

CHAPTER V

TRANSPORTATION

INTRODUCTION

The Town of Waterboro is currently developing as a residential and recreational community for southern Maine, and possibly for New Hampshire and Boston area employment locations. There is also an apparent increase in the Lake Arrowhead recreation homes for summer/weekend uses or, in some cases, for year-round homes. The method of transportation is the motor vehicle, resulting in increasing traffic on the road network. There is an interrelationship between improvements in transportation networks and growth where each has an effect on the other. So, it is necessary that transportation planning should be based on the desired and expected growth patterns.

The purpose of this chapter is to address the existing highway system serving the Town in general and to specifically discuss Town roads of major significance other than the State numbered Routes 4, 202 and 5. The intent is to suggest future expenditure of Town funds and highway block grant funds which will result in the best return for the Town and to provide some guidance for standards related to Waterboro's roads. Essentially, the Town road network connects areas to the extent necessary. As areas are developed, roads should be provided, built to Town standards, by the developers. Therefore, the Town should plan to expend funds for maintenance and improvements to the present and future road network.

Road Maintenance

Maintenance of the road network is one of the major expenditures in a community's budget and should be performed in the most cost-effective manner. The Town should consider implementation of a pavement management system for identification of roads for priorities in maintenance and reconstruction. Such a system will result in improved road conditions at reduced long-term costs.

Public Road System - Classification

The Public Road System in Waterboro is composed of three major segments for purposes of planning of use of Town funds (see the Functional Classification Map). These segments are as follows:

1. Major State numbered roads of Route 5, Route 202 and Route 4.

2. State Aid roads of West Road from Ross Corner in Shapleigh to Lyman, Town House Road/Old Alfred Road between Hollis and Route 202/4, and a 3/10 mile section of State Route 117 between Hollis and the Ossipee River Bridge in the northeast corner of Waterboro.
3. Town roads.

On the State numbered routes (Route 5, Route 202 and Route 4), a town has neither maintenance nor construction responsibility, while on the State Aid roads, a town normally has winter plowing and sanding responsibility only. Currently, the Town plows and sands a total of 59.24 miles of public and private roads. A town has total responsibility for maintenance and construction on all town roads. The Town of Waterboro does not plow and sand all its State Aid roads. The State plows and sands Old Alfred Road between Route 5 and Route 202/4, and the 3/10 mile section of Route 117 between the Ossipee River Bridge and Hollis.

The functional classification of the road system in Waterboro closely approximates the funding system, with State numbered routes and State Aid routes more important in function than the Town road system. Functional classification is discussed in detail in Chapter 1 of the 1984 publication of the American Association of State Highway and Transportation Officials (AASHTO) "A Policy on Geometric Design of Highways and Streets." This publication is interested in classification on a Statewide basis. Chapter 1 presents a clear breakdown of the six stages of a typical trip in the hierarchy of movement as follows:

1. Primary movement - controlled access interstate highway or turnpike.
2. Transition - interchange ramps.
3. Distribution - major State numbered routes.
4. Collection - more minor State numbered routes.
5. Access - Town roads serving residential uses.
6. Termination - destination.

This hierarchy of movement leads to an understanding of functional classification on a Statewide basis, which in turn leads to classification of the Waterboro system based upon function and hierarchy of movements in Town, with some importance given to through trips or those of Statewide and areawide importance.

Under a system of functional classification, standards applied to a roadway and level of service provided vary according to the hierarchy of function of the road. Volumes of traffic merely serve to further define the standards for each class.

Thus, for purposes of the Town of Waterboro, all numbered State routes should be considered as Arterial Roadways with a major purpose of mobility and only a minor purpose of land access. Townhouse Road and Old Alfred Road should be considered to be Major Collectors with land access as a secondary function. West Road, Webber Road, Deering Ridge Road, New Dam Road, Chadbourne Ridge Road, Silas Brown Road, Federal Street and Roberts Ridge Road are all Collectors with equal function of land access and mobility. Of these collector roads, West Road is highest in importance due to the additional function of access to a Regional School.

Middle Road and Ossipee Hill Road currently function as local roads with land access the major function. This same local road classification would also apply to the gravel section of Chadbourne Ridge Road between New Dam Road and Route 117 and to Clarks Bridge Road. In the future, however, these roads may change to collector roads, or, in the case of Chadbourne Ridge Road, to a major collector serving residential collectors such as Webber Road and New Dam Road, as well as linking Route 117 with Route 5.

All other public roads should be considered local roads with land access as the major function of traffic on these roads.

Therefore, when considering the public road system in Waterboro, primary consideration must be given to the function of mobility on all State numbered routes, as well as on Townhouse Road, Old Alfred Road and West Road. In planning for the future, Chadbourne Ridge Road, Silas Brown Road, and Webber Road may become the only other segments of the system where mobility will become the major function. Thus, as these three roads are subjected to development pressure for direct access to land use, more consideration to serving through trips should become the rule. West Road should be subject to a higher safety standard than other collector roads, based upon the important additional purpose of serving a major regional school.

Private Roads

In addition to the public road system in Waterboro, there exists a considerable number of private roads. Many of these roads were developed for access to recreational property. As a rule, private roads may not be built to Town standards. Records should be checked for right-of-way widths and construction standards for these roads to estimate costs to upgrade the private roads to Town standards if the roads were to become Town roads at some point in the future.

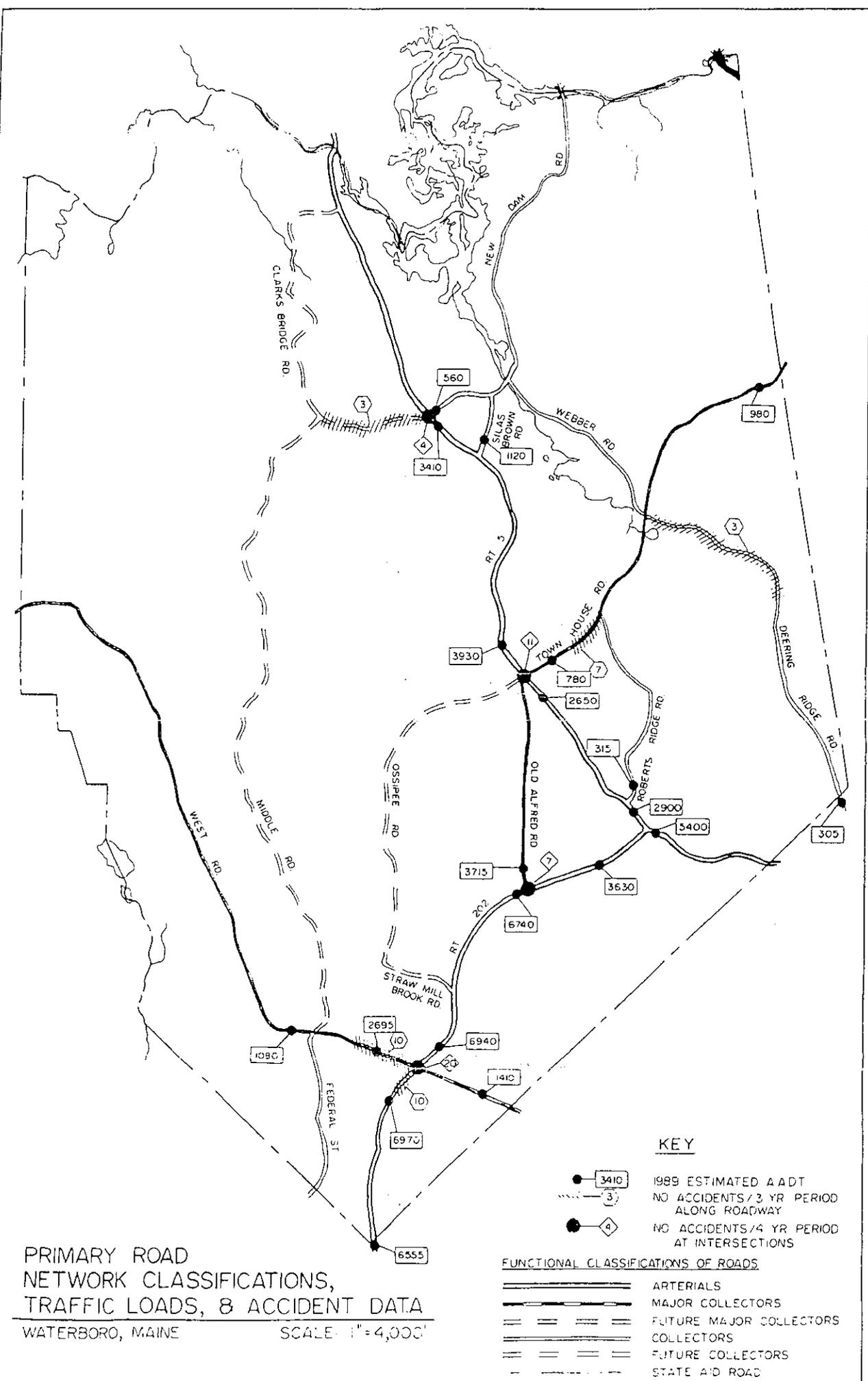
Functional Classification vs. Standards

On the Arterial System and Major Collector System plus West Street, the Town does not have construction funding or maintenance responsibility beyond winter plowing and sanding of West Road and Town House Road. However, the Town Planning Board and Selectmen do control access to this system, either through ordinances, zoning or subdivision review. Thus, on these roadways, direct access to minor land use should be discouraged. If possible, sight distance standards from driveways should exceed the normally applied minimum. Construction standards regarding where new driveways or roadways enter these roadways should meet State Highway Specifications for the State Numbered Road System.

On the collector system, lesser standards for access may be applied, with direct access of more minor uses permitted and minimum sight distance requirements acceptable. Construction standards must be M.D.O.T. specifications. On the local roads, single family home driveways should be acceptable and minimum sight distance standards may even be waived if stopping sight distance requirements are met.

Thus, the following standards are recommended for all future access and construction on the various functionally classified roads in Waterboro:

1. Arterials, Major Collectors and West Road
 - a. Sight distance from access roads shall meet curve B-1 on page 792 of the AASHTO Standards of 1984
 - b. All construction within the right-of-way of these roads shall meet current M.D.O.T. Specifications and Standard Construction Details.
 - c. These roadways, when maintained by the Town, shall receive primary treatment, particularly with plowing and sanding application.
 - d. Where possible, access to these roadways should be discouraged for any development or combination of developments, either existing or proposed, that is not estimated to result in at least 1000 trips per day, or 150 trips during the peak hour.
 - e. Geometric design of access to these roadways should following the 1984 AASHTO Design Standards, or the latest edition of these standards.



PRIMARY ROAD NETWORK CLASSIFICATIONS, TRAFFIC LOADS, & ACCIDENT DATA
 WATERBORO, MAINE SCALE: 1"=4,000'

KEY

- 3410 1989 ESTIMATED AADT
- 3 NO ACCIDENTS/3 YR PERIOD ALONG ROADWAY
- ◆ 4 NO ACCIDENTS/4 YR PERIOD AT INTERSECTIONS

FUNCTIONAL CLASSIFICATIONS OF ROADS

- ==== ARTERIALS
- MAJOR COLLECTORS
- ===== FUTURE MAJOR COLLECTORS
- ===== COLLECTORS
- ===== FUTURE COLLECTORS
- - - - - STATE AID ROAD

2. Collectors

- a. Sight distance from access driveways shall be 100 feet for every 10 miles per hour of posted speed from a point 3½ feet high located 12 feet beyond the edge of travel lane to an object 4½ feet high in the center of the through lanes on the collector.
- b. All construction within the right-of-way shall meet the current M.D.O.T. Standard Specifications and Standard Construction Details.
- c. Where possible, access to these collector roadways should be discouraged for any development or combination of developments, either existing or proposed, that does not produce at least 500 trips per day or 50 peak hour trips.
- d. These roadways shall be second in importance for Town maintenance.

3. Local Roads

- a. Sight distance standards should at least meet the 1984 AASHTO Design Standards for stopping sight distance using the height of eye and object and the respective locations defined in 2(a) above.
- b. Construction and design standards should be as approved by the Town.

Accidents and Traffic Volumes

The attached map denotes existing areas where a greater rate of accidents are occurring than would be expected to occur in similar sections of road in Maine. These "high accident" locations should be examined to determine the nature of modifications necessary to lower the accident rates. The intersection of Route 202/4 with West Road and of Route 5 with Town House Road are identified as having significantly high rates of accidents. The map also denotes the estimated 1989 average annual daily traffic (AADT) at various locations.

Functional Classification vs. Funding

The funding of all work on the Arterial System, Major Collector System and West Road is State responsibility, with plowing and sanding as previously mentioned. All access by developers or impact by developers on this system should be paid for by the developer. This includes all work required to obtain proper sight distance from proposed new access.

The collector system is thus first in importance for expenditure of Town highway funds, either from the Town budget or from State block grant funding.

Sebago Technics, Inc. also has completed an inventory of the Town roads in order to make some general recommendations on expenditure of highway funds over the next 10 years.

The common problem that seems to exist on the Town roads is inadequate shoulders. Some of the roadway surfaces are warped, with open cracking which permits surface water to enter the base.

Thus, the Town should continue the overlay-type projects, concentrating on the collector roads. However, the overlay project should be followed by shoulder improvements. A good basic plan would be as follows:

1. Insure that all roads are built with at least an 18 ft. surface and 2 ft. shoulders.
2. Attempt to upgrade collectors to a 20 ft. surface with 3 ft. shoulders in areas of little cut and fill, and use 2 ft. shoulders where cuts and fills are greater.

Future construction funds should be spent primarily on the collector system using Town funds. Roads that are either considered local roads or future collectors should ideally be upgraded by some impact fee collected from developers that place traffic on the roads.

Recommended priority of expenditures for Town and State block grant funds are as follows:

1. Improve shoulders on Silas Brown Road, Federal Street, Roberts Ridge Road, Deering Ridge Road.
2. Improve sight distance at Chadbourne Ridge Road/Silas Brown Road.
3. Overlay the pavement on Deering Ridge Road, Roberts Ridge Road and Webber Road. Some sections of these roads also require drainage improvements which should be completed prior to overlay and shoulder improvement.
4. Reconstruct approximately 6/10 mile of the New Dam Road, beginning at the Chadbourne Ridge Road intersection. The alignment of this intersection should also be improved. This reconstruction should end just past the "S" curves currently designated for improvement. The roadway grade should be raised to improve base drainage and reduce frost heaving. Pavement and shoulder widening is recommended.

5. Work with M.D.O.T. to solve the existing accident problems at the Route 202/4 and West Road and at Route 5/Town House Road intersections.
6. Reconstruct the intersection of Roberts Ridge Road with Route 5, widening the pavement of Roberts Ridge Road to at least 20 ft., with 2 ft. shoulders. Clear brush and improve the sight distance at this intersection.
7. Along with Items 1 - 6, continue the overlay and shoulder improvements on local roads.
8. Request that the State improve Town House Road between the Town Hall and the curves roughly 2/10 mile northerly of Roberts Ridge Road. This will require some overlay and some reconstruction with drainage improvements. Due to limited State Aid budgets, the Town may decide to provide funds for some or all of this important work.

Road Budgets

The annual Town highway budget appears to be broken down to roughly \$105,000.00 for winter maintenance, \$112,000.00 for general overlay and roadway work, plus \$160,000.00 for specifically identified roadway construction projects. The State block grant contribution is roughly \$29,000.00 per year. In 1988, the block grant funds for both 1987 and 1988 were required for the snow plow and sanding accounts.

The funds the Town is providing are reasonable, provided that developers of new traffic generators contribute additional funds to the budget based upon their impact on the roadway system and cost of the work necessary to mitigate the impact.

Recommendations

1. Establish priorities for funding expenditures based upon functional classification and condition of highways (pavement management system).
2. Restrict access based upon functional classification of roadways.
3. Attempt to maintain the existing level of highway expenditures with only necessary increases over the next 10 years, with developers providing capital expenditure funds based upon the impact of their projects.

4. Develop cost estimates for improvements to the Town collector system of roadways. When development generates a traffic impact which causes road upgrading to be necessary, assess portions of these costs to developers based upon the impact of their projects on the respective roadways.
5. Maintain the overlay, seal coat and tar and road and bridges fund, along with funds for bush cutting for improvements to the local road system.
6. Directly charge developers for extension or improvement to either local roads or future collectors to serve their projects. This would be in addition to impact fees provided for improvements to existing collector roads based upon impact.
7. Plan to make the improvements listed in this report over the next 10 years based upon an identified existing need without any impact of future development.
8. Change subdivision and zoning definitions and requirements to reflect the functional classifications specified in this portion of the report.

