

7 TRANSPORTATION



TOPICS INCLUDE:

A Review of Pembroke's
Transportation System

Summary of Transportation
Challenges and
Recommendations

Transportation Data and
Trends

This chapter focuses on the transportation system in Pembroke and how it serves the community. A safe and efficient transportation network is an essential component for the development of a well-functioning and accessible community. Although the transportation infrastructure in Pembroke is composed primarily of public roadways and sidewalks, a complete transportation system serves cars and trucks, walking, bicycling, and public transportation. Land use and transportation are inextricably linked. Informed and thoughtful transportation planning is an essential part of guiding development in order to preserve valued community character while achieving and enhancing a broad range of goals.

Pembroke is...

a community that encourages the maintenance and improvement of a multi-modal transportation system for all residents that operates safely, effectively, and cost-efficiently, preserves the rural historic character of the Town, and complements a wide range of community objectives.

WHAT THE COMMUNITY SAID...

Public responses from Pembroke’s outreach process (community survey and visioning session) consistently pointed to the desire of town residents to maintain Pembroke’s rural character and sense of community. The highest rated feature in the community survey was the town’s “Small Town/Rural Atmosphere” with 76% of respondents rating this feature as important and 19% rating this feature as somewhat important. At the same time, residents recognized the need to maintain and promote an efficient and safe transportation system that serves the needs of all residents.

In the survey, the highest ranked feature in “Importance to Provide, Expand, Improve, or Invest” was in “Road Maintenance Services” with 96% of respondents finding this feature to be either important (69%) or somewhat important (27%). Road Maintenance Services include the maintenance of surface conditions, storm drainage, snow removal, and the ability of the roads to serve the traffic volumes and the travel speeds observed.

Another highly rated feature was the Beautification of Public Spaces with 50% of the respondents deeming this to be important and 37% finding it somewhat important. The Route 3 Corridor (Pembroke Street) and Broadway/Main Street are transportation arteries where beautification efforts could improve the image of Pembroke to residents, commuters, and visitors alike.

A unifying theme that emerged following conversations with residents and town officials was the concept that transportation issues must be viewed within the lens of broader community objectives. Each of the transportation challenges and opportunities identified here can be closely tied to a range of issues discussed in any chapter of this plan.

CHALLENGES AND OPPORTUNITIES

Numerous issues and areas of concern have been identified from the data and analysis collected for this Master Plan. Of equal importance are the issues and concerns raised by residents during the public outreach process through the survey and visioning session.

ROUTE 3 – PEMBROKE STREET CORRIDOR

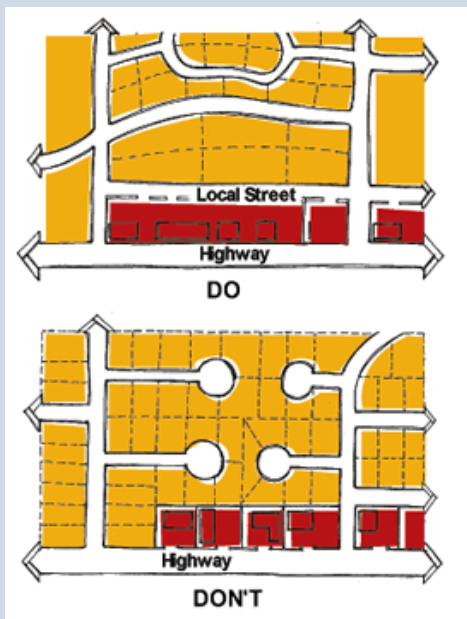
The Route 3 – Pembroke Street Corridor was universally seen as both a concern and an opportunity by participants at the visioning session. This corridor is of utmost importance to the town not only as a

transportation corridor, but as part of the fabric of the community. It hosts schools, town government, the library, businesses, and residences. This corridor plays a large role in defining the character of Pembroke.

Of particular concern was safety and crashes, congestion at major intersections, access from side streets and driveways, and the “unfriendly” nature of the corridor to both bicycle and pedestrian travel. Opportunities may include streetscape enhancements, beautification, and placemaking additions. Discussion during the visioning session indicated a need for further consideration and evaluation of options and alternatives.

There is also significant residential growth underway along the corridor with additional future growth anticipated. Concerns raised at the public hearings for recent large residential projects included safety, the difficulty of accessing Route 3 during morning and evening peak hours, and concerns about the safety of bicyclists and pedestrians, especially children, given the proximity of these developments to schools on the opposite side of Route 3. Traffic studies from these projects have indicated capacity problems at the signalized intersections of Academy Road and Route 3 and at Broadway and Route 3, and at the un-signalized intersection of Whittemore Road and Route 3 by 2030.

NEIGHBORHOOD CONNECTIVITY



Source: Minnesota DOT

Interconnected road networks are preferable to fragmented ones because they offer redundant route options. Redundancy provides alternatives when there are road closures for construction or emergencies, can help reduce unnecessary trips onto major roadways and intersections, and can also foster better neighborhood connectivity especially for pedestrians and bicycles. Excessive cut-through traffic is certainly a concern that should be discouraged and addressed as appropriate, however local connections between developments can better serve the community as a whole. Such connections should be encouraged, and the town’s regulations should have provisions for such connections.

The large number of crashes along the corridor, but the relatively low numbers at major intersections, point out problems with access to the highway from abutting land uses and minor streets. Crash data from 2012-2016 is included later in this chapter. Access management is a process that acts to limit the number of curb cuts or driveways along an arterial roadway like Route 3 that can drastically improve safety by reducing the number of conflict points and directing traffic to intersections designed to safely

allow vehicles to enter and exit the street. Access management must be part of any set of solutions for managing traffic and improving safety on this corridor.

In light of the importance of this corridor to Pembroke and its potential impact on a range of issues, it is recommended the town undertake a corridor study along Route 3 between Route 106 and Main Street. Traffic and safety concerns, bicycle and pedestrian safety and access, residential development, access management, and beautification or placemaking are all concerns and opportunities to be addressed. This corridor study should take a “Complete Streets” perspective, reviewing issues beyond simply motor vehicle traffic, including how the corridor fits within the community and how to serve all users of the roadway. With involvement from the Regional Planning Commission, NHDOT, and public input, the study can help Pembroke envision and plan the future of the corridor.

ROUTE 3 PEMBROKE STREET CORRIDOR STUDY

The Route 3 - Pembroke Street corridor is of utmost importance to the town, and its potential future is relevant to every chapter in this master plan. A “Complete Streets” corridor study could take a holistic view of the corridor to sharpen the community’s vision for Route 3-Pembroke Street, focus on current and future challenges, and evaluate engineering and policy/regulatory solutions.

- **Sharpen the Vision:** What is the desired community character? What architecture and land uses are appropriate? Are there placemaking or beautification opportunities?
- **Technical Analysis:** What is the current traffic situation (traffic volumes, AM and PM peak traffic, turn movements, bicycle and pedestrian counts, crash history and analysis)?
- **Growth and Traffic Projections:** Will there be more traffic in the future and how might the corridor handle it?
- **Design and Engineering Alternatives:** What combination of design elements can best help meet transportation needs and broader community goals?
- **Implementation:** How can a project get funded and what other policy or regulatory changes should be made?

A future corridor study would take an in-depth look at the roadway and build on findings in this master plan. Instead of focusing solely on the needs of moving automobiles, the plan must consider all users of the public way and broader community goals.

MERRIMACK RIVER RAIL TRAIL

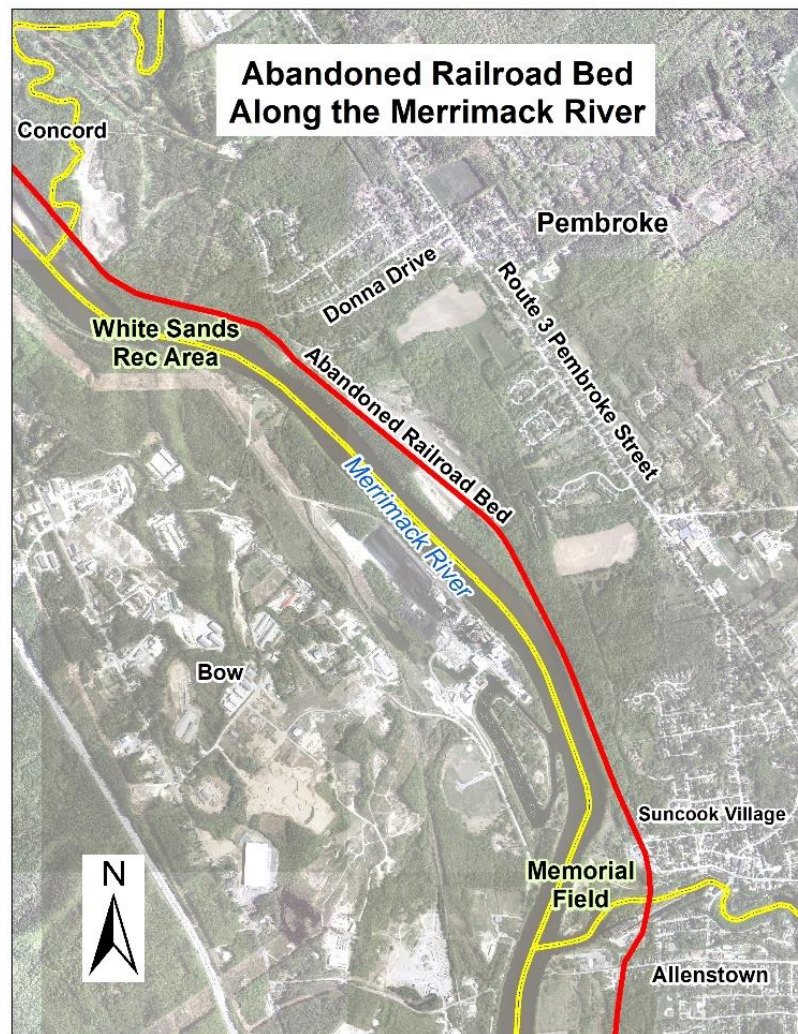
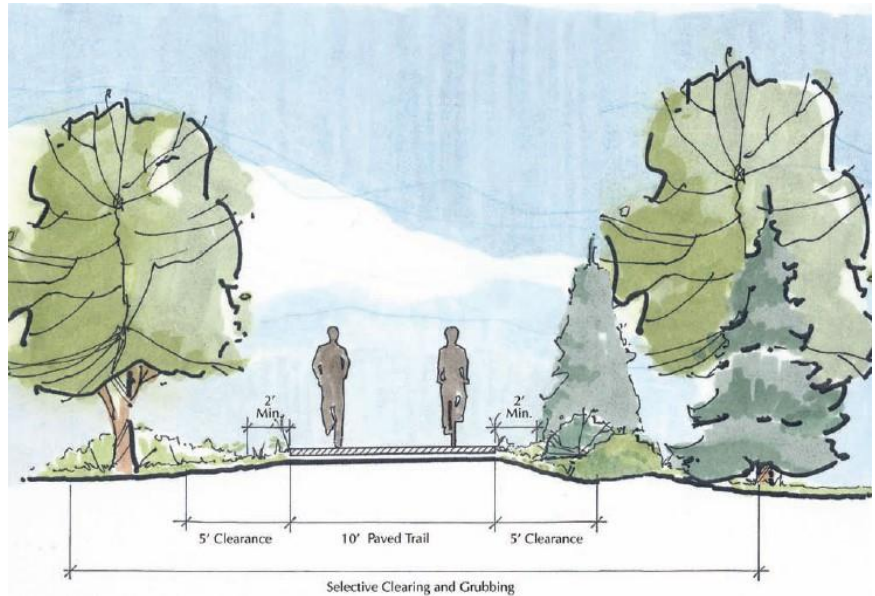
Pembroke has an opportunity for a rail trail along the abandoned railroad bed that once connected Suncook Village to Concord and Manchester. A rail trail was a topic of strong interest during the visioning session and community outreach. The potential route parallels the Merrimack River and Pembroke Street from the Suncook River, Suncook Village and Memorial Field north to the White Sands Recreation area and the Soucook River at the Concord line. In between are scenic fields and woodlands

with an access point at Bow Lane. The trail can continue into Concord to the north and Allenstown to the south, where trail users could be directed to visit local businesses in Suncook Village.

Rail Trails have become increasingly popular over the last decade or so as they provide an accessible surface for non-motorized transportation and recreation. They are increasingly seen as an economic development opportunity, making towns more desirable places to live and work as well as drawing in visitors. Trails in New Hampshire include the popular Windham and Derry Rail Trails, the 58-mile Northern Rail Trail, and the 1.5-mile Head's Pond Rail Trail in nearby Hooksett.

The Pembroke Rail Trail could be an important community facility and could also become a component of a larger network of connected multi-use trails spanning much of the state. Pembroke's rail trail is along the proposed Granite State Rail Trail, a 115-mile long trail from Salem to Lebanon, plus additional connecting trails. The Granite State Rail Trail is largely completed north of Concord, as is much of the route between Manchester and Salem.

Portions of the former railroad bed that would comprise the



Pembroke Rail Trail are publicly owned while significant portions are privately owned. It is important for the community to respect private property rights and concerns of property owners, and it is unlikely this project can be successful without their support. A community effort to communicate with landowners, address their concerns, earn trust, and find mutually beneficial arrangements is critical to this effort. It is recommended that permanent easements be obtained before any significant investments are made. Eversource must also be engaged in the project as the utility owns property and utility easements

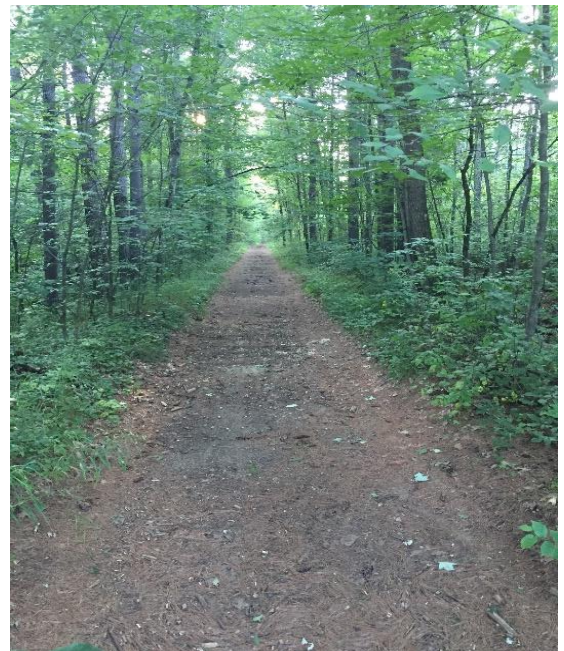
along or across much of the rail trail corridor along the Merrimack River. There appears to be broad public support for the primary use of the trail to be walking, bicycling, and other non-motorized use. This was evident through Master Plan committee meetings as well as during outreach and community conversations regarding the rail trail prior to the Master Plan. There appears to be relatively little support for wintertime snowmobile use on the corridor; however, additional community discussions and potential strategic partnerships should be considered before making a determination. Outreach has indicated little to no support for ATV or OHRV use on the corridor due to various neighborhood and environmental concerns and their impact on trail surfaces. While a paved trail may be the best return on investment and attract a wider range and volume of trail users, the community may also opt for a more natural feel and the lower initial costs of an unpaved trail with a graded, smooth surface. Paved trails can be found at the Windham and Derry Rail Trails, whereas the Hooksett Head's Pond Rail Trail is an example of a smooth hard-packed surface.

Most successful rail trail projects are built using public-private partnerships, where a non-profit organization helps raise matching money and facilitates community efforts. Such an approach appears suitable for Pembroke. In some cases, the non-profit trail organization holds the trail easements.

Funding for the trail would likely come primarily from federal grants such as the Recreational Trails Program (RTP) administered by the NH Bureau of Trails or Transportation Alternatives Program (TAP) administered by NHDOT. Both require a 20% local match contribution. Matching money is often some combination of private fundraising by a local trail non-profit group, private grants, and municipal funds. In-kind contributions can sometimes contribute towards a grant match.



DERRY RAIL TRAIL, DERRY NH



PORTION OF ABANDONED RAILROAD BED IN PEMBROKE

Successful rail trail projects have been able to leverage private contributions from the community, such as donated materials and labor, and in some cases, the outright construction of the trail. Efforts should be made to foster relationships with the business community, developers, and others in Pembroke.

3RD AND 4TH RANGE ROADS

Pembroke has a single main throughway, Route 3 Pembroke Street, passing north and south through the southwestern section of the community between Concord and Allenstown. Between NH 106 Sheep Davis Road and Academy Road, a distance of just over 2.6 miles, there is no alternative north-south route in the community. The potential for extensions to either the Class VI town-unmaintained 3rd Range Road or 4th Range Road to mitigate this issue has been a point of contention in the community for many years. It is possible, if not likely, that these sections of 3rd Range Road and 4th Range Road could at some point be upgraded to Class V town-maintained as part of a private subdivision development.

4th Range Road has the greatest potential for providing alternative access in case of emergencies along the Route 3 Corridor and importantly provides connections to Pembroke Academy and both elementary schools. The completion of an approximately 0.75-mile section of 4th Range Road from Pembroke Hill Road southerly to Church Road would allow residents on the east side of Route 3 to travel through the community without having to utilize Route 3 from Borough Road to Buck Street.

In the community survey, just over 35% of the respondents were in favor of the town upgrading both the 3rd and 4th Range Road to a town road to help alleviate traffic on Pembroke Street (Route 3), while just over 30% indicated that these range roads should not be upgraded. There is no clear consensus in the community on the desirability of improving these roadways; however, there is a consensus that improvements should not be undertaken with town funding.

Of concern to many of the residents along 4th Range Road and other connecting roads would be the anticipated increase in traffic, which would result in a disruption to the quiet, rural lifestyle and a concurrent concern with safety of pedestrians, bicyclists and equestrians which routinely use this narrow rural roadway. The community is also concerned that construction of this road would generate additional rural residential development which would create additional traffic, adversely impact the natural ecosystem and rural environment and create fiscal (tax) impacts from the need to provide additional services.

Improvements to the 3rd Range Road would not provide the same community benefits as improving the 4th Range Road. Extending 3rd Range Road northerly from Church Road to its current terminus southerly of Belanger Street would provide a second access to the Pembroke Hill Elementary School. Currently, all points of access to this school lead to Pembroke Hill Road. The relatively short length of 3rd Range Road would limit the potential for cut-through traffic but would allow for alternative routing of emergency vehicles and travel options for residents of this area.

With the abundance of undeveloped land on 4th Range Road and the rising demand for housing in New Hampshire, it is likely that 4th Range Road could see upgrades as a result of private development. If 4th Range Road were to be completed through to Church Road, it would provide an alternate north-south route to Pembroke Street. Site plan and subdivision regulations, as well as town road standards would shape any outcomes of private development and investment in this area. In anticipation of future development, the town should consider a plan for the extension of 4th Range Road and ensure that

proper tools are in place for the Planning Board to manage appropriate development. Similarly, the Zoning Ordinance is a planning tool that can help guide future uses on range roads.

The plan should describe who would be responsible for constructing the road, how it might occur in phases, and the standards for the new road segments. It would also need to address how rural character could be preserved including the protection and/or relocation of stone walls and the protection or replanting of trees along the roadway. Further considerations would include any other improvements that should be made to existing portions of 4th Range Road, Pembroke Hill Road, Church Road or Dudley Hill Road, as well as any traffic calming measures which might be utilized to control speeds and discourage cut-through traffic. A similar approach should be considered regarding 3rd Range Road from Pembroke Hill Road to Church Road.

CLASS VI ROADS

Class VI roads are roads that are not maintained by the town, may be subject to gates and bars, and normally consist of a gravel or dirt surface. Pembroke's Class VI roads, most of which are range roads, are valued recreational and historic assets. Among concerns regarding Class VI roads are excessive or improper use by recreational vehicles that impact the condition of the roadways and their ability to support other activities such as recreation, logging, or accessing property. There are also concerns and opportunities for upgrading Class VI roads to Class V town-maintained roadways. Upgrades or residential development along many Class VI roadways may be considered the permanent loss of a recreational resource, open space and town character. Upgrades may be desirable however on parts of 3rd Range and 4th Range roads for their potential to enhance roadway connectivity and provide an alternative transportation route to Route 3, particularly in the event of an emergency.

The purpose of RSA 674:41, I(c), development on a Class VI roadway, is to prevent scattered and premature development. It seems that town residents are in agreement with this statute, as a strong view was represented during the community survey and visioning sessions that future development should be limited in remote areas of Town and on Class VI roads.

Pursuant to section 143-103 Lot of Record of the Town of Pembroke Code, any non-conforming lot may be built upon if a number of conditions are met, one being that the lot must have frontage on a Class V, or better road. However, Under RSA 674:41 the board of selectmen has the discretion to authorize the issuance of building permits for lots on Class VI roads after review and comment by the planning board. The planning board has developed a uniform decision making process when it is presented with such a request from the board of selectmen. It is intended that the planning board will consider any factor it deems relevant to the review of a building permit application request.

In the community survey, just under 76% of respondents found it important or somewhat important to preserve the town's existing Class VI rural roadways, and just over 45% did not support the upgrading of Class VI roads to allow buildable lots while approximately 36% were in favor of creating more buildable lots along these roadways if they were upgraded.

One option for Class VI roads is to consider their designation as Class A Trails, also discussed in the Natural Resources chapter. These roads have little or no development associated with them, are scenic, have no inherent liability concerns, public access is already allowed, and also serve to connect large

areas of open space, conservation, and/or agricultural lands. The town can regulate whether or not these Class A Trails are open to Off Highway Recreational Vehicles (OHRVs).

5th Range Road, 6th Range Road and Cross Country Road are examples of Class VI roads which might benefit from Class A Trail Designation. A “Class A Trail Committee” could be established to help determine and report on whether any Class VI roads in town could benefit from the designation. The committee would be best served to have representation from the planning board, conservation commission, board of selectmen, and other interested members of the community.

Class VI road classifications are not a growth management tool, and do not preclude the need for sound land use management practices. The town’s tools for shaping the future of Class VI roads and adjacent lands exist primarily through the planning board with site plan review/subdivision regulations, zoning, and town road standards. Land conservation efforts through easements or fee simple ownership along Class VI roadways would be a sound way to maintain open space and the natural state of Class VI roads where desired.

ALL TERRAIN VEHICLES AND OFF-HIGHWAY RECREATIONAL VEHICLES

Many communities in New Hampshire have been wrestling with decisions regarding use and regulation of All Terrain Vehicles (ATVs) and Off Highway Recreational Vehicles (OHRVs). The challenge has been in finding an appropriate balance between allowing unmitigated ATV/OHRV access to trails, class VI roads, and in some cases maintained roadways, against the concerns of other trail users, residents and property owners, and impacts to the natural environment. Communities will be best served to educate themselves on the rules and regulations for ATV/OHRV use, enforcement options, and experiences in other communities. They must consider both positive and negative impacts.

ATV/OHRV users for their part have had more successes in communities where their interests are served by organized ATV/OHRV groups and committees who can assist with self-policing, signage, education, trail maintenance, and community relations. These groups can coordinate with others to collectively solve problems and concerns as they arise.

In Pembroke there have been concerns raised over illicit or improper ATV/OHRV activity and concerns over the various impacts of a perceived overuse, including erosion, noise, dust, and impacts to wildlife. Severe erosion of the historic Range Roads and class VI roads are of particular concern. Meanwhile, ATV/OHRV users are working to organize and earn the privilege of riding on Pembroke’s class VI roadways and private lands with permission.

Any practices and policies enacted by the town should seek out an appropriate amount and type of recreational use, consider access for landowners, respect environmental concerns, and address quality of life issues. A trails committee with a broad representation of interests may be an appropriate avenue for addressing these issues and presenting options to community leaders.

PUBLIC TRANSIT OPTIONS

As noted in the community survey and visioning session, a high number of residents stressed the need for more public transportation options in Pembroke. Of these, the vast majority requested service to and from Concord and Manchester. Increase in demand for public transit has been established as a defined need for aging populations throughout the United States.

Pembroke does not currently have regular transit service. The community is served by the Belknap-Merrimack County Community Action Program's Senior Bus, the Mid-State Regional Coordinating Council (Mid-State RCC) Volunteer Driver Program which is limited to serving the disabled and elderly, and other social service agencies that provide rides to their clients in Pembroke. These services are essential to meeting basic transportation needs of certain Pembroke residents. Private taxis and ride sourcing companies such as Uber are available on a fee basis. The Mid-State RCC maintains a Regional Resource Directory which is available on the CNHRPC website and at town libraries and other locations throughout the region.

The existing Concord Area Transit (CAT) nearest fixed route is several miles from any transit dependent population in Pembroke. This service does not have the number of routes, service hours and head times needed to effectively serve non-transit dependent populations. The Manchester Transit Authority (MTA) provides service six times per day (Monday thru Saturday) from Concord to Manchester via I-93, bypassing Pembroke. Regional and interstate bus service is provided from the Concord Transit Center by Concord Coach Lines and Dartmouth Coach.

To address the stated need for public transportation, the town should work with CAT, MTA, and the CNHRPC to study the potential for future extensions of CAT service and any potential connections to the MTA system.

TRAFFIC DEMAND MANAGEMENT/CARPOOLING

CommuteSmart New Hampshire (CSNH) is a partnership between the state's nine regional planning commissions and specific transit agencies (partners), working in collaboration with other transit providers, state agencies, municipalities, businesses, and public health organizations. Pembroke residents and employers can utilize the CSNH Rideshare Portal to find carpool matches. Participants who are registered within the Rideshare Portal are also able to participate in the program's Emergency Ride Home so that they never have to worry about getting stuck somewhere without a ride. CSNH is dedicated to encouraging and assisting people to choose sustainable transportation options in place of driving single occupancy vehicles. Effective Transportation Demand Management programs such as CSNH can help reduce demands on transportation infrastructure and parking, reduce congestion, reduce emissions, and increase access to transportation for certain individuals. Park and Ride lots can help facilitate carpooling and future transit service. Such a facility may be appropriate for the area of Route 28 and Route 3 to serve residents of Pembroke and Allenstown.

SUNCOOK VILLAGE PARKING

The availability of parking in Suncook Village has been identified as a key issue. An analysis of parking utilization was undertaken by the Central New Hampshire Regional Planning Commission in Summer/Fall 2018, including the use of both on-street and municipal lot spaces. A total of 127 spaces were identified

within the Suncook Village area, with 59 on-street spaces and the remainder in off-street lots. The analysis noted that overall use ranged from 35% to 55% at any given time during the day. These results indicate that parking capacity appears to be sufficient, but an evaluation of parking policies and practices may lead to improvements and improved satisfaction for Suncook Village visitors, employees, and residents. Maintenance and layout of parking, hours of enforcement, signage, and various parking management strategies can be evaluated. Even though a majority of survey respondents stated that they have not experienced parking difficulties in Suncook Village, a master parking plan for the Village could address current issues and support its further redevelopment.

FUNDING FOR ROAD MAINTENANCE AND IMPROVEMENTS

During the visioning session, concern was raised about the level of maintenance on town-maintained roads. This issue is not unique to Pembroke. Revenue for town roads comes from the State Highway Aid (state gas tax), automobile registration fees, and local property taxes. The local communities are responsible for the majority of all road miles in the state but are restricted by NH law from specifically taxing for this purpose. The recent history of State Highway Aid to Pembroke and town highway budgetary expenditures are included later in the chapter.

Pembroke has also worked with CNHRPC to implement a Road Surface Management System (RSMS) to help prioritize road improvements and develop a transparent system for short, medium and long term improvements. RSMS is a methodology intended to provide an overview and estimate of a road system's condition and the approximate costs for future improvements. RSMS provides a systematic approach for local officials to answer basic questions about their road system, to gauge current network conditions and to guide future improvement and investment in line with the Capital Improvements Program.

Larger projects would be programmed for and eventually funded through the NHDOT 10 Year Plan. This plan is updated every two years, and consists of projects submitted by the Central New Hampshire Regional Planning Commission's Transportation Improvement Plan (TIP). The path to adding a transportation project into the 10 Year Plan involves Pembroke's membership and participation on the CNHRPC's Transportation Advisory Committee (TAC), which produces the TIP. Due to limitations in funding, successful projects require building a strong case and continued support over many years.

NORTH PEMBROKE ROAD BRIDGE

The North Pembroke Road Bridge over the Soucook River is identified as being "Functionally Obsolete" in the New Hampshire State Municipal Bridge Inventory. This bridge was not designed to handle the amount of heavy truck traffic which now utilizes this bridge to access NH 106 in Concord. The North



SUNCOOK VILLAGE SIDEWALK AND PARKING

Pembroke Bridge is the joint responsibility of Pembroke and the City of Concord. Improvements to this bridge were under design in 2018 by the City of Concord with funding provided by the State of New Hampshire Bridge Aid Program, the City of Concord, and the Town of Pembroke. Construction activity is expected to commence in 2020.

BEAUTIFICATION OF ROADWAY CORRIDORS AND PUBLIC SPACES

Nearly 86% of the survey respondents found it desirable to invest in “Public Green Spaces & Parks” with 50% of the respondents deeming to be important and 37% finding it somewhat important. The opportunity exists to establish landscape nodes along Route 3 at the intersections of Route 3 at NH 106, Whittemore Road, Bow Lane/Pembroke Hill Road, Academy Road, Broadway, and along the hillside just north of the Suncook River. Constructing landscape nodes at these locations containing signage that promotes the community could improve the image of the town to both visitors and residents alike and help create a sense of place that distinguishes it from corridors in other communities. The protection and maintenance of existing street trees in the corridor, along with the planning board’s requirements for landscaping for new developments, will maintain and enhance the appearance in this corridor. For residents of the region, their perception of Pembroke is often based on their experience of travelling this corridor. Beautification of the Main Street, Broadway, and Glass Street corridors in Suncook Village could also enhance the experience in the Village. These beautification efforts can be complementary to or incorporated into traffic calming measures enacted along the corridors. These issues could be discussed in a corridor study for Route 3 - Pembroke Street as described earlier in this chapter.

SCENIC ROADS

A major component of a town’s rural character can be its unpaved and scenic roads. These roads help to retain a sense of history and rural quality that Pembroke’s residents have indicated a strong desire to maintain. RSA 231:157 allows towns by town meeting vote to designate any road other than a Class I or II highway as a Scenic Road. A municipality may rescind its designation of a scenic road using the same procedure. Additional regulations could include giving protection to smaller trees or by inserting criteria for the planning board to use in deciding whether to grant permission. RSA 231:157 is an important piece of legislation for the preservation of culturally important and scenic roads in Pembroke. Its residents cherish the historic and aesthetic qualities of the town. Pembroke should therefore consider identifying and cataloguing roads with scenic vistas and aesthetic qualities to protect and preserve the intrinsic qualities of the town.

TRAFFIC CALMING

Traffic calming involves roadway design or other physical solutions to reduce traffic speeds with a goal of making streets safer and more accessible to motorists, bicyclists, and pedestrians. Traffic calming can be introduced in tandem with beautification efforts, and be part of a strategy to maintain rural and Suncook Village character. Physical controls such as curves, bumps, or barriers, and passive controls such as signage and streetscape elements can all send cues to drivers to slow down. They can also be a tool to help mitigate effects of traffic from new development, or to reduce cut-through traffic on residential streets. As described elsewhere in the chapter, traffic calming elements can be components of a “Complete Street” design, where streets are designed and operated for all uses of the roadway beyond supporting automobile traffic. Traffic calming measures can be part of an overall strategy for maintaining Pembroke’s character by keeping it from appearing overly highway oriented.

Lowering speeds is a well-established method of improving safety and comfort on a roadway. However, if a roadway is conducive to higher than posted speed limits, voluntary compliance with the posted speed is unlikely. Police enforcement of speed limits can only be intermittent and is most effective if it can be targeted towards times and locations where excessive speeding has been observed. An example of some effective and applicable traffic calming techniques include:

Speed Humps, Speed Tables, and Raised Crosswalks: These techniques involve raising the height of the pavement in a more subtle fashion than with a speed bump, allowing vehicles to pass over them at the intended speed of the road, but preventing excessive speeds and alerting drivers to the existence of non-motorized users. A raised crosswalk makes the crosswalk and pedestrians more readily visible to drivers.

Chicanes, Medians, Refuge Islands, and Bump Outs: These devices effectively narrow road width and slow down traffic by placing a physical impediment either in the middle of the road (median) or on the side of the road (chicanes and bump outs). These traffic-calming devices lend themselves to landscaping and improve the visual experience for all users of the road, as well as reducing speeds. Both techniques can provide additional safety for crossing pedestrians. Medians may serve as a refuge by allowing pedestrians to cross one lane of travel at a time, while bump outs provided at crosswalks reduce the overall distance from one side of the road to another and slow down traffic at those crossings.



REFUGE ISLAND ON ROUTE 3 IN PENACOOK

Narrow Lane Widths: A number of Pembroke's residential streets have been constructed to such a width that encourages speeding far above posted 25 or 30 mph speed limits. In addition, it can be costly to physically narrow the roadway or install various physical traffic calming measures. A low-cost way of reducing speeds is to narrow the roadway lane through the use of edge lines and centerlines to create 9 to 10-foot-wide lanes. Narrow lanes force drivers to operate their vehicles laterally closer to each other than they would normally be accustomed to. Slower speeds are a natural result. Narrow lane widths have the added benefit of creating a shoulder for walking and bicycling.

Roundabouts: Increasingly more common in New Hampshire, roundabouts require traffic to slow down to speeds under 25mph in order to negotiate a center island that can be landscaped. Such speeds allow pedestrians to safely cross around the perimeter of the roundabout and cyclists to safely become a part of the circulating traffic. Data suggests roundabouts vastly improve safety over traditional intersections by reducing the frequency and severity of crashes.

The potential for implementing traffic calming measures along the Route 3 - Pembroke Street roadway should be considered with the Route 3 corridor study discussed earlier in the chapter. These measures should also be taken in concert with beautification and bicycle and pedestrian improvement efforts. As with any new infrastructure, consideration must be given towards maintenance and snow removal. Traffic calming measures could be included in site plan review/subdivision regulations and the town's road construction standards.

BICYCLE AND PEDESTRIAN INFRASTRUCTURE

Residents of Pembroke value the rural and historic character of the town. In certain locations, the volume of traffic and associated speeds can be detrimental to this sense of place that was evident in the community survey. Pedestrian facilities, such as paved sidewalks, crosswalks, and gravel walking paths, are essential features for roadways with high volumes of traffic or high speeds. The primary purpose of sidewalks is to improve safety and access for pedestrians by separating them from the travel lanes of roadways. Sidewalks can also serve as a source of recreation for residents, a non-motorized mode of travel, and can beautify an area or stimulate economic activity in rural and village settings.

Bicyclists have different needs from those of motorists, including wider shoulders, better traffic control at intersections, and stricter access management.

There is a continuous sidewalk on the east side of Pembroke St from Beacon Hill Road south to the Allenstown line, with almost no sidewalk on the west side of the street. The lack of sidewalk on the west side of the street is particularly problematic when combined with long distances between crosswalks. In fact, along the nearly four miles of sidewalk on the east side of Pembroke Street, there are only two marked crosswalks; one at Pembroke Hill Road/Bow Street and the other at Broadway. This sharply limits safe pedestrian access to businesses, homes, and neighborhoods on the west side of the street.

While there is good sidewalk connectivity in Suncook Village, there are other issues and opportunities related to pedestrian access and safety including street crossings, Americans with Disabilities Act (ADA) accessibility, sidewalk condition, and separation between the sidewalk and roadway. Sidewalks are desired to the Three Rivers Elementary School from Academy Road and from Pembroke Street. Public outreach results from the survey and visioning session also desired improved pedestrian access to Memorial Field.



BICYCLE EDUCATION AT PEMBROKE SCHOOLS



ROUTE 3 PEMBROKE STREET SIDEWALK AND SHOULDER

The Complete Streets approach to roadway design and operation can help improve conditions for bicycling and walking, as can the implementation of traffic calming measures. The rail trail discussed in this plan could also introduce a new facility for walking and bicycling, enhance access to Memorial Field, and offer a parallel route to Pembroke Street. A sidewalk plan could help the community determine the most pressing needs for sidewalks and bicycle and pedestrian infrastructure.

ROUTE 106 TO I-93/I-89 CONNECTION

The Town of Pembroke and the City of Concord officially requested the extension of NH 106 easterly over the Soucook River through the Garvins Falls Area of Concord, across the Merrimack River, to US 3A/I-93/I-89 interchange as part of the environmental impact process for the I-93 Bow-Concord Project. The New Hampshire Department of Transportation in 2015 did not include this connection in their preferred alternative. Both communities are still on record for supporting this project due to the limited capacity of Route 3 - Manchester Street in Concord and the I-93 Exit 13 Interchange. This connection would give residents and businesses in Pembroke a more direct connection to points north and south on I-93 and west on I-89. The recently completed fourth leg of the Routes 3/106 intersection (Kline's Way) completes a portion of this extension. Due to the grades on both sides, and the narrow width of the Soucook River, a crossing at this location could be accomplished with limited or no wetland impacts except for a bridge support in the Merrimack River. Of the 950+ acres in the Garvins Falls area in Concord, 400 acres are deemed suitable for development. Recommended for protection are the bluffs, wetlands, and riverine areas along both the Soucook and Merrimack Rivers.

CHAPTER OBJECTIVES & RECOMMENDATIONS

OBJECTIVE 1

Maintain the existing transportation infrastructure in an efficient and cost-effective manner, and make improvements and upgrades as safety and economics warrant.

- Utilize Road Surface Management Software (RSMS) to help ensure road surfaces are properly maintained using objective data.
- Study options for upgrading the Class VI sections of 3rd or 4th Range Roads in order to improve connectivity and provide an alternative route to Pembroke Street.
- Participate in the Central New Hampshire Regional Planning Commission Transportation Improvement Plan process in order to advance transportation infrastructure projects into the NH Department of Transportation Ten Year Plan.
- The planning board and selectmen should annually review the NHDOT bridge inspection reports for state and town-owned bridges to plan for future maintenance.

<p>OBJECTIVE 2</p> <p>Enhance the transportation system to improve its performance, better serve all users (cars, pedestrians, bicycles, transit), and to complement other town goals such as economic development strategies, community character, and quality of life.</p>	<ul style="list-style-type: none"> → Conduct a Route 3 Pembroke Street Corridor Study as soon as reasonably feasible to develop a community vision for Pembroke Street using a “Complete Streets” approach as described on p. 7.4. Tie in findings with economic development initiatives. → Utilize traffic calming techniques such as striping narrower travel lanes, speed humps, raised crosswalks, or other treatments in order to promote traffic safety, reduce speeds, and enhance walking, bicycling, and neighborhood livability in targeted areas. → Coordinate with a community volunteer effort and initiate other public-private partnerships to implement a Pembroke Rail Trail along the abandoned railroad bed next to the Merrimack River. → Maintain and improve pedestrian and bicycle infrastructure, including sidewalks, crosswalks and crossings, bicycle shoulders and/or bicycle lanes, and other enhancements for non-motorized transportation. Coordinate improvements with economic development initiatives. → Continue to explore and promote where feasible an extension of the Concord Area Transit System (CAT) to Pembroke and support other regional transit initiatives such as a connection to Manchester Transit Authority (MTA) which would provide service to Pembroke residents. → Support and promote Volunteer Driver Programs in the region to provide rides to essential services for seniors and others who do not drive. Consider providing matching funds for the Mid-State Regional Coordinating Council Volunteer Driver Program.
<p>OBJECTIVE 3</p> <p>Update policies and practices regarding use and operation of transportation infrastructure to better meet a range of community goals.</p>	<ul style="list-style-type: none"> → Ensure transportation improvement projects are consistent with various community goals, including economic development and preserving community character. → Continue to evaluate capacity, needs, and usage of existing parking availability in Suncook Village and develop a plan for managing parking based on findings and best practices. → Evaluate the use and condition of Class VI roads and consider policies that maintain adequate access for landowners, allow for recreation opportunities, respect environmental concerns, and address quality of life issues that may arise from unmitigated ATV/OHRV use. → Apply access management techniques along major corridors, including Route 3 Pembroke Street and Route 106 to improve connectivity, promote safety, improve aesthetics, and maintain community character. → Evaluate the transportation impact of new development that requires site plan or subdivision review, evaluate and address safety and neighborhood concerns, and provide neighborhood connections to improve connectivity when possible.

DATA: EXISTING TRANSPORTATION NETWORK

A key component in planning for future transportation improvements in a community is to carry out a complete inventory of the existing transportation infrastructure serving the town. As previously mentioned, Pembroke's transportation network is primarily comprised of Routes 3, 28 and 106; however, there are a number of different types of roads in the town which are equally important to the overall transportation network.

NH HIGHWAY CLASSIFICATION

The State Aid classification system, which is identified by NH RSA 229:5 and 229:231, establishes responsibility for construction, reconstruction, and maintenance as well as eligibility for use of State Aid funds. This classification system also provides a basic hierarchy of roadways. This classification system is familiarly known as "legislative class". Of the seven possible state classifications, Pembroke's roads fall into five of these: Class I, Class II, Class V, Class VI and private roads.

Pembroke's road system is typical of most New Hampshire towns, in that the most mileage is accounted for by Class V roads. Table 7.1 displays the mileage of legislative class roads in Pembroke. These same locations are displayed on the **Roads by Legislative Class Map**.

State and Federal highways comprise 13.1 miles or 16.1% of all roadways in Pembroke. The town is responsible for 49.3 miles of Class V roads or 60.7% of the total roadway miles. An additional 5.9 miles or 7.3% of all roads in town are classified as private roads. Private roads in Pembroke primarily provide access within private developments.

Class VI Roads consist of all other existing public ways, including highways discontinued as open highways and made subject to gates and bars, and highways not maintained and repaired in suitable condition for travel thereon by the town for five (5) or more successive years. There are 12.9 miles (16%) of Class VI roads in Pembroke amounting to 15.9% of all roadways.

Except for parts of Broadway and Main Street in Suncook Village, the State of New Hampshire has assumed maintenance responsibility for the most heavily traveled roads in town. Consequently, close cooperation with the NH Department of Transportation, GACIT and the local legislation delegation is essential to insuring that the residents of the town can be adequately served by the highway network they are dependent on.

Table 7.1: NH Highway Class of Pembroke Roads

Class I & II: Trunk Line Highways & State Aid Highways	13.1 miles	16.1%
I-393, Rtes 3, 28, 106 and Academy/Buck Street (part) and NH 9 within Pembroke.		
Class III: Recreational Roads	0.0 miles	0.0%
Not applicable to Pembroke.		
Class III-a: New Boating Access Highways	0.0 miles	0.0%
Not applicable to Pembroke.		
Class IV: Town and City Streets	0.0 miles	0.0%
Not applicable to Pembroke.		
Class V: Rural Highways	49.3 miles	60.7%
Examples in Pembroke: North Pembroke Road, Borough Road and Dearborn Road.		
Class VI: Unmaintained Highways	12.8 miles	15.9%
Examples in Pembroke: Fifth Range Road, Sixth Range Road and Kimball Road.		
Private Roads	5.9 miles	7.3%
Generally provide access within private developments.		

Source: NHDOT

FUNCTIONAL CLASSIFICATION SYSTEM

The functional classification system identifies roads by the type of service provided and by the role of each highway within the state system based on standards developed by the US Department of Transportation. While the state aid classification system outlined above is the primary basis for determining jurisdiction, the following system is important for determining eligibility for federal funds.

In highway functional classification systems, local roads have the primary purpose of providing access to abutting land uses, while collector roads are intended to carry traffic from to and from local roads to Interstates and arterial highways. Limited to no access is desired from abutting land uses for both Interstates and arterial highways in order to preserve the capacity of these roads to carry high volumes of local and regional traffic. While the local roads make up the vast majority of lane miles in the United States, interstates, arterials and collector roadways carry the vast majority of all vehicle trips.

Table 7.2 presents the mileage of each functional class of road in Pembroke and describes their locations. The **Roads by Federal Functional Classification Map** shows their location. Interstate mileage at 1.7 miles is the smallest functional road class in Pembroke with 2.1% of total road miles, while arterial and collector roads account for another 17 miles (20.9%). As is typical of most communities, local roads are the most prevalent class amounting to 44.5 miles or 54.8% of all road miles within Pembroke. Non-public roads include both private roads and Class VI Roads which are not maintained for public access, totaling 18.0 miles or 22.2% of Pembroke’s roadway mileage.

Of the publicly maintained roads, local roads account for 79% of the total road miles in town. Pembroke is responsible for the maintenance of all local roads and several collector roads including North Pembroke Road, Broadway/Main Street (part), and Glass Street/Buck Street (part).

Future development in Pembroke should take place at locations where the primary road function is appropriate for the type of development proposed. As part of its subdivision and site plan review regulations, the planning board should consider the functional classification of any road on which development is proposed to ensure that the type and size of any new development is appropriate for the location proposed.

Table 7.2: Federal Functional Class of Roads

Interstate	1.7 miles	2.1%
A short section of I-393 travels through the northern tip of Pembroke.		
Principal Arterial/Controlled Access	4.5 miles	5.5%
Route 3 is the principal arterial roadway serving Pembroke and is also part of the National Highway System (NHS).		
Minor Arterials	2.1 miles	2.6%
Part of Route 106 (Sheep Davis Road) and Route 28 (Pinewood Road) in Pembroke are minor arterials.		
Collectors	10.4 miles	12.8%
The southern section of Route 106 (Sheep Davis Road), North Pembroke Road, Academy Road/Buck Street (part), Broadway/Main Street (part), and Glass Street/Buck Street (part) are collector roads.		
Local Roads	44.5 miles	54.8%
Local roads primarily provide access to adjacent land uses.		
Non-Public Roads	18.0 miles	22.2%
Not part of the town’s network but may be open to travel. Includes private roads and Class VI Roads.		

Source: NHDOT

BRIDGE NETWORK

Bridges are a key component of the highway system and can be the most expensive to construct and maintain for any highway system. Seven (7) bridges in Pembroke are listed on the NHDOT Municipal Bridge Inventory. Table 7.3 lists information about each of the bridges from the New Hampshire State and Municipal Bridge Inventory from 2017 and the **Bridges by Owner Map** shows the location of each of the bridges.

Functionally and/or structurally inadequate bridges can create transportation bottlenecks, which are often expensive and time consuming to remedy. Bridges listed as being either Structurally Deficient or Functionally Obsolete are not necessarily unsafe for use. Roads that are Functionally Obsolete may not meet current standards for such features as roadway width, clearance or other design features. A structurally deficient bridge may be perfectly adequate for light passenger vehicle use, but will likely have weight limits imposed which can result in diverted trips and significant delays for trucking operations, emergency vehicles, logging trucks, or construction vehicles which are prohibited from using a bridge due to these weight restrictions.

All of the bridges are either in good or fair condition, except the North Pembroke Road Bridge over the Soucook River and the Buck Street Bridge over Hartford Brook.

The replacement of the North Pembroke Road Bridge over the Soucook River is the joint responsibility of the Town of Pembroke and the City of Concord. Improvements to this bridge were under design in 2018 by the City of Concord with funding provided by the State of New Hampshire Bridge Aid Program, the City of Concord, and the Town of Pembroke. Construction activity is expected to commence in 2020.

The Buck Street Bridge over Hartford Brook, while not in listed in good condition, is lightly used, very small and the roadway has recently been repaved. This bridge may not need major improvements in the near future but its condition should be monitored on an annual basis.

Table 7.3: Pembroke's Bridge Inventory

State ID Number	Bridge	Location	FSR	Deficiency	Owner	ADT/ Year 20	Inspection Year
045/084	I-393 Westbound Ramp	Over NH 9	93.4	FO	NHDOT	8,200/14	Apr 2017
050/081	I-393, US 4, US202 West	Over Horse Corner Road	98.0	ND	NHDOT	7,500/13	Apr 2017
051/081	I-393, US 4, US202 East	Over Horse Corner Road	89.5	ND	NHDOT	7,500/13	Apr 2017
163/127	Old NH 28, Buck Street	Pettingill Brook	76.5	N/A	NHDOT	2,000/14	Apr 2017
182/106	Buck Street	Hartford Brook	73.9	N/A	Town	1,100/14	Oct 2017
203/088	Main Street	Suncook River	93.7	ND	NHDOT	4,300/14	Apr 2017
183/156	North Pembroke Road	Soucook River	47.5	FO	Concord/ Pembroke	4,300/13	Jul 2017

FO= Functionally Obsolete; SD=Structurally Deficient; ND=Not Deficient; N/A= Not Applicable;

ADT=Average Daily Traffic

Source: NHDOT

TRAFFIC CONDITIONS

Central New Hampshire Regional Planning Commission maintains an ongoing traffic count program for monitoring the region's transportation network. CNHRPC collects traffic count data for the NHDOT in accordance with federal guidelines under the Federal Highway Performance Monitoring System (HPMS).

Average Annual Daily Traffic (AADT) is a basic measure of traffic demand for a roadway and represents the volume of traffic travelling in both directions.

AADT volumes are shown for thirteen (13) locations in Pembroke on the **Traffic Counts Map**. At these locations AADT is shown for multiple years so that trends can be ascertained for the main highways in Pembroke. The AADT volumes are prepared by NH DOT using traffic counts taken by the CNHRPC. Traffic count data is available on the CNHRPC website for each of the communities within the region. Traffic counts taken within Pembroke, and throughout NH, were generally lower between 2009 and 2015 than counts taken immediately prior to the commencement of the great recession in 2008. Since then counts have risen throughout the region and in Pembroke to near or slightly above pre-recession volumes.

Traffic volumes on the major roads in Pembroke are expected to grow at rates well below historical trends but may reach 1.0% per year in certain corridors. NHDOT in 2018 has been accepting background traffic growth rates of 0.5% to 1.0% per year for traffic studies submitted to District 5 for permitting purposes, recognizing that this may not be appropriate for all locations.

ROADWAY CONDITIONS

Pavement condition data from 2016 was obtained from the NHDOT's Pavement Management Section for state-maintained (Class I and II) roads and is displayed on the **Pavement Condition Map**. The pavement condition is rated based on its Ride Comfort Index (RCI), which is calculated directly from the average pavement roughness measured in the left and right wheel paths of roadways. Since 2016, some state maintained highways in Pembroke have been resurfaced. The data indicates many state maintained roadways in Pembroke may require some maintenance, including Broadway, Academy Road and Buck Street.

ROAD SURFACE MANAGEMENT SYSTEMS (RSMS)

The Road Surface Management System (RSMS) is a methodology intended to provide an overview and estimate of a road system's condition and the approximate costs for future improvements. RSMS provides a systematic approach for local officials to answer basic questions about their road system, to gauge current network conditions and to guide future improvement and investment in line with municipal Capital Improvement Programs. The RSMS program utilizes information on the condition, traffic, and importance of roads in a town to create a long term maintenance program.

The RSMS system to be used in Pembroke is based on the Road Condition Decline Curve, which illustrates that roads in good condition cost less to maintain than those in poor condition. Routine maintenance on roadways in generally good condition is often the most important strategy to consider. According to the American Association of State Highway and Transportation Officials (AASHTO), every \$1 spent to keep a road in good condition avoids \$6-14 needed later to rebuild the same road once it has deteriorated significantly. Investing too little on road repair increases these future liabilities.

On local, town-maintained roads, surface conditions vary by location. Naturally, there are issues to be addressed in the town's road network, particularly due to the increasing costs of maintenance. However, the town's public works department, board of selectmen and planning board are to be commended for taking an extremely proactive approach to local road maintenance.

In the community survey, 96 of all respondents indicated that Road Maintenance Services were either important or somewhat important. This was the highest rated service in the survey.

Pembroke has begun to implement Road Surface Management Systems (RSMS) to help prioritize road improvements and develop a transparent system for short, medium and long term improvements. An inventory of Pembroke town roads has been completed and analysis of road surface conditions has been prepared. A Road Surface Management plan is scheduled for review and consideration in 2019. Recommendations from this plan should be incorporated into the town's CIP and the annual public work's highway division budget.

PEMBROKE'S HIGHWAY BUDGET

Town-owned roads, sidewalks and drainage structures require regular maintenance. These projects are funded by the public works department's highway division operating budget, by annual State Highway Block Grant Aid allocation, and by warrant article for large rehabilitations.

The highway division of the public works department was provided with \$1.15m in 2018 to maintain the public roadway facilities. This amount was 12% of the town's entire budget. State Highway Block Annual grant aid in 2016 was approximately \$167,000 which constitutes 14.5% of the highway division's budget.

Table 7.4: Block Grant Aid

Year	Block Grant Aid
2018	\$ 166,638.48
2017	\$ 162,974.32
2016	\$ 158,956.59
2015	\$ 143,173.27
2014	\$ 142,321.65
2013	\$ 141,835.66
2012	\$ 166,211.58

Source: NHDOT

MOTOR VEHICLE CRASHES

Motor vehicle crash data from 2012-2016 was obtained from NHDOT, who receives the data from the Department of Safety for reported crashes with over \$1,000 in damage. The data represents roughly 80% of all crashes with over \$1,000 in damage that took place during this time period; the remaining 20% of crashes are not locatable based on the information contained in the crash reports. Crash data is included in the Appendix. Locatable crashes are shown on the **Crashes by Severity Map** and in summary tabular form for the most frequent locations in Tables 7.5.

Between 2012-2016, the highest proportion of crashes occurred along the most heavily traveled route in Pembroke, Route 3 - Pembroke Street. As such, it is important to work with NHDOT to improve safety along this route. The frequency of crashes at the Academy Road intersection is of particular concern because of the school and regular pedestrian activity. Any crashes reported in Pembroke are a cause for concern and should be monitored at regular intervals to determine locations where safety improvements are needed.

Table 7.5 lists the vehicle crash “hot spot” location and crash data for the most crash-prone locations between 2012-2016. Unsurprisingly, Route 3 sustained the highest number of crashes (164) between 2012-2016. Route 106 (45) and North Pembroke Road (41) had the second and third highest number of crashes, respectively. Route 28 (19) and Academy Road (20) round out where the highest number of crashes occur. The Pembroke intersections with the highest number of crashes are Route 3 at Academy Road (11) and Route 3 at Route 106 (8).

The highest crash intersections shown on the **Crashes by Severity Map** have very low crash rates based on the relatively high volumes found on Routes 3, 106, and 28. Low crash rates at these intersections in contrast to the significant number of crashes elsewhere along the corridor are evidence that minor driveways and curb cuts may be largely responsible for many of the crashes along these routes. It is extremely important that any corridor study and any future improvement projects to address this issue and consider consolidating or eliminating driveways to reduce the points of conflict and the potential for collisions or apply other measures to improve safety for turning vehicles. Such measures are essential for the safety of the motorists, pedestrians, and bicyclists using the corridor.

Table 7.5: Vehicle Crash “Hot Spots” 2012-2016

State Maintained Highways	Number of Crashes
US 3	164
NH 106	45
NH 28	19
Town-Maintained Roads	Number of Crashes
North Pembroke Road	41
Academy Road	20
Glass Street	13
Cross Country	11
Broadway	10
Intersection Locations	Number of Crashes
US 3 & Academy Road	11
US 3 & NH 106	8
Buck St & NH 28	6
US 3 & Broadway	6
US 3 & Donna Drive	3

Source: NHDOT/NH Department of Safety

Contributing factors to the high number of crashes along North Pembroke Road include the narrowness of the road, including the lack of shoulders in many locations; roadway geometry including short sharp curves, steep grades, road crowns, limited sight distances; obstacles along the edge of the road including, steep ditches, stone walls, large rocks, and trees; rural conditions including no street lighting, limited road side development, high beam headlights, and animals (both wild and domestic); road surface condition including bumps, dips, potholes, cracked pavement, and poor drainage in some locations. In addition, drivers may expect to be able to drive at rural speeds of more than 45 mph when road conditions are not conducive to these speeds.

COMMUTING PATTERNS

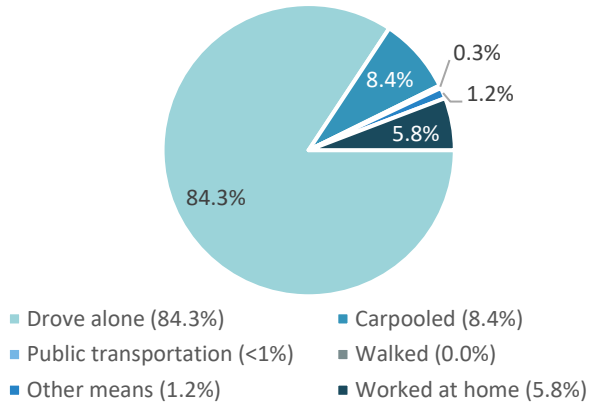
As demonstrated by American Community Survey 2013-2017 data, the majority of the working population residing in Pembroke works outside of the community but within New Hampshire, drives to work alone, and commutes an average of approximately 33 minutes to work.

The most popular transportation option for Pembroke residents is the private automobile (84.3%). Carpooling, where one or more passengers accompany the vehicle driver to a shared destination point represents approximately 8.4% of commuters. In addition, of those commuting to work, over 47% has a commute time that exceeds 30 minutes while 23% commutes exceed 45 minutes.

A potential Park & Ride lot off or near Route 28 could serve Pembroke residents as well as residents in Allenstown and other nearby communities, potentially increasing rates of carpooling and reducing the impacts of traffic growth along the Route 3 corridor.

According to data provided by the US Census Bureau Center for Economic Studies, of those Pembroke residents employed, a high percentage are employed in Concord, Manchester, Hooksett, and Pembroke. Smaller percentages are employed in Nashua, Londonderry, Bow, Bedford, Allenstown, and Merrimack. Other smaller percentages of employed residents commute to other communities not mentioned here. This distribution of employment of Pembroke residents emphasizes the importance of maintaining reliable service without interruptions or excessive delays on the region’s highways, including Routes 3, 106 and 28 in Pembroke.

Figure 7.1: Transportation Commuting to Work of Pembroke Residents



Source: American Community Survey 2013-2017