



CHAPTER 7

TRANSPORTATION ELEMENT

Transportation is more than just roads. Transportation means mobility, access, and connectivity for motorists, cyclists, pedestrians and equestrians. Transportation needs often serve as the catalyst for other improvements in the public realm, including preservation and enhancement. Finally, transportation facilities can both scar landscapes as well as open up vistas, secluded areas, and passive and active recreation opportunities. As a result, transportation policies have a major impact on all aspects of a town plan.

Roads and highways are frequently defining elements in cities and towns. In Princeton, where there are relatively few roads, the roads and highways provide scenic backdrops as much as they provide access to land parcels and the regional highway system. Virtually no new roads have been built here since the first master plan was completed in 1970, which largely reflects the town's desires to minimize road construction and slow the pace of new development. Policies that promote development near existing roads minimize the need for new roads; however, other policies that promote compact development to help preserve open space elsewhere in town may require new roads or extensions for access. Compared to many communities, Princeton has a high ratio of road miles per capita and a low ratio of road miles per square mile of land.

Sidewalks are just about non-existent in Princeton, so most roads double as pedestrian ways and travel ways for large and small vehicles, bicycles and horses. In addition, the limited number of roads in town means that local traffic and regional traffic mix to a greater degree than in many other



Princeton residents often enjoy non-vehicular modes of travel around their neighborhoods and through town. *(Photo supplied by Master Plan Steering Committee.)*

communities. If few new roads are built, the implication for the future is that regional or through traffic will find its way by using local streets instead of using the collectors or arterial roadways.

EXISTING CONDITIONS

Roadways

Although people may not think of roads when they imagine scenic beauty, many of Princeton's roads are very pretty and they provide incredible vistas. Even Route 140, a relatively wide and well-traveled roadway, has scenic features. It also serves as the gateway for historic East Princeton. The town's gravel roads are typically low-volume, low-speed, dead-end roads that showcase farms or open space. Overall, Princeton's road network is composed of winding, rural byways that radiate from the center of town and make an indelible contribution to the community's visual character.

Functional Classification

For planning, design and maintenance purposes, roadways are typically classified according to the functions they serve. A classification system is important because rating streets helps to manage road improvement resources, guide traffic design and engineering decisions, and direct vehicular traffic to roads best equipped to support it. The standard functional classifications used in highway planning and design include arterial, collector and local roads. These designations refer to differences in the level of service, travel speeds and travel distances that roadways are designed to accommodate. In turn, each functional class is sub-classified by the surrounding land use pattern (urban or rural) and the type of access to a given roadway.

In the hierarchy of functional classifications, arterial roads provide the greatest degree of mobility: the highest level of service, the fastest travel speeds, and the longest travel distance with few if any interruptions. By design, the main purpose of **arterial roads** is to move through traffic, or traffic with a non-local destination. **Collector roads** provide a somewhat lower level of service, lower speeds and shorter travel distances. Their primary purpose is to connect local traffic with arterial roads. **Local roads** are intended to provide local access rather than to support through traffic.

The line between collector and arterial is not always obvious, and sometimes it can be difficult to distinguish collectors from local roads. Moreover, functional classifications have to be reassessed from time to time due to changes in traffic volumes and land use patterns. According to the Commonwealth's most recent statewide roads inventory (December 2005), more than 70% of the roads in Princeton qualify as local roads, 25% are collector roads, and 5% are arterials. The arterial and collector network serving Princeton includes three state-numbered routes – Routes 31, 62 and 140 – and portions of other non-numbered roadways (Map 7-1).

- **Route 140** is a rural minor arterial, extending northwest through Princeton from the Sterling town line (Redemption Rock Trail South) to Westminster (Redemption Rock Trail North). For about 1.7 miles north of East Princeton, Route 140 overlaps with Route 31 until the two routes diverge near Paradise Pond. Route 140 provides connections to Route 2 to the north and Interstate Route 190 to the south.
- **Route 31** is a rural major collector that runs 9.28 miles through Princeton, northeast from the Holden town border in the south (Worcester Road) to the Westminster town border in the north (Fitchburg Road).
- **Route 62** is a rural major collector that runs 8.27 miles (including a half-mile overlap with Route 31) in an east-west direction across the town, traveling from the Hubbardston town border in the west (Hubbardston Road) to the Sterling town border in the east (Sterling Road).
- **Mountain Road** is a rural major collector that extends from Princeton Center north to the Westminster town line, where it becomes Mile Hill Road and eventually terminates at Route 140. It provides some of Princeton's most scenic, open views, and serves traffic moving to and from the Wachusett Mountain Ski Area.
- **Boylston Avenue, Brooks Station Road and Hobbs Road** are classified as rural minor collectors, although the width, condition and general character of Hobbs Road east of Route 140 suggest that it is really a local road. Major and minor collectors differ by the amount of traffic they carry, and this is influenced by the number of streets with which they intersect.

TABLE 7.1: SUMMARY OF ROAD CENTERLINE MILES BY FUNCTIONAL CLASS AND OWNERSHIP			
Functional Class	Miles	Jurisdiction	Miles
Rural Arterial	4.29	MassHighway	0.02
Rural Collector (Major)	20.02	State Park (DCR)	2.25
Rural Collector (Minor)	4.77	Town of Princeton	80.23
Local	72.29	Unaccepted Ways	1.08
		Unclassified Jurisdiction	17.79
Total	101.37	Total	101.37
<i>Source: Executive Office of Transportation, Office of Transportation Planning (2006).</i>			

All other roads in Princeton fall into the category of “local.” Of course, local roads often carry non-local traffic, but their location, adjacent land use patterns and traffic volumes mean that for the most part, they provide access to homes, businesses and institutions within the town. However, “local” is actually a catch-all term because it includes any road that does not meet the criteria for designation as an arterial or collector. A road classified as “local” by function is not necessarily a road that must be maintained by local government.

Jurisdiction

Characterizing the function of roads is not the same as describing ownership or jurisdiction. While collectors and arterials often bear a state route sign, they are not always owned or controlled by the state. The Commonwealth does not own any roads in Princeton, although MassHighway has jurisdiction over the bridges on Main Street and Hubbardston Road. Since the late 1970s, all three state-numbered roads in Princeton have been owned by the town and the town is responsible for maintaining them.

All told, Princeton has about 82 miles of publicly owned roads and slightly more than one mile of unaccepted ways, as shown in Table 7.1. In addition, there are approximately 18 miles of roads not classified as public or unaccepted ways, such

as access roads serving commercial or institutional properties, limited or emergency access roads on state-owned land, and roads providing exclusive access to private property, not intended for public use.¹ For municipal planning purposes, the most important roads are those for which the town has legal and financial responsibility. Today, this includes a total of 80.23 road miles, which represent all town-accepted public ways and the state-numbered routes. Improvements to Routes 31, 62, and 140 and Boylston Avenue, Brooks Station Road, East Princeton Road, Mountain Road and Fitchburg Road are eligible for federal funding under the Surface Transportation Program.

Physical Characteristics and Condition of Roads

Although Princeton has more than 80 miles of roadways to maintain, the road network is fairly limited. Table 7.2 shows that compared with many communities, Princeton and other very-low-density towns have a low ratio of road miles to land area. At the same time, Princeton has a high ratio of road miles to total population; in fact

¹ Commonwealth of Massachusetts, Executive Office of Transportation, Office of Transportation Planning, 2005 Road Inventory Year-End Report (March 2006) and corresponding GIS database, downloadable at <<http://www.eot.state.ma.us/>>. Author's note: road miles with unclassified jurisdiction and other missing data elements were recently added to the statewide roads inventory.

TABLE 7.2: RATIO OF PUBLIC ROAD MILES TO LAND AREA AND POPULATION

Town	Land Area (Sq. Mi.)	Population (2000)	Centerline Miles: Town Roads	Land Area Ratio	Population Ratio	Total	% Local
Hopkinton	26.6	13,346	100.00	3.77	0.007	124.03	80.6%
Dover	15.3	5,558	57.32	3.74	0.010	60.78	94.3%
Grafton	22.7	14,894	80.12	3.52	0.005	99.2	80.8%
Lincoln	14.4	8,056	49.23	3.43	0.006	60.86	80.9%
Stow	17.6	5,902	60.31	3.42	0.010	60.31	100.0%
W. Newbury	13.5	4,149	45.89	3.39	0.011	51.96	88.3%
Holden	35.0	15,621	109.47	3.13	0.007	120.96	90.5%
Groton	32.8	9,547	101.35	3.09	0.011	110.99	91.3%
Charlton	42.5	11,263	119.41	2.81	0.011	150.78	79.2%
Sterling	30.5	7,257	85.08	2.79	0.012	106.81	79.7%
Paxton	14.7	4,386	37.85	2.57	0.009	44.94	84.2%
Harvard	26.4	5,981	64.95	2.46	0.011	77.35	84.0%
Westminster	35.5	6,907	84.93	2.39	0.012	109.35	77.7%
PRINCETON	35.4	3,353	79.75	2.25	0.024	83.08	96.0%
Barre	44.3	5,113	99.08	2.24	0.019	116.56	85.0%
Templeton	32.0	6,799	68.45	2.14	0.010	101.58	67.4%
Winchendon	43.3	9,611	91.22	2.11	0.009	115.11	79.2%
Rutland	35.3	6,353	71.85	2.04	0.011	99.49	72.2%
Ashburnham	38.7	5,546	74.47	1.93	0.013	97.84	76.1%
Petersham	54.2	1,180	62.29	1.15	0.053	79.05	78.8%

Sources: Census 2000, Massachusetts Department of Revenue, Howard/Stein-Hudson Associates, Community Opportunities Group, Inc. Centerline miles based on MassHighway Year-End 2004 Roads Inventory.

the number of road miles per capita in Princeton is second only to that of Petersham. Both ratios are indicators of Princeton's rural development pattern, with existing homes sparsely situated along old roads and long stretches of road frontage without any homes or businesses at all. Princeton's character reflects what many residents say they want for their town: a community that has large amounts of open land, a close-knit, small-town feel, and unobtrusive development. A noteworthy disadvantage of this arrangement is that Princeton has many miles of roads to maintain and very few taxpayers to share the cost.

The absence of a suburban road hierarchy, curbing and sidewalks is conspicuous in Princeton. Indeed, its rural development pattern can be read from the long, uninterrupted roads that extend outward from the town center, following the contours of the land and making few if any connections with other roads along the way. In many parts of Princeton, thick forests enclose the roads and create a sense of timelessness. Often, the roads are quite narrow and steep, which makes them charming on one hand and challenging for pedestrians on the other hand. Furthermore, many remain in poor condition despite the road

improvements that Princeton has completed since the mid-1990s.

Basic Design, Structural and Safety Features

It is not surprising to find that Princeton's most frequently used roads are also the widest. Of the state-numbered routes, Route 140 is relatively narrow, with an average paved width of about 22 feet. The paved width of Route 31 varies along its journey through Princeton, often widening or narrowing with changes in street name and corresponding changes in the surrounding land use pattern. Its widest portion is generally Gregory Hill Road (25-30 feet), with more narrow areas on Redemption Rock Road North and portions of Worcester Road (20-22 feet). On average, Route 62 is 24 feet wide through Princeton, including the area that serves the Thomas Prince School, but it widens considerably in the town center and narrows to 18-20 feet in other locations, such as the vicinity of Calamint Hill Road North.

The non-state numbered rural collectors also have an average paved width of 24 feet. Mountain Road, much like Hubbardston Road, is widest in the town center, gradually narrowing to 24 feet as it climbs and descends northward along the east side of Wachusett Mountain. Aside from these key roadways, most of the local roads in Princeton befit the rural development pattern around them, with paved widths of 18 feet or less in many areas and widths as narrow as 14 feet, or one travel lane, along some of the gravel roads and outlying surface-treated roads.² On Ball Hill Road, the paved width drops noticeably east of the intersection with Brooks Station Road, prompting residents to post a sign that cautions motorists to share the road with the surrounding neighborhood.

According to a report prepared for the town several years ago, about 65% of the roads under



Thompson Road, one of Princeton's many unpaved roadways, closed for the winter. (Photo supplied by Master Plan Steering Committee.)

Princeton's jurisdiction are surfaced with bituminous concrete and 20% are "surface-treated" roads, or roads with a thinly paved surface that helps to shed water and protect the underlying road base.³ The remaining public ways are gravel or unpaved roads. Princeton also has several unimproved roads, i.e., minimally graded roads with a soil surface, but they are private ways or unaccepted streets.⁴

Nearly all of the road intersections in Princeton are controlled by signage, although flashing lights support the sign controls at major intersections such as Hubbardston Road (Route 62), Mountain Road, Worcester Road (Route 31), and Boylston Avenue in the town center and Route 31/Route 140 on the northern side of town. The arterial and collectors have centerline striping and typically sideline striping, but often the sidelines on local streets are not delineated. About 75% of the roads in Princeton have shoulders of one to two feet on one or both sides, and while the shoulders are fairly stable in most areas, some are unstable along

³ Central Massachusetts Regional Planning Commission (CMRPC), Town of Princeton Local Pavement Management Study: 10-Year Road Improvement Program (January 2000), 3.

⁴ 2005 Road Inventory Year-End Report (March 2006), GIS database query.

² 2005 Road Inventory Year-End Report (March 2006), GIS database query.

TABLE 7.3: PRINCETON'S GRAVEL ROADS INVENTORY

Road Name	Approximate Length (Mi.)	Road Name	Approximate Length (Mi.)
Bigelow	1.31	Old Princeton Road	0.01
Calamint Hill North	1.19	Reservoir Road	0.70
Dowds Lane	0.44	Rhodes Road	0.82
Goodnow	0.87	Rocky Pond Road	1.42
Hobbs Road	0.21	Sam Cobb Lane	0.02
Houghton	1.16	School House Road	0.88
Laurel Lane*	0.51	State Administration Road*	1.20
Matthews Lane	0.16	Thompson Road	1.14
Old Brooks Station Road	0.23	Town Farm Road	0.06
Old Colony	0.79	Whittaker Lane	0.26
Old Colony Extension	0.34	TOTAL	15.91
Old Mill Road	1.36	Local Jurisdiction	13.38

*Source: Executive Office of Transportation, MassHighway, Road Inventory 2005. *According to the state road inventory, the gravel portion of Laurel Lane is not an accepted public way. State Administration Road is under DCR jurisdiction.*

portions of the state-numbered routes as well as small, local roads such as Merriam Road, Houghton Road or Thompson Road. Only a handful of Princeton's roads have curbs, including some of the newer subdivision roads, Common Drive and portions of Mountain Road.

Unpaved Streets

Like many rural communities in Central and Western Massachusetts, Princeton has unpaved roads. According to MassHighway's road inventory, all or portions of 23 roads with a combined total of nearly 16 road miles have a gravel or stone surface, sometimes interspersed with unimproved road segments. The gravel roads represent about 16% of Princeton's local roads, and the town generally maintains them.⁵ Many of the gravel roads

are rustic and beautiful, and they provide connections that would otherwise be made on local or collector roads.

Bridges

Bridges are an important element of local roadway networks. In Massachusetts, bridges typically come under the jurisdiction of the Massachusetts Highway Department (MassHighway). This applies to the Route 62 /Hubbardston Road Bridge and the Route 140 Redemption Rock Trail Bridge in Princeton, but the remaining bridges are owned by the town.

Princeton's transportation network includes seven bridge structures that are subject to National Bridge Inspection Standards (Table 7.4). The Route 62 Bridge on Hubbardston Road over

⁵ The MassHighway Road Inventory (2005) differs somewhat from the local roads inventory in Princeton's Pavement Management Study (2000), which reports 11.5 miles of gravel roads. Some roads identified as gravel roads in the PMS are classified by MassHighway as surface-treated, while MassHighway

identifies some roads as gravel surfaced that are classified in the PMS as surface-treated or unimproved. Further, the gravel road segment lengths reported by each agency do not always agree.

TABLE 7.4: PRINCETON BRIDGES

Name/Location	Year Built	Owner	Structure Type and Length	Functional Class	Average Daily Traffic 1999–2000
Ball Hill Road	1935	Town	Steel/7.6 m	Rural local	700
Bullard Road	1960	Town	Steel/9.4 m	Rural local	400
Houghton Road	1988	Town	Concrete/7 m	Rural local	130
Old Colony Road	1937	Town	Steel/11 m	Rural local	130
Town Farm Road	1919/ rebuilt 1992	Town	Steel/11 m	Rural local	100
Hubbardston Road	1933	State	Steel/9.8 m	Rural collector	900
Redemption Rock Tr. S	1937	State	Concrete/7.6 m	Rural collector	5,600

Source: MassRoads.com. Note: Table 7.4 includes bridge structures identified in the state's bridge inventory, which reports all bridges that are subject to national bridge inspection and safety standards. It does not include the many box culverts that exist throughout the town or any bridge span less than 6.1 meters.

the Ware River and the Ball Hill Road Bridge located on Ball Hill Road are both classified by MassHighway as structurally deficient. Representatives of Princeton's Fire Department report that fire trucks cannot travel over Calamint Hill Road. The Route 62 Bridge replacement project is currently listed in the Central Massachusetts Metropolitan Planning Organization (CMMPO) Transportation Improvement Program (TIP).⁶ Funding for this project was targeted for 2006.

Road Improvements

In 1998, Princeton established a seven-member Road Advisory Committee (RAC) to oversee the maintenance and reconstruction of town-owned roadways and implementation of the town's road program. The RAC was appointed following completion of Princeton's first comprehensive Local Pavement Management Study, which was prepared in the mid-1990s by the Central Massachusetts Regional Planning Commission (CMRPC) and updated in 2000. CMRPC's report provided a detailed, network-level analysis of all roadways under Princeton's jurisdiction, road improve-

ment recommendations based on the severity of pavement conditions, roadway class and type of surface, and preliminary cost estimates.

The RAC's mission is to bring the town's roads up to good, safe driving condition so that only ongoing maintenance and occasional resurfacing will be needed. The road improvement program is designed to maintain Princeton's rural character, commit to a planned approach to spending on roads and avoid unpredictable tax increases, reduce the town's liability, and provide more access to trails and parkways. Each year, the RAC has worked with the Select Board to obtain state and federal funding commitments for the town. Table 7.5 reports funds secured for local projects over the last five years (FY 2002-FY2006).

Reconstructed Roads. Princeton has reconstructed over 36 miles of roadway in the last ten years. Completing this work cost a total of \$7,248,867 and of this amount, the town invested \$1,934,507 of its own funds. Princeton has done a remarkable job of obtaining outside funding sources and allocating its annual Chapter 90 funds from the state for a systematic, planned program of road improvements.

⁶ Metropolitan planning organizations have responsibility for planning, programming and coordination of federal highway and transit investments.

Six-Year Plan. The RAC has developed a Six-Year Roads Plan that identifies additional roads requiring reconstruction. The starting point for the Six-Year Plan was CMRPC's update of the Local Pavement Management Study (2000). The roads proposed to be reconstructed under the Six-Year Road Plan are listed below. Together, the 23 reconstruction projects in the RAC's six-year plan include more than 19 miles of roadway. Excluding the reconstruction of Brooks

TABLE 7.5: PRINCETON ROAD RECONSTRUCTION FUNDING

Fiscal Year	Town Appropriated Funds	Chapter 90 Funds	Total Funds
2002	\$142,000	\$180,208	\$322,208
2003	\$175,000	\$180,021	\$355,021
2004	\$0	\$179,809	\$179,809
2005	\$42,507	\$215,307	\$257,814
2006	\$0	\$213,487	\$213,487
Total	\$359,507	\$755,345	\$1,328,339

Source: Princeton Road Advisory Committee.

Roads Reconstructed 1998-2006

Allen Hill Road	Gregory Hill Road	Radford Road
Ball Hill Road (4 miles)	Houghton Road	Rhodes Road
Beaman Road	Hubbardston Road	Rocky Pond Road
Blood Road	Jefferson Road	Route 140
Bullard Road	Laurel Lane	Sterling Road (2.5 miles)
Connor Road	Lyons Road	Thompson Road
East Princeton Road	Merriam Road	Town Farm Bridge
Esty Road	Mountain Road	Wheeler Road
Fitchburg Road	Merriam Road Extension	Whittaker Lane
Gleason Road	Mirick Road Extension	Worcester Road (1 mile)
Goodnow Road	Old Colony Road	
Gregory Road	Prospect Street	

Priority Road Reconstructon Projects: Six-Year Plan

Mirick/Osgood - 6,000 feet	Greene Road*	Hobbs Road – west**
Hobbs – east**	Willson Road*	Mirick Road – middle*
Brooks Station Road (federal funds)*	Calamint Hill Road North**	Bullock Lane*
Worcester Road (one mile)*	Redwood Drive	Leominster Road*
Gates Road*	Sharon Drive	Pine Hill Road*
Calamint Hill Road South*	Havenwood Drive	Gregory Road*
Birchwood Drive	Pinewood Drive	
	Mirick Road (Route 31 end)*	

Roads followed by an asterisk () have also been classified by MassHighway as being in only fair condition, and roads followed by two asterisks have been classified as structurally deficient.*

Station Road, which is eligible for federal funding, the estimated cost of these projects is about \$2.9 million (current dollars). The RAC has estimated that if Princeton does not continue to appropriate funds for road projects, the roads reconstructed with other available funds will most likely result in a 30% reduction in total miles of improvements and only eight out of 24 roads will be addressed.

In 2006, town meeting voted to appropriate \$175,000 for road reconstruction in accordance with the Six-Year Plan. However, a Proposition 2 ½ override was required in order to increase the tax levy for this program, and the ballot question failed at a special town election in June 2006 and again in September 2006.

Traffic

Compared to a decade ago, Princeton residents probably see more vehicles on their roads today because of growth that has occurred locally and throughout northern Worcester County. However, traffic counts reported periodically by MassHighway indicate that traffic on Princeton's

arterial and collector roads remains quite low: less than 7,000 vehicles per day (vpd). For example, Table 7.6 shows that traffic on Route 31/140 north of East Princeton Road has changed very little since 1998, with average daily traffic volumes ranging from 6,000 vpd to 6,700 vpd. Princeton is such a small town that the state does not collect traffic data often or in the same locations. The counts occur mainly to comply with federal Highway Performance Monitoring System (HPMS) requirements. The absence of continuous traffic counts or more frequent traffic monitoring cycles makes it difficult to measure trends.

Critical Traffic Locations. Princeton's beauty tends to mask the presence of critical traffic locations, which include areas with a relatively high incidence of car accidents, areas with pedestrian-vehicular conflicts, and places that often attract a large number of vehicles, walkers or bicyclists. In small towns, the term "critical traffic locations" usually focuses on motor vehicle accidents because they are the only available data source that can be obtained and analyzed, and sometimes accident information can be mapped. The Princeton Police

TABLE 7.6: AVERAGE DAILY TRAFFIC (ADT), PRINCETON

Route/Street	Count Location	1998	2001	2002	2004
Ball Hill Road	South of Calamint Hill Road			770	
Ball Hill Road	West of Route 31				850
Brooks Station Road	South of Ball Hill Road			1,200	
Gates Road	North of Ralph Road			290	
Mountain Road	Westminster Town Line				600
Myrick Road	North of Route 31				260
Old Colony Road	South of Lamphere Road			20	
Route 31	North of Route 62	1,300			
Route 31	South of Route 62	1,800			
Routes 31 & 140	North of East Princeton Road	6,700	6,000		6,500
Routes 31 & 140	North of Route 31	5,300			
Routes 31 & 140	North of Route 31				5,700
Route 62	Sterling Town Line	2,800			
Route 62	West of Ralph Road			1,200	

Source: MassHighway, 2005.

TABLE 7.7: ROADWAYS WITH HIGHEST NUMBER OF REPORTED ACCIDENTS

Accident Location	Number of Accidents by Year				
	2002	2003	2004	2005	Total
Ball Hill Road	6	7	4	1	18
Hubbardston Road	2	9	7	1	19
Main Street	9	5	3	1	18
Mountain Road	6	4	8	4	22
Redemption Rock Trail North	15	8	10	5	38
Sterling Road	6	5	2	5	18
<i>Source: Princeton Police Department</i>					

Department supplied a list of accidents for the period from January 1, 2002 to August 2, 2005. The locally reported data are summarized in Table 7.7 for the top six roads with the most recorded accidents.

MassHighway also maintains a database of accidents reported throughout the Commonwealth, drawing upon data from the Registry of Motor Vehicles. The state's database expands on information supplied by the Princeton Police Department. According to MassHighway, a total of 190 accidents occurred in Princeton from January 1, 2002 and through December 31, 2004. The largest number reported in any single year, 80 accidents, occurred in 2000, with 22.5% involving non-fatal injuries and 78% involving no injuries.

The most frequently cited problem areas include intersections along Ball Hill Road, Main Street, Fitchburg Road and Redemption Rock Trail North, and other locations on these roadways as well as Mountain Road and Sterling Road. More than half of all accidents were single-vehicle crashes (62%), and 41% of the single-car accidents involved a collision with a tree, light pole, animals (mainly deer), guardrails or walls. In most cases, the accidents occurred during daylight hours when the weather was clear and dry, although 46% reportedly occurred when the road surfaces were affected by snow, ice or slush and a total of 61% were recorded during the winter months.

Princeton had a smaller number of accidents in 2003 (58), but a fatal car crash occurred on Fitchburg Road in August. Accidents involving injuries also made up a somewhat larger percentage of all accidents in 2003 (25.6%). Fewer intersection-related accidents occurred in 2003, but the same roadways appear on the list of streets with a relatively large number of accidents: Ball Hill Road, Main Street, Fitchburg Road, Redemption Rock Trail North, Mountain Road, Sterling Road, along with Hubbardston Road and Brooks Station Road. While single-vehicle crashes comprised slightly more than half of all accidents in 2003, MassHighway's records show that Princeton experienced a modest increase in head-on collisions, angle collisions and side-swipes by cars moving in the same or opposite direction. Just half of the accidents in 2003 took place during the winter.

The number of accidents declined again in 2004 (52), yet injuries were involved in nearly 29% of the accidents, up from 22.5% two years earlier. Intersections on Ball Hill Road, Mountain Road and Redemption Rock Trail North topped the list of problem spots; in fact, 23% of all accidents in 2004 were reported at locations along or immediately adjacent to Redemption Rock Trail North. Other accident-prone areas included Brooks Station Road, Hubbardston Road and Main Street. A significantly larger share of the accidents in 2004 were single-vehicle crashes (69.2%), and much like 2002, more than 60% of the accidents occurred during the winter even though a much

smaller percentage (31%) coincided with snow and other inclement weather conditions.

Data from the Princeton Police Department and MassHighway point to several similarities in the types of accidents experienced on Princeton's roads:

- Accidents in Princeton tend to involve only one vehicle. Cars colliding with one or more vehicles in traffic were responsible for about 24% of all accidents over the three years reported by MassHighway. The 190 accidents in MassHighway's database involved a total of 258 vehicles.
- Single-car accidents often involve tree collisions. Of the 118 single-vehicle accidents with an identified cause during 2002-2004, collisions with trees accounted for about 28%. While just over half of the tree-related accidents resulted in no injuries, the fatal accident on Fitchburg Road in August 2003 stemmed from a single-car collision with a tree on the northbound side of the road. In the past three years, most of the tree collisions in Princeton have occurred on the northbound side of Redemption Rock Trail North, the southbound side of Main Street, the southbound side of Worcester Road, and both sides of Brooks Station Road, Ball Hill Road and Sterling Road.
- The amount of ambient light does not seem to contribute heavily to the risk of accidents in Princeton, but the surface condition of the roads is a significant factor. The number of accidents increases during ski season, as does the overall proportion of accidents occurring on snow-covered or icy roads. Over the past three years, more than half of all car accidents in Princeton reportedly took place from December through March.

Public Transportation

Princeton is not directly served by public transportation because it is so small. Without a car, most people would have difficulty getting around the town easily or traveling to other communities. Paratransit services are available on a limited basis to the elderly and people with special needs. Still, Princeton is not remote from the region's major transportation facilities and alternatives to the car are available for those commuting to the Greater Boston area.

Rail Service. Princeton residents have access to MBTA commuter rail service to Boston on the Fitchburg/South Acton and Framingham/Worcester Lines. The Fitchburg/South Acton Line offers two stations not far from Princeton: North Leominster, located about 15 miles away, with 140 commuter parking spaces, and Fitchburg, also about 15 miles away, with 400 parking spaces. Trains run to Boston's North Station every 20 to 35 minutes during peak morning and evening periods. Travel time to Boston on the Fitchburg line runs between 60 minutes and 80 minutes.

Union Station in Worcester provides service to South Station, with trains running to Boston every 20 to 25 minutes during peak periods. Commuter parking is available in two city-owned parking lots on Shrewsbury Street and Grafton Street, with a combined total of 304 parking spaces. The travel time is somewhat longer on the Worcester Line, however, generally 75 to 90 minutes depending on the number of scheduled stops between Framingham and South Station.

Freight Rail. Providence and Worcester Railroad provides freight rail service to Princeton. The railroad tracks traverse the lower southwestern section of the town, with railroad crossings on the following roadways: Ball Hill Road, Brooks Station Road, Gates Road, Old Colony Route, and Route 62.

Bus Service. Princeton residents have access to two major inter-city bus services at the Worcester Bus Terminal: Peter Pan Bus Services and Greyhound Lines. Both bus companies provide daily service to New York, Hartford, Boston, and other major cities. In addition, Princeton belongs to the Worcester Regional Transit Authority (WRTA). WRTA providers offer paratransit services for elders and people with disabilities Monday through Friday from 8:00 a.m. to 5:00 p.m. Residents must call 48 hours in advance to register and request service.

Trails, Sidewalks, and Bicycle Facilities

Although Princeton has a network of trails, some designated trails or paths and others informal, it is not easy to get around without an automobile. There are very few sidewalks, and the town's overall density works against establishing a comprehensive system of sidewalks. There are sidewalks in Princeton Center, but other locations where there is a relatively high degree of pedestrian activity, such as East Princeton and around the school, do not have sidewalks or adequate pedestrian accommodation.

Trails. Trails provide both transportation and recreation opportunities. At the state level, trails are under the jurisdiction of both the Executive Office of Transportation and the Department of Conservation and Recreation, an acknowledgment that some trails and paths are more suited for recreation while others provided transportation connections. The Commonwealth initiated an update of its Statewide Bicycle Plan in 2006, the focus of which will be to develop a prioritized plan of on- and off-rail improvements that will help establish a statewide bicycling network. An update of the Statewide Pedestrian Plan is also expected to be undertaken soon.

Princeton has an informal system of trails that connects to neighboring towns, provides intra-community connections, and serves as recreational nature trails for local residents. Local trails also

provide access to open space and opportunities for Princeton to link open space areas to one another. Among the more developed are:

- **The Midstate Trail** transverses the very northern part of Princeton at its borders with Hubbardston and Westminster. This trail was first developed in the 1970s by the Worcester County Commissioners in hopes of creating a trail that stretched across the entire county. In 2005, the trail is maintained by both the Midstate Trail Committee and the Worcester Chapter of the Appalachian Mountain Club. Historic Redemption Rock in Princeton is one of the key landmarks located along the trail.
- **Wachusett Mountain State Reservation** and **Leominster State Park** both have internal trail systems that boast hiking trails, wildlife, and scenic views of the area. The Midstate Trail connects both of these sites.
- An unnamed trail starts at the end of Bigelow Road, crosses the Midstate Trail, and extends southeast to Dowd Lake and Ridge Road in Rutland before reaching the Quinapoxet Reservoir in Worcester.⁷
- Several smaller trail networks are located at Minns Wildlife Sanctuary at Little Wachusett Mountain and Thomas Prince School. Maps for these trails are available on-site during business hours.

In 2002, the Central Massachusetts Regional Planning Commission (CMRPC) completed an *Inter-Community Trail Connection Feasibility Study for the CMRPC North Subregion*. The study examines a number of potential trails. Three of the six trails selected for further investigation cross through Princeton.

⁷ CMRPC, *North Subregion Inter-Community Trail Connection Feasibility Study*, 2002.

- **Stillwater River Trail.** This proposed trail links the Mass Central Rail Trail, West Boylston, Sterling, Princeton, and Leominster State Park.
- **Wachusett Mountain/Stillwater River Trail Link.** This proposed trail links the Midstate Trail, Sterling, Princeton, and Westminster.
- **Poutwater Pond Trail Link.** This proposed trail links the Towns of Princeton and Holden.

In addition, the Providence and Worcester Railroad owns part of a five-mile right-of-way that transverses southern Princeton, running northwest from the Holden/Princeton town line to the Westminster/Princeton town line. The B & M Railroad also owns a portion of the right-of-way. Currently, the Providence and Worcester Railroad runs five to six freight trains per week from Worcester to Gardner. The right-of-way could become available in the future for a rail-with-trail facility; in fact, Providence and Worcester Railroad has participated in rail-with-trail projects in other areas in the past. This right of way holds the potential for providing access to a number of areas that are not easily accessible by car.

Sidewalks and Pedestrian Accommodations.

Sidewalks are provided on portions of roads only in the area surrounding the town center. Shoulders on some roads such as Mountain Road provide pedestrians with a place off-road on which to walk, but many roads have no accommodations for pedestrians and bicyclists. This is especially a concern in the vicinity of Thomas Prince School.

Bicycle Facilities and Accommodations. Princeton has no designated bicycle paths or bicycle lanes. However, several roads in Princeton are shown on commercial bicycle maps as suitable for cycling. The 1987 Massachusetts State Bicycle

Map (the last state bicycle map produced) identifies Brook Station Road and Mountain Road as bicycle routes and Fitchburg Road and Routes 62 and 140 as “alternate routes.”⁸ Despite the lack of bicycle facilities, cyclists use public roads for recreation and utilitarian riding. For example, cycling clubs are often seen in Princeton, and Fitchburg’s Longjo Classic bike race takes place on parts of Route 140, East Princeton Road and Mountain Road.

LOCAL & REGIONAL TRENDS

Planned Roadway and Bridge Projects

The Central Massachusetts Planning Commission (CMRPC) Transportation Improvement Program (TIP) includes several roadway and bridge improvement projects for Princeton. The TIP includes projects consistent with regional and state transportation and air quality objectives. The following projects are listed on the federal 2006-2010 Transportation Improvement Plan for Princeton:

- Brooks Station Road, Reconstruction and Related Activities, 75% Design–2005
- Ball Hill Road Bridge, Replacement over Wachusett Brook–2007
- Route 62 Bridge, Replacement over Ware River–2006

Resident Travel Patterns

Princeton residents generally do not work in Princeton. In 2000, approximately 88% of the town’s employed labor force worked outside of Princeton, which represents a 5% increase from 1990. This trend, coupled with household and population growth in surrounding communities, has led to increasing traffic volumes on local

⁸ MassHighway, 2005.

roadways. The top commuting destinations for Princeton residents include Worcester, Marlborough, and Holden, as shown in Table 7.8. About 218 Princeton residents work in town.

The average commute time for Princeton workers, 31.2 minutes, is about 6 minutes longer than the regional average. Distance traveled is a key factor that influences commute times. The average commute times increased more than 4 minutes between 1990 and 2000. Table 7.9 shows the various means of transportation Princeton residents use for commuting to work and the change in proportion of persons using each mode over the past decade.

While a majority of Princeton residents drive to work alone, the number of people driving alone decreased 1% between 1990 and 2000. In contrast, the number of Princeton residents who worked at home increased in the same period. As of Census 2000, the percentage of employed Princeton people working at home was the same as the state average, 3%. The number of residents who use public transportation remained low over the last ten years, presumably due to the lack of public transportation services available in Princeton. The number of residents who walk also remains low due to the limited number of people who live within walking distance of their place of work, the lack of sidewalks connecting neighborhoods, and the very few employment opportunities that exist in Princeton's business districts.

TABLE 7.9: MEANS OF TRANSPORTATION FOR PRINCETON COMMUTERS, 1990-2000

Means of Travel	1990	2000	Change
Drove alone	89%	88%	-1%
Carpooled	8%	6.5%	-1.5%
Used public transportation	.5%	1%	.5%
Walked	1%	1%	0%
Used other means	.5%	.5%	0%
Worked at home	1%	3%	2%

Source: Census 2000.

TABLE 7.8: PRINCETON COMMUTER DATA

Commute Destination	Number of Princeton Workers
Worcester	532
Marlborough	93
Holden	82
Leominster	73

Source: Census 2000, Journey to Work (MCD/County to MCD/County Worker Flow Files).

ISSUES, CHALLENGES & OPPORTUNITIES

The Master Plan represents a long-term time frame and focuses on broad goals and objectives. However, any analysis of transportation challenges and opportunities in Princeton must begin with a reaffirmation that adequate funding for road maintenance and reconstruction is a critical need and a basic responsibility of government. Identifying other challenges and opportunities is also important, for even if all of Princeton's roads were in excellent condition, the town would still have unmet transportation needs and transportation issues to resolve.

Princeton's 1970 master plan included several road improvement proposals that were intended to address public safety issues and support the general land use plan over time. However, transportation was not a top priority in subsequent master plan updates, in part because municipal responsibility for road maintenance changed by the late 1970s in response to changes in federal and state laws and funding policies. These changes, coupled with the unpredictability of state aid and the passage of Proposition 2 ½, converged to make it difficult for very small towns to take care of their roads. The prospect of building new

roads, extending existing streets or connecting dead-ends was beyond the means of many communities.

As Princeton continued to grow, local officials and residents turned their attention to other pressing growth management concerns and over time, the town's roads deteriorated. Today, residents report that not so long ago, the condition of Princeton roads was not only unsafe but also an eyesore. Many roads have been improved, but the task of reconstructing and maintaining Princeton's large road network will remain a daunting task for local taxpayers.

Financing Road Improvements

The Roads Advisory Committee (RAC) has enabled Princeton to use its Local Pavement Management Study to prioritize spending on roads throughout the town, thus helping to establish a structured program for funding the maintenance and reconstruction of its roads. Consequently, funding for road reconstruction became a priority in Princeton, and the RAC has helped secure over \$6 million in federal funds for road reconstruction over the last several years.

In conjunction with the Board of Selectmen, the RAC has made a concerted effort to guide the use of Princeton's Chapter 90 funds, local appropriations, and federal aid to reconstruct 36 miles of roadways that were in a poor, deficient or intolerable state. Princeton taxpayers have been asked to contribute only one-fourth of the \$7.2M expended to address problem road conditions. Voters recently declined to support a proposed Proposition 2 ½ override that local officials said was essential to a continued local investment in road improvements. However, maintaining the town's roads is not a luxury; it is among the most basic of asset management measures that a community can make to protect public safety and the general welfare of residents.

Rural Character and Public Safety

As Princeton grows, new roads and connector roads may be needed to support a changing land use pattern. The connection between land use and transportation is particularly relevant here, as directing the location of new development to places already serviced by the town's roadway system will help minimize the need for new roads. Maintaining a "rural" feel as new roads are built will require balancing safety and convenience factors with the desire for context-sensitive solutions.

Accommodations for Pedestrians and Bicyclists

There seems to be a desire in Princeton to improve conditions for pedestrians and bicyclists. Princeton's narrow roads, most of which have no shoulders or sidewalks, nevertheless attract many cyclists, walkers, and joggers. First, Princeton's development pattern means that its existing older roadways serve not only as conduits for local and through vehicular traffic, but also as neighborhood streets for the people who live along them. Second, Princeton is a regional recreation resource and portions of its road system support activities such as bicycle races and tours.

While there does not appear to be a strong desire in town to add sidewalks to most roads, interest has been expressed in selective tree cutting to provide a wider "shoulder" or edge of road for pedestrians and cyclists. The challenge is to accommodate a stated desire for better and safer roads while not destroying the scenic qualities so cherished by many residents.

Route 140

Route 140 is Princeton's only arterial. Carrying less than 7,000 vpd, Route 140 is a rural minor arterial, but one that provides an outlet for traffic on Route 190 seeking to avoid portions of Route 2. Route 140 passes through one of Princeton's villages, historic East Princeton, and the need for pedestrian improvements in East Princeton has

been identified as a Master Plan goal. However, Route 140 for its length through Princeton has been identified as needing other improvements and enhancements to make the corridor safe for drivers and pedestrians. Route 140 in Sterling and Westminster passes through scenic areas in some places in those towns, too. Developing a plan for Route 140 that will provide safe and convenient pedestrian access in East Princeton, provide shoulders or additional roadway width for cyclists, establishes guidelines for development and access management along the length of the corridor, and preserves the character of the road is a challenge.

Gravel Roads

Gravel roads in Princeton, also known as dirt and unpaved roads, contribute to the scenic character of the town while providing necessary linkages and access. Although relatively inexpensive to construct, gravel roads require a high annual investment and manpower for maintenance. Gravel roads are not eligible for state funding, and Chapter 90 money, state funds provided to each city and town in the Commonwealth through the State Transportation Bond for road repair and reconstruction, can be used for gravel roads with restrictions. Chapter 90 funds may be used on gravel roads only for full reconstruction or when projects involve substantial gravel replacement or the addition of culverts or drainage. In the past, the Commonwealth has had a program that provided small towns with funds through the State Transportation Bond for gravel roads. The Small Town Road Assistance Program (STRAP) has provided funding of up to \$500,000 to towns of less than 3,500 residents for improvement projects.

While gravel roads are scenic and contribute to Princeton's character, they nevertheless are relatively expensive to maintain. A challenge for Princeton is to balance the desire to discontinue gravel roads due to their expensive upkeep requirements with the need to keep physical connections intact and in good condition.

Street Acceptances

Some residents think Princeton should discontinue public ways for maintenance where possible to reduce liability for road maintenance and focus the town's limited resources on critical streets. There is some concern that if the town owns but does not improve its roads, a developer with land on an unimproved public way could force Princeton to invest in a costly road project in order to provide access to new homes. However, the town needs to be careful about discontinuations because little-used and unpaved roads often support non-vehicular modes of travel, notably walking, hiking, and riding. While it is challenging for very-low-density communities to maintain a comprehensive street system, Princeton needs to balance the interests of motorists and non-motorists.

Scenic Roads

There is clearly disagreement in Princeton about the desirability of and need for a scenic roads bylaw, which requires the town to adopt M.G.L. c.40, Section 15C and designate certain streets as scenic. A proposed scenic roads bylaw failed at town meeting several years ago, and the issues surrounding that bylaw have never been resolved.

Proponents believe that Princeton needs regulations and a review process to protect rural byways from inappropriate tree cutting or damage to stone walls, but opponents argue that scenic roads regulation could be a barrier to adequate road maintenance and public safety. Many towns in Massachusetts have scenic roads bylaws and administer them successfully, with little controversy over essential tree removal. As with addressing pedestrian and bicycle safety needs, the challenge is to provide safe roads without sacrificing Princeton's scenic features. Its roads are an integral part of the town's rural fabric.

TRANSPORTATION RECOMMENDATIONS

Funding for the Six-Year Roads Plan

Princeton's top transportation priority should be to complete the Roads Advisory Committee's (RAC) Six-Year Roads Plan, which is really an action plan to implement the remaining phases of a study prepared by the Central Massachusetts Regional Planning Commission (CMRPC).

The RAC's hard work has enabled Princeton residents to keep their own taxes down while \$7.3 million in roads reconstruction spending was financed primarily with non-local sources. Eventually, most of the roads eligible for federal funds were rebuilt, and this meant that Princeton would need to finance the rest of the program with tax revenue and Chapter 90 funds. In 2006, the RAC sought \$175,000 from the town to continue rebuilding roads under an extension of the original CMRPC Pavement Management Plan. Town meeting voted to appropriate the funds, but the appropriation depended on a Proposition 2 ½ override that failed in June and September 2006.

Princeton has some options, but it does not have many options to address the condition of its roads. By tradition, Princeton has left some of its tax levy authority in reserve, also known as "excess levy capacity." In FY 2006, the town's unused levy capacity of \$311,000 would have been enough to fund the local portion of the RAC's roads program. However, the Board of Selectmen determined that adhering to the town's levy reserve policy was important for purposes of overall financial management, so the roads plan was made subject to a Proposition 2 ½ override.

People disagree about the factors that led voters to reject the proposed override. What is clear, however, is that Princeton taxpayers *will* have to pay more than they have in the past for road reconstruction if they want safe, passable roadways. The RAC has exhausted the other funding

sources that could be leveraged to improve roads eligible for federal funds. Without a fundamental change in state or federal policies for road reconstruction and major maintenance, municipalities will remain responsible for taking care of most of the streets within their borders. The difficulty for very small towns is that they have so few taxpayers to share the cost; for small towns like Princeton, this problem is magnified by having many miles of roads. Realistically, Princeton has the following options:

- Modify the existing levy reserve policy in the interests of financing major capital projects. In effect, the town would reduce its excess levy capacity and appropriations for the roads plan would not be subject to an override of Proposition 2 ½.
- Finance the Six-Year Roads Plan with a general obligation bond and exclude the debt service from the levy limit under Proposition 2 ½ – a strategy that might address voter concerns about future uses of the additional revenue stream.
- Participate with other communities in a well-organized plan of action to press the state to increase and maintain its commitment to the Chapter 90 program. Still, Princeton has to recognize that road reconstruction and maintenance are primarily local government obligations. Chapter 90 is a state contribution, not a state substitute for local dollars.
- A final option, which is unpopular in most communities: finance some road improvements through betterments. While this approach is not feasible or practical along through streets that carry local and regional traffic, reconstruction of neighborhood-level streets (such as older dead-end subdivision roads) could be accomplished with betterment revenue.

In the long run, deferred spending on infrastructure always leads to greater public expense. Planning without a commitment to funding benefits no one. Instead, it leaves capital needs inadequately addressed, it contributes to the perception that plans “sit on the shelf,” it discourages local government volunteers, and it runs the risk of transferring responsibility for current problems to future taxpayers. While Princeton has found it difficult to juggle growth in school costs and debt service with its own municipal needs, it is not the only small town in this position. By choosing to remain very small and to limit future growth, Princeton has also chosen to place a large financial burden on relatively few taxpayers - or forego the most basic public improvements.

Existing Trails Inventory and Town-Wide Trails Plan

Princeton needs an inventory of its existing trails and a town-wide trails plan. The information assembled for these activities would be useful for future updates of the town's Open Space and Recreation Plan, to the Planning Board during its review of development proposals, and to local and regional organizations engaged in region-wide trails planning and development.

Princeton residents appreciate the trails that run through town. The trails are quite diverse, providing recreational opportunities for walkers or equestrians, access to open space and scenic vistas, and alternative ways of getting around the community. People are concerned that future development will preclude the use of trails that cross private land or reduce the number of available trails as land is gradually divided into house lots. These concerns are legitimate because in countless other Massachusetts communities, new development has curtailed trail access and reduced the number of outdoor recreation opportunities for local residents.

Princeton does not have a mapped inventory of existing trails, and it was difficult for residents



One of many trails through the woods in Princeton - this one off Goodnow Road.

to identify the approximate location of trails on a map for this master plan process. While the proposed Open Space Residential Design (OSRD) bylaw will require developers to identify trails on their proposed plans, collecting trails information this way means that Princeton will have only a partial a trails inventory. First, not all residential developments would be subject to the OSRD bylaw and second, since development proposals occur incrementally over time, relying on developers to provide trails information will result in a fragmented picture of the formal and informal trail relationships that currently exist.

Existing data and maps from active trail organizations such as Wachusett Greenways and the Mid-State Trail Association, from CMPRC's regional plan or from the statewide plan, *Commonwealth Connections* (2002), could help Princeton with its own trails planning. However, the town has numerous unmapped and undocumented trails, and the absence of this information means that many Princeton resources have not been accounted for in anyone's planning efforts. Before a trails plan can be produced, Princeton will need to create a usable inventory of existing trails. The trails need to be identified, their general condition and usability for various purposes should be assessed, and the public access trails should be prioritized for trail blazing, improvements and maintenance.

Toward these ends, the Open Space Committee should collaborate with local groups that have an interest in outdoor recreation, such as Boy Scout or Girl Scout troops, or to the regional schools to enlist high school students seeking a community service project. With a GPS unit and some training, any interested person can help to collect data points in the field. In turn, the data points can be converted in just about any GIS application. From time to time, the state also offers trails planning and mapping grants. Over time, these measures would help Princeton document the location, condition and ownership of existing trails on private land, and plan some simple projects such as blazing trails on public land.

Scenic Roads

Despite the consensus that seems to exist in Princeton about the importance of roadways to the beauty of the town, vocal opposition to scenic road regulations was a remarkable feature of this Master Plan process. Residents say they value Princeton's rural roadways, and nearly all of the participants in public meetings for the master plan identified the same roadways as having character-defining importance for the town. Many of the features they identified as memorable or significant about their own neighborhoods are located along these streets. Still, local officials and some of the town's staff remain opposed to scenic road controls, arguing that a scenic roads bylaw under M.G.L. c.15C would interfere with the highway department's job.

The recently completed *Princeton Reconnaissance Report* (DCR, 2006) stresses the importance of protecting the character of Princeton's rural roads. Princeton has many scenic roads, in fact most of the town's roads would qualify as "scenic" under any generally recognized definition of "rural character." Princeton's roads convey a mosaic of images that make the town a visually engaging place to live, work and visit. Princeton also has unpaved roads that contribute to its beauty.

Unfortunately, there is a considerable amount of misinformation in Princeton about the state Scenic Roads Act and its implementation. As a first step toward increasing public understanding of the Scenic Roads Act and the scope of authority it conveys to a planning board, the town should request technical assistance from the Massachusetts Historical Commission, which has a library of scenic road bylaws from communities throughout the Commonwealth and staff who may be able to assist the town in crafting a local bylaw that addresses some of the concerns. The DCR Department of Urban and Community Forestry, MassHighway, and EOE's Community Preservation Program also have useful resources on protecting scenic roads under a Scenic Roads Bylaw.

The *Princeton Reconnaissance Report* outlines the most appropriate process for establishing policies and regulations to protect scenic roads: prepare an inventory and photo documentation of the roads that residents consider scenic, and use the information to create a bylaw tailored to conditions in Princeton. The Planning Board should hire a consulting planner or landscape architect to assist with drafting the bylaw, or seek assistance from state agencies that have experience working with local communities on scenic roads issues. By assembling an inventory of the character-defining attributes of each road, the Planning Board will be able to establish performance criteria for projects that fall under the scenic roads bylaw. Written criteria will help the Highway Department plan road improvement projects and also help the Planning Board with its review.

A second strategy for protecting Princeton's roads is a Scenic Corridor Overlay District, a zoning bylaw to regulate land clearing, driveways and building placement and along roads or portions of roads placed within the district. Although a zoning bylaw would serve somewhat different purposes than a general bylaw adopted under M.G.L. c.40, Section 15C, a Scenic Corridor Overlay District would give Princeton some tools to preserve the view from the road in high-priority areas.

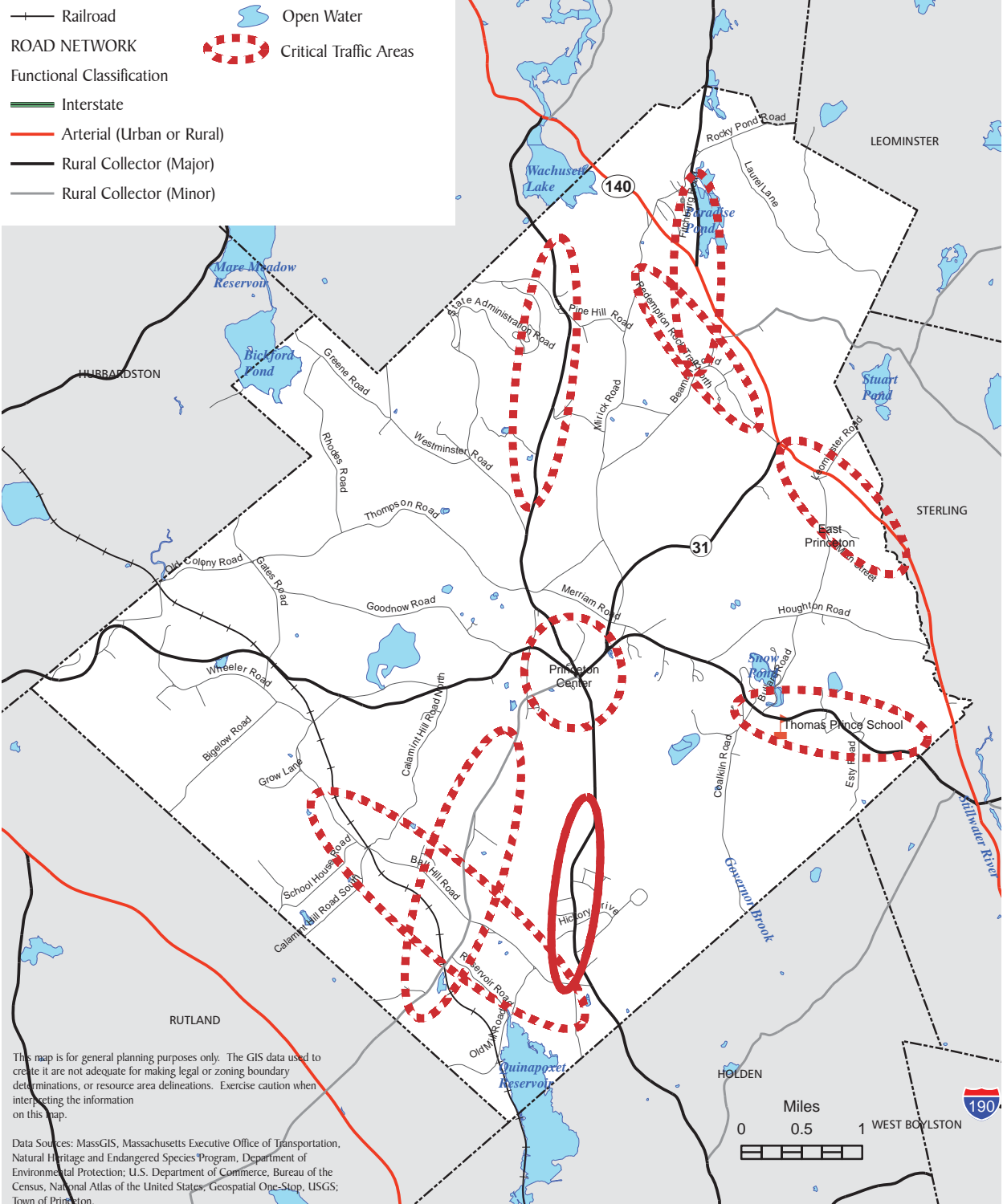
Route 140 Corridor Study

Route 140 in Princeton is fairly hazardous to drivers and pedestrians alike. It has a comparatively large number of accidents each year, particularly during the winter. In public meetings held for this Master Plan, many people mentioned Route 140 as a major public safety concern. They said that residents of East Princeton find it dangerous to walk or bicycle in their own neighborhood because of traffic speeds, lack of sidewalks or dedicated bicycle lanes, and the general challenge of accommodating pedestrians and cars along the winding, sometimes narrow segments of Route 140 on its journey through Princeton.

Planning for improvements to Route 140 will be challenging because on one hand it is well-traveled, yet on the other hand it is scenic in several areas. Portions of the corridor also have significant environmental constraints due to Keyes Brook and its associated wetlands. One problem with Route 140 is that for a road that carries a noticeable amount of through traffic each day, it is surrounded by a strikingly homogenous land use

pattern. Another problem is that some of the signage along Route 140 is masked by vegetation or simply in poor condition. In addition, the edge of the road is difficult to perceive in many areas due to a lack of sideline stripes or stripes that are worn and ineffective. To address these concerns, Princeton should work with CMRPC and officials from Westminster and Sterling to prepare a corridor study of Route 140, focusing on public safety issues and alternatives to address them.

It is important to note that allowing a modest increase in the amount of development in the East Princeton village area would help to slow the speed of traffic moving through that part of town. Changes in a land use pattern can help to control traffic speed because they create a heightened sense of risk for drivers. However, drivers need to be able to anticipate changes in land use and level of pedestrian activity before they reach the village. A series of modest traffic-calming measures ought to be explored, particularly on approach to the intersections of Route 140/East Princeton Road and Redemption Rock Trail North/Fitchburg Road.



MASTER PLAN

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