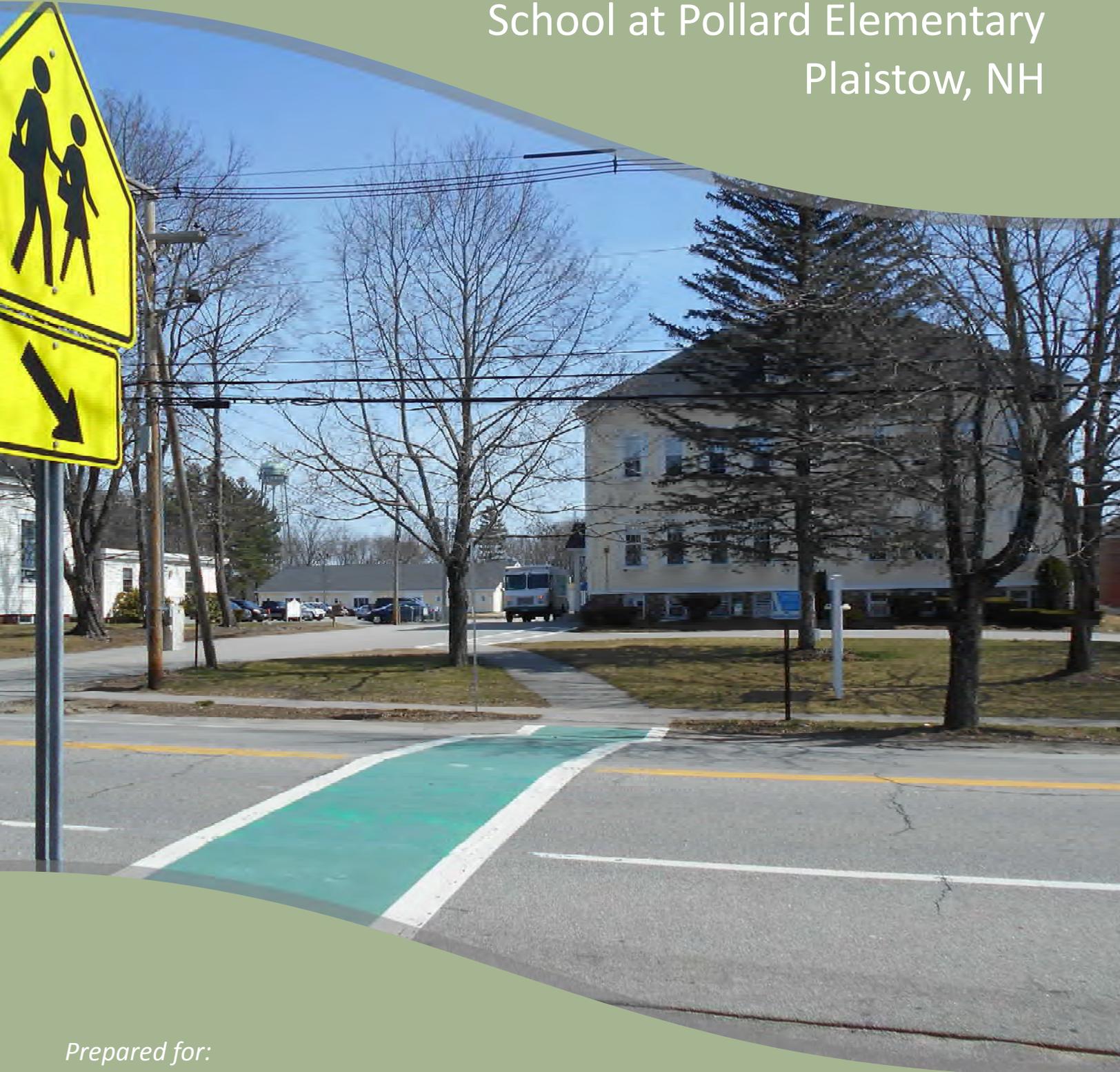


Feasibility Study Main Street Safe Routes to School at Pollard Elementary Plaistow, NH



Prepared for:
Town of Plaistow
NHDOT Project No. 40312
Federal Project No. X-A004(363)

September 2016

Hoyle, Tanner
& Associates, Inc.

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LOCATION MAP



Main Street Safe Routes to School
at Pollard Elementary School
Plaistow, NH



File Name:
Main St SRTS - FS.DOCX

DATE:
09/16

Page 1

1 PROJECT DESCRIPTION AND PURPOSE AND NEED

In accordance with the agreement between the Town of Plaistow and Hoyle, Tanner & Associates, Inc., this Feasibility Study (Study) has been prepared to investigate potential sidewalk, crosswalk, and intersection improvements to improve pedestrian safety in the Plaistow village center. These improvements are focused on the Main Street (NH 121A) and Elm Street intersection and few hundred feet down each approach with a goal of improving pedestrian access to the Pollard Elementary School. As the project is funded by a Safe Routes to School (SRTS) grant by FHWA and administered by NHDOT, the design process is following the NHDOT's Local Public Agency (LPA) manual guidelines. This investigation was conducted in a manner consistent with the American Association of State Highway and Transportation Officials (AASHTO) specifications for roadway and pedestrian facilities design.



Traffic Volumes, Speeds, and Inadequate pedestrian facilities on Main Street reduce safety for walking and biking to Pollard School.

Due to the volume & speeds of traffic and inadequate pedestrian facilities on Main Street adjacent to Pollard School, the purpose of the project is to improve pedestrian safety and mobility in Historic Plaistow Village Center while creating a "Sense of Place" through infrastructure & landscaping improvements which will reduce motorist speeds and limit cut-through traffic. The goal of this Study is to identify sidewalk, crosswalk, and intersection improvements that best meet the projects purpose and need.

The Town of Plaistow SRTS project is a result of many years of Town planning with a desire to provide traffic calming measures and to improve pedestrian walkability and safety along

heavily traveled Main Street (NH 121A). Numerous studies and public brainstorming sessions, including the 2011 RPC Main Street Traffic Calming Plan (Appendix H) and the 2011 Plan NH Historic Village District Charrette (Appendix I), have identified numerous safety deficiencies throughout the corridor and provided suggested improvements. Alternative 1 was developed by the Rockingham Planning Commission as part of the traffic calming study and consisted of a roundabout at the Main Street & Elm Street intersection. Alternative 2 was developed by Civil Design Consultants, Inc. to support the Town of Plaistow's SRTS application and consisted of sidewalk improvements along Main and Elm Street and a realigned intersection. Alternative 3 was developed by Hoyle, Tanner as part of the Feasibility Study through coordination with local stakeholders and natural & cultural resource agencies. This alternative consists of sidewalk and crosswalk improvements on Main and Elm Street, closure of the intersection's slip lane, and lighting & landscaping improvements. The "No-Build" alternative was also investigated.

The project area is located east of NH 125 at the intersection of Main Street (NH 121A) and Elm Street. Its limits are approximately 125' north, 400' south, and 350' east of the intersection for a total project length of 825'.

2 EXISTING CONDITIONS

2.1 Roadway Typical Section

Main Street (NH Route 121A) is a minor arterial road owned by NHDOT. Elm Street is a major collector road owned by NHDOT. The posted speed limit for both roads is 30 mph. The existing roadway along Main Street consists of two paved travel lanes, typically 12' in width but varying as narrow as 11.5'. The shoulder width on Main Street varies between 4' and 10', and incorporates delineated on-street parking in the area immediately adjacent to Town Hall. These wide shoulders, which are not consistent with a typical roadway in a village setting, are believed to promote higher rates of speed. The travel way cross slope along Main Street varies between 2% and 6.5%. The shoulder cross slope varies between 4.3% and 9.8%.



Wide Shoulders on Main Street promote higher operating speeds and increase pedestrian crossing distances.

The existing roadway along Elm Street is comprised of two 11' paved travel lanes. The shoulder width on the northbound side of Elm Street varies from 5.5' wide near the intersection to 8' wide across from Park Ave. The southbound side of Elm Street has striped parallel parking spaces. The closed off slip ramp has a striped travel way width of 14' with a 5' paved shoulder. The roadway cross slope along Elm Street varies between 2% and 3%.

The existing sidewalks in the study area are bituminous asphalt and vary in condition. The sidewalk along southbound Main Street is 5' wide. For a length of 200' from the intersection with Elm Street and heading north, this sidewalk has a 6" reveal curb adjacent to the roadway. South of the Elm Street intersection, there is no curb and the sidewalk is separated from the roadway by a 4' wide grassed strip. The northbound Main Street sidewalk starting across from Pollard Elementary School and terminating at Center Circle is 4' wide with bituminous curb of varying reveal. There is no sidewalk in the slip ramp area from Center Circle to a driveway on northbound Elm Street approximately 150' from the Main Street intersection. The sidewalk starting at the northbound Elm Street driveway and continuing northerly beyond the study area is narrow with an average width of 3.5' to 4'. This sidewalk has no curb and is separated from the roadway by a 3.5' wide grassed strip. The sidewalk from Park Ave, along southbound Elm Street, to northbound Main Street is 5.5' wide with 6" reveal curb adjacent to the roadway.



A crosswalk is not provided across Elm Street at the Main Street Intersection which reduces driver expectancy and increase the risk for pedestrian accidents.

There are three existing pedestrian crosswalks within the study area: across Main Street in front of Pollard Elementary School (A), across Main Street just north of the Elm Street intersection (B), across Elm Street just south of Park Ave (C). Crosswalk A has a crossing width of 46' and the roadway shoulder slopes are in excess of 7%, steeper than ADA Regulations allow. Crosswalk B is skewed across Main Street to avoid a driveway on the southbound side, increasing the crossing length to 37'. Crosswalk C has a crossing width of 38' and does not connect to the northbound sidewalk, stopping at the grass panel. A crossing of Elm Street at the Main Street intersection, which would be the typical location, is not provided in the existing condition.

2.2 Roadway Geometry

Main Street and Elm Street form a T-intersection within the study area. At the intersection, Main Street runs north & south while Elm Street runs to the northeast. Main Street is free flow and Elm Street is stop controlled. There is an existing slip ramp connecting the northbound travel way of Main Street to Elm Street. This slip lane was barricaded off in 2012 by the Town, in cooperation with NHDOT, due to concerns over vehicle speeds and pedestrian safety. The Town has been seeking funding to make this a permanent closure since that time.



The right turn slip lane onto Elm Street has been barreled off since 2012 due to concerns over vehicle speeds and pedestrian safety.

The Main Street horizontal alignment (south to north) consists of short tangents connected by an 1800' radius right hand curve in front of Pollard Elementary and 575' radius left hand curve passing through the intersection with Elm Street. The vertical alignment (profile) has not been evaluated as no work is being proposed to the travel ways. A site visit did not identify any apparent issues with the existing profile. There are driveways, both residential and small business, along both sides of Main Street. Center Circle connects to Main Street just south of the closed off slip ramp.

The existing horizontal alignment for Elm Street starts at the intersection of Main Street with a short tangent leading into a 350' radius left hand curve, followed by a tangent that continues northerly beyond the study area. The profile has not been evaluated, though based on a site visit no apparent issues have been identified. There are residential driveways along northbound Elm Street within the study area.

2.3 Traffic

The latest NHDOT traffic counts conducted on Main Street in 2014 and 2015 report an Annual Average Daily Traffic Volume (AADT) south and north of the intersection of 9,300 and 7,287 respectively. A 2014 NHDOT traffic count conducted on Elm Street reports an AADT of 5,600. Main Street, alone or in conjunction with Elm Street, can be used to bypass sections of NH Route 125, a north-and-south road on the western side of Plaistow. According to the RPC Traffic Calming Plan, approximately 6.5% of the traffic volumes are trucks utilizing the road as a bypass. Pedestrian traffic is present in the project area as sidewalks along Main Street and Elm Street provide access to Pollard Elementary School, Plaistow Town Hall, and the park at the Town Hall as well as local small businesses and residences.

2.4 Drainage

The stormwater runoff from Main Street and Elm Street flows off the pavement and into a closed drainage system along the roadways. The drainage system outlets into Seaver Brook through the side of a box culvert under Main Street. In the study area, there are six catch basins along Main Street, one on the north side of the intersection, and one on Elm Street at Park Ave. The majority of abutting properties sheet flow toward the roadway, forming a gutter line at the edge of pavement.

2.5 Intersection Sight Distance and Vehicle Turning Movements

Intersection sight distance (ISD) for vehicles turning from southbound Main Street on to Elm Street exceeds the requirements for a 35 mph design speed (5 mph above posted 30 mph speed). ISD for vehicles turning left from southbound Elm Street to southbound Main Street is limited by the presence of on-street parking just north of the intersection. Assuming all spaces are occupied, the sight distance to the north would meet the requirements for a 25 mph design speed. Sight distance to the south is in excess of 700' which exceeds the requirements for a 35 mph design speed.



A High Percentage of Large Vehicles utilize Main & Elm Streets as a bypass to NH125.

The existing intersection accommodates all turning movements for passenger vehicles, single unit (SU) trucks, and fire trucks (42.5' long) within lane. For a WB-62 design vehicle, northbound and southbound turning movements from Main Street on to Elm Street can be negotiated utilizing the shoulders and excess pavement around the closed off slip ramp without encroaching into the southbound Elm St travel lane. The turning movement from Elm Street on to northbound Main Street requires a WB-62 vehicle to cross the centerline of Main Street for approximately 100'.

3 DESIGN CRITERIA

3.1 Main Street/Elm Street

ROADWAY

FUNCTIONAL CLASS: Minor Arterial (Main Street)
Major Collector (Elm Street)

DESIGN SPEED: 35 MPH (5 MPH above posted speed)

DESIGN MANUALS: 1) AASHTO "A Policy on Geometric Design of Highways and Streets", 2011, 6th Edition.
2) AASHTO "Roadside Design Guide", 2011, 4th Edition.
3) NHDOT Highway Design Manual, 1999.
4) AASHTO "Guide for the Planning, Design, and Operation of Pedestrian Facilities", 2004

CONSTRUCTION SPECIFICATIONS: 1) NHDOT Standard Specifications for Road and Bridge Construction, 2016.

DESIGN GUIDELINES: 1) NCHRP Report 480; "A Guide to Best Practices for Achieving Context Sensitive Solutions", 2002.
2) AASHTO "A Guide for Achieving Flexibility in Highway Design", May 2004.
3) ASCE "Local Low Volume Roads and Streets", November 1992.

4 ENVIRONMENTAL REVIEW AND DOCUMENTATION

4.1 Cultural Resource Coordination

In accordance with the National Environmental Policy Act of 1969 (NEPA) and the LPA manual, early coordination with the Cultural Resource agencies was initiated to begin to identify any project constraints and avoid impacts. A New Hampshire Department of Historical Resources (NHDHR) file review was performed to identify known resources. Although there are 18 structures which abut the project area, only one of them (Plaistow Town Hall) has been inventoried and determined eligible for the national register. Through the NHDHR Request for Project Review (RPR) process, it was determined that no known archeological resources exist within the project area.

As the majority of the abutting properties have not been inventoried, NHDHR noted that it is unknown if a historic district exists and recommended that the project proceed as if one does. To receive additional direction about



The Slip Lane was the ROW for the Former Amesbury Street Railway and Once contained a Historic Elm Tree.

NHDHR's concerns, the project was reviewed at the monthly NHDOT Cultural Resource Agency Meeting on August 11, 2016. At this meeting, it was noted that the agencies are not certain of what resources may be impacted as part of the project (including the potential removal of the right turn slip lane) due to the limited amount of inventory data. Ultimately it was agreed that the Town should consult with their Historical Society to determine what resources will be impacted by the project and what mitigation might be appropriate. Minutes from this meeting are provided in Appendix E. A letter from the Town of Plaistow Historical Society which outlines the known cultural resources that will be impacted and their recommended mitigation is provided in Appendix F. With this information, a "Cultural Resource Effect Memo" will be requested and will be included with the NEPA documentation during Preliminary Design.

4.2 Natural Resource Coordination

Similarly, the project was also reviewed for potential natural resource impacts. As this work will be performed within the existing disturbed footprint of the roadway and sidewalks, no impacts to wetlands or sensitive resources are anticipated. Wetlands were not identified within the survey area and a wetland permit is not intended to be filed. Minor drainage revisions/additions are anticipated to capture water due to the revised curb line. However, relocations or modifications to drainage outfalls are not anticipated. Additionally, as the project proposes to remove a large amount of pavement by removing the right turn slip lane, reductions in the overall impervious area and peak runoff are anticipated. Our anticipated area of disturbance is expected to be less than 100,000 sf, therefore a New Hampshire Department of Environmental Services (NHDES) Alteration of Terrain Permit will not be required.

Given these elements, it was assumed that the project would not benefit from a review at the monthly NHDOT Natural Resource Agency Meeting. This assumption was reviewed and confirmed by NHDOT Bureau of Environment and their response is provided in Appendix G.

5 UTILITIES



Pole Relocations may be desired to provide a consistent 5' sidewalk width.

There are several known utilities, both overhead and underground, within the study area. Hoyle, Tanner has begun early coordination with the Town and utility companies to verify locations and discuss potential construction impacts. Overhead utilities include power, telephone, and cable. The carrying lines and poles for these utilities are on the northbound side of the northern Main Street leg, southbound side of the southern Main Street leg, and northbound side of Elm Street. Underground utilities include power, telephone, water, and gas. From the location of two telephone manholes it appears there is telephone conduit under the southbound Main Street shoulder. The locations of hydrants and gate valves suggest the water main is underneath the southbound Main Street sidewalk, and

behind the southbound Elm Street sidewalk. Underground power is believed to be present at the flashing school zone speed limit signs, connecting the signs to the nearest utility poles. From gas shutoffs located by survey and from paint markings observed during a site visit, it is apparent the gas main runs under the shoulder of the southern leg of northbound Main Street, through the closed off slip ramp lane, and crosses to the southbound side of Elm Street. There are three utility poles that have been identified as potentially needing relocation to accommodate proposed sidewalk improvements. Impact to underground utilities is expected to be limited to gate valve and shutoff valve height adjustments. Additional coordination during preliminary design will be needed to avoid conflicts between the proposed drainage and underground utilities.

6 LOCAL CONCERNS MEETING

A Local Concerns meeting was held at the Plaistow Town Hall on May 2, 2016. The project stakeholders were invited through a social media campaign, a mailer, and direct communication to attend the meeting which was run by the Plaistow Board of Selectmen and Hoyle, Tanner, Inc. The goal of this meeting was to provide the program funding requirements, schedule information, and an overview of the sponsor & consultants understanding of the project area so that the public could provide comments on the proposed project. Comments received at this meeting, which was well attended, were used to develop the projects Purpose and Need Statement. Utilizing the stakeholder input, which was generally positive, an alternatives analysis was performed and a preferred alternative was developed. This alternative was presented to the stakeholders at a second public meeting at the Plaistow Town Hall on August 1, 2016. Official minutes for these meetings were recorded by the Town and are provided in Appendices C & D.

7 ALTERNATIVES ANALYSIS

7.1 Alternatives Analysis

Per LPA requirements, the Study must develop and evaluate several conceptual alternatives and review with project stakeholders & resource groups to determine what alternative best addresses the projects Purpose and Need Statement while representing the Least Environmentally Damaging Practicable Alternative (LEDPA). For this project, four (4) alternatives were considered, including a "No-Build" alternative, and are described further in this section.

7.2 Alternative 1 - Roundabout

Alternative 1 consists of installing a modern single-lane roundabout at the intersection of Main Street (NH 121A) and Elm Street along with associated sidewalk and crosswalk improvements. This alternative was prepared by the Rockingham Planning Commission in April 2011 as part of the "Main Street Traffic Calming Plan" that was prepared for the Town of Plaistow and can be seen in Appendix A. As all vehicles are required to slow and yield at a roundabout; this alternative would slow northbound right turn traffic onto Elm Street, slow southbound traffic entering the Pollard School zone, and slow northbound traffic passing the Town Hall. The reduction in intersection delay for Elm Street traffic would also help to

reduce aggressive driving which in turn should increase pedestrian safety. A secondary benefit of the roundabout would be the ability for additional landscaping and monumentation which would help to reinforce the intersection village setting and a natural reduction of speeds.

Several concerns were raised with installation of a roundabout. Given the intersection location within center of Plaistow, it was felt that the roundabout would not fit with the character of the historic village. Concerns were also raised regarding pedestrian safety at roundabouts due to their free flow nature, pedestrian unfamiliarity with crossing at these types of locations, and the challenges faced by those with mobility and vision impairments.

7.3 Alternative 2 – Slip Lane Closure with Realigned Elm Street

Alternative 2 consists of constructing new sidewalks along the east side of Main Street & south side of Elm Street, constructing curbing & a landscape panel along the west side of Main Street, closure and landscaping of the right turn slip lane, a new mid-block crossing on Elm Street, and installation of a median island on Elm Street to separate and realign the intersection approach. This alternative was prepared by the Civil Design Consultants in July 2013 to support the Town of Plaistow's application for SRTS funding and can be seen in Appendix A. The concept also included sidewalk work south of the Pollard School and in front of Plaistow Town Hall that was ultimately not determined to be part of the desired scope for the SRTS project.

Similar to the roundabout, the formal closure of the right turn slip lane would help to reduce speeds for northbound traffic onto Elm Street. Additionally, the median island on Elm Street would help reduce traffic speeds for southbound traffic onto Elm Street and improve sight distance at the intersection by making minor improvements to the skew angle at the stop bar. However, given the large amount of truck traffic and the concerns raised by the Fire Department at the Local Concerns Meeting, the impacts to the path of turning vehicles are considered undesirable. As this alternative did not propose any modifications to curb lines or pedestrian crossings within the SRTS project limits, it's expected that there would be little to no impacts to the speeds on Main Street.

The concept proposes a new mid-block crossing on Elm Street approximately 150' east of the Main Street intersection. For some stakeholders at the Local Concerns Meetings, this location is considered desirable as there are concerns with vehicles yielding to pedestrians at the intersection. However according to the AASHTO "Guide for Planning, Design, and Operation of Pedestrian Facilities", crosswalks at stop controlled intersections should be placed 4' to 10' in front of the stop bar, in a location where drivers expect pedestrians to cross, and along the natural path for pedestrians. As midblock crossings are not expected by motorists, they should only be used where truly needed. In addition, this crosswalk would be located within close proximity to the existing crosswalk at Park Avenue which may impact yielding behavior at one or more of the crossings.

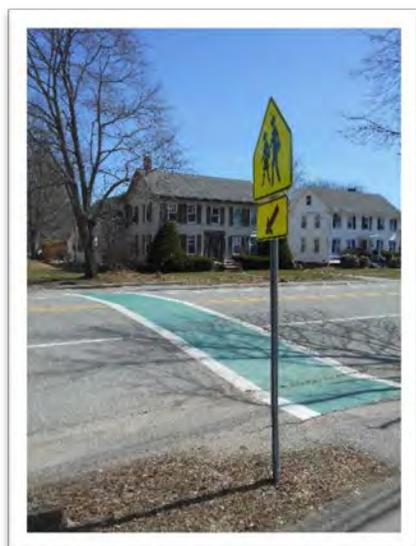
7.4 Alternative 3 – Slip Lane Closure with Curb Extensions

This alternative focuses on improving the sidewalk facilities and providing traffic calming features to produce a safe, continuous route to Pollard Elementary School that is ADA compliant and assists in lowering vehicle speeds for the safety of all. This is proposed to be accomplished by removing the slip ramp, reconstructing existing sidewalk, constructing new sidewalk, adding or adjusting curbing, and enhancing crosswalks within the study area through curb extensions and pavement texturing (See Appendix A for the “Conceptual Sidewalk Plan – Alternative 3”).

7.4.1 Roadway and Sidewalk Geometry

As the goal of the project is to make pedestrian and bicyclist safety improvements, the horizontal and vertical alignments of both roadways will not be modified and will match the existing condition. This alternative includes the removal of the existing closed off slip ramp. The existing slip ramp, when in use, allows vehicles traveling northbound on Main Street to make the right turn on to Elm Street at higher speeds, posing a risk to pedestrians that may be crossing Elm Street just north of the intersection despite the lack of crosswalk. The slip ramp also creates additional conflict points for traffic turning onto Elm Street from the intersection and with pedestrians crossing Elm Street. The slip ramp pavement is proposed to be removed, a new granite curb installed to define the shoulder edge, and sidewalk with landscaping installed where the slip ramp is now. The sidewalk will utilize the route of the former slip lane, as requested by NHDHR, to perpetuate the feel of this area as a public right-of-way.

Proposed sidewalks will generally follow the existing back of sidewalk. A new sidewalk is proposed through the area of the removed slip ramp, connecting the sidewalks of northbound Main Street and northbound Elm Street. The proposed sidewalks will have grades no steeper than 5%, meeting ADA requirements.



Curb Extensions will be installed at crossing locations to reduce crossing distance and increase pedestrian visibility.

The proposed crosswalks enhance existing crossings A, B, and C as well as include a new crossing (Crosswalk D) on Elm Street at the intersection with Main Street. Crossings A, B, & C are proposed with curb extensions that reduce the crossing distance for the pedestrians and encourage slower vehicle speeds. Crosswalk A is proposed with a slight 5' shift to the south and will include some localized regrading of the Main Street travel ways to make slopes no steeper than the 5% allowed by ADA. Crosswalk B has been moved to the north and is shown perpendicular to Main Street, removing the skew. Crosswalk C has been moved 20' to the south and now connects through the grass panel to the northbound Elm Street sidewalk. Crosswalk D is proposed to connect a sidewalk through the removed slip ramp area to the sidewalk on the northern side of the intersection. All of the crossings will include ADA compliant concrete curb ramps with

detectable warning devices and will employ a street print that consists of stamping the pavement with a brick pattern and applying a brick-colored paint to increase the crosswalk visibility.

7.4.2 Roadway and Sidewalk Typical Section

The typical roadway section for Main Street will not differ from the existing condition. The Elm Street typical section will match the existing condition on the southbound side. To allow for a landscaped panel between the roadway and sidewalk, the northbound Elm Street shoulder will be narrowed to 4'. To narrow the roadway crossing distance, improve pedestrian visibility, and help calm traffic; curb extensions have been proposed at crosswalks resulting in localized impacts to shoulder widths on both roads. Granite curbing is proposed along Main Street both in areas where there is no existing curb and where the existing curb is bituminous. Proposed sidewalks will be 5' wide, not including the curb, with a 2% cross slope toward the roadway. The sidewalk will consist of 2" of bituminous pavement on top of 6" of crushed gravel.



Narrow Sidewalks will be widened to provide a consistent 5' walkway.

7.4.3 Drainage

Stormwater runoff will continue to flow to the edge of the roadway. The addition of curbing along Main Street in some locations will formalize a gutter line. New drainage structures will be necessary at the proposed curb extensions to prevent ponding. A new drainage structure is proposed on the northbound Main Street curb line where the removal of the slip ramp and addition of curbing shifts the gutter line. There are no anticipated impacts to the stormwater runoff patterns of abutting properties. The proposed removal of the slip ramp will reduce the total impervious surface area. This reduction of impervious area is anticipated to reduce the volume and peak flow of stormwater runoff in the project area.

7.4.4 Intersection Sight Distance and Vehicle Turning Movements

The proposed design will not impact sight distance for vehicles turning from southbound Main Street on to Elm Street and will meet or exceed the requirement for a 35 mph design speed. The proposed crosswalk on Elm Street at the T-intersection will move the stop bar approximately 6' further away from Main Street. It is expected that drivers will come to a complete stop at the proposed stop bar, evaluate if there are pedestrians in the proximity of the crosswalk, then pull forward to a point where they have adequate sight distance to safely enter Main Street traffic. This will allow sight distance to match the existing condition which is adequate for a 25 mph design speed.

Per the NHDOT Highway Design Manual, the design vehicle is the largest vehicle likely to use a facility frequently. For turning movements from Elm Street to the southern leg of Main

Street, a WB-62 design vehicle has been utilized given the high volume of truck traffic. For Elm Street to the northern leg of Main Street, a 42.5' long fire truck was assumed to be the largest frequent vehicle. The removal of the slip ramp reduces the available pavement area for larger vehicles to negotiate some of the turning movements. Passenger vehicles, SU's, and fire trucks are still able to complete all turning movements without leaving their travel lane. A WB-62 vehicle is still able to negotiate the northbound Main Street to Elm Street turn without crossing the center line. A WB-62 vehicle turning from Elm Street to northbound Main Street and from southbound Main Street to Elm Street would need to encroach on the opposing travel lanes to negotiate the turn. Given the infrequency of these size vehicles, this condition is assumed to be acceptable.

7.4.5 Landscaping and Lighting

Landscaping is proposed in the area of the slip ramp removal and as planting strips between the sidewalks and roadway with the intent of creating and maintaining village-like aesthetics. Low plantings will be utilized adjacent to pedestrian crossings and intersection to not impede sight distance, while larger plants will be utilized away from the roadway at the removed slip lane to provide screening for abutting residences. Period pedestrian lighting is proposed at crosswalks where there is no utility pole street light in the immediate vicinity. The lighting serves to enhance driver visibility of pedestrians in or approaching the crosswalks. Lighting is also proposed along the sidewalk from Center Circle to Elm Street to provide adequate illumination for pedestrians to safely walk through the landscaped area.



Pedestrian Scale Period Lighting will be installed to improve visibility of pedestrians during night time hours.

7.4.6 Traffic Control Considerations

The traffic control concerns for the proposed project are expected to be minimal in nature. Sidewalk work is anticipated to be completed utilizing shoulder closures and/or travel lane shifts on the existing pavement width to maintain two-way traffic. The installation of proposed drainage would likely result in temporary reductions to one-way-alternating traffic to provide a safe space between the workers and traffic. Pedestrian traffic would be maintained throughout the duration of the project utilizing temporary facilities, as required.

7.5 "No-Build" Alternative

This alternative consists of not performing any improvements to sidewalks or the intersection adjacent to the Pollard School and therefore, does not address safety concerns that arise from the incomplete and inadequate sidewalk & crosswalk network and the multiple conflict points introduced by the current slip lane. With the average speeds on Main Street remaining the same, the growing traffic volumes on Main Street will continue to reduce pedestrian safety and further discourage walking and biking to the school, unless

improvements are made. Therefore, the “No-Build” alternative was eliminated from consideration since it does not meet the project purpose and need.

8 CONCLUSIONS AND RECOMMENDATIONS

The table below shows the major advantages and disadvantages of the alternatives studied in detail in this Feasibility Study.

Table 8.1 – Comparison of SRTS Improvement Alternatives

| Alternative Number | Advantages | Disadvantages | Cost |
|---|---|--|-------------------------|
| Alternative 1 - Roundabout | <ul style="list-style-type: none"> Traffic calming for all intersection approaches Additional landscaping space to enhance village setting | <ul style="list-style-type: none"> Greatest impact to historical resources & village aesthetics Pedestrian crossing concerns Highest cost Potential ROW impacts | \$250,000 to \$300,000* |
| Alternative 2 – Slip Lane Closure with Realigned Elm Street | <ul style="list-style-type: none"> Reduced speeds for northbound right and southbound left turns onto Elm Street Improved intersection sight distance | <ul style="list-style-type: none"> Additional midblock crossing location Minimal pedestrian safety improvements for crossing Main Street Impacts to large vehicle turning movements | \$255,425 |
| Alternative 3 – Slip Lane Closure with Curb Extensions | <ul style="list-style-type: none"> Curb extensions to improve pedestrian safety at crosswalks Speed reduction for northbound right turns onto Elm Street New crosswalk on Elm Street at intersection Lighting to improve pedestrian visibility Lowest cost | <ul style="list-style-type: none"> Some impacts to large vehicle turning movements Vehicles may need to encroach on Elm Street crosswalk to improve sight distance | \$226,000** |
| “No-Build” Alternative | | <ul style="list-style-type: none"> Does not meet project purpose and need to address inadequate pedestrian facilities and traffic speeds | N/A |

* Average Roundabout Cost from NCHRP Synthesis 264. Does not include ROW costs.

**Construction Engineering costs have been removed from this estimate for comparison to other alternatives (See Appendix D).

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Feasibility Study
Plaistow, NH**

Based on the information contained herein, Hoyle, Tanner recommends the construction of Alternative 3 – Slip Lane Closure with Curb Extensions. This alternative will provide the desired pedestrian safety and traffic calming improvements along Main Street & Elm Street to satisfy the projects Purpose and Need Statement at an equal or lesser cost than the other two alternatives. The incorporation of lighting and landscaping will accentuate the village feel to help naturally reduce vehicle speeds. In addition, it will not impede the operation of large vehicles utilizing the corridor and will have equal or lesser impacts on the surrounding environment compared to the other alternatives.

This project is funded by a SRTS grant administered by NHDOT which typically covers 100% of eligible project costs. As the Town of Plaistow desired to propose a project that was larger than the \$250,000 maximum for the an SRTS grant, the Town originally committed an additional \$100,000 dollars to cover the higher cost. Unfortunately, the anticipated funding from the Town is no longer available and the Town is currently seeking additional funding sources to complete the design and construction of the preferred alternative. If available, the Town of Plaistow requests additional funding from the SRTS program and is also in the process of submitting an application through the Transportation Alternatives Program (TAP) for adjacent sidewalk projects. If funding is awarded through TAP, there are several pieces of the SRTS project that could be separated and constructed at a later date. These include portions of sidewalk along the east & west sides of Main Street and the south side of Elm Street. As manageable sidewalk facilities currently exist in these locations, it is believed that postponement of these improvements will still allow the project to meet its purpose and need.

APPENDIX A

Plans of Proposed Improvements

ALTERNATIVE 1 - ROUNDABOUT

Main Street Traffic Calming Study



Figure 14: Elm Street Options

Elm Street

Two options have been developed for the Elm Street Intersection shown in **Figure 14**. **Option A** locates a roundabout at this intersection that provides the benefit of slowing the right turn movement of northbound traffic from Main Street to Elm Street as well as slowing southbound traffic entering a school zone and northbound traffic passing in front of the Town Hall. A roundabout eliminates much of the delay that drivers face when trying to access Main Street from Elm Street during peak hours, and the installation of multiple roundabouts along the corridor will help to keep speeds lower, while improving access to the roadway from side streets. Aesthetically, a roundabout could provide an excellent sightline northbound on Main Street to the Town Hall and highlighting any memorials, statuary, or other items located at the south end of the common. The roundabout itself also provides a complimentary location for a monument or artwork. As this location is very close to the community public safety complex, and would be on a primary fire response route, it is critical that any concerns regarding the impacts of a roundabout on emergency response be addressed prior to implementation.

The second alternative developed for this location (**B**) constructs a more standard “T” intersection that requires north bound vehicles to slow for the turn to Elm Street by removing the slip lane that currently exists at the site. This would create some greenspace where the slip lane currently is and move Elm Street further away from the houses on that corner of the intersection. A small splitter Island would continue to separate traffic entering and exiting Elm Street and would provide a pedestrian refuge which breaks the crossing into two short segments. This alternative would slow traffic movement onto Elm Street in a similar manner to that of the roundabout, however there would be little to no impact on speeds of traffic along Main Street.

POLLARD ELEMENTARY SCHOOL

PROPOSED ADA COMPLIANT CONCRETE CURB RAMP WITH DETECTABLE WARNING DEVICE (TYP.)

PROPOSED BITUMINOUS PAVEMENT SIDEWALK (TYP.)

RETAIN EXIST. TREE

PROPOSED VERTICAL GRANITE CURB (TYP.)

SLOPE LIMIT (TYP.)

PROPOSED PEDESTRIAN LIGHTING (TYP.)

POTENTIAL UTILITY POLE RELOCATION

TOWN HALL

POTENTIAL UTILITY POLE RELOCATION

STREET PRINT - BRICK HERRINGBONE PATTERN, COLOR OXIDE RED (TYP.)



SCALE IN FEET

MAP 41 / LOT 04
HAWKINS REALTY TRUST,
RICHARD P HAWKINS
23 CENTER CIRCLE
PLAISTOW, NH 03865
BK 2577 / PG 1811

MAP 41 / LOT 03
ROBERT M WATERS, JR
PO BOX 1053
PLAISTOW, NH 03865
BK 4916 / PG 2884

MAP 41 / LOT 02
DANIEL J POLIQUIN
4 DUSTON AVE
PLAISTOW, NH 03865
BK 3945 / PG 1224

MAP 40 / LOT 35
FIRST BAPTIST CHURCH
122 MAIN STREET
PLAISTOW, NH 03865

MAP 41 / LOT 01
FIRST BAPTIST CHURCH
122 MAIN STREET
PLAISTOW, NH 03865

MAP 40 / LOT 34
TIMBERLANE REGIONAL
SCHOOL DISTRICT
36 GREENOUGH ROAD
PLAISTOW, NH 03865
BK 1767 / PG 265

MAP 40 / LOT 63
TOWN OF PLAISTOW
145 MAIN STREET
PLAISTOW, NH 03865

MAP 40 / LOT 49
DANIEL J DIEMAND
135 MAIN STREET
PLAISTOW, NH 03865
BK 4131 / PG 2732

MAP 40 / LOT 48
WILLIAM & KERRY A QUERY
137 MAIN STREET
PLAISTOW, NH 03865
BK 4546 / PG 1597

MAP 41 / LOT 94
TWINS REALTY OF PLAISTOW
PO BOX 128
PLAISTOW, NH 03865
BK 4524 / PG 1608

MAP 41 / LOT 92
HOWARD J & JENNIFER L UNGER
141 MAIN STREET
PLAISTOW, NH 03865
BK 3122 / PG 1578

MAP 41 / LOT 91
MARK S HARDING
1 ELM STREET
PLAISTOW, NH 03865
BK 4866 / PG 1234

MAP 41 / LOT 90
ANTHONY R COSTANZO
3 ELM STREET
PLAISTOW, NH 03865
BK 4175 / PG 244

MAP 41 / LOT 89
TODD & KATHLEEN
MCKECHNIE
43 COLLINS DRIVE
E. HAMPSTEAD, NH 03826
BK 4628 / PG 641

MAP 41 / LOT 88
LARRIE C & HELEN L INGALLS
7 ELM STREET
PLAISTOW, NH 03865
BK 4547 / PG 1431

MAP 41 / LOT 87
PETER L & MARY ANNE GARBATI
9 ELM STREET
PLAISTOW, NH 03865

| REV | DESCRIPTION | DATE |
|--------------|-----------------|------|
| AUGUST, 2016 | DESIGN BY: JEMS | |
| | DRAWN BY: JEMS | |
| | CHKD. BY: SBH | |
| | SCALE: AS SHOWN | |

Hoyle, Tanner & Associates, Inc.
150 Dow Street, Manchester, NH 03101-1227
Tel (603) 669-5555 - Fax (603) 669-4168
www.hoyletanner.com

| | |
|--|-----------------------------|
| TOWN OF PLAISTOW PLAISTOW, NEW HAMPSHIRE SAFE ROUTES TO SCHOOL AT POLLARD ELEMENTARY | PROJECT NO.: 913405,01 |
| CONCEPTUAL SIDEWALK PLAN ALTERNATIVE 3 - SLIP LANE CLOSURE WITH CURB EXTENSIONS | FILE NAME: 91340501genplans |
| | MODEL NAME: G01 |
| | SHEET NO. 1 |
| | SHEET 1 OF 1 |

8/31/2016 10:18:30 AM K:\913405_01\2-CADD\Drawings\CutSheet\91340501genplans.dgn

APPENDIX B

**Engineer's Estimate of Probable
Construction Costs**

CONCEPTUAL ESTIMATE - ALTERNATIVE 2*

| Description | Sub-Total |
|---|-------------------|
| Traffic Control (Flaggers / Police Details) | \$ 22,700 |
| Granite Curb (+/- 1420-LF) | \$ 99,400 |
| 5' Wide Asphalt Sidewalk (+/- 615-LF) | \$ 33,825 |
| Drainage Improvements | \$ 15,000 |
| -(2) Catch Basins | |
| -125-LF of 12" RCP | |
| Pavement Overlay | \$ 20,000 |
| Accessible Cross Walks & Ramps | \$ 28,500 |
| Pavement Markings | \$ 17,500 |
| Landscaping | \$ 18,500 |
| Total: | \$ 255,425 |

*This estimate was prepared by
Civil Design Consultants



Project: Safe Routes to School at Pollard Elementary
 HTA Project #: 913405.01
 Location: Plaistow, NH
 Task: Conceptual Estimate
 Calculated By: JFMS
 Checked By: SBH

Date: 7/12/2016
 Date: 8/30/2016

CONCEPTUAL ESTIMATE - ALTERNATIVE 3

SAFE ROUTES TO SCHOOL AT POLLARD ELEMENTARY

SECTION A - MAJOR ITEMS

| ITEM NO. | DESCRIPTION | UNIT | QUANTITY | UNIT COST | COST |
|----------|--------------------------------------|------|--------------------|-----------|---------------------|
| 203.1 | COMMON EXCAVATION | CY | 700 | \$ 8.00 | \$ 5,600.00 |
| 203.6 | EMBANKMENT-IN-PLACE (F) | CY | 350 | \$ 10.00 | \$ 3,500.00 |
| 304.3 | CRUSHED GRAVEL (F) | CY | 270 | \$ 25.00 | \$ 6,750.00 |
| 403.12 | HOT BITUMINOUS PAVEMENT, HAND METHOD | TON | 95 | \$ 105.00 | \$ 9,975.00 |
| 608.12 | 2" BITUMINOUS SIDEWALK (F) | SY | 520 | \$ 30.00 | \$ 15,600.00 |
| 608.24 | 4" CONCRETE SIDEWALK (F) | SY | 65 | \$ 50.00 | \$ 3,250.00 |
| 609.01 | STRAIGHT GRANITE CURB | LF | 625 | \$ 22.00 | \$ 13,750.00 |
| 609.05 | RESET GRANITE CURB | LF | 220 | \$ 10.00 | \$ 2,200.00 |
| | MISCELLANEOUS ROADWAY | | | | \$ 5,842.50 |
| | | | 10% OF ABOVE TOTAL | | \$ 2,200.00 |
| | | | SUBTOTAL A | | \$ 66,467.50 |

SECTION B - MISCELLANEOUS ITEMS

| | | |
|-----------------------------------|-------------------|---------------------|
| SIGNS, MARKINGS, LOAM/HUMUS, ETC. | 10% | \$ 6,646.75 |
| | SUBTOTAL B | \$ 73,114.25 |

SECTION C - DRAINAGE ITEMS

| | | |
|-------------------------------------|-------------------|----------------------|
| PIPES, UNDERDRAIN, CB's, MH's, ETC. | 40% | \$ 29,245.70 |
| | SUBTOTAL C | \$ 102,359.95 |

SECTION D - TRAFFIC CONTROL

| ITEM NO. | DESCRIPTION | UNIT | QUANTITY | UNIT COST | COST |
|----------|-------------------------------|------|--------------------|-------------|----------------------|
| 618.7 | FLAGGERS | HR | 320 | \$ 23.00 | \$ 7,360.00 |
| 619.1 | MAINTENANCE OF TRAFFIC | U | 1 | \$ 5,000.00 | \$ 5,000.00 |
| | MISCELLANEOUS TRAFFIC CONTROL | | | | \$ 1,236.00 |
| | | | 10% OF ABOVE TOTAL | | \$ 1,236.00 |
| | | | SUBTOTAL D | | \$ 115,955.95 |

SECTION E - EROSION AND SEDIMENT CONTROL

| | | |
|---|--------------------|----------------------|
| EROSION, SEDIMENT, AND POLLUTION CONTROL (HAY BALES, SILT FENCE, SWPPP, TEMP. WATER POLL. CONTROL, ETC.) | 10% OF DRAINAGE | \$ 2,924.57 |
| | SUBTOTAL E | \$ 118,880.52 |

SECTION F - MOBILIZATION AND CONTINGENCIES

| | | |
|-----------------------|-------------------|----------------------|
| ROADWAY MOBILIZATION | 10% | \$ 11,888.05 |
| ROADWAY CONTINGENCIES | 15% | \$ 17,832.08 |
| | SUBTOTAL F | \$ 148,600.65 |

SECTION G - ADDITIONAL ITEMS

| | | |
|-------------------------------|-------------------|----------------------|
| Landscaping | \$ 20,000.00 | |
| Lighting (10 Units @ \$5,000) | \$ 50,000.00 | |
| Street Print Crosswalks | \$ 7,000.00 | |
| | SUBTOTAL G | \$ 225,600.65 |
| Construction Engineering | \$ 50,000.00 | |

PROJECT TOTAL: \$ 276,000.00

APPENDIX C

**Local Concerns
Meeting Minutes**



Town of Plaistow ♦ Board of Selectmen
145 Main Street ♦ Plaistow ♦ NH ♦ 03865

PLAISTOW BOARD OF SELECTMEN MINUTES:

DATE: May 2, 2016

MEETING CALLED TO ORDER: 6:33 PM

SELECTMEN:

Selectman, Steve Ranlett, Chairman
Selectman, Tammy Bergeron
Selectman Peter Bracci

Selectman, John Sherman Vice Chairman
Selectman, Julian Kiszka
Town Manager, Sean Fitzgerald

AGENDA

MINUTES

J. Sherman motions to approve the minutes of 04-25-16. Second by J. Kiszka.

P. Bracci is concerned as to why a discussion regarding a conversation that transpired in the public session of 04-25-16 was not included in the minutes.

J. Sherman withdraws his motion to approve and requests the paragraph be inserted and the minutes reviewed at the next meeting. J. Kiszka withdraws his second.

PUBLIC COMMENT

None

SAFE ROUTES TO SCHOOL LOCAL CONCERNS

S. Hass, Engineer/Project Manager from Hoyle & Tanner is introduced by S. Fitzgerald. He begins with an agenda outline and states tonight's meeting will focus on the concerns and questions of the citizens.

S. Fitzgerald discusses funding and the main ideas behind SRTS (Safe Routes to School). The goals are to improve pedestrian safety and street scapes, intersection improvements, and congestion mitigation. The Town was awarded a grant of \$250,000 to complete this project. Since the money comes from a federal grant many rules and regulations must be followed. NHDOT (New Hampshire Department of Transportation) oversees the funding requirements of the project.

S. Hass discusses project understanding and tools or options that can help. Main Street/Route 121A is a NHDOT owned and maintained road. The speed limit is 30 mph but speeding often occurs. S. Hass discusses the project schedule.

S. Ranlett opens the meeting to the public.

Bob Hamilton from Balsam Way is concerned about taxes, if the project will cost more than anticipated, and if Town funds will be spent. He wants to know how much of the \$250,000 has already been spent.

The \$250,000 is a grant and Town funds will only be used if the Board of Selectmen decides to do that. Approximately \$10,000 of the grant has already been spent on non-infrastructure items such as bike helmets, traffic control cones and education.

Jim Hunger from 141 Main Street states this problem has been ongoing for 20 years. Blocking the slip lane has helped but the angle of Elm Street is a problem. Cars cannot see walkers on Elm Street.

Mark Harding from 1 Elm Street states the situation is better with the slip lane blocked and he agrees the angle is tough. He wants drainage to be considered in the project. He would like to see people living in the area help with landscaping issues.

Both J. Hunger's and M. Harding's comments are heard and understood. Drainage will be part of any construction.

Richard Colcord has lived in Plaistow his whole life and has some concerns regarding emergency vehicles. He believes the main problem is speeding and it should be controlled by law enforcement. He feels narrowing of the road and beautification is not necessary.

S. Fitzgerald agrees it is important to make sure emergency vehicles can navigate safely around the corner. These conflicts will be carefully evaluated.

Alan Davis of 12 Westville Road inquires if the scope of the project is contained to the red lines on the diagram. He states the intersection of Main Street and Westville Road should be part of the project and sidewalks should be put on Westville Road.

The Board acknowledges that the intersection of Westville Road and Main Street is an issue. However the grant money will not be enough to solve all of the issues. The SRTS project will focus on the red lined area of the diagram.

Dolores Coil-Quirk lives on Elm Street and teaches at Pollard School. She walks to work and states it is difficult. She is very excited about the project. She thinks the focus on a Village and safety are the key issues to be resolved. Access in and out of the parking lot at Pollard for employees is another problem due to the number of parents driving their children to and from school. She would like to see something in the design to alleviate this problem. She believes if we make walking more conducive we will see more children walking to school.

Eileen Hennessy lives at 33 Main Street at the corner of Chandler Avenue. She believes the problem starts much farther down Main Street. She is concerned about all the 18 wheeler trucks using this route.

Again, the Board recognizes many areas along Main Street need to be addressed. Tonight's focus is just the area of Main Street from Pollard School to Elm Street.

Jeff Quirk of 15 Elm Street states we need to do the project and we need to do it soon.

Pat Lomes has lived in Plaistow for many years. She lived on Smith Corner Road and her children walked to school and she can sympathize with everyone. She currently lives on Village Way. There are young families with children but they cannot access Smith Park, the Town Hall, or the Pollard School by walking.

Richard Colcord states we cannot keep trucks out of Town but we need to enforcement the laws and slow them down, not change the roads. The increase in truck traffic is a result of the growth of the Town especially along Route 125. We have to accept what we have done.

P. Bracci states there are two 2 ways to slow vehicles down. One is to enforce the laws and the other is speed bumps. If people have ideas they should pass them along to the Board of Selectmen. A discussion of the pros and cons of speed bumps ensues.

Kimberly Raymond from 7 Lynwood Street has several concerns. Some concerns include spending Town funds on this project, projects bleeding into each other, money spent on studies, and the length of time to complete projects. She is unclear on many issues.

The delay in the SRTS project occurred because the project was put on hold twice. One delay was due to not having enough staff certified and more importantly there were Federal Funding Challenges that affected the ability of NHDOT to release funds. The notice to proceed to was just received recently which is why we are meeting tonight and presenting a schedule of the project.

Eileen Hennessy mentions the sign of Peterborough. She would like to see a sign similar for Plaistow. Perhaps this could be a future Eagle Scout project.

Rich Lomes from Village Way inquires if bicycle lanes will be part of the SRTS project. It can certainly be considered at a future meeting.

S. Ranlett reads 2 emails. The first one is from Peter Bealo. He is in favor of the project. The second is from Ryan Hinchliffe from 2 Major Lane. He is in favor of the project. He often walks his children to school and states it is dangerous.

S. Ranlett closes the public hearing at 8:53pm.

J. Sherman states a weight limit can be set on Town Roads but not on State roads. The Highway Safety Committee is looking into it. He also mentions there was a warrant article approximately 20 years ago to put sidewalks on Greenough Road. Most of the money would have come from the state but the article was voted down.

S. Ranlett states we will take a 5 minute recess and resume at 9:00pm.

Back in Session at 9:00pm.

SUMMER SCHEDULE

The schedule is reviewed. A change is made to May 16th. The Board will meet that evening. The general consensus is to accept the summer schedule as is.

DONATIONS TO THE FIRE DEPARTMENT

S. Fitzgerald mentions the Fire Association raised money and purchased items for the Fire Department. They purchased a thermal imaging camera for \$1300, 4 carbon monoxide monitors for \$535, and a training table and chairs for \$4500. The donations have been accepted and are appreciated.

TOWN MANAGER'S REPORT

Not discussed tonight.

P. Bracci thanks Gayle for getting the minutes to the Board on Friday.

ACTION ITEM REVIEW

Reviewed

OTHER BUSINESS

P. Bracci inquires as to the status of article P-16-17.

S. Fitzgerald will report back to the Board next Monday based on information from Town Council.

P. Bracci inquires to T. Bergeron the status of the Building Committee and wants to know what reports he can expect.

T. Bergeron states the members of the Public Safety Expansion Committee all moved over to the Building Committee. She and J. Sherman will report all information to the Board.

P. Bracci inquires about the new web site.

S. Fitzgerald responds it will be discussed at the staff meeting on Wednesday and we are moving forward with it.

J. Sherman mentions the Recreation Commission Meeting has been rescheduled from May 11 to May 25. Opening Day for baseball is May 7th at PARC.

P. Bracci inquires if the Board does anything for "Bike to School Day".

S. Fitzgerald replies, no. The Pollard School will hold their own "Bike & Walk to School Day" in a few weeks. This is a great event and Selectmen are welcome to join in.

P. Bracci mentions the Women of Leadership is Monday 9th.

J. Sherman mentions some dignitaries might attend.

P. Bracci inquires how many people picked up on Plaistow Pride Day.

S. Fitzgerald responds 144 bags of trash were collected. It is hard to say how many people helped because some did it on their own without checking in on the Town Green.

S. Ranlett mentions it might be a good idea to combine this event next year with Comcast Cares.

J. Kiszka mentions the Fishing Derby is Saturday. Children up to 12 years are free. It is a good event.

SIGNATURE FOLDER

S. Ranlett states the signature folder and manifest are going around.

S. Ranlett adjourned the meeting at 9:20 pm

Respectfully submitted,

Beth Hossack,
Recording Secretary

APPENDIX D

**Public Presentation of Preferred Alternative
Meeting Minutes**



*Town of Plaistow ♦ Board of Selectmen
145 Main Street ♦ Plaistow ♦ NH ♦ 03865*

PLAISTOW BOARD OF SELECTMEN MINUTES:

DATE: August 1, 2016

MEETING CALLED TO ORDER: 6:32PM

SELECTMEN:

Selectman, Steve Ranlett, Chairman
Selectman, Tammy Bergeron
Selectman, Peter Bracci

Selectman, John Sherman Vice Chairman
Selectman, Julian Kiszka
Town Manager, Sean Fitzgerald

AGENDA

MINUTES

J. Sherman motions to approve the minutes of July 25, 2016. Second by J. Kiszka

Vote: 5-0-0

Motion passes.

PUBLIC COMMENT

None

INTRODUCTION OF DESIREE CHAPMAN

Chief Jones introduces Desiree Chapman, new Records Clerk at the Police Department. She has been a resident of Plaistow for 2 years. She graduated Magna cum Laude from Hesser College. Desiree has a terrific skill set and has jumped right into her new job. She is happy to be here. The Board welcomes her aboard.

METHUEN CONSTRUCTION LAND SWAP

S. Ranlett quickly reviews the responses received from Department Heads and Committee Chairpersons. There are no concerns or problems with the suggested land swap as all Boards and committees are in agreement.

S. Fitzgerald recommends scheduling a public hearing for the land swap.

J. Barbone states he is all set to move forward with the process.

J. Sherman motions to direct the Town Manager to move forward with the land swap as proposed with Methuen Construction based upon the positive responses from all Department Heads and Committee Chairs. Second by T. Bergeron.

Vote: 5-0-0

Motion passes.

SAFE ROUTES TO SCHOOL – PUBLIC HEARING

Stephan Haas from Hoyle and Tanner presents. He begins with the meeting agenda and goals including:

- Project Background
- Purpose & Need
- Previous Alternatives
- Preferred Alternative
- Project Funding
- Proposed Project Schedule
- Next Steps

The greatest concerns of residents is a reduction in speed on Main Street and crossing Main Street at Elm St. He reviews the new plan known as the Preferred Alternative. This plan includes:

- Increased Visibility
- Reduced Crossing Width
- Anticipated Crossing Location
- ADA Compliant Sidewalk Widths
- Vertical Granite Curbing
- Enhanced Pedestrian Signage

S. Ranlett opens the meeting to the public.

Dolores Coyle-Quirk of 15 Elm Street is concerned with the proposed cross walk at Elm Street. She feels vehicles taking a right from Main Street onto Elm Street will still drive too fast which is a concern for anyone trying to use the crosswalk.

S. Fitzgerald agrees and states preventing stop and go traffic which can cause more issues is preferred along with ensuring emergency vehicles can easily pass.

Chief McArdle states he is not in favor of a stop sign at the intersection of Main Street and Elm Street traveling north. This would cause a delay in first responders arriving at the Fire Station.

Chief Jones is concerned with backups that would be caused by installing a stop sign especially when school is starting and letting out for the day.

Jim Unger of 141 Main St. is also concerned with a stop sign and a cross walk. A stop sign would cause a lot of backup in traffic and would make it very difficult for emergency vehicles to pass. Discussion ensues regarding the location of a crosswalk, stop signs, signal lights, and reducing conflict points with the closure of the slip lane.

Dolores Coyle-Quirk states we need to keep in mind safe routes to school. Children walking to school need sidewalks and a cross walk with a safe place to cross.

Funding will come from a grant through the Federal Highway Administration. The total funding is \$240,000. The Town has applied for an additional grant through the Transportation Alternative Program(TAP).

S. Hass reviews the project schedule. The next step is to submit the feasibility study. This will be reviewed by NHDOT and include a budget review. The goal to begin construction is the summer of 2017.

J. Peck inquires what the non construction costs are.

S. Hass states about \$75,000 to \$90,000.

S. Fitzgerald states this is higher than a typical project and will most likely result in a reduction of the scope of work when the final design comes in.

J. Kiszka states he wants to make sure all flora and bushes are low profile.

S. Hass agrees.

J. Sherman inquires if any Town funds will be used for any portion of the project.

S. Fitzgerald states No. Once Hoyle & Tanner submit the feasibility study and NHDOT approves, the project will be put out to bid.

The scope will be scaled back if necessary based on costs.

J. Sherman notes there may be a way to save some money by having resident volunteers do some of the plantings. He wants to make sure this is still on the table.

S. Hass states the Town would have to pursue this with NHDOT.

T. Moore wants to help clarify non infrastructure costs. He states a portion of the costs for non infrastructure were spent on the Bike Rodeo, helmets and cross walk signs. He also mentions the Transportation Alternative Program(TAP) grant can be used to dovetail the Safe Routes To School project if we are awarded it, though does require a 20% local match.

Kimberly Raymond of 7 Linwood Ave Apt 1 is concerned about spending town funds, replacing existing sidewalks and the crosswalk at the intersection of Main and Elm Streets.

Bob Hamilton of Balsam Way notes one of the aspects of the project was traffic calming. He believes raised crosswalks will help with this at a small cost. He also notes this should be about safe routes to school and not safe routes to Town Hall. He personally does not like the sidewalk at the intersection of Main and Elm Streets. Discussion about raised crosswalks ensues. It is noted they cause damage to plows, can lead to potholes and NHDOT is not in favor of them. It is noted that NHDOT maintains that section of the road.

Dick Colcord of Center Circle states years ago there was a crosswalk at the intersection of Main and Elm Streets. People still cross there often. Re-establishing the sidewalk might help to some extent as people tend to take the path of less resistance. S. Ranlett states that narrowing the road will lead to traffic slowing down.

S. Ranlett closes the public hearing at 7:58pm and calls for a 5 minute recess.

Back in session at 8:09pm

2016 ASSESSING RECOMMENDATIONS

S. Ranlett reads the Press Release. "I am pleased to report that Plaistow continues to see significant growth in both residential and commercial real estate investment. This special meeting of the Board of Selectmen will help present information to the public on how residential and commercial valuations are appraised and assessed in Plaistow."

To help provide the public with additional information on the process of updating valuations, the Plaistow Board of Selectmen has scheduled an informational hearing to help explain the process before formally voting on accepting the assessing firm's recommendations. This recommendation will affect approximately 3,300 parcels in Town. (2,962 are residential and 338 are commercial.)

As per NH State Constitution, values are required to be taken anew at least every 5 years. It is important to note that the town is scheduled for certification by the New Hampshire Department of Revenue Administration in 2016 (otherwise known as DRA). This will require that all properties in Plaistow be assessed at 100% of their value. The last full revaluation of values in Plaistow occurred in 2011 based on market sales from the prior years. To meet this 5 year requirement, a

values anew will be performed to bring all properties in-line with the market conditions as of April 1, 2016. Work to be done this year includes: market analysis, valuations, field review and informal hearings. Over the past six weeks Plaistow property owners have seen and will continue to see representatives from *Corcoran Consulting Associates*, Plaistow's contracted assessing agents out in the community. All agents will be carrying identification. In addition, representatives of the state of NHDRA may be in Town during the revaluation process to monitor its compliance with state requirements and they also carry identification as well. Concerns about whether an individual is working on this project may be directed to the Assessor's Office at 603-382-1200, extension 230 or Plaistow Police Department, non emergency line at 603-382-1200. **It is recommended that homeowners request identification before granting anyone permission to enter your home.**

Wil Corcoran and Marybeth Walker of *Corcoran Consulting Associates* are present to review revaluation procedures. As part of the process the following must be re-qualified.

- all exemptions & credits
- current use properties
- visit all properties for data verification
- create values "anew" as of April 1, 2016

They go through each step explaining the purpose and result. The premise behind revaluations is to ensure that no taxpayer is paying neither more nor less than their proportionate share of the tax burden.

J. Sherman requests W. Corcoran to do an analysis of commercial properties to help us understand the potential commercial impact on valuations. This will give us an idea of the overall assessment dollars.

W. Corcoran mentions it is good to remember the higher the assessed value the lower the tax rate will be as long as the budget stays the same or similar. The goal of *Corcoran Consulting Associates* is to maintain equity. That is why they make adjustments every year, not just in the 5th year.

Discussion ensues regarding authorization of *Corcoran Consulting Associates* to move forward with the process of revaluation. It is noted they are not changing values to properties without authorization from The Board of Selectman.

P. Bracci would like Wil to provide a statement showing the top 50 commercial properties with their value in 2015 vs. 2016.

Wil stated he will be able to provide that information but it is a long process and will not be available until about the end of September.

J. Peck inquires when the process for commercial revaluation begins.

W. Corcoran states no process happens until authorized by the Board. Although some information is provided by any building permits issued.

K. Raymond of 7 Lynwood St Apt 1 wants to know where and when the press release was issued and if tonight's meeting is a public hearing.

S. Fitzgerald states the press release was in the Carriage Town News and the Eagle Tribune approximately 2 weeks ago.

S. Ranlett states this is not a public hearing but an informational hearing.

K. Raymond wants to know why it was not put on Face Book or other social media.

S. Fitzgerald states it could be done that way in the future.

W. Corcoran and M. Walker explain how the commercial and residential process for valuation is very different. The field review that has been going on for residential properties is just to make sure property record cards are correct. For commercial properties it is easier to adjust the cost tables first. Any income and expense information available along with sales over the past 2 years and sales in Southern NH will aid in providing information. W. Corcoran will then have to visit each commercial property and hand appraise them. Several questions are asked regarding the process of assessing commercial properties and why the assessors need authorization now when they have not needed it up to this point.

M. Walker explains they are not authorized to perform the re-evaluation and adjust any values anew until authorized by the Board of Selectmen. Gathering residential information for property record cards alone does not change the value.

W. Corcoran reiterates that more value equals less tax rate depending on operating budget.

The longer it takes for the Board to grant permission to the assessing firm to continue the longer it will take for process to be completed. A percentage ratio does not need to be determined tonight. Corcoran & Associates always recommend valuation to be 98-100% but the Board will ultimately decide. Once the assessing work is complete the Board will vote before the MS-1 is completed, signed and sent to the state.

J. Kiszka motions to allow Corcoran & Associates to move forward gathering information for the Values anew process and to give a preliminary update on Commercial Properties in 2 weeks but no tax rate ratio will be set tonight. Second by J. Sherman.

Vote 5-0-0

Motion passes

TOWN MANAGER'S REPORT

Not reviewed tonight

ACTION ITEM REVIEW

Reviewed

OTHER BUSINESS

None

SELECTMAN REPORTS

J. Sherman –

S. Ranlett- Reads a Thank You note from Joyce Ingerson

J. Kiszka

P. Bracci – states the Charter for the Trash Committee that Sean prepared was good. He suggests changing the number of members to 5 and each Selectman can recommend someone. He inquires if the JRM contract was signed.

S. Fitzgerald states it was signed. The contract is discussed and a final copy will be emailed to the Board once Sean has it.

T. Bergeron – reads from the NH RSA Section 37:6

Noting the Town Manager is responsible for hiring and terminating employees. She wanted to clarify this point.

SIGNATURE FOLDER

S. Ranlett states the signature folder and manifest are going around.

S. Ranlett adjourns the meeting at 9:53pm

Respectfully submitted,

Gayle Hamel,
Recording Secretary

APPENDIX E

NHDOT Cultural Resource Meeting Minutes

MEETING NOTES



150 Dow Street
Manchester, New Hampshire 03101
603-669-5555
603-669-4168 fax
www.hoyletanner.com

PROJECT: Main Street SRTS at Pollard Elementary
Plaistow, NH
NHDOT Project No. 40312
Federal Project No. X-A004(363)

DATE OF MEETING: August 11, 2016 – 9:00 AM

LOCATION: Bureau of Environment Conference Room
New Hampshire Department of Transportation

ATTENDEES:

| | |
|------------------------|---------------------------------|
| J. Edelmann, NHDOT BOE | J. Sikora, FHWA |
| S. Charles, NHDOT BOE | S. Fitzgerald, Town of Plaistow |
| R. Crickard, NHDOT BOE | G. Jones, Town of Plaistow |
| L. Black, NHDHR | M. Low, Hoyle, Tanner |
| E. Feighner, NHDHR | S. Haas, Hoyle, Tanner |

SUBJECT: NHDOT Cultural Resource Agency Coordination Meeting

PREPARED BY: S.Haas, Hoyle, Tanner
Hoyle, Tanner No. 913405.01

Distribution: All attendees

The purpose of the meeting was for initial consultation for the Main Street SRTS at Pollard Elementary project to determine the effect status.

Stephen Haas provided an overview of the project which is part of the Safe Routes to School (SRTS) funding program administered by NHDOT through the Local Public Agency (LPA) program. The focus of the project is the area in and around the intersection of Main Street (NH12A) and Elm Street at the center of Plaistow Village adjacent to the Pollard Elementary School and the Plaistow Town Hall. Both Main and Elm Street are NHDOT owned roadways which carry significant volumes of traffic (including a high percentage of large trucks) and serve as a cut through to NH 125. The heavy volumes and high speeds have resulted in safety concerns for pedestrians and bicyclist looking to connect to the school and other properties in the village. The existing pedestrian network consists of several crosswalks with long crossings (due to wide shoulders) and low pedestrian visibility, narrow (36" in many locations) & missing sidewalk segments, ADA ramp concerns, a missing crosswalk on Elm St at Main, and some pedestrian sight distance concerns. A right turn slip lane from northbound Main Street onto Elm street adds conflict points and invokes higher speed turning maneuvers which has reduced pedestrian safety.

The slip lane has been closed using temporary traffic barrels since 2012 in coordination with NHDOT. This configuration has been well received by citizens and the Board of Selectman for its perceived safety benefits. The Town has been seeking funding to implement permanent measures to formalize the slip lane closure for several years.

Hoyle, Tanner performed on-site file research at NHDHR in late 2014 and follow-up correspondence in July 2016. There are 18 structures that abut the project area. The Plaistow Town Hall is the only structure that has been inventoried and is eligible for the Historic Register. Through coordination with NHDHR as part of the RPR process, there are no known archeological concerns. There are also no known natural resources concerns, as there are no wetland or other water resources within the project area and the project anticipates to reduce impervious surfaces within the previously disturbed footprint.

Through a number of studies and conceptual designs over the past several years a roundabout and realigned intersection geometry (to reduce skew angle) have been investigated and dismissed. The design that is currently being proposed, which has been developed through several public meetings as part of the LPA process, takes into account many previously identified pedestrian improvements but does not propose substantial intersection reconfigurations. The current design proposes to construct new 5' ADA compliant sidewalks along both sides of Main Street and the south side of Elm Street, upgraded crosswalks with "bumpouts" that reduce crossing widths and increase pedestrian visibility, vertical granite curbing adjacent to existing sidewalks to introduce grade separation, and closure of the right turn slip lane. The closure of the slip lane will include new granite curbing, a landscaped area with plantings that will not affect sight distance, and a new sidewalk which will follow the former path of the slip lane as a reminder of its former use and to formalize the separation between the landscaped area and the abutting properties. Right of way impacts are not anticipated.

J. Sikora asked if Rectangular Rapid Flashing Beacons (RRFB) had been considered for the crosswalks? S. Fitzgerald noted that they had been considered but that the Board of Selectman and Highway Committee are not in favor of them in this location in town.

J. Edelman had concerns over the removal of elm tree on the slip lane island. S. Fitzgerald noted that the original historic elm on this corner had been removed many years ago and this tree was a much younger replacement. S. Haas confirmed that this tree would require removal to improve pedestrian sight distance.

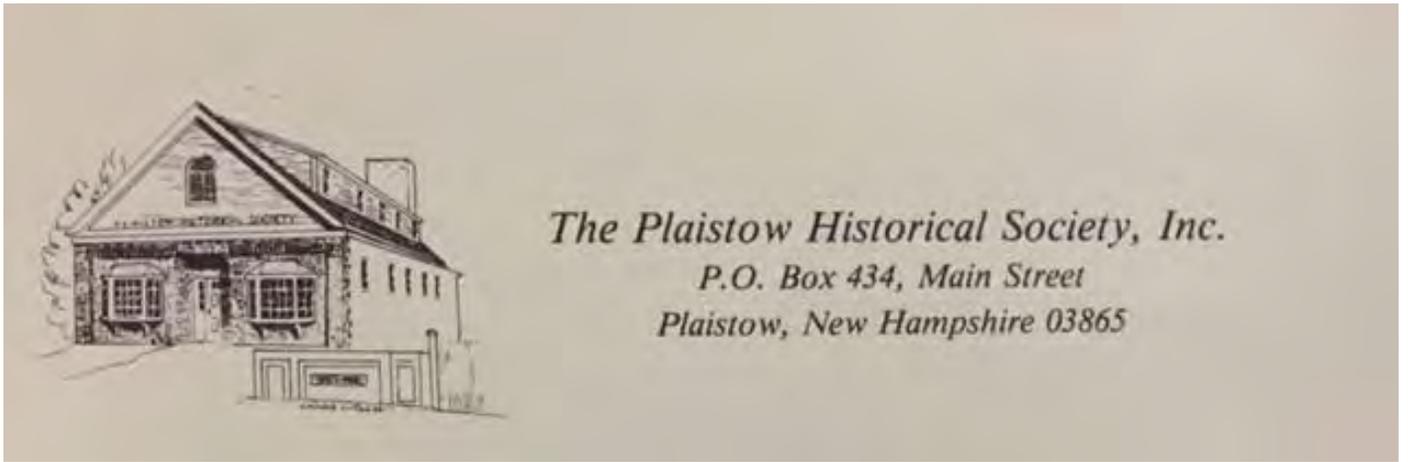
L. Black suggested getting an architectural historian on-board to study the slip lane configuration and elm tree so that the committee has a better understanding of what could potentially be lost. S. Fitzgerald noted that the Town is deeply concerned with its history and is currently seeking grants to help fund a tribute to the Town's brick making history. S. Fitzgerald stated that he understands the importance of the process and wants to be able to get to the "bricks and mortar" portions of the work and put the road on a "diet" so that it can be a place for pedestrians as much as cars.

J. Edelman noted that she feels the sidewalk location keeps the ROW feel of the slip lane area and asked if it could be enhanced to further maintain the slip lane feel, perhaps through widening? L. Black suggested getting a historian on-board to help with design elements to add historical feel which could include a wider sidewalk, stamped concrete, or elements of the former rail.

J. Edelman noted that she is looking for information to help support a Cultural Resources Effect Memo. L. Black confirmed that the project needs to go through the typical identification/effect/finding process. It was agreed that the Town should consult with its local Historical Commission to develop historical elements that may be included in the design or other commitments that the Commission may like to see. With a letter or documentation from the Historical Commission, the Town will then look to seek the Cultural Resources Effect Memo.

APPENDIX F

Plaistow Historical Society Letter



August 25, 2016

Sean Fitzgerald,
Plaistow Town Manager
145 Main Street
Plaistow, NH 03865

Dear Sean,

The Plaistow Historical Society is pleased to provide information on the historical significance of the area on the corner of Main and Elm Streets now targeted for sidewalk improvements as part of the SRTS funding program awarded to the town.

As we have discussed, the portion of the project area in question is an integral part of Plaistow village center due to its proximity to Town Hall and the Town green. That area has been a part of the town's history since the mid-1700s, indeed to the founding of Plaistow in 1749.

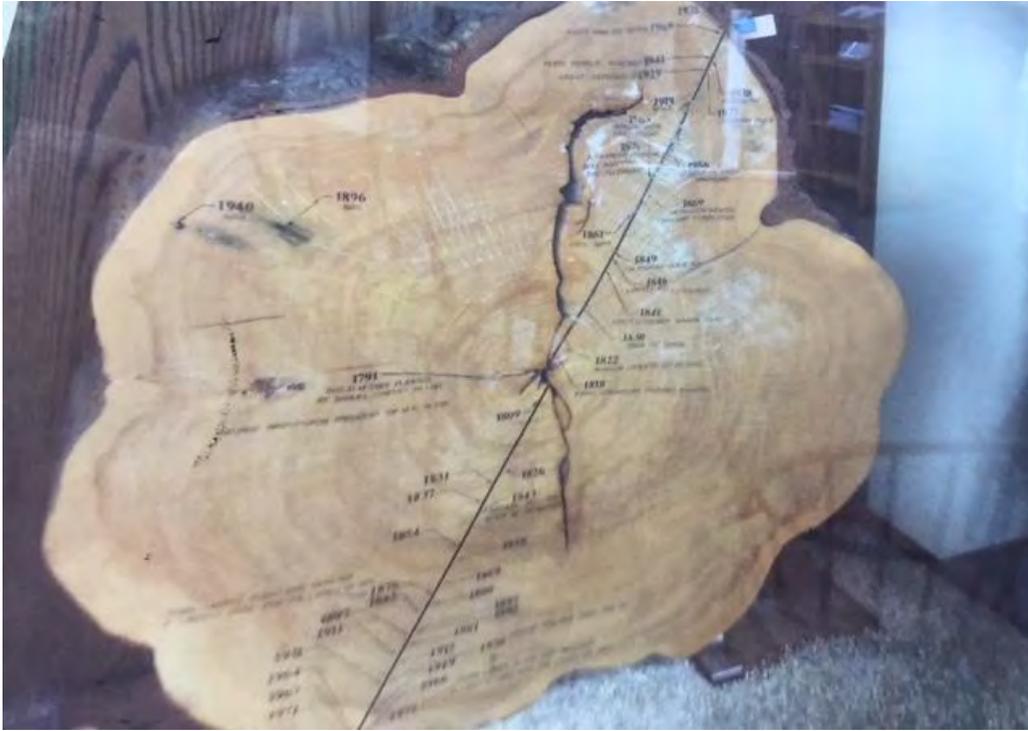
The following are some of the most significant historical items that we believe should be memorialized as part of the project:

1. **The Big Elm Tree**- This huge tree was planted in 1791 on the island on the corner of Main and Elm streets and gave the latter street its name. It was planted in the fork of the road by Samuel Cheney who lived next door who asked that it remain there as a marker and a memorial. It stood for 184 years, as a key landmark to townspeople and travelers, before it had to be cut down due to Dutch elm disease in 1975.



THE BIG ELM TREE

The Big Elm was a majestic symbol of the town for not only those 184 years, but it lives on as a memorial to the town's vibrant New England village life in the Historical Society Museum where the slice pictured below is displayed. The town's citizens can see the timeline of the town's history based on the number of tree rings.



The kids from Pollard school are fascinated by this symbol of Plaistow's history when they visit the museum each year.

2. **The Trolley** – From 1901 until 1934, electric street cars from Haverhill, Mass. ran up Main Street on their way to Hampton Beach and Portsmouth. They ran along the east side of the road and turned up Elm Street in what is termed “the slip lane”. The tracks can be seen in the 1903 picture below



There was a subway stop a few houses up from the corner as shown below in a 1905 picture looking south on Elm Street.



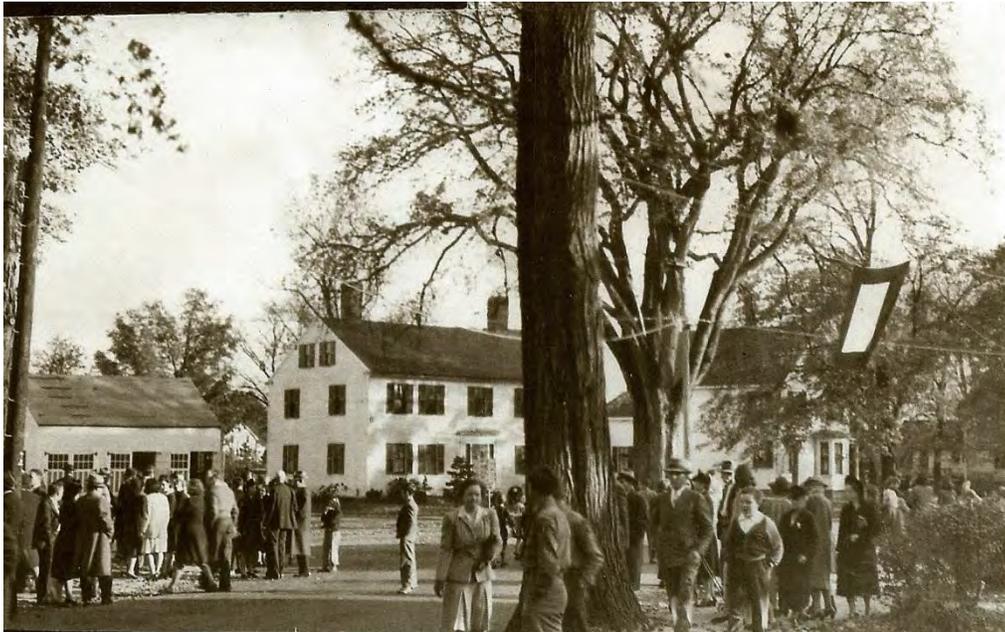
Before the advent of the automobile, the trolley was another vibrant part of Plaistow's history allowing much easier travel for Plaistow workers and to vacation spots at the beach.

3. **The Badger House-** Built in the mid-1700s, this two story colonial was the home of John Badger, who was the town constable for many years in the late 1800s and early 1900s. The house one of the oldest in town, one of about only twenty 1700s houses still standing. The property also has a rich history with the town's stockade and whipping post located behind it early on. The house exhibits many unique features, including Indian shutters, the original barn, many of the original hand hewn beams and working colonial fireplaces.



is

The house is pictured in 1942 below along with the Big Elm.



I have also attached three old maps of the area showing Elm Street Corner over the years.

In sum, the PHS believes the three historical items above should be memorialized in some way, via signs, plaques or benches as part of the SRTS renovation of the Elm Street corner. We would like to work with the Town and NHDOT on this portion of the project, providing our ideas and time. Further, we'd suggest looking into the use of smart phone technology to allow citizens and students to access historical information on the items above using their hand-held device.

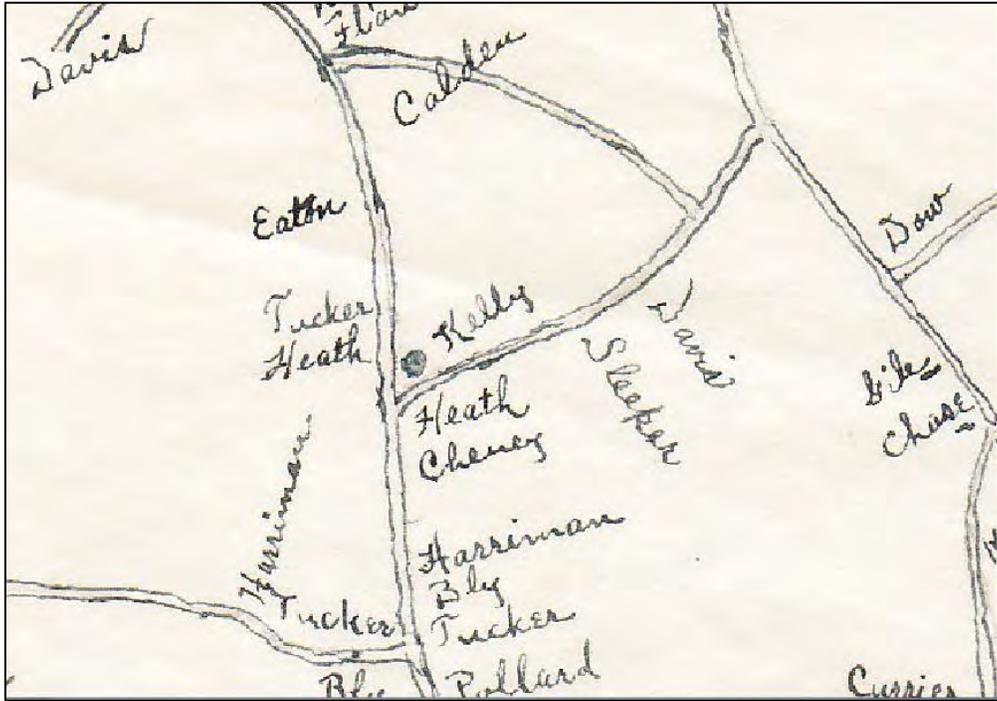
These are our recommendations to the project team to ensure that the cultural significance of this area is memorialized and the historical character of the Elm Street Corner is retained.

Sincerely,

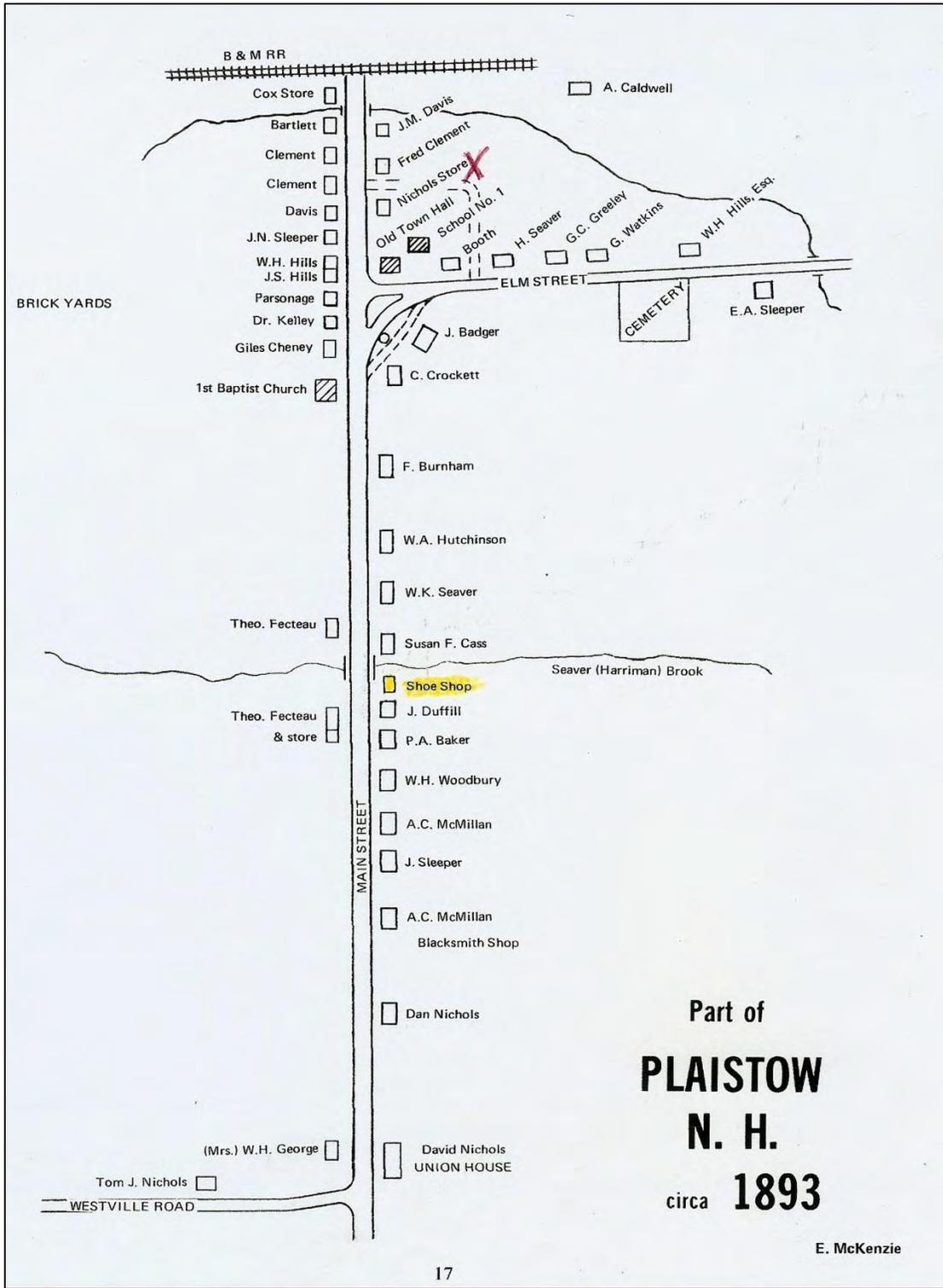
James Peck, Historian, Plaistow Historical Society

CC: William Rose, Senior Planner/Program Manager, NHDOT Bureau of & Community Assistance
Gregory M. Jones, Plaistow Town Planner
Bob Carolan, President, Plaistow Historical Society

Attachments: 1831 Map of Plaistow
1857 Map of Plaistow
1893 Map of Plaistow



1831 Map of
Plaistow
Heath house at Elm Street Corner



1893 Map of Plaistow
J. Badger house at Elm Street Corner

APPENDIX G

**Natural Resource Coordination
Email from Matt Urban 7/11/16**

Haas, Stephen B.

From: Matt Urban <MUrban@dot.state.nh.us>
Sent: Monday, July 11, 2016 7:06 AM
To: Haas, Stephen B.
Cc: Greg Jones; William Rose; Coon, Deb
Subject: RE: Natural Resource Agency Coordination - #40312 Plaistow SRTS Infrastructure Project (HTA#913405.01)

Good Morning Stephen,

Thanks for your email.

I agree that this project doesn't warrant the need to attend the Natural Resource Agency Meeting.

The majority of comments received at the NAT RES meetings are wetland impact driven and since your project does not anticipate impacting wetlands you probably don't need to attend.

Thanks.

Matt Urban

From: Haas, Stephen B. [mailto:shaas@hoyletanner.com]
Sent: Thursday, July 07, 2016 4:39 PM
To: Matt Urban
Cc: Greg Jones; William Rose; Coon, Deb
Subject: Natural Resource Agency Coordination - #40312 Plaistow SRTS Infrastructure Project (HTA#913405.01)

Matt,

We are currently performing Feasibility Phase Services for the Town of Plaistow for sidewalk improvements in their downtown as part of NHDOT's Safe Routes To School program (#40312) through the LPA process.

As this project is going through the LPA process, coordination with the Natural Resource Agencies is recommended. Our assumption is that attendance at a monthly meeting would not be required, however, I was hoping to get your input.

The project is proposing to add/reconstruct sidewalks, close a right-turn slip ramp to formalize a T-intersection, improve crosswalk and ADA ramp facilities, and make landscaping & lighting improvements as feasible (see attached concept plan). The project impacts are anticipated to remain within the existing ROW and mostly in front of the existing back sidewalk, where applicable.

As this work will be performed within the existing disturbed footprint of the roadway and sidewalks, no impacts to wetlands or sensitive resources are anticipated. Wetlands were not identified within the survey area and a wetland permit is not intended to be filed. Minor drainage revisions/additions are anticipated to capture water due to the revised curb line. However, relocations or modifications to drainage outfalls are not anticipated. Additionally as the project proposes to remove a large amount of pavement by removing the right turn slip lane, reductions in the overall impervious area and peak runoff are anticipated. Our anticipated area of disturbance is expected to be less than 100,000 sf.

Your thoughts on any additional required coordination would be greatly appreciated.

Regards

Stephen B. Haas, P.E.

Senior Transportation Engineer/Project Manager



150 Dow Street | Manchester, NH 03101
(603) 669-5555, ext 152 | Fax: (603) 669-4168
Cell: (603) 785-0997
shaas@hoyletanner.com
www.hoyletanner.com

Our vision is to provide innovative, collaborative and sustainable engineering and planning solutions to the challenges our clients face, while enhancing the communities in which we work and live. We strive to uphold the highest ethical standards while maintaining integrity and respect within our professional relationships. We continue to build a corporate culture that honors and values the individuality and strengths of our team members and our clients.

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APPENDIX H

**Main Street Traffic Calming Plan
Rockingham Planning Commission**

Main Street Traffic Calming Plan



- Plaistow, NH -

April, 2011



Prepared for the Town of Plaistow by The Rockingham Planning Commission

Main Street Traffic Calming Study

| | |
|---|----|
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The preparation of this report has been financed in part through a grant from the Federal Highway Administration and Federal Transit Administration, U.S. Department of Transportation, under the Metropolitan Planning Program, Section 104(f)] of Title 23, U.S. Code. The contents of this report do not necessarily reflect the official views or policy of the U.S. Department of Transportation.

Main Street Traffic Calming Study

Introduction

By definition, a “Main Street” is a highway with mixed functions that is not just a channel for vehicular traffic but a destination in its own right. Main Streets in general are highways that travel through areas of mixed uses including residential, commercial, and civic and these generate bicycle and pedestrian traffic in addition to motor vehicles making inclusion of facilities for those users important. Usually aesthetics, historic and cultural features, and the streetscape are of primary importance as well. Main Street in Plaistow touches upon many of the components of the definition of a classic Main Street and the intent of this study is to determine ways to enhance that aspect of the corridor by improving the transportation environment on the corridor. Main Street in Plaistow (NH 121A) extends approximately 5 miles through the town connecting from Hampstead in the Northwest to the state line with Massachusetts and the City of Haverhill in the south. For the purposes of this study, the focus will be primarily on the approximately 3 mile long portion of the corridor known as South Main Street that lies between the state line, and where the roadway crosses NH 125 and becomes North Main Street.

In addition to the overall goal of enhancing Main Street as a destination within the town of Plaistow, there are some more specific transportation related objectives of the study and areas where recommendations will be offered:

1. Reducing vehicle speeds on Main Street
2. Improving the environment for pedestrians and cyclists
3. Redirect heavy vehicles to utilize NH 125 where possible
4. Enhance the aesthetics of the corridor

Study Process

The Main Street study started with data collection efforts to gather traffic volume and classification information, accident statistics, and vehicle speeds. Following data collection, the collected information was summarized and analyzed to draw out the relevant data and to establish any patterns. At the same time, discussions were held with the Plaistow Highway Safety Committee regarding traffic calming measures and determining what aspects might fit best on Main Street. Once the analysis was completed, development of the draft study report began as a point for beginning discussion of recommendations for the corridor.

Main Street Traffic Calming Study

Issues and Opportunities

There are a number of traffic problems that occur on Main Street and provide the motivation to make improvements that will further the “New England village” character of the community and create a more pedestrian and resident friendly town center for Plaistow. While these problems exist, there are also a number of opportunities that can aid the town in implementing changes. These issues and opportunities are discussed below.

Issue: Truck Traffic on Main Street

The traffic volume and vehicle classification counts have confirmed the anecdotal evidence that there are significant numbers of trucks utilizing Main Street to avoid the existing signals on Route 125 in both Plaistow and Haverhill. Trucks account for 6-8% of total traffic on Main Street with much heavier northbound volume than southbound. It is expected that since the number of signals will be increasing as NH 125 is reconstructed Main Street will continue to be an attractive route for trucks.

Issue: Main Street as a shortcut for commuters

Traffic patterns show that there is a significant use of Main Street during AM and PM peak commuter periods and like the truck traffic, much of it is likely done to avoid congestion and the traffic signals on NH 125. There are also significant residential developments that access Main Street and many residents must use it to travel to work.



Issue: Construction on NH 125

There are concerns that during the reconstruction of NH 125 that will be continuing for a number of years, traffic will shift to Main Street and not go back to NH 125 once construction is complete. This is certainly of great concern during the next few years as construction will be occurring in locations easily circumvented by utilizing Main Street, and depending on how well the ultimate build of NH 125 manages traffic, it may continue to be an issue in the future.

Issue: Speeding on Main Street

Anecdotal evidence is that many of the motor vehicles utilizing Main Street are exceeding the posted speed limit and contributing to dangerous conditions along the corridor.

Opportunity: Community Anchors

The village district in Plaistow has a vital advantage over many other communities in that the “town center” is already in place and features a number of community anchor facilities that can help to form the basis for village style development on the corridor. Included in this category are the Elementary School, Town Hall, the Town Green, Library, Recreation Fields, Safety Complex, Courts, and the US Post Office.

Main Street Traffic Calming Study

Opportunity: Main Street is NOT the only Street

While Main Street carries a significant amount of traffic, it is not the primary route through Plaistow, and that gives the community and NH DOT additional flexibility in how the roadway is designed and traffic is managed.

Opportunity: Intermodal Center

The location of the Park and Ride and the potential for MBTA service from that location is a potential opportunity for the community and for the village to provide goods, services, employment opportunities, and potentially housing within a walkable distance.

Existing Conditions

The existing conditions analysis will summarize the current state of land use, zoning, and traffic conditions on the corridor. This provides a basis for the development of recommendations and provides a comparison point for different types of analysis on the intersections.

Land Use and Zoning

Much of the property frontage on South Main Street is zoned as Commercial II (C-II). North of the train crossing, the zoning transitions into Medium Density Residential (MDR), then transitions again into Commercial I (C-I) as South Main Street approaches Route 125. In addition, the region from Ingalls Terrace south to approximately Bittersweet Drive has been zoned with a Village Center (VC) overlay district. Table 1 summarizes some of the dimensional requirements for these four zones.

The C-II zone is the predominant designation along the roadway and examples of permitted uses include small retail (2,000 ft²/lot), places of worship, business and professional office, public safety and service uses, as well as single and multi-family housing. The Village Center Overlay changes the underlying C-II zone by permitting Mixed-Use with the limitation that the buildings must be owner-occupied and may have rental units and/or a commercial operation. The dimensional standards for the Village Center district do not differ from the C-II zone and are similar to those of the MDR zone as well except for the maximum lot coverage which is slightly higher in the VC zone.

Table 1: Selected Dimensional Requirements for Land Use

| | MDR | C-I | C-II | VC |
|----------------------|------------------------------------|------------------------|------------------------|------------------------|
| Minimum Lot Size | 40,000 ft ² | 80,000 ft ² | 40,000 ft ² | 40,000 ft ² |
| Minimum Frontage | 150 ft | 150 ft | 150 ft | 150 ft |
| Maximum Lot Coverage | 20% | 75% | 30% | 30% |
| Maximum Height | 45' or 3 Stories whichever is less | | | |
| Minimum Setback | None | 50' from property line | None | None |
| Mixed Use Allowed? | No | No | No | Yes, Owner-Occupied |

Main Street Traffic Calming Study



North of the Village Center overlay area, much of the frontage along South Main Street is zoned as Medium Density Residential (MDR). This zone permits the construction of single-family and duplex units on lots 40,000 square feet or more. Article VI of the Town's Zoning Ordinance provides for the development of Planned Residential Developments (PRD), which also allows multi-family units and manufactured housing. South of the Village Center, the roadway transitions back to the C-II zone before transitioning to the C-I zone

close to the NH 125 corridor. The C-I zone has similar dimensional requirements as well although setbacks are required (50' from property line) and minimum lot size (80,000 ft²) and maximum lot coverage (75%) are much bigger.

There are no special parking requirements for the zones along the corridor beyond those required for all zones. All uses must construct a required minimum amount of off-street parking, and parking for any mixed use development must total the required amount for each use individually.

As Main Street is a state highway, driveway access is controlled and permitted by NH DOT according to state standards. Town Subdivision Regulations require that the preference is for a single driveway per parcel and if more than that is necessary the number should be kept to a minimum. The town has no dimensional requirements for driveways.

Plaistow Master Plan

The community Master Plan states a desire to see the Village Center area reflect a "New England village" town center with the current uses enhanced with additional uses and an aesthetically pleasing, pedestrian-oriented environment. It is desired that the Village Center have relatively intense land use on lots ranging from 10,000 ft² to 40,000 ft² as well as higher lot coverage allowances (65%). Uses are intended to include a mixture of single and multi-family housing, retail and service businesses, professional offices, public uses, small bed and breakfast establishments and other uses. Development is expected to adhere to architectural design and landscape standards that reflect this arrangement.



Main Street Traffic Calming Study



Main Street at Pollard School

The remainder of the Main Street corridor is desired to become more pedestrian oriented and develop uses that can be accessible by both car and foot. Use is expected to be somewhat less dense than the Town Center with a minimum lot size of 20,000 ft² and smaller coverage allowances of no more than 50% for commercial activities and 30% for residential uses. Building placement should be such that helps to maintain the small town character of Plaistow.

Traffic Volumes

Traffic volumes were collected at five locations along the corridor during September, 2009. Data was collected from Monday 9/14/2009 to Monday 9/21/2009 with the data for the two Mondays not being included in the analysis as the counters were active for only part of those days. All of the counts were directional (northbound and southbound) and in three locations, vehicle classification information was collected as well.

| | Weekday Average | | | Saturday | | | Sunday | | |
|----------------------------|-----------------|------|-------|----------|------|-------|--------|------|-------|
| | NB | SB | Total | NB | SB | Total | NB | SB | Total |
| Between NH 125 & North | 5291 | 5214 | 10506 | 5676 | 5162 | 10838 | 4475 | 3919 | 8394 |
| Between North & Pine | 6994 | 6879 | 13873 | 6128 | 5978 | 12106 | 4700 | 4543 | 9243 |
| Between Forest & Westville | 6484 | 6183 | 12666 | 5601 | 5217 | 10818 | 4214 | 4005 | 8219 |
| Between Westville & Elm | 6055 | 5218 | 11274 | 5053 | 5156 | 10209 | 3999 | 3910 | 7909 |
| North of RR Tracks | 4031 | 3950 | 7981 | 3164 | 3044 | 6208 | 2351 | 2335 | 4686 |
| Corridor Average | 5771 | 5489 | 11260 | 5124 | 4911 | 10036 | 3948 | 3742 | 7690 |

As seen in **Table 2**, average weekday traffic ranges from almost 8,000 vehicles per day on the northern end of the study area to nearly 14,000 vehicles per day in the center of the corridor and dropping back down somewhat at the southern end of the corridor to approximately 10,500 vehicles per day. Volumes are well balanced between north and southbound traffic with a slight weight towards northbound volumes at 51% of the total. The exception to this is the weekday traffic between Westville Road and Elm Street which shows a much larger differentiation between northbound (54%) than southbound (46%) traffic. In general, weekday average traffic is higher

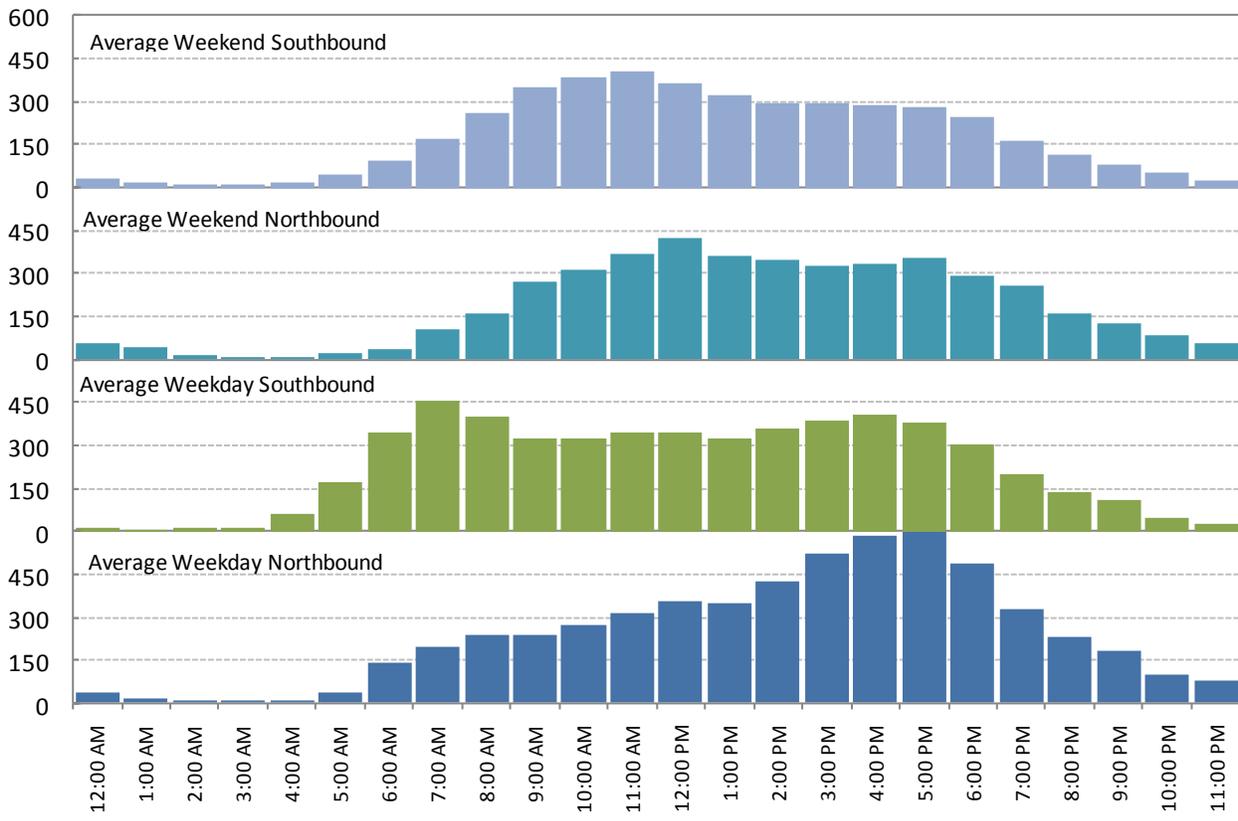
Main Street Traffic Calming Study

than weekend traffic with the exception of the very southerly end of the corridor between NH 125 and North Avenue which shows slightly higher Saturday volumes.

Figure 1 examines the hourly volumes along the corridor in more detail. Main Street shows a significant weekday AM peak period southbound in the morning between approximately 7:00 and 9:00AM, and no defined northbound peak during that same timeframe. Northbound traffic shows a long peak period in the afternoon between about 3:00 and 7:00 PM during which time over 1/3 (38%) of the total average daily northbound traffic travels the roadway. There is a southbound afternoon peak during the same time period however the total volume of traffic is much lower in that direction. Weekend traffic shows a more mid-day orientation as southbound traffic peaks during the 11:00 AM and 12:00 PM hour and northbound peaks between 12:00 and 1:00 PM. Overall volumes during that time of day are higher than the equivalent time frame on weekdays reflecting the varied use of Main Street as a commuter corridor as well as for access to shopping and services.

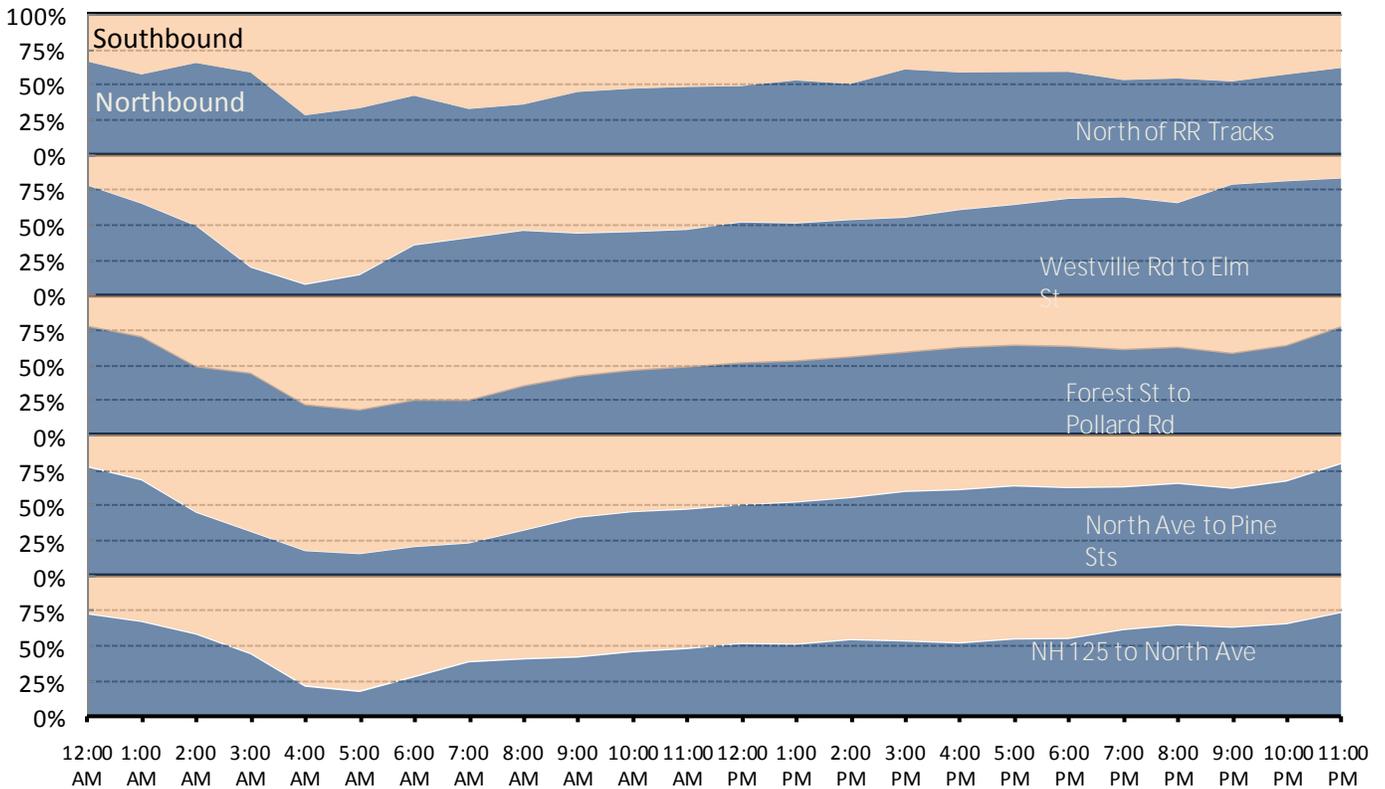
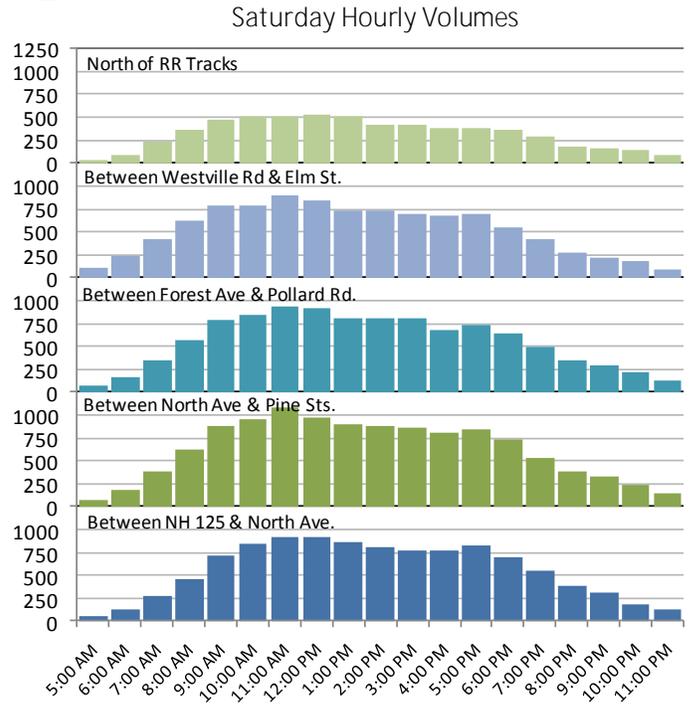
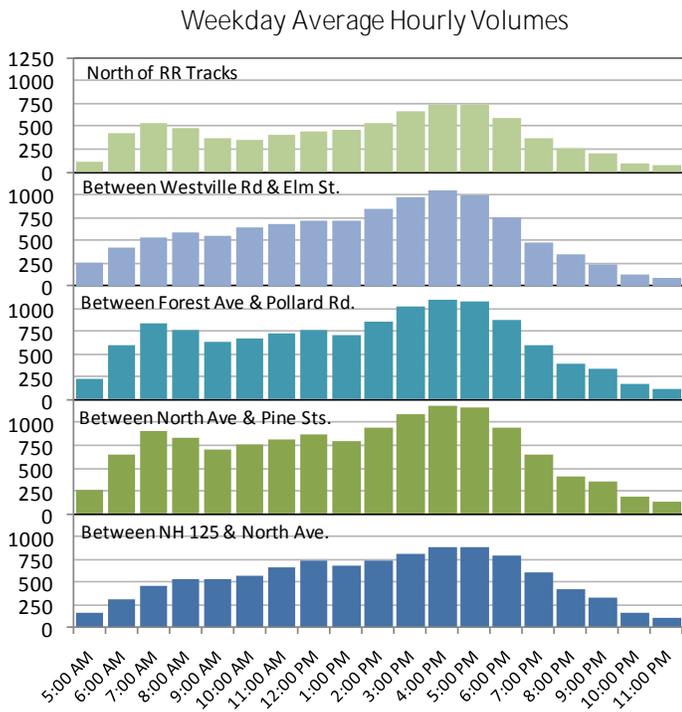
Figure 2 provides additional site level detail as well as showing the different patterns between weekdays and Saturdays along the corridor. Sunday, which is not shown in graphic form, has a pattern of traffic very similar to Saturday with lower volumes. Figure 2 shows commuter peaks in the AM and PM for all five sites on weekdays with both ends of the corridor showing less peaking than

Figure 1: Comparison of Weekday and Weekend Directional Volumes



Main Street Traffic Calming Study

Figure 2



Main Street Traffic Calming Study

the middle sites. Hourly volumes are the highest during the PM peak period and reach nearly 1200 vehicles per hour between North Avenue and East/West Pine Street and exceed 1000 vehicles per hour through the Village area as well. Saturday mid-day peak volumes are similar generally higher than the weekday AM peak period and slightly lower than the weekday PM peak period in most cases. Between NH 125 and North Avenue, Saturday peak volumes are higher than peak weekday volumes reflecting the proximity to the retail centers on NH 125 as well as the easier access to Main Street via North Avenue during weekday commute periods.

Figure 3 shows the distribution of traffic for each count location by direction of travel with the lighter shading being the percentage of traffic that is southbound and the darker shading being the percentage of traffic that is northbound during each hour of the day. While overall, the split of traffic by direction shows slightly more travelling northbound (51% to 49%), there are time periods of the day where the difference is much more. During the late night/early morning period where traffic volumes are at the lowest the extremes of directional travel are reached with high percentages of northbound traffic in the late evening (10:00 PM to 12:00 AM), and high percentages of southbound traffic in the early morning (4:00-5:00 AM). During the AM commute period, travel is heavier in the Southbound direction with an average of approximately 60% of traffic moving in that direction. Between 7:00 and 8:00 AM the area between North Avenue and Pine Streets show an average of 77% of traffic moving southbound on weekdays. The PM peak period does not show a directional bias as much as the AM peak period does with an average of 54% of vehicles moving northbound during that time. However, there are instances of heavy directional flow most notably through the center of the corridor from 5:00 to 6:00 PM which shows approximately 64% of traffic moving northbound during that time period.

Overall the patterns are indicative of the use of Main Street as a route around congestion and traffic signals on NH 125 both in Plaistow and Haverhill during weekday commutes as well as Saturday mid-day. The central area of Main Street may be avoided by some commuters during the morning peak due drivers not wanting to be caught in bus and car traffic related to the Pollard School but this is not something that is easily measured. Volumes along the corridor do not indicate any roadway capacity issues that would require additional lanes.

Turning Movement Counts

Turning movement counts were collected for the PM peak period at six locations along the corridor as well as for the AM peak at two locations (the North Avenue and Pine Street intersections). From the turning movement counts, information regarding the Level of Service (LOS), or quality of function, at each intersection can be generated. LOS provides a general indicator as to how well or poorly each intersection is operating, and can be utilized as a basis for a full signal warrant analysis if indications are that the LOS is poor. **Table 3** shows various LOS measures that are utilized in analyzing capacity of unsignalized intersections and roadways, and in this instance the primary concern is with the delays experienced in making movements through intersections that are either two-way or four-way stop controlled. All of the intersections analyzed along Main Street are two-

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way stop controlled in that Main Street traffic has the right-of-way while the traffic on the approaching streets is forced to stop before accessing the intersection.

When considering the operation of each intersection as a whole, north-south travel along the corridor is operating at an acceptable LOS during the PM peak hour, which is generally the most congested time of day. On the other hand, with the exception of Forest Street and West Pine Street (LOS C), the side street approaches to Main Street are almost all experiencing significant delay and poor LOS (E and F) during the peak periods. Specifically, left turn movements onto Main Street are the most problematic as through volumes on Main Street at that time do not leave many gaps that are adequate for drivers to feel comfortable entering traffic. While flared approaches to the intersections on the side streets do help to alleviate the congestion to some extent by allowing space for vehicles making right turns, the length of the flares are limited and even queues of a few vehicles can block access to that space. Longer delays also tend to prompt unsafe driving behaviors and risk taking where drivers will attempt to move into the intersection with smaller gaps between cars and this can result in safety problems.

Table 3: Level of Service Measures

| Level of Service | Unsignalized Intersection Stopped Delay per Vehicle (Seconds) | Equivalent Volume to Capacity Ratio (v/c)* | Density Range (passenger cars per mile per lane)* |
|------------------|---|--|---|
| A | ≤ 10.0 | ≤ 0.50 | 0 – 11 |
| B | 10.1 to 15.0 | 0.60 to 0.69 | > 11 – 18 |
| C | 15.1 to 25.0 | 0.70 to 0.79 | > 18 – 26 |
| D | 25.1 to 35.0 | 0.80 to 0.89 | > 26 – 35 |
| E | 35.1 to 50.0 | 0.90 to .99 | > 35 – 45 |
| F | > 50.0 | ≥ 1.00 | > 45 |

The individual intersection analyses are summarized in **Table 4** which shows various measures of effectiveness for each, and **Figure 4** which shows, an aerial photo of the location, peak hour turning movements, as well as some of the measures of effectiveness. Further study will be necessary to determine if particular intersections meet warrants for signalization or some other treatment to improve operations. However, the analysis completed so far will provide a good indicator of the

Table 4: Intersection Analysis Summary (PM Peak)

| | Main Street | | | | Minor Street | | | |
|------------------|-------------|-------|------------------|------|--------------|-------|------------------|------|
| | LOS | Delay | 95% Queue Length | v/c | LOS | Delay | 95% Queue Length | v/c |
| Elm Street | A | 8.3 | 0.32 | 0.1 | F | 52.9 | 7.84 | 0.85 |
| Westville Road | A | 8.6 | 0.4 | 0.12 | E | 36.8 | 4.52 | 0.67 |
| Pollard Road | A | 9.6 | 0.41 | 0.12 | E | 38.6 | 3.53 | 0.6 |
| Forest Street | A | 9.2 | 0.28 | 0.09 | C | 19.8 | 1 | 0.26 |
| East Pine Street | A | 8.4 | 0.16 | 0.05 | F | 86.4 | 3.81 | 0.7 |
| West Pine Street | A | 8.4 | 0.16 | 0.05 | C | 24.7 | 2.1 | 0.43 |
| Chandler Avenue* | A | 9.8 | 2.19 | 0.43 | F | 286.2 | 3.17 | 0.89 |
| North Avenue** | A | 9.2 | 0.82 | 0.22 | F | 317.2 | 35.8 | 1.62 |

* Analyzed for AM Peak and separately from North Avenue movements

** Analyzed for PM Peak and separately from Chandler Avenue movements

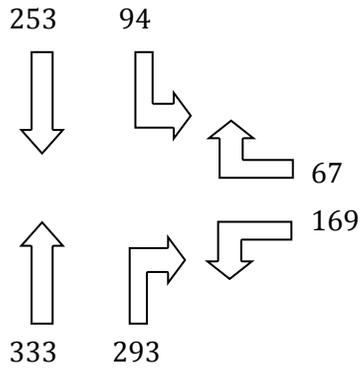
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Figure 4: Turning Movement Count Locations and Conditions (PM Peak)

Main Street and Elm Street

Estimated LOS Along Main Street = A

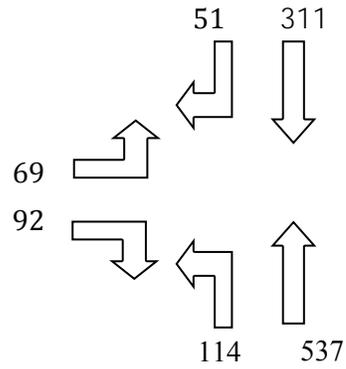
Estimated LOS of turns from Elm Street = F



Main Street and Westville Road

Estimated LOS along Main Street = A

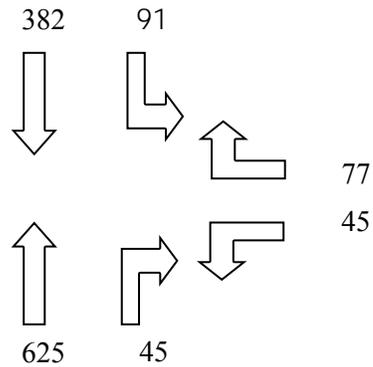
Estimated LOS for turns from Westville Road = E



Main Street and Pollard Road

Estimated LOS along Main Street = A

Estimated LOS for turns from Pollard Road = E



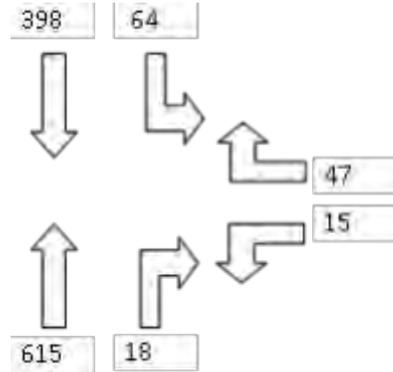
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Figure 4: Turning Movement Count Locations and Conditions (PM Peak)

Main Street and Forest Street

Estimated LOS along Main Street = A

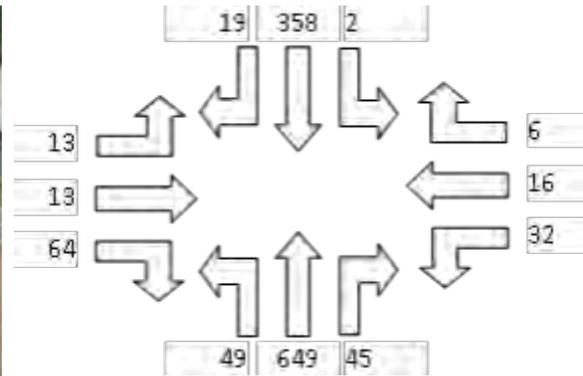
Estimated LOS for turns from Forest Street = C



Main Street and E/W Pine Streets

Estimated LOS along Main Street = A

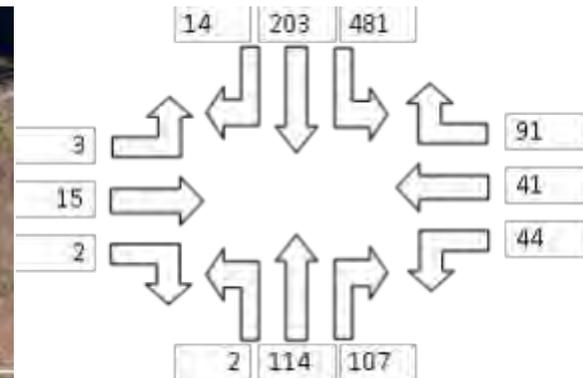
Estimated LOS for turns from Pine Street = F



Main Street and North Avenue (AM Peak)

Estimated LOS along Main Street = A

Estimated LOS for turns from Chandler Ave or North Ave = F



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functioning of the intersection and will help to identify the intersections where further study should be pursued.

Operations along Main Street are by most indicators very efficient and effective. The north-south movement through each of the intersections shows minimal delay (under 10 seconds) and very low volume to capacity ratios and queue lengths. Level of Service of "A" at each location reflects these low numbers. The one location where operations along Main Street show some potential problems is in the vicinity of North Avenue and Chandler Avenue where volumes of traffic and turning movements are beginning to limit the number of vehicles that each intersection can process.

The Elm Street intersection indicates failure conditions are present during the PM peak period. Delays for vehicles turning left from Elm Street are approximately 53 seconds which is just within the threshold for an Level of Service of "F". However, the results for the intersection can change significantly depending on the assumptions regarding the space available for right-turning vehicles to queue along side those waiting to turn left. Current assumption is that there is space for a single vehicle, but extending the flare of the intersection enough to allow for two vehicles improves the level of service to "E" and drops delay to approximately 48 seconds. The right-turn channelization present at this intersection helps considerably with operations by separating those vehicles from through vehicles and opening gaps for drivers wanting to make turns from Elm Street. This channelization also contributes to high speeds through the intersection as vehicles do not need to slow much or at all to make the corner.

The Westville Road and Pollard Road intersections show very similar operational results from the analysis. Each indicates an LOS of "E" with delays between 35 and 40 seconds, 95th percentile queue lengths of 3.5-4.5 vehicles, and volume to capacity ratios of .6 to .67. While operations at these intersections are still considered adequate, a small increase in traffic volumes either along Main Street or from the approaches could push either of them into failure conditions.

Low volumes of left turn movements at Forest Street keep that intersection operating at an LOS of "C" and that is primarily due to the delay experienced by the few vehicles that do need to turn left at that location. Right turn movements indicate little to no delay.

Westbound approaches to Main Street at the intersection with East Pine show significant delay and a failure level of service as well. Delay is indicated to be 1.5 minutes on that approach during the PM peak period and this impacts primarily left turn and through movements from that direction. Eastbound from West Pine Street indicates a much higher level of service (LOS C) and shorter delay primarily due to lower volumes of left turning and through movement vehicles.

The intersections experiencing the most operational difficulties were those with North Avenue/ Chandler Avenue. The analyses at North Avenue identified serious capacity constraints and as many as 30 vehicles were observed queued to make a left turn in that location during the turning movement counts. During both the AM and PM peak periods, this intersection has a failure condi-

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tion on movements from the North Avenue approach and the results show significant delay as well as volumes well over capacity. It should be noted that when an intersection approaches or exceeds capacity the seconds of delay produced by the formulas in the Highway Capacity Manual and using the Highway Capacity Software (HCS+) can produce numbers higher than would be anticipated or experienced in most cases. In that regard, the delay indicated for Chandler Avenue and North Avenue should be considered as showing potentially very long waits for left turns and not taken at the absolute values shown.

Overall, the Chandler Avenue and North Avenue intersections with Main Street should be considered for more detailed operational analysis as should the intersection with Pine Streets and Elm Streets. Any significant increases in traffic volumes may warrant further analysis at Westville Road and Pollard Road as well.

Truck Traffic

Three of the automatic traffic recorders placed along the corridor to gather traffic volume data were configured to collect vehicle classification data as well. The counters placed between NH 125 and North Avenue, between Westville Road and Elm Street, and north of the Rail Road tracks all tracked traffic according to the 13 category federal classification system. These numbers were consolidated into passenger vehicles and heavy duty vehicles with the latter category including vehicles pulling trailers as well as buses and heavy trucks of all kinds.

Overall volumes of truck traffic can be very high during certain hours of the day, with an average approaching 70 vehicles per hour in the central part of the corridor and nearly 60 on the northern end (**Figure 5**). The most southern section of Main Street has the fewest trucks generally, with hourly volumes peaking just above 20 vehicles. Generally, the higher truck volumes coincide with

Figure 5: Average Weekday Hourly Truck Volumes

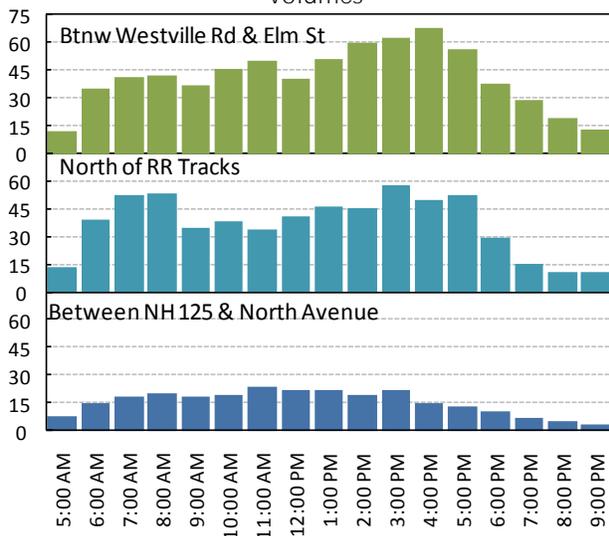
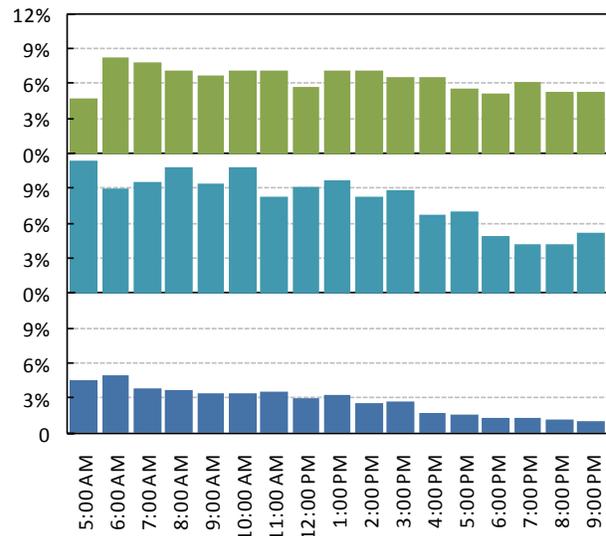


Figure 6: Average Weekday % Trucks



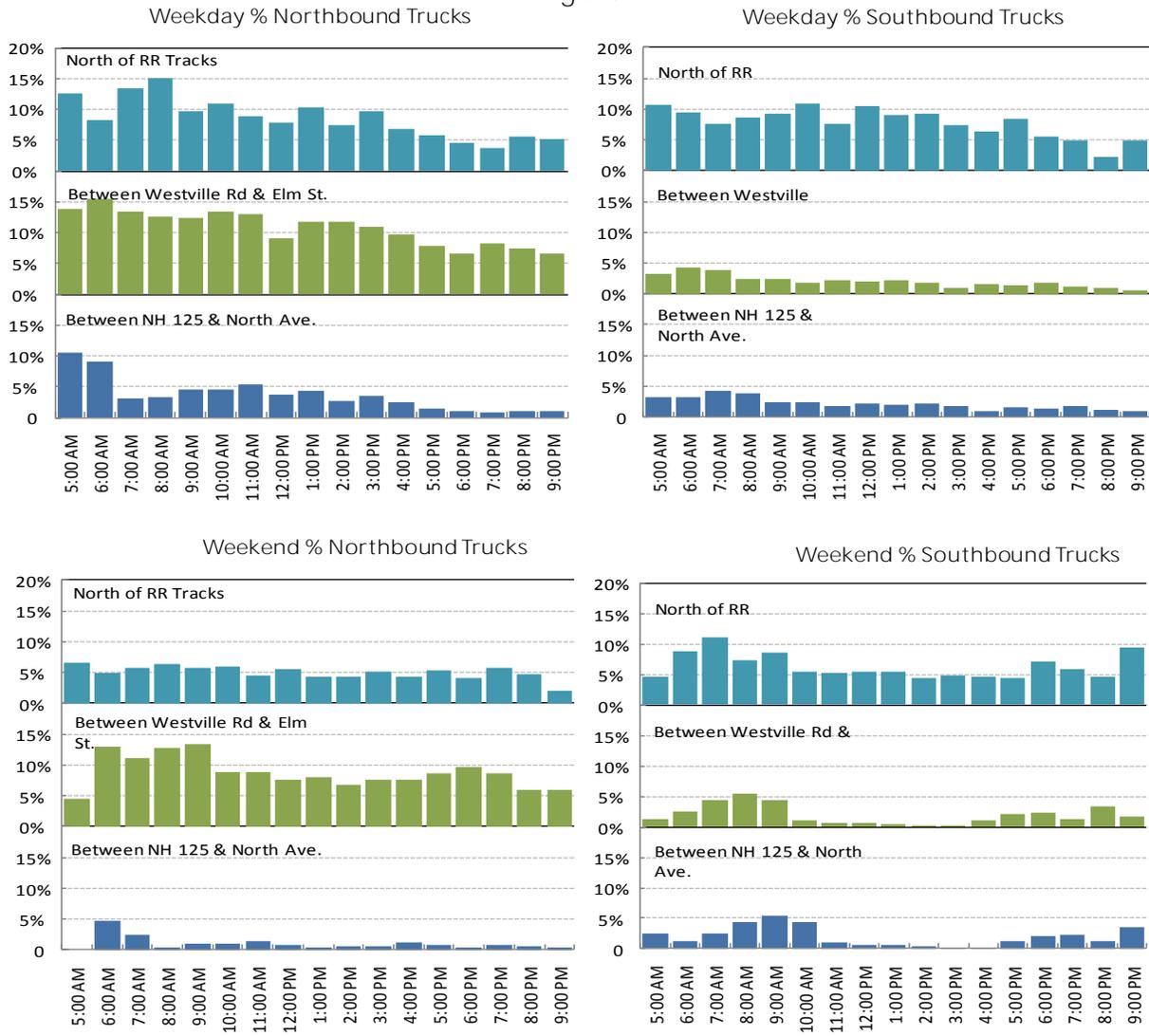
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higher levels of traffic and so those areas of the corridor with more overall traffic see more trucks as well.

As a percentage of total traffic, larger vehicles account for approximately 2 to 12 percent of the volume on the roadway depending upon the location on the corridor (**Figure 6**). The segment of the corridor between NH 125 and North Avenue has a very low volume of trucks that averages about 3.6% of total traffic. On the other end of the corridor, the area north of the railroad tracks has the highest average percentage of trucks at 8.2%. The center of the corridor between Elm Street and Westville Road averages approximately 6.5% trucks. During the late night and early morning hours when traffic volumes are especially low, truck volumes as a percentage of traffic can be greater than 15%, however in most cases this still means less than 10 trucks an hour.

Examining the direction of travel shows a pattern of heavier northbound truck traffic on Main Street. At all observed locations throughout the day, the southbound number and percentage of

Figure 7



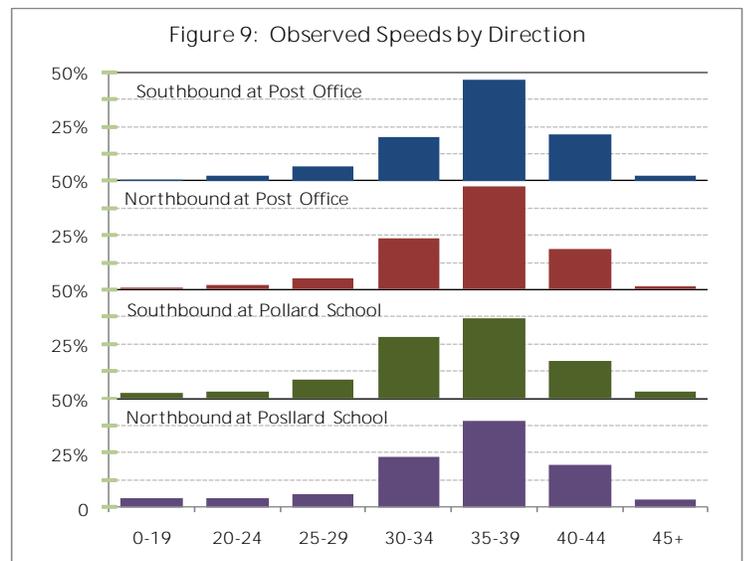
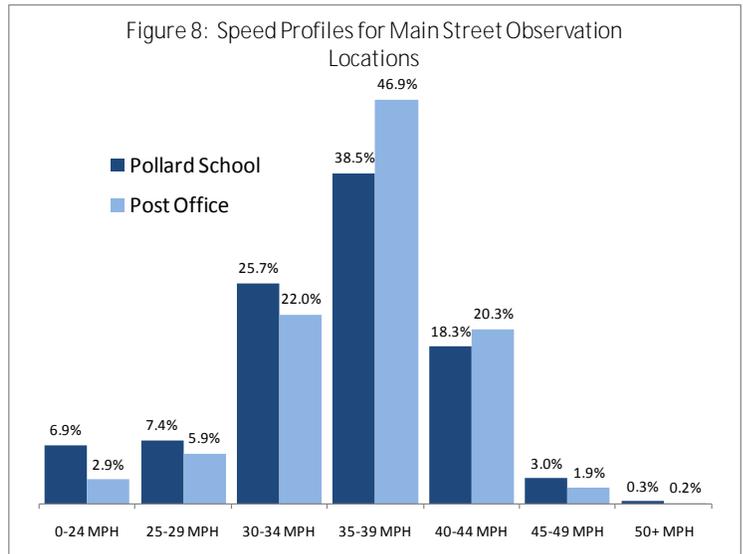
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trucks is smaller than the northbound with the exception of weekend truck volumes southbound in the area of the corridor between NH 125 and the rail road track crossing just north of Town Hall. At the two ends of the corridor, the volumes and average percentages by directions are relatively balance with just a few percentage points separating the averages. In the center part of the corridor however there is a wide disparity with northbound truck traffic averaging 10.1% of average week-day traffic and southbound truck traffic averaging a mere 2.2%. In terms of volumes, this translates to an average of 610 trucks moving northbound on Main Street each day between 5:00 AM and 9:00 PM, compared to 116 southbound during the same timeframe. This helps to verify the anecdotal evidence that trucks enter Main Street via North Avenue and leave via Elm Street at least partially to avoid traffic on NH 125.

Travel Speeds

The perception of many Plaistow residents is that traffic exceeding the posted speed limit of 35 MPH is a significant problem on Main Street. To gain an understanding of how much speeding is occurring and when, over 100,000 observations of vehicle travel speeds were collected near Pollard School and near the Post Office from Wednesday, October 27th to Sunday, October 31st, 2010. Tube based automatic traffic counters were utilized in a configuration that collected data into 5 mile per hour ranges split by direction of travel along Main Street. For simplicity, and because of very few observations at the slowest and fastest speeds, the information shown in the speed related charts has been consolidated into a narrower range of speeds. In Figure 8 and Figure 9, show distinctions between vehicles travelling at less than 25 MPH, 25-34 MPH, 35-44 MPH, and 45 or more MPH. Figure 10 simplifies things further and shows those travelling at less than 35 MPH only.

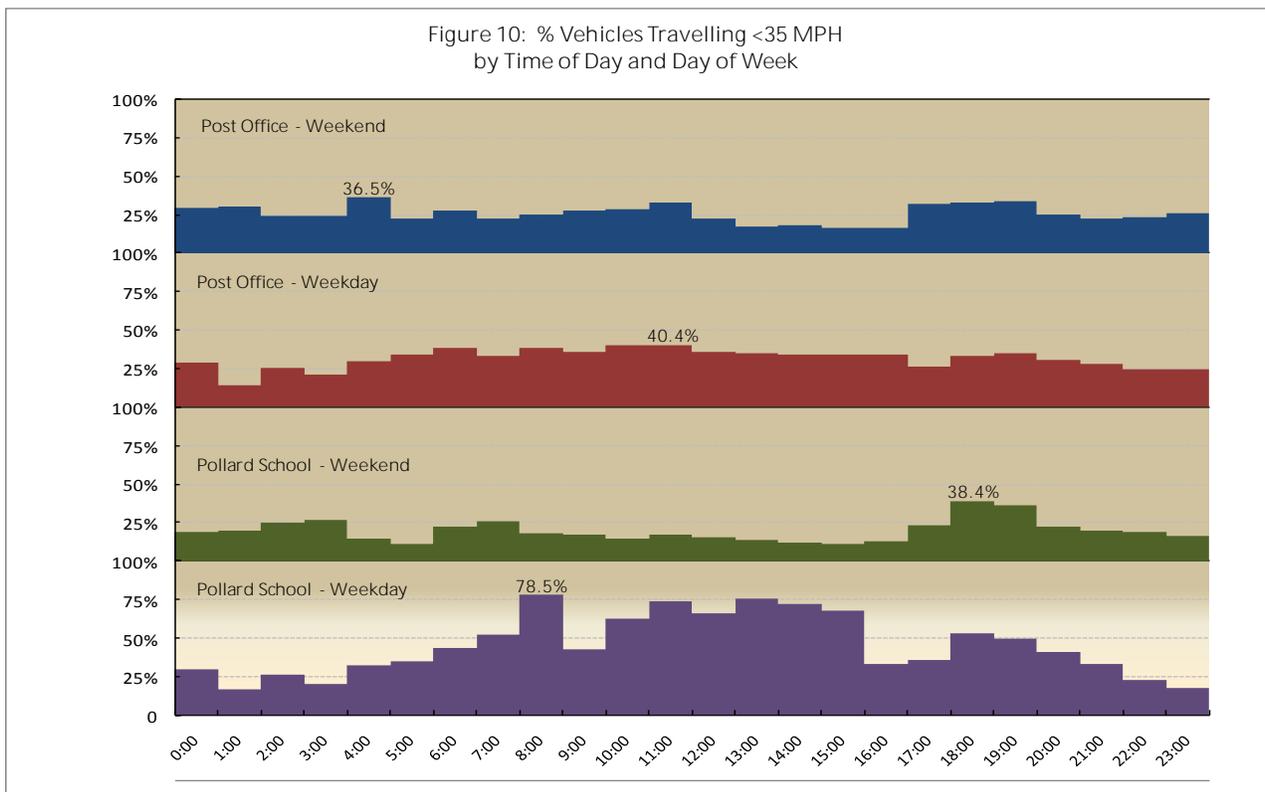
The overall speed profiles for each of the two sites indicate some differences. **Figure 8** shows that speeds in the vicinity of Pollard School are generally slower than those near the Post Office, with the difference especially noticeable during school hours. Delving into the data in more detail, **Figure 9** shows the daily differences between the two sites. Weekdays



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show generally slower traffic in the vicinity of Pollard School with a greater percentage of drivers travelling slower than the 35 MPH speed limit and the vast majority of drivers travelling below 40 MPH. Thursday numbers are somewhat different than Wednesday and Friday due to a equipment malfunction that only tabulated speeds in one direction during much of that day. Weekends show the reverse of the weekday pattern; speeds adjacent to the school are higher than near the post office with much a much lower percentage of drivers travelling slower than 35 MPH, and an average of 7.2% of drivers travelling faster than 45 MPH through the school zone, compared to 1.4% on weekdays.

Figure 10 compares the patterns on weekdays and weekends at the two collection sites and finds that drivers are much more likely to take the school zone speeds seriously during weekdays. The Post Office site shows a very consistent pattern of approximately 20-40% observance of the speed limit across all days and times. The school site shows a marked difference between week days and weekends. On weekdays during the 8:00 to 9:00 AM hour, approximately 84% of drivers near the school are observing the 35 MPH speed limit or lower, and nearly 14% are driving below 25 MPH. Most of the time during school hours observance of the speed limit is relatively high and the time period from 2:00-4:00 shows forms a second peak for weekdays with approximately 60-70% of drivers travelling at less than 35 MPH. Weekends near the school show a fairly uniform low observance of the speed limit which peaks around 40% several times throughout the day.



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Accident Statistics

(Table 5 shows the distribution of accidents along the corridor by intersection location from 2006 to mid-2009. The North Road intersection has the greatest number of accidents at 27 during the time period followed by the Pine Streets intersection which combines for 15, and Westville Road which had 10 over the 3 ½ year period. The most common motor vehicle crashes occurring are those that relate to turning on or off Main Street. There were 27 accidents between 2006 and June 2009 that involved vehicles turning onto or crossing Main Street and another 19 involving vehicles attempting to make a right or left turn off of Main Street. The next most common accident type in-

Table 5: Accident Statistics for Main Street Intersections

| Intersection | 2009 | | | | Street Totals |
|---------------|------|------|------|-------------|---------------|
| | 2006 | 2007 | 2008 | (Thru June) | |
| Chandler Ave | 1 | 0 | 0 | 0 | 1 |
| East Pine St | 2 | 3 | 0 | 1 | 6 |
| Elm Street | 2 | 3 | 0 | 1 | 6 |
| Forest St. | 0 | 0 | 2 | 0 | 2 |
| Jesse George | 0 | 0 | 1 | 0 | 1 |
| North Ave | 7 | 6 | 6 | 8 | 27 |
| Plaistow Rd. | 1 | 3 | 0 | 0 | 4 |
| Pollard Rd. | 0 | 3 | 0 | 1 | 4 |
| Spinney Ave | 0 | 1 | 1 | 0 | 2 |
| West Pine St. | 1 | 6 | 2 | 0 | 9 |
| Westville Rd. | 5 | 2 | 2 | 1 | 10 |
| Witch Lane | 1 | 0 | 0 | 0 | 1 |
| | 20 | 27 | 14 | 12 | 73 |

involved failure to stop at stop signs and that resulted in 7 accidents over the time period.

Recommended Measures

Implementation of a comprehensive traffic calming program on Main Street requires a multi-faceted approach, a substantial effort and investment by the community, and will take time to do properly. Justifying the expenditure of resources on street and landscape improvements that may be seen as a lower priority than other infrastructure issues (or not spending money at all) is often not an easily accomplished task. However making this types of investment can do much beyond solving the immediate transportation issue in that the changes can enhance the unique identity of

1 A small sample includes the Homer Town Center Project, 2008 (<http://www.homertownsquare.com/pdf/EconomicBenefits.pdf>); Economic Effects of Traffic Calming on Urban Small Businesses, 2003 (http://www.emilydrennen.org/TrafficCalming_full.pdf); Victoria Transport Policy Institute online TDM Encyclopedia (<http://www.vtpi.org/tm/tm4.htm>); and Street Redesign for Revitalization, West Palm Beach, FL (http://www.walkinginfo.org/pedsafe/casestudy.cfm?CS_NUM=16)

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an area and provide a wide range of economic and social benefits to the community. Studies have shown that traffic calming produces the following benefits¹:

- Slower traffic increases road safety through both reduced numbers of accidents and less severe outcomes, for motor vehicles as well as for bicycles and pedestrians.
- Improved mobility for non-motorized travel as the area “feels” more safe for walking and biking and generates more activity of that nature because of that.
- Reduced impacts from automobile congestion and pollution as walking and biking becomes an option.
- Increased neighborhood interaction as the streets become more hospitable people are out more and interact with neighbors and visitors.
- Residential property values increase at locations where traffic is not seen as an issue to homebuyers. Businesses benefit from locations where people want to spend time.
- Public health benefits expand as more opportunities for walking and biking are provided.
- Economic benefits are realized through increased spending from new and repeat visitors, increased employment, and increased tax revenues.

Successful implement of both regulatory, policy, and physical improvements on Main Street will also require that the following principles be generally applied to the corridor by planners, engineers, and community leadership:

- **Engage the community:** The design process needs to be as inclusive as is feasible and work with community residents, business interests, and town leadership to incorporate feedback into the final designs.
- **Plan for all modes:** while there may be no transit service along Main Street at this time, there will likely be some bus service along the corridor in the future. Any improvement projects and land development should be inclusive of transportation improvements for all modes. This includes the construction of transit stops and bus pull-outs, adequate roadway shoulders, sidewalks and buffers, crosswalks, as well as landscaping and streetscape improvements.
- **Maintain safety for all users:** Sight lines should be kept clear of visual obstructions at all intersections and space should be maintained on sidewalks for pedestrian circulation. In higher speed areas, clear zones adjacent to the roadway need to provide the opportunity for drivers to make corrective actions without striking roadside hazards. In addition, as Main Street is a primary emergency response route through the community, the movement of emergency services vehicles is critical to include within the designs approved.
- **Maintain what is built:** To ensure the safety of users, encourage continued use, and maintain the potential for economic development, sufficient maintenance funds should be provided for sidewalks, shoulder areas, and streetscape improvements.

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Policy Changes

1. **Take Ownership of Main Street from NH DOT:** Transferring ownership of Main Street from DOT to the Town of Plaistow would allow the community to immediately restrict truck usage and would allow the implementation of many of the improvements discussed in this document without having to wait for NH DOT design approval. This allows the community control over driveway permitting as well as a free hand in shaping a major component in the appearance of Main Street. The primary drawback of taking the roadway is the burden of additional road maintenance costs however, this is mitigated in the short-term by the NHDOT policy that the roadway be improved to a certain standard before the transfer occur.
2. **Allow for additional mixed use development:** As studies and concepts evolve in relation to the Village Center, the Town may want to reconsider the standards set forth by the Village Overlay Zone which supersedes the C-2 zone by allowing for owner-occupied mixed-use buildings. The Village Center zoning does not allow what is typically thought of as traditional Main Street style land use development pattern however. A minimum lot size of 40,000 square feet and a minimum frontage of 150 feet are prohibitive to establishing a more dense, pedestrian friendly downtown area on Main Street. Parking requirements must also be modified to account for shared parking that can occur with mixed-use development as well as some allowances given to make use of on-street parallel parking. Successful villages in the region have very dense land use patterns and extensive mixing of uses that aren't limited to owner-occupied businesses as well as the ability to use on-street spaces or municipal parking lots to offset some or all of the parking requirements. While current sewer and water infrastructure limitations will keep density relatively low on Main Street, higher densities in the town center create economic opportunities, and help create a sense of place that can be leveraged into a vibrant and dynamic area.
3. **Enforcement:** Increased or more visible enforcement can work in a few ways to improve the village. Increased levels of law enforcement will encourage motorists to drive at the posted speeds and penalize those who do not. This approach is effective when consistently high levels of enforcement are implemented however this can be a costly response to a speeding problem in the long term. Additionally, working with the State Department of Safety to set up temporary truck inspection sites on Main Street will very quickly (if temporarily) decrease the number of trucks using that roadway. Finally, with a bike and pedestrian friendly area, walking or bike patrols can be utilized increasing the visibility and community interaction of officers.
4. **Education:** Public education can be an effective tool to help change the attitude and behavior of drivers. Educational efforts aim at addressing the possibility that drivers are not attentive to the speeds that they are traveling at and that modifications of their own behavior may solve the problem can be effective on a neighborhood level. These efforts are fairly cost-effective, but are typically found to solve the problem only in the short term. In the case of Main Street, where the problem is just as likely to be through traffic as local residents, it may not have any impact at all. Where education may be more effective in this case is as part of the design process informing residents and business owners about how the various aspects of the streetscape

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work to create a safe, attractive place within the community and what the benefits are of investing in the community.

5. **Utilize a Complete Streets Philosophy for Improving the Village District:** Complete Streets is a philosophy of ensuring that the roadway right-of-way is designed, engineered and operated to enable safe access for all users. This means making improvements that allow for the safe movement along and across the street by pedestrians, bicyclists, motorists, and transit riders of all ages and abilities. The relatively compact area of the village overlay district (approximately .8 miles in length) provides an opportunity to implement a complete streets approach and further define the Village of Plaistow, although the philosophy and improvements could be applied to all of Main Street if desired. Pollard School, at .4 miles from the Library and the recreation fields, is almost exactly in the center of the overlay district and provides a great anchor to streetscape improvements as well as the opportunity to increase the number of children that walk and bike to school. In that regard, the following improvements should be considered:
- **Curb bulbs:** In combination with on-street parking these support pedestrian activity at corners, shorten crossing distances and slow speeds for turning vehicles. They also help to clearly delineate locations where parking is not allowed.
 - **On-street parking:** Utilize parallel parking on both sides of Main Street and formalize with striping and curb bulbs to eliminate parking too close to corners and driveways.
 - **Sidewalks:** Wide sidewalks on both sides of Main Street in the Village district would provide space for pedestrians to move and should be at least 5 feet wide in residential areas and 6 feet wide in commercial areas. In areas where outdoor displays, café seating for restaurants, and other active uses of the public space are occurring even wider spaces are required.
 - **Visible Crosswalks:** Crosswalks should be highly visible and across all intersection approaches. A midblock crossing is recommended at the Pollard School and could be a raised crosswalk, a unique surface, or otherwise well marked to stand out from the surrounding roadway.
 - **Buffer zones:** Green space between sidewalk and curb that is ideally wide enough to plant trees and other plants. Providing a buffer between the road and the sidewalk promotes use of the sidewalk as pedestrians feel safer and more relaxed and generate more use. Buffers can be composed of parked motor vehicles as well.
 - **Lighting:** Street lighting should be pedestrian scale and the design should fit the character of the village. Priorities for lighting should be at crossing locations, where there are safety concerns, and where adjacent land uses support pedestrian activity.
 - **Street furniture:** Benches, shelters, bicycle parking, signs/maps, and even artwork all support pedestrian use and should be encouraged within the streetscape.

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- **Driveways:** The number of driveways should be minimized to reduce pedestrian hazards, provide for longer stretches of continuous sidewalk, and allow for smoother traffic flow along the roadway. Driveway designs should incorporate handicapped accessible crossings and width should be minimized to limit crossing distances.
6. **Lower Speed Limit to 25 through village area:** Combined with changes to the physical layout of the roadway, lowering the speed limit will have positive benefits for safety and reduce noise in the village area. This combination may also have the impact of reducing through traffic on the roadway due to it being “too slow” to use Main Street, especially if combined with increased enforcement efforts. Given that approximately 80% of drivers are travelling at 39 MPH or less through the village area, especially during school hours, it can be anticipated that most would also stay close to a lower speed limit as well. Even if people are speeding, it is likely that the speeds would overall be lower through the village and if the overall average speed can be reduced, it will be beneficial for safety as well as for the general pedestrian environment on the corridor.
 7. **Install Shoulders:** Ensure that Main Street has at least 4 foot wide shoulders, especially in areas without a curbed sidewalk. This will provide a more safe and friendly location for pedestrians to walk as well as provide space for bicycles on the corridor.

Location Specific Recommendations

Based on the existing conditions on the corridor, the analysis of traffic patterns and intersections, and discussions with the community, the following recommendations are made for infrastructure improvements on Main Street. These are not listed in a prioritized order, but simply by location on the Main Street (NH 121A) corridor from north to south as shown on **Figure 11**.

Danville Road Intersection with Main Street

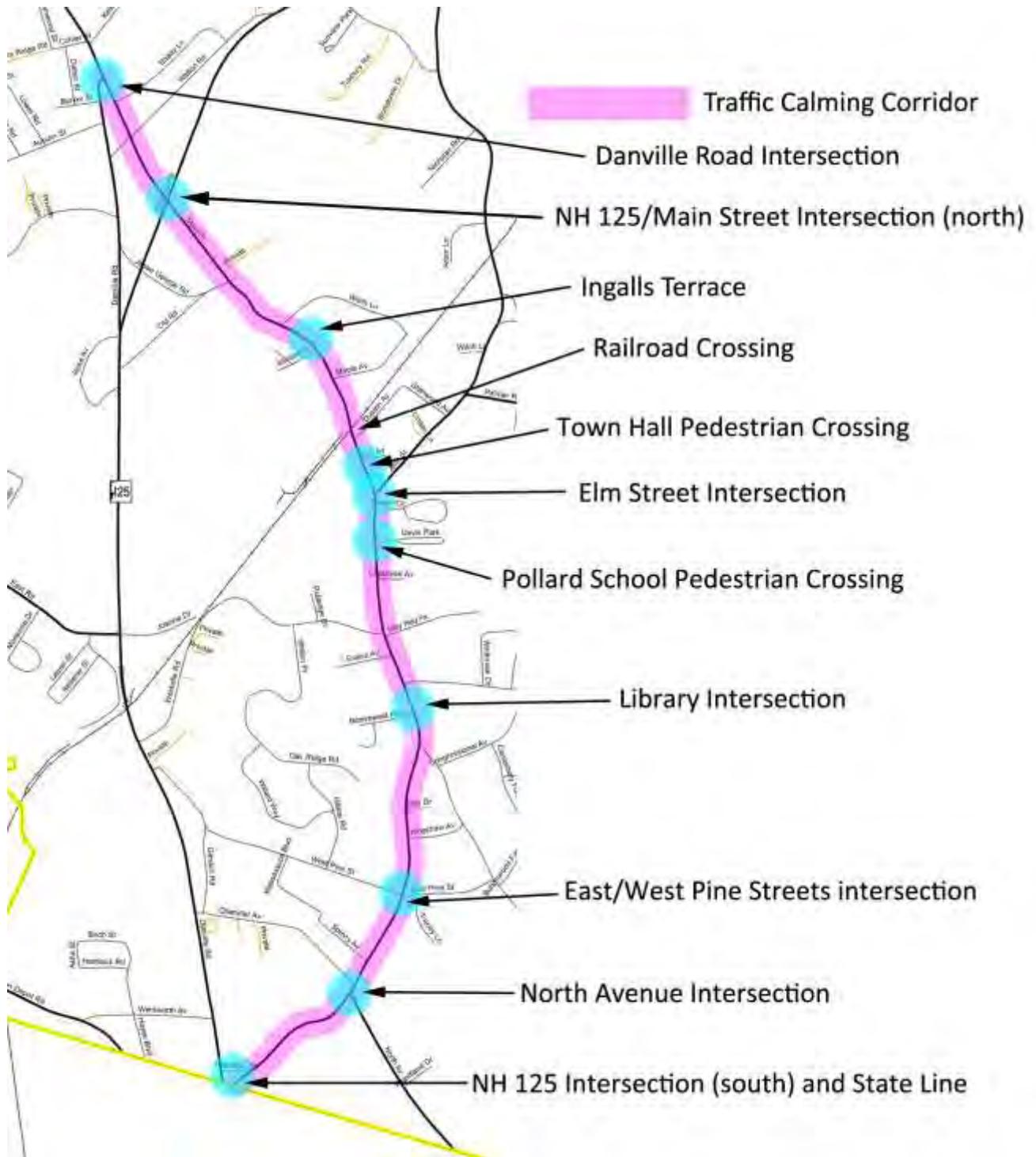
A NH DOT conducted signal warrant analysis in 2008 determined that traffic conditions at the intersection of Danville Road with NH 121A (Main Street) met two conditions (Warrant 2—Four Hour volumes and Warrant 3—Peak Hour volumes) for the installation of traffic signals. The analysis also concluded that additional improvements would be necessary however what specifically would be appropriate would need to be determined in a more detailed operational analysis. Given the close proximity of other street connections, and the changes that will be occurring along NH 125 over the next few years, it would be beneficial to wait on any improvements to this intersection to see what traffic patterns are established with the addition of the signals at NH 125 and Danville Road as well as the expansion of the signals at NH 125 and NH 121A. It is recommended also that any improvements in that area of Main Street examine a roundabout option, as well as reconfiguration of access points in the area. Given the location of the Timberlane School in that area as well as several residential neighborhoods it may also be desirable to extend pedestrian facilities and other improvements proposed for the Village area out to that location.

NH 125 Intersection with Main Street

This intersection is scheduled to be widened and improved beginning as soon as spring 2011. Pedestrian crossings have been incorporated into all four legs of the intersection with button acti-

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Figure 11:
Locations of Recommended
Improvements on Main Street



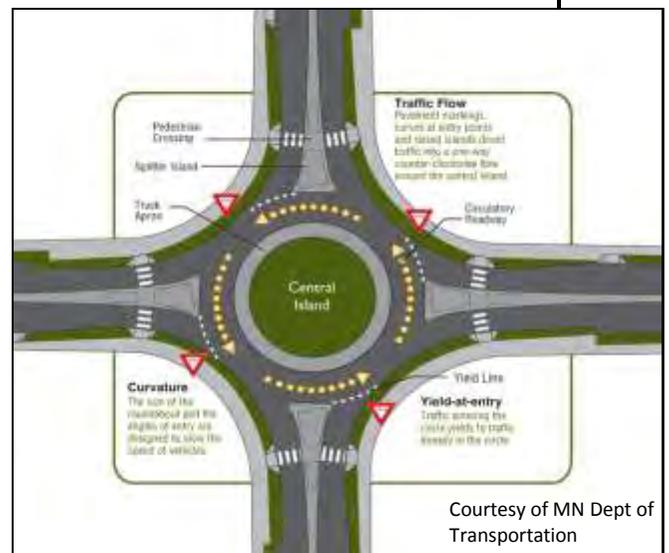
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ROUNDABOUTS: FEATURES AND BENEFITS

Roundabouts are a form of circular intersection in which traffic travels counterclockwise (in the US) around a central island and in which entering traffic must yield to traffic already circulating². A roundabout has a number of distinguishing features:

- Central Island: The raised area in the center of a roundabout around which traffic circulates. The central island does not need to be circular in shape and in some cases may be traversable.
- Splitter island: A raised or painted area on an approach used to separate entering from exiting traffic, deflect and slow entering traffic, and allow pedestrians to cross the road in two stages.
- Circulatory roadway: The circulatory roadway is the curved path used by vehicles to travel in a counterclockwise fashion around the central island.
- Apron: An apron is the traversable portion of the central island adjacent to the circulatory roadway that may be needed to accommodate the wheel tracking of large vehicles. An apron is sometimes provided on the outside of the circulatory roadway.
- Entrance line/ Yield Line: Marks the point of entry into the circulatory roadway. This line is physically an extension of the circulatory roadway edge line but functions as a yield line in the absence of a separate yield line. Entering vehicles must yield to any circulating traffic coming from the left before crossing this line into the circulatory roadway.
- Accessible pedestrian crossings: For roundabouts designed with pedestrian pathways, the crossing location is typically set back from the entrance line, and the splitter island is typically cut to allow pedestrians, wheelchairs, strollers, and bicycles to pass through.
- Landscape strip: Landscape strips separate vehicular and pedestrian traffic and assist with guiding pedestrians to the designated crossing locations. This feature is particularly important as a wayfinding cue for individuals who are visually impaired. Landscape strips can also significantly improve the aesthetics of the intersection.

Roundabouts come in three different varieties; mini, single lane, and multi-lane configurations. These variations are based on desired travel speed and volume of traffic and have different characteristics that aid both in facilitating traffic flow and limiting speeds to desired levels. The primary differences are in the size of the circle and the barrier that the median provides. Mini-roundabouts are generally designed to handle lower traffic volumes (up to 15,000) at lower speeds (15-20 MPH) and often have fully traversable medians. Single-lane roundabouts handle up to 25,000 vehicles per day and higher design speeds (20 to 25 MPH) and have a center median apron that is traversable by large trucks and buses. Multilane roundabouts are generally used on larger volume roadways (up to 45,000 for two lanes). Design speeds are generally higher at 25-30 MPH and medians are not traversable except for the truck apron.



²This information is taken from Roundabouts: Technical Summary from the FHWA (2010) . FHWA-SA-10-006.

Main Street Traffic Calming Study

ROUNDABOUTS: FEAT URES AND BENE-

Roundabouts provide significant benefits in several areas:

Traffic Safety: The shape of roundabouts and the movement pattern eliminate crossing conflicts (the most severe) that are present at more conventional intersections. Studies have shown an overall reduction of 35% in total crashes and 76% in injury crashes, 89% reduction in severe incapacitating injuries, and in some cases a 100% decrease in fatalities

Operational Performance: When within capacity, roundabouts typically have lower overall delay than signalized and all-way stop-controlled intersections. Delay reduction is most significant during off-peak

when traffic may otherwise be sitting at a traffic signal awaiting a green with no opposing traffic. A benefit of their overall good performance is that it can often mean reductions in lane requirements as opposed to traffic signals.

Environmental Factors: Reduced delay and reduced number and duration of stops provide air quality and noise benefits compared with signal controls and all-way stop controls. The slow movement of queued vehicles entering a roundabout reduces air quality impacts as well because traffic is rarely stopped and not moving.

Access Management: Roundabouts facilitate U-turns and can be utilized to eliminate left turn movements at driveways on busy arterials

Traffic Calming: Roundabouts use geometric design to reduce vehicle speeds. The curvature of the circle is designed to promote speeds within a specific range and going faster is not comfortable for drivers.

Pedestrian Safety: Pedestrian crossing opportunities are improved due to reduced vehicle speeds as slower moving vehicles are more likely to stop for someone walking, and the splitter island provides the opportunity to focus on crossing one stream of traffic at a time. Pedestrians with visual impairments face the greatest difficulty in crossing via a roundabout in that the audio clues that might be present at a signalized intersection are not there.

Aesthetics: The central island and splitter islands offer space for landscaping or artwork.

Land Use: Roundabouts act as gateways providing a transition between high-speed and low-speed areas such as entering a downtown from a rural area or moving between residential and commercial areas.

Operations & Maintenance: Typically roundabouts have lower operating and maintenance costs compared to traffic signals as they do not require technical hardware, signal timing equipment, or electricity. The reduction in crashes provides cost savings in terms of reduced accidents and reduced injuries and fatalities when there are accidents.

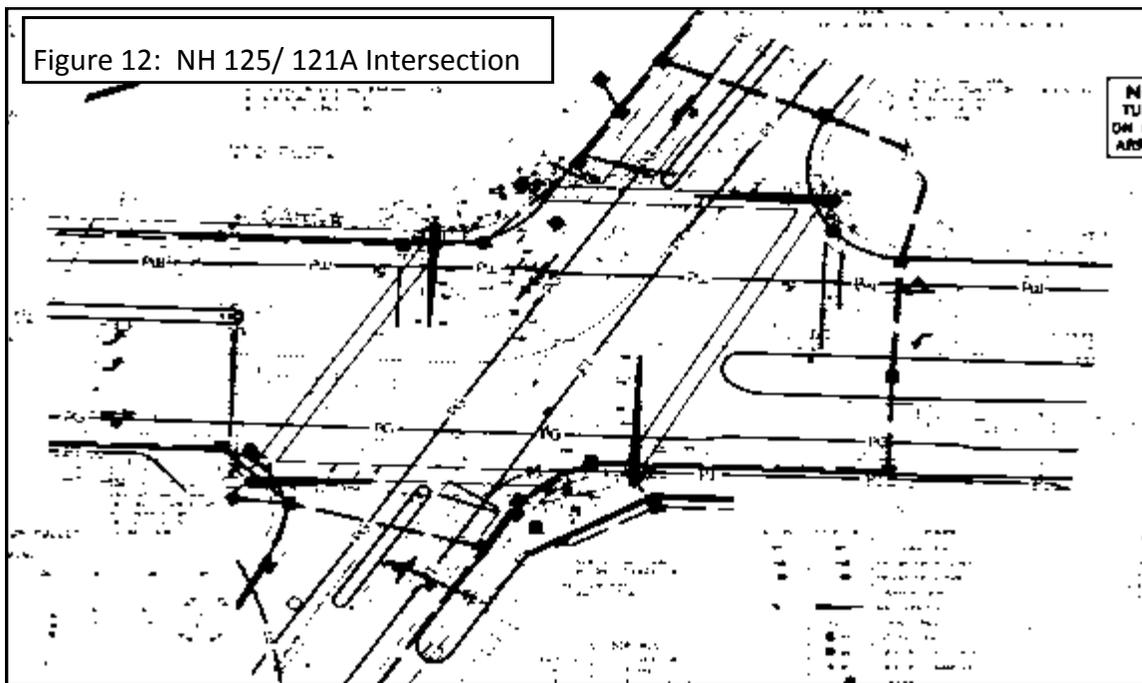
Right-of-way Requirements: Roundabouts typically require similar or greater right-of-way at the intersection however need much less moving away resulting in much narrower approach roadways as there is no need for right or left turn lanes.

| Design Element | Mini-Roundabout | Single-Lane Roundabout | Multilane Roundabout |
|--|---------------------------------|-------------------------------------|--|
| Desirable maximum entry design speed | 15 to 20 mph (25 to 30 km/h) | 20 to 25 mph (30 to 40 km/h) | 25 to 30 mph (40 to 50 km/h) |
| Maximum number of entering lanes per approach | 1 | 1 | 2+ |
| Typical inscribed circle diameter | 45 to 90 ft (13 to 27 m) | 90 to 180 ft (27 to 55 m) | 150 to 300 ft (46 to 91 m) |
| Central island treatment | Fully traversable | Raised (may have traversable apron) | Raised (may have traversable apron) |
| Typical daily service volumes on 4-leg roundabout below which may be expected to operate without requiring a detailed capacity analysis (veh/day)* | Up to approximately 15,000 | Up to approximately 25,000 | Up to approximately 45,000 for two-lane roundabout |

*Operational analysis needed to verify upper limit for specific applications or for roundabouts with more than two lanes or four legs.

Main Street Traffic Calming Study

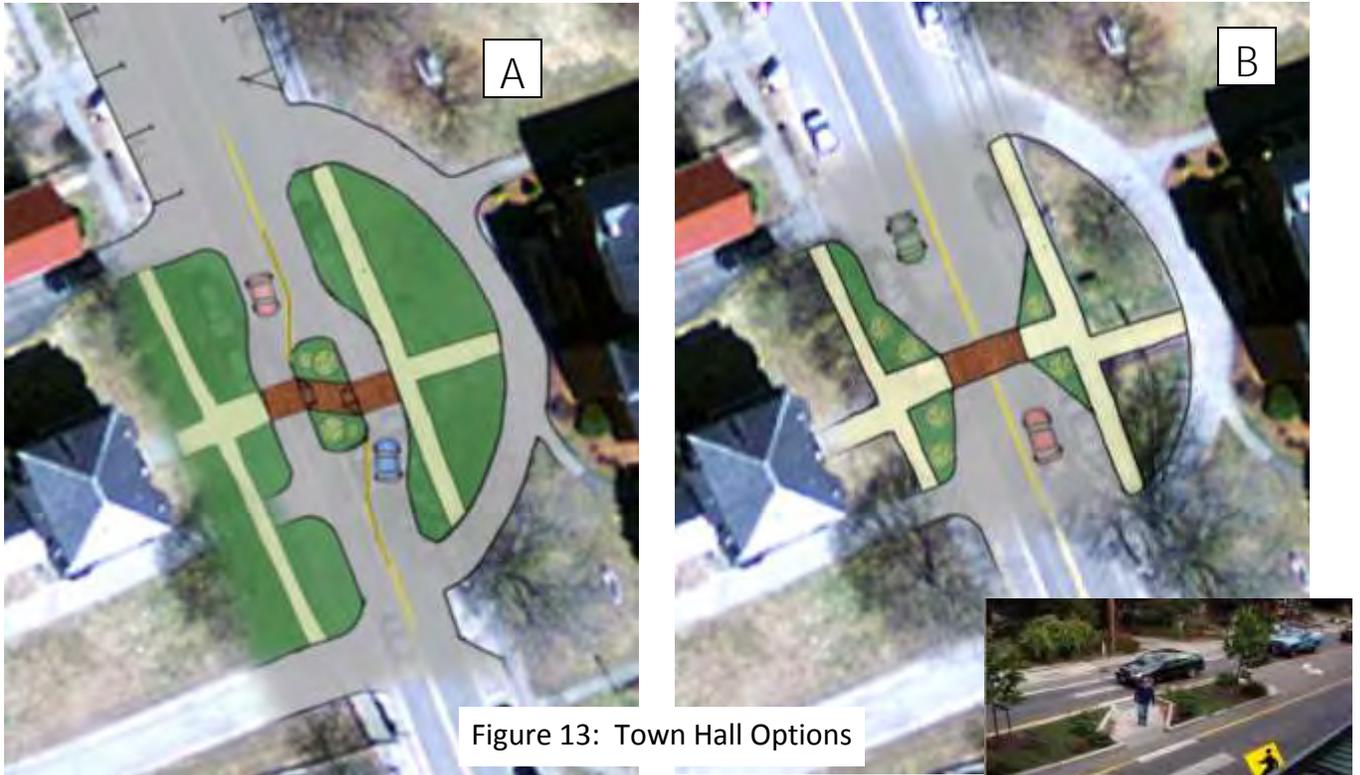
vated crossing phases and sidewalks extend along all four approaches as well. The sidewalks north on Main Street extend to Walton Road, while the sidewalks southbound appear to extend approximately 400-450 feet and end near the limit of the construction zone. This leaves approximately 2000 feet of Main Street between the construction zone and Ingalls Terrace without sidewalk. One concern with the current design is the very long distance that pedestrians are being asked to traverse across NH 125 which is between 100 and 125 feet depending on the approach crossed. This distance could take an older pedestrian more than 30 seconds to navigate and could be very intimidating to potential users. Extending the proposed medians to provide a safety refuge and installing pedestrian signal buttons at the medians would provide a safety refuge and allow for phased crossings of one direction of traffic at a time if necessary. The town should also work with NH DOT engineers to ensure that a design is implemented that can act as a gateway into the community with improved landscaping and signage that identifies that the "Historic Village" is on Main Street.



NH 125 to Rail Road Crossing

This segment of the corridor has a limited section of sidewalk that extends from approximately Witch lane southward but as stated above an approximately a 2000 foot gap will remain once construction of the NH 125 improvements are completed. While much of this area is not currently part of the Village Center overlay district, it does include some commercial uses as well as recreation fields on Ingalls Terrace. Shoulders appropriate for bicycle travel (4 foot minimum) would be appropriate as would connecting the sidewalks on either end. If the NH 125 intersection is not utilized as a gateway to Main Street, the Town should determine a location within this section of the corridor to do so. One such location might be near the terminus of the existing sidewalks at Witch Lane. The location of community recreation fields and the approximate .4 miles from there to Pollard School and another .4 miles to the Library would create a village centered around the School and Town Hall.

Main Street Traffic Calming Study



Town Hall

Concerns in the vicinity of the Plaistow Town Hall revolve primarily around the safety of crossing Main Street given the narrow roadway, parked cars, and fast moving traffic. The options shown in **Figure 13** present two methods of addressing these concerns and improving the connection across Main Street to the Town Hall through narrowed crossing distances and slower moving traffic. These designs evolved from discussions with the Highway Safety Committee and interest in a raised crosswalk or speed table to slow vehicles in front of the building and provide similar benefits without introducing the vertical alignment shift and resulting difficulties for plowing, drainage, and noise impacts from large vehicles passing over it. **Option A** creates a horizontal deflection of traffic similar to a roundabout via a center raised median that requires vehicles to turn slightly and slow to avoid. The crosswalk passes through the median providing a refuge for pedestrians allowing for crossing of one lane of roadway at a time while providing a location for landscaping, artwork, or other aesthetic improvements. The crosswalk is angled as it passes through the median to ensure that pedestrians are always facing oncoming traffic before they start crossing a lane. This option would eliminate parking in the immediate vicinity of the crossing and there are some potential driveway access issues that would need to be addressed as well. The alternative developed for this location (**Option B**) narrows the crossing distance to a minimum with curb bulbouts through what are currently parking spaces. This improves visibility both for the pedestrian waiting to cross and the approaching vehicles. This does eliminate some parking, however less than the median based approach.

Photo Credit: Bruce Landis, Angled cut-through in Bainbridge, WA

Main Street Traffic Calming Study

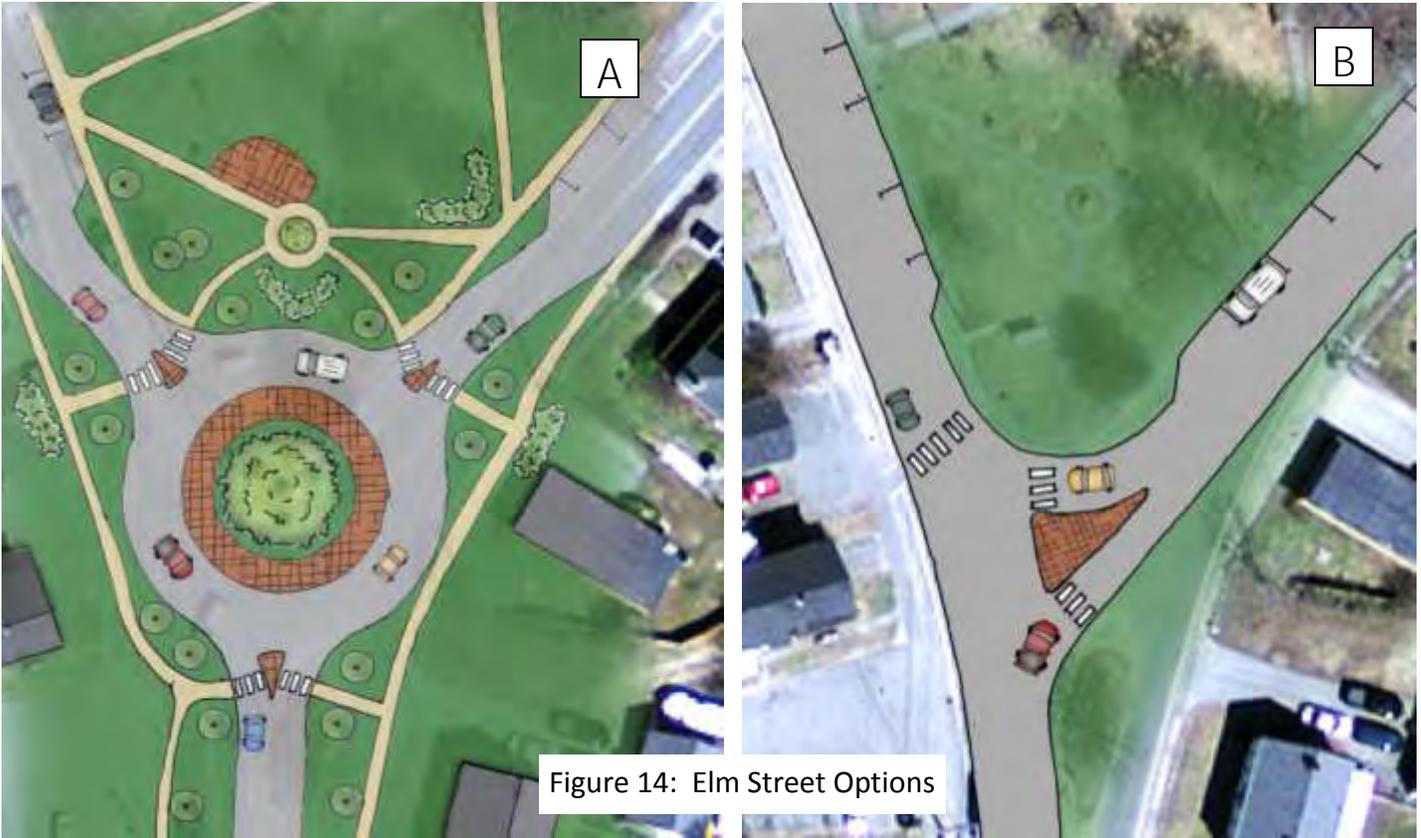


Figure 14: Elm Street Options

Elm Street

Two options have been developed for the Elm Street Intersection shown in **Figure 14**. **Option A** locates a roundabout at this intersection that provides the benefit of slowing the right turn movement of northbound traffic from Main Street to Elm Street as well as slowing southbound traffic entering a school zone and northbound traffic passing in front of the Town Hall. A roundabout eliminates much of the delay that drivers face when trying to access Main Street from Elm Street during peak hours, and the installation of multiple roundabouts along the corridor will help to keep speeds lower, while improving access to the roadway from side streets. Aesthetically, a roundabout could provide an excellent sightline northbound on Main Street to the Town Hall and highlighting any memorials, statuary, or other items located at the south end of the common. The roundabout itself also provides a complimentary location for a monument or artwork. As this location is very close to the community public safety complex, and would be on a primary fire response route, it is critical that any concerns regarding the impacts of a roundabout on emergency response be addressed prior to implementation.

The second alternative developed for this location (**B**) constructs a more standard “T” intersection that requires north bound vehicles to slow for the turn to Elm Street by removing the slip lane that currently exists at the site. This would create some greenspace where the slip lane currently is and move Elm Street further away from the houses on that corner of the intersection. A small splitter Island would continue to separate traffic entering and exiting Elm Street and would provide a pedestrian refuge which breaks the crossing into two short segments. This alternative would slow traffic movement onto Elm Street in a similar manner to that of the roundabout, however there would be little to no impact on speeds of traffic along Main Street.



Pollard School

The intent of the improvements shown near Pollard School is to narrow the roadway, slow traffic, and provide a pedestrian friendly environment. The option shown in **Figure 15** creates a curve in the currently straight roadway known as a chicane. This curvature slows traffic while at the same time narrowing the crossing distance by extending the green space between the curb and the sidewalk into what is currently roadway. Parking is eliminated within the chicane although some could be added back in with proper implementation that does not block sight lines for pedestrians or motor vehicles. A wide sidewalk and crosswalk with a textured surface (or otherwise different than surround pavement) creates a highly visible crossing point letting drivers know what to expect at that location. Street trees and a wider green space between the sidewalk and the curb to the north and south provides separation from the roadway for pedestrians and could be continued further in each direction although the width would need to be reduced.

Alternatively at this location, the curvature of the roadway could be reversed toward the school or solutions similar to those in front of Town Hall (Figure 13) could be equally effective at providing improved safety, aesthetics, and slowing traffic.

Main Street Traffic Calming Study

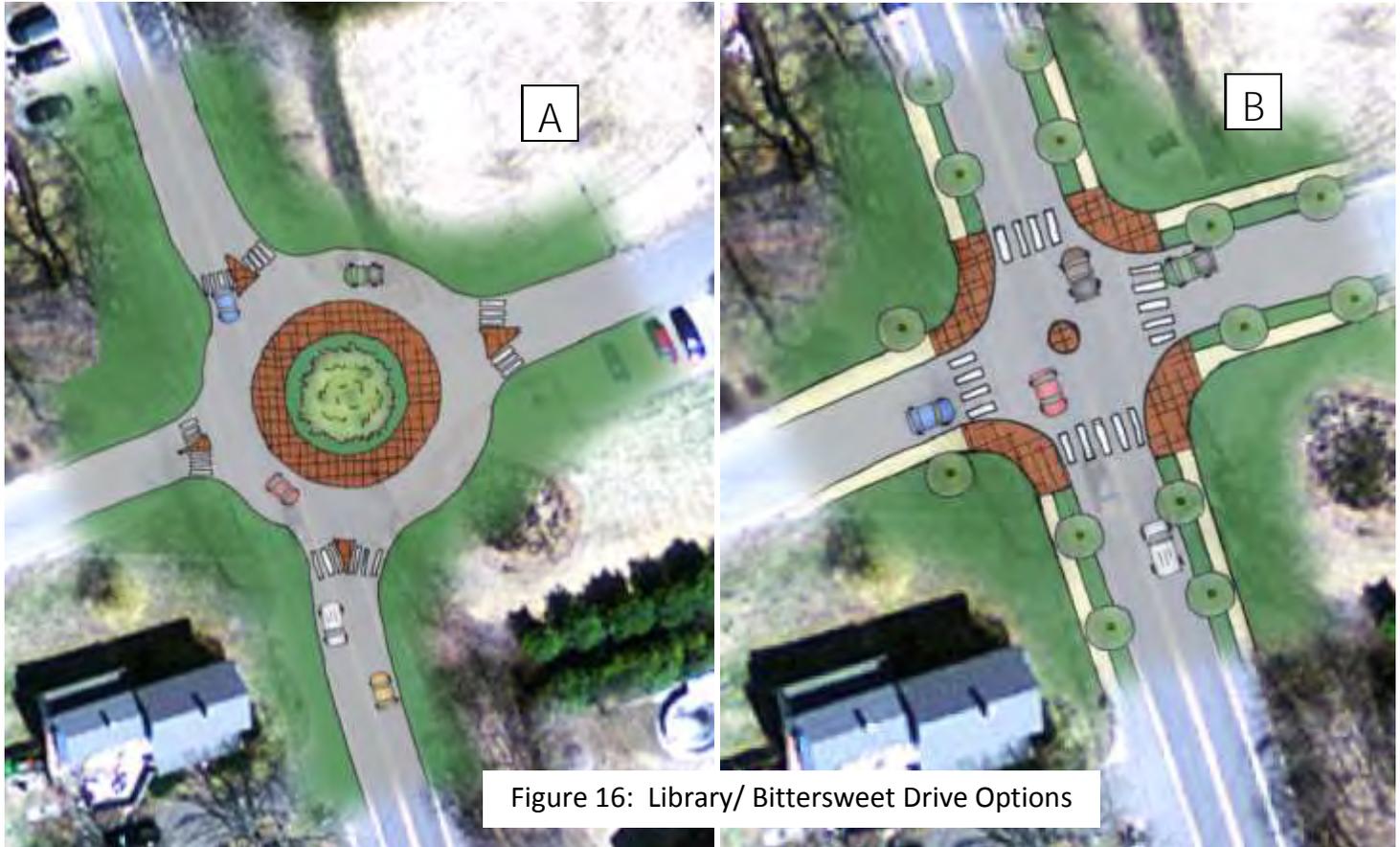
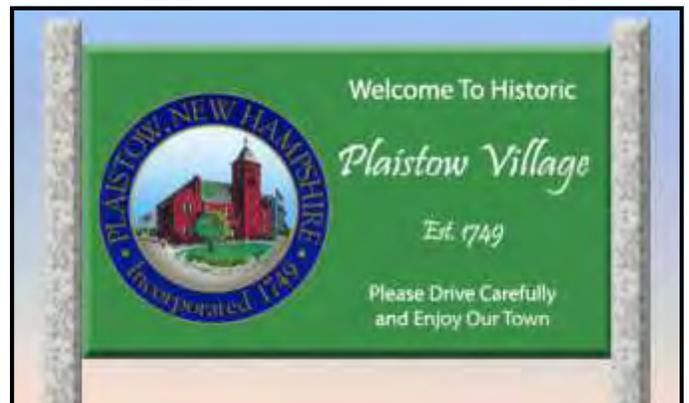
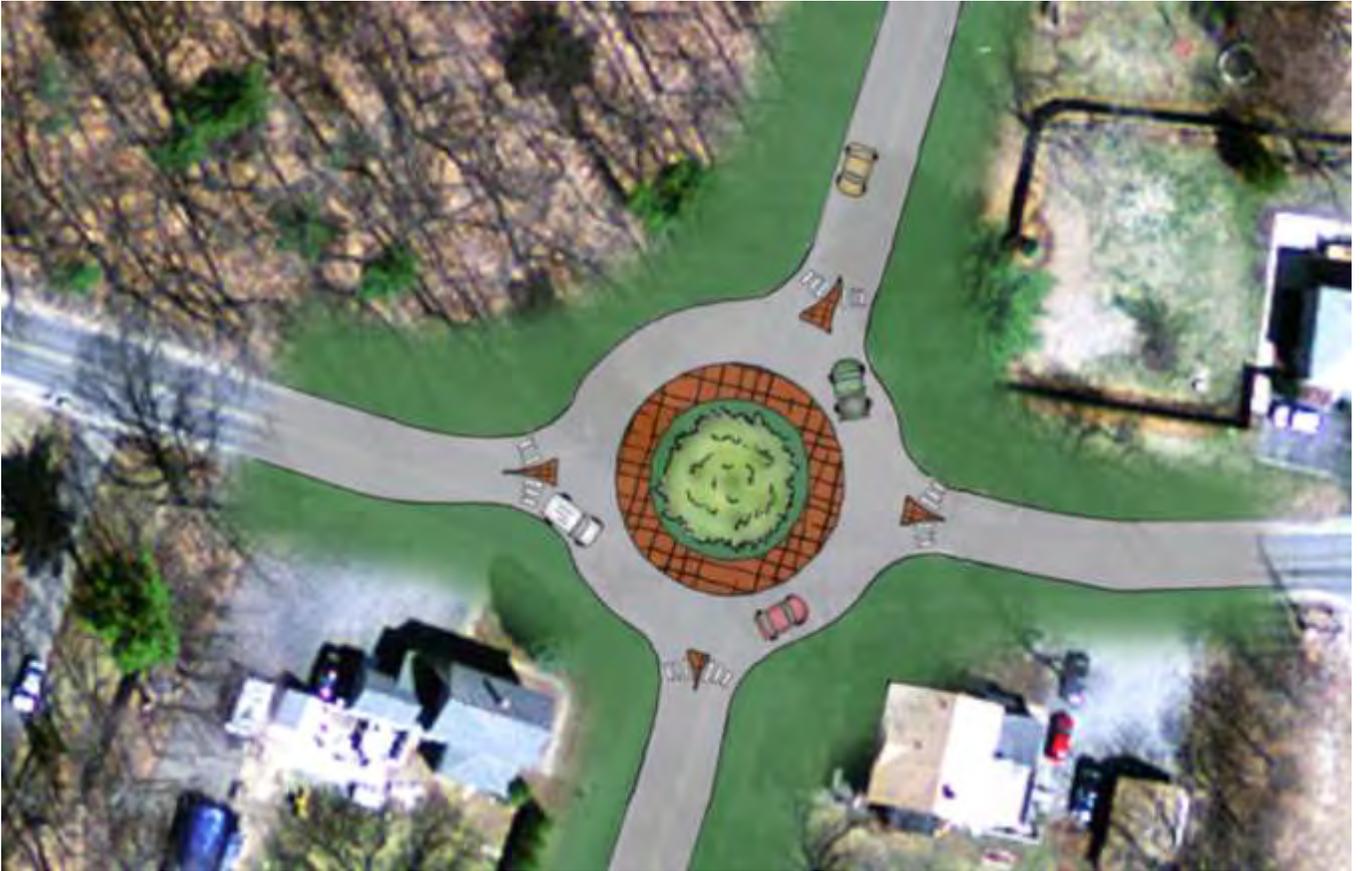


Figure 16: Library/ Bittersweet Drive Options

Library/Bittersweet Drive

As the southern boundary for the Village District, the Library driveway and Bittersweet Drive make an ideal location to transition Main Street from an arterial roadway to a “downtown” street. A gateway should be constructed consisting of some signage that welcomes people to the “Historic Village”. Roadway improvements could be as elaborate as the roundabout shown in **Figure 16A** or as simple as the narrowing of the intersection shown in **B**. While likely not necessary for traffic control, the roundabout provides another component to the corridor-wide traffic calming with another spot that requires drivers to slow down and providing a definite transition. The improvements shown in B more simply narrow the roadway through tighter corner radii and curb bulb-outs could narrow this further. The tighter curb radii shorten the road crossing distance considerably and as few trucks utilize either Bittersweet Drive (a dead end street) or the Library driveway, should not impact turning capabilities to any great degree. This alternative can also include a small traversable median in the center so that it behaves like a mini-roundabout however the volume of traffic on Main Street is high enough that operationally it may not work as needed.





East and West Pine Streets Intersection

Similar to other sites along the corridor, a roundabout is proposed for the intersection of East and West Pine Street with Main Street replacing the current two-way stop controls. This change in traffic control will result in improved operations, less severe accidents and likely fewer of them as well. It will drastically reduce unsafe maneuvers by allowing more fluid entry and exit from Main Street without blocking the roadway for left turns. In addition, the installation of multiple roundabouts along the corridor is likely to discourage some of the truck traffic on Main Street. A basic operations/planning analysis of a roundabout at this location shows a maximum volume to capacity ratio of .75 during the PM peak period and an overall Level of Service of A. Unlike the current two-way stop controlled intersection however, no legs of the intersection would operate under failure conditions with a roundabout in place. Similar to the roundabout at North Avenue, concerns over the impact on emergency response times and procedures need to be addressed as do questions about the amount of right of way necessary and available.

Main Street Traffic Calming Study



North Avenue

Approaches of this intersection operate under failure conditions during peak hours and likely the intersection would meet warrants for signalization. NH DOT did work towards widening and installing signals at the intersection during the 1990's, however local opposition to the proposal stopped the project from moving forward. Utilizing a roundabout at this location rather than a set of traffic signals both improves safety by reducing the severity (and likely number) of traffic accidents, as well as allowing for slower moving but free flowing traffic movement. It is likely that a roundabout would work well at this location because the predominant traffic movements do not conflict as much in that configuration compared to the existing stop controls or to a traffic signal control. A basic capacity and operations analysis of a roundabout under current traffic volumes indicates that the intersection would operate well under capacity during both the AM peak period (LOS A) and PM peak period (LOS B). This analysis does not take into account the movement of traffic into and out of Chandler Avenue and this might have an impact on the operations of the intersection however, the volumes utilizing that street during peak hours are relatively small and not likely to cause significant reduction in Level of Service or increased delay. A roundabout at North Avenue could also fulfill the role of a "gateway" to the village and let drivers know that they are entering the heart of the community if it is desired. As with the other locations, design of the roundabout must take into account the use of Main Street as a primary fire response route.

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NH 125 at Mass. State Line

Discussions have already been held with the City of Haverhill to close the end of NH 121A/Main Street and reroute it along Hazeltine Street where it will connect into the traffic signal located there. This will slow traffic entering Main Street as well as make it less of a convenient connection to NH 125. The signalized intersection also provides a safer connection for those using Main Street to access NH 125 southbound.

The “in-between” areas

This study has provided a number of conceptual improvements for intersections and mid-block crossing points along the Main Street corridor but has not addressed every part of the roadway. To be most effective, traffic calming measures should be implemented in a relatively regular pattern approximately 300-400 feet apart to stabilize vehicle speeds near desired levels and not provide long stretches for drivers to accelerate. In the area defined as the Village District, this would require installing 8 to 13 measures in addition to the five have been conceptualized in this document. Variations on the ideas presented however can be used in other locations along the corridor and not all need be to the same degree or even “spot” improvements. For instance, something as simple as delineating parallel parking along the corridor can accomplish the some of the same slowing of traffic as more costly changes.

Implementation

Implementation of the Main Street Traffic Calming study involves a number of steps to ensure that there is public support for the improvements and that funding is available. The best approach is to gain overall acceptance and support for the plan and proposed improvements to the corridor, prioritize those that are to be implemented, and begin to develop the funding necessary. Public hearings and design workshops are a critical part of this process as the resulting projects are based on a general consensus regarding what is desired and necessary which eases the overall implementation process. Once the concept of traffic calming on Main Street has been embraced by the community the next step will be to identify priority improvements or priority areas to improve and begin the specific engineering and design process for those locations to determine feasibility and estimated cost. Active engagement of the public in the design process will help to ensure that people are supportive of the project and will ease the overall design and implementation of the project. One item that should be considered as part of the public discussions is the concept of the town taking over the ownership and maintenance of Main Street. The costs and benefits of this action should be discussed and considered with regards to the effectiveness of the proposed traffic calming measures as well as to the community as a whole. If the community decides to take Main Street from the state, the details of the transaction such as schedule and what improvements will need to be completed before this occurs need to be determined.

-
1. Gain Plan Approval
 2. Set priorities
 3. Find funding
 4. Involve the public in the design
-

Financing

A final component of the implementation process that needs to be discussed is the identification and pursuit of potential funding mechanisms. There are a number of methods to finance the transportation system improvements recommended in this document and many are described in this

Main Street Traffic Calming Study

section. The options can be generally classified into local sources (taxes, impact fees and value capture mechanisms) or Federal/State grant programs. With the exception of the grant programs, all of these options included in this document generate revenues locally from those that benefit from the particular transportation improvements. They vary mostly in how broadly they define the geographic area encompassed, the extent of benefits, and who specifically pays to implement the projects.

Property Taxes

Taxes on property have been the historic method of communities paying for infrastructure needs in New Hampshire. These are the most broad-based of methods in that they are applied to all property owners in the community. To apply property taxes to highway improvements, the specific projects must be approved by voters at Town Meeting either via the Capital Improvement Plan or individual warrant article. Another method of funding projects via property taxes is to establish a Capital Reserve account to accrue multiple years of funding toward a specific goal. An example of this is the Capital Reserve fund that the town of Exeter established to fund roadway shoulder improvements. At Town meeting the community set aside \$50,000 per year and has accumulated \$150,000 which has been proposed to use to match \$225,000 in federal Transportation Enhancement funds and construct shoulders on a mile of roadway connecting several residential areas to a recreation area and to the village.

- + ***Technically & legally acceptable:*** This has been the historic method of raising funds for local roadway improvements and has been accepted legally and technically as a method of doing so.
- + ***Bond Security:*** Funds can be used to secure and/or pay municipal bonds.
- + ***Administration:*** Easy for public agency to administer.
- ***Inequitable:*** They have a built-in imbalance in that they are assessed to all property owners independent of whether they are users of the transportation system or not.
- ***Political:*** Requires approval at Town Meeting which can be a difficult process depending on the particular project and the “mood” of voters.

Traffic Impact Fees

A onetime fee shared to new developments to pay for the cost of serving the additional traffic generated by the new development. These fees are based on traffic studies and plans, and the fees are calculated based on the number of trips generated by various land uses. The cost of correcting existing deficiencies is usually excluded from the calculation for equity and legal reasons.

- + ***Politically acceptable:*** because the fees are seen as being imposed on new residents or businesses, politicians are likely to approve them rather than voting for an increase in taxes.
- + ***Technically & legally acceptable:*** They have been largely accepted on both a technical and legal grounds. A fee system based upon a detailed transportation planning study is technically sound and thus is likely to be found legally valid as well.
- + ***Equitable:*** They are equitable for all types and sizes of development and so are favored by most developers over negotiated agreements or controls on growth. They are also known

Main Street Traffic Calming Study

in advance and can be figured in the initial financial feasibility studies for a development project.

- ***Inequitable***: They have a built-in imbalance in that they are assessed only on new development and not on existing development which contributes to the traffic problem.
- ***Piecemeal***: Revenues are collected gradually over time as development occurs, and thus may result in a piecemeal pattern of improvements that are made as funds become available. Since fees are based on development occurring over time, they are not reliable as a source of bonding revenue, and so are limited to their uses for major improvements.

Development Agreements

These agreements are negotiated during a project's local approval stage, when the local government is able to request conditions as part of its approval process. These conditions are usually applied during zoning or subdivision approval, when local government has broad discretion in approving a project.

- + ***Politically acceptable***: because the fees are seen as being imposed on new residents or businesses, politicians are likely to approve them rather than voting for an increase in taxes.
- + ***Versatile***: Because the local government has approval authority, it offers a significant inducement for developers to make such "voluntary" improvements.
- ***Piecemeal***: Revenues are collected gradually over time as development occurs, and thus may result in a piecemeal pattern of improvements that are made as funds become available. Since fees are based on development occurring over time, they are not reliable as a source of bonding revenue, and so are limited to their uses for major improvements.
- ***Tough to Balance***: It is difficult to treat all developers equally because of differences in sites, street configurations and other location factors. Large developments are often required to make major improvements, while small developments make few, if any, improvements.
- ***Difficult Enforcement***: Enforcement may prove to be difficult, partly because of the administrative difficulty in coordinating among various city departments for agreements related to a large number of developments. This process is made more complex when phased improvements are required with a phased development, or when traffic monitoring is required as part of a project.

Transportation Development Districts

This type of financing creates a public-private partnership to plan and finance transportation improvements in high growth areas or districts. Properties abutting a designated section of roadway are assessed for their fair share of the cost of the road improvement with fees assessed based on linear frontage, area, or by trip generation and are usually for specific improvements benefiting property within the district. Generally this applies to all properties fronting the roadway to be improved, but can be expanded into a larger district if the improvements or impacts are to a larger area. If the district crosses municipal boundaries, it is considered a Regional Development District. Through an inter-municipal agreement allowed by RSA Section 53-A, the communities along Route 33 could form a district to provide a larger pool of funds for transportation improvements. This

Main Street Traffic Calming Study

can be accomplished by publicly or privately financing the necessary road improvements and then assessing new development fees based on the share of available roadway capacity that they utilize. This pays the investment back instead of looking to collect enough to do the work within the confines of impact fees or other time limited methods.

- + **Politically acceptable:** because the fees are seen as being imposed on new residents or businesses, politicians are likely to approve them rather than voting for an increase in taxes.
- + **Technically & legally acceptable:** They have been largely accepted on both a technical and legal grounds. A fee system based upon a detailed transportation planning study is technically sound and thus is likely to be found legally valid as well.
- + **Equitable:** They are equitable for all types and sizes of development and so are favored by most developers over negotiated agreements or controls on growth. They are also known in advance and can be figured in the initial financial feasibility studies for a development project.
- + **Balanced:** Based on benefits received by abutting landowners and attributable to transportation improvements.
- **Inequitable:** They have a built-in imbalance in that they are assessed only on new development and not on existing development.
- **Piecemeal:** Revenues are collected gradually over time as development occurs, and thus may result in a piecemeal pattern of improvements that are made as funds become available. Since fees are based on development occurring over time, they are not reliable as a source of bonding revenue, and so are limited to their uses for major improvements.
- **Challenges:** Property owners frequently challenge the establishment of this type of district.

Special Assessment District

In this type, designated areas are assessed for the cost of public improvements that benefit property within the district. The assessments are usually imposed on an ad valorem (according to value) basis, although acreage fees and front footage assessment also have been used. The key point of a special assessment district is that the fees are assessed for specific improvements benefiting property within the district. They are not taxes to be shared with other revenue sources, but must be used for specific items.

- + **Technically & legally acceptable:** They have been largely accepted on both a technical and legal grounds. A fee system based upon a detailed transportation planning study is technically sound and thus is likely to be found legally valid as well.
- + **Equitable:** They are equitable for all types and sizes of development and so are favored by most developers over negotiated agreements or controls on growth. They are also known in advance and can be figured in the initial financial feasibility studies for a development project.
- + **Bond Security:** They can be used to secure bonds
- + **Administration:** Easy for public agency to administer.

Main Street Traffic Calming Study

- **Political:** Requires enabling legislation.
- **Defining Boundaries:** Difficult to define specific boundaries.
- **Defining Benefits and Costs:** The use of ad valorem assessments may not accurately represent the benefit derived by various properties or especially the proportion of the cost attributable to them.

Tax Increment Financing

Projected increase in property value is partially taxed for a prearranged time period. Developer pays for initial off-site improvements and the expenditure is recouped from difference in developed and undeveloped tax base. Frequently a TIF District is established.

- + **Politically acceptable:** because the fees are seen as being imposed on new residents or businesses, politicians are likely to approve them rather than voting for an increase in taxes.
- + **Equitable:** They are equitable for all types and sizes of development and so are favored by most developers over negotiated agreements or controls on growth. They are also known in advance and can be figured in the initial financial feasibility studies for a development project.
- + **Consistent:** Taxing authority receives an undiminished source of income until initial costs are reimbursed.
- **Inequitable:** They have a built-in imbalance in that they are assessed only on new development and not on existing development.
- **Political:** Requires enabling legislation.

User Tax

Levied on all motor fuel sales, or each vehicle registered within a community's boundary, vehicle registration fees are paid to both the community and the state while fuel sales tax is paid to the state and the federal government. In New Hampshire communities can implement the **Local Option Fee for Transportation Funding** as one means of generating additional local funding via vehicle registration fees. HB 648, passed in 1998, allows a municipality to collect an additional motor vehicle registration fee of up to \$5.00 for the purpose of supporting a municipal transportation improvement fund. Of the amount collected, up to 10% (maximum of \$0.50 of each fee paid) may be retained for administrative costs. The remaining amount is deposited into the municipal transportation improvement fund to pay for improvements in the local or regional transportation system including roads, bridges, bicycle and pedestrian facilities, parking and intermodal facilities and public transportation.

- + **Bond Security:** They can be used to secure bonds.
- + **Administration:** Easy for public agency to administer.
- + **Offsets Taxes:** Replaces a possible income tax increase.
- + **Focused Use:** Use is designated for transportation issues only.
- + **Stable:** Stable source of income.

Main Street Traffic Calming Study

- **Political:** Requires approval of fee at Town Meeting, and enabling legislation would be needed to raise the allowable fee to more than \$5.00.
- **Piecemeal:** In smaller communities, revenues may not be collected at a rate great enough to fund larger projects in a reasonable timeframe or to make significant bond payments.
- **Defining Benefits and Costs:** The use of ad valorem assessments may not accurately represent the benefit derived by various properties or especially the proportion of the cost attributable to them.

State Aid Highway Program

This is a NH DOT run program that provides \$2.5 million per year (including match) for reconstruction of Class I, II, and III (all state-owned) highways. These projects are municipally managed, and are funded 2/3rds with State funding and 1/3rd with local dollars. Typical projects are improvements at a town road/state highway intersection on unnumbered state routes that function more like a local roadway. The maximum project total allowable is \$1,050,000 or \$700,000 of state funds that may be appropriated over multiple years and unnumbered state routes may be reclassified to town roads when complete.

- + **State Funds:** Does not use federal funding and is easier to administer
- + **Upfront funding:** State pays 1/2 of its share at the beginning of the bid process for both engineering and construction. Remainder is reimbursement. Most programs are reimbursement only.
- **Matching Funds:** Higher match requirements than some programs (1/3rd vs 80/20)
- **Waiting:** Popular program for smaller projects and the wait can be long before funding is available.

Transportation Enhancements Program (TE)

The Transportation Enhancements (TE) program provides funding for smaller community-based projects that expand travel choices and enhance the transportation experience by improving the cultural, historic, aesthetic and environmental aspects of our transportation infrastructure. There is a list of 12 types of projects that are eligible several of which would be applicable to Main Street: Pedestrian and bicycle facilities; Pedestrian and bicycle safety and educational activities; Acquisition of scenic or historic easements and sites; landscaping and scenic beautification, Environmental mitigation of runoff pollution and provision of wildlife connectivity, as well as other potential projects. NH receives approximately \$2 million per year for this program which it runs on a 2-3 year competitive cycle.

- + **Matching Funds:** 80/20 Match of Federal/Local minimizes need for local funding.
- + **Program Match:** The program matches well with Main Street projects as it is designed and intended to pay for improvements like those being recommended.
- + **Quick Implementation:** TE runs on a 2-3 year cycle however projects can be implemented as soon as one year after approval. The next TE round is anticipated to begin at the beginning of 2012 with project approvals by the end of 2012 and projects programmed for 2013 and 2014.

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- **Federal funding:** Federal funds have additional and more rigorous administrative and management requirements
- **Reimbursement based:** Like all other Federal funding mechanisms, the TE program works on a reimbursement basis, so the community needs to generate the funding for the entire cost of the project locally, construct it, and pay for it, before requesting up to 80% repayment from the Federal Government.
- **Competitive:** Projects are determined through statewide competition

Congestion Mitigation and Air Quality Program (CMAQ)

The Congestion Mitigation and Air Quality Program (CMAQ) is a set-aside of federal transportation funding coming to NH that is geared towards transportation projects that reduce pollution and congestion in the area and assist in meeting the National Ambient Air Quality Standards (NAAQS). Projects can include construction, capital investment, and operating assistance for a limited time but must reduce emissions. NH receives approximately \$4 million per year for this program which it runs on a 2-3 year competitive cycle.

- + **Matching Funds:** 80/20 Match of Federal/Local minimizes need for local funding.
- + **Program Match:** The program matches pretty well with Main Street projects as it is designed and intended to pay for improvements that reduce auto travel or make the existing transportation more efficient and less polluting.
- + **Quick Implementation:** CMAQ runs on a 2-3 year cycle however projects can be implemented as soon as one year after approval. The next CMAQ round is anticipated to begin at the beginning of 2013 with project approvals by the end of 2013 and projects programmed for 2014 and 2015.
- **Federal funding:** Federal funds have additional and more rigorous administrative and management requirements
- **Demonstrated Air Quality Benefit:** In order to be eligible, the project must be able to accurately model a reduction in emissions from the improvement.
- **Reimbursement based:** Like all other Federal funding mechanisms, the CMAQ program works on a reimbursement basis, so the community needs to generate the funding for the entire cost of the project locally, construct it, and pay for it, before requesting up to 80% repayment from the Federal Government.
- **Competitive:** Projects are determined through statewide competition although most of the funding is directed toward the communities that are within the non-attainment Area under the Clean Air Act and the National Ambient Air Quality Standards.

Safe Routes to School (SRTS)

The Safe Routes to School program is intended to encourage a greater percentage of elementary and middle school (K-8) students to bike and walk to school, and to ensure that they can do so safely. The program is designed around an integrated approach summarized as “the 5Es” – Education, Encouragement, Enforcement, Engineering, and Evaluation. SRTS funding is federal, and is passed through NHDOT. Towns or School Districts can access SRTS Start-Up grants of up to

Main Street Traffic Calming Study

\$5,000, which are accepted on a rolling basis; and Travel Plan grants of up to \$15,000 per school. This is a reimbursement program, though requires no matching funding. Once a Town completes a travel plan, they are eligible to access Project Grants of up to \$250,000. The project grants are competitive, as more SRTS programs are being developed by towns and cities around the state, though not yet as difficult to secure as Transportation Enhancement funding.

- + **Matching Funds:** 80/20 Match of Federal/Local minimizes need for local funding.
- + **Program Match:** The program matches pretty well with Main Street projects as it is designed and intended to pay for improvements that reduce auto travel or make the existing transportation more efficient and less polluting.
- + **Quick Implementation:** The town is already involved with the SRTS program and incorporating Pollard School into a travel plan (which Plaistow may be able to get a grant to do) will enable access to the capital project grants which could a variety of improvements that make it safer and more attractive for children to walk or bike to school.
- **Federal funding:** Federal funds have additional and more rigorous administrative and management requirements
- **Reimbursement based:** Like all other Federal funding mechanisms, the project aspect of the SRTS program works on a reimbursement basis, so the community needs to generate the funding for the entire cost of the project locally, construct it, and pay for it, before requesting up to 80% repayment from the Federal Government.
- **Competitive:** Project grants are determined through statewide competition although this program is currently somewhat less competitive than TE or CMAQ.

In the current climate of scarce infrastructure funding the community will need to be careful of the financing methods chosen so as to ensure the best chance for implementation. It is recommended that the Town develop individual projects for implementation within the context of the overall Main Street Traffic Calming Plan, and use different funding sources for the different components of the Plan. For instance, the Safe Routes to School program may be an avenue to fund educational and capital improvements near the school, while Transportation Enhancements or Congestion Mitigation Air Quality funding improves another area and a developer agreement improves yet another.

Appendices

- Traffic Count Summaries
- Turning Movement Count Summaries
- Intersection Operations Analyses

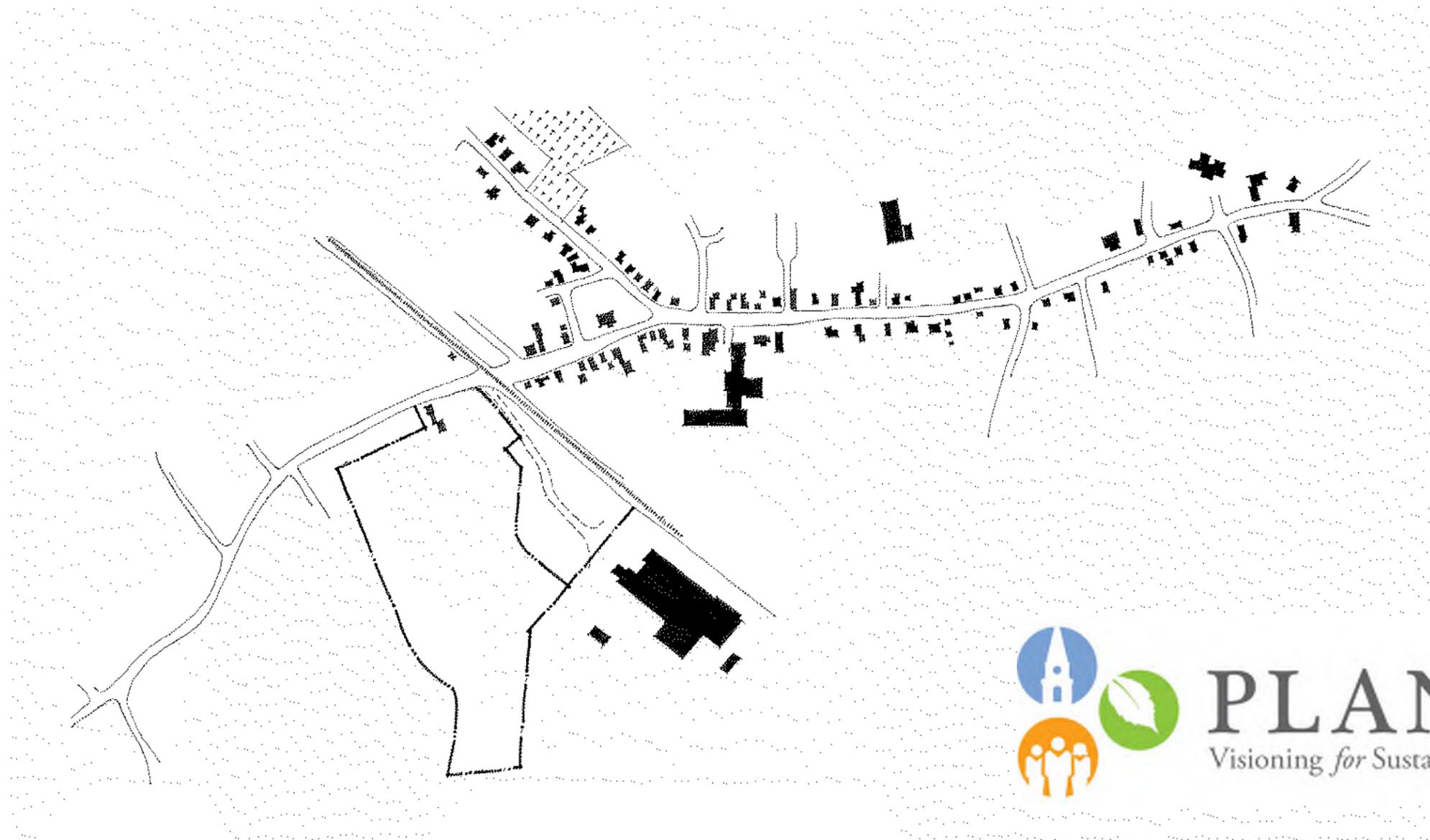
Appendices Not Provided

APPENDIX I

Plan NH Historic Village District Charrette

Town of Plaistow, New Hampshire
Community Design Charrette
Historic Village District

October 21 and 22, 2011



Plaistow Design Charrette Mission Statement

PNH · PLAISTOW 10.21/22.11

Mission Statement

"To provide recommendations for Plaistow's historic village center in order to preserve and enhance its identity as the heart of the community."

Goal: "To improve the pedestrian-friendly quality of the area: enhancing its walkability and pedestrian safety."

Plaistow Community Design Charrette Acknowledgements

Sincere thanks go to those individuals who donated their professional and personal time to make this charrette a success. Also, many thanks to the citizens, businesses and town officials who shared their time, services, thoughts and knowledge with us.

The Plan NH Charrette Team

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The Plaistow Team

Without the support and participation of all of the following individuals, organizations and businesses this charrette would not have been possible:

Application

Tim Moore, *Chairman of the Plaistow Planning Board*
Leigh Komornick, *Planner, Town of Plaistow*
Sean Fitzgerald, *Town Manager, Town of Plaistow*

Logistics

Tim Moore, Leigh Komornick, J. Senter, C. Marlette, K. Cornell

Sign

Grand Rental Station

Lodging

Haverhill Comfort Inn, *courtesy of the Town of Plaistow*

Meals

Casey's Diner - *Friday Dinner and Saturday Breakfast*
Scovotti's Cookies and Confections—*Saturday Lunch*

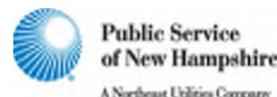
Seasonal Decorations

Leigh Komornick

Also:

John Sherman, *Plaistow Board of Selectmen*

Plan NH is grateful for the special support of these members:



Charrette Booklet Printed by:



Print New Hampshire
40 Dow Street
Manchester, NH 03101



Plan NH Comes to Plaistow, NH

October 21 & 22, 2011

Who is Plan NH?

Plan New Hampshire, The Foundation for Shaping the Built Environment (Plan NH), is a 501(c)3 non-profit organization formed in 1989.

Plan NH has a *Vision* of a New Hampshire that is vibrant and healthy for its people, its economies and the environment.

Plan NH's *role, or Mission*, in achieving that Vision is to encourage good planning and design and development because, we believe, that *what* we build, and *where* and *how* we build it has a significant impact on that vibrancy and health.

Plan NH *champions principles and ideas* that balance building projects - and this would include anything built in the public realm, such as buildings, roads, bridges, memorials, public sculpture - with

- The needs of people - where they live, how they get about, what services are necessary, what they value
- maintaining the "sense of place" of our towns, cities and villages that make them unique –
 - including preserving historic assets, open spaces, agriculture and farming
- protecting our air, water, flora and fauna

Among our signature programs is the *design charrette*, an exercise that brings professionals from our membership together with our communities to explore design ideas, usually around a town center or other significant neighborhood. Through recommendations made, Plan NH can demonstrate the role and importance of the principles and ideas noted above in concrete, real examples.

What is a Design Charrette?

Simply stated, a Charrette is a brief, yet intense, brainstorming session in which information and many ideas are brought together for the purpose of defining potential planning recommendations and possible design solutions for an identified need. For Plan NH, this is usually related to a town center or other significant neighborhood in a community.

The charrette is typically of a short duration – for Plan NH, 8 hours on a Friday for listening and then another 8 hours the next day for brainstorming, crafting recommended solutions, and presenting thoughts to the town.



The Charrette Process:

- Identify the need or opportunity
 - Collect information from the community itself to understand more deeply and broadly the situation
 - Analyze and evaluate what is seen and heard
- Develop conclusions and recommendation for meeting the need or addressing the challenge

Most importantly, the process engages planning and design professionals (and/or others with related areas of expertise) in direct dialog and conversation with local residents and community representatives (or *stakeholders*) to collect information needed in order to develop good and relevant recommendations about how to address a particular challenge. Plan NH sees this part of the process as a period of *discovery*: discovering who the community is, what they value, what they really want, dream and hope for. This community input is essential and critical to the value of the outcomes.

The results of a Plan NH charrette are general and overarching planning and design *recommendations*, rather than specific, "how to" construction directions. Plan NH does not dictate, but suggests.

Why did Plan NH come to Plaistow?

In early 2010, the town of Plaistow submitted an application for a Plan NH Community Design Charrette. The town was seeking assistance in

“taking back its town center” - returning it to a safely walkable, inviting part of town.

Plan NH representatives reviewed the application, interviewed the town, and chose Plaistow to be one of five towns in which to hold a charrette in 2011.

The application met three essential criteria:

1. The completed application identified a specific area of need and interest within the community, and the community was eager and ready to address it
2. The application’s description of existing conditions in the community demonstrated that there was organized and committed community support already present in Hebron.
3. Plaistow was recognized as a community that takes initiative and was ready and willing to follow through.



The Charrette Process & Overview

Plaistow Town Officials and residents gathered with the **Plan NH** Charrette team on Friday, October 21, 2011 in the Town Hall to discuss the details of the town's proposal with the Plan NH team. Design professionals on the team included an architect, three landscape architects, four engineers, and a Plan NH facilitator. The critical piece that the Charrette Team lacked, which only the local residents could provide, was the intimate knowledge of the Town of Plaistow and the vision for its future. The Charrette team was also briefed on the Community Brainstorming Sessions conducted in September 2011 by the Library and the Main Street Traffic Calming Plan of April 2011..

Local residents are the experts on the community — what makes sense, what history has brought forth, what will pass at the local board meetings — the design team relies on resident input and knowledge to develop viable suggestions and proposals.

The initial application by Plaistow requested that Plan NH consider two very different and physically separate areas: the Historic Village Center and the area which surrounds a potential passenger rail station. For reasons of scale, Plan NH accepted the application with the codicil that these two areas be treated as two parts of a whole vision for the Plaistow Community in two separate Charrettes. Inasmuch as the prospect of a train station being built in Plaistow is currently uncertain, the Village Center was identified as the area of study.

An introductory meeting was held with key community stakeholders, town and elected officials, and community leaders to inform the Plan NH team about the significant issues facing the study area.

Plaistow is a vibrant community with a number of planned activities and events which bring the community together. Plaistow is also a southern-tier border community with an active retail sector located on the NH Route 125 Corridor. Through-traffic volumes are quite high given its location. While the Route 125 corridor was developed as a by-pass, highway construction, retail and traffic volume have brought a substantial amount of through-traffic into the traditional town center. Consequently, there is a too much vehicular traffic, which moves too fast through the traditional core. Conflicts among community events, pedestrians, bicycles and vehicles are common. In the current configuration of the historic village center, vehicles are winning.

After the introductory meeting, the team took a walking tour of the project area. Given time constraints and the scale of the study area, the group divided into two subgroups. The first group reviewed the area north of the Town Hall, encompassing Main Street, the Smith Farm Site and the Pen Box/Chart Property, which runs along the north side of the railroad tracks. Additionally, the first group reviewed the area of Elm Street running from Main Street to the Public Safety Building. The second group reviewed the Main Street corridor from the Town Hall south, including the Pollard School, Historic Society, and the Westville Road Convenience Store to the Town Library. Both groups observed the physical layout and setting of the town, its traffic, parking, land uses and buildings.

Two public "listening sessions" were held on Friday afternoon and evening. The purpose of these sessions was to explain the challenge that the town had set out for the charrette team and to gather input from the community regarding issues and concerns that they have about the Historic Village Center. The public comments are presented on pages 10 and 11 of this report serve as an important foundation for the concepts and designs that the charrette team completed on Saturday. The charrette team's observations and findings are included on page 12. The remainder of the report presents the team's detailed recommendations. The report concludes with sections on implementation and resources that may be useful to Plaistow in achieving their long term objectives.

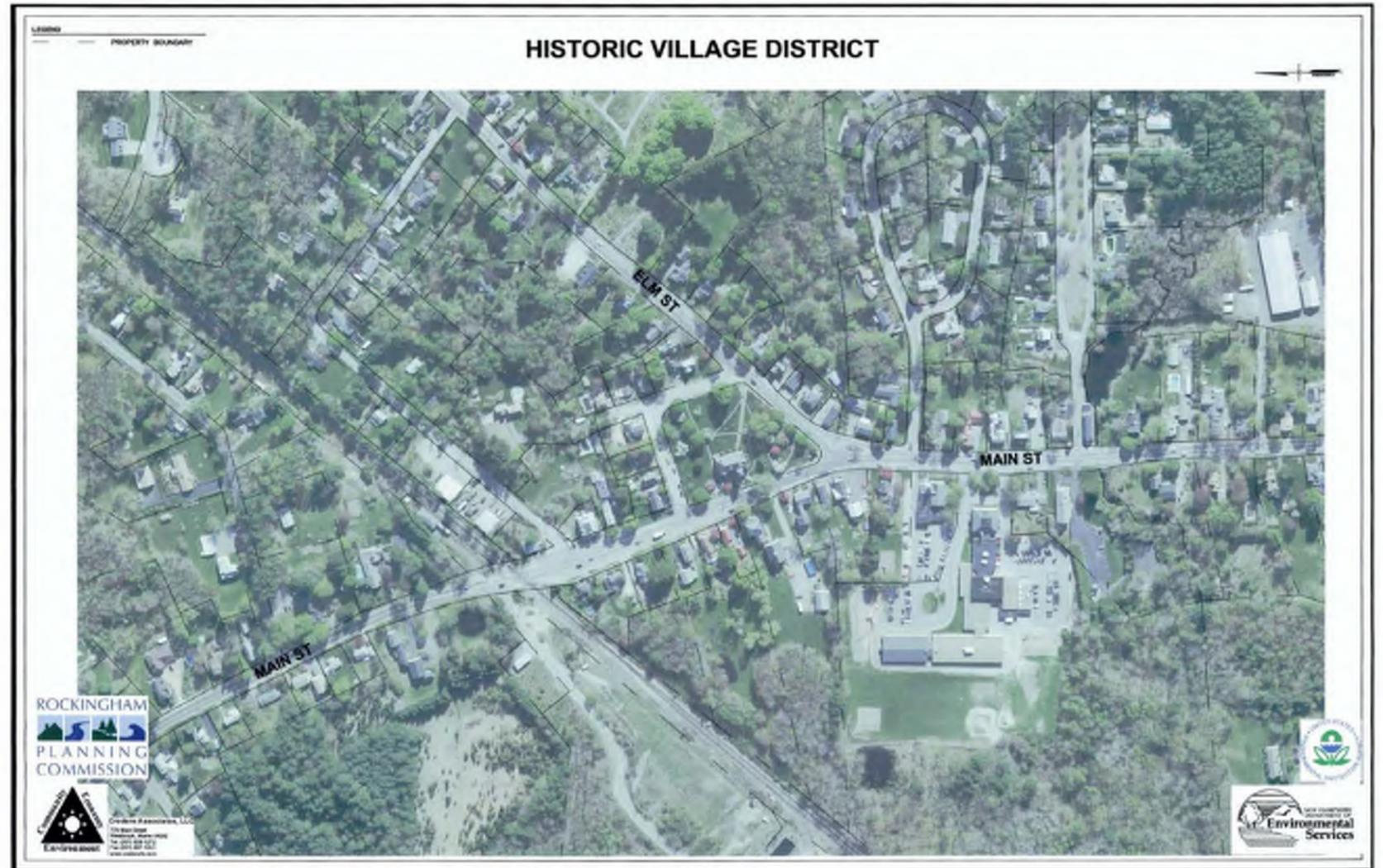
Saturday was "roll up the sleeve day", when the charrette team reconvened, recapped, and prepared recommendations and supporting graphics for presentation to the Community in the afternoon.

As indicated in the stakeholder meeting, significant themes of traffic, parking, pedestrian and bicycle use appeared and a rallying cry of "Take Back Main Street" was born. Most residents like the character and scale of existing buildings along Main Street and would like to see a pedestrian centered community.

Plaistow's Proposal and Challenge to Plan NH

In its application, Plaistow indicated that it sought assistance creating a “vibrant, citizen-based vision for the Village Center Overlay District and surrounding parcels.” The study area includes the Library, Pollard School and the Town Hall, along with a mix of residential and business uses. Several Town Boards, including the recently formed Plaistow First Committee, The Zoning Board and the Board of Selectmen, had expressed a commitment to a sustainable vision for their village center. Significantly, the western sector of the study area abuts a potential passenger rail station for the MBTA, which if realized would also include a locomotive layover area. Since there is some uncertainty about the railroad development and since the village center is a substantial area of study in its own right, Plan NH determined that the application should be treated as two separate, yet mutually informed studies. Accordingly, the historic village center became the focus of the first Plaistow charrette.

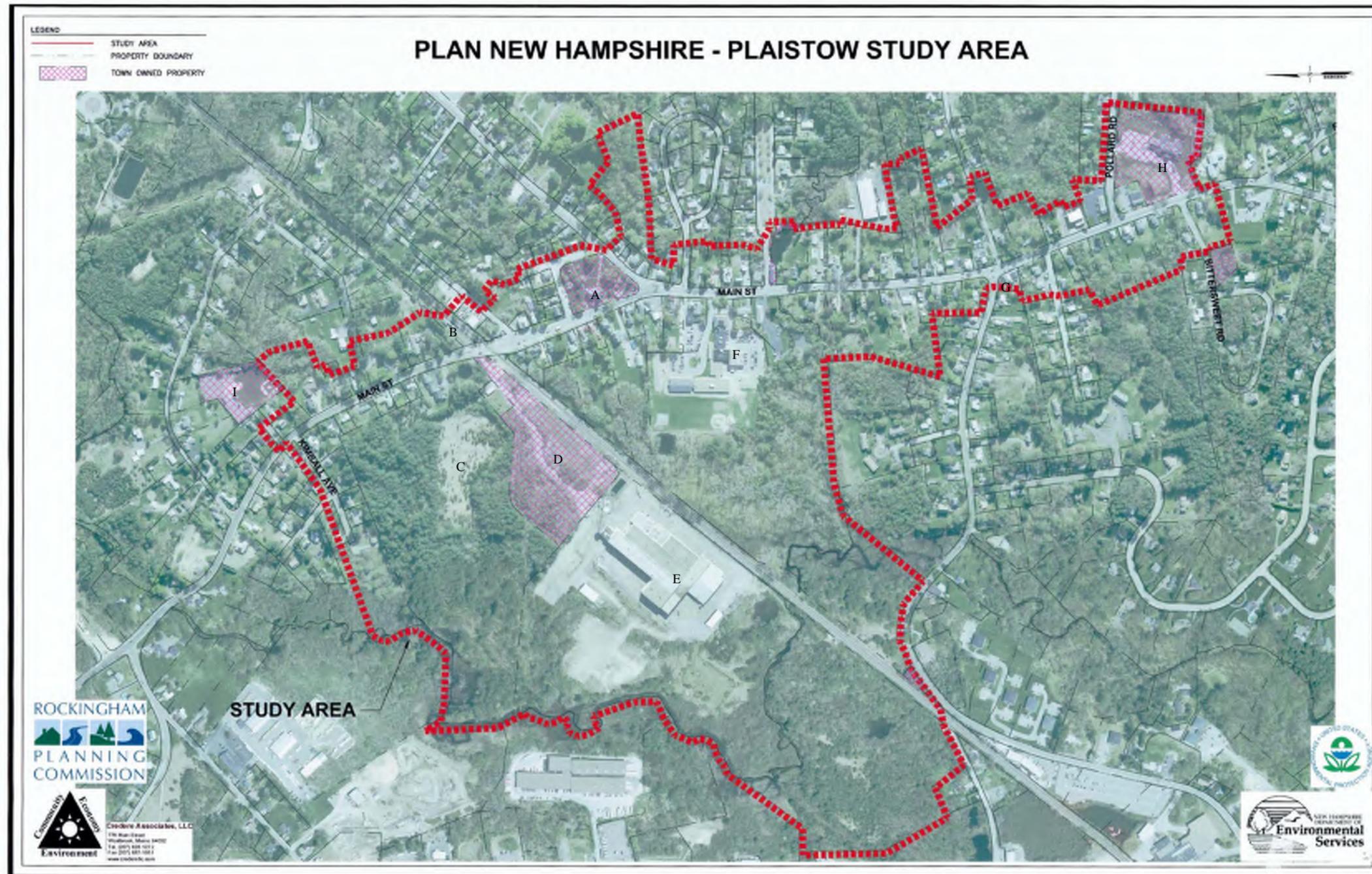
With the growth of the southern tier of New Hampshire, coupled with the development of the Route 125 corridor, including disruptive highway construction, the traditional Main Street of Plaistow has become a favored alternate route through and around Plaistow. Conflicts between pedestrians, cyclists, local and transient drivers abound. In 2009, the Town contracted with the Rockingham County Planning Commission to carry out a traffic calming study for the Main Street (Route 121A) corridor. The study was completed in March of 2011, about the time that Plan NH accepted Plaistow's charrette application.



The study area encompasses approximately 20 acres, with a primary focus centered on the historic village center, the center of which is shown here. The area of study is roughly defined as the main Street corridor from Kimball Avenue south to the Town Library. The remaining Chart Site and Smith Farm represent significant land assets, with recreational and other potentially beneficial uses for the community.

“We can begin by doing things at the local level, like planting community gardens or looking out for our neighbors. That is how change takes place in living systems, not from above but from within, from many local actions occurring simultaneously.”

Grace Lee Boggs



This view identifies the overall area of study. Town-owned assets are identified by cross hatching. Other points of significance are identified by key.

While the entire area is considered, the primary focus of this charrette looked at the Main Street corridor and associated community features and benefits that spring from a pedestrian-centered Main Street.

A—Town Hall

B—Old RR Passenger Station (Privately Owned)

C—Smith Farm (Privately Owned, Under Study for Town Purchase)

D—Town Owned Open Space

E—Chart Site (Privately Owned Brownfield Study)

F—Pollard Elementary School

G—Westville Rd Intersection and Store

H—Town Library

I—Town Recreation Center (Not in Study)

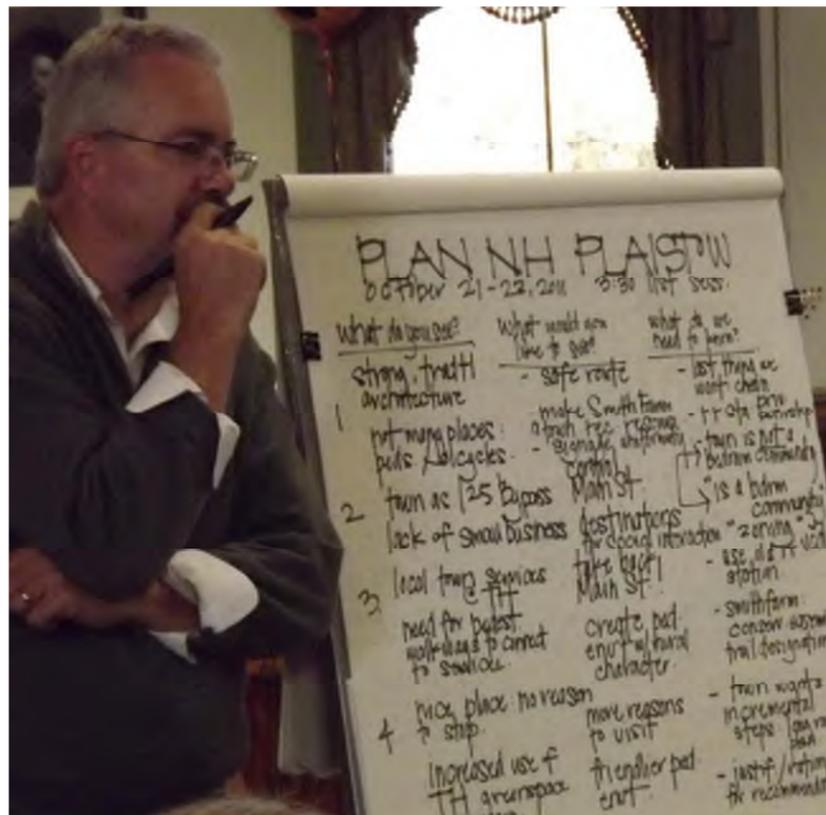
What the Town Residents Told Us

Two public listening sessions were held during the afternoon and evening of October 21. The purpose of the sessions was for the public to share their ideas with the charrette team about what they see and what they would like to see in the historic village center.

Residents were also asked to let the Plan NH team know what may not be known by the team about the study area and the community.

What Do You See?

- Strong Traditional Architecture
- Not Many Places for Pedestrians and/or bicycles
- The Town is a 125 By-Pass
- Lack of Small Business (Retail)
- Nice place, with no reason to stop



- Town Hall
 - A lot of Local Town Services
 - The Town Hall Green is the Epi-Center of the Community
- Too Much Traffic
 - Too Much
 - Too Loud
 - Too Fast
- Traffic Accidents at Westville Road
- Parking
 - Day to day issues of organization
 - Big Issue During Community Events
- A Lot of History

What Do You Want To See?

- “Take Back Main Street!”
- Walkability
- Make Smith Farm a Town Recreational Resource
- Uniform Signage
- Control Main Street
- Create Pedestrian Friendly Environment
 - Rural Character
- More Reasons to Visit
- More Program Activities
- Recreation Center
- Better Aesthetics
- Roundabout and Crosswalks with Good Visibility
- Connections between key points
- Café Bakery
- A Way to know You’re Entering Town (Gateway)
- Incentives for Business Owners
- Police Enforcement of Speed Limits



What Does PlanNH Need to Know?

- There are Trails on Smith Farm
- Do not want a chain business in the village.
- Original RR Station Building is privately owned.
- Town is a Bedroom Community
- Town is Not a Bedroom Community
- Town wants Incremental Steps to a Long Range Plan
- History is slipping away
- Although not permitted, south-bound trucks leaving the Chart/Pen Box Site use 121A.

Other Items

- There is no public water/sewer in town.
- Sidewalks are not plowed in the winter.
- Main Street is a State Road—DOT has to approve any changes



Smith Farm House—Potential Community Use Structure



Main Street/NH Route 121A



Privately Owned Railroad Station Building—Potential trail head/visitors building or farmers market.



Plaistow Town Library—Note Absence of Pedestrian Access fro Main Street



Elm Street Intersection—No Pedestrian Pathway, High Speed Shortcut

Charrette Team Observations and Recommendations

We heard the opinions and concerns of the residents. We walked, studied, and observed the physical character and working dynamics of the town center and have observed the conditions that need to be addressed with a comprehensive proposal. While the entire study area was considered, the team chose to focus on a series of “vignette” solutions. Each recommendation can be treated as an incremental step toward realizing the overall vision of the community. Each step taken is forward progress and each step will build momentum for continued improvement.

What We Saw or Heard

Recommendations

Overall View of Village Center:



Based on site walks, citizen and Town Official input, the Charrette Team has developed an overlay view of the study area. The areas are:

- The Village, which is primarily from the Town Hall south and is characterized as a mix of commercial and residential uses.
- The Village Core, including the Town Hall and Green north along Main Street to the railroad tracks. This was historically the “commercial” core of Plaistow in years past and is characterized as a commercial/mixed use area.
- Open Recreation, which includes the Smith Farm, Pen Box and Chart sites. Not in the study area, yet proximate to this area is the current Town Recreation Area.
- Civic, which includes the Police and Fire Center, the Courthouse, Pollard School and the Library.

1. *Pedestrian Pathways: “Take back Main Street” - Reverse the current hierarchy of vehicular dominance and make pedestrians first. Adopt a view of Main Street as the “front yard”, both in terms of the Plaistow Community as well as the homes and businesses that front Main Street.*

Increase the number of clearly marked crosswalks. Create vehicle and pedestrian zones or separation to limit conflict. Establish walkways for the entire length of the study area on both sides of the street, which are maintained year round, to bind together the village elements.

3. *Recreational Zone: Enhance the Pen Box, Chart, Smith Farm site to reinforce it’s value as a recreational and civic resource for the community.*

Provide clear delineation of current and future trails within the Smith Farm Conservation Easement. Consider repurposing the Historic Train Station as a visitor center, or other community use. Consider the Smith Farm House as a potential community asset.

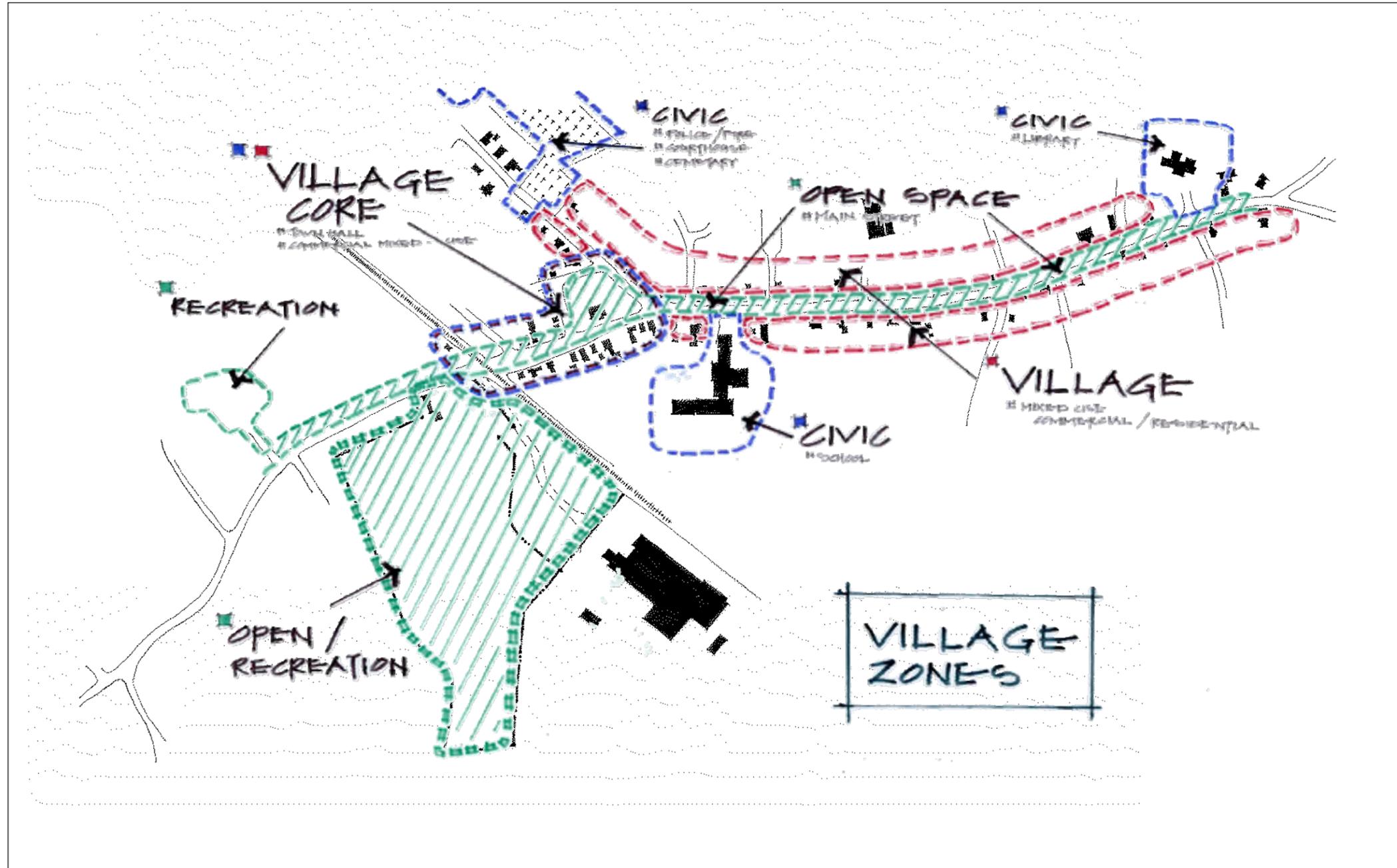
4. *Gateways: Create a clear sense of arrival to the village district. Plaistow should have a strong sense of place*

Create Gateways at either end of Main Street and at Elm Street to distinguish the center of the community from the rest of the area. Within the gateways, traffic calming, clear streetscaping and walkways will be present.

5. *Parking is an issue.*

Although parking has been described as problematic, the Charrette team believes that the issue is not one of adequacy, rather it is more an issue of better defined parking within the Village District.

The Village Zones



As the charrette team considered the overall Village District, a pattern of existing and proposed uses became apparent. The diagram on the left shows how the various zones relate to one another.

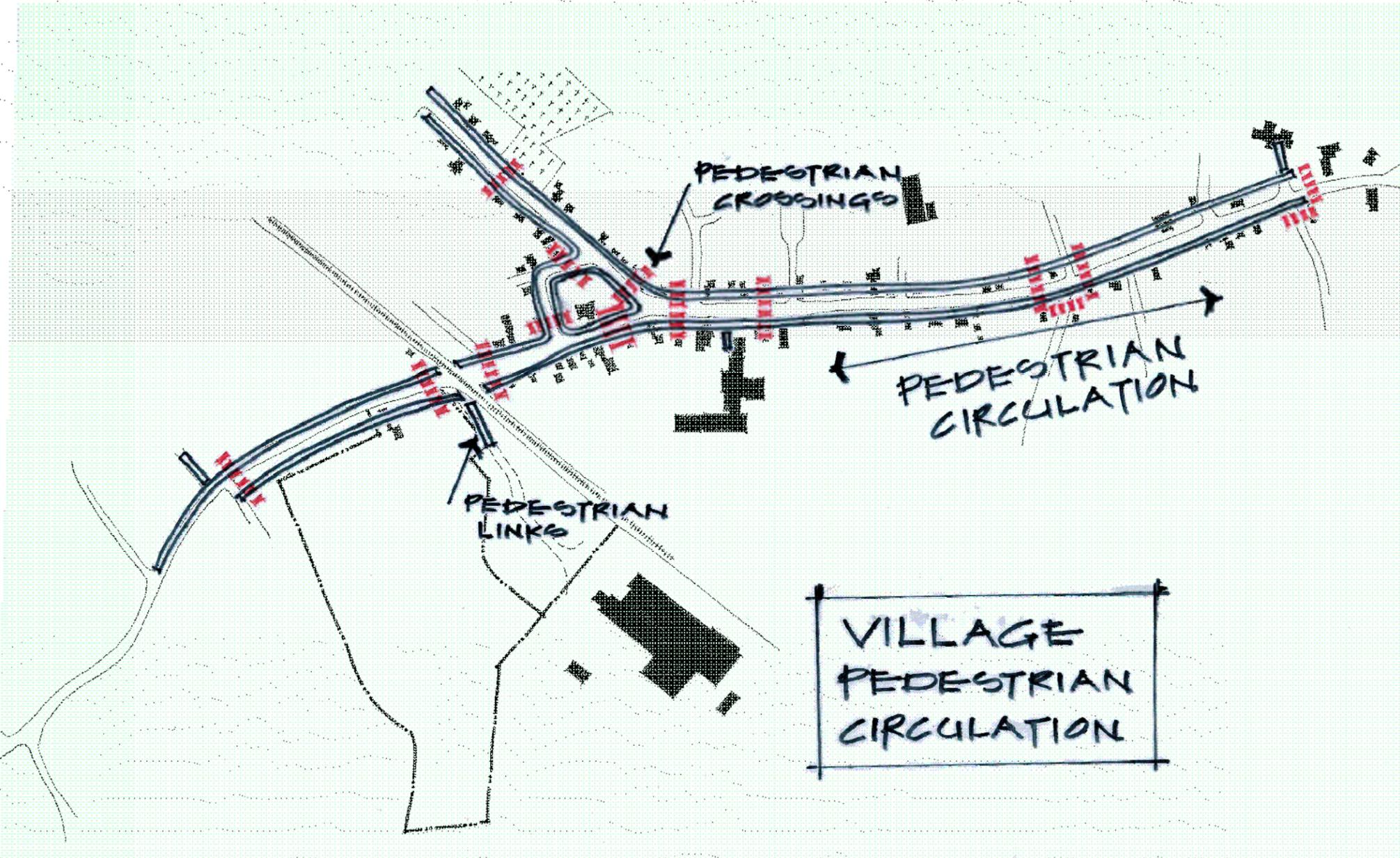
Noteworthy in the diagram is that, while the Pen Box/Chart, Smith Farm and Town Hall Green are obvious areas of open space, so is the entire Main Street Corridor. The team views the Main Street corridor as the town's front yard, a welcoming, pedestrian promenade.

The Village Zone is characterized as mixed use/residential.

The Civic zones are significant public buildings and assets.

The Village Core is in and of itself a blend of all of the above and is seen as wanting to return to its historic roots as the hub of the community.

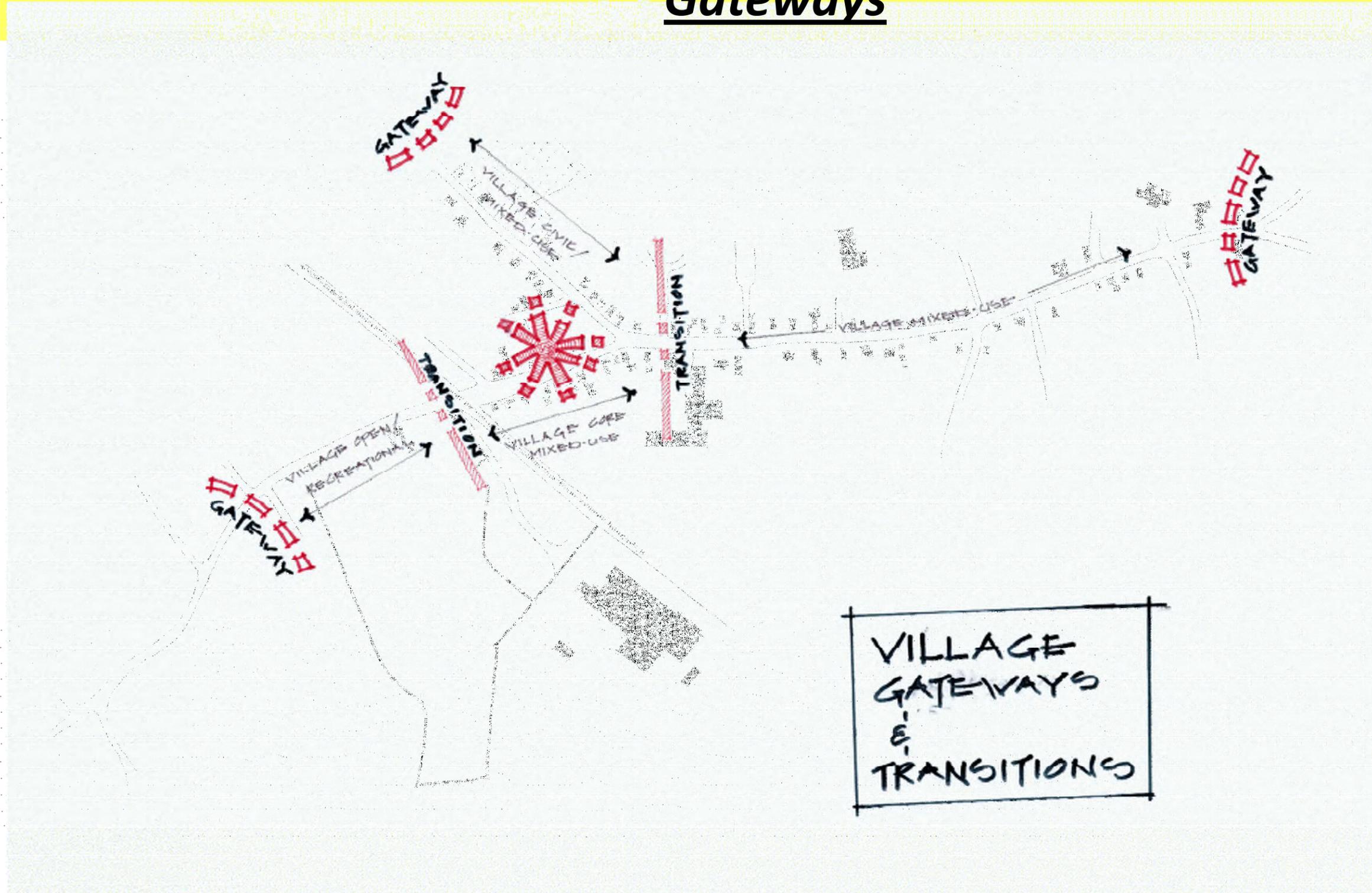
“Pedestrians First” Circulation



Pedestrian pathways should be on both sides of Main Street, with numerous cross walks at significant intersections and buildings. Pathways should extend to connect the village center with recreational facilities, the Library and the Courthouse and Public Safety Center.

While the RCPC Traffic Study proposed either a roundabout or island at the intersection of Main and Elm Street, the Charrette Team determined, for reasons of pedestrian hierarchy and enhanced sightlines, to recommend a controlled intersection at that point. The “on ramp” effect created by what was historically a trolley rail bed from Main to Elm would be replaced by a sharper intersection, which would require travelling vehicles to slow down in order to navigate that corner.

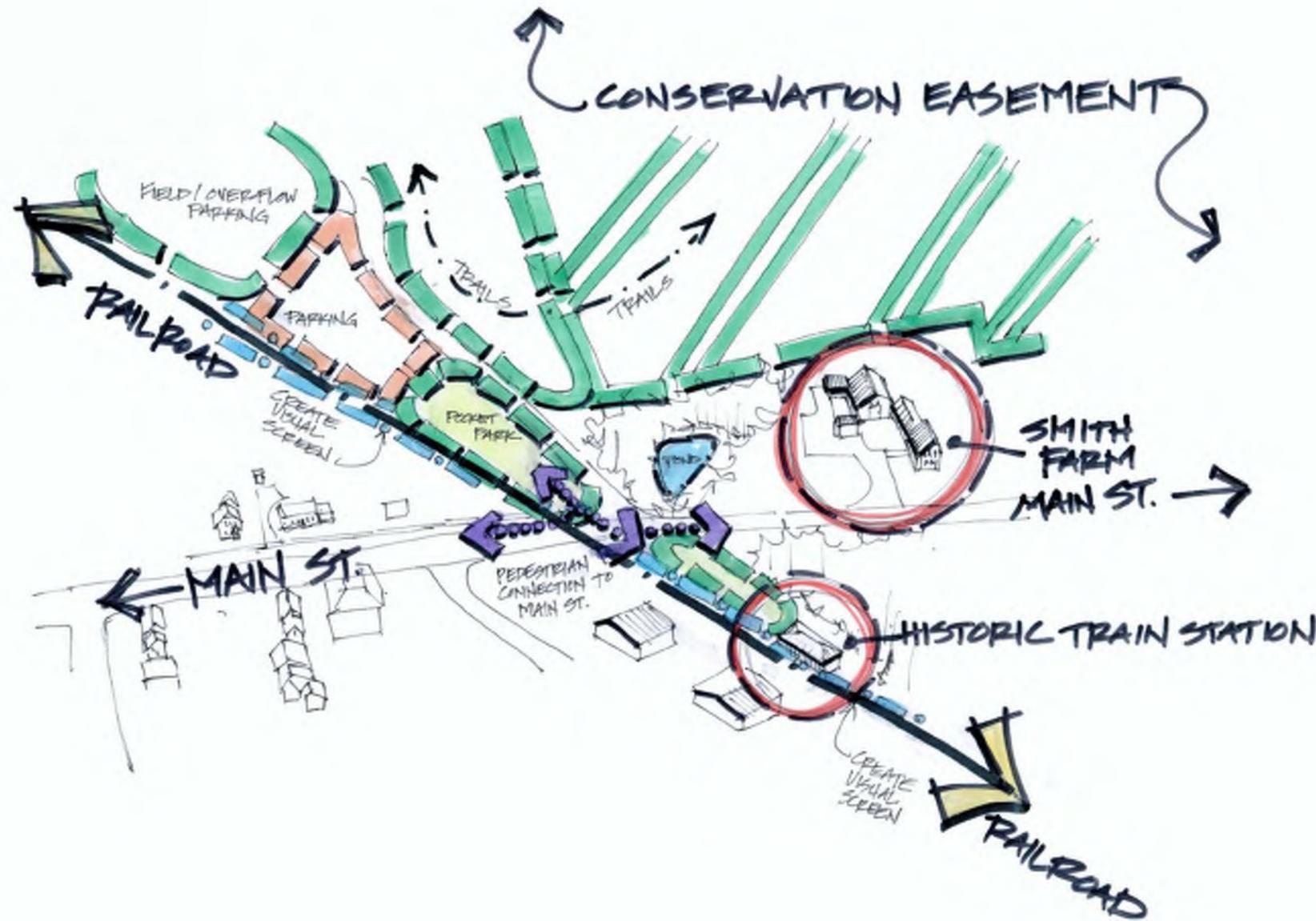
Gateways



It is critical that there is a strong sense of arrival when one enters the Village District. The team recommends a combination of signage, streetscape treatments, roadway modifications, including distinct pathways for pedestrians, bicycles, vehicles and parking.

Between the gateways, the team further recommends a uniform "streetscape vocabulary" be used, which in turn transitions to a more dense treatment at the transition points, which define the Village Core.

Smith Farm and Pen Box Site



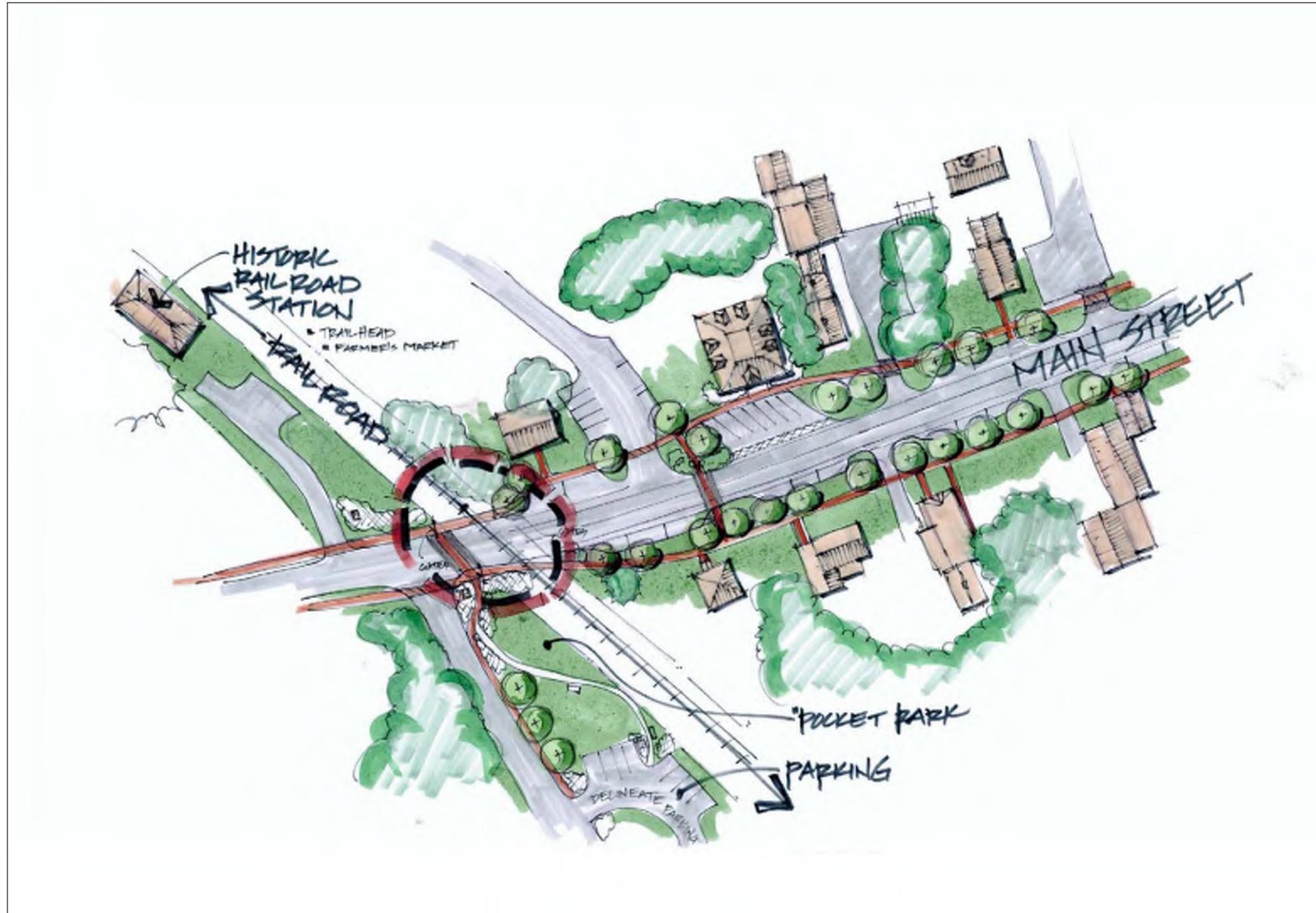
Plaistow is blessed with a significant environmental resource, which frames the north end of the Village District.

The town presently owns the Pen Box site, which could serve a number of different functions. The team proposes a pocket park at this north “gateway”, which could include the historic train station as a public facility. For example, it could be used as a visitor center, trail head or farmers’ market.

For large community events such as the “Old Home” event, paved parking could be provided, which would also serve as parking for access to the Smith Farm trails. Overflow parking can be accommodated in the field which is southwest of the paved parking area.

The town is reviewing the possibility of acquiring the Smith Farm property. The team believes that this asset is significant enough to warrant that purchase for the benefit of the community in perpetuity.

The Village Core North



In prior years, the section of Main Street between the train station and the Town Hall was the commercial center of the town. In this area, the pavement is substantially wider than elsewhere, resulting in a very confusing mix of parking, pedestrian and vehicular uses. On the West side of the street, businesses have encouraged visitors to park off pavement, exacerbating the situation.

The team proposes that clear hierarchy be established by narrowing and defining the vehicular travel lanes, defining angled and parallel parking on either side of the street and clearly defining pedestrian pathways adjacent to the Main Street buildings.

Village Core at Town Hall



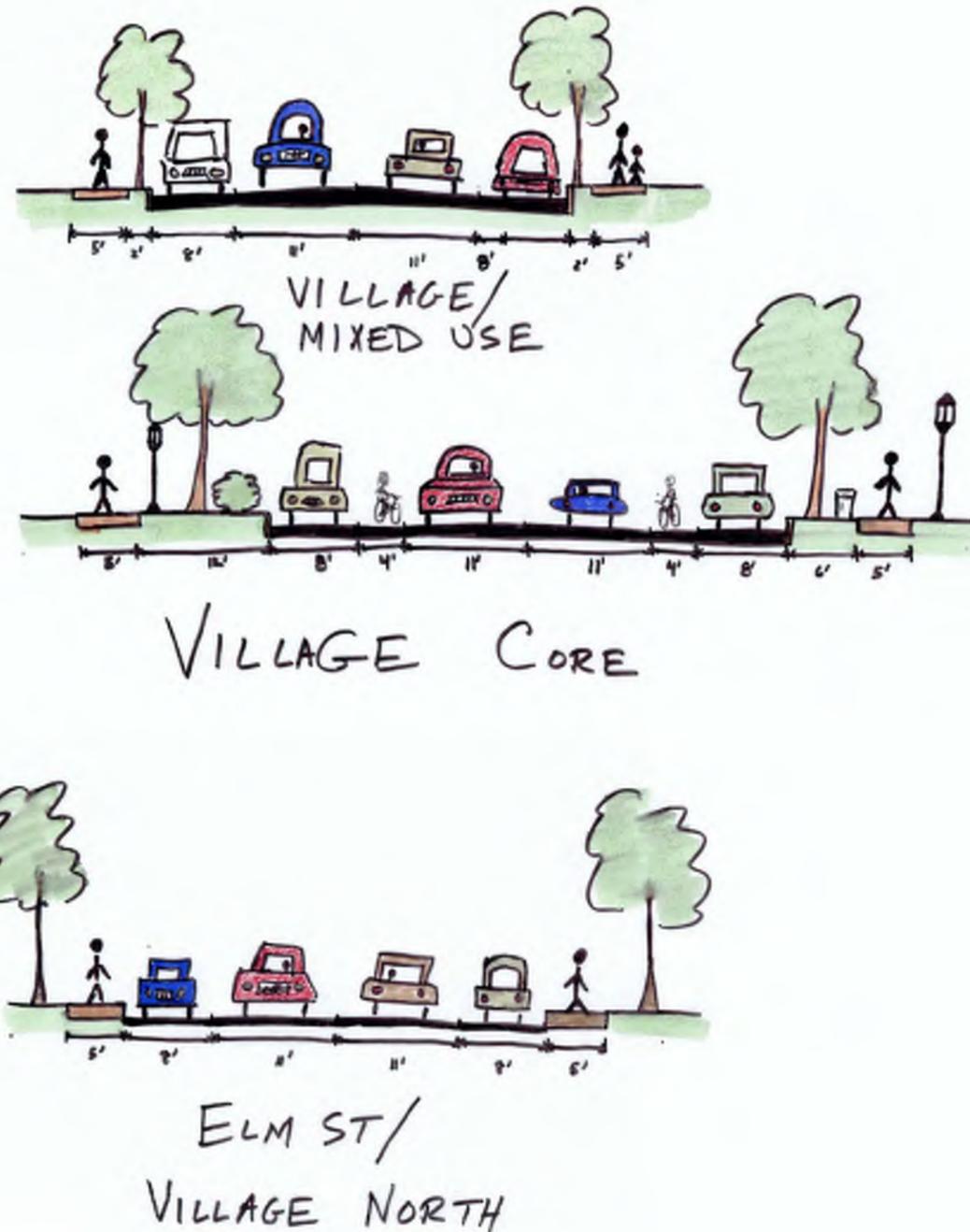
At the Town Hall and Elm Street intersection, as elsewhere, the pedestrian comes first.

The pavement at the Elm Street intersection would be reduced to eliminate the wide, high-speed right-turn onto Elm Street. This would serve as a traffic-calming measure and improve pedestrian safety by reducing the crossing widths and improving driver awareness of pedestrians crossing.

The existing drop-off at Town Hall would be eliminated, along with a large Main Street crossing, celebrating the primary entrance to this important public building.

Parking in this area would be right-sized and clearly marked. Spaces that currently surround the Pollard Park would occupy both sides of the street and be sized according to current standards, resulting in a substantial net gain to parking around the Town Hall.

Main Streetscape & the Front Yard



The team proposed three levels of streetscape treatment between the gateways.

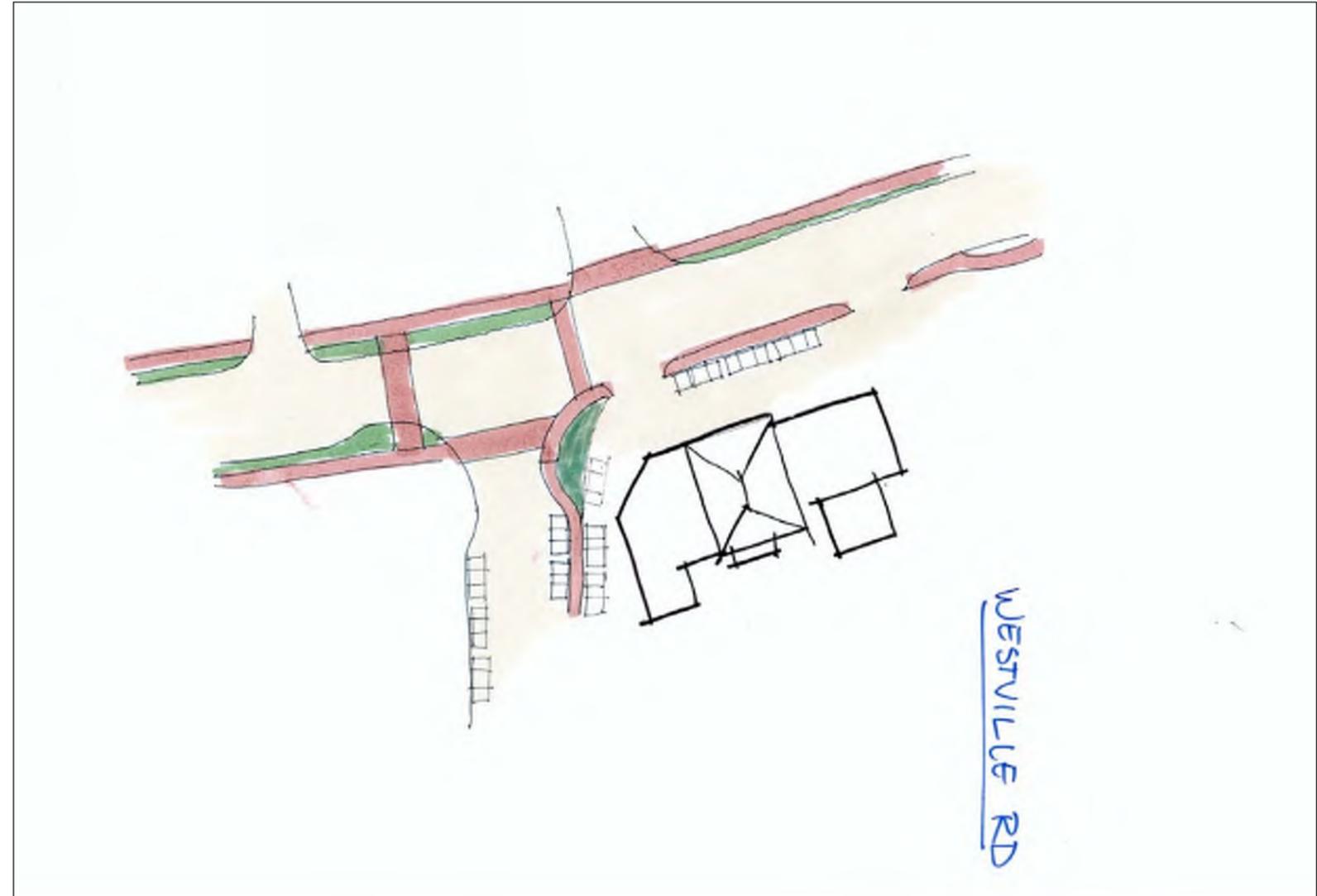
- The “Village” Zone, running from the Library to the “Village Core” transition, adjacent to the Pollard School, would be characterized by separate lanes for parking and travel, a curbed edge and a planting strip between the curb and paved walkway.
- The “Village Core” would add a clear bicycle lane and greater separation between the curb and walkway, which in turn could be utilized for benches and other street furnishings. This area would also have more formal and human scaled street lighting.
- North and east of the “Village Core” transition points would have a narrower treatment, where the paved walkways would abut the curbing.

Visually, the entire zone between building fronts along Main Street and Elm would be viewed as a significant open space asset, or the “Front Yard”.

Key Pedestrian Enhancements—Village



A key element of enhanced walkability is to extend a walkway from Main Street to the front door of the Library. Coinciding with the South Gateway, the roadway narrows at the intersection to slow traffic and clearly delineate the pedestrian crossing. Street parking is clearly delineated from the travelled way, which in turn visually narrows the roadway.



Both the intersection and convenience store at Westville Road are poorly defined. Presently, head-in parking forces customers to back out onto Main Street. The current sidewalk simply ends on the north side of the intersection leaving pedestrians at odds with turning traffic and convenience store customers.

This proposal recommends creating a zone of parallel parking and clear walkways to enhance both pedestrian and vehicular safety at this intersection.

What is a Vibrant, Livable Village?

In many of Plan NH's charrette communities, citizens struggle with the gap between their present circumstances and their future vision. What is unique about Plaistow, is that the essential ingredients of a truly vibrant community are already in place. That foundation is built by the commitment of a large number of community members who already believe in Plaistow and who are willing to do what it takes to realize the vision a people-first community. The "Report Card" below can be used to assess where Plaistow is and can be following the roadmap of readily achievable objectives.

The "Ideal" Village

Engagement: Identity/Pride

Identifiable Center

Aesthetics of Human Scale

Social Capital

Economic Vitality

Mixed Uses

Walkability

Environmental Resources

Transportation

Plaistow, NH

Citizen Engagement is high

Village Center can be readily enhanced

Buildings and landscapes fit

Active Community programs with good facilities

Village Center could use more business.
A local Café would be a plus.

Existing Center enjoys a mix of uses

Will be enhanced by streetscape program

Close access to outdoor recreation space.

Bike paths will enhance alternatives.



Recommendations

“Take Back Main Street!”

- Make Plaistow a destination.
- Build on Plaistow’s Historic Village Center
- Make Pedestrians Number 1
- Create a Main Street that is part of Plaistow’s Open Space.
 - Main Street is the front yard for each owner
 - Main Street is the front yard for Plaistow.



Concluding Thoughts

The Village District of Plaistow enjoys a number of significant attributes that are seen in vibrant villages. As the commercial core along Route 125 and the southern tier of New Hampshire grows, through traffic pressures have impacted the peaceful enjoyment of the community's assets. Notwithstanding those pressures, the essential character and scale of the village remain. Town planners have been careful to treat the village center as the cultural center of the community. The new Library was built in the core, town events center around the Pollard Green and small businesses appear to coexist comfortably with residences.

In one of the listening sessions, there was a concern expressed that the town's history is "slipping away". We believe that concern can be addressed by returning the pedestrian to prominence in the Village Center, by building on the current activities that bring people to the village, and by connecting the outdoor recreation activity area to the Village Center.

Another statement heard in the listening sessions is that there is "great potential" for the Village and for the Town of Plaistow. We cannot agree more!

In the end, it will be up to the people of Plaistow to make this vision a reality. It may seem daunting at first; but it is very possible. We encourage the community to approach these recommendations on an incremental basis, and to celebrate each step taken. Positive momentum will come and citizen engagement will continue to grow.

At the end of this report is a list of various groups that may be able to help Plaistow turn its vision to reality.



Thank you for letting us be part of your community!

Resources

Possible Funding Sources

Wal-Mart Good Works – www.walmartfoundation.org

The Home Depot – Community Impact Grants, corporate.homedepot.com/wps/portal/!ut/p/.cmd/cs/.ce/70A/s/70121/s.70A/70121

The Timberland Company – Community Involvement Program, www.timberland.com/corp/index.jsp?page=communityInvolvement

PSNH – Community Giving program, www.psnh.com/Community/Support/corp_giving.asp

The Madeline G. von Weber Trust - Funds projects in community development, neighborhood development, human services and the performing arts. Contact: Madeline G. von Weber Trust, c/o James D. Dow, 95 Market St., Manchester, NH 03101.

Waste Management Charitable Giving Program - Support for Environment, Education, and Community Impact Programs - www.wm.com/WM/community/Giving.asp

Enterprise Community Partners - www.enterprisecommunity.org/

Orton Family Foundation, www.orton.org **Heart & Soul Community Planning**

The New Hampshire Preservation Alliance, www.nhpreservation.org

Other Public Resources

NH Department of Transportation NH Department of Transportation

New Hampshire Department of Transportation is a source of public funding for state road improvements, as well as safety and sidewalk improvements.

Transportation Enhancement Act Program - Project categories include: facilities for bicyclists and pedestrians; safety and educational activities for bicyclists and pedestrians; acquisition of scenic easements and scenic or historic sites; scenic or historic highway programs; landscaping and other scenic beautification; historic preservation; rehabilitation and operation of historic transportation buildings, structures or facilities; preservation of abandoned railway corridors; control and removal of outdoor advertising; archaeological planning and research; environmental mitigation to address water pollution due to highways or vehicles; and establishing transportation museums.— <http://www.nh.gov/dot/municipalhighways/tecmaq/index.htm>

Safe Routes to School is a 100% federally-funded program to support efforts to improve the safety of students walking and biking to school. In New Hampshire, this program is managed by the NH DOT. Funds may be used to construct pedestrian and bicycle infrastructure (such as sidewalks, marking bike lanes) along routes to schools serving grades K-8. John Corrigan, SRTS Coordinator, NHDOT, Hazen Drive, Concord, NH 03301.

Rural Development Administration provides low interest loans and grants for municipal projects as well as financing for some private development.

NH Division of Historic Resources may be used as a source for historic property advice and expertise, any use of historic tax credits must be approved by this agency.

NH Business Finance Authority is a source for tax-exempt bonding and other subsidies for private and non-profit investment.

NH Community Development Finance Authority is a source for tax credits for publicly supported projects and Community Development Block Grant funds .

NH Municipal Bond Bank provides low interest funds for publicly bonded projects.

We also suggest the town consider enacting RSA 79-E, Community Revitalization Tax Incentives as part of the village center initiatives. Signed into law in 2006, this statute makes it possible for property owners wanting to substantially rehabilitate buildings in a downtown or village center to apply to the local governing body for a period of temporary tax relief.

And finally

Tools for Implementation

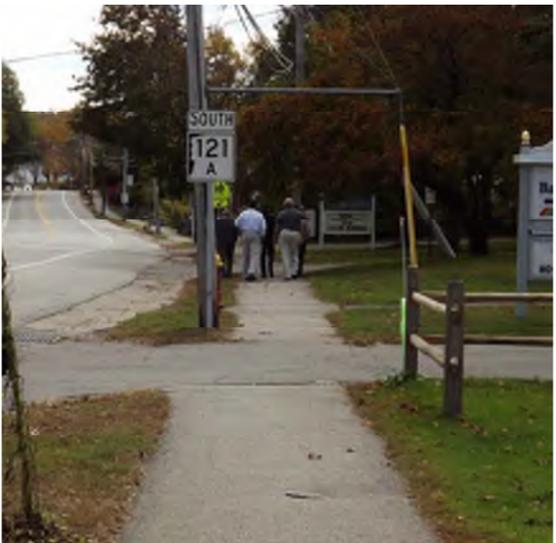
There is a wealth of sources of funding and expertise to explore. When applying for grants and foundation monies, many of the funders require plans or a detailed program to be in place as an assurance that projects will be completed in order to qualify for funds. This charrette plan is an important document that can be used to advance Plaistow's plans and funding.

Expertise:

- NH Office of Energy and Planning (OEP)
- NH Office of Travel & Tourism
- Division of Economic Development (within DRED)
- NH Department of Environmental Services (DES)
- NH Division of Historical Resources
- NH Council on the Arts
- U.S. Small Business Administration (SBA)
- NH Preservation Alliance
- NH Department of Transportation (NHDOT)
- Rockingham Regional Planning Commission
- USDA Rural Development

Funding

- Community Development Block Grants (CDBG)
- Economic Development Administration
- NH Department of Transportation (NHDOT)
- Community Revitalization Tax Relief Incentive (RSA 79-E)
- Conservation License Plate Funds
- Land and Community Heritage Investment Program (LCHIP)
- Community Development Finance Authority (CDFA)
- Tax Increment Financing (TIF)
- Special Assessment Districts
- Town Trust Funds



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