

## Transportation Chapter

### Introduction

Transportation is an essential planning consideration that has far reaching impacts on the development of the town. The careful planning of road and other transportation-related infrastructure will help determine where development will occur and the type of land uses it will attract. Transportation planning is not just for vehicular traffic, but should include and encourage all modes of transportation such as pedestrian, bicycle, and mass transit.

### Linkages of Transportation to Other Chapters

Transportation planning considerations factor into a number of other parts of Dublin's Master Plan. It is important to recognize the interconnectedness to guide the growth and development of the town.

Land Use: Transportation connects origins to destinations and helps people access goods, services and each other. Roads will, in large part, be the basis for the development patterns of the future. Road design, functionality and placement will determine the types of land uses that will be able to occur on a parcel of land. For example, a collector road will attract a mix of uses including retail, professional offices, and residential, whereas a local road will typically provide safe access to residential development.

Economic Development: The ability to provide access to businesses will enhance the success of the towns' likeliness to attract businesses. Direct access to major roads and parking availability are key elements to attract and retain uses that depend on drive-by traffic. Planning for nodal development, or interspersing centers of development between roads with little development, allows communities to plan for multiple economic and cultural activity areas that are separated by roadways designed for moving traffic.

Housing/Population/Demographics: The *pattern* of residential development will be determined, in part, by the roads that service them. Roadway classifications also have an effect on the *density* of development that can occur. Local roads can serve residential neighborhoods and multi-family developments safely without concerns of heavy through traffic. The use of access management also provides safe transportation to denser developments. Road design standards such as width, grade, and speed are factors to consider when choosing to live in certain types of residential development. Higher density housing or low income housing may benefit by an offering of bicycle, pedestrian or transit improvements in order to maximize space and increase the affordability of the neighborhood. Certain sectors of the community will have different transportation preferences or needs. Consideration should be given to those sectors of the population that are less likely to drive such as youth, seniors, and persons with disabilities.

Natural Resources-Environmental: The careful consideration of locating roads away from sensitive areas such as streams and wildlife habitats is critical to the protection of our natural resources. Avoiding these areas will not only protect the wildlife that depend on large unfragmented areas, but will also add to the safety of roadway users. The use of Low Impact Development methods (LIDs) will help to reduce the length of roads, thereby reducing the amount of impervious surface. This will protect the water quality

of our waterbodies and will also allow for groundwater recharge. Transportation has a major impact on air quality and should be planned to reduce vehicle miles traveled whenever practical.

Emergency Operations/Hazard Mitigation: Maintaining access to primary and secondary evacuation routes in town is an important life safety issue. Proper culvert size and installation for all road/stream crossings must be a priority for reducing the impact of severe weather events. Bridge maintenance, erosion control, and stormwater management are also important considerations to maintain safe roadway infrastructure. Considerations such as these should be added into the Hazard Mitigation Plan and included as priority actions items. An inventory of road/stream crossings should be updated annually, and erosion control methods used along roads with steep slopes to prevent washouts and erosion.

### **Road Classifications and Conditions**

Dublin roads are managed under a series of classifications. Road systems are grouped and classified for several reasons. Some important reasons to classify roads include:

- Designing appropriate capacity, safety measures and design speed for roads;
- Guiding investment priorities for roads;
- Providing a framework for a road maintenance program; and
- Guiding land use related regulations and access management standards with frontage on the roadway system.

Broadly, roadways in New Hampshire are classified for planning purposes into two types: State Highway Classification and Federal Functional Classification. *State highway classification* refers to the state's system of defining state and town responsibilities for road construction and maintenance. *Federal functional classification* is the system by which streets and highways are grouped into classes according to the type of service they are intended to provide. Basic to this process is the understanding that individual roads or streets do not serve travel independently: rather, travel involves movement through a series of roadways in a logical manner by defining the part any particular road or street can play in serving traffic flow through a highway network.

### **State Classification (Administrative) Classification**

All public roads in New Hampshire are classified in one of seven categories per NH RSA 229:5. Highways under state maintenance and control include Classes I, II, III and III(a). Classes IV, V, and VI highways are under the jurisdiction of municipalities. The following provides a description of various administrative classes.

- Class I: Trunk Line Highways
- Class II: State Aid Highways
- Class III: State Recreational Roads
- Class III(a): State Boating Access Roads
- Class IV: Town Roads with Urban Compact
- Class V: Town Roads
- Class VI: Unmaintained Highways

Of these seven road classifications, Dublin roads fall into four of classifications in town. The definition of these classifications, and the roads that fall within each category are described below. The road classifications can be found on the *Town of Dublin Transportation Infrastructure Map*.

Class I: Trunk Line Highways - These belong to the primary state highway system. NH DOT assumes full control and responsibility for construction, reconstruction and maintenance of these roads. The only Class I highway in Dublin is NH 101 which includes 9.3 miles of highway through town.

Class II: State Aid Highways - These consist of highways that belong to the secondary state highway system. All sections improved to state standards are maintained and reconstructed by NH DOT. Other Class II highways, not improved to DOT's standards, are maintained by the Town and are eligible to be improved to DOT standards with the use of state aid funds as those funds become available. The same applies to bridges on Class II highways. There are four roads in Dublin that are Class II highways which provide a total of 6.4 miles of road. These include NH 137 (Brush Brook Road and Lower Jaffrey Road), Chesham Road, and Dublin Road.

Class III: Recreational Roads – Recreational Roads are those roads leading to and within state reservations designated by the State Legislature. NH DOT assumes full control for construction, reconstruction and maintenance of these roads. There are no Class III roads in Dublin.

Class III(a): Boating Access Roads- boating access roads from any existing highway to any public water in New Hampshire. There are no Class III(a) roads in Dublin.

Class IV: Urban Compact Section Highways – These are all highways within the compact sections of towns and cities of 7,500 residents or more. The municipality assumes full responsibility for construction and maintenance of these roads. There are no Class IV roads in Dublin.

Class V: Town Roads - These consist of all regularly maintained roads that are not in the state system, which the town has the duty to construct and maintain. These roads may be paved or graveled. There are 40.1 miles of Class V roads in Dublin including, but not limited to: Upper Jaffrey Road, East Harrisville Road, Old Troy Road, Pierce Road, and many others. This category makes up 56% of all road mileage in Dublin.

Class VI: Unmaintained Highways - These roads are all other existing public ways, including highways, that are not maintained by the town and have not been for five or more consecutive years. While subdivision of land is usually restricted on Class VI roads, the potential for development exists if the roads are upgraded to a Class V status, either by the landowner or the town.

As frontage along Class V roads becomes less available and the centers of town villages reach capacity, there is mounting pressure to develop on Class VI roads. Class VI roads are an important component of a town's transportation infrastructure as they personify the community's rural character and can provide a variety of recreational opportunities. The town should evaluate and make recommendations for future status of Class VI roads and develop a Class VI road policy. There are 2.1 miles of Class VI roads in Dublin including Blackberry Lane, Oxbow Road, and Valley Road.

Other Roads- In addition to the state and town owned and maintained roads, Dublin has 13.4 miles of private roads. These are owned and maintained by private landowners. Some of the private roads in town include, but are not limited to: Beech Hill Road, Farnum Road, and Chestnut Hill Road.

**Administrative Classification of Dublin’s Roadways**

Road Class	Miles
I: Trunk Line/Primary State Aid Highways	9.3
II: Secondary State Aid Highways	6.4
III: Recreational Roads	0
<b>Total State</b>	<b>15.7</b>
IV: Urban Compact Section Highways	0
V: Town Owned Roads	40.1
VI: Unmaintained Roads	2.1
<b>Total Town</b>	<b>42.3</b>
Other: (includes private)	13.4
<b>Other Miles</b>	<b>13.4</b>
<b>Total Miles of Roadway</b>	<b>71.4</b>

Source NH Department of Transportation Mileage by Town and Legislative Class (report 2016)

**Federal Functional Classification**

Functional classifications can be used by local, state and federal governments, but the federal functional classification most commonly cited in transportation planning. It is a method of grouping roads by the service they provide and is very useful for planning purposes. Functionality, at its most basic level, is divided into three road types: arterials, collectors and local roads. By identifying the function of the road, decisions can be made as to the road design and speed. Roads that function as a means to move traffic from one town to another town has different needs than a road that provides access within a residential neighborhood. They will require different road widths, speeds, signs and construction standards. A road that has truck traffic is constructed differently to handle heavier, larger, and wider vehicles and greater traffic volumes than those serving neighborhoods. Access and turning maneuvers are also different depending on the functional classification. Therefore, identifying the function of the road is an essential part of planning. It is important to balance all three types of roadways in order to ensure an efficient (and in the long-term less costly) transportation system. Reducing road widths will not only be less costly to construct, but they will also be less costly to maintain, and reduce the amount of impervious surface, which is beneficial to the environment.

Principal Arterial Roads- These arterials are controlled access highways and interstates. Principal arterial highways are designed to carry the largest percentage of traffic entering and leaving a region as well as the greatest amount of traffic traveling through the region. NH 101 carries the greatest amount of local and regional traffic and is considered as the principal east/west corridor for southern New Hampshire.

Minor Arterial Roads- Similar to the principal arterial roads, these are designed to carry traffic through the region. Minor arterials have limited access and faster speeds than collector and local roads. NH 137 is a minor arterial road since it is an important route to connect Dublin, Hancock, and Jaffrey residents with NH 101.

Collector Roads (major & minor)- The collector system provides more direct land access than do the arterials. Collector streets may enter residential areas, business districts, and industrial areas. A major collector is designed to move medium traffic volumes at medium speeds between or within communities and to funnel traffic to and from residential and commercial areas to an arterial system. The major collector roads in Dublin include Cobb Meadow Road, Upper Jaffrey Road, New Harrisville Road, and Chesham Road. A minor collector has lower traffic volumes and provides alternative routes to major collectors. Some of the minor collectors include East Harrisville Road, Old Marlborough Road, Lake Road, and Charcoal Road.

Local Roads- These include all locally maintained and private roads that are not otherwise considered arterials or collector roads. The primary function of these roads is to provide direct access to individual properties. This system offers the lowest level of mobility. Through-traffic is usually deliberately discouraged.

**Roadway Usage and Conditions**

Roadway usage and conditions have an effect on our everyday enjoyment, or frustrations, of traveling through town. As the population increases within the state and region, so will the amount of traffic. Careful planning of our roadways, including alternative routes will give users options to get to their destinations. A heavily travelled road during peak hours or a road with poor maintenance can be avoided making our travel experience more desirable. The next chart shows the Average Daily Traffic Counts that NHDOT has been tracking in Dublin over the last eight years. This is an important factor in planning the location of future land uses as well as access points. The changes in traffic counts can be attributed to a variety of factors including but not limited to new subdivisions, new businesses opening, closing of businesses and road construction.

**Dublin Average Daily Traffic Counts**

Counter Location	Counter Number	2009	2010	2011	2012	2013	2014	2015	2016
NH 101 west of Old Harrisville Rd.	127050	6200	---	---	5300	---	---	6300	---
NH 101 west of NH 137	127051	7800	---	---	6700	---	---	7000	---
NH 101 east of Church St.	127054	7900	---	---	6400	---	---	7900	---
Dublin Rd. north of Beech Hill Rd.	127056	640	---	---	570	---	---	640	---
NH 137 north of NH 101	127057	1600	---	---	2200	---	---	1800	---
NH 137 south of NH 101	127058	1200	---	---	1300	---	---	1200	---
Old Marlborough Rd /Charcoal Brook	127059	240	---	---	200	---	---	240	---
East Harrisville Rd over Brush Brook	127060	200	---	---	230	---	---	240	---
Craig Rd over Stanley Brook	127061	200	---	---	220	---	---	260	---
Goldmine Rd over Stanley Brook	127062	440	---	---	430	---	---	380	---
NH 137 at Jaffrey town line	233051	1000	---	---	1000	---	---	980	---
NH 101 at Marlborough town line	287051	6100	---	---	6700	---	---	7000	---
NH 101 at Peterborough town line	363001	---	6500	---	---	6300	---	---	6800

Source: NH DOT 2016

The traffic count locations are shown on the accompanying map entitled *Town of Dublin Transportation Infrastructure Map*. Counter numbers in the table above correspond with the numbers found on the map.

In addition to the average daily traffic counts, the following table shows supplemental traffic counts that were taken as part of this Master Plan update. This will provide a basis for future counts that can aid the town for changes and improvements as may be determined.

Additional Local Traffic Counts	2017 AADT	Rounded	Duration of study
Cobb Meadow Road east of East Harrisville Road	324	320	8-8-17 to 8-14-17
East Harrisville Road north of NH 101 (Main Street)	228	230	8-8-17 to 8-14-17
Lake Road south of NH 101 (Main Street) and Snow Hill Road	741	740	8-8-17 to 8-14-17
Lake Road south of NH 101 (Main Street)	143	140	8-8-17 to 8-14-17
Upper Jaffrey Road south of Windmill Hill Road	404	400	8-8-17 to 8-14-17

Source: SWRPC Traffic Data 2017

### Commuting to Work

Understanding commuting patterns is a useful planning tool when proposals are presented to the Town. According US Census Bureau, Center for Economic Studies, Dublin had an estimated 632 working residents in 2014. Of these working residents, 41 commuted to work within town and 591 traveled to work outside of town. The top commuting locations for Dublin residents are listed in the chart below. Approximately 305 residents work in towns abutting Dublin. Based on the percentage of residents travelling to these locations, it would appear that NH 101 carries the greatest amount of commuter traffic.

Inflow/Outflow job Counts (Primary Jobs) 2014		
<b>Dublin Employment (jobs in Dublin)</b>	Count	% Total
Total # of Workers Employed in Dublin	338	100%
<b>Employed in Dublin but Living Outside</b>	<b>297</b>	<b>87.9%</b>
Employed and Living in Dublin	41	12.1%
<b>Dublin Residents that are Employed</b>		
Employed Dublin Residents	632	100%
Living in Dublin but Employed Outside	591	93.5%
Living and Employed in Dublin	41	6.5%

Source: US Census Bureau, Center for Economic Studies-On the Map

This Inflow/Outflow graph provides a visual representation of the daily commuting for Dublin residents to their place of employment, and also non-residents who are employed in Dublin. As shown in the graph, 297 people travel into Dublin for employment while 591 Dublin residents leave Dublin to get to their jobs. It also shows that 41 people live and work in town.



Source: US Census Bureau, Center for Economic Studies-On the Map

### Travel Time to Work

This next table shows the time that it takes Dublin residents to get to their jobs. The mean travel time is 23.9 minutes. With Dublin's geographic location between Peterborough and Keene, the commute to work is relatively short compared to other towns in the Monadnock Region. The table indicates that 71% of working residents spend less than 30 minutes to get to work.

Travel Time (in minutes)	Percent of Employed Residents
Less than 10	18%
10-14	23%
15-19	19.3%
20-24	10.7%
25-29	5.5%
30-34	9.9%
35-44	1.5%
45-59	2.5%
60 or greater	9.6%
Mean Travel Time to Work is 23.9 Minutes	

*Source: U.S. Census, ACS 5-Year Estimates, 2011-2015*

**Maintenance and Condition of Roads:** In most municipalities, road surfaces are the largest single cost of maintaining and building a transportation system. Investing in roads when they are in good condition costs a fraction of rebuilding roads that have deteriorated to poor conditions. Knowing the history of road repairs and the condition of those roads that may be in need of repair can assist the town in budgeting and prioritizing. It may also be useful as supportive information when seeking funding opportunities to help offset the costs.

One tool that is available to aid local municipalities in evaluating road conditions and prioritizing projects is the Road Surface Management System (RSMS) to ensure that cost-effective decisions are being made regarding roadway maintenance. The RSMS is the application of a pavement management analysis system, which includes budgets, condition data, and repair strategies, to assist local governments maintain their paved roads. The Town of Dublin worked with Southwest Region Planning Commission (SWRPC) as the pilot project in the region using the RSMS. The Dublin Road Agent worked directly with SWRPC on all phases of the project. Upon completion, the final project included maps of pavement conditions, development of a road segment priority list, and four 10-year maintenance plan scenarios.

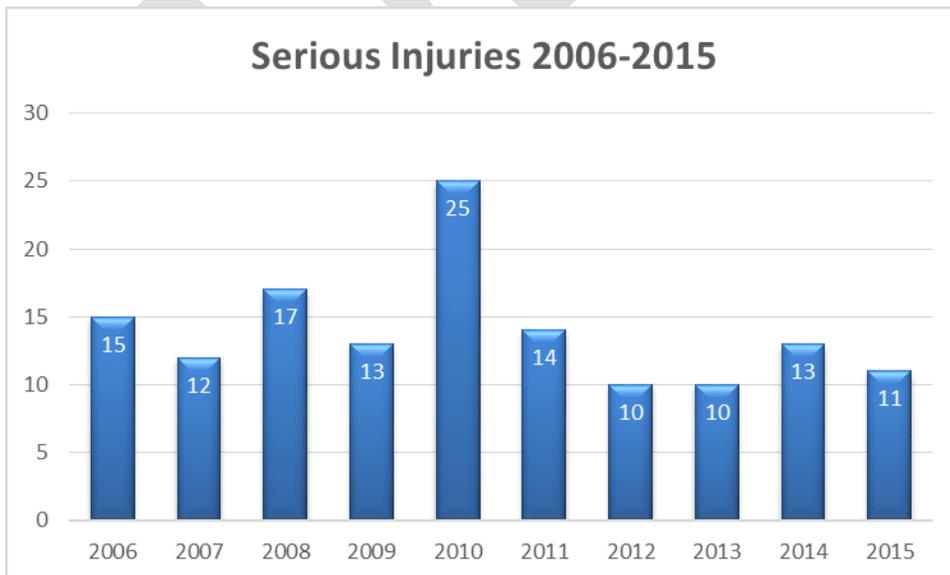
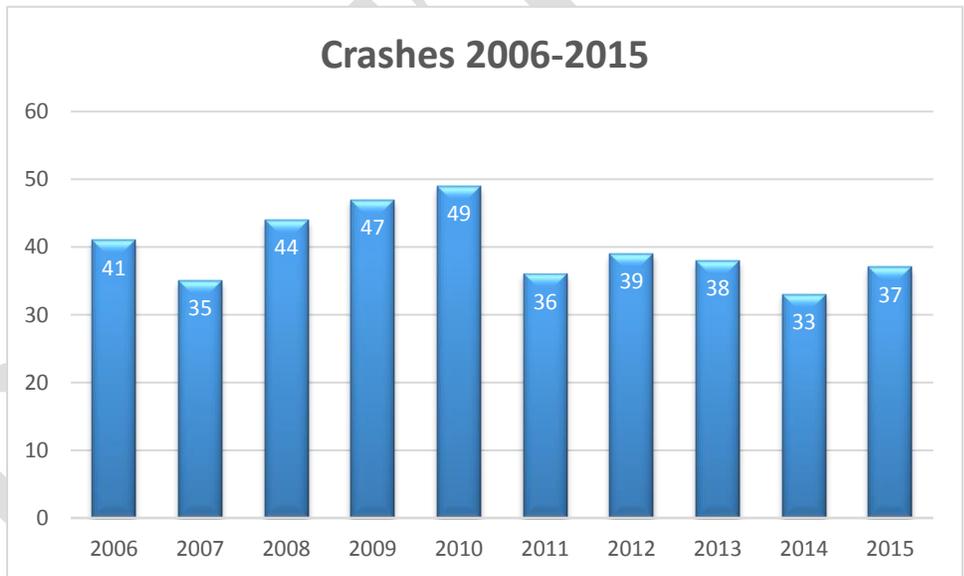
### **Problem Locations**

Vehicle crashes are an occurrence that we all want to avoid. However, without careful planning of roadways and intersections, there may be an increase of crashes at a given location. Accident reports obtained from the NHDOT and the Dublin Police Department are an effective way to identify areas that are in need of correction. Factors such as sightline visibility at intersections and driveways, poor drainage, excessive speed, sun glare and icing are some of the key reasons for crashes. Many of these can be avoided with good design. It is more efficient and cost effective to identify potential conflicting points prior to construction than to retrofit a problem. It is also easier for drivers so they don't need to adjust to the change.

Projects involving heavy traffic should be required to submit a traffic study by a licensed engineer to the Planning Board. A traffic study will identify the projected level of service (LOS) at intersections and the entrance to the property during peak hours of traffic. The Planning Board may require a peer review, or third party review, to check the accuracy of the traffic study. The peer review may also result in potential alternatives such as a more suitable driveway location, intersection improvements, pedestrian enhancements, or other safety measures.

Consulting with the local traffic authority and road agent to review sight lines for proposed new accessways can help reduce hazardous situations. Adding sight line distance standards into the Subdivision Regulations and driveway regulations will help to improve safety for those entering onto the roads and those traveling the roads.

The following charts provide information regarding crashes in Dublin between 2006 and 2015. The first chart, *Crashes 2006-2015*, shows that there has been a decline in the number of crashes between 2011 and 2015 over the preceding five year period. Similarly, the chart entitled *Serious Injuries 2006-2015* also shows a reduction in the number of serious injuries during this same period. In addition to the serious injuries, there was one fatality in 2010.



Source: NH DOT

The map entitled *Town of Dublin Crash History Map* shows the locations of the documented crashes since 2003.

Areas of Concern

The intersection of NH 101 and NH 137 was identified as an area of concern based on the number of crashes. As such, the Planning Board requested that a turning movement count be conducted at this intersection to include in this chapter. The results of the study include:

- A review of the intersection crash history, from 2006-2015 identified this intersection as the site of the Town’s only fatal crash, which occurred in 2010. During the analysis period, the intersection was the site of at least 12 crashes (including a total of 4 injury crashes and 1 fatal crash).
- Traffic movements at the intersection of NH 101 (Main Street) and NH 137 (Brush Brook Road/Lower Jaffrey Road) are dominated by through traffic on NH 101 (about 69% and 70% of total vehicles during the busiest morning and evening hour, respectively). This is partially understood based on the regional significance and demand for travel to the greater Keene area and US 202 corridor, both major job centers.
- The intersection is one of many two-way stop controlled intersections along NH 101 in Dublin. The major street, NH 101 is uncontrolled and the minor street, NH 137 is controlled by stop signs. Even during busy periods of the day, the intersection does not create significant delay for most vehicles.

The results below are according to level of service (LOS) criteria for unsignalized intersections as found in the Transportation Research Board Highway Capacity Manual (Exhibit 20-2). A level of service is a letter designation that describes a range of operating conditions on a particular type of facility. Six levels of service are defined, using the letters A through F. Level of service A represents the best level of service, and generally describes operation of free flow and very low delay. Level of service F represents the worst operating conditions.

Level of Service (LOS)	Control Delay (seconds/vehicle)
LOS A	0 - 10
LOS B	> 10 - 15
LOS C	> 15 - 25
LOS D	> 25 - 35
LOS E	> 35 - 50
LOS F	> 50

The following tables depict the level of delay for each approach and applicable turning movements.

**Peak AM hour Level of Service**

	Left	Through	Right	Approach Delay (seconds/vehicle)	Approach LOS
Eastbound on NH 101	A	N/A	N/A	1.0	N/A
Westbound on NH 101	A	N/A	N/A	0.3	N/A
Northbound on NH 137	C	N/A	B	15.5	C
Southbound on NH 137	C	N/A	B	12.6	B

**Peak PM hour Level of Service**

	Left	Through	Right	Approach Delay (seconds/vehicle)	Approach LOS
Eastbound on NH 101	A	N/A	N/A	0.8	N/A
Westbound on NH 101	A	N/A	N/A	0.2	N/A
Northbound on NH 137	C	N/A	C	17.9	C
Southbound on NH 137	C	N/A	B	16.0	C

Source: SWRPC Traffic Data (2017)

In addition to the NH 101/NH 137, other intersections along NH 101 have been identified as areas of concern due to the cluster of crashes shown on the map. These areas include: the intersections of NH 101 with Upper Jaffrey Road, Church St, and Old Peterborough Road, as well as the sharp curve around the east side of the lake are other relative hot spots.

A Road Safety Audit for these areas may be considered as a means to reduce these potential hazardous areas. A Road Safety Audit is a formal proactive safety performance examination of a road or intersection by a multidisciplinary audit team. It is a qualitative assessment that reports on potential safety issues and identifies opportunities for improved safety options. The Road Safety Audit team is made up of town employees, such as Police Chief, Road Agent, Emergency Management Director, Fire Chief, and members of the community. Consideration should also be given to identifying other potential team members that may offer unique and valuable input such as a school bus driver whose bus route is in the study area or a nearby crossing guard.

**Bridges**

NH RSA 234:2 defines a *bridge* as a structure on a public highway that has a clear span of 10 feet or more, measured along the highway’s center line, spanning a water course or other opening or obstruction.

It includes the substructure, superstructure, deck and approaches. This definition is important to help the town and state in determining the maintenance and funding responsibility.

NH RSA 234:23 imposes a requirement on towns to inspect all bridges along town roads and town maintained roads on Class II highways, every two years. A record of the inspections must be kept by the town and is a prerequisite to apply for state bridge aid funds. This inspection and corresponding classification is a useful planning tool for budgeting of those bridges in need of repairs or replacement. Priority should be given to bridges that are located in the primary and secondary evacuations routes in the event of emergencies.

These bridge classifications are defined as:

**Not Deficient** - Bridges that do not need repairs, just scheduled maintenance.

**Structurally Deficient** - A bridge, due to its deteriorated condition, that no longer meets current standards for load carrying capacity and/or structural integrity.

**Functionally Obsolete** - A bridge, due to the changing need of the transportation system, that no longer meets current standards for deck geometry, load carrying capacity, vertical or horizontal clearances, and/or alignment of the approaches to the bridge.

**Red List** - Bridges that require more frequent inspections due to known deficiencies, poor structural conditions, weight restrictions, or the type of construction (such as a replacement bridge installed on a temporary basis).

There are 14 bridges in Dublin. Below is a list of bridges with information that may be useful in planning for the Capital Improvements Program (CIP).

Location	Bridge Number	Owner	Year Built/Rebuilt	Condition
NH 101 /Howe Reservoir	074/117	NHDOT	1980	Not Deficient
Charcoal Road over brook	081/114	Dublin	1935	Not Applicable
Charcoal Rd over Charcoal Brook	085/103	Dublin	2016	Not Applicable
Old Troy Road over brook	086/084	Dublin	1940/1991	Functionally Obsolete
Old Marlborough Road over Charcoal Brook	089/099	Dublin	2008	Not Deficient
Pierce Road over brook	155/103	Dublin	2013	Not Deficient
East Harrisville Road over Brush Brook	155/121	Dublin	1984	Not Applicable
Page Road over Hinds Brook	161/064	Dublin	1970	Not Applicable
Craig Road over Stanley Brook	170/064	Dublin	1935	Not Deficient
NH 137 over Stanley Brook	176/072	NHDOT	1936	Red Listed
Gold Mine Rd. over Stanley Brook	180/077	Dublin	1985	Not Deficient
NH 101 over Mud Pond	180/102	NHDOT	1966	Not Deficient
NH 137 over Brush Brook	188/117	NHDOT	1939	Not Applicable
NH 101 over Gold Mine Road	196/085	NHDOT	1967	Not Deficient

Source: NHDOT Bridge Summary, July 6, 2017

Of the bridges in Dublin, seven are listed as *not deficient*, none are listed as *structurally deficient*, one is listed as *functionally obsolete*, and one is *red listed*. There were also five bridges that are listed as *not applicable*, which typically means that it is a culvert type structure and is not rated the same, however, they remain on the annual inspection report due to the size of the structure.

## **Multimodal**

Multimodal transportation includes a variety of ways of moving people and goods. It encompasses a broader range of transportation modes other than motor vehicles. Multimodal transportation includes:

Pedestrian: Planning for pedestrian traffic involves providing areas and amenities that allow pedestrians to get to their destination by walking. Providing sidewalks, crosswalks, and pathways is the way to accomplish this form of transportation. Adding amenities, such as benches and shade trees will help to encourage walking. Another point of consideration for this mode is *connectivity* from one location to another. The proximity and safety between locations will be a deciding factor for some users. Sidewalks that don't connect pose a safety risk for pedestrians, especially those with physical challenges and strollers. It forces them to walk in the roadway or walk across unpaved and uneven terrain. Curb cuts should be provided at driveway entrances. Curb ramps should be provided at the end of each sidewalk.

Dublin has made many improvements during the past 10 years to increase opportunities and improve safety for pedestrians, particularly along NH 101. The Town has been working with the NHDOT through several funding sources to add sidewalks, improve existing sidewalks, and add or improve crosswalks near the school.

Bicycle: As people become more health conscious and environmentally aware, this form of transportation is more attractive. The rising cost of fuel also contributes to this decision. Providing bicycle lanes along the roadways is an important and responsible part of transportation planning. This includes clearly established bike lanes, pavement markings, and signage. Planning for the safe passage of bicycle users also includes bike friendly drainage grates and an awareness of other potential hazards. Similar to the needs of pedestrians, connectivity between locations is important for the local bikers that are just trying to get to areas within town. Making sure that pathways and bike lanes connect to the local destinations will help to avoid conflicts between bikes and vehicles. Bike racks should be required for sites that tend to attract the bicycle users.

The NHDOT has established a statewide network of bicycle routes. Today, these routes are published in seven regional printed maps and via an on-line interactive map at the Bike/Ped website. In Dublin and elsewhere, the routes generally avoid NH 101, which has high traffic volumes. Notably, Recreational Loop 502, which begins at the intersection of Hancock Road and Main Street in Harrisville, is a 12.8 mile beginner loop that utilizes Dublin Road, NH 101, and NH 137 in Dublin.

Carpooling: Ride sharing to work and events is a form of transportation that should be encouraged. While most of us enjoy the freedom of getting to our destinations in our own vehicle, and at our own convenience, there are other options that can be utilized in an effort to be environmentally sensitive and budget wise. A role that the town can play to help facilitate this is to establish a commuter lot. Providing a ride-share board will also establish a way for interested commuters to make connections with other commuters that are travelling to a similar destination.

Volunteer Driver Program: The Community Volunteer Transportation Company (CVTC) provides a “no fee” transportation service including rides for non-emergency medical, social service appointments, trips to the grocery store and pharmacy, etc. Advanced notice is required.

## **Complete Streets**

“Complete Streets” is an overall approach to planning, improving and maintaining the street right-of-way for all potential users of the roadway. It takes into consideration all modes of transportation. It is an understanding that people have a variety of needs and at varying levels of abilities. Complete Streets encompasses a broader way of viewing transportation corridors beyond the travelled portion of the roadway. By understanding these needs and abilities, streets can be planned in a way that is safe and convenient for all users. Providing safe crosswalks, ramps, benches, and shade trees help to encourage walking, which in turn includes benefits such as healthier lifestyles, social interaction, reduction in localized automobile trips, and improved environmental quality. This adds to the social capital of the community and helps to define the distinct character of the community. It provides options for residents and visitors to access shopping, health care, school, and employment. The additional pedestrian traffic can have economic benefits for local businesses as well. Inclusion of landscape improvements may also result in an increase of adjacent property values.

The town should consider adopting a Complete Street Policy. Along with adopting this policy, other ordinances should be reviewed for barriers that make a walkable/bikable community difficult to implement. A review should also be done to provide economic opportunities for businesses along these areas such as outdoor patio areas.

Components of Complete Street Policies include:

- Addition of sidewalks and bicycle lanes;
- Intersection improvements to include crosswalks and signalization for pedestrians and bicyclists;
- Installation of raised or textured crosswalks in locations that have higher pedestrian traffic;
- Streetscape amenities such as benches, street lights, shade trees;
- Sidewalk bumpouts for creating locations for trees and benches, and to add traffic calming principles;
- Bus service, bus stops and shelters

## **Access Management**

Access management is a planning mechanism to improve the safe usage of the roads for motorists, cyclists, and pedestrians. It includes careful planning for the location, spacing, design and operations of driveways and commercial accessways onto the road. Encouraging interconnections between properties helps to limit the number of access points onto the road and thereby reduces the number of conflict points. This is especially useful in retail centers, and in residential areas that have sight-line limitations due to road design. RSA 236:13 establishes requirements for driveway permits.

## **Traffic Calming**

Many communities in New Hampshire have a concern about the speed of traffic through the Town center. The lack of state highway bypasses, leave communities with a heavy flow of drive-through traffic. While

this traffic may be beneficial for local businesses, it often creates traffic from additional motor vehicles that have out-of-town destinations. In an effort to slow traffic down, it may be necessary to use traffic calming techniques in these areas. Traffic calming measures are designed to alter the behavior of drivers and improve safe conditions for pedestrians and cyclists.

The speed along NH 101 has been a concern for Dublin as the region has developed. As such, the Town of Dublin has been working with the State to determine the most effective methods to use near the Town Hall.

Below is a list of additional traffic calming methods that may be utilized in other areas of town as necessary.

Raised, textured or colored crosswalks- raised crosswalks is a physical approach to slowing speeds; textured or colored crosswalks are visual approaches to slowing speeds.

Raised median strip/island- this method narrows the road and limits turning across traffic.

Signalization and signage- traffic signals with pedestrian features provide safety for pedestrians; signage can also be an effective method for reducing speed and providing safe pedestrian passage.

Reduce road width- narrowing the road width generally slows the speed of vehicles, however, it also reduces the safe zone for cyclists.

### **Future of Transportation Modes/Changing Technologies**

Planning for the future involves a great deal of insight to the trends within the region, state, country, and even worldwide. The changing technologies will undoubtedly bring about changes to the way we look at our modes of transportation. With the rising cost of gasoline, and the increased environmental awareness, the movement towards alternative fuel sources is stronger than ever. With these changes, we may be faced with finding creative ways of making adjustments to accommodate them. Although the change is inevitable, it will be a gradual process. Fortunately, with careful planning, we can make the necessary shift to the future. It is anticipated that changes to roadway standards, parking areas, refueling/repowering stations, and more will require us to change the way we currently think about transportation.

### **State and Regional Transportation Plans**

State and regional plans provide important information that should be considered as an aid to the town for planning. They can be useful in preparation for Capital Improvement Programs, site plan and subdivision reviews, multimodal planning, and other uses as well. The next table contains a list of Regional and State Transportation Plans and links to information. It is beneficial to provide local input to these studies as they are updated.

<b>Regional Plans:</b>	Description:	Source:	Web link:
Town Traffic Data	Provides data on traffic counts for every town in the Region.	SWRPC/ NHDOT	<a href="http://www.swrpc.org/trans/traffic_counts">http://www.swrpc.org/trans/traffic_counts</a>
Southwest Connects	Inventory of transportation system and policy recommendations for Region.	SWRPC	<a href="http://www.swrpc.org/trans">http://www.swrpc.org/trans</a>
SWRPC Transportation Improvement Program	List of projects offered to NHDOT by SWRPC for inclusion in the Ten Year Plan. Part of the Southwest Connects listed above.	SWRPC	<a href="http://www.swrpc.org/trans">http://www.swrpc.org/trans</a>
Coordinated Community Transportation Plan	Documentation of regional community transportation needs and plans for improvement.	SWRPC	<a href="http://www.swrpc.org/trans">http://www.swrpc.org/trans</a>
Regional Transportation Directory	A directory of community transportation services for those needing rides within the region.	Monadnock Regional Council for Community Transportation	<a href="http://monadnockrcc.weebly.com/uploads/1/3/0/3/13039095/dublin.pdf">http://monadnockrcc.weebly.com/uploads/1/3/0/3/13039095/dublin.pdf</a>
Monadnock Region Future (MRF)	The Regional Plan for Southwest NH.	SWRPC	<a href="http://swrpc.org/files/MonadnockRegionFuture_RegionalPlan_FINAL.pdf">http://swrpc.org/files/MonadnockRegionFuture_RegionalPlan_FINAL.pdf</a>
NH 101 Corridor Study	Inventory of NH 101 Corridor and policy and infrastructure recommendations for corridor.	SWRPC	Not available on web
<b>State Plans:</b>			
NH Ten Year Transportation Improvement Plan	List of projects planned for construction in a ten year period.	NHDOT	<a href="http://www.nh.gov/dot/org/projectdevelopment/planning/tyip/index.htm">http://www.nh.gov/dot/org/projectdevelopment/planning/tyip/index.htm</a>
NH Long Range Transportation Plan	Inventory of transportation system and policy recommendations for state.	NHDOT	<a href="http://www.nh.gov/dot/org/projectdevelopment/planning/lrtbp.htm">http://www.nh.gov/dot/org/projectdevelopment/planning/lrtbp.htm</a>
NH Climate Action Plan	Plan that includes many transportation policy recommendations specifically on transportation.	NHDES	<a href="http://des.nh.gov/organization/divisions/air/tsb/tps/climate/action_plan/nh_climate_action_plan.htm">http://des.nh.gov/organization/divisions/air/tsb/tps/climate/action_plan/nh_climate_action_plan.htm</a>

## Useful Resources, Links, Programs, Funding Opportunities

The list below provides a variety of state and federal programs with potential funding opportunities. These resources cover a range of transportation projects including, but not limited to: road and intersection improvements, bridge & culvert projects, sidewalks and other pedestrian safety enhancements, transit, etc.

Monadnock Region Coordinating Council for Community Transportation

State Aid Bridge (SAB)

State Aid Highway (SAH)

Block Grant Aid (BGA)

Federal Bridge Aid (MOBRR)

Highway Safety Improvement Program (HSIP)

Transportation Alternative Program (TAP)

Congestion Mitigation and Air Quality Program (CMAQ)

FEMA

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