

CHAPTER VI

TRANSPORTATION

Our objective in the Transportation Chapter is to provide guidance, recommendations, and context for addressing Newbury's transportation issues over the next ten years. The dominant theme throughout is the need to maintain the current high quality of Newbury's roads. Like many rural communities, Newbury has become dependent upon and shaped by the automobile. The challenge lies in addressing our needs for economical, convenient, and accessible local and regional transportation, while insuring that we do not damage or destroy those attributes of the community that are at the core of Newbury's quality of life.

Newbury has an extensive road and highway network. While dominated by the automobile, many of the Town-maintained roads have a low traffic volume, and are pleasant for walking and bicycling. At the same time, traffic volumes and traffic speed along NH Route (Rte.) 103, NH Rte. 103A, and NH Rte. 103B are, at times, intrusive and unpleasant, and in the future may become an issue. To aid in evaluating how best to meet current, as well as future, needs, a single major transportation goal was identified.

- Maintain the existing quality of Newbury's road and highway network.

In the balance of this chapter we provide a more detailed discussion of this goal, describe the current transportation infrastructure, consider current and potential future issues, and offer detailed recommendations as to how the infrastructure could be enhanced in response to these issues. At the same time, we discuss how the transportation system both supports and is determined by land use and development.

Since the transportation system impacts the community environment and quality of life, it is important that we view land use and transportation questions in terms of all their benefits and impacts. Our recommendations, therefore, address both land use and transportation issues.

TRANSPORTATION SERVICES

Road Network

There is a total of approximately 66 road miles within Newbury, of which about 70% are municipally maintained roads. The key components of Newbury's road network are the State highways: NH Rte. 103, which provides access to I-89 in Warner and I-91 in Vermont; NH Rte. 103A, connecting Newbury Center and NH Rte. 11 in New London; and NH Rte. 103B, connecting Mount Sunapee and Sunapee Harbor. These highways provide links to the Region's two interstate highways which serve the area between Boston, New York City, and Montreal. The interstate highway system allows residents of Newbury to reach Boston in two hours, Montreal in four hours, and New York City in five hours.

Road Maintenance

Newbury's roads are generally in good condition, based on a Road Surface Management System (RSMS) done by the UVLSRPC in 1995. The community opinion survey also confirmed the quality of Newbury's roads. Eighty-seven percent (87%) of the residents felt that the Town's roads were in good or fair condition. Figure VI-1 portrays the overall rating for all State- and Town-maintained roads in Newbury based on one of five repair/maintenance strategies. Each of the five repair/maintenance strategies represents a level of improvement and are described in the table below. "No Work Required" means the road is in nearly perfect condition and needs no work. "Reconstruction" is the complete opposite of "no work required" and means that the road is in terrible condition and needs to be completely replaced. The other three repair/maintenance strategies, routine maintenance, preventive maintenance, and rehabilitation, signify the condition of the road and the need for more extensive repairs from the previous level.

FIGURE VI-1
Road Repair/Maintenance Strategies¹

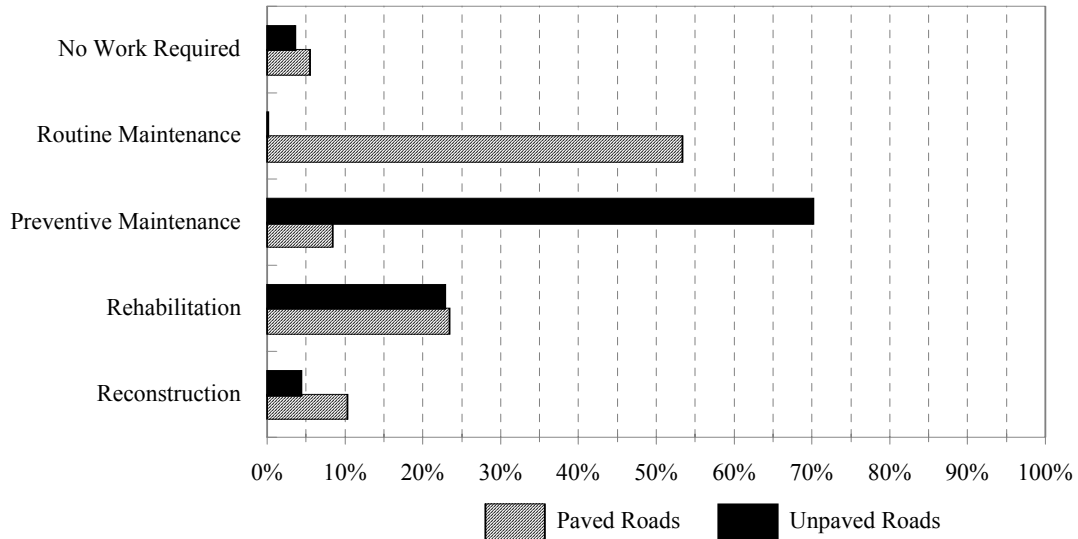


TABLE VI-1
Road Repair/Maintenance Strategies

Repair/Maintenance Strategy	Road Surface Condition	Type of Repairs Needed
No Work Required	0% of the road surface cracked or deformed	No work required
Routine Maintenance	1% to 25% of the road surface cracked or deformed	General maintenance with some areas requiring no work
Preventive Maintenance	26% to 50% of the road surface cracked or deformed	General maintenance with special repairs to prevent worsening of the road surface condition
Rehabilitation	51% to 75% of the road surface cracked or deformed	Extensive repairs with some areas requiring complete replacement of road structure.
Reconstruction	greater than 76% of the road surface cracked or deformed	Complete replacement of road structure

¹ UVLSRPC RSMS Report, 1995.

Even with this high approval rating, there are roads which, due to their traffic volume, roughness, and surface condition, need to be repaired. Each segment of road listed in the tables on the next two pages, even though it may connect with another on the list, needs a very different type and amount of repair. Those roads are:

Class VI Roads: Class VI roads are created by a majority vote at Town Meeting and are discontinued subject to gates and bars. The Town still owns and controls the right-of-way, but it is relieved of any obligation to maintain the road surface and shoulders, and of the liability for damages. Class VI roads offer recreational opportunities to hikers, skiers, hunters, bicyclists, and many other people. The Class VI roads located in Newbury are listed in Table VI-2 below.

TABLE VI-2

Class VI Roads

Road Name	From	To	Mileage
Johnson Brook Road	West Province Road	end	0.66
Stoney Brook Road	Baker Hill Road	Chalk Pond Road	1.19
Old County Road (north)	New London line	maintained section	0.70
Old County Road (south)	maintained section	Chalk Pond Road	1.32
Old County Road	Chalk Pond Road	Rollins Road	1.04
Bartlett Road	maintained section	Old Province Road	0.58
Old Province Road	Cheney Road	Nelson Hill Road	1.26
Poor Farm Road	Sutton Road	Gillingham Road	0.94
Total Class VI Mileage			7.69

In Newbury, a building lot must have frontage on a Town- or State-maintained road or other means of access approved by the Planning Board. A Class VI highway does not meet the requirement of a public street. A landowner cannot obtain a building permit for development of a lot if the only frontage is on a Class VI road unless the landowner receives approval of a Special Exception for using the Class VI highway or appeals the administrative decision under RSA 674:41.

Scenic Roads: Scenic Roads can be designated by a Town Meeting vote under RSA 253,

Sections 17 and 18, allowing a town to designate any road, other than a state highway, as scenic. The main purpose of a scenic road designation is to help protect the scenic qualities of a Town-maintained road. To the people who live or travel along that road, the trees and stone walls may add significantly to the visual quality and may contribute greatly to the rural character of the area. The designation of a road as scenic is a declaration by the Town that the road has important visual qualities which must be recognized and treated with care. Routine maintenance and repair of the road are not affected by this law.

Recent federal and state legislation now permits the NH Scenic Byway Council to designate State-controlled highways and locally nominated roads as scenic byways. This identification takes advantage of legislation that helps enhance the rural landscape, while maintaining appropriate safety standards. Newbury is involved with the Lake Sunapee Scenic Byway application. Recently, about 20% of the requested funds were approved for this application. Participants in the application are in the process of determining how best to use this reduced funding level.

Newbury presently has no designated scenic town roads.

Access to Roads and Highways

An important piece of State Legislation pertinent to roads in Newbury is RSA 236:13. In Newbury, a town which has adopted subdivision regulations, the State Legislation confers upon the Planning Board the same powers concerning highways under their jurisdiction as are conferred upon the Commissioner of Transportation by paragraphs I, II, III and IV. RSA 236:13 permits the Town to develop road access standards and specific driveway design guidelines. Presently, Newbury's driveway requirements concern inspection and a judgement as to the appropriateness of the driveway location and design.

Access to State-maintained roads is regulated by the New Hampshire Department of Transportation (NHDOT).

Traffic Counts

Newbury's town-wide average annual traffic growth rate from 1985 to 1995 (10 years) was approximately 3% per year, based on NHDOT's permanent traffic counter on NH Rte. 103. Newbury's traffic growth rate was significantly higher than the overall growth rate within the Region, under 1%, over the same time period. Below is a listing of 1995 traffic counts done by the UVLSRPC and NHDOT.

TABLE VI-3

1995 Daily Traffic Volumes

Location	1995 Daily Traffic Volume
NH Rte. 103	4,300
NH Rte. 103A	2,000
NH Rte. 103B	1,430

High Accident Locations

The safe travel of the public is an objective of the road network. A high accident location is a symptom that may indicate a potential problem, like poor sight distance, excessive traffic speed, and substandard road alignment. A high accident location is any location with 5 or more accidents per year.² This calculation produces statistics that permit analogous comparison of high traffic and low traffic areas.

In order to assess the safety performance of Newbury's intersections, a listing of all 1992, 1993, 1994, and 1995 accidents was obtained from the Police Department and accident totals tallied by location. This type of analysis reduces the influence of weather and other incidental conditions. The total number of accidents from the Police Department does not represent all accidents that have occurred throughout Newbury. It only represents those that have been reported to the Police Department or those that require Police/Fire Department assistance. Newbury has no high accident locations. The intersection of NH Rte. 103 and Mountain Road is the highest accident location in Town with about 3 accidents per year.

Bridge/Culvert Maintenance and Repair

A bridge is any structure over twenty feet clear span³ and is eligible for specific federal funds. All structures of less than 20 feet clear span are considered culverts. Culverts with a minimum opening of ten feet are eligible for certain State funds from the Municipal Highway section of NHDOT. All other structures are ineligible for the special federal or

² Statistics with Applications to Highway Traffic Analysis, Eno Foundation for Transportation, Inc, Westport, CT, 1978.

³ Clear span is the distance between the inside edge of each abutment.

State funds, but normal NHDOT Block Grant funds can be used for culvert replacement projects.

NHDOT evaluates all bridges throughout the State by a federal sufficiency rating. Their evaluation includes structural adequacy, construction method, usefulness, functional obsolescence, traffic volume, date of construction, and other factors. Bridges with a rating of less than 50 out of a maximum score of 100 need reconstruction or replacement. Only 2 out of the 13 bridges in Newbury fall below this level.⁴ Culverts are evaluated by NHDOT prior to inclusion in NHDOT's municipal culvert program.

Newbury residents are concerned about the poor structural condition, unsafe road alignment, narrowness, or inadequate flow capacity of several bridges in town. These, listed in order based on federal sufficiency rating, are:

- I-beam bridge (Bridge Number 100/090) with a concrete deck built in 1936 on Mountain Road over Andrew Brook has a sufficiency rating of 42.3 out of 100. This bridge is too narrow for the Town's newer snowplows, with wings at only about 16 feet. This bridge is eligible for federal funds;
- I-beam bridge (Bridge Number 120/078) with a concrete deck built in 1936 on Old NH Rte. 103 over Andrew Brook has a sufficiency rating of 47.4 out of 100. This bridge has several large cracks at the joints on either end of the bridge deck and is chipping concrete from the abutments. It is eligible for federal funds;
- concrete deck bridge (Bridge Number 094/080) built in 1935 on Mountain Road over Andrew Brook has a sufficiency rating of 60.7 out of 100. This bridge is narrow, only about 16 feet wide, which makes snowplowing and road maintenance difficult and potentially unsafe. This bridge is functionally obsolete. This bridge is ineligible due to its federal sufficiency rating;
- I-beam bridge (Bridge Number 138/072) with a concrete deck built in 1929 on Sutton Road over Andrew Brook has a sufficiency rating of 61.3 out of 100. The current bridge configuration appears to cause damming during periods of high water flow. High water overflow culverts could be placed on the west side of the bridge to relieve the water flow problems. Unfortunately, this may cause some additional flooding downstream in the fields immediately south of Sutton Road and likely change the flood elevations upstream from this bridge. Also, the NH Department of Environmental Services may require an extensive hydrologic study and permitting process for this project. This project is not eligible for federal highway funds due to the sufficiency rating and type of project;
- concrete deck bridge (Bridge Number 088/174) built in 1940 on Bowles Road

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1995 Bridge Sufficiency Report, NHDOT.

over an unnamed brook has a sufficiency rating of 64.6 out of 100. This bridge is narrow and functionally obsolete. This bridge is ineligible for federal funds due to its federal sufficiency rating; and

- concrete deck bridge (Bridge Number 090/074) built in 1936 on Mountain Road over Andrew Brook has a sufficiency rating of 66.7 out of 100. This bridge is about 18 feet wide and functionally obsolete. This bridge is ineligible for federal funds due to its federal sufficiency rating.

Within Newbury, there are two culverts that appear to be structurally adequate, but may need to be replaced because of poor road alignment and narrow road width. Both of these culverts have openings of slightly less than ten feet, road widths of less than 16 feet, and poor road alignment. The problems at each of these culverts make snowplowing and road maintenance difficult and potentially unsafe. These, in no specific order, are:

- concrete box culvert on Cheney Road over the west branch of Ring Brook; and
- Concrete box culvert on South Road over the west branch of the Warner River.

BIKEWAYS/BIKE PATHS

Interest in bicycling has been high in recent years due to an increase in the public's concern for its health, the environment, and the availability of new technology that makes bicycling easier. Most people, unfortunately, are inexperienced cyclists who hesitate to use a bicycle for transportation, because they fear riding under the existing road and traffic conditions. Children are inhibited from bicycle travel because of legitimate parental concern over their safety on our roads.

Bikeways can encourage people not presently inclined toward cycling to bicycle. A bikeway, once constructed, provides a safe place for non-polluting and inexpensive transportation, may help prevent traffic congestion, provides a means for improved physical and emotional health, and provides inexpensive recreation. As a sporting activity, bike touring/racing brings in a large amount of money into Newbury's economy during the spring, summer, and fall. These benefits render an area more attractive for living, shopping, business, working, and visiting. Therefore, the interests of government, business, and industry can be served through encouragement of wider bicycle use.

Bicycle parking is rarely given sufficient attention as a separate topic. Parking facilities are an important need that can be provided to encourage cycling. They can be effectively installed at shopping and business areas, recreational spaces, bus stops, and other centers that generate bicycle travel. Parking can be located on or near bikeways, bus stops, park and ride lots, or independently in order to stimulate bike use in areas not served by bikeways. Bicycle parking

facilities can be matched to locations and sites according to which kind of bike use is appropriate. Ideally, the parked bicycles would be protected from the elements.

Bikeway construction is a long-term goal with implementation as money becomes available, in concert with other road construction, and as needs require. The only bikeway that already exists within Newbury is along NH Route 103 and is missing several sections of paved shoulder between Newbury Center and South Newbury Village.

Bikeway construction can be accomplished or underwritten by New Hampshire Department of Transportation (NHDOT), Newbury and, possibly, developers. It is not intended to be under the aegis of any one governmental agency or person, but rather to be a cooperatively planned and managed system. A multi-faceted approach to bikeway construction, using the Master Plan as a guide, will assure a coordinated bikeway construction effort.

Newbury can take an important step toward bikeway implementation by including bikeway goals in this Master Plan. Inclusion of bikeways can be required in the designs for large developments, such as Planned Unit Developments and large subdivisions. Further action can be taken by the Planning Board by including bikeways in their future Capital Improvement Programs and by having engineers include bikeways on road construction plans. The federal government is currently favoring transportation projects that are low- or non-capital intensive as a method to meet the transportation needs, and bikeways are recognized by the Federal Highway Administration as one such method. Therefore, bikeways are an integral part of Newbury's Master Plan and are eligible for federal matching grants.

Newbury's bikeways can be significantly aided by engineers making accommodations for future bikeways during road and bridge projects. Without making these accommodations, engineers can inadvertently eliminate all probabilities for bikeway construction, because of the high costs to add a bikeway.

WALKWAYS

Interest in walking also has been increasing in recent years due to the public's concern for its health and the environment. Most people hesitate to walk because they fear the existing road and traffic conditions. Children are inhibited from walking because of legitimate parental concern over their safety on our roads.

Walkways can encourage people not presently inclined toward walking to walk. A walkway, once constructed, provides a safe place for walkers, provides a means for improved physical and emotional health, and provides inexpensive recreation. These benefits render an area more

attractive for living, shopping, business, working, and visiting. Therefore, the interests of government, business, and industry can be served through encouragement of more walking.

Walkway construction, in conjunction with bikeway construction, can be accomplished or underwritten by New Hampshire Department of Transportation (NHDOT), Newbury and, possibly, developers. It is not intended to be under the sponsorship of any one governmental agency or person, but rather to be a cooperatively planned and managed system. A multi-faceted approach using the Master Plan as a guide, will assure a coordinated walkway system.

Sidewalks may be required under Newbury's current site plan review regulations and can be required by the Planning Board in the designs for developments, such as Planned Unit Developments, and large subdivisions. Further action can be taken by the Planning Board by including walkways in their future Capital Improvement Programs.

Newbury's existing population distribution into two villages, Newbury Center and South Newbury Village, makes cross-town walking unlikely, whereas intra-village walking is very likely. An additional area of high potential for walking is along NH Rte. 103 and NH Rte. 103A in the vicinity of Lake Sunapee. NH Rte. 103 along Lake Sunapee has large shoulders and is well designed for walking. NH Rte. 103A is the complete reverse, with little or no shoulders or sidewalks to walk safely.

RIDESHARING

In the 1970's, large employers had ridesharing programs with employer-sponsored vanpools. Unfortunately, the tax laws that promoted and permitted employer-sponsored rideshare programs have been repealed. Also, the proportionately high gas prices which drove employees to take advantage of ridesharing are now more moderate.

Newbury is fortunate to have two rideshare programs available for Town residents.

Upper Valley Rideshare

Upper Valley Rideshare (UVR) relies on funding from two states, which has created a strong rideshare program.

UVR is doing very well. With 15% of all registrants forming carpools, it is well above the national average, about 5% of any program's total enrollment.⁵ UVR's current database has approximately 500 active participants, with three Newbury residents.

NHDOT Rideshare Program

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Statistical Abstract of the United States, 1993, US Department of Commerce, Bureau of the Census.

NHDOT's Rideshare program is a new program with a statewide service area.

PUBLIC TRANSIT

Concord Area Transit - Rural Transportation Program

Concord Area Transit's (CAT) rural transportation program provides senior citizen demand response service to the Newbury area each Thursday. The route follows no specific route and gathers people from throughout the Newbury area at approximately 10:45 a.m.. The bus then collects people who have made a prior reservation and leaves for Concord at about 11:30 a.m., dropping them off at various shopping centers in Concord. After several hours, it recollects the people and returns them home.

Currently, there are no consistent riders from Newbury.

COMMUNITY SURVEY RESULTS

Question 12 - Should the Town develop a long-term plan to pave the remaining gravel roads in Town?

There was no clear consensus to Question 12 in the Community Survey on developing a long-term plan to pave the remaining gravel roads in Town. Approximately 40% of all the Survey respondents were in favor and about 38% disapproved of this idea (as shown in Figure VI-2). Of those responding to the Community Survey who are year-round residents, 51% did not support the idea of paving the remaining gravel roads, while 36% supported the idea, with only 12% uncertain. Forty-one percent of the seasonal residents responding to the Survey supported the concept, 25% opposed the idea, and 33% did not know.

Question 13 - Should the Town continue to accept maintenance responsibility for roads in new developments and take them over as Town roads?

This question had a very clear consensus in the Community Survey to continue to accept maintenance responsibility for roads in new developments and take them over as Town roads. Approximately 50% of the total survey respondents were in favor and about 28% disapproved this idea (as shown in Figure VI-3).

FIGURE VI-2

“Should Newbury Develop a Long-term Plan to Pave the Remaining Gravel Roads in Town?”

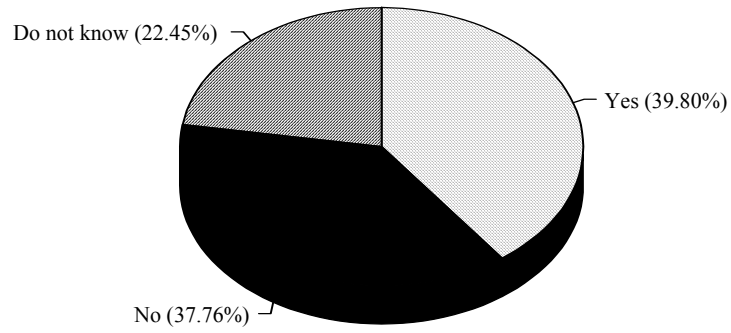
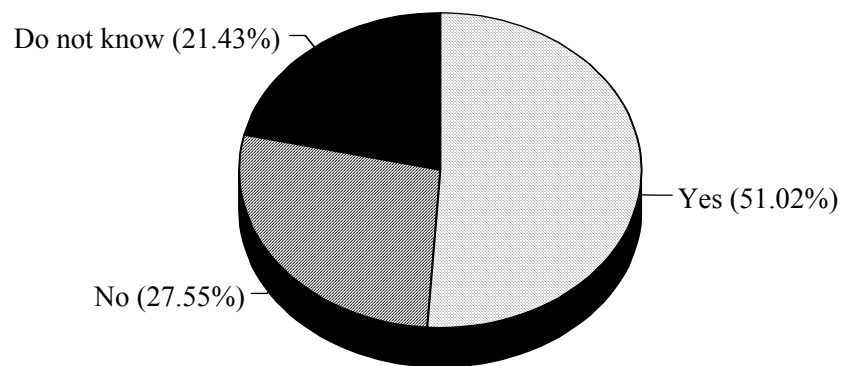


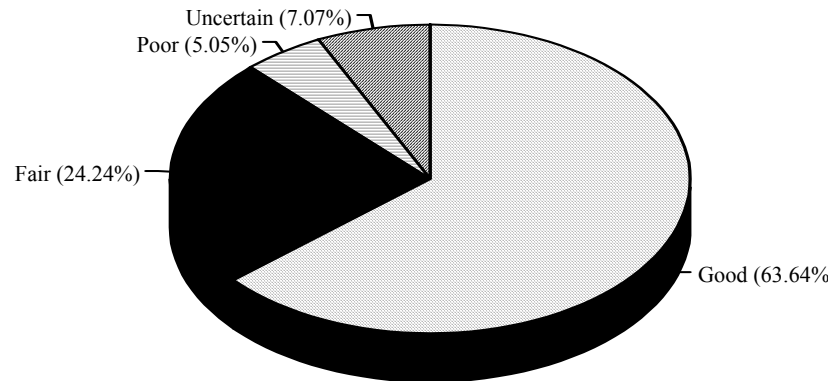
FIGURE IV-3

“Should Newbury Continue to Accept Maintenance Responsibility For Roads in New Developments?”



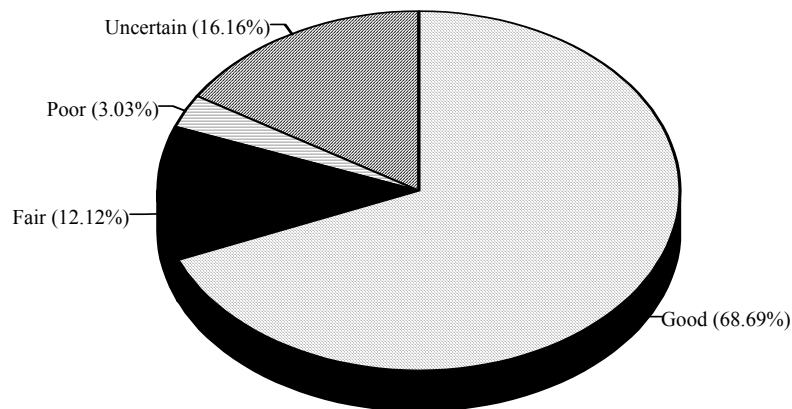
Question 15 - How would you rate the following public service? - Road Maintenance
Newbury residents clearly feel that the Town's roads are well maintained (as shown in Figure VI-4).

FIGURE VI-4
"How would you rate each of the following public services? - Road Maintenance"



Question 15 - How would you rate the following public services? - Snowplowing
Snowplowing is equally well done as road maintenance (as indicated in Figure VI-5).

FIGURE VI-5
"How would you rate each of the following public services? - Snowplowing"



ISSUES

1. Currently, Newbury's Residential/Business zone allows strip development along NH Rte. 103 and NH Rte. 103B.
2. Four bridges within Newbury are functionally obsolete. Three of the bridges are along Mountain Road and one is on Bowles Road. Functionally obsolete means that the bridges are in acceptable physical condition, but are narrower than NHDOT's design specifications. The narrowness makes snowplowing and road maintenance more difficult and possibly unsafe.
3. Two bridges within Newbury have federal sufficiency ratings of less than 50 out of 100 and one is also functionally obsolete. A Mountain Road bridge has both a poor sufficiency rating and is functionally obsolete. The other bridge with a poor sufficiency rating is on Old NH Rte. 103.
4. The I-beam bridge on Sutton Road over Andrew Brook appears to cause damming during periods of high water flow. High water overflow culverts could be placed on the west side of the bridge to relieve the water flow problems. NH Department of Environmental Services will require an extensive hydrologic study and permitting process for this project. This project is not be eligible for federal funds.
5. The concrete box culverts on Cheney Road and South Road appear to be structurally adequate but need to be replaced because of poor alignment and inadequate road width. The poor alignment and narrow width make snowplowing and road maintenance much more difficult and possibly unsafe. Unfortunately, neither culvert is eligible for State funds, because it does not meet the minimum size requirement.
6. Newbury has no Capital Improvement Program (CIP) or schedule for the rehabilitation/replacement of municipally funded highway projects.
7. The New Hampshire statewide bikeway through Newbury along NH Rte. 103 is missing several portions of shoulder between Newbury Center and South Newbury Village.
8. Currently, NH Rte. 103A is a designated part of the NH State Bikeway System, yet is a very narrow and twisting road with numerous potentially unsafe locations for cyclists and pedestrians.
9. Newbury, along with Sunapee, has submitted a proposal to NHDOT for a Lake Sunapee Scenic Byway. Recently, participants in the byway application learned that only about 20% of the requested funds were approved for this application. Participants in the application are in the process of determining how best to use this reduced funding level.

RECOMMENDATIONS

1. Require all developments to share the cost of road and other improvements that are required to accommodate any incremental traffic generated by their construction. Even if a new development road meets the Town's specifications, the roads in the area giving access to the new road may not be adequate to handle the increased traffic. In this case, the developer/subdivider must pay a proportion of the cost to upgrade off-site roads. The extent of these improvements must bear a rational connection to the needs created by, and the benefits conferred upon, the development.
2. Using municipal funds, widen the three functionally obsolete bridges with acceptable sufficiency ratings on Mountain Road and the other bridge on Bowles Road.
3. Only the bridges on Old NH Rte. 103 over Andrew Brook and Mountain Road over Andrew Brook are eligible for replacement under NHDOT's current bridge replacement guidelines, given their low federal sufficiency ratings. Both of these bridges should be replaced as quickly as possible using Municipal Bridge Aid funds from NHDOT.
4. Install high water overflow culverts, using municipal funds, on the west side of the Sutton Road bridge over Andrew Brook to relieve the water flow problems.
5. Replace the concrete box culverts on Cheney Road and South Road to eliminate the road alignment and width problems.
6. Promote and encourage increased ridesharing. The active participation of Newbury's employers in the Region's two rideshare programs will reduce the number of commuting vehicles. Companies and Newbury need to encourage ridesharing, and discourage single- occupant vehicles by providing incentives to help make it happen.
7. Encourage the location and installation of bicycle racks. The Newbury Selectmen, citizen groups, merchants associations, and the UVLSRPC working together can determine numerous sites for possible new bicycle racks.
8. Develop a CIP or schedule for highway projects involving municipal funds.
9. Maintain the existing quality of Newbury's roads.
10. Continue Newbury's present Road Surface Management System data base. The pavement management system targets roads for maintenance and reconstruction. Benefits of such a program are reduced long-term costs and establishment of a data base for the road network conditions.

11. Work with the UVLSRPC and NHDOT to construct bikeways using Enhancement Program and Congestion Mitigation/Air Quality funds in areas without paved shoulders along NH Route 103. Bikeways are a simple solution to the dangers of bicycle-vehicle conflicts. Neophyte cyclists need a chance to improve their skills for riding in traffic. They need an alternative that offers improved predictability and visibility for them and for motor vehicle drivers. Well-designed bikeways serve this need.
12. Work with the UVLSRPC and NHDOT to construct the statewide bikeway along NH Rte. 103A using Enhancement Program and Congestion Mitigation/Air Quality. Currently, NH Rte. 103A is a designated part of the NH State Bikeway System, yet is a very narrow and twisting road with numerous potentially unsafe locations for cyclists and pedestrians.
13. Work with the surrounding communities, NHDOT, and the UVLSRPC to designate NH Rte. 103 and NH Rte. 103A as scenic byways.
14. Adopt driveway design specifications which ensure safe and controlled access to all roads in all seasons of the year. The Planning Board, with the assistance of the UVLSRPC, could revise the existing subdivision regulations to include specifications for driveway construction.