

Town of Madbury, New Hampshire

Master Plan: Toward the Year 2010

2.6 Transportation

Prepared for

Town of Madbury Planning Board
Madbury, New Hampshire

by

Strafford Regional Planning Commission
Dover, New Hampshire

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Transportation

1. Introduction

The Transportation Chapter of the Master Plan describes for the Town's current and future transportation needs. In conjunction with the Capital Improvements Program and the site plan and subdivision regulations, this chapter inventories the existing facilities and their condition, assesses relevant data, establishes policies and recommends future projects and standards.

Residents of Madbury greatly appreciate the town's historic and rural character. Yet with growth pressures increasing every year, careful planning and decision-making regarding all aspects of transportation must be executed to ensure the character is maintained. The development and design of transportation facilities such as roads and bridges, driveway access points, sidewalks, and bike paths will have a major impact on how the character of Madbury's community is maintained. This chapter also aims to assess transportation in relation to housing development, land conservation, safety, recreation and the economic and financial stability of a community so that the needs of the community can be met without sacrificing its quality of life.

2. Community Development/Vision Policies and Transportation Recommendations Summary

The Madbury Planning Board has established ten policies to guide Town decision making for the next ten years. These policies were adopted in Community Development/Vision chapter of this Master Plan. Listed below are the policies relevant to transportation issues and associated recommendations.

Policy 1: Protect water resources in Madbury from contamination, depletion and disfigurement using watershed management principles. Act as stewards for municipal and regional water supplies located within the Oyster River, Bellamy River, and Little Bay watersheds.

Supporting Recommendation

1. Protect wetlands and other environmental resources in the development of transportation projects, with appropriate mitigation when impacts are unavoidable. All too often, wetlands are destroyed or created through careless road design.

Policy 2: Preserve Madbury's rural atmosphere and landscape. Protect and manage open space, wetlands, forests, fields, agricultural resources, scenic vistas, and historic resources for the benefit of present and future generations.

Supporting Recommendations

1. Develop and implement transportation infrastructure projects in an environmentally sound manner so as to protect the cultural, historic and recreational resources and avoid negative impacts such as habitat fragmentation;

reduction in water quality or quantity; reduction in air quality; increase in noise and vibration; or decreasing aesthetically valuable resources such as scenic views.

2. Follow the street naming guidelines developed by the by the 1976 Bicentennial Committee. These are names that, due to their historical association with Madbury, are recommended for any future roads¹.
3. Avoid over-specification of roadways. Gold Post Road in Dover, situated off of Drew Road just over the Madbury line, is a fine example of how not to build a road. This 1,000' long cul-de-sac serves only seven homes. The road is straight and is an extraordinary 32' in width. This excessive expanse of pavement is not in keeping with the rural character that Madbury strives to maintain.
4. Encourage or require that parking lots do not front the street or that they have substantial vegetative buffers so as to aid in the maintenance of the rural and historic character..
5. Preserve narrow and curved roads and rural character of the Town's roads while not compromising public safety.
6. Create a prioritized list of roads that could potentially be designated as Scenic Roads and consider designating additional roads as scenic.
7. Preserve the scenic qualities of Madbury's historic roadways by permitting the removal of stonewalls or large trees only when there are no other feasible alternatives to assuring the public safety. Any proposed road widening or straightening should be very carefully reviewed with consideration given to the natural, historic and cultural resources that would be impacted by development or change.

(Note: Policy 3 is not related to transportation and See below for Policy 4)

Policy 5: Keep the property tax stable.

Policy 6: Accommodate the service and infrastructure needs of residents without placing an undue burden on taxpayers.

Supporting Recommendations

1. Maintain and preserve existing roads versus developing new roads.
2. Accommodate the needs of pedestrians and bicyclists in Madbury by using natural paths that do not place an undue burden on taxpayers.

¹ These names include: Adams, Barbadoes, Boody, Canney, Colprit, Crosby, Davis, Dugan, Elliot, Emerson, Felker, Fernald, Grey Bonnet, Hooper, Hyde, King Phillip, Kingsman, Laton, Long Hill, Locke, Mallego, Morrow, Roberts, Royall's Cove, Sanders, Tare Cab, Tasker, Tibbetts, Twombly, Wingate, and Young.

3. Avoid over-specification of roadways. Gold Post Road in Dover, situated off of Drew Road just over the Madbury line, is a fine example of how not to build a road. This 1,000' long cul-de-sac serves only seven homes. The road is straight and is an extraordinary 32' in width. This excessive expanse of pavement is more costly for maintenance when the taxpayers assume responsibility.
4. Support the development of Park-and-Ride lots throughout the region that are integrated with local and intercity bus and rail routes.
5. Ensure that benefits and burdens of transportation facilities and services are equitably shared throughout the community.

Policy 7: Ensure future economic development that does not harm the environment or abutting properties.

Supporting Recommendations

1. Review existing Town highway access or driveway standards and adopt new standards to help maintain the safety, capacity and scenic value of the roadway.
2. Concentrate new development in areas where transportation infrastructure already exists.
3. Review all driveway permit applications at Planning Board meetings and incorporate the information provided about driveway permit requests by the NHDOT District Office into the local planning process. As noted above, each District Office sends a copy of each driveway permit application that has been submitted to the Office to the respective Town Office. It is recommended that the Board bring these applications to the Planning Board meetings, identify any concerns, and communicate those concerns to the District Office.
4. Draft and sign a Memorandum of Understanding to better coordinate access management between the Town and NHDOT. Use the NHDOT draft as a model (see Appendix).

Policy 4: Ensure a safe and secure community.

Policy 8: Plan and implement a safe, attractive and efficient transportation network.

Supporting Recommendations

Encourage projects that aim to decrease through traffic on local roads and in residential neighborhoods by maximizing the use of primary transportation corridors.

1. Monitor traffic volumes. Every two years the Strafford Regional Planning Commission collects traffic volume data roads of regional significance for its member communities and NHDOT. Though the resources for this are limited, the Commission strives to accommodate its member communities' requests.

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2. Prohibit the extension of dead-end streets to the town line. Such streets could eventually be extended into another municipality, possibly leading to an undesirable traffic flow that is beyond Madbury's control.
3. Minimize the number of curb cuts on existing and future roads. Fewer curb cuts reduce traffic obstructions caused by entering and turning traffic, and provide a generally safer situation.
4. Adopt an Access Management Plan for Routes 9, 108 and 155 to specify/clarify the Town's policy on the development of access points. Send the Access Management Plan to the NHDOT District Office.
5. Continue to support the efforts of COAST and Wildcat Transit to increase public transit, reduce traffic congestion, and protect air quality.
6. Support efforts to educate residents about railway safety.
7. Implement projects to increase the safety of cyclists along all roads in Madbury. Specific attention should be paid to the routes that connect Dover and Durham, such as Knox Marsh Road/Route 155 and Madbury Road.
8. Establish a strategy for improvement of areas of concern and actively promote their implementation.

3. Roads

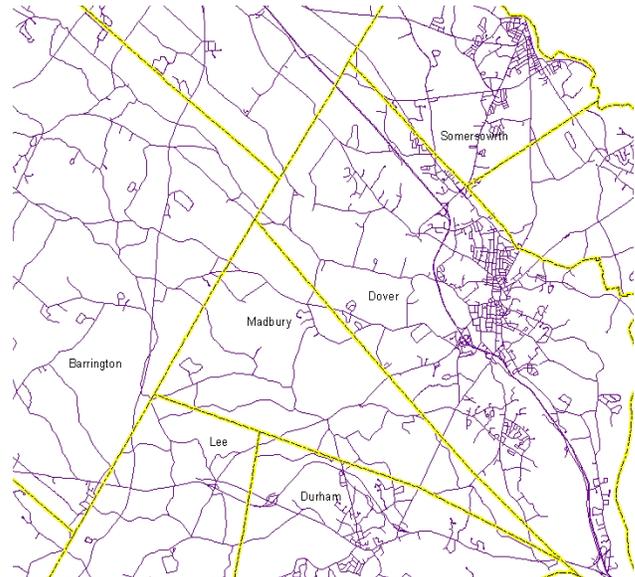
3.1. Road Classification

Roads in New Hampshire are classified into six administrative classes and four main functional classes. For a complete description of administrative and functional classes and an inventory of the roadways in Madbury with their respective functional, administrative and system class, see Appendices 1 and 2.

3.1.1. State Highways

There are seven State highways in Madbury.

- Route 108 runs north-south in the eastern part of the town connects Durham & Dover. This section of road is also known as Durham Road and as NH College Road.
- Route 155, also known in the southern section as Lee Road and from Town Hall Road north as Knox Marsh Road, runs northeast/southwest between Durham and Dover.
- Route 9 runs east/west between Dover & Barrington in the northern part of Madbury. This section of road is also known as Littleworth Road.
- Route 4, traverses a few feet of Madbury at Cedar Point, near the Spaulding Turnpike, in the eastern part of Town.
- Madbury Road, which connects Route 4 in Durham and Route 155.
- Town Hall Road, which runs westerly from Route 155 near Demeritt Park and
- Mill Hill Road which runs northerly to Old Stage Road.



Principal Transportation Routes in Madbury and neighboring communities

These state roads are among the most widely used roads in Madbury.

3.1.2. Town Roads

According to 2002 NHDOT road data there are twenty-eight public roads in Madbury covering a total length of 48 miles. This is an increase of nearly 19 miles from the 30.2 miles cited in the 1990 Master Plan. Since 1990 new roads added to the Town include Champernowne and Madbury Woods. The majority of the new roads are local roads.

3.1.3. Scenic Roads

In accordance with RSA 231:157 and 158, the Town Meeting of any community may designate any public road (other than Class I or II highway), as a scenic road. Once designated as a scenic road, any repair maintenance, reconstruction, or paving cannot involve or include the partial or complete destruction of stone walls or the removal of large trees (trees with a circumference of 15 inches or more at a height of four feet above the ground) without the written consent of the Planning Board or a municipal body appointed by the Town Meeting. Such consent can only be issued after a duly advertised public hearing has been held.

Despite its restrictions, scenic road designation does allow for the removal of obstructions and the trimming of trees and shrubs within three feet of the traveled right of way that might interfere with safe travel. Such carefully planned roadside maintenance can occur without written consent. In addition, the Board of Selectmen may provide written consent for the removal or cutting of trees without a hearing if an emergency situation exists. Finally, a scenic road designation does not affect the rights of adjacent property owners to work on their properties, nor does it affect the Town's ability to receive state aid for road maintenance and improvements under RSA 235. Scenic road designation does help preserve the rural appearance and scenic qualities of the road and ensure that a road's special features will be protected from unintentional damage due to routine maintenance or repair practices. Thus, it is an important road control to consider when determining which roads can and should be expanded or developed.

At the present time, Madbury has two roads that have been officially designated as scenic roads in accordance with RSA 231:157-158; These are Nute Road and Cherry Lane. Both of these roads were unpaved at the time of designation, but have since been paved. Evans Road is currently the only road in Madbury that still has an unpaved section. Though there are no plans at this time to designate any other roads in Madbury as scenic roads, the scenic character of all the narrow, winding roads in Madbury is greatly appreciated, as is the narrow and curvy character of these roads.

Recommendations

Preserve narrow and curved roads and rural character of the towns' roads while not compromising public safety.

Create a prioritized list of roads that could potentially be designated as Scenic Roads and consider designating additional roads as scenic.

Preserve the scenic qualities of Madbury's historic roadway by permitting the removal of stonewalls or large trees only when there are no other feasible alternatives to assuring the public safety. Any proposed road widening or straightening should be very carefully reviewed with consideration given to the natural, historic and cultural resources that would be impacted by development or change.

3.2. Road Use

The interrelationship between population growth, employment patterns and land use affect patterns of transportation use. Madbury is located in the seacoast region of southeastern New Hampshire, one of the fastest growing regions in New Hampshire and New England. Much of this growth can be attributed to the area's proximity to the Boston metropolitan area and to the substantial growth in consumption and employment opportunities in the Portsmouth/Newington, Dover, and Rochester labor market areas. Vehicle miles and vehicle trips traveled in the region have grown at a pace that is faster than either population or growth. The projected regional growth and the likelihood of continued dispersed land use ensures that towns must expect a continued rise in the demand for travel in the region.

3.2.1. Demographic Impacts

Demographic changes will play an important role in the future of transportation systems in Madbury. The Town's population grew from 1405 to 1509, or 7.4%, between 1990 and 2000. Its neighbors of Durham, Dover, and Lee grew at a slightly higher rate than Madbury compared to Strafford County. Though the mean number of vehicles per household decreased slightly (2.2 in 1990 to 2.0 in 2000) due to the increase in the number of households, the number of automobiles in use by Madbury residents can be estimated at 1070. To view Census data relative to transportation in Madbury, see appendix 3.

3.2.1.1. Commuting Trends

Madbury and is connected by roadways to its neighboring communities of Barrington, Durham, Dover and Lee. Its shape of an obtuse triangle makes it a town that is often traveled through, to or from other locations in the seacoast area and beyond and is often used as a travel route to/from Concord.

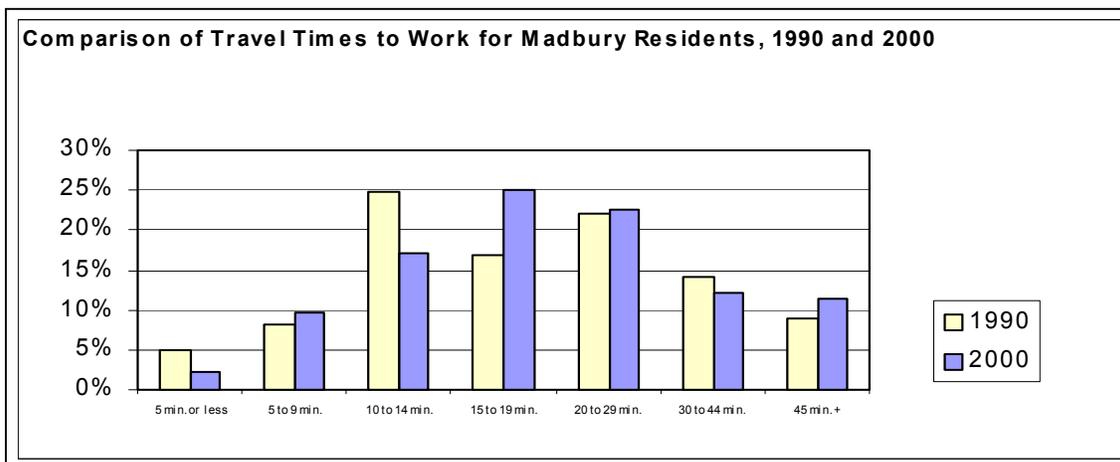
All municipalities in the Seacoast region have been greatly impacted by development that has occurred from 1990 to 2000 and once released, the Census 2000 local-level journey to work data need to be incorporated into this Plan. According to the 1990 data, among commuters starting and ending their trips within the Seacoast region², the most common commute is north to south along the Route 16 corridor. This trend is likely to increase given: the number of employment opportunities in Portsmouth, the Pease International Tradeport, and Newington is growing much more rapidly than the number of housing units in those locations; relatively slower growth of employment opportunities in the Dover-Somersworth Rochester area; and swift growth in the number of housing units in and around these locations that makes housing more affordable north of the Newington-Dover Bridge. The result is a geographical jobs-housing imbalance that increases travel demand on this corridor. Impacts from this can be seen in housing development and traffic volumes in Madbury.

² Defined here by the 36 municipalities in Rockingham, Strafford and Carroll Counties that make up the Seacoast Metropolitan Planning Organization

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Madbury's road network serves a great many more commuters than those who reside or work in Town. According to the 1990 Census journey to work data, there are 803 Dover residents who work in Durham and 701 Durham residents who work in Dover, Rochester or Somersworth. Thus, it can be hypothesized that a majority of these commuters traverse Madbury to reach their place of employment. At least some of the 207 Barrington residents who work in Durham are likely to commute through Madbury and, though no accurate number is currently available, the hundreds of UNH students residing in Dover and environs contribute to the traffic on Madbury's roadways³. Additionally, Routes 155 and 9 through Madbury are commonly used by motorists to travel to the State capital City of Concord. This is a destination for many who are not employed in Concord, but travel to it regularly for business, administrative, or recreational purposes.

Madbury, at one time a virtually self-sufficient agricultural community, has evolved into



a commuter suburb. Relatively few jobs are located in Town so most Madbury residents must work elsewhere. With a total of 149 jobs, Madbury has the second fewest number of jobs per town in Strafford County⁴. According to Census 1990 journey-to-work data, out of the 622 residents of Madbury who, at that time worked outside of the home, 73 commuted within Madbury, 181 commuted to Dover, Rochester or Somersworth, 117 commuted to Durham, 24 to Portsmouth Newington, 27 to Maine, and 9 to Massachusetts. Though travel times to work for Madbury residents have generally increased over the past ten-year (see chart right), it is not clear whether the commute distance or the congestion has increased. Journey to work data, due to be released by the U.S. Census in summer 2003, will shed light on this.

³ Students attending the University of New Hampshire are issued their own P.O. box for the duration of their study period. As a result, the University has no accurate method of tracking exactly where its students live.

⁴ Economic and Labor Market Information Bureau, *2000 County Profile: New Hampshire's Counties, Cities, Towns, and Unincorporated Places- a Labor Market Information Report*. New Hampshire Department of Employment Security, 2000.

3.2.2. Traffic Volumes in and near Madbury

The NHDOT's Bureau of Transportation Planning Traffic Research Section monitors traffic volumes in 79 locations throughout New Hampshire and publishes the data in monthly Automatic Traffic Recorder Reports. In addition, both NHDOT and Strafford Regional Planning Commission conduct traffic counts at additional locations for special projects and also try to respond to local community requests for traffic volume data. The tables in Appendix 4 provide a historical look at permanent recorder traffic volumes for locations in or near to Madbury for from 1980 to 2000.

The tables show that there has been significant growth in traffic volumes between 1980 and 2000 at locations throughout the region. This growth was especially rapid during the 1980s, with many locations experiencing a near doubling of traffic volumes. From 1990 to 1995 traffic volume growth stabilized. This coincides with slower population and economic growth during that same period. The data collected in Madbury show that while traffic volumes in Madbury have not increased as significantly as other locations in the region, the increases along the major routes in Madbury such as US 4 at the Madbury-Durham Town Line and NH155 north of Town Hall Road, have been substantial. Cross comparison between location and year are difficult because data collection efforts have not been consistently executed on an annual or even biannual basis. Regardless, the data provide insight into regional traffic growth on the primary roadways in the region.

In addition to volume, type and speed of traffic are also key factors that need to be taken into consideration when planning Madbury's future. Excessive truck and automobile traffic can create noise, vibration, and safety problems that threaten the peace and quiet, that the majority of Madbury residents wish to preserve. Particularly vulnerable are the older structures in town, many of which are situated relatively close to the road. Higher than permitted speed of traffic on many of Madbury's roads, and especially at locations that are considered dangerous (see Areas of Concern section below), has also become an increasing concern of the town, though no speed counts have recently been collected.

Recommendations

Monitor traffic volumes. Every two years the Strafford Regional Planning Commission collects traffic volume data on regionally significant roads for its member communities and NHDOT. Though the resources for this are limited, the Commission strives to accommodate its communities' requests.

Prohibit the extension of dead-end streets to the town line. Such streets could eventually be extended into another municipality, possibly leading to an undesirable traffic flow that is beyond Madbury's control.

Encourage projects that aim to decrease through traffic on local roads and in residential neighborhoods by maximizing the use of primary transportation corridors.

3.3. Bicycle and Pedestrian Facilities along Madbury Roads

Madbury has no sidewalks. Madbury residents have repeatedly expressed a desire to preserve the rural character of the town's roadways and curbs and raised sidewalks are seen as not consistent with the desired rural character. In most instances, roadside drainage swales are significantly less expensive to install than granite or concrete curbing, and sidewalks add to the town's long-term maintenance burden. Many people in Madbury, however, do use the roads for walking, cycling, skateboarding or rollerblading.



Pedestrian on Town Hall Rd

Most Madbury roads do not have a significantly wide shoulders. Regardless, Routes 155 and 108, Madbury Road, Knox Marsh Road, Mill Hill Road and French Cross Road have been defined on the NHDOT Regional Bicycle Map for the Seacoast Region as Regional Bike Routes.



Rollerbladers and vehicles using the Town Hall Rd.

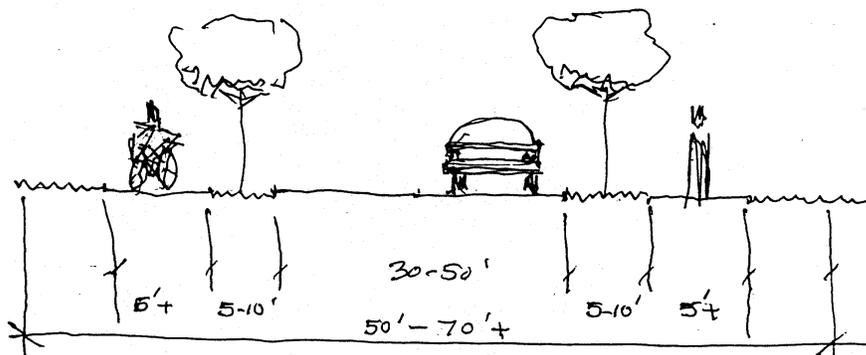
Recommendations

Accommodate the needs of pedestrians and bicyclists in Madbury by using natural paths that do not place an undue burden on taxpayers.

Implement projects to increase the safety of cyclists along all roads in Madbury. Specific attention should be paid to the routes that connect Dover and Durham, such as Knox Marsh Road/Route 155 and Madbury Road.

Amend road standards to allow the provision of additional right of way for trees and walkways.

Expanded right-of way for walkways.



- Maintain rural character.
- No curbs.
- Walkways or Bikeways asphalt or natural material.

3.4. Road and Bridge Conditions and Areas of Concern

As of spring 2003, the majority of the roads are in good condition. Most of the work currently scheduled by the Town involves regular maintenance, resurfacing, and shoulder improvements. There are several specific locations of concern, however. The photographs presented here illustrate several of the areas of concern described below.

Areas of concern: Dangerous Road Segments

- Very sharp turn on Freshet Road
- The north end of Old Stage Road where it intersects with Littleworth Road is dangerous due to limited site distance and several points of incoming and outgoing traffic.
- Intersection of Pudding Hill Road /Knox Marsh Road and Bridge has very limited visibility
- Intersection of Town Hall and Mill Hill Road (currently State maintained)
- Intersection of Town Hall Road and Route 155

Recommendation

Establish a strategy for improvement of these areas of concern and actively promote their implementation.



Intersection of Old Stage Road and Littleworth Road



Limited visibility from Pudding Hill Road of oncoming Route 155 traffic.



Limited visibility from Town Hall Road of oncoming Rte 155 traffic makes this an extremely dangerous intersection.

Areas of Concern: Bridges

Madbury currently has two bridges listed on the NHDOT 2002 Municipal Red List Bridge Summary⁵. These are: the NH155/Knox Marsh Rd Bridge over B&M Railroad (identified as structurally deficient and in poor condition) and the Perkins Road Bridge over the B&M Railroad (identified as structurally deficient, in poor condition, and of low capacity). These are areas of concern to the Town. However, both of these bridges are under State control.

The railroad bridge on Perkins Road, with its steep approach, narrow width and limited sight distance.



View south of Perkins Road Bridge over B&M Railroad



View west of limited sight distance and dangerous intersection at the Perkins Bridge/ Evans Road-Perkins Road split



View east of limited site distance on Perkins Road Bridge

The railroad bridge on Rte155/Knox Marsh Road with its intersection with Pudding Hill Road, has limited sight distance. This bridge is currently scheduled for improvements, with construction to begin in 2004 (see 3.5 below).



View west onto the Rte155/Knox Marsh Road Bridge of steep dip that makes for limited sight distance



View west of limited visibility from intersection of Pudding Hill Road looking west onto Route 155



View east from Pudding Hill Road onto Route 155/Knox Marsh Road

Recommendation

Establish a strategy for improvement of the Perkins Road Bridge and actively promote its implementation.

⁵ The NHDOT Municipal Red List Bridge Summary is a statewide inventory of structurally deficient bridges. It contains bridges that are regarded by the NHDOT to be functionally deficient and as such, are inspected more often than those not on the list.

3.5. Programmed Projects

The following project is currently programmed in the Statewide Transportation Improvement Program⁶. Preliminary engineering has begun and construction is due to begin in 2003.

NH 155 (Knox Marsh Road) Bridge Replacement and Intersection Reconfiguration

The intersection of Pudding Hill Road and Route 155 (Knox Marsh Road) was identified in the 1990 Madbury Master Plan as a dangerous intersection that needs improvement and redesign of the intersection was recommended. As a result of the Town's effort to bring its concern to the attention of the NHDOT, the project was accepted for inclusion into the State Transportation Improvement Program. The project, which aims to improve the safety of the Pudding Hill Road -Route 155 intersection and the bridge that spans the B&M railroad, will reconfigure Pudding Hill Road and replace the NH 155 Bridge, which is in poor condition. Currently, Pudding Hill Road curves dangerously sharply approximately 300 feet before it intersects with Route 155. From Pudding Hill Road, visibility of traffic traveling west-east, over the bridge is particularly poor, creating a hazardous situation for all motorists. Once the bridge is replaced and the sharp curve on Pudding Hill Road is eliminated, a new entrance to Pudding Hill Road will be created. Construction on both the bridge and Pudding Hill Road is scheduled to begin in 2004 and to be completed in early 2005. The total cost of construction of Pudding Hill Road, the replacement of the bridge, and improvements to Route 155 is estimated at \$3.6 million. Eighty-percent of the project will be funded by the federal government, and the remaining 20 % will be paid by the State.



Picture Limited visibility of extremely sharp turn on Pudding Hill Rd makes a dangerous situation



Picture: Sharp turn on Pudding Hill Road. Stop sign and intersection of with Route 155 just beyond the right edge of this phot.



Picture 0 View of limited visibility from intersection of Pudding Hill Road looking west onto Route 155.

⁶ Funding has been allocated and preliminary engineering or construction date has been set.

3.6. Project Implementation, Standards and Regulations

Many small New Hampshire communities are interested in preserving their rural character. Planning boards across the state have translated this goal into policies that strive for the preservation of open space, scenic vistas and cultural and natural resources, the prevention of noise, air and light pollution, mitigation of soil erosion and waste runoff, or the increase in safety for bicyclists, pedestrians and motorists. It is in this goal that transportation and land use work hand-in-hand with one another.

The linkage between land use and transportation design can be seen in the land use-transportation cycle. As land along a road is developed, demand for road capacity increases. When capacity is increased, land along the road becomes more commercially attractive and new developments get built along the road. As this form of development intensifies, the growing number of curb cuts (access points or driveways) begins to slow the movement of people and goods safely, quickly and efficiently. The new development attracts more traffic, creates more opportunities for conflicts, and decreases the road's level of service. Eventually this will increase the demand for more road capacity leading to still more road development.

The Town of Madbury is dedicated to breaking this cycle, discouraging sprawling development, inefficient land use, and traffic congestion in order to retain its rural character and achieve the goals set forth in the ten policies listed above.

Recommendations

Ensure the protection of wetlands and other environmental resources in the development of transportation projects, with appropriate mitigation when impacts are unavoidable. All too often, wetlands are destroyed or created through careless road design.

Develop and implement transportation infrastructure projects in an environmentally sound manner so as to protect the cultural, historic and recreational resources and avoid negative impacts such as habitat fragmentation; reduction in water quality or quantity; reduction in air quality; increase in noise and vibration; or decreasing aesthetically valuable resources such as scenic views.

Review existing Town road and driveway standards and develop new standards that would help maintain the safety, capacity and scenic value of the roadway.

Designate compact growth areas and limit the amount of development that can occur along less developed/rural arterials.

Discourage strip development and the proliferation of single lot commercial/industrial uses and access points.

New roads should respect the natural contours of the land. In addition to the aesthetic values thus preserved, such roads are generally easier to drain and less expensive to build.

Avoid over-specification of roadways. Gold Post Road in Dover, situated off of Drew Road just over the Madbury line, is a fine example of how not to build a road. This 1,000' long cul-de-sac serves only seven homes. The road is straight and is an extraordinary 32' in width. This excessive expanse of pavement is not in keeping with the rural character, which Madbury strives to maintain. The wider the road, the more costly the maintenance will be when the taxpayers assume responsibility.

Dead-end streets should not be laid out or extended to the town line. Such streets could eventually be extended into another municipality, possibly leading to an undesirable traffic flow that is beyond Madbury's control.

Follow the street naming guidelines developed by the by the 1976 Bicentennial Committee. These are names that due to their historical association with Madbury, are recommended for any future roads.

Walkways should be required within proposed commercial developments in order to assure safe pedestrian access.

Concentrate new development in areas where transportation infrastructure already exists.

3.6.1. Access Management

Access management is a set of planning strategies that aims to maintain the functionality of a road, enhance safety by controlling the flow of traffic, and maintain rural character. Basically, this involves limiting the number to places where vehicles turn and enter the roadway, reduce the number of cars that decelerate in the travel lanes, and remove turning vehicles from travel lanes.

Benefits of managing access include safer roads, fewer accidents, reduced travel times, increased capacity, reduced road improvement costs, improved quality of life for all. The results can be positive for citizens and roadway users, developers, businesses, government, and community character. By managing access to parcels of land, towns can help maintain the functionality of roads, enhance safety by controlling traffic, and thereby maintain rural character.

Access management techniques range from improving the design and placement of driveways, signage and landscaping, and parking. Access management strategies can be modest or aggressive and can be executed on a regional or local level. When implemented, these strategies should ideally fit each community's needs for roadway corridor protection.

3.6.2. Driveways

There seems to be a misconception in many communities that the NHDOT has total control over access to state highways. Although it is true that NHDOT has jurisdiction over access to State highways, it this is limited. Though NHDOT cannot deny access to properties that abut State highways by withholding driveway permits, it is important to remember that planning boards do have the authority to enact policies and regulations that are stricter than the State's and that driveway permits issued by the NHDOT do not

override local regulatory requirements. In addition, boards have the authority to review and possibly modify or reject a development's access even if access permits are granted by the state (which are reviewed based on safety issues such as sight distance, drainage, and maximum geometric standards for commercial driveways).

Whatever the Town's intention, however, it is critical that it communicates them clearly with the NHDOT District Office that issues a permit. By making the Town's intentions know to the NHDOT District Office by creating an access management plan and providing copies of it, along with the Town's site plan and subdivision regulations, the Town has more control their future.

Recommendations

Review all driveway permit applications at Planning Board meetings and incorporate the information provided about driveway permit requests by the NHDOT District Office into the local planning process. As noted above, each District Office sends a copy of each driveway permit application that has been submitted to the Office to the respective Town Office. It is recommended that the Board bring these applications to the Planning Board meetings, identify any concerns, and communicate those concerns to the District Office:

Draft and sign a Memorandum of Understanding to better coordinate access management between the Town and NHDOT. Use the NHDOT draft as a model (see Appendix 5).

Adopt an Access Management Plan for Routes 9, 108 and 1555 to specify/clarify the Town's policy on the development of access points. By sending this document to the NHDOT District Office, it will have a clearer understanding of the goals and intentions of the Town.

Minimize the number of curb cuts on existing and future roads. Fewer curb cuts reduce traffic obstructions caused by entering and turning traffic, and provide a generally safer situation.

Encourage or require that parking lots do not front the street or that they have substantial vegetative buffers so as to aid in the maintenance of the rural and historic character.

4. Public Transportation Services and Facilities

4.1. Bus

There are two public providers of transportation offering year-round fixed route bus services with stops either in or within a few mile radius of Madbury. These are the Cooperative Alliance for Seacoast Transportation and Wildcat Transit. In addition to these public providers C&J Trailways and Vermont Transit also operate services to locations out of the Seacoast area, such as Boston, Massachusetts in Maine and Vermont.

Madbury is directly served by Wildcat Transit Route 3, which connects Dover and Durham via NH Routes 108 & 155. Bus stops in Madbury are located by Knight's Garage on Route 155 and by the Demeritt apartments at Madbury Road & Route 155. Two other bus stops near Madbury are at the Olde Madbury Apartments on Route 155 in Dover, and at the intersection of Route 4 and Madbury Road in Durham. Between 6AM and 10PM, Wildcat Transit buses travel Routes 108 & 155 approximately once per hour on weekdays, totaling over 30 trips per day. Weekend service is also provided, though trips are less frequent. Results of the most recent COAST Route Ridership and Productivity Analysis (1997) show that out of the seven bus routes in the region, the Route 3 between Durham and Dover through Madbury, has the highest levels of ridership (nearly 25 passengers per hour). Weekday passenger counts during October 1996 on the Route 3 Durham-Dover through Madbury averaged 396. No figures that indicate what percentage of these bus riders embarked or disembarked in Madbury are available.⁷

In April of 1999 COAST passengers asked by volunteers and staff of the Strafford and Rockingham Regional Planning Commissions to complete a survey as they rode the bus. The purpose of the survey was to obtain information about the passengers and their impressions of the COAST so as to better meet the passengers' needs and to increase ridership. No particular reference to Madbury was made in this survey and because all routes were evaluated together, it is not possible to ascertain the responses of riders of Route 3. Regardless, the survey highlights particular areas of concern such as, lack of bus shelters and need for increased frequency of the bus routes. As a result, COAST identified their long-range goals as expanded frequency and hours of operation of fixed route service, establishment of a east-west Portsmouth-Durham-Concord route, establish paratransit zone feeder service (whereby the bus can travel, on special request, outside its regular route to pick up/drop off), and improve amenities, such as shelters and benches, at bus stops in their planning document *COAST 2000 Vision for Growth*.

4.2. Rail

Madbury is bisected by the Boston & Maine's main railroad line that connects Boston and Portland. Amtrak began passenger service between Portland, Maine and Boston, Massachusetts in January 2002 with four daily round trips being offered. The service runs on the Main Line West, passing through New Hampshire between Rollinsford and Plaistow with station stops in Dover, Durham and Exeter. In February 2003, NNEPRA,

⁷ Productivity Analysis of COAST Bus Routes 1 Thru 7 A, by the Strafford Regional Planning Commission, June 1997

in response to a request by the Town of Durham and UNH officials, increased Downeaster service to include a stop seven days per week at the Durham rail station. Starting the first week in February, the first southbound train on Tuesday, Wednesday and Thursday, the #680 that passes through Durham at 7:20 am, allows passengers to depart in Durham. The "drop off only" policy was put into effect as there is currently insufficient parking at the Durham rail station to support commuter parking. The expanded service could help ease the crunch caused, in part, by a lack of housing and parking spaces at UNH. Now students and University employees and others interested in visiting Durham could potentially live along the rail line and take the train to campus.

The Downeaster rail service is supported by the State of Maine and managed by the Northern New England Passenger Rail Authority (NNEPRA). According to NNEPRA, the Downeaster has met or exceeded daily ridership projections. The town of Madbury supports this work as it contributes to decreasing the amount of congestion in Madbury and the region as a whole.

4.3. Air

Boston's Logan Airport and Manchester Airport (host to nine airlines, with non-stop service to over twenty destination) are the closest full service, national/international airports to Madbury. In addition, daily airline service is available from the Pease International Tradeport in Portsmouth through Pan Am and Boston and Maine airlines.

Recommendations

Ensure that benefits and burdens of transportation are shared equitably throughout the community.

Continue to support the efforts of COAST and Wildcat Transit and other transit operators to increase public transit, reduce traffic congestion and protect air quality.

Support efforts to educate residents about railway safety.

Support the development of Park-and-Ride lots throughout the region that are integrated with local and intra-city bus and rail routes.

5. Appendices

5.1. Appendix 1: Road Classification

5.2. Appendix 2: Road Inventory

5.3. Appendix 3: Census Transportation Data

5.4. Appendix 4: Traffic Volumes

5.5. Appendix 5: Draft Memorandum of Understanding

Appendix 1: Road Classification

New Hampshire Administrative Classification of Highways

| Class | Description |
|-------|---|
| I | Shall consist of all existing or proposed highways on the primary state highway system |
| II | Shall consist of all existing or proposed highways on the secondary state highway system |
| III | Shall consist of all existing or proposed recreational roads leading to, and within, state reservations designated by the legislature |
| IIIa | Shall consist of all new boating access highways from any existing highway to any public water in this state. All Class IIIa highways shall be limited access facilities as defined in RSA 230:44 |
| IV | Shall consist of all highways within the compact sections of cities and towns listed in RSA 229:5 |
| V | Shall consist of all other traveled highways which the town has the duty to maintain regularly, and shall be known as town roads; |
| VI | Shall consist of all other existing public ways, and shall include all highways discontinued as open highways and made subject to gates and bars, and all highways which have not been maintained and repaired by the town in a suitable condition for travel thereon for five' successive years or more. |

New Hampshire RSA 229:5, 2002

New Hampshire Functional System Hierarchy

| Functional Classification | Description |
|-------------------------------|--|
| Prin.Arterials: Interstate | The Interstate system of all presently designated routes currently rural in character. These corridors are used basically for Statewide and Interstate travel. |
| Prin.Arterials: Other | The other principal arterial system provides an integrated network of highways between cities and larger towns and usually has no stub connection except at coastal cities or international boundaries. |
| Minor Arterials: Rural | These are the feeder highways that serve a variety of traffic. They may serve as links between larger towns and some smaller cities. They also serve as traffic generators to and from urban or urbanized areas but are rural. |
| Major Collector | These routes provide for service to local centers of government but are of a lesser importance than those highways serving cities and larger towns. They also serve as traffic generators to schools, shipping and receiving points, while these routes do not serve a statewide condition, they are important to the count or region where they exist. |
| Minor Collector | Roads that do not serve an arterial function, but merely connect other elements of the road network. They often serve as short-cuts for through traffic, or as collectors for neighborhood levels of population. This system should be consistent with the population of the area because it is the last system before the local road system. It also provides service to the remaining smaller communities. |
| Local (rural) | This provides access to adjacent land, also for travel of relatively short distance. This mileage will constitute the bulk of the rural public road mileage. |

Appendix 2 MADBURY ROAD INVENTORY

| | Survey Date | Street Name | Route | Access Control | Section Length | System Class | Func. Class | GLC | Surface Type | Pavement Width | Number of Lanes | Lane Width | Shoulders | Shoulder Right | Shoulder Left | Rural or Urban |
|----|-------------|-------------------|-------|----------------|----------------|--------------|-------------|-----|--------------|----------------|-----------------|------------|-----------|----------------|---------------|----------------|
| 1 | 3/28/1996 | BELLAMY BRIDGE RD | 4 | 3 | 0.06600 | 11 | 14 | 01 | 51 | 24.0 | 2 | 12.0 | 2 | 4.0 | 4.0 | 3 |
| 2 | 3/28/1996 | LITTLEWORTH RD | 9 | 3 | 1.57700 | 11 | 07 | 01 | 61 | 24.0 | 2 | 12.0 | 2 | 4.0 | 4.0 | 1 |
| 3 | 3/28/1996 | LITTLEWORTH RD | 9 | 3 | 0.72400 | 11 | 07 | 01 | 61 | 24.0 | 2 | 12.0 | 2 | 8.0 | 8.0 | 1 |
| 4 | 3/28/1996 | LITTLEWORTH RD | 9 | 3 | 1.03000 | 11 | 07 | 01 | 61 | 24.0 | 2 | 12.0 | 2 | 4.0 | 4.0 | 1 |
| 5 | 3/28/1996 | NH COLLEGE RD | 108 | 3 | 1.55100 | 11 | 16 | 01 | 61 | 24.0 | 2 | 12.0 | 2 | 4.0 | 4.0 | 3 |
| 6 | 5/14/1996 | DOVER LEE RD | 155 | 3 | 1.48100 | 22 | 07 | 01 | 61 | 22.0 | 2 | 11.0 | 5 | 4.0 | 4.0 | 1 |
| 7 | 5/14/1996 | DOVER LEE RD | 155 | 3 | 1.06200 | 22 | 07 | 01 | 61 | 24.0 | 2 | 12.0 | 2 | 4.0 | 4.0 | 1 |
| 8 | 5/14/1996 | DOVER LEE RD | 155 | 3 | 1.21200 | 22 | 16 | 01 | 61 | 24.0 | 2 | 12.0 | 2 | 4.0 | 4.0 | 3 |
| 9 | 3/28/1996 | MADBURY RD | 0 | 3 | 1.20700 | 22 | 07 | 01 | 61 | 24.0 | 2 | 12.0 | 2 | 4.0 | 4.0 | 1 |
| 10 | 1/1/1990 | TOWN HALL RD | 0 | 3 | 2.06000 | 22 | 09 | 01 | 51 | 18.0 | 2 | 9.0 | 5 | 2.0 | 2.0 | 1 |
| 11 | 1/1/1990 | MILL HILL RD * | 0 | 3 | 0.40200 | 22 | 09 | 01 | 51 | 18.0 | 2 | 9.0 | 1 | 0.0 | 0.0 | 1 |
| 12 | 1/1/1987 | MILL HILL RD * | 0 | 3 | 1.77000 | 55 | 09 | 03 | 51 | 18.0 | 2 | 9.0 | 2 | 4.0 | 4.0 | 1 |
| 13 | 1/1/1988 | CHERRY LANE | 0 | 3 | 0.96600 | 66 | 00 | 03 | 20 | 6.0 | 1 | 6.0 | 1 | 0.0 | 0.0 | 1 |
| 14 | 1/1/1989 | CHERRY LANE | 0 | 3 | 2.26900 | 55 | 09 | 03 | 40 | 18.0 | 2 | 9.0 | 1 | 0.0 | 0.0 | 1 |
| 15 | 1/1/1989 | HAYES RD | 0 | 3 | 1.60900 | 55 | 09 | 03 | 51 | 18.0 | 2 | 9.0 | 1 | 0.0 | 0.0 | 1 |
| 16 | 1/1/1989 | HAYES RD | 0 | 3 | 2.44600 | 55 | 09 | 03 | 51 | 20.0 | 2 | 10.0 | 1 | 0.0 | 0.0 | 1 |
| 17 | 1/1/1986 | NUTE RD | 0 | 3 | 0.54700 | 55 | 09 | 03 | 40 | 18.0 | 2 | 9.0 | 1 | 0.0 | 0.0 | 1 |
| 18 | 5/21/1996 | WHITE POND RD | 0 | 3 | 1.07800 | 55 | 09 | 03 | 40 | 12.0 | 2 | 6.0 | 1 | 0.0 | 0.0 | 1 |
| 19 | 1/1/1993 | NUTE RD | 0 | 3 | 2.38300 | 55 | 09 | 03 | 51 | 18.0 | 2 | 9.0 | 1 | 0.0 | 0.0 | 1 |
| 20 | 10/13/1995 | HUCKINS RD | 0 | 3 | 0.25700 | 66 | 00 | 03 | 20 | 6.0 | 1 | 6.0 | 1 | 0.0 | 0.0 | 1 |
| 21 | 10/13/1995 | HUCKINS RD | 0 | 3 | 0.32200 | 55 | 09 | 03 | 40 | 10.0 | 1 | 10.0 | 1 | 0.0 | 0.0 | 1 |
| 22 | 10/13/1995 | HUCKINS RD | 0 | 3 | 0.94200 | 55 | 09 | 03 | 51 | 18.0 | 2 | 9.0 | 1 | 0.0 | 0.0 | 1 |
| 23 | 1/1/1987 | FRENCH CROSS RD | 0 | 3 | 0.49900 | 55 | 09 | 03 | 61 | 18.0 | 2 | 9.0 | 1 | 0.0 | 0.0 | 1 |
| 24 | 7/16/1996 | OLD STAGE RD | 0 | 3 | 1.44800 | 55 | 09 | 03 | 51 | 18.0 | 2 | 9.0 | 1 | 0.0 | 0.0 | 1 |
| 25 | 1/1/1993 | PUDDING HILL RD | 0 | 3 | 1.75900 | 55 | 19 | 03 | 51 | 18.0 | 2 | 9.0 | 1 | 0.0 | 0.0 | 3 |
| 26 | 1/1/1993 | PUDDING HILL RD | 0 | 3 | 0.20300 | 55 | 19 | 03 | 40 | 16.0 | 2 | 8.0 | 1 | 0.0 | 0.0 | 3 |
| 27 | 6/7/1995 | PERKINS RD | 0 | 3 | 0.35500 | 55 | 09 | 03 | 51 | 18.0 | 2 | 9.0 | 1 | 0.0 | 0.0 | 1 |
| 28 | 6/7/1995 | PERKINS RD | 0 | 3 | 0.01100 | 55 | 19 | 03 | 40 | 10.0 | 1 | 10.0 | 1 | 0.0 | 0.0 | 3 |
| 29 | 1/1/1993 | FRESHET RD | 0 | 3 | 2.59100 | 55 | 19 | 03 | 51 | 18.0 | 2 | 9.0 | 1 | 0.0 | 0.0 | 3 |
| 30 | 1/1/1987 | PERKINS RD | 0 | 3 | 1.38400 | 55 | 19 | 03 | 51 | 16.0 | 2 | 8.0 | 1 | 0.0 | 0.0 | 3 |
| 31 | 1/1/1987 | PERKINS RD | 0 | 3 | 0.59500 | 55 | 19 | 03 | 51 | 18.0 | 2 | 9.0 | 1 | 0.0 | 0.0 | 3 |
| 32 | 1/1/1987 | PUTNEY RD | 0 | 3 | 0.35400 | 55 | 19 | 03 | 61 | 18.0 | 2 | 9.0 | 1 | 0.0 | 0.0 | 3 |
| 33 | 6/7/1995 | BEECH HILL RD | 0 | 3 | 0.09100 | 55 | 09 | 03 | 61 | 22.0 | 2 | 11.0 | 2 | 4.0 | 4.0 | 1 |
| 34 | 7/16/1996 | CREEK RD * | 0 | 3 | 0.96600 | 66 | 00 | 03 | 20 | 6.0 | 1 | 6.0 | 1 | 0.0 | 0.0 | 3 |
| 35 | 7/16/1996 | CREEK RD * | 0 | 3 | 0.80500 | 55 | 19 | 03 | 51 | 18.0 | 2 | 9.0 | 1 | 0.0 | 0.0 | 3 |
| 36 | 6/7/1995 | JENKINS RD | 0 | 3 | 0.54300 | 55 | 19 | 03 | 51 | 18.0 | 2 | 9.0 | 1 | 0.0 | 0.0 | 3 |
| 37 | 6/7/1995 | JENKINS RD | 0 | 3 | 0.66000 | 66 | 00 | 03 | 20 | 6.0 | 1 | 6.0 | 1 | 0.0 | 0.0 | 3 |
| 38 | 7/18/1996 | BACK RIVER RD | 0 | 3 | 0.66600 | 55 | 17 | 03 | 51 | 22.0 | 2 | 11.0 | 1 | 0.0 | 0.0 | 3 |
| 39 | 7/12/1996 | EFFINGHAM RD | 0 | 3 | 1.06700 | 55 | 09 | 03 | 40 | 10.0 | 1 | 10.0 | 1 | 0.0 | 0.0 | 1 |
| 40 | 6/7/1995 | BEAUTY HILL RD | 0 | 3 | 0.48200 | 66 | 00 | 03 | 20 | 6.0 | 1 | 6.0 | 1 | 0.0 | 0.0 | 1 |
| 41 | 6/7/1995 | LONG HILL RD | 0 | 3 | 0.15500 | 55 | 09 | 03 | 40 | 6.0 | 1 | 6.0 | 1 | 0.0 | 0.0 | 1 |
| 42 | 6/7/1995 | 0 | 0 | 3 | 0.64300 | 66 | 00 | 03 | 20 | 6.0 | 1 | 6.0 | 1 | 0.0 | 0.0 | 1 |
| 43 | 6/7/1995 | 0 | 0 | 3 | 0.96300 | 66 | 00 | 03 | 20 | 6.0 | 1 | 6.0 | 1 | 0.0 | 0.0 | 1 |
| 44 | 6/7/1995 | 0 | 0 | 3 | 0.72700 | 66 | 00 | 03 | 20 | 6.0 | 1 | 6.0 | 1 | 0.0 | 0.0 | 3 |
| 45 | 6/7/1995 | 0 | 0 | 3 | 0.14000 | 55 | 19 | 03 | 40 | 14.0 | 2 | 7.0 | 1 | 0.0 | 0.0 | 3 |
| 46 | 6/7/1995 | 0 | 0 | 3 | 0.04300 | 55 | 19 | 03 | 51 | 18.0 | 2 | 9.0 | 1 | 0.0 | 0.0 | 3 |
| 47 | 1/1/1987 | GARRISON LN JABRE | 0 | 3 | 0.95000 | 55 | 19 | 03 | 61 | 20.0 | 2 | 10.0 | 1 | 0.0 | 0.0 | 3 |
| 48 | 1/1/1983 | MOHARIMET DR | 0 | 3 | 0.27400 | 55 | 09 | 03 | 61 | 28.0 | 2 | 0.0 | 1 | 0.0 | 0.0 | 1 |
| 49 | 5/21/1996 | YOUNGS RD | 0 | 3 | 0.43500 | 55 | 09 | 03 | 30 | 8.0 | 1 | 8.0 | 1 | 0.0 | 0.0 | 1 |
| 50 | 1/1/1983 | MOHARIMET DR | 0 | 3 | 1.73800 | 55 | 09 | 03 | 61 | 20.0 | 2 | 10.0 | 1 | 0.0 | 0.0 | 1 |
| 51 | 1/1/1986 | 0 | 0 | 3 | 0.74000 | 55 | 09 | 03 | 61 | 22.0 | 2 | 11.0 | 1 | 0.0 | 0.0 | 1 |
| 52 | 1/1/1986 | 0 | 0 | 3 | 0.53100 | 55 | 09 | 03 | 61 | 22.0 | 2 | 11.0 | 1 | 0.0 | 0.0 | 1 |

48.77900

| |
|---|
| Access control: Refers to the level of control for access points to the highway |
| Code 1= Full Control (interstate) |
| Code 2 = partial control (found on some state highways) |
| Code 3 = no control |
| Surface Type |
| 20 = Unimproved Road |
| 80 = Brick, block or combo |
| 72 = Reinforced Portland Concrete |
| 62 = Composite |
| 61= High flexible (bit. concrete) |
| 40 = Gravel |
| System Class: The State's roadway system and class description |
| 11=State maintained primary system |
| 22= State maintained secondary system |
| 55= Regularly maintained Town street and roads outside Compact |
| 66 = Town or city streets not regularly maintained |
| Functional Class |
| 00 = Non-public Road (eg. Class VI) |
| 01 = Principal Arterial (Interstate) |
| 02 = Principal Arterial (other) |
| 06 = Minor Arterial |
| 07 = Major Collector |
| 08 = Minor Collector |
| 09 = Local |
| GLC: |
| Identifies the level of government that has responsibility for the facility. Where more than one code could be used for a section, the lowest numerical code shall be reported. Note: GLC relates to ownership of the road, not who maintains it. |
| 01= State Highway Agency |
| 03 = Town or municipal highway agency |

Appendix 3: Census Transportation Data

| | Census 2000 Transportation Related Data, Madbury and Strafford County | | | | | | | | | | | |
|---------------------------------|---|---------|--------|---------|---------------------|---------|------------------|---------|--------|---------|---------------------|---------|
| | Madbury | | | | | | Strafford County | | | | | |
| | 1990 | | 2000 | | Change 1990 to 2000 | | 1990 | | 2000 | | Change 1900 to 2000 | |
| | Number | Percent | Number | Percent | Number | Percent | Number | Percent | Number | Percent | Number | Percent |
| Total population | 1405 | 100.0% | 1509 | 100.0% | 104 | 7.4% | 104233 | 100.0% | 112233 | 100.0% | 8000 | 7.7% |
| Total households | 489 | 100.0% | 535 | 100.0% | 46 | 9.4% | 37688 | 100.0% | 42531 | 100.0% | 4843 | 12.9% |
| Mean # of persons per hhld | 2.87 | | 2.82 | | -0.05 | | 2.6 | | 2.5 | | -0.1 | |
| Mean vehicles per hhld | 2.2 | | 2.06 | | -0.14 | | 1.77 | | 1.8 | | 0.03 | |
| Mean hhld income (dollars) | | | 72321 | | | | | | 52937 | | | |
| Median hhld income (dollars) | | | 57981 | | | | | | 44803 | | | |
| Method of Travel to Work | | | | | | | | | | | | |
| Workers over 16 years | 713 | 100.0% | 803 | 100.0% | 90 | 12.6% | 52535 | 100.0% | 58403 | 100.0% | 5868 | 11.2% |
| Drove alone | 584 | 81.9% | 652 | 81.2% | 68 | 11.6% | 38678 | 73.6% | 46894 | 80.3% | 8216 | 15.6% |
| Carpooled | 67 | 9.4% | 76 | 9.5% | 9 | 13.4% | 8012 | 15.3% | 6100 | 10.4% | -1912 | -3.6% |
| Public trans (inc. taxi) | 0 | 0.0% | 2 | 0.2% | 2 | 0.0% | 651 | 1.2% | 556 | 1.0% | -95 | -0.2% |
| Bike/walk | 22 | 3.1% | 7 | 0.9% | -15 | -68.2% | 3255 | 6.2% | 2627 | 4.5% | -628 | -1.2% |
| Motorcycle or other | 3 | 0.4% | 7 | 0.9% | 4 | 133.3% | 406 | 0.8% | 446 | 0.8% | 40 | 0.1% |
| Worked at home | 37 | 5.2% | 59 | 7.3% | 22 | 59.5% | 1533 | 2.9% | 1780 | 3.0% | 247 | 0.5% |
| Travel time to work | | | | | | | | | | | | |
| Workers who didn't work at home | 676 | 100.0% | 744 | 100.0% | 68 | 10.1% | 51002 | 100.0% | 56623 | 100.0% | 5621 | 11.0% |
| 5 min. or less | 34 | 5.0% | 16 | 2.2% | -18 | -52.9% | 2703 | 5.3% | 2112 | 3.7% | -591 | -21.9% |

Town of Madbury, New Hampshire
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| | | | | | | | | | | | | |
|--|------|--------|------|--------|-----|--------|-------|--------|-------|-----------|------|-------|
| 5 to 9 min. | 55 | 8.1% | 72 | 9.7% | 17 | 30.9% | 6817 | 13.4% | 6732 | 11.9% | -85 | -1.2% |
| 10 to 14 min. | 168 | 24.9% | 127 | 17.1% | -41 | -24.4% | 8748 | 17.2% | 8568 | 15.1% | -180 | -2.1% |
| 15 to 19 min. | 114 | 16.9% | 187 | 25.1% | 73 | 64.0% | 7377 | 14.5% | 8851 | 15.6% | 1474 | 20.0% |
| 20 to 29 min. | 149 | 22.0% | 168 | 22.6% | 19 | 12.8% | 11090 | 21.7% | 12960 | 22.9% | 1870 | 16.9% |
| 30 to 44 min. | 96 | 14.2% | 90 | 12.1% | -6 | -6.3% | 8510 | 16.7% | 9607 | 17.0% | 1097 | 12.9% |
| 45 min.+ | 60 | 8.9% | 84 | 11.3% | 24 | 40.0% | 5757 | 11.3% | 7793 | 13.8% | 2036 | 35.4% |
| Mean travel time to work (min.) | 19.8 | | 24.2 | | 4.4 | | 21.5 | | 24.1 | | 2.6 | |
| Time leaving home to go to work | | | | | | | | | | | | |
| Workers who didn't at home | 676 | 100.0% | 744 | 100.0% | 68 | 10.1% | 51002 | 100.0% | 56623 | 1 | 5621 | 11.0% |
| 5:00 a.m. to 6:59 a.m. | 194 | 28.7% | 181 | 24.3% | -13 | -6.7% | 16194 | 31.8% | 16017 | 0.2828709 | -177 | -0.3% |
| 7:00 a.m. to 7:59 a.m. | 225 | 33.3% | 299 | 40.2% | 74 | 32.9% | 13631 | 26.7% | 16658 | 0.2941914 | 3027 | 5.9% |
| 8:00 a.m. to 8:59 a.m. | 124 | 18.3% | 99 | 13.3% | -25 | -20.2% | 7701 | 15.1% | 8565 | 0.1512636 | 864 | 1.7% |
| 9:00 a.m. to 9:59 a.m. | 26 | 3.8% | 49 | 6.6% | 23 | 88.5% | 1836 | 3.6% | 2634 | 0.0465182 | 798 | 1.6% |
| 10:00 a.m. to 11:59 a.m. | 42 | 6.2% | 21 | 2.8% | -21 | -50.0% | 1661 | 3.3% | 2092 | 0.0369461 | 431 | 0.8% |
| 12:00 p.m. to 11:59 p.m. | 55 | 8.1% | 82 | 11.0% | 27 | 49.1% | 8938 | 17.5% | 8603 | 0.1519347 | -335 | -0.7% |
| 12:00 a.m. to 4:59 a.m. | 10 | 1.5% | 13 | 1.7% | 3 | 30.0% | 1041 | 2.0% | 2054 | 0.036275 | 1013 | 2.0% |

Town of Madbury, New Hampshire
Master Plan: Toward the Year 2010
Transportation

Appendix 4: Traffic Volumes

| Madbury: Location | | Year 1988/1989 | | Year 1995/1996 | | Year 1998/1999 |
|------------------------------------|---|---------------------------|---|---------------------------|---|---------------------------|
| Route 108 at Dover line | S | 12250 | | | | |
| French Cross Road at Dover line | S | 1725 | | | | |
| Town Hall Road by Demerritt Park | S | 1271 | | | | |
| Madbury Road at Durham line | S | 5985 | | | | |
| Littleworth Road west of reservoir | S | 6211 | | | | |
| Route 9 at Dover-Madbury TL | S | 6517 | N | 8598 | N | 281052 |
| Route 155 at Dover city line | S | 9995 | N | 11000 | N | 12000 |
| Route 155 in Lee north of Route 4 | S | 5259 | | | | |
| Back River Road north of Durham TL | | | N | 2400 | N | 2871 |
| Freshet Road west of Drew | | | | | N | 341 |
| Jenkins Road east of Drew | | | | | N | 413 |
| Mill Hill Road over Bellamy River | | | N | 910 | S | 1063 |
| Town Hall Road east of Cherry Lane | | | | | N | 1452 |
| S=SRPC data; N=NHDOT data | | | | | | |

| Regional: Location | Location of Recorder | 1980 | 1990 | 2000 | % change 1980-1990 | % change 1990 – 2000* | % change 1980 - 2000* |
|-------------------------------|------------------------------|-------------|-------------|-------------|-------------------------------|----------------------------------|----------------------------------|
| Dover | Dover Pt. Rd/S of Eliot Park | 9985 | 15949 | 14829 | 60% | -7% | 49% |
| Dover | Spaulding Turnpike Toll | 12458 | 24139 | 35663 | 94% | 48% | 186% |
| Durham | US 4 E of NH108 | na | 15330 | 18951 | na | 24% | na |
| Exeter | NH 101 East of NH 88 | 8581 | 16161 | 35368* | 88% | 119% | 312% |
| Lee | NH125 N of US 4 | 5458 | 10033 | 13860 | 84% | 38% | 154% |
| Milton | NH 16 at Wakefield T/L | 3609 | 6426 | 8212 | 78% | 28% | 128% |
| Newington | General Sullivan Bridge | 30162 | 55267 | 72753 | 83% | 32% | 141% |
| Northwood | US4 at Nottingham T/L | na | 7971 | 9641 | na | 21% | na |
| Rochester | Spaulding Turnpike Toll | 7278 | 15694 | 23617 | 116% | 50% | 224% |
| Stratham | NH108 W of Bunker Hill Rd | 12968 | 22158 | 21702 | 71% | -2% | 67% |

*Count from Exeter NH 101 in amount of 35368 is 2001 data. 2001 data used because year 2000 not available

Source: NHDOT

Appendix 5: Draft Memorandum of Understanding

D R A F T

(November 15, 2001)

**MEMORANDUM OF UNDERSTANDING
FOR
COORDINATING HIGHWAY ACCESS MANAGEMENT
BETWEEN
NEW HAMPSHIRE, DEPARTMENT OF TRANSPORTATION
AND
TOWN OF _____**

This Memorandum of Understanding ("MOU") is made between the State of New Hampshire, Department of Transportation (hereinafter referred to as "DEPARTMENT") and the Town (or City) of _____ (hereinafter referred to as "TOWN" (or "CITY")) and entered into on _____ (date).

The Parties to this agreement witness that:

WHEREAS, the DEPARTMENT has the statutory responsibility and permitting authority, under RSA 236, to issue driveway access permits on state highways; and

WHEREAS, the TOWN, has the statutory authority under RSA 674 to enact zoning and building ordinances, subdivision, and site plan review regulations to regulate the use and development of property adjoining the highway; and

WHEREAS, the DEPARTMENT and the TOWN mutually recognize the necessity to plan and coordinate future land use and access to highways that will experience further development on adjacent land, in order to preserve highway capacity and public safety, and;

WHEREAS the DEPARTMENT and the TOWN mutually recognize and agree that the preservation of the safety and capacity of state highways is in the public interest,

THEREFORE, BE IT RESOLVED, that the following provisions of this Memorandum of Understanding are agreeable to all parties;

Article I: Statement of Purpose

The DEPARTMENT and Town of _____ enter into this agreement to promote the coordination and management of land use and access to state highways within the Town. For the purposes of this agreement, access management shall include coordination in the planning, design, limitation, control, and determination of access points to facilities, and in the issuance of driveway access permits.

Article II: Scope of Understanding:

The provisions of this Understanding shall apply to all state highways or segments of state highways located within the TOWN.

Article III: Joint Responsibilities

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1. It shall be the joint responsibilities of the DEPARTMENT and the TOWN to develop and adopt agreed upon procedures for the joint review of site plan approval and driveway access permits.
2. The TOWN and the DEPARTMENT may establish an Access Management Technical Review Committee for the purpose of conducting the joint review of development site plans and review of driveway access permit applications to determine their conformance to state and local access management plans and standards.

Article IV: Responsibilities of the TOWN

1. The Town shall develop, adopt, and enforce access management standards on state highways that conform with best practices for access management. These standards may take the form of zoning ordinances, site plan review regulations and requirements, roadway construction standards, or a combination of these, and shall be applied to all subsequent development and redevelopment of land accessing state highways. Such standards may be developed with assistance from, and in consultation with, the DEPARTMENT. Copies of all such standards, and subsequent amendments thereto, shall be provided to the DEPARTMENT to be kept on file at the Central and District Offices.
2. Where appropriate and necessary as determined by the Town, the Town may develop, in cooperation or consultation with the DEPARTMENT, adopt, and amend site or parcel-specific access management plans for specific highway corridors or segments. Such plans shall define the number, as well as, general location and design of future access locations to be permitted on specific parcels or sites. The Plans, and any subsequent amendments thereto, shall be forwarded to the DEPARTMENT to be kept on file at the Central and District Offices.
3. The Town shall notify the DEPARTMENT District Engineer upon receipt of any development proposal or change of use that will require a state driveway access permit and solicit input regarding access design.
4. The Town shall require that driveway access(es), including type, design, number, and location, be permitted only in accordance with its adopted access management standards and any applicable site-specific access plans.
5. In the event that waivers or variances to the adopted access management standards or plans are proposed, the Town shall inform the DEPARTMENT of such waivers or variances prior to local approval of the plans. Notice will be made prior to the issuance of the local approval and with sufficient time to allow for comment from and consultation with the DEPARTMENT.

Article V: Responsibilities of the DEPARTMENT

1. The DEPARTMENT shall provide information, technical assistance, and advice to the TOWN in the development of local access management standards and site or parcel level access management plans.
2. The DEPARTMENT shall agree to abide by the adopted site specific access management requirements of the Town to the extent that they are consistent with safe and efficient highway design and with applicable regulations of the Department. Accordingly, the DEPARTMENT shall not approve driveway permits that do not conform to local access management standards or plans, except with the consent of the TOWN.
3. The DEPARTMENT District Engineer shall notify the TOWN upon receipt of any application for driveway access permit and shall transmit a copy of such application to the Planning Board of the TOWN.

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4. The DEPARTMENT District Engineer shall withhold final action on any driveway access permit application for a proposed development until the TOWN Planning Board has formally approved the access plan for that development.
5. The DEPARTMENT District Engineer shall notify the TOWN if there is intent to issue a driveway access permit that is not in conformance with the adopted access management standards or parcel-specific plan. Such notice will be made prior to the issuance of the permit and with sufficient time to allow for comment from and consultation with the Town.

Article VI: Effective Date and Amendments to Memorandum of Understanding

1. This MOU shall become effective upon execution by the DEPARTMENT and the TOWN and shall remain in effect until terminated under provisions of Article VII, or until superseded by a new agreement.
2. This MOU may be amended from time-to-time as facts or circumstances warrant or as may be required by state or federal laws, administrative regulations, or other orders or guidelines having the full force and effect of law.

Article VII: Termination of MOU

The DEPARTMENT or TOWN may terminate this Memorandum by giving ninety (90) day written notice of such termination to the other party.

IN WITNESS WHEREOF, the parties have hereto caused this Memorandum to be executed by their proper officers and representatives.

FOR THE TOWN OF _____ :

Planning Board

by _____
Chair

Date _____

Board of Selectmen

by _____
Chair

Date _____

FOR STATE OF NEW HAMPSHIRE DEPARTMENT OF TRANSPORTATION:

by _____
District Engineer

Date _____

by _____
Commissioner

Date _____