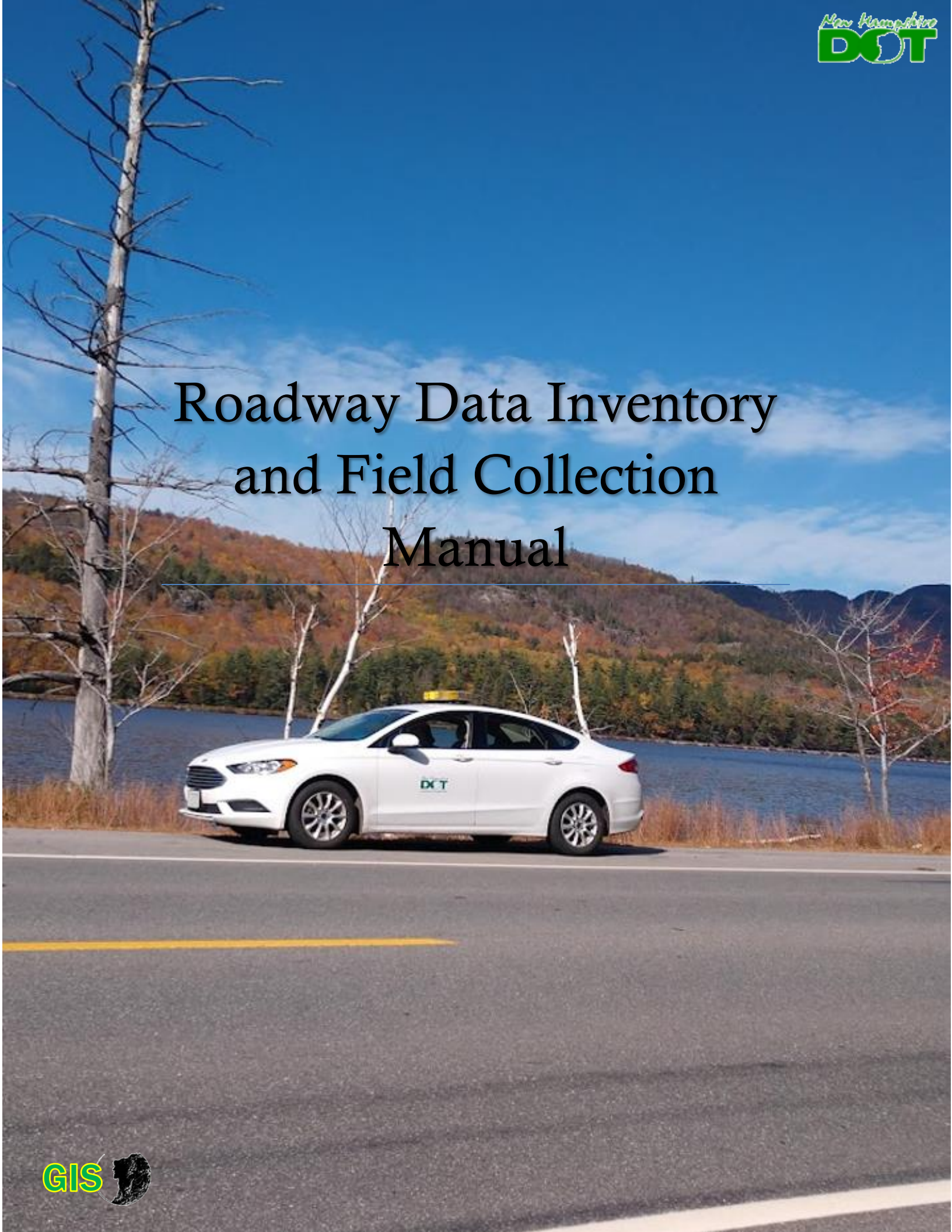


Roadway Data Inventory and Field Collection Manual

CONTENTS

PREFACE

The following document is a reference guide to the data contained in the attributes of the **NHDOT Roads Layer,** as well as some information from related layers in the NHDOT Geodatabase. This guide is organized into two different parts:

Part 1) Administrative and Location Information, and

Part 2) Physical Roadway Characteristics.

In each section, one can find definitions for each data class involved, as well as the standards and procedures involved in collecting, processing, and cataloguing this data. For an abbreviated guide to the information presented, please see the **Metadata for the Roads Layer.** If you require data beyond what is shown, or if you find an error, please contact the GIS Section at the New Hampshire Department of Transportation, Bureau of Planning:

Glenn L. Davison, PE – GIS Section Coordinator
NHDOT – Bureau of Planning & Community Assistance
John O. Morton Building
7 Hazen Dr
Concord, NH 03302-0483
(603).271.3344

BEFORE YOU BEGIN

Before you begin using this manual, a few items should be defined:

Roadway Data Inventory- The inventory of physical feature roadway classifications to meet state and federal reporting requirements and NHDOT's operations and project development.

Roadway Sections – This manual will often refer to roadway sections. A roadway section is defined as a section of roadway (line segment) connecting two points or *nodes (see below).* GIS Users will recognize these as Anchor Sections, however, due to the wide demographic covered by this manual, the RDI committee settled on "roadway section" as the most intuitive naming convention. This convention is also congruent with the convention of the Road Surface Management System, RDI's sister program.

Nodes – Nodes are most created at intersections. Nodes are assigned a number in sequential order, starting from 1 in each town. NHDOT holds a database of all nodes in the state. This database contains the node number, but also uses a Unique ID for each individual node, which eliminates any duplicate numbers in the system.

To read more about NHDOT Road Networks Components see page 49.

How to read this manual:

This manual is intended to serve users with many backgrounds. There is information about the layer as well as the origin of the data. Below is an example page from the manual.
Page setup may vary slightly.

Field/Section Name

FUNCTIONAL SYSTEM

The Functional System is the Federal Highway Administration (FHWA) process of grouping roads according to the character of service they are intended to provide.

The Functional Classification of public roadways is coded according to the functional system. The combination of functional system and urban/rural destination translates to an equivalent functional classification.

Arterial Highway System is the group of roads constituting the highest degree of through traffic movement and largest proportion of total travel. The interstate highway system is part of the federal arterial highway system.

Collector Road System is the group of roads providing a link between through traffic movement and direct private property access functions, typically within a given country or urban area, linking major property uses to each other or to the arterial highway system. The collector road system is composed of rural major collector roads, rural minor collector roads, urban major collectors and urban minor collectors.

Table 3: Functional System

FUNCT_SYSTEM	FUNCT_SYSTEM_DESCR
1	Interstate
2	Principal Arterial-Other Freeways and Expressways
3	Principal Arterial – Other
4	Minor Arterial
5	Major Collector
6	Minor Collector
7	Local
0	Non-Public Roads (NH Only)

KEY INFORMATION

Data Name: Functional System

Field Name: FUNCT_SYSTEM

Definition:
Code (number) that represents the functional grouping of roadway classifications are such according to the levels of Mobility (through) and access (destination) that they provide.

Data Type: Numerical

Source: Auto generated (NHDOT/FHWA) using Functional Classification and Urban ID attributes.

Data Accuracy: High

Data Name:
Functional System Description

Field Name:
FUNCT_SYSTEM_DESCR

Definition: The name for the type of Functional System that corresponds to the code.

Data Type: Text

Source: Auto generated (NHDOT/FHWA) using Functional Classification and Urban ID attributes.

Data Accuracy: High

Field/Section Description:
A detailed description of the field or section you are learning about. Underlined words may also be listed in the glossary in the back of the manual.

Table to showcase how a field is set up.
Ex. Code is the not seen by the viewer but lives behind the name shown in description.
Note:
Not every section shows a table.

KEY INFORMATION
This section may be helpful for anyone that wants to know how the field/fields are configured.

Data Name:
The Name of the Field

Field Name:
The name of the field seen in the attribute table.

Definition:
Details about the field as a description.

Data Type:
The type of data that populates the field.
Ex.-Text, Numeric

Data Accuracy:
The level of accuracy for the field you are viewing.

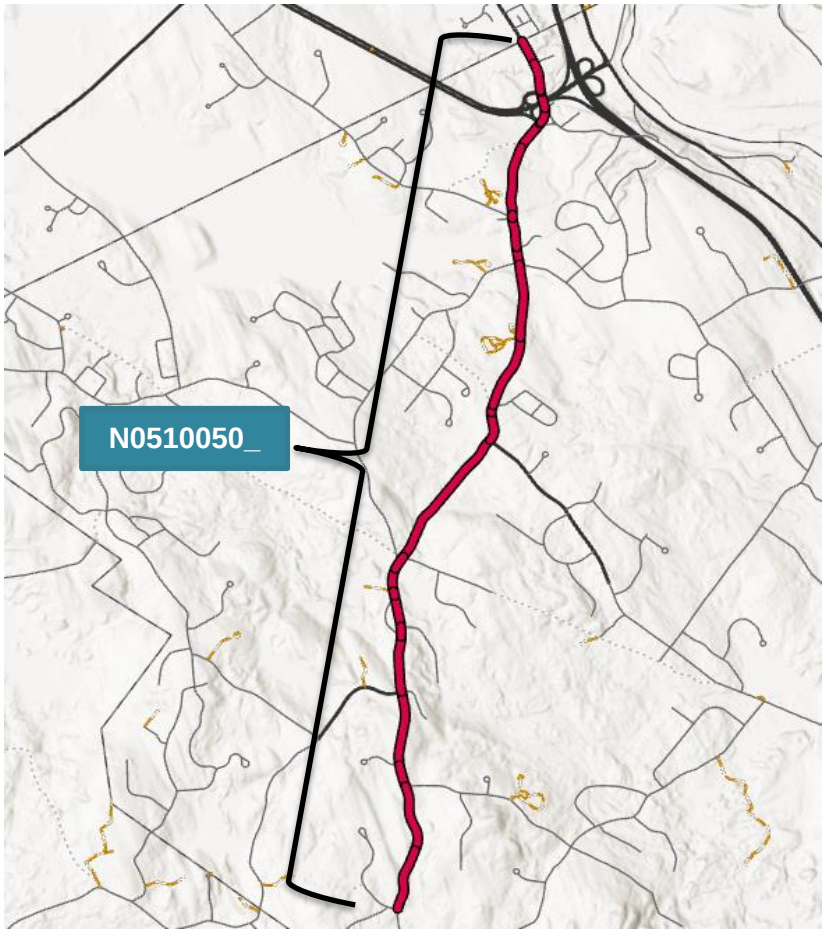
Note:
There may be more than one field listed in the key information.

PART 1: ADMINISTRATIVE AND LOCATION INFORMATION

Administrative and Location data is essential information that is collected and maintained for each roadway. The data are references that identify a section's location, as well as its functions and classification, and are collected from node to node.

Administrative and Location Information serves to identify and classify all roadways in the state of New Hampshire. Starting with the Statewide Route Identifier (a sort of serial number unique to each road), followed by the road's name(s), the town and county in which the roadway lies, and its classification and maintenance information.

STATEWIDE ROUTE IDENTIFIER (SRI) – PART 1



The Statewide Route Identifier (SRI) is the quickest way to access roadway information using a single code. Note that all sections of a route (roadway), not including adjacent ramps or slip ramps *(See Appendix C pg. 62-63)* are given the same SRI. For instance, Bow Center Rd/Logging Hill Rd/South St/Woodhill Rd., Bow, NH (which is composed of 26 anchor sections, and has four unique street names) has an SRI of **N0510050__** along its entire length. Each section is given the same SRI as the continuous route because they are segments of a single roadway.

KEY INFORMATION

Data Name: Statewide Route Identifier

Field Name: SRI

Definition:
Statewide Route Identifier, a 10-digit identification number assigned to each roadway in the state.

Data Type: Text
The SRI is entered in the following structure: *PTTTRRRRSD*, as shown in the flowchart on following page.

Source:
Manually Generated (NHDOT)

Data Accuracy: High

Exceptions/Special Circumstances:
SRI's are manually generated. For each new road, the Route Number is assigned in ascending sequential order.

STATEWIDE ROUTE IDENTIFIER - ASSIGNMENT PROCESS – PART 2

Traditional SRI Structure is: *PTTTRRRRSD*, where:

P = Route Prefix

- Y = Slip ramp
- R = Ramp
- T = Turnpike
- I = Interstate
- U = US route
- S = Numbered state route
- N = Non numbered state routes
- C = Circle
- L = Local Road
- F = Federal Road
- M = Maintenance Road (Non-public)
- P = Private Road
- Z= Maintenance Road (Out of State)

TTT = Town Identification Number

- Three-digit town identification number (See Appendix A pg.58-60)
  - For example, Concord's Town Identification Number is '099'

RRRR = Route Number

- Identifiers are sequential in each town.
  Right justified and zero-filled
  - For numbered routes, the route number is the route's numerical index (*i.e. for Route 101A, RRRR =0101)*
  - For Turnpikes, RRRR = the turnpike's initials or abbreviation, right justified and zero-filled.
    Turnpike Names:
    'FEET'=FE Everett, 'STAR'=Blue Star and 'SP'=Spaulding

S = Route Suffix

Examples: State Routes- 101A, 11B, 11C
If none, S = _

- D = Secondary Direction of Divided Highways
- S = South
- W = West

"_" = Bi-directional or primary direction of divided highway (North or East bound)

KEY INFORMATION

Town Identification Numbers are explained later in this manual. For a full list of New Hampshire Town Identification Codes, please see Appendix A pg. 58-60 of this manual.

Ramps do not follow typical SRI structure.
(See next page for structure.)

All slip ramps for L and N roads are manually assigned a sequential SRI in each town.
(See Appendix C pg. 62-63)

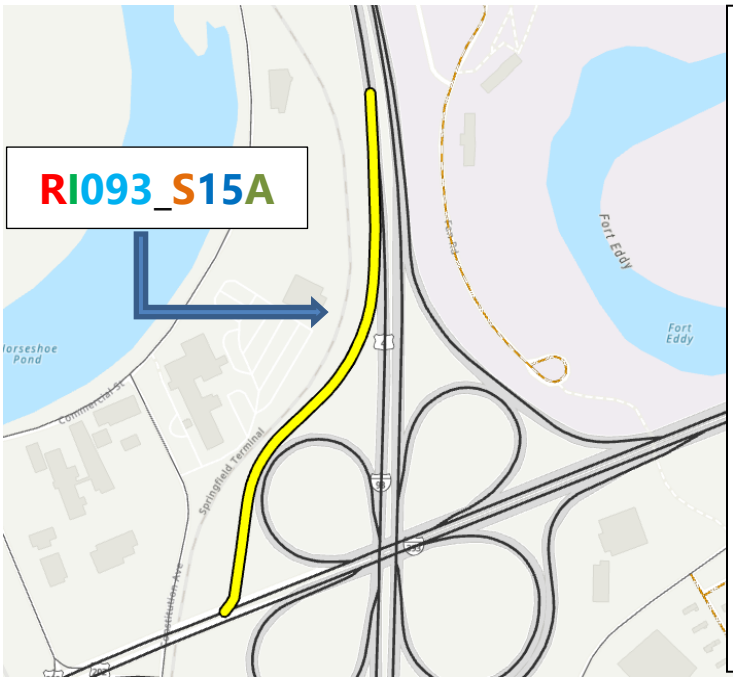
STATEWIDE ROUTE IDENTIFIER (SRI) - PART 3

Ramps:

Ramps do not follow typical SRI structure.

For Ramps servicing L (Local) or N (Non numbered State routes) → RPTTTSDEEA

For Ramps servicing all numbered routes → RPRRRSDEEA



Interstate I-93 ramp., Concord, NH.

Highlighted example on left:

RI093_S15A

R = 'R' for 'Ramp'

P = 'I' for 'Interstate'

RRR = '093' for '93'

S = '_' for 'None'

D = S for South

EE = '15' for 'Exit Number'

A = Section Lettering (Can be A, B, C etc.)

Exceptions | Special Circumstances:

- For each new road, the Route Number is assigned in ascending sequential order from the next to last.
- All slip ramps for L and N roads are manually assigned a sequential SRI in each town.

Data Accuracy	High
SOURCE	Manually generated (NHDOT)

See Appendix C SLIP Ramp Identification Guide pg. 62

HI-ORDER ROUTE

Many routes run concurrently in New Hampshire for at least a portion of their length. To prevent confusion among transportation and public safety officials, NHDOT has ordered all concurrent routes, based on their route type "Statewide Route Identifier"- See page 2.

From this order, NHDOT has identified the route of highest magnitude, or the high-order route, on each section. This ordering allows for consistent reference to sections with concurrent routes. Route Prefixes (Page 2) are directly tied to this ordering.

If a route is one-way, the High order route number and its direction are identified in the SRI.

Example: A road segment coded

'ROUTE_HIORDER NH43 South'
is
'S0000043_S'

KEY INFORMATION

Data Name: Hi-Order Route

Field Name: ROUTE_HIOR

Definition:
Concurrent SRI's may exist on a single roadway section, and a complex algorithm determines the high order route, with considerations to route order (Y, R, T, I, U, S, N, C…see page 3), direction, and suffix.

- Turnpikes take precedence over concurrent Interstate sections
- Route may not take presence over a ramp or slip-ramp designation.
- Lower route numbers take precedence within same route type.

Our rules on 'Z' roads will be

- Any SRI route outside NH boundaries that we track for plow route interest.
- All administrative attributes will be zero or null with the exception of winter maintenance and plow route.

Data Type: Text

Source: NHDOT

Data Accuracy: Constant Update

UNIQUE ID

UNIQUE_ID	SRI	MP_START	MP_END	STREET	T
31057	L0990252__	0	0.053	Summer St	0
59325	L0990252__	0.053	0.112	Summer St	0
6513	L0990252__	0.235	0.287	Summer St	0
37733	L0990252__	0.179	0.235	Summer St	0
10365	L0990252__	0.112	0.179	Summer St	0

Each roadway segment is assigned a computer-generated unique identification number (UID). A roadway section (also known as an anchor section) is defined as a section of roadway connecting 2 nodes.
Each roadway section carries 70+ attributes, most of which are described in this guide.

In this example, Summer Street in Concord has 5 roadway segments with 5 unique identification numbers (UID).

KEY INFORMATION

Data Name: Unique ID

Field Name: UNIQUE_ID

Definition:
A computer-generated unique identification number (UID).

Data Type:
Numerical, system generated

Source: NHDOT

Data Accuracy: Constant Update, High

STREET NAME

Our roads are named to affirm a unique and positive location of that roadway section in reference to all other roads, the town, the county, the state, the country, and the world.

Road names are also the method by which most people identify a road and do their daily navigating. The Department of Transportation keeps a reconciled database of road names on file in the Roads layer, which is updated by the Department of Safety and municipalities.

This communication and collection of data allows for the greatest possible level of comfort and safety for every driver and rider on New Hampshire's roadways.

KEY INFORMATION

Data Name: Street Name

Field Name: STREET

Definition:
The name for each respective road, is supplied by the municipalities and approved by the NH Department of Safety E-911 road name database.

Data Type: Text

Source: NHDOT, NHDOS/DESC

Data Accuracy: Constant Update

STREET NAME: ALIASES

With the large number of roadway sections in the state, there are bound to be some discrepancies across the independent databases that each organization uses to store and process roadway data. NHDOT has partnered with the University of New Hampshire's Technology Transfer Center to work towards complete coverage of the state road network for all users.

Road names have been submitted by the municipalities and Department of Safety to populate this STREET_ALIASES field.

By keeping not only the state-accepted name, but the local aliases in the Roads database, we hope to ensure a greater level of security and accessibility to emergency, postal, and utility services.

Note:
For a complete list of United States Postal Service Road name suffixes and their abbreviations,
(See Appendix B pg. 60-61)

KEY INFORMATION

Data Name: Street Aliases

Field Name: STREET_ALIASES

Definition:
The name for each respective road, is supplied by the municipalities and approved by the NH Department of Safety E-911 road name database.

Data Type: Text

Source: NHDOT, NHDOS/DESC

Data Accuracy: Constant Updates

NODE 1 AND NODE 2

Without nodes, the line sections in the Roads layer could not exist. The nodes define the geometry of sections, which are joined to form SRI_ Hi-Order Routes, Roads, and other linear layers. Nodes are defined at intersections and at Municipal boundary lines or at significant changes in roadway characteristics. Each node has its own unique number.
Without the nodes, a roadway line section cannot exist.

Node 1: Defines the start point of a roadway section.

Example from map above Node 1 = '1149'

Node 2: Defines the terminal end of a roadway section.

Example from map above – Node 2 = '1158'

- Nodes are assigned a number in sequential order, starting from "1" in each town.
- Nodes are never deleted, but they can be retired.

***Note**: For more information on nodes, please see the description at the introduction to this manual on page iv.*

KEY INFORMATION

Data Name: Node 1

Field Name: NODE_1

Definition:
A node that defines the start point of a roadway section.

Data Type: Text
Numerical-Town Node Number (AC_NUM)

Source:
NHDOT

Data Accuracy: High

Data Name: Node 2

Field Name: NODE_2

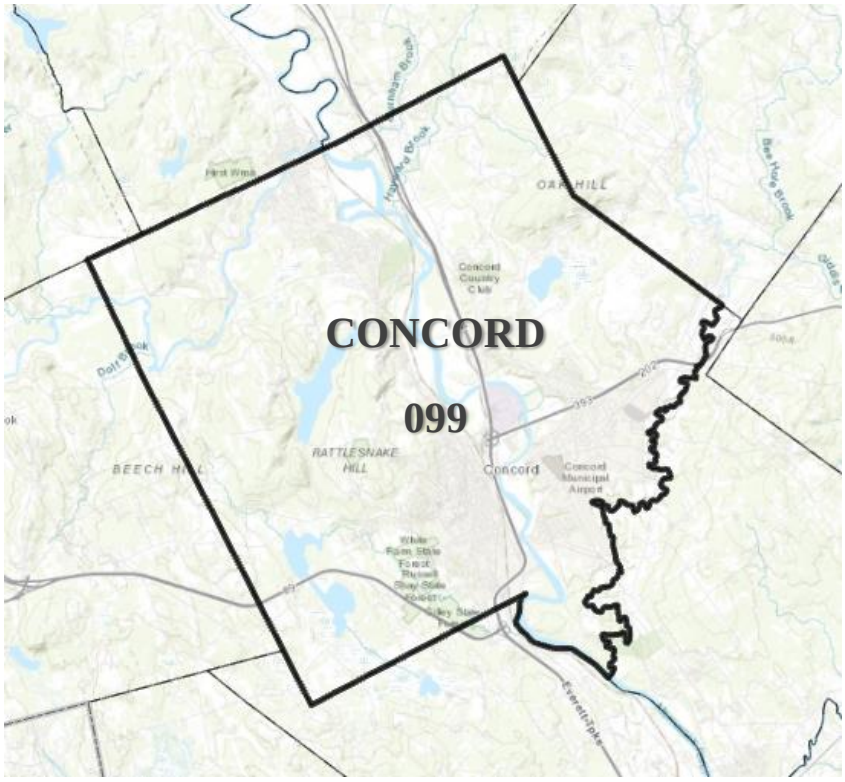
Definition:
The node that defines the terminal end of a roadway section.

Data Type: Text
Numerical - Town Node Number (AC_NUM)

Source:
NHDOT

Data Accuracy: High

TOWN IDENTIFICATION NUMBER/TOWN NAME



New Hampshire's town and city names carry the diverse heritage of the Granite State. Often dating back to the original families who settled a region, the local history in each name gives each New Hampshire town a unique identity among the rest of the state.

These names also serve in the NHDOT Roadway Data Inventory (RDI) system by allowing state agencies to easily search for features within a town or group of related towns. With this ability, agencies such as the Department of Transportation can focus funding in the areas where it is most needed, as well as easily identifying which town a piece of data belongs in, increasing safety and efficiency.

Note: Many towns have "sub towns" or villages (such as Winnisquam or Penacook) that are not represented with a TOWN_ID since they are not municipally incorporated. Refer to the incorporated municipality that they reside in.

KEY INFORMATION

Data Name: Town Id

Field Name: TOWN_ID

Definition:
A 3-digit ID (odd-numbered) assigned to each NH town by NHDOT. See Appendix B for a full list of Town ID codes and Town Names.

Data Type: Text (Numerical)

Source:
NHDOT generated

Data Name: Town Name

Field Name: TOWN_NAME

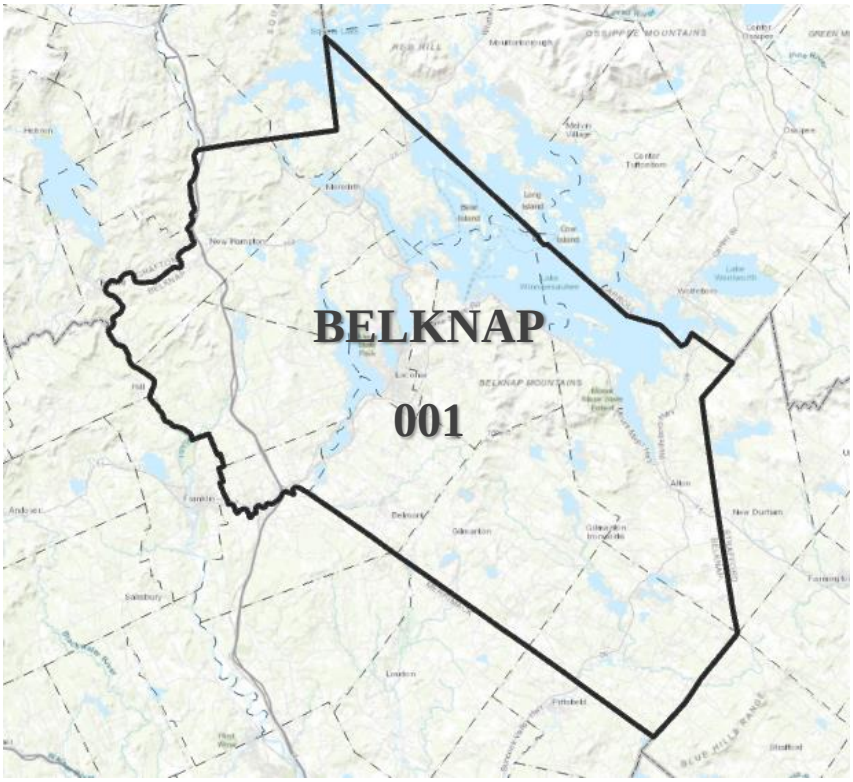
Definition:
The name of the New Hampshire town or city through which the roadway or roadway section passes. Populated by the 'TOWN_ID' field

Data Type: Text

Source: Based on original Town Charters. NHDOT maintains a Town Info Table.

Note: Auto-generated in the TOWN_NAME field.
(See Appendix pg. 58-60)

COUNTY IDENTIFICATION NUMBER/COUNTY NAME



The ten New Hampshire counties separate the state into a secondary level of administrative division. The counties are responsible for several administrative duties that encompass all the municipalities in their jurisdiction.

Table 1: County ID Codes and County Names

County_ID	County Name
001	Belknap
003	Carroll
005	Cheshire
007	Coos
009	Grafton
011	Hillsborough
013	Merrimack
015	Rockingham
017	Strafford
019	Sullivan

KEY INFORMATION

Data Name: County Id

Field Name: COUNTY_ID

Definition:
Odd, three-digit code (001-019) denoting in which New Hampshire County the roadway section lies.

Data Type: Numerical (Long)

Source: NHDOT generated

Data Name: County Name

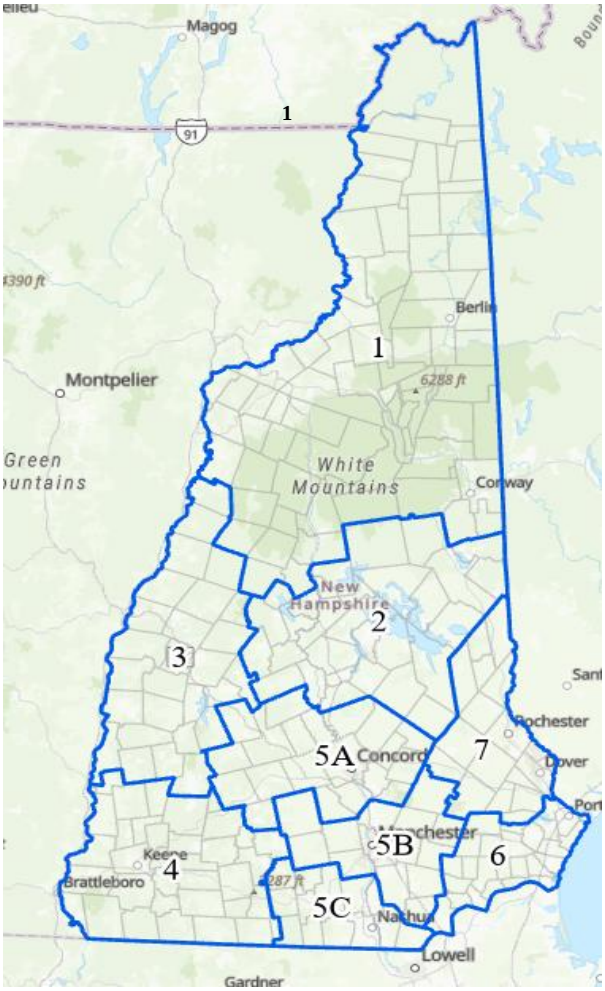
Field Name: COUNTY_NAME

Definition:
The name of the New Hampshire County in which the roadway or roadway section lies. Populated by the COUNTY_ID field.

Data Type: Text
Full name of the county is auto generated in the COUNTY_NAME field.

Source: Fixed

REGIONAL PLANNING COMMISSIONS IDS AND NAMES



The main mission of Regional Planning Commissions is to provide a forum to coordinate regional planning initiatives on a statewide basis and to disseminate information about RPCs to other agencies and organizations. They maintain strategic partnerships with state agencies, develop shared planning policies, and monitor planning related legislation. RPC's work on behalf of its member commissions and, by extension, the member cities and towns across the state.

RPC_ID	RPC_NAME
1	NORTH COUNTRY COUNCIL
2	LAKES REGION PLANNING COMMISSION
3	UPPER VALLEY-LAKE SUNAPEE REGIONAL PLANNING COMMISSION
4	SOUTHWEST REGION PLANNING COMMISSION
5A	CENTRAL NH PLANNING COMMISSION
5B	SOUTHERN NH PLANNING COMMISSION
5C	NASHUA REGIONAL PLANNING COMMISSION
6	ROCKINGHAM PLANNING COMMISSION
7	STRAFFORD REGIONAL PLANNING COMMISSION

Table: RPC_ID Codes and Regional Planning Commission Names

KEY INFORMATION

Data Name:
Regional Planning Commission Name

Field Name: RPC_NAME

Definition:
The name of the Regional Planning Commission (RPC) in which the roadway or roadway section lies.

Data Type: Text

Source: NHDOT generated

Data Name:
Regional Planning Commission Id

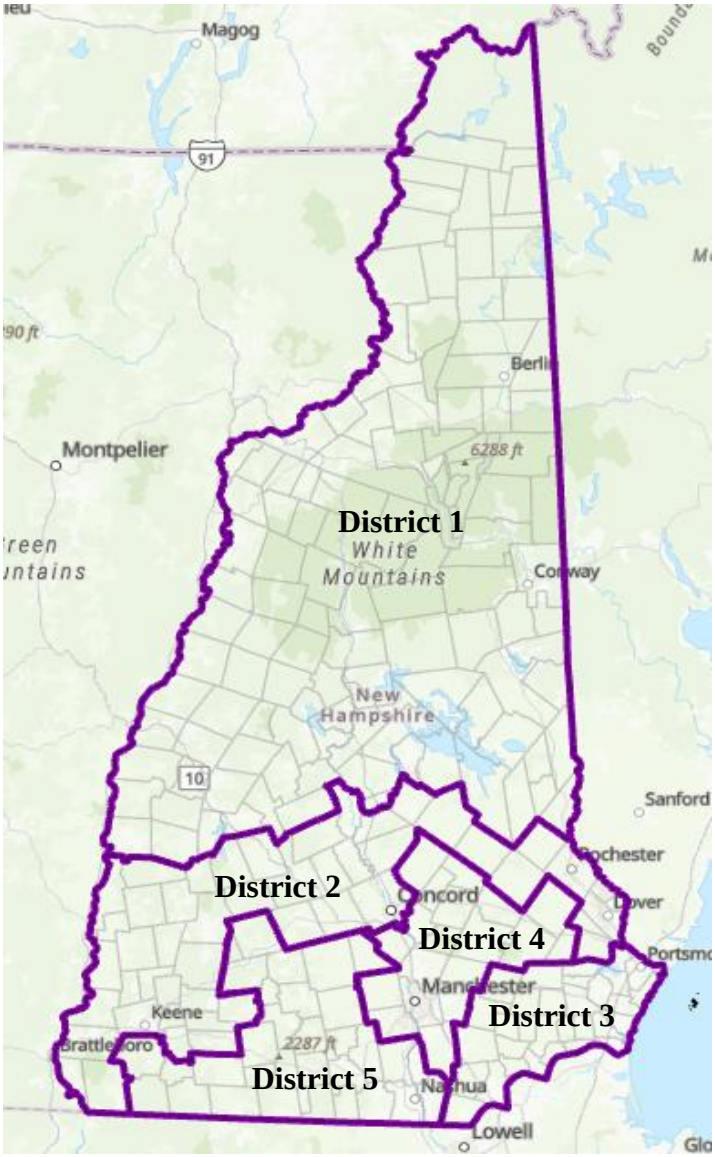
Field Name: RPC_ID

Definition:
1 digit code (1-7 with 5 having an A, B and C added) denoting in which NH Regional Planning Commission the roadway lies.

Data Type: Text

Source: NHDOT generated

EXECUTIVE COUNCIL IDS AND NAMES



The Executive Council of the State of New Hampshire has the authority and responsibility, together with the Governor, over the administration of the affairs of the State as defined in the New Hampshire Constitution, the New Hampshire statutes, and the advisory opinions of the New Hampshire Supreme Court and the Attorney General.

The Councilors participate in the active management of the business of the state. They receive assistance from the Commissioner of the Department of Administrative Services and the Attorney General who review requests involving state funds since no expenditure can be legally authorized without the availability of adequate funds.

KEY INFORMATION

Data Name:
Executive Council Name

Field Name:
EXEC_COUNCIL_NAME

Definition: Each of 5 districts is overseen by an Executive Councilor. This field shows the name of that person.

Data Type: Text

Source: NHDOT generated

Data Accuracy: High

Data Name: Executive Council Id

Field Name:
EXEC_COUNCIL_ID

Definition: Each of the 5 Executive Councilors covers a region. Each region is given a number 1-5.

Data Type: Short

Source: NHDOT generated

Data Accuracy: High

***Note**: Each of 5 executive councilors represents one fifth of the population in NH. Councilors are elected every two years, concurrently with the Governor. (Reference: State of NH Executive Council 'about us' webpage.)*
https://www.nh.gov/council/about-us/index.htm

LEGISLATIVE CLASS AND LEGEND

Legislative classification is a state system set up to classify roads and highways. With this system, legislative class is divided by defining function, ownership and maintenance responsibilities.

State Owned and Maintained:

- **Class I** – Primary Highways owned and maintained by the state
- **Class II** – Secondary Highways, including
- **Class III** – Recreational Roads

State Owned and Town Maintained:

Class IV – Roads in Urban Compact Areas

Urban Compact Area (City) - The Compact City or city of short distances is an urban planning and urban design concept, which promotes relatively high residential density with mixed land uses.

Locally Owned and Maintained:

- **Class V** – Local Roads
- **Class VI** – Non-maintained Local Roads

Federally Owned and Maintained:

- **Class VII** – Federal Roads

Non-Public:

- **Class 0 –** Private-Non-Public

NOTE: New Hampshire Legislative Class is completely unassociated with Federal Highway Functional Class.

For more information, see New Hampshire RSA 229.5.

KEY INFORMATION

Data Name: Legislative Class

Field Name: LEGIS_CLASS

Definition: Legislative classification is a state system set up to classify roads and highways. With this system, legislative class is divided by defining function, ownership and maintenance responsibilities.

Data Type: Text
Roman numeral, as shown at left

Source:
Manually generated

Data Accuracy: High

LEGIS_CLASS – Classification of roadways using Roman Numerals I-VII

Data Name:
Legislative Class Legend

Field Name: LC_LEGEND

Definition:
Code used for mapping purposes to simplify the Legislative Class coding. (See left)

Data Type: Text

Source: Manually generated

Data Accuracy: High

LC_LEGEND – Code used for mapping purposes to simplify Legislative class coding.
Codes: State, Private, Local, Recreation, Federal and Not Maintained.

STATE OWNERSHIP AND OWNERSHIP DESCRIPTION

Sometimes, roadways are damaged beyond the realm preventative maintenance.

Natural phenomena, unexpected loadings, and repetitive wear-and-tear can cause deterioration and distresses in a roadway that warrant significant repair or replacement efforts. When the need for repair maintenance or reconstruction to a roadway arises, it is important for all the parties involved to know on whom the responsibility lies to complete it and to fund it.

With Ownership data effectively catalogued, large maintenance and reconstruction projects can be accomplished in a timely manner.

Table: Maintenance Codes for 'OWNERSHIP' And 'OWNERSHIP_DESCR'

Code	Description	Code
3 Digit # Ex. '324'	For numeric codes, first digit indicates highway district # (1-6 for standard highway districts, or 8 for turnpikes), while remaining digits indicate shed # within the district.	District # (Text Name) Ex. 'DISTRICT 3'
TOWN	Maintained by the town	TOWN
NM	Not Maintained	NM
DRED	Now 2 Departments: DNCR-Department of Natural and Cultural Resources BEA-Department of Business and Economic Affairs	DRED
VT	State of Vermont	VT
FEDERAL	Federal Government	FEDERAL
MAINE	State of Maine	MAINE

Note: *The only difference between Ownership and Ownership Description is when the feature is* ***NOT THE FOLLOWING;*** *Town, Not Maintained, VT, Federal or MAINE. If this is the case, the entry will be a number or a text entry. (See example above)*

KEY INFORMATION

Data Name: Ownership

Field Name: OWNERSHIP

Definition:
Designates the party financially responsible for major roadway repairs such as destroyed culverts

Data Type: Text (Numeric)

Source: NHDOT Operations

Data Accuracy: High

(See Detailed Example on Left)

Data Name: Ownership Description

Field Name: OWNERSHIP_DESCR

Definition:
Classifies ownership into categories

Data Type: Text

Source: NHDOT Operations

Data Accuracy: High

(See Detailed Example on Left)

SUMMER MAINTENANCE AGREEMENT

In the summer months, it is important for roadway maintenance agencies such as the Department of Transportation and municipal highway departments to repair the damage done to roadways during the winter.

Summer maintenance includes preventative, repair maintenance, and rehabilitation, and focuses on pothole, culvert, and shoulder maintenance.

Summer maintenance agreement designates the party responsible for summer-based maintenance. Just as with winter maintenance responsibilities, summer maintenance responsibilities do not always fall to the agency that owns the roadway.

NHDOT makes many agreements with other agencies to exchange summer maintenance duties based on usage and efficiency. These agreements are mutually beneficial and increase the coverage of summer restoration and improvement efforts.

Table: Maintenance Codes (Who Maintains)

Code	Description
3 Digit #	For numeric codes, first digit indicates highway district # (1-6 for standard highway districts, or 8 for turnpikes), while remaining digits indicate shed # within the district.
TOWN	Maintained by the town
NM	Not Maintained
DRED	DNCR-Department of Natural and Cultural Resources
VT	State of Vermont
FEDERAL	Federal Government
MAINE	State of Maine

Note: Code # is not always seen by the user. The code is often the piece that connects the data behind the scenes.

KEY INFORMATION

Data Name:
Summer Maintenance Agreement

Field Name: SUMMER_MAINT

Definition:
Designates the party responsible for summer-based maintenance, such as pothole filling, culvert upkeep, etc.

Data Type: Text (Numeric)

- For numeric codes, first digit indicates highway district # (1-6 for standard highway districts, or 8 for turnpikes), while remaining digits indicate shed # within the district.

  (Just State)

- Alphanumeric codes include VT (State of Vermont), MAINE (State of Maine), DRED (maintained by Department of Resources and Economic Development), TOWN (maintained by the town), NM (not maintained) or PRIVATE.

Source: NHDOT Operations

Data Accuracy: High

WINTER MAINTENANCE AGREEMENT

Winter maintenance allows for safe travel on New Hampshire roadways in the inclement weather during the winter months. From snow removal and roadway treatment (including salting and sanding) to pothole filling and storm clean up, the responsibility of winter maintenance on our roadways is a large one.

This responsibility does not necessarily fall to the entity that owns the road. NHDOT often makes agreements with other agencies (such as municipal public works departments or the Vermont Agency of Transportation) to maintain each other's roadways. These agreements work to ensure continuity and efficiency in winter maintenance efforts and improve the safety of winter travel.

Table: Maintenance Codes (Who maintains)

Code	Description
3 Digit #	For numeric codes, first digit indicates highway district # (1-6 for standard highway districts, or 8 for turnpikes), while remaining digits indicate shed # within the district.
TOWN	Maintained by the Town
NM	Not Maintained
DRED	DNCR-Department of Natural and Cultural Resources BEA-Department of Business and Economic Affairs
VT	State of Vermont
FEDERAL	Federal Government

Note: Code # is not always seen by the user. The code is often the piece that connects the data behind the scenes.

KEY INFORMATION

Data Name:
Winter Maintenance Agreement

Field Name: WINTER_MAINT

Definition:
Designates the party responsible for winter-based maintenance such as plowing and roadway treatment, etc.

Data Type: Text (Numeric)

Source: NHDOT Operations

Data Accuracy: High

LEVEL OF WINTER MAINTENANCE (PLOW) SERVICE

NHDOT strategically prioritizes its winter maintenance efforts using a system of designated winter maintenance service guidelines, commonly referred to as "plow level." The levels are shown in the table below.

Plow Levels (Listed from 1-4 with 1 being the highest priority)

Code	Description
1	Highways on the Interstate and Turnpike Systems and those highways carrying 15,000 vehicles or more daily should have full width bare pavement as soon as practical after a winter storm terminates.
2	Highways on the State system and carrying 5,000 to 15,000 vehicles daily should have full width bare pavement as soon as practical after a winter storm terminates.
3	Highways on the State system carrying 1,000 to 5,000 vehicles daily should have some bare pavement as soon as practical after a winter storm terminates.
4	Highways on the State highway system carrying less than 1,000 vehicles daily should have bare pavement in left wheel tracks near the center of the highway as soon as practical after the winter storm. Included in this classification are highways carrying less than 500 vehicles daily for which snow-covered pavement is deemed acceptable.

Note: Code # is not always seen by the user. The code is often the piece that connects the data behind the scenes.

KEY INFORMATION

Data Name: Level of Winter Maintenance (Plow) Service

Field Name: PLOW_LEVEL

Definition:
Plowing designation for the winter-maintained State highway system. Code #1-4 with 1 having highest priority.

Data Type: Numerical (Long)

Source: NHDOT Operations

Data Accuracy: High

Note:
These designations have been determined by traffic volume primarily but have been modified to include consideration of posted speed, highway grade, truck volume, accessibility to hospitals and emergency services, special events, second and/or third shifts at major industrial complexes and major commercial traffic generators as well as to establish continuity between highway districts.

For more detailed information, see the NHDOT Winter Maintenance Snow Removal and Ice Control Policy at:

http://www.nh.gov/dot/org/operations/highwaymaintenance/documents/WinterMaintSnowandIcePolicy.pdf

Highway Tiers

The New Hampshire Department of Transportation (NHDOT) is focused on managing the state's road network as efficiently and effectively as possible. While every road is critical to the people and businesses that rely upon it, each road also serves a different number of users and provides different levels of mobility. Grouping based on similarities such as connectivity, regional significance, and winter maintenance requirements provides a common framework for analysis of condition and performance, investment levels, and operation and maintenance levels.

To strategize the investment of scarce resources, the Department has categorized New Hampshire's road system into the following **Tiers:**

Tier 1 – Interstates, Turnpikes and Divided Highways

Interstates, Turnpikes, and NH Route 101 between Bedford and Hampton support the highest traffic volumes and speeds in the entire state. These multi-lane, divided highways convey the majority of commuter, tourist, and freight traffic throughout the state.

Tier 2 – Statewide Corridors

Statewide Corridors, like US 202 or NH 16, carry passengers and freight between regions of the state as well as to and from neighboring states. These roads can have moderate to high traffic volumes, particularly during morning and afternoon commutes. While functionally similar, condition and features of these corridors vary the most out of any Tier. Some of these roads are formally constructed higher-speed facilities while others are more rural roads that became high use roads as surrounding neighborhoods and communities developed.

Tier 3 – Regional Transportation Corridors

Regional Transportation Corridors provide travel within regions, access statewide corridors, and support moderate traffic volumes at moderate speeds. Good examples include NH 112 and NH 155.

Tier 4 – Local Connectors

Secondary highways and unnumbered routes as well as the bridges along them are local connectors that provide travel between and within communities. Traffic on local connectors, such as NH 141 or Bean Rd in Moultonborough, is usually low volume and low speed.

Tier 5 – Local Roads

Locally owned roads and bridges or State-owned roads within compact limits provide varying travel functions and are maintained by communities. Traffic volumes and speeds can vary on local roads.
Good examples include North State St in Concord or Elm St in Manchester. Though, the Department does not maintain local road and bridges, it does provide assistance to communities.

Tier 6 – Off Network

The Department needs to track work accomplished on off network assets such as park‘n’rides, patrol shed, or rest stop parking lots.

Below is coding in Roads Data as of January Snapshot.
To be changed to reflect Tiers documentation (Tiers 1 and 2)

Tier Number	Tier Description
1	Statewide Corridors – Divided Highways
2	Statewide Corridors - Other
3	Regional Corridors
4	Local Connectors
5	Local Roads
6	Off Network- Usually access points or access roads.
0	Private Roads or Not Maintained

NATIONAL HIGHWAY SYSTEM (NHS)

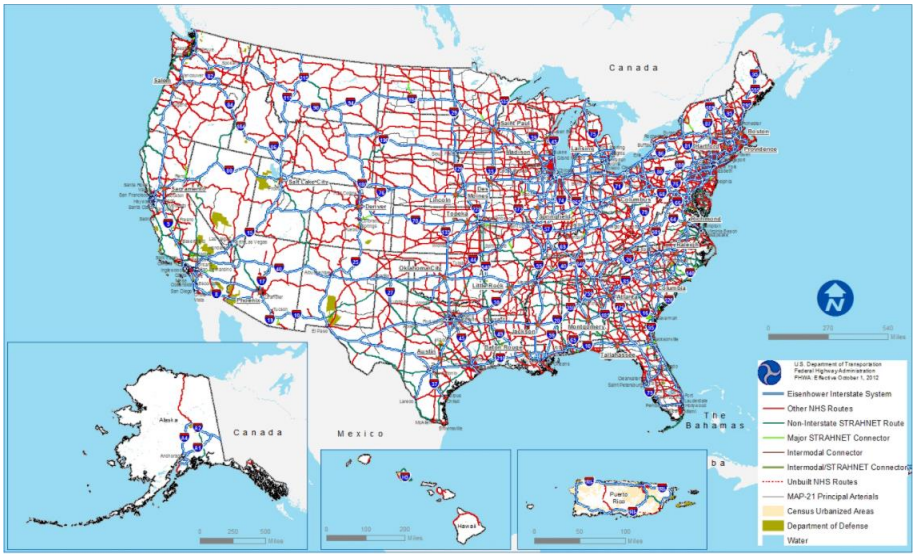


Table 2: NHS Codes

NHS	NHS_Description
9	Major Ferry Terminal
8	Major Pipeline Terminal
7	Major Public Transportation Terminal
6	Major Inner City Bus Terminal
5	Major Rail/Truck Terminal
4	Major Amtrak Station
3	Major Port Facility
2	Major Airport
1	Non-connector NHS
0	NOT part of NHS

The National Highway System is a strategic network of highways connecting most locations in the United States. It was established when President Dwight D. Eisenhower signed the Federal Aid Highway Act of 1956 on June 29th of the same year.

NHS comprises the Eisenhower Interstate Highway System and certain other Federal and State routes, and services major public transportation hubs such as bus terminals, train stations, airports, and ports. It constitutes only a small portion of the nation's roadways yet carries a major portion of the nation's traffic. NHS also plays a pivotal role in the Strategic Highway Network, linking major military installations in the United States.

KEY INFORMATION

Data Name:
National Highway System (NHS) Code

Field Name: NHS

Definition: Denotes classification of a roadway section in the National Highway System.

Data Type: Numerical – (Long) (0-9)

Source: Highway Performance Monitoring System

Data Accuracy: High

Data Name:
National Highway System Description

Field Name: NHS_DESCR

Definition: Name to describe the NHS classification of a road.

Data Type: Text

Data Name: Is it National Highway System

Field Name: IS_NHS

Definition: Yes/No field, denotes whether a road is part of NHS or not.

Data Type:
Text ("Yes" or "No")

FUNCTIONAL SYSTEM

The Functional System is the Federal Highway Administration (FHWA) process of grouping roads according to the character of service they are intended to provide.

The Functional Classification of public roadways is coded according to the functional system. The combination of functional system and urban/rural destination translates to an equivalent functional classification.

Arterial Highway System is the group of roads constituting the highest degree of through traffic movement and largest proportion of total travel. The interstate highway system is part of the federal arterial highway system.

Collector Road System is the group of roads providing a link between through traffic movement and direct private property access functions, typically within a given country or urban area, linking major property uses to each other or to the arterial highway system. The collector road system is composed of rural major collector roads, rural minor collector roads, urban major collectors and urban minor collectors.

Table 3: Functional System

FUNCT_SYSTEM	FUNCT_SYSTEM_DESCR
1	Interstate
2	Principal Arterial-Other Freeways and Expressways
3	Principal Arterial – Other
4	Minor Arterial
5	Major Collector
6	Minor Collector
7	Local
0	Non-Public Roads (NH Only)

KEY INFORMATION

Data Name: Functional System

Field Name: FUNCT_SYSTEM

Definition:
Code (number) that represents the functional grouping of roadway classifications are such according to the levels of Mobility (through) and access (destination) that they provide.

Data Type: Numerical

Source: Auto generated (NHDOT/FHWA) using Functional Classification and Urban ID attributes.

Data Accuracy: High

Data Name:
Functional System Description

Field Name:
FUNCT_SYSTEM_DESCR

Definition: The name for the type of Functional System that corresponds to the code.

Data Type: Text

Source: Auto generated (NHDOT/FHWA) using Functional Classification and Urban ID attributes.

Data Accuracy: High

URBAN IDS AND NAMES

Urban IDs and corresponding Urban Names are used to identify urban areas that typically represent adjustments or revisions to the Census Urban Area Boundary and are fixed by responsible State and local officials in coordination with each other.

The Census Bureau identifies two types of areas:

Urban Areas
Represent densely developed territory and encompasses residential, commercial, and other nonresidential urban land uses.

Rural
Encompasses all population, housing and territory *not* included in the Urban areas.

Table: Urban IDs and Urban Names

URBAN_ID	URBAN_NAME
7192	Berlin
9271	Boston
17101	Claremont
19531	Concord
48728	Hanover/Lebanon
9703	Hinsdale
44209	Keene
45856	Laconia
53740	Manchester
61165	Nashua
71506	Portsmouth
24607	Rochester/Dover
31330	Tilton
6679	Walpole

KEY INFORMATION

Data Name: Urban Name

Field Name: URBAN_NAME

Definition:
Urban Names are used to identify urban areas that typically represent adjustments or revisions to the Census Urban Area Boundary and are fixed by responsible State and local officials in coordination with each other.

Data Type: Text

Source: Census

Data Accuracy: High

Data Name: Urban ID

Field Name: URBAN_ID

Definition:
Urban IDs are a number assigned to each urban area.

Data Type: Numerical

Source: Census

Data Accuracy: High

POPULATION GROUP

The Population Group is determined by the Census boundary data obtained from Federal Highway Administration (FHWA) and is calculated by Urban ID and Urban Name and is divided into 3 groups:

5,000 but less than 50,000 ➔ POP 5K > 50K

50,000 but less than 200,000 ➔ POP 50K > 200K

Greater than 200,000 ➔ POP > 200K

Table: Urban IDs and Urban Names with Population Group

URBAN_ID	URBAN_NAME	POPULATION_GROUP
7192	Berlin	POP 5K > 50K
9271	Boston	POP > 200K
17101	Claremont	POP 5K > 50K
19531	Concord	POP 5K > 50K
48728	Hanover/Lebanon	POP 5K > 50K
9703	Hinsdale	POP 5K > 50K
44209	Keene	POP 5K > 50K
45856	Laconia	POP 5K > 50K
53740	Manchester	POP 50K > 200K
61165	Nashua	POP > 200K
71506	Portsmouth	POP 50K > 200K
24607	Rochester/Dover	POP 50K > 200K
31330	Tilton	POP 5K > 50K
6679	Walpole	POP 5K > 50K

KEY INFORMATION

Name: Population Group

Field Name:
POPULATION_GROUP

Definition:
The Population Group is determined by the Census boundary data obtained from Federal Highway Administration (FHWA) and is calculated by Urban ID and Urban Name.

Data Type: Text

Source: Census.

Data Accuracy: High

Note:
This data is translated and assists in HPMS submittals. For more information on HPMS see pages 51-55.

FEDERAL AID ELIGIBILITY

Federal-Aid highway funds are authorized by Congress to assist the States in providing for construction, reconstruction, and improvement of highways and bridges on eligible Federal-Aid highway routes and for other special purpose programs and projects.

Through the Federal Lands Highway Program, funding is provided for improving access to and within National Forests, National Parks, Indian Lands and other public lands.

Codes for determining Federal Aid Eligibility:

BEGIN WITH	QUERY PROCESS FUNCTION SYSTEM & URBAN_ID	IS_FED_AID Code Assignment
NHS=Yes	Function System = 0,7	No
NHS=Yes	Function System 6 Urban ID =0 or Null	No
NHS=Yes	Function System 6 Urban ID >0	Yes
NHS=Yes	Function System 1,2,3,4,5	Yes
NHS=No	Function System = Any Urban ID = Any	No

KEY INFORMATION

Data Name: Federal Aid Eligibility

Field Name: IS_FED_AID

Definition: Federal-Aid highway funds are authorized by Congress to assist the States in providing for construction, reconstruction, and improvement of highways and bridges on eligible Federal-Aid highway routes and for other special purpose programs and projects.

Data Type: Text (Yes or No)

Source: NHDOT

Data Accuracy: High

TRAFFIC COUNTER IDENTIFICATION NUMBER

Traffic counters are used on many state-maintained roadways in order to assess the amount of wear-and-tear on a roadway, and for traffic-safety studies. Constructed of several pressurized rubber hoses and a specialized counting device, a traffic counter can count either the number of axles or the number of vehicles that cross-over the counter.

KEY INFORMATION

Data Name: Traffic Counter Identification Number

Field Name: COUNTER_ID

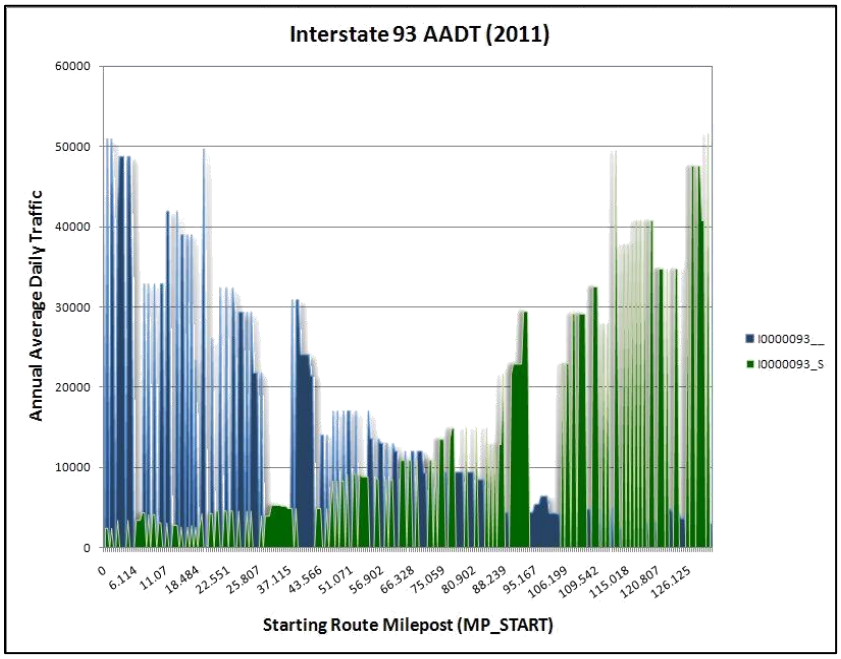
Definition:
Identification number of the traffic counter in use on the roadway section

Data Type:
Numerical - ID number

Source:
Manually generated (NHDOT Bureau of Traffic)

Data Accuracy: High

ANNUAL AVERAGE DAILY TRAFFIC



Annual Average Daily Traffic (AADT) is data collected for the FHWA's Highway Performance Maintenance System. The data, represented in number of vehicles per day (averaged over the course of a year), is used for apportionment, administrative, legislative, analytical, and national highway database purposes. All federal-aid highways, including ramps located within grade-separated interchanges are surveyed for annual average daily traffic.

KEY INFORMATION

Data Name: AADT
Annual Average Daily Traffic

Field Name: AADT

Definition:
Annual Average Daily Traffic count of all vehicles.

Data Type: Numerical (Long)

Year (YYYY)

Source: NHDOT

Data Accuracy: High

Data Name: AADT Current Year

Field Name: AADT_CURR_YEAR

Definition:
The year for which AADT was collected.

Data Type: Numerical (Short)
Year (YYYY)

Source: NHDOT

Data Accuracy: High

Name: Aggregate AADT

Field Name: AGGREGATE_AADT

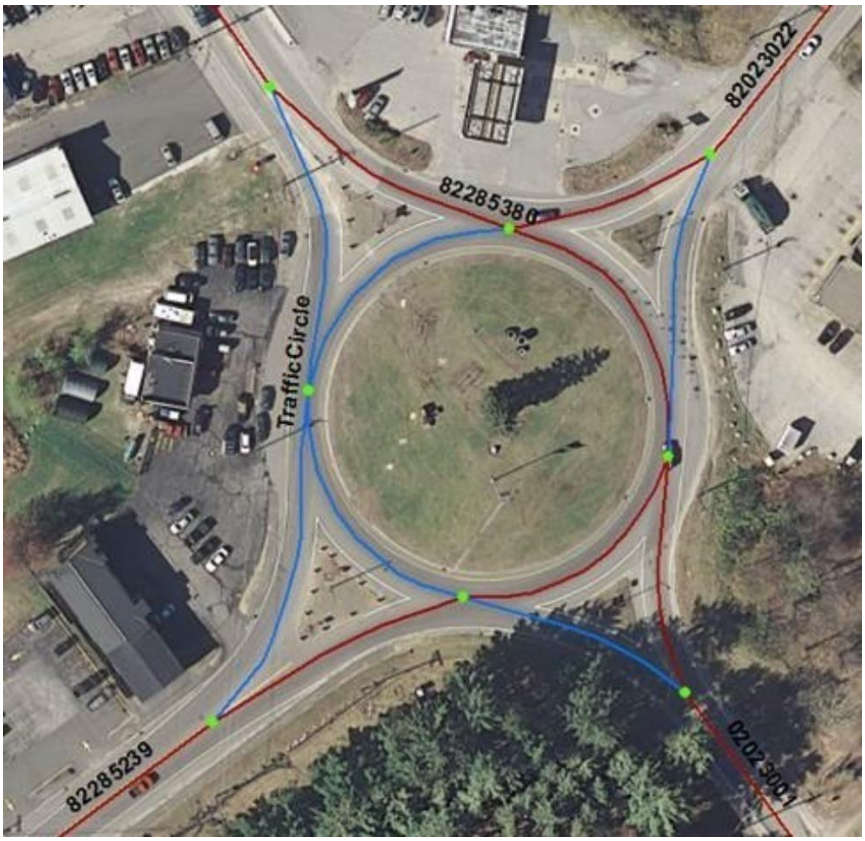
Definition:
The sum of dual carriage ways, divided highways, and traffic circles of inventoried direction segments.

Data Type:
Numerical (Long)

Source: NHDOT

Data Accuracy: High

IS CIRCLE



Traffic circles are an alternative to signaled intersections and have been proven safer and more efficient than other types of circular intersections.

KEY INFORMATION

Data Name: Is Circle

Field Name: IS_CIRCLE

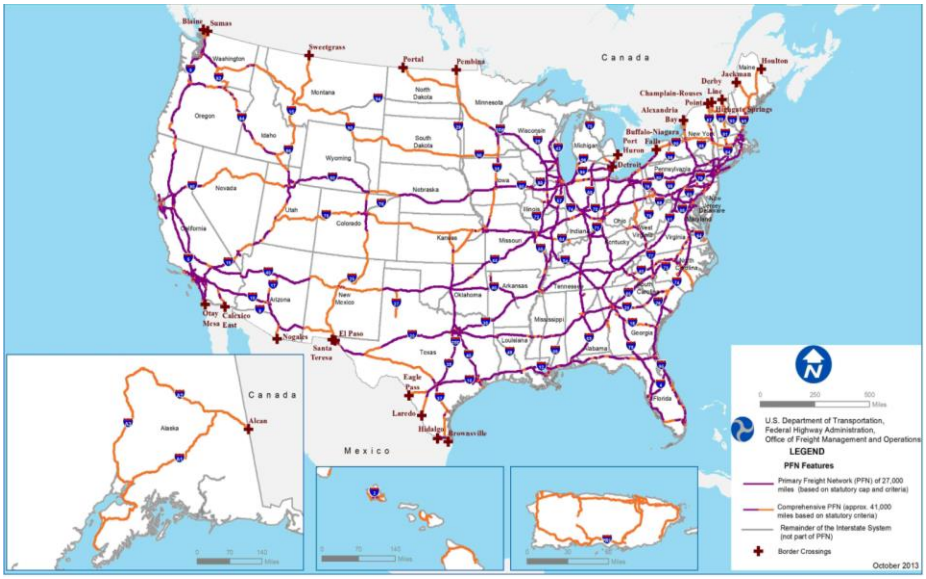
Definition:
The road segment is part of a circle or roundabout.

Data Type: Text
('Yes' or 'No')

Source: NHDOT

Data Accuracy: High

FEDERAL TRUCK ROUTE DESIGNATION



Federal Truck Route Designation is how The Federal Highway Administration (FHWA) allocates certain roadways as federally designated truck routes through their Highway Performance Monitoring System (HPMS), in order to increase efficiency in trucking and in civilian traffic flow.

This attribute denotes designation (or lack thereof) as a truck route, under Federal regulatory 23 CFR as stated below.

23 CFR 1.1 Purpose

The purpose of the regulations in this part is to implement and carry out the provisions of Federal law relating to the administration of Federal aid for highways.

Trucking carries an enormous amount of the nation's goods from manufacturing and production centers to the populous. Without trucking, high-demand goods would remain stranded at major air, sea, or rail-based transportation hubs.

Table 4: Truck Route Designations

TRK_ROUTE	Description
0	Non-designated Truck Route
1	Designated Truck Route

KEY INFORMATION

Data Name: Federal Truck Route Designation

Field Name: TRK_ROUTE

Definition:
Denotes designation (or lack thereof) as a truck route, under federal regulatory authority 23 CFR 658.

Data Type:
Numerical – Code 0 or 1, as shown in table at left.

Source:
Highway Performance Monitoring System

Data Accuracy: High

Data Name: Is it part of Federal Truck Route

Field Name: IS_TRK_ROUTE

Definition:
Yes/No field designating whether a roadway section is part of a truck route.

Data Type: Text – "Yes" or "No"

TOLL

Toll is a code for roadway section that requires a fee to access or exit from on the NH Turnpike System.

The New Hampshire Turnpike System presently consists of 167 centerline miles of limited access highway, 71 centerline miles of which are part of the US Interstate Highway System, comprising of approximately 656 total lane miles.

The Turnpike system has 3 limited access highways:

- Blue Star (I-95)
- Spaulding Turnpike
- F.E. Everett Turnpike

Table 5: Toll Codes

Code	Description
0	None
1	Toll - Fee
2	Toll - Non Fee

Note: Code # is not always seen by the user. The code is often the piece that connects the data behind the scenes.

KEY INFORMATION

Data Name: Toll

Field Name: TOLL

Definition:
A code for roadway section that requires a fee to access or exit from on the NH Turnpike system

Data Type:
Numerical - Toll maintained roadways are coded as follows:

Source: Highway Performance Monitoring System

Data Accuracy: High

Data Name: Is Toll Charged

Field Name: IS_TOLL

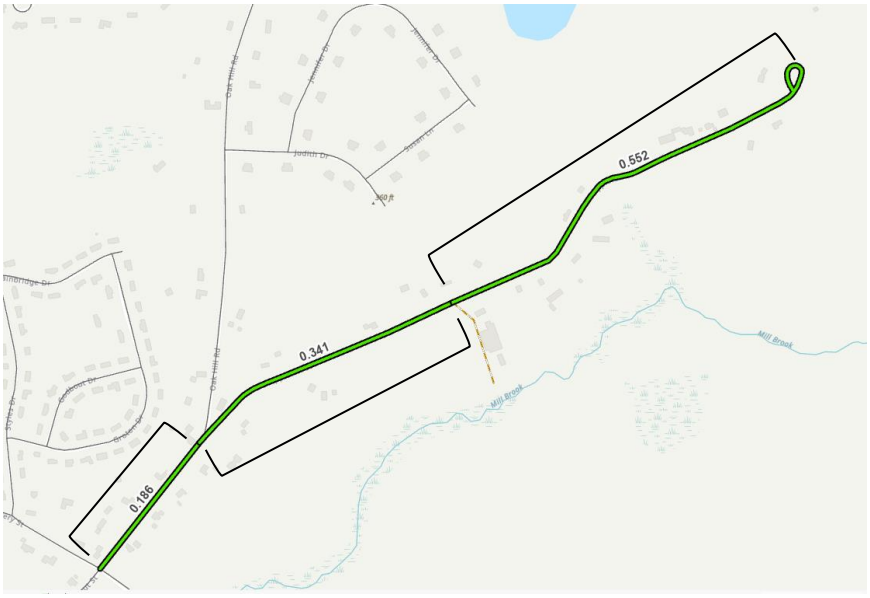
Definition:
Yes/No field designating whether a roadway section requires a toll charge to be traveled.

Data Type: Text – "Yes" or "No"

PART 2: PHYSICAL ROADWAY CHARACTERISTICS

A roadway section exists only between two nodes. Physical roadway characteristics define the shape, feel, and use of a roadway, and are considered in a roadway's design, maintenance, and safety designations. These characteristics are recorded as a predominant value within a roadway section. Predominant means the most common value of a characteristic within a given roadway section. Physical roadway characteristics are the characteristics most often used by the public as they describe the section.

SECTION LENGTH



Section Length is the basis of some of the most valuable pieces of information that the Roads layer has to offer. Without the length of each roadway section, the total mileage could not be calculated and tabulated in the SRI_Hi-Order Routes layer. Without the length of a roadway or roadway system at our command, maintenance calculations would prove inaccurate, and thousands of dollars would go to waste. With the length of a section immediately at our command, our efficiency in both labor and materials is greatly increased.

KEY INFORMATION

Data Name: Section Length

Field Name: SECT_LENGTH

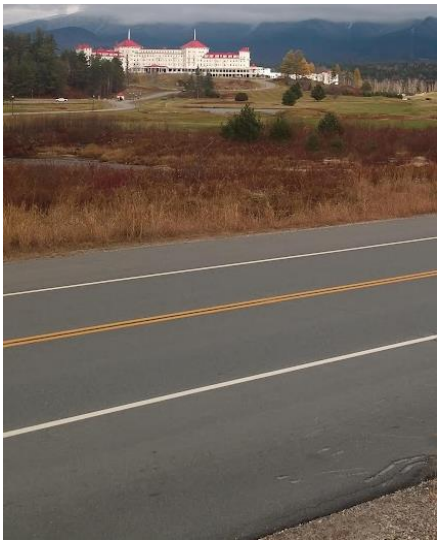
Definition:
Length of the roadway section, in miles, measured to the nearest 0.001 mile.

Data Type:
Numerical - Auto-generated

Source: GIS Base map geometry

Data Accuracy: High

SURFACE TYPE



For maintenance and usage purposes, the surface type of a roadway or roadway section is paramount. Everyone from plow and maintenance crews to motorcyclists, bicyclists, and every day motorists need to know beforehand the surface of the roadway they will be interfacing with. Knowing if a roadway section is paved or not helps avoid unfortunate consequences, including misplaced maintenance and motor vehicle accidents.

The codes and descriptions for surface type are shown in the table below:

Table 6: Surface Types

Code	Description
1	**Paved**- Asphalt-surfaced roadway, but also includes other treated surfaces such as brick, cobblestone, timber, or concrete.
2	**Unpaved**- Non-surfaced roadways such as gravel and/or dirt.

Note: Code # is not always seen by the user. The code is often the piece that connects the data behind the scenes.

KEY INFORMATION

Data Name: Surface Type

Field Name: SURF_TYPE

Definition:
The surface type of the roadway section

Data Type: Text
Code number, from table shown at left.

Source:
Windshield Survey/Aerial Imagery

Data Accuracy: Medium

ROADWAY WIDTH

Roadway width is essential in virtually all NHDOT maintenance calculations. Estimations for winter maintenance materials such as road salt, as well as estimations for plow routes are all based on values calculated from roadway width. Resurfacing and other paving estimations are also completed using values derived from roadway width.
Standards for these calculations can be found in the Appendix D on pg. 64-65 of this manual.

PAVED ROADWAYS – The total width of the pavement, measured from edge of pavement to edge of pavement, including paved shoulders, designated bike lanes, painted medians, and parking. **DO NOT INCLUDE** positive barrier medians or curbed medians. Measured perpendicular to the path of travel, to the nearest foot.

UNPAVED ROADWAYS – Total width of the visible travel way, as determined from visual inspection. Measured perpendicular to the path of travel, to the nearest foot

KEY INFORMATION

Data Name: Roadway Width

Field Name: ROADWAY_WIDTH

Definition:
Width of roadway measured two ways, one for paved and one for unpaved. (See description on left)

Data Type: Long
Numerical - Number of feet, measured to the nearest foot.

Source: NHDOT or Municipality – Collected via Aerial Imagery or Windshield Survey

Data Accuracy: Low

ROADWAY WIDTH – AERIAL IMAGERY

Positive Barrier Median

With Auxiliary Lane

Unpaved roadway

KEY INFORMATION

Roadway width, measured from edge of pavement to edge of pavement, including the maintained and surfaced shoulders on each side. Notice the concrete barrier median is **not** included in the roadway width.

Roadway width, measured from edge of pavement to edge of pavement, including the maintained and surfaced shoulders on each side. Notice the shared-left-turn lane **is** included in the roadway width.

Roadway width, measured from edge of travelable roadway surface to edge of travelable roadway surface.

NUMBER OF LANES

The roadway network in the state of New Hampshire contains a wide array of roadway types, from interstate highways to unmaintained dirt roads. The feature that perhaps varies the most over the many varieties of roadways is the number of lanes. It is used (in conjunction with barrel miles) to estimate lane miles, salt lane miles, and plow miles. These estimated calculations are used to estimate maintenance costs.

For more information see Appendix D pg. 64-65.

On the following page, you will find images of common roadway layouts, with the number of lanes labeled and explained.

KEY INFORMATION

Data Name: Number of Lanes

Field Name: NUM_LANES

Definition:
Total number of lanes on the roadway, including both directions. Auxiliary lanes, such as truck lanes, turning lanes, and passing lanes are included.

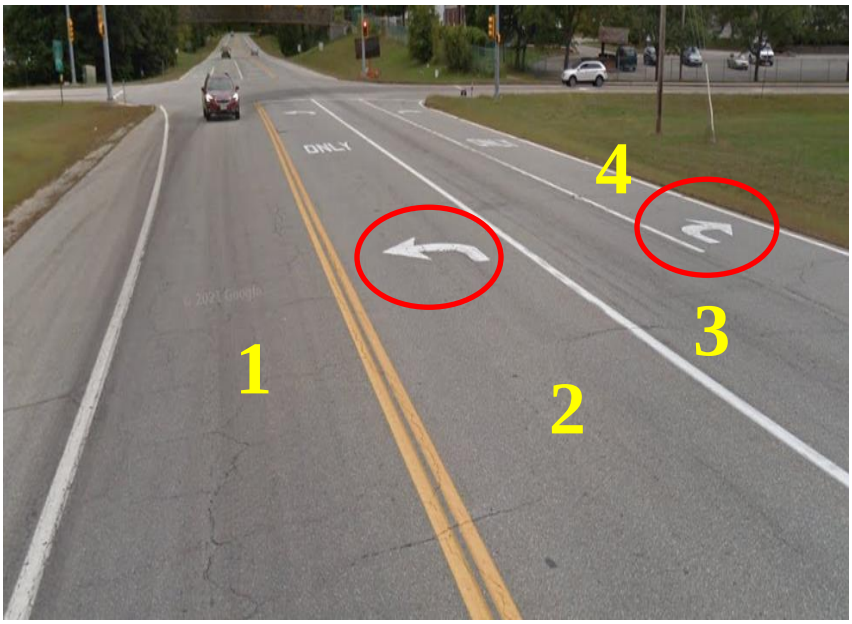
Data Type:
Numerical - integers only, representing number of lanes. For instance, for a four-lane roadway, a four (4) is recorded.

Source: Municipality/Aerial Imagery

Data Accuracy: Low

Exceptions/Special Circumstances:
Roadways with no pavement markings should be recorded as two (2) lanes unless the roadway width is 12 feet or less. In this case, the roadway section should be recorded as one (1) lane.

NUMBER OF LANES – AERIAL IMAGERY



KEY INFORMATION

Example #1

This roadway would be documented as a four-lane roadway, with two auxiliary lanes, circled in red (see "Auxiliary Lane" page for more information).

Example #2

This roadway would be documented as a Two-lane roadway with one auxiliary lane. Notice the continuous-shared-left-turn lane is only counted as one lane.

NUMBER OF AUXILIARY LANES

Since the total number of lanes is used in calculations for roadway maintenance, NHDOT inventories all the lanes of a road, be they through lanes or auxiliary lanes. To that end, NHDOT also delineates how many of the total lanes are auxiliary lanes, to aid in emergency planning, traffic flow analysis, and safety design. The types of auxiliary lanes are listed in the table below:

Type of Lane	Description
Truck Lane	"Slow" Lane for trucks, usually found on steep grades. Often mistaken as a passing lane. Signed with "SLOW TRAFFIC KEEP RIGHT".
Turning Lane	Lane that permits motorists to turn without blocking the through-way. These are generally found in areas with higher speed limits and/or low visibility. Turn lanes are striped, and are marked with a large, white, curved arrow that points in the direction which the turn is permitted
Shared Left Turn Lane (Center)	Center lanes of a roadway, where opposing traffic may make a left turn.

KEY INFORMATION

Data Name:
Number of Auxiliary Lanes

Field Name: NUM_AUX_LANES

Definition:
Number of auxiliary lanes in a roadway section, of the total number of lanes. *See Number of Lanes for more information on total number of lanes)*

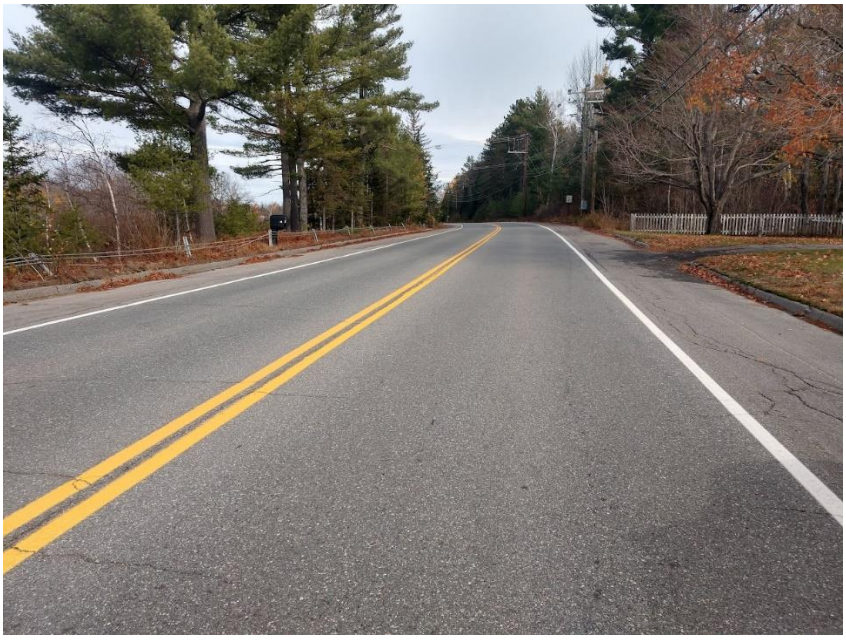
Data Type:
Numerical - number of lanes.

Source:
Windshield Survey/Aerial Imagery

Data Accuracy: Low

Exceptions/Special Circumstances:
See description at left for the different kinds of lanes than can be qualified as auxiliary lanes.

LANE WIDTH



Lane width is used for administrative decisions regarding roadway usage. In conjunction with other elements of roadway design, it is a deciding factor in speed limit designation and other safety regulations. It is also considered in cost estimation for maintenance and construction projects. While lane width measurement on clearly marked roadways is relatively straightforward, delineation on unmarked roads can be somewhat ambiguous. In an effort to achieve consistency in lane measurements on unmarked roads, NHDOT has instituted a "Rule of Thumb" for unmarked lane measurement, which is shown in the table below.

Table 10: Lane Width 'Rule of Thumb' for Unmarked Lane Measurement

Surface Width	Lane Width and Shoulder Widths
Width ≤ 16'	Lane: One (1) lane @ 8 – 12 feet, as measured Shoulders: None
16'< Width ≤ 28'	Lanes: Two (2) lanes @ ½ pavement width each Shoulders: None
Width > 28'	Lanes: Two (2) lanes @ 12 feet each Shoulders: Half of remaining surface width (each)

KEY INFORMATION

Data Name: Lane Width

Data Name: LANE_WIDTH

Definition:
A traffic lane is a portion of roadway used to channel traffic. Traffic lanes are separated from other portions of a highway by striping.

With pavement markings: The average width of the lanes of a given section. Lanes are delineated by the pavement markings and measured to the nearest foot.
Without pavement markings: The width of the travel lanes based on the intent of the surface layout from visual inspection or designated by NHDOT or Town.
(See Rule of Thumb table, to the left.)

Data Type:
Numerical - number of feet.

Source:
Windshield Survey/Aerial Imagery

Data Accuracy: Low

Exceptions/Special Circumstances:
See Rule of Thumb table, to the left.

LANE WIDTH – AERIAL IMAGERY

Typical Situations

KEY INFORMATION

With pavement markings: By measuring from the centerline to the fog line a lane width can be determined.

Without pavement markings*:* By measuring from the edge of pavement on the right to the edge of pavement on the left you can determine the lane width.

LANE WIDTH – AERIAL IMAGERY (CONTINUED)

Exceptions/Special Circumstances

KEY INFORMATION

The roadway pictured at left is narrow for a two-lane roadway, with an unpaved surface width of only 16 feet. In this case, lane width is considered to be 8 feet each, with no shoulders.

The roadway pictured at left is wide with an unpaved surface width of 24 feet. In this case, lane width is considered to be 12 feet each, with no shoulders.

SHOULDER TYPE (LEFT AND RIGHT)

The shoulders of a roadway offer many advantages to pedestrians, cyclists, motorists, and Emergency Services. They often provide a sufficient analog in the absence of designated sidewalks, bike lanes, or roadside parking. Paved shoulders are considered in calculation of plow routes for winter maintenance.

Table 11: Shoulder Types

Code	Description
1	**No shoulder** exists where no fog line and no earth shoulder is observed, **Or** Width from fog line to edge of pavement is less than 1' and no earth shoulder observed.
2	**Bituminous concrete (AC)** surfaced shoulder exists where width from fog line to edge of pavement is 1' or greater.
5	**Combination shoulder** exists where width from fog line to edge of pavement is less than 1'; and **with** earth shoulder observed.
6	**Earth shoulder** may exist only where no fog line is observed, **Or** Where width from fog line to edge of pavement is less than 1'; and width of earth shoulder is 2' or greater.

Note: Code # is not always seen by the user. The code is often the piece that connects the data behind the scenes.

- For Roadway Inventory, shoulders to the right in the direction of inventory are generally considered to be to the right when traveling a roadway **North** or **East**, unless otherwise noted.
- As such, shoulders to the left are considered to the left while traveling in the direction of inventory.
- If the direction of inventory is questionable, use the direction of increasing SRI Mileposts.

Note: Combination and unpaved shoulders are not guaranteed by any means to be structurally sound, and their widths should be taken only as an estimate, rather than a design specification.

KEY INFORMATION

Shoulder Type Right
Shoulder Type Left

Field Name:
SHLDR_TYPE_R
SHLDR_TYPE_L

Definition:
The type of shoulder bordering the roadway surface on the right or left (In the direction of inventory, respectively).

Data Type: Text
Numerical – Code number, from the table shown at left.

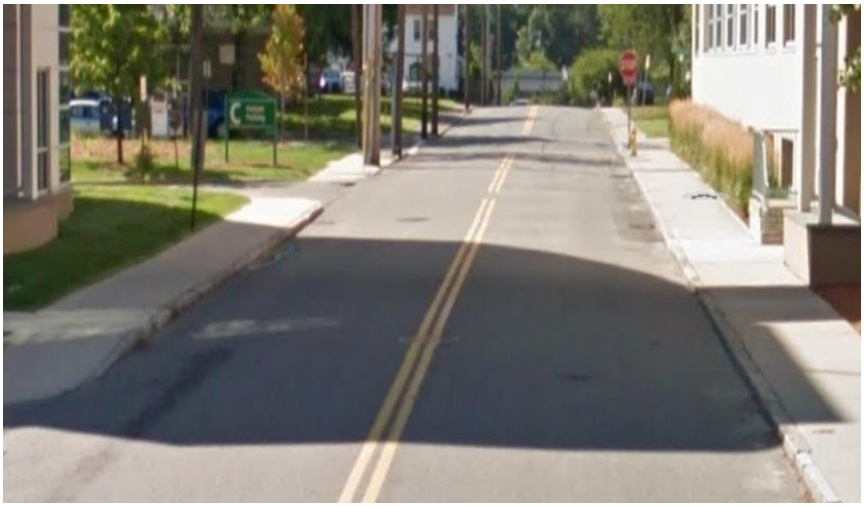
Source:
Windshield Survey/Aerial Imagery

Data Accuracy: Low

Exceptions/Special Circumstances:
By definition, unpaved roadways have NO SHOULDER (Code 1). SHLDR_RIGHT and SHLDR_LEFT should be marked as zero (0).

Note: If Pavement markings exist that means parking takes precedence over shoulders. Primary use is for parking not shoulders.

SHOULDER TYPE – AERIAL IMAGERY



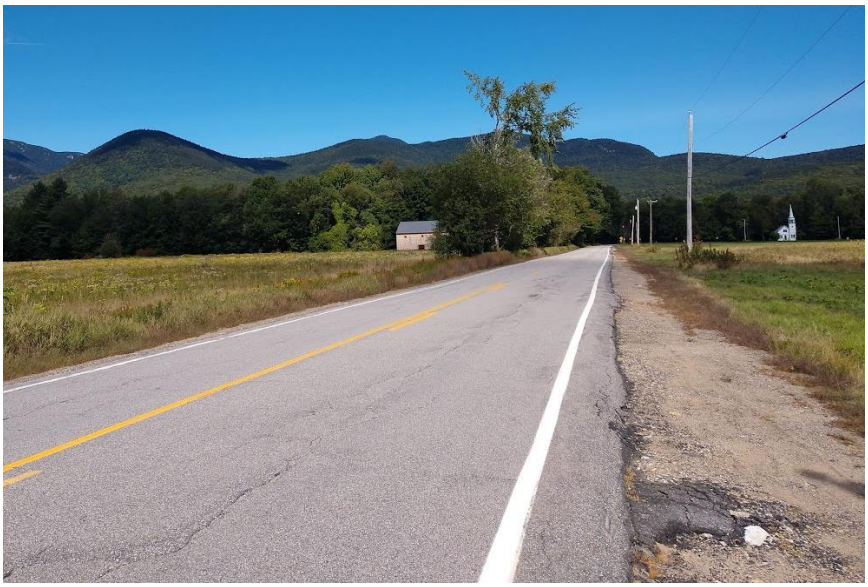
KEY INFORMATION

Code 1
No shoulder exists where no fog line and no earth shoulder observed,
Or
Where width from fog line to edge of pavement is less than 1’ and no earth shoulder observed.

Note: *Earth shoulders are not considered built or stabilized shoulders.*

Code 2
Bituminous concrete (AC) surfaced shoulder exists where width from fog line to edge of pavement is 1’ or greater.

SHOULDER TYPE – AERIAL IMAGERY (CONTINUED)



KEY INFORMATION

Code 5
Combination shoulder exists where width from fog line to edge of pavement is less than 1’; and with earth shoulder observed.

Code 6
Earth shoulder may exist only where no fog line is observed,
Or
Where width from fog line to edge of pavement is less than 1’; and width of earth shoulder is 2’ or greater.

SHOULDER WIDTH (LEFT AND RIGHT)

Shoulders to the right of the roadway in the direction of inventory are generally considered to be to the right when traveling a roadway northward or eastward, unless otherwise noted. As such, shoulders to the left are considered to be to the left while traveling in the direction of inventory.

Due to the variable and temporary nature of a shoulder, particularly one of gravel and/or earth, the shoulder width is often determined using windshield survey. Shoulders are assessed from the painted lane line (or the visible edge of an unmarked travel lane) to the outer edge of the maintained shoulder. This border can be the break of the slope, or another natural barrier such as growth of vegetation. Shoulder information is not collected on Local or Private Roadways.

Collecting the width of the shoulder is vital because it allows agencies to determine what uses the shoulder is suitable for. It is also essential in the calculation of maintenance mileage.

KEY INFORMATION

Data Name:
Shoulder Width Right
Shoulder Width Left

Field Name:
SHLDR_WIDTH_RIGHT
SHLDR_WIDTH_LEFT

Definition:
The measured width of the shoulder to the right or left (in the direction of inventory), to the nearest foot.

Data Type:
Numerical - number of feet.

Source:
Windshield Survey/Aerial Imagery

Data Accuracy: Low

SHOULDER WIDTH – AERIAL IMAGERY

KEY INFORMATION

Paved Shoulder (Code 1)
The shoulder is of the same material as the roadway surface. When this is the case, the shoulder width is measured from the edge of pavement to the center of the white 'fog' line

No Shoulder (Code 2)
The shoulder does not exist on this roadway. Shoulders are not considered when surveying a gravel (or other unpaved) roadway such as this one.

DIRECTION WAY

Possibly the most important piece of information necessary when considering travel on a roadway section is whether the roadway is bidirectional or not. What would happen if someone unknowingly went the wrong direction on a divided highway or used the opposing lane on a two-way roadway as a continuous passing lane? The direction of a one-way roadway is important to the public as they plan routes throughout the state and is also important to state agencies as they devise maintenance routes and other service coverage.

Table 12: Direction Way Codes

Code	Description
1	One-way
2	Two-way

Note: Code # is not always seen by the user. The code is often the piece that connects the data behind the scenes.

KEY INFORMATION

Data Name: Direction Way

Field Name: DIRECTION_WAY

Definition:
The direction way code indicates if the roadway is a one-way or a two-way section.

Data Type:
Numerical - Code, as shown in the table below.

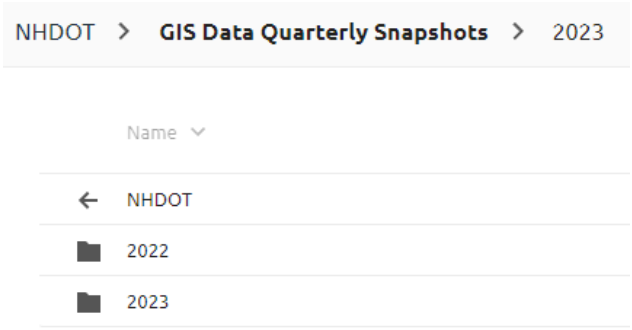
Source:
Windshield Survey/Aerial Imagery

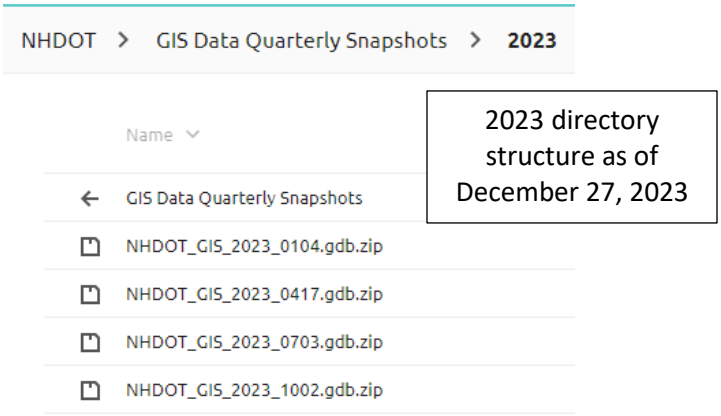
Data Accuracy: High

DATA ON FTP SITE

GIS Data is available for download at the State of NH Public FTP site.

[GIS Data Quarterly Snapshots - ftp.granit.unh.edu > NHDOT > GIS Data Quarterly Snapshots]



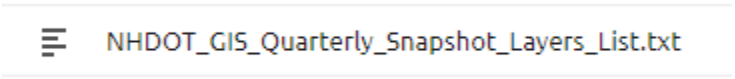


2023 directory structure as of December 27, 2023

The Quarterly Snapshot file format is **NHDOT_GIS_YYYY_MMDD.gdb**

Data is also available in a File Geodatabase format produced every quarter by the NHDOT GIS section.

Also included is a .txt file. The goal of the text file is to give an Esri ArcPro user a complete picture (snapshot) of layers that may be helpful.



File name for the text file is NHDOT_GIS_Quarterly_Snapshot_Layers_List.txt

NHDOT ROADS NETWORK COMPONENTS

The NHDOT Roads Network is composed of four unique parts: **Nodes, Anchor sections, Bridge Points,** and **SRI Routes**. Each part carries its own set of attributes and rules for creation, modification, and verification. Definitions for each component are as follows:

Nodes
Nodes are the foundation of the NHDOT GIS system. A node is a ***point*** feature and is most commonly created at an intersection.

Anchor Sections (see below) must start and end with a node and must break at a node. Nodes are assigned two different ID numbers: a state "Nodes ID" and a Town "A" Number".

> Town AC Numbers are assigned in sequential order, starting from 1 in each town. State Nodes ID's are assigned sequentially as well, but reflect all of the nodes in the state (past and present).
> This numbering convention eliminates any duplicate "Nodes ID" numbers in the system.

Nodes (and consequently, Anchor Section breaks) should be located at the following places:

- All roadway intersections
- Changes in classification of a road (Functional Class, Legislative Class, etc.)
- Where roadways meet railways and the railroad bed is visible in aerial imagery.
- Changes in maintenance responsibility (winter, summer, or ownership) of the roadway
- Where roads cross municipal, county, state, or national boundaries.
- The ends of roadways.

Nodes should NOT be located at the following places:

- Bridge points
- Highway overpasses and other non-intersections where roadways cross
- Man-made features, such as power lines or monuments.
- Roads that are no-longer catalogued by state or municipal agencies.
- Where roads or intersections have been redesigned and/or rebuilt, and the roadway no longer exists in that location.

Anchor Sections – Anchor Sections are the linear connectors in the NHDOT system. They originate and terminate at nodes and can ONLY exist between two nodes. Anchor Sections make up the parts of an SRI Route. They carry their own individual data on such items as number of lanes, lane width, and other physical, administrative and spatial attributes. Anchor Sections cannot run concurrently. Only one section may exist in any given space.

Bridge Points – Bridge points are placed by NHDOT at the location of all bridges. This includes historic structures, closed structures, and town-owned/maintained structures. Anchor Sections do not break at Bridge Points and Nodes should not be placed on the same location as a Bridge point.

SRI Routes – From one end to the other, an SRI route is unbroken by Nodes or other features. All Anchor Sections that run along a given SRI must be joined to form the underlying SRI Route(s), and no gaps may be created.

Topology Rules

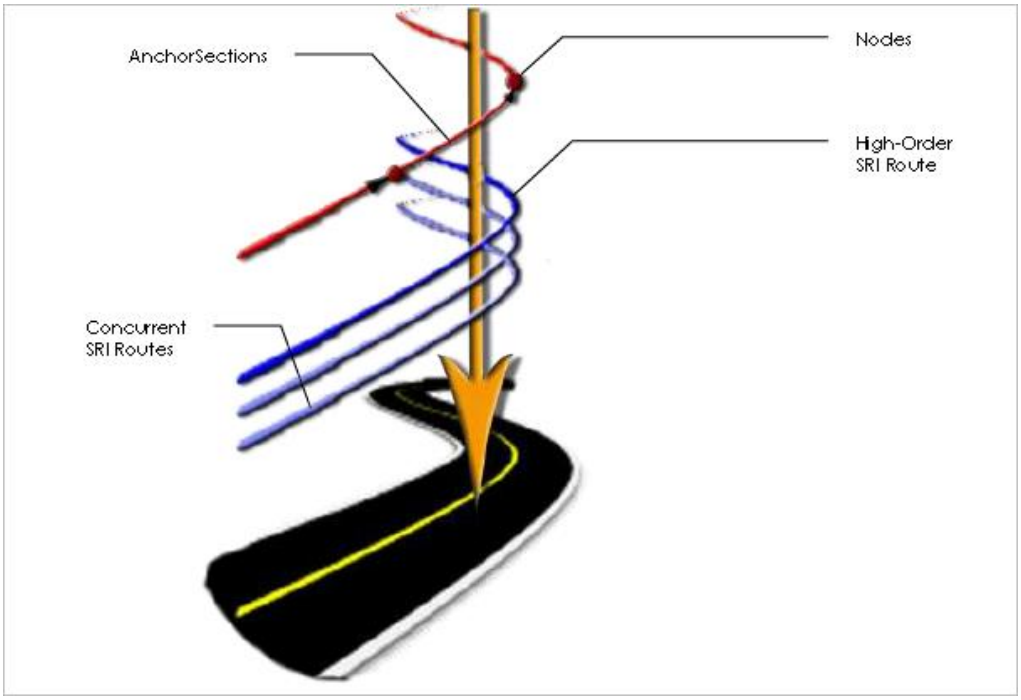
There are some specific rules that need to be observed when creating and modifying features in the NHDOT GIS System. These rules have been incorporated into the *topology* of the roads layer, and if they are not followed at any point, a script will find and highlight the errors.

The rules are as follows:

1. Anchor Sections and their underlying SRI Routes must share **ALL** vertices.
2. There must be a node at either end of an Anchor Section
3. An Anchor Section **MUST** break at a node.
4. The beginning and ending vertices of Anchor Sections and SRI routes must fall on nodes.
5. There cannot be gaps between Anchor Sections, or anywhere along an SRI Route.
6. Bridge points and nodes cannot occupy the same space.

Concurrent Routes

Concurrent routes are defined as sections where two or more numbered routes run along the same roadway. In these circumstances, the primary route is derived using the Hi-Order route system, which ranks routes based on their route type, and their functionality. Theoretically, there can be an infinite number of concurrent routes on a given roadway, as long as all of the concurrent routes are numbered (State, US, Interstate, or Turnpike). There must be a separate SRI-Route line segment for each individual route in a concurrent section


AnchorSections
Nodes
High-Order
SRI Route
Concurrent
SRI Routes

HPMS

HIGHWAY PERFORMANCE MONITORING SYSTEM

HIGHWAY PERFORMANCE MONITORING SYSTEM

HPMS Facility Type

Table: HPMS Facility Types

Code	Description	
1	One-Way Roadway	Roadway that operates with traffic moving in a single direction during non-peak period hours.
2	Two-Way Roadway	Roadway that operates with traffic moving in both directions during non-peak period hours.
4	Ramp	Non-mainline junction or connector facility contained within a grade-separated interchange.
5	Non-Mainline	All non-mainline facilities excluding ramps.
6	Non-Inventory Direction	Individual road/roads of a multi-road facility that is/are not used for determining the primary length for the facility.

KEY INFORMATION

Data Name: HPMS Facility Type

Field Name:
HPMS_FACILITY_TYPE

Definition:
Identification of Facility types in the Roads layer to connect HMPS data for analysis and yearly submittal to Federal Highways.

Data Type: Text

Source: Updated manually

First populated from HPMS 2014 data submission.

Data Accuracy: High

HIGHWAY PERFORMANCE MONITORING SYSTEM

HPMS Through Lanes

Data inventoried to identify the number or thru lanes designated as thru traffic. The data is primarily used for apportionment, administrative, legislative, analytical, and national highway database purposes and are populated for all Federal-aid highways including ramps located within grade-separated interchanges.

Through lanes data does not account for auxiliary lanes (Example: collector-distributor lanes, weaving lanes, frontage road lanes, parking and turning lanes, acceleration/deceleration lanes, toll collection lanes, truck climbing lanes and shoulders.)

Technical Note:

For dual-carriageways, zeros are inputted into the HMPS_TRHU_LANES field belonging to the non-inventory direction (i.e. Southbound or Westbound routes where HMPS_FACILITY_TYPE is equal to 6). The number of through lanes observed in the non-inventory direction is added to the number of through lanes observed in the corresponding Northbound or Eastbound routes.

Valid Codes:

Number of HMPS_THRU_LANES - (0,1,2,3,4,5,6,7,8,9,10)

KEY INFORMATION

Data Name: HPMS Thru Lanes

Field Name:
HPMS_THRU_LANES

Definition:
Data inventoried to identify the number or thru lanes designated as thru-traffic.

Data Type: Numerical

Source:
Highway Performance Monitoring System (HPMS) Field Manual

Data Accuracy: High

HIGHWAY PERFORMANCE MONITORING SYSTEM

HPMS Ownership

HMPS Ownership data is maintained to identify entities having legal ownership of Federal-aid roadways. The following table from Chapter 4 of the HMPS Field Manual is included below to show applicable HMPS Ownership codes with descriptions.

Table: HPMS Ownership Descriptions

Code	Description
1	State Highway Agency
3	Town or Township Highway Agency
4	City or Municipal Highway Agency
21	Other State Agency
31	State Toll Road
64	U.S. Forest Service

KEY INFORMATION

Data Name: HPMS Ownership

Field Name: HPMS_OWNERSHIP

Definition:
Maintained to identify entities having legal ownership of Federal-aid roadways

Data Type: Text

Source:
Highway Performance Monitoring System (HPMS) Field Manual

Data Accuracy: High

HIGHWAY PERFORMANCE MONITORING SYSTEM

Dual Carriageway Description

A dual carriageway is a two-way roadway with each direction separated by a variable, lateral offset distance. Each direction of a dual carriageway is a one–way facility.

The inventory direction of a dual carriageway is typically north or east. The inventory direction of a dual carriageway is the direction that contributes to centerline mileage (non-inventory direction roadway length may differ somewhat and is not included in centerline mileage). Within NHs' RDI dual carriageways are grouped into two categories, Major and Minor. A Major dual carriageway typically has one-way directional counters installed to obtain traffic counts. A minor dual carriageway typically has no counters of any kind installed along the one-way segments of roadway.

Table: Dual Carriageway Codes and Descriptions

DUAL_CARRIAGEWAY_DESC
Major DC, Inventory Direction, 1-Way Counter
Major DC, Inventory Direction, 1-Way Counter
Major DC, Inventory Direction, 1-Way Counter
Major DC, Inventory Direction, 1-Way Counter

KEY INFORMATION

Data Name:
Dual Carriageway Description

Field Name:
DUAL_CARRIAGEWAY_DESC

Definition:
A two-way roadway with each direction separated by a variable, lateral offset distance. Each direction of a dual carriageway is a one–way facility.

Data Type: Text

Source:
Highway Performance Monitoring System (HPMS) Field Manual

Data Accuracy: High

APPENDICES

APPENDIX A: NEW HAMPSHIRE TOWN CODES

The following table contains the NHDOT town codes and their associated town names. More information on town codes can be obtained by contacting the GIS Section at the NHDOT Bureau of Planning.

Table 13: NHDOT Town Identification Codes

Code	Town Name	Code	Town Name	Code	Town Name
1	ACWORTH	71	CANDIA	141	EFFINGHAM
3	ALBANY	73	CANTERBURY	143	ELLSWORTH
5	ALEXANDRIA	75	CARROLL	145	ENFIELD
7	ALLENSTOWN	77	CENTER HARBOR	147	EPPING
9	ALSTEAD	79	CHANDLERS PURCHASE	149	EPSOM
11	ALTON	81	CHARLESTOWN	151	ERROL
13	AMHERST	83	CHATHAM	153	EXETER
15	ANDOVER	85	CHESTER	155	FARMINGTON
17	ANTRIM	87	CHESTERFIELD	157	FITZWILLIAM
19	ASHLAND	89	CHICHESTER	159	FRANCESTOWN
21	ATKINSON	91	CLAREMONT	161	FRANCONIA
23	AUBURN	93	CLARKSVILLE	163	FRANKLIN
25	BARNSTEAD	95	COLEBROOK	165	FREEDOM
27	BARRINGTON	97	COLUMBIA	167	FREMONT
29	BARTLETT	99	CONCORD	169	GILFORD
31	BATH	101	CONWAY	171	GILMANTON
33	BEANS GRANT	103	CORNISH	173	GILSUM
35	BEANS PURCHASE	105	CRAWFORDS PURCHASE	175	GOFFSTOWN
37	BEDFORD	107	CROYDON	177	GORHAM
39	BELMONT	109	DALTON	179	GOSHEN
41	BENNINGTON	111	DANBURY	181	GRAFTON
43	BENTON	113	DANVILLE	183	GRANTHAM
45	BERLIN	115	DEERFIELD	185	GREENFIELD
47	BETHLEHEM	117	DEERING	187	GREENLAND
49	BOSCAWEN	119	DERRY	189	GREENS GRANT
51	BOW	121	DIXVILLE	191	GREENVILLE
53	BRADFORD	123	DORCHESTER	193	GROTON
55	BRENTWOOD	125	DOVER	195	HAMPSTEAD
57	BRIDGEWATER	127	DUBLIN	197	HAMPTON
59	BRISTOL	129	DUMMER	199	HAMPTON FALLS
61	BROOKFIELD	131	DUNBARTON	201	HANCOCK
63	BROOKLINE	133	DURHAM	203	HANOVER
65	CAMBRIDGE	135	EAST KINGSTON	205	HARRISVILLE
67	CAMPTON	137	EASTON	207	HARTS LOCATION
69	CANAAN	139	EATON	209	HAVERHILL

211	HEBRON	295	MEREDITH	379	PORTSMOUTH
213	HENNIKER	297	MERRIMACK	381	RANDOLPH
215	HILL	299	MIDDLETON	383	RAYMOND
217	HILLSBOROUGH	301	MILAN	385	RICHMOND
219	HINSDALE	303	MILFORD	387	RINDGE
221	HOLDERNESS	305	MILLSFIELD	389	ROCHESTER
223	HOLLIS	307	MILTON	391	ROLLINSFORD
225	HOOKSETT	309	MONT VERNON	393	ROXBURY
227	HOPKINTON	311	MONROE	395	RUMNEY
229	HUDSON	313	MOULTONBOROUGH	397	RYE
231	JACKSON	315	NASHUA	399	SALEM
233	JAFFREY	317	NELSON	401	SALISBURY
235	JEFFERSON	319	NEW BOSTON	403	SANBORNTON
237	KEENE	321	NEWBURY	405	SANDOWN
239	KENSINGTON	323	NEW CASTLE	407	SANDWICH
241	KILKENNY	325	NEW DURHAM	409	SEABROOK
243	KINGSTON	327	NEWFIELDS	411	SHARON
245	LACONIA	329	NEW HAMPTON	413	SHELBURNE
247	LANCASTER	331	NEWINGTON	415	SOMERSWORTH
249	LANDAFF	333	NEW IPSWICH	417	SOUTH HAMPTON
251	LANGDON	335	NEW LONDON	419	SPRINGFIELD
253	LEBANON	337	NEWMARKET	421	STARK
255	LEE	339	NEWPORT	423	STEWARTSTOWN
257	LEMPSTER	341	NEWTON	425	STODDARD
259	LINCOLN	343	NORTHFIELD	427	STRAFFORD
261	LISBON	345	NORTH HAMPTON	429	STRATFORD
263	LITCHFIELD	347	NORTHUMBERLAND	431	STRATHAM
265	LITTLETON	349	NORTHWOOD	433	SULLIVAN
267	LIVERMORE	351	NOTTINGHAM	435	SUNAPEE
269	LONDONDERRY	353	ORANGE	437	SURRY
271	LOUDON	355	ORFORD	439	SUTTON
273	LOW & BURBANKS GRANT	357	OSSIPEE	441	SWANZEY
275	LYMAN	359	PELHAM	443	TAMWORTH
277	LYME	361	PEMBROKE	445	TEMPLE
279	LYNDEBOROUGH	363	PETERBOROUGH	447	THOMPSON-MESERVES P.
281	MADBURY	365	PIERMONT	449	THORNTON
283	MADISON	367	PINKHAMS GRANT	451	TILTON
285	MANCHESTER	369	PITTSBURG	453	TROY
287	MARLBOROUGH	371	PITTSFIELD	455	TUFTONBORO
289	MARLOW	373	PLAINFIELD	457	UNITY
291	MARTINS LOCATION	375	PLAISTOW	459	WAKEFIELD
293	MASON	377	PLYMOUTH	461	WALPOLE

463	WARNER	483	WILMOT	Code	**State/Country Codes**
465	WARREN	485	WILTON	600	New Hampshire
467	WASHINGTON	487	WINCHESTER	700	Maine
469	WATERVILLE VALLEY	489	WINDHAM	800	Massachusetts
471	WEARE	491	WINDSOR	900	Vermont
473	WEBSTER	493	WOLFEBORO	950	Canada
475	WENTWORTH	495	WOODSTOCK		
477	WENTWORTHS LOCATION	497	SARGENTS PURCHASE		
479	WESTMORELAND	499	SUGAR HILL		
481	WHITEFIELD				

APPENDIX B: STREET NAME ABBREVIATIONS

(Ref.: US Postal Service Publication 28, Appendix C and National Emergency Number Association (NEMA))

Table 14: USPS Street Name Suffixes and Abbreviations

Suffix	Abbreviation	Suffix	Abbreviation	Suffix	Abbreviation
Alley	ALY	Courts	CTS	Glen	GLN
Annex	ANX	Cove	CV	Glens	GLNS
Arcade	ARC	Coves	CVS	Grove	GRV
Avenue	AVE	Creek	CRK	Groves	GRVS
Bayou	BYU	Crescent	CRES	Harbor	HBR
Beach	BCH	Crest	CRST	Harbors	HBRS
Bend	BND	Crossing	XING	Haven	HVN
Bluff	BLF	Crossroad	XRD	Heights	HGTS
Bluffs	BLFS	Crossroads	XRDS	Highway	HWY
Bottom	BTM	Curve	CURV	Hill	HL
Boulevard	BLVD	Dale	DL	Hills	HLS
Branch	BR	Dam	DM	Hollow	HOLW
Bridge	BRG	Divide	DV	Inlet	INLT
Brook	BRK	Drive	DR	Island	IS
Brooks	BRKS	Drives	DRS	Islands	ISS
Burg	BG	Estate	EST	Isle	ISLE
Burgs	BGS	Estates	ESTS	Junction	JCT
Bypass	BYP	Expressway	EXPY	Junctions	JCTS
Camp	CP	Extension	EXT	Key	KY
Canyon	CYN	Extent ions	EXTS	Keys	KYS
Cape	CPE	Fall	FALL	Knoll	KNL
Causeway	CSWY	Ferry	FRY	Knolls	KNLS
Center	CTR	Field	FLD	Lake	LK
Centers	CTRS	Fields	FLDS	Lakes	LKS
Circle	CIR	Flat	FLT	Land	LAND
Circles	CIRS	Flats	FLTS	Landing	LNDG
Cliff	CLF	Ford	FRD	Lane	LN
Cliffs	CLFS	Fords	FRDS	Light	LGT
Club	CLB	Forest	FRST	Lights	LGTS
Common	CMN	Forge	FRG	Loaf	LF
Commons	CMNS	Forges	FRGS	Locks	LCK
Corner	COR	Fork	FRK	Lodge	LDG
Corners	CORS	Forks	FRKS	Prairie	PR
Course	CRSE	Fort	FT	Radial	RADL
Court	CT	Freeway	FWY	Ramp	RAMP
Garden	GDN	Loop	LOOP	Ranch	RNCH
Gardens	GDNS	Mall	MALL	Rapid	RPD
Gateway	GTWY	Manor	MNR	Rapids	RPDS

Rest	RST	Passage	PSGE	Village	VLG
Ridge	RDG	Path	PATH	Shoal	SHL
Ridges	RDGS	Pike	PIKE	Shore	SHR
River	RIV	Pine	PNE	Shores	SHRS
Road	RD	Pines	PNES	Skyway	SKWY
Roads	RDS	Place	PL	Spring	SPG
Route	RTE	Plain	PLN	Spur	SPUR
Row	ROW	Plains	PLNS	Spurs	SPUR
Rue	RUE	Plaza	PLZ	Square	SQ
Run	RUN	Point	PT	Squares	SQS
Manors	MNRS	Points	PTS	Station	STA
Meadow	MDW	Port	PRT	Stravenue	STRA
Meadows	MDWS	Ports	PRTS	Stream	STRM
Mews	MEWS	Trace	TRCE	Street	ST
Mill	ML	Track	TRAK	Streets	STS
Mills	MLS	Traffic way	TRFY	Summit	SMT
Mission	MSN	Trail	TRL	Terrace	TER
Motorway	MTWY	Trailer	TRLR	Throughway	TRWY
Mount	MT	Tunnel	TUNL	Villages	VLGS
Mountain	MTN	Turnpike	TPKE	Ville	VL
Mountains	MTNS	Underpass	UPAS	Vista	VIS
Neck	NCK	Union	UN	Walk	WALK
Orchard	ORCH	Unions	UNS	Walks	WALK
Oval	OVAL	Valley	VLY	Wall	WALL
Overpass	OPAS	Valleys	VLYS	Way	WAY
Park	PARK	Viaduct	VIA	Ways	WAYS
Parkway	PKWY	View	VW	Well	WL
Parkways	PKWYS	Views	VWS	Wells	WLS
Pass	PASS				

APPENDIX C: SLIP RAMP IDENTIFICATION GUIDE

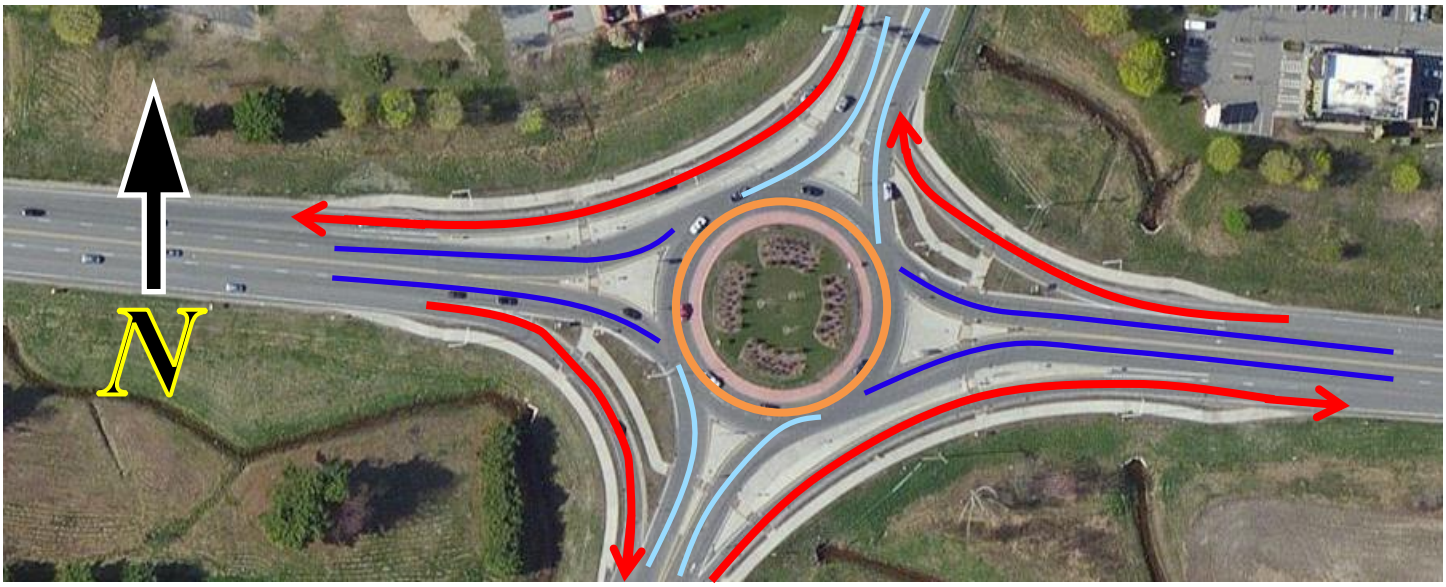
Slip ramps are a subset of ramps designed to ease congestion by providing smoother transitions between main roadways (generally part of the state and federal highway systems) in situations that do not require traditional intersections. Slip ramps always diverge from a primary ramp or roadway. The key difference between primary and slip ramps is that primary ramps can be accessed from either direction, even if the access path crosses opposing traffic; slip ramps are one-way, single-lane connectors to other roadways, and can only be accessed by diverging from another roadway in the same direction of travel. Slip ramps always create an island with their primary ramp.

Ramp and slip ramp entering I-93 southbound from NH 132 in Northfield (Exit 19). The slip ramp (marked in red) can only be accessed while traveling south on NH 132; the primary ramp (marked in green) can be accessed from either direction. The slip ramp terminates when it meets the primary ramp. Note the island created between the primary ramp, the slip ramp, and the diverging route (NH 132).

Ramp and slip ramp entering NH 155A from US 4 in Durham, and ramp entering US 4 from NH 155A. The slip ramp (marked in red) diverges from the primary off-ramp, and can only access the eastbound lane of NH 155A. The primary off-ramp (marked in green) can access either direction. Since the on-ramp can be accessed by traffic from either direction on NH 155A, it is classified as a primary ramp, not a slip ramp.

What is NOT a slip ramp?

Only the slip ramps of major highway routes (Turnpikes, Interstates, US Routes, and State Routes) will be classified. Interior portions of traffic circles, which are accessed by multiple entry points, will not be classified as slip ramps. Any ramp that does not divide will not be classified as a slip ramp, regardless of the directionality of access or egress.



Keene Traffic Circle (shown in orange), at the intersection of NH 101 (shown in dark blue) and Winchester St (shown in light blue). The only slip ramps are highlighted in red. Each can only be entered from one direction, can only exit in one direction, and connects two different roadways. The circle can be accessed from either route in either direction, and can also be exited onto either route in either or their respective directions. None of the sections pictured are classified as a primary ramp.

Interchange between NH 16 (shown in dark blue) and NH 9 (shown in light blue) in Dover. Each ramp (shown in green) is not a slip ramp. Despite single directions of access and egress, none of the ramps divide, and are therefore classified as primary ramps rather than as slip ramps, as one might have expected.

APPENDIX D: MILEAGE CALCULATIONS AND SPECIFICATIONS

The following are descriptions and specifications for the calculation of various mileages frequently reported by the GIS Section. Each mileage type differs slightly from the others in its purpose and calculation. Some mileage types are based on another mileage type, and every effort has been made to list the types in order of precedence.

Centerline (Barrel) Miles

Description: Length of centerline of bi-directional highways and **both** barrels of divided highways.

Extents: Primary SRI Routes (ramps and slip ramps only as necessary)

Typical Uses: Lane Miles, Equivalent Lane Miles, Salt Lane Miles, Maintenance Lane Miles Equivalent, Winter Lane Miles Equivalent, Dirt Lane Miles, Maintenance Lane Miles.

Lane Miles

Description: Centerline (Barrel) miles multiplied by number of lanes.

Extents: Primary SRI Routes only (no ramps or slip ramps)

Typical Uses: Traffic volume analysis and modeling, Plow Miles

Equivalent Lane Miles

Description: Centerline (Barrel) miles multiplied by paved surface width, divided by 12 feet.

Extents: Primary SRI Routes only (no ramps or slip ramps)

Typical Uses: Summer Maintenance

Salt Lane Miles

Description: Centerline (Barrel) miles plus ramps and slip ramps, multiplied by number of lanes

Extents: Primary SRI Routes, ramps, and slip ramps

Typical Uses: Salting and deicing estimate calculations.

Maintenance Lane Miles Equivalent

Description: Centerline (Barrel) miles plus ramps, multiplied by paved surface width (width of travel way and shoulder widths), divided by 12 feet.

Extents: Primary SRI Routes and ramps

Typical Uses: Summer maintenance estimate calculations

Winter Lane Miles Equivalent

Description: Centerline (Barrel) miles plus ramps and slip ramps, multiplied by paved surface width (width of travel way and shoulder widths), divided by 12 feet.

Extents: Primary SRI Routes, ramps, and slip ramps

Typical Uses: Winter maintenance estimate calculations

Dirt Lane Miles

Description: Centerline miles multiplied by two (2). (Assumes two lanes per unpaved road)

Extents: Primary SRI Routes of **UNPAVED** roads, only.

Typical Uses: Unpaved Roadway estimate calculations

Maintenance Lane Miles

Description: Centerline (Barrel) miles plus ramps and slip ramps, multiplied by number of lanes.

Extents: Primary SRI Routes, ramps, and slip ramps

Typical Uses: Assorted maintenance estimation calculations

A note on concurrent routes:

Concurrent routes: Hi-Order routes with the lowest route number are reported Hi-Order Route ranking - Turnpike, Interstate, US, State Numbered Routes, State Non-Numbered Routes, Local, Private, and Federal Ramps are not considered part of routes. Hi-Order routes do not run concurrently with ramps or slip ramps.

APPENDIX E: NEW HAMPSHIRE RSA 229

TITLE XX
TRANSPORTATION
CHAPTER 229
HIGHWAY SYSTEM IN THE STATE

Section 229:1

229:1 Highways Defined
Highways are only such as are laid out in the mode prescribed therefor by statute, or roads which have been constructed for or are currently used for motor vehicle, bicycle, or pedestrian public travel over land which has been conveyed to a city or town or to the state by deed of a fee or easement interest, or roads which have been dedicated to the public use and accepted by the city or town in which such roads are located, or roads which have been used as such for public travel, other than travel to and from a toll bridge or ferry, for 20 years prior to January 1, 1968, and shall include the bridges thereon. Highway does not include any bridge, trail, or path intended for use by off highway recreational vehicles, as defined in RSA 215-A:1, or snowmobiles, as defined in RSA 215-C:1.

Source. RS 53:7. CS 57:7. GS 68:8. GL 74:8. PS 67:1. PL 74:1. RL 90:1. 1943, 57:1. 1945, 188:1, part 1:1. RSA 230:1. 1967, 283:1. 1981, 87:1, eff. April 20, 1981. 2017, 156:123, eff. July 1, 2017.

Section 229:2

229:2 Primary Highway System
There shall be a system of highways known as the "Primary State Highways System" which shall consist of all existing or proposed highways designated on a map entitled "Primary State Highway System, 1945," prepared by the commissioner and filed in the office of the secretary of state.

Source. 1945, 188:1, part 1:2. RSA 230:2. 1981, 87:1, eff. April 20, 1981.

Section 229:3

229:3 Turnpikes and System of Interstate and Defense Highways
The turnpikes, as established by RSA 237, and the approved national system of interstate and defense highways, shall be a part of the primary state highway system.

Source. RSA 230:2-a. 1961, 4:1. 1981, 87:1, eff. April 20, 1981.

Section 229:4

229:4 Secondary System
There shall be a system of highways known as the "Secondary State Highway System" which shall consist of all existing or proposed highways designated on a map entitled "Secondary State Highway System, 1945," prepared by the commissioner and filed in the office of the secretary of state.

Source. 1945, 188:1, part 1:3. RSA 230:3. 1981, 87:1, eff. April 20, 1981.

Section 229:5

229:5 Classification
Highways of the state shall be divided into 7 classes as follows:

I.
Class I highways shall consist of all existing or proposed highways on the primary state highway system, excepting all portions of such highways within the compact sections of the cities and towns listed in RSA 229:5, V, provided that the portions of the turnpikes and the national system of interstate and defense highways within the compact sections of these cities and towns shall be class I highways.

II.
Class II highways shall consist of all existing or proposed highways on the secondary state highway system, excepting all portions of such highways within the compact sections of the cities and towns listed in RSA 229:5, V.

III.
Class III highways shall consist of all recreational roads leading to, and within, state reservations designated by the legislature.

III-a.
Class III-a highways shall consist of new boating access highways from any existing highway to any public water in this state. All class III-a highways shall be limited access facilities as defined in RSA 230:44. Class III-a highways shall be subject to the layout, design, construction, and maintenance provisions of RSA 230:45-47 and all other provisions relative to limited access facilities, except that the executive director of the fish and game department shall have the same authority for class III-a highways that is delegated to the commissioner of the department of transportation for limited access facilities. A class III-a highway may be laid out subject to the condition that it shall not be maintained during the winter months. A class III-a highway may be laid out subject to gates and bars or restricted to the accommodation of persons on foot, or certain vehicles, or both, if federal funds are not used. The executive director of fish and game may petition the governor and council to discontinue any class III-a highway.

IV.
Class IV highways shall consist of all highways within the compact sections of cities and towns listed in RSA 229:5, V. The compact section of any such city or town shall be the territory within such city or town where the frontage on any highway, in the opinion of the commissioner of transportation, is mainly occupied by dwellings or buildings in which people live or business is conducted, throughout the year and not for a season only. Whenever the commissioner reclassifies a section of a class I or class II highway as a class IV highway, the commissioner shall prepare a statement of rehabilitation work which shall be performed by the state in connection with the turnback. No highway reclassification from class I or II to class IV shall take effect until all rehabilitation needed to return the highway surface to reputable condition has been completed by the state. Rehabilitation shall be completed during the calendar year preceding the effective date of the reclassification. A copy of the commissioner's statement of work to be performed by the state shall be attached to the notification of reclassification to class IV, and receipt of said statement shall be acknowledged, in writing, by the selectmen of the town, or the mayor of the city, affected by the reclassification.

V.
The commissioner of transportation may establish compact sections in the following cities and towns:
Amherst
Bedford
Berlin
Claremont
Concord
Derry
Dover
Durham
Exeter
Franklin
Goffstown
Hampton
Hanover
Hudson
Keene
Laconia
Lebanon
Londonderry
Manchester
Merrimack
Milford
Nashua
Pelham
Portsmouth
Rochester
Salem
Somersworth

VI.
Class V highways shall consist of all other traveled highways which the town has the duty to maintain regularly and shall be known as town roads. Any public highway which at one time lapsed to Class VI status due to 5-years' nonmaintenance, as set forth in RSA 229:5, VII, but which subsequently has been regularly maintained and repaired by the town on more than a seasonal basis and in suitable condition for year-round travel thereon for at least 5 successive years without being declared an emergency lane pursuant to RSA 231:59-a, shall be deemed a Class V highway.

VII.
Class VI highways shall consist of all other existing public ways and shall include all highways discontinued as open highways and made subject to gates and bars, except as provided in paragraph III-a, and all highways which have not been maintained and repaired by the town in suitable condition for travel thereon for 5 successive years or more except as restricted by RSA 231:3, II.

Source. 1925, 110:1. PL 83:22. RL 99:24. 1943, 123:1. 1945, 188:1, part 1:4. 1951, 30:1. RSA 230:4. 1955, 333:2. 1957, 181:1, 2, 3. 1961, 4:2. 1973, 418:1-3. 1975, 249:1-3. 1979, 216:1. 1981, 87:1; 443:1. 1983, 131:1. 1985, 235:1-4; 402:6, I(b)(1). 1992, 265:8-10. 1995, 77:1. 1999, 109:1. 2000, 24:1, eff. May 28, 2000.

APPENDIX F: GLOSSARY

Annual Average Daily Traffic (AADT) - Annual Average Daily Traffic is data collected for the FHWA's Highway Performance Maintenance System. The data, represented in number of vehicles per day (averaged over the course of a year), is used for apportionment, administrative, legislative, analytical, and national highway database purposes. All federal-aid highways, including ramps located within grade-separated interchanges are surveyed for annual average daily traffic.

Anchor Section – An anchor section is a GIS (see GIS) term for a roadway section. An anchor section may exist only between two nodes. Anchor sections are the building blocks for the linear layers in the GIS system, including Roads and SRI Hi-Order Routes. For more information, see the *Metadata for Anchor Sections* guide, published by NHDOT Bureau of Planning and Community Assistance.

Auxiliary lane – An auxiliary lane is defined as the portion of the roadway adjoining the traveled way that is used for purposes supplementary to through traffic, such as speed change, turning, storage for turning, weaving, or truck climbing.

Channeled Intersection – An at-grade intersection in which traffic is directed into definite paths by islands.

Concurrent Routes – Concurrent routes in a road network is an instance of one physical roadway bearing two or more different route numbers.

Divided Highways – Divided highway" means a highway that is divided into two or more roadways by

(1) An intervening space.

(2) A barrier.

(3) A clearly indicated dividing section constructed to impede vehicular traffic.

Federal Highway Administration (FHWA) – The Federal Highway Administration is a government agency instituted to oversee and assist state and local government in design, monitoring, and maintenance of federal-aid highways (including the Eisenhower Interstate System and other US routes)

Functional System – The Federal Highway Administrations (FHWA) process of grouping roads according to the character of service they are intended to provide.

Functional Classification - The Functional Classification of public roadways is coded according to the functional system. The combination of functional system and urban/rural destination translates to an equivalent functional classification.

GIS – Geographic Information System. GIS is a system in which features are created as points, lines, or polygons, and are spatially related in a geodesic coordinate system. Although our reference system is linear, GIS is based on nodes; without nodes, none of the features in GIS could exist. NHDOT's Geographic Information System is edited and maintained through ESRI's ArcGIS software and powered by Oracle databases (see Oracle database).

Hi-Order Routes - Many routes run concurrently in New Hampshire for at least a portion of their length. To prevent confusion among transportation and public safety officials, NHDOT has ordered all concurrent routes, based on their route type. From this order, NHDOT has identified the route of highest magnitude, or the high-order route, on each section. This ordering allows for consistent reference to sections with concurrent routes without duplicating data.

Highway Performance Monitoring System (HPMS) – A system created and maintained by the Federal Highway Administration (see FHWA) that catalogues data on the "extent, condition, performance, use and operating characteristics of the nation's highways.

Interchange – An interchange is a system of interconnecting roadways in conjunction with one or more grade separations that provides for the movement of traffic between two or more roadways or highways on different levels.

Intersection – The general area where two or more highways join or cross. There are three types of intersections: intersections at grade, grade separations without ramps, and interchanges.

Legislative Class – Legislative classification is a state system set up to classify roads and highways. With this system, legislative class is divided by defining function, ownership and maintenance responsibilities.

Median – The portion of a divided highway separating the traveled way for traffic in opposing direction. A positive barrier normally consists of a guardrail or a concrete barrier

A curbed median consists of stone curbing (generally granite, 4 to 10 inches in height) which separates the roadway surface from concrete, paved, or earthen "island" in the between the opposing travel ways.

New Hampshire Department of Safety (NHDOS) – The New Hampshire Department of Safety affects the lives of all New Hampshire residents and visitors by enforcing criminal, motor vehicle and boating laws, and providing for fire safety, fire and emergency medical training, emergency communications and disaster planning. Established by the New Hampshire General Court in 1961, the Department consists of the divisions of Administration, Motor Vehicles, State Police, Homeland Security and Emergency Management, Emergency Services and Communications (DESC), Fire Standards and Training & Emergency Medical Services, and Fire Safety.

New Hampshire Department of Transportation (NHDOT) – The New Hampshire Department of Transportation is the state agency in charge of design, construction, and maintenance of all state-owned, funded, or maintained channels of transportation, including roadway, rail, air, and sea. To provide an expurgated system of transportation excellence in the Granite State, NHDOT (with the aid of Regional Planning Commissions (see RPC) and municipalities) also assiduously maintains a data system on all transportation channels in the state that are not state owned or maintained.

National Highway System (NHS) – The National Highway System is a strategic network of highways connecting most locations in the United States. It was established on June 29, 1956, when President Dwight D. Eisenhower signed the Federal Aid Highway Act of 1956.

NHS comprises the Eisenhower Interstate Highway System and certain other Federal and State routes, and services major public transportation hubs such as bus terminals, train stations, airports, and ports. It constitutes only a small portion of the nation's roadways yet carries a major portion of the nation's traffic. NHS also plays a pivotal role in the Strategic Highway Network, linking major military installations in the United States.

Node – A node is the most important feature in the GIS (see GIS) system. Nodes are created at the intersections of roadways in the physical world (either during field survey or through aerial imagery) and other breaks in a survey route such as legislative boundaries or notable roadway features such as bridges. Nodes are connected by anchor sections (see anchor section), not vice versa. Nodes may exist without anchor sections; however, anchor sections cannot exist without nodes to start and end them. Nodes give geometry to all the shapes and features in GIS.

Oracle Database – Oracle databases are object-relational database maintenance systems which catalogue and relate data. These databases are maintained through computerized routines designed by NHDOT personnel. Oracle databases can be queried using *Structured Query Language* (SQL) to locate data and relationships.

Ramp – The term "ramp" includes all types, arrangements, and sizes of turning roadways that connect two or more legs at an interchange. The components of a ramp are 1) a terminal at each leg, and 2) a connecting road, usually with some curvature, and on a grade. The term interchange indicates that there are one or more grade separations between the interconnecting roadways. Ramp components are also being referred to as deceleration lane (exit terminal), ramp proper, and acceleration lane (entrance terminal). In some cases, due to geometric and physical characteristic of highways the entrance terminal may be very short and followed by either a weaving section or an auxiliary lane.

Roadway Data Inventory (RDI) – The inventory of physical feature roadway classifications to meet state and federal reporting requirements and NHDOT's operations and project development.

Roadway – The portion of a highway, including shoulders, for vehicular use. A divided highway has two or more roadways.

Roadway Sections – A section of roadway (line segment) connecting two points or nodes generally created by physical attribute changes within the roadway. GIS users will recognize these as anchor sections.

Road Surface Management System (RSMS) - is a powerful tool that can provide an overview and rough estimate of a roadway system's condition at the network level and the approximate costs for future improvements in towns and small cities.

Regional Planning Commission (RPC) – The main mission of Regional Planning Commissions is to provide a forum to coordinate regional planning initiatives on a statewide basis and to disseminate information about RPCs to other agencies and organizations. They maintain strategic partnerships with state agencies, develop shared planning policies, and monitor planning related legislation. RPC's work on behalf of its member commissions and, by extension, the member cities and towns across the state.

Shoulders – The portion of the roadway contiguous with traveled way for accommodation of stopped vehicles, for emergency use and for lateral support of sub-base, base, and surface course.

Slip ramp – An individual turning roadway that is separated from the normal traveled way by an island at a channelized intersection.

SRI – Statewide Route Identifier is a unique code assigned to roadway sections or anchor sections. SRI follows the following structure; PTTTRRRRS

(P) Route Prefix, (TTT) Town Identification Number, (RRRR) Route Number and (S) Route Suffix.

Traffic Lane – The portion of the roadway separated from the other portions by two parallel lines to channel vehicles traveling in the same direction. Lane lines are often painted with reflective paint to increase conspicuity.

Traveled way – The portion of the roadway indented for the movement of vehicles, exclusive of shoulders.

Turning roadway – A connecting roadway that connects two intersection legs for turning traffic.

Turnpike – A Turnpike is a roadway that is maintained through the money collected on it through tolls. Turnpikes are not the same as an Interstate Highways or US routes, although they may run concurrently, such as the FE Everett Turnpike and Interstate 93.

Unique ID (UID) – Each roadway segment is assigned a computer-generated unique identification number (UID).

Urban Compact - The Compact City or city of short distances is an urban planning and urban design concept, which promotes relatively high residential density with mixed land uses.

Urban ID- A number in the database that corresponds to an urban area. Urban areas typically represent adjustments or revisions to the Census Urban Area Boundary and are fixed by State and Local Officials in coordination with each other.

Urban Name– A name that corresponds to the town that an urban area is in. Urban areas typically represent adjustments or revisions to the Census Urban Area Boundary and are fixed by State and Local Officials in coordination with each other.

Weaving section – A Weaving section is a highway segment where the pattern of traffic entering and leaving at contiguous access points results in crossed vehicle paths.