbox"/>
1 80% Vehicular --and-- Interruption Volumes (Both major approaches --and-- higher minor approach)	<input type="checkbox"/>

Warrant 2: Four-Hour Vehicular Volume

2 A. Four-Hour Vehicular Volumes (Both major approaches --and-- higher minor approach)	<input checked="" type="checkbox"/>
----------------------------------------------------------------------------------------	-------------------------------------

Warrant 3: Peak Hour

3 A. Peak-Hour Conditions (Minor delay --and-- minor volume --and-- total volume) --or--	<input type="checkbox"/>
3 B. Peak- Hour Vehicular Volumes (Both major approaches --and-- higher minor approach)	<input checked="" type="checkbox"/>

Warrant 4: Pedestrian Volume

4 A. Pedestrian Volumes (Four hours --or-- one hour) --and--	<input type="checkbox"/>
4 B. Gaps Same Period (Four hours --or-- one hour)	<input type="checkbox"/>

Warrant 5: School Crossing

5. Student Volumes --and--	<input type="checkbox"/>
5. Gaps Same Period	<input type="checkbox"/>

Warrant 6: Coordinated Signal System

6. Degree of Platooning (Predominant direction or both directions)	<input type="checkbox"/>
--------------------------------------------------------------------	--------------------------

Warrant 7: Crash Experience

7 A. Adequate trials of alternatives, observance and enforcement failed --and--	<input type="checkbox"/>
7 B. Reported crashes susceptible to correction by signal (12-month period) --and--	<input type="checkbox"/>
7 C. 80% Volumes for Warrants 1A, 1B --or-- 4 are satisfied	<input checked="" type="checkbox"/>

Warrant 8: Roadway Network

8 A. Weekday Volume (Peak hour total --and-- projected warrants 1, 2 or 3) --or--	<input checked="" type="checkbox"/>
8 B. Weekend Volume (Five hours total)	<input type="checkbox"/>

Warrants Volume

Information		
Analyst	George Snow	Intersection
Agency/Co	MRPC	Jurisdiction
Date Performed	6/19/2009	Units
Project ID	Ayer Commuter Parking Garage	Time Period Analyzed
East/West Street	Fitchburg (Rte 2A/111)	North/South Street
File Name	Park Fitch Groton Warrants.xhy	Major Street
		Park Fitch Groton
		Ayer
		U.S. Customary
		12:00 PM - 12:00 AM
		Park (Rt 2A/111) Groton
		North-South

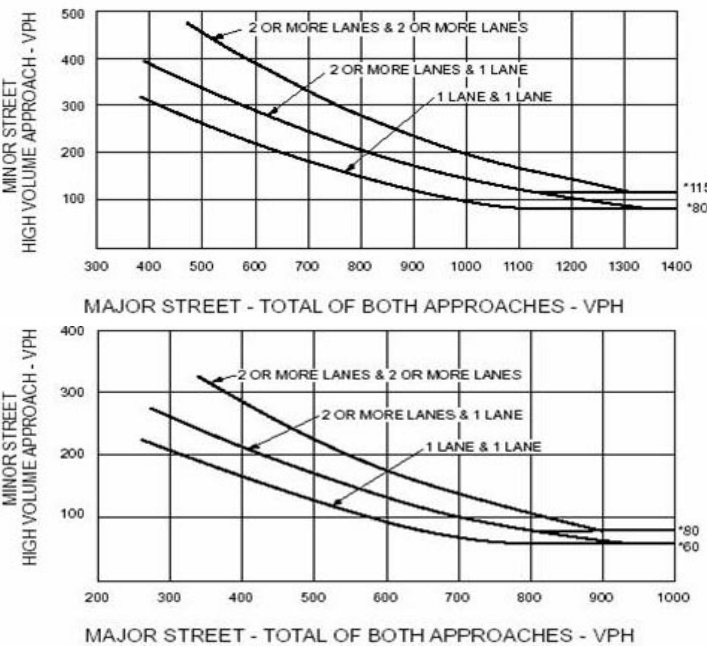
Project Description *Ayer Commuter Parking Garage*

Warrant 1

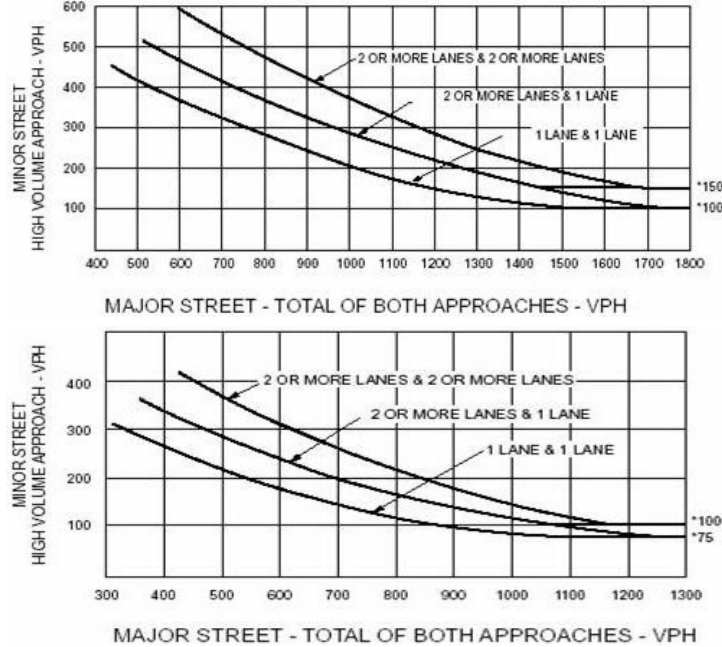
Condition A - Minimum Vehicular Volume						
Number of lanes for moving traffic on each approach		Vehicles per hour on major street (total of both approaches)			Vehicles per hour on higher-volume minor-street approach (one direction only)	
Major Street	Minor Street	100% ^a	80% ^b	70% ^c	100% ^a	80% ^b 70% ^c
1.....	1.....	500	400	350	150	120 105
2 or more ...	1.....	600	480	420	150	120 105
2 or more ...	2 or more ...	600	480	420	200	160 140
1.....	2 or more ...	500	400	350	200	160 140

Condition B - Interruption of Continuous Traffic						
Number of lanes for moving traffic on each approach		Vehicles per hour on major street (total of both approaches)			Vehicles per hour on higher-volume minor-street approach (one direction only)	
Major Street	Minor Street	100% ^a	80% ^b	70% ^c	100% ^a	80% ^b 70% ^c
1.....	1.....	750	600	525	75	60 53
2 or more ...	1.....	900	720	630	75	60 53
2 or more ...	2 or more ...	900	720	630	100	80 70
1.....	2 or more ...	750	600	525	100	80 70

Warrant 2



Warrant 3



Volume Summary

Hours	Major Street Lanes 1		Minor Street Lanes 1		Speed 25		Population <10000			
	Major Volume	Minor Volume	Total Volume	1A (70%)	1A (56%)	1B (70%)	1B (56%)	2 (70%)	3A (70%)	3B (70%)
12-13	365	266	631	Yes	Yes	No	No	Yes	No	No
13-14	571	262	833	Yes	Yes	Yes	Yes	Yes	No	Yes
14-15	662	324	986	Yes	Yes	Yes	Yes	Yes	No	Yes
15-16	843	311	1154	Yes	Yes	Yes	Yes	Yes	No	Yes
16-17	1085	352	1437	Yes	Yes	Yes	Yes	Yes	No	Yes
17-18	1205	360	1565	Yes	Yes	Yes	Yes	Yes	No	Yes
18-19	1032	279	1311	Yes	Yes	Yes	Yes	Yes	No	Yes
19-20	659	168	827	Yes	Yes	Yes	Yes	Yes	No	Yes
20-21	410	136	546	Yes	Yes	No	No	No	No	No
21-22	321	86	407	No	Yes	No	No	No	No	No
22-23	237	30	267	No	No	No	No	No	No	No
23-00	151	28	179	No	No	No	No	No	No	No
Totals	7541	2602	10143	9	10	7	7	8	0	7

Warrants Summary			
Information			
Analyst	George Snow	Intersection	W Main/Main at Park St
Agency/Co	MRPC	Jurisdiction	Ayer
Date Performed	6/19/2009	Units	U.S. Customary
Project ID	Ayer Commuter Parking Garage	Time Period Analyzed	12:00 PM - 12:00 AM
East/West Street	W Main/Main St (Rte 2A/111)	North/South Street	Park St (Rt 2A/111)
File Name	Main and Park Warrants final.xhy	Major Street	East-West

Project Description *Ayer Commuter Parking Garage*

General		Roadway Network	
Major Street Speed (mph)	25	<input checked="" type="checkbox"/> Population < 10,000	Two Major Routes <input checked="" type="checkbox"/>
Nearest Signal (ft)	0	<input type="checkbox"/> Coordinated Signal System	Weekend Count <input type="checkbox"/>
Crashes (per year)	1	<input type="checkbox"/> Adequate Trials of Alternatives	5-yr Growth Factor 0

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	1
Lane usage		LT			TR			LTR			LT	R
Vehicle Volume Averages (vph)	65	151	0	0	174	312	0	0	0	218	0	82
Peds (ped/h) / Gaps (gaps/h)	--	/	--	--	/	--	--	/	--	--	/	--
Delay (s/veh) / (veh-hr)	--	/	--	--	/	--	--	/	--	--	/	--

Warrant 1: Eight-Hour Vehicular Volume

1 A. Minimum Vehicular Volumes (Both major approaches --and-- higher minor approach) --or--	<input checked="" type="checkbox"/>
1 B. Interruption of Continuous Traffic (Both major approaches --and-- higher minor approach) --or--	<input checked="" type="checkbox"/>
1 80% Vehicular --and-- Interruption Volumes (Both major approaches --and-- higher minor approach)	<input checked="" type="checkbox"/>

Warrant 2: Four-Hour Vehicular Volume

2 A. Four-Hour Vehicular Volumes (Both major approaches --and-- higher minor approach)	<input checked="" type="checkbox"/>
----------------------------------------------------------------------------------------	-------------------------------------

Warrant 3: Peak Hour

3 A. Peak-Hour Conditions (Minor delay --and-- minor volume --and-- total volume) --or--	<input checked="" type="checkbox"/>
3 B. Peak- Hour Vehicular Volumes (Both major approaches --and-- higher minor approach)	<input checked="" type="checkbox"/>

Warrant 4: Pedestrian Volume

4 A. Pedestrian Volumes (Four hours --or-- one hour) --and--	<input type="checkbox"/>
4 B. Gaps Same Period (Four hours --or-- one hour)	<input type="checkbox"/>

Warrant 5: School Crossing

5. Student Volumes --and--	<input type="checkbox"/>
5. Gaps Same Period	<input type="checkbox"/>

Warrant 6: Coordinated Signal System

6. Degree of Platooning (Predominant direction or both directions)	<input type="checkbox"/>
--------------------------------------------------------------------	--------------------------

Warrant 7: Crash Experience

7 A. Adequate trials of alternatives, observance and enforcement failed --and--	<input type="checkbox"/>
7 B. Reported crashes susceptible to correction by signal (12-month period) --and--	<input type="checkbox"/>
7 C. 80% Volumes for Warrants 1A, 1B --or-- 4 are satisfied	<input checked="" type="checkbox"/>

Warrant 8: Roadway Network

8 A. Weekday Volume (Peak hour total --and-- projected warrants 1, 2 or 3) --or--	<input checked="" type="checkbox"/>
8 B. Weekend Volume (Five hours total)	<input type="checkbox"/>

Warrants Volume

Information

Analyst: George Snow Agency/Co: MRPC Date Performed: 6/19/2009 Project ID: Ayer Commuter Parking Garage East/West Street: W Main/Main St (Rte 2A/111) File Name: Main and Park Warrants final.xhy	Intersection: W Main/Main at Park St Jurisdiction: Ayer Units: U.S. Customary Time Period Analyzed: 12:00 PM - 12:00 AM North/South Street: Park St (Rt 2A/111) Major Street: East-West
------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

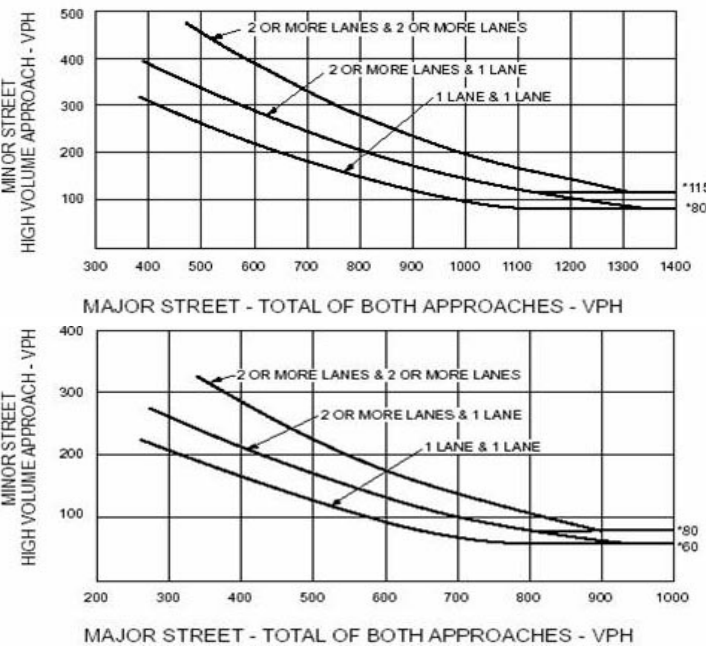
Project Description *Ayer Commuter Parking Garage*

Warrant 1

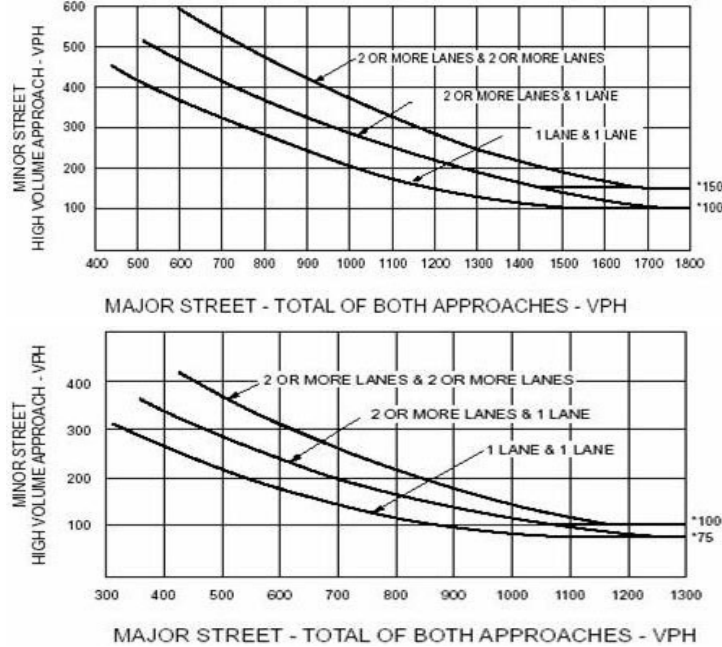
Condition A - Minimum Vehicular Volume						
Number of lanes for moving traffic on each approach		Vehicles per hour on major street (total of both approaches)			Vehicles per hour on higher-volume minor-street approach (one direction only)	
Major Street	Minor Street	100% ^a	80% ^b	70% ^c	100% ^a	80% ^b 70% ^c
1.....	1.....	500	400	350	150	120 105
2 or more ...	1.....	600	480	420	150	120 105
2 or more ...	2 or more ...	600	480	420	200	160 140
1.....	2 or more ...	500	400	350	200	160 140

Condition B - Interruption of Continuous Traffic						
Number of lanes for moving traffic on each approach		Vehicles per hour on major street (total of both approaches)			Vehicles per hour on higher-volume minor-street approach (one direction only)	
Major Street	Minor Street	100% ^a	80% ^b	70% ^c	100% ^a	80% ^b 70% ^c
1.....	1.....	750	600	525	75	60 53
2 or more ...	1.....	900	720	630	75	60 53
2 or more ...	2 or more ...	900	720	630	100	80 70
1.....	2 or more ...	750	600	525	100	80 70

Warrant 2



Warrant 3



Volume Summary

Major Street Lanes 1		Minor Street Lanes 2+		Speed		25		Population		
Hours	Major Volume	Minor Volume	Total Volume	1A (70%)	1A (56%)	1B (70%)	1B (56%)	2 (70%)	3A (70%)	3B (70%)
12-13	752	408	1160	Yes	Yes	Yes	Yes	Yes	No	Yes
13-14	717	378	1095	Yes	Yes	Yes	Yes	Yes	No	Yes
14-15	880	407	1287	Yes	Yes	Yes	Yes	Yes	No	Yes
15-16	988	417	1405	Yes	Yes	Yes	Yes	Yes	No	Yes
16-17	1096	396	1492	Yes	Yes	Yes	Yes	Yes	No	Yes
17-18	1114	433	1547	Yes	Yes	Yes	Yes	Yes	Yes	Yes
18-19	982	353	1335	Yes	Yes	Yes	Yes	Yes	No	Yes
19-20	693	269	962	Yes	Yes	Yes	Yes	Yes	No	Yes
20-21	437	221	658	Yes	Yes	No	Yes	Yes	No	No
21-22	371	175	546	Yes	Yes	No	No	No	No	No
22-23	252	100	352	No	No	No	No	No	No	No
23-00	157	52	209	No	No	No	No	No	No	No
Totals	8439	3609	12048	10	10	8	9	9	1	8

Warrants Summary

Information			
Analyst	George Snow	Intersection	Main at Columbia
Agency/Co	MRPC	Jurisdiction	Ayer
Date Performed	6/19/2009	Units	U.S. Customary
Project ID	Ayer Commuter Parking Garage	Time Period Analyzed	12:00 PM - 12:00 AM
East/West Street	Main (Rte 2A/111)	North/South Street	Columbia
File Name	Main at Columbia Warrants.xhy	Major Street	East-West

Project Description *Ayer Commuter Parking Garage*

General				Roadway Network			
Major Street Speed (mph)	25	<input checked="" type="checkbox"/>	Population < 10,000	Two Major Routes	<input checked="" type="checkbox"/>		
Nearest Signal (ft)	0	<input type="checkbox"/>	Coordinated Signal System	Weekend Count	<input type="checkbox"/>		
Crashes (per year)	0	<input type="checkbox"/>	Adequate Trials of Alternatives	5-yr Growth Factor	0		

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	0	0	0	0	0
Lane usage		LT			TR						LR	
Vehicle Volume Averages (vph)	51	250	0	0	441	31	0	0	0	96	0	21
Peds (ped/h) / Gaps (gaps/h)	--	/	--	--	/	--	--	/	--	--	/	--
Delay (s/veh) / (veh-hr)	--	/	--	--	/	--	--	/	--	--	/	--

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 80% 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. Pedestrian Volumes (Four hours --or-- one hour) --and--

4 B. Gaps Same Period (Four hours --or-- one hour)

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. 80% 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)

Warrants Volume

Information

Analyst: George Snow Agency/Co: MRPC Date Performed: 6/19/2009 Project ID: Ayer Commuter Parking Garage East/West Street: Main (Rte 2A/111) File Name: Main at Columbia Warrants.xhy	Intersection: Main at Columbia Jurisdiction: Ayer Units: U.S. Customary Time Period Analyzed: 12:00 PM - 12:00 AM North/South Street: Columbia Major Street: East-West
-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

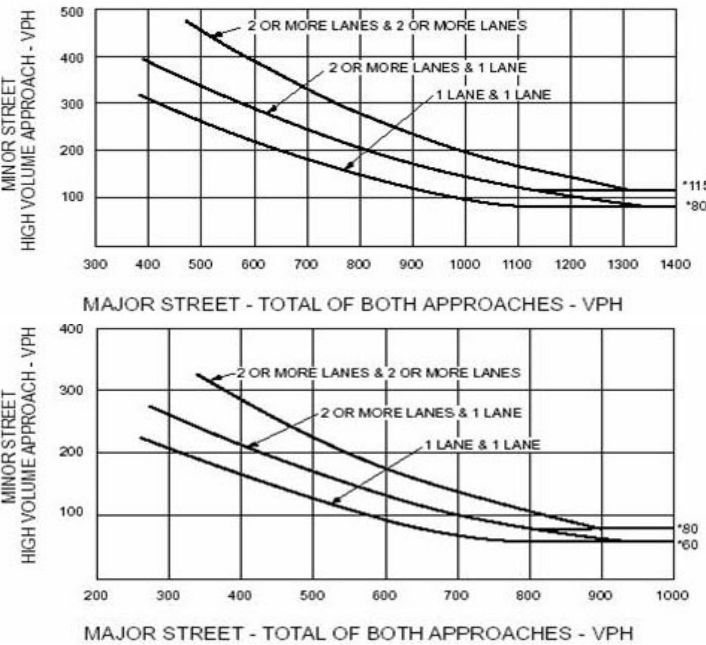
Project Description *Ayer Commuter Parking Garage*

Warrant 1

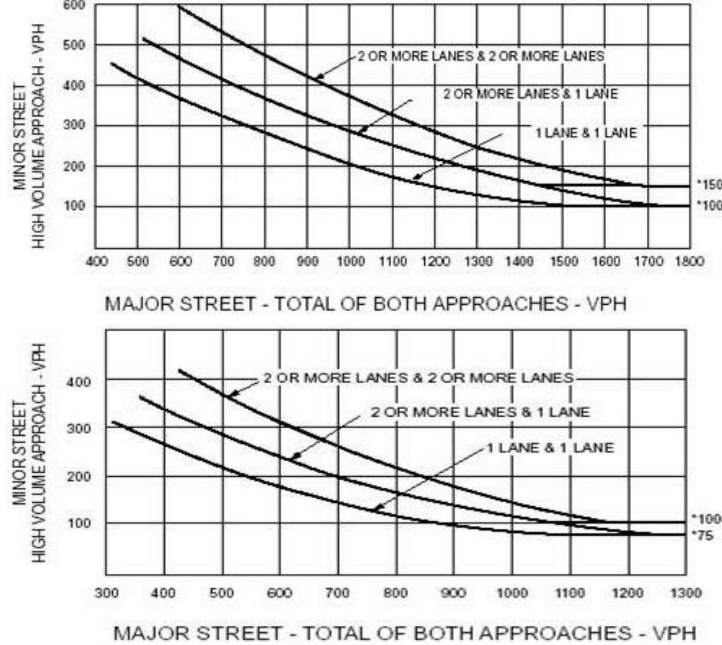
Condition A - Minimum Vehicular Volume						
Number of lanes for moving traffic on each approach		Vehicles per hour on major street (total of both approaches)			Vehicles per hour on higher-volume minor-street approach (one direction only)	
Major Street	Minor Street	100% ^a	80% ^b	70% ^c	100% ^a	80% ^b 70% ^c
1.....	1.....	500	400	350	150	120 105
2 or more ...	1.....	600	480	420	150	120 105
2 or more ...	2 or more ...	600	480	420	200	160 140
1.....	2 or more ...	500	400	350	200	160 140

Condition B - Interruption of Continuous Traffic						
Number of lanes for moving traffic on each approach		Vehicles per hour on major street (total of both approaches)			Vehicles per hour on higher-volume minor-street approach (one direction only)	
Major Street	Minor Street	100% ^a	80% ^b	70% ^c	100% ^a	80% ^b 70% ^c
1.....	1.....	750	600	525	75	60 53
2 or more ...	1.....	900	720	630	75	60 53
2 or more ...	2 or more ...	900	720	630	100	80 70
1.....	2 or more ...	750	600	525	100	80 70

Warrant 2



Warrant 3



Volume Summary

Major Street Lanes 1		Minor Street Lanes 1		Speed 25		Population <10000				
Hours	Major Volume	Minor Volume	Total Volume	1A (70%)	1A (56%)	1B (70%)	1B (56%)	2 (70%)	3A (70%)	3B (70%)
12-13	674	166	840	Yes	Yes	Yes	Yes	Yes	No	Yes
13-14	834	140	974	Yes	Yes	Yes	Yes	Yes	No	Yes
14-15	873	117	990	Yes	Yes	Yes	Yes	Yes	No	Yes
15-16	782	186	968	Yes	Yes	Yes	Yes	Yes	No	Yes
16-17	840	210	1050	Yes	Yes	Yes	Yes	Yes	No	Yes
17-18	1003	164	1167	Yes	Yes	Yes	Yes	Yes	No	Yes
18-19	1122	145	1267	Yes	Yes	Yes	Yes	Yes	No	Yes
19-20	1126	99	1225	No	Yes	Yes	Yes	Yes	No	Yes
20-21	862	69	931	No	No	Yes	Yes	Yes	No	No
21-22	573	55	628	No	No	Yes	Yes	No	No	No
22-23	377	32	409	No	No	No	No	No	No	No
23-00	236	28	264	No	No	No	No	No	No	No
Totals	9302	1411	10713	7	8	10	10	9	0	8

APPENDIX
RIDERSHIP DATA

***PASSENGER TRIPS ONE WAY ALL DAY**
MONTACHUSETT REGION COMMUTER RAIL SERVICE (FITCHBURG LINE)

MBTA AUDIT DATES	COMMUNITY IN MONTACHUSETT REGION					ONE WAY	EST. ROUND
	Fitchburg	N. Leominster	Shirley	Ayer	Littleton-495	TRIP TOTAL	TRIP TOTAL
3/16/1989	143	124	38	148	79	532	1064
6/1/1989	110	97	33	105	158	503	1006
9/28/1989	139	107	46	139	89	520	1040
2/8/1990	228	127	38	155	130	678	1356
9/27/1990	167	118	53	137	108	583	1166
2/17/1991	239	162	57	175	81	714	1428
5/16/1991	175	122	81	163	84	625	1250
9/12/1991	112	108	49	110	72	451	902
2/6/1992	220	117	85	156	110	688	1376
5/7/1992	175	152	56	186	91	660	1320
9/10/1992	119	120	59	127	91	516	1032
2/4/1993	165	135	66	170	92	628	1256
5/13/1993	168	159	91	152	88	658	1316
9/23/1993	177	143	78	163	78	639	1278
3/10/1994	199	148	98	213	154	812	1624
5/19/1994	186	166	111	193	104	760	1520
9/15/1994	192	154	81	207	91	725	1450
12/8/1994	185	162	92	160	109	708	1416
2/9/1995	198	168	85	168	105	724	1448
5/18/1995	193	217	99	291	139	939	1878
7/20/1995	200	170	120	182	104	776	1552
3/21/1996	246	219	126	191	105	887	1774
9/19/1996	175	155	119	193	124	766	1532
2/6/1997	214	177	133	208	140	872	1744
5/15/1997	262	196	163	251	180	1052	2104
1/28/1998	210	191	113	219	149	882	1764
5/14/1998	188	128	125	205	133	779	1558
9/24/1998	253	248	164	242	169	1076	2152
2/11/1999	201	217	162	186	127	893	1786
6/17/1999	234	176	133	222	159	924	1848
10/7/1999	318	238	175	270	155	1156	2312

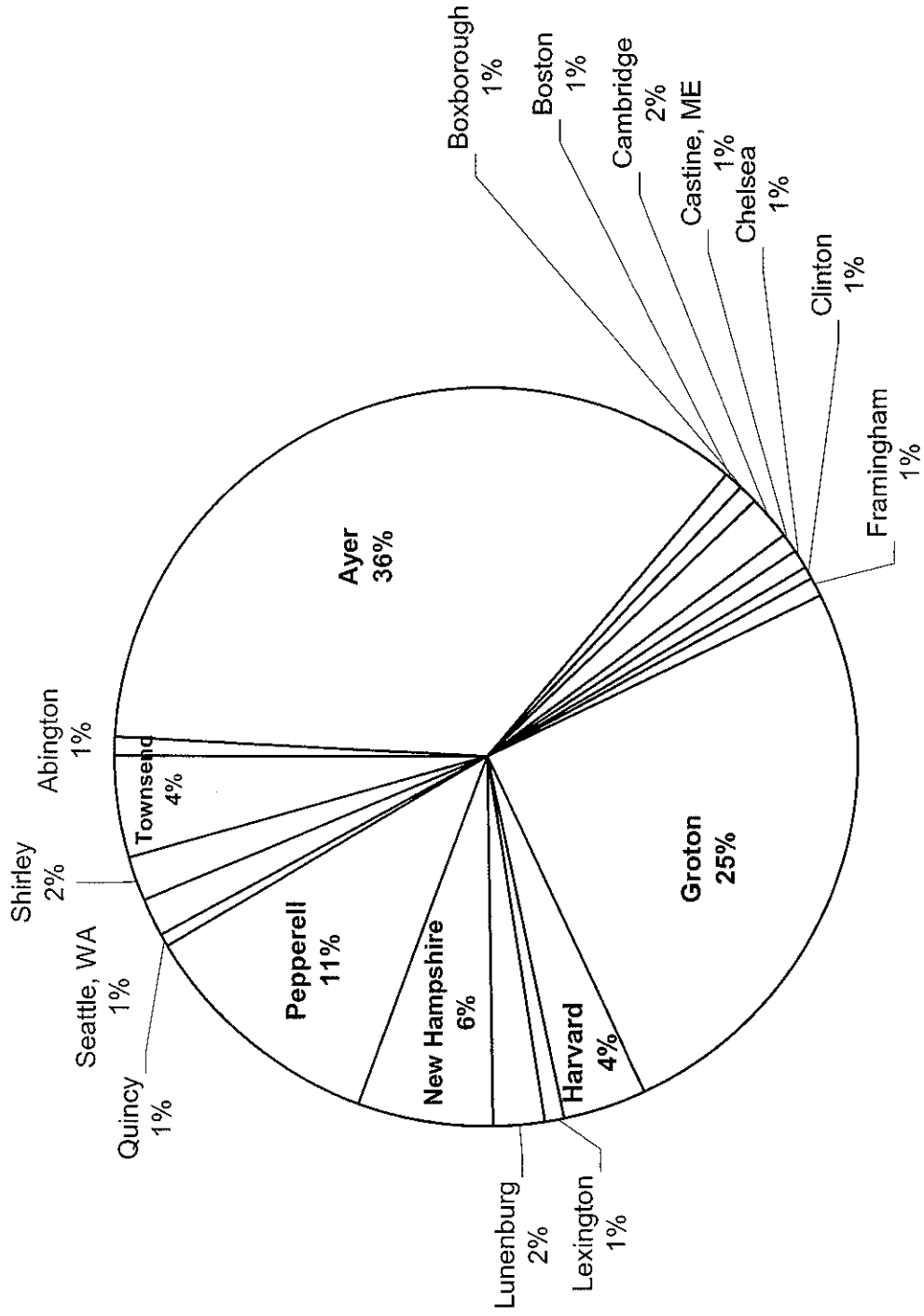
***PASSENGER TRIPS ONE WAY ALL DAY**
MONTACHUSETT REGION COMMUTER RAIL SERVICE (FITCHBURG LINE)

MBTA AUDIT DATES	COMMUNITY IN MONTACHUSETT REGION					ONE WAY TRIP TOTAL	EST. ROUND TRIP TOTAL
	Fitchburg	N. Leominster	Shirley	Ayer	Littleton-495		
2/10/2000	231	200	171	190	138	930	1860
6/8/2000	284	254	139	256	163	1096	2192
9/28/2000	265	190	123	238	161	977	1954
2/8/2001	209	208	151	228	146	942	1884
7/25/2001	287	194	153	195	170	999	1998
10/4/2001	281	243	119	215	141	999	1998
2/7/2002	240	185	115	194	134	868	1736
6/6/2002	259	229	159	250	144	1041	2082
10/24/2002	239	201	110	223	143	916	1832
2/27/2003	236	176	116	209	104	841	1682
7/17/2003	257	197	128	259	177	1018	2036
11/13/2003	155	172	9	233	154	723	1446
2/12/2004	195	186	130	245	138	894	1788
5/13/2004	255	228	189	285	222	1179	2358
8/19/2004	369	259	169	357	228	1382	2764
11/18/2004	382	379	169	338	277	1545	3090
2/10/2005	307	311	180	292	209	1299	2598
5/12/2005	286	275	161	287	214	1223	2446
8/18/2005	220	296	167	350	195	1228	2456
11/17/2005	406	308	172	325	187	1398	2796
4/6/2006	363	321	179	336	245	1444	2888
7/27/2006	409	385	168	358	179	1499	2998
9/14/2006	340	349	164	350	223	1426	2852
12/7/2006	427	434	223	360	213	1657	3314
6/7/2007	386	357	191	327	223	1484	2968
10/18/2007	336	372	176	357	242	1483	2966
2/28/2008	440	408	218	427	244	1737	3474
6/26/2008	265	662	176	357	242	1702	3404
12/4/2008	254	275	148	343	228	1248	2496
2/26/2009	462	366	144	490	250	1712	3424

*SOURCE: MBTA RAILROAD OPERATIONS AUDIT

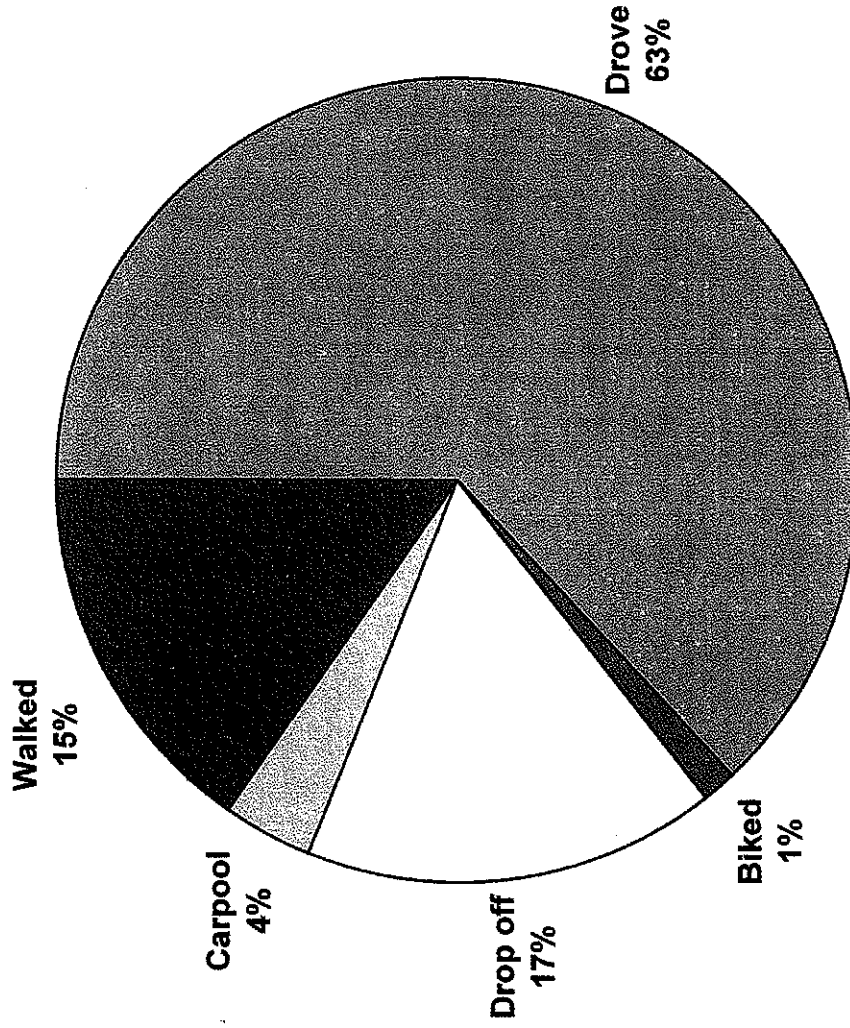
updated 4/21/2009

Town of Residence of Ayer Boarding Station

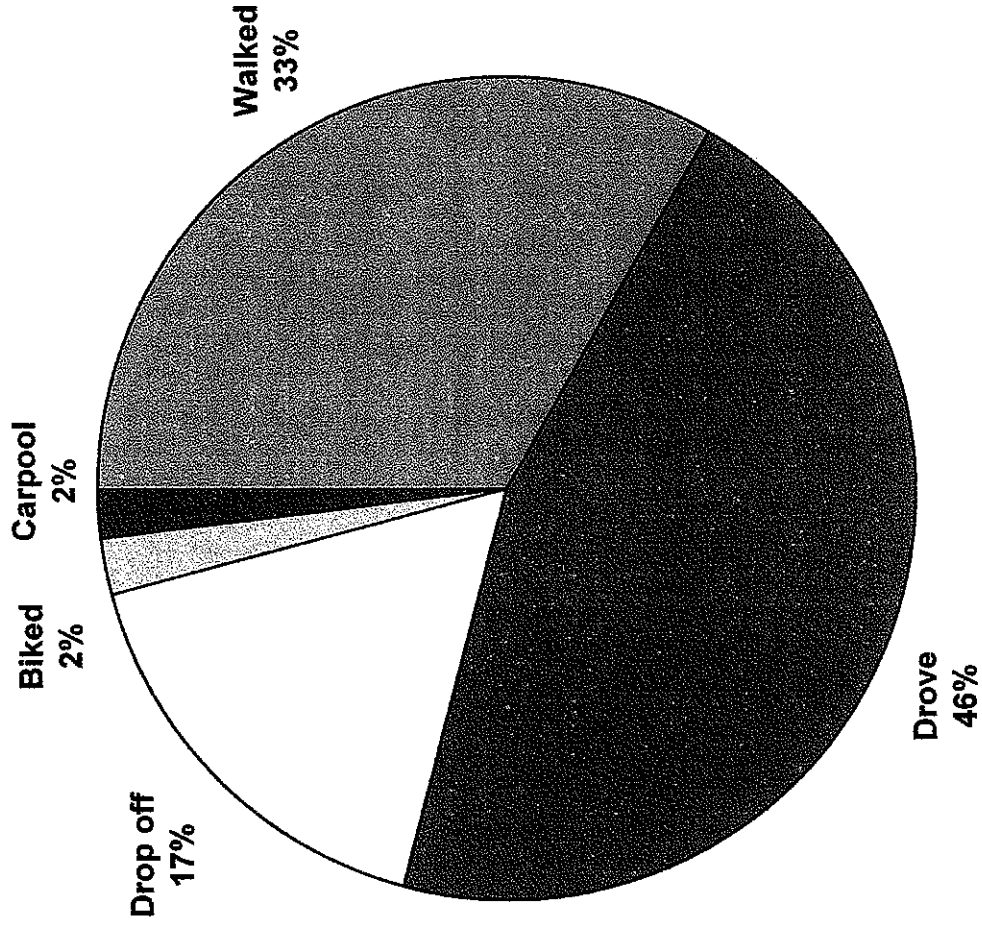


AYER COMMUTERS STATION

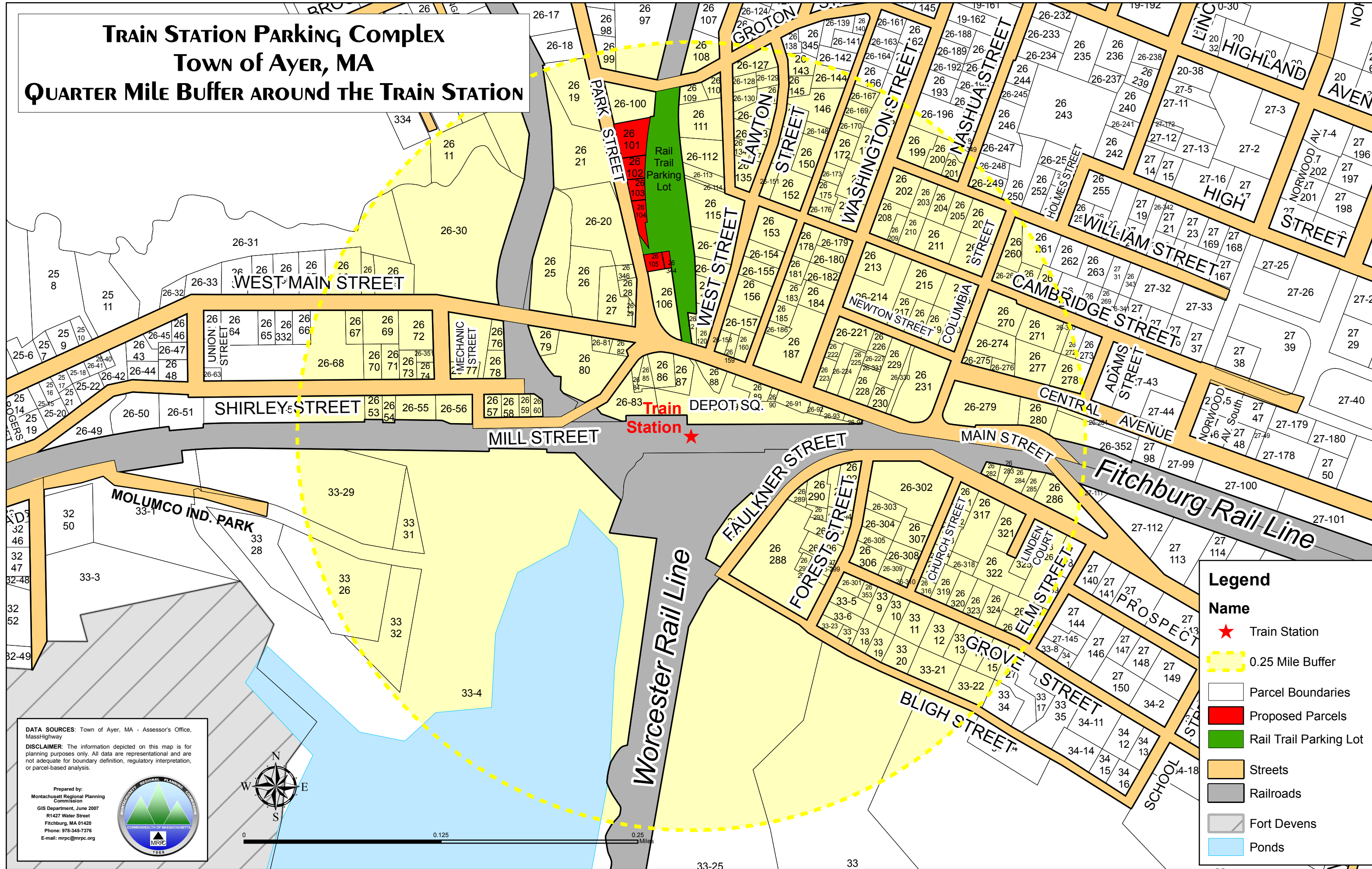
How they get to the train station



AYER COMMUTERS RESIDENT
How they get to the train station



Train Station Parking Complex Town of Ayer, MA Quarter Mile Buffer Around the Train Station



Legend


Name

- ★ Train Station
- 0.25 Mile Buffer
- ▭ Parcel Boundaries
- ▭ Proposed Parcels
- ▭ Rail Trail Parking Lot
- ▭ Streets
- ▭ Railroads
- ▭ Fort Devens
- ▭ Ponds

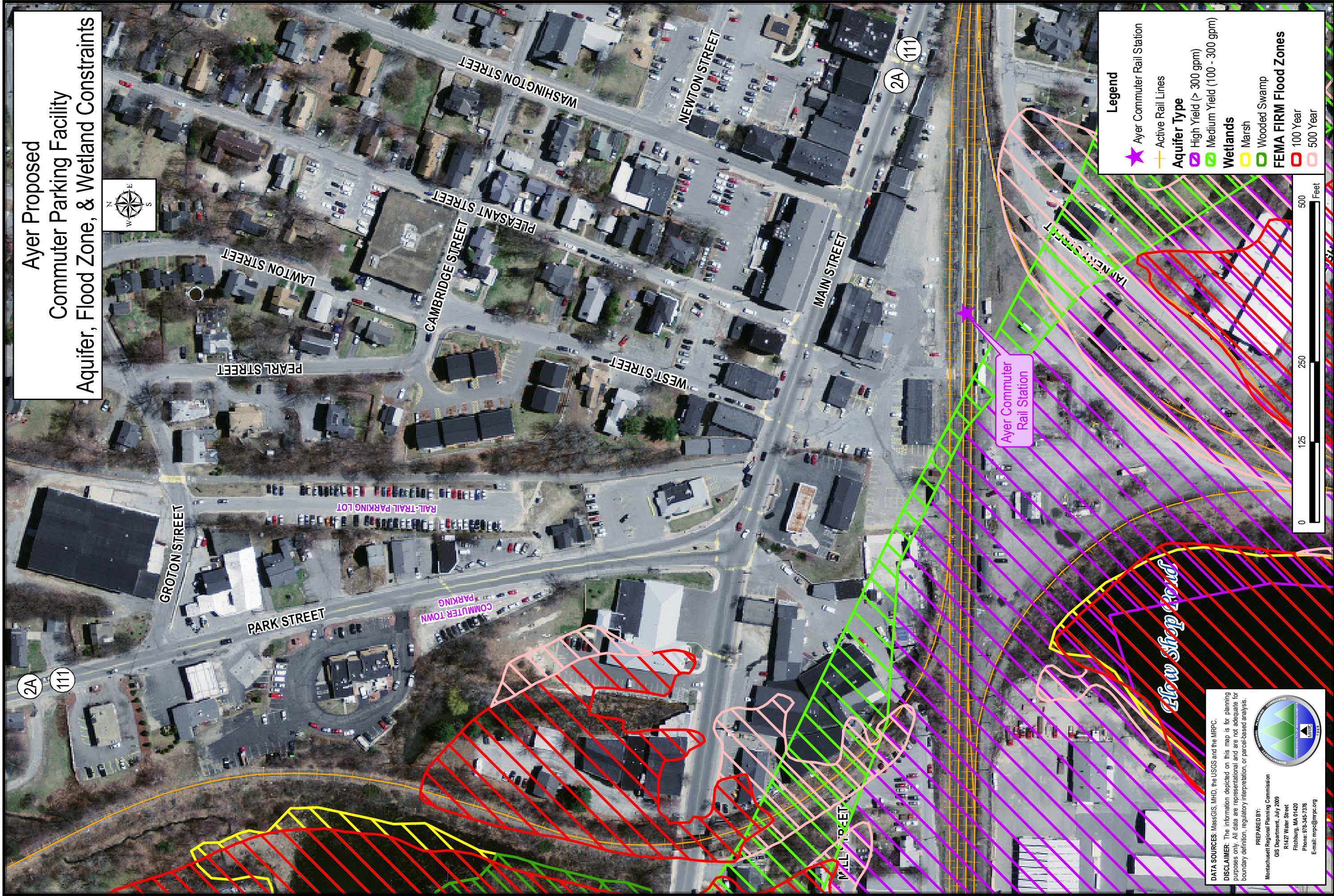
DATA SOURCES: Town of Ayer, MA - Assessor's Office, MassHighway

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, June 2007
R1427 Water Street
Fitchburg, MA 01420
Phone: 978-345-7376
E-mail: mrpc@mrpc.org



**Ayer Proposed
Commuter Parking Facility
Aquifer, Flood Zone, & Wetland Constraints**



Legend

- ★ Ayer Commuter Rail Station
- + Active Rail Lines

Aquifer Type

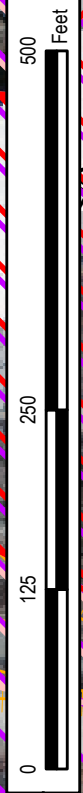
- High Yield (> 300 gpm)
- Medium Yield (100 - 300 gpm)

Wetlands

- Marsh
- Wooded Swamp

FEMA FIRM Flood Zones

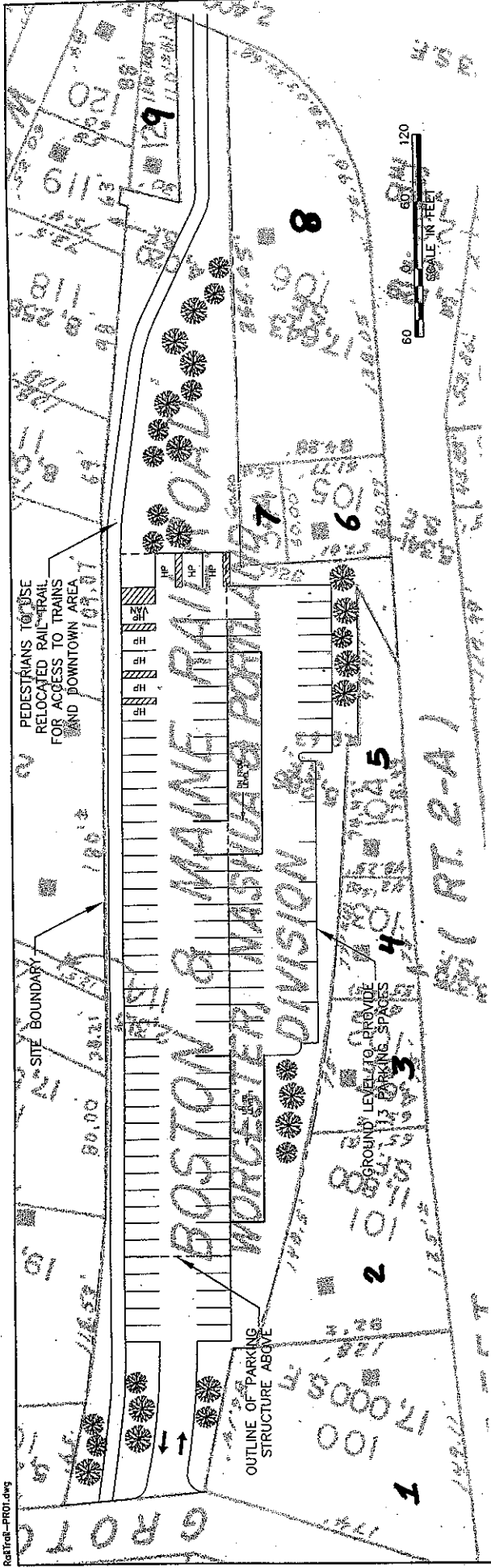
- 100 Year
- 500 Year



DATA SOURCES: MASSGIS, MHD, the USGS 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, July 2009
 1427 Water Street
 Fitchburg, MA 01420
 Phone: 978-545-7376
 E-mail: mrpc@mrpc.org



PARKING SUMMARY

LEVEL 1	= 113 SPACES
LEVEL 2	= 76 SPACES
LEVEL 3	= 76 SPACES
LEVEL 4	= 76 SPACES
Level 5	= 80 SPACES
Total	= 421 SPACES

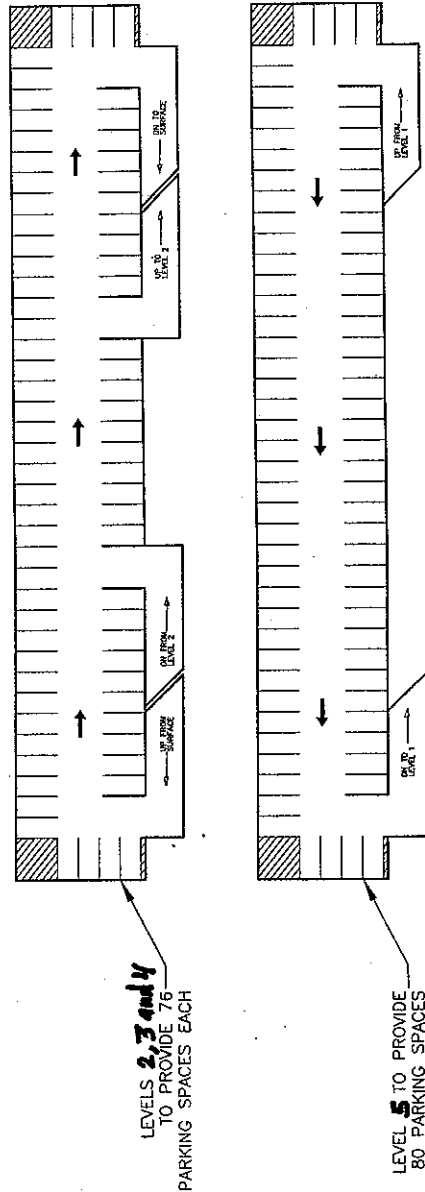


Figure 1 - Conceptual Site Plan I
DEM Rail Trail

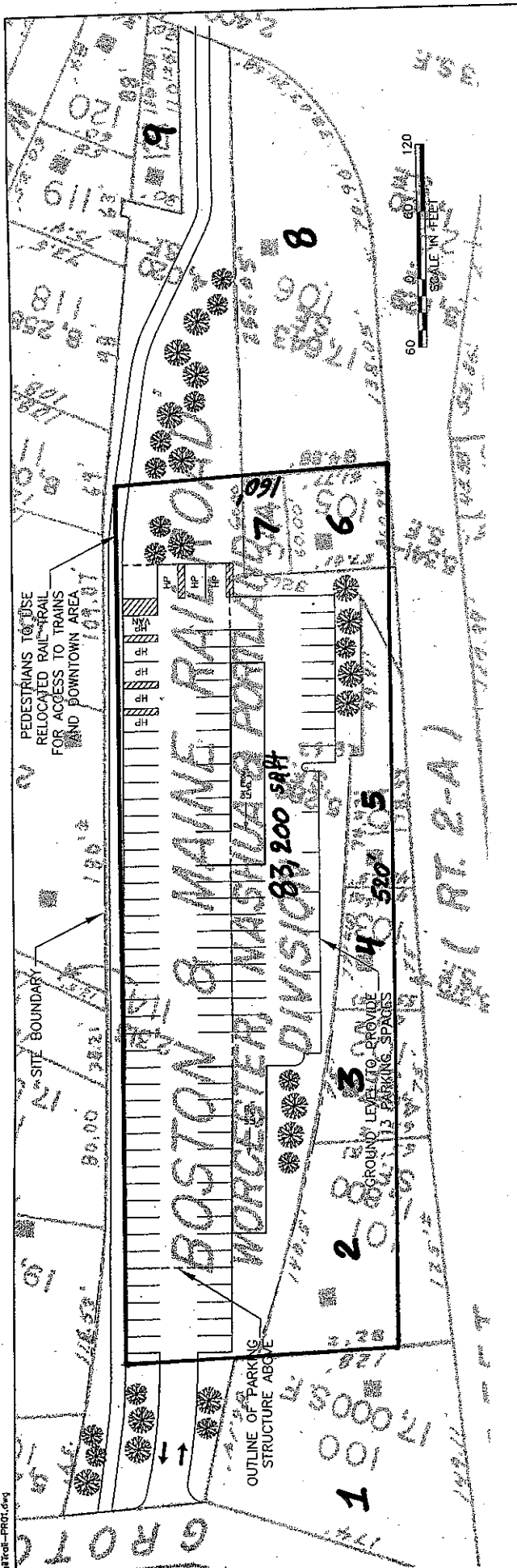


Figure 2 - Conceptual Site Plan II

Parking Summary

83,200 ÷ 375 = 221
 Level 1 = 221 Spaces
 Level 2 = 221 Spaces
 Total = 442 Spaces

Property Acquisition

<u>Parcel #</u>	<u>Land Area</u>	<u>Assessed Value</u>
2	0.27	\$ 289,800
3	0.11	\$ 171,100
4	0.08	\$ 214,900
5	0.12	\$ 101,700
6	0.12	\$ 137,200
7	0.04	\$ 3,600
<u>Total</u>	<u>0.74</u>	<u>\$ 918,300</u>

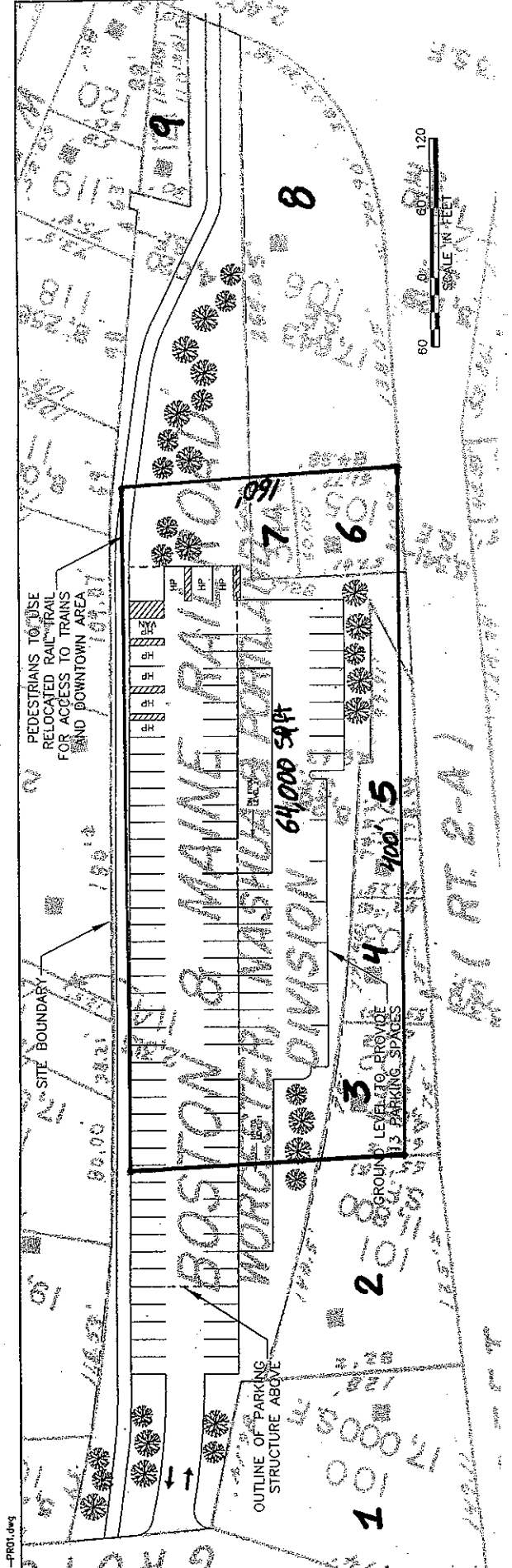


Figure 4 - Conceptual site Plan IV

Property Acquisition

<u>Parcel #</u>	<u>Land Area</u>	<u>Assessed Value</u>
3	0.11	\$ 171,100
4	0.08	\$ 214,900
5	0.12	\$ 101,700
6	0.12	\$ 137,200
7	0.04	\$ 3,600
<u>Total = 0.47</u>		<u>\$ 628,500</u>

Parking Summary

64,000 ÷ 375 = 170
 Level 1 = 170 Spaces
 Level 2 = 170 Spaces
 $\frac{1}{2}$ Level = 85 Spaces
Total = 425 Spaces

SITE INVENTORY - PARCEL ID INFORMATION

	Parcel ID	Address	Area	Assessed Value FY 09	Owner	Mail
Lot XX	Rail - Trail - Lot					
Lot 1	019/026.0-0000-0100.0	25 Park Street	0.39	\$350,100	TAGG, Ruth J & Alice Hodge Trustess Park Street Nominee Trust DCR	25 Park Street Ayer, MA 01432
Lot 2	019/026.0-0000-0101.0	21 Park Street	0.27	\$289,800	Lauren B. Rue	21 Park Street Ayer, MA 01432
Lot 3	019/026.0-0000-0102.0	15 Park Street	0.11	\$171,100	Charles E. Vlahos	1 Breakneck Road Groton, MA 01450
Lot 4	019/026.0-0000-0103.0	13 Park Street	0.08	\$214,900	James D. & Marsha K. Januskiewics - TRS	5 Groton School Road Ayer, MA 01432
Lot 5	019/026.0-0000-0104.0	Park Street	0.12	\$101,700	M. Donald Chapman	7 Park Street Ayer, MA 01432
Lot 6	019/026.0-0000-0105.0	5 Park Street	0.12	\$137,200	Worthendale Realty Corp	48 Main Street Ayer, MA 01432
Lot 7	019/026.0-0000-0344.0	3 Park Street	0.04	\$3,600	Worthendale Realty Corp	48 Main Street Ayer, MA 01432
Lot 8	019/026.0-0000-0106.0	1 Park Street	0.41	\$520,600	Sovereign Bank Ayer, LLC C/O Cardinal Capital Partners, INC	Trannell Crow CO. Reading PA 19612
Lot 9	019/026.0-0000-0.121.0	67 Main Street	0.06	\$149,700	Nicholas P. TE. Laggis & Donna P. Laggis	30 Highland Avenue Ayer, MA 01432
	019/026.0-0000-0329.0	7 Depot Square	1.39	\$538,600	Worthendale Realty Corp	48 Main Street Ayer, MA 01432

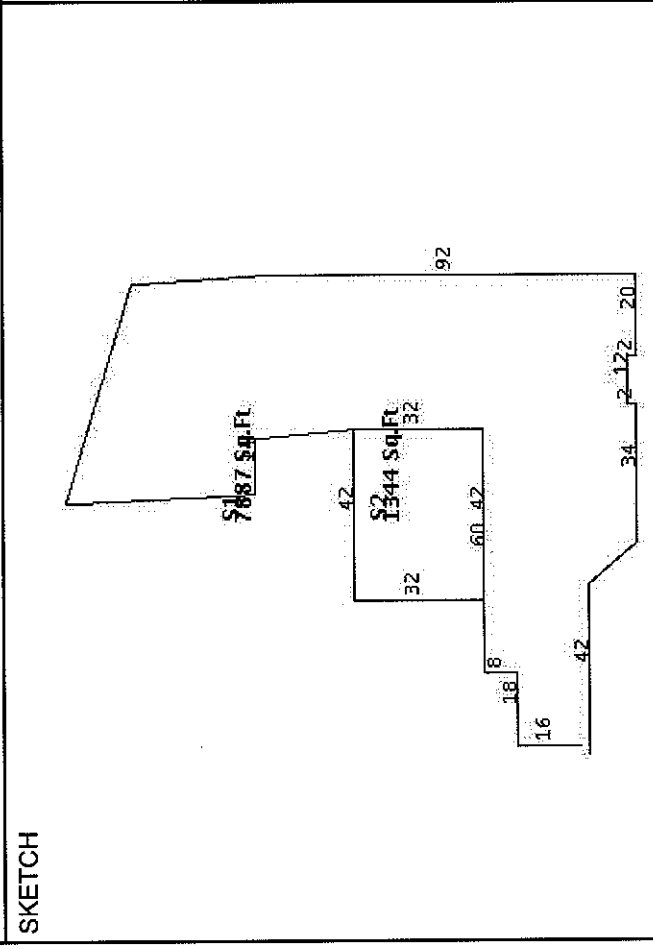
Source: Town of Ayer Assessors Database, April & October 2009

PARCEL_ID:019/026.0-0000-0100.0 MAP:026.0 BLOCK:0000 LOT:0100.0 PARCEL ADDRESS:25 PARK STREET FY:2009

PARCEL INFORMATION	Use-Code: 331	Sale Price: 160,000	Book: 24660	Road Type: T	Inspect Date: 07/22/2001
	Tax Class: T	Sale Date: 06/28/94	Page: 0307	Rd Condition: P	Meas Date: 07/22/2001
Owner:	Tot Flr Area: 10578	Sale Type: P	Cert/Doc:	Traffic: H	Entrance: C
TAGG, RUTH J & ALICE HODGE - TRUSTEES	Tot Land Area: 0.39	Sale Valid: L	Grantor: N MIDDLESEX SAVINGS	Water: PS	Collect Id: RRC
PARK STREET NOMINEE TRUST				Sewer: SW	Inspect Reas: C
Address:	Exempt-B/L% /	Resid-B/L% /	Comm-B/L 100/100	Indust-B/L% /	Open Sp-B/L% /
25 PARK STREET					
AYER MA 01432					

COMMERCIAL SECTIONS/GROUPS									
Section:	ID: 101	Use-Code: 331							
Category	Grnd-Fl-Area	Story Height	Bldg-Class	Yr-Built	Eff-Yr-Built	Cost Bldg			
2	7890	1.0	C	1940	1960	188,100			
Groups:									
Id	Cd	B-FL-A	Flrs	Unt					
1	325	4156	1	1					
2	325	1654	1	1					
3	325	2080	1	1					
Section:	ID: 102	Use-Code: 325							
Category	Grnd-Fl-Area	Story Height	Bldg-Class	Yr-Built	Eff-Yr-Built	Cost Bldg			
2	1344	2.0	C	1930	1960	52,300			
Groups:									
Id	Cd	B-FL-A	Flrs	Unt					
1	325	1344	1	1					
2	325	1344	2	1					

LAND INFORMATION										
NBHD CODE: 301		NBHD CLASS: 0		ZONE: DB						
Seg	Type	Code	Method	Sq-Ft	Acres	Influ-Y/N	Value	Class		
1	P	331	S	17000	0.000		115,736			
DETACHED STRUCTURE INFORMATION										
Str	Unit	Msr-1	Msr-2	E-YR-Blt	Grade	Cond	%Good	PI/IE/R	Cost	Class
AS	S	4000	0.00	1960	A	A	50	//50	5,600	3
RW	S	518	0.00	1930	A	A	//50		4,400	3
VALUATION INFORMATION										
Current Total:	350,100	Bldg:	234,400	Land:	115,700	MktLnd:	115,700			
Prior Total:	350,100	Bldg:	234,400	Land:	115,700	MktLnd:	115,700			



PARCEL_ID:019/026.0-0000-0101.0 MAP:026.0 BLOCK:0000 LOT:0101.0 PARCEL ADDRESS:21 PARK STREET FY:2009

PARCEL INFORMATION		Use-Code: 340	Sale Price: 210,000	Book: 32876	Road Type: T	Inspect Date: 07/22/2001
Owner:	RUE LAUREN B	Tax Class: T	Sale Date: 05/16/01	Page: 0276	Rd Condition: P	Meas Date: 07/22/2001
Address:	21 PARK STREET	Tot Fin Area: 6448	Sale Type: P	Cert/Doc:	Traffic: H	Entrance: C
	AYER MA 01432	Tot Land Area: 0.27	Sale Valid: Y	Grantor: K DAVID RUE-TR/KDR	Water: PS	Collect Id: RRC
					Sewer: SW	Inspect Reas: C

COMMERCIAL SECTIONS/GROUPS		Exempt-B/L% /	Resid-B/L% /	Comm-B/L% 100/100	Indust-B/L% /	Open Sp-B/L% /
Section:	ID: 101	Use-Code: 340				
Category	Grnd-Ft-Area	Story Height	Bldg-Class	Yr-Built	Eff-Yr-Built	Cost Bldg
4	2204	2.0	D	1900	1970	176,300

id	Cd	B-FL-A	Flrs	Unt
1	325	1520	1	1
2	325	1900	1	1
3	325	304	1	1
4	325	800	1	1
5	325	1344	1	2
6	325	2100	1	1

LAND INFORMATION		NBHD CODE: 301	NBHD CLASS: 0	ZONE: DB				
Seg	Type	Code	Method	Sq-Ft	Acres	Influi-Y/N	Value	Class
1	P	031	S	11800	0.000		107,521	

DETACHED STRUCTURE INFORMATION										
Str	Unit	Msr-1	Msr-2	E-YR-Bit	Grade	Cond	%Good	P/F/E/R	Cost	Class
OT	C	1	0.00	1991	A	A	//100		100	3
G1	S	210	0.00	1950	A	A	//53		5,300	1

VALUATION INFORMATION							
Current Total:	289,800	Bldg:	182,300	Land:	107,500	MktLnd:	107,500
Prior Total:	289,800	Bldg:	182,300	Land:	107,500	MktLnd:	107,500

PHOTO



PARCEL INFORMATION		Use-Code: 101	Sale Price: 14270	Road Type: T	Inspect Date: 04/25/2006
Owner:	VLAHOS, CHARLES E	Tax Class: T	Page: 276	Rd Condition: P	Meas Date: 04/25/2006
Address:	1 BREAKNECK ROAD	Tot Fin Area: 1232	Cert/Doc:	Traffic: H	Entrance: X
	GROTON MA 01450	Tot Land Area: 0.11	Grantor:	Water: PS	Collect Id: RRC
				Sewer: SW	Inspect Reas: C

RESIDENCE INFORMATION		Exempt-B/L% /		Resid-B/L% 100/100		Comm-B/L% /		Indust-B/L% /		Open Sp-B/L% /			
Style:	CO	Tot Rooms:	4	Main Fn Area:	616	Attic:	Y	LAND INFORMATION					
Story Height:	2.00	Bedrooms:	2	Up Fn Area:	616	Bsmt Area:	616	NBHD CODE:	500	NBHD CLASS:	0	ZONE:	GR
Roof:	G	Full Baths:	1	Add Fn Area:		Fn Bsmt Area:		Seg	1	Type	P	Code	101
Ext Wall:	FB	Half Baths:	0	Unfin Area:		Bsmt Grade:		Method	S	Sq-Ft	4687	Acres	0.000
Masonry Trim:	ST	Ext Bath Fix:	0	Tot Fin Area:	1232	RCNLD:	48459	Valuation INFORMATION				Value	113,383
Foundation:	ST	Bath Qual:	T	Eff Yr Built:	1955	MKI Adj:		Current Total:	171,100	Bldg:	57,700	Land:	113,400
Heat Type:	ST	Kitch Qual:	T	Year Built:	1850	Sound Value:		Prior Total:	177,000	Bldg:	63,600	Land:	113,400
Fuel Type:	G	Ext Kitch:		Grade:	F	Cost Bldg:	57,700						
Fireplace:	0	Condition:	F	Pct Complete:		Att Str Val1:							
Central/AC:		Att Gar SF:		% Good P/F/E/R:	///48	Att Str Val2:							

SKETCH

PHOTO

No Picture Available

PARCEL ID: 019/026.0-0000-0103.0 MAP: 026.0 BLOCK: 0000 LOT: 0103.0 PARCEL ADDRESS: 13 PARK STREET FY: 2009

PARCEL INFORMATION	
Use-Code: 326	Sale Price: 100
Tax Class: T	Road Type: 31344
Tot Fin Area: 1686	Page: 0447
Tot Land Area: 0.08	Cert/Doc: P
Grantor: JD & MK JANUSKIEWICZ	Inspection Date: 07/22/2001
Resid-B/L% /	Meas Date: 07/22/2001
Exempt-B/L% /	Entrance: X
Comm-B/L% 100/100	Collect Id: RRC
Indust-B/L% /	Inspect Reas: C
Open Sp-B/L% /	

Owner:
JANUSKIEWICZ, JAMES D & MARSHA K
-TRS
J & M REALTY TRUST
 Address:
5 GROTON SCHOOL RD
AYER MA 01432

COMMERCIAL SECTIONS/GROUPS					
Section: ID: 101	Use-Code: 326				
Category: Grnd-Ft-Area	Story Height				
1350	1.0				
Groups:					
Id	B-FL-A	Firs	Unt	Eff-Yr-Built	Cost Bldg
1	1350	1	1	1980	124,500
2	1350	1	1	1970	
Section: ID: 102	Use-Code: 326				
Category: Grnd-Ft-Area	Story Height				
336	1.0				
Groups:					
Id	B-FL-A	Firs	Unt	Eff-Yr-Built	Cost Bldg
1	336	1	1	1970	13,700

LAND INFORMATION										
NBHD CODE: 301	NBHD CLASS: 0	ZONE: DB								
Seg	Type	Code	Method	Sq-Ft	Acres	Influ-Y/N	Value	Class		
1	P	326	S	3375	0.000		83,747			
DETACHED STRUCTURE INFORMATION										
Str	Unit	Msr-1	Msr-2	E-Yr-Blt	Grade	Cond	%Good	P/F/E/R	Cost	Class
OT	C	1	0.00	1970	U	A	///100		100	3
AS	S	1500	0.00	1970	A	A	50//150		2,100	3
VALUATION INFORMATION										
Current Total:	214,900	Bldg:	131,200	Land:	83,700	MktLnd:	83,700			
Prior Total:	214,900	Bldg:	131,200	Land:	83,700	MktLnd:	83,700			

PHOTO

SKETCH

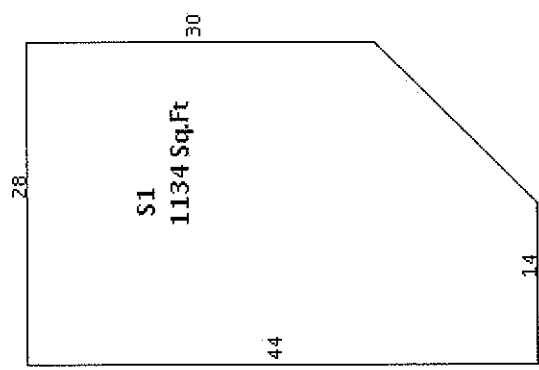
PARCEL_ID: 019/026.0-0000-0104.0 MAP: 026.0 BLOCK: 0000 LOT: 0104.0 PARCEL ADDRESS: PARK STREET FY: 2009

PARCEL INFORMATION		Use-Code: 332	Sale Price: 40,000	Book: 25205	Road Type: T	Inspect Date: 07/22/2001
Owner:	CHAPMAN, M DONALD	Tax Class: T	Sale Date: 03/01/95	Page: 0488	Rd Condition: P	Meas Date: 07/22/2001
Address:	7 PARK STREET AYER MA 01432	Tot Fin Area: 1134	Sale Type: P	Cert/Doc:	Traffic: H	Entrance: C
		Tot Land Area: 0.12	Sale Valid: Y	MMN REALTY TR-GLYNN	Water: PS	Collect Id: RRC
			Grantor:		Sewer: SW	Inspect Reas: C
		Exempt-B/L% /	Resid-B/L% /	Comm-B/L% /	Indust-B/L% /	Open Sp-B/L% /

COMMERCIAL SECTIONS/GROUPS		LAND INFORMATION					
Section:	ID: 101	Use-Code: 332	NBHD CODE: 302			NBHD CLASS: 0	ZONE: DB
Category:	1134	1.0	C	1940	1960	1960	29,100
Groups:		Grnd-Ft-Area	Story	Height	Bldg-Class	Yr-Built	Eff-Yr-Built
1	1	1134	1	1134	C	1940	1960
		B-FL-A	Flrs	Unt			
		1134	1	1			
		Cd	332				

DETACHED STRUCTURE INFORMATION		VALUATION INFORMATION								
Str	Unit	Msr-1	Msr-2	E-YR-Bit	Grade	Cond	%Good	P/F/E/R	Cost	Class
AS	S	4000	0.00	1970	A	A	50	//50	5,600	3
Current Total:		101,700	Bldg:	28,300	Land:	73,400	MktLnd:	73,400	MktLnd:	73,400
Prior Total:		101,700	Bldg:	28,300	Land:	73,400	MktLnd:	73,400	MktLnd:	73,400

PHOTO



PARCEL_ID:019/026.0-0000-0105.0 MAP:026.0 BLOCK:0000 LOT:0105.0 PARCEL ADDRESS:5 PARK STREET FY:2009

PARCEL INFORMATION		Use Code: 325	Sale Price: 18013	Road Type: T	Inspect Date: 07/22/2001
Owner:	WORTHENDALE REALTY CORP	Tax Class: T	Sale Date: 04/08/87	Rd Condition: P	Meas Date: 07/22/2001
Address:	48 MAIN ST	Tot Flr Area: 1533	Sale Type: P	Traffic: H	Entrance: C
	AYER MA 01432	Tot Land Area: 0.12	Sale Valid: Y	Water: PS	Collect Id: RRC
		Grantor:		Sewer: SW	Inspect Reas: C

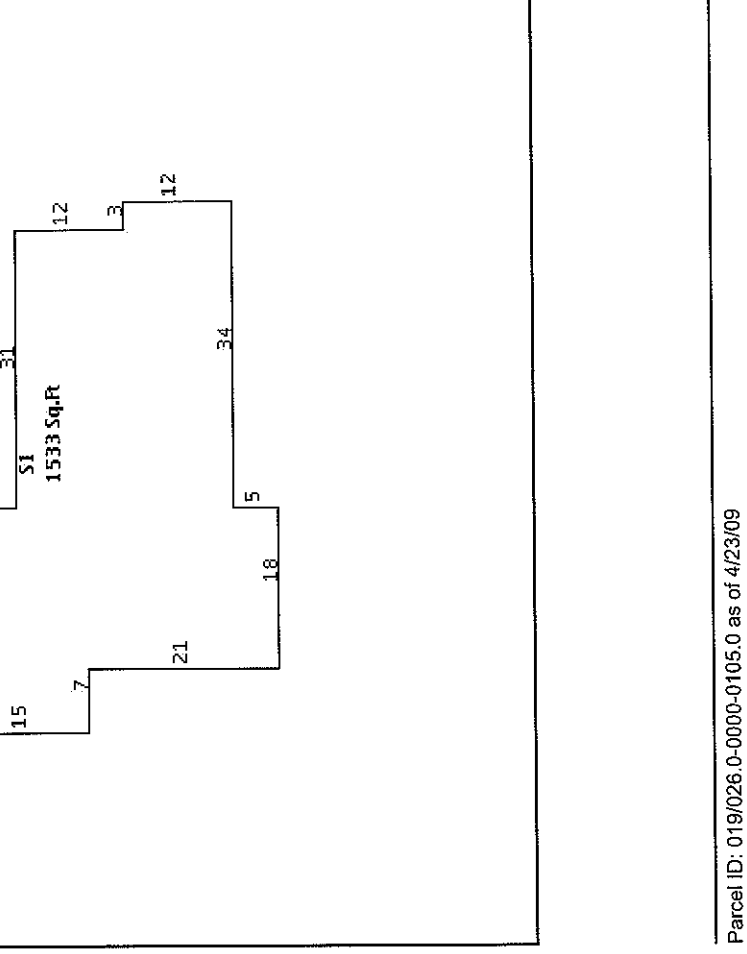
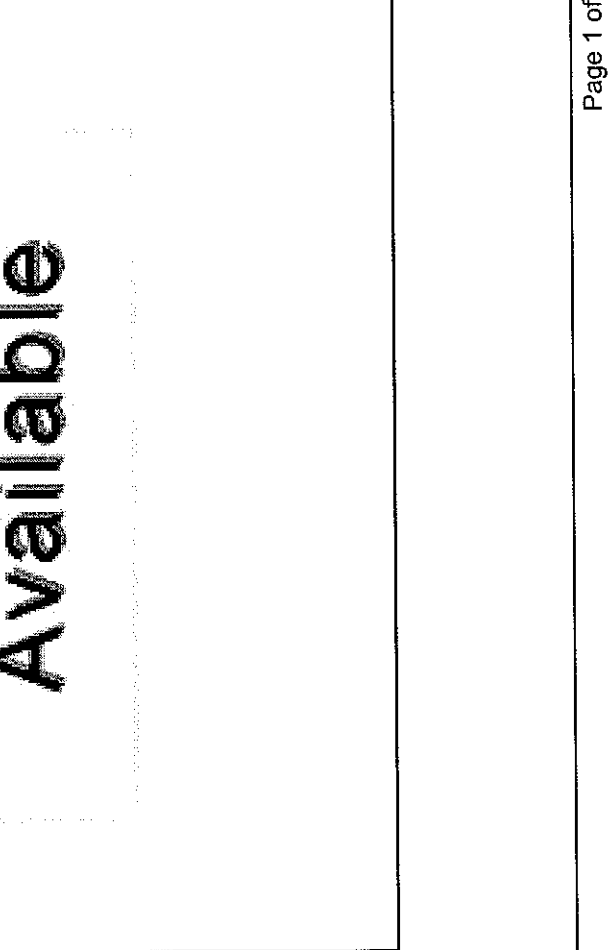
COMMERCIAL SECTIONS/GROUPS		Exempt-B/L% /	Resid-B/L% /	Comm-B/L 100/100	Indust-B/L% /	Open Sp-B/L% /
Section:	ID: 101	Use Code: 325				
Category:	Grnd-FI-Area	Story Height	Bldg-Class	Yr-Built	Eff-Yr-Built	Cost Bldg
2	1533	1.0	D	1930	1960	48,100

Groups:						
Id	Cd	B-FL-A	Flrs	Unt		
1	325	753	1	1		
2	325	1533	1	1		

LAND INFORMATION		VALUATION INFORMATION	
NBHD CODE: 301	NBHD CLASS: 0	Zone: DB	
Seg	Type	Code	Method
1	P	325	S
			Sq-Ft
			5341
			Acres
			0.000
			Influ-Y/N
			Value
			91,907
			Class
			3

DETACHED STRUCTURE INFORMATION		VALUATION INFORMATION	
Str	Unit	Msr-1	Msr-2
CN	S	374	0.00
SI	S	625	0.00
			E-YR-Bit
			1950
			1930
			Grade
			P
			F
			% Good
			50//150
			P/F/E/R
			//41
			Cost
			1,000
			4,700
			Class
			3
			3

Current Total:	137,200	Bldg:	45,300	Land:	91,900	MktLnd:	91,900
Prior Total:	137,200	Bldg:	45,300	Land:	91,900	MktLnd:	91,900



PARCEL_ID:019/026.0-0000-0344.0 MAP:026.0 BLOCK:0000 LOT:0344.0 PARCEL ADDRESS:3 PARK STREET FY:2009

Use Code: 392	Sale Price: 1	Book: 19317	Road Type: N	Inspect Date: 04/28/1987
Tax Class: T	Sale Date: 09/05/88	Page: 0494	Rd Condition: N	Meas Date: 04/28/1987
Tot Fin Area: 0	Sale Type: L	Cert/Doc:	Traffic: N	Entrance: X
Tot Land Area: 0.04	Sale Valid: Y		Water: PS	Collect Id: RG
Grantor: B & M RR			Sewer: SW	Inspect Reas: R

PARCEL INFORMATION

Owner:
WORTHEN DALE REALTY CORP
 Address:
 48 MAIN ST
 AYER MA 01432

Exempt-B/L% /	Resid-B/L% /	Comm-B/L% 100/100	Indust-B/L% /	Open Sp-B/L% /
---------------	--------------	-------------------	---------------	----------------

LAND INFORMATION

NBHD CODE: 301 NBHD CLASS: 0 ZONE: DB

Seg	Type	Code	Method	Sq-Ft	Acres	Influ-Y/N	Value	Class
1	U	392	S	1755	0.000	N	3,643	

VALUATION INFORMATION

Current Total:	3,600	Bldg:	0	Land:	3,600	MktLnd:	3,600
Prior Total:	3,600	Bldg:	0	Land:	3,600	MktLnd:	3,600

PHOTO

No Picture Available

SKETCH

PARCEL_ID:019/026.0-0000-0106.0 MAP:026.0 BLOCK:0000 LOT:0106.0 PARCEL ADDRESS:1 PARK STREET FY:2009

PARCEL INFORMATION	
Use Code: 341	Sale Price: 927,405
Tax Class: T	Sale Date: 08/03/00
Tot Fin Area: 2603	Sale Type: P
Tot Land Area: 0.41	Sale Valid: Y
Grantor: FLEET NATIONAL BANK	Grantee: FLEET NATIONAL BANK
Book: 31687	Road Type: T
Page: 0182	Rd Condition: P
Cert/Doc:	Traffic: H
	Water: PS
	Sewer: SW
Inspect Date: 07/22/2001	Meas Date: 07/22/2001
Entrance: C	Collect Id: RRC
Inspect Reas: C	Open Sp-B/L%: /

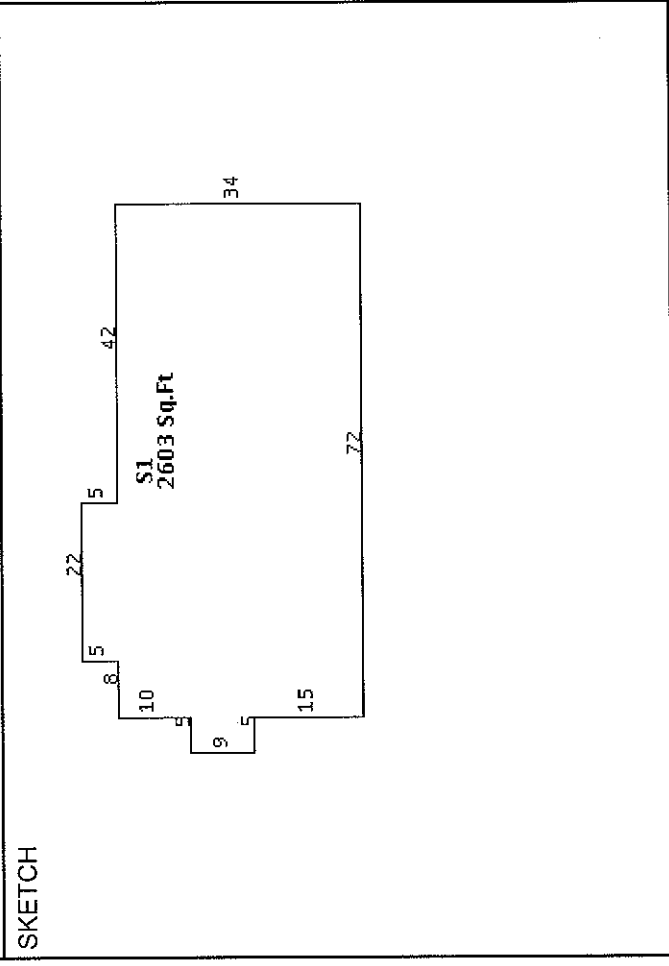
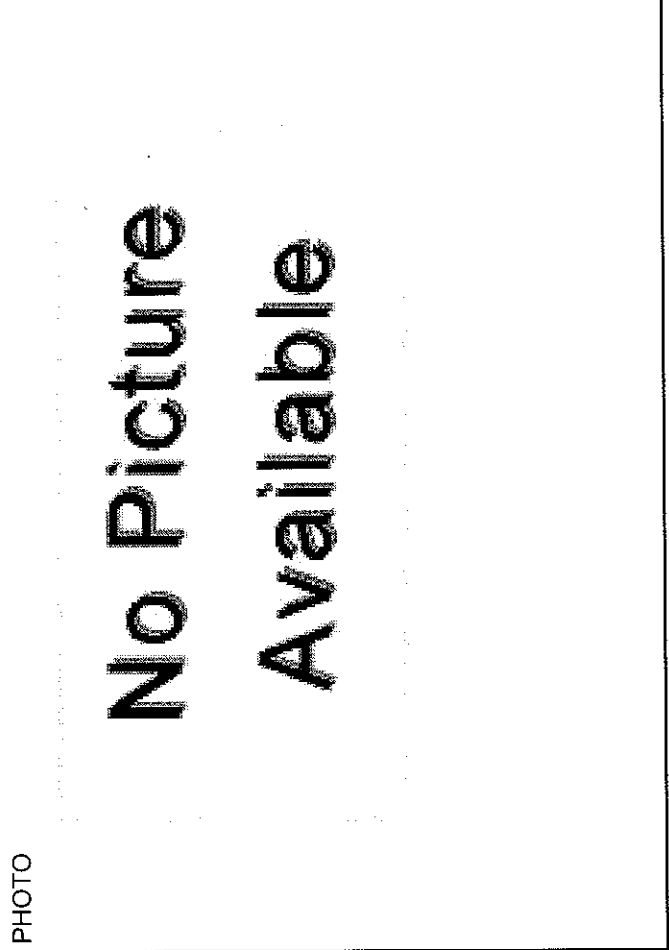
Exempt-B/L%: /	Resid-B/L%: /	Comm-B/L%: 100/100	Indust-B/L%: /
----------------	---------------	--------------------	----------------

COMMERCIAL SECTIONS/GROUPS									
Section: ID: 101	Use Code: 341								
Category: 4	Grnd-FI-Area: 2603	Story: 1.0	Height: D	Yr-Built: 1952	Eff-Yr-Built: 1974	Cost: 303,100	Bldg: 303,100		
Id	Cd	B-FL-A	Firs	Flrs	Unt				
1	341	2448	1	1	1				
2	341	2603	1	1	1				

LAND INFORMATION									
NBHD CODE: 300	NBHD CLASS: 0	ZONE: DB							
Seg	Type	Code	Method	Sq-Ft	Acres	Influi-YN	Value	Class	
1	P	341	S	17643	0.000		169,048		

DETACHED STRUCTURE INFORMATION										
Str	Unit	Msr-1	Msr-2	E-YR-Bit	Grade	Cond	%Good	P/F/E/R	Cost	Class
AS	S	15040	0.00	1985	A	A	50//50		21,000	3
OT	C	1	0.00	1985	A	A	///100		100	3
CN	S	310	0.00	1985	A	A	50//50		1,100	3

VALUATION INFORMATION									
Current Total:	520,600	Bldg:	351,600	Land:	169,000	MktLnd:	169,000		
Prior Total:	520,600	Bldg:	351,600	Land:	169,000	MktLnd:	169,000		



PARCEL_ID:019/026.0-0000-0121.0 MAP:026.0 BLOCK:0000 LOT:0121.0 PARCEL ADDRESS:67 MAIN STREET FY:2009

PARCEL INFORMATION	
Owner: LAGGIS, NICHOLAS P TE DONNA P LAGGIS	Use Code: 325 Tax Class: T Tot Fin Area: 2471 Tot Land Area: 0.06
Address: 30 HIGHLAND AVENUE AYER MA 01432	Sale Price: 80,000 Sale Date: 12/12/91 Sale Type: P Sale Valid: A Grantor: PETER N LAGGIS
	Book: 21604 Page: 0376 Cert/Doc:
	Road Type: T Rd Condition: P Traffic: M Water: PS Sewer: SW
	Inspect Date: 07/09/2001 Meas Date: 07/09/2001 Entrance: C Collect Id: RRC Inspect Reas: C
	Exempt-B/L% / Resid-B/L% / Comm-B/L% 100/100 / Indust-B/L% / Open Sp-B/L% /

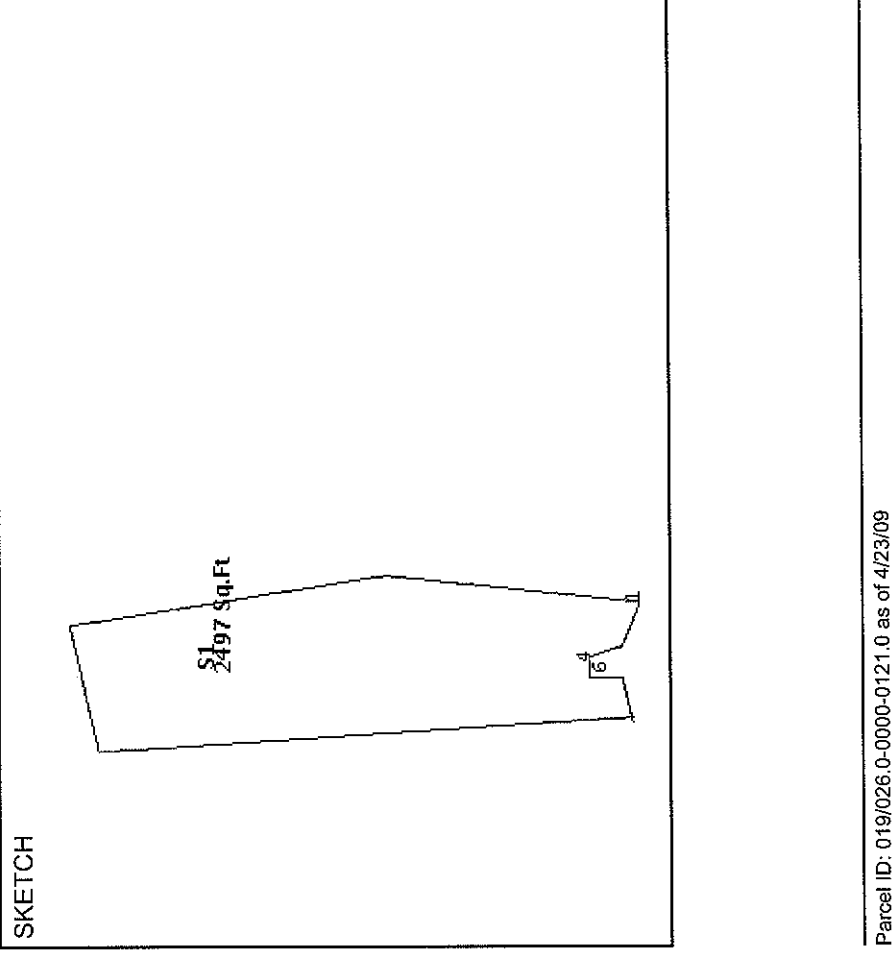
COMMERCIAL SECTIONS/GROUPS									
Section:	ID: 101	Use-Code: 325							
Category:	Grnd-FI-Area	Story	Height	Bldg-Class	Yr-Built	Eff-Yr-Built	Cost	Bldg	
2	2471	1.0	D	1916	1960	78,600			
Groups:									
Id	Cd	B-FL-A	Firs	Unt					
1	325	440	1	1					
2	325	1449	1	1					
3	325	1022	1	1					

LAND INFORMATION									
NBHD CODE: 301		NBHD CLASS: 0		ZONE: DB					
Seg	Type	Code	Method	Sq-Ft	Acres	Influi-Y/N	Value	Class	
1	P	325	S	2400	0.000		78,134		

DETACHED STRUCTURE INFORMATION									
Str	Unit	Msr-1	Msr-2	E-YR-Bit	Grade	Cond	%Good	P/F/E/R	Cost
SI	S	32	0.00	1916	G	A	//50		400

VALUATION INFORMATION									
Current Total:		149,700	Bldg:	71,600	Land:	78,100	MktLnd:	78,100	
Prior Total:		149,700	Bldg:	71,600	Land:	78,100	MktLnd:	78,100	

PHOTO



PARCEL_ID:019/026.0-0000-0329.0 MAP:026.0 BLOCK:0000 LOT:0329.0 PARCEL ADDRESS:7 DEPOT SQUARE FY:2009

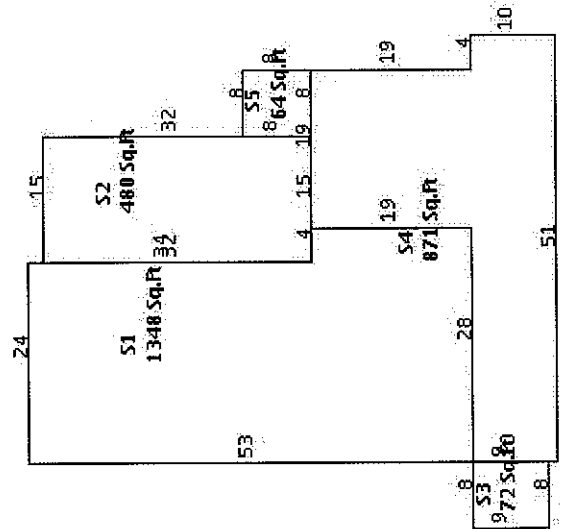
PARCEL INFORMATION		Use Code: 326	Sale Price: 1	Book: 12135	Road Type: T	Inspect Date: 07/24/2001
Owner:	WORTHENDALE REALTY CORP	Tax Class: T	Sale Date: 12/12/71	Page: 0442	Rd Condition: P	Meas Date: 07/24/2001
Address:	48 MAIN ST	Tot Flr Area: 6843	Sale Type: P	Cert/Doc:	Traffic: H	Entrance: C
	AYER MA 01432	Tot Land Area: 1.39	Sale Valid: Y	Grantor:	Water: PS	Collect Id: RRC
					Sewer: SW	Inspect Reas: C
		Exempt-B/L% /	Resid-B/L% /	Comm-B/L% /	Indust-B/L% /	Open Sp-B/L% /

COMMERCIAL SECTIONS/GROUPS										
Section: ID: 101 Use-Code: 326										
Category	Grnd-Fl-Area	Story	Height	Bldg-Class	Yr-Built	Eff-Yr-Built	Cost	Bldg		
2	1348	2.0	D		1933	1960	122,600			
Groups:										
Id	Cd	B-FL-A	Firs	Flrs	Unt					
1	326	1348	1	1	1					
2	326	1288	1	1	1					
3	326	72	1	1	1					
4	326	72	1	1	1					
5	326	871	1	1	1					
6	326	64	1	1	1					
Section: ID: 102 Use-Code: 326										
Category	Grnd-Fl-Area	Story	Height	Bldg-Class	Yr-Built	Eff-Yr-Built	Cost	Bldg		
2	480	1.0	C		1933	1960	21,500			
Groups:										
Id	Cd	B-FL-A	Firs	Flrs	Unt					
1	326	480	1	1	1					
Section: ID: 201 Use-Code: 325										
Category	Grnd-Fl-Area	Story	Height	Bldg-Class	Yr-Built	Eff-Yr-Built	Cost	Bldg		
4	4080	1.0	C		1967	1967	223,300			
Groups:										
Id	Cd	B-FL-A	Firs	Flrs	Unt					
1	352	1600	1	1	1					
2	353	4080	1	1	1					

LAND INFORMATION										
NBHD CODE: 301 NBHD CLASS: 0 ZONE: DB										
Seg	Type	Code	Method	Sq-Ft	Acres	Influ-Y/N	Value	Class		
1	P	326	S	43560	0.000		139,696			
2	U	326	A	0	0.390		6,006			
DETACHED STRUCTURE INFORMATION										
Str	Unit	Msr-1	Msr-2	E-Yr-Bldg	Grade	Cond	%Good	P/F/E/R	Cost	Class
AS	S	25000	0.00	1975	A	F	50///50		35,000	3
VALUATION INFORMATION										
Current Total:		538,600	Bldg:	392,900	Land:	145,700	MktLnd:	145,700		
Prior Total:		538,600	Bldg:	392,900	Land:	145,700	MktLnd:	145,700		

Commercial Property Record Card

SKETCH



PHOTO

No Picture Available

APPENDIX
AUTOMATIC TRAFFIC RECORDER (ATR) COUNTS

Montachusett Regional Planning Commission

Community: Ayer
 Street: Fitchburg Road (Rt. 2A)
 Location: W. of Groton School Road
 Function Class: U-3

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

Site Code: 019200880
 Station ID:

Start Time	24-Oct-08 Fri	North		Hour Totals		South		Hour Totals		Combined Totals	
		Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon
12:00		7	84			2	72				
12:15		6	68			1	67				
12:30		11	68			5	62				
12:45		7	83	31	303	2	62	10	263	41	566
01:00		7	42			2	80				
01:15		6	61			2	66				
01:30		5	51			2	68				
01:45		6	52	24	206	3	66	9	280	33	486
02:00		2	78			1	85				
02:15		6	83			5	78				
02:30		5	114			3	88				
02:45		1	118	14	393	0	92	9	343	23	736
03:00		2	114			3	75				
03:15		4	110			4	96				
03:30		1	104			4	92				
03:45		5	123	12	451	3	95	14	358	26	809
04:00		1	140			4	69				
04:15		3	128			5	82				
04:30		3	128			10	92				
04:45		7	137	14	533	13	93	32	336	46	869
05:00		1	141			18	101				
05:15		12	126			29	75				
05:30		9	148			46	91				
05:45		16	141	38	556	72	77	165	344	203	900
06:00		17	132			65	76				
06:15		23	134			96	47				
06:30		28	107			102	54				
06:45		40	83	108	456	154	48	417	225	525	681
07:00		44	72			109	49				
07:15		63	71			130	52				
07:30		46	47			133	41				
07:45		71	51	224	241	136	23	508	165	732	406
08:00		43	37			102	26				
08:15		56	30			88	22				
08:30		46	33			75	18				
08:45		35	37	180	137	78	23	343	89	523	226
09:00		43	26			70	19				
09:15		62	23			60	23				
09:30		41	17			66	13				
09:45		46	19	192	85	65	22	261	77	453	162
10:00		50	17			55	14				
10:15		41	22			60	20				
10:30		64	25			53	17				
10:45		61	25	216	89	43	18	211	69	427	158
11:00		57	12			73	21				
11:15		61	9			52	13				
11:30		55	19			70	26				
11:45		70	18	243	58	85	21	280	81	523	139
Total		1296	3508			2259	2630			3555	6138
Percent		27.0%	73.0%			46.2%	53.8%			36.7%	63.3%

Montachusett Regional Planning Commission

Community: Ayer
 Street: Groton School Road
 Location: N. of Park St (Rt. 2A/111)
 Function Class: U-3

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

Site Code: 019200882
 Station ID:

Start Time	24-Oct-08 Fri	North		Hour Totals		South		Hour Totals		Combined Totals	
		Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon
12:00		11	41			10	35				
12:15		8	54			8	48				
12:30		5	48			7	35				
12:45		12	45	36	188	2	54	27	172	63	360
01:00		12	47			6	39				
01:15		15	49			5	44				
01:30		3	58			2	49				
01:45		1	66	31	220	1	56	14	188	45	408
02:00		3	68			1	25				
02:15		3	65			1	38				
02:30		1	56			1	54				
02:45		1	55	8	244	1	52	4	169	12	413
03:00		2	63			1	43				
03:15		2	66			1	51				
03:30		2	67			2	64				
03:45		1	88	7	284	0	39	4	197	11	481
04:00		0	77			1	41				
04:15		5	82			1	51				
04:30		0	94			1	73				
04:45		1	115	6	368	3	51	6	216	12	584
05:00		0	97			2	44				
05:15		1	102			1	70				
05:30		3	91			7	58				
05:45		6	96	10	386	6	51	16	223	26	609
06:00		3	105			17	54				
06:15		4	120			18	76				
06:30		6	131			11	67				
06:45		11	137	24	493	38	44	84	241	108	734
07:00		5	110			40	60				
07:15		12	86			65	41				
07:30		30	82			45	42				
07:45		35	54	82	332	82	65	232	208	314	540
08:00		41	68			75	32				
08:15		51	39			68	51				
08:30		37	50			77	36				
08:45		63	40	192	197	70	23	290	142	482	339
09:00		54	26			78	15				
09:15		49	33			70	14				
09:30		57	38			73	22				
09:45		59	22	219	119	74	23	295	74	514	193
10:00		42	28			48	15				
10:15		42	32			44	23				
10:30		37	30			45	18				
10:45		27	29	148	119	44	20	181	76	329	195
11:00		49	15			29	22				
11:15		35	23			31	11				
11:30		42	15			36	17				
11:45		49	13	175	66	36	9	132	59	307	125
Total		938	3016			1285	1965			2223	4981
Percent		23.7%	76.3%			39.5%	60.5%			30.9%	69.1%

Montachusett Regional Planning Commission

Community: Ayer
 Street: Main Street (Rt. 2A/111)
 Location: E. of Park Street (Rt. 2A/111)
 Function Class: U-3

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

Site Code: 019200887
 Station ID:

Start Time	24-Oct-08 Fri	West		Hour Totals		East		Hour Totals		Combined Totals	
		Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon
12:00		19	145			14	137				
12:15		16	139			9	129				
12:30		21	142			8	131				
12:45		14	145	70	571	5	127	36	524	106	1095
01:00		8	152			6	132				
01:15		9	139			4	134				
01:30		10	138			3	120				
01:45		9	143	36	572	3	120	16	506	52	1078
02:00		5	116			3	143				
02:15		5	167			5	133				
02:30		5	199			10	135				
02:45		6	188	21	670	4	143	22	554	43	1224
03:00		3	179			3	137				
03:15		8	198			7	134				
03:30		9	195			8	143				
03:45		5	179	25	751	4	145	22	559	47	1310
04:00		5	227			9	136				
04:15		5	204			6	118				
04:30		3	203			9	127				
04:45		10	218	23	852	15	127	39	508	62	1360
05:00		10	207			17	126				
05:15		9	227			26	117				
05:30		12	219			39	107				
05:45		17	208	48	861	65	112	147	462	195	1323
06:00		32	219			95	110				
06:15		36	212			107	89				
06:30		46	193			128	110				
06:45		51	160	165	784	127	113	457	422	622	1206
07:00		70	147			172	96				
07:15		95	118			191	85				
07:30		113	113			173	70				
07:45		76	83	354	461	171	95	707	346	1061	807
08:00		172	81			142	41				
08:15		93	85			171	63				
08:30		106	63			143	49				
08:45		78	64	449	293	141	52	597	205	1046	498
09:00		100	60			142	40				
09:15		93	60			127	60				
09:30		104	59			104	57				
09:45		91	45	388	224	120	44	493	201	881	425
10:00		109	55			124	52				
10:15		121	42			94	48				
10:30		106	51			118	43				
10:45		115	38	451	186	78	36	414	179	865	365
11:00		117	42			106	28				
11:15		125	37			105	43				
11:30		111	19			101	30				
11:45		143	32	496	130	124	46	436	147	932	277
Total		2526	6355			3386	4613			5912	10968
Percent		28.4%	71.6%			42.3%	57.7%			35.0%	65.0%

Montachusett Regional Planning Commission

Community: Ayer
 Street: Park Street (Rt. 2A/111)
 Location: S. of Groton School Road
 Function Class: U-3

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

Site Code: 019200889
 Station ID:

Start Time	24-Oct-08 Fri	North		Hour Totals		South		Hour Totals		Combined Totals	
		Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon
12:00		16	14			8	10				
12:15		18	14			6	8				
12:30		21	11			6	7				
12:45		9	14	64	53	7	4	27	29	91	82
01:00		12	13			2	7				
01:15		9	12			2	4				
01:30		10	13			4	8				
01:45		9	12	40	50	2	5	10	24	50	74
02:00		6	3			5	3				
02:15		4	3			2	4				
02:30		6	3			6	3				
02:45		6	2	22	11	3	2	16	12	38	23
03:00		159	6			138	5				
03:15		233	6			114	3				
03:30		222	2			115	3				
03:45		219	4	833	18	138	4	505	15	1338	33
04:00		216	11			125	8				
04:15		224	9			129	7				
04:30		245	7			124	17				
04:45		245	9	930	36	138	20	516	52	1446	88
05:00		250	11			140	24				
05:15		270	17			109	39				
05:30		242	9			112	35				
05:45		199	14	961	51	77	41	438	139	1399	190
06:00		191	16			92	44				
06:15		128	28			107	46				
06:30		131	42			76	50				
06:45		110	32	560	118	93	54	368	194	928	312
07:00		94	34			74	53				
07:15		82	72			53	54				
07:30		65	61			39	61				
07:45		62	52	303	219	39	72	205	240	508	459
08:00		62	69			37	77				
08:15		58	76			38	104				
08:30		51	64			43	89				
08:45		57	76	228	285	45	108	163	378	391	663
09:00		39	95			31	109				
09:15		52	104			39	101				
09:30		36	124			39	88				
09:45		43	132	170	455	25	113	134	411	304	866
10:00		42	111			33	111				
10:15		35	135			26	137				
10:30		37	105			39	120				
10:45		28	111	142	462	21	121	119	489	261	951
11:00		29	123			40	134				
11:15		31	141			34	117				
11:30		17	135			12	96				
11:45		18	128	95	527	6	105	92	452	187	979
Total		4348	2285			2593	2435			6941	4720
Percent		65.6%	34.4%			51.6%	48.4%			59.5%	40.5%

Montachusett Regional Planning Commission

Community: Ayer
 Street: West Main Street
 Location: W. of Park St (Rt. 2A/111)
 Function Class: U-5

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

Site Code: 019200893
 Station ID:
 Counter # 16641

Start Time	09-Jun-08 Mon	East	West	Combined Total	
12:00 AM		28	18	46	■
01:00		8	11	19	■
02:00		12	12	24	■
03:00		14	14	28	■
04:00		30	16	46	■
05:00		97	68	165	■
06:00		301	198	499	■
07:00		457	331	788	■
08:00		394	344	738	■
09:00		281	263	544	■
10:00		245	215	460	■
11:00		258	232	490	■
12:00 PM		283	289	572	■
01:00		240	255	495	■
02:00		316	298	614	■
03:00		324	349	673	■
04:00		282	335	617	■
05:00		301	368	669	■
06:00		226	279	505	■
07:00		208	198	406	■
08:00		153	118	271	■
09:00		123	123	246	■
10:00		82	85	167	■
11:00		63	50	113	■
Total		4726	4469		
Percent		51.4%	48.6%		

Montachusett Regional Planning Commission

Community: Ayer
 Street: Park Street (Rt. 2A/111)
 Location: N. of Main Street
 Function Class: U-3

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

Site Code: 01920084014
 Station ID:
 Counter # 21172

Start Time	09-Jun-08 Mon	North	South	Combined Total	
12:00 AM		50	21	71	█
01:00		15	9	24	█
02:00		16	12	28	█
03:00		14	19	33	█
04:00		14	47	61	█
05:00		75	247	322	██████████
06:00		223	644	867	████████████████████
07:00		323	797	1120	████████████████████████████
08:00		372	632	1004	██████████████████████████
09:00		366	480	846	████████████████████████
10:00		362	377	739	██████████████████████
11:00		395	333	728	██████████████████████
12:00 PM		392	408	800	██████████████████████
01:00		407	378	785	██████████████████████
02:00		514	407	921	██████████████████████
03:00		629	417	1046	██████████████████████
04:00		753	396	1149	██████████████████████
05:00		821	433	1254	██████████████████████
06:00		596	353	949	██████████████████████
07:00		380	269	649	██████████████████
08:00		257	221	478	██████████████
09:00		194	175	369	██████████
10:00		120	100	220	██████
11:00		86	52	138	████
Total		7374	7227		
Percent		50.5%	49.5%		

Montachusett Regional Planning Commission

Community: Ayer
 Street: Park Street (Rt. 2A/111)
 Location: N. of Groton Street
 Function Class: U-3

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

Site Code: 01920084097
 Station ID:

Start Time	19-Nov-08 Wed	North		Hour Totals		South		Hour Totals		Combined Totals	
		Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon
12:00		13	69			9	54				
12:15		10	51			8	61				
12:30		7	52			16	57				
12:45		11	58	41	230	8	68	41	240	82	470
01:00		5	65			4	54				
01:15		9	81			2	74				
01:30		10	84			4	57				
01:45		4	70	28	300	2	88	12	273	40	573
02:00		1	63			0	55				
02:15		3	63			2	73				
02:30		6	55			2	60				
02:45		3	64	13	245	1	53	5	241	18	486
03:00		1	76			2	68				
03:15		5	62			2	59				
03:30		1	76			0	65				
03:45		2	84	9	298	1	77	5	269	14	567
04:00		3	74			2	52				
04:15		2	91			3	68				
04:30		2	93			2	71				
04:45		3	111	10	369	3	84	10	275	20	644
05:00		1	108			2	69				
05:15		3	128			5	68				
05:30		6	123			4	99				
05:45		1	119	11	478	10	81	21	317	32	795
06:00		14	139			6	69				
06:15		5	143			20	68				
06:30		7	132			24	74				
06:45		7	129	33	543	35	83	85	294	118	837
07:00		15	137			66	61				
07:15		19	87			71	59				
07:30		26	88			103	60				
07:45		33	90	93	402	102	52	342	232	435	634
08:00		35	58			161	57				
08:15		52	56			125	40				
08:30		58	41			131	49				
08:45		43	51	188	206	148	30	565	176	753	382
09:00		66	34			123	21				
09:15		55	41			116	25				
09:30		69	31			83	20				
09:45		49	24	239	130	95	18	417	84	656	214
10:00		53	25			98	16				
10:15		64	27			64	19				
10:30		47	29			79	12				
10:45		55	28	219	109	61	16	302	63	521	172
11:00		57	22			69	12				
11:15		65	38			55	15				
11:30		56	21			59	16				
11:45		66	19	244	100	60	11	243	54	487	154
Total		1128	3410			2048	2518			3176	5928
Percent		24.9%	75.1%			44.9%	55.1%			34.9%	65.1%

Montachusett Regional Planning Commission

Community: Ayer
 Street: Groton Street
 Location: E. of Park St (Rt. 2A/111)
 Function Class: U-0

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

Site Code: 01920084099
 Station ID:

Start Time	24-Oct-08 Fri	South		Hour Totals		North		Hour Totals		Combined Totals	
		Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon
12:00		7	18			2	13				
12:15		0	17			2	11				
12:30		1	28			1	21				
12:45		1	23	9	86	4	21	9	66	18	152
01:00		2	25			2	20				
01:15		1	30			1	25				
01:30		1	23			1	19				
01:45		1	26	5	104	2	22	6	86	11	190
02:00		1	17			1	16				
02:15		0	26			0	18				
02:30		0	23			0	26				
02:45		0	31	1	97	0	47	1	107	2	204
03:00		0	39			0	42				
03:15		0	34			0	43				
03:30		0	39			1	45				
03:45		0	33	0	145	0	52	1	182	1	327
04:00		0	46			0	45				
04:15		0	37			0	37				
04:30		1	44			1	42				
04:45		0	23	1	150	1	37	2	161	3	311
05:00		0	41			0	40				
05:15		3	32			0	45				
05:30		2	34			2	51				
05:45		2	36	7	143	2	55	4	191	11	334
06:00		1	37			1	64				
06:15		16	27			6	67				
06:30		8	22			4	52				
06:45		20	21	45	107	7	40	18	223	63	330
07:00		20	16			8	32				
07:15		60	17			12	15				
07:30		90	22			41	28				
07:45		66	24	236	79	44	26	105	101	341	180
08:00		76	15			22	22				
08:15		40	15			40	8				
08:30		53	11			13	4				
08:45		32	8	201	49	32	14	107	48	308	97
09:00		29	7			22	7				
09:15		22	6			14	9				
09:30		19	8			21	6				
09:45		15	8	85	29	15	5	72	27	157	56
10:00		18	7			15	4				
10:15		29	10			18	10				
10:30		20	8			15	5				
10:45		22	7	89	32	22	9	70	28	159	60
11:00		23	6			13	5				
11:15		20	11			16	4				
11:30		15	8			17	11				
11:45		19	2	77	27	26	8	72	28	149	55
Total		756	1048			467	1248			1223	2296
Percent		41.9%	58.1%			27.2%	72.8%			34.8%	65.2%

Montachusett Regional Planning Commission

Community: Ayer
 Street: Main Street
 Location: W. of Columbia Street
 Function Class: U-3

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

Site Code: 01920084100
 Station ID:

Start Time	19-Nov-08 Wed	East		Hour Totals		West		Hour Totals		Combined Totals	
		Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon
12:00		35	99			27	99				
12:15		18	93			18	118				
12:30		12	82			18	105				
12:45		13	84	78	358	18	100	81	422	159	780
01:00		14	104			13	98				
01:15		6	113			19	96				
01:30		7	106			4	99				
01:45		6	105	33	428	13	130	49	423	82	851
02:00		6	115			8	150				
02:15		3	114			5	102				
02:30		5	91			3	125				
02:45		2	115	16	435	6	116	22	493	38	928
03:00		4	123			2	101				
03:15		1	115			5	118				
03:30		6	99			7	126				
03:45		2	108	13	445	5	91	19	436	32	881
04:00		4	112			2	109				
04:15		3	99			1	117				
04:30		2	108			3	114				
04:45		3	100	12	419	1	145	7	485	19	904
05:00		4	119			7	139				
05:15		3	97			4	164				
05:30		7	94			4	178				
05:45		9	89	23	399	2	195	17	676	40	1075
06:00		10	101			7	186				
06:15		23	108			4	188				
06:30		20	112			7	203				
06:45		32	102	85	423	4	218	22	795	107	1218
07:00		41	104			10	175				
07:15		53	95			16	164				
07:30		82	113			34	163				
07:45		101	79	277	391	27	151	87	653	364	1044
08:00		138	63			56	148				
08:15		139	78			46	146				
08:30		116	90			66	109				
08:45		126	70	519	301	60	95	228	498	747	799
09:00		131	51			61	85				
09:15		144	54			81	72				
09:30		128	47			100	70				
09:45		126	44	529	196	76	63	318	290	847	486
10:00		125	37			77	44				
10:15		119	37			82	49				
10:30		110	39			94	36				
10:45		91	33	445	146	86	38	339	167	784	313
11:00		98	23			112	48				
11:15		101	29			83	29				
11:30		101	20			66	32				
11:45		96	54	396	126	112	38	373	147	769	273
Total		2426	4067			1562	5485			3988	9552
Percent		37.4%	62.6%			22.2%	77.8%			29.5%	70.5%

Montachusett Regional Planning Commission

Community: Ayer
 Street: Main Street
 Location: E. of Columbia Street
 Function Class: U-3

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

Site Code: 01920084101
 Station ID:

Start Time	19-Nov-08 Wed	East		Hour Totals		West		Hour Totals		Combined Totals	
		Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon
12:00		20	120			30	72				
12:15		32	105			34	108				
12:30		43	117			40	95				
12:45		30	105	125	447	28	115	132	390	257	837
01:00		17	93			19	113				
01:15		20	105			21	104				
01:30		19	109			22	99				
01:45		11	120	67	427	20	94	82	410	149	837
02:00		8	118			12	120				
02:15		6	118			20	130				
02:30		7	107			14	145				
02:45		3	114	24	457	8	124	54	519	78	976
03:00		6	102			7	118				
03:15		3	114			8	129				
03:30		5	90			4	118				
03:45		5	118	19	424	7	122	26	487	45	911
04:00		5	101			5	120				
04:15		7	104			11	94				
04:30		5	119			3	121				
04:45		3	113	20	437	1	127	20	462	40	899
05:00		4	114			5	125				
05:15		6	108			3	153				
05:30		6	114			7	159				
05:45		5	101	21	437	4	170	19	607	40	1044
06:00		5	98			6	181				
06:15		10	104			5	183				
06:30		14	109			7	191				
06:45		22	105	51	416	5	201	23	756	74	1172
07:00		34	105			5	196				
07:15		39	106			7	206				
07:30		44	124			10	180				
07:45		74	88	191	423	17	194	39	776	230	1199
08:00		110	108			40	163				
08:15		118	77			38	152				
08:30		157	64			42	150				
08:45		180	92	565	341	66	139	186	604	751	945
09:00		162	84			71	131				
09:15		160	56			76	108				
09:30		187	63			73	76				
09:45		188	51	697	254	114	77	334	392	1031	646
10:00		176	50			116	70				
10:15		150	50			106	77				
10:30		174	40			91	59				
10:45		154	36	654	176	97	54	410	260	1064	436
11:00		154	44			103	43				
11:15		118	26			95	48				
11:30		126	33			99	58				
11:45		110	35	508	138	99	45	396	194	904	332
Total		2942	4377			1721	5857			4663	10234
Percent		40.2%	59.8%			22.7%	77.3%			31.3%	68.7%

Montachusett Regional Planning Commission

Community: Ayer
 Street: Columbia Street
 Location: N. of Main St
 Fuction Class: U-6

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

Site Code: 1920084102
 Station ID:

Start Time	25-Oct-08 Sat	North		Hour Totals		South		Hour Totals		Combined Totals	
		Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon
12:00		8	46			3	63				
12:15		3	33			2	51				
12:30		0	43			4	41				
12:45		3	32	14	154	2	46	11	201	25	355
01:00		2	31			3	33				
01:15		1	39			1	40				
01:30		2	30			1	39				
01:45		2	17	7	117	0	37	5	149	12	266
02:00		1	26			3	38				
02:15		8	33			2	32				
02:30		1	20			1	34				
02:45		0	36	10	115	3	33	9	137	19	252
03:00		1	11			0	35				
03:15		1	22			2	38				
03:30		1	13			0	35				
03:45		0	15	3	61	0	40	2	148	5	209
04:00		2	15			1	30				
04:15		1	21			2	33				
04:30		1	29			2	24				
04:45		3	17	7	82	5	29	10	116	17	198
05:00		1	19			2	27				
05:15		1	24			1	29				
05:30		1	14			3	25				
05:45		3	17	6	74	3	23	9	104	15	178
06:00		7	11			5	23				
06:15		6	22			6	14				
06:30		11	15			8	21				
06:45		8	18	32	66	10	24	29	82	61	148
07:00		12	16			10	12				
07:15		8	16			6	17				
07:30		7	15			7	16				
07:45		18	15	45	62	17	24	40	69	85	131
08:00		19	15			15	21				
08:15		17	17			30	9				
08:30		16	5			25	16				
08:45		17	10	69	47	20	12	90	58	159	105
09:00		22	5			34	10				
09:15		16	3			34	12				
09:30		20	7			37	12				
09:45		26	9	84	24	33	9	138	43	222	67
10:00		23	4			53	10				
10:15		32	2			54	6				
10:30		27	10			50	13				
10:45		32	6	114	22	47	7	204	36	318	58
11:00		35	5			45	7				
11:15		27	5			49	5				
11:30		23	5			36	9				
11:45		33	0	118	15	56	2	186	23	304	38
Total		509	839			733	1166			1242	2005
Percent		37.8%	62.2%			38.6%	61.4%			38.3%	61.7%

Montachusett Regional Planning Commission

Community: Ayer
 Street: Columbia Street
 Location: N. of Main St
 Fuction Class: U-6

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

Site Code: 1920084102
 Station ID:

Start Time	26-Oct-08 Sun	North		Hour Totals		South		Hour Totals		Combined Totals	
		Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon
12:00		4	22			5	35				
12:15		2	18			6	49				
12:30		8	21			2	45				
12:45		3	23	17	84	4	37	17	166	34	250
01:00		1	27			9	39				
01:15		0	13			3	30				
01:30		2	21			9	42				
01:45		0	23	3	84	2	29	23	140	26	224
02:00		0	18			3	31				
02:15		1	17			3	16				
02:30		0	17			5	23				
02:45		0	17	1	69	5	26	16	96	17	165
03:00		0	22			3	31				
03:15		0	10			7	23				
03:30		0	14			6	35				
03:45		0	18	0	64	0	30	16	119	16	183
04:00		0	7			4	17				
04:15		0	12			1	29				
04:30		0	21			1	34				
04:45		0	7	0	47	2	28	8	108	8	155
05:00		0	13			2	24				
05:15		0	14			2	32				
05:30		0	16			3	17				
05:45		0	14	0	57	0	30	7	103	7	160
06:00		0	10			1	28				
06:15		0	10			1	26				
06:30		0	18			1	22				
06:45		0	12	0	50	5	14	8	90	8	140
07:00		0	11			4	28				
07:15		0	14			3	17				
07:30		0	16			4	16				
07:45		0	14	0	55	2	14	13	75	13	130
08:00		0	7			7	22				
08:15		0	3			16	26				
08:30		0	3			18	15				
08:45		0	1	0	14	16	16	57	79	57	93
09:00		1	2			35	13				
09:15		0	1			31	18				
09:30		0	4			38	8				
09:45		0	2	1	9	53	7	157	46	158	55
10:00		5	1			45	11				
10:15		7	6			60	5				
10:30		11	3			48	2				
10:45		11	3	34	13	43	2	196	20	230	33
11:00		17	3			35	5				
11:15		3	2			37	5				
11:30		9	0			38	2				
11:45		24	0	53	5	35	4	145	16	198	21
Total		109	551			663	1058			772	1609
Percent		16.5%	83.5%			38.5%	61.5%			32.4%	67.6%
Grand Total		1654	3659			3179	5187			4833	8846
Percent		31.1%	68.9%			38.0%	62.0%			35.3%	64.7%
ADT		ADT 3,420				AADT 3,420					

APPENDIX
TOWN OF AYER COMMENT LETTER

Board of Selectmen

MEETING TUESDAYS AT 7:00 P.M. • UPPER TOWN HALL • 1 MAIN STREET • AYER, MASSACHUSETTS 01432

RECEIVED
DEC 21 2009



Tel. (978) 772-8220
Fax. (978) 772-3017

Town Administrator
(978) 772-8210

December 17, 2009

Mr. Mohammed Khan, Administrator
Montachusett Area Regional Transit Authority
R-1427 Water Street
Fitchburg, MA 01420

RE: Draft Ayer Parking Garage Impact Analysis Comments

Dear Mr. Khan:

Please accept the following comments on the draft document entitled "Ayer Parking Garage Impact Analysis." I will leave to MART / MRPC discretion on how best to incorporate, or respond to, such commentary.

On the whole, I am pleased with the breadth of detail and analysis and fully concur with the recommendation that the project move forward with more detailed operational and engineering studies to identify improvement and mitigation projects associated with the parking facility.

The state and federal funds appear to have been mired in a bureaucratic malaise. It is my hope, and that of the Board of Selectmen, that the earmarked funds be tapped now to initiate actual design and engineering of appropriately-sized and scaled facilities to serve the regional commuters and the historic central business district.

The report provides a wealth of information and data that further highlights the need for additional parking for the commuter rail station.

The most recent MBTA ridership totals indicate that Ayer's station was the busiest of all stations in MART's service area during the most recent reporting period. With the substantial improvements pending for the Fitchburg Line including rail upgrades, double-tracking and improved scheduling to allow for reverse commute operations, it is essential this project be advanced now to ensure continued access for regional commuters while also maintaining the vitality of Ayer's historic downtown station and business district.

The document references construction of a 400 vehicle parking garage on the site of the current surface lot for the Nashua River Rail Trail. My understanding is this total reflects an identified 350 vehicle demand plus a 50 vehicle set-aside for the rail trail users.

As you know, the Board of Selectmen have adopted a series of findings endorsing the need for additional parking and specifically endorsing the so-called "hybrid" solution wherein the proposed 400-space parking demand would be shared between a structure constructed on the rail trail site and a complementary surface lot or parking deck constructed ideally along fallow land abutting Central Ave. and the railroad tracks.

The Board of Selectmen's voted findings of March 20, 2007 reflect the preliminary planning, the need for parking, and the Board's vision for facilities that will fit the scale and character of the historic downtown district.

Mr. Mohammed Khan, MART
December 17, 2009
Page Two

Earlier this year, the Board of Selectmen endorsed further-developed concepts articulated in the October 2008 "Parking and Town Center Sites in Downtown Ayer" program summary by The Cecil Group, Inc., and the May 2009 recommendation to "ensure the continuation of the Ayer train depot at its current location and final design and construction of parking facilities and streetscape improvements" as listed in the "Downtown Ayer Commercial Market Study Findings Report" by Larry Koff & Associates.

Most recently, as has been shared with MART and MRPC, the Board of Selectmen endorsed the June 2009 "Ayer: Downtown Planning and Transit Initiatives" compiled illustrative plan which identifies the preferred Main Street crossing location and the proposed hybrid parking sites. Copies of all reports identified have previously been conveyed to MART.

In sum, the desire to site 400 spaces of parking at the rail trail site will require initiation of architectural and engineering work to allow a full public vetting of the size, scale, and design considerations of the parking structure together with mitigation of any traffic or Main Street crossing impacts. It is my understanding that completion of the MART/MRPC report will now afford access to the next phase of earmarked funds to retain qualified architectural and engineering resources to ensure a facility or facilities that meet both the regional needs and the local vision.

Lastly, in a related matter, the Town has provided to MART/MRPC staff information concerning a promising potential land acquisition in the "Depot Square" area that would provide a logical, perpetual and clearly defined corridor to access the train station directly from the end of the rail trail. The area is generally defined on the compiled Cecil plan. The actual crosswalk / crossing location would need to be determined through the report's recommendation of additional operational and engineering review.

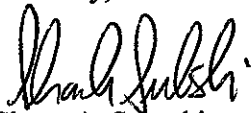
It was my understanding that this crossing option was to have been explored either within the report or as an addendum thereto.

At this point, it appears the project should move to the next phase through the retention of a qualified architectural and engineering firm that would work collaboratively with MART and the Board of Selectmen to design a mutually-preferred solution to the parking demand.

The Board of Selectmen eagerly await receipt of the final report for full public disclosure and vetting. It is fully anticipated that the report document itself be accompanied with your agency's recommendations on the next steps and a timeline for procuring/retaining a qualified architectural and engineering firm.

I am returning the DRAFT report to you herewith. Thank you for your technical assistance in moving this project forward. Call me directly at 978-772-8210 with any questions.

Sincerely,



Shaun A. Suhoski
Town Administrator

cc: Board of Selectmen