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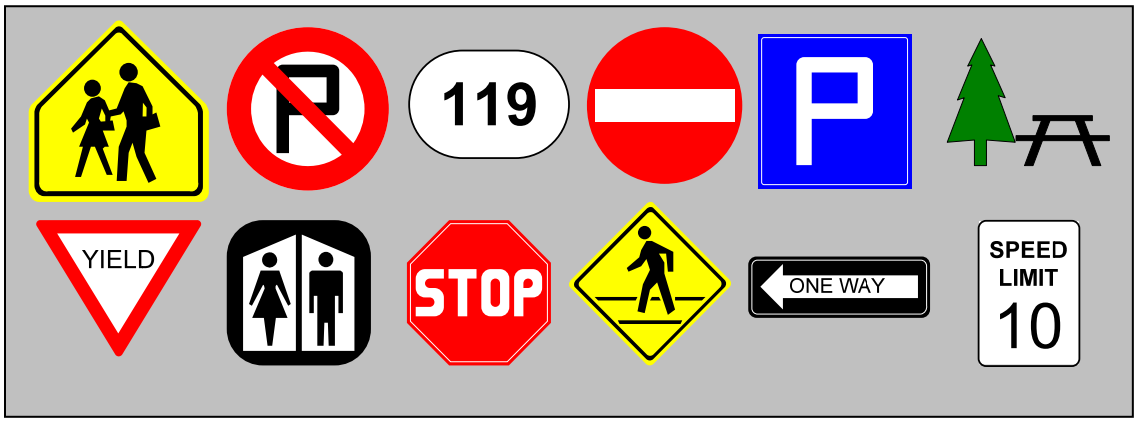
Final Report
of the
Station Avenue Overlay District
Parking and Traffic Calming Committee

Prepared for the
Planning Board
Town of Groton, Massachusetts



May 15, 2008

Edited by John Giger
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This report was prepared by and is respectfully submitted to the Town of Groton, Massachusetts, Planning Board by the Station Avenue Overlay District Parking and Traffic Calming Committee.

_____
Robert T. Delaney, Jr., Chairman
Groton Highway Department Representative

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John R. Giger, Member
Groton Planning Board Representative

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Stanley Jackson, Member
Station Avenue Overlay District Neighborhood Representative

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Greg Mischel, Member
Station Avenue Overlay District Neighborhood Representative

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Fran Stanley, Member
Nashua River Rail Trail Association Representative

Signed copy available for viewing at the office of the Town Planner, Town of Groton, Town Hall, 173 Main Street, Groton, MA 01450

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Introduction

The Station Avenue Overlay District Parking and Traffic Calming committee was created on December 20, 2007. Appendix A of this report is a copy of the document creating the committee and appointing its members. While the time and efforts of committee members represent a voluntary contribution to the Town, the committee's expenses were funded through a Massachusetts General Law 43D Technical Assistance Grant from the Commonwealth's Interagency Permitting Board.

The purpose of the committee was to work on task number three as stated in the Town of Groton's application for technical assistance under Massachusetts General Law, Chapter 43D, Priority Development. The committee was charged with assisting in the development of new parking regulations for the Station Avenue Overlay District. The committee was directed to work with public safety officials and Fay, Spofford & Thorndike, an engineering firm specializing in traffic circulation and parking matters, on the following tasks:

- Inventory of all existing available parking spaces including the parking areas at Town Hall, Prescott School and the Groton Public Library;
- Determine the parking needs of the Groton Fire Department;
- Determine parking needs for users of the Nashua River Rail Trail;
- Encourage shared parking to reduce impervious surface and storm water runoff impacts;
- Recommend potential locations for municipal parking and;
- Produce illustrations of traffic calming specific recommendations for traffic calming measures at the intersection of Main Street and Station Avenue, at the end of Court Street, and at the egress points on Broadmeadow Road and Adams Avenue for incorporation into the Station Avenue District Design guidelines and Handbook.

At the committee's first meeting, Tom Delaney was unanimously elected chairman. All work of the committee was conducted under Massachusetts General Law, Chaper 39, Sections 23A through 23C and 24. Appendix B of this report contains minutes from all the committee's meetings.

The committee was ably assisted throughout its work by Mr. Gary Hebert, PE, PTOE, of the engineering firm Fay, Spofford & Thorndike. The quality and completeness of the committee's work was greatly enhanced by Mr. Hebert's contribution. The committee thanks Mr. Hebert for the expertise he provided and the cooperative manner in which he worked with committee members.

Michelle Collette, the Groton Town Planner, supported the committee in many ways during its work. The overall effectiveness of the committee was greatly enhanced by Ms. Collette's efforts and contributions. The committee thanks Ms. Collette for all the knowledge, support and services she provided to the committee.

Fran Stanley, representative from the Nashua River Rail Trail Association, served as committee recorder for the Committee's public meetings and produced written minutes for each meeting (see Appendix B). The committee thanks Fran for cheerfully and professionally fulfilling this additional duty.

Parking Space Inventory

A parking space inventory was completed for the committee by Fay, Spofford & Thorndike. The adjusted total of existing on-street parking spaces within the Station Avenue Overlay District was found to be 200. The adjusted total of existing off-street parking spaces within the Station Avenue Overlay District was found to be 267. Combined existing on-street and off-street parking spaces in the Station Avenue Overlay District total 467 spaces.

Existing off-street parking spaces behind the Town Hall total 16.

Existing off-street parking spaces behind the Prescott School total 42.

Existing off-street parking spaces behind the Public Library total 40.

Appendix C of this report contains the complete Station Avenue Overlay District parking inventory and associated compilations.

Experience indicates that for patrons to find parking convenient, a parking space needs to be available to them within no more than a 1,000 foot radius of the location being visited. Appendix D of this report contains a diagram showing approximate 300, 500 and 1,000 foot radius circles, with the existing Groton Electric Light Department garage as the center, superimposed on an aerial photograph of the general Station Avenue Overlay District area.

Fire Department Parking Needs

The Groton Fire Department, with a central station and two satellite fire stations, relies primarily on call fire fighters who drive to the respective fire stations, park their privately owned vehicles, climb on the various engine and ladder trucks and respond to fire emergencies. The Groton Fire Department's central fire station is located on Station Avenue. Accordingly, immediately available parking spaces for call firefighter's (also known as call-out firefights and volunteer firefighters) privately owned vehicles when responding to a call-out are critical in the context of fire department response times.

Tom Delaney, the committee chairman, met with the Fire Chief, Joe Bosselait, and reviewed his department's parking needs at the central fire station in the context of mixed

use development within the Station Avenue Overlay District. The Fire Department's specific needs are these:

- In addition to the existing parking spaces for privately owner vehicles on the paved apron in front of the central fire station, the Fire Department needs six additional parking spaces immediately adjacent to the Fire Department's Station Avenue property reserved 24 hours a day, year round, for call fire fighter privately owned vehicle parking.

- To facilitate easy and rapid egress from and entrance to the Station Avenue fire station by engines and latter trucks, no parking at any time may be allowed on Station Avenue immediately across from the existing paved apron in front of the Town's central fire station.

Nashua River Rail Trail Parking Needs

The Nashua River Rail Trail, which currently runs from Ayer through Groton to Pepperell, passes along a Station Avenue Overlay District boundary (see Appendix E). Since its inception the rail trail has been used by Groton residents for recreation and exercise and today is an important part of Groton life.

After hearing about various commitments thought to be in place between the Town of Groton and the Massachusetts Department of Conservation and Recreation (DRC) for parking, services and other amenities to be provided by the Town for users of the Nashua River Rail Trail at or near the end of Station Avenue, the committee set about to determine exactly what commitments existed.

The Nashua River Rail Trail is very well used, is a bicycling, running and walking thoroughfare through the center of Groton and is a source of patrons for commercial establishments in the Station Avenue Overlay District.

Here is a count, taken on April 8, 2008, of the two-way volume for all Nashua River Rail Trail user types taken at the intersection of the Nashua River Rail Trail and Station Avenue.

For Hours Beginning At	Count
7:00 AM	40
8:00 AM	77
9:00 AM	403
10:00 AM	238
11:00 AM	93
Noon	60

1:00 PM	42
2:00 PM	41
3:00 PM	37
4:00 PM	70
5:00 PM	18
6:00 PM	3

The average hourly volume on April 8, 2008 was 94.

A count done on September 8, 2007, at the intersection of the rail trail and Station Avenue with a total volume of 1,122 users, showed an interesting mix of Nashua River Rail Trail users by mode of travel type.

Share of Users by Mode of Travel	**Percent of Total**
Baby Carriage	3%
Bicyclist	44%
Jogger	16%
Skater	3%
Walker	33%
Wheelchair User	0%
Other	1%
Total	100%

At the beginning of the Nashua River Rail Trail project in the spring of 1999, the Massachusetts Department of Environmental Management (DEM) organization, owners of the right-of -way over which the Nashua River Rail Trail travels, granted the Town of Groton a sewer easement within DEM's right-of-way. In return for the sewer easement, the Town and the DEM agreed on compensation which was memorialized in a Memorandum of Agreement between the two parties.

When polled, each member of the Station Avenue Overlay District Parking and Traffic Calming Committee had a somewhat different notion about the Town's obligation to the DEM in return for the sewer easement. To do its work the committee needed to understand what, if any, requirements existed in a Memorandum of Agreement between the Town of Groton and the Massachusetts' Department of Environmental Management (DEM) organization with regard to parking requirements for Nashua River Rail Trail users within the Station Avenue Overlay District. Checks of Town records turned up an agreement signed by the Selectmen on March 15, 1999 and forwarded to DEM on March 16, 1999 (see Appendix F). The agreement found in the Town archives did not, however, contain the signature of Peter C. Webber, then commissioner of the DEM. The Department of Conservation and Recreation, the successor of DEM, provided us with an agreement document signed by Mr. Webber dated August 12, 1998 (see Appendix G).

The scope of the committee's charge did not include investigation and documentation of the agreement between the Town of Groton and the Massachusetts Department of Environmental Management (DEM) with regard to compensation for the sewer easement, identified above. Accordingly the committee chose to base its recommendations in this document on the content of the agreement signed by the Groton Selectmen on March 15, 1999 (see Appendix F).

All of the above not withstanding, the committee believes it is in the best development interest of the Station Avenue Overlay District to encourage use of the rail trail and to provide accommodation for users of the rail trail when visiting the Station Avenue Overlay District or passing through it. The following recommendations are made in this regard:

- At any given time, it is desirable that at least twenty-four (24) passenger vehicle parking spaces within the Station Avenue Overlay District should be available for rail trail users who wish to begin and/or end their rail trail travels from the Station Avenue Overlay District. In this regard, please see the committee's proposed Station Avenue Overlay District Parking and Loading Guidelines (Appendix H).

- Annually, from April 1 through October 31, make drinking water available for rail trail users in the form of a drinking fountain and provide a convenient way for rail trail users to refill portable water containers used while traveling the trail.

- For additional information on the contents of the agreement between the Town and DEM, signed by the Town's Selectmen, on March 15, 1999, readers are referred to Appendix E of this report.

General and Shared Parking Recommendations

Working closely with Mr. Hebert of Fay, Spofford and Thorndike, the committee created recommended Station Avenue Overlay District Parking and Loading Guidelines for inclusion in the Station Avenue Overlay District Design Guidelines and Permitting Handbook. The recommended Station Avenue Overlay District Parking and Loading Guidelines will be found at Appendix H of this report.

The Station Avenue Overlay District Parking and Loading Guidelines encourage shared parking wherever possible for all commercial entities within the District. When implemented, the sharing of parking spaces by multiple commercial entities will reduce the amount of impervious paved surface that would otherwise be required. By reducing the total amount of pavement used in the District, storm water flows are reduced which in turn reduces the discharge of pollutants often found in parking lot run off.

The expectation for parking space layout along with required landscaping and associated requirements in the Station Avenue Overlay District parking areas is addressed in the Station Avenue Overlay District Design Guidelines and Permitting Handbook.

Since commercial and residential developments cause impacts to the community in the form of traffic congestion; intersection level of service degradation and failure; longer wait times for pedestrians crossing streets and longer wait time for drivers entering traffic flows, establish a Planning Board regulation with concurrence from Town Counsel to require mitigation from developers in Groton. The committee recommends the Planning Board model its regulation on the Chelmsford Planning Board's Policy on Traffic and Pedestrian Mitigation, which is included as Appendix I, and, as Chelmsford did, base it on Massachusetts General Law 44: Section 53A, which is included at Appendix J.

Take whatever actions are necessary to ensure that the Town may enforce Massachusetts General Law Chapter 90, Section 16A, Stopped Motor Vehicles; Operations of Engine; Time Limit and Penalty. Request the Board of Selectmen instruct the Police Chief to aggressively enforce this state law throughout the Station Avenue Overlay District. A copy of this state law is included as Appendix K.

Parking Recommendations for Adams Avenue

Restrict parking to residents and their guests only. Implement as follows:

- Post signs on Adams Avenue indicating that residential parking is for Adams Avenue residents and their guests only.

- If signage alone does not produce the desired result, than provide annual free parking stickers for each resident's vehicle or vehicles upon presentation of vehicle registration. Annually make available to each Adams Avenue residential dwelling owner or renter guest parking dashboard signs.

- If truck traffic becomes a problem, then "petition" the State for permission to prohibit commercial truck travel on Adams Avenue.

Parking Recommendations for Court Street

Restrict parking to residents and their guests only. Implement as follows:

- Post signs on Court Street indicating that parking is for residents and their guests only.

- If signage alone does not produce the desired result, than provide annual free parking stickers for each resident's vehicle or vehicles upon presentation of vehicle registration. Annually make available to each Court Street residential dwelling owner or renter guest parking dashboard signs.

If truck traffic becomes a problem, then “petition” the State for permission to prohibit commercial truck travel on Court Street.

Municipal Parking Recommendations

Explore with Bank of America and Citizens Bank the joining of their now adjoining but separate parking lots into one lot shared by both banks. The consolidation of these two parking lots into one will increase parking for both banks, improve traffic flow for users of both bank’s drive up windows and create additional parking spaces which might be used to meet general parking needs during hours the banks are not open.

Consider acquiring the land between the Town Hall and the Fire Station for use as municipal parking. This would allow improved parking for Town Hall employees and visitors during the week, provide the six additional dedicated parking spaces needed by the Fire Department for call-out personnel, and be available for general use by patrons visiting the Station Avenue Overlay District (especially on weekends and holidays). Massachusetts Fifth District Congresswoman Niki Tsongas has been asked to assist the Town in obtaining help from the federal government, in the form of a grant or grants, to be used in the acquisition of land for municipal parking within the Station Avenue Overlay District.

Consider creating angular parking spaces on the side of Playground Road between the Library parking lot and Broadmeadow Road. Prohibit parking on the side of Playground Road between the basketball court across from the Library parking lot and Broadmeadow Road. This would create more parking for users of the basketball court, the soccer field, the children’s playground, and the baseball field as well as improve ingress and egress for Library patrons between the Library parking lot and Broadmeadow Road. In turn this would free up parking in the Library parking lot (which is being used by users of the basketball court and the fields) and provide overflow parking for Library users and regular parking for Rail Trail users when the fields are either in low use or not in use at all. In this regard, please see Appendix L.

On the current Groton Electric Light Department land between Station Avenue and Broadmeadow Road, encourage the creation of parking spaces, some of which may be used for general municipal parking.

Traffic Calming Recommendations

Traffic calming, which was developed in Europe, is a system of design and management strategies that aim to balance traffic on streets with other uses. It is founded on the idea that streets should help create and preserve a sense of place, that their purpose is for people to walk, stroll, look, gaze, meet, plan, shop and even work alongside cars – but not be dominated by them. The tools of traffic calming take a different approach from treating the street only as a conduit for vehicles passing through at the greatest possible

speed. They include techniques designed to lessen the impact of motor vehicle traffic by slowing it down, or literally, "calming" it. This helps build human-scale places and an environment friendly to people on foot.

For a diagram of the Station Avenue Overlay District traffic calming focus area, please see Appendix M.

In identifying traffic calming options for the Station Avenue Overlay District, the committee worked closely with Mr. Gary Hebert, PE, PTOE, of the engineering firm Fay, Spofford & Thorndike. Mr Hebert's April 25, 2008 memorandum to the committee regarding traffic calming options will be found at Appendix L.

The committee believes the goal for traffic calming within the Station Avenue Overlay District should be to:

- Discourage the use of the Station Avenue Overlay District access roads by through traffic;

- Minimize the use of Adams Avenue, Court Street and Broadmeadow Road residential streets by non-residential traffic to and from the Station Avenue Overlay District; and

- Minimize the speed of motor vehicle traffic in the Station Avenue Overlay District.

Readers new to the concept of traffic calming and traffic calming measures will find a brief tutorial, titled Traffic Calming 101, at Appendix S.

Readers looking for more information about traffic calming techniques, their impacts and implementation details are referred to the publication titled *Pennsylvania's Traffic Calming Handbook*. The excellent handbook, identified as Publication Number 383, is published by the Bureau of Highway Safety and Traffic Engineering, Pennsylvania Department of Transportation, is available on the Internet at the following URL: http://www.dot.state.pa.us/Internet/pdHwyIntHS.nsf/HomePageTrafficCalming?OpenForm&BaseTarget=main.

Traffic Calming Recommendations for Adams Avenue

The committee recommends the following traffic calming measures be considered for Adams Avenue:

- Place "Caution Children" sign at entrance from Pleasant Street.

- Unless and until public (non-emergency) passenger vehicle traffic is permitted between Adams Avenue and Station Avenue, maintain a Dead End sign at the junction of Adams Avenue and Pleasant Street.

- Assuming a public easement is available or can be obtained on the existing Adams Avenue alignment, a sidewalk should be considered for the side of the road nearest Court Street to allow pedestrians on Adams Avenue and Pleasant Street to walk to and from the Station Avenue Overlay District area.

- Two access options from the Station Avenue Overlay District area are possible via Adams Avenue. One involves allowing only traffic exiting from at Station Avenue Overlay District residential area to exit via Adams Avenue, not to enter via Adams Avenue. Alternatively, if residential use only, two-way traffic between the Station Avenue Overlay District and Pleasant Street via Adams Avenue is allowed at some point, consideration should be given to realigning Adams Avenue at its intersection with Pleasant Street to create more of a right angle for traffic leaving Adams Avenue and turning left onto Pleasant Street.

- Without realigning Adams Avenue, a gated access could be created for emergency vehicle access only from Adams Avenue to the Station Avenue Overlay District.

For more details on these recommendations, please see the memorandum at Appendix L and the diagram at Appendix N.

Traffic Calming Recommendations for Court Street

With the exception of the entrance off Main Street, Court Street is a rather narrow road with relatively high residential density. Preserving the residential nature of this street within the Station Avenue Overlay District necessitates that appropriate traffic calming measures are implemented, monitored and maintained. The committee's recommendations in this regard include the following:

- Place "Caution Children" sign at entrance from Main Street.

- Appendix O illustrates several potential Court Street options along the street and where it joins the Station Way[1] connection. Under all potential options, it is assumed Court Street remains one-way westbound toward Station Avenue. Options involve both vertical and horizontal deflections. In summary, they include:

[1] Station Way is a placeholder name created by Mr. Gary Hebert to identify an envisioned vehicle passage way that one day may connect Broadmeadow Road with Station Avenue and/or connect Adams Avenue with Station Avenue.

- 'Speed pillows' (maximum height 2" at the center) spaced regularly to alert motorists to the fact that this is a residential neighborhood. As envisioned, these would be designed to be readily plowable and drivable at 20 mph. A speed pillow provides drainage in all four directions and allows bicycles to pass on both sides of it. Seasonal speed humps (or speed pillows) are available and might be considered to avoid winter plowing issues. A sub-option of the vertical deflection option would include the optional provision of two other speed pillows along its length, versus the single one at the west end of Court Street. Assuming vertical measures are preferred by the local residents, they would reduce speeds if spaced approximately 300 feet apart. We would recommend that any vertical treatments, if the preferred option of local residents, be designed to minimize jostling of vehicles, but to provide pavement undulations rather than a 'bump' for motorists. They would have markings and signage consistent with the latest edition of the Manual on Uniform Traffic Control Devices.

- Neck-downs of Court Street spaced every 250-300 feet to serve as visual cues for slowing motorists. The minimum dimension of the neck-downs typically would be 16-feet at their narrowest points. Neck-downs on one or both sides of Court Street would need to create a width sufficient to allow plowing and fire truck access. If neck-downs are done on one side only, they should alternate by side. Any or neck-down or gateway (see next bullet) treatments should be landscaped in a manner consistent with neighborhood landscaping and include curbing and drainage.

- East end 'gateway treatment' or neck-downs created on one or both sides of Court Street at its intersection with Main Street. The new neck-downs would send a clear message to motorists entering Court Street from Main Street that they are entering a neighborhood setting. At its narrowest point, the gateway should be 16 feet wide. Although illustrated on Attachment 3 as a double-sided neck-down, it would be possible to install a neck-down on the north side of Court Street only, with a possibility of creating 5-6 angle parking spaces on the north side only, on the widest segment of Court Street (see parking discussion below).

- On-street parallel or angle parking (residents only) is a horizontal traffic calming measure. Parallel parking already exists on Court Street. Parallel on-street parking could alternate from side to side such that vehicles traversing Court Street would slow around alternating parking bays. For example, the minimum dimension for angle parking under a low speed situation could be 34 feet for a single-sided 18-foot wide 45º angle parking bay and a 16-foot backing area for parking, Without right-of-way plans, it is difficult to tell whether such a strategy is viable for Court Street, as sidewalks need to be maintained. On the other hand, double-sided parallel parking on a street requires a minimum of 28 feet for two 8-foot parking

lanes and a 12-foot travel lane; 20 feet for one 8-foot parking lane and a 12-foot travel lane.

- Stop sign at the west end of Court Street. As an alternative to landscaped chicanes at the west end of Court Street, installation of a stop sign with a stop bar and crosswalk is also an option, assuming Court Street intersects a new *'Station Way'* as a 'T' intersection.

- A mini-roundabout could also be considered at the west end of Court Street. This option should only be considered if the right-of-way needed is attainable and the design doesn't interfere with the development strategy for the SAOD. Its introduction would slow traffic along *'Station Way'*. The main issue is the need to ensure that emergency vehicles could traverse it. With the smallest possible *raised* center island, the inscribed diameter of a modern roundabout would have to be a minimum of 105' from outer edge to outer edge. With a mountable center island, the inscribed diameter could be smaller, but typically no less than 60 feet.

- Adopt specific 'traffic calming' thresholds. As an alternative to installing traffic calming measures at the outset of the development -- which is a reasonable pro-active option -- the Town could also consider adopting thresholds for traffic calming measures by *requiring developers to implement traffic calming measures if needed, as opposed to installing possible unnecessary measures before problems occur*. This approach is *only* viable if neighbors on an affected street, like Court Street, agree that it is best to hold off on changing the character of the street until problems occur, as abutting neighbors will be affected most directly when traffic calming measures are implemented. As envisioned, if traffic calming 'thresholds' are adopted and exceeded, the traffic calming design and implementation would still be the responsibility of the SAOD developer(s).

- Thresholds could be determined by requiring SAOD developers to conduct full 24-hour weekday and weekend traffic measurements before and after development occurs to determine the differential between baseline and future conditions. Pre- and post-implementation counts on Court Street (or Adams Avenue, and Broadmeadow Road) six months after opening and annually until full build-out occurs could be used to determine if adopted thresholds are exceeded. Developers might be required to update baseline count data to incorporate weekend and weekday conditions. For example, an adopted threshold might be: "If average daily or weekend traffic increases by 25% on Court Street, the developer shall work with the affected Court Street neighborhood to install physical traffic calming measures within a prescribed period of time, e.g., within 6 months of exceeding the threshold, pending neighborhood concurrence on measures." The key disadvantage to this approach is that there is the potential that the affected street(s) would not have traffic calming measures when they are

needed; the advantage is that the most affected neighbors decide when, or if, potential traffic calming measures are to be implemented.

- Except for the west end treatment of Court Street (i.e., a chicane vs. stop sign or mini-roundabout), the options above are not necessarily mutually exclusive. Because winter plowing needs limit the design features of vertical deflection measures to minimal heights, horizontal deflection options appear to be the most viable/effective choices for the Court Street in conjunction with the SAOD development.

For more details on these recommendations, please see the memorandum at Appendix L and the diagram at Appendix P.

Traffic Calming Recommendations for Station Avenue at Main Street

Apppendix P illustrates a couple of options for creating neck-downs on Main Street at its Station Avenue's intersection. While not specifically delineated in this display, Station Avenue itself should be considered for traffic calming measures. It is fairly wide and has parallel parking on both sides where possible. Parking along it is a traffic calming measure, and should the Town desire to create angle parking on Station Avenue, it would be possible if done on one side only or one side at a time within the public layout. Wider sidewalks would be needed against the angle parking and provisions for accessible on-street spaces would also be needed in accordance with current ADA/MAAB requirements. It is noted, however, that as long as the Groton Fire Department building is located on Station Avenue, its paths into and out of the Station must be kept unimpaired. In any event, it is recommended that the full potential of Station Avenue to assist in accommodating the Station Avenue Overlay District's parking and circulation needs, as its main access route, need be explored as the Area develops. For example, a loop could be created to make Station Avenue one-way outbound for the last block east of the Nashua River Rail Trail, if an easement through parking areas can be obtained to create such a loop. Access to the farthest shared parking space should be designed such that users can return to Main Street, as an option.

For more details on these recommendations, please see the memorandum at Appendix L and the diagram at Appendix P.

Traffic Calming Recommendations for Broadmeadow Road

Appendix Q illustrates a couple of options for enforcing the right out only recommendation for Broadmeadow Road, allowing for right and left turns in. Preferably, two objectives would be accomplished;

- Discouraging the use of Broadmeadow Road to access Playground Road as a

means for exiting from *Station Way*.

- Discouraging traffic from speeding up as it passes the Nashua River Rail Trail (Nashua River Rail Trail) crossing and increasing the awareness of turning and through motorists on Broadmeadow Road to hazards of pedestrians/bicyclists using the crossing.

For more details on these recommendations, please see the memorandum at Appendix L and the diagram at Appendix Q.

Traffic Calming Recommendations for Playground Road

Although Playground Road is technically not in the Station Avenue Overlay District, vehicles traveling to and from the Station Avenue Overlay District have the potential to cause serious traffic and safety problems on Playground Road. For this reason, the committee has elected to provide traffic calming recommendations for Playground Road as part of this report.

Playground Road between Broadmeadow Road and Main Street provides current access to the Groton Public Library. Given the poor alignment, sight distance and sidewalk crossing issues at its intersection with Main Street, the Town should consider closing a short link of Playground Road just east of the Library and the homes on Playground Road to all but emergency vehicle use or emergency use when flooding occurs on Broadmeadow Road. Playground Road has poor sight distance and a steep grade to its intersection with Main Street.

The north side of Playground Road could be modified to accommodate angle parking during games at the nearby baseball field. If this is done, the angle should be to the west, rather than to the east, to encourage motorists to exist via Broadmeadow Road when it is not flooding. Motorists would have to turn around in the Library lot to access the angle parking adjacent to Playground Road.

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The alternative traffic flow for Playground Road would require use of Broadmeadow Road west of Playground Road unless a new egress can be established in the Station Avenue Overlay District. Ideally, the best time to close the link of Playground Road would to create a supplemental egress from the Station Avenue Overlay District to Main Street, if an opportunity arises with an adequate intersection created with adequate Main Street sight lines for pedestrians, motorists, and cyclists. The Committee has identified two potential corridors for a supplemental Station Avenue Overlay District egress, one on the side of Prescott School, or possibly between the two banks on Main Street. There are issues with each corridor in traversing (bridging) the wetlands, and there are no public rights of way established. The provision of a supplemental egress would take pressure off the use of vehicle use on Broadmeadow Road and Adams Avenue. If a vehicle egress is not possible, a supplemental bikeway/pedestrian way (e.g., possibly involving a

boardwalk) might also be considered from Main Street to enhance non-motor vehicle access to the Station Avenue Overlay District.

For more details on these recommendations, please see the memorandum at Appendix L.

General Traffic and Circulation Recommendations

In the Station Avenue Overlay District Design Guidelines and Handbook express a desire to prospective developers that the Town would like to see a more or less unobstructed emergency and passenger vehicle travel ability from Broadmeadow Road to the Rail Trail end of Station Avenue.

In the Station Avenue Overlay District Design Guidelines and Handbook express a desire to prospective developers that the Town would like to see ingress and egress to the Station Avenue Overlay District from Broadmeadow Road restricted to emergency vehicles only. At the same time express a desire to see the developer provide the ability for passenger vehicles to easily turn around when reaching the emergency ingress and egress point between the Station Avenue Overlay District and Broadmeadow Road.

In the Station Avenue Overlay District Design Guidelines and Handbook express a desire to prospective developers that the Town would like to see any proposal containing public (non-emergency) ingress and/or egress between the Station Avenue Overlay District and Broadmeadow Road be supported by a comprehensive traffic study performed by a professional engineer.

In the Station Avenue Overlay District Design Guidelines and Handbook express a desire to prospective developers that the Town would like to see nothing to preclude eventually having single lane, right turn ingress to the Station Avenue Overlay District for traffic on Broadmeadow Road traveling from the direction of Main Street.

In the Station Avenue Overlay District Design Guidelines and Handbook express a desire to prospective developers that the Town would like to see nothing to preclude eventually have single lane, right turn only egress for traffic leaving the Station Avenue Overlay District on Broadmeadow Road (traffic headed toward Farmers Row).

In the Station Avenue Overlay District Design Guidelines and Handbook express a desire to prospective developers that the Town would like to see nothing to preclude eventually have single lane, left turn only ingress for traffic entering the Station Avenue Overlay District from Braodmeadow Road (traffic coming from Farmers Row).

In the Station Avenue Overlay District Design Guidelines and Handbook express a desire to prospective developers that the Town would like to eventually see ingress and egress for emergency vehicles only entering the Station Avenue Overlay District from Adams Avenue. At the same time express a desire to see the developer provide the ability for

passenger vehicles to easily turn around when reaching the emergency ingress and egress point between the Station Avenue Overlay District and Adams Avenue.

In the Station Avenue Overlay District Design Guidelines and Handbook express a desire to prospective developers that the Town would like to see a more or less unobstructed emergency and passenger vehicle travel ability from Adams Avenue to the Rail Trail end of Station Avenue.

In the Station Avenue Overlay District Design Guidelines and Handbook express a desire to prospective developers that the Town would like to see any proposal containing public (non-emergency) ingress and/or egress between the Station Avenue Overlay District and Adams Avenue be supported by a comprehensive traffic study performed by a professional engineer.

In the Station Avenue Overlay District Design Guidelines and Handbook express a desire to prospective developers that should public (non-emergency) passenger vehicle ingress and egress between Adams Avenue and Station Avenue and/or between Broadmeadow Road and Station Avenue be established, that the Town would like to see appropriate traffic calming measures taken at those ingress and egress points to slow traffic down and discourage cut-through traffic trying to enter or leave Main Street from the Station Avenue Overlay District.

Forward Momentum Already Underway

At the Annual Town Meeting on April 28, 2008, Groton voters unanimously approved Article 22 . In doing so voters approved amendment of Section 218-30.2 of Chapter 218 of the code of the Town of Groton, Zoning, with regard to parking and loading requirements for the Station Avenue Overlay District Developments, by modifying subsection D.9a of Section 281-30.2 to read as follows: “Off-street Parking and Loading shall be regulated under §218-23 of this Chapter and the published Design Guidelines for the SAOD.”

On May 1, 2008, the Town of Groton Planning Board unanimously adopted the Parking and Loading Guidelines, proposed in Appendix H of this document, for the Station Avenue Overlay District.

Appendix A – Committee Appointment Document

Chapter 43D Priority Development Site Committee
Parking and Traffic Calming

Number of Members	Selection Method	Length of Term	Renumeration
Five (5) members	Appointed	6.5 months	None

Appointing Authority:

The Planning Board formed this committee on December 20, 2007.

Purpose:

The purpose of the Committee is to work on Task 3 as stated in the Chapter 43D application for technical assistance. The Committee will assist in developing new parking regulations for the Station Avenue Overlay District. The Committee will work with public safety officials and Fay, Spofford & Thorndike on the following tasks:

Objectives:

- Inventory of all existing available parking spaces including the parking areas at Town Hall, Prescott School, and the Groton Public Library
- Determine the parking needs of the Fire Department
- Determine parking needs for users of the Nashua River Rail Trail.
- Encourage shared parking to reduce impervious surface and stormwater runoff impacts.
- Recommend potential locations for municipal parking
- Produce illustrations of traffic calming specific recommendations for traffic calming measures at the intersection of Main Street and Station Avenue, at the end of Court Street, and at the egress points on Broadmeadow Road and Adams Avenue for incorporation into the Design Guidelines and Handbook

Frequency of Meetings:
All meetings must be posted with the Town Clerk in accordance with the Open Meeting Law, MGL Chapter 39, §§23A-23C and 24

Committee to meet weekly (day to be determined by the Committee)
Committee to attend bi-monthly Planning Board meetings

Sources or Representation of Members:

One representative from the Planning Board; the Highway Surveyor; two representatives from the neighborhood; a representative from the Friends of the Nashua River Rail Trail

Members:

First name	Last Name	Representative	Appointed	Expires
Tom	Delaney	Highway Surveyor	December 20, 2007	June 30, 2008
John	Giger	Planning Board	December 20, 2007	June 30, 2008
Stanley	Jackson	Neighborhood	December 20, 2007	June 30, 2008
Greg	Mischel	Neighborhood	December 20, 2007	June 30, 2008
Fran	Stanley	NRRT	December 20, 2007	June 30, 2008

Appendix B – Committee Meeting Minutes

Groton Planning Board's Chapter 43D Priority Development Station Avenue Site Committee: Parking – Traffic Calming

Meeting Minutes

Date:	January 10, 2008
Time:	7:00 p.m.
Location:	Town Hall, Second Floor 173 Main Street, Groton, MA 01450
Committee Members In Attendance:	Tom Delaney, John Giger, Stanley Jackson, Greg Mischel and Fran Stanley
Other Attendees:	Michelle Collette (Town Planner)
Minutes taken by:	Fran Stanley

GENERAL

Once sworn in by the Town Clerk, the above-listed members of the Parking – Traffic Calming Committee held its first meeting.

After some discussion, the group agreed to name Tom Delaney as the designated Chairman of the Parking – Traffic Calming committee. Fran Stanley will take minutes. Minutes will be distributed to the group and Town Planner Michelle Collette once the committee has reviewed and approved the drafted minutes.

John Giger will report on this committee's progress to the Planning Board. Greg Mischel volunteered to serve as liaison with contractor Fay, Spofford & Thorndike (FST).

In this initial meeting, the committee agreed to set weekly meeting times of 7 p.m. on Tuesday evenings. Michelle will try to reserve space for this committee to meet in the ground floor meeting room of the Groton Public Library located at 99 Main Street, Groton, MA.

Greg Mischel noted that much of the committee's activity seems to be scheduled for weeks 3 through 11 of the Planning Board's issued Project Schedule. The committee members agreed that a large part of its role would be to direct the activities of the contractor FST.

PARKING

Tom Delaney offered that the counting of parking spaces within the Station Avenue Overlay District and the wider area is not unambiguous. For example, the two parking spaces directly across the street from the Fire Department station on Station Avenue may need to be kept clear in order for the fire department's large vehicles to make the turns in and out of the fire station. Also, call fire fighters answering a fire call will need parking close to or at the station. The

committee agreed that it would be important for the committee to gather such public safety input early in the process.

TASK LIST

1. Fran Stanley will ask Michelle Collette for a model parking plan for privately owned parking spaces.
2. Tom Delaney will contact the Fire Department Chief and the Police Chief to solicit input on public safety needs for parking and traffic flow for the Station Avenue development. Also, Tom Delaney will invite both public safety chiefs to attend one or more of this committee's meetings.
3. Tom Delaney will ask Michelle Collette for copies of two parking plans that the Town of Groton may have already devised for the Nashua River Rail Trail.

The next meeting is scheduled for Tuesday, January 15, 2008 at 7 p.m. in the ground floor meeting room of the Groton Public Library, 99 Main Street, Groton, MA.

ADVANCE COPY

Groton Planning Board's Chapter 43D Priority Development Station Avenue Site Committee: Parking – Traffic Calming

Meeting Minutes

Date:	January 15, 2008
Time:	7:00 p.m.
Location:	Groton Public Library 99 Main Street, Groton, MA 01450
Committee Members In Attendance:	Tom Delaney, John Giger, Stanley Jackson and Fran Stanley
Other Attendees:	Michelle Collette (Town Planner)
Minutes taken by:	Fran Stanley

GENERAL

Michelle Collette reported that she had spoken with Gary Hebert from FST. Hebert is available to attend a Parking – Traffic Calming meeting on either January 22, 2008 or January 29, 2008. Committee members agreed that they wanted to make sure that Greg Mischel would be in attendance since he plans to serve at the committee's FST liaison.

Michelle Collette plans to e-mail the FST prepared Station Avenue traffic study to the committee members so that the PDF format can show off the study's use of color that would otherwise be lost when viewing a black and white copy of the report.

Michelle Collette plans to e-mail current parking regulations to committee members

Michelle will ask Groton Electric Light Department (GELD) for a copy of any survey and perimeter plan that it might have for its Station Avenue property. Michelle added that the Town has contracted for a wetlands delineation of the Rail Trail area near Station Avenue that was drawn by a botanist and is considered current for up to three years.

PARKING

Tom Delaney presented the committee with the three sketches prepared by FST on September 12, 2001 for the Town of Groton titled "Preliminary Sketches of the Parking Lot and Access Road Broadmeadow Road to Station Avenue, Groton, MA". The committee members reviewed and discussed the three alternative plans.

Several highlights from this discussion:

- Tom Delaney noted that he dislikes speed bumps as they are poor for snow removal. Tom prefers offsets.
- The Rail Trail needs parking and traffic flows need to keep the rail trail safe for its users.
- With public safety needs and the character of the Town in mind, the committee's purpose is to maximize traffic, parking and flow.
- The Fire Department needs parking for call firefighters and space for fire truck entrance/exit.

- Could a no parking area across from the present Fire Department station double as a bus stop?
- Closing off egress to Broadmeadow as close to the Station Avenue development area as possible and using the double loop parking lot plan appears to improve both the parking and traffic flow.
- Gating for Broadmeadow egress might involve electric gates operated by transponders or simple break away bollards.

Tom Delaney plans to bring these sketches to future committee meetings.

TASK LIST

4. Fran Stanley will contact Platt Builders about its desires with respect to gating off the access between Court Street and Adams Avenue on its property. If gated, there will need to be a provision made for emergency access.
5. Fran Stanley will research trend predictions for parking, i.e., parking for extra small cars and/or shared transportation.
6. John Giger will research traffic calming mechanisms. Tom Delaney recommended the Bend Oregon brand.
7. Tom Delaney will continue to follow up with Fire Chief and the Police Chief.

The next meeting is scheduled for Tuesday, January 22, 2008 at 7 p.m. in the ground floor meeting room of the Groton Public Library, 99 Main Street, Groton, MA.

ADVANCE COPY

Groton Planning Board's Chapter 43D Priority Development Station Avenue Site Committee: Parking – Traffic Calming

Meeting Minutes

Date:	January 22, 2008
Time:	7:00 p.m.
Location:	Groton Public Library 99 Main Street, Groton, MA 01450
Committee Members In Attendance:	Tom Delaney, John Giger, Stanley Jackson, Greg Mischel and Fran Stanley
Other Attendees:	Michelle Collette (Town Planner) Gary Hebert (Fay, Spofford & Thorndike)
Minutes taken by:	Fran Stanley

GENERAL

Michelle Collette introduced Gary Hebert from contractor Fay, Spofford & Thorndike (FST) to the committee.

John Giger distributed copies of Traffic Calming 101, the Traffic Impact and Access Study for the Station Avenue Area Rezoning Proposal and the current Town of Groton parking bylaw.

Committee members discussed parking and traffic calming matters with Gary Hebert. Matters discussed included:

1. tandem parking.
2. compact car spots – generally disliked by drivers for short term parking due to the tight fit.
3. shared parking – average gain of 10 to 30 percent efficiency if it is employed.
4. future parking trends.
5. concept of mandating parking only behind buildings.
6. changing street parking to resident and visitors only on Court Street, Broadmeadow and Adams Avenue. [Note: this change may be beyond the scope of the committee charge].
7. slowing Court Street traffic with offsets.

TASK LIST

8. Once contract monies are released and some snow has melted, Gary Hebert will collect parking inventory data for Station Avenue Overlay district, the Prescott School and the town library.
9. Greg Mischel will make a preliminary count of the library parking spaces.

The next meeting is scheduled for Tuesday, January 29, 2008 at 7 p.m. in the ground floor meeting room of the Groton Public Library, 99 Main Street, Groton, MA.

ADVANCE COPY

Groton Planning Board's Chapter 43D Priority Development Station Avenue Site Committee: Parking – Traffic Calming

Meeting Minutes

Date:	January 29, 2008
Time:	7:00 p.m.
Location:	Groton Public Library 99 Main Street, Groton, MA 01450
Committee Members In Attendance:	Tom Delaney, John Giger, Stanley Jackson, Greg Mischel and Fran Stanley
Other Attendees:	Michelle Collette (Town Planner)
Minutes taken by:	Fran Stanley

GENERAL

Committee members reviewed and approved minutes from January 15, 2008 and January 22, 2008.

PARKING

Tom Delaney reported that Gary Hebert from contractor Fay, Spofford and Thorndike (FST) will include the bank parking spaces in his count. The empty lot between the fire station and town hall is a possible site for municipal parking. Tom commented that the Commonwealth would not buy the lot, but that there are grant monies available to help with construction.

Tom Delaney spoke with the fire chief. There are six to seven side spaces on fire department land there now. The fire department will want an additional five to six street spaces. There was some discussion about whether the two spaces directly across from the fire station that are needed for fire truck ingress and egress could be used as two of the department's needed street spaces.

Group discussed possibility of diagonal parking on Court Street, the portion closest to the rail trail, with a roundabout at the end to direct exiting traffic back toward Station Avenue. This is a question for Gary Hebert.

Tom Delaney suggested the possibility of combining the two bank parking lots in order to create additional spaces.

TRAFFIC CALMING

The group discussed chicanes and necking as a possible traffic calming options for Court Street (see page two of the Traffic Calming Toolbox handout).

PLANNING BOARD REPORT

John Giger and Tom Delaney reported to the Planning Board. The Planning Board wondered about street parking on Station Avenue, the possibility of diagonal parking on Main Street. Further ambiguity is present for short term as there is now a possible closure of the Prescott School. If the building is used for limited educational purposes, then would parking open up on that lot.

TASK LIST

10. Fran Stanley and Michelle Collette will look for final fully executed copy of the agreement between the Town of Groton and the Commonwealth's Department of Environmental Management. [Michelle Collette suggested Dan Chamberland, Groton's former rail trail representative to the Commonwealth, as a possible resource.]
11. The committee members will follow up on the status of the contract with FST and the overall 43D grant monies from the Commonwealth.
12. Tom Delaney will continue to follow up with the Police Chief.

The next meeting is scheduled for Tuesday, February 5, 2008 at 7 p.m. in the ground floor meeting room of the Groton Public Library, 99 Main Street, Groton, MA.

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Groton Planning Board's Chapter 43D Priority Development Station Avenue Site Committee: Parking – Traffic Calming

Meeting Minutes

Date:	February 5, 2008
Time:	7:00 p.m.
Location:	Groton Public Library 99 Main Street, Groton, MA 01450
Committee Members In Attendance:	Tom Delaney, John Giger, Stanley Jackson, Greg Mischel and Fran Stanley
Other Attendees:	Michelle Collette (Town Planner), Fran Dillon (Selectman), Anna Eliot (Planning Board), Kevin Kelly (GELD), Dolores Alberghini (Sewer Department)
Minutes taken by:	Fran Stanley (for Parking – Traffic Calming)

GENERAL

The Parking -- Traffic Calming Committee met jointly with the above-referenced members of the Infrastructure Committee in order to coordinate certain development assumptions that will drive the work of both committees. The Infrastructure Committee expressed a desire to lay out explicit expectations for any developer to work with since 180 days is a short time limit for permitting. Michelle Collette noted that the 180 clock does not start running until all committees agree that the developer's application is complete.

Kevin Kelly shared the point of view of two of the GELD commissioners. Kelly stated that those two commissioners strongly believe that the Station Avenue development must have egress from at least two sides in order to retain commercial viability. Both committees agreed that developers like to see traffic flow in such developments and that drivers seem to prefer that too. Kevin Kelly asked for a minimum two lanes going out Broadmeadow even if only one lane with a right turn only on Broadmeadow Road is permitted initially.

Anna Eliot discussed the need for the Station Avenue plans to anticipate additional access far out into the future. If such through ways and connectors are not anticipated, then present or near future owners may build out their parcels in a way that precludes access.

Michelle Collette suggested that Groton might want to obtain an access easement to ensure that the public would always be able to move from Station Avenue across the current GELD property to an exit on to Broadmeadow Road.

Tom Delaney suggested that GELD remove the portion of land closest to Broadmeadow Road and two lanes worth of through access to avoid any future costs for the town if later purchased.

The group wondered how the composting toilets on the Ayer side of the Nashua River Rail Trail are working.

After some discussion, both committees agreed to the following:

- Two lanes should be set aside from Station Avenue to Adams Avenue for possible future egress,
- Two lanes should be set aside and constructed to the standard of emergency vehicles from Station Avenue to Broadmeadow Road, and
- All Broadmeadow Road traffic will come in from the west and leave toward the west.

The Parking – Traffic Calming committee agreed to the following:

- All plans should anticipate future municipal parking needs, and
- All plans should encourage interchange of parking spaces.

Tom Delaney noted that PWED (Public Works Economic Development) grant monies will help pay for the construction of municipal parking lots.

Greg Mischel counted 38 regular spaces and 2 handicapped spaces in the Groton Public Library parking lot.

John Giger, working with Gary Hebert in part, has collected parking needs projections from various sources including the 2017 rezoned full build out conditions, the traffic analysis study and the current town parking bylaws. John distributed his initial draft which shows the assumptions behind each projected figure.

TASK LIST

13. The Sewer Department has a scanned PDF file of the complete sewer plans for the area. Michelle Collette will arrange for at least one copy of this file to be shared with this committee.
14. Communicate to the Planning Board that this committee would like an opportunity to review FST invoices for Parking – Traffic Calming Committee work before payment is issued.

The next meeting is scheduled for Tuesday, February 12, 2008 at 7 p.m. in the ground floor meeting room of the Groton Public Library, 99 Main Street, Groton, MA.

ADVANCE COPY

Groton Planning Board's Chapter 43D Priority Development Station Avenue Site Committee: Parking – Traffic Calming

Meeting Minutes

Date:	February 12, 2008
Time:	7:00 p.m.
Location:	Groton Public Library 99 Main Street, Groton, MA 01450
Committee Members In Attendance:	John Giger, Stanley Jackson and Fran Stanley
Other Attendees:	Michelle Collette (Town Planner)
Minutes taken by:	Fran Stanley (for Parking – Traffic Calming)

GENERAL

Committee members reviewed and approved minutes for January 22 and February 5 as corrected.

PARKING BYLAW

The Parking – Traffic Calming committee discussed deadlines for completion of certain tasks. Specifically, March 13 was the agreed upon deadline for this committee's parking bylaw recommendation/presentation.

Fran Stanley updated the group on the latest activities and focus of the Friends of the Nashua River Rail Trail group.

Fran questioned whether the Community Preservation Act funds could be used to purchase land for the creation of a parking lot dedicated to recreational users of the Nashua River Rail Trail. Michelle Collette commented that case law is constantly redefining and refining the permitted use of CPA funds.

John Giger noted that public restroom facilities for the area need to be addressed.

John Giger distributed a revised draft of his parking space needs in the Station Avenue area.

TASK LIST

- Michelle Collette will ask Gary Hebert for an editable first draft of the overlay parking bylaw.

The next meeting is scheduled for Tuesday, February 19, 2008 at 7 p.m. in the ground floor meeting room of the Groton Public Library, 99 Main Street, Groton, MA.

ADVANCE COPY

Groton Planning Board's Chapter 43D Priority Development Station Avenue Site Committee: Parking – Traffic Calming

Meeting Minutes

Date:	February 19, 2008
Time:	7:00 p.m.
Location:	Groton Public Library 99 Main Street, Groton, MA 01450
Committee Members In Attendance:	Tom Delaney, John Giger, Stanley Jackson and Fran Stanley
Other Attendees:	Anna Eliot (Planning Board member), Gary Hebert (FST) and Michelle Collette (Town Planner)
Minutes taken by:	Fran Stanley

GENERAL

Committee members reviewed and approved minutes for February 12, 2008.

PARKING BYLAW

Gary Hebert led the Parking – Traffic Calming committee through the first draft of the proposed zoning amendment for off-street parking and loading in the Station Avenue Overlay District. As drafted, the parking bylaw allows the developer the choice of either participating in the shared parking plan or operating under the unmodified parking rules present under current town wide zoning.

The committee discussed the importance of the shared parking use agreement as a means to attempt to ensure that shared use parking areas are adequately maintained. After some discussion, the committee tentatively agreed that the best way for the town to encourage shared parking maintenance would be to consider certain deficiencies in shared used parking as zoning violations.

A shared parking use zoning violation would put the issue back before the Planning Board for appropriate enforcement. This route was considered superior to attempts to dictate detailed maintenance requirements and specifications among parties to the shared use agreement. However, the committee agreed that the Planning Board would be prudent to require a binding shared use parking agreement and that such an agreement include maintenance provisions in order to qualify for the reduced required parking.

This draft of the bylaw permits a reduction of parking requirements by up to 20 percent. The committee inserted a phrase to give the Planning Board discretion to go beyond 20 percent in the last sentence of Step 4 (See page 7 "Calculation of Parking Spaces Required with a Shared Parking Agreement(s)") – "At its discretion, the Board may accept usually less than 20 percent reduction in the 'stand alone' parking requirement and may require the saved space to be dedicated to open green space."
The committee asked Hebert to insert a reference to the Commonwealth's anti idling law which is Ch. 90 §16A under Performance Requirements (see section "C" on page 3). John Giger distributed Lexington's anti idling regulations which are defined as the "engine operation of

stopped vehicles". Members of the committee observed that stopped vehicle engine idling in the densely populated Station Avenue area could quickly create negative impacts of noise and noxious odors for near neighbors.

The committee noted that the Planning Board will already review the schedule for loading and unloading times under the site plan review guidelines.

PARKING INVENTORY

Gary Hebert distributed and reviewed FST's parking inventory compilations for the Station Avenue Study Area. As per the Planning Board's charge to this committee, FST's count includes the parking available at both the Groton Public Library (40 spaces) and the Prescott School (40 spaces). FST provided a minus 20 percent adjustment to street parking to allow for crosswalks, hydrants, etc.

The parking totals are as follows:

On-street unadjusted =	250	On-street adjusted =	200
Off street total =	267		
Combined unadjusted =	517	Combined adjusted =	467

In response to a question, Gary Hebert commented that transverse markings can be used to clearly and inexpensively mark no parking areas on public roads and within shared use parking areas.

INFRASTRUCTURE – TRAFFIC CALMING

Anna Eliot commented that the Infrastructure committee and particularly GELD have a different view of the desired traffic ingress and egress between Broadmeadow Road and the Station Avenue development area. [Note: minutes from infrastructure and parking – traffic calming from the February 5 meeting conflict.] Infrastructure wants Broadmeadow traffic to be able to enter the Station Avenue development from either direction. The Parking – Traffic Calming committee wants lefts in from Broadmeadow Road and rights out to Broadmeadow Road. In addition, the Parking – Traffic Calming committee wants a strong deterrent such as an emergency access gate to prevent commuter cut throughs. Commuters attempting a swift cut through the Station Avenue development are believed to be dangerous to pedestrians and other drivers and unlikely to provide any economic benefit to the area businesses. Michelle Collette observed that the two committees may have a difference of opinion about the preferred traffic flow in this area.

The Parking – Traffic Calming committee agreed to examine the matter further. In particular, this committee will investigate whether certain traffic flow assurances were made to residents attending the fall 2007 town meeting. Irrespective of any fall town meeting assurances, this committee is concerned that Station Avenue not be developed in a way that permits commuter "cut throughs".

TASK LIST

- Review the recommended access strategy presented to Town Meeting in the fall.

The next meeting is scheduled for Tuesday, February 26, 2008 at 7 p.m. in the ground floor meeting room of the Groton Public Library, 99 Main Street, Groton, MA.

ADVANCE COPY

Groton Planning Board's Chapter 43D Priority Development Station Avenue Site Committee: Parking – Traffic Calming

Meeting Minutes

Date:	February 26, 2008
Time:	7:00 p.m.
Location:	Groton Public Library 99 Main Street, Groton, MA 01450
Committee Members In Attendance:	Tom Delaney, John Giger, Stanley Jackson and Fran Stanley
Other Attendees:	Michelle Collette (Town Planner)
Minutes taken by:	Fran Stanley

GENERAL

This committee will meet with the Planning Board on March 6, 2008 at 7:30 p.m.

Due to the differences in opinion between this committee and the Infrastructure with respect to access and egress from Broadmeadow Road and Adams Avenue, P-TC committee members discussed ways to clarify rationales with a goal to hopefully narrow the scope of our differences.

PARKING BYLAW

The committee jointly reviewed draft two of the parking bylaw for the overlay district. All charts shown will be removed. Developers can produce their own charts that will best fit with their intended plan of development. [Note: did the charts in drafts 1 and 2 come from the ITE manual?] The word "usually" will replace "typically" in Section E for internal consistency within the document. Add sentence in Section G to require continued maintenance of any bike amenities. Plans presented should include a description of annual maintenance activities. The committee agreed to remove the appendices. Further, the bylaw should include explicit authority for the adoption of regulations to effectuate the bylaw requirements.

Michelle Collette recorded several questions to be posed to town counsel Judy Cutler when she eventually reviews this work product. Questions for Judy Cutler include:

(a) ability to adopt impact fee provisions similar to Chelmsford's bylaw,
(b) discretion for Planning Board to approve plans with greater than twenty percent parking requirement reductions, and
(c) value, if any, to formally adopting the Commonwealth's anti-idling statute (Ch. 90 Section 16A).

The committee discussed the possibility of truck exclusions on Station Avenue. It is a goal of the committee to discourage deliveries during Main Street rush hours. Minimizing the disruption of trash/recycling pick ups was also considered by the group. As the discussion evolved, loading and unloading restrictions emerged as the best immediate way to regulate these activities. The matter might be addressed by including a general statement under performance standards that

instructs developers to plan deliveries to minimize disruption to neighbors, other businesses as well as to minimize traffic.

TASK LIST

- Show traffic calming recommendations in diagram form for possible insertion into design guidelines to include an access limiting feature at desired pinch points.
- Begin drafting P-TC report to be given to the Planning Board.

The next meeting is scheduled for Tuesday, March 4, 2008 at 7 p.m. in the ground floor meeting room of the Groton Public Library, 99 Main Street, Groton, MA.

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Groton Planning Board's Chapter 43D Priority Development Station Avenue Site Committee: Parking – Traffic Calming

Meeting Minutes

Date:	March 4, 2008
Time:	7:00 p.m.
Location:	Groton Public Library 99 Main Street, Groton, MA 01450
Committee Members In Attendance:	Tom Delaney, John Giger, Stanley Jackson, Greg Mischel and Fran Stanley
Minutes taken by:	Fran Stanley

GENERAL

The committee reviewed and approved the February 19, 2008 minutes (as drafted) as well as the February 26, 2008 minutes (with edits).

Greg questioned whether the concept of the town obtaining a right of way to get the public from Station Avenue to Broadmeadow Road was within our committee's charge. The answer is unclear, but traffic calming within this area could be built in without the use of a right of way.

The committee reviewed Tom's draft to the Station Avenue Overlay District infrastructure committee. It was noted that increasing future access may benefit future development while perhaps adding a burden to the initial development of this district.

PARKING BYLAW

The committee discussed the town's parking rules, located at §218-23 c (1). Prior to 1987, no credit was extended to Main Street businesses for on street parking. Between 1987 and 2005, businesses within a certain stretch of Main Street were credited with five (5) spaces. From 2006 on, the credit was raised to ten (10) spaces. As the discussion evolved, the committee favored the approach of not extending credits within the non Main Street facing Station Avenue Overlay District. Because on street parking is municipal parking, this no credit rule might help to ensure that developers create the parking spaces they need so that on street parking can remain multi purpose.

The committee reviewed and agreed to edits on draft number 3 of the parking bylaw.

The committee, with advice from FST's Gary Hebert, decided that an attempt to set aside five rail trail only parking spaces would probably be unenforceable.

The next meeting is scheduled for Tuesday, March 11, 2008 at 7 p.m. in the ground floor meeting room of the Groton Public Library, 99 Main Street, Groton, MA.

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Groton Planning Board's Chapter 43D Priority Development Station Avenue Site Committee: Parking – Traffic Calming

Meeting Minutes

Date:	March 11, 2008
Time:	7:00 p.m.
Location:	Town Hall Main Street, Groton, MA 01450
Committee Members In Attendance:	Tom Delaney (left early), John Giger, Stanley Jackson and Fran Stanley
Minutes taken by:	Fran Stanley

GENERAL

Committee members discussed whether to maintain weekly meetings or to reduce meeting frequency to every other week. Fran Stanley wanted weekly meetings in order to maintain momentum as the committee works on its final work products.

For the committee's report to the Planning Board, members noted that we will need to include drawings of traffic calming options. Stanley Jackson added that we need to consider our committee recommendations for gating and parking. John Giger suggested on street parking for residents and their guests only on Court Street and Adams Avenue. John suggested adding a dead end road sign to the Pleasant Street entrance to Adams Avenue. Tom Delaney recalled that there may have been a dead end sign posted there in the past.

The committee agreed to pool and compress its parking and traffic calming ideas for its final report to the Planning Board.

PARKING

The Selectmen accepted the Station Avenue Overlay District parking bylaw pending town counsel review.

RAIL TRAIL

Fran reported on the most recent activities of the Friends of the Nashua River Rail Trail as it relates to the Station Avenue Overlay District. State officials approached by the Friends of the Nashua River Rail Trail indicated that the Commonwealth probably would not be interested in purchasing land for parking. Rather, it was hoped that rail trail users could depend on any municipal parking spaces in the area.

The next meeting is scheduled for Tuesday, March 18, 2008 at 7 p.m. at Town Hall on Main Street in Groton.

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Groton Planning Board's Chapter 43D Priority Development Station Avenue Site Committee: Parking – Traffic Calming

Meeting Minutes

Date:	March 18, 2008
Time:	7:00 p.m.
Location:	Town Hall Main Street, Groton, MA 01450
Committee Members In Attendance:	Tom Delaney, John Giger, Stanley Jackson, Greg Mischel and Fran Stanley
Minutes taken by:	Fran Stanley

GENERAL

Based on town counsel's advice to the Planning Board, the Planning Board will probably opt to create SAOD parking regulations rather than incorporate full text of SAOD parking bylaws that this committee had drafted. Although adequate authority may already exist for SAOD parking regulations by the Planning Board, a brief amendment that makes this authority explicit is contemplated.

Meeting ended early so that members could attend joint Fin Com/Selectmen's budget meeting.

TASK LIST

- Tom will contact Gary for traffic calming suggestions
- Determine deadlines for recommendations and for parking bylaw/regulations.

The next meeting is scheduled for Tuesday, March 25, 2008 at 7 p.m. at Town Hall on Main Street in Groton.

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Groton Planning Board's Chapter 43D Priority Development Station Avenue Site Committee: Parking – Traffic Calming

Meeting Minutes

Date:	March 25, 2008
Time:	7:00 p.m.
Location:	Town Hall Main Street, Groton, MA 01450
Committee Members In Attendance:	Tom Delaney, John Giger, and Fran Stanley
Other Attendees:	Michelle Collette
Minutes taken by:	Fran Stanley

GENERAL

The committee reviewed the proposed parking guidelines for the Station Avenue Overlay District.

Town counsel's recommendation for guidelines rather than bylaws is presaged the rationale that guidelines are more flexible and equally enforceable.

The Planning Board is due to review on March 27, 2008 and it will be finalized on March 28, 2008.

TASK LIST

- Recommend posting of the proposed parking guidelines on the town's website.

The next meeting is scheduled for Tuesday, April 1, 2008 at 7 p.m. at Town Hall on Main Street in Groton.

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Groton Planning Board's Chapter 43D Priority Development Station Avenue Site Committee: Parking – Traffic Calming

Meeting Minutes

Date:	April 1, 2008
Time:	7:00 p.m.
Location:	Town Hall Main Street, Groton, MA 01450
Committee Members In Attendance:	Tom Delaney (left early), John Giger (left early), Stanley Jackson, Greg Mischel and Fran Stanley
Other Attendees:	Michelle Collette (left early)
Minutes taken by:	Fran Stanley

GENERAL

Gary L. Hebert from Fay, Spofford and Thorndike will send traffic calming illustrations by April 8, 2008 and plans to attend this committee's April 15 meeting.

Stanley Jackson, Greg Mischel and Fran Stanley discussed overall committee progress and explored possible additions to this committee's final report to the Planning Board.

RAIL TRAIL

Fran stated that two new documents have been found that relate to Groton's promises to the Commonwealth with respect to the Nashua River Rail Trail in exchange for obtaining a sewer easement. The documents were found by Dann Chamberlin.[2] Michelle Collette has a copy of these documents for her files.

TASK LIST

- Greg will follow up with Michelle to double check that the town is still proposing regulations rather than comprehensive Station Avenue Overlay District parking rules in the bylaw format (see Gary Hebert's parking draft number four).

The next meeting is scheduled for Tuesday, April 8, 2008 at 7 p.m. at Town Hall on Main Street in Groton.

[2] January 16, 1997 memorandum from Jean E. Kitchen, Administrative Officer to Sewer Commission regarding value of sewer easement and May 23, 1997 letter from Jean E. Kitchen, Administrative Officer to Danny O'Brien, Rail Trail Planner, Division of Resource Conservation regarding water bubbler near the rail trail.

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Groton Planning Board's Chapter 43D Priority Development Station Avenue Site Committee: Parking – Traffic Calming

Meeting Minutes

Date:	April 08, 2008
Time:	7:00 p.m.
Location:	Town Hall Main Street, Groton, MA 01450
Committee Members In Attendance:	Tom Delaney, John Giger, Stanley Jackson and Greg Mischel
Others In Attendance:	Michelle Collette
Minutes taken by:	Michelle Collette

REPORT REVIEW

Committee members engaged in a page by page review of the draft report (referred to as fuzzy draft 4/8/2008) to be delivered to the Planning Board. The committee agreed on all substantive edits to the content and layout of the report.

The committee reviewed its charge to ensure that all items in its objectives will be accounted for in the final report.

TASK LIST

- John Giger will continue the drafting and assembly of the large final report to the Planning Board.
- Michelle Collette will e-mail parking inventory and radii diagram to John Giger.

The next meeting is scheduled for Tuesday, April 15, 2008 at 7 p.m. at Town Hall on Main Street in Groton.

ADVANCE COPY

Groton Planning Board's Chapter 43D Priority Development Station Avenue Site Committee: Parking – Traffic Calming

Meeting Minutes

Date:	April 15, 2008
Time:	7:00 p.m.
Location:	Town Hall Main Street, Groton, MA 01450
Committee Members In Attendance:	Tom Delaney, John Giger, Stanley Jackson, Greg Mischel and Fran Stanley
Other Attendees:	Michelle Collette and Gary Hebert (FST)
Minutes taken by:	Fran Stanley

TRAFFIC CALMING

Gary L. Hebert from Fay, Spofford and Thorndike presented his traffic calming illustrations. Gary presented a diverse array of traffic calming and safety measures which ranged from signage, vertical and horizontal road deflections, new sidewalks, new crosswalks and on to geometry improvements in certain intersections.

Gary's presentation and the resulting discussion with committee members touched on the following points:

Adams Avenue

- Geometry improvements at the Pleasant Street end are meant to slow right hand turns out and enable easier left turns out.
- Gated access between Platt and May & Hally parcels would need to open up both ways.
- Traffic count showed 50 cars per hour with a total of about 600 to 700 cars per day.
- Consider truck exclusions for non through streets.

Court Street

- Might consider a roundabout at the end of street if there is room for a 105 foot inscribed diameter with a raised truck apron in the center.

Station Avenue

- Committee asked for one of the two new crosswalks to be eliminated from the illustrations.
- Committee in total agreement regarding the need for a bump out on the Town Hall side of the Station Avenue/Main Street intersection to improve line of sight for car traffic exiting Station Avenue. This bump out would have less width than a typical parking space.
- Additional but smaller bump out on the Bank of America side of the Station Avenue/Main Street intersection suggested by Gary as well.

Broadmeadow Road

- Gary suggested adding granite rubble to slow traffic. This gentle unobtrusive measure has been used to good effect in similar traffic situations.
- Consider adding flush islands down the middle of the road to discourage left turns out of the Station Avenue Overlay District area.
- "S" curves are recommended in the current GELD parcel in the direction of Broadmeadow Road.
- Discussion of the Station Avenue Overlay District ingress and egress at this point brought out a consensus view that traffic flow decisions in this area will be of great importance to both the Station Avenue Overlay District and the surrounding area. The public library, ball fields and playground draw vehicular and pedestrian traffic. The two nearby roads have distinct limitations. The lower end of Broadmeadow Road (beyond Nashua River Rail Trail crossing) is sometimes flooded after heavy rains. Playground Road may not be a road. It has steep gradients and a very poor line of sight for drivers entering Main Street.

Other

- There is a possible outlet from the Station Avenue Overlay District area through the Prescott School parcel.
- Another possible outlet from the Station Avenue Overlay District area might be made between the current two bank parcels.

TASK LIST

- Gary Hebert will make agreed upon edits and transmit electronic files to John Giger for inclusion in this committee's report to the Planning Board.
- Fran will speak with Pleasant Street residents Hartvigsen and Van der Linden regarding traffic calming illustration showing geometry improvements that would directly impact their property at the corner of Pleasant Street and Adams Avenue.
- Committee will meet with the Planning Board on May 15 to submit its report [John is away 5/9-5/17 and Tom is away 5/4-5/10.]
- Final draft of report will be sent to Gary Hebert for his review on April 30.

The next meeting is scheduled for Tuesday, April 22, 2008 at 7 p.m. at Town Hall on Main Street in Groton.

ADVANCE COPY

Groton Planning Board's Chapter 43D Priority Development Station Avenue Site Committee: Parking – Traffic Calming

Meeting Minutes

Date:	April 22, 2008
Time:	7:00 p.m.
Location:	Town Hall Main Street, Groton, MA 01450
Committee Members In Attendance:	Tom Delaney, John Giger, Greg Mischel and Fran Stanley
Minutes taken by:	Fran Stanley

REPORT REVIEW

Committee members engaged in a page by page review of the draft report to be delivered to the Planning Board. The committee agreed on all substantive edits to the content and layout of the report.

TASK LIST

- John Giger will continue the drafting and assembly of the large final report to the Planning Board.
- Greg will follow up with Gary Hebert to request last changes to Court Street traffic calming language and illustrations.
- Fran will send electronic copies of meeting minutes and NRRT related documents (including the 8/12/98 memo) to John Giger for inclusion in the committee's final report.
- Fran will distribute draft 4/15/08 and draft 4/22/08 minutes for committee review in advance of next week's meeting.
- Tom Delaney will send restroom recommendations that were removed from this committee's report to the attention of the infrastructure committee and the economic development committee.

The next meeting is scheduled for Tuesday, April 29, 2008 at 7 p.m. at Town Hall on Main Street in Groton.

ADVANCE COPY

Groton Planning Board's Chapter 43D Priority Development Station Avenue Site Committee: Parking – Traffic Calming

Meeting Minutes

Date:	April 29, 2008
Time:	7:00 p.m.
Location:	Town Hall Main Street, Groton, MA 01450
Committee Members In Attendance:	Tom Delaney, John Giger, Stanley Jackson and Fran Stanley
Others In Attendance:	Michelle Collette
Minutes taken by:	Fran Stanley

REPORT REVIEW

John Giger distributed updated drafts of the final report to the Planning Board. Committee members engaged in a close review of the first thirteen pages of the report as this portion contained new material for the committee's consideration.

Michelle Collette distributed the Gary Hebert's updated illustration of Court Street and a revised copy of his written recommendations. Members of the committee responded favorably to the Court Street changes and appreciated Gary's input with respect to Playground Road.

Michelle shared a high quality map of the Nashua River Rail Trail with John for possible inclusion in the report's appendix.

TASK LIST

- John will continue the drafting and assembly of the large final report to the Planning Board.
- Fran will supply missing minutes (3/18, 4/8 and 4/29) to John for inclusion in the report's appendix.
- Committee to submit final report to the Planning Board on Thursday, May 15, 2008.

The next meeting is scheduled for Tuesday, May 6, 2008 at 7 p.m. at Town Hall on Main Street in Groton.

Appendix C – Parking Inventory

Station Avenue Study Area Parking Inventory Compilations
Groton, Massachusetts

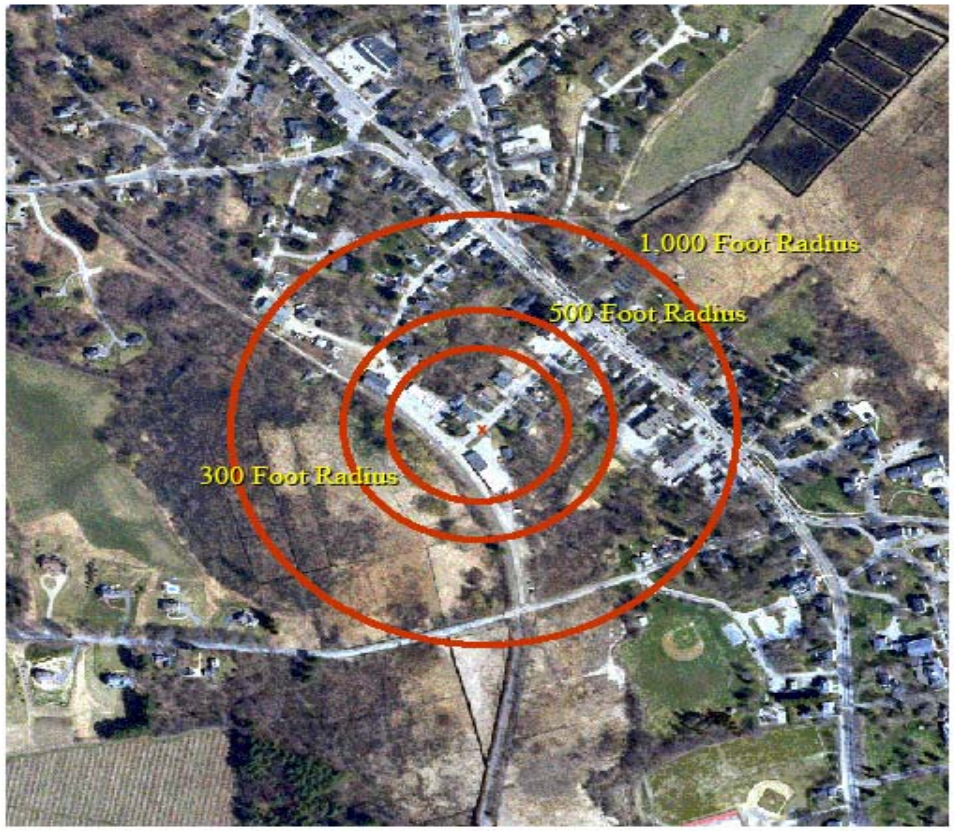
On Street parking locations	*Linear length (feet)*	*Estimated spaces @ 20'/space*	*On-street Feature*	*Total Street Face*	*Total W/Crosswalk and driveway sight clearance reduction*
Station Avenue - west side - south to north					
buses to first driveway @ # 28	130	6			
between #28 and # 22 driveways	28	1			
between #22 and Fire Department driveways	80	4			
between Fire Department and Municipal Pkg lot	140	7			
between municipal lot and Main St	111	5	crosswalk	23	21
Station Avenue - east side - south to north					
between Groton Electric south and north drives	103	5			
between Groton Electric north and # 11 drives	0	0			
between # 11 and Citizen's Bank exit	71	3			
between Citizen's Bank exit and entrance	22	1			
between Citizen's Bank entrance and Main St	61	3	crosswalk	12	11
Main Street (Route 119) - south side - west to east					
between Pleasant and first driveway	54	2			
between first and second driveways	90	4			
between second driveway and Court St	76	3	crosswalk		
between Court St and first driveway	168	8			
between first and second driveways	148	7			
between second driveway and Station Ave	160	7	crosswalk		

between Station Ave and Citizen's Bank access	59	2			
between Citizen's Bank access and Bank of America	25	1			
Between Bank of America accesses	80	4			
Between Bank of America exit and next drive	87	4			
Between next drive and Prescott School	27	1			
Between Prescott School in and out	143	6	crosswalk		
Between Ace Hardware drives	66	3			
Between Ace Hardware and Plaza stores	27	1			
East of Plaza Stores	65	3	crosswalk	56	48
Main Street (Route 119) - north side - west to east					
between North Pleasant and first driveway	65	3	crosswalk		
between first drive and Willowdale St	84	4			
between Willowdale and first driveway	78	3			
between first driveway and Hollis Rd	246	12			
between Hollis Road and first driveway	174	8			
between first driveway and second driveway	61	3			
between second and third driveways opp Twn Hll	79	2	crosswalk		
between two driveways opp Court St	70	3			
Between two driveways opp CB	20	0			
Between driveway opp CB to drive opp BOA	50	2			
Between drive opp BOA to drive opp Prescott School In	245	12	crosswalk		
Between Drive opp Prescott School in and next Drive	61	3			
Between two driveways easterly	73	3			
Between driveway to Carriage House drive	176	8	crosswalk	66	58
Court Street - west side - north to south					
Main Street to first driveway	116	5	crosswalk		
between first and second driveways	81	4			
between second and third driveways	66	3			
between third and fourth driveways	175	8			
between fourth and fifth driveways	68	3		23	21
Court Street - east side - north to south					

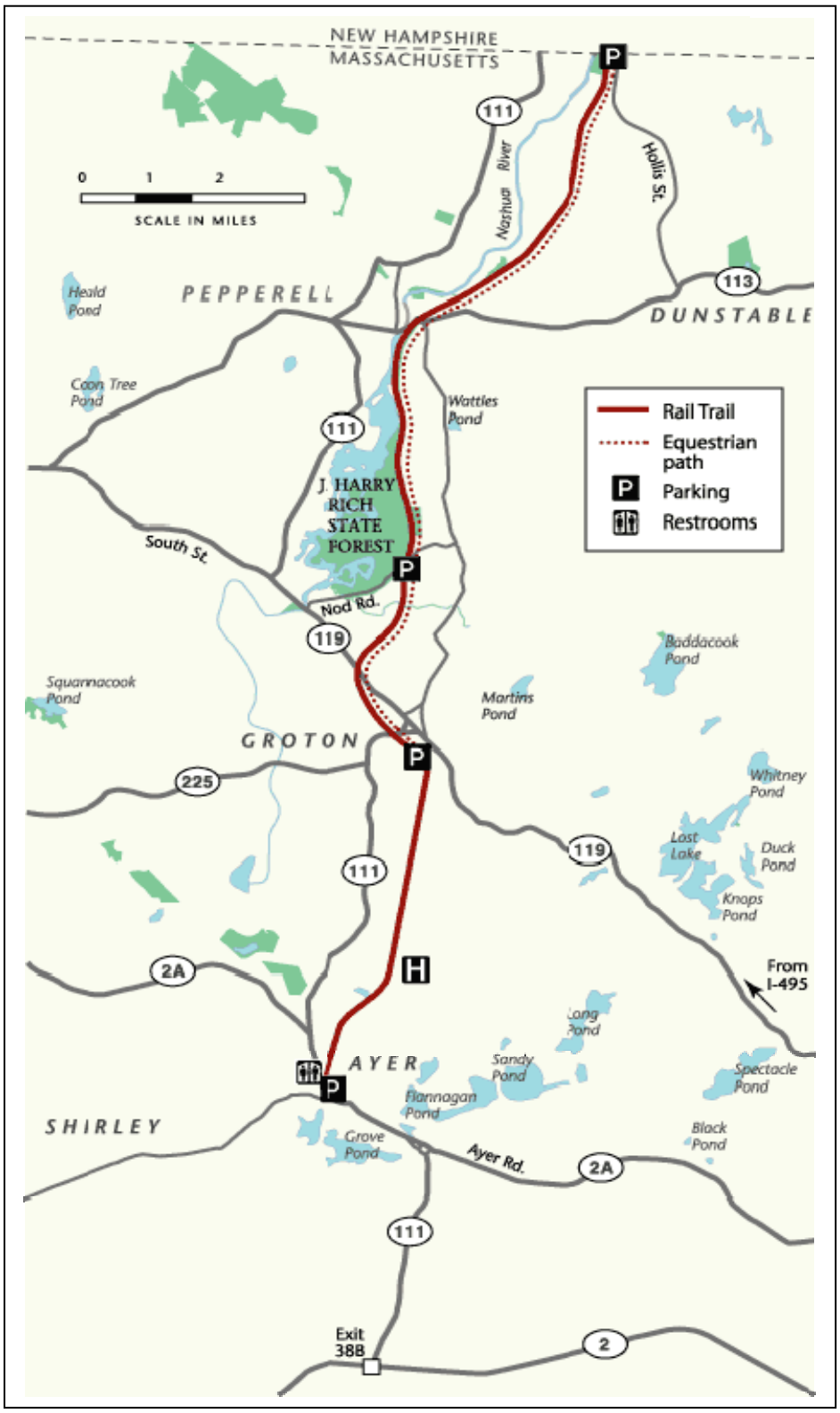
Main Street to first driveway	144	7	crosswalk		
between first and second driveways	43	2			
between second and third driveways	43	2			
between third and fourth driveways	77	3			
between fourth and fifth driveways	174	8			
between fifth and sixth driveways	42	2			
between fourth and fifth driveways	32	1		25	22
Playground Road - Broadmeadow to Main west side - north to south					
Between Broadmeadow and Library north driveway	328	16			
Between Library driveways	103	5			
Between south Library driveway and parking lot	139	6			
Between Main Street and parking lot (east side	242	12		39	36
Off-Street parking locations	*Counted or Estimated Spaces*				
Main Street - Citizens Bank	10				
Main Street - Bank of America	23				
Prescott School	42				
Off Court Street - West Driveway	24				
Bus Company Employee Parking	8				
Bus Parking	11				
Groton Parking Potential along rail trail (parallel)	45				
Groton Parking Potential along rail trail (head-in to east)	45				
Library Parking lot	40				

Small unmarked Playground Road lot	10				
On-street Totals				244	217
				On-street Total (unadj.)	On-street Total (adj.)
Combined Totals		258		502	475

Appendix D – Parking Radius Diagram



Appendix E – Map of Nashua River Rail Trail



Appendix F – Town's March 15, 1999 Signed Agreement with Massachusetts Department of Environmental Management for Town Provided "Services" to the Nashua River Rail Trail

TOWN OF GROTON
173 Main Street
Groton. Massachusetts 01450-1237
Tel: (978) 448-1111
Fax (978) 448-1115

Board Of Selectmen

Peter **S.** Cunningham**,**
Chairman
Richard W. Powell, *Clerk*
Virginia C. Wood, *Member*

Jean E. Kitchen
Administrative Officer

March 16, 1999

Commonwealth of Massachusetts
Executive Office of Environmental Affairs
Department of Environmental Management
Attn: Danny 'Brien
100 Cambridge Street
Cambridge, Massachusetts 02202

Dear Mr. O'Brien,

Enclosed are two original copies of the final Memorandum of Agreement between the Department of Environmental Management and the Town of Groton, regarding trail maintenance for the Nashua River Rail Trail in the Town of Groton. Please have Commissioner Webber sign them and send one back to the Town.

Thank you for your assistance in this matter.

Jean E. Kitchen
Administrative Officer

JEK/dw
Enclosure

MEMORANDUM OF AGREEMENT

BETWEEN

THE DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

AND

THE TOWN OF GROTON

This Memorandum of Agreement is entered into by and between the Massachusetts Department of Environmental Management (hereinafter referred to as DEM) and the Town of Groton regarding trail maintenance for the Nashua River Rail Trail in the Town of Groton.

ARTICLE I. BACKGROUND AND OBJECTIVES

WHEREAS, DEM owns, operates and maintains an 11-mile regional rail trail beginning at Main Street in downtown Ayer, heading north through Groton, Pepperell and Dunstable ending at the Massachusetts/New Hampshire state line (see attached map);

WHEREAS, the town of Groton is supportive of the rail trail and DEM has granted an easement to the town which has built a municipal sewer line within the corridor;

NOW, THEREFORE, as compensation for the sewer easement in satisfaction of the Town's obligation for such compensation, as set forth in Chapter 213 of the Acts of 1988, as amended by Section 1 of Chapter 620 of the Acts of 1989 and Chapter 154 of the Acts of 1992, and in satisfaction of the Town's obligation for compensation, if any, for a sewer maintenance easement to be granted to the Town by the Commonwealth through its Division of Capital Asset Management or DEM or otherwise, the DEM and the Town of Groton agree on the following regarding development and maintenance of the rail trail. The parties agree to:

ARTICLE II. STATEMENT OF RESPONSIBILITIES

A. DEM agrees to:

1. Work with the Massachusetts Highway Department (hereinafter referred to as Mass Highways) to construct the rail trail facility; and

2. Provide trail management/maintenance services per regional forest and park staffing out of Willard Brook State Forest.

B. The Town of Groton agrees to:

1. Sweep the pavement and clear sideline vegetation associated with the equestrian portion of the rail trail twice per year in the Town of Groton;

2. Plow and maintain the gravel rail trail parking lot at Sand Hill Road;

3. Provide seasonal storage space for DEM's rail trail maintenance equipment at a nearby town garage stall from April to November and endeavors to work with the Nashoba Valley Technical School and DEM to have a maintenance shed built for rail trail equipment; and

4. Provide and maintain a water bubbler/faucet for rail trail users.

ARTICLE I I I. TERM OF AGREEMENT

This AGREEMENT shall be effective when signed by DEM and the TOWN of GROTON and shall remain in effect for a term of five (5) years, commencing on April 1, 1998 and terminating on March 31, 2003 and shall automatically renew for additional five (5) year terms unless a written termination is submitted by a party to this agreement to the other party, at its pricipal offices, no later than 60 days prior to the expiration date herein.

ARTICLE IV. SIGNATORIES

IN WHITNESS WHEREOF, the parties to this agreement have caused this AGREEMENT to be signed by their duly authorized officer the day and year below written.

MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL MANAGEMENT:

Peter C. Webber, commissioner — Date

THE TOWN OF GROTON:

Peter S. Cunningham, Chairman
Groton Board of Selectmen — 15 March 1999 Date

Richard W. Powell, Clerk

Virginia C. Wood, Member

COMMONWEALTH OF MASSACHUSETTS
EXECUTIVE OFFICE OF ENVIRONMENTAL AFFAIRS
DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

DIVISION OF RESOURCE CONSERVATION
100 CAMBRIDGE STREET, BOSTON, MA 02202
PHONE 617-727-3160 FAX 617-727-2630
www.state.ma.us/dem/

March 9, 1999

Mr. Stephen Andrews
Office of the General Counsel
One Ashburton Place
Boston, MA 02108

Dear Mr. Steve Andrews:

The Department of Environmental Management (DEM) has completed design of the 11 mile Nashua River Rail Trail in the towns of Ayer, Groton, Pepperell and Dunstable. The Massachusetts Highway Department (MHD) is preparing to advertise the trail for construction.

In consideration for the Town of Groton sewer easement within DEM's right-of-way layout, the Town and DEM agree to the following compensation:

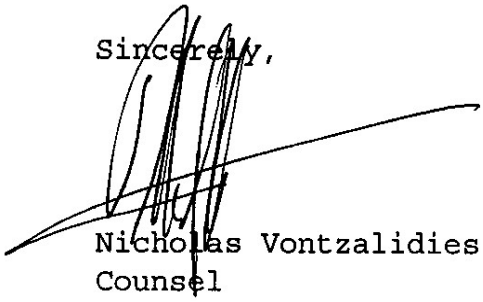
- the town will sweep the paved trail and clear sideline vegetation twice per year;
- the town will plow and maintain the gravel rail trail parking lot on Sand Hill Road;
- the town will provide seasonal storage space for DEM's rail trail maintenance equipment at a nearby town garage and work with the local trade school to build a maintenance shed for the rail trail; and
- the town will provide and maintain a water bubbler/faucet for rail trail users.

Contains recommended language from Town Counsel

Attached for your review and approval is a Memorandum of Agreement outling the consideration for the easement. We would like to submit this for town signature as soon as possible so that we can request MHD start construction this construction season.

Thank you for your assistance in this matter.

Sincerely,



Nicholas Vontzalidies
Counsel

cc: Danny O'Brien, Don Stoddard, Jean Kitchen

Appendix G – Massachusetts Department of Environmental Management August 12, 1998 Signed Agreement with the Town of Groton for Town Provided "Services" to the Nashua River Rail Trail

MEMORANDUM OF AGREEMENT

BETWEEN

THE DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

AND

THE TOWN OF GROTON

This Memorandum of Agreement is entered into by and between the Massachusetts Department of Environmental Management (hereinafter referred to as DEM) and the town of Groton regarding trail maintenance for the Nashua River Rail Trail (Ayer to Dunstable).

ARTICLE I. BACKGROUND AND OBJECTIVES

WHEREAS, DEM owns, operates and maintains an 11-mile regional rail trail beginning at Main Street in downtown Ayer, heading north through Groton, Pepperell and Dunstable ending at the Massachusetts/New Hampshire state line (see attached map);

WHEREAS, the town of Groton is supportive of the rail trail and DEM has granted an easement to the town which has built a municipal sewer line within the corridor;

NOW, THEREFORE, as compensation for the sewer easement the DEM and the town of Groton agree on the following regarding development and maintenance of the rail trail. The parties agree to:

ARTICLE II. STATEMENT OF RESPONSIBILITIES

A. DEM agrees to:

1. Work with the Massachusetts Highway Department (hereinafter referred to as Mass Highways) to construct the rail trail facility; and

2. Provide trail management/maintenance services per regional forest and park staffing out of Willard Brook State Forest.

B. The Town of Groton agrees to:

1. Sweep the pavement and clear sideline vegetation associated with the equestrian portion of the trail twice per year from the beginning of the trail in Ayer to the terminus at the state line in Dunstable;

2. Plow and maintain the gravel rail trail parking lot at Sand Hill Road;

3. Provide storage space for DEM's rail trail maintenance equipment at a nearby town garage facility; and

4. Provide and maintain a water bubbler/faucet for rail trail users.

ARTICLE III. TERM OF AGREEMENT

This AGREEMENT shall be effective when signed by DEM and the TOWN of GROTON and shall remain in effect for a term of five (5) years, commencing on April 1, 1998 and terminating on March 31, 2003 and shall automatically renew for additional five (5) year terms unless a written termination is submitted by a party to this agreement no later than 60 days prior to the expiration date herein.

Jan Delaney
978 448 1162

ARTICLE IV. SIGNATORIES

IN WITNESS WHEREOF, the parties to this agreement have caused this AGREEMENT to be signed by their duly authorized officers the day and year below written.

MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL MANAGEMENT:

Peter C. Webber, Commissioner

8/13/98
Date

THE TOWN OF GROTON:

Ronald C. Englade, Chairman
Groton Board of Selectmen

Date

Appendix H – Parking and Loading Guidelines

ARTICLE 22
Proposed Parking and Loading Guidelines for the Station Avenue Overlay District

Filed with the Town Clerk on March 25, 2008
with revisions filed with the Town Clerk on March 31, 2008

§ N#3. Preamble

A. Statutory provision: Code of the Town of Groton, Section 218-30.2, as amended, and Section 218-23, as amended.

B. Purpose: The purpose of these guidelines are broadly as follows:

   A. To reduce the amount of area allocated to parking spaces while accommodating typical peak parking needs of the Station Avenue Overlay District.

   B. To encourage and maximize the creation of a well-connected, parking, walking and bicycle access system throughout the Station Avenue Overlay District.

   C. To enhance the environment of this area for its adjacent neighborhoods, Groton residents, workers, and visitors to the Station Avenue Overlay District.

   D. To adequately accommodate the Station Avenue Overlay District's typical peak parking demands and its commercial loading and goods delivery requirements.

   E. To avoid the creation of 'overflow' parking demands from the Station Avenue Overlay District into the Town Center's adjacent residential and commercial areas, whether on- or off-street.

C. Relationship to Code of the Town of Groton: Parking and loading in the Station Avenue Overlay District is governed by Section 218-23, of the Code of the Town of Groton, in its entirety, and these Station Avenue Overlay District Parking and Loading Guidelines.

D. Implementation: In accordance with the purposes described above all parking and loading in the Station Avenue Overlay District are hereby regulated and restricted by Code of the Town of Groton Section 218-23, in its entirety, and as hereinafter provided.

§ N#4. Definitions

For the purposes of these Guidelines, the following terms are defined for estimating necessary parking supply within the Station Avenue Overlay District:

- PUBLIC PARKING SUPPLY DEMAND REDUCTIONS – This involves reducing the overall parking supply cited in Section 218-23 by assuming that the future public on-and off-street parking supply created within the Station Avenue Overlay District will be shared by Station Avenue Overlay District land uses and recreational resources (i.e., the Nashua River Rail Trail) located within a convenient walking distance of the destinations of parkers.

- SHARED PARKING DEMAND REDUCTIONS – This involves reducing overall parking requirements cited in Section 218-23 of the Code of the Town of Groton by creating an Agreement between affected property owners to share available parking spaces when those spaces are located within a convenient walking distance of the parker's destination. Such Agreements can be applied when land uses having different parking demand patterns are able to use the same parking spaces and areas throughout the day and thereby reduce their combined demands. Shared parking is most effective when sharing land uses have significantly different peak parking characteristics that vary by time of day, day of week, and/or season of the year. In these situations, shared parking strategies will result in fewer total parking spaces needed when compared to the total number of parking spaces needed for each individual land use or business. Mixed land uses tending to benefit from specific shared parking arrangements include the Nashua River Rail Trail and the mixed uses being considered for the Station Avenue Overlay District. This also refers to parking demands that may be reduced at retail facilities because a proportion of patrons are expected to walk or bike to the Station Avenue Overlay District. For purposes of the Station Avenue Overlay District, land uses that may have parking reductions include office, institutional (i.e., Town Hall/Fire Department employees and visitors) and certain types of retail uses (i.e., coffee shops, small retail shops and Nashua River Rail Trail-oriented retail uses).

- SHARED PARKING PLAN – This is a scaled plan (e.g., 1 inch equals 40 feet) delineating the parking areas that are to be shared under a Shared Use Agreement.

- SHARED USE AGREEMENT – This is a binding legal Agreement by and between signatories representing land uses within the Station Avenue Overlay District to share the construction, maintenance, and liability for identified shared parking facilities within the Station Avenue Overlay District.

- STATION AVENUE OVERLAY DISTRICT (SAOD) – That portion of the Town of Groton described and defined in Section 218-30.2, as amended, of the Code of the Town of Groton.

§ N#5. Performance Requirements

A. Adequate parking must be available in the Station Avenue Overlay District to service the typical net increase in peak parking demands.

B. Massachusetts General Law (MGL) Chapter 90, Section 16A, ***Stopped Motor Vehicles; Operation of Engine; Time Limit Penalty,*** will be strictly enforced in the Station Avenue Overlay District. As a convenience to the reader, MGL Chap 60, Sect 16A, is quoted here: "No person shall cause, suffer, allow or permit the unnecessary operation of the engine of a motor vehicle while said vehicle is stopped for a foreseeable period of time in excess of five minutes. This section shall not apply to (a) vehicles being serviced, provided that operation of the engine is essential to the proper repair thereof, or (b) vehicles engaged in the delivery or acceptance of goods, wares, or merchandise for which engine assisted power is necessary and substitute alternate means cannot be made available, or (c) vehicles engaged in an operation for which the engine power is necessary for an associate power need other than movement and substitute alternate power means cannot be made available provided that such operation does not cause or contribute to a condition of air pollution. Whoever violates any provision of this section shall be punished by a fine of not more than one hundred dollars for the first offense, nor more than five hundred dollars for each succeeding offense."

§ N#6. Number of Spaces

A. Standards for individual land uses set forth in Section 218-23, as amended, will apply to land uses within the Station Avenue Overlay District that do not participate in a Shared Use Agreement. If an alternative shared loading modification can be justified to the satisfaction of the Planning Board, the applicant may propose modifications of Section 218-23, Off-Street Parking and Loading, requirements.

B. No parcel located in the Station Avenue Overlay District may count on-street parking spaces located within the Station Avenue Overlay District toward the number of spaces required by Code of the Town of Groton 218-23.1.

§ N#7. Application of Shared or Compact Parking Spaces and Operating Hours

A. Retail, office, institutional, and residential Applicants for new development within the Station Avenue Overlay District shall examine the feasibility of using shared parking arrangements to reduce the total required parking supply in the Station Avenue Overlay District.

B. Shared Parking Agreements shall reduce individual land use parking space requirements cited in Section 218-23 – usually less than 20% -- including public on- and off-street public parking resources. The use of smaller/compact parking spaces (refer to Section 218-23.1 subsection K) shall be limited to 1/3 or fewer of the total shared parking supply. The Application of shared parking to reduce the overall supply of parking in the Station Avenue Overlay District for certain land

uses, may necessitate strict adherence to temporal restrictions to keep peak demands from coinciding.

C. Where the Planning Board deems appropriate, signatories to a Shared Parking Agreement shall be required to identify and adhere to temporal restrictions on operating hours associated with the land uses involved in the Shared Parking Agreement.

§ N#8. Calculation of Parking Spaces Required with a Shared Parking Agreement

A. The minimum number of parking spaces for a mixed use development where shared parking is proposed shall be determined by a study prepared by the Applicant following the procedures of the Urban Land Institute (ULI) Shared Parking Report (Second Edition, 2005) or the ITE Parking Generation Report (3rd Edition, 2004), ITE Shared Parking Guidelines (1996), or other resources that the Planning Board may find acceptable. A formal parking study may be waived for small developments where there is established experience with the land use mix or its impact is expected to be minimal. The actual number of proposed parking spaces shall be based on well-recognized sources of parking data, such as the ULI or ITE sources cited above or local parking usage surveys.

B. If the proposed Shared Parking Plan assumes shared use of an existing parking facility, field surveys shall be conducted to determine the actual hour-by-hour use of the existing parking supply. If the shared parking plan assumes the shared use of a future public parking supply--assumptions regarding the peak use of the future parking supply with and without the shared parking plan in place shall be provided to the Planning Board.

C. The Applicant shall determine the **minimum number of parking spaces** needed by a mixed-use development by following the following 4-step procedure.

Step 1 – Determine combined 'stand alone' parking requirements under's Section 218-23 by individual land uses proposed within the shared parking arrangement.

Step 2 – Estimate the peak 'combined' parking demand weekday and weekend hours. Section 218-23 represents individual land use peak demand requirements. The Applicant shall estimate the hourly distribution of its peak demands, typically using the 85th percentile demands as published in available resources such as the Urban Land Institute (ULI) *Shared Parking* report (as amended) and the Institute of Transportation Engineers (ITE) *Parking Generation* report (as amended) for retail, restaurant, office, and residential parking demands. It is common that the residential parking supply may not necessarily be included in a Shared Parking Agreement, but the Planning Board will not preclude residential shared parking resources.

The following four combined parking peaks should be assessed, with the *worst case parking space demands* prevailing for estimating the peak 'combined' parking demand requirements, including a 'peak season' estimate, if applicable:

- Typical Weekday (M-F) mid-day parking demand peak;
- Typical Weekday (M-F) evening parking demand peak;
- Typical Weekend Saturday mid-day parking demand peak; and
- Typical Weekend Saturday evening parking demand peak

Justifiable variations from nationally-published peak parking demand rates will be considered by the Planning Board as long as the Applicant provides the data for the differences compared to rates contained in industry standard resources, such as either of the two resources cited above, such that the Planning Board can make a determination as to which peak 'combined' estimate should be employed as it pertains to the administration of this ordinance. The Planning Board may require strict adherence to proposed operating hours by use which will run with the space. Changes in use may require a review of operating hours by the Planning Board to ensure the performance requirements of this ordinance are achieved.

Step 3 – Determine the availability of public parking resources for serving the peak 'combined' parking demand under a Shared Parking Agreement. Public parking within the Station Avenue Overlay District consists of two components – on-street parking and off-street parking. The exact number of off-street public parking supply within the Station Avenue Overlay District to be considered under Step 3 is highly dependent upon Town decisions concerning land adjacent to the rail trail and the ultimate disposition of a privately-owned parcel of land behind Town Hall. On-street parking within the Station Avenue Overlay District may not be counted toward the number of parking spaces required by Code of the Town of Groton 218-23.1. The estimate of the available public parking supply shall be coordinated with the Planning Board at the time the Application is submitted. Allocation of the available public supply shall be estimated based on the proportion of land within the overall Station Avenue Overlay District being considered for a Shared Parking Agreement.

Step 4 – Compile a Shared Parking Plan Summary. After determining the peak parking demand and the component of public parking resources expected to be available during the peak 'combined' parking demand period, essentially, the minimum requirement at the maximum demand across all periods. The Applicant shall compile a Shared Parking Plan summary that identifies the total number of spaces that would be needed under Section 218.23 by use, the total number of parking spaces that will be constructed by the Applicant, and the proposed spaces assumed to be shared through the public parking supply.

D. The Shared Parking Plan Summary is to be submitted to the Planning Board for review and concurrence. While mindful of the need to ensure adequate parking for users of the Rail Trail, at its discretion, the Planning Board may accept a significant reduction in the 'stand alone' parking requirement – usually less than 20% -- and may require the saved space to be dedicated *to such uses as* open green space or bicycle storage facilities.

§ N#9. Distance to Parking Spaces, Pedestrian and Bicycle Connection and Facilities Requirements

A. The closer shared parking spaces are to the land uses they serve, the more likely the arrangement will be a success. Shared spaces for residential units, if to be included in the shared parking arrangement, must be located within a **300 foot radius** of the dwelling unit entrances they serve. Shared parking spaces for other uses should be located within a **500 foot radius** of the principal building entrances of all sharing uses. Up to **20% of the shared parking spaces for non-residential uses may be located between a 500 foot radius and a 1,000 foot radius** from the principal entrances.

B. Clear, safe, Massachusetts Architectural Access Board/Americans with Disabilities Act-compliant sidewalks and pedestrian access as direct as possible must be provided between the building entrances and the shared parking spaces.

C. Similarly, the provision of convenient and secure bicycle storage facilities close to the well-used entrances of Station Avenue Overlay District buildings, with signage, markings, and possibly shower facilities for cyclists should be incorporated in the design of the Station Avenue Overlay District developments. Proper maintenance of the bicycle parking facilities required shall be a continuing obligation of the property owner. The following summarizes bicycle parking requirements within the SOAD:

- **Residential:** 2 spaces per dwelling unit or 2 interior storage devices per unit.

- **Retail businesses and offices:** 4 spaces per business or 2 space per 1,000 square feet, whichever is greater.

D. Optionally, an applicant may also contribute additional bicycle parking spaces (gift under MGL Chapter 44, Section 53A) and/or bicycle parking equipment to the Town for the Nashua River Rail Trail (NRRT) bicycle parking supply. The Town, in coordination with the Department of Conservation and Recreation (DCR) which has jurisdiction over the NRRT, will determine the location of all contributed bicycle parking spaces and the placement of contributed bicycle parking equipment.

§ N#10. Shared Parking Plan and Agreement

A. A model Shared Parking Agreement form is attached (see Appendix A). Provisions for funding future maintenance of shared parking spaces shall be clearly identified in the Agreement to ensure that routine maintenance (e.g., striping, potholes, etc.) is addressed in a timely manner. The Shared Parking Agreement shall include a *Shared Parking Plan* with the following elements:

- A scaled plan at *1 inch equals 40 feet* of the entire shared parking spaces layout prepared by an Architect or Engineer registered in the

Commonwealth of Massachusetts showing the location and types of shared parking spaces and their proximity to the uses they will serve. The plan should also show the location and proposed percentage of small and regular parking spaces in accordance with Section N#11 below, as well as accessible spaces in accordance with Massachusetts Architectural Access Board Regulations, 521 CMR, and the Americans with Disabilities Act. MAAB/ADA requirements. The location of assumed on-street parking spaces, while not included in the shared parking total, shall be shown on the plan.

- If applicable, the location of trail-blazing signage that directs drivers to the most convenient and compact vehicle parking areas for each particular use or group of users.

- If applicable, highlight the location of public and shared parking spaces assumed to be subject to regulation (e.g., no overnight parking in non-residential shared parking spaces; possible 1- or 2-hour parking for certain on-street spaces in front of retail establishments).

- Specific pedestrian and bicycle circulation features illustrating the connections and walkways between parking areas and land uses, as well as those buildings that will include cyclist-friendly facilities such as showers or lockers. Pedestrian paths should be as direct and short as possible. Exclusive bikeways (i.e., the Nashua River Rail Trail) and other specific features encouraging bicycle use or walking such as the location and quantity of bicycle storage facililities should be highlighted.

- Safety and security features such as lighting and the maintenance plan for parking areas including snow removal, disposal, and routine maintenance.

- The location and type of bicycle parking/storage facilities to be provided.

- Annual maintenance activities to be performed and responsible parties.

§ N#11. Parking Space Design

Design of shared parking spaces for regular and accessible spaces shall generally comply with Chapter 218 of the Code of the Town of Groton, Section 218-23 – Off-street Parking and Loading. Small size parking spaces should also be considered by Station Avenue Overlay District development Applicants. Table 14-7 from the ITE Traffic Engineering Handbook (1999) is referenced as a source for small-size parking dimension guidelines that may be employed if some of the

parking spaces in the Station Avenue Overlay District are dedicated for small cars. Such spaces must be clearly signed in the field and shall not include more than 1/3 of the non-public components of the shared parking supply. Compact car spaces shall not be less than 8 feet by 16 feet in area vs. Groton's standard car spaces that are 9-feet by 18 feet in area. For example, a minimum 24-foot aisle for two-way traffic is necessary to accommodate emergency vehicle circulation and backing maneuvers, even for compact car areas. Therefore, an entire parking bay – i.e., a row of only compact cars at 90º parking from on the left and the right -- can be a minimum of 54 feet wide vs. 60 feet for a similar full size parking bay. Alternating full size with small car rows can preserve green space. On-street parking, parallel or angle configurations shall be permitted and encouraged where its design will not present a hazard to pedestrians, block visibility from exiting driveways, or be detrimental to emergency egress from the Fire Department. Sidewalk curb extensions will be considered in areas where motorist visibility of traffic would otherwise be impaired by vehicles parked in close proximity to parked driveways.

Appendix A

The following example of what a Shared Use Agreement for Parking might contain is provided for illustration and general understanding only:

Shared Use Agreement for Parking Facilities
Effective _____

This Shared User Agreement for Parking Facilities, entered into this _____ day of _____, _____, between _____, hereinafter called lessor and _____, hereinafter called lessee.

In consideration of the covenants herein, lessor agrees to share with lessee certain parking facilities, as is situated in the Town of _____, County of _____, and State of _____, hereinafter called the facilities, described as:

[Include legal description of locations and spaces to be shared here.]

The facilities shall be shared commencing with the _____day of _____, _____, and ending at 11:59 PM on the _____ day of _____, _____, for [insert negotiated compensation figures, as appropriate]. The lessee agrees to pay at [insert payment address] to lessor by the _____ day of each month [or other payment arrangements].

Lessor hereby represents that it holds legal title to the facilities.

The parties agree:

1 USE OF FACILITIES

This section should describe the nature of the share use (exclusive, joint sections, time(s) and day(s) of week of usage.

-REPRESENTATIVE CLAUSE-
[Lessee shall have exclusive use of the facilities. The use shall only be between the hours of 5:30 PM Friday through 5:30 AM Monday and between the hours of 5:30 PM and 5:30 AM and 5:30 AM Monday through Thursday.]

2. MAINTENANCE

This section should describe responsibility for aspects of maintenance of the facilities. This could include cleaning, striping, seal coating, asphalt repair and more.

-REPRESENTATIVE CLAUSE-
[Lessor shall provide, as reasonably necessary asphalt repair work. Lessee and Lessor agree to share striping, seal coating and lot sweeping at a 50%/50% split based upon mutually accepted maintenance contracts and outside vendors. *Lessee and Lessor agree to snow removal and surface sanding at a 50%/50% split based upon mutually accepted maintenance contracts and outside vendors*. Lessor shall maintain lot and landscaping at or above the current conditions, at no additional cost to the lessee.]

3. UTILITIES and TAXES

This section should describe responsibility for utilities and taxes. This could include electrical, water, sewage, and more.

-REPRESENTATIVE CLAUSE-

[Lessor shall pay all taxes and utilities associated with the facilities, including maintenance of existing lighting as directed by standard safety practices.]

4. SIGNAGE

This section should describe signage allowances and restrictions, in accordance and compliance with the Code of the Town of Groton, Chapter 196 signs.

-NO REPRESENTATIVE CLAUSE PROVIDED-

5. ENFORCEMENT

This section should describe any facility usage enforcement methods.

-REPRESENTATIVE CLAUSE-
[Lessee may provide a surveillance officer(s) for parking safety and usage only for the period of its exclusive use. Lessee and lessor reserve the right to tow, at owners expense, vehicles improperly parked or abandoned. All towing shall be with the approval of the lessor.]

6. COOPERATION

This section should describe communication relationship.

-REPRESENTATIVE CLAUSE-
[Lessor and lessee agree to cooperate to the best of their abilities to mutually use the facilities without disrupting the other party. The parties agree to meet on occasion to work out any problems that may arise to the shared use.]

7. INSURANCE

The section should describe insurance requirements for the facilities.

-REPRESENTATIVE CLAUSE-
[At their own expense, lessor and lessee agree to maintain liability insurance for the facilities as is standard for their own business usage.]

8. INDEMNIFICATION

This section should describe indemnification as applicable and negotiated. This is a very technical section and legal counsel should be consulted for appropriate language for each and every agreement.

-NO REPRESENTATIVE CLAUSE PROVIDED-

9. TERMINATION

This section should describe how to or if this agreement can be terminated and post termination responsibilities.

-REPRESENTATIVE CLAUSE-
[If lessor transfers ownership, or if part of all of the facilities are condemned, or access to the facilities is changed or limited, lessee may, in its sole discretion terminate this agreement without further liability by giving lessor not less than 60 days prior written notice.

Upon termination of this agreement, Lessee agrees to remove all signage and repair damage due to excessive or abuse. Lessor agrees to give Lessee the right of first refusal on subsequent renewal of this agreement.]

10. SUPPLEMENTAL COVENANTS

This section should contain any additional covenants, rights, responsibilities and/or agreements.

-NO REPRESENTATIVE CLAUSE PROVIDED-

IN WITNESS WHEREOF, the parties have executed this Agreement as of the Effective Date set forth at the outset hereof.

Appendix I – Chelmsford Planning Board's Policy on Traffic & Pedestrian Mitigation.

PLANNING BOARD
TOWN OFFICES
50 BILLERICA RD.
CHELMSFORD, MA 01824

CHELMSFORD PLANNING BOARD
POLICY ON TRAFFIC & PEDESTRIAN MITIGATION

ADOPTED: April 26, 2000

Whereas the Chelmsford Planning Board is the Site Plan and Special Permit Granting Authority in Chelmsford, and;

Whereas commercial and residential developments cause impacts to the community in the form of traffic congestion, intersection level of service degradation and failure, all of which negatively contribute to the quality of life of the residents of Chelmsford;

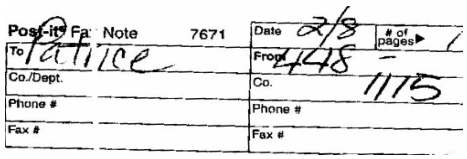
Therefore, be it resolved, it shall be the policy of the Chelmsford Planning Board to require mitigation from developers in Chelmsford. The form of the mitigation may take any form determined by the Planning Board to be in the best interest of the Town of Chelmsford, and may include specific engineering design or construction activities or a fee to be held by the Planning Board to finance such engineering design or construction activities in the future.

When a fee is determined to be the appropriate form of mitigation the amount of the mitigation shall normally be calculated as follows:

> $100 per parking space required under the Zoning Bylaw, Section 195-17 Minimum Parking Requirements plus $100 per queuing space required under the Bylaw or required by the Planning Board under its duties as the Site Plan Approval and/or Special Permit Granting Authority.

Said mitigation shall generally be submitted to the Planning Board prior to the issuance of a Building Permit. Fees collected pursuant to this policy shall be deposited into an account established by the Finance Director pursuant to G. L. c. 44, s. 53A. Monies expended from this account shall be used solely for traffic, pedestrian and safety improvements in the Town of Chelmsford.

/s/ Charles Wojtas
Charles Wojtas, Clerk
Chelmsford Planning Board



Appendix J – General Laws of Massachusetts Chapter 44: Section 53A

PART I. ADMINISTRATION OF THE GOVERNMENT
TITLE VII. CITIES, TOWNS AND DISTRICTS

CHAPTER 44. MUNICIPAL FINANCE

MISCELLANEOUS PROVISIONS

Chapter 44: Section 53A. Grants and gifts; acceptance and expenditure

Section 53A. An officer or department of any city or town, or of any regional school or other district, may accept grants or gifts of funds from the federal government and from a charitable foundation, a private corporation, or an individual, or from the commonwealth, a county or municipality or an agency thereof, and in the case of any grant or gift given for educational purposes may expend said funds for the purposes of such grant or gift with the approval of the school committee, and in the case of any other grant or gift may expend such funds for the purposes of such grant or gift in cities having a Plan D or Plan E form of government with the approval of the city manager and city council, in all other cities with the approval of the mayor and city council, in towns with the approval of the board of selectmen, and in districts with the approval of the prudential committee, if any, otherwise the commissioners. Notwithstanding the provisions of section fifty-three, any amounts so received by an officer or department of a city, town or district shall be deposited with the treasurer of such city, town or district and held as a separate account and may be expended as aforesaid by such officer or department receiving the grant or gift without further appropriation. If the express written terms or conditions of the grant agreement so stipulate, interest on the grant funds may remain with and become a part of the grant account and may be expended as part of the grant by such officer or department receiving the grant or gift without further appropriation. Any grant, subvention or subsidy for educational purposes received by an officer or department of a city, town or school district from the federal government may be expended by the school committee of such city, town or district without including the purpose of such expenditure in, or applying such amount to, the annual or any supplemental budget or appropriation request of such committee; provided, however, that this sentence shall not apply to amounts so received to which section twenty-six C of chapter seventy-one of the General Laws, and chapter six hundred and twenty-one of the acts of nineteen hundred and fifty-three, as amended, and chapter six hundred and sixty-four of the acts of nineteen hundred and fifty-eight, as amended, apply; and, provided further, that notwithstanding the foregoing provision, this sentence shall apply to amounts so received as grants under the Elementary and Secondary Education Act of 1965, (Public Law 89-10). After receipt of a written commitment from the federal government approving a grant for educational purposes and in anticipation of receipt of such funds from the federal government, the treasurer, upon the request of the school committee, shall pay from the General Fund of such

municipality compensation for services rendered and goods supplied to such federal grant programs, such payments to be made no later than ten days after the rendition of such services or the supplying of such goods; provided, however, that the provisions of such federal grant would allow the treasurer to reimburse the General Fund for the amounts so advanced.

Appendix K – General Laws of Massachusetts, Chapter 90: Section 16A

PART I. ADMINISTRATION OF THE GOVERNMENT

TITLE XIV. PUBLIC WAYS AND WORKS

CHAPTER 90. MOTOR VEHICLES AND AIRCRAFT

MOTOR VEHICLES

Chapter 90: Section 16A. Stopped motor vehicles; operation of engine; time limit; penalty

Section 16A. No person shall cause, suffer, allow or permit the unnecessary operation of the engine of a motor vehicle while said vehicle is stopped for a foreseeable period of time in excess of five minutes. This section shall not apply to (a) vehicles being serviced, provided that operation of the engine is essential to the proper repair thereof, or (b) vehicles engaged in the delivery or acceptance of goods, wares, or merchandise for which engine assisted power is necessary and substitute alternate means cannot be made available, or (c) vehicles engaged in an operation for which the engine power is necessary for an associate power need other than movement and substitute alternate power means cannot be made available provided that such operation does not cause or contribute to a condition of air pollution. Whoever violates any provision of this section shall be punished by a fine of not more than one hundred dollars for the first offense, nor more than five hundred dollars for each succeeding offense.

Appendix L – Fay, Sofford & Thorndike Traffic Calming Memorandum from Gary Hebert, PE, PTOE

MEMORANDUM

To: Town of Groton Chapter 43D Priority Development Site Committee on Parking and Traffic Calming

From: Gary Hebert, PE, PTOE, Fay, Spofford & Thorndike

Date: April 25, 2008

Subject: Station Avenue Overlay District – Traffic Calming Options

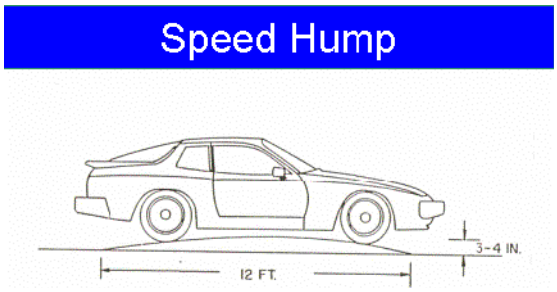
For those unfamiliar with the term 'traffic calming', the Institute of Transportation Engineers defines it as:

> *"Changes in street alignment, installation of barriers, and other physical measures to reduce traffic speeds and/or cut-through volumes, in the interest of street safety, livability, and other public purposes."*

Many different strategies are referred to as representing the 'traffic calming' philosophy. Traffic-calming measures include a smorgasbord of techniques to slow traffic or reduce cut-through traffic, where signs and traffic control measures tend to play a supplemental rather than primary role. Physical measures tend to fall into two broad categories involving motor vehicle deflection – **horizontal** or **vertical**. In rare cases, both horizontal and vertical deflection traffic-calming techniques are employed. The idea is to entice motorists into slowing down by making the roadway obviously different than a normal straightaway alignment and make motorists feel uncomfortable when speeding or cutting through an area to save time.

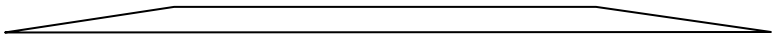
Typical **vertical** traffic calming measures include:

- *Speed humps* -- elongated speed bumps that make traffic go up and down with minimal or no flat area at the top. Vehicle jostling occurs with every use for harsh ones. They tend to be implemented off public rights-of-



way, for the most part and are typically 3-4 inches above the typical pavement grade at their peaks and vary in length from a minimal of 12 feet to 20 feet.

- *Speed tables/raised intersections* – essentially longer speed humps usually employed at intersections. Speed tables or raised intersections make traffic go up, across a level area, and down.



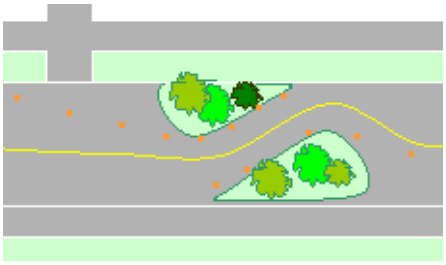
Side View – Speed Table or Raised Crosswalk

- *Raised crosswalks* -- mini-speed tables allow pedestrians the ability to cross above the normal grade of the pavement by 3-4 inches and can be seen at a further distance than typical crosswalks.

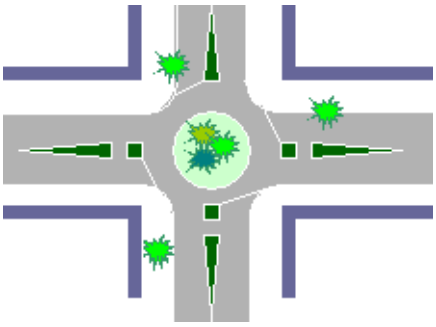
There are several undesirable issues with vertical measures – drivers tend not to like them, they have drainage and maintenance issues, emergency vehicle operators don't like them, and winter plowing/icing can be an issue if not designed properly. The upcoming 2008 Manual on Uniform Traffic Control Devices will require specific uniform markings for vertical traffic calming measures.

Horizontal traffic calming measures include:

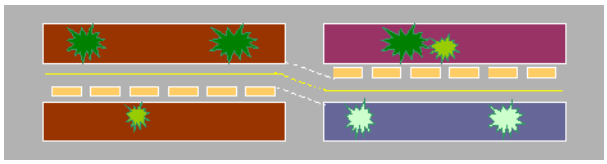
- *Chicanes* -- slow points that cause motorists to alter their speeds by making curvilinear shifts in the roadway through landscaping and or curbs. Chicanes require advance warning signs.



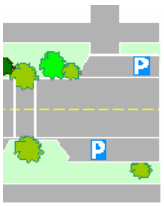
- *Modern roundabouts – standard and mini-roundabouts* are smaller more compact variations on the older Massachusetts rotaries that are very large and can have high entering speeds and high crash rates. Roundabouts are designed to require vehicles to slow upon entering by deflection. A well-designed modern roundabout or mini-roundabout will achieve a 15-20 miles per hour design speed entering the roundabout from all directions, will have a truck apron mountable by larger vehicles, and will allow pedestrians to cross one half leg at a time through raised 'splitter' islands. Mini-roundabouts usually smaller in diameter and deflect *without* permitting truck U-turns that are possible in standard urban/suburban roundabouts. Mini-roundabouts usually do not have a raised center island.



- *Realigned intersections/alternate side on-street parking* – require traffic to slow down in a manner similar to chicanes, and may, but not necessarily, involve landscaping or on-street parking variations. Angle parking is a form of traffic calming. MassHighway has specific guidelines for installation of angle parking on public streets that call for provision of backing without encroaching on the travel way

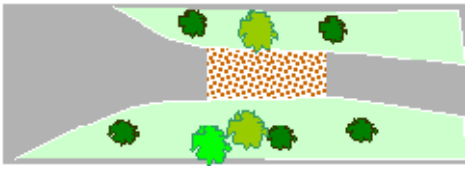


- *Corner neck-downs* – primarily affect pedestrians and parking motorists rather than the flowing traffic stream, though it may produce a slowing effect on through traffic and typically improve sight lines for side street motorists entering or crossing the main street traffic stream.

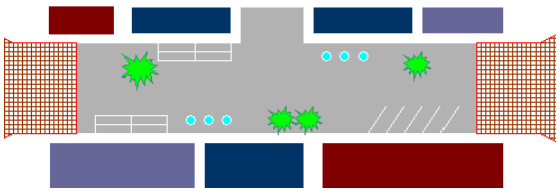


- *Chokers* – are neck-downs that involve both sides of a roadway. They may be used to change the directionality of a street, letting motorists travel in one direction only or to provide a gateway to a neighborhood.

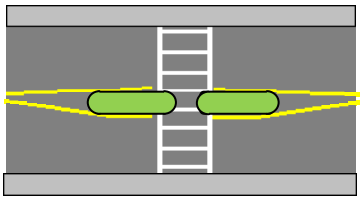
- *Narrowing streets* involves reducing pavement width to provide a less comfortable environment for motorists to speed when traveling it. Narrower streets potentially create opportunities for enhancing the nearby pedestrian or bicycle environment.



- *Shared zones* – are portions of a roadway (tend to be private ways) that include parking bollards and are fully used by pedestrians, vehicles without specific sidewalks. Usually they have textured pavement, but must maintain an ADA/MAAB accessible route in their designs.



- *Short medians* – whether raised or flush are employed to draw attention to a busy roadway crossing or slow traffic through a specific area.



All horizontal measures must be implemented in accordance with guidelines contained in the latest edition of the Manual on Uniform Traffic Control Devices. As a general rule, emergency providers must be consulted prior to the installation of such devices.

For the Station Avenue Overlay District (SAOD), the goal for 'traffic calming' would be to:

1) *Discourage the use of the SAOD access roads by through traffic.* Traffic without any destination in the SAOD should not be using its streets as a way to bypass congestion on Main Street (Route 109). The use of access between Pleasant Street (Route 225) and Broadmeadow Road must not be a by-product of the new SAOD street system.

2) *Minimize the use of Adams Avenue, Court Street, and Broadmeadow Road residential streets by non-residential traffic to and from the SAOD.* Existing residences on both corridors should not have to absorb significant increases in traffic due to the SAOD.

3) *Minimize the speed of motor vehicle traffic in the SAOD.* The 'prima facie' speed limit of streets in the Commonwealth in thickly settled areas is 30 miles per hour. Given the physical characteristics of the access roads, their short lengths, and the need for this area to have a pedestrian and bike friendly environment, the speed limit of streets in the SAOD should be 20 miles per hour.

Opportunities for 'traffic calming' were examined at four locations within the Station Avenue Overlay District. To make this analysis a little more understandable, we are arbitrarily referring to the east-west meandering connector, approximately 1/3 mile in length between Adams Avenue and Broadmeadow Road as '*Station Way*', even though a part of 'Station Way' is the continuation of Court Street. The new *Station Way* alignment is ultimately envisioned as meandering to produce slow speeds adjacent to the Nashua River Rail Trail corridor and to encourage walking in the area. It could either be designed as a 'shared zone', as illustrated above or simply a curvilinear road with sidewalks. Regardless of its ultimate alignment, it has to drain well given the nature of known flooding problems in the area. Except where described below, *Station Way* should typically be two-way, with a relatively narrow cross-section approximately 22-24 feet and would have narrow shoulders. A sidewalk should be provided on at least one if not both sides of it.

Whatever traffic calming measures are implemented should have strong neighborhood concurrence by abutting residents prior to implementation.

The four focus areas, as illustrated on Appendix M, include:

- *Adams Avenue* between Pleasant Street and *Station Way*.

  Adams Avenue, shown on Appendix N, has four residences

along it and a paved width of 16 feet and no sidewalks. Given its current alignment and layout, it already meets the three above goals of traffic calming in the SAOD. Adams Avenue has a single business at its terminus (Platt Architects, Remodelers, and Cabinetmakers), and no public easement for use, although there is a paved physical connection between Court and Adams Avenue. Three potential traffic calming/access measures are considered possible.

First of all, assuming a public easement is available or can be obtained on the existing Adams Avenue alignment, a sidewalk should be considered for its south side to allow pedestrians on Adams Avenue and Pleasant Street to walk to and from the Station Avenue area. Expected low traffic volumes on Adams Avenue and its narrow paved cross-section are consistent with shared use of its narrow pavement if creation of the south side sidewalk is not possible. If a sidewalk is not feasible, a signs indicating shared use would be appropriate to install.

Secondly, two access options from the Station Avenue area are possible via Adams Avenue. One involves allowing only traffic *exiting from* the SAOD *residential areas to exit via* Adams Avenue, *not to enter via* Adams Avenue. Due to its narrow 16-foot paved cross-section, the use of Adams Avenue for two-way traffic should be limited to its current users or the small amount of additional traffic generated by the Station Avenue development, particularly residential users. If additional Adams Avenue use is contemplated by the exiting residential traffic only, consideration should be given to realigning Adams Avenue at its intersection with Pleasant Street to create more of a right angle for traffic leaving the Station Avenue Area and turning left onto Pleasant Street. The alignment would also slow the right turns onto Pleasant Street. As envisioned, access to and from the existing business would be maintained and Adams Avenue residents would still have two-way access, as they do today.

Third, without realigning Adams Avenue, a gated access could be created for emergency vehicle access only.

Any of the above strategies are acceptable vs. the 'Do Nothing' approach.

- *Court Street from Main Street (Route 119) to the SAOD boundary.*

Appendix O illustrates several potential Court Street options along the street and where it joins the *Station Way* connection. Under all potential options, it is assumed Court Street remains one-way westbound toward Station Avenue. Options involve both vertical and horizontal deflections. In summary, they include:

- *'Speed pillows'* (maximum height 2" at the center) spaced regularly to alert motorists to the fact that this is a residential neighborhood. As envisioned, these would be designed to be readily plowable and drivable at 20 mph. A speed pillow provides drainage in all four directions and allows bicycles to pass on both sides of it. Seasonal speed humps (or speed pillows) are available and might be considered to avoid winter plowing issues. A sub-option of the vertical deflection option would include the optional provision of two other speed pillows along its length, versus the single one at the west end of Court Street. Assuming vertical measures are preferred by the local residents, they would reduce speeds if spaced approximately 300 feet apart. We would recommend that any vertical treatments, if the preferred option of local residents, be designed to minimize jostling of vehicles, but to provide pavement undulations rather than a 'bump' for motorists. They would have markings and signage consistent with the latest edition of the Manual on Uniform Traffic Control Devices.

- *Neck-downs of Court Street* spaced every 250-300 feet to serve as visual cues for slowing motorists. The minimum dimension of the neck-downs typically would be 16-feet at their narrowest points. Neck-downs on one or both sides of Court Street would need to create a width sufficient to allow plowing and fire truck access. If neck-downs are done on one side only, they should alternate by side. Any or neck-down or gateway (see next bullet) treatments should be landscaped in a manner consistent with neighborhood landscaping and include curbing and drainage.

- *East end 'gateway treatment'* or neck-downs created on one or both sides of Court Street at its intersection with Main Street. The new neck downs would send a clear message to motorists entering Court Street from Main Street that they are entering a neighborhood setting. At its narrowest point, the gateway should be 16 feet wide. Although illustrated on Attachment 3 as a double-sided neck-down, it would be possible to install a neck-down on the north side of Court Street only, with a possibility of creating 5-6 angle parking spaces on the north side only, on the widest segment of Court Street (see parking discussion below).

- *On-street parallel or angle parking* (residents only) is a horizontal traffic calming measure. Parallel parking already exists on Court Street. Parallel on-street parking could alternate from side to side such that vehicles traversing Court Street would slow around alternating parking bays. For example, the minimum dimension for angle parking under a low speed situation could be 34 feet for a single-sided 18-foot wide 45º angle parking bay and a 16-foot backing area for parking, Without right-of-way plans, it is difficult to tell whether such a strategy is viable for Court Street, as sidewalks need to be maintained. On the other hand, double-sided parallel parking on a street requires a minimum of 28 feet for two 8-foot parking lanes and a 12-foot travel lane; 20 feet for one 8-foot parking lane and a 12-foot travel lane.

- *Stop sign at the west end of Court Street.* As an alternative to landscaped chicanes at the west end of Court Street, installation of a stop sign with a stop bar and crosswalk is also an option, assuming Court Street intersects a new *'Station Way'* as a 'T' intersection.

- *A mini-roundabout could also be considered at the west end of Court Street.* This option should only be considered if the right-of-way needed is attainable and the design doesn't interfere with the development strategy for the SAOD. Its introduction would slow traffic along *'Station Way'*. The main issue is the need to ensure that emergency vehicles could traverse it. With the smallest possible *raised* center island, the inscribed diameter of a modern roundabout would have to be a minimum of 105' from outer edge to outer edge. With a mountable center island, the inscribed diameter could be smaller, but typically no less than 60 feet

- *Adopt specific 'traffic calming' thresholds.* As an alternative to installing traffic calming measures at the outset of the development -- which is a reasonable pro-active option -- the Town could also consider adopting thresholds for traffic calming measures by *requiring developers to implement traffic calming measures if needed, as opposed to installing possible unnecessary measures before problems occur*. This approach is *only* viable if neighbors on an affected street, like Court Street, agree that it is best to hold off on changing the character of the street until problems occur, as abutting neighbors will be affected most directly when traffic calming measures are implemented. As envisioned, if traffic calming 'thresholds' are adopted and exceeded, the traffic calming design and implementation would still be the responsibility of the SAOD developer(s).

Thresholds could be determined by requiring SAOD developers to conduct full 24-hour weekday and weekend traffic measurements before and after development occurs to determine the differential between baseline and future conditions. Pre- and post-implementation counts on Court Street (or Adams Avenue, and Broadmeadow Road) six months after opening and annually until full build-out occurs could be used to determine if adopted thresholds are exceeded. Developers might be required to update baseline count data to incorporate weekend and weekday conditions. For example, an adopted threshold might be: "If average daily or weekend traffic increases by 25% on Court Street, the developer shall work with the affected Court Street neighborhood to install physical traffic calming measures within a prescribed period of time, e.g., within 6 months of exceeding the threshold, pending neighborhood concurrence on measures." The key disadvantage to this approach is that there is the potential that the affected street(s) would not have traffic calming measures when they are needed; the advantage is that the most affected neighbors decide when, or if, potential traffic calming measures are to be implemented.

Except for the west end treatment of Court Street (i.e., a chicane vs. stop sign or mini-roundabout), the options above are not necessarily mutually exclusive. Because winter plowing needs limit the design features of vertical deflection measures to minimal heights, horizontal deflection options appear to be the most viable/effective choices for the Court Street in conjunction with the SAOD development.

- *Station Avenue at Main Street (Route 119)*

  Appendix P illustrates a couple of options for creating neck-downs on Main Street at its Station Avenue's intersection. While not specifically called out in this display, Station Avenue itself should be considered for traffic calming measures. It is fairly wide and has parallel parking on both sides where possible. Parking along it is a traffic calming measure, and should the Town desire to create angle parking on Station Avenue, it would be possible if done on one side only or one side at a time within the public layout. Wider sidewalks would be needed against the angle parking and provisions for accessible on-street spaces would also be needed in accordance with current ADA/MAAB requirements. It is noted, however, that as long as the Groton Fire Department building is located on Station Avenue, its paths into and out of the Station must be kept unimpaired. In any event, it is recommended that the full potential of Station Avenue to assist in accommodating the SAOD's parking and circulation needs, as its main access route, need be explored as the Area develops. For example, a loop could be created to make Station

Avenue one-way outbound for the last block east of the NRRT, if an easement through parking areas can be obtained to create such a loop. Access to the furthest shared parking space should be designed such that users can return to Main Street, as an option.

The two options illustrated involve creation of two neck downs on both sides of the Station Avenue approach to Main Street. In one case, the neck down is shorter; in the second case, it extends through the crosswalk. The latter case seems to make the most sense, as it removes the visibility of parked cars from obstructing the view of the crosswalk. A new crosswalk is proposed on the south east corner to draw greater attention to the Station Avenue intersection and allow pedestrians an opportunity to traverse Main Street. Lighting modifications should also be considered at the corner to alter the view of the corner during evening hours.

- *Broadmeadow Road at 'Station Way'*

  Appendix Q illustrates a couple of options for enforcing the right out only recommendation for Broadmeadow Road, allowing for right and left turns in. Preferably, two objectives would be accomplished;

  1) Discouraging the use of Broadmeadow Road to access Playground Road as a means for exiting from *Station Way*.

  2) Discouraging traffic from speeding up as it passes the Nashua River Rail Trail (NRRT) crossing and increasing the awareness of turning and through motorists on Broadmeadow Road to hazards of pedestrians/bicyclists using the crossing.

  It is assumed that the access to the NRRT parking creates a circuitous maneuver for future users who might be inclined to bypass Station Avenue for their return trip to Main Street. For example, the entry and exit to Broadmeadow Road, may require users to make an 'S' curve in order to enter or exit via Broadmeadow Road. The highlighted approach is preferred over the dotted one, which is too generous for right and left turn maneuvers into *Station Way*. The potential granite rubble centerline is intended to encourage motorists to slow down without creating the hazard of a raised median, which would be an issue with the nearby wetlands. Low lighting fixtures at the crossing might also be considered to enhance its visibility.

Playground Road and establishing an additional SAOD egress to Main Street if the opportunity arises

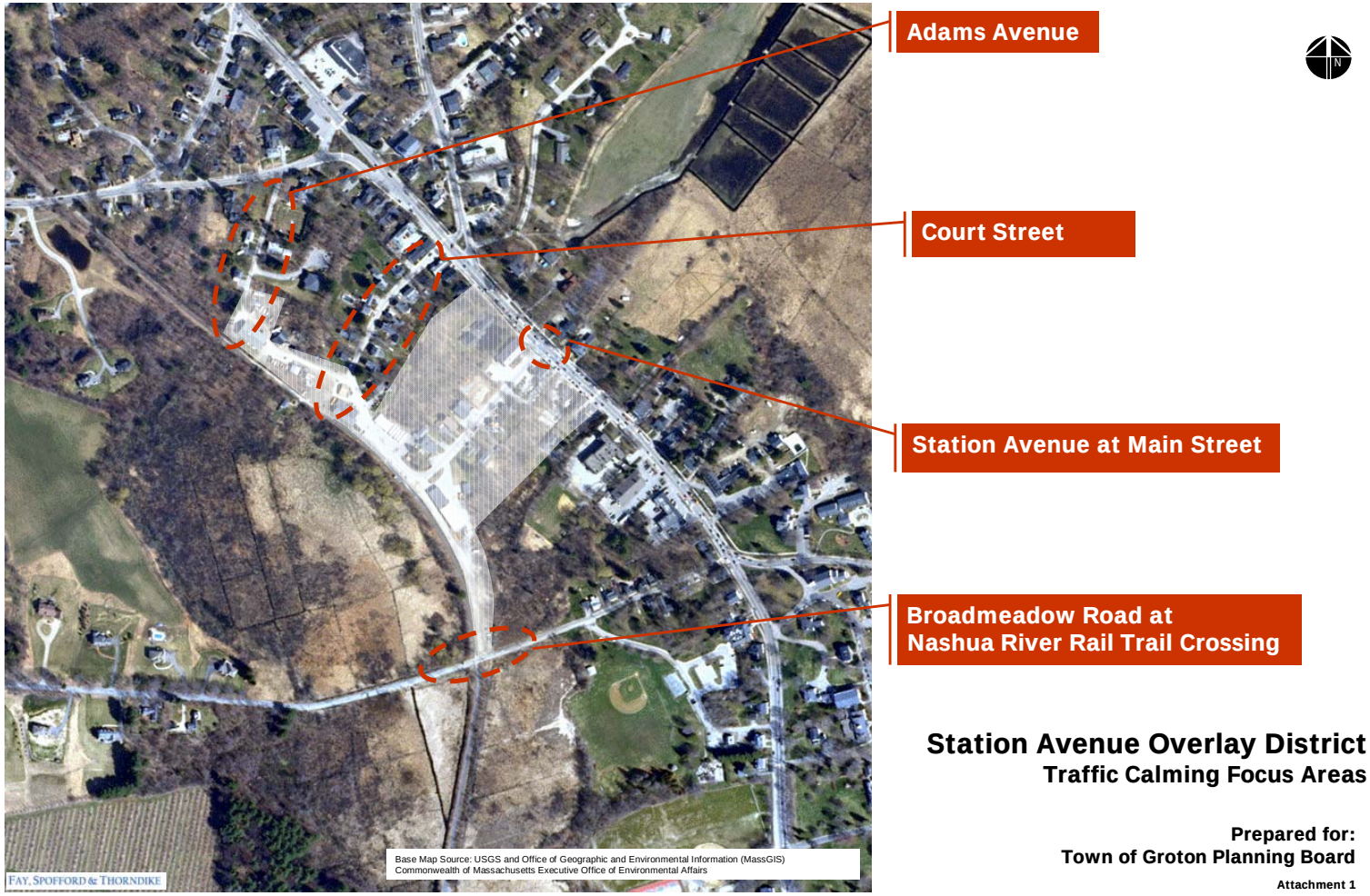
Playground Road between Broadmeadow Road and Main Street provides critical access to the Groton Public Library. It has a poor alignment, a sight distance deficiency, and

sidewalk crossing issues at its intersection with Main Street. The Town should consider closing Playground Road at its entrance with Main Street to all but emergency vehicle use when flooding occurs on Broadmeadow Road. The playground, Library, and few residences to the east of the Library, except during flooding conditions, should be exiting via Broadmeadow Road to the west, rather than at Main Street via Playground Road.

The north side of Playground Road could be modified to accommodate angle parking during games at the nearby baseball field. If this is done, the angle should be to the west at 45-60°, rather than the east Main Street. This will encourage motorists to exit via Broadmeadow Road when it is not flooded and will allow for the potential creation of angle parking on one side. Motorists would have to turn around in the Groton Public Library parking lot to access the angle parking. Playground Road would have to be a minimum of 42 feet wide including 18 feet for the angle parking spaces.

It is recommended that if an opportunity arises to create an alternative egress between the SAOD and Main Street, the Town aggressively pursue it. Ideally, closure of the Playground Road intersection with Main Street would simultaneously occur with the creation of an alternative egress from the SAOD to Main Street. Any newly-created intersection with Main Street should have adequate sight lines for pedestrians, motorists, and cyclists. The Committee has identified two potential corridors for the potentially supplemental SAOD egress -- one on the south side of the Prescott School, and the other between the two banks on Main Street. Each corridor has significant issues to overcome. One, and possibly both, involve traversing (bridging) wetlands. Public rights of way have not been established to allow construction of either corridor. However, the provision of a supplemental egress would take significant pressure off the use of vehicle use on Broadmeadow Road and Adams Avenue and Playground Road just east of the Library. If the supplemental SAOD vehicle egress is not possible, a supplemental bikeway/pedestrian way (e.g., possibly involving a boardwalk) might also be considered from Main Street to enhance Main Street's non-motor vehicle access to the SAOD.

Appendix M – Station Avenue Overlay District Traffic Calming Focus Areas



Station Avenue Overlay District
Traffic Calming Focus Areas

Prepared for:
Town of Groton Planning Board

Attachment 1

Appendix N – Adams Avenue Focus Area Traffic Calming Options

The Setting

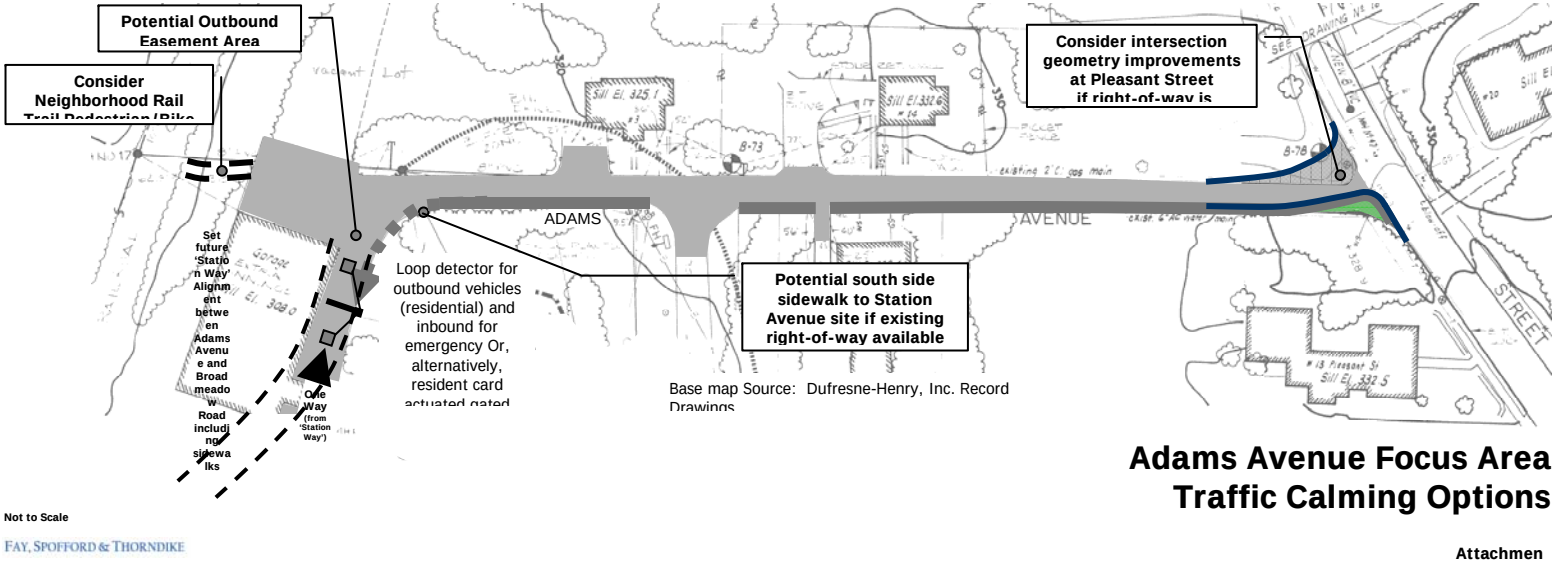
Adams Avenue is approximately 16 feet wide, already 'traffic calmed'. Horizontal shifts already exist and vertical shifts not needed with existing street geometry. Consider modifying Adams intersection at with Pleasant Street. Assume bikes have 'share the road' access. All changes assumed to comply with Manual on Uniform Traffic Control Devices

Traffic Calming Options:

1) Consider installing a 5-foot Sidewalk on south side

Business at south end of Adams Avenue

Adams Avenue at Pleasant Street looking south



Adams Avenue Focus Area Traffic Calming Options

Not to Scale

FAY, SPOFFORD & THORNDIKE

Attachmen

Appendix O – Court Street Focus Area Traffic Calming Options

The Setting

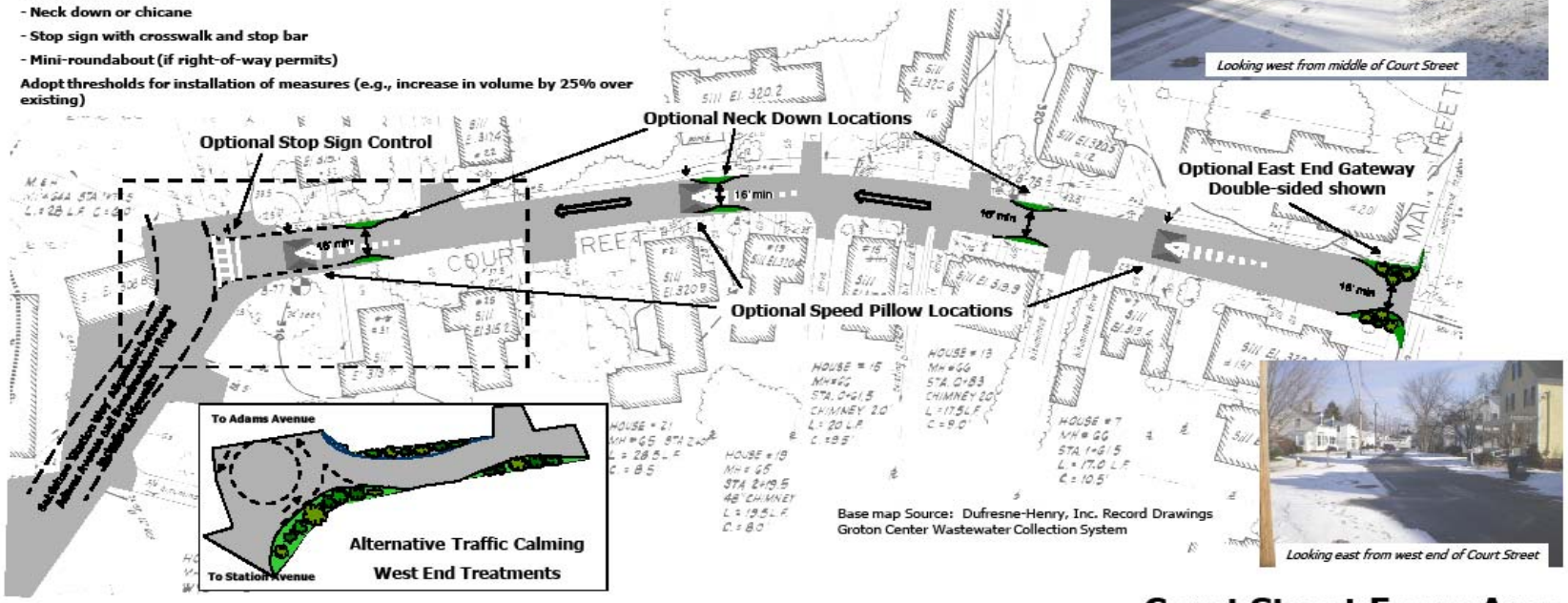
Court Street varies in width from under 20 feet to 34 feet toward Main Street. It is one-way westbound with on-street parking.

Potential Traffic Calming Options:

1) Vertical shifts - low-height (2") speed pillows with required signs and markings for drainage and plowing
2) Horizontal shifts include:
   - landscaped neck-down slow points
   - alternating on-street parking or both sides if 24' minimum width is available
3) East Court Street gateway
   – neck down on both sides (illustrated) or one side only
   - possible short bay of angle parking near Main Street (Route 119) on north side with north side neck-down only
4) West SAOD gateway
   - Neck down or chicane
   - Stop sign with crosswalk and stop bar
   - Mini-roundabout (if right-of-way permits)
5) Adopt thresholds for installation of measures (e.g., increase in volume by 25% over existing)

Looking west at end of Court Street

Looking west from middle of Court Street



Looking east from west end of Court Street

Court Street Focus Area
Traffic Calming Options

Attachment 3

Not to Scale

FAY, SPOFFORD & THORNDIKE

Appendix P – Main Street/Station Avenue Focus Area Traffic Calming Options

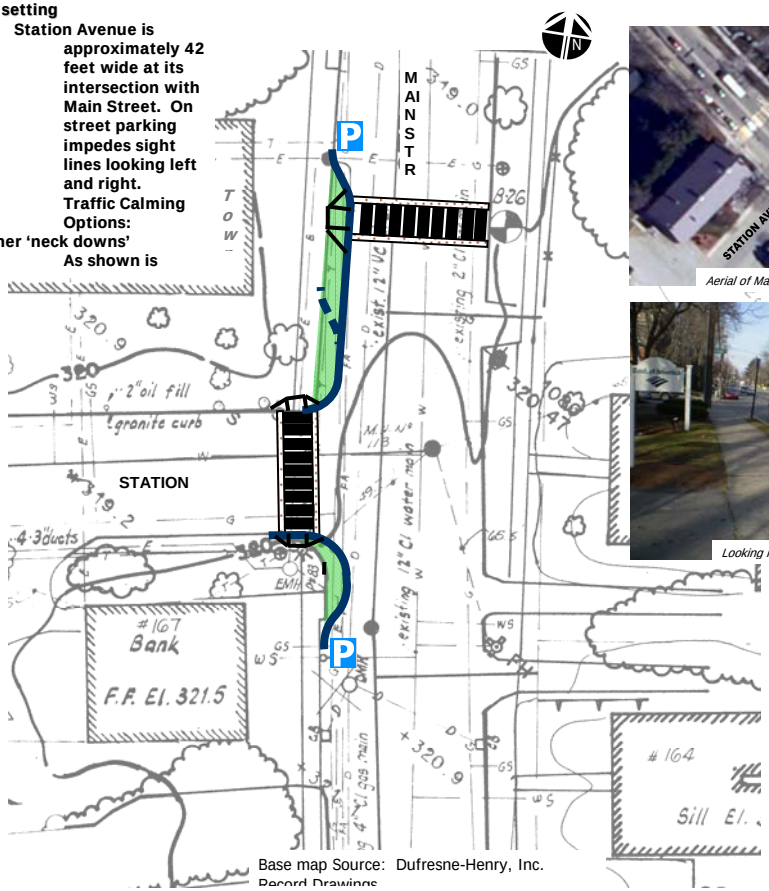
The setting

Station Avenue is approximately 42 feet wide at its intersection with Main Street. On street parking impedes sight lines looking left and right.

Traffic Calming Options:

Corner 'neck downs'

1) As shown is

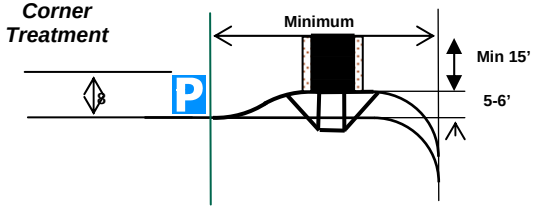


Aerial of Main Street at Station

Looking west at Station Avenue

Looking north on Main

Looking west at Town Hall



Main Street / Station Avenue Focus Area

Not to

Attachmen

FAY, SPOFFORD & THORNDIKE

Appendix Q – Broadmeadow Road Focus Area Traffic Calming Options

The setting

Broadmeadow Road is approximately 21 feet wide adjacent to the SAOD Right of Way. The NRRT is at a low point along the corridor that floods regularly.

Traffic Calming Options:

1) Install MUTCD Bike Crossing Warning Signs

❖ **Channelization to discourage lefts out**

Looking south to Broadmeadow Road from Town

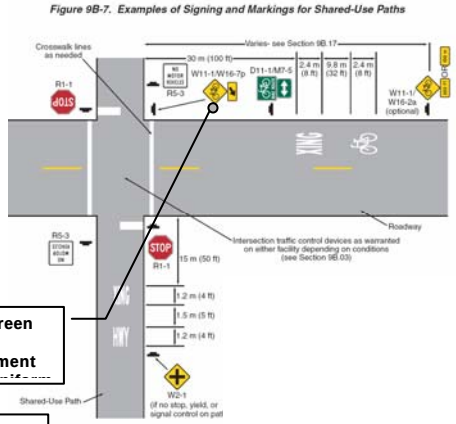
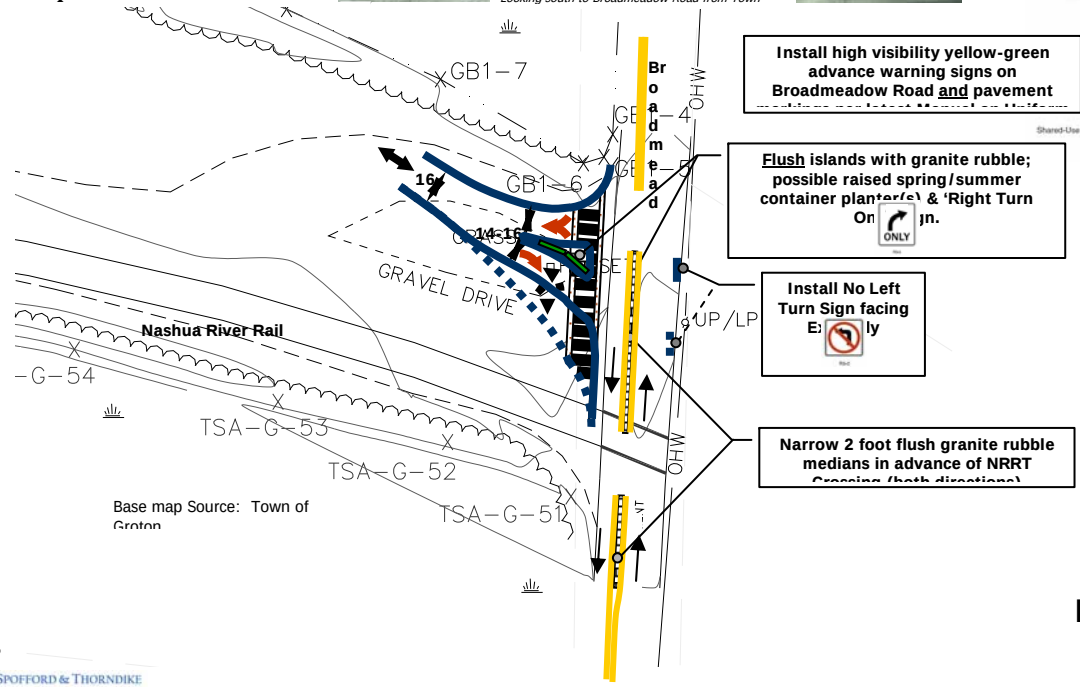


Figure 9B-7. Examples of Signing and Markings for Shared-Use Paths



Install high visibility yellow-green advance warning signs on Broadmeadow Road and pavement

Flush islands with granite rubble; possible raised spring/summer container planter(s) & 'Right Turn On[illegible]gn.

Install No Left Turn Sign facing E[illegible]ly

Narrow 2 foot flush granite rubble medians in advance of NRRT Crossing (both directions)

Looking north to Broadmeadow Road from Rail

Broadmeadow Road Focus Area

Attachmen

Not to

FAY, SPOFFORD & THORNDIKE

Appendix R - Traffic Calming 101

Tutorial prepared by the Project for Public Spaces

"In almost all U.S. cities, the bulk of the right-of-way is given to the roadway for vehicles, the least to the sidewalk for pedestrians... just suppose that Americans were to extend their walking radius by only a few hundred feet. The result could be an emancipation... --William H. Whyte (*CITY: Rediscovering the Center*)

Developed in Europe, traffic calming (a direct translation of the German "vekehrsberuhigung") is a system of design and management strategies that aim to balance traffic on streets with other uses. It is founded on the idea that streets should help create and preserve a sense of place, that their purpose is for people to walk, stroll, look, gaze, meet, play, shop and even work alongside cars - but not dominated by them. The tools of traffic calming take a different approach from treating the street only as a conduit for vehicles passing through at the greatest possible speed. They include techniques designed to lessen the impact of motor vehicle traffic by slowing it down, or literally "calming" it. This helps build human-scale places and an environment friendly to people on foot.

Besides its power to improve the livability of a place, the beauty of traffic calming is that it can be applied inexpensively and flexibly. The strategies outlined below in The Traffic Calming Toolbox can be employed by painting lines, colors and patterns; using planters, bollards and other removable barriers; eliminating or adding parking; or installing sidewalk extensions or similar structures with temporary materials. All provide an opportunity to test devices, combinations and locations, fine-tuning the approach according to results. Traffic calming, along with other small-scale improvements, can enhance a place immediately, while being tested and refined to meet long-term needs. When funds are available, the right combination of devices can be transformed into permanent improvements and extended over a broader area. Regardless of what traffic-calming action is undertaken, the benefit to a community is greater when the technical improvements are strengthened by visual enhancements like trees, flowers and other amenities.

The Traffic Calming Toolbox Outline

- Diagonal Parking

- Changing One-Way Streets to Two-Way
- Widening Sidewalks/Narrowing Streets and Traffic Lanes
- Bulbs - Chokers - Neckdowns
- Chicanes
- Roundabouts
- Traffic Circles
- Raised Medians
- Tight Corner Curbs
- Diverters
- Road Humps, Speed Tables, and Cushions
- Rumble Strips and Other Surface Treatments

Before Traffic Calming: Major Considerations

- Transit and Traffic Calming
- Liabilities

The Traffic Calming Toolbox

1. Diagonal Parking

Cars park diagonally, jutting out from the curb, rather than parallel to it. The benefits:

- Simple and inexpensive
- Changes both the perception and the function of a street
- Shortens the "peering distance" for people crossing the street
- Drivers pulling out must be alert to approaching traffic
- Oncoming drivers must be alert to the cars pulling out
- All of this added driver awareness creates more awareness of pedestrians
- Can add up to 40% more parking space than parallel parking

2. Changing One-Way Streets to Two-Way

Single or double traffic lanes, either face-to-face or with a median, sometimes flanked by parking. The benefits:

- Less driving, less confusion, and better traffic access
- Eliminates the need to drive blocks and blocks out of the way
- No need to make extra turns to get to nearby destinations
- Drivers can get directly to their destination
- Increases commercial traffic and business
- Decreases the speed of traffic

3. Widening Sidewalks/Narrowing Streets and Traffic Lanes

These techniques provide a flexible way to take back space from the street for non-motor-vehicle uses. Traditional traffic engineering calls for 12- to 13-foot lanes, citing "traffic safety" standards - but newer evidence shows that lanes as narrow as nine feet can still be safe for driving.

- Narrowing lanes and to widen sidewalks eases crossing for pedestrians and gives them more space to walk.
- Lanes can also be removed from serving traffic and designated for busses, trolleys, or other types of transit.
- Traffic lanes can be transformed into bicycle lanes.
- All street lanes can be narrowed together to create more room for non-auto uses.
- Vertical elements like trees or bollards further reduce the "optical width" of a narrowed street, thereby discouraging speeding.

4. Bulbs - Chokers - Neckdowns

Interchangeable terms for sidewalk extensions in selected areas - such as at intersections or at mid-block - as opposed to a full sidewalk widening. The benefits:

- Provide a haven for pedestrians waiting to cross the street
- Shorten the crossing distance
- Define parking bays
- Deflect through traffic at a corner
- Function as entry points
- Provide space for amenities and enhancements (e.g. kiosks, trees, lighting)

5. Chicanes

Sidewalk extensions that jog from one side of a street to the other to replicate such a circuitous route. The benefits:

- Narrow, curving roads encourage motorists to drive more slowly and carefully
- An undulating path interrupts any clear view ahead and compels drivers to slow down
- Chicanes can be formed using sculpture, plantings and parking to enhance the appearance and function of a street
- Diagonal parking and parallel parking can be alternated to create a chicane effect.

- Chicanes are best used on narrow roads, to prevent cars from swinging out to maintain their speed around the bends.

6. Roundabouts

Large, raised, circular islands at the middle of major intersections, around which all oncoming vehicles must travel until reaching their destination street, where they then turn off. The benefits:

- Create a "calmed," steady flow of traffic
- Reduction in conflict points, which can lead to fewer accidents
- Traffic signals are not customarily required (although traffic control signs are prominent)
- Streets narrow as they approach the roundabout, and crosswalks are installed on these approaches - thereby slowing oncoming vehicles and giving pedestrians a safe, obvious opportunity to cross
- Enhanced with fountains, sculpture or attractive landscaping, the island can serve as a striking gateway
- A sloping ramp around the perimeter of the raised island allows buses, trucks and other large vehicles to maneuver the continuous curve while still maintaining a lowered speed.

7. Traffic Circles

Essentially "mini-roundabouts" designed for small intersections, often used to slow traffic from a wide street into a smaller local street. Traffic circles:

- Help to slow down traffic in neighborhoods and remind drivers that they must proceed carefully
- Help to sustain lowered vehicle speeds when they're used in a series
- Provide an opportunity for community activity in residential areas, where citizens can create plantings or add other enhancements

8. Raised Medians

Elevated islands parallel to traffic lanes down the middle of the street, as on a boulevard. The benefits:

- Curtail vehicle space
- Provide a safe in-between refuge for pedestrians as they make their way across the street, split up a lengthy curb-to-curb distance (especially helpful for people who cannot move quickly)
- Provide ideal locations for trees, flowers, sculpture and other amenities

9. Tight Corner Curbs

The longer the radius of a curve, the faster a vehicle can move around that curve - as many pedestrian witness when, in crossing at an intersection, they are confronted by a car whizzing around the corner seemingly out of nowhere. Reducing a corner radius to somewhere between one and twenty feet can:

- Inhibit the speed of turning vehicles
- Give pedestrians a better chance to see and be seen by approaching traffic
- Add sidewalk space, thereby shortening the distance to the other side of the street

10. Diverters

These physical barriers redirect traffic heading for a certain street onto a different course, reducing vehicle overload on vulnerable (usually residential) streets overrun by through traffic looking for shortcuts.

- **Diagonal Diverters** traverse an entire intersection, actually creating two unconnected streets that each turn sharply away from one another.
- **Semi-Diverters** restrict traffic in one direction to prevent entrance to a street, while permitting traffic to pass through in the other direction.
- Although they effectively reduce traffic volume, diverters must be part of a comprehensive improvement scheme or else they can end up simply displacing congestion.

11. Road Humps, Speed Tables, and Cushions

These devices reduce speed by introducing modest up-and-down changes in the level of the street, thereby requiring drivers to decelerate.

- **Road humps** (or "speed humps") are rounded mounds, approximately three inches high and 10 to 12 feet long. They effectively slow down traffic to 15-20 mph without making

drivers uncomfortable. For optimum speed reduction, road humps need to be placed at frequent, designated intervals based on the street's dimensions, to minimize the tendency to accelerate between them. (Humps are not to be confused with the speed *bumps*, which are usually at least 5-6" high and less than three feet long.)

- **Speed tables** are road humps that are flat on top and sometimes slightly longer. They are the same width as the street and rise to meet the grade of the sidewalk, providing safe and comfortable crossings for walkers and wheelchairs (and greater access for snow clearance than road humps). One benefit of speed tables is that people cross at the point where drivers decrease speed

- **Cushions** cover only part of the width of the street to allow passage for emergency vehicles, buses or other large vehicles, and bicycles; they are usually placed at varying intervals to respond to the need to channel the wheels of larger vehicles, while still providing hurdles wide enough to slow standard-sized vehicles.
- It is important to highlight road humps, speed tables and cushions with clear markings to alert approaching drivers. This can be accomplished by: painting words and symbols directly on the street; changing the texture of the street surface; or using signage (the word "Bump" instead of "Hump" is a standard approach thought to effectively put drivers on the alert).

12. Rumble Strips and Other Surface Treatments

- **The rumble strip** provides visual and aural cues to alert drivers to areas that require special care (shopping centers, freeways undergoing construction work, schools, entrances to residential neighborhoods). Materials like granite and concrete are roughened by being broken into raised lines or patterns, and placed in strips across roadways, usually in a series. Drivers can lessen the vibration and the abrasive sound they create by slowing down.
- **Changes in pavement color and texture** (such as bricks or Belgian blocks), used in interesting and visually attractive ways, can also have the effect of rumble strips. These paving treatments also: delineate and create awareness of a pedestrian crosswalk or haven; make a street appear narrower than it is to deter speeding; define a street from a sidewalk or a parking lane.

Before Traffic Calming: Major Considerations

The "starter set" of traffic-calming tools outlined above can be effective in a variety of ways. However, each tool has its own specific applications, and not every one fits every single circumstance. Some tools are more effective if used in combination with each other, or with alternative transportation approaches like bicycles, buses or light rail. The right use hinges on existing conditions along a street and the desired outcomes. The following is a sampler of issues that need to be considered when making traffic calming choice.

- Do emergency and service vehicles use the area? Do school buses?
- Is there a problem with through traffic?
- What are the surrounding uses? Residential? Commercial? Retail? Cultural? Entertainment? Civic? Educational? Other?
- Who are the users? Are there many elderly or disabled people or children?
- What kinds of activities are going on in the vicinity or are planned to go on?
- Are there plans for improving the area? If so, how?
- What kinds of streets are being looked at? What is the ideal speed desired?
- Is transit service available? If so, where and what kind?
- Where is drainage needed?

Transit and Traffic Calming

Transit can be an efficient, more economical and less polluting alternative to the automobile - but transit alone doesn't necessarily make a place more livable. People still need to cross streets safely to reach a train station, bus stop, or other transit hub. And they need a pleasant and direct walking route along the way. This is where traffic calming comes in.

Traffic calming measures can make the trip to the transit station more walkable and convenient, while providing space for amenities to make the trip more pleasant. Although traffic calming and transit seem to be natural partners, sometimes their goals can conflict. When a traffic-calming strategy performs its job well, it may interfere with the efficient movement of a transit vehicle, or even its comfort, as when speed humps create a bumpy ride on buses. Certain strategies can maintain the benefits of traffic calming while allowing transit to function effectively:

Cushions enable buses to pass smoothly over an area, yet still slow smaller vehicles. Bus "bumpouts" or "nubs" allow buses to pick up passengers without having to move out of the traffic lane. They extend across a parking lane to meet the traffic lane (and the bus that is in it), giving passengers a safe and accessible approach, while also saving travel time. Nubs can be built to line up with both the front and rear doors of a standard bus, and can accommodate amenities like bus shelters, benches, telephones and waste receptacles.

By and large though, as long as they are coordinated to meet the needs of a specific street environment and its surrounding community, traffic calming and transit can work together to provide the comfortable, convenient and safe connections that enhance a place and promote a positive experience there. Two considerations to make are: How does transit relate to sites where where traffic-calming improvements are needed? How can transit and traffic calming reinforce one another in order to help people get from place to place without driving?

Liabilities

Transportation agencies often believe they could be sued by drivers (not pedestrians) who might have a collision if design standards that give cars unencumbered, speedy passage are not followed. However, the most serious (and fatal) collisions are caused by high speeds. Traffic

calming creates a set of checks and balances that compel those at the wheel to drive slowly and carefully, making streets safer for both drivers and pedestrians.

In practice, liability is a murky area, subject to interpretations that can conflict from one jurisdiction to another. In New Jersey, for example, the Borough of Belmar was sued by Monmouth County for trying to make a street safer to cross. The street, Belmar's Ocean Avenue, is usually clogged with vehicles that rarely abide the 25 mph speed limit. Throngs of summer tourists cross Ocean Avenue to get to the beach, and on average, there is a fatal pedestrian/vehicular accident every two years - a rate that prompted the Mayor and his borough to take action.

Traffic Calming 101 was written by the Project for Public Spaces.

Project for Public Spaces is a nonprofit organization dedicated to helping people create and sustain public spaces that build stronger communities. Founded in 1975, PPS embraces the insights of William (Holly Whyte, a pioneer in understanding the way people use public spaces. Today, PPS has become an internationally recognized center for best-practices, information, and resources about Placemaking.

For more information about Project for Public Spaces go to http://www.pps.org/ *on the Internet.*

To read Traffic Calming 101 on-line go to http://www.pps.org/info/placemakingtools/casesforplaces/livememtraffic *on the Internet.*