TOWN OF NEW HAVEN
ROAD PLAN

BACKGROUND

The Town of New Haven, Vermont consists of 42 square miles of land and a population of approximately 1400 people. At the start of the 21st century, it is served by 64.3 miles of maintained roads. In addition, there may be between 10 and 20 miles of Class 4 roads/ trails. The latter are not maintained by the Town, nor are their locations or extent documented (see "Class 4 Roads" below).

This plan generally describes the existing road facilities in New Haven, including those over which the State has jurisdiction as well as those controlled by the town. The state and federal governments determine minimum standards and procedures on US 7 and VT 17; the town has jurisdiction over all the town highways. As is customary in Vermont towns, written standards and policies concerning road maintenance and construction are fairly informal. Most are not documented. Instead, local information and experience have governed when decisions about the town's roads are made by responsible parties. This document is intended to provide a slightly more formal framework within which decisions may be made in future. This is expected to be a dynamic plan that will evolve over time. In the future, the town may want to consider adoption of a road ordinance that implements some of the recommendations in this plan.

EXISTING CONDITIONS

The existing roads in New Haven are classified as follows:

Federal Highway System: 7.7 miles of US7
Class 1: 7.2 miles of State Highway (all of which are paved)
Class 2: 17.7 miles, 16.2 of which are paved
Class 3: 31.8 miles, 10.4 of which are paved
Class 4: .26miles (per the official VAOT map)

A description of these classifications, as well as additional data concerning New Haven's roads, may be found in the Appendix.

On a functional level, these roads are broken down as follows (see Figure 1):

- Principal/Major Arterial (provides for through movements between areas and direct access to major traffic generators only under controlled situations.– US 7
- Minor Arterial – VT 17
- Major Collector (provide for traffic movement between major arterials and local streets and some access to abutting property) – River Road
- Local Roads (provide access to abutting land and for local traffic movements)– all others

Please refer to Figure 2 for the locations, road names and route numbers of New Haven's roads.

High Accident Locations: "HALs" are sections of roadway or intersections which meet a number of criteria to be designated as such by VTrans. They are not simply areas that are generally acknowledged to have a lot of accidents – they must have had a minimum number of

certain types of accidents within a certain amount of time in the recent past. As would be expected, their designation as such is intended to emphasize the need for timely attention at those locations. According to the State's 1990-94 date, the latest available at the turn of the 20th century, the only HAL within the Town of New Haven consists of a section of VT 17 generally from the Weybridge town line east to just beyond the Hallock Road intersection, including the bridge over Otter Creek. This HAL is given the ninth highest priority in the Statewide ranking based on its Actual/Critical ratio. Efforts to correct this dangerous section of road have not been successful to date.

ISSUES

Gravel v.s. Paved:

There are many arguments for and against paving existing dirt or gravel roads. Most gravel roads are the result of an evolution from animal path to carriage way to vehicular roadway (see Figure 3). Construction of new gravel roads is generally seen as being less expensive than paved roads. At the same time, the life of a paved road is longer and it requires less attention over time. On the gravel roads, the Town loses more gravel every year than the road crews can put down. As an example, 4-5" were lost on Field Days Road in 1999. It has become increasingly difficult to obtain gravel since environmental considerations as well as quality standards have restricted access to the material in the New Haven River. In addition, the maintenance workload is overwhelming the capacity of the town's road crews. Even without additional conversions from gravel to paved roads, it is highly likely that the town's gravel budget will need to be increased.

In 1973, New Haven had 41 miles of dirt and gravel roads. By 1999, many of these had been paved and the miles of dirt/gravel roads had been reduced to about 23 miles**.** Traffic volumes have increased significantly over that time period (see appendix) but the road budget hasn't. The impact of more traffic but not more road money is best illustrated by the wear and tear on gravel roads

Because of the variety of opinions about the desirability of paving dirt roads, the decision to pave dirt or gravel roads needs to be based on criteria that are consistently applied throughout the town. A fact sheet titled "When to Pave a Gravel Road", put out by the Vermont Local Roads Program, outlines the many considerations that must be dealt with. Some preliminary recommendations are found below.

Road Design Standards:

It is the intent of this plan to document the minimum design standards that have traditionally been used by the Town of New Haven. The use of standards promotes safety and fosters consistency over time and between projects. New or modified standards may also be recommended for trial use or adoption.

The draft town plan says "Private roads and easements are often narrow, poorly laid out, poorly constructed and poorly maintained. These difficulties pose problems of access for emergency vehicles and threaten the safety of the residents living on them. Therefore the Town requires private roads accessing minor and major subdivision to be up to State recommended standards for their projected traffic load. Current E-911 standards require naming and numbering of all Town Highways and private roads if they access more than two residences."

In all road construction situations, physical circumstances and constraints are important factors when determining the appropriate dimensions of various facilities. Examples of common considerations in New Haven include whether there is ledge or blue clay at or near the construction site, or whether the road is frequently used by farm vehicles. Two local examples of roads that are affected by these

circumstances are Cobble Road and Twitchell Hill Road. Because of variations in conditions, any standards of road design, construction and maintenance must allow for some flexibility.

Class 4 Roads:

At the time of writing, there are only .26 miles of Class 4 roads that are officially recognized in the town of New Haven. It is generally believed, however, that there may be between 10 and 20 miles of Class 4 roads and trails that are not identified. Until they have been recognized and documented, there is a potential for future legal problems for the town. Once they have been identified and mapped, a Class 4 road policy and/or management plan should be developed.

Access Management:

Direct access to highways is accomplished by constructing curb cuts. Access permits are required from the State on state and federal roads, and from the town (Road Foreman, Selectboard and/or Zoning Administrator on town roads. As the number of access points increases, interruptions to the flow of traffic increase. Depending on the function of the particular highway (e.g. a major arterial is intended to carry a high volume of through traffic) such an increase may or may not be appropriate. The potential for accidents also increases with turning movements on or off a highway carrying through traffic. The town desires to limit new curb access to Class 1 and 2 Town Highways in order to reduce the safety problems which additional entries to these higher traffic roads may cause.

RECOMMENDED STANDARDS

It is intended that new data be incorporated into decision-making about road issues as it becomes available. For example, the Addison County Regional Planning Commission (ACRPC) plans to do traffic counts on various roads in New Haven during the summer of 2000 in order to fill in some existing gaps in information. Please see the Appendix for relevant data.

Included in the Appendix is a table labeled “Recommended Design Minimums for Local Roads”. This document is based on the design standards adopted by the State of Vermont as they may generally apply to the types of roads in the town of New Haven. It is recommended that a trial period be undertaken during which the usefulness and applicability of these standards may be tested as a step toward possible future adoption by the town.

All Roads (new and those being repaired):

Should all have 2-5 foot wide ditches
Base: when rebuilding, they should have a base of:
6” maximum of screened gravel;
12” to 18” of 4” stone;
12” maximum of 1.5” crushed stone

The decision to pave a gravel road should, in large part, be based on the issues described in the document titled “When to Pave a Gravel Road” from the Vermont Local Roads program. Long term considerations such as the cost of maintenance over time and the useful life of different types of road surfaces should be taken into account. The town should consider adoption of a minimum AADT (Annualized Average Daily Traffic) of 400 (??) or more to qualify a gravel road for paving.

Gravel

Width: 20’

Paved

Width: 21 foot paved travelway with a 25 foot dirt base.

Drainage (Bridges and Culverts):

Drainage is one of the most important aspects of road design and maintenance. Water flowing over the surface of the road has significant impacts on the safety of vehicles, and water below the surface (e.g. in the road bed) can substantially shorten the life of a road. It is therefore imperative that water be removed from the roadway as much as possible. An excellent guide outlining measures that address drainage issues is the “Vermont Better Backroads Manual”, a publication of the George D. Aiken & Northern Vermont Resource Conservation and Development Councils.

Normal maintenance procedures in New Haven have traditionally begun with the creation or clearing of ditches, followed by a check of existing culverts. If the culverts look like they won’t last 10 years, they are replaced before working on the road. Large culverts, rather than short bridges, are used whenever possible due to their reduced cost and maintenance requirements

The sizing of any culvert depends on the amount of stormwater flow that it will be expected to handle. This, in turn, depends on the size of the watershed upstream of the culvert and the surface type (undisturbed forest or open space? farm land? impervious surfaces such as roads or building roofs?) that is existing and is expected in the future. Depending on the location of the culvert and the amount of stormwater flow driveway culverts may be 15” or 18”.

See Figure 4 for the locations of the town’s long (over 20’) bridges. Note short bridges (6 to 20’) are not shown, nor are state highway bridges. Bridge maintenance, for instance annual washing, is extremely important in prolonging their lives.

STATE ROADS

Although the town has no jurisdiction over state roads within its boundaries (to include National Highway System roads such as US 7), the following items are worth noting:

- The town supports immediate improvements to the section of VT 17 from the Weybridge town line east to just beyond the intersection with Hallock Road. While providing for increased safety, the improvements must also consider the natural and built environment in which they will take place.
- A planned rehabilitation of US 7 where it is at it narrowest in New Haven (in the vicinity of Campground Road and north) should be undertaken so as to decrease impacts on adjacent residential uses as much as possible.

FUNDING

The town's road budget has remained fairly static over the years despite the fact that traffic volumes (both through- and local- traffic) have increased significantly: The town usually accomplishes 2 miles of new pavement (of gravel roads) and 2 miles of resurfacing each year. In general terms, a typical annual road budget would include:

$120,000 for paving and repaving

$110,000 for winter road maintenance, and

$100,000 from the State for all activities, for an approximate total of $350,000.

In order to better accommodate and distribute road expenses, it is recommended that the town develop a Capital Improvement Plan that includes transportation costs and benefits.

APPENDIX

Town Highway Classifications:

The following definitions are contained in the AOT's "Orange Book":

"Class 1 town highways are subject to concurrent responsibility and jurisdiction between the Municipality and the Agency on several matters. The State is responsible for scheduled surface maintenance or resurfacing (19V.S.A. Section 306(a)) while the Municipality is responsible for pot hole patching, crack filling, etc; the State is responsible for center line pavement markings (19 V.S.A. Section 311), while the Municipality is responsible for crosswalks and parking; and there is joint (concurrent) authority on highway protection matters such as obstructing travel, marking of hazards, injuring the highway, installing utilities, etc. (19 V.S.A. Chapter 11). The Agency has exclusive authority to designate Class 1 highways.

Class 2 town highways are primarily the responsibility of the Municipality. The State is responsible for center line pavement markings of the Municipality notifies the Agency of the need to replace them (19 V.S.A. Section 311). The Municipality designates highways as Class 2, but approval of the Agency is required (19 V.S.A. Section 302(a)(2)). . . . Class 2 mileage normally may not exceed 25 percent of the total Class 2 and Class 3 mileage in the Municipality. . . .

Class 3 town highways are the responsibility of the Municipality. The governing body designates which highways are to be Class 3 and therefore maintained for travel by pleasure car during all seasons of the year.

All other highways are Class 4 and are the responsibility of the Municipality, including pent roads (public roads that may be gated by permission of the governing body). Some former highways, through legal proceedings, have been designated as legal trails and are not Class 4."[1]

Average Annual Daily Traffic (AADTs) - all traffic – from 4-99 data book

Sta.*	Route	St.Name	'97	'96	'95	'94	'93	'92	'91	'90	'89	'88	'87	'86
A013	US7			6900		7100		7100		6700		7000		7000
A041	US7		6500	6500	6300	6300	6100	6200	6000	5900	5700	5300		
A103	US7					6700		7700				6700		6700
A104	US7									6900		7000		7400
A140	VT17									780				
A141	VT17					1000		1000		1000		960		830
A142	VT17			2500		2300				2300				
A322	TH2	RiverRd			1400				1400				1300	
A383	TH5	DogTeam								250				
A408	TH6	North/South			400								500	
A412	TH18	SawyerRd									170			
A413	TH24	FieldDays						550			320			
A415	TH9	PlankRd									190			
A414	TH4	MungerSt									250			
A046	T H7	PearsonRd								170				

*See Map on following page for locations of the traffic counting stations

[1] "Highways and Bridges: Handbook for Local Officials", Vermont Agency of Transportation, 1998. Page 16-1.

map of counting stations