

Town of Newmarket New Hampshire

Master Plan Chapter 7 Transportation

Transportation infrastructure, perhaps more than any other single element, shapes the nature and location of growth in a community. As with most towns in the rapidly growing Seacoast region, the ways in which Newmarket meets the challenge of providing transportation infrastructure and accommodating the transportation needs of the community will play a large role in defining Newmarket's quality of life. The purpose of this chapter is to address ways in which Newmarket can deal with these issues over the next several years.

An adequate transportation system is vital to any community's economic well-being and quality of life. Community opinion polls nationwide consistently rate transportation system problems among those of greatest concern. Many people are concerned that transportation systems and options be planned and upgraded in a timely manner, which is coordinated with sustainable growth. The challenge of balancing the need for adequate transportation infrastructure with concerns about controlling the growth that excess roadway capacity can invite is one of the major issues in local planning today.

Cost is another major consideration in the provision and maintenance of adequate transportation infrastructure. True cost allocation for maintenance, improvements, and additional services is a challenge for the local municipality. Decreases in available federal and state money for infrastructure funding, and increasing competition for those funds will require creative solutions to meet the increasing transportation needs of the community. In addition, the Town must strive to account for the total cost - capital and maintenance - of transportation facilities and services.

As issues of access and mobility become increasingly regional, the Town will be called upon to analyze its needs in a broader sense. Newmarket, whose Main Street serves as a major north-south highway, understands these implications. With the requirements of the Clean Air Act and the options presented originally by the Intermodal Surface Transportation Efficiency Act (ISTEA), and now with the Transportation Equity Act for the 21st Century (TEA-21), Newmarket must increasingly view its transportation system as more than just the local street system.

Finally, policy makers in the Town must understand the direct link between land use decisions and the transportation patterns that develop. Transportation is not an end, but a means in a functional economic and social system. The Planning Board and the Town Council must consider the long-term consequences of their decisions in light of overall impacts. With transportation now being the second highest cost behind housing for the typical American family, such considerations will become increasingly important to residents of the Town.

This chapter seeks to provide a conceptual blueprint and factual background for Newmarket to follow with regard to transportation policy making and planning. Current zoning ordinances, capital improvement programs, and subdivision and site review regulations will continue to provide the legal parameters with which to implement transportation policy and planning goals and objectives. This chapter will provide the basic information necessary to assist local officials in the establishment of transportation policy and planning goals and objectives. Residents and policy makers should also seek assistance from the Seacoast Metropolitan Planning Organization (MPO), of which Newmarket is a part, for further technical and policy analysis. Local regulations should be developed to be cohesive with MPO goals in order to maximize federal funding availability and

regional efficiency.

7-1 EXISTING TRANSPORTATION NETWORK

Roads

Newmarket's roadway network serves both local and regional transportation needs. A map of the Town's existing roadway network, showing generalized classifications and ownership, is included in this document as a base map in reduced format. The full size map with all street names is available at the Town Hall. Pursuant to RSA 229.5, New Hampshire presently designates six classifications for all roadways in the state. As shown in Table 7-1, four of these six roadway classifications presently exist in Newmarket. Approximately 35 miles of this road network are Town maintained. The remaining miles are state-maintained highway or private roads.

TABLE 7-1
Roadway Classifications in Newmarket

Class I	3.03 miles
Class II	6.50 miles
Class III	0.00 miles
Class IV	0.00 miles
Class V	35.77 miles
Class VI	2.61 miles

Source: NH Department of Transportation Road Mileage
Classification Table - January 1, 1999.

Newmarket's roadway network is oriented around NH Route 108 (Exeter Road). Crossing Newmarket north to south, this Class I trunk line highway connects Exeter and NH Routes 33 and 101 to the south with the town of Durham, US Route 4, the Spaulding Turnpike, and the city of Dover to the north, and the city of Portsmouth to the east. Via NH Route 108 north and southbound, these routes and communities are the principal destinations of most of Newmarket's weekday commuting traffic. NH Route 108 travels through Newmarket for a length of approximately 3 miles. This two-lane road is winding and hilly along much of its course in Newmarket, with numerous sight restrictions and driveway accesses, few passing opportunities, and increasing traffic congestion.

In addition to NH Route 108, there are 6.5 miles of Class II, two-lane, and state-maintained roadway in Newmarket. Four roads, NH Route 152, Packers Falls Road, Lee Hook Road, and a portion of Grant Road from NH Route 152 to approximately Grapevine Hill constitute the Class II roads in Newmarket. NH Route 152 travels west from NH Route 108 in central Newmarket to Lee, Nottingham and Northwood. Packers Falls Road travels north to Durham from NH Route 152 just west of the B&M railroad bridge and connects

with NH Route 155A south of the Durham/Lee Town line. All other public roadways in Newmarket are designated as Class V or VI. These roads primarily serve as accesses to businesses and residences.

From a regional road network perspective, Newmarket, as a Seacoast community, has fairly close access to the Spaulding Turnpike and Interstate 95 (I-95). The Spaulding Turnpike, accessed through Dover, is a Class I toll turnpike leading north to Rochester and south to Portsmouth and I-95. I-95 is a Class I Interstate Highway, part of the national interstate highway system, and provides quick access to Portland, Maine and Boston, Massachusetts. Newmarket, through a variety of state and local highways, is also within easy access distance of NH Route 101, the major east-west corridor connecting the seacoast with Manchester and the southwestern part of the state.

Traffic

Newmarket is centrally located in the rapidly growing Seacoast region. Intense development in the 1980's and now the late 90's has created increasing volumes of local and through traffic, especially on NH Route 108. While the NHDOT does not have a permanent traffic recorder along NH Route 108 in Newmarket, counts have been performed on a regular basis by the Seacoast MPO as part of the regional traffic model development since 1980. These counts, as well as those taken by the NHDOT, and some private consultants are available in full detail on an updated basis through the Strafford Regional Planning Commission in Dover.

Table 7-2 summarizes traffic counts at several town locations over the recent past. This paints a picture of relative levels of traffic on various Newmarket roads. It also begins to reflect the increases in volumes experienced in the region and many nearby towns. It is common practice for planners and engineers to estimate average background traffic growth at approximately 2% per year. Many sites around the region have experienced substantially larger increases in recent years, mostly due to the strong economy, increased employment opportunities and resultant development. As this growth in traffic continues, it will most likely be reflected locally in trouble spots. This may come in the form of high accident locations, intersection backups and decreasing speeds as roadways reach their capacity to carry additional traffic. Seasonal traffic variation in Newmarket is minimal as NH Routes 108 and 152 are sub-regional connectors that primarily serve year-round commuters. Keeping this in mind, these trends and symptoms described above are likely to be consistent year round.

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Table 7-2
Average Daily Traffic Volume for Selected Sites

Location	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Ash Swamp Rd over Piscassic River							1805			2002
Grant Rd at Epping TL							849			
Grant Rd South of NH Route 152	1497					2246	2446		2732	2904
Ham St (Middle of Length)							49			
New Rd E of NH Route 108									1344	
New Rd N of Wooden Bridge									579	
NH Route 108 (Main Street) by Town Hall (south of Washington St)							12026			13172
NH Route 108 @ Cemetary									15362	
NH Route 108 @ Durham T/L	9989					9986			10973	
NH Route 108 @ Lamprey River									13227	
NH Route 108 @ Newfield T/L			16552		14911	16652		15134	17272	
NH Route 108 btwn Hersey Lane & Industrial Park									15142	
NH Route 108 S of BMW Station									14766	
NH Route 152 @ Piscassic River									3606	
NH Route 152 East of Maplecrest Avenue										5907
Packers Falls Road @ Durham T/L	1110					1364		1127		

Source: NHDOT and SRPC Traffic Volume Reporta, 1990-1999

Volumes are given in ADT - average daily traffic (not adjusted for seasonal variation)

The figures in Table 7-2 in the 1994 version of this analysis illustrated that there had been a general decrease in traffic along NH 108 between 1988 and 1993. The 1994 Plan also predicted that this trend would not continue. Although the increases are not astronomical, a quick look at NH 108 sites and local road volumes such as Grant Road illustrates the return to escalating traffic volumes. This is consistent with regional trends and those experienced by other nearby municipalities.

Parking and Circulation

Parking and circulation problems currently abound in Newmarket as new development, increased traffic, inadequate off-street parking, and a narrow right of way created by on-street parking on NH Route 108 hamper circulation and make parking very difficult and dangerous at times of peak activity. A high level of pedestrian activity also impacts downtown circulation and safety. Solutions to these problems will be costly, but they will be worthwhile investments in the quality of life for residents and visitors alike.

In numerous meetings of the 1994 Newmarket Master Plan Committee, the issue of intra-town transportation, especially downtown traffic and pedestrian circulation, was brought up as major issues. The 1994 Master Plan Committee had suggested, echoing the work of the Economic Development Committee that the Town begin immediately to deal with the issue of downtown parking facilities. Such facilities should be comprehensive answers to the long-term needs of a revitalized downtown. The facilities should address the needs of pedestri-

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ans, with full merit to the needs of the automobile. These facilities will be a critical factor in any downtown plans.

Motor Vehicle Accidents

Between 1990 and 1999, the total number of motor vehicle accidents per year in Newmarket increased by approximately 13%. This trend is shown in Table 7-3 below. The distribution of accidents is directly related to observed volumes. Overall, in 1998 and 1999, accidents along NH Route 108 accounted for 21% and 26%, respectively, of Newmarket's total accidents, while accidents in the downtown section of NH Route 108 accounted for 13% of the total in 1998 and 17% in 1999. Accidents along NH Route 108 decreased by 20% from 1990 to 1999, but are on the rise once again, in part reflecting the heightened pedestrian and motor vehicle activity along Main Street accompanying recent mill revitalization and development. Table 7.4 indicates the location of Route 108 accidents over the last two years. The consistently disproportionate frequency of accidents downtown reinforces the need for continued examination of traffic patterns in this area.

Table 7-3
Total Accidents in Newmarket, NH 1983-1999*

YEAR	Total Accidents	Percent Change	NH 108 Accidents	Percent Change
1983	50	-	n/a	-
1984	78	56%	n/a	-
1985	108	38%	n/a	-
1989	117	8%	48	-
1990	114	-3%	49	2%
1993	60	-47%	15	-69%
1998	126	110%	26	73%
1999	132	5%	34	31%

Source: Newmarket Police Department

*Data not available between 1994-1997.

Table 7-4

Route 108 Accident Statistics, Newmarket		
	1998	1999
Main St.	17	23
N. Main St.	7	6
Other 108	2	5
Total 108	26	34
Newmarket Total	126	132
 bike/ped	 0	 1
 108 Accidents as a % of total:	 21%	 26%
Downtown Accidents as a % of total:	13%	17%

Transit

Currently, Newmarket is served by fixed-route public transportation services run by two providers. The Cooperative Alliance for Seacoast Transportation (COAST) offers service south to Exeter with connections to Portsmouth. UNH Wildcat Transit operates fixed route bus service connecting the downtown and many of Newmarket's residential boroughs, with Durham and the University of New Hampshire. Connections are available in Durham to access Dover, Portsmouth, and Rochester.

Special service transit is available in Newmarket on a regular basis. Lamprey Health Care, located in Newmarket, offers transportation service to elderly and disabled residents of Newmarket. Services offered include regular pick-up and flexible demand response transit. Lamprey also provides recreational outings for its patrons. This service is well utilized, and should continue to receive support.

Bicycle Network

The Seacoast MPO, of which Newmarket is a member, and the New Hampshire Department of Transportation (NHDOT) have developed a regional and statewide bicycle network. NH Route 108, Packers Falls Road, and New Road are part of one or both of these bicycle networks. NH Route 108 through Newmarket is also part of the "Great Bay Loop", a concept envisioned by Seacoast Area Bike Routes (SABR), a regional bicycle advocacy group. Their concept is to achieve a loop of safe bicycle facilities, on and off-roadway, around the circumference of Great Bay, connecting Portsmouth, Newmarket, Durham and back south to Portsmouth. SABR has actively pursued the completion of this loop through a variety of funding sources including those available through the MPO process. Newmarket is on this loop and thus benefits from SABR's efforts. Newmarket should be an ally in these efforts and lend support when appropriate. Though Newmarket has not specifically designated any roads at the local level

for bicycle routes, this type of effort could be accomplished through working with the Seacoast MPO. Efforts at the local level should be coordinated with the MPO and NHDOT networks to assure efforts that are connected and consistent toward developing a complimentary bicycle network at the local, regional, and state levels.

Pedestrian Network

Newmarket has many existing sidewalks, especially in the downtown core area. In 1993, the Town of Newmarket received Federal Transportation Enhancements funding for the construction of sidewalks along NH Route 108. In a later Transportation Enhancement funding round in 1998, the Town once again made a successful bid for funds from this program. As a result, in 2001 sidewalks will be continued on the southern end of the business district from approximately the railroad crossing on NH Route 108, south to approximately the Irving gas station. In 1999, the Town applied for Transportation Enhancement funds for sidewalk and streetscape improvements on Main Street from Lamprey Street to the junction of Exeter Street. Once again, these funds were awarded and are scheduled for implementation in 2003 – 2004. With new high-speed rail service slated to run through Newmarket in the years to come, it is important to consider the effect that this service may have on the pedestrian traffic which crosses the railroad tracks at several locations. Increased safety measures need to be implemented. This will require increased signage, the re-routing of sidewalks, or temporary barriers such as gates. A study of sidewalk use and pedestrian patterns, especially at track crossings, would help to determine the best course of action.

Railroads

Newmarket is centrally located in the regional rail network. Guilford Transportation, owner and operator of the Boston and Maine Railroad (B & M) maintains the tracks through Newmarket. Beginning in 2001, four round trip trains a day will be running through Newmarket as part of the Portland-Boston Passenger Rail Service. The trains will stop in several locations in Massachusetts and Maine with New Hampshire station stops in Exeter, Durham and Dover. The principal B & M line through town, which will be used for the passenger rail service, runs northeast to Portland, ME and southwest to Boston, MA. This line currently serves as an active freight rail line as well as supporting a number of runs daily. At Rockingham Junction located near the Newmarket/Newfields border, an active spur leads east to Portsmouth and the Naval Shipyard.

The train tracks parallel NH Route 108 on its eastern side through the southern part of town and cross NH 108 just south of New Road. These tracks also access the Newmarket Industrial Park although improvements in the form of siding tracks would need to be provided for active service to occur. In addition to the crossing near New Road, B & M tracks also cross Elm Street at grade. Two railroad bridges also exist in Newmarket, and the Town shares maintenance responsibility for one railroad-bridge located near the Newmarket/Newfields border. The structures located in Newmarket are on NH Route 152, and on what is currently a private right of way, east of NH Route 108 and south of downtown. The bridge for which Newmarket shares maintenance responsibility with Newfields is located on New Road in Newfields. The NH Route 152 bridge was completely rebuilt in the spring of 1994. Current passenger

rail proposals provide for a full analysis of all rail overpasses and crossings. Funds have been allocated for infrastructure repair to bring the line into standards for the planned passenger service. Over recent months, the ties and rails themselves have been upgraded to prepare for the increased frequency and speed associated with the new passenger rail service.

Air

Newmarket is located centrally to many of the region's airports. The nearest airport with full commercial capability and regularly scheduled intercontinental flights is in Manchester NH, 45 miles to the west of Newmarket. An hour to the south on I-95 is Boston's Logan International Airport. An hour north on I-95 is Portland Maine's International Jetport.

Pease International Tradeport, located in Portsmouth, allows the region direct airfreight service through a growing list of major carriers. Passenger service has also begun, with flights to Florida as well as service to the Midwest. This service is somewhat limited presently and it remains to be seen whether passenger service will be able to establish itself more successfully than past efforts. The Tradeport's close proximity to so many established airports will make this difficult.

Additional public airports are located at Skyhaven Airport approximately 20 miles north in Rochester, and Hampton Airport, approximately 15 miles south in Hampton. The Skyhaven facility was upgraded in 1987 and now features a 4000-foot runway capable of accommodating small corporate/business-type jets. The Hampton facility features a 2000-foot grass runway and can accommodate small prop aircraft. Utilized primarily by private airplane owners, these facilities offer some limited commercial services such as charter flights.

Port Facilities

Ocean port facilities are available nearby in Portsmouth and also further away in Portland and Boston. The New Hampshire Port Authority regulates activities in the Portsmouth Harbor and port. Commonly fuel oil, natural gas, scrap metal, and salt are shipped commercially through the port. Beginning in the summer of 1996, recreational cruise ships returned to the NH Port Authority.

Commuting Patterns

The tables and charts below show the commuting patterns of Newmarket. This data illustrates the origins and destinations associated with Newmarket work commutes. This can be used to provide information on possible policies for road improvements and to identify weaknesses and strengths of the job base Newmarket offers to its residents. Some additional items from the 1990 Census to note regarding the town's commuting patterns: 3,479 residents commute out of Newmarket to work, 31 residents walked to work, 94 residents work at home, 689 carpool, and 3,023 drive alone.

With Newmarket's increase in population most commuting pattern trends have likely become more exaggerated, i.e. same trends in greater numbers, over the span of the past 10 years. In many respects, Newmarket serves as a bedroom community for the Portsmouth, Dover, Durham, and Exeter employment centers. A number of residents commute to work as far as Northern Massachusetts and the Boston area. Fur-

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thermore, the UNH student population residing in Newmarket is also something that needs to be considered in the mix of transportation issues and networks.

Table 7-4a

Commuting Out of Newmarket

Source: NH Commuting Patterns, 1994 - based on 1990 Census

Estimated Residents Working	3,978
Commuting to Another Town	3,479
Commuting Rate	87.5%

To Locations Within NH

Portsmouth	471
Exeter	346
Durham	244
Dover	228
Stratham	200
Newfields	130
Hampton	126
Newington	123

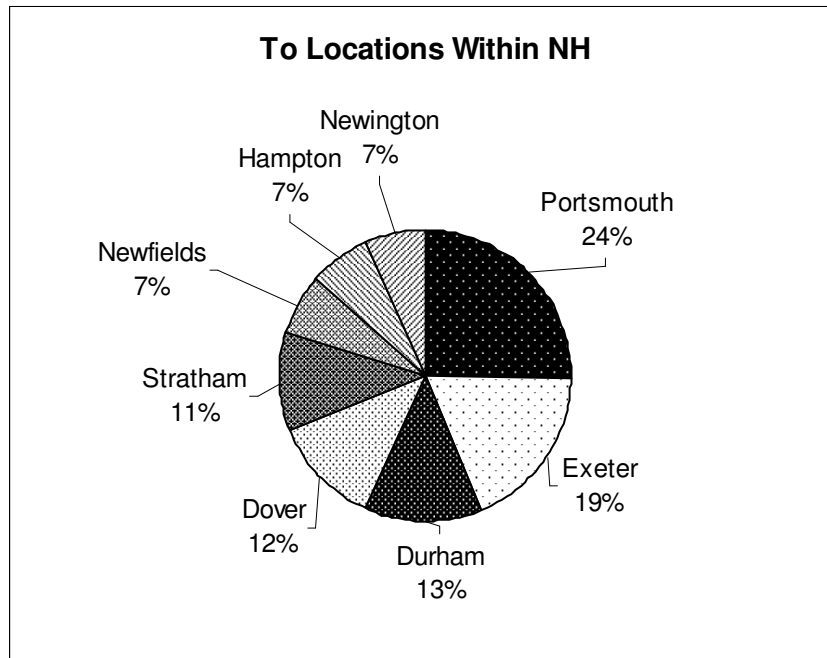
To Out of State Locations

Kittery, ME	117
Newburyport, MA	62
Boston, MA	42
Danvers, MA	42

To Other States

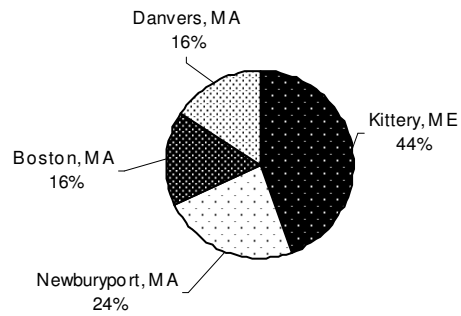
Maine	153
Massachusetts	428
Vermont	14
Other	72

Table 7-4b

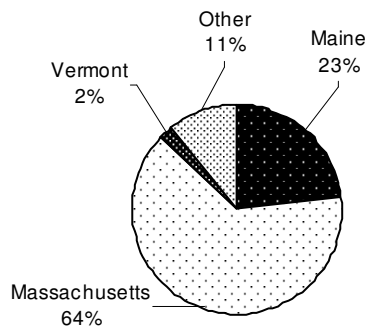


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To Out of State Locations



To Other States



7-2 FUTURE TRANSPORTATION NETWORK

Roads

Each year, one of the largest elements of the Town of Newmarket's municipal budget, with the exception of schools, is the roadway budget. Table 7-5, gives a summary of these budget expenditures for selected fiscal years. The total road budget includes all projects ranging from resurfacing to bridge and lighting expenditures. "Maintenance" in Table 7-5 is the amount spent on keeping up with the regular wear and tear on the roads. This includes activities such as grinding and resurfacing and reconstruction of existing roads. Population figures are added to track the relationship of per capita expenditures for maintenance of Newmarket's town-maintained roads.

Table 7-5
Municipal Expenditures on Roadways

Fiscal Year	Total Road Budget	Maintenance	% of Total	Population	Per Capita Total Cost
1990	\$556,898	\$219,283	39%	7157	\$30.63
1993	\$464,401	\$251,409	54%	7308	\$34.40
1994	\$515,958	\$98,504	19%	7349	\$13.40
1995	\$478,714	\$65,365	14%	7426	\$8.80
1996	\$663,509	\$176,927	27%	7586	\$23.32
1997	\$659,376	\$158,987	24%	7625	\$20.85
1998	\$712,334	\$323,836	45%	7715	\$41.90
1999	\$1,005,648	\$553,347	55%	N/A	N/A

Source: Newmarket Town Offices and Office of State Planning

Town expenditures on roadways have fluctuated somewhat over the years. Maintenance costs also seem to reflect these fluctuations in total budget more often than not. This seems to reflect the allotments for expenditures on roadway maintenance being driven by the overall budget. While it is often the unfortunate reality that towns struggle to fund a variety of programs with a limited pot of money, it must be remembered that deferring roadway maintenance will lead to added costs over time as the conditions worsen. Deferring road maintenance is far more costly in the long-term than implementing repairs as required. This is reflected in the per capita cost for roadway maintenance above.

Although it should be a major priority of the Town of Newmarket to seek ways to lower the costs of maintenance and construction without sacrificing the overall quality of its roadways, road budget in-

creases will be necessary to implement a roadway management plan based on this inventory. While construction costs are essentially fixed to the scope of any particular project, methods to lower average maintenance costs per lane mile of road should be developed. An option to complement this strategy might be the implementation of impact fees, which are typically imposed on developments in order to finance the cost of off-site improvements or services. The Town should engage in a study to examine the benefits and costs associated with adopting impact fees for transit improvements.

In addition to finding ways to meet the burden of roadway construction and maintenance, it is important for Newmarket to carefully evaluate the cost effectiveness of accepting new roads into the Town maintained network. Prior to accepting any new road, Newmarket should determine (through engineering inspection, and through the inspection during construction) that the roadway in question has been built equal or superior to specifications outlined in Town ordinances and regulations, and that it has been maintained in good condition. The objective in this case is to accept only roads which will require no more than plowing or grading for a reasonable period of years (a range which should be specified in the above mentioned ordinances). A further criterion for the acceptance of roads associated with new development is that the increase in taxes realized from the development be proportionately allocated to the roadway budget to compensate for increased mileage requiring maintenance.

Aside from normal maintenance, which includes shoulder grading, filling potholes, brush control, cleaning ditches, and supervising construction in the summer, and snow removal, and sanding and salting in the winter, larger projects requiring significant reconstruction are included in Newmarket's Capital Improvements Program at the recommendation of the Public Works Department. This listing is updated yearly and uses a 6-year planning horizon.

The Town has been successful in securing state funds through the State Aid Highway program. Currently, the Town is managing a project to reconstruct Main Street, including redesign and construction of new drainage and sidewalks. This project will be constructed over the course of the next year or two. Strafford Regional Planning Commission has been participating through planning assistance and landscape design work to help Newmarket make consensus-based decisions. The Town should continue to explore these State and Federal fund sources available through the MPO transportation planning process.

Traffic

Increasing traffic volumes have been and will continue to be a reality for Newmarket. There is no way in the immediate future to halt this trend. Instead, the Town must find ways to effectively manage the traffic, especially in the downtown. Although a formal traffic volume study for a two lane road segment would be necessary to accurately determine the roadway's current overall level of service (LOS), it is safe to say that traffic volumes on NH Route 108 are approaching the roadway's theoretical capacity during peak hours. Ongoing analysis of NH Route 108 in Newmarket should be requested of NHDOT, as they are presently responsible for improvements along the road. The Town should coordinate with abutting communities and encourage the NHDOT to conduct a corridor study from Durham to the Stratham traffic circle. A study of this corridor could investigate the delicate balance between safety, aesthetics preservation, and the need to preserve or in-

crease capacity when possible. Special attention should be given to improving shoulders and adding center lane left turn medians where appropriate, as well as to adding right turn bays at critical intersections.

Several intersections in downtown and along the NH 108 corridor also operate at or near unsignalized capacity. The intersections of NH 152 and NH 108 and South Main Street, Gerry Avenue and NH 108, NH 108 and Hersey Lane and NH 108 and Bay Road should have conditions monitored for future improvements. In addition to volume, warrants for signalization include accidents, pedestrian and bike activity, site design and vehicle composition. It should, however, be noted that any future signals at these locations must be placed in such a way as to avoid causing vehicles to stop on the grades that may be present at these intersections.

In the downtown, traffic-calming measures such as reduced speed zones, physical features such as bump outs, speed tables, and pavement texturing, and visual barriers such as colored crosswalks are also useful. These improvements should be directed at improving safety, not necessarily increasing flow through town. Newmarket should also work with NHDOT to see that appropriate speed limits are posted along NH 108 to continue to provide an efficient inter-regional link between Exeter, Durham, and Dover, a goal challenged by the competing need for safety. Achieving a balance between the regional road network function of the NH108 facility, and the function of the road as a downtown main street will be more of a struggle as time goes on. The town must think carefully about the options available to achieve this balance.

Parking and Circulation

Because of dense existing development and the residential nature of the roads paralleling NH 108, little opportunity exists in Newmarket to create a one-way traffic flow through downtown. Consequently, adding off-street parking and redesigning on-street parking for pedestrian/public use is the best, and perhaps only, measure that could ease the congestion, parking, and circulation problems, and improve traffic flow along NH 108 in central Newmarket. One exception may exist in the "triangle" formed by Gerry Avenue, NH108, and NH152. One-way configurations may be possible here, leading to increased capacity. While this may not alleviate the bulk of the downtown traffic congestion, it may provide an opportunity to affect it positively, while creating new design opportunities for parking and redesign of associated neighborhoods. The Town may wish to pursue a 1st level feasibility study to identify what the possibilities are in this section of town with regards to traffic circulation.

With respect to parking in general, the Town should begin to locate new areas for parking and begin to restrict parking along NH 108/Main Street as a first step. As there is little, if any, available land on which to locate additional parking facilities in downtown Newmarket, some land acquisition could be necessary. The existing municipal parking facility should be better signed and its link with downtown should be improved as part of a plan to enhance pedestrian movement and safety in Newmarket. The Town should also look at private/public partnerships in providing these enhancements. Developing parking strategies will become increasingly important as the mills are redeveloped and parking needs increase.

Transit

Transit is a very valuable asset to Newmarket and should be supported by town residents. As development in and around Newmarket continues, UNH, COAST, and other private transit measures could play

an important role in strategies to reduce traffic congestion in Newmarket and along NH 108. Historically, The Newmarket Highway Safety Committee has expressed that, when appropriate, the Planning Board should consider requiring new development to contribute bus shelters for use by transit riders and Newmarket school children.

Bicycle Transportation

In order to enhance recreation opportunities and increase transportation alternatives in Newmarket, such facilities should be considered in future years. The Town should promote implementation of this plan through CMAQ and Transportation Enhancements funding and through adoption of bicycle sensitive design standards in its subdivision and site plan regulations. Upgrading existing facilities to include widened shoulders and bicycle lanes should also be considered when feasible. The Town should also provide appropriate bicycle parking amenities. Placing bike racks in the downtown area, as well as key locations such as parks and schools, encourages the use of bicycles as a means of personal transportation.

If linked with schools and public recreation areas, bike paths could also be of special benefit to the children of Newmarket. The new Community Center features bike paths linking school and recreational sources. Additionally, long-term plans for a rails-to-trails conversion of the Rockingham Junction to Manchester line have been discussed. The Planning Board and Town Council should acknowledge and promote the safe use of bicycles not only for recreation, but also for transportation purposes. The effect this will have on community and the transportation issues it faces are positive and this opportunity should be taken advantage of.

Pedestrian Transportation

It is important to build upon the existing sidewalk system by filling in gaps thus creating a complete pedestrian network. It is especially important in the downtown area, where officials wish to encourage walking. Vehicular traffic and congestion can be mitigated somewhat by providing an attractive, functional system of pedestrian amenities. Unofficial footpaths currently crossing the railroad tracks should be properly signed as off-limits with the upcoming increase in rail traffic. The Town must work with Guilford Transportation, owner of the rail right of way, to implement safety measures, and to define and design options for safe points for pedestrian crossing. Proper facilities will ensure pedestrian traffic is channeled into appropriate areas. Safe fencing at many points along the rail-line, including the overpass bridge on South Main Street, should be installed to prevent access to the tracks at these especially dangerous types of locations.

The Town may wish to conduct a study of pedestrian activity and needs. This would enable the Town to establish a comprehensive pedestrian/sidewalk plan in order to plan for a logical, connective system, serving the areas which most need safe pedestrian access. Specific project-recommendations could be identified through this plan and lead to applications for project funding. A study of pedestrian movement should also include an analysis of routes that children are currently using to get to schools. A number of Newmarket children who walk to school currently deal with inadequate or non-existent sidewalks, poorly marked or unsignalized crosswalks, and significant volumes of traffic along NH Route 152 and NH

Route 108 on their daily journeys. This situation merits closer attention, especially during winter conditions when snow piles and icing make the conditions worse. The School Board should work with those conducting an analysis of pedestrian movements and systems.

New residential and commercial development in Newmarket's downtown Mills will increase pedestrian traffic in the coming years. Ways to accommodate these people should be considered now. Such increased pedestrian activity would bring about increased business activity and spur new retail business development. This also would assist in the overall goals presented elsewhere in this document to make the downtown more vibrant and tied into the waterfront and street businesses. Serious consideration should be given to the interruption of traffic flow along NH Route 108 to promote a safer environment for pedestrians and vehicular traffic. Pedestrian activated crossing signals should be considered. The Town should continue to take advantage of funding opportunities under the CMAQ and Transportation Enhancements programs through the Seacoast MPO process.

Rail Service

Once a major aspect of life in Newmarket, the railroad is poised for increased utilization in the near future. Passenger service has not been available in Newmarket since the late 1960's; however current plans call for a return of passenger service via AMTRAK in 2001. Full time stops will be located in Dover and Exeter with weekend stops in Durham. Current plans also call for full track replacement and improved rail crossings through Town. Planned service calls for an integrated bus/rail system with 4 roundtrips per day. The Council and Planning Board have expressed their support for this service in the past. Guilford Transportation, owner of the rail line and rights of way currently uses the line for freight service.

Perhaps the most immediate issue Newmarket faces with regard to the increased rail service and increase speeds of passenger trains are safety issues. The Town must prepare for this reality and become educated to what realities this new service will bring with it. The fact that the rail line is private property owned by Guilford Transportation, notwithstanding, it will be important for the safety of the community that pedestrians rethink their walking patterns if they are currently crossing tracks at locations other than official public crossings. This reality lends even more immediacy for the Town to consider a close look at pedestrian behaviors and facilities, leading to a well thought pedestrian plan for implementation of sufficient facilities.

Air Transportation

The Town is currently well served by existing air facilities throughout the region. Should the passenger service recently established at Pease International Tradeport become a success and offer increased frequency and destinations, this will be a benefit to Newmarket, cutting down on commute times to access such facilities. Regardless, Manchester service is growing and easily accessible. Boston's Logan International Airport will likely continue to serve as the main hub of air activity in the near future. Access to this facility is enhanced by commercial bus services available at the recently inaugurated Intermodal Transportation Facility. The State is negotiating with regional transit providers for service to Manches-

ter via this facility.

7-3 ADDITIONAL STRATEGIES

Design Standards

As a legitimate exercise of police power, in order to protect public health, safety, and welfare and ensure continuity in the local roadway network, certain minimum roadway design standards should be required by Newmarket. Standards for access to roads and highways, minimum setbacks and easements, conformance with existing roadway alignments, adequate signing, and roadway construction should be addressed in Town zoning ordinances and subdivision regulations. Bonding to ensure that roads and associated improvements proposed in new subdivisions be completed within a reasonable period of time from the granting of final approval should also be included in current and future zoning ordinances and subdivision regulations.

In New Hampshire RSA 236:13-1, it is stated that "it shall be unlawful to construct, or alter in any way that substantially affects the size or grade of any driveway, entrance, exit, or approach within the limits of the right of way of any Class I, Class III highway or the state-maintained portion of a Class II highway that does not conform to the terms and specifications of a written permit issued by the Commissioner of Transportation." Section V of this RSA provides that Planning Boards of cities and towns which have granted the power to regulate subdivisions of land as provided in RSA 674:35 share this same right of permitting and may adopt such regulations as are necessary to implement the standards for approval which are adopted.

Another design standard to address in the Town's regulations is the requirement of minimum easements, setbacks, and rights of way for all new construction. These requirements serve several purposes and produce conflicting results. First, this kind of dedication allows a town sufficient room to maintain and, when necessary, improve roadways. Second, adequate setbacks help to mitigate potential obstructions to roadway sight distance such as fences, buildings, and parking lots. Unfortunately, large setbacks and rights of way can also lead to sprawl and low-density development that may produce long-term adverse transportation effects and higher infrastructure costs.

In order for Newmarket's roadway network to develop in a rational and coordinated manner, conformance with, and integration of, new roads with existing roads with regard to width, shoulders, sidewalks, lighting, and other characteristics should be required as a condition of subdivision approval. The Planning Board should consider modifying site plans to ensure this coordination when feasible and appropriate. Additionally, new roads that could potentially serve as through roads at some future date should be planned to their ultimate conclusion. In contrast with the creation of an official Town map, this exercise would address the issue of new or future roads on a case-by-case basis whenever new roads are proposed. In order to encourage logical regional and sub-regional transportation development, new roads should also be planned to coordinate with roadways located in abutting jurisdictions whenever possible. These measures will help to encourage orderly and timely roadway development. Adequate signing of

roadways at every juncture with another road, public or private, or significant public way (such as recreational roads) should also be required on any new road.

It is also important for Newmarket to revise and enforce its minimum standards for new roadway construction. Poorly built roads create unwanted and expensive problems for area residents and town officials alike. Requiring minimum standards be met as a condition of the issuance of occupancy permits is a potential way to ensure adequate roadway construction in new developments. Adequate drainage potential should also be demonstrated and required of new or reconstructed roads.

A further method for ensuring that proper roadways are built in a new development is to require that the developer post a bond at the time of subdivision approval to cover the full cost of building new roads. This bonding requirement will allow the Town to complete all work planned, even if the developer is unable to complete the project. When possible, the Town should conduct site inspections of new roadway construction to further ensure compliance with Town standards.

Scenic Roads

One of the best ways for a Town to preserve its rural character and protect its visual attributes is through the designation of scenic roads. Chapter 231:157 of the New Hampshire RSAs provides for such designations. The designation process is very straightforward. According to this statute, "Upon petition of ten persons who are either voters of the town or who own land which abuts a road mentioned in the petition (even though not voters of the town), the voters of such town at any annual or special meeting may designate such road as a scenic road." This section goes on to specify the proper notice procedure required by this statute. If approved by a majority of voters, the road named in the petition receives scenic designation. This designation can be rescinded in a similar manner.

The consequences of a scenic designation are defined in RSA Chapter 231.158. Once a roadway is designated as scenic, the cutting or removal of medium and large-sized trees (defined in the statute as being any woody plant which has a circumference of 15 inches or more at a point four feet from the ground), or the tearing down or destruction of stone walls or portions thereof without the prior written consent of the Planning Board or any other official municipal body designated at the town meeting to implement the law (after a public hearing has been held), is not permitted for any repair, maintenance, reconstruction, or paving work performed on the roadway. It should be noted that these restrictions could, in some cases, create an extra hurdle for town officials wishing to initiate safety improvements along roadways with scenic designations; improvements must be publicly discussed and approved by the appropriate political body.

Exceptions to this rule include the road agent's right to "remove portions of trees, shrubs, vegetation, and other natural or man-made obstructions from within three feet of the main traveled portion of such road which interfere with the safe travel upon such road." The road agent is also empowered to cut and remove trees with the written consent of the Selectmen and without hearing in emergency situations.

Scenic road designation does not, however, alter or affect the eligibility of the town to receive construction, maintenance, or reconstruction aid, pursuant to the provisions of RSA 235 for such road. Additionally, scenic road designation does not affect in any way the rights of any landowner with respect to work on his or her property. This clause negates the confiscatory potential that this law might otherwise have. Currently Bay Road is the only designated scenic road in Newmarket.

New Development

New development is often phased over extended periods of time and the ultimate, as well as the immediate, impacts of development on traffic volumes and transportation systems should always be considered. The magnitude of new development obviously determines the traffic impacts that the development will have. Depending on existing roadway traffic volume, distribution patterns, and the physical condition of local roadways, small scale as well as large-scale development can often have significant impacts on the surrounding roadway network. By requiring transportation/traffic impact studies for new developments of a certain size or for developments located in areas where significant transportation problems are known to exist, a Planning Board can effectively evaluate the scope of impacts associated with any new development. Through this kind of scrutiny, recommendations for project phasing, and developer participation in necessary improvements can be developed and problems of safety, congestion, and expensive upgrading of poorly planned roads can be avoided. The old adage "an ounce of prevention is worth a pound of cure" is particularly appropriate when evaluating long-range impacts associated with new development and the need for long-term road surface management strategies.

As federal and state assistance for local road construction has decreased (in most cases), in recent years, and will likely continue to decrease in future years, the construction, improvement, and maintenance of local roads has increasingly become the responsibility of municipalities and developers. That a developer accepts the responsibility for performing all necessary "on-site" infrastructure improvements is now considered standard practice. Courts nationwide have generally supported regulations supporting this standard and it is considered a legitimate exercise of police powers as granted by the U.S. Constitution.

However, the extent to which a developer can and should be required to participate in off-site roadway system improvements has become a hotly debated subject in recent years. The two basic methods for securing developer participation in roadway and other infrastructure improvements necessitated by new development are through negotiated development agreements and through the assessment of formula based development impact fees. Each of these alternatives will be briefly discussed below.

The most straightforward way to have developers contribute to off-site improvements necessitated by a new development is through a negotiated development agreement. The method of operation in securing this kind of participation is implicit in the terminology. That is, a Planning Board or other responsible public body with proper authority meets with a developer and negotiates for improvements needed or desired by the community. Successful negotiation can obviously benefit the municipality whose needs are met, but the developer usually receives benefits as well. With the recent holding in Simonsen v. Derry, there is some question as to the continued validity of this approach and additional activity is under-

way at the State House to address this issue. The Planning Board should incorporate this negotiated approach into the impact fee methodology for utilization consistent with the Simonsen decision. Making use of this method will give the Town the authority to require the physical improvements or receive funds for such improvements in accordance with the recently adopted impact fee ordinance.

In the case of Land/Vest Properties v The Town of Plainfield, it was held by the New Hampshire State Supreme Court that a municipality can require a developer to "bear that portion of the cost (of necessary off-site improvements) that bears a rational nexus to the needs created by, and special benefits conferred upon, the subdivision." Rational nexus is the justifiable relationship between existing needs from improvements without a development and those that can be attributed solely to the development. Because the Town of Plainfield did not assess a fee based solely on the need created by the Land/Vest project the court held for the developer. In this case it was held that the portion of improvements (in this case roadway improvements) which the developer could be required to pay would have to be determined through analysis based upon findings of fact regarding current road use and maintenance needs and costs, and theoretical traffic increases attributed to the development. It was also held that to attempt to make a developer pay for all of the costs of the improvements, which also would benefit other area users, was inequitable.

The concepts discussed in the above paragraphs are important for the Town of Newmarket to keep in mind when evaluating the impacts of new development. Arbitrary local decisions regarding a developer's use of his or her land, and arbitrary, mandatory monetary requirements as a condition of approval are not generally judged favorably in courts of law. All decisions about the extent to which developers should "pay their own way" with regard to off-site improvements necessitated by new development, be it with roads or any other form of infrastructure or service, must always be based on the existence of adopted plans and programs which address such issues, as well as a complete and realistic evaluation of all potential impacts associated with the development.

Nonetheless, negotiated agreements and impact fees can be useful tools for mitigating potential roadway problems prior to their occurrence and for enhancing overall planning strategies. The Newmarket Planning Board should recognize its right to establish a system for requesting or requiring developer sponsored off-site improvements. Application of these potentially powerful planning tools should be pursued aggressively and legally to insure a safe and convenient transit system that serves the citizens in light of tremendous growth without unduly burdening the taxpayers.

Road Surface Management

As well as being a short-term concern, road surface management should also be viewed as a long-term transportation planning priority. As mentioned in the previous sub-section on road maintenance, Newmarket should establish a comprehensive, road surface management program. This kind of program is designed to evaluate the physical condition of local roadways and provide a basis for establishing comprehensive on-going maintenance strategies for the effective life of each and every local roadway. This

approach differs from traditional maintenance approaches that address only major maintenance requirements in an expanded time frame. Adopting this kind of program could significantly lower Newmarket's annual roadway maintenance costs over an extended horizon and will compliment efforts to assess and evaluate impacts associated with development. Capital Improvement Programming efforts are also aided through the establishment of a road surface management program.

A road surface management system would build upon the Town's current road inventory with annual condition updates. These updates would be based on drive-by surveys. Highway Performance Monitoring System software can assist in translating the inventories automatically into improvement programs with associated costs. This software was developed by and is available through the University of New Hampshire. In the end, the cost of routine maintenance would be a significant saving over reconstruction and patchwork fixes.

Unfortunately, it is often normal maintenance on good roads that is deferred in favor of dealing with roads in need of serious rehabilitation and reconstruction. Also unfortunate is the fact that roads in poor condition are not as cost effective to maintain as those in good condition. This scenario ultimately leads to a never-ending cycle of playing "catch up" with road maintenance needs. In other words, roads which are initially in good condition often lapse into marginal or poor condition as maintenance is continually deferred in favor of working on crisis condition roads, the majority of which cannot be thoroughly addressed in any particular year with a typical annual budget.

RECOMMENDATIONS

- Encourage logical, limited and coordinated access onto NH Route 108 and NH Route 152. Consider safety and transport effects in all development applications and approvals.
- Coordinate with abutting communities and encourage the NHDOT to conduct a corridor study from Durham to the Stratham traffic circle. A study of this corridor could investigate the delicate balance between safety, aesthetics preservation, and the need to preserve or increase capacity when possible. Special attention should be given to improving shoulders and adding center lane left turn medians where appropriate as well as to adding right turn bays at critical intersections.
- To the extent possible, continue, politically and fiscally, to support the Cooperative Alliance for Seacoast Transportation (COAST), University of New Hampshire's Wildcat Transit system, and paratransit providers in their efforts to provide residents of Newmarket with regularly scheduled and demand-responsive transit options. Special consideration should be given to the needs of the elderly and mobility-impaired.
- In an effort to address downtown circulation and access, work to develop a comprehensive, multi-

modal solution to the transportation needs of the downtown. The Board and Council should work to develop a comprehensive approach addressing the needs of the area in terms of promoting the redevelopment of business and public attractions.

- Systematize monitor locations with a high number of motor vehicle accidents or areas that prove unsafe to motorists, bicyclists, and pedestrians, and assess needed improvements as required. If appropriate, these needed improvements could then be included as safety improvements in the Town's Capital Improvements Program.
- Promote the development of regional and local bicycle and pedestrian routes. These route and related improvements would enhance the vitality of Newmarket's residential and commercial areas and assist in reducing vehicle congestion in the Town. The town should continue to take advantage of funding opportunities such as the federal CMAQ and Transportation Enhancements programs as well as state funding sources such as State Aid Highway funds to achieve this end.
- Continue to include all roadway construction and maintenance projects, both immediate and anticipated, and with a cost estimate, in subsequent Capital Improvements Programs developed by the Town. Long-term costs should be considered in all projects.
- Periodically review and revise, if necessary, standards for the issuance of driveway permits on local roads to ensure that they are at least equivalent to those contained in New Hampshire RSA 236:13-I.
- Continue to require setback standards, easements and rights of way based on design standards that take into account density, traffic generation, safety, future infrastructure needs and aesthetics.
- Continue to require that all roads sited in new developments be laid out consistent with the existing roadway and sidewalk network as a condition of subdivision approval.
- Develop a comprehensive Pedestrian Plan. Issues such as increased rail activity with the coming of passenger rail service will require well-planned safety precautions. A study of sidewalk use at track crossings would help to determine the best course of action. Pedestrian corridors should be preserved to the extent possible without sacrificing the safety of the people. The Town must work with Guilford Transportation, owner of the rail right of way, to implement safety measures, and to define and design options for safe points for pedestrian crossing.
- In addition to including major roadway improvements in Town Reports and subsequent Capital Improvements Programs as suggested in recommendation ten. Continue efforts to establish a comprehensive road surface management program applicable to roadways of all conditions as outlined in this section.

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- Consider downtown parking issues should be considered as part of the mix when planning for the redevelopment of the mills. The added activity in the mills has potential to bring added traffic to the downtown area. Policies that determine how the town wishes to address this will be vital to the success of the downtown, and the safety of drivers and pedestrians.
- Investigate the process for conducting a study to support an impact fee ordinance to help defray future capital expenditures associated with new development, keeping costs at a minimum for the taxpayers.
- Newmarket should be to investigate the possibilities of obtaining a full or limited passenger rail stop in addition to the scheduled stops in Dover, Durham and Exeter.