

Chapter 2- Transportation **DRAFT**

Introduction

Transportation has direct links to land use and plays a critical role in establishing the Town's character. Informed and thoughtful planning of the transportation network will help guide future development to enhance and preserve valued features of the community, while supporting longer term community goals. A safe, accessible, and well-planned transportation network can help ensure the mobility of people and goods, enhance economic prosperity, and preserve the quality of life for the residents of South Berwick.

Traditionally, most commercial, and residential development has occurred within South Berwick's village center, and on the eastern side of town along State Route 236. The Route 236 corridor serves diverse needs, acting as a significant east-west corridor for the region, as well as providing access to South Berwick's downtown commercial district. Route 236 provides access to goods and services that residents and commerce require, as well as connecting communities in western York County to regional employment centers to the north and south.

The Route 236 corridor becomes Main Street heading west through downtown, serving both local and regional needs. Over the last decade, commercial and residential growth has increased significantly in and around the downtown area. Congestion and parking challenges have increased greatly due to the resurgence of this area. Public transit in South Berwick is infrequent and limited to only one stop in town, hence increasing the importance of having adequate parking and traffic facilities.

Over the past 15 years public opinion surveys of South Berwick residents have consistently shown traffic and transportation are at, or near, the top of the list of community concerns. Specifically, major issues include heavy traffic through the downtown and on Route 236; heavy truck traffic, especially through the downtown; traffic safety; speed limits; detouring of traffic onto local roads to circumvent downtown congestion; pedestrian and bicyclist safety; and downtown parking facilities.

This transportation chapter provides the information necessary to develop a plan of action for South Berwick's future transportation system. Sources include local knowledge and surveys, data provided by the Maine Department of Transportation (MDOT), the Southern Maine Regional Planning Commission (SMRPC) and the U.S. Census Bureau.

Community Survey Results

- PLACEHOLDER

Roadway Network and Classifications

South Berwick's transportation network consists of approximately 97 miles of roadway, including State Routes 4, 91, 101, and 236. Routes 4 and 236 converge in downtown South Berwick, carrying a significant amount of traffic through the center of town. The majority of South Berwick's roads are local roads, providing access to state highways and service roads for adjacent property owners that accommodate little or no through traffic.

This section provides detailed information on the Town's roadway network. It includes a description of the classification systems that determine maintenance and construction responsibilities, as well as funding eligibility.

State Classification

In the early 1980s, the Maine Legislature authorized and directed MaineDOT to classify all public roads throughout the State. The basis of this classification system was that primarily regional or statewide needs should be the State's responsibility and roads serving primarily local needs should be of local responsibility.

The State's classification system includes the following:

- State Highways form a system of connected routes throughout the state that primarily serve intra- and interstate traffic. The State is responsible for all construction/reconstruction and maintenance on the 7.9 miles of arterial highways in South Berwick. Route 236 and Route 4 are State Highways.
- State Aid Highways connect local roads to the State Highway System and generally serve intracounty rather than intrastate traffic movement. State aid roads are usually maintained by MaineDOT in the summer and by the municipalities in the winter pursuant to [State Law 23 MRSA 1003](#). The State Aid Highway category generally corresponds with the federal 'collector' classification. State Aid Highways include Routes 91 and 101, and Main Street from Berwick Road to the New Hampshire line.
- Town ways are all other highways not included in the State Highway or State Aid Highway classifications that are maintained by municipalities or counties. These roads are classified as federal 'local' roads. There are approximately 85 miles of local roads in South Berwick.

Federal Functional Classification

In addition to the State classification system, there is the Federal Functional Classification system. The federal system complements the State's system and is based on the type of service that is intended to be provided by the roadway. The federal classifications relate to traffic capacity and volume attributed to the roads and are divided into rural and urban systems. While state classification designates maintenance jurisdiction, federal functional classification creates a hierarchy of roads and determines which roads are eligible for Federal highway funds.

There are four functional classes represented in South Berwick as described below:

- Minor arterials link and support the principal arterial system. Minor arterials are roads that place a greater emphasis on land access than the principal arterial and therefore offer a lower level of mobility. They serve as links between larger and smaller towns or as connections between collectors and the primary arterials. In Berwick, Route 236 and Route 4 are both Minor Arterials and therefore are eligible for federal aid.
- Major Collectors differ from arterial roadways due to size and general service area. Collectors serve traffic in a specific area, whereas arterials generally serve traffic moving through an area. Thus, average trip lengths on collectors are shorter than trips on arterials. Furthermore, collectors gather traffic from local roads and streets and distribute them to the arterial. Major collectors are generally not eligible for federal aid and include Route 91 and Route 101 in South Berwick

- Minor Collectors provide access to smaller communities within a geographic area or economic region. They may link locally important trip generators, such as shopping centers, to surrounding rural areas. In South Berwick, Main Street is classified as a minor collector and is eligible for federal aid.
- Local roads serve primarily to provide access to residential areas. They are designed for low-speed travel and to carry low volumes of traffic relatively short distances. Local roads are generally not eligible for federal aid funding for improvements or maintenance.

A road's functional classification is one factor in planning for possible growth into rural areas and for the future development of the town overall. Local streets are best suited for village/residential or very low-density rural development. While some commercial and other non-residential development might be an appropriate land use along collectors, it is important that such development be designed so that it minimally disrupts traffic flow.

Design choices for highway projects also typically depend upon the roadway's functional classification. For example, arterials—which service primarily through traffic and often carry heavy vehicles – will typically have thicker pavement, wider lanes and shoulders, increased sight distance, minimal horizontal and vertical curves, and limited access points or curb cuts. Local roads tend to be narrower, windier, and more accessible from abutting property.

Bridges

Bridges are a key component of the highway system. Bridges are the most expensive sections of roads, and a lack of adequate bridges can create transportation bottlenecks, which are often difficult to remedy. MaineDOT inspects all bridges and minor spans on public ways, regardless of ownership, every two years. Inspection reports are available online and include detailed information on all aspects of the structure which can be used to plan for preservation, rehabilitation, and reconstruction.

Bridge condition can be measured based on the National Bridge Inventory Federal Sufficiency Rating (FSR). Each FSR has a numeric indicator of the overall value of the sufficiency of the bridge. A rating will be from 0-100 (0 indicates the worse and 100 indicates the best). FSR is computed with a federally supplied formula using an array of condition and inventory data. The formula is used to identify bridges eligible for federal funding. The FSR includes both structural deficiencies as well as functional obsolescence. This rating gives an overall value of the sufficiency of the bridge. Since functional obsolescence (i.e. too narrow, or low weight capacity) may account for a large portion of the rating, one should not assume that a low sufficiency rating means the bridge could fail.

Currently the only bridge programmed for major work is the red listed Bridge carrying Route 4 over the Salmon Falls River. NHDOT and MaineDOT will be sharing the cost of engineering and construction which is expected to be completed in 2026.

The following table shows the 16 bridges and culverts inspected by MaineDOT in the town of South Berwick, 6 of which are owned and maintained by the municipality.

Location	FSR	Owner	AADT	Year Built	Span Type
Route 236 over Great Works River	80.8	MaineDOT	13679	2010	Bridge
Route 4 over Salmon Falls River	77	MaineDOT	8763	1971	Bridge
Route 101 over Salmon Falls River	42.6	MaineDOT	5764	1969	Bridge
Route 101 over Shorey's Brook	58	MaineDOT	5038	2014	Culvert
Main St Over Salmon Falls River	46	MaineDOT	1678	1959	Bridge
Emerys Bridge Rd over Great Works River	55.9	MaineDOT	1147	1891	Bridge
Emerys Bridge Rd over Hoopers Brook	52.9	Municipality	1080	1980	Culvert
Agamenticus Rd over Loves Brook	96.9	Municipality	870	2003	Culvert
Brattle St over Great Works River	84.7	MaineDOT	722	1961	Bridge
Old Field Rd over Shorey Brook	42.3	Municipality	540	2015	Culvert
Old Field Rd over Quamphegan Brook	69.9	Municipality	463	1989	Culvert
Hooper Sands Rd over Great Works River	92.9	MaineDOT	461	1983	Bridge
Bell Marsh Rd over Hooper Brook	76.8	Municipality	453	2003	Bridge
Great Hill Rd over Great Works River	80.4	MaineDOT	333	2011	Bridge
Rodier Rd over Gray Brook	96.9	Municipality	277	1999	Culvert
Old North Berwick Rd over Great Works River	91.2	MaineDOT	94	2002	Bridge
<i>Source: Maine DOT, https://www.maine.gov/mdot/bridges/docs/bridgereports/SouthBerwick.pdf</i>					

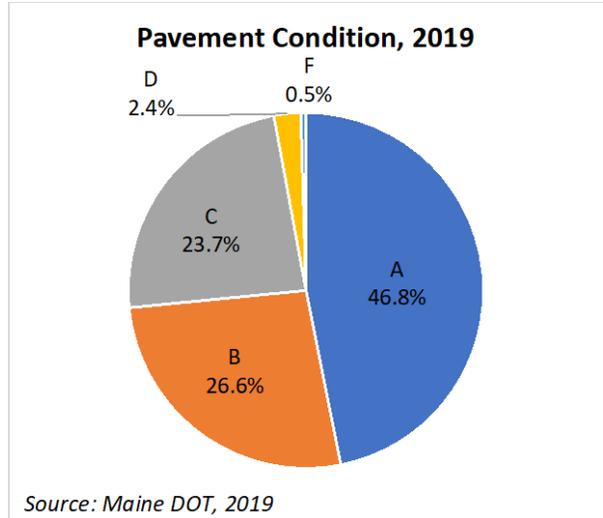
Traffic Volumes

MaineDOT monitors 71 permanent traffic recorder sites across the state. The closest permanent station to South Berwick is located on Route 4 in Berwick, just north of the South Berwick town line, with an average weekday traffic volume of 8,763. Maine DOT also monitors over 50 short duration counts in South Berwick typically collected on a three-year rotating schedule. The data from the short duration counts is adjusted using the states permanent counter data to develop Average Annual Daily Traffic (AADT) volumes. Looking at 27 rotating count locations across town, between 2010 and 2019, average annual traffic growth was just 0.5% per year. Although some roads may have recorded unsubstantial traffic changes, other roads experienced significant changes in traffic. Local roads such as Belle March Road, Boyds Corner Road, Colcord Street, and Ogunquit Road saw significant traffic growth while data shows Brattle Street, Norton Street, and Quarry Drive saw declines in traffic.

Pavement Condition

As part of MaineDOT’s asset management methodology, pavement condition data is collected every two years on all State Highways and State Aid Highways. MaineDOT uses the Pavement Condition Rating (PCR), a 0-5 scale that is composed of International Roughness Index, rutting, and two basic types of cracking. The A-F scale (A being great condition) varies by Highway Corridor Priority.

As of 2019, just over 25% of South Berwick’s State maintained roads fall into the C, D and F categories. Almost 75% of town roads are in good and great condition (A or B) which is slightly above the statewide percentage. Although this data changes as sections of roads deteriorate and receive new pavement, it gives a general idea of the condition of state roads in South Berwick and provides a benchmark for customer service level. Maine Local Roads Center offers a Road Management Software (RSMS) that can be used to assess and prioritize local roads for improvements, including cost estimates used for developing a local road maintenance plan.



Safety

MaineDOT obtains crash reports from State and local police to develop Critical Rate Factors (CRF) on every road (link) and intersection (node) across the state. The CRF is a comparison of actual crash rate on a link or at a node to the expected accident rate based on road type, vehicle miles of travel, and the average statewide accident rate. A CRF greater than 1 on a link or at a node indicates a crash rate higher than should be expected at that location when based on statewide averages. Crash data is further analyzed to identify High Crash Locations (HCL). Road segments and intersections that have had at least eight crashes in a three-year period with an overall average CRF greater than 1 are considered HCLs. Data from the three-year period between 2018 and 2020 classifies the following four intersections in South Berwick as HCL:

Intersection	CRF	Total Crashes
Route 236 (Dow HWY), Route 91 (York Woods Rd), and Old South Rd	3.8	23
Route 236 (Main Street) and Route 4 (Portland St)	1.83	12
Route 236 (Main St) and Academy St	1.7	11
Route 236 (Main St) and Quarry Rd	1.44	8

Source: Maine DOT 2018 - 2020

The intersection of Route 236 and Route 91 is programmed for intersection improvements with signalization in 2022. Other HCL’s identified have been studied in the past for mobility and safety improvements.

Commuting Patterns

American Community Survey (ACS) data from 2016-2020 indicates a mean travel time to work of 26.1 minutes for workers aged 16 and older from South Berwick. According to the ACS, 81.8% of them drove alone, 2.1% carpoled, 2.4% walked, 3.2% used a taxicab, motorcycle, or other means, and 10.4% worked from home. The Longitudinal Employer-Household Dynamic (LEHD) program which is part of the US Census Bureau also produces demographic data on employers and employees. LEHD data shows that

over 40% of South Berwick residents work in South Berwick or nearby in Portsmouth, Dover, York, and Kittery. However, due to the COVID-19 pandemic there has been a nation-wide increase in the number of people working from home. This will likely have a large impact on commuting patterns in the 2020s.

Public Transportation

The Cooperate Alliance for Seacoast Transportation (COAST) currently operates fixed route transit in South Berwick via Route 100. The service runs from Somersworth to the Portsmouth Naval Shipyard in Kittery twice per day including a morning southbound and evening northbound trip, primarily supporting workers traveling to and from the Shipyard. There are two stop locations in South Berwick, both of which are served by the southbound and northbound routes. The bus stop locations are located on Main Street at Norton Street, and at the Town Hall. Route 100's lack of frequency does not offer a viable means for South Berwick residents looking to make trips entirely using bus transportation. The nearest train station is just 5 miles away in Dover and is serviced by Amtrak's Downeaster train, which connects North Station in Boston to Brunswick, Maine, with many additional stops in Maine, NH, and MA.

York County Community Action Corporation (YCCAC) offers a range of transportation services in York County. In South Berwick, YCCAC offers a demand response service every Thursday for shopping and non-medical trips. Reservations are required and riders are typically picked up at their homes with a return trip an hour or more later.

Non-Motorized Transportation

Non-motorized transportation, including bicycling and walking, is a vital component to South Berwick's transportation system and to the health of the community. The infrastructure, the presence and behavior of motor vehicle traffic, and the surrounding land uses all contribute to how conducive an area is to walking or biking.

South Berwick's pedestrian infrastructure network is made up of 3.19 miles of sidewalks in addition to crosswalks, curb ramps, and pedestrian signage concentrated around the major corridors, schools, and village center. In many places throughout South Berwick sidewalks may not be feasible, cost effective, or suitable for roads and neighborhoods. In those circumstances, asphalt and dirt shoulders are typically used by pedestrians. Bicycle infrastructure is limited in South Berwick and along most roads, bicycles share the road with vehicles. In some cases, shoulders are present and offer some separation from vehicular traffic.

Place of Work, 2019 (Town/City)	Percentage
Portsmouth (NH)	13.2%
South Berwick	10.6%
Dover (NH)	8.2%
York	7.3%
Kittery	6.2%
Elliot	4.9%
North Berwick	2.7%
Portland	2.6%
Rochester (NH)	2.4%
Somersworth (NH)	2.3%
Other locations	39.6%
<i>Source: U.S. Census LEHD program, 2019</i>	

In 2019, the Town Council appointed an Ad Hoc Committee charged with investigating, researching, and making recommendations on pedestrian safety with a focus along the downtown, Route 236 area. This committee was developed in response to increased vehicular traffic, complaints received, and safety concerns related to near misses, traffic

speeds, and crosswalk visibility. The recommendations from that group focused primarily on improving pedestrian crossings and making them compliant with the Manual on Uniform Traffic Control Devices (MUTCD). Constructing bump-outs, moving parking spaces, and adding lighting were also considered potential short-term improvements. Many previous studies have been conducted in the vicinity and offer several roadway and intersection re-alignment alternatives to improve pedestrian safety.

The town's pedestrian and bicycle network also include an extensive recreational trail system. The Eastern Trail, which is envisioned to be a mostly off-road path between South Portland and Kittery has over 20 miles of off-road path already built. New sections of trail are being added in the short-term including an over 10 miles of unpaved trail from the current terminus in Kennebunk to Berwick. In South Berwick the route uses on-road options including sections of Agamenticus Road and Knights Pond road where shoulders have been designated as bicycle and pedestrian lanes. Alternatives to continue the trail south will require coordination among neighboring towns and the Eastern Trail Alliance to determine the final alignment through South Berwick. Proposed alternatives range from on-road routes to off-road multi use paths, including a combination of both.

Land Use and Transportation

New Commercial and Residential Development

New development is often phased over years and the impacts of the final development, as well as the initial phase(s), on the transportation system should always be considered. The magnitude of new development determines the traffic impacts, and potential remedies, that the development will have. Depending on existing traffic volumes, distribution patterns, roadway users, safety issues, and road conditions, small scale as well as large scale development can often have significant impacts on the surrounding roadway network. By requiring transportation impact studies for new developments of a certain size or for developments located in areas where significant transportation problems are known to exist, the Planning Board can effectively evaluate the effects associated with any new development. Through this kind of scrutiny, recommendations for project phasing and developer participation in necessary improvements can be implemented and problems of safety, congestion, and expensive upgrades to poorly planned roads can be avoided.

Access Management

Access management involves coordination and management of access to land development while simultaneously preserving the flow of traffic on the surrounding roadways in terms of safety, capacity, and mobility. It is the practice of coordinating the location, number, spacing, and design of driveways, medians, median openings, and intersections to minimize conflicts and maximize the capacity for all users of the transportation system.

Opportunities for access management include possible connections between existing and future subdivisions, the consideration of shared driveways when possible, and consistent coordination and communication between the town and MaineDOT Region 1 when considering driveway access applications on State Highways.

Traffic Calming

Traffic calming on local roads can be a significant challenge. The primary approach to traffic calming involves reducing traffic speeds by altering the design, configuration, or appearance of the street. Traffic

calming can involve road design techniques using active or physical controls (bumps, barriers, curves, rumble strips, etc.) and passive controls, such as signs and traffic regulations, to reduce vehicle speeds. Typically, traffic calming is most appropriate on lower-volume collector or local roadways, rather than on roadways such as principal arterials, whose purpose is to facilitate through traffic flow. Traffic calming measures foster safer and quieter streets that are more accommodating to pedestrians and cyclists and enhance neighborhoods and downtown environments. The potential benefits of traffic calming include reduced traffic speeds, reduced traffic volumes – by discouraging “cut-through” traffic on residential streets – and often improved aesthetic quality of streets.

Electric Vehicle Charging

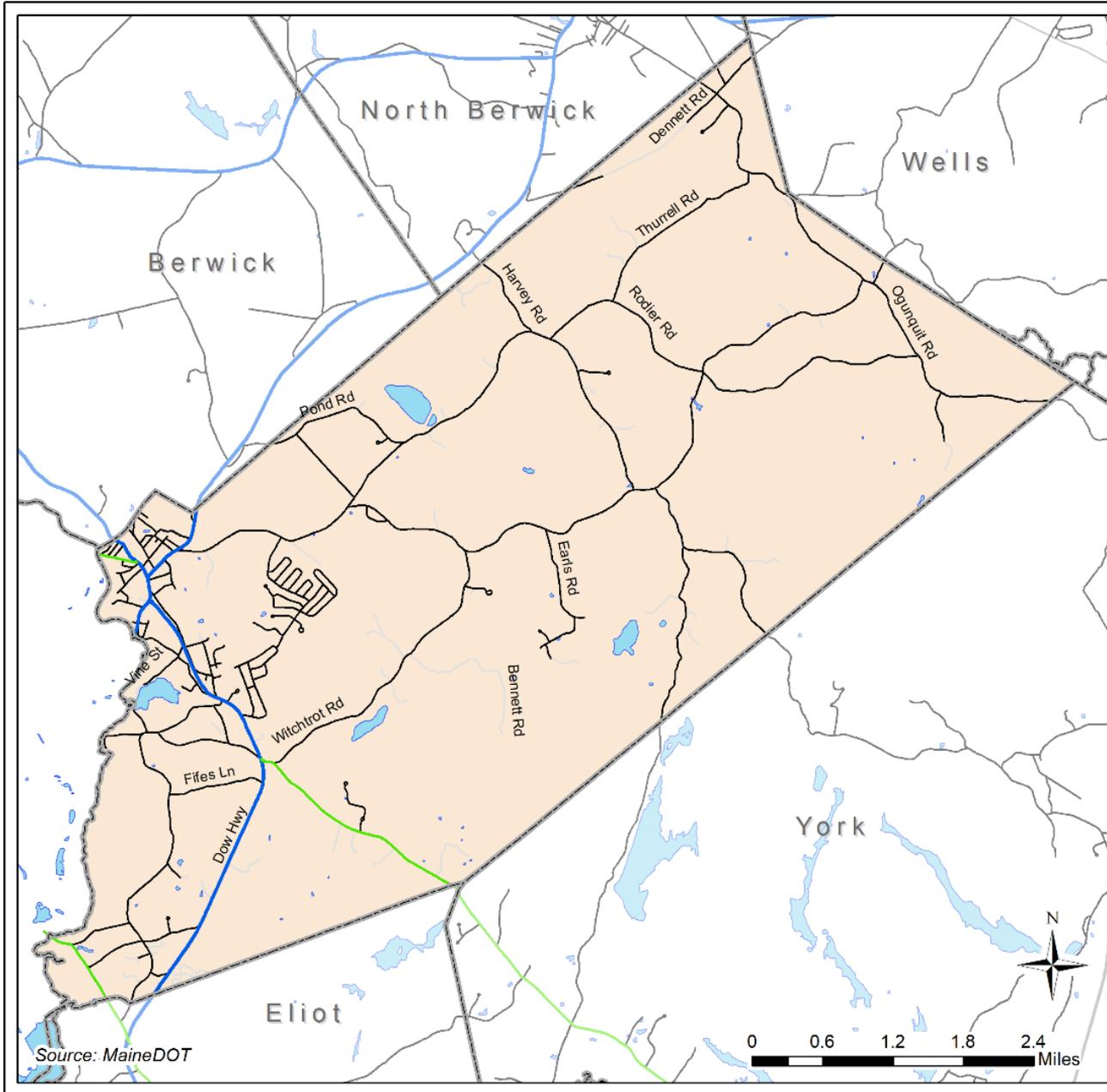
MaineDOT, Maine Turnpike Authority, Maine Department of Environmental protection, as well as other agencies and organizations across Maine have been preparing a number of initiatives relating to the deployment of all electric and plug-in-hybrid vehicles. State and local governments, as well as public utility companies and private businesses have been working to expand the number of electric vehicle charging stations. According to the U.S. Department of Energy, which tracks public charging stations, the nearest charging stations to South Berwick are located to the West in Dover, the south in Kittery and the east in York and Ogunquit. There are no public stations in South Berwick or in the towns to the north in York County. Efficiency Maine Trust, in partnership with the Maine Department of Transportation, is currently expanding the charging infrastructure in the state to fill in spatial gaps. They have identified and prioritized spatial gaps in southern Maine to be improved in FY2023 and FY 2025. Maine municipalities play a crucial role in encouraging and directing Electric Vehicle (EV) infrastructure through zoning and other ordinances. The town may consider permitting EV infrastructure, and identifying areas best suited for installation to ensure the Town is prepared for the modernization the transportation system.

Downtown Traffic and Parking

Over the last few decades many public forums in the community have focused on traffic problems in the downtown area including recommendations for safety improvements, truck traffic concerns, student transportation for the four downtown schools, and the potential for a bypass route. According to the traffic count data, over 19,000 vehicles travel through downtown South Berwick every day, the highest volume of traffic experienced along any state route in Town.

Within all the studies there are many recurring themes for recommended improvements. The 2009 South Berwick Transportation Feasibility Study summarizes existing conditions and lists a menu of suggested improvements. Specific improvements, including a preferred alternative, were analyzed for three different intersections along Route 236. Major components of the overall preferred alternative, including signalization of the Route 4/236 intersection have not been implemented.

Parking for businesses in South Berwick Village is viewed as a key element in supporting downtown business activity. There are four public parking lots in South Berwick. Approximately 40 spaces are provided behind Town Hall, 20 spaces next to the Post Office on Main St., 40 spaces on Norton St. and another 10 spaces on Paul St. On-street parking is also available. There is no charge for parking at any of these locations. In addition to commercial activity, the parking downtown also supports several civic activities.



Source: MaineDOT

Roads by Federal Functional Classification 2022

- Minor Arterial
- Major Collector
- Local
- Town Boundaries
- Waterbodies

Map prepared by SMPDC in July 2022. Data is not authoritative and should be used for planning purposes only.



0 0.6 1.2 1.8 2.4 Miles

