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SECTION I

Study Introduction

Coler & Colantonio, Inc. has analyzed traffic impacts associated with the proposed Cedar Ridge Estates in the Town of Holliston, MA. This introductory section briefly describes the project site location, development program, the study area, and the traffic analysis methodology.

Project Site

The proposed site for the Cedar Ridge Estates is a parcel of land located on the southwest corner of the intersection of Marshall Street and Prentice Street in Holliston, Massachusetts. The location of the site is indicated in Figure 1. The site is bordered to the northeast by Marshall Street, to the southeast by abutting properties, to the north by Prentice Street, to the west by the Hopkinton/Holliston town line, and to the south by residential properties and undeveloped land. The surrounding land use is primarily residential or undeveloped. The existing site is currently wooded and undeveloped. There are two houses with frontage along Marshall Street located just off the southeast border of the site.

Development Program

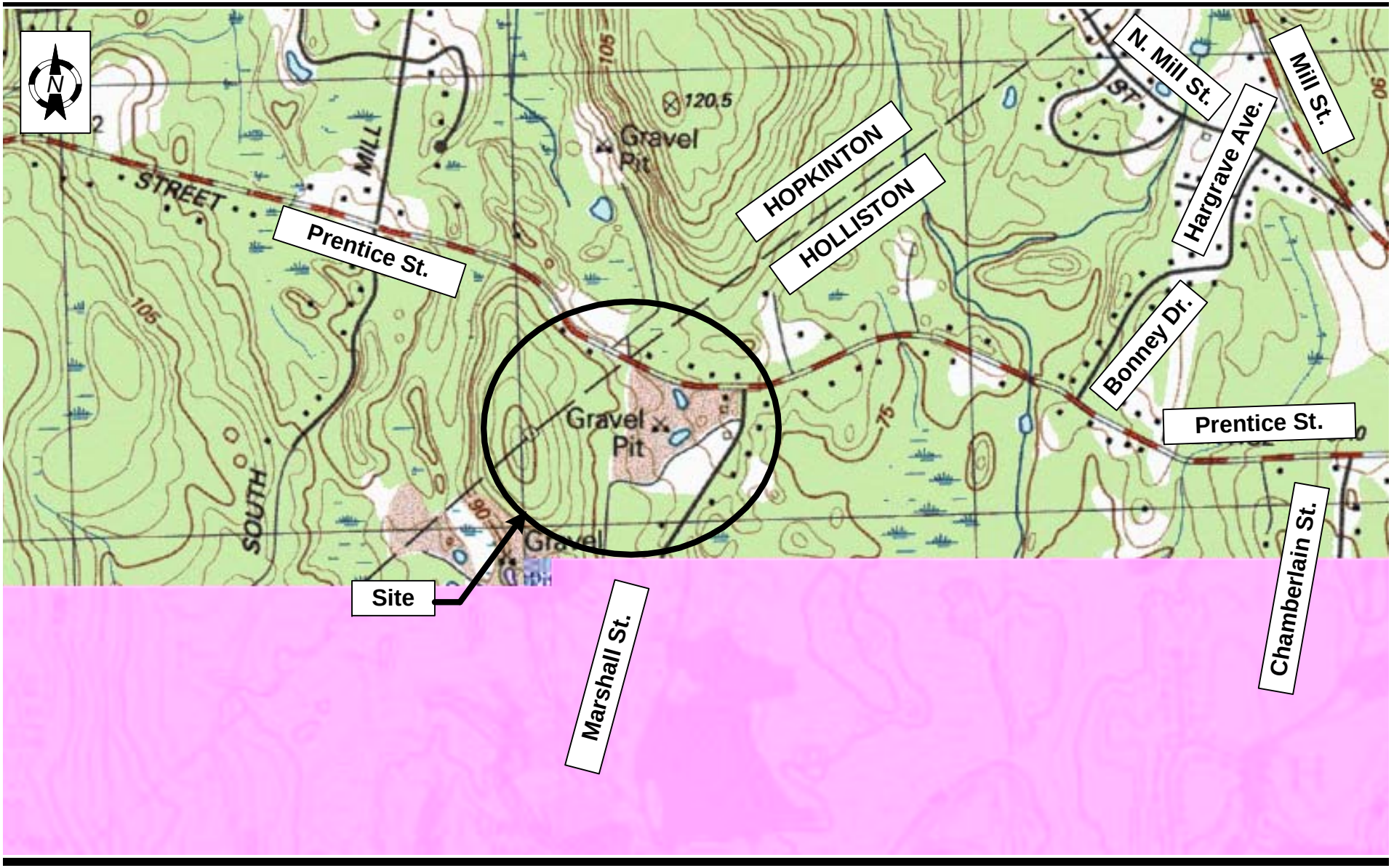
The proposed Cedar Ridge Estates project includes the development of 200 residential townhouse style condominiums. The units will have access provided by two site driveways on Marshall Street just south of Prentice Street. Both site driveways will provide access to all of the units within the site. An emergency only access to the site located at the southern end of the site is also proposed. Within the site, all of the units will have individual driveways.

Study Area

The study area for the residential condominium project was determined by looking at the intersections in the vicinity of the site that may see the most change in traffic volumes due to the proposed project. The following intersections were studied:

- Marshall Street @ Prentice Street
- Marshall Street @ Proposed Site Driveways

In addition to the study area intersections listed above, and evaluation of the full length of Marshall Street was also completed.



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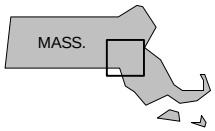


Project Locus Map

Cedar Ridge Estates
Holliston, Massachusetts

Figure 1

Traffic Analysis Methodology

Traffic volume data was collected for the study area intersections and roadways. These volumes were used to evaluate the existing operation of the above study area intersections in terms of capacity, delay experienced by motorists, and level of service. Future operation without the project was evaluated by projecting the existing traffic volumes to future levels based on historic traffic growth and any specific developments planned for the area. Future operations for the full-build project were evaluated by adding project-related traffic to the projected future no-build traffic volumes. Traffic impacts associated with the proposed project were determined by comparing existing and future operations without the project to the future operations with the project. Additionally, accident statistics and sight distance measurements were collected for the study area roadways and intersections. This information was used to evaluate the operational safety associated with the study area intersections.

SECTION II
Existing Conditions

The evaluation of existing conditions includes a description of geometry, traffic control, and land uses in the vicinity of the study area roadways and intersections; quantification of existing daily and peak hour traffic volumes; and, a review of accident data within the study area.

Inventory of Study Area Roadways & Intersections

Roadways

Prentice Street

Prentice Street in Holliston is an east-west urban minor arterial, which runs from the Holliston/Hopkinton town line to Highland Street. Prentice Street is a town accepted and maintained roadway.

In the vicinity of the site, Prentice Street is a two-lane roadway with varying width. West of the intersection with Marshall Street, Prentice Street is 20 feet wide. East of the intersection with Marshall Street, Prentice Street is 28 feet wide. The roadway is striped with a double yellow centerline for approximately 10-foot travel lanes west of the intersection with Marshall Street, and 14-foot travel lanes east of the intersection with Marshall Street. There is no sidewalk along the roadway. The posted speed limit on Prentice Street is 35 mph within the study area. The land use along Prentice Street is primarily residential or undeveloped.

Marshall Street

Marshall Street in Holliston is a north-south urban extension, which runs from Prentice Street to Adams Street. Marshall Street is a town accepted and maintained roadway. Marshall Street holds a "scenic road" designation in the Town of Holliston.

Marshall Street is a two-lane roadway with varying width and no posted speed limit. From Prentice Street to a point 2000 feet south of the proposed emergency access driveway, Marshall Street has a varying width of 21 to 22 feet, has no curbing, no berm, and no pavement markings. Roadside obstructions along this section of Marshall Street include trees and utility poles within 1 foot of the roadway, and vertical and horizontal curves that limit sight distance. From 2000 feet south of the proposed emergency access driveway to the end of Marshall Street at the intersection with Adams Street, Marshall Street has a varying width of 18 to 20 feet, has no curbing, alternates between having berm and not, and has no striping except at the intersection with Courtland Street. Roadside obstructions along this section of Marshall Street include trees and utility poles within 1 foot of the roadway and stonewall within 2 feet of the roadway. There are horizontal curves and vertical curves that limit sight distance within this section of Marshall Street. There are no sidewalks on any part of Marshall Street. A table including the information found during the Marshall Street roadway inventory is included in the Appendix.

The Holliston Youth Soccer Association (HYSA) has recently constructed a soccer field complex on the east side of Marshall Street, across from the approximate location of the

proposed emergency access driveway. The complex includes two full use soccer fields, four practice fields, and 230 parking spaces. The HYSA has games scheduled on Saturdays from 9am-3pm.

Two notable intersections exist along Marshall Street. Courtland Street intersects Marshall Street as a "T" intersection approximately 1.1 miles south of the proposed emergency access driveway. Courtland Street is under stop sign control. An island exists at the intersection, allowing for two way traffic flow on each side of the island. On Courtland Street, a double yellow centerline on each side of the island designates lanes for entering and exiting. Marshall Street is 22 feet wide approaching the intersection from the north, and 27 feet wide approaching the intersection from the south. Courtland Street approaching the intersection is 21 feet wide. The speed limit on Marshall Street approaching the intersection is 20 mph. Marshall Street, south of the intersection begins to proceed in a westerly direction.

Marshall Street terminates at its intersection with Adams Street as a "T" intersection. At the intersection, Marshall Street is under stop control, is 19 feet wide, and has a bituminous berm along both sides of the roadway. The speed limit along Adams Street is 35 mph north of the intersection, and 30 mph south of the intersection.

Intersections

Marshall Street @ Prentice Street

Marshall Street intersects Prentice Street to form a three-legged "T" intersection with Marshall Street under stop conditions. Prentice Street, at this intersection, is a two-lane roadway with varying width. West of the intersection with Marshall Street, Prentice Street is 20 feet wide. East of the intersection with Marshall Street, Prentice Street is 28 feet wide. The roadway is striped with a double yellow centerline for approximately 10-foot travel lanes west of the intersection with Marshall Street, and 14-foot travel lanes east of the intersection with Marshall Street. No curbing, sidewalks, or striping exist along the intersection. There is a stop sign located at the intersection for vehicles along Marshall Street approaching the intersection.

The land uses of properties around the Marshall Street at Prentice Street intersection include a single house on the immediate southwest corner of the intersection, houses along the north side of Prentice Street, and a wooded area on the southeast corner.

Existing Traffic Volumes

In order to determine base traffic volume conditions, manual turning movement counts and automatic traffic recorder counts (ATR) were performed. Manual turning movement counts were performed May 1st to May 3rd 2003. ATR counts were originally performed in May of 2003 to determine the daily traffic on Marshall Street and Prentice Street. Subsequent ATR counts were performed on Prentice Street at the location of the proposed site on Tuesday September 20th 2005 and again from Friday October 14th to Sunday October 16th 2005 to determine if traffic volumes had increased since the original counts were performed.

Manual turning movements counts were performed during the weekday morning peak period (7:00 am to 9:00 am) and weekday evening peak period (4:00 to 6:00 pm) at the study area

intersection. The actual peak hours for traffic volumes in the study area were found to be 7:00 to 8:00 am and 4:45 to 5:45 pm. Figure 2 presents the 2005 existing weekday morning and weekday evening peak hour traffic volume conditions. Copies of the actual traffic volume data are provided in the Appendix.

To determine if the measured turning movement count volumes would need to be adjusted to reflect a average monthly volumes, traffic volume data from the Massachusetts Highway Department (MHD) 2003 Weekday Seasonal Factors was used. A copy of this table is included in the Appendix. The table revealed that monthly traffic conditions in the month of May are historically around average monthly traffic volume conditions. Therefore, the May traffic volumes were not adjusted, and the analyses presented in this report represent an average month condition. However, since the turning movement counts were performed in May of 2003, the counts were adjusted forward by a percentage to meet September 2005 conditions. The percentage used was based on the average rate of increase from the ATR counts for Prentice Street and Marshall Street from 2003 to 2005, and used to determine the adjusted volumes for the turning movement counts at the intersection of Marshall Street at Prentice Street.

ATR counts were conducted for a 24–hour period at the location of the site on Prentice Street and Marshall Street. Table 1 tabulates the average daily traffic volumes for the ATR location. Copies of the actual traffic volume data are provided in the Appendix.

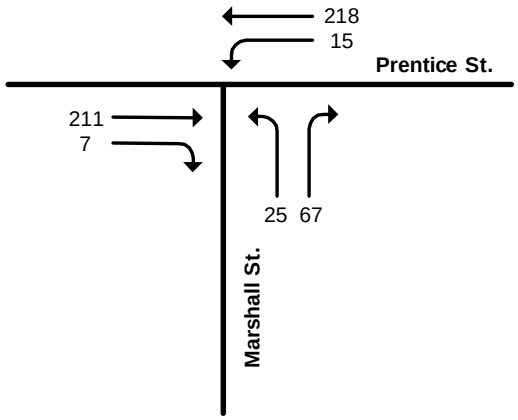
Table 1. Existing Traffic Volume Summary

		Average Daily Traffic		Peak Hour Traffic			
Location	**Day of Week**	**Volumes (vpd)[a]**	**Directional Distribution**	**Period**	**Volumes (vph)[b]**	**Directional Distribution**	**K factor[c]**
Prentice Street	Weekday	4206	52% EB	Morning	441	54% EB	0.10
				Evening	431	51% EB	0.10
Marshall Street	Weekday	1347	52% NB	Morning	133	74% NB	0.10
				Evening	166	59% SB	0.12
Marshall Street	Weekend	1555	54% NB	Mid-day	209	59% NB	0.13

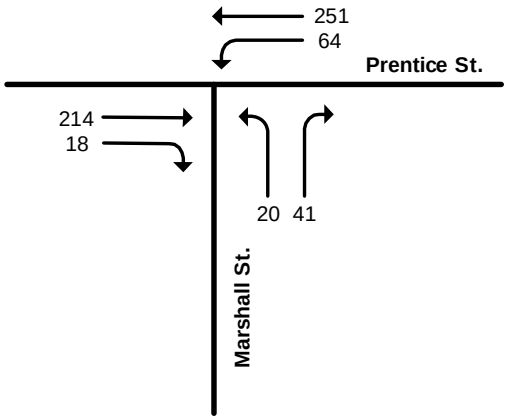
[a] Vehicles per day
[b] Vehicles per hour
[c] Percent of daily traffic

To determine if the measured ATR count volumes would need to be adjusted to reflect average monthly volumes, traffic volume data from the MHD 2003 Weekday Seasonal Factors was once again used. The table revealed that monthly traffic conditions in the month of September are historically around average monthly traffic volume conditions. Therefore, the September traffic volumes were not adjusted, and the analyses presented in this report represent an average month condition.

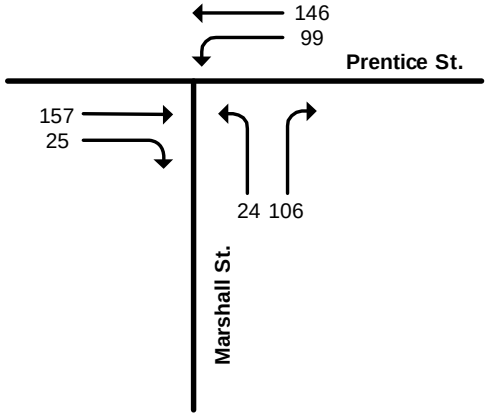
Weekday AM Peak Hour
7:00 - 8:00 AM



Weekday PM Peak Hour
4:45 - 5:45 PM



Saturday Peak Hour
11:00 AM - 12:00 PM



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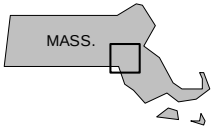


2005 Existing Conditions
Traffic Volumes

Cedar Ridge Estates
Holliston, Massachusetts

Figure 2

Truck Percentages

As part of the evaluation of existing traffic conditions the percentage of heavy vehicles (trucks and buses) was reviewed. Heavy vehicle percentages were determined using the daily traffic counts that were performed on October 14-16, 2005, which were set up to also perform vehicle classification. According to the counts, traffic on Marshall Street experienced 6.2% heavy vehicles on Friday, October 14; 3.3% heavy vehicles on Saturday, October 15; and 2.5% heavy vehicles on Sunday, October 16. Vehicles classification counts are included in the Appendix.

Operational Analysis Methodology

The capacity of an intersection or any roadway is the maximum number of vehicles that can reasonably be expected to traverse a roadway segment and/or intersection approach during a specific time period, given the physical and operational characteristics of the facility. This capacity is determined by applying adjustment factors to an ideal saturation flow rate. The level of service (LOS), an expression of the quality of driving condition, is designated in a range from "A", which provides free flow and no traffic delays, to "F", which involves vehicle backups and traffic jam conditions. Capacity (LOS "E") represents a condition of maximum possible flow, and is controlled by the alignment and cross-section design features of an intersection or roadway segment.

Capacity analyses for unsignalized intersections are based on the average control delay for each of the intersection critical movements. Control delay includes initial deceleration delay, queue move up time, stopped delay, and final acceleration delay. The estimated control delay of a movement is calculated based on the number of the available critical gaps or spacing between vehicles in the conflicting traffic stream. Table 2 summarizes the relationship between average control delay, level of service, and expected traffic delay at unsignalized intersections.

Table 2. Level of Service Criteria – Unsignalized Intersections

Available Control Delay (sec/veh)	Level of Service	Expected Delay to Critical Movements
≤ 10	A	Little or no delay
>10 and ≤15	B	Short traffic delay
>15 and ≤25	C	Average traffic delay
>25 and ≤35	D	Long traffic delay
>35 and ≤50	E	Very long traffic delay
>50	F	Severe congestion

Source: *Highway Capacity Manual*, Transportation Research Board (TRB), National Research Council, 2000.

Assessment of Existing Conditions

Capacity analyses were conducted for the 2005 existing weekday morning, weekday evening, and weekend mid-day peak hour traffic volume conditions for study area intersections. The intersections were analyzed using the Highway Capacity Software (HCS) based on the Highway Capacity Manual (HCM) methods. The results of the intersection capacity analyses are summarized in Table 3. The actual intersection capacity analyses are presented in the Appendix.

From Table 3 it is evident that all of the movements within the study area intersection are currently operating at acceptable levels of service during the weekday morning, weekday evening, and weekend mid-day peak hour periods. All of the intersection approaches operate at LOS A or B in the peak hour periods.

Table 3. 2005 Existing Conditions – Intersection Level of Service Summary

	Weekday Morning Peak Hour		Weekday Evening Peak Hour		Saturday Mid-day Peak Hour	
Location/Movement	**Delay (spv)[a]**	**LOS[b]**	**Delay (spv)**	**LOS**	**Delay (spv)**	**LOS**
Marshall Street @ Prentice Street						
Prentice St. WB - LT	7.8	A	8.0	A	7.9	A
Marshall St. NB - LR	11.8	B	12.0	B	11.4	B

[a] Average delay for specific intersection movement expressed in seconds per vehicle
[b] Level of Service

Accident Data

Accident data for the study area was obtained from the Massachusetts Highway Department (MHD) for the three-year period between 2001-2003. The accident data was reviewed and accident trends at intersections within the study area were identified. Accident data provided by the Town of Holliston Police Department was used to supplement the data from the Massachusetts Highway Department. However, the Town of Holliston Police Department's data turned up no accidents at the study area intersection. The accident record analyses for each of the study area intersections are summarized in Table 4.

Crash rates for each intersection are included in Table 4. Accident crash rates are expressed in accidents per million vehicles entering the intersection and are recognized as an effective tool to measure the safety of intersections. According to the most recent MHD data, the average state crash rate unsignalized intersections is 0.80 per million entering vehicles (MEV) in MHD District 3 and 0.66 MEV statewide. In addition to the crash rates, the crash type, severity, conditions, and time of day for the accidents for each intersection are included in Table 4 based on data from MHD accident records. No fatalities were reported at the study area intersections during the three-year period researched.

Based on the data collected for each intersection, the crash rates for the study area intersection is below the state and district averages. The crash rate worksheet for each intersection is included in the Appendix. The following is a summary of the accident data for each intersection.

- A total of 2 accidents were reported at the intersection of Marshall Street at Prentice Street yielding a crash rate of 0.33 MEV. This is well below the District 3 Average Crash Rate of 0.80 MEV for unsignalized intersections. One of the reported crash types was an angle collision and one was a rear end collision. One of the accidents reported wet roadway conditions, while one reported dry conditions. None of the accidents occurred during the weekday morning or evening peak periods. Based on the data, the most probable causes for the accidents at this location is driver error.

Table 4. Accident Summary – 2001 to 2003

	Marshall St. / Prentice St.
Year	
2001	2
2002	0
2003	0
Total	*2*
Crash Rate (MEV)	0.33
Type	
Angle	1
Head-on	0
Rear-end	1
Unknown	0
Total	*2*
Severity	
Property Damage	2
Personal Injury	0
Fatality	0
Unknown	0
Conditions	
Dry	1
Wet	1
Ice/snow	0
Other	0
Unknown	0
Time of Day	
7:00 – 9:00 AM	0
4:00 – 6:00 PM	0
Remainder of day	2

Source: Massachusetts Highway Department.

SECTION III
Future No-Build Conditions

To evaluate the impact of site-generated traffic volumes on the study area roadway network, trip generated traffic from the proposed development is calculated, distributed into the roadway network and assessed under year 2010 future traffic conditions. Thus, it is necessary to project future traffic conditions without the project and conduct a similar evaluation of operational conditions for the future study year, to establish a base condition to review the effect of added traffic on the existing roadway system. To determine the future 2010 condition, the following steps are included:

1. Existing 2005 traffic volumes are projected to 2010 using an annual background traffic growth factor;
2. Traffic volumes associated with any planned developments that may impact the study area are added;
3. Any planned improvements of the roadway network are included in the analysis; and,
4. Each study area location is analyzed to determine future operational statistics.

Background Traffic Growth

Traffic growth on area roadways is a direct function of the expected land development within the study area and the surrounding region. Usually, a combination of techniques is employed to estimate this growth. To account for normal background traffic growth of the surrounding region, an annual background growth rate is applied to the study area traffic volumes. This is generally supplemented by the addition of traffic impacting the study area from specifically known development projects.

Known Development Projects

Discussions with the City of Holliston Planning Department and a site visit inspection indicated that there is one recent development project that will increase traffic around the study area. The project includes the addition of two full-size soccer fields, four practice fields, and a parking lot located along the eastern side of Marshall Street, south of the proposed development. At the time the 2005 traffic counts were performed, the full size fields were in operation but the practice fields were still under construction.

Average Annual Traffic Growth

To determine the average annual growth factor, the Town of Holliston census data along with the ATR counts from 2003 and 2005, were examined. U.S. Census information for the Town of Holliston indicates that the population of Holliston increased at an average rate of 0.7% per year from 1990 to 2000. It was also found that the ATR counts for Prentice Street and Marshall Street increased at a rate of 1.4% and 18.4%, respectively, over the two-year period from 2003 to 2005. As a result, a conservative annual growth rate of 3.5% was chosen for analyses for this project.

Planned Improvements

Discussions with the Town of Holliston indicated that there are no known transportation improvement projects planned that will effect traffic conditions at the study area intersections. The Holliston Department of Public Works indicated that a pavement overlay along Prentice Street in the vicinity of the site was completed in 2004.

No-Build Condition Traffic Volumes

Based on the average annual growth rate discussed above the existing 2005 traffic volumes were projected five years to 2010 No-Build Conditions. As the newly created soccer fields are seasonal and have varying schedules for use no additional traffic volumes were added to the existing measured traffic volumes to calculate the 2010 No-Build traffic volumes. In order to assess traffic conditions within the study area when the soccer fields are in full use a separate peak soccer conditions analysis was performed Section IV. Figure 3 depicts the projected 2010 No-Build Condition Peak Hour Volumes (without any additional soccer traffic volumes).

Assessment of Future No-Build Conditions

Capacity analyses were conducted for 2010 No-Build conditions for the weekday morning, weekday evening, and weekend mid-day peak hour traffic volume conditions for the study area intersections. The results of these analyses are shown in Table 5. A copy of these analyses worksheets is included in the Appendix.

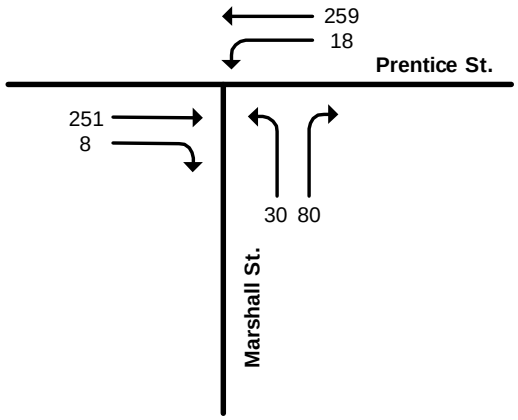
From Table 5 it is evident that the study area intersections are expected to continue to operate at acceptable levels of service during the weekday morning, weekday evening, and weekend mid-day peak hour periods under future No-Build conditions. Some slight reductions in level of service are expected from existing conditions. This is a result of the added traffic volumes to account for the assumed background growth rate of the area, chosen as 3.5% as discussed previously.

Table 5. 2010 No-Build Conditions – Intersection Level of Service Summary

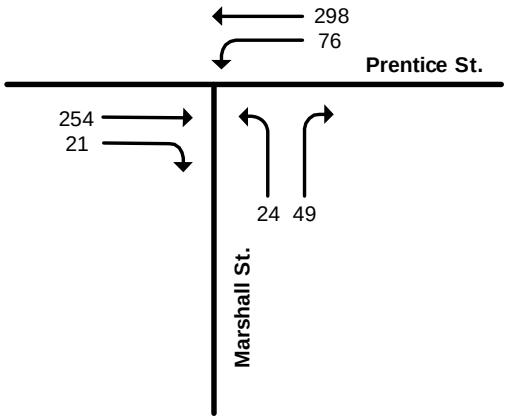
	Weekday Morning Peak Hour		Weekday Evening Peak Hour		Saturday Mid-day Peak Hour	
Location/Movement	**Delay (spv)[a]**	**LOS[b]**	**Delay (spv)**	**LOS**	**Delay (spv)**	**LOS**
Marshall Street @ Prentice Street						
Prentice St. WB - LT	7.9	A	8.1	A	8.1	A
Marshall St. NB - LR	12.3	B	13.5	B	12.6	B

[a] Average delay for specific intersection movement expressed in seconds per vehicle
[b] Level of Service

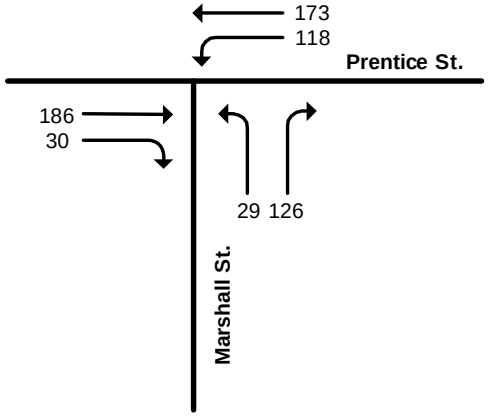
Weekday AM Peak Hour
7:00 - 8:00 AM



Weekday PM Peak Hour
4:45 - 5:45 PM



Saturday Peak Hour
11:00 AM - 12:00 PM



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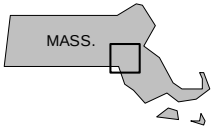


2010 No-Build Conditions
Traffic Volumes

Cedar Ridge Estates
Holliston, Massachusetts

Figure 3

Section IV
Future Build Conditions

Development Plan

The proposed Cedar Ridge Estates project includes the development of 200 residential townhouse style condominiums. The condominiums will be constructed on currently undeveloped land on the southwest corner of the Prentice Street at Marshall Street intersection.

Site Access

Two site driveways on the west side of Marshall Street will provide access to the proposed development. Both site driveways will provide access to any point within the site. An emergency only access is also proposed at the southern end of the site. Within the site, the main site driveways are proposed at 22 feet wide with bituminous curbing. All of the proposed units will have individual driveways. There are no existing sidewalks on Marshall Street and sidewalks are not proposed within the site.

Proposed Site Driveway #1 @ Marshall Street

Proposed site driveway #1 intersects Marshall Street approximately 800 feet south of the intersection of Marshall Street at Prentice Street. Site driveway #1 initiates off the west side of Marshall Street, and provides access to any of the proposed units.

Proposed Site Driveway #2 @ Marshall Street

Proposed site driveway #2 intersects Marshall Street 1350 feet south of the intersection of Marshall Street at Prentice Street, and 550 feet south of the intersection of site driveway #1 at Marshall Street. This driveway is located on Marshall Street between existing residential properties. Site driveway #2 initiates off the west side of Marshall Street, and also provides access to any of the proposed units.

Sight Distance

A sight distance evaluation was performed for the proposed site driveway and for the intersection of Marshall Street at Prentice Street. Two separate sight distance criteria were considered in evaluating the location of the proposed site driveways and the existing Marshall Street @ Prentice Street intersection. Vehicles approaching the driveways to the site on Marshall Street and vehicles approaching Marshall Street at Prentice Street will require enough sight distance for stopping. Vehicles exiting from the site driveways or Marshall Street will require sufficient intersection sight distance to safely access the adjacent streets. Coler & Colantonio, Inc. conducted a sight distance inspection in the field and reviewed the proposed site plans to determine the available stopping and intersection sight distances. Discussions of each follow.

The adequacy of available sight distance is a function of the speed at which vehicles are approaching. In order to determine the adequacy of available sight distances, the vehicle speeds on the adjacent roadway was reviewed. The posted speed limit is 35 mph on Prentice

Street at the intersection with Marshall Street. There is no posted speed limit on Marshall Street. A 24-hour speed count performed on Prentice Street and on Marshall Street at the location of the site found that the average speed of vehicles was 36 mph on Prentice Street and 36 mph on Marshall Street. The 85th percentile speed (speed at which 85% of vehicle were at or below) was 40 mph on Prentice Street and 42 mph on Marshall Street. The 85th percentile speed is commonly used as a design speed for a roadway.

Stopping Sight Distance

The available stopping sight distance was measured in the field using an object 2.0 feet above the road surface at the primary site drive location and driver's eye height of 3.5 feet, according to AASHTO guidelines. An object height of 2.0 feet is representative of an object that involves risk to drivers that can also be recognized by a driver in time to stop before reaching it.[1]

Table 6 displays both the AASHTO recommended stopping sight distances and the available stopping sight distance as measured in the field approaching the site driveways. It can be seen from the table that the available sight distances at the intersection of Marshall Street at Prentice Street and the at the proposed site driveways exceed the minimum AASHTO recommended stopping sight distance for the posted speeds, average and 85th percentile speeds.

[1] American Association of State Highway and Transportation Officials, *A Policy on Geometric Design of Highways and Streets*, AASHTO, 2001, Page 127.

Table 6. Stopping Sight Distance

Location/Condition	Stopping Sight Distance (ft)
Marshall Street @ Prentice Street	
Recommended Sight Distance	
35 MPH (Posted Speed)	250 ft
36 MPH (Average Speed)	260 ft
40 MPH (85^{th} Percentile Speed)	305 ft

Intersection Sight Distance

Intersection sight distance is the distance required for vehicles exiting the site driveways to safely access or cross the adjacent roadway without interrupting the flow of traffic on the existing through street. The intersection sight distance at site driveways and at Marshall Street was measured from a point 14.5 feet outside the edge of the major-road travel way, which is within the range of AASHTO's[3] sight triangle vertex. At the intersection of Marshall Street the intersection sight distance looking left was also measured from a point 10 feet back from the travel way (approximate furthest point to which a vehicle can safely pull up).

Table 7 displays the AASHTO minimum intersection sight distance for both the posted speed limits and the average and 85th percentile travel speeds. The table also displays the existing intersection sight distance as measured in the field, exiting the site driveways onto Marshall Street, anticipating the driveways being constructed and site clearing and grading performed. Also included in the table is the intersection sight distance available exiting Marshall Street onto Prentice Street looking each direction without any improvements.

It is evident from the table that the measured intersection sight distances exceed the minimum AASHTO intersection sight distance for the posted speeds, average travel speeds, and 85th percentile speeds for the proposed Site Driveways. Two of the available intersection sight distances do not quite meet the AASHTO recommended distances for avoiding interruption in traffic flow of approaching vehicles on Marshall Street. Looking left out of Site Driveway #1 and looking right out of Site Driveway #2 the sight distances are limited by vertical curves in Marshall Street. Although these directions do not meet the recommended intersection distances they do meet the minimum distances for vehicles to stop and do not represent a safety concern.

Intersection sight distance was also evaluated at the existing Marshall Street at Prentice Street intersection. From Table 7, it is evident that the intersection sight distance looking right out of Marshall Street exceeds the minimum and recommended AASHTO intersection sight distance criteria for the posted speeds, average travel speeds, and 85th percentile speeds. At the intersection, both trees along Prentice Street and a vertical curve in Prentice Street limit the existing intersection sight distance for vehicles looking left out of Marshall Street. The minimum sight distance for posted speed and average speed looking left (west) is only satisfied from a driver's eye position 10 feet outside the edge of the major-road travel way instead of the recommended 14.5 feet. Even with pulling up to 10 feet outside the traveled way the available sight distance does not meet the 85th percentile speed minimum distance.

It is our observation that the sight distance at the intersection is an existing problem, and the proposed development will not worsen the sight distance condition.

[3] Ibid, Page 660.

Table 7. Intersection Sight Distance

Location/Condition	Intersection Sight Distance (ft)
Marshall Street @ Prentice Street	
Minimum Sight Distance[a]	
35 MPH (Average Speed)	250 ft
36 MPH (Average Speed)	260 ft
40 MPH (85th Percentile Speed)	305 ft
Recommended Sight Distance	
35 MPH (Average Speed)	390 ft
36 MPH (Average Speed)	401 ft
40 MPH (85th Percentile Speed)	445 ft
Existing Sight Distance	
Looking West (Left @ 14.5' back)	155 ft
Looking West (Left @ 10' back)	260 ft
Looking East (Right)	570 ft
Marshall Street	
Minimum Sight Distance[a]	
36 MPH (Average Speed)	260 ft
42 MPH (85th Percentile Speed)	327 ft
Recommended Sight Distance	
36 MPH (Average Speed)	401 ft
42 MPH (85th Percentile Speed)	467 ft
Existing Sight Distance	
Proposed Site Driveway #1	
Looking North (Left)	410 ft
Looking South (Right)	500 ft
Proposed Site Driveway #2	
Looking North (Left)	800 ft
Looking South (Right)	400 ft

[a]Source: AASHTO, Exhibit 9-55[4]

Sight Distance Summary

In summary the available stopping sight distance and intersection sight distance for the site driveway exceed the AASHTO recommended minimums for posted speeds, average speeds and 85th percentile speeds for most all approaches. At the intersection of Marshall Street at Prentice Street there is one case where intersection sight distance is below the minimum for the posted speed and average speed. Looking left out of Marshall Street, sight distance is limited by trees on the corner of Prentice Street and Marshall Street. The applicant owns the property on this corner and is willing to perform clearing and grading within the lines of sight of Marshall Street exiting traffic in order to improve the existing sight distance deficiency at the intersection.

[4] Ibid, Page 665.

In order to assure safety in the future once the site is constructed, the proponent will maintain a line of site free of obstructions greater than 3.5 feet in height that would limit intersection sight distance at the proposed site driveways.

Project Trip Generation

The magnitude of site-generated traffic is directly related to the type of use and size of the proposed operation. Typically, the critical impact of a project on the area roadway network occurs during the peak hours of use of the surrounding roadway network. Because of the fact that the proposed development is residential the weekday morning (7:00 to 9:00 AM), weekday evening (4:00 to 6:00 PM) and weekend mid-day (11:00 AM to 1:00 PM) were selected as the peak hour analysis periods.

The proposed site used ITE methods to determine the number of vehicles that will be generated. For determining the trip generation ITE Trip Generation, 7th Edition was used. The Land Use Code selected was 230 Residential Condominium/Townhouse, which is representative of the proposed residential development.

Traffic Generation Methodology

Trip generation numbers for the proposed project are based on the methodology recommended in the ITE Trip Generation Handbook. The number of vehicles the residential development will generate is based on the number of dwelling units within the site. Using Land Use Code 230 selected above and the number of dwelling units the number of vehicles generated on a daily basis for each of the weekday morning and weekday evening peak hours can be determined.

The ITE Trip Generation Handbook cites different methods of determining trip generation based on the amount of data available for a particular land use. As recommended by the ITE Trip Generation Handbook the regression equation was used to determine the trip generation. This method was appropriate due to the fact that more than 20 data points were available and the number of apartments was within the range of the existing data. The regression equation is slightly more conservative, yielding higher estimates than average rates. The percentage of vehicles entering and exiting the site is also included in the ITE Trip Generation Land Use tables. Table 8 summarizes the unadjusted trip generation from the ITE methodology.

Table 8. Trip Generation Summary

Time Period/Direction	LUC 230, Residential Condominium/Townhouse [a] Trip Generation (vehicles)
Average Weekday Daily	1158
Weekday Morning Peak Hour	90
Entering (17%)	15
Exiting (83%)	75
Weekday Evening Peak Hour	106
Entering (67%)	71
Exiting (33%)	35
Average Saturday Daily	1152
Saturday Mid-day Peak Hour	101
Entering (54%)	55
Exiting (46%)	46

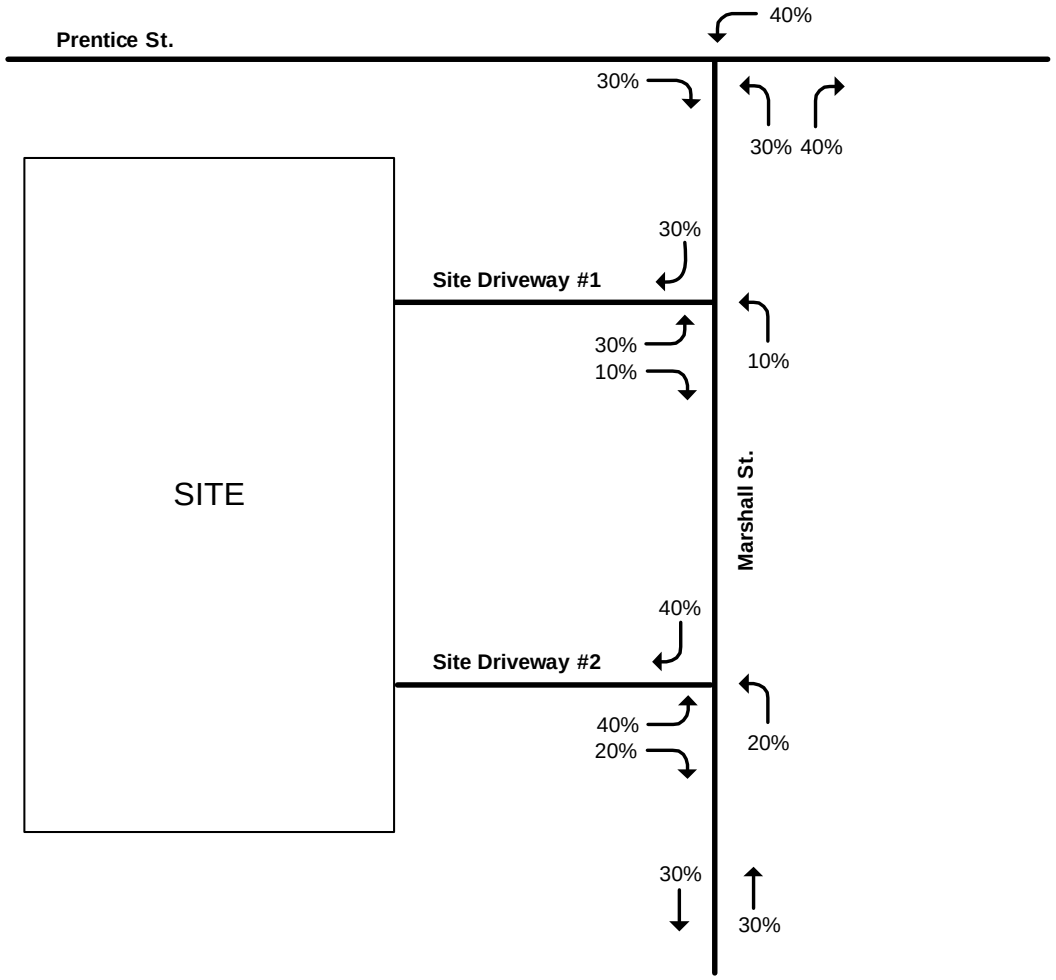
[a] Institute of Transportation Engineers, Trip Generation, 7th Edition, Washington, 2003.

Trip Distribution and Assignment

Trip distribution pertains to the origin and destination of project related trips on the surrounding roadway network. The directional distribution of vehicles to and from the proposed residential project was based on a number of factors. These factors include existing travel patterns of adjacent roadways and logical travel patterns. The assignment of resulting percentages to/from local communities was based on existing travel patterns and logical travel routes and the assumption that the majority of drivers will seek the most efficient travel route to and from the site. The directional distributional percentages are presented in Figure 4.

Based on the distribution assumptions described, the total number of trips was assigned to the adjacent roadway network. Trip assigned volumes are presented for the weekday morning peak hour and weekday evening peak hour are presented in Figure 5.

The peak hour project-related traffic included in the trip assignment diagrams was added to the 2010 No-Build condition peak hour traffic volumes. The resulting 2010 Build condition peak hour traffic volumes are presented in Figure 6.



Not to Scale

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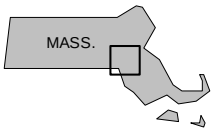
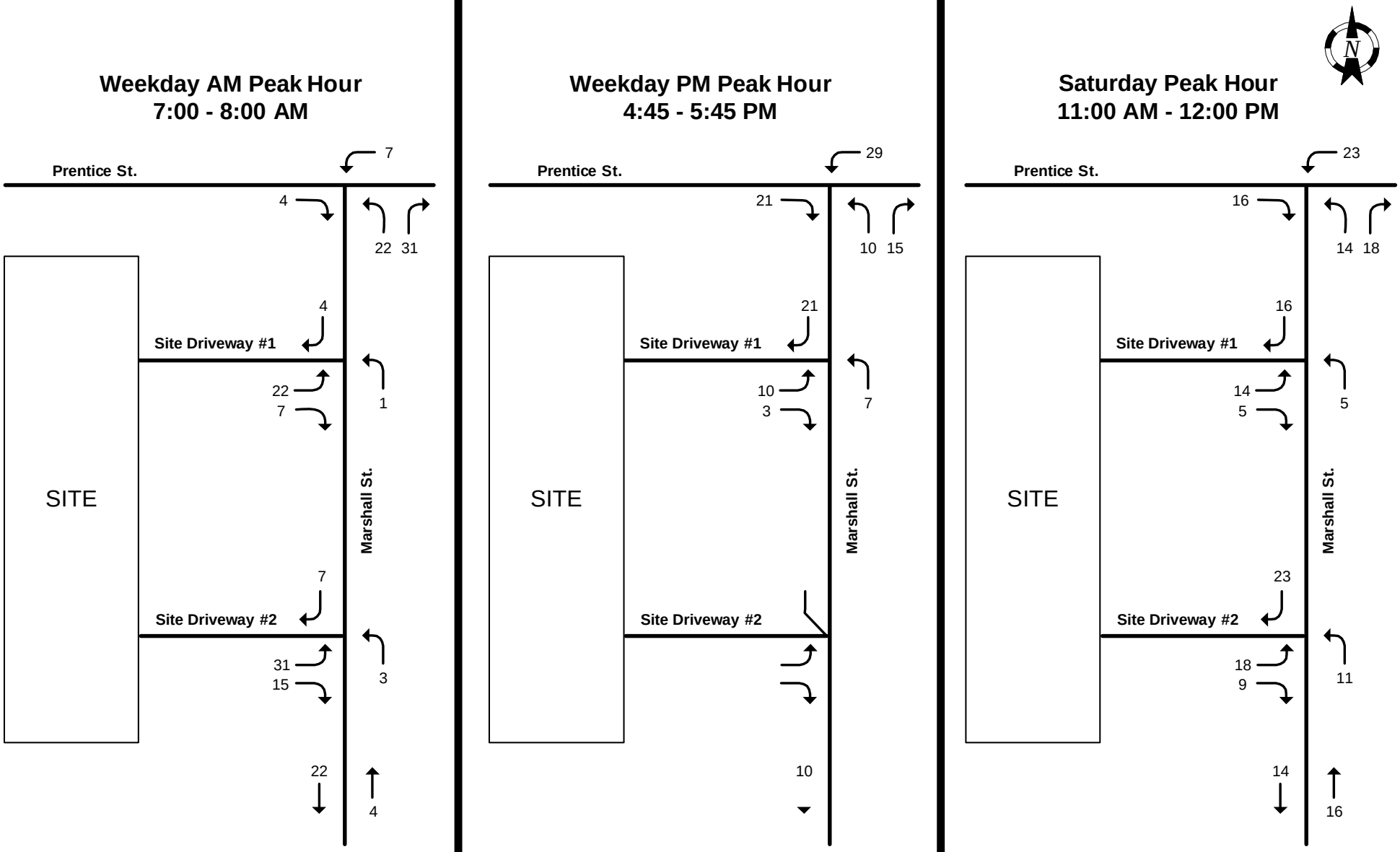


Trip Distribution

Cedar Ridge Estates
Holliston, Massachusetts

Figure 4



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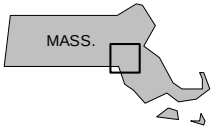

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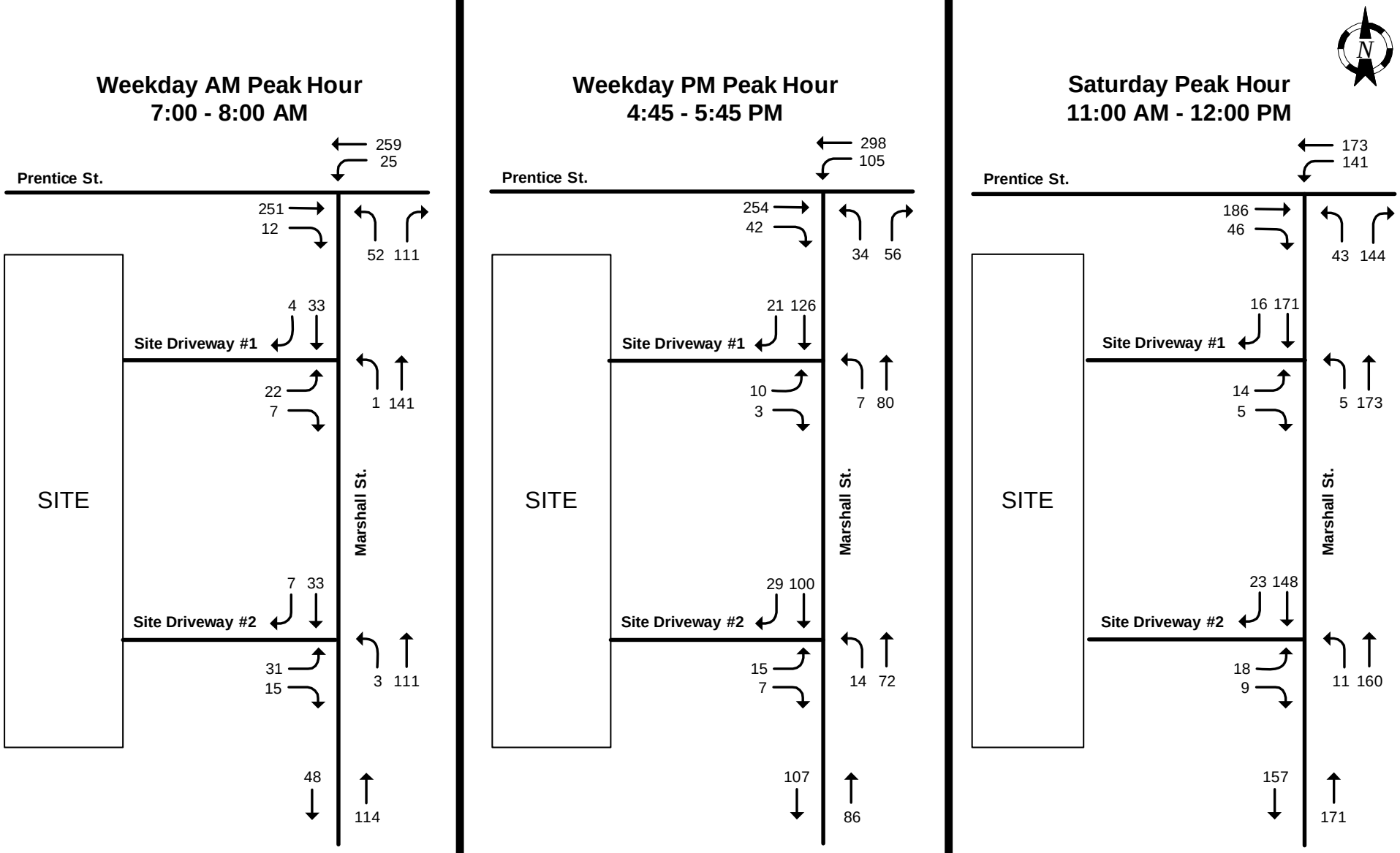
Trip Assignment

Cedar Ridge Estates
Holliston, Massachusetts

Figure 5



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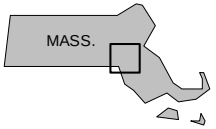

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2010 Build Conditions
Traffic Volumes

Cedar Ridge Estates
Holliston, Massachusetts

Figure 6

Assessment of Future Build Conditions

Capacity analyses were conducted for the weekday morning and weekday evening peak hour traffic volume conditions for the study area intersections. The results of the intersection capacity analyses are summarized in Table 9. The actual intersection and roadway capacity analyses are presented in the Appendix.

There was almost no change in level of service from No-Build Conditions to Build Conditions at the study area intersection. The only movement to have a change in LOS was the northbound movement on Marshall Street during the weekday evening peak hour. This approach only changed from a LOS "B" to LOS "C" due to a slight increase in delay at that approach. This change in LOS is due to the small number of vehicles added to the intersection and slightly increasing delay. In actuality, the additional delay will not be noticeable.

Table 9. 2010 Build Conditions – Intersection Level of Service Summary

	Weekday Morning Peak Hour		Weekday Evening Peak Hour		Saturday Mid-day Peak Hour	
Location/Movement	**Delay (spv)[a]**	**LOS[b]**	**Delay (spv)**	**LOS**	**Delay (spv)**	**LOS**
Marshall Street @ Prentice Street						
Prentice St. WB - LT	7.9	A	8.3	A	8.2	A
Marshall St. NB - LR	13.9	B	15.5	C	14.6	B

[a] Average delay for specific intersection movement expressed in seconds per vehicle
[b] Level of Service

Assessment of Peak Soccer Field Use Conditions

An evaluation has been performed of the traffic impacts associated with the recently constructed (and the to be constructed) soccer fields near the southern end of the site on Marshall Street. The new soccer field development on Marshall Street consists of two new tournament size soccer fields and 4 practice fields with a parking area with 165 designated spaces and 65 overflow spaces. At the time of this study the two full size soccer fields have been completed are in use and the practice fields remain under construction.

The soccer fields will be a seasonal use with highest activity expected in the spring and fall. The peak times of the week expected for use are the late afternoons during the week and during the day on the weekends. The time when the impact to traffic from the soccer fields is expected to be greatest will be when back to back soccer games are played and all traffic from one game time will be leaving the complex and all traffic from the next game will be entering the complex. In order to assess the busiest anticipated traffic volume condition at the study area intersection of Marshall Street at Prentice Street a capacity analysis was performed assuming that the peak soccer period and the peak hour of non-soccer traffic occurred at the same time. Both the weekday PM and weekend mid-day peak hour periods were analyzed.

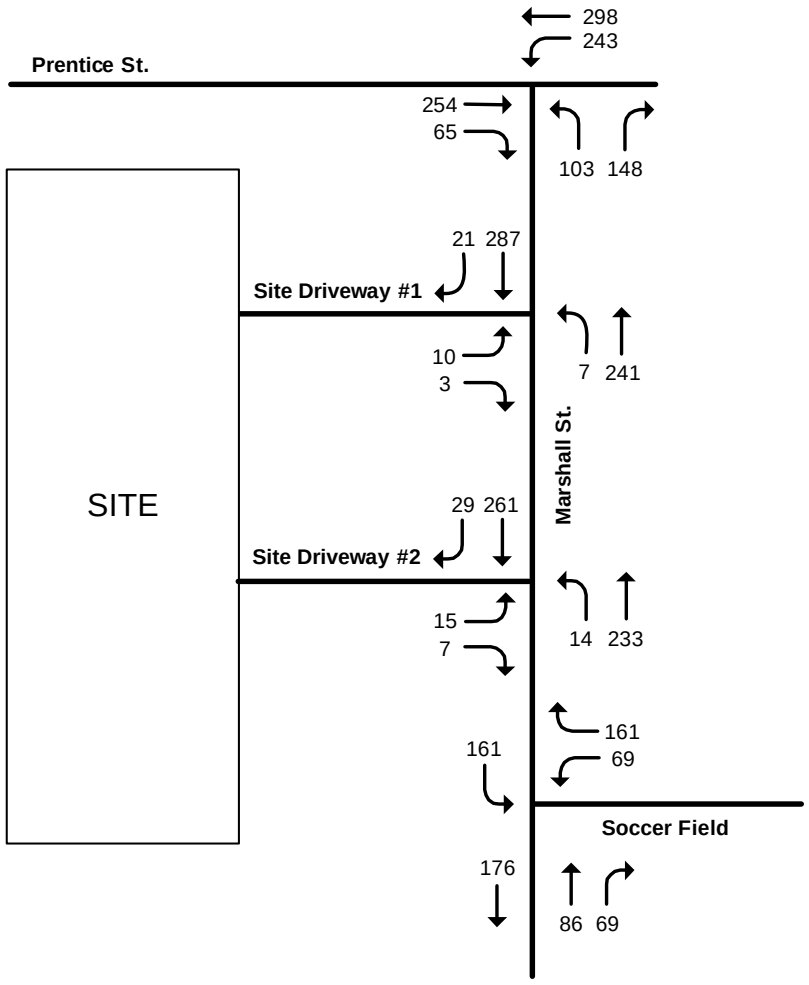
In order to determine the peak hour traffic volumes under peak soccer field use conditions the expected maximum soccer traffic volumes for two successive games was added to the 2010 Build Conditions Traffic Volumes. The maximum soccer field traffic volumes were assumed to be equal to the total number of parking spaces available (designated plus overflow spaces). It was assumed that a full 230 vehicles will enter and exit the soccer complex within the same peak hour period. These vehicle trips were then distributed to Marshall Street in the same manner as project related trips based on the existing travel patterns on Marshall Street. The resulting Peak Soccer Field Use Build Conditions Volumes are depicted in Figure 7.

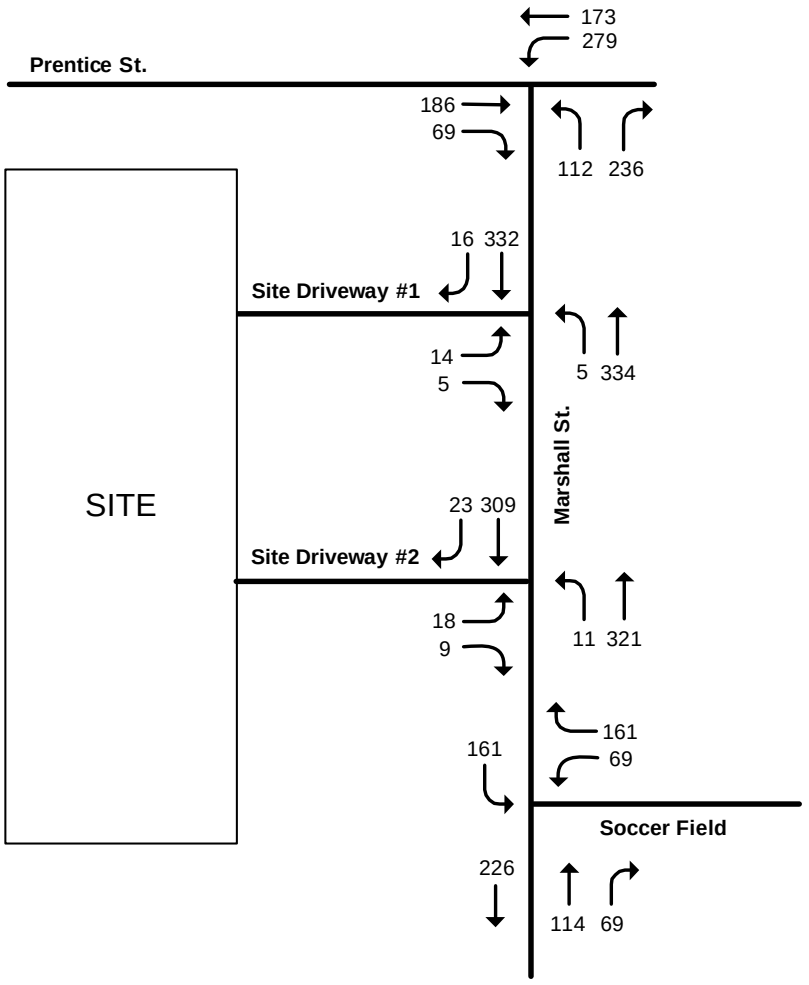
Using the peak hour traffic volumes depicted in Figure 7 a capacity analysis was performed at the Marshall Street at Prentice Street intersection for the peak soccer field use condition. The results of the peak analysis are shown in Table 10. Capacity analysis worksheets are included in the Appendix.

Table 10. 2010 Build Conditions – Intersection Level of Service Summary
Peak Soccer Field Use Conditions

	Weekday Evening Peak Hour		Saturday Mid-day Peak Hour	
Location/Movement	**Delay (spv)**	**LOS**	**Delay (spv)**	**LOS**
Marshall Street @ Prentice Street				
Prentice St. WB - LT	9.0	A	8.9	A
Marshall St. NB - LR	119.9	F	120.1	F

[a] Average delay for specific intersection movement expressed in seconds per vehicle
[b] Level of Service





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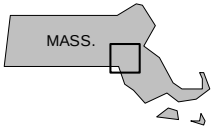

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2010 Build Conditions with Soccer Field
Traffic Volumes

Cedar Ridge Estates
Holliston, Massachusetts

Figure 7

The results of the peak soccer conditions capacity analyses indicate that during a period when all of the parking spaces at the soccer complex are used for back-to-back soccer games there will be greater delay at the intersection of Marshall Street at Prentice Street. Prentice Street is expected to continue to operate at a LOS "A", however the Marshall Street approach is expected to operate at LOS "F" during this time. At these peak soccer traffic times the queue of vehicles at Marshall Street may reach as much as 15 vehicles during the worst 5% of the peak hour. A queue of this length is not expected to occur except during the busiest period of the peak soccer traffic times and would not extend to the proposed site driveways, which are over 700 feet from Prentice Street.

Section V
Conclusions/Recommendations

Conclusions

Coler & Colantonio has reviewed the traffic related impacts of the proposed Cedar Ridge Estates. Based on the findings of our study, it is our opinion that the development of the proposed residential condominiums at the site will have no effect on traffic or safety conditions on the roadways and intersections within the study area. The following is a bulleted summary of the findings regarding the proposed condominiums:

- The proposed Site Driveways providing access to the site along Marshall Street will have adequate sight distances, all exceeding AASHTO minimum requirements.

- At the intersection of Marshall Street at Prentice Street available Stopping Sight distance for approaching vehicles was found to exceed AASHTO minimum requirements. Trees and a vertical curve limit intersection sight distance for vehicles stopped on Marshall Street looking left. The applicant is willing to perform clearing and grading in order to improve the existing sight distance limitations at the intersection.

- Accident data indicated that the intersection of Marshall Street at Prentice Street had a below average crash rate and that the intersection is not prone to accidents.

- There are no significant changes in Level of Service to any study area intersections in any peak hour period due to the addition of project related trips. The only change is due to a borderline LOS being decreased by a less than two second change in average delay for the Marshall Street northbound approach to Prentice Street in the weekday PM peak hour.

- Site circulation was reviewed and it was determined that residents and emergency vehicles will be able to effectively maneuver throughout the site while accessing from one of two Site Driveways. A separate emergency vehicle access is also proposed.

- Although the level of service of Marshall Street is expected to be LOS "F" during the peak soccer traffic periods (time when back to back soccer games coincide with roadway peak hours) the queues expected on Marshall Street will not effect the proposed site driveways.

Recommendations

The following is a list of traffic and safety related recommendations relevant to the proposed residential condominium project:

- The added traffic associated with the development of the Cedar Ridge Estates is minor and does not necessitate performing any major traffic related improvements to the study area roadways or intersections due to capacity or safety reasons.

- Within the site, stop signs, stop lines and crosswalks should be incorporated at all intersections of main driveways.

- The applicant should commit to providing and maintaining clear lines of sight at each of the proposed Site Driveways on Marshall Street. No obstructions to sight distance (typically objects greater than 3.5 feet in height) should be placed within the site lines of approaching or exiting vehicles. Also, adequate clearing of existing vegetation where applicable should be performed to ensure clear lines of sight.

- In order to improve sight distance at the intersection of Marshall Street at Prentice Street, trees, low growth and any other obstructions within the line of sight on the southwest corner of the intersection should be cleared.

- Advance warning signs of an intersection ahead with advisory speed plates should be installed on Prentice Street approaching Marshall Street.

- Speed limit signs should be installed on Marshall Street, as there are currently no posted speed limits.

- Advance warning signs with advisory speed plates should be added to locations on Marshall Street where horizontal curves limit available sight distance.

Appendix

- *Traffic Counts*
- *Capacity Analyses*
- *Crash Rate Worksheets*
- *MHD Seasonal and Growth Tables*
- *ITE Trip Generation*
- *Marshall Street Inventory*

Traffic Counts

TDC
Transportation Data Corporation
P.O. Box 734 Natick, MA 01760
Office: 508-651-1610 Fax: 508-651-1229

Site Code: 000000002488
Station ID:
EB
WB
02488SP2

36	41	46	51	56	61	66	71	76		85th	95th
40	45	50	55	60	65	70	75	999	Total	Percent	Percent
1	0	0	0	0	0	0	0	0	2	36	36
0	2	0	0	0	0	0	0	0	2	41	42
1	0	0	0	0	0	0	0	0	1	36	36
0	0	0	0	0	0	0	0	0	0	-	-
2	0	0	0	0	0	0	0	0	2	37	37
0	0	0	0	0	0	0	0	0	12	38	38
30	4	1	1	0	0	0	0	0	90	39	41
34	4	0	0	0	0	0	0	0	157	39	40
62	6	0	0	0	0	0	0	0	172	39	40
65	3	0	0	0	0	0	0	0	124	39	40
38	3	0	0	0	0	0	0	0	66 (35)	39	40
37	4	0	0	0	0	0	0	0	66	39	40
27	3	0	0	0	0	0	0	0	80	39	40
41	5	2	0	0	0	0	0	0	117	39	41
49	6	1	0	0	0	0	0	0	130	39	40
67	22	5	0	0	0	0	0	0	180	41	43
71	36	3	0	0	0	0	0	0	180	42	45
66	43	5	0	0	0	0	0	0	186 (96)	43	43
77	38	0	0	0	0	0	0	0	160	42	44
67	28	1	0	0	0	0	0	0	104	42	45
31	13	0	0	0	0	0	0	0	74	41	43
20	8	1	0	0	0	0	0	0	46 (46)	41	44
13	4	1	0	0	0	0	0	0	29	41	44
5	3	0	0	0	0	0	0	0	14 (1250)	41	42
21	233	20	1	0	0	0	0	0	2001		
%	11.6%	1.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%			

00	08:00	06:00	06:00						08:00		
82	6	1	1						172		
00	17:00	15:00							17:00		
88	43	5							186		

Site Code: 000000002488
Station ID:
EB
WB
02488SP2

	Total	85th Percent	95th Percent
	8	46	47
	8	43	44
	1	26	26
	6	7	7
	3	46	46
	17	38	41
	85	43	45
	143	41	44
	156	41	44
	120	43	44
	103	42	44
	76 (422)	40	43
	116	41	44
	116	40	43
	112	42	45
	155	41	44
	195	42	45
	257 (257)	41	44
	163	42	45
	107	40	44
	72	40	43
	43	40	42
	26	40	42
	22 (1384)	42	44
	2106		

08:00
156

17:00
257

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WB
02488SP2

36	41	46	51	56	61	66	71	76		85th	95th
40	45	50	55	60	65	70	75	999	Total	Percent	Percent
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11	4	0	0	0	0	0	0	0	26	40	43
[illegible]											
50	205	21	1	0	0	0	0	0	1582		
1%	13.0%	1.3%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%			
:00	10:00	06:00							11:00		
76	36	2							152		
:00	12:00	13:00	21:00						15:00		
54	25	4	1						137		
98	778	77	3	0	1	0	0	0	5689		
9%	13.7%	1.4%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%			

DC
nsportation Data Corporation
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Office: 508-651-1610 Fax: 508-651-1229

Site Code: 000000002488
Station ID:
EB
WB
02488SP2

3	41	46	51	56	61	66	71	76		85th	95th
0	45	50	55	60	65	70	75	999	Total	Percent	Percent
1	1	0	0	0	0	0	0	0	5	40	41
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0	0	0	0	0	0	0	0	0	0	*	*
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	*	*
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[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
3	13	4	1	1	0	0	0	0	114	41	45
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4	6	1	0	0	0	0	0	0	126	39	41
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
9	9	0	0	0	0	0	0	0	167	40	41
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0	1	0	0	0	0	0	0	0	62	39	40
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4	6	0	0	0	0	0	0	0	30	41	43
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
16	207	44	4	4	1	0	0	0	2050		
%	10.1%	2.1%	0.2%	0.2%	0.0%	0.0%	0.0%	0.0%			
00	08:00	09:00	09:00	09:00					07:00		
00	25	8	1	1					177		
00	13:00	13:00	12:00	12:00	17:00				17:00		
07	23	7	1	1	1				220		

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Site Code: 000000002488
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WB
02488SP2

MA

	26	31	36	41	46	51	56	61	66	71	76		85th	95th
	30	35	40	45	50	55	60	65	70	75	999	Total	Percent	Percent
	0	2	3	1	0	0	1	0	0	0	0	7	41	56
	0	1	2	1	1	0	0	0	0	0	0	5	45	48
	0	0	0	0	0	0	0	0	0	0	0	0	*	*
	0	0	0	0	0	0	0	0	0	0	0	0	*	*
	1	2	2	0	1	0	0	0	0	0	0	6	37	46
	0	7	4	5	0	0	0	0	0	0	0	16	43	46
	2	19	33	11	0	0	0	0	0	0	0	65	41	44
	8	35	55	105	19	0	0	0	0	0	0	193	40	43
	8	82	80	17	1	0	0	0	0	0	0	176	40	43
	6	33	62	13	2	0	1	0	0	0	0	117	40	44
	6	31	51	9	0	0	0	0	0	0	0	97	40	42
	2	21	41	8	0	0	0	0	0	0	0	73	40	42
	12	42	37	10	0	0	0	0	0	0	0	107	40	43
	9	24	39	13	2	1	0	0	0	0	0	94	41	44
	5	48	56	15	0	0	0	0	0	0	0	125	40	43
	6	71	83	21	1	0	0	0	0	0	0	182	40	43
	10	78	72	8	0	0	0	0	0	0	0	170	39	40
	13	88	99	26	0	1	0	0	0	0	0	229	40	43
	6	87	105	13	0	0	0	0	0	0	0	211	40	41
	3	40	39	8	0	0	0	0	0	0	0	90	40	42
	8	21	19	6	0	0	0	0	0	0	0	57	39	42
	3	20	16	3	0	0	0	0	0	0	0	44	39	41
	6	13	11	4	1	0	0	0	0	0	0	35	40	43
	1	7	12	3	0	0	0	0	0	0	0	23	40	42
	108	772	984	214	9	2	2	0	0	0	0	2136		
	5.1%	36.1%	46.1%	10.0%	0.4%	0.1%	0.1%	0.0%	0.0%	0.0%	0.0%			
	07:00	08:00	07:00	07:00	09:00		00:00					07:00		
	8	62	105	19	2		1					193		
	17:00	17:00	18:00	17:00	13:00	13:00						17:00		
	13	88	105	26	2	1						233		

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Site Code: 000000002488
Station ID:
EB
WB
02488SP2

	46 50	51 55	56 60	61 65	66 70	71 75	76 999	Total	85th Percent	95th Percent
	0	0	0	0	0	0	0	7	38	41
	0	0	0	0	0	0	0	6	34	35
	0	0	0	0	0	0	0	2	36	36
	0	0	0	0	0	0	0	1	41	41
	0	0	0	0	0	0	0	2	31	31
	0	0	0	0	0	0	0	10	39	40
	0	0	0	0	0	0	0	27	41	44
	0	0	0	0	0	0	0	39	40	43
	0	0	0	0	0	0	0	78	40	43
	0	0	0	0	0	0	0	102	40	43
	0	0	0	0	0	0	0	117	40	42
	1	0	0	0	0	0	0	133	40	43
	2	0	0	0	0	0	0	184	40	42
	2	0	0	0	0	0	0	143	40	42
	1	0	0	0	0	0	0	108	41	44
	1	0	0	0	0	0	0	112	39	43
	1	0	0	0	0	0	0	123	40	43
	1	0	0	0	0	0	0	105	40	44
	0	0	0	0	0	0	0	73	39	41
	1	0	0	0	0	0	0	70	40	42
	1	0	0	0	0	0	0	51	36	38
	0	0	0	0	0	0	0	55	38	39
	0	0	0	0	0	0	0	29	39	40
	0	0	0	0	0	0	0	25	35	38
	11	0	0	0	0	0	0	1603		
	0.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%			
	11:00							11:00		
	1							133		
	12:00							12:00		
	2							184		
	64	6	6	1	0	0	0	5789		
	1.1%	0.1%	0.1%	0.0%	0.0%	0.0%	0.0%			

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S: Marshall Street
E/W: Ash Street
City, State: Holliston, MA
Client: C&C/J. Morgan

File Name : 02488A
Site Code : 00000000
Start Date : 05/01/2003
Page No : 1

Groups Printed- Cars - Trucks

	Ash Street From East			Marshall Street From South			Ash Street From West			
Start Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Int. Total
04:00 PM	0	42	11	2	0	3	3	30	0	91
04:15 PM	0	37	10	6	0	1	0	43	0	97
04:30 PM	0	50	11	11	0	3	1	36	0	112
04:45 PM	0	35	15	9	0	4	3	53	0	119
Total	0	164	47	28	0	11	7	162	0	419
05:00 PM	0	61	16	7	0	6	3	34	0	127
05:15 PM	0	60	15	9	0	4	6	54	0	148
05:30 PM	0	57	8	10	0	3	3	40	0	121
05:45 PM	0	51	8	6	0	0	6	43	0	114
Total	0	229	47	32	0	13	18	171	0	510
Grand Total	0	393	94	60	0	24	25	333	0	929
Apprch %	0.0	80.7	19.3	71.4	0.0	28.6	7.0	93.0	0.0	
Total %	0.0	42.3	10.1	6.5	0.0	2.6	2.7	35.8	0.0	

	Ash Street From East				Marshall Street From South				Ash Street From West				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour From 04:00 PM to 05:45 PM - Peak 1 of 1													
Intersection	04:45 PM												
Volume	0	213	54	267	35	0	17	52	15	181	0	196	515
Percent	0.0	79.8	20.2		67.3	0.0	32.7		7.7	92.3	0.0		
05:15 Volume	0	60	15	75	9	0	4	13	6	54	0	60	148
Peak Factor													
High Int.	05:00 PM				04:45 PM				05:15 PM				0.870
Volume	0	61	16	77	9	0	4	13	6	54	0	60	
Peak Factor				0.867				1.000				0.817	

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S: Marshall Street
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Client: C&C/J. Morgan

File Name : 02488A
Site Code : 00000000
Start Date : 05/01/2003
Page No : 1

Groups Printed- Trucks

	Ash Street From East			Marshall Street From South			Ash Street From West			
Start Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Int. Total
04:00 PM	0	0	0	0	0	0	0	1	0	1
04:15 PM	0	2	1	0	0	0	0	0	0	3
04:30 PM	0	2	0	1	0	1	0	1	0	5
04:45 PM	0	1	0	0	0	0	0	0	0	1
Total	0	5	1	1	0	1	0	2	0	10
05:00 PM	0	3	0	0	0	0	0	0	0	3
05:15 PM	0	2	2	0	0	0	0	1	0	5
*** BREAK ***										
05:45 PM	0	1	0	0	0	0	0	0	0	1
Total	0	6	2	0	0	0	0	1	0	9
Grand Total	0	11	3	1	0	1	0	3	0	19
Apprch %	0.0	78.6	21.4	50.0	0.0	50.0	0.0	100.0	0.0	
Total %	0.0	57.9	15.8	5.3	0.0	5.3	0.0	15.8	0.0	

	Ash Street From East				Marshall Street From South				Ash Street From West				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour From 04:00 PM to 05:45 PM - Peak 1 of 1													
Intersection	04:30 PM												
Volume	0	8	2	10	1	0	1	2	0	2	0	2	14
Percent	0.0	80.0	20.0		50.0	0.0	50.0		0.0	100.0	0.0		
05:15 Volume	0	2	2	4	0	0	0	0	0	1	0	1	5
Peak Factor													0.700
High Int.	05:15 PM				04:30 PM				04:30 PM				
Volume	0	2	2	4	1	0	1	2	0	1	0	1	
Peak Factor				0.625				0.250				0.500	

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Client: C&C/J. Morgan

File Name : 02488AA
Site Code : 00000000
Start Date : 05/01/2003
Page No : 1

Groups Printed- Cars - Trucks

	Ash Street From East			Marshall Street From South			Ash Street From West			
Start Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Int. Total
07:00 AM	0	44	2	21	0	3	1	40	0	111
07:15 AM	0	47	3	14	0	10	1	40	0	115
07:30 AM	0	55	2	13	0	7	3	43	0	123
07:45 AM	0	39	6	9	0	1	1	56	0	112
Total	0	185	13	57	0	21	6	179	0	461
08:00 AM	0	48	1	5	0	2	4	40	0	100
08:15 AM	0	50	4	14	0	5	4	44	0	121
08:30 AM	0	24	3	18	0	8	0	46	0	99
08:45 AM	0	36	4	10	0	1	2	50	0	103
Total	0	158	12	47	0	16	10	180	0	423
Grand Total	0	343	25	104	0	37	16	359	0	884
Apprch %	0.0	93.2	6.8	73.8	0.0	26.2	4.3	95.7	0.0	
Total %	0.0	38.8	2.8	11.8	0.0	4.2	1.8	40.6	0.0	

	Ash Street From East				Marshall Street From South				Ash Street From West				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour From 07:00 AM to 08:45 AM - Peak 1 of 1													
Intersection	07:00 AM												
Volume	0	185	13	198	57	0	21	78	6	179	0	185	461
Percent	0.0	93.4	6.6		73.1	0.0	26.9		3.2	96.8	0.0		
07:30 Volume	0	55	2	57	13	0	7	20	3	43	0	46	123
Peak Factor													0.937
High Int.	07:30 AM				07:00 AM				07:45 AM				
Volume	0	55	2	57	21	0	3	24	1	56	0	57	
Peak Factor				0.868				0.813				0.811	

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S: Marshall Street
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Client: C&C/J. Morgan

File Name : 02488AA
Site Code : 00000000
Start Date : 05/01/2003
Page No : 1

Groups Printed- Trucks

Start Time	Ash Street From East			Marshall Street From South			Ash Street From West			Int. Total
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	
07:00 AM	0	1	0	0	0	0	0	0	0	1
07:15 AM	0	1	1	1	0	0	0	2	0	5
07:30 AM	0	2	0	0	0	0	0	2	0	4
07:45 AM	0	0	0	0	0	0	0	4	0	4
Total	0	4	1	1	0	0	0	8	0	14
08:00 AM	0	3	0	1	0	0	0	2	0	6
08:15 AM	0	3	0	0	0	0	1	0	0	4
08:30 AM	0	1	1	0	0	0	0	1	0	3
08:45 AM	0	1	0	2	0	0	1	3	0	7
Total	0	8	1	3	0	0	2	6	0	20
Grand Total	0	12	2	4	0	0	2	14	0	34
Apprch %	0.0	85.7	14.3	100.0	0.0	0.0	12.5	87.5	0.0	
Total %	0.0	35.3	5.9	11.8	0.0	0.0	5.9	41.2	0.0	

Start Time	Ash Street From East				Marshall Street From South				Ash Street From West				Int. Total
	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	
Peak Hour From 07:00 AM to 08:45 AM - Peak 1 of 1													
Intersection	08:00 AM												
Volume	0	8	1	9	3	0	0	3	2	6	0	8	20
Percent	0.0	88.9	11.1		100.0	0.0	0.0		25.0	75.0	0.0		
08:45 Volume	0	1	0	1	2	0	0	2	1	3	0	4	7
Peak Factor													
High Int.	08:00 AM				08:45 AM				08:45 AM				0.714
Volume	0	3	0	3	2	0	0	2	1	3	0	4	
Peak Factor				0.750				0.375				0.500	

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S: Marshall Street
E/W: Ash Street
City, State: Holliston, MA

File Name : 02488AAA
Site Code : 00000000
Start Date : 05/03/2003

Client: C&C/J. Morgan

Groups Printed- Cars - Trucks

	Ash Street From East			Marshall Street From South			Ash Street From West			
Start Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Int. Total
11:00 AM	0	37	26	28	0	3	7	38	0	139
11:15 AM	0	26	26	25	0	8	4	28	0	115
11:30 AM	0	30	19	21	0	5	6	36	0	117
11:45 AM	0	31	13	16	0	6	4	31	0	101
Total	0	124	84	90	0	20	21	133	0	472
12:00 PM	0	53	18	8	0	5	5	27	0	116
12:15 PM	0	44	15	19	0	5	2	28	0	113
12:30 PM	0	50	30	21	0	8	2	22	0	133
12:45 PM	0	30	20	20	0	6	5	26	0	107
Total	0	177	83	68	0	24	14	103	0	469
Grand Total	0	301	167	158	0	44	35	235	0	941
Apprch %	0.0	64.3	35.7	78.2	0.0	21.8	12.9	87.1	0.0	
Total %	0.0	32.0	17.7	16.8	0.0	4.7	3.7	25.1	0.0	

	Ash Street From East				Marshall Street From South				Ash Street From West				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour From 11:00 AM to 12:45 PM - Peak 1 of 1													
Intersection	11:00 AM												
Volume	0	124	84	208	90	0	20	110	21	133	0	154	472
Percent	0.0	59.6	40.4		81.8	0.0	18.2		13.6	86.4	0.0		
11:00 Volume	0	37	26	63	28	0	3	31	7	38	0	45	139
Peak Factor													0.849
High Int.	11:00 AM				11:00 AM				11:00 AM				
Volume	0	37	26	63	28	0	3	31	7	38	0	45	
Peak Factor				0.625				0.887				0.856	

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File Name : 02488A A A

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ATR : Marshall Street south of
Location : Prentice Street, Holliston, MA
Client : C&C/J. Morgan

Site: 02488
Date: 05/01/03
Direction: NB

Begin Time	Total	1-14 MPH	15-19 MPH	20-24 MPH	25-29 MPH	30-34 MPH	35-39 MPH	40-44 MPH	45-49 MPH	50-54 MPH	55-59 MPH	60-64 MPH	65-69 MPH	70-99 MPH	Avg
12:AM	1	0	0	0	0	0	0	1	0	0	0	0	0	0	42
01:00	1	0	0	0	0	0	1	0	0	0	0	0	0	0	37
02:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:00	1	0	0	0	0	0	0	1	0	0	0	0	0	0	42
05:00	9	0	0	0	1	1	3	3	1	0	0	0	0	0	38
06:00	45	0	0	0	3	7	19	14	2	0	0	0	0	0	38
07:00	72	0	1	3	4	9	22	28	5	0	0	0	0	0	38
08:00	71	0	0	2	3	17	28	18	3	0	0	0	0	0	37
09:00	30	0	0	0	0	3	15	9	3	0	0	0	0	0	39
10:00	17	0	0	0	2	3	5	7	0	0	0	0	0	0	37
11:00	15	0	0	0	1	2	6	5	1	0	0	0	0	0	38
12:PM	20	0	0	1	0	4	10	3	2	0	0	0	0	0	37
01:00	21	0	0	0	2	4	8	6	1	0	0	0	0	0	37
02:00	36	0	0	2	6	5	13	8	2	0	0	0	0	0	35
03:00	34	0	0	0	3	6	14	10	1	0	0	0	0	0	37
04:00	38	0	0	2	1	7	16	9	3	0	0	0	0	0	37
05:00	43	0	1	0	0	5	21	13	2	1	0	0	0	0	38
06:00	35	0	0	0	0	8	14	7	5	1	0	0	0	0	39
07:00	30	0	0	1	1	4	16	4	4	0	0	0	0	0	38
08:00	15	0	0	0	2	6	6	1	0	0	0	0	0	0	34
09:00	17	0	0	0	1	4	6	5	1	0	0	0	0	0	37
10:00	10	0	0	1	2	1	4	2	0	0	0	0	0	0	34
11:00	2	0	0	0	0	0	2	0	0	0	0	0	0	0	37
Daily Totals	563	0	2	12	32	96	229	154	36	2	0	0	0	0	37
Percent of Total		0.0	0.4	2.1	5.7	17.1	40.7	27.4	6.4	0.4	0.0	0.0	0.0	0.0	

Percentile Speeds	10%	15%	50%	85%	90%
	30.6	32.0	38.1	43.5	44.4

10 MPH Pace Speed : 35 - 45
Number in pace : 383

% in pace : 68.0

Speed Exceeded	45 MPH	55 MPH	65 MPH
Percentage	6.7	0.0	0.0
Totals	38	0	0

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ATR : Marshall Street south of
Location : Prentice Street, Holliston, MA
Client : C&C/J. Morgan

Site: 02488
Date: 05/02/03

Direction: NB

Begin Time	Total	1-14 MPH	15-19 MPH	20-24 MPH	25-29 MPH	30-34 MPH	35-39 MPH	40-44 MPH	45-49 MPH	50-54 MPH	55-59 MPH	60-64 MPH	65-69 MPH	70-99 MPH	Avg
12:AM	2	0	0	0	1	1	0	0	0	0	0	0	0	0	30
01:00	1	0	0	0	0	0	0	1	0	0	0	0	0	0	42
02:00	1	0	0	0	0	1	0	0	0	0	0	0	0	0	32
03:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:00	1	0	0	0	0	0	0	1	0	0	0	0	0	0	42
05:00	6	0	0	0	0	1	2	2	1	0	0	0	0	0	40
06:00	48	0	0	0	2	6	22	13	3	2	0	0	0	0	39
07:00	73	0	0	0	0	14	31	18	7	2	1	0	0	0	39
08:00	60	0	1	0	0	3	28	26	1	1	0	0	0	0	39
09:00	31	0	1	1	0	5	11	9	3	0	0	1	0	0	38
10:00	32	0	0	0	1	5	10	13	3	0	0	0	0	0	39
11:00	29	0	1	1	1	5	13	7	1	0	0	0	0	0	36
12:PM	34	0	0	1	1	14	12	6	0	0	0	0	0	0	35
01:00	28	0	0	0	1	7	13	4	3	0	0	0	0	0	37
02:00	25	0	1	0	1	4	10	6	3	0	0	0	0	0	37
03:00	27	0	0	0	0	6	12	7	2	0	0	0	0	0	38
04:00	49	0	0	0	4	15	17	7	4	1	0	1	0	0	37
05:00	47	0	0	0	2	16	21	8	0	0	0	0	0	0	36
06:00	33	0	1	0	0	6	17	7	2	0	0	0	0	0	37
07:00	31	0	0	0	3	10	11	7	0	0	0	0	0	0	36
08:00	24	0	0	0	4	6	11	3	0	0	0	0	0	0	35
09:00	18	0	0	1	0	6	9	2	0	0	0	0	0	0	35
10:00	11	0	0	1	0	0	7	2	1	0	0	0	0	0	37
11:00	7	0	0	0	0	2	3	2	0	0	0	0	0	0	37
Daily Totals	618	0	5	5	21	133	260	151	34	6	1	2	0	0	37
Percent of Total		0.0	0.8	0.8	3.4	21.5	42.1	24.4	5.5	1.0	0.2	0.3	0.0	0.0	

Percentile Speeds	10%	15%	50%	85%	90%
	31.2	32.3	37.8	43.4	44.4

10 MPH Pace Speed : 35 - 45
Number in pace : 411
% in pace : 66.5

Percentage	7.0	0.5	0.0
Totals	43	3	0

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ATR : Marshall Street south of
Location : Prentice Street, Holliston, MA
Client : C&C/J. Morgan

Site: 02488
Date: 05/01/03
Direction: SB

Begin Time	Total	1-14 MPH	15-19 MPH	20-24 MPH	25-29 MPH	30-34 MPH	35-39 MPH	40-44 MPH	45-49 MPH	50-54 MPH	55-59 MPH	60-64 MPH	65-69 MPH	70-99 MPH	Avg
12:AM	1	0	0	0	1	0	0	0	0	0	0	0	0	0	27
01:00	1	0	0	0	1	0	0	0	0	0	0	0	0	0	27
02:00	1	0	0	0	0	1	0	0	0	0	0	0	0	0	32
03:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:00	3	0	0	1	2	0	0	0	0	0	0	0	0	0	25
06:00	7	0	0	0	0	2	3	2	0	0	0	0	0	0	37
07:00	23	1	0	0	1	8	8	3	1	1	0	0	0	0	35
08:00	22	0	2	2	0	7	11	0	0	0	0	0	0	0	32
09:00	18	0	0	0	0	6	12	0	0	0	0	0	0	0	35
10:00	20	0	0	1	3	7	8	1	0	0	0	0	0	0	33
11:00	13	0	0	1	0	2	8	2	0	0	0	0	0	0	36
12:PM	19	1	0	1	2	5	7	2	1	0	0	0	0	0	33
01:00	25	0	0	1	3	8	9	3	0	1	0	0	0	0	35
02:00	34	0	1	2	5	16	8	2	0	0	0	0	0	0	32
03:00	42	0	0	1	5	14	18	4	0	0	0	0	0	0	34
04:00	52	0	0	0	4	13	22	10	3	0	0	0	0	0	37
05:00	58	0	1	1	3	17	27	8	1	0	0	0	0	0	35
06:00	70	0	0	0	5	26	29	8	0	2	0	0	0	0	35
07:00	37	0	0	0	6	18	10	3	0	0	0	0	0	0	33
08:00	30	0	0	0	5	10	11	3	1	0	0	0	0	0	34
09:00	33	0	0	0	1	12	14	5	1	0	0	0	0	0	36
10:00	8	0	0	0	0	2	2	2	1	1	0	0	0	0	40
11:00	7	0	0	0	0	2	3	2	0	0	0	0	0	0	37
Daily Totals	524	2	4	11	47	176	210	60	9	5	0	0	0	0	35
Percent of Total		0.4	0.8	2.1	9.0	33.6	40.1	11.5	1.7	1.0	0.0	0.0	0.0	0.0	

Percentile Speeds	10%	15%	50%	85%	90%
	28.8	30.4	35.5	39.9	41.8

10 MPH Pace Speed : 30 - 40
Number in pace : 386
% in pace : 73.7

Speed Exceeded	45 MPH	55 MPH	65 MPH
Percentage	2.7	0.0	0.0
Totals	14	0	0

TDC
Transportation Data Corporation
P.O. Box 734 Natick, MA 01760
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ATR : Marshall Street south of
Location : Prentice Street, Holliston, MA
Client : C&C/J. Morgan
Direction: SB

Site: 02488
Date: 05/02/03

Begin Time	Total	1-14 MPH	15-19 MPH	20-24 MPH	25-29 MPH	30-34 MPH	35-39 MPH	40-44 MPH	45-49 MPH	50-54 MPH	55-59 MPH	60-64 MPH	65-69 MPH	70-99 MPH	Avg
12:AM	3	0	0	0	1	1	1	0	0	0	0	0	0	0	32
01:00	4	0	0	0	0	2	1	1	0	0	0	0	0	0	36
02:00	2	0	0	0	0	1	0	1	0	0	0	0	0	0	37
03:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:00	1	0	0	1	0	0	0	0	0	0	0	0	0	0	22
06:00	5	0	0	0	0	2	2	1	0	0	0	0	0	0	36
07:00	29	1	0	1	4	8	11	4	0	0	0	0	0	0	33
08:00	16	0	1	1	1	7	6	0	0	0	0	0	0	0	32
09:00	20	1	0	1	3	8	5	2	0	0	0	0	0	0	32
10:00	17	0	0	0	1	8	6	2	0	0	0	0	0	0	35
11:00	22	0	0	2	2	7	8	2	1	0	0	0	0	0	34
12:PM	36	0	0	0	5	17	6	8	0	0	0	0	0	0	34
01:00	32	0	1	0	2	15	11	3	0	0	0	0	0	0	34
02:00	40	0	0	1	2	12	12	10	2	1	0	0	0	0	37
03:00	56	0	0	0	13	19	14	7	3	0	0	0	0	0	34
04:00	67	0	0	0	10	22	18	11	2	1	0	1	2	0	36
05:00	81	0	0	0	6	36	30	8	1	0	0	0	0	0	35
06:00	39	0	0	1	2	13	16	6	1	0	0	0	0	0	35
07:00	37	0	0	1	1	11	16	6	2	0	0	0	0	0	36
08:00	23	0	1	1	2	6	7	5	0	0	1	0	0	0	35
09:00	25	0	0	1	3	10	7	4	0	0	0	0	0	0	34
10:00	7	0	0	0	0	1	3	3	0	0	0	0	0	0	38
11:00	9	0	0	0	1	2	4	1	0	1	0	0	0	0	37
Daily Totals	571	2	3	11	59	208	184	85	12	3	1	1	2	0	35
Percent of Total		0.4	0.5	1.9	10.3	36.4	32.2	14.9	2.1	0.5	0.2	0.2	0.4	0.0	

Percentile Speeds	10%	15%	50%	85%	90%
	28.6	30.3	35.1	41.1	42.8

10 MPH Pace Speed : 30 - 40
Number in pace : 392
% in pace : 68.7

Speed Exceeded	45 MPH	55 MPH	65 MPH
Percentage	3.3	0.7	0.4
Totals	19	4	2

TDC
Transportation Data Corporation
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Office: 508-651-1610 Fax: 508-651-1229

ATR : Marshall Street south of
Location : Prentice Street, Holliston, MA
Client : C&C/J. Morgan

Site: 02488
Date: 05/03/03

Direction: SB

Begin Time	Total	1-14 MPH	15-19 MPH	20-24 MPH	25-29 MPH	30-34 MPH	35-39 MPH	40-44 MPH	45-49 MPH	50-54 MPH	55-59 MPH	60-64 MPH	65-69 MPH	70-99 MPH	Avg
12:AM	6	0	0	0	0	1	2	3	0	0	0	0	0	0	39
01:00	3	0	0	0	0	1	1	1	0	0	0	0	0	0	37
02:00	1	0	0	0	0	0	0	1	0	0	0	0	0	0	42
03:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:00	1	0	0	0	0	1	0	0	0	0	0	0	0	0	32
05:00	1	0	0	0	1	0	0	0	0	0	0	0	0	0	27
06:00	6	0	0	0	2	1	2	1	0	0	0	0	0	0	34
07:00	9	0	0	1	3	0	4	1	0	0	0	0	0	0	33
08:00	19	0	0	0	1	10	4	3	0	0	0	0	0	1	37
09:00	47	0	0	2	14	15	14	1	1	0	0	0	0	0	32
10:00	111	0	1	4	15	55	29	6	0	0	1	0	0	0	33
11:00	99	0	1	1	10	42	37	8	0	0	0	0	0	0	34
12:PM	94	1	0	6	12	34	31	8	2	0	0	0	0	0	33
01:00	106	0	1	2	21	50	26	6	0	0	0	0	0	0	32
02:00	57	0	0	0	5	25	18	8	1	0	0	0	0	0	35
03:00	46	0	0	0	2	13	22	7	1	1	0	0	0	0	36
04:00	57	0	0	0	3	15	29	10	0	0	0	0	0	0	36
05:00	41	0	0	1	0	16	16	6	1	1	0	0	0	0	36
06:00	46	0	0	0	4	16	12	11	2	1	0	0	0	0	36
07:00	30	0	1	0	0	15	10	2	2	0	0	0	0	0	35
08:00	31	0	0	0	5	17	7	1	1	0	0	0	0	0	33
09:00	22	0	0	0	5	7	6	3	0	1	0	0	0	0	34
10:00	15	0	1	1	1	5	4	3	0	0	0	0	0	0	33
11:00	8	0	0	0	0	1	5	2	0	0	0	0	0	0	38
Daily Totals	856	1	5	18	104	340	279	92	11	4	1	0	0	1	34
Percent of Total		0.1	0.6	2.1	12.1	39.7	32.6	10.7	1.3	0.5	0.1	0.0	0.0	0.1	

Percentile Speeds	10%	15%	50%	85%	90%
	28.0	30.0	34.4	39.7	41.3

10 MPH Pace Speed : 30 - 40
Number in pace : 619
% in pace : 72.3

Speed Exceeded	45 MPH	55 MPH	65 MPH
Percentage	2.0	0.2	0.1
Totals	17	2	1

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03442Bvolume
Site Code: 03442

Marshall Street
south of Prentice Street
City, State: Holliston, MA
Client: C&C/J. Morgan

Start Time	20-Sep-05 Tue	SB Morning	SB Afternoon	Hour Totals Morning	Hour Totals Afternoon	NB Morning	NB Afternoon	Hour Totals Morning	Hour Totals Afternoon	Combined Totals Morning	Combined Totals Afternoon
12:00		1	7			1	7				
12:15		0	6			0	8				
12:30		0	9			0	10				
12:45		0	8	1	30	0	6	1	31	2	61
01:00		0	5			0	4				
01:15		0	6			0	7				
01:30		0	7			0	8				
01:45		0	10	0	28	0	3	0	22	0	50
02:00		0	7			0	4				
02:15		0	12			0	10				
02:30		0	8			0	7				
02:45		0	8	0	35	0	9	0	30	0	65
03:00		0	10			0	10				
03:15		0	15			0	7				
03:30		0	16			0	10				
03:45		0	8	0	49	0	10	0	37	0	86
04:00		0	14			0	14				

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Prentice Street west of
Marshall Street
City, State: Holliston, MA
Client: C&C/J. Morgan

Start Time	20-Sep-05 Tue	EB Morning	EB Afternoon	Hour Totals Morning	Hour Totals Afternoon	WB Morning	WB Afternoon	Hour Totals Morning	Hour Totals Afternoon	Combined Totals Morning	Combined Totals Afternoon
12:00		4	28			2	20				
12:15		0	26			0	27				
12:30		3	28			0	27				
12:45		1	23	8	105	0	25	2	99	10	204
01:00		0	24			0	18				
01:15		0	26			0	27				
01:30		2	21			0	31				
01:45		0	21	2	92	0	22	0	98	2	190
02:00		0	26			0	26				
02:15		0	30			0	27				
02:30		0	33			0	24				
02:45		1	31	1	120	0	35	0	112	1	232
03:00		0	30			1	31				
03:15		0	32			1	31				
03:30		0	36			0	45				
03:45		1	42	1	140	2	50	4	157	5	297
04:00		0	48			0	41				
04:15		2	44			2	50				
04:30		4	48			1	49				
				8	187	0	41	3	181	11	368

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Marshall Street
south of Prentice Street
City, State: Holliston, MA
Client: C&C/J. Morgan

Start Time	SB A.M.		SB P.M.		NB A.M.		NB P.M.		Combined A.M.		Combined P.M.		14-Oct-05 Fri
12:00	0		4		0		11		0		15		
12:15	0		11		2		6		2		17		
12:30	0		6		1		8		1		14		
12:45	0	0	4	25	0	3	5	30	0	3	9	55	
01:00	0		11		0		5		0		16		
01:15	0		13		0		3		0		16		
01:30	1		4		0		10		1		14		
01:45	0	1	10	38	0	0	16	34	0	1	26	72	
02:00	0		8		0		7		0		15		
02:15	0		13		0		7		0		20		
02:30	0		12		0		11		0		23		
02:45	0	0	19	52	0	0	6	31	0	0	25	83	
03:00	0		16		1		11		1		27		
03:15	0		10		0		6		0		16		
03:30	0		12		0		10		0		22		
03:45	0	0	14	52	0	1	5	32	0	1	19	84	
04:00	0		**25**		0		16		0		**41**		
04:15	0		**17**		0		12		0		**29**		
04:30	0		**18**		0		14		0		**32**		
04:45	0	0	**20**	80	0	0	7	49	0	0	**27**	129	
05:00	0		14		2		11		2		25		
05:15	0		18		3		**14**		3		32		
05:30	0		23		1		**11**		1		34		
05:45	1	1	12	67	7	13	**16**	52	8	14	28	119	
06:00	3		16		6		**13**		9		29		
06:15	2		16		12		8		14		24		
06:30	2		10		18		10		20		20		
06:45	0	7	16	58	11	47	10	41	11	54	26	99	
07:00	4		9		**25**		9		**29**		18		
07:15	5		12		**28**		9		**33**		21		
07:30	**13**		10		**16**		6		**29**		16		
07:45	**10**	32	6	37	**32**	101	9	33	**42**	133	15	70	
08:00	**11**		5		18		5		29		10		
08:15	**10**		12		8		4		18		16		
08:30	6		4		16		3		22		7		
08:45	4	31	7	28	18	60	2	14	22	91	9	42	
09:00	9		4		14		2		23		6		
09:15	5		2		7		3		12		5		
09:30	3		5		10		2		13		7		
09:45	4	21	6	17	8	39	1	8	12	60	7	25	
10:00	4		6		3		2		7		8		
10:15	2		8		8		9		10		17		
10:30	3		6		5		5		8		11		
10:45	5	14	9	29	3	19	3	19	8	33	12	48	
11:00	5		1		2		2		7		3		
11:15	4		3		12		1		16		4		
11:30	11		2		4		3		15		5		
11:45	8	28	2	8	4	22	4	10	12	50	6	18	
Total	135		491		305		353		440		844		
Percent	30.7%		58.2%		69.3%		41.8%						
Day Total			626				658				1284		
Peak	07:30		04:00		07:00		05:15		07:00		04:00		
Vol.	44		80		101		54		133		129		
P.H.F.	0.846		0.800		0.789		0.844		0.792		0.787		

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Marshall Street
south of Prentice Street
City, State: Holliston, MA
Client: C&C/J. Morgan

Start Time	SB A.M.		SB P.M.		NB A.M.		NB P.M.		Combined A.M.		Combined P.M.		15-Oct-05 Sat
12:00	3		11		2		13		5		24		
12:15	2		11		1		6		3		17		
12:30	1		5		1		**11**		2		16		
12:45	0	6	16	43	1	5	**11**	41	1	11	27	84	
01:00	0		9		0		**14**		0		23		
01:15	0		13		0		**7**		0		20		
01:30	0		11		2		11		2		22		
01:45	0	0	10	43	0	2	10	42	0	2	20	85	
02:00	0		6		0		8		0		14		
02:15	1		**16**		1		12		2		**28**		
02:30	0		**12**		1		9		1		**21**		
02:45	1	2	**15**	49	1	3	10	39	2	5	**25**	88	
03:00	0		**16**		1		11		1		**27**		
03:15	0		12		0		7		0		19		
03:30	0		9		1		1		1		10		
03:45	0	0	6	43	0	2	8	27	0	2	14	70	
04:00	0		6		0		11		0		17		
04:15	0		11		1		11		1		22		
04:30	0		5		0		6		0		11		
04:45	0	0	7	29	0	1	9	37	0	1	16	66	
05:00	0		5		0		7		0		12		
05:15	0		8		0		10		0		18		
05:30	0		8		0		8		0		16		
05:45	0	0	14	35	3	3	9	34	3	3	23	69	
06:00	0		10		1		6		1		16		
06:15	0		8		2		7		2		15		
06:30	1		7		7		7		8		14		
06:45	2	3	3	28	1	11	4	24	3	14	7	52	
07:00	0		4		3		3		3		7		
07:15	1		5		8		5		9		10		
07:30	5		2		8		6		13		8		
07:45	9	15	3	14	5	24	3	17	14	39	6	31	
08:00	1		5		4		6		5		11		
08:15	7		10		5		7		12		17		
08:30	5		2		4		5		9		7		
08:45	6	19	6	23	12	25	5	23	18	44	11	46	
09:00	5		7		12		4		17		11		
09:15	8		0		12		2		20		2		
09:30	8		4		10		4		18		8		
09:45	9	30	3	14	5	39	1	11	14	69	4	25	
10:00	13		5		**16**		5		29		10		
10:15	13		3		**9**		6		22		9		
10:30	11		6		**13**		11		24		17		
10:45	13	50	2	16	**16**	54	5	27	**29**	104	7	43	
11:00	**14**		3		9		3		**23**		6		
11:15	**15**		3		16		4		**31**		7		
11:30	**12**		8		13		2		**25**		10		
11:45	**14**	55	2	16	9	47	5	14	23	102	7	30	
Total	180		353		216		336		396		689		
Percent	45.5%		51.2%		54.5%		48.8%						
Day Total		533				552				1085			
Peak	11:00		02:15		10:00		00:30		10:45		02:15		
Vol.	55		59		54		43		108		101		
P.H.F.	0.917		0.922		0.844		0.768		0.871		0.902		

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Marshall Street
south of Prentice Street
City, State: Holliston, MA
Client: C&C/J. Morgan

Start Time	SB A.M.		SB P.M.		NB A.M.		NB P.M.		Combined A.M.		Combined P.M.		16-Oct-05 Sun
12:00	1		19		1		19		2		38		
12:15	2		31		3		18		5		49		
12:30	2		24		1		14		3		38		
12:45	2	7	18	92	2	7	18	69	4	14	36	161	
01:00	1		14		1		9		2		23		
01:15	0		16		2		11		2		27		
01:30	0		19		0		13		0		32		
01:45	0	1	32	81	0	3	17	50	0	4	49	131	
02:00	1		22		0		18		1		40		
02:15	0		19		1		28		1		47		
02:30	2		19		1		9		3		28		
02:45	0	3	**25**	85	1	3	16	71	1	6	41	156	
03:00	0		**34**		0		19		0		53		
03:15	1		**27**		0		**16**		1		**43**		
03:30	0		**26**		0		**10**		0		**36**		
03:45	0	1	13	100	0	0	**40**	85	0	1	**53**	185	
04:00	0		21		0		**56**		0		**77**		
04:15	0		8		1		14		1		22		
04:30	0		21		1		5		1		26		
04:45	1	1	11	61	0	2	7	82	1	3	18	143	
05:00	0		6		1		6		1		12		
05:15	0		12		2		20		2		32		
05:30	0		12		5		53		5		65		
05:45	0	0	11	41	1	9	11	90	1	9	22	131	
06:00	0		10		3		9		3		19		
06:15	1		11		8		5		9		16		
06:30	0		8		2		4		2		12		
06:45	0	1	5	34	3	16	7	25	3	17	12	59	
07:00	0		8		9		0		9		8		
07:15	0		2		3		3		3		5		
07:30	3		2		12		5		15		7		
07:45	3	6	5	17	6	30	0	8	9	36	5	25	
08:00	5		6		3		3		8		9		
08:15	8		2		6		5		14		7		
08:30	5		5		10		2		15		7		
08:45	17	35	6	19	13	32	2	12	30	67	8	31	
09:00	8		3		21		0		29		3		
09:15	7		3		8		3		15		6		
09:30	5		0		25		3		30		3		
09:45	11	31	2	8	14	68	3	9	25	99	5	17	
10:00	4		3		17		0		21		3		
10:15	14		1		17		1		31		2		
10:30	10		0		**22**		1		32		1		
10:45	3	31	1	5	**21**	77	3	5	24	108	4	10	
11:00	**12**		4		**13**		3		**25**		7		
11:15	**12**		0		**33**		1		**45**		1		
11:30	**16**		2		15		0		**31**		2		
11:45	**15**	55	1	7	15	76	0	4	**30**	131	1	11	
Total	172		550		323		510		495		1060		
Percent	34.7%		51.9%		65.3%		48.1%						
Day Total			722				833				1555		
Peak	11:00		02:45		10:30		03:15		11:00		03:15		
Vol.	55		112		89		122		131		209		
P.H.F.	0.809		0.824		0.674		0.545		0.728		0.679		

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Marshall Street
south of Prentice Street
City, State: Holliston, MA
Client: C&C/J. Morgan
NB

Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Not Classe	Total
10/14/0															
5	0	2	1	0	0	0	0	0	0	0	0	0	0	0	3
01:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:00	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
04:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:00	0	8	4	0	0	1	0	0	0	0	0	0	0	0	13
06:00	0	33	13	0	0	0	0	1	0	0	0	0	0	0	47
07:00	0	68	26	1	6	0	0	0	0	0	0	0	0	0	101
08:00	0	37	20	1	1	1	0	0	0	0	0	0	0	0	60
09:00	0	22	16	0	1	0	0	0	0	0	0	0	0	0	39
10:00	0	13	4	0	0	1	0	1	0	0	0	0	0	0	19
11:00	0	7	13	0	2	0	0	0	0	0	0	0	0	0	22
12 PM	0	16	9	1	2	2	0	0	0	0	0	0	0	0	30
13:00	0	16	11	1	4	2	0	0	0	0	0	0	0	0	34
14:00	1	17	9	0	4	0	0	0	0	0	0	0	0	0	31
15:00	0	16	16	0	0	0	0	0	0	0	0	0	0	0	32
16:00	0	29	17	1	2	0	0	0	0	0	0	0	0	0	49
17:00	0	35	16	0	1	0	0	0	0	0	0	0	0	0	52
18:00	0	31	7	0	3	0	0	0	0	0	0	0	0	0	41
19:00	0	23	9	0	1	0	0	0	0	0	0	0	0	0	33
20:00	0	9	5	0	0	0	0	0	0	0	0	0	0	0	14
21:00	0	5	3	0	0	0	0	0	0	0	0	0	0	0	8
22:00	0	12	6	0	1	0	0	0	0	0	0	0	0	0	19
23:00	0	8	2	0	0	0	0	0	0	0	0	0	0	0	10
Total	1	408	207	5	28	7	0	2	0	0	0	0	0	0	658
								0.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	

AM Peak		07:00	07:00	07:00	07:00	05:00	06:00			07:00
Vol.		68	26	1	6	1	1			101
PM Peak	14:00	17:00	16:00	12:00	13:00	12:00				17:00
Vol.	1	35	17	1	4	2				52

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NB

Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Not Classe	Total
10/15/0															
5	0	4	1	0	0	0	0	0	0	0	0	0	0	0	5
01:00	0	2	0	0	0	0	0	0	0	0	0	0	0	0	2
02:00	0	2	1	0	0	0	0	0	0	0	0	0	0	0	3
03:00	0	1	1	0	0	0	0	0	0	0	0	0	0	0	2
04:00	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
05:00	0	2	1	0	0	0	0	0	0	0	0	0	0	0	3
06:00	0	6	4	0	0	0	0	1	0	0	0	0	0	0	11
07:00	0	16	6	0	2	0	0	0	0	0	0	0	0	0	24
08:00	0	15	9	0	1	0	0	0	0	0	0	0	0	0	25
09:00	1	27	8	0	3	0	0	0	0	0	0	0	0	0	39
10:00	1	41	12	0	0	0	0	0	0	0	0	0	0	0	54
11:00	0	31	12	0	2	1	0	1	0	0	0	0	0	0	47
12 PM	0	29	10	0	2	0	0	0	0	0	0	0	0	0	41
13:00	1	29	12	0	0	0	0	0	0	0	0	0	0	0	42
14:00	1	24	13	0	1	0	0	0	0	0	0	0	0	0	39
15:00	0	18	7	0	1	1	0	0	0	0	0	0	0	0	27
16:00	0	26	8	0	3	0	0	0	0	0	0	0	0	0	37
17:00	0	18	15	0	1	0	0	0	0	0	0	0	0	0	34
18:00	0	17	7	0	0	0	0	0	0	0	0	0	0	0	24
19:00	0	14	3	0	0	0	0	0	0	0	0	0	0	0	17
20:00	0	18	5	0	0	0	0	0	0	0	0	0	0	0	23
21:00	0	9	2	0	0	0	0	0	0	0	0	0	0	0	11
22:00	0	21	5	0	1	0	0	0	0	0	0	0	0	0	27
23:00	0	11	3	0	0	0	0	0	0	0	0	0	0	0	14
Total	4	382	145	0	17	2	0	2	0	0	0	0	0	0	552
Percent	0.7%	69.2%	26.3%	0.0%	3.1%	0.4%	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	
AM Peak	09:00	10:00	10:00		09:00	11:00		06:00							10:00
Vol.	1	41	12		3	1		1							54
PM Peak	13:00	12:00	17:00		16:00	15:00									13:00
Vol.	1	29	15		3	1									42

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Marshall Street
south of Prentice Street
City, State: Holliston, MA
Client: C&C/J. Morgan
NB

Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Not Classe	Total
10/16/0															
5	0	5	2	0	0	0	0	0	0	0	0	0	0	0	7
01:00	0	2	1	0	0	0	0	0	0	0	0	0	0	0	3
02:00	0	3	0	0	0	0	0	0	0	0	0	0	0	0	3
03:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:00	0	2	0	0	0	0	0	0	0	0	0	0	0	0	2
05:00	0	7	2	0	0	0	0	0	0	0	0	0	0	0	9
06:00	0	14	1	0	1	0	0	0	0	0	0	0	0	0	16
07:00	0	18	11	0	1	0	0	0	0	0	0	0	0	0	30
08:00	1	16	14	0	1	0	0	0	0	0	0	0	0	0	32
09:00	0	45	21	0	1	0	0	1	0	0	0	0	0	0	68
10:00	0	54	22	0	0	0	0	1	0	0	0	0	0	0	77
11:00	4	47	23	0	2	0	0	0	0	0	0	0	0	0	76
12 PM	2	48	18	0	1	0	0	0	0	0	0	0	0	0	69
13:00	0	42	8	0	0	0	0	0	0	0	0	0	0	0	50
14:00	0	54	17	0	0	0	0	0	0	0	0	0	0	0	71
15:00	0	52	31	0	2	0	0	0	0	0	0	0	0	0	85
16:00	0	57	18	0	7	0	0	0	0	0	0	0	0	0	82
17:00	0	59	30	0	1	0	0	0	0	0	0	0	0	0	90
18:00	0	17	8	0	0	0	0	0	0	0	0	0	0	0	25
19:00	0	7	1	0	0	0	0	0	0	0	0	0	0	0	8
20:00	0	11	1	0	0	0	0	0	0	0	0	0	0	0	12
21:00	0	6	2	0	1	0	0	0	0	0	0	0	0	0	9
22:00	0	4	1	0	0	0	0	0	0	0	0	0	0	0	5
23:00	0	3	0	0	1	0	0	0	0	0	0	0	0	0	4
Total	7	573	232	0	19	0	0	2	0	0	0	0	0	0	833
Percent	0.8%	68.8%	27.9%	0.0%	2.3%	0.0%	0.0%	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	
AM Peak	11:00	10:00	11:00		11:00			09:00							10:00
Vol.	4	54	23		2			1							77
PM Peak	12:00	17:00	15:00		16:00										17:00
Vol.	2	59	31		7										90
Grand Total	12	1363	584	5	64	9	0	6	0	0	0	0	0	0	2043
Percent	0.6%	66.7%	28.6%	0.2%	3.1%	0.4%	0.0%	0.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	

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Marshall Street
south of Prentice Street
City, State: Holliston, MA
Client: C&C/J. Morgan
SB

Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Not Classe	Total
10/14/0															
5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:00	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
02:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:00	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1
06:00	0	4	2	0	1	0	0	0	0	0	0	0	0	0	7
07:00	0	15	14	2	1	0	0	0	0	0	0	0	0	0	32
08:00	0	20	8	1	1	1	0	0	0	0	0	0	0	0	31
09:00	0	10	10	0	0	0	0	1	0	0	0	0	0	0	21
10:00	0	8	5	0	0	1	0	0	0	0	0	0	0	0	14
11:00	0	15	10	2	1	0	0	0	0	0	0	0	0	0	28
12 PM	0	13	9	1	2	0	0	0	0	0	0	0	0	0	25
13:00	0	20	10	0	4	3	0	1	0	0	0	0	0	0	38
14:00	0	39	9	1	3	0	0	0	0	0	0	0	0	0	52
15:00	0	37	11	2	2	0	0	0	0	0	0	0	0	0	52
16:00	0	58	21	0	1	0	0	0	0	0	0	0	0	0	80
17:00	0	50	15	0	2	0	0	0	0	0	0	0	0	0	67
18:00	0	41	14	0	1	1	0	1	0	0	0	0	0	0	58
19:00	0	29	8	0	0	0	0	0	0	0	0	0	0	0	37
20:00	0	19	9	0	0	0	0	0	0	0	0	0	0	0	28
21:00	0	13	3	0	1	0	0	0	0	0	0	0	0	0	17
22:00	0	22	7	0	0	0	0	0	0	0	0	0	0	0	29
23:00	0	5	3	0	0	0	0	0	0	0	0	0	0	0	8
Total	0	419	169	9	20	6	0	3	0	0	0	0	0	0	626
Percent	0.0%	66.9%	27.0%	1.4%	3.2%	1.0%	0.0%	0.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	
AM Peak		08:00	07:00	07:00	06:00	08:00		09:00							07:00
Vol.		20	14	2	1	1		1							32
PM Peak		16:00	16:00	15:00	13:00	13:00		13:00							16:00
Vol.		58	21	2	4	3		1							80

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Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Not Classe	Total
10/15/0															
5	0	6	0	0	0	0	0	0	0	0	0	0	0	0	6
01:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:00	0	2	0	0	0	0	0	0	0	0	0	0	0	0	2
03:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
06:00	0	3	0	0	0	0	0	0	0	0	0	0	0	0	3
07:00	0	12	1	0	1	0	0	1	0	0	0	0	0	0	15
08:00	0	15	4	0	0	0	0	0	0	0	0	0	0	0	19
09:00	0	16	10	0	2	1	0	1	0	0	0	0	0	0	30
10:00	0	34	13	0	3	0	0	0	0	0	0	0	0	0	50
11:00	0	38	15	0	1	1	0	0	0	0	0	0	0	0	55
12 PM	0	37	6	0	0	0	0	0	0	0	0	0	0	0	43
13:00	0	31	12	0	0	0	0	0	0	0	0	0	0	0	43
14:00	0	33	16	0	0	0	0	0	0	0	0	0	0	0	49
15:00	0	33	10	0	0	0	0	0	0	0	0	0	0	0	43
16:00	0	20	8	0	1	0	0	0	0	0	0	0	0	0	29
17:00	0	21	13	0	1	0	0	0	0	0	0	0	0	0	35
18:00	0	21	6	0	1	0	0	0	0	0	0	0	0	0	28
19:00	0	13	0	0	1	0	0	0	0	0	0	0	0	0	14
20:00	0	18	5	0	0	0	0	0	0	0	0	0	0	0	23
21:00	0	11	3	0	0	0	0	0	0	0	0	0	0	0	14
22:00	0	15	1	0	0	0	0	0	0	0	0	0	0	0	16
23:00	0	13	3	0	0	0	0	0	0	0	0	0	0	0	16
Total	0	392	126	0	11	2	0	2	0	0	0	0	0	0	533
Percent	0.0%	73.5%	23.6%	0.0%	2.1%	0.4%	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	
AM Peak		11:00	11:00		10:00	09:00		07:00							11:00
Vol.		38	15		3	1		1							55
PM Peak		12:00	14:00		16:00										14:00
Vol.		37	16		1										49

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Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Not Classe	Total
10/16/0															
5	0	5	1	0	1	0	0	0	0	0	0	0	0	0	7
01:00	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
02:00	0	3	0	0	0	0	0	0	0	0	0	0	0	0	3
03:00	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1
04:00	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
05:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
06:00	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
07:00	0	6	0	0	0	0	0	0	0	0	0	0	0	0	6
08:00	0	26	8	0	0	0	0	0	0	0	0	0	0	1	35
09:00	1	19	9	0	2	0	0	0	0	0	0	0	0	0	31
10:00	0	26	5	0	0	0	0	0	0	0	0	0	0	0	31
11:00	1	34	18	0	2	0	0	0	0	0	0	0	0	0	55
12 PM	1	66	22	0	2	0	0	1	0	0	0	0	0	0	92
13:00	0	59	21	0	1	0	0	0	0	0	0	0	0	0	81
14:00	0	63	21	0	1	0	0	0	0	0	0	0	0	0	85
15:00	1	73	25	0	1	0	0	0	0	0	0	0	0	0	100
16:00	1	39	20	0	1	0	0	0	0	0	0	0	0	0	61
17:00	1	31	8	0	1	0	0	0	0	0	0	0	0	0	41
18:00	0	24	9	0	1	0	0	0	0	0	0	0	0	0	34
19:00	0	10	6	0	1	0	0	0	0	0	0	0	0	0	17
20:00	0	13	6	0	0	0	0	0	0	0	0	0	0	0	19
21:00	0	6	1	0	1	0	0	0	0	0	0	0	0	0	8
22:00	0	3	1	0	1	0	0	0	0	0	0	0	0	0	5
23:00	0	5	2	0	0	0	0	0	0	0	0	0	0	0	7
Total	6	514	184	0	16	0	0	1	0	0	0	0	0	1	722
Percent	0.8%	71.2%	25.5%	0.0%	2.2%	0.0%	0.0%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	
AM Peak	09:00	11:00	11:00		09:00									08:00	11:00
Vol.	1	34	18		2									1	55
PM Peak	12:00	15:00	15:00		12:00			12:00							15:00
Vol.	1	73	25		2			1							100
Grand Total	6	1325	479	9	47	8	0	6	0	0	0	0	0	1	1881
Percent	0.3%	70.4%	25.5%	0.5%	2.5%	0.4%	0.0%	0.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	

Capacity Analyses

TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*JBB*
Agency/Co.	*Coler & Colantonio*
Date Performed	*9/26/05*
Analysis Time Period	*AM Peak (7:00-8:00am)*

Site Information

Intersection	*Marshall St. @ Prentice St.*
Jurisdiction	*Holliston*
Analysis Year	*2005 AM Existing*

Project Description *AM Peak Hour Existing Conditions*

East/West Street: *Prentice Street* | North/South Street: *Marshall 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		*211*	*7*	*15*	*218*	
Peak-Hour Factor, PHF	*0.85*	*0.85*	*0.85*	*0.85*	*0.85*	*0.85*
Hourly Flow Rate, HFR	*0*	*248*	*8*	*17*	*256*	*0*
Percent Heavy Vehicles	*2*	--	--	*2*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
			TR	LT		

TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	JBB
Agency/Co.	Coler & Colantonio
Date Performed	9/26/05
Analysis Time Period	PM Peak (4:45-5:45pm)

Site Information

Intersection	Marshall St. @ Prentice St.
Jurisdiction	Holliston
Analysis Year	2005 PM Existing

Project Description: PM Peak Hour Existing Conditions

East/West Street: Prentice Street | North/South Street: Marshall 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		214	18	64	251	
Peak-Hour Factor, PHF	0.85	0.85	0.85	0.85	0.85	0.85
Hourly Flow Rate, HFR	0	251	21	75	295	0
Percent Heavy Vehicles	2	--	--	2	--	--
Median Type	Undivided					
RT Channelized			0			0
Lanes	0	1	0	0	1	0
Configuration			TR	LT		
Upstream Signal		0			0	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	20		41			
Peak-Hour Factor, PHF	0.85	0.85	0.85	0.85	0.85	0.85
Hourly Flow Rate, HFR	23	0	48	0	0	0
Percent Heavy Vehicles	2	0	0	0	0	0
Percent Grade (%)	0			0		
Flared Approach		N			N	
Storage		0			0	
RT Channelized			0			0
Lanes	0	0	0	0	0	0
Configuration		LR				

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		LT		LR				
v (vph)		75		71				
C (m) (vph)		1291		582				
v/c		0.06		0.12				
95% queue length		0.18		0.41				
Control Delay		8.0		12.0				
LOS		A		B				
Approach Delay	--	--	12.0					
Approach LOS	--	--	B					

TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	JBB
Agency/Co.	Coler & Colantonio
Date Performed	9/26/05
Analysis Time Period	SAT Peak (11:00am-12:00pm)

Site Information

Intersection	Marshall St. @ Prentice St.
Jurisdiction	Holliston
Analysis Year	2005 SAT Existing

Project Description: SAT Peak Hour Existing Conditions

East/West Street: Prentice Street | North/South Street: Marshall 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		157	25	99	146	
Peak-Hour Factor, PHF	0.85	0.85	0.85	0.85	0.85	0.85
Hourly Flow Rate, HFR	0	184	29	116	171	0
Percent Heavy Vehicles	2	--	--	2	--	--
Median Type	Undivided					
RT Channelized			0			0
Lanes	0	1	0	0	1	0
Configuration			TR	LT		
Upstream Signal		0			0	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	24		106			
Peak-Hour Factor, PHF	0.85	0.85	0.85	0.85	0.85	0.85
Hourly Flow Rate, HFR	28	0	124	0	0	0
Percent Heavy Vehicles	2	0	0	0	0	0
Percent Grade (%)		0			0	
Flared Approach		N			N	
Storage		0			0	
RT Channelized			0			0
Lanes	0	0	0	0	0	0
Configuration		LR				

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		LT		LR				
v (vph)		116		152				
C (m) (vph)		1357		716				
v/c		0.09		0.21				
95% queue length		0.28		0.80				
Control Delay		7.9		11.4				
LOS		A		B				
Approach Delay	--	--	11.4					
Approach LOS	--	--	B					

TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	JBB
Agency/Co.	Coler & Colantonio
Date Performed	9/27/05
Analysis Time Period	AM Peak (7:00-8:00am)

Site Information

Intersection	Marshall St. @ Prentice St.
Jurisdiction	Holliston
Analysis Year	2010 AM No-Build

Project Description: AM Peak Hour No-Build Conditions

East/West Street: Prentice Street | North/South Street: Marshall 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		251	8	18	259	
Peak-Hour Factor, PHF	0.85	0.85	0.85	0.85	0.85	0.85
Hourly Flow Rate, HFR	0	295	9	21	304	0
Percent Heavy Vehicles	2	--	--	2	--	--
Median Type	Undivided					
RT Channelized			0			0
Lanes	0	1	0	0	1	0
Configuration			TR	LT		
Upstream Signal		0			0	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	30		80			
Peak-Hour Factor, PHF	0.85	0.85	0.85	0.85	0.85	0.85
Hourly Flow Rate, HFR	35	0	94	0	0	0
Percent Heavy Vehicles	2	0	0	0	0	0
Percent Grade (%)		0			0	
Flared Approach		N			N	
Storage		0			0	
RT Channelized			0			0
Lanes	0	0	0	0	0	0
Configuration		LR				

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		LT		LR				
v (vph)		21		129				
C (m) (vph)		1257		620				
v/c		0.02		0.21				
95% queue length		0.05		0.78				
Control Delay		7.9		12.3				
LOS		A		B				
Approach Delay	--	--	12.3					
Approach LOS	--	--	B					

TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	JBB
Agency/Co.	Coler & Colantonio
Date Performed	9/27/05
Analysis Time Period	PM Peak (4:45-5:45pm)

Site Information

Intersection	Marshall St. @ Prentice St.
Jurisdiction	Holliston
Analysis Year	2010 PM No-Build

Project Description: PM Peak Hour No-Build Conditions

East/West Street: Prentice Street | North/South Street: Marshall 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		254	21	76	298	
Peak-Hour Factor, PHF	0.85	0.85	0.85	0.85	0.85	0.85
Hourly Flow Rate, HFR	0	298	24	89	350	0
Percent Heavy Vehicles	2	--	--	2	--	--
Median Type	Undivided					
RT Channelized			0			0
Lanes	0	1	0	0	1	0
Configuration			TR	LT		
Upstream Signal		0			0	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	24		49			
Peak-Hour Factor, PHF	0.85	0.85	0.85	0.85	0.85	0.85
Hourly Flow Rate, HFR	28	0	57	0	0	0
Percent Heavy Vehicles	2	0	0	0	0	0
Percent Grade (%)		0			0	
Flared Approach		N			N	
Storage		0			0	
RT Channelized			0			0
Lanes	0	0	0	0	0	0
Configuration		LR				

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound	Southbound

TWO-WAY STOP CONTROL SUMMARY			
General Information		**Site Information**	
Analyst	*JBB*	Intersection	*Marshall St. @ Prentice St.*
Agency/Co.	*Coler & Colantonio*		*Hollister*

TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	JBB
Agency/Co.	Coler & Colantonio
Date Performed	9/26/05
Analysis Time Period	AM Peak (7:00-8:00am)

Site Information

Intersection	Marshall St. @ Prentice St.
Jurisdiction	Holliston
Analysis Year	2010 AM Build

Project Description: AM Peak Hour Build Conditions

East/West Street: Prentice Street | North/South Street: Marshall 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		251	12	25	259	
Peak-Hour Factor, PHF	0.85	0.85	0.85	0.85	0.85	0.85
Hourly Flow Rate, HFR	0	295	14	29	304	0
Percent Heavy Vehicles	2	--	--	2	--	--
Median Type	Undivided					
RT Channelized			0			0
Lanes	0	1	0	0	1	0
Configuration			TR	LT		
Upstream Signal		0			0	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	52		111			
Peak-Hour Factor, PHF	0.85	0.85	0.85	0.85	0.85	0.85
Hourly Flow Rate, HFR	61	0	130	0	0	0
Percent Heavy Vehicles	2	0	0	0	0	0
Percent Grade (%)	0			0		
Flared Approach		N			N	
Storage		0			0	
RT Channelized			0			0
Lanes	0	0	0	0	0	0
Configuration		LR				

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		LT		LR				
v (vph)		29		191				
C (m) (vph)		1252		593				
v/c		0.02		0.32				
95% queue length		0.07		1.39				
Control Delay		7.9		13.9				
LOS		A		B				
Approach Delay	--	--	13.9					
Approach LOS	--	--	B					

TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*JBB*
Agency/Co.	*Coler & Colantonio*
Date Performed	*9/26/05*
Analysis Time Period	*PM Peak (4:45-5:45pm)*

Site Information

Intersection	*Marshall St. @ Prentice St.*
Jurisdiction	*Holliston*
Analysis Year	*2010 PM Build*

Project Description *PM Peak Hour Build Conditions*

East/West Street: *Prentice Street* | North/South Street: *Marshall 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		*254*	*42*	*105*	*298*	
Peak-Hour Factor, PHF	*0.85*	*0.85*	*0.85*	*0.85*	*0.85*	*0.85*
Hourly Flow Rate, HFR	*0*	*298*	*49*	*123*	*350*	*0*
Percent Heavy Vehicles	*2*	--	--	*2*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration			*TR*	*LT*		
Upstream Signal		*0*			*0*	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	*34*		*56*			
Peak-Hour Factor, PHF	*0.85*	*0.85*	*0.85*	*0.85*	*0.85*	*0.85*
Hourly Flow Rate, HFR	*39*	*0*	*65*	*0*	*0*	*0*
Percent Heavy Vehicles	*2*	*0*	*0*	*0*	*0*	*0*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*0*	*0*
Configuration		*LR*				

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		*LT*		*LR*				
v (vph)		*123*		*104*				
C (m) (vph)		*1212*		*445*				
v/c		*0.10*		*0.23*				
95% queue length		*0.34*		*0.90*				
Control Delay		*8.3*		*15.5*				
LOS		*A*		*C*				
Approach Delay	--	--	*15.5*					
Approach LOS	--	--	*C*					

TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*JBB*
Agency/Co.	*Coler & Colantonio*
Date Performed	*9/26/05*
Analysis Time Period	*SAT Peak (11:00am-12:00pm)*

Site Information

Intersection	*Marshall St. @ Prentice St.*
Jurisdiction	*Holliston*
Analysis Year	*2010 SAT Build*

Project Description *SAT Peak Hour Build Conditions*

East/West Street: *Prentice Street* | North/South Street: *Marshall 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		*186*	*46*	*141*	*173*	
Peak-Hour Factor, PHF	*0.85*	*0.85*	*0.85*	*0.85*	*0.85*	*0.85*
Hourly Flow Rate, HFR	*0*	*218*	*54*	*165*	*203*	*0*
Percent Heavy Vehicles	*2*	--	--	*2*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration			*TR*	*LT*		
Upstream Signal		*0*			*0*	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	*43*		*144*			
Peak-Hour Factor, PHF	*0.85*	*0.85*	*0.85*	*0.85*	*0.85*	*0.85*
Hourly Flow Rate, HFR	*50*	*0*	*169*	*0*	*0*	*0*
Percent Heavy Vehicles	*2*	*0*	*0*	*0*	*0*	*0*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*0*	*0*
Configuration		*LR*				

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		*LT*		*LR*				
v (vph)		*165*		*219*				
C (m) (vph)		*1291*		*594*				
v/c		*0.13*		*0.37*				
95% queue length		*0.44*		*1.69*				
Control Delay		*8.2*		*14.6*				
LOS		*A*		*B*				
Approach Delay	--	--	*14.6*					
Approach LOS	--	--	*B*					

TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	JBB
Agency/Co.	Coler & Colantonio
Date Performed	10/21/05
Analysis Time Period	PM Peak (4:45-5:45pm)

Site Information

Intersection	Marshall St. @ Prentice St.
Jurisdiction	Holliston
Analysis Year	2010 PM Build w/ Soccer

Project Description: PM Peak Hour Build Conditions

East/West Street: Prentice Street | North/South Street: Marshall 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		254	65	243	298	
Peak-Hour Factor, PHF	0.85	0.85	0.85	0.85	0.85	0.85
Hourly Flow Rate, HFR	0	298	76	285	350	0
Percent Heavy Vehicles	2	--	--	2	--	--
Median Type	Undivided					
RT Channelized			0			0
Lanes	0	1	0	0	1	0
Configuration			TR	LT		
Upstream Signal		0			0	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	103		148			
Peak-Hour Factor, PHF	0.85	0.85	0.85	0.85	0.85	0.85
Hourly Flow Rate, HFR	121	0	174	0	0	0
Percent Heavy Vehicles	2	0	0	0	0	0
Percent Grade (%)	0			0		
Flared Approach		N			N	
Storage		0			0	
RT Channelized			0			0
Lanes	0	0	0	0	0	0
Configuration		LR				

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		LT		LR				
v (vph)		285		295				
C (m) (vph)		1184		272				
v/c		0.24		1.08				
95% queue length		0.94		12.05				
Control Delay		9.0		119.9				
LOS		A		F				
Approach Delay	--	--	119.9					
Approach LOS	--	--	F					

TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	JBB
Agency/Co.	Coler & Colantonio
Date Performed	10/21/05
Analysis Time Period	Weekend mid-day Peak

Site Information

Intersection	Marshall St. @ Prentice St.
Jurisdiction	Holliston
Analysis Year	2010 Build w/ Soccer

Project Description: Weekend mid-day Peak Hour Build Conditions

East/West Street: Prentice Street | North/South Street: Marshall 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		186	69	279	173	
Peak-Hour Factor, PHF	0.85	0.85	0.85	0.85	0.85	0.85
Hourly Flow Rate, HFR	0	218	81	328	203	0
Percent Heavy Vehicles	2	--	--	2	--	--
Median Type	Undivided					
RT Channelized			0			0
Lanes	0	1	0	0	1	0
Configuration			TR	LT		
Upstream Signal		0			0	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	112		236			
Peak-Hour Factor, PHF	0.85	0.85	0.85	0.85	0.85	0.85
Hourly Flow Rate, HFR	131	0	277	0	0	0
Percent Heavy Vehicles	2	0	0	0	0	0
Percent Grade (%)	0			0		
Flared Approach		N			N	
Storage		0			0	
RT Channelized			0			0
Lanes	0	0	0	0	0	0
Configuration		LR				

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		LT		LR				
v (vph)		328		408				
C (m) (vph)		1262		362				
v/c		0.26		1.13				
95% queue length		1.04		15.57				
Control Delay		8.9		120.1				
LOS		A		F				
Approach Delay	--	--	120.1					
Approach LOS	--	--	F					

Crash Rate Worksheets

CRASH RATE WORKSHEET

CITY/TOWN : HOLLISTON, MA COUNT DATE : SEPT, 2005

DISTRICT : 3 UNSIGNALIZED : [X] SIGNALIZED : [ ]

MHD USE ONLY

Source # [ ]

~ INTERSECTION DATA ~

MAJOR STREET : PRENTICE STREET ST # [ ]

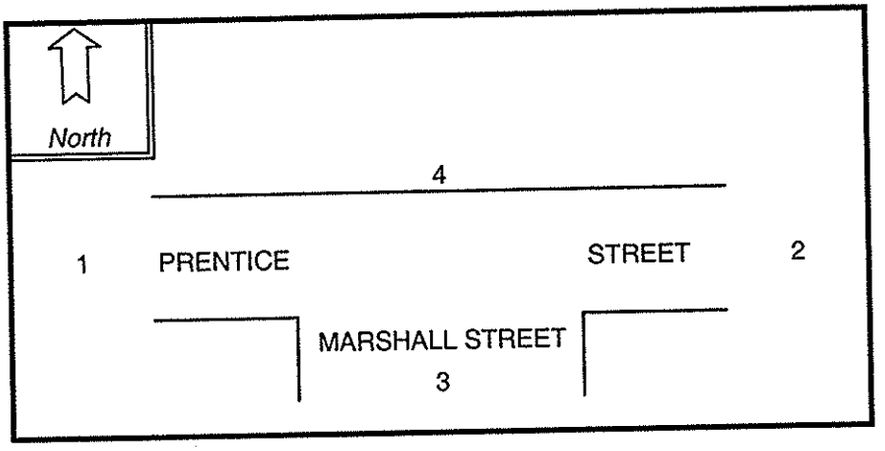
MINOR STREET(S) : MARSHALL STREET ST # [ ]

ST # [ ]

ST # [ ]

ST # [ ]

INTERSECTION DIAGRAM
(Label Approaches)



INTERSECTION REF # [ ]

Peak Hour Volumes

APPROACH :	1	2	3	4	Total Entering Vehicles
DIRECTION :	EB	WB	NB	SB	
VOLUMES (AM/(PM)):	232	315	61	0	608

Tel. 508-429-1212
Fax. 508-429-0611

Holliston Police Department

532 Washington Street
Holliston, Massachusetts 01746

James F. Peterson
Chief of Police

FAX TRANSMISSION

TO: Jeff Bandini - Colera Colantonio
1-781-982-5490

FROM: Judi Johnson

RE: accident collection data

PAGES: 1 of

DATE: 10/5/05

COMMENTS: Queried data for intersection of Prentice & Marshall Sts. 2001 - 2005 - as requested

Holliston Police Department

From: 01/01/2001 Thru: 10/05/2005

Prentice & Marshall Sts.

Accident Statistics By Time of Day

		SUN	MON	TUE	WED	THR	FRI	SAT	TOTALS
1	AM	0	0	0	0	0	0	0	0
2	AM	0	0	0	0	0	0	0	0
3	AM	0	0	0	0	0	0	0	0
4	AM	0	0	0	0	0	0	0	0
5	AM	0	0	0	0	0	0	0	0
6	AM	0	0	0	0	0	0	0	0
7	AM	0	0	0	0	0	0	0	0
8	AM	0	0	0	0	0	0	0	0
9	AM	0	0	0	0	0	0	0	0
10	AM	0	0	0	0	0	0	0	0
11	AM	0	0	0	0	0	0	0	0
12	PM	0	0	0	0	0	0	0	0
1	PM	0	0	0	0	0	0	0	0
2	PM	0	0	0	0	0	0	0	0
3	PM	0	0	0	0	0	0	0	0
4	PM	0	0	0	0	0	0	0	0
5	PM	0	0	0	0	0	0	0	0
6	PM	0	0	0	0	0	0	0	0
7	PM	0	0	0	0	0	0	0	0
8	PM	0	0	0	0	0	0	0	0
9	PM	0	0	0	0	0	0	0	0
10	PM	0	0	0	0	0	0	0	0
11	PM	0	0	0	0	0	0	0	0
12	AM	0	0	0	0	0	0	0	0
TOTALS		0	0	0	0	0	0	0	0

Accident Particulars

	Occurrence(s)	Percentage
Average posted speed at the accident scene		0 MPH
Occurred at On-ramps	0	0.0
Occurred at Off-ramps	0	0.0
Occurred at an intersection	0	0.0
Occurred at a rotary	0	0.0
Occurred on a one lane road/highway	0	0.0
Occurred on a two lane road/highway	0	0.0
Occurred on a three lane road/highway	0	0.0
Occurred on a four lane road/highway	0	0.0
Occurred on other number of lanes	0	0.0
Involved OUI violation(s)	0	0.0
Photos were taken	0	0.0
Measurements were taken	0	0.0
Investigation took place	0	0.0
Involved Injuries	0	0.0
Involved Fatalities	0	0.0

Holliston Police Department
From: 01/01/2001 Thru: 10/05/2005

Prentice & Marshall Sts.

Age and Sex Breakdown of Operators

	≤ 19	19-21	22-25	26-35	36-45	46-60	≥ 60	TOTALS
Male	0	0	0	0	0	0	0	0
Female	0	0	0	0	0	0	0	0
TOTALS	0	0	0	0	0	0	0	0

	Occurrence(s)	Percentage
Number of out of state operators	0	0.0
Number of operators who were cited	0	0.0

MHD Seasonal and Growth Tables

SECTION I - CONTINUOUS COUNTING STATION MONTHLY AVERAGE DAILY TRAFFIC

STATION 4796 - HOPKINTON - RTE.I-495 - SOUTH OF RTE.I-90

YR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	YEAR
99	70,503	72,581	73,842	82,638	90,432	97,716	99,609	95,805	70,200	*81,951*	76,811	66,479	81,547
	-1%	-2%	-4%	-13%	-7%	-12%	-19%	-10%	15%	1%	-2%	16%	-4%
00	*70,000*	*71,000*	71,026	71,889	84,219	85,800	80,533	86,272	80,944	*82,545*	74,936	77,198	78,030
	17%	-9%	-4%	6%	14%	13%	13%	27%	1%	1%	3%	-11%	6%
01	82,198	*64,515*	67,965	75,936	96,102	96,649	90,836	109,531	82,057	*83,089*	77,119	68,609	82,884
03	67,103	63,593	67,620	81,163	99,532	104,000	106,876	107,867	102,902	*102,987*	93,591	80,629	89,822

STATION 4797 - HOPKINTON - RTE.I-495 - AT MILFORD T.L.

YR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	YEAR
99	55,656	67,104	68,466	76,122	74,260	87,081	85,644	74,847	78,501	76,150	64,401	71,002	73,270
	0%	-14%	11%	2%	-1%	5%	-5%	26%	13%	11%	28%	-25%	4%
00	55,512	57,741	75,695	77,620	73,758	91,638	81,625	*94,150*	88,608	84,491	*82,301*	53,118	76,355
	24%	30%	-2%	6%	14%	3%	14%	4%	0%	4%	0%	44%	10%
01	68,743	74,960	74,235	*82,000*	84,451	94,233	92,862	98,264	88,447	88,210	*82,654*	76,482	83,795
	8%	3%	5%	2%	5%	-3%	1%	-1%	2%	2%	-2%	6%	2%
02	73,973	76,893	78,247	83,664	88,517	91,628	93,582	97,641	90,471	90,039	*81,336*	81,000	85,583
	1%	-5%	1%	0%	0%	4%	4%	-1%	-1%	-1%	0%	-5%	0%
03	74,932	73,249	78,796	83,558	88,240	*95,000*	97,448	96,628	*90,000*	*89,000*	81,724	77,058	85,469

ITALICS = ESTIMATED DATA

ITE Trip Generation

COLER & COLANTONIO INC
ENGINEERS AND SCIENTISTS

PROJECT NO
SUBJECT TRIP GENERATION
LOCATION HOLLISTON, MA

CALC BY JBB
DATE 9/23/05
CHECKED BY
DATE

TRIP GENERATION

200 RESIDENTIAL TOWNHOUSES

LUC 230: RESIDENTIAL CONDOMINIUM / TOWNHOUSE

WEEKDAY

$Ln(T) = 0.85\ Ln(200) + 2.55$

$= 7.05$

$T = 1,158$ vpd

50% ENTER: 579 vpd
50% EXIT: 579 vpd

AM PEAK HOUR

$Ln(T) = 0.80\ Ln(200) + 0.26$

$= 4.50$

$T = 90$ vph

17% ENTER: 15 vph
83% EXIT: 75 vph

PM PEAK HOUR

$Ln(T) = 0.82\ Ln(200) + 0.32$

$= 4.66$

$T = 106$ vph

67% ENTER: 71 vph
33% EXIT: 35 vph

SATURDAY

$T = (3.62)(200) + 427.93$

$T = 1,152$ vpd

50% ENTER: 576 vpd
50% EXIT: 576 vpd

SATURDAY PEAK HOUR

$T = (0.29)(200) + 42.63$

$T = 101$ vph

54% ENTER: 55 vph
46% EXIT: 46 vph

Marshall Street Inventory

Marshall Street Inventory

Location (distance from Prentice St.)	Roadway Width	Shoulder	Objects	Pavement Markings
150' from Int. of Prentice St./ Marshall St.	22'	No curb	None	None
700'	21'	No curb	U.P. 1' off L	None
Site Driveway #1 800'	21'	No curb	U.P. 1' off L	None
Top of V.C.	21'	No curb	Embankment slope, U.P. w/ Tree off L	None
Site Driveway #2 1350'	22'	No curb	Trees	None
V.C. 250' from Driveway #2	21'	No curb	None	None
Soccer field/Emergency Access Driveway	21'	No curb	U.P. 1' off L	None
2500' from Soccer field	21'	No curb		None
2600' - 3500'	S Curve with Warning Signs			
3000' (House #255)	22'	No curb	None	None
3200'; Intersection with Great Meadow Road	22'	No curb	None	None
3300' Crest V.C.	22'	No curb	<200' S.D.	None
4500'	20'	1' Bit. Berm on R	U.P. 1' off L Tree 1' off R	None
4000' (House #355)	21'	No curb	U.P. 1' off L	None
4500'	19'	No curb	H.C. @ 2400' w/ steep slope R w/ no shoulder; V.C. @ 2600', U.P. 1' off L	None
4900' Hanlon St./Winston Rd.	20'	1' berm both sides	Poor S.D. from Winston Rd.	None
5500'	18'	No curb	Trees 2' off L and R Stonewall 3' L	None
5700'	N/A	No curb	Horizontal Curve	None
6000'	18'	No curb	Trees 1' L, 2' R Stonewall 2' L	None
Gorwin Drive	18'	Berm L South Corner	H.C. and V.C. to South limit sight distance	None
7000'	18'	No curb	Trees and U.P. 1' off L and R	None
7500' (House #695)	18'	No curb	U.P. 2' L and Trees 1' R	None
8000'- Intersection with	22' N			Faded