



**Lancaster, NH – Guildhall, VT**

NHDOT Lancaster Bridge No. 111/129 – US Route 2 over the Connecticut River  
Roger's Rangers Bridge – Constructed in 1950 - Replacement Completed in 2020

**2019 ANNUAL BRIDGE REPORT**

**NHDOT Bridge Condition and Bridge Program**

**Based on Bridge Inspection Data through December 31, 2019  
and**

**Bridge Project Data for the 2019 Federal Fiscal Year (October 1, 2018 – September 30, 2019)**

Approved by:  Date: 11-10-21  
Loretta Girard Doughty, PE  
Chair, NHDOT Bridge Management Committee

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Note: Completion of this Report was delayed approximately 15 months, primarily due to the COVID-19 Pandemic.

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- Appendix "C" - Bridge Postings and Weight Restrictions – Definitions, Signs, and Examples
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## 1 Executive Summary

The NHDOT Bridge Management Committee (BMC) has compiled this 2019 Annual Report on Bridge Condition and the Bridge Program. Presented herein are data regarding the condition of all bridges in New Hampshire and the goals and status of the NHDOT Bridge Program. This information is based on bridge inspection data through December 31, 2019, as reported to the Federal Highway Administration (FHWA) in March 2020, and in the bridge program expenditures for Federal Fiscal Year (FFY) 2019 (October 1, 2018 - September 30, 2019).

### Bridge Program Goals

The overarching goal of the NHDOT Bridge Program is to support “transportation excellence, enhancing the quality of life in New Hampshire” by providing safe and efficient mobility for the efficient movement of people, goods, and services throughout the State by maintaining the bridge inventory in a state of good repair by accomplishing by the following goals:

1. Implement the *Recommended Investment Strategy* (RIS) to attain the maximum service life, which varies from 60 - 120 years based on bridge type, for all types of bridges in New Hampshire.
2. Inspect all state and municipal/other bridges to meet Federal and State inspection and reporting requirements.
3. Manage all posted (weight restricted) bridges to reduce or eliminate constraints affecting the safe and efficient movement of goods and services, including emergency response, on the overall State transportation system. Specifically, the goal is for all High Investment Bridges (HIBs) and all bridges on Tier 1 and 2 roadways to have no weight restrictions, for all Tier 3 bridges with weight restrictions to be included in the 10-Year Plan as projects to address their weight restrictions, and for all weight restricted Tier 4 bridges to be reviewed to ensure that the weight restriction for each bridge does not affect emergency response services. (Please refer to *Appendix C - Bridge Postings and Weight Restrictions* for additional information.)
4. Manage the State’s Red List (“poor” condition) bridges to reduce the backlog of bridge rehabilitation and replacement efforts to the maximum extent that can be addressed within the funding constraints of the State’s 10-Year Transportation Improvement Plan (10-Year Plan).
5. Apply available bridge funds to limit the total area of bridge decks in “poor” condition on the National Highway System (NHS) in New Hampshire to be less than 7% of the total deck area on this highway category. This goal is more stringent than the 10% limit stipulated by the Federal Highway Administration (FHWA).
6. Record and utilize project cost data to calculate cost estimates through all project development phases (Initial Assessment; Type, Size, & Location (TS&L); Preliminary Plans; PPS&E Plans; and PS&E Plans) to improve cost estimating practices and corresponding project cost results as the *Recommended Investment Strategy* (RIS) is efficiently and effectively implemented. The goal is for Initial Project Assessment cost estimates to be within 25% ( $\pm$ ) of the PS&E estimate.

These efforts require effective application of available funds allocated to perform scheduled maintenance, preservation, rehabilitation, and replacement activities. This is accomplished by determining the ranking of all bridges based on the following considerations: Condition; Type & Size; Importance; Capacity; Risk; and Engineering Knowledge. Contract documents are then developed to perform appropriate maintenance, preservation, rehabilitation, or replacement activities on specific bridges, within the funding constraints of each fiscal year of both the State and Municipal bridge programs.

### Red List Data for 2019

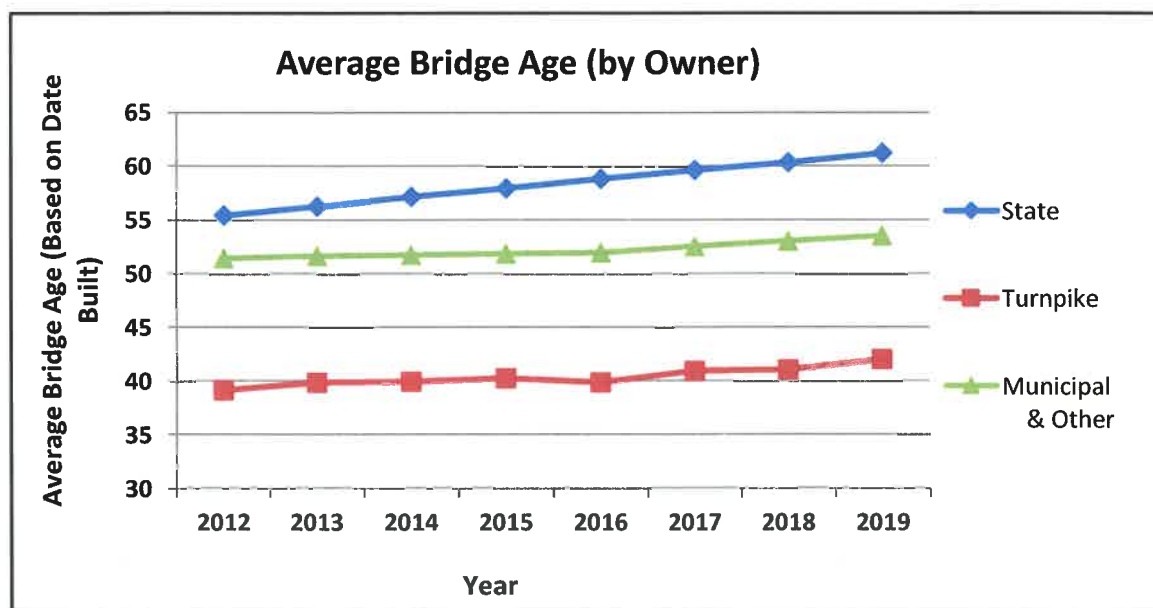
Based on bridge inspection data through December 31, 2019, there are 2,161 state owned bridges and 1,689 municipally owned bridges. Of these, 125 bridges are on the State Red List and 243 bridges are on the Municipal Red List for a total of 368 bridges that have at least one major structural element (deck, superstructure, substructure, or culvert) in “poor” condition. The NHDOT Bridge Statistics for bridge count and bridge deck area are listed below:

<b>NHDOT Bridge Statistics for 2019</b> (Bridge count; Length = 10 ft. and greater)				<b>NHDOT Bridge Statistics for 2019</b> (Bridge deck area (sq. ft.); Length = 10 ft. and greater)			
	State	Municipal/Other	Totals		State	Municipal/Other	Totals
<b>Red List</b>	125	243	368	<b>Red List</b>	605,821	345,827	951,648
<b>Yellow List</b>	888	646	1,534	<b>Yellow List</b>	3,722,734	952,086	4,674,820
<b>Green List</b>	1,125	740	1,865	<b>Green List</b>	6,191,359	1,217,568	7,408,927
<b>Closed or N/A</b>	23	60	83	<b>Closed or N/A</b>	63,115	93,811	156,926
<b>Totals:</b>	2,161	1,689	3,850	<b>Totals:</b>	10,583,029	2,609,292	13,192,321

See Page 9 for definitions of Red, Yellow, Green, and Closed Lists of Bridges.

### Age of NH Bridges in 2019

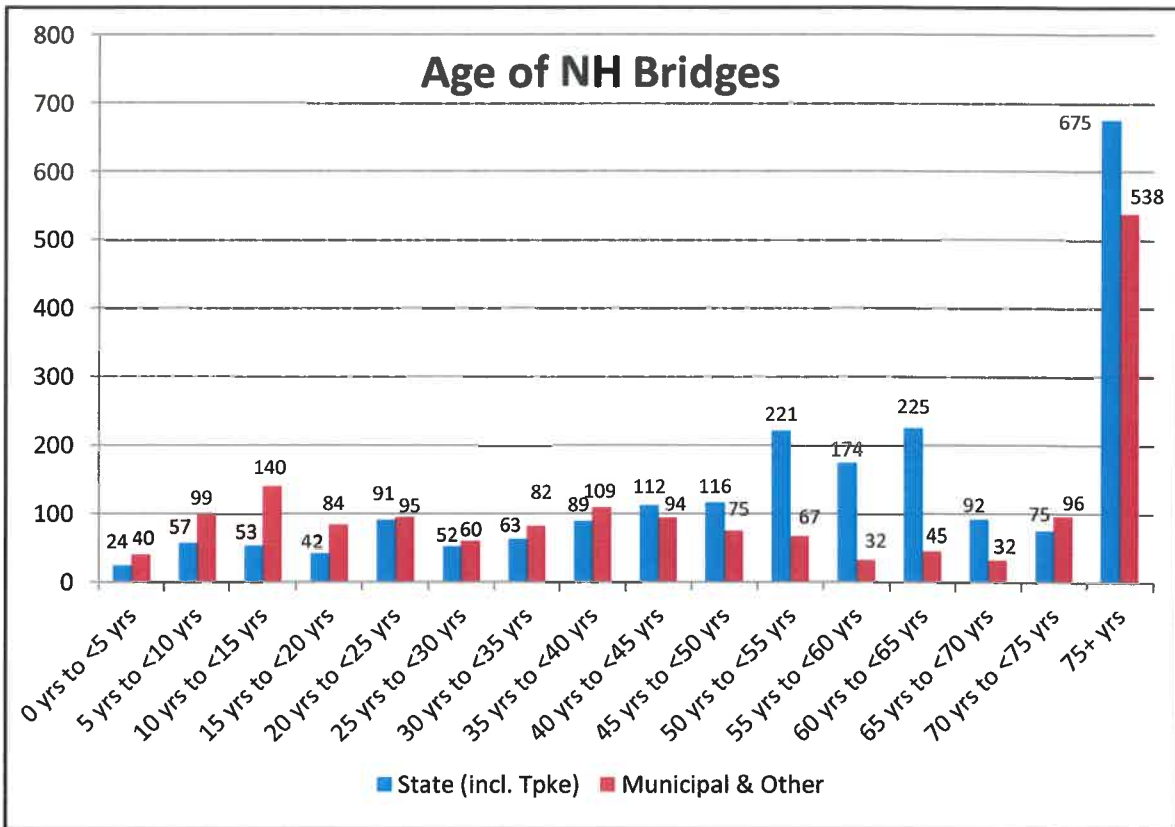
Approximately half of all bridges in New Hampshire were constructed before 1960 and were not designed to carry modern vehicle loads or traffic volumes. Since that time, traffic volumes and vehicle loads have greatly increased, placing additional and sometimes excessive stress on these bridges. Further, many bridges constructed since 1960 are also approaching the end of their originally anticipated 50-to-80-year service life, depending on bridge type. The Department has been aggressive in efforts to address State Red List bridges, with 97 bridges removed from the State Red List from 2014 through 2019. However, bridges continue to deteriorate, and many have transitioned onto the Red List during this same time frame.



	<b>Average Bridge Age (Years) by Owner</b>							
	2012	2013	2014	2015	2016	2017	2018	2019
<b>State (non-Turnpike)</b>	55.4	56.2	57.1	57.9	58.8	59.6	60.3	61.2
<b>Turnpike</b>	39.1	39.8	39.9	40.2	39.8	40.9	41.0	42.0
<b>Municipal &amp; Other</b>	51.4	51.6	51.7	51.8	51.9	52.5	53.0	53.5

Although 86 bridges have been added to the State Red List during this same time period, these efforts still resulted in a net decrease of 11 State Red List bridges. Similar efforts regarding the Municipal Red List from 2014 through 2019 resulted in 137 bridges being removed from the Municipal Red List and 100 bridges being added to the Municipal Red List, for a net decrease of 37 Municipal Red List bridges. Many of these Municipal Red List bridges were addressed using municipal (local) funds only, due in part to the very limited funds available in the State Bridge Aid Program.

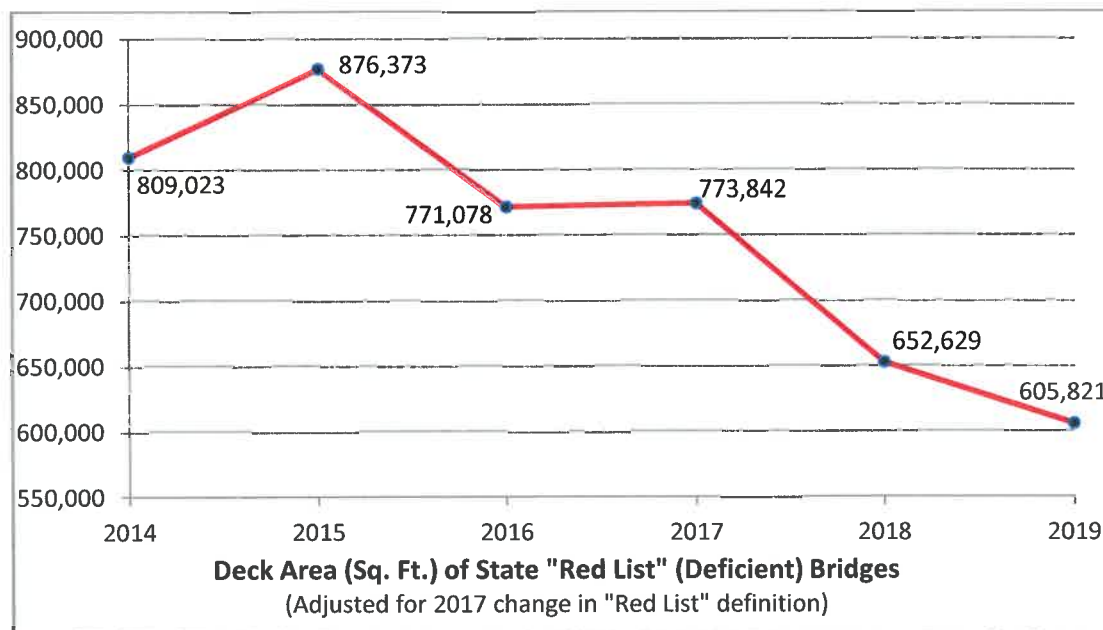
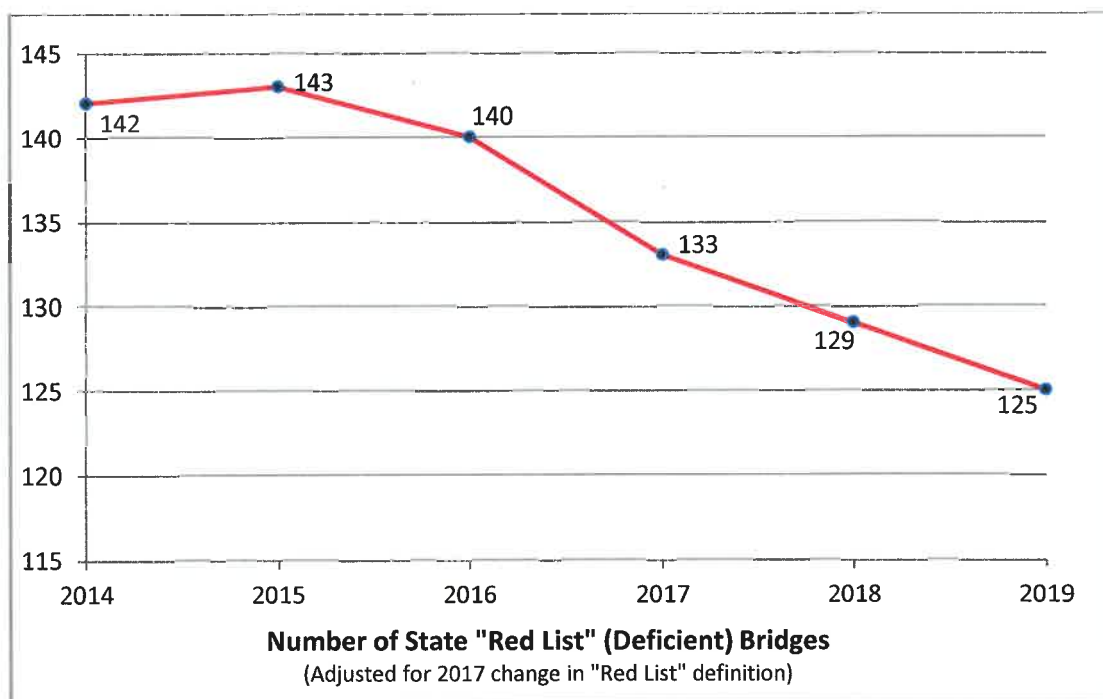
The following chart depicts the number of bridges in each age category, based on bridge data through December 31, 2019 for state bridges (including Turnpikes) and municipal/other bridges. This shows that 1,462 of 2,161 state bridges (about 67.7%) are more than 50 years old with an average age of 59.6 years for all state bridges. Similarly, 887 of 1,689 municipal bridges (about 52.5%) are more than 50 years old with an average age of 53.5 years for all municipal bridges.



The above data indicates the challenge faced by the Department to obtain and dedicate the resources needed to perform bridge preservation, rehabilitation, or replacement in a timely manner when a clear majority of state bridges have essentially exceeded their originally anticipated 50-year service life. This is especially true when considering that 675 state and municipal bridges (about 31.2% or nearly one-third) of bridges in the total bridge inventory are more than 75 years old.

Please refer to the NHDOT *Recommended Investment Strategy* (<https://www.nh.gov/dot/org/projectdevelopment/bridgedesign/documents/bridgeprogramrecommendedinvestmentstrategy.pdf>) and the NHDOT *Recommended Network Funding* (<https://www.nh.gov/dot/org/projectdevelopment/bridgedesign/documents/bridgeprogramrecommendednetworkfunding.pdf>) of the NHDOT Bridge Program for further information on the Department’s efforts to extend the service life of state bridges and the projected funding needed to accomplish the goals of the Bridge Program.

The graphs below depict the number and deck area of state Red List bridges based on data from 2014 through 2019.



The above graphs and information display the significant progress the Department has achieved in reducing the number and deck area of Red List bridges over the past 5 years. However, it is important to note that, in general, the number of Red List bridges over time has decreased steadily, although many bridges previously on the Yellow List have deteriorated further each year and thus transitioned to the Red List. It is the goal of the *Recommended Investment Strategy* to perform timely and appropriate preservation activities on bridges that are still in 5 = "Fair" to 7 = "Good" condition, thus keeping them off the Red List. The importance and cost effectiveness of this Strategy cannot be overstated.

### **Bridge Program Accomplishments for FFY 2019**

Significant accomplishments have been made toward establishing criteria and strategies to apply funding and staff to address the maintenance, preservation, rehabilitation, and replacement needs of New Hampshire state bridges. The following table summarizes accomplishments by the Bridge Design and Bridge Maintenance Bureaus during the 2019 Federal Fiscal Year to meet the Bridge Program goals described above.

In this Report, data associated with bridge deck areas refer to the deck area of existing bridges, e.g., the deck area of Red List bridges that have been replaced refers to the deck area of the original (existing) bridges, and not the deck area of the new (replacement) bridges. “Deck area” is just another way to indicate the magnitude of Red List (deficient) bridges, similar to the Red List bridge count.

<b>FFY 2019 Project Type</b>	<b>Number of Projects</b>	<b>Number of Bridges</b>	<b>Deck Area (Sq. Ft.)</b>	<b>Project Construction Cost</b>
State Bridge Preservation (non-Turnpike)	15	26	102,233	\$5,904,550
State Bridge Preservation – Other (non-Turnpike) (Scour, Paint, etc.)	2	7	N/A	\$1,233,500
Bridge Preservation (Turnpike)	2	3	274,507	\$28,714,200
Bridge Preservation - Other (Turnpike) (Scour, Paint, etc.)	0	0	N/A	\$0
<b>Preservation Sub-Total</b>	<b>19</b>	<b>36</b>	<b>376,740</b>	<b>\$35,852,250</b>
State Bridge Rehabilitation (non-Turnpike)	7	7	10,612	\$21,618,600
Bridge Rehabilitation (Turnpike)	0	0	0	\$0
<b>Rehabilitation Sub-Total</b>	<b>7</b>	<b>7</b>	<b>10,612</b>	<b>\$21,618,600</b>
State Bridge Replacement (non-Turnpike)	9	11	85,373	\$56,823,300
Bridge Replacement (Turnpike)	0	0	0	\$0
<b>Replacement Sub-Total</b>				
<b>FFY 2019 Totals:</b>	<b>26</b>	<b>43</b>	<b>387,352</b>	<b>\$57,470,850</b>

### **Bridge Inspections, Notices, and Responses for 2019**

In addition to the above data, 2,322 bridge inspections were performed and the Bridge Management Database was updated. Deficiency Notices (5), Critical Deficiency Notices (4), and Emergency Responses (10 to 20 per year) were also provided for affecting bridges in various municipalities during calendar year 2019. See *Section 5.2.3 Critical Deficiency Notices – Municipal Bridges* and *Section 5.2.5 Emergency Response for Bridges* for additional details.

### **Bridge Condition – Projected**

With implementation of the *NHDOT Bridge Program - Recommended Investment Strategy*, it is projected that the number of State Red List bridges and deficient deck area will continue to decrease over time as the benefits of this strategy become apparent. However, when considering the number of State Yellow List bridges that are essentially one inspection away from moving to the State Red List, this projection is truly uncertain, and the numbers can change quickly.

It is also projected that the number of Yellow List bridges will increase in the coming years. By following the *Recommended Investment Strategy*, bridges will remain on the Yellow List (5=“Fair” or 6=“Satisfactory” condition) for a longer period of time, with preservation activities performed to keep them in this condition, rather than allowing them to deteriorate further without preservation and be added to the Red List more quickly, necessitating more expensive options.



It is important to again note that NHDOT Bridge Program is dependent on the amount of resources and funding for projects and staffing for this effort, provided through the 10-Year Plan as approved every two years by the NH Governor and Legislature. The Department strives to balance the funding needs of the Bridge Program and of the Paving Program (for bridge pavement crack sealing and inlays) with the funding needed to address other NHDOT infrastructure deficiencies.

**For additional information, please refer to the following documents:**

- NHDOT 2019 State Red List
- NHDOT 2019 Municipal Red List
- NHDOT 2019 State Rehabilitation & Replacement Priority List
- NHDOT State Preservation Priority List (Under development)
- NHDOT 2019 Bridge Summary
- NHDOT Bridge Program – Definitions of Program Strategies and Terms  
<https://www.nh.gov/dot/org/projectdevelopment/bridgedesign/documents/definitionsofprogramstrategiesandterms.pdf>
- NHDOT Bridge Program – Recommended Investment Strategy  
<https://www.nh.gov/dot/org/projectdevelopment/bridgedesign/documents/bridgeprogramrecommendedinvestmentstrategy.pdf>
- NHDOT Bridge Program – Recommended Network Funding  
<https://www.nh.gov/dot/org/projectdevelopment/bridgedesign/documents/bridgeprogramrecommendednetworkfunding.pdf>
- NHDOT Bridge Program – State Preservation List Ranking Process (Under development)
- NHDOT Bridge Program – State Rehabilitation & Replacement List and Ranking Process  
([https://www.nh.gov/dot/org/projectdevelopment/bridgedesign/documents/2018-03-28bridge\\_rr\\_list.pdf](https://www.nh.gov/dot/org/projectdevelopment/bridgedesign/documents/2018-03-28bridge_rr_list.pdf))  
([https://www.nh.gov/dot/org/projectdevelopment/bridgedesign/documents/stater\\_rankingprocess\\_001.pdf](https://www.nh.gov/dot/org/projectdevelopment/bridgedesign/documents/stater_rankingprocess_001.pdf))
- NHDOT Bridge Program – State Red List Ranking Process  
(<https://www.nh.gov/dot/org/projectdevelopment/bridgedesign/documents/stateredlistrankingprocess.pdf>)
- 10-Year Transportation Improvement Plan 2019 – 2028



## 2 Bridge Condition

### 2.1 Summary of Bridge Inspection Process

In accordance with all pertinent state and federal laws and regulations, including the National Bridge Inspection Standards (NBIS), all publicly owned bridges associated with highway traffic and recorded in the NHDOT Bridge Inventory are inspected every two years (24 months) maximum interval. State Red List (deficient) bridges are inspected biannually (6-month interval) and Municipal Red List (deficient) bridges are inspected annually (12-month interval). For additional information on the NBIS, please go to: <https://www.fhwa.dot.gov/bridge/nbis.cfm>.

Most bridge inspections are performed by NHDOT Bridge Inspectors, although some complex bridges, such as movable bridges, are inspected utilizing consultant engineering services. Underwater inspections are performed by contract divers on specific bridges to check for scour undermining. All bridge inspection efforts are administered by the Bridge Design Bureau.

During the inspection process, a condition rating is assigned to each of the major structural elements (deck, superstructure, substructure, or culvert), according to criteria presented in the NBIS. In addition to the *State Red List* and *Municipal Red List*, a review of this inspection data allows development of “groups” of bridges, as noted below, based on the overall condition of their major structural elements. The NHDOT Bridge Management Committee updated, defined, and developed these groups as a means to continually monitor and convey the overall “health” of bridges in New Hampshire. These lists are described as follows:

#### Highway Bridges:

- **“Red”** – All bridges carrying highway traffic that have one or more major structural elements with an NBIS condition rating of “4 = Poor” or less. These bridges comprise the state/municipal Red Lists.
- **“Yellow”** – All bridges carrying highway traffic that have their lowest rated major structural element with an NBIS condition rating of “5 = Fair” or “6 = Satisfactory”.
- **“Green”** – All bridges carrying highway traffic that have all major structural elements with an NBIS rating equal to or greater than “7 = Good”.
- **“Closed or N/A”** – All bridges carrying highway traffic that have been closed due to one or more major structural elements with an NBIS rating equal to or less than “1 = Closed”.

#### Non-Highway Bridges:

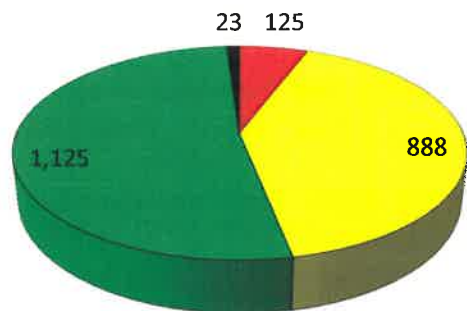
- **“Red”** – All non-highway bridges used as pedestrian, recreational, or railroad crossings that have one or more major structural elements with an NBIS rating of “4 = Poor” or less. These bridges comprise the corresponding Red List.
- **“Yellow”** – All non-highway bridges used as pedestrian, recreational, or railroad crossings that have their lowest rated major structural element with an NBIS condition rating of “5 = Fair” or “6 = Satisfactory”.
- **“Green”** – All non-highway bridges used as pedestrian, recreational, railroad, etc., crossings that have all major structural elements with an NBIS rating equal to or greater than “7 = Good”.
- **“Closed or N/A”** – All non-highway bridges used as pedestrian, recreational, or railroad crossings that have been closed due to one or more of their major structural elements with an NBIS rating equal to or less than “1 = Closed”.

## 2.2 Current Condition and Number of Bridges in New Hampshire

The table below presents a summary of the current number of bridges and deck area by bridge ownership in their respective condition categories through December 31, 2019, as reported to the Federal Highway Administration (FHWA) in March 2020. Please note that this data includes the entire deck area of bridges shared with adjoining states, as required by the FHWA.

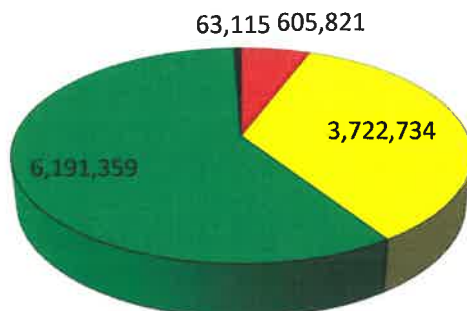
<u>Bridge Condition</u>	<u>State Non-Turnpike</u>		<u>State Turnpike</u>		<u>State Totals</u>		<u>Municipal and Others</u>	
	<u>Number</u>	<u>Deck Area (Sq. Ft.)</u>	<u>Number</u>	<u>Deck Area (Sq. Ft.)</u>	<u>Number</u>	<u>Deck Area (Sq. Ft.)</u>	<u>Number</u>	<u>Deck Area (Sq. Ft.)</u>
<b>Red List ("Poor")</b>	117	497,749	8	108,073	125	605,822	243	345,827
<b>Yellow List ("Fair")</b>	840	2,993,584	48	729,151	888	3,722,735	646	952,086
<b>Green List ("Good")</b>	1,009	4,475,432	116	1,715,928	1,125	6,191,360	740	1,217,568
<b>Closed or N/A</b>	23	63,115	0	0	23	63,115	60	93,811
<b>Totals:</b>	<b>1,989</b>	<b>8,029,880</b>	<b>172</b>	<b>2,553,152</b>	<b>2,161</b>	<b>10,583,032</b>	<b>1,689</b>	<b>2,609,292</b>

### 2019 Condition of State Bridges (2,161 total)

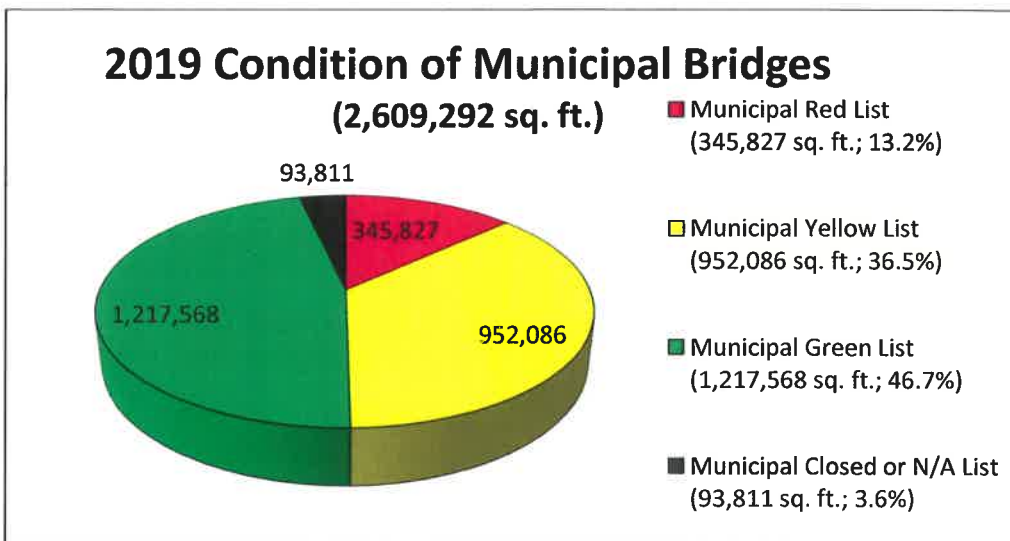
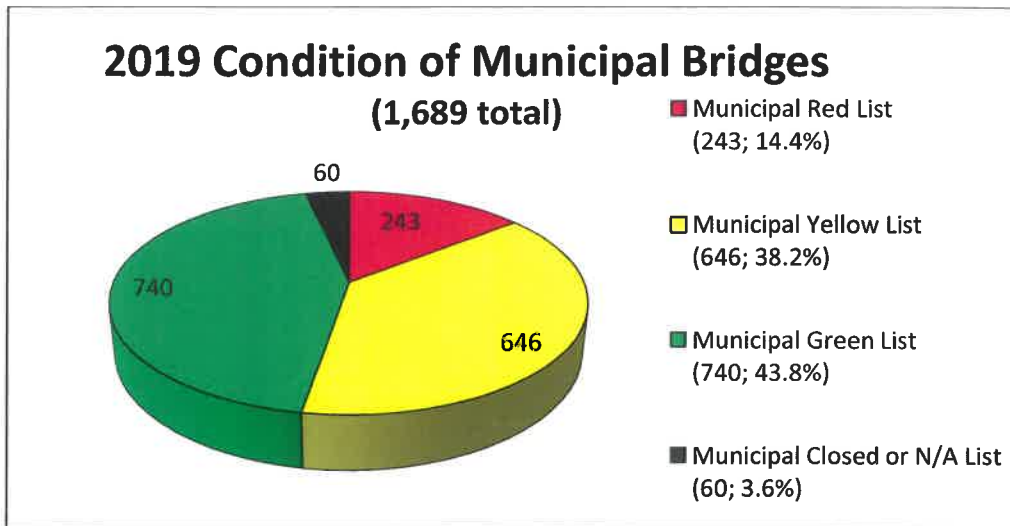


- State Red List (125; 5.8%)  
(117 State, 8 Tpke)
- State Yellow List (888; 41.1%)  
(840 State, 48 Tpke)
- State Green List (1,125; 52.0%)  
(1,009 State, 116 Tpke)
- State Closed or N/A List (23; 1.1%)  
(23 State, 0 Tpke)

### 2019 Condition of State Bridges (10,583,032 sq. ft.)



- State Red List  
(605,821 sq. ft.; 5.7%)  
(497,749 sq. ft. State; 108,073 sq. ft. Tpke)
- State Yellow List  
(3,722,734 sq. ft.; 35.2%)  
(2,993,584 sq. ft. State; 729,151 sq. ft. Tpke)
- State Green List  
(6,191,359 sq. ft.; 58.5%)  
(4,475,432 sq. ft. State; 1,715,928 sq. ft. Tpke)
- State Closed or N/A List  
(63,115 sq. ft.; 0.6%)  
(63,115 sq. ft. State; 0 sq. ft. Tpke)



For more information and maps regarding the data and locations of all state and municipal/other Red List bridges, please see Appendices “A” and “B”.

#### Appendix “A”

- 2019 State Red List (Based on bridge inspection data through December 31, 2019)
- Location Map of 2019 State Red List Bridges (Based on bridge inspection data through December 31, 2019)

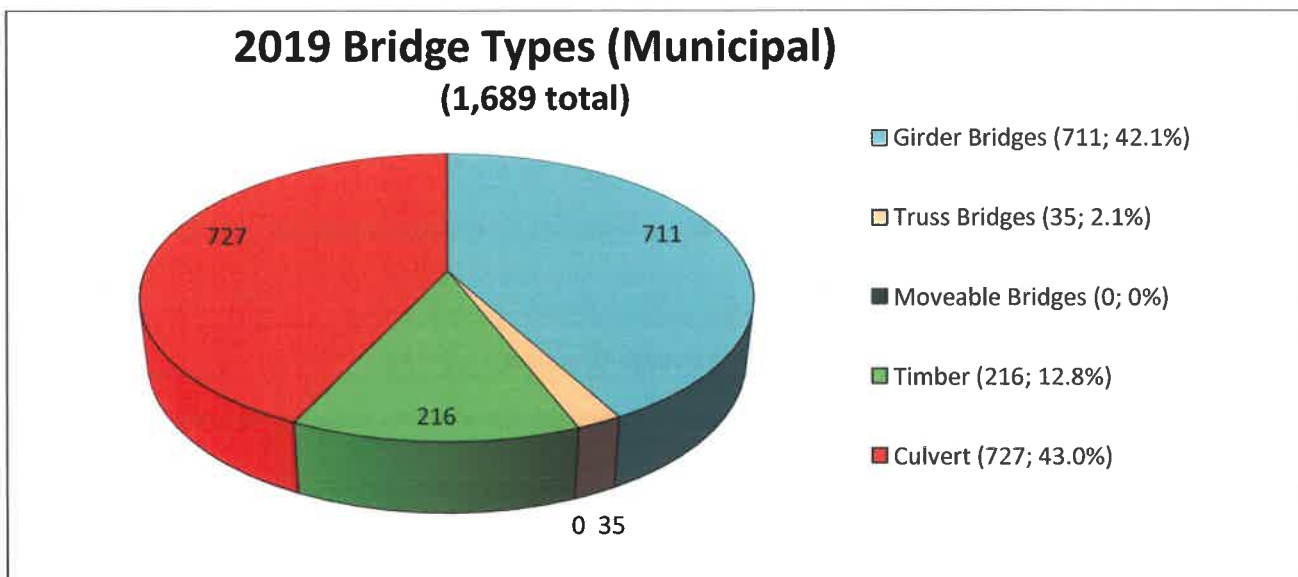
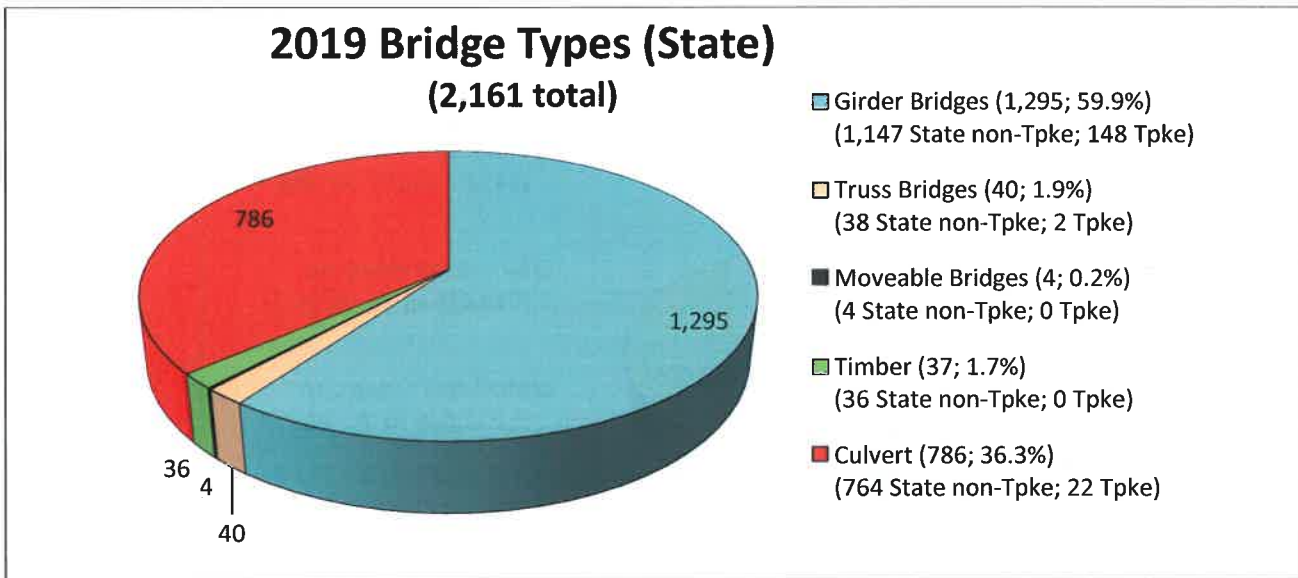
#### Appendix “B”

- 2019 Municipal Red List (Based on bridge inspection data through December 31, 2019)
- Location Map of all 2019 Municipal Red List Bridges (Based on bridge inspection data through December 31, 2019)

The table below presents a summary of the current number of bridges and deck area according to bridge type, based on data compiled through December 31, 2019.

Bridge Type	State Non-Turnpike		State Turnpike		State Totals			Municipal and Other		
	Number	Deck Area* (Sq. Ft.)	Number	Deck Area* (Sq. Ft.)	Number	Deck Area* (Sq. Ft.)	Percentage (Number)	Number	Deck Area* (Sq. Ft.)	Percentage (Number)
Girder	1,147	6,686,195	148	2,271,679	1,295	8,957,874	59.9%	711	1,773,419	42.1%
Truss	38	239,153	2	189,061	40	428,214	1.9%	35	171,849	2.1%
Moveable	4	192,796	0	0	4	192,796	0.2%	0	0	0.0%
Timber	36	50,207	0	0	36	50,207	1.7%	216	208,699	12.8%
Culvert	764	861,528	22	92,412	786	953,940	36.4%	727	455,594	43.0%
<b>Totals:</b>	<b>1,989</b>	<b>8,029,879</b>	<b>172</b>	<b>2,553,152</b>	<b>2,161</b>	<b>10,583,031</b>	<b>100.0%</b>	<b>1,689</b>	<b>2,609,561</b>	<b>100.0%</b>

\* These totals only include the NH portion of the deck area for bridges shared with adjoining states, which results in a total deck area slightly smaller than the totals shown in the table further above.



### 2.3 Bridge Postings for Weight Restrictions

The tables below present a summary of current bridge postings for weight restrictions according to the bridge type, ownership, and roadway tier on which the bridge is located, all based on data compiled through December 31, 2019. This data includes bridges whose structural condition or configuration is such that, according to current design standards, vehicle and load configurations, and/or state law, the bridge requires a load posting to indicate the reduced safe and/or legal load capacity of the structure in its current condition. It is important to note that the term “weight restriction” refers to the total load applied to the bridge, i.e., the combined weight of the vehicle and the load it carries, not just the load carried by the vehicle. (Example: “Weight Limit 20-Tons” allows a 12-ton vehicle with an 8-ton load.)

Although the “tonnage” postings are the most restrictive, all bridge weight postings restrict and redirect the movement of more heavily loaded vehicles to those roadways having bridges of sufficient load capacity to safely allow these vehicles to travel. This includes approved “permitted” vehicles carrying excessive loads (greater than legal loads) supported by multiple axles to distribute the total vehicular load.

For more information regarding bridge postings and weight restrictions for bridges, please refer to *Appendix “C” - Bridge Postings and Weight Restrictions for Certified Vehicles: Posting Definitions and Examples*; or, *RSA 266:18 Equipment of Vehicles*.

(<http://www.gencourt.state.nh.us/rsa/html/XXI/266/266-18.htm>)

**NOTE:** If vehicles and loads exceed the posted weight restriction on any bridge, structural damage may occur to the bridge deck and/or superstructure, up to and possibly including complete failure and collapse of the bridge. The safety issues and disruption to the transportation network, especially to emergency response vehicles, resulting from such an incident cannot be overstated.

Bridge Posting	BRIDGE OWNERSHIP			
	State non-Turnpike	State Turnpike	State Totals	Municipal and Other
E-1	41	0	41	3
E-2	173	0	173	611
C-1	6	0	6	0
C-2	20	0	20	3
C-3	5	0	5	0
Tonnage	21	0	21	118
Closed	12	1	13	65
No Posting	1,711	171	1,882	889
<b>Total Posted</b>	278	1	279	800
<b>Total Bridges</b>	1,989	172	2,161	1,689
<b>Percent Posted of Total Bridges</b>	14.0%	0.6%	12.9%	47.4%

The above data show that Turnpike bridges have the lowest percentage of weight posted bridges, essentially 0%, since the only closed or weight restricted Turnpike bridge is the General Sullivan pedestrian bridge between Newington and Dover. This reflects the commitment to bond holders to appropriately and effectively maintain Turnpike infrastructure. The data also show that municipalities have the greatest percentage of bridges that have weight restrictions. This is due in part to the fact that municipal bridges were not load rated in the 1980s when the Department, through the Bridge Design Bureau, performed load ratings on all state bridges to ensure that certified and permitted loads could safely travel on the state transportation network.



Bridge Posting	BRIDGE TYPE					Totals
	Girder	Truss	Moveable	Timber	Culvert	
E-1	30	1	0	1	12	44
E-2	393	7	1	47	336	784
C-1	6	0	0	0	0	6
C-2	22	1	0	0	0	23
C-3	5	0	0	0	0	5
Tonnage	41	8	1	68	21	139
Closed	24	11	0	24	19	78
No Posting	1,485	47	2	112	1,125	2,771
<b>Total Posted</b>	521	28	2	140	388	1,079
<b>Total Bridges</b>	2,006	75	4	252	1,513	3,850
<b>Percent Posted of Bridge Type</b>	26.0%	37.3%	50.0%	55.6%	25.6%	28.0%

The above data show that even though culvert and girder bridges are the most common type of bridge structure in the state, they have the lowest percentage of weight posted bridges.

Bridge Posting	ROADWAY TIER*							Totals
	HIB	Tier 1	Tier 2	Tier 3	Tier 4	Tier 5	Tier 6	
E-1	0	0	7	22	12	3	0	44
E-2	1	0	39	70	62	611	1	784
C-1	0	0	2	4	0	0	0	6
C-2	0	0	4	10	6	3	0	23
C-3	0	0	0	4	1	0	0	5
Tonnage	1	0	0	1	16	118	3	139
Closed	0	0	0	0	3	66	9	78
No Posting	49	511	539	413	319	878	62	2,771
<b>Total Posted</b>	2	0	52	111	100	801	13	1,079
<b>Total Bridges</b>	51	511	591	524	419	1,679	75	3,850
<b>Percent Posted of Bridges on Tier</b>	3.9%	0.0%	8.8%	21.2%	23.9%	47.7%	17.3%	28.0%

\*See Section 3.1, Page 19 for definitions and information regarding roadway tiers.

The above data show that Tier 1 bridges have the fewest (0.0%) bridges posted with weight restrictions, which reflects the commitment of the Department to maintain to the highest order the bridges located on major transportation corridors of the State infrastructure. The remaining data demonstrate the efforts of the Department to appropriately and effectively maintain bridges according to their importance and the roadway tier on which each bridge is located.



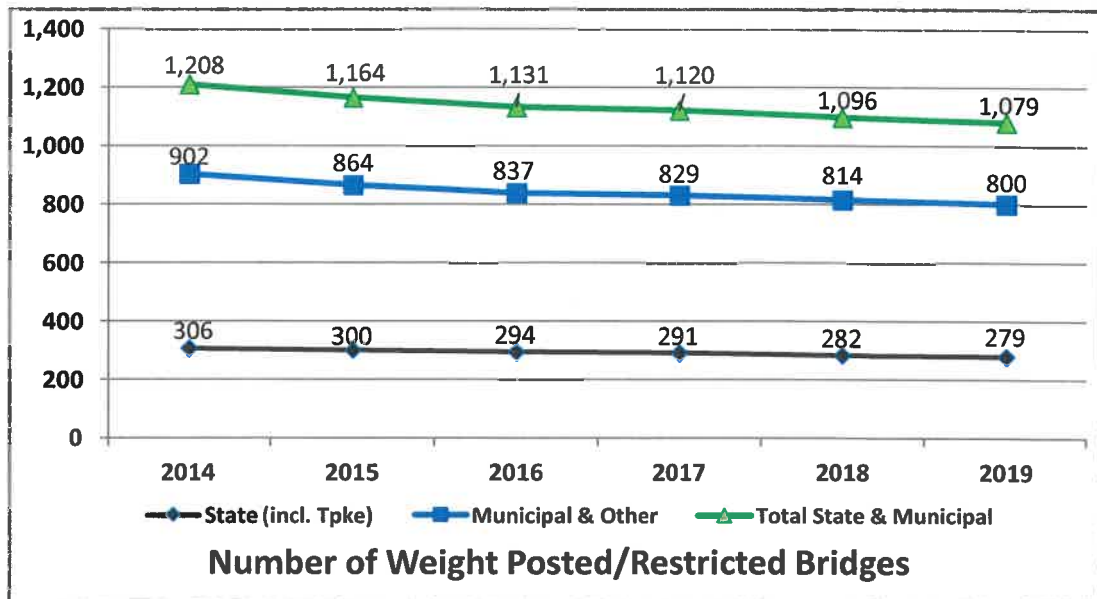
## 2.4 Comparison of 2019 Bridge Data with Previous 5 Years

The tables below compare state and municipal bridge data according to bridge posting (weight restriction) and bridge condition rating (“Red”, “Yellow”, and “Green”) for the current (2019) and previous five years.

- 2.4.1 **Bridge Load Posting (Weight Restriction) List** – A list of bridges whose structural condition or configuration is such that the bridge requires a load posting to indicate the reduced safe and/or legal load capacity of the structure in its current condition, according to current design standards, vehicle and load configurations, and/or state law. Please note that this list is different from the Red List since the majority of posted bridges are in acceptable condition, but their structural configuration is such that they are unable to safely support all legal loads. Clearly, however, some bridges are posted for weight restrictions due to their poor structural condition.

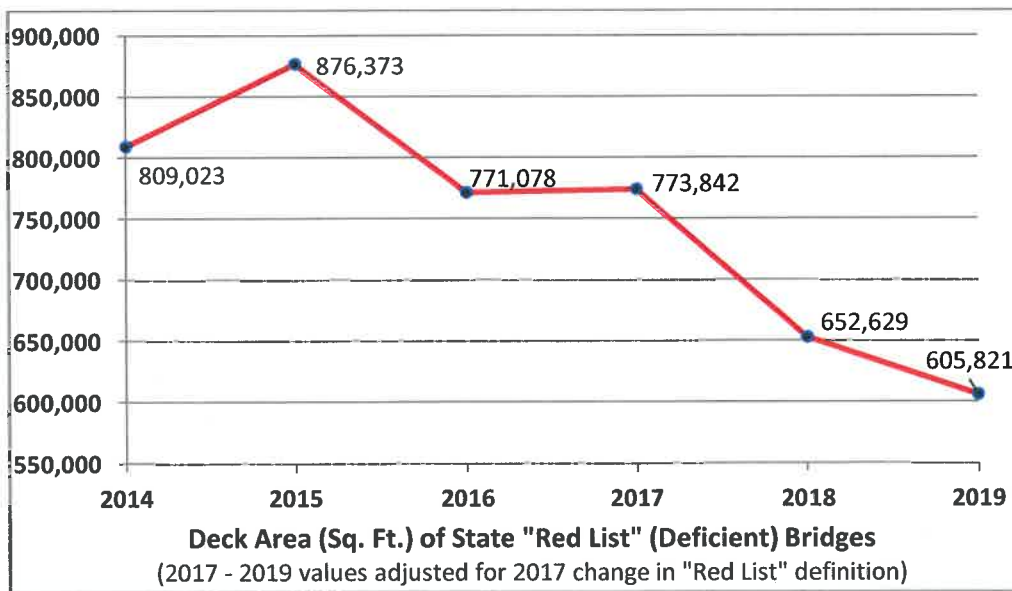
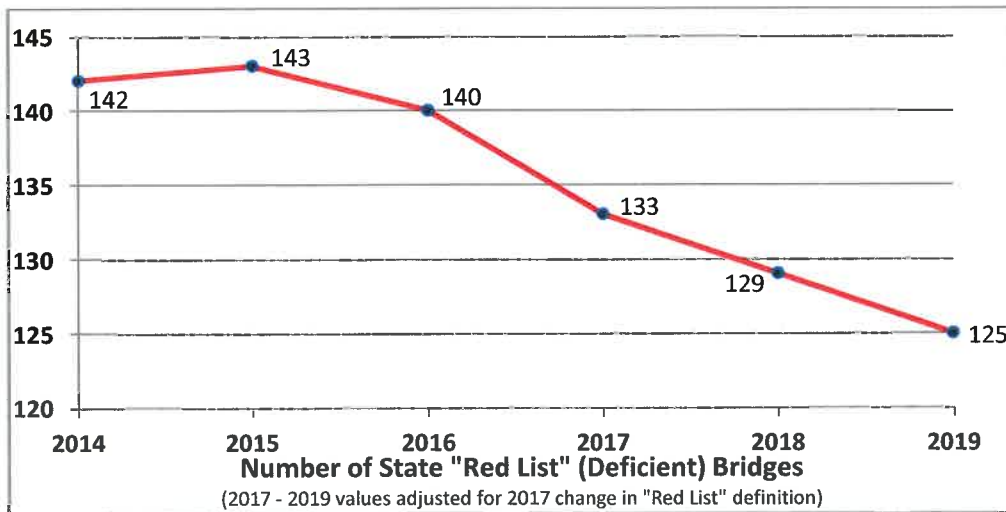
Bridge Posting	2014	2015	2016	2017	2018	2019
E-1	52	50	50	49	44	44
E-2	856	823	816	808	796	784
C-1	4	4	4	4	7	6
C-2	23	22	22	21	23	23
C-3	6	6	6	6	6	5
Tonnage	170	165	151	151	141	139
Closed	97	94	82	81	79	78
No Posting	2,639	2,684	2,711	2,729	2,754	2,771
<b>Total Posted</b>	1,208	1,164	1,131	1,120	1,096	1,079
<b>Total Bridges</b>	3,847	3,848	3,842	3,849	3,850	3,850
<b>Percent Posted of Total Bridges per Year</b>	31.4%	30.2%	29.4%	29.1%	28.5%	28.0%

The above data show that over the 2014 – 2019 time-period, there are 129 fewer bridges (state and municipal) that are posted with weight restrictions, a reduction from 31.4% to 28.0% of total bridges posted during this time period, as depicted in the graph below.



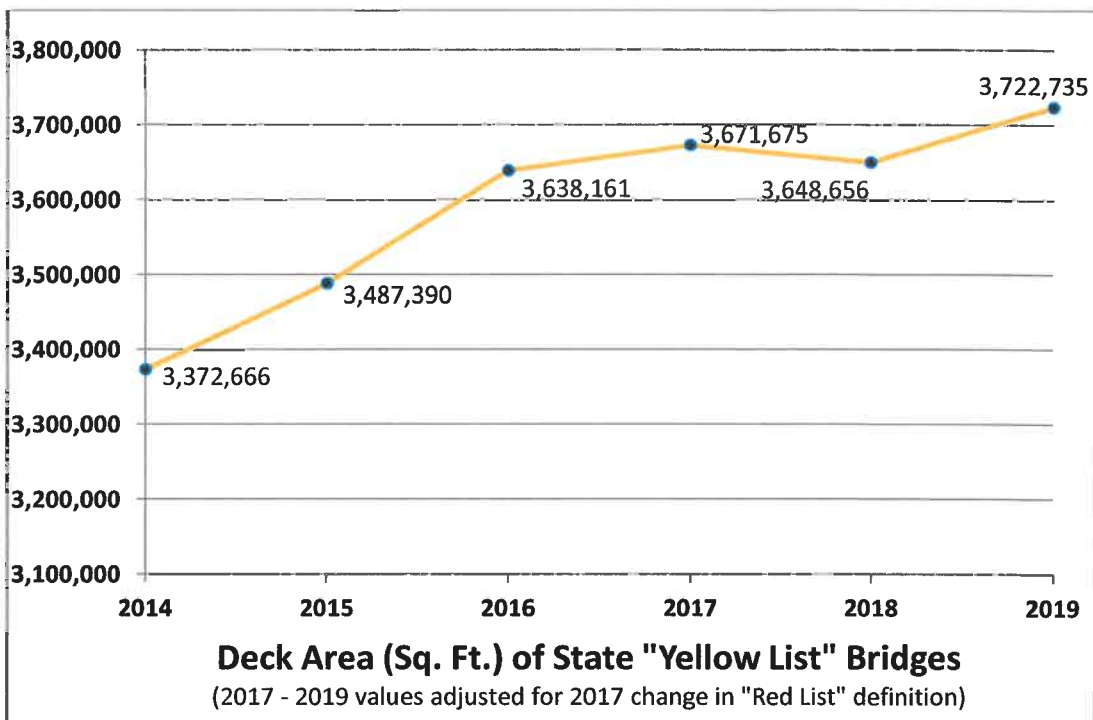
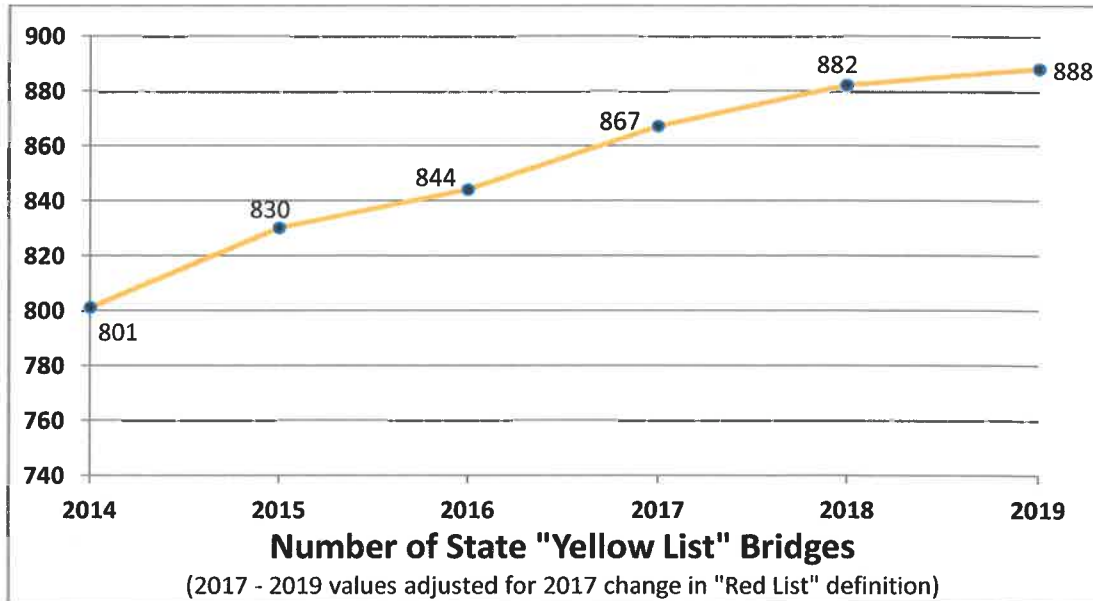
2.4.2 **“Red List”** – A list of bridges having at least one major structural element (deck, superstructure, substructure, or culvert) classified as being in “poor” condition (NBIS rating of “4 = Poor” or less), and thus are categorized as “deficient”. Bridges in “poor” condition are still considered safe for use by the public, in accordance with posted weight restrictions.

**Change in “Red List” definition** - Senate Bill 38 (effective on July 1, 2017) narrowed the definition of a “Red List Bridge” as defined in RSA 234:25-a. Due to this revision, the Red Lists now include only structurally deficient (poor) bridges (one or more major elements in poor or worse condition), thereby excluding all bridges posted with weight restrictions that are in fair or better condition that were previously included due to their weight restriction posting. State bridge counts and deck areas shown in the “Red”, “Yellow”, and “Green” Lists have been adjusted to account for the new Red List definition.



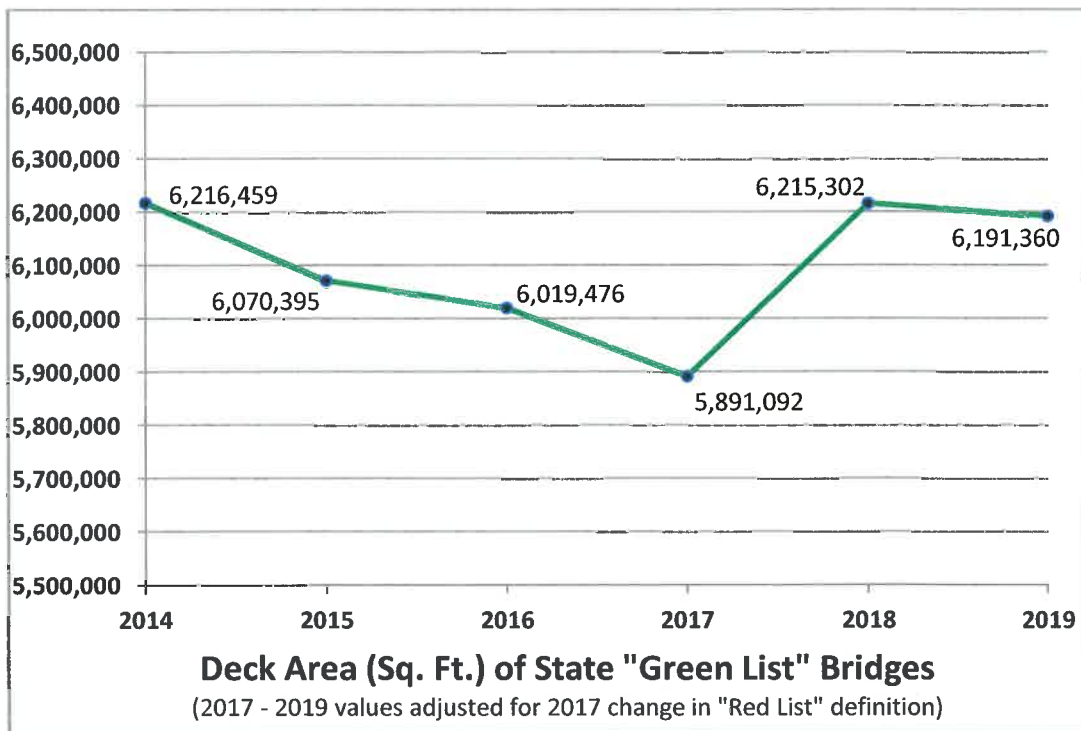
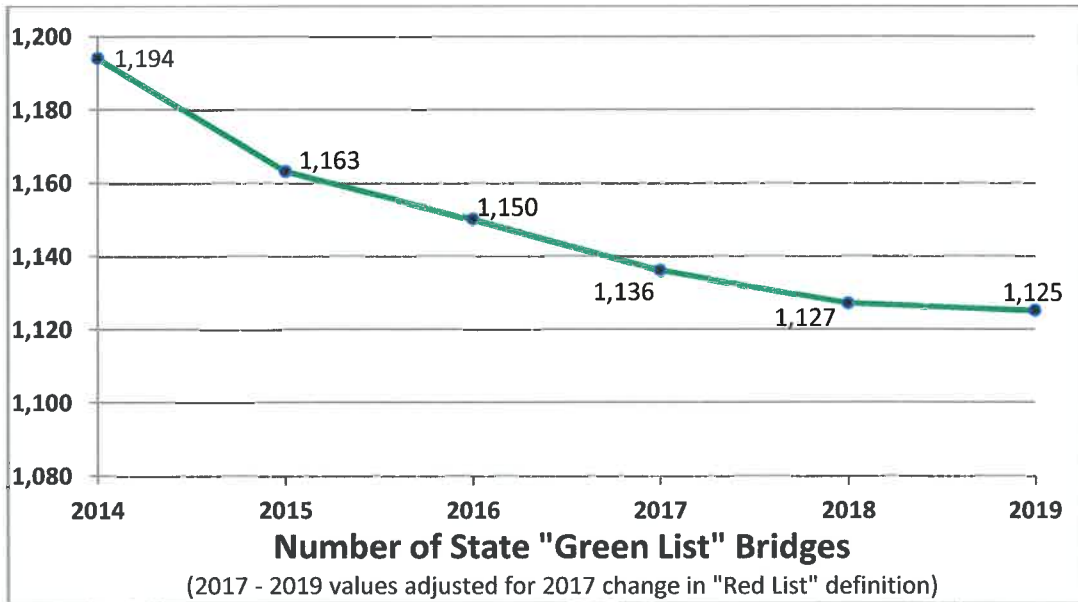
The above data show that over the past five (5) years a number of bridges have been added to and removed from the State Red List, with the overall number of Red List bridges decreasing by 17 bridges. Although the number and specific Red List bridges changed somewhat, the overall deck area of Red List bridges was reduced significantly during this time period, a 203,202 sq. ft., (25.1%) reduction. This is the result of addressing several major Red List bridges having very large deck areas during the 2015 – 2017 calendar years.

**2.4.3 “Yellow” List** – A list of bridges that have their lowest rated major structural element (deck, superstructure, substructure, or culvert) classified as being in “fair” or “satisfactory” condition (NBIS rating of “5” or “6”).



The above data show that over the past five (5) years there has been a net increase of 87 bridges added to the Yellow List and the corresponding deck area increased by 350,068 sq. ft. (10.4%) during this time period. This data also indicates that state bridges are now receiving needed preservation work. By following the *Recommended Investment Strategy*, this upward trend should continue as many bridges will remain on the Yellow List (5 = "Fair" or 6 = "Satisfactory" condition) for a longer period of time, with preservation activities performed to keep them in this condition, rather than allowing them to deteriorate further without preservation and be added to the Red List more quickly, necessitating more expensive rehabilitation or replacement options.

2.4.4 **“Green” List** – A list of bridges that have their lowest rated major structural element (deck, superstructure, substructure, or culvert) classified as being in “good”, “very good”, or “excellent” condition (NBIS rating of “7”, “8”, or “9”).



The above data show that over the past five (5) years, there has been a net decrease of 69 bridges moved from the Green List and shifted onto the Yellow List. Although the specific Green List bridges changed and decreased noticeably during this time period, the corresponding deck area remained nearly the same and decreased by only 25,100 sq. ft. (0.4%). This trend supports the *Recommended Investment Strategy* to perform timely maintenance and preservation activities on Green List bridges to extend their service life, rather than following a “worst bridge first” strategy. Again, this is the result of addressing several major Red List bridges having very large deck areas during calendar years 2015 – 2017.

### 3 Bridge and Roadway Tiers

#### 3.1 Definition of Roadway Tiers as Applied to Bridges

Each bridge is located on a specific roadway tier, as defined below for bridges, which is an important characteristic to consider when allocating bridge funds.

<u>Roadway Tier</u>	<u>Roadway Tier Definitions - Bridges</u>
HIB	<b>High Investment Bridges</b> – Bridges in this group have a deck area of 30,000 sq. ft. or greater; or, a movable bridge, regardless of the type of roadway on which it is located.
1	<b>Interstates, Turnpikes, Divided Highways</b> – Multi-lane divided highways supporting the highest traffic volumes and speeds, and conveying the majority of commuter, tourist, and freight traffic.
2	<b>Statewide Corridors</b> – State numbered routes with moderate to high traffic volumes and speeds, especially during commuter hours.
3	<b>Regional Transportation Corridors</b> – These roadways support travel within regions, access statewide corridors, and support moderate traffic volumes and speeds.
4	<b>Local Connectors</b> – These secondary roadways and unnumbered routes provide local connection between and within communities, and usually support low volume and low speed traffic.
5	<b>Local Roads</b> – Locally owned roadways, or state-owned roadways within compact limits; provide local connections for travel between and within communities; usually support low volume and low speed traffic.
6	<b>Off Network</b> – These are non-highway assets of the transportation network, e.g., Park ‘n’ Rides, pedestrian or railroad bridges, patrol sheds, and Rest Stops.

#### 3.2 Red List Bridges and Roadway Tiers (State Non-Turnpike, State Turnpike, & Municipal)

The table below shows the number of bridges by ownership for the roadway tier on which the bridge is located, all based on data compiled through December 31, 2019.

<u>Roadway Tier</u>	<u>State non-Turnpike</u>		<u>State Turnpike</u>		<u>State Totals</u>		<u>Municipal and Others</u>	
	<u>Number on Red List</u>	<u>Total State non-Turnpike Bridges on Tier</u>	<u>Number on Red List</u>	<u>Total Turnpike Bridges on Tier</u>	<u>Number on Red List</u>	<u>Total State Bridges on Tier</u>	<u>Number on Red List</u>	<u>Total Municipal Bridges on Tier</u>
HIB	4	31	0	11	4	42	3	9
Tier 1	6	401	6	110	12	511	0	0
Tier 2	39	579	0	12	39	591	0	0
Tier 3	30	512	0	12	30	524	0	0
Tier 4	31	396	1	22	32	418	0	0
Tier 5	0	1	0	0	0	1	240	1,680
Tier 6	7	69	1	5	8	74	0	0
<b>Totals:</b>	<b>117</b>	<b>1,989</b>	<b>8</b>	<b>172</b>	<b>125</b>	<b>2,161</b>	<b>243</b>	<b>1,689</b>

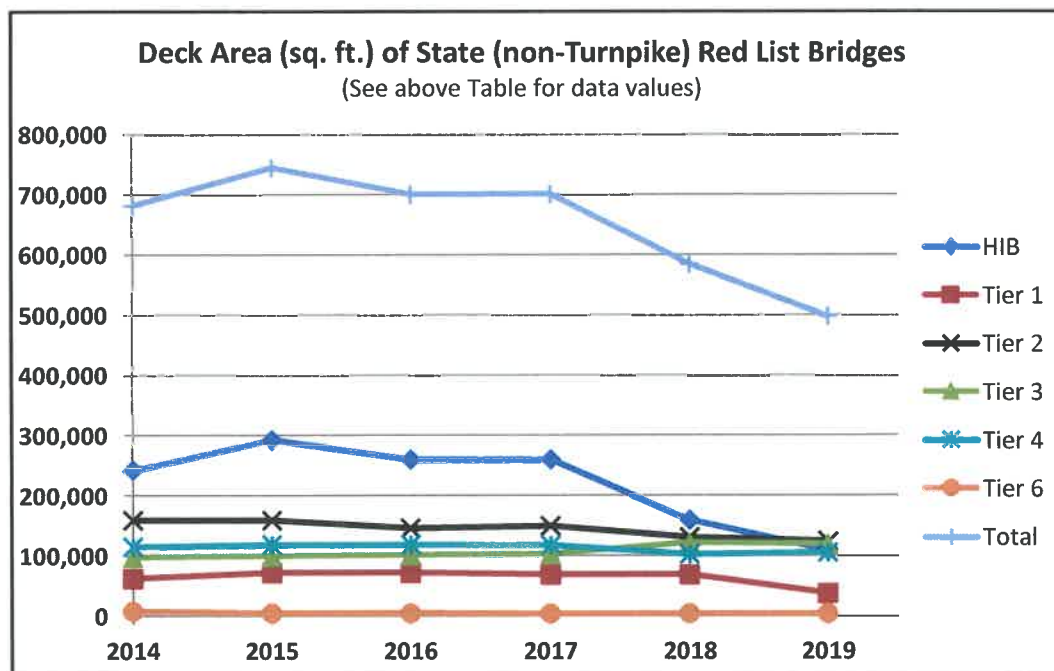
As expected, this data shows that the majority of bridges of high importance and/or located on high volume roadways are the responsibility of the NH Department of Transportation. These bridges are eligible to receive state, turnpike, and federal funds, as appropriate.

Bridges on local roadways, which typically have lower traffic volumes, are the responsibility of the municipalities and are eligible to receive state and/or federal funds to supplement local funds through the State Aid Bridge (SAB) Program and the Municipally Owned Bridge Rehabilitation and Replacement (MOBRR) Program. Funding for these programs is allocated through the State’s 10-Year Plan.



The Table and Chart below show a comparison of the **2019 State Non-Turnpike Red List bridges** by roadway Tier with those of the previous 5 years. Please note that the values for 2014 - 2016 have **NOT** been adjusted for the change in the Red List definition that occurred in 2017. (See RSA 234:25-a.)

State Red List (non-Turnpike)		2014	2015	2016	2017	2018	2019
HIB	Number	6	7	6	6	5	4
	Deck Area (Sq. Ft.)	242,047	292,356	259,846	259,834	158,889	108,584
Tier 1	Number	8	11	10	8	8	6
	Deck Area (Sq. Ft.)	61,878	71,776	71,583	68,554	68,554	37,504
Tier 2	Number	40	42	43	42	42	39
	Deck Area (Sq. Ft.)	158,612	158,452	145,007	148,735	129,667	123,842
Tier 3	Number	35	32	36	34	32	30
	Deck Area (Sq. Ft.)	97,241	99,321	101,020	102,703	121,230	119,247
Tier 4	Number	34	32	32	30	31	31
	Deck Area (Sq. Ft.)	113,971	117,850	117,850	116,824	109,919	104,744
Tier 5	(Municipal)	N/A	N/A	N/A	N/A	N/A	N/A
Tier 6	Number	7	7	7	7	7	7
	Deck Area (Sq. Ft.)	7,809	4,524	4,524	3,828	3,828	3,828
Totals:	Number	130	131	134	127	125	117
	Deck Area (Sq. Ft.)	681,558	744,279	699,830	700,478	592,087	497,749

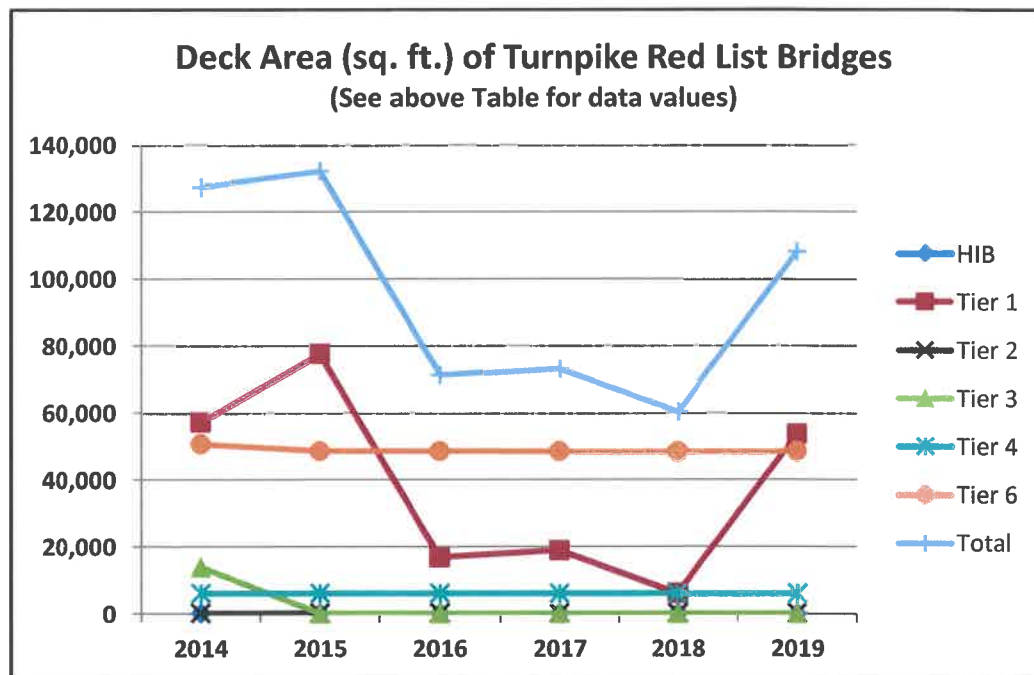


The above data show that, overall, the number of State (non-Turnpike) Red List bridges has been gradually dropping over the past three years. Efforts to address Red List bridges have also prevented these numbers from increasing, and continued efforts are warranted if the deck areas of deficient bridges on all roadway tiers are to continue to decrease. Progress has clearly been made since the total deck area of State (non-Turnpike) Red List bridges has been reduced by 27.0% from 681,558 sq. ft. to 497,749 sq. ft. during the 2014 - 2019 time frame.



The Table and Chart below show a comparison of the **2019 State Turnpike Red List bridges** by roadway Tier with those of the previous 5 years. Please note that the values for 2014 - 2016 have **NOT** been adjusted for the change in the Red List definition that occurred in 2017. (See RSA 234:25-a.)

State Red List (Turnpike)		2014	2015	2016	2017	2018	2019
HIB	Number	0	0	0	0	0	0
	Deck Area (Sq. Ft.)	0	0	0	0	0	0
Tier 1	Number	8	10	4	4	2	6
	Deck Area (Sq. Ft.)	57,161	77,659	16,813	18,935	6,112	53,643
Tier 2	Number	0	0	0	0	0	0
	Deck Area (Sq. Ft.)	0	0	0	0	0	0
Tier 3	Number	1	0	0	0	0	0
	Deck Area (Sq. Ft.)	13,781	0	0	0	0	0
Tier 4	Number	1	1	1	1	1	1
	Deck Area (Sq. Ft.)	5,929	5,929	5,929	5,929	5,929	5,929
Tier 5 (Municipal)	Number	N/A	N/A	N/A	N/A	N/A	N/A
Tier 6	Number	2	1	1	1	1	1
	Deck Area (Sq. Ft.)	50,594	48,506	48,506	48,501	48,501	48,501
Totals:	Number	12	12	6	6	4	8
	Deck Area (Sq. Ft.)	127,465	132,094	71,248	73,365	60,542	108,073

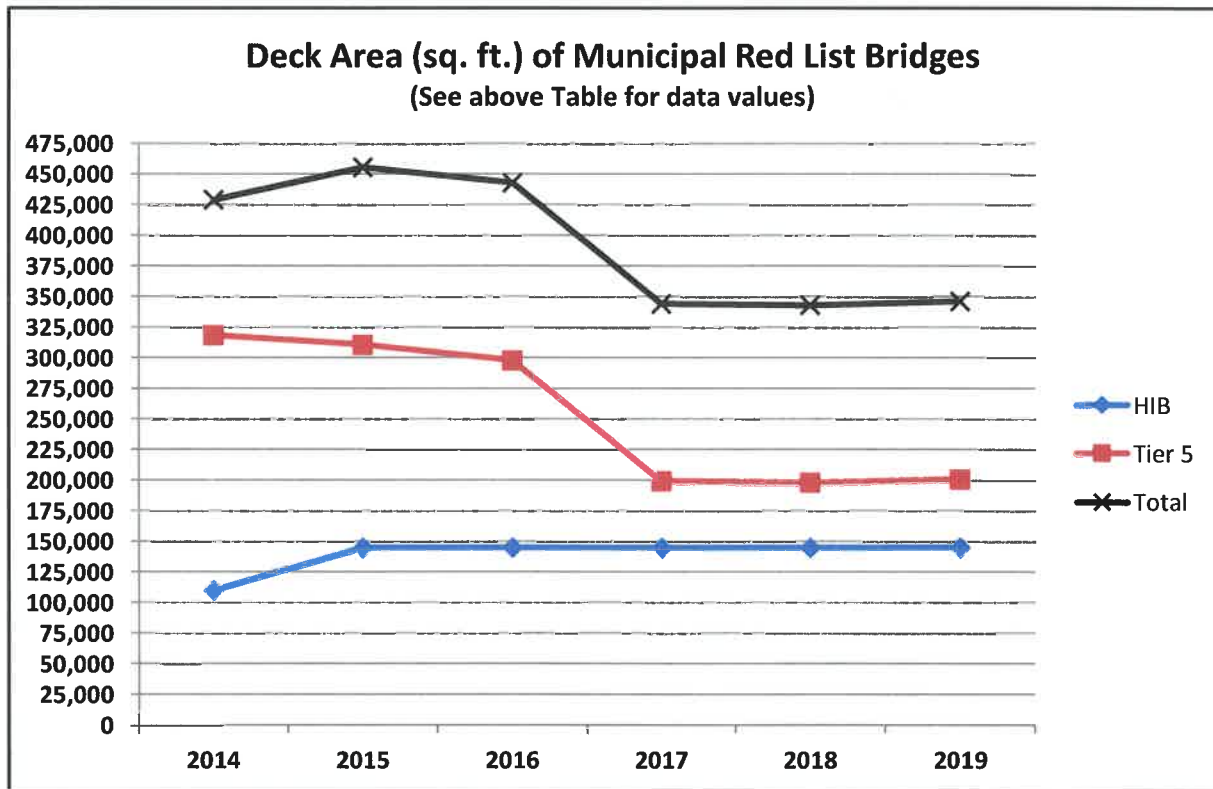


Although the above data show a significant reduction in the Tier 1 deck area of Turnpike Red List bridges from 2014 to 2018, the data for 2019 shows a 777.7% increase in the Tier 1 deck area of Turnpike Red List bridges from 2018 to 2019. This is due to 4 bridges on the Spaulding Turnpike being added to the Turnpike Red List (Route 16 NB & SB over Route 108 at Exit 7 and Route 16 NB & SB over the Cocheco River between Exits 8 & 9) due to the condition of the bridge decks. However, in perspective, the Turnpike Tier 1 Red List deck area for 2019 is still less than the values for 2014 and 2015. There were also minimal reductions in the deck areas of Turnpike Red List bridges on Tier 6 from 2014 to 2019.

The Table below shows a comparison of the **2019 Municipal (and Other) Red List bridges** by tier with those of the previous 5 years. Please note that the values for 2014 - 2016 have **NOT** been adjusted for the change in the Red List definition that occurred in 2017. (See RSA 234:25-a.)

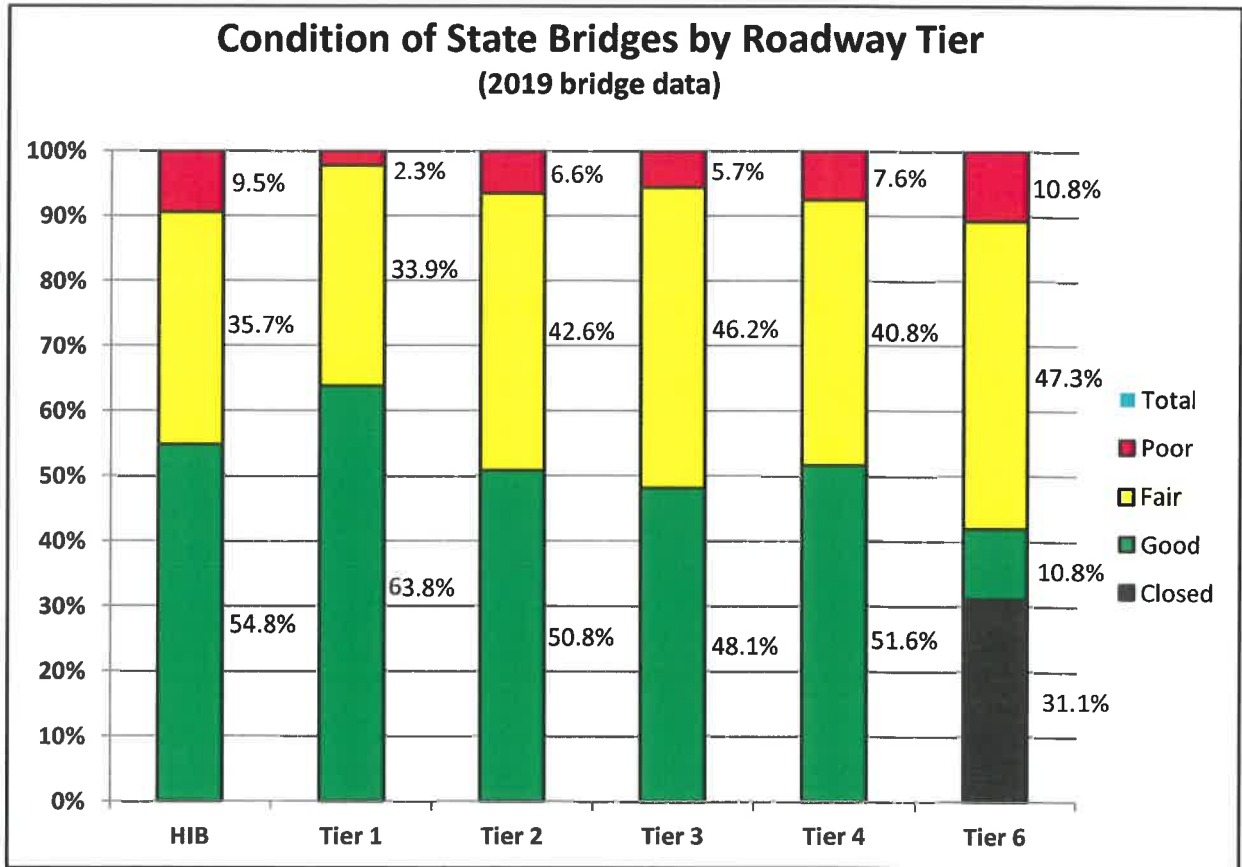
Municipal Red List		2014**	2015**	2016**	2017	2018	2019
HIB	Number	2	3	3	3	3	3
	Deck Area (Sq. Ft.)	110,447	144,718	144,718	144,704	144,704	144,998
Tier 1	(State)	N/A	N/A	N/A	N/A	N/A	N/A
Tier 2	(State)	N/A	N/A	N/A	N/A	N/A	N/A
Tier 3	(State)	N/A	N/A	N/A	N/A	N/A	N/A
Tier 4	(State)	N/A	N/A	N/A	N/A	N/A	N/A
Tier 5	Number	342	335	321	249	238	240
	Deck Area (Sq. Ft.)	318,291	310,475	297,762	199,038	197,993	200,828
Tier 6	(State)	N/A	N/A	N/A	N/A	N/A	N/A
Totals:	Number	344	338	324	252	241	243
	Deck Area (Sq. Ft.)	428,738	455,193	442,480	343,742	342,697	345,826

\*\* Values in these columns have **NOT** been adjusted for 2017 change in Red List definition. (See RSA 234:25-a.)



From the data displayed in the Chart above, it appears that the amount of deck area of Municipal Red List bridges, which are on Tier 5 roadways, decreased significantly in 2017. However, this graphic misrepresentation is a result of displaying the 2014 – 2016 bridge data, that has not been adjusted for the 2017 change in Red List definition, with the 2017, 2018, and 2019 bridge data that adheres to the 2017 change in Red List definition. Essentially, these values have remained relatively unchanged during this time period.

The following graphic displays the number of total state-owned (including Turnpikes) Red, Yellow, and Green List bridges, based on 2019 bridge inspection data, for all State-owned roadway Tier levels.



Roadway Tier		Red List	Yellow List	Green List	Black List (Closed)	Totals
<b>HIB</b>	<b>Count</b>	4	15	23	0	42
	<b>Percent</b>	9.5%	35.7%	54.8%	0.0%	100.0%
<b>Tier 1</b>	<b>Count</b>	12	173	326	0	511
	<b>Percent</b>	2.3%	33.9%	63.8%	0.0%	100.0%
<b>Tier 2</b>	<b>Count</b>	39	252	300	0	591
	<b>Percent</b>	6.6%	42.6%	50.8%	0.0%	100.0%
<b>Tier 3</b>	<b>Count</b>	30	242	252	0	524
	<b>Percent</b>	5.7%	46.2%	48.1%	0.0%	100.0%
<b>Tier 4</b>	<b>Count</b>	32	171	216	0	419
	<b>Percent</b>	7.6%	40.8%	51.6%	0.0%	100.0%
<b>Tier 5*</b>	<b>Count</b>	0	0	0	0	0
	<b>Percent</b>	0.0%	0.0%	0.0%	0.0%	0.0%
<b>Tier 6</b>	<b>Count</b>	8	35	8	23	74
	<b>Percent</b>	10.8%	47.3%	10.8%	31.1%	100.0%

**\*All bridges on Tier 5 roadways are municipally owned.**

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## 4 Strategy and Life Cycle Costs for State Bridges

A strategy has been developed to estimate funding needs for state bridges based on specific tasks to address deficiencies within each work category (maintenance, preservation, rehabilitation, or replacement). Costs and frequency schedules have been developed to perform these tasks and applied according to each type of bridge (girder, truss, moveable, timber, culvert), so that project and program funding can be estimated and allocated. Specific goals have been established for various work efforts that, when applied to the state bridge inventory, are intended to improve the overall condition of New Hampshire bridges over time and provide the lowest life cycle cost. For further information, please refer to *NHDOT Bridge Program – Recommended Investment Strategy* (<https://www.nh.gov/dot/org/projectdevelopment/bridgedesign/documents/bridgeprogramrecommendedinvestmentstrategy.pdf>).

### 4.1 Bridge Life Cycle – Characteristics and Costs

As each bridge goes through various life cycle stages, specific needs and deficiencies develop that should be addressed. Timely investment to address deficiencies and perform specific tasks at prescribed time intervals can greatly extend their service life at an overall lower cost than only performing major element repairs. The four categories of work activities are:

- Maintenance – These tasks are performed routinely, usually on an annual or bi-annual basis, to prevent conditions from developing that would accelerate bridge deterioration.
- Preservation – These tasks are performed at specified intervals over the service life of the bridge and address specific conditions to prevent deterioration from developing or expanding. This work is generally performed in two different areas: Pavement Preservation and Bridge Preservation, with each addressing specific deficiencies and preservation needs.
- Rehabilitation – These tasks are performed at specified intervals over the service life of the bridge and address more extensive deterioration of the major bridge elements.
- Replacement – This effort involves complete replacement of the entire bridge structure or complete replacement of the superstructure (e.g., girders and deck).

Estimated costs for each work task are shown below for the five bridge types.

	<u>Activity*</u>	<u>Time Interval</u>	<u>Costs per Sq. Ft. for each Bridge Type</u>				
			<u>Girder</u>	<u>Truss</u>	<u>Moveable</u>	<u>Timber</u>	<u>Culvert</u>
<b>Maintenance</b>	Clean & Seal Substructure	Annual	\$0.10	\$0.10	\$0.10	\$0.10	\$0.10
<b>Preservation</b>	Crack Seal Pavement**	5 yrs	\$0.07	\$0.07	\$0.07	\$0.07	N/A
	Pavement In-lay**	10 yrs	\$1.60	\$1.60	\$1.60	N/A	N/A
	Install/Repair Concrete Invert	10 yrs	N/A	N/A	N/A	N/A	\$50.00
	Patch Deck, Replace Exp. Joints, Membrane, & Pvmt; Rehab Bearings	20 yrs	\$50.00	\$100.00	\$200.00	\$50.00	\$100.00
<b>Rehabilitation</b>	Replace Deck, Rehabilitate Bridge	40-60 yrs	\$100.00	\$250.00	\$350.00	\$100.00	N/A
<b>Replacement</b>	Replace Bridge Superstructure***	80-120 yrs	\$325.00	\$375.00	\$500.00	\$250.00	\$250.00
	Replace Complete Bridge (Slope Intercept Method)	80-120 yrs	\$650.00	\$750.00	\$1,000.00	\$500.00	\$500.00

\* Specific work activity varies by bridge type. See *Recommended Investment Strategy* for more information on each bridge type.

\*\* These preservation tasks are performed by the Highway Design Bureau's Pavement Program; thus, their costs are not included here.

\*\*\* For initial estimating purposes the superstructure replacement cost is taken to be one-half of the complete bridge replacement cost.

Based on experience with the above activities on past bridge projects, the Bridge Management Committee determined that a 60-year to 120-year service life is achievable, depending on the bridge type, for bridges that receive sufficient funds and attention to complete the recommended work tasks at the prescribed intervals.

Cost multipliers were developed for each activity, e.g., maintenance, preservation, rehabilitation, or replacement, based on various characteristics of the specific bridge and site, such as type of bridge and roadway tier (including the traffic volume considerations) of the bridge. When preparing the “global” bridge program funding needs, these multipliers are applied as appropriate for the specific characteristics of the proposed bridge activity.

#### **4.2 Bridge Maintenance – Work Tasks**

This effort includes: Cleaning the bridge to remove dirt, debris, and deicing (road salt) residue; Sealing bridge substructure to prevent road salt infiltration; Cleaning bridge drainage systems; Clearing vegetation; Etc. Maintenance also includes the repair of bearings and expansion plug joints, which are performed at intervals of up to 5 years. These combined tasks (\$0.10 per sq. ft.) should be performed annually to prevent conditions from developing that would accelerate bridge deterioration. All maintenance tasks are usually performed by the NHDOT Bridge Maintenance Bureau.

#### **4.3 Bridge Preservation – Work Tasks**

Pavement Preservation – This includes crack sealing of the pavement (\$0.07 per sq. ft.) every 5 years or installing a 1” pavement inlay (\$1.60 per sq. ft.) every 10 years. This work is completed as part of the Pavement Program administered by the Highway Design Bureau.

Bridge Preservation – This includes; repairs to the substructure; deck patching; replacement of bridge copings; replacement of expansion joints; replacement of waterproofing membrane and bridge pavement; and; replacement or rehabilitation of bearings. These combined efforts (\$50.00 per sq. ft. to \$200.00 per sq. ft.; varies by bridge type) should be performed every 20 years and are completed as part of the Bridge Preservation Program administered by the Bridge Management Committee, completed through Bridge Design contracts or Bridge Maintenance efforts. Touch-up painting of the structural steel is also a preservation effort and is included in the above cost estimate.

For a list and location map of all state bridges that received Preservation work during FFY 2019, please see Appendix “D”.

#### **4.4 Bridge Rehabilitation – Work Tasks**

Replace Bridge Deck – This includes replacing the bridge pavement and membrane, concrete deck, bridge rail & bridge approach rail, expansion joint(s), and bridge bearings, and performing substructure patching/repair. These combined efforts (\$100.00 per sq. ft. to \$350.00 per sq. ft.; varies by bridge type) should be performed every 40 to 60 years and are completed as part of the Bridge Rehabilitation and Replacement Program administered by the Bridge Management Committee, completed through Bridge Design contracts or Bridge Maintenance efforts.

The base cost to remove all lead-based paint and apply a new paint coating is usually handled under a separate program and therefore is not included in the above cost estimate.

For a list and location map of all state bridges that received Rehabilitation work during FFY 2019, please see Appendix “E”.



#### 4.5 Bridge Replacement – Work Tasks

Replace Superstructure – This involves replacing the bridge superstructure, including the deck, girders, bridge & approach rail, bearings, expansion joints, and major substructure rehabilitation. These combined efforts (\$325.00 per sq. ft. to \$500.00 per sq. ft., varying by bridge type) should be performed once at the end of the projected 60 to 120-year life of the bridge. Depending on the overall condition of the bridge, the best solution may be to replace the entire bridge, instead of only replacing the superstructure.

Replace Bridge – This involves completely removing the existing bridge and replacing it with a new bridge (\$650.00 per sq. ft. to \$1,000.00 per sq. ft.; varies by bridge type). This effort should be performed at the end of the projected 60 to 120-year life of the bridge. Depending on the overall condition of the bridge, the best solution may be to replace just the bridge superstructure as noted above, instead of replacing the entire bridge.

The “per square foot” cost estimate is an average of the costs required to perform either superstructure replacement or complete replacement of a girder bridge. During development of the project the scope of work may change from a superstructure replacement to a complete bridge replacement, as the specific condition and needs of a deficient bridge are fully identified and quantified. Further, there may be roadway capacity issues that need to be addressed as well, which could require a larger bridge, thereby necessitating a complete bridge replacement. Using this averaged value for replacement actions provides the best “global” estimate for planning and funding purposes for projects in the overall Bridge Program.

These combined efforts should be performed at the end of the projected service life of the bridge and are completed as part of the Bridge Rehabilitation and Replacement Program administered by the Bridge Management Committee, completed through Bridge Design contracts or Bridge Maintenance efforts.

For a list and location map of all state bridges that were Replaced during FFY 2019, please see Appendix “F”.

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## 5 Bridge Program Accomplishments in 2019

As can be seen from the information presented in Sections 2 & 3, the Department is making some progress toward reducing the deck area of deficient Red List bridges in the state. Bridge projects, completed through Bridge Design contracts or Bridge Maintenance efforts, that collectively perform maintenance, preservation, and rehabilitation activities, are also important, as these efforts address identified bridge deficiencies before becoming more costly bridge replacement projects.

### 5.1 Performance Goals and Results of Efforts of Previous Year

As previously stated, the Bridge Performance Goals as set forth by the Bridge Management Committee (BMC) and the Performance Workgroup, are:

1. Implement the *Recommended Investment Strategy* (RIS) to attain the maximum service life, which varies from 60 - 120 years based on bridge type, for all types of bridges in New Hampshire.
2. Inspect all state and municipal/other bridges to meet Federal and State inspection and reporting requirements.
3. Manage all posted (weight restricted) bridges to reduce or eliminate constraints affecting the safe and efficient movement of goods and services, including emergency response, on the overall State transportation system. Specifically, the goal is for all High Investment Bridges (HIBs) and all bridges on Tier 1 and 2 roadways to have no weight restrictions, for all Tier 3 bridges with weight restrictions to be included in the 10-Year Plan as projects to address their weight restrictions, and for all weight restricted Tier 4 bridges to be reviewed to ensure that the weight restriction for each bridge does not affect emergency response services. (Please refer to *Appendix C - Bridge Postings and Weight Restrictions* for additional information.)
4. Manage the State's Red List ("poor" condition) bridges to reduce the backlog of bridge rehabilitation and replacement efforts to the maximum extent that can be addressed within funding constraints of the State's 10-Year Transportation Improvement Plan (10-Year Plan).
5. Apply available bridge funds to limit the total area of bridge decks in "poor" condition on the National Highway System (NHS) in New Hampshire to be less than 7% of the total deck area on this highway category. This goal is more stringent than the 10% requirement stipulated by the Federal Highway Administration (FHWA).
6. Record and utilize project cost data to calculate cost estimates through all project development phases (Initial Assessment; Type, Size, & Location (TS&L); Preliminary Plans; PPS&E Plans; and PS&E Plans) to improve cost estimating practices and corresponding project cost results as the *Recommended Investment Strategy* (RIS) is efficiently and effectively implemented. The goal is for Initial Project Assessment cost estimates to be within 25% ( $\pm$ ) of the PS&E estimate.

The BMC tracks the yearly accomplishments of each performance measure and reviews the anticipated funding allocations to develop future bridge projects to meet these goals to the extent possible within funding and staffing constraints. The yearly accomplishments of each of these goals are presented in more detail on the following pages.

**5.1.1 Goal 1: Implement the Recommended Investment Strategy (RIS) to attain the maximum bridge service life, which varies from 60 - 120 years based on bridge type, for all types of bridges in New Hampshire**

The accomplishments of this goal during FFY 2019 for State and Turnpike bridges are depicted through the following items:

**5.1.1.1 Complete Bridge Preservation efforts annually on 267,663 sq. ft. or more of deck area on State (non-Turnpike) bridges and annually on 85,105 sq. ft. or more of deck area on Turnpike bridges, for FFY 2019**

**(A) 10-Year Plan non-Turnpike Bridge Preservation:**

Preservation efforts for State non-Turnpike bridges are funded through several different federal and state programs in the 10-Year Plan for 2019 – 2028, as outlined below:

Funding Program	Effort	Roadway Tier	Annual Funding (10-Year Plan)	Responsible Bureau
BRDG-HIB-M&P	Maintenance & Presevation	HIB	\$2,920,000	Bridge Design
BRDG-T1/2-M&P*	Maintenance & Presevation	1 & 2	\$7,125,000	Bridge Design
BRDG-T3/4-M&P*	Maintenance & Presevation	3 & 4	\$2,560,000	Bridge Design
BET-BMT-BD	Statewide Betterment Program	State Bridges (Federal definition)	\$1,500,000	Bridge Design
BET-BMT-HQ	Statewide Betterment Program for Preservation, Rehab, & Replacement	State Bridges (Federal definition)	\$750,000	Bridge Maintenance
BRDG-T1/2-M&P*	Maintenance & Presevation	1 & 2	\$1,000,000	Bridge Maintenance
BRDG-T3/4-M&P*	Maintenance & Presevation	3 & 4	\$1,000,000	Bridge Maintenance
<b>Annual Funding Program for Maintenance &amp; Preservation</b>			<b>\$16,855,000</b>	

\* Funds in these categories are allocated to both Bridge Design and Bridge Maintenance.

When referencing project data, it can be determined that the \$16,855,000 available in FFY 2019 for state non-Turnpike bridge preservation efforts has been expended when PE, ROW, and CONST costs are included for each project. Efforts by the Bridge Design Bureau and the Bridge Maintenance Bureau ensured full application of all State non-Turnpike Bridge Preservation Program funds for FFY 2019.

The numerical value of this State non-Turnpike preservation annual goal is determined by dividing the total deck area of all bridges for each roadway tier, according to bridge type, and then dividing those totals by the projected life cycle of the specific work activity, i.e., preservation. For example, for preservation efforts on State non-Turnpike girder bridges:

There are 27 state non-Turnpike girder HIBs having a total deck area = 1,300,188 sq. ft.

There are 296 state non-Turnpike Tier 1 girder bridges having a total deck area = 2,163,230 sq. ft.

There are 288 state non-Turnpike Tier 2 girder bridges having a total deck area = 1,562,023 sq. ft.

There are 279 state non-Turnpike Tier 3 girder bridges having a total deck area = 847,667 sq. ft.

There are 234 state non-Turnpike Tier 4 girder bridges having a total deck area = 791,469 sq. ft.

All Tier 5 bridges are owned by the municipalities.

There are 23 state non-Turnpike Tier 6 girder bridges having a total deck area = 21,618 sq. ft.

**There are 1,147 total State non-Turnpike girder bridges having a deck area = 6,686,195 sq. ft.**

The *Recommended Investment Strategy* (RIS) states that preservation activities should be performed 4 times on each girder bridge over its projected 120-year life cycle. This means that 1/30<sup>th</sup> of the state non-Turnpike girder bridge inventory, i.e.,  $6,686,195 / 30 = 222,873$  sq. ft., should receive bridge preservation work each year. For all bridge types the total non-Turnpike bridge preservation annual goal is  $8,029,879 / 30 = 267,663$  sq. ft. The 222,873 sq. ft. goal for girder bridges is clearly a major portion of this total non-Turnpike bridge preservation annual goal.

Based on the 10-Year Plan allocation of funds for non-Turnpike bridge preservation efforts, it is projected that up to 6 projects per year, with each project bundling 3 to 4 bridges, can be advertised by the Bridge Design Bureau, with similar efforts by the Bridge Maintenance Bureau, to utilize this funding and work toward accomplishing State non-Turnpike bridge preservation annual goals.

**(B) 10-Year Plan Turnpike Bridge Preservation:**

Preservation efforts for Turnpike bridges are funded solely through the Turnpike program in the 10-Year Plan for 2019 – 2028. When referencing project data, it can be determined that programmed Turnpike bridge preservation funds have been expended by the Bridge Design Bureau and the Bridge Maintenance Bureau, with PE, ROW, and CONST costs included for each project. These combined efforts ensured full application of all Turnpike Bridge Preservation Program funds during FFY 2019.

The numerical value of this Turnpike bridge preservation goal for FFY 2019 is determined by dividing the total deck area of all Turnpike bridges for each roadway tier, according to bridge type, and then dividing those totals by the projected life cycle of the specific work activity, i.e., preservation.

For example, for preservation efforts on Turnpike girder bridges:

There are 10 Turnpike girder HIBs having a total deck area = 725,471 sq. ft.

There are 88 Turnpike Tier 1 girder bridges having a total deck area = 991,943 sq. ft.

There are 12 Turnpike Tier 2 girder bridges having a total deck area = 169,576 sq. ft.

There are 12 Turnpike Tier 3 girder bridges having a total deck area = 156,158 sq. ft.

There are 22 Turnpike Tier 4 girder bridges having a total deck area = 209,446 sq. ft.

All Tier 5 bridges are owned by the municipalities.

There are 4 Turnpike Tier 6 girder bridges having a total deck area = 19,085 sq. ft.

**There are 148 total State Turnpike girder bridges having a deck area = 2,271,679 sq. ft.**

The *Recommended Investment Strategy* (RIS) states that preservation activities should be performed 4 times on each girder bridge over its projected 120-year life cycle. This means that 1/30<sup>th</sup> of the Turnpike girder bridge inventory, i.e.,  $2,271,679 / 30 = 75,722$  sq. ft., should receive preservation work each year. For all bridge types, the total Turnpike bridge preservation annual goal is  $2,553,152 / 30 = 85,105$  sq. ft. The 75,722 sq. ft. goal for girder bridges is clearly a major portion of this total Turnpike bridge preservation annual goal.

Based on the 10-Year Plan allocation of funds for Turnpike bridge preservation efforts, it is projected that up to 5 projects per year, with each project bundling 2 to 6 bridges, can be advertised by the Bridge Design Bureau, with similar efforts by the Bridge Maintenance Bureau, to utilize this funding and work toward accomplishing Turnpike bridge preservation annual goals.



## **(C) FFY 2019 Bridge Preservation**

### **(C1) FFY 2019 Bridge Preservation (non-Turnpike) – Bridge Design Bureau:**

To meet this Bridge Program goal for FFY 2019, the Bridge Design Bureau advertised 5 projects to perform preservation work on 16 State non-Turnpike bridges having a total deck area of 87,008 sq. ft., which is 32.5% of our 267,663 sq. ft. State non-Turnpike bridge preservation annual goal for all bridge types. Details for these projects advertised by Bridge Design in FFY 2019 are listed below.

FFY 2019 State non-Turnpike Bridge Preservation (Bridge Design)	Project Number	No. of Bridges	Roadway Tiers	Bridge Type*	Existing Deck Area (Sq. Ft.)	Project/Bridge Construction Cost	Cost Per Sq. Ft.
Bethlehem (111/064)	41901	1	2	Girder	14,630	\$1,330,100	\$91
Haverhill (067/092)	41297	1	2	Girder	3,417	\$1,033,900	\$303
Lebanon (097/112, 098/111) (Bridge preservation portion only; no roadway items)	41191 (partial)	2	1	Girder	22,908	\$1,381,000	\$60
Portsmouth - New Castle (New Castle 031/142; Portsmouth 241/053)	41253	2	3	Girder	35,115	\$2,087,500	\$59
Warner (expansion / plugjoints only) (164/103, 164/104, 166/103, 166/104, 184/113, 185/112, 195/122, 196/121, 199/128, 206/141) (20 ft. wide work area assumed; 10 ft. on each side of expansion joints across full width of each bridge)	42546	10	1	Girder, Culvert	10,938	\$1,415,100	\$129
<b>FFY 2019 Bridge Preservation Totals:</b>	<b>5 Projects</b>	<b>16</b>			<b>87,008</b>	<b>\$7,247,600</b>	<b>\$83</b>
<b>Bridge Design - FFY 2019 Average Bridge Preservation Cost per Sq. Ft. =</b>						<b>\$83</b>	
*Girder, Truss, Moveable, Timber, Culvert (See <i>NHDOT Bridge Program - Recommended Investment Strategy</i> for bridges included in these categories.)							

A review of this project data shows an average cost of (\$7,247,600/87,008 sq. ft.) = \$83/sq. ft. for State non-Turnpike bridge preservation, which is greater than but close to the system-wide \$50 per sq. ft. base cost estimate described in the *NHDOT Bridge Program – Recommended Network Funding* for bridge preservation work on Tier 1 girder bridges.

The cost differences may be the result of the following considerations:

- The Bethlehem 41901 included complete removal of the raised concrete median.
- The Haverhill 41297 project relocated the expansion joint to behind the abutment, which necessitated construction of a stub wall for support, replaced one coping including new bridge rail on that side, and painted the first 10-ft. of the girders, all of which increase the average project cost per sq. ft. anticipated for similar projects.
- The Lebanon 41191 project included bridge painting activities, which increase the average project cost per sq. ft. anticipated for similar projects. (NOTE: This project also included superstructure replacement work on two adjacent bridges with all traffic control costs, including the temporary diversion, being included with those bridges. See Section 5.1.1.3.C1 FFY 2019 Bridge Replacement (non-Turnpike) – Bridge Design Bureau.)
- The Bridge Preservation Program has only been implemented for three years, and thus the above projects likely include bridges that have not received recommended preservation work in the past, and now may require more extensive bridge preservation activities than would be expected for a bridge that has received all recommended work.

Based on the above summary, the average project cost for bridge preservation is \$83 per sq. ft., which is 66% greater than the \$50 per sq. ft. base cost estimated in the *NHDOT Bridge Program – Recommended Network Funding*.

However, when the system-wide base cost is adjusted for Tier 2 roadways, it becomes  $\$50 \times 2.0$  Tier 2 multiplier = \$100 per sq. ft. Based on the above data, the average project cost for the bridges on Tier 2 roadways is \$131 per sq. ft., which is 31% greater than the estimated system-wide base cost of \$100 per sq. ft. for bridge preservation on Tier 2 roadways.

Similarly, for bridges located on Tier 3 roadways, the estimated system-wide base cost is  $\$50 \times 1.5$  Tier 3 multiplier = \$75 per sq. ft. For the projects listed above located on Tier 3 roadways, the average project cost is \$59 per sq. ft., which is 21% less than the estimated system-wide base cost of \$75 per sq. ft. for bridge preservation on Tier 3 roadways.

This data also demonstrates the importance of annually reviewing and updating cost data used to develop bridge preservation estimates for future projects, so that over time the estimated costs and actual costs will be more in line with each other. Some of these considerations may also apply to the estimated and actual costs for bridge rehabilitation and replacement projects, necessitating the review and update of those costs as well.

### **FFY 2019 - Other non-Turnpike Preservation Projects – Bridge Design Bureau**

In addition to the previously noted bridge preservation projects, during FFY 2019 the Bridge Design Bureau also advertised 1 other bridge related project, as listed below.

FFY 2019 State non-Turnpike Bridge - Other Projects (Bridge Design)	Project Number	No. of Bridges	Roadway Tiers	Preservation Task	Project/Bridge Construction Cost
Sanbornton - New Hampton (Sanbornton 124/074; Sanbornton 125/075; New Hampton 137/060; New Hampton 138/060; New Hampton 147/082; New Hampton 148/081)	41705	6	1	Bridge Painting	\$1,118,200
<b>Bridge Design - FFY 2019 "Other" Totals:</b>	<b>1 Project</b>	<b>6</b>			<b>\$1,118,200</b>

The information presented in the tables above show that on State non-Turnpike bridge preservation projects in FFY 2019, a Project/Bridge Construction funding total of  $(\$4,536,500 + \$1,118,200) = \$5,654,700$  was expended by Bridge Design.

### **(C2) FFY 2019 Bridge Preservation (non-Turnpike) – Bridge Maintenance Bureau:**

To meet this Bridge Program goal for FFY 2019, the Bridge Maintenance Bureau performed preservation work on 10 State non-Turnpike bridges in its 2019 Work Plan having a total deck area of 29,855 sq. ft., which is 11.2% of our 267,663 sq. ft. State non-Turnpike bridge preservation annual goal for all bridge types. Details for the bridges that received preservation activities by Bridge Maintenance in FFY 2019 are listed below.

FFY 2019 State non-Turnpike Bridge Preservation (Bridge Maintenance)	Bridge Number	No. of Bridges	Roadway Tiers	Bridge Type*	Existing Deck Area (Sq. Ft.)	Project/Bridge Construction Cost	Cost Per Sq. Ft.
Brookline	091/076	1	3	Culvert	943	\$45,600	\$48
Concord	187/036	1	3	Culvert	612	\$12,300	\$20
Hampton	207/094	1	2	Girder	5,859	\$362,450	\$62
Landaff	124/043	1	3	Girder	573	\$52,450	\$92
Lempster	122/167	1	3	Girder	714	\$142,800	\$200
Littleton (expansion joints and deck paving only; Work area assumed 20 ft. wide, i.e., 10 ft. on each side of exp. joint across width of bridge)	187/065	1	2	Girder	1,450	\$39,100	\$27
Littleton	189/058	1	1	Girder	9,518	\$283,200	\$30
Littleton	190/058	1	1	Girder	9,095	\$270,600	\$30
Marlborough	089/127	1	2	Girder	443	\$85,650	\$193
Westmoreland	111/072	1	3	Culvert	648	\$73,900	\$114
<b>FFY 2019 non-Turnpike Bridge Preservation Totals:</b>	<b>10 Projects</b>	<b>10</b>			<b>29,855</b>	<b>\$1,368,050</b>	<b>\$46</b>
<b>Bridge Maintenance - FFY 2019 Average Bridge Preservation Cost per Sq. Ft. =</b>						<b>\$46</b>	
*Girder, Truss, Moveable, Timber, Culvert (See <i>NHDOT Bridge Program - Recommended Investment Strategy</i> for bridges included in these categories.)							

In addition to the Preservation work noted above for FFY 2019, the Bridge Maintenance Bureau also performed 256 bridge repairs, including work on joints, decks, substructures, rail, etc., on State non-Turnpike bridges. This work is in addition to the activity schedules listed in the *Recommended Investment Strategy*.

A review of this project data shows that Bridge Maintenance performed preservation tasks on these comparatively smaller bridges very cost effectively as compared to “traditional” design-bid-build preservation projects developed by the Bridge Design Bureau. However, it is also important to recognize that Bridge Maintenance efforts frequently involve preservation work on specific elements, such as curbs, piers, or expansion joints, rather than preservation work on the entire bridge deck. When the costs for preservation work on these specific items are distributed over the area of the entire bridge deck, it can result in exceptionally low per sq. ft. costs, perhaps making a direct comparison with Bridge Design projects inaccurate.

It is also important to note the staffing and funding constraints of the Bridge Maintenance Bureau, which is one reason that large preservation projects with high traffic volumes are usually handled through projects developed by Bridge Design and are not typically undertaken by Bridge Maintenance crews.

### **FFY 2019 - Other non-Turnpike Preservation Projects – Bridge Maintenance Bureau**

In FFY 2019 the Bridge Maintenance Bureau performed other bridge related non-Turnpike Preservation projects, as listed below.

FFY 2019 State non-Turnpike Bridge - Other Projects (Bridge Maintenance)	Bridge Number	No. of Bridges	Roadway Tiers	Preservation Task	Project/Bridge Construction Cost
Franconia	069/049	1	3	Scour Protection	\$115,300
<b>FFY 2019 State non-Turnpike Bridge - Other Totals:</b>	<b>1 Project</b>	<b>1</b>			<b>\$115,300</b>

The information presented in the tables above show that on State non-Turnpike bridge preservation projects in FFY 2019, a Project/Bridge Construction funding total of (\$1,368,050+ \$115,300) = \$1,483,350 was expended by Bridge Maintenance.

### **(C3) FFY 2019 Bridge Preservation (Turnpike) – Bridge Design Bureau:**

To meet this Bridge Program goal for FFY 2019, the Bridge Design Bureau advertised 1 project to perform bridge preservation work on 1 Turnpike girder bridge having a deck area of 189,295 sq. ft., and 1 Turnpike truss bridge having a deck area of 70,280 sq. ft. (NH portion), for a total deck area of 259,575 sq. ft., which is 305.0% of our 85,105 sq. ft. Turnpike bridge preservation annual goal for all bridge types. Details for this Turnpike bridge preservation project, co-developed by Bridge Design and Maine DOT and advertised by Maine DOT in FFY 2019, are listed below. This effort utilizes Turnpike funds.

FFY 2019 Turnpike Bridge Preservation (Bridge Design)	Project Number	No. of Bridges	Roadway Tiers	Bridge Type*	Existing Deck Area (Sq. Ft.)	Project/Bridge Construction Cost (NH portion)	Cost Per Sq. Ft.
Portsmouth, NH - Kittery, ME (NH portion only) (Portsmouth 257/127 (girder))	16189	2	HIB	Girder	189,295	\$20,939,800	\$111
(Portsmouth 258/128 (truss; 70,280 sq. ft. = NH portion))					70,280	\$7,774,400	\$111
<b>FFY 2019 Turnpike Bridge Preservation Totals:</b>	<b>1 Project</b>	<b>2</b>			<b>259,575</b>	<b>\$28,714,200</b>	
<b>Bridge Design - FFY 2019 Average Turnpike Bridge Preservation Cost per Sq. Ft. =</b>						<b>\$111</b>	
<small>*Girder, Truss, Moveable, Timber, Culvert (See <i>NHDOT Bridge Program - Recommended Investment Strategy</i> for bridges included in these categories.)</small>							

The Portsmouth 257/127 (girder) and 258/128 (truss) bridges have a combined estimated preservation cost of  $(\$28,714,200 / 259,575 \text{ sq. ft.}) = \$111/\text{sq. ft.}$ , which is much greater than the system-wide \$50 per sq. ft. preservation cost for a HIB girder bridge and slightly higher than the system-wide \$100 per sq. ft. preservation cost for a HIB truss bridge, as described in the *NHDOT Bridge Program – Recommended Network Funding*. This increased cost is most likely due to the exceptionally difficult traffic control methods required to shift lanes on this high-volume Interstate highway bridge, which involves two states, a long river crossing, and an interchange. In addition, construction is restricted to specific calendar “windows” over multiple construction seasons to accommodate high seasonal traffic volumes, contributing further to the high per sq. ft. project cost.

#### **FFY 2019 - Other Turnpike Preservation Projects – Bridge Design Bureau**

There were no Other Bridge Preservation projects for Turnpike bridges developed by the Bridge Design Bureau for FFY 2019.

#### **(C4) FFY 2019 Bridge Preservation (Turnpike) – Bridge Maintenance Bureau:**

To meet this Bridge Program goal for FFY 2019, the Bridge Maintenance Bureau performed preservation work on 1 Turnpike bridge in its 2019 Work Plan having a total deck area of 14,932 sq. ft., which is 17.5% of our 85,105 sq. ft. Turnpike bridge preservation annual goal for all bridge types. In addition, Turnpike bridge repair efforts were performed during this time. Details for the Turnpike bridges that received preservation work by Bridge Maintenance in FFY 2019 are listed below. This effort utilizes Turnpike funds.

FFY 2019 Turnpike Bridge Preservation (Bridge Maintenance)	Bridge Number	No. of Bridges	Roadway Tiers	Bridge Type*	Existing Deck Area (Sq. Ft.)	Project Construction Cost	Cost Per Sq. Ft.
North Hampton	089/123	1	4	Girder	14,932	\$297,800	\$20
<b>FFY 2019 Turnpike Bridge Preservation Totals:</b>	<b>1 Project</b>	<b>1</b>			<b>14,932</b>	<b>\$297,800</b>	<b>\$20</b>
<b>Bridge Maintenance - FFY 2019 Average Turnpike Bridge Preservation Cost per Sq. Ft. =</b>						<b>\$20</b>	
<small>*Girder, Truss, Moveable, Timber, Culvert (See <i>NHDOT Bridge Program - Recommended Investment Strategy</i> for bridges included in these categories.)</small>							

The \$20 per sq. ft. average cost is considerably less than the \$50 per sq. ft. base preservation cost estimated in *NHDOT Bridge Program – Recommended Network Funding*. For further information regarding this preservation cost differential, [please refer to the explanation provided above](#) for non-Turnpike bridge preservation work performed by Bridge Maintenance in FFY 2019.

#### **FFY 2019 - Other Turnpike Preservation Projects – Bridge Maintenance Bureau**

There were no Other Bridge Preservation projects for Turnpike bridges performed by the Bridge Maintenance Bureau for FFY 2019.

#### **(C5) FFY 2019 Preservation Summary – State and Turnpike Bridges**

During FFY 2019 the Bridge Design and Bridge Maintenance Bureaus developed preservation projects and/or performed preservation activities on a total of 29 bridges, having a combined deck area of 391,370 sq. ft. This effort represents 110.9% of our combined (267,663 sq. ft. + 85,105 sq. ft. = 352,768 sq. ft.) total Bridge Preservation annual goal for all bridge types. In addition, 6 bridges were painted and 1 bridge received scour protection, as summarized in the following table. Also, 256± bridges received repair efforts.

FFY 2019 State & Turnpike Bridge Preservation (Bridge Design & Bridge Maintenance)	Number of Projects	No. of Bridges	Roadway Tiers	Bridge Types*	Existing Deck Area (Sq. Ft.)	Project/Bridge Construction Cost	Cost Per Sq. Ft.
State non-Turnpike	15	26	1, 2, 3	Girder, Culvert	116,863	\$8,615,650	\$83
State non-Turnpike - Other (Painting, Mechanical, Scour, Etc.)	2	7	1, 3	N/A	N/A	\$1,233,500	N/A
Turnpike	2	3	HIB, 4	Girder, Truss	274,507	\$29,012,000	\$106
Turnpike - Other (Painting, Etc.)	0	0	N/A	N/A	N/A	N/A	N/A
<b>FFY 2019 SUMMARY - Bridge Preservation Totals:</b>	<b>19 Projects</b>	<b>36</b>			<b>391,370</b>	<b>\$38,861,150</b>	
<b>Total Cost Excluding "Other" Projects =</b>						<b>\$37,627,650</b>	
<b>FFY 2019 Average Bridge Preservation Cost per Sq. Ft. =</b>						<b>\$96</b>	
<b>(Excluding "Other" Projects)</b>							
*Girder, Truss, Moveable, Timber, Culvert (See <i>NHDOT Bridge Program - Recommended Investment Strategy</i> for bridges included in these categories.)							

The above data, which compiles the FFY 2019 bridge Preservation efforts of the Bridge Design and Bridge Maintenance Bureaus, result in an average bridge preservation cost of \$96 per sq. ft., which is 92% greater than the \$50 per sq. ft. presented in the *NHDOT Bridge Program – Recommended Network Funding* for girder bridges located on Tier 1 roadways. It should be noted, however, that the efforts by Bridge Maintenance can at times significantly lower the average per sq. ft. cost when combined with Bridge Design project data. Regardless, when considering that the FFY 2019 bridge preservation efforts involve bridges on Tier HIB, 1, 2, 3, & 4 roadways, and their associated Tier multipliers, these data show an acceptable comparison with the per sq. ft. costs estimated in the *NHDOT Bridge Program – Recommended Network Funding*. However, it is important to annually re-evaluate the estimated cost per sq. ft. for all bridge activities. This effort helps to ensure that values are up to date, with the goal of developing accurate project cost estimates.



**5.1.1.2 Complete Bridge Rehabilitation efforts on 66,916 sq. ft. or more of deck area annually on State non-Turnpike bridges and on 21,276 sq. ft. or more of deck area annually on Turnpike bridges, for FFY 2019**

**(A) 10-Year Plan non-Turnpike Bridge Rehabilitation:**

Following the same methodology previously presented for Bridge Preservation efforts, the *Recommended Investment Strategy* (RIS) states that bridge rehabilitation activities should be performed once on each girder bridge over their projected 120-year life cycle. This means that 1/120<sup>th</sup> of the state non-Turnpike girder bridge inventory should receive bridge rehabilitation work each year, i.e.,  $6,686,195 / 120 = 55,718$  sq. ft. This is a major portion of the total non-Turnpike Bridge Rehabilitation goal of 66,916 sq. ft. for all bridge types.

Based on the 10-Year Plan allocation of funds for non-Turnpike bridge rehabilitation efforts, it is projected that up to 10 projects per year can be advertised by the Bridge Design Bureau, with similar efforts by the Bridge Maintenance Bureau, to utilize this funding and work toward accomplishing non-Turnpike bridge rehabilitation goals.

**(B) 10-Year Plan Turnpike Bridge Rehabilitation:**

Following the same methodology presented above for Turnpike Bridge Preservation efforts, the *Recommended Investment Strategy* (RIS) states that rehabilitation activities should be performed once on each girder bridge during their projected 120-year life cycle. This means that 1/120<sup>th</sup> of the Turnpike girder bridge inventory should be rehabilitated each year, i.e.,  $2,271,679 / 120 = 18,931$  sq. ft. This is a major portion of the total Turnpike Bridge Rehabilitation annual goal of 21,276 sq. ft. for all bridge types.

Based on the 10-Year Plan allocation of funds for Turnpike bridge rehabilitation efforts, it is projected that up to 10 projects per year can be advertised by the Bridge Design Bureau, with similar efforts by the Bridge Maintenance Bureau, to utilize this funding and work toward accomplishing Turnpike bridge rehabilitation goals.

**(C) FFY 2019 Bridge Rehabilitation**

**(C1) FFY 2019 Bridge Rehabilitation (non-Turnpike) – Bridge Design Bureau:**

To meet this Bridge Program goal for FFY 2019, the Bridge Design Bureau advertised 1 project to perform rehabilitation work on 1 State non-Turnpike bridge (Red List) having a total deck area of 5,064 sq. ft., which is 7.6 % of our 66,916 sq. ft. State non-Turnpike bridge rehabilitation annual goal for all bridge types. Details for this project are listed below.

FFY 2019 State non-Turnpike Bridge Rehabilitation (Bridge Design)	Project Number	No. of Bridges	Roadway Tiers	Bridge Type*	Existing Deck Area (Sq. Ft.)	Project/Bridge Construction Cost	Cost Per Sq. Ft.
Jackson (144/056) (Red List)	27709	1	2	Culvert	5,064	\$1,462,500	\$289
<b>FFY 2019 Bridge Rehabilitation Totals:</b>	<b>1 Project</b>	<b>1</b>			<b>5,064</b>	<b>\$1,462,500</b>	
<b>Bridge Design - FFY 2019 Bridge Rehabilitation Cost per Sq. Ft. =</b>						<b>\$289</b>	
*Girder, Truss, Moveable, Timber, Culvert (See NHDOT Bridge Program - Recommended Investment Strategy for bridges included in these categories.)							

A review of this project data shows an approximate cost of \$289 per sq. ft. for this bridge rehabilitation project, as developed by Bridge Design. The *NHDOT Bridge Program – Recommended Network Funding* for bridge rehabilitation does not include a system-wide base cost per sq. ft. for culvert bridges since rehabilitation work is generally not performed on culvert bridges.

However, this project cost of \$289 per sq. ft. could be compared to the system-wide \$500 per sq. ft. base cost estimated for replacement of culvert bridges on Tier 1 roadways. Since this bridge is located on a Tier 2 roadway, a Tier Multiplier of 2.0 would be applied to the base cost for replacement. Thus, the project cost of \$289/sq. ft. could be compared to (\$500 per sq. ft. base cost x 2.0 Multiplier =) \$1,000 per sq. ft. for replacement of a culvert bridge on a Tier 2 roadway.

### **(C2) FFY 2019 Bridge Rehabilitation (non-Turnpike) – Bridge Maintenance Bureau:**

To meet this Bridge Program goal for FFY 2019, the Bridge Maintenance Bureau performed rehabilitation work on 6 State non-Turnpike bridges (3 Red List) in its 2019 Work Plan having a total deck area of 5,548 sq. ft., which is 8.3% of our 66,916 sq. ft. State non-Turnpike bridge rehabilitation annual goal for all bridge types. Details for the bridges that received rehabilitation activities by Bridge Maintenance in FFY 2019 are listed below.

FFY 2019 State non-Turnpike Bridge Rehabilitation (Bridge Maintenance)	Bridge Number	No. of Bridges	Roadway Tiers	Bridge Type*	Existing Deck Area (Sq. Ft.)	Project/Bridge Construction Cost	Cost Per Sq. Ft.
Gorham (Red List)	087/050	1	2	Culvert	408	\$83,950	\$206
Haverhill	158/066	1	3	Culvert	230	\$31,050	\$135
Jackson	148/050	1	4	Timber	3,122	\$105,800	\$34
Kingston (Red List)	099/106	1	2	Culvert	528	\$158,600	\$300
Randolph (Red List)	088/048	1	2	Culvert	748	\$175,100	\$234
Waterville Valley	119/087	1	3	Culvert	512	\$151,600	\$296
<b>FFY 2019 non-Turnpike Bridge Rehabilitation Totals:</b>	<b>6 Projects</b>	<b>6</b>			<b>5,548</b>	<b>\$706,100</b>	<b>\$127</b>
<b>Bridge Maintenance - FFY 2019 Bridge Rehabilitation Cost per Sq. Ft. =</b>						<b>\$127</b>	
<small>*Girder, Truss, Moveable, Timber, Culvert (See <i>NHDOT Bridge Program - Recommended Investment Strategy</i> for bridges included in these categories.)</small>							

A review of this project data shows an approximate cost of \$127 per sq. ft. for Bridge Maintenance to perform bridge rehabilitation tasks. The *NHDOT Bridge Program – Recommended Network Funding* for bridge rehabilitation does not include a system-wide base cost per sq. ft. for culvert bridges since rehabilitation work is not generally performed on culverts. However, if the deck areas and costs are compiled for just the culvert bridges, the resulting \$247 average cost per sq. ft. for rehabilitation of the 5 culvert bridges listed above could be compared to the \$500 per sq. ft. x 2.0 Tier multiplier = \$1,000 per sq. ft. cost for replacement of culvert bridges located on Tier 2 roadways.

The \$34 cost per sq. ft. for the 1 timber bridge, performed by Bridge Maintenance, is considerably less than the \$100 per sq. ft. x 1.0 Tier 4 multiplier = \$100 per sq. ft. cost for rehabilitation of timber bridges located on Tier 4 roadways, as listed in the *NHDOT Bridge Program – Recommended Network Funding*.

### **(C3) FFY 2019 Bridge Rehabilitation (Turnpike) – Bridge Design Bureau:**

There were no Bridge Rehabilitation projects for Turnpike bridges developed by the Bridge Design Bureau for FFY 2019.

**(C4) FFY 2019 Bridge Rehabilitation (Turnpike) – Bridge Maintenance Bureau:**

There were no Bridge Rehabilitation projects for Turnpike bridges performed by the Bridge Maintenance Bureau for FFY 2019.

**(C5) FFY 2019 Rehabilitation Summary – State and Turnpike Bridges**

During FFY 2019 the Bridge Design and Bridge Maintenance Bureaus developed rehabilitation projects and/or performed rehabilitation activities on a total of 7 bridges (4 Red List) having a combined deck area of 10,612 sq. ft. This effort represents 12.0% of our combined 66,916 sq. ft. + 21,276 sq. ft. = 88,192 sq. ft. total Bridge Rehabilitation annual goal for all bridge types.

FFY 2019 State & Turnpike Bridge Rehabilitation (Bridge Design & Bridge Maintenance)	Number of Projects	No. of Bridges	Roadway Tiers	Bridge Types*	Existing Deck Area (Sq. Ft.)	Project/Bridge Construction Cost	Cost Per Sq. Ft.
State non-Turnpike	7	7	2, 3, 4	Culvert, Timber	10,612	\$2,168,600	\$204
Turnpike	0	0	N/A	N/A	0	\$0	N/A
<b>FFY 2019 SUMMARY - Bridge Rehabilitation Totals:</b>	<b>7 Projects</b>	<b>7</b>			<b>10,612</b>	<b>\$2,168,600</b>	
<b>FFY 2019 Average Bridge Rehabilitation Cost per Sq. Ft. =</b>						<b>\$204</b>	
<small>*Girder, Truss, Moveable, Timber, Culvert (See NHDOT Bridge Program - Recommended Investment Strategy for bridges included in these categories.)</small>							

The above data, which compiles the FFY 2019 bridge Rehabilitation efforts of the Bridge Design and Bridge Maintenance Bureaus, result in an average bridge rehabilitation cost of \$204 per sq. ft. This value is somewhat high when compared to the \$100 per sq. ft. x 1.5 multiplier = \$150 per sq. ft. for replacement of culvert bridges on Tier 2 roadways, and with the \$100 per sq. ft. x 1.0 multiplier = \$100 per sq. ft. for rehabilitation of timber bridges on Tier 4 roadways, as presented in the *NHDOT Bridge Program – Recommended Network Funding*.

However, efforts by Bridge Maintenance can at times result in lower average per sq. ft. costs, depending on the specific rehabilitation tasks, when combined with Bridge Design project data. A more detailed explanation of costs is provided further above specifically for these Bridge Design and Bridge Maintenance rehabilitation projects advertised / performed in FFY 2019.

### 5.1.1.3 Complete Bridge Replacement efforts on 66,916 sq. ft. or more of deck area annually on State non-Turnpike bridges and on 21,276 sq. ft. or more of deck area annually on Turnpike bridges, for FFY 2019

#### (A) 10-Year Plan non-Turnpike Bridge Replacement

Based on the 10-Year Plan (2019 - 2028) allocation of funds for bridge replacement efforts (non-Turnpike), there are 16 bridge replacement projects scheduled to advertise during the next 3 years (FFY 2019 – FFY 2021) by the Bridge Design Bureau. These projects replace 19 bridges and address 132,321 sq. ft. of deck area to utilize this funding and work toward accomplishing bridge replacement goals over this time period.

Following the same methodology previously presented for non-Turnpike Bridge Preservation efforts, the *Recommended Investment Strategy* (RIS) states that bridge replacement activities will be performed once on each girder bridge at the end of their projected 120-year life. This means that  $1/120^{\text{th}}$  of the state non-Turnpike girder bridge inventory should be replaced each year, i.e.,  $6,686,195 / 120 = 55,718$  sq. ft. This is a major portion of the total non-Turnpike Bridge Replacement annual goal of 66,916 sq. ft. for all bridge types.

Based on the 10-Year Plan allocation of funds for non-Turnpike bridge replacement efforts, it is projected that up to 8 projects per year can be advertised by the Bridge Design Bureau, with similar efforts by the Bridge Maintenance Bureau, to utilize this funding and work toward accomplishing non-Turnpike bridge replacement goals.

#### (B) 10-Year Plan Turnpike Bridge Replacement

Following the same methodology previously presented for Turnpike Bridge Preservation efforts, the *Recommended Investment Strategy* (RIS) states that bridge replacement activities will be performed once on each girder bridge at the end of their projected 120-year life. This means that  $1/120^{\text{th}}$  of the Turnpike girder bridge inventory should be replaced each year, i.e.,  $2,271,679 / 120 = 18,931$  sq. ft. This is a major portion of the total Turnpike Bridge Replacement annual goal of 21,276 sq. ft. for all bridge types.

Based on the 10-Year Plan allocation of funds for Turnpike bridge replacement efforts, it is projected that up to 4 projects per year can be advertised by the Bridge Design Bureau, with similar efforts by the Bridge Maintenance Bureau, to utilize this funding and work toward accomplishing Turnpike bridge replacement goals.

#### (C) FFY 2019 Bridge Replacement

##### (C1) FFY 2019 Bridge Replacement (non-Turnpike) – Bridge Design Bureau:

To meet this Bridge Program goal for FFY 2019, the Bridge Design Bureau advertised 6 projects for replacement of 8 State non-Turnpike bridges (7 Red List) having a total deck area of 83,808 sq. ft., which is 125.2% of our 66,916 sq. ft. State non-Turnpike bridge replacement annual goal for all bridge types. Details for these projects are listed below.

FFY 2019 State non-Turnpike Bridge Replacement (Bridge Design)	Project Number	No. of Bridges	Roadway Tiers	Bridge Type*	Existing Deck Area (Sq. Ft.)	Project Construction Cost	Cost Per Sq. Ft.
Conway (158/137) (Red List)	15864	1	2	Girder	3,498	\$3,288,300	\$940
Laconia (131/154; Superstructure replacement) (Red List)	16144	1	2	Girder	1,354	\$1,182,300	\$873
Lancaster, NH - Guildhall, VT (111/129; NH portion) (Red List)	16155	1	2	Truss (new = Girder)	11,247	\$10,086,500	\$897
Lebanon (093/109 Red List; 094/108; Both superstructure replacements, Includes Roadway bid items needed for traffic control and construction/removal of diversion.)	41191 (partial)	2	1	Girder	14,801	\$6,572,800	\$444
Lebanon (103/116; superstructure replacement) (Red List)	25821	1	4	Girder	6,845	\$2,465,700	\$360
Lebanon, NH - Hartford, VT (044/103; 044/104) (both Red List) Deck area & project cost are the NH portions; Project bid in 2019; re-bid in 2020 (Superstructure replacement & widening; Substructure widening)	16148	2	1	Girder	46,063	\$32,660,600	\$709
<b>FFY 2019 Bridge Replacement Totals:</b>	<b>6 Projects</b>	<b>8</b>			<b>83,808</b>	<b>\$56,256,200</b>	<b>\$671</b>
<b>FFY 2019 Bridge Replacement Cost per Sq. Ft. =</b>						<b>\$671</b>	
*Girder, Truss, Moveable, Timber, Culvert (See NHDOT Bridge Program - Recommended Investment Strategy for bridges included in these categories.)							

This data shows an approximate cost of \$671 per sq. ft. for bridge replacement, which compares very favorably with the *NHDOT Bridge Program – Recommended Network Funding* which lists \$650 per sq. ft. for girder bridge replacement on a Tier 1 roadway. When this amount is adjusted for Tier 2 and 4 roadways, the system-wide base cost becomes \$650 x 1.4 Tier multiplier = \$910 per sq. ft. For the projects listed above located on Tier 2 and 4 roadways, the average project cost is \$742 per sq. ft., which is less than the estimated system-wide base cost of \$910 per sq. ft. for bridge replacement on Tier 2 and 4 roadways.

The costs per sq. ft. for the projects listed above have the following considerations:

- The Conway 15864 project replaces a shorter concrete T-beam bridge with a longer steel girder bridge while keeping all construction work within the existing available Right-of-Way limits. This constraint required 3-phase construction to maintain traffic, as well as unique cofferdams/retaining walls to support the roadway during demolition and construction activities. Even so, the \$910 per sq. ft. project cost compares very well with the estimated system-wide \$940 cost per sq. ft. for girder bridge replacement on a Tier 2 roadway, as listed in the *NHDOT Bridge Program – Recommended Network Funding*.
- The Laconia 16144 project includes time limits specified for roadway closure and replacement of the concrete slab superstructure. Although rapid construction generally increases construction costs compared to conventional construction methods, the \$873 per sq. ft. cost for this project compares well with the estimated \$910 per sq. ft. system-wide base cost for bridge replacement on a Tier 2 roadway, as listed in the *NHDOT Bridge Program – Recommended Network Funding*.
- The Lancaster, NH – Guildhall, VT 16155 project replaces a steel truss bridge with a steel girder bridge. Thus, the \$897 per sq. ft. project cost compares very well with the \$910 per sq. ft. system-wide base cost for replacement of a girder bridge on a Tier 2 roadway, as listed in the *NHDOT Bridge Program – Recommended Network Funding*.
- The Lebanon, NH – Hartford, VT 16148 project involves superstructure replacement and widening of two nearly 850 ft.-long bridges on I-89, including widening of substructures and tall piers, with interchanges located near each end of the project limits. These factors contribute to the \$709 per sq. ft. bid price for the NH portion of this project, which is 9.1% greater than the estimated system-side base cost of \$650 per sq. ft. for a girder bridge on a Tier 1 roadway. Also, this bridge is being widened significantly with the total deck area increasing from 60,610 sq. ft. to 92,974 sq. ft., a 53.4% increase, which can skew the comparison to bridge replacement base costs.



A single total bid of \$46,330,309 was received, which was 27.2% greater than the \$36,435,765 estimate. All 6 Contractors that expressed interest were contacted for feedback, which resulted in the decision to revise and re-bid the project in FFY 2020.

- The Lebanon 41191 project involves superstructure replacement on two bridges along a section of I-89 that requires construction and removal of a temporary diversion for traffic control. These additional costs are included with the bridge costs, thereby increasing project costs above those of more typical projects. Even with these additional costs, the \$444 per sq. ft. project cost is considerably less than the estimated system-wide \$650 per sq. ft. system-wide base cost for replacement of a girder bridge on a Tier 1 roadway, as listed in the *NHDOT Bridge Program – Recommended Network Funding*. (NOTE: This project also included preservation work on two adjacent bridges. See Section 5.1.1.1.C1 FFY 2019 Bridge Preservation (non-Turnpike) – Bridge Design Bureau.)

The above data includes several unique project characteristics that can increase project costs. Since effective project delivery and reduced construction duration lower the impact of a project on the traveling public, similar project delivery methods will likely be considered for future projects whenever feasible. This perspective supports frequently reviewing and updating the system-wide base costs for bridge replacement in the *NHDOT Bridge Program – Recommended Network Funding*, with the goal of providing more accurate project estimates for future projects.

### **(C2) FFY 2019 Bridge Replacement (non-Turnpike) – Bridge Maintenance Bureau:**

To meet this Bridge Program goal, during the 2019 Federal Fiscal Year (FFY 2019) the Bridge Maintenance Bureau replaced the superstructure of 3 State non-Turnpike bridges (2 Red List) having a total deck area of 1,545 sq. ft., which is about 2.3% of our 66,916 sq. ft. non-Turnpike bridge replacement annual goal for all bridge types. Project details for the bridge replacement efforts completed by Bridge Maintenance for FFY 2019 are listed below.

FFY 2019 State non-Turnpike Bridge Replacement (Bridge Maintenance)	Bridge Number	No. of Bridges	Roadway Tiers	Bridge Type*	Existing Deck Area (Sq. Ft.)	Project Construction Cost	Cost Per Sq. Ft.
Brookline	116/058	1	4	Culvert	480	\$157,150	\$327
Tamworth (Red List)	095/162	1	3	Girder	713	\$214,850	\$301
Westmoreland (Red List)	109/061	1	3	Culvert	352	\$195,100	\$554
<b>FFY 2019 Bridge Replacement Totals:</b>	<b>3 Projects</b>	<b>3</b>			<b>1,545</b>	<b>\$567,100</b>	<b>\$367</b>
<b>FFY 2019 Bridge Replacement Cost per Sq. Ft. =</b>						<b>\$367</b>	
<small>*Girder, Truss, Moveable, Timber, Culvert (See NHDOT Bridge Program - Recommended Investment Strategy for bridges included in these categories.)</small>							

The *NHDOT Bridge Program – Recommended Network Funding* lists \$650 per sq. ft. x 1.4 Tier 3 multiplier = \$910 per sq. ft. for girder bridge replacement. A review of the above data shows \$301 per sq. ft. as the cost for this girder bridge replacement effort.

The *NHDOT Bridge Program – Recommended Network Funding* also lists \$500 per sq. ft. x 1.2 Tier 3 (and Tier 4) multiplier = \$600 per sq. ft. for culvert bridge replacement. A review of the above data shows \$423 per sq. ft. as the average cost for these culvert bridge replacement efforts.

These results indicate that Bridge Maintenance can replace comparatively small bridges in a much more cost-effective manner than “traditional” design-bid-build replacement projects developed by the Bridge Design Bureau. However, it is also important to recognize the staffing and funding constraints of the Bridge Maintenance Bureau, which is one reason that larger projects with higher traffic volumes are not typically undertaken by these crews.

**(C3) FFY 2019 Bridge Replacement (Turnpike) – Bridge Design Bureau:**

There were no Bridge Replacement projects for Turnpike bridges developed by the Bridge Design Bureau for FFY 2019.

**(C4) FFY 2019 Bridge Replacement (Turnpike) – Bridge Maintenance Bureau:**

There were no Bridge Replacement projects for Turnpike bridges performed by the Bridge Maintenance Bureau for FFY 2019.

**(C5) FFY 2019 Replacement Summary – State and Turnpike Bridges**

During FFY 2019 the Bridge Design and Bridge Maintenance Bureaus performed replacement of a total of 11 bridges (9 Red List) having a combined deck area of 85,353 sq. ft. This effort represents 96.8% of our combined 66,916 sq. ft. + 21,276 sq. ft. = 88,192 sq. ft. total Bridge Replacement annual goal for all bridge types.

FFY 2019 State & Turnpike Bridge Replacement Projects (Bridge Design & Bridge Maintenance)	Number of Projects	No. of Bridges	Roadway Tiers	Bridge Type*	Existing Deck Area (Sq. Ft.)	Estimated Project Construction Cost	Cost Per Sq. Ft.
State non-Turnpike	9	11	1, 2, 3, 4	Girder, Truss, Culvert	85,353	\$56,823,300	\$666
Turnpike	0	0	N/A	N/A	0	\$0	\$0
<b>FFY 2019 SUMMARY - Bridge Replacement Totals:</b>	<b>9 Projects</b>	<b>11</b>			<b>85,353</b>	<b>\$56,823,300</b>	
<b>FFY 2019 Average Bridge Replacement Cost per Sq. Ft. =</b>						<b>\$666</b>	
<small>*Girder, Truss, Moveable, Timber, Culvert (See NHDOT Bridge Program - Recommended Investment Strategy for bridges included in these categories.)</small>							

The above data, which compiles the FFY 2019 bridge Replacement efforts of the Bridge Design and Bridge Maintenance Bureaus, result in an average bridge replacement cost of \$666 per sq. ft. The *NHDOT Bridge Program – Recommended Network Funding* lists \$650 per sq. ft. for girder bridge replacement on Tier 1 roadways. The \$666 per sq. ft. listed in the FFY 2019 Summary table above is only 2.5% greater than the estimated system-wide base cost.

When applied to other roadway Tiers, the estimated system-wide base cost becomes \$650 x the 1.4 multiplier for Tiers 2, 3, and 4 = \$910 per sq. ft. for girder bridge replacement. In this comparison, the \$666 project cost is 26.8% less than the \$910 per sq. ft. base cost for girder bridge replacement. For culvert bridge replacement on Tier 2 roadways, this value is also less than the \$500 per sq. ft. x 1.5 multiplier = \$750 per sq. ft., as presented in the *NHDOT Bridge Program – Recommended Network Funding*.

It is noted that bridge replacement efforts by Bridge Maintenance can at times result in lower average per sq. ft. costs when combined with corresponding Bridge Design project data. A more detailed explanation of costs is provided further above specifically for these Bridge Design and Bridge Maintenance replacement projects advertised / performed in FFY 2019.

### 5.1.2 **Goal 2: Inspect all state and municipal/other bridges to meet all Federal and State inspection and reporting requirements.**

The Bridge Design Bureau has a staff of 9 Bridge Inspectors and 4 Engineers assigned to the Existing Bridge Section that work to ensure the Department meets the above goal. In addition, this effort is supplemented by Consultant inspections (5 to 10 inspections per year) of specific complex bridges, such as moveable bridges, and by contracted divers performing underwater inspections (30 to 50 inspections per year) of specific bridge foundations. In Calendar Year 2019, these individuals performed 2,322 bridge inspections and submitted all required reporting in accordance with all Federal and State inspection and reporting requirements. In addition to the evaluation of the condition of each bridge, the inspection process also includes a review of whether any postings currently required for weight or clearance limits are in place, accurate, and visible to the traveling public as required.

The following table presents a comparison of the 2019 bridge inspection activities, which includes semi-annual inspections of State Red List bridges, annual inspections of Municipal Red List bridges, and all underwater inspections performed during this time frame, with those of the previous 5 years.

Calendar Year	Number of State Bridge Inspection Events	Number of Municipal and Other Bridge Inspection Events	Total Bridge Inspection Events
2014	1,597	1,071	2,668
2015	1,444	1,101	2,545
2016	1,560	1,070	2,630
2017	1,422	1,052	2,474
2018	1,401	1,044	2,445
2019	1,342	980	2,322

A review of the above data would seem to indicate that the number of inspections has greatly reduced over the past five years, from 2,668 to 2,322 inspections, i.e., a reduction of 346 inspections (12.9%). However, as previously noted, Senate Bill 38 (effective on July 1, 2017) narrowed the definition of a “Red List Bridge” (RSA 234:25-a). The revised definition now only includes structurally deficient bridges (one or more major elements in poor or worse condition), thereby eliminating tonnage posted bridges in fair-or-better condition from the Red List and returning them to the standard biennial inspection cycle.

Red List bridge counts and deck areas back to 2010 were then adjusted to account for bridges meeting this new Red List definition. This adjustment resulted in an immediate (in 2017) reduction of about 11 bridges from the State Red List and 71 from the Municipal Red List. Since state Red List bridges are inspected twice per year and municipal Red List bridges are inspected once per year, this change also resulted in a corresponding reduction in the number of bridges inspected each calendar year.

In addition to those removed due to the Red List definition change, continuing efforts by the Department and the municipalities to improve overall bridge conditions have reduced these numbers further, for a net reduction of 37 state bridges and 102 municipal bridges from their respective Red Lists from 2016 through 2021. Consequently, this resulted in a corresponding reduction in the number of inspections to be performed each year.

For these reasons, the number of bridge inspections required to be performed each calendar year has been reduced considerably since 2014.

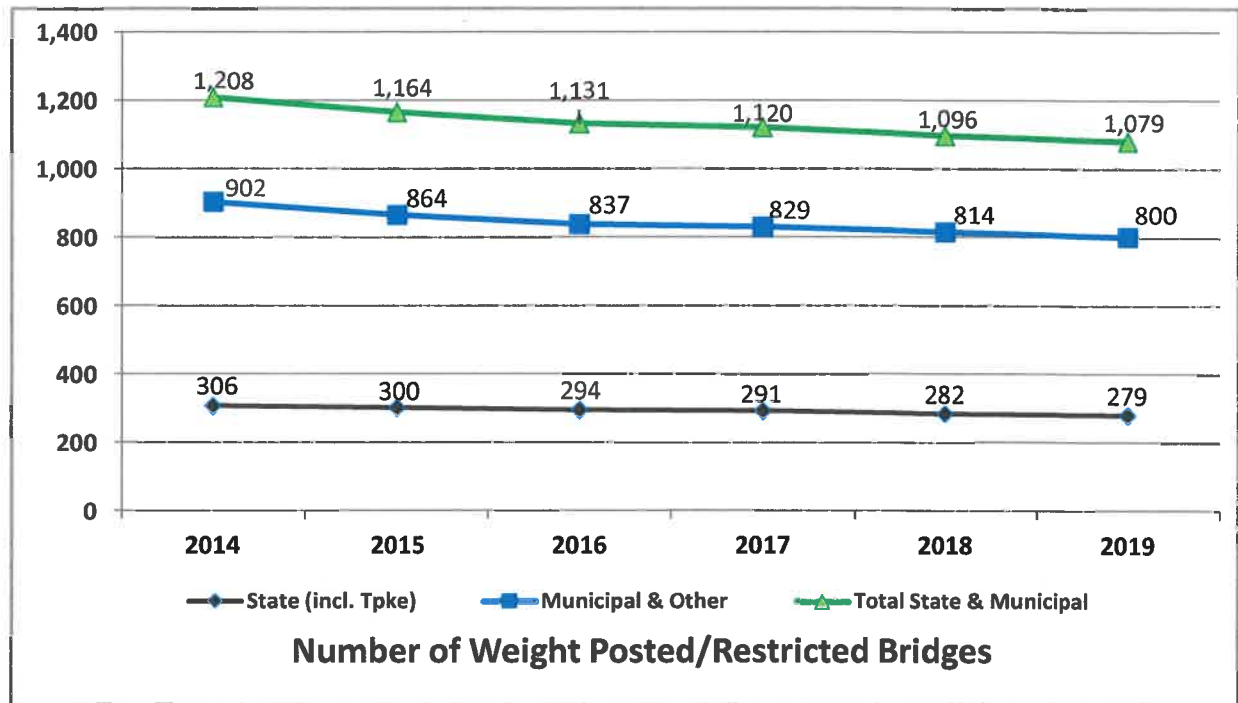
**5.1.3 Goal 3: Manage all posted (weight restricted) bridges to reduce or eliminate constraints affecting the safe and efficient movement of goods and services, including emergency response, on the overall State transportation system.**

Specifically, the goal is for all bridges on Tier 1 and Tier 2 roadways to have no weight restrictions, for all Tier 3 bridges with weight restrictions to be included in the 10-Year Plan as projects to address their weight restrictions, and for all Tier 4 bridges with weight restrictions to be reviewed to ensure that the weight restriction for each bridge does not affect emergency response services.

It is important to note that the term “weight restriction” refers to the total load applied to the bridge, i.e., the combined weight of the vehicle and the load it carries, not just the load carried by the vehicle. (Example: “Weight Limit 20-Tons” allows a 12-ton vehicle with an 8-ton load.)

Under the ranking criteria for the Rehabilitation & Replacement Priority List and for the Bridge Preservation Priority List, the Bridge Management Committee assigns additional points to each bridge based on whether it has a weight restriction. These additional points shift all weight restricted bridges to a higher priority. Over time, this consideration will gradually reduce the number of bridges with weight restrictions, especially on Tier 2 roadways, and hopefully Tier 3 and Tier 4 roadways as well. These efforts will serve to improve the efficiency and safety of the overall transportation system in New Hampshire.

The following graph presents data regarding the number of state and municipal bridges posted with weight restrictions. The data show that these numbers are gradually being reduced, which will improve the overall functionality of the transportation system and facilitate the movement of people, goods, and services in New Hampshire.



Please refer to *Section 2.3 – Bridge Postings for Weight Restrictions* for additional information on the current posting of existing NH bridges at the completion of the 2019 inspection cycle (December 31, 2019). *Appendix “C” - Bridge Postings and Weight Restrictions: Posting Definitions and Examples* also provides general information on this topic.

**5.1.4 Goal 4: Manage the State’s Red List (“poor” condition) bridges to reduce the backlog of bridge rehabilitation and replacement to the maximum extent that can be addressed within the State’s 10-Year Transportation Improvement Plan (10-Year Plan).**

The Bridge Management Committee reviews all State Red List bridges to determine if the Bridge Design Bureau or the Bridge Maintenance Bureau will assume the responsibility of addressing each State Red List bridge. Once this review and determination is complete, the BMC initiates efforts for projects being developed by Bridge Design and, through the 10-Year Plan process, recommends the projects, estimated costs, and fiscal years for inclusion. The Bridge Maintenance Bureau schedules and allocates resources toward efforts for State Red List bridges that they will address during this time period.

In the 2019 – 2028 Ten-Year Plan, of the 125 bridges on the 2019 State Red List, 5 State Red List bridges are not included, with 2 of these located on Tier 4 roadways and 3 located on Tier 6 roadways, as follows:

<u>Municipality/Br. No.</u>	<u>Owner</u>	<u>Feature Carried/Crossed</u>	<u>State Red List (Year Added)</u>	<u>Roadway Tier</u>	<u>Condition Rating (Deck, Superstructure, Substructure, Culvert)</u>
Bennington 093/094	NHDOT	NHRR (ABD) / Antrim Road	2002	6	Deck 4 = Poor Superstructure 4 = Poor Substructure 3 = Serious
Franklin 162/100	NHDOT	NHRR (ABD) / NH Route 127	1997	6	Deck 4 = Poor Superstructure 5 = Fair Substructure 4 = Poor
Pinkham’s Grant 076/081	NHDOT	Old NH Route 16 / Brook	2012	6	Culvert 4 = Poor
Pittsburg 099/034	NHDES	Murphy Dam Rd./Dam Spillway	1991	4	Deck 5 = Fair Superstructure 5 = Fair Substructure 2 = Critical
Raymond 083/154	NHDOT	Dudley Road / Lamprey River	1990	4	Deck 5 = Fair Superstructure 6 = Satisfactory Substructure 4 = Poor

The 10-Year Plan also allocates funding for this effort through the *Statewide Red List Bridges 40817* project “to rehabilitate and reconstruct State Red List Bridges”. This project allocates \$10,800,000 to address future State Red List bridges that are identified during upcoming inspection years, prior to development and approval of the next 10-Year Plan.

Please refer to *Section 2.2 – Current Condition and Number of Bridges in New Hampshire* for additional information on the number and deck area of NH’s “poor” condition bridges at the completion of the 2019 inspection cycle (December 31, 2019).

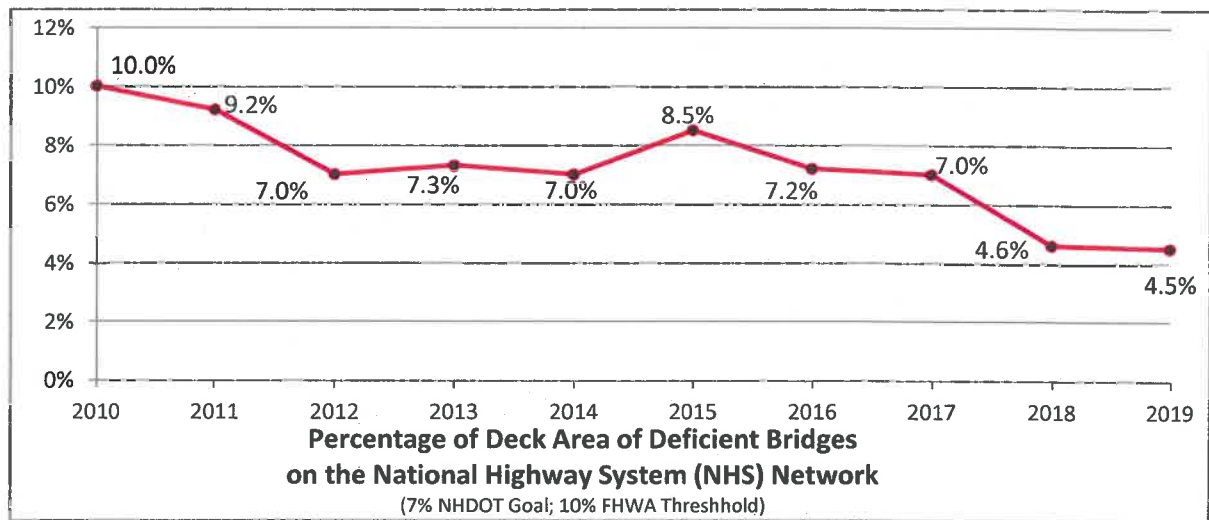


**5.1.5 Goal 5 - Apply available bridge funds to limit the total area of bridge decks in “poor” condition on the National Highway System (NHS) to be less than 7% of the total deck area on this highway category. This goal is more stringent than the 10% limit stipulated by the Federal Highway Administration.**

Under the ranking criteria for the Bridge Rehabilitation & Replacement Priority List and for the Bridge Preservation Priority List, the Bridge Management Committee assigns additional points for Tier 1 and Tier 2 bridges that typically comprise the bridges on the NHS system. These additional points shift bridges on the NHS to a higher priority. As these bridges are addressed over time, the number of “poor” condition NHS bridges will gradually be reduced, thereby improving the efficiency and safety of the state’s overall transportation system.

In an effort to reduce deficient bridges nationwide, recent changes in FHWA requirements (MAP-21 in 2012 and FAST ACT in 2015) stipulate that each state must keep the deck area of all deficient bridges (one or more major structural elements with an NBIS condition rating of “4=Poor” or less) located on the National Highway System (NHS) below 10% of the state’s total deck area of all NHS bridges. The FHWA generally allows some flexibility regarding the types of projects to which federal funds may be applied. However, if the 3-year average of the deck area of deficient bridges on the NHS rises above the 10% threshold, then FHWA limits the state’s flexibility with funding and requires that funds be dedicated to address the deficiencies of bridges on the NHS. As can be seen in the following graphic, NHDOT is well below the 10% threshold.

Through past efforts, NHDOT has been successful in keeping the combined deck area of deficient NHS bridges below 10%, even before this metric became a requirement. The progress made over the past several years, depicted in the following graph, shows the variability of this effort as several large NHS bridges were added to and then removed from the Red List as deficiencies were identified and then addressed.



The percentage of deck area of deficient NHS bridges dropped from 4.6% in 2018 to 4.5% in 2019, a reduction of 3,701 sq. ft., from the total area of deficient NHS bridges. The percentage of deficient NHS deck area is now well below the Bridge Program goal of 7.0%.

It is important to note that, as with all FHWA requirements, this metric only applies to federal definition bridges, i.e., those bridges having a total length greater than 20 feet. (State definition bridges are those having a total length of 10 feet or greater.)

**5.1.6 Goal 6 - Record and utilize project cost data to calculate cost estimates through all project development phases (Initial Assessment, Preliminary Plans, PPS&E Plans, and PS&E Plans) to improve cost estimating practices and corresponding project results as the *Recommended Investment Strategy* (RIS) is efficiently and effectively implemented. The goal is for Initial Assessment estimates to be within 25% ( $\pm$ ) of the PS&E.**

The Bridge Management Committee reviews bridge cost data to develop and update better mechanisms to improve the accuracy of cost estimates of bridge projects that are prepared at the initial project development for the 10-Year Plan phase, at the Alternatives Analysis phase, at the Preferred Alternative phase, at the 60% Plan development phase, at the Preliminary Plans, Specification, and Estimate (80%) (PPS&E) development phase, and at the Final Plans, Specification, and Estimate (90%) (PS&E) development phase.

The ultimate goal of this effort is to develop bridge project estimates that maintain funding consistency throughout all phases of the project development process. This would allow the Department to more accurately determine the overall funding needs of the Bridge Program. The Department's goal is for the initial assessment estimate to be within 25% +/- of the PS&E estimate.

A process has been developed and a draft document to provide explanation and direction on developing project cost estimates is currently under review. Once this document has been approved it will be appropriately applied when developing cost estimates for the various development stages for bridge projects and will be posted for reference on the Bridge Design Document Library page.

Project cost estimates are developed and updated at various stages of the project development process, as noted below:

- (1) Initial Project Assessment Estimate - Prepared for developing the 10-Year Plan
- (2) Project Agreement Estimate - At project start-up to program and authorize funds in ProMIS
- (3) Preliminary plans estimate - At 40% to 50% plan completion
- (4) Preliminary plans, specifications, and estimate (PPS&E) - At 80% plan completion
- (5) Plans, specifications, and estimate (PS&E) - At 90% plan completion
- (6) Contract plans estimate - At 100% plan completion (advertising project for bids)
- (7) Project Agreement Estimate (Based on bids) - After bid opening

This is an extremely challenging and optimistic goal, especially when considering the current market conditions, the constant fluctuation of fuel prices, and the ever-changing labor market and associated costs.

## **5.2 Other Efforts Completed by the Bridge Design Bureau**

### **5.2.1 Development of Contract Plans and Documents for System Expansion Projects**

In addition to the Performance Goals presented in *Section 5.1 – Performance Goals and Results of Efforts of Previous Year*, the Bridge Design Bureau is also responsible for the development of bridge plans and contract documents required for expansion efforts of the overall transportation system, such as:

- I-93 expansion from Salem to Manchester
- Spaulding Turnpike expansion from 4 lanes to 8 lanes between Newington and Dover, including the Little Bay bridges
- FE Everett Turnpike expansion from 2 lanes to 3 lanes between Nashua and Bedford
- Manchester Exit 6 and 7 expansion / reconfiguration
- I-93 expansion from 2 lanes to 3 lanes in Bow and Concord, including the I-89 / I-93 and the I-93 / I-393 interchanges

It is recognized that portions of some of these projects will address bridge preservation and rehabilitation needs, as outlined in the *NHDOT Bridge Program – Recommended Investment Strategy*, which would typically be anticipated for the bridges located within the limits of these projects. However, most bridge work associated with these projects addresses these needs through bridge replacement as part of the overarching goal to provide improved transportation capacity on these critical segments of the transportation network.

### **5.2.2 Bridge Load Ratings and Reviews for Overweight Permits**

This overall effort ensures that vehicles and loads in excess of legal limits are utilizing competent bridges capable of safely carrying these non-conforming vehicles and loads without causing damage to the bridges being crossed.

In June 2019, the newly developed “*NHDOT Permits*” online permitting software and web site serving NHDOT was completed and fully implemented, enabling on-line applicants for OS/OW permits to review proposed routes of travel and obtain their permits through a more automated / interactive process. However, this permit process is intended for loads that exceed legal limits and are less than 150,000 lbs. as these types of loads are essentially routine and involve more typical vehicle configurations.

The Existing Bridge Section of the Bridge Design Bureau provides assistance to the Permits Section of the Highway Maintenance Bureau as needed to determine and/or confirm load capacity ratings for overweight permit applications involving loads exceeding 150,000 lbs., i.e., “super loads”. During the 2019 calendar year, NHDOT reviewed and processed 1,428 super load permit applications, with support as need from Bridge Design.

For more information regarding bridge postings and weight restrictions for bridges, please refer to *Appendix “C” - Bridge Postings and Weight Restrictions for Certified Vehicles: Posting Definitions and Examples*; or, *RSA 266:18 Equipment of Vehicles*.

<http://www.gencourt.state.nh.us/rsa/html/XXI/266/266-18.htm>

### 5.2.3 Critical Deficiency Notices - State and Municipal Bridges

The Existing Bridge Section of the Bridge Design Bureau reviews bridge inspection data and determines whether any postings for weight restrictions need to be revised or have become necessary since the previous inspection. This is especially applicable to state and municipal Red List bridges as these are already in “poor” condition and the rate of deterioration may accelerate. When this occurs, it becomes more likely that the condition of the deficient major bridge element has deteriorated to the extent that the bridge can no longer safely carry all legal loads and must now be downposted to a new and reduced safe load capacity. Occasionally, deterioration reaches a point at which the bridge is determined to have no remaining safe live load carrying capacity, in which case the bridge is immediately closed and barricaded.

When the safe load capacity of a state bridge is reduced, a posting change notice is prepared and submitted to the NHDOT Commissioner. Upon approval, it is distributed to the Traffic Bureau and the Bridge Maintenance Bureau to prepare and install new weight limit signs. In addition, data for the Overweight Permit process is updated to ensure that approvals for overweight permits prevent these loads from traveling over the affected bridge, again avoiding damage to the bridge and ensuring the safety of the transportation network.

When the safe load capacity of a municipal bridge is reduced, a “Critical Bridge Deficiency” notice is prepared and submitted to the NHDOT Municipal Highways Engineer for approval and for notification to the municipal officials that own the affected bridge. It is the responsibility of the municipal officials to implement the required posting or closure.

In some instances, where an inspection finding warrants additional emphasis but does not yet warrant a “Critical Bridge Deficiency Notice”, the Existing Bridge Section prepares a “Bridge Deficiency Notice” to be sent to the municipality to ensure that local officials are aware of this condition. A metal culvert pipe with accelerating deterioration, a bridge with severely deteriorated bridge railing, or a bridge with substantial undermining are examples of potentially unsafe conditions that may warrant action by the municipality before the next bridge inspection occurs. This advanced notice enables municipal officials to initiate actions and/or to secure funding to address the bridge deficiency before it becomes a travel constraint or a greater safety concern for the roadway users.

During the 2019 calendar year, the Existing Bridge Section prepared 5 *Deficiency Notices* and 4 *Critical Deficiency Notices* for municipal bridges, as noted below.

Date	Type of Deficiency	Bridge ID	Bridge Owner	Facility Carried	Feature Intersected	Bridge Type	Description of Deficiency
January 7, 2019	Bridge Deficiency	Francestown 114/062	Municipality	Russell Station Road	Rand Brook	Timber	Voids, settlement, bulging and cracked stones at NW masonry abutment corner
January 10, 2019	Critical Deficiency	Fremont 086/055	Municipality	Sandown Road	Exeter River Overflow	Girder	Severe section losses and large holes in outer steel beams
January 23, 2019	Bridge Deficiency	Rochester 114/046	Municipality	Four Rod Road	Rickers Brook	Culvert	Advancing corrosion with holes in invert
January 29, 2019	Bridge Deficiency	Landaff 074/159	Municipality	Sym Noyes Road	Mill Brook	Culvert	Advancing corrosion with holes in invert
July 9, 2019	Critical Deficiency	Hopkinton 178/039	Municipality	Stickney Hill Road	Boutwell Mill Brook	Culvert	Metal culvert with severe corrosion, holes, 95% section loss
July 25, 2019	Critical Deficiency	Webster 066/113	Municipality	White Plains Road	Meadow Brook	Culvert	Metal culvert with severe corrosion, holes, 90%+ section loss
August 14, 2019	Bridge Deficiency	Goshen 084/077	Municipality	Lempster Coach Road	Trow Brook	Girder	Masonry stone retaining wall failed in front of stub abutment at NW corner
October 30, 2019	Bridge Deficiency	Amherst 145/106	Municipality	Thorntons Ferry Road	Beaver Brook	Culvert	Metal culvert with moderate to severe corrosion, tears at inlet
November 5, 2019	Critical Deficiency	Stoddard 115/126	Municipality	Kings Highway	Kennedy Brook	Culvert	Metal culvert with severe corrosion, holes, 90%+ section loss

## 5.2.4 Support of Other Department Actions and Responsibilities

In addition to the Performance Goals presented in *Section 5.1 – Performance Goals and Results of Efforts of Previous Year*, the Bridge Design Bureau supports the efforts of other NHDOT Bureaus. Some of these nominal efforts are noted below:

- Highway Design Bureau
  - Design, development, and reviews of contract plans for culvert headwalls
  - Review plans / specifications for projects constructing large concrete culverts
  - Provide contract plans and specifications for plug joint replacement as part of the Pavement Preservation efforts
  - Provide contract plans / specifications for replacement of bridge rail and approach rail as part of the Department's efforts to update guardrail statewide
- Traffic Bureau and Transportation Systems Management & Operations (TSMO)
  - Provide support involving structural design, contract plans & specifications, and shop drawing review for traffic sign structures and other related structures

## 5.2.5 Emergency Response for Bridges – Bridge Design Bureau

The staff of the Bridge Design and Bridge Maintenance Bureaus, including inspectors, technicians, and engineers, responds as needed when an emergency occurs to evaluate damage to bridges due to:

- Impact from vehicles or vessels
- Oversized loads
- Overweight loads
- Flooding and scour, including ice jams
- Failure of a major structural element
- Other bridge-related emergencies

When these emergencies occur, perhaps 10 to 20 times per year, Bridge Design staff coordinates with the Transportation Systems Management & Operations (TSMO), Emergency Operations Center (EOC), other NHDOT Bureaus, emergency response personnel, federal, state, and local agencies, and the media as needed to initially assess the situation and to initiate any actions that are immediately needed to ensure public safety until long term repairs or actions can be undertaken.

### **5.3 Other Efforts Completed by the Bridge Maintenance Bureau**

#### **5.3.1 Repair Projects for State Bridges**

In addition to the Performance Goals presented in *Section 5.1 – Performance Goals and Results of Efforts of Previous Year*, the Bridge Maintenance Bureau routinely performs repairs to state bridges to ensure that these bridges can safely remain in service. These repairs are tracked by the Bridge Maintenance Bureau to maintain the historical record of work performed on each specific bridge.

The time needed for these types of repairs range from a few days to a few months, depending on the scope of work appropriate for the needed repair. These efforts address immediate concerns and keep the bridge in service and safe for use until more comprehensive projects are funded, developed, and completed, in accordance with the *Recommended Investment Strategy (RIS)*. They are not intended to be long term solutions and do not “reset” the RIS schedule of work activities.

During FFY 2019 the Bridge Maintenance Bureau completed repair activities on 256 bridges involving the following tasks:

- Repaired expansion joints
- Patched bridge decks
- Patch abutments, piers, wingwalls, and bearing seats
- Initial repair (safety) of impact damage caused by errant, over-sized, or over-weight vehicles
- Repair bearings
- Removed granite bridge curb and replaced it with concrete curb
- Cleared debris from the waterways of bridges

#### **5.3.2 Support of Other Department Actions and Responsibilities**

In addition to the Performance Goals presented in *Section 5.1 – Performance Goals and Results of Efforts of Previous Year*, the Bridge Maintenance Bureau supports the efforts of other NHDOT Bureaus, some of which are noted below:

- Assist Highway Maintenance with culvert repairs and perform concrete work at Maintenance Sheds
- Setting up staging and scaffolding to provide access for Bridge Inspectors from the Bridge Design Bureau
- Concrete work to repair and replace various elements of Turnpike infrastructure
- Work on projects sponsored by the Bureau of Materials and Research
- Review Capital program construction plans and details with the goal of reducing future maintenance efforts
- Recommend paving actions for bridges located on roadway sections included in resurfacing projects developed by the Highway Design Bureau



### 5.3.3 Emergency Response for Bridges – Bridge Maintenance Bureau

The staff of the Bridge Maintenance and Bridge Design Bureaus, including inspectors, technicians, maintainers, and engineers, responds as needed when an emergency occurs to evaluate damage to bridges due to:

- Impact from vehicles or vessels
- Oversized loads
- Overweight loads
- Flooding and scour
- Failure of a major structural element
- Other bridge-related emergencies

When these emergencies occur, Bridge Maintenance staff coordinates with the Transportation Systems Management & Operations (TSMO), Emergency Operations Center (EOC), other NHDOT Bureaus, emergency response personnel, federal, state, and local agencies, and the media as needed to initially address the situation and to ensure public safety.

In FFY 2019 the Bridge Maintenance Bureau responded to 61 bridge emergencies. Some of these incidents may be included in *Section 5.2.5 - Emergency Response for Bridges – Bridge Design Bureau*. However, the Bridge Maintenance staff responds to many emergency situations that do not require or include the involvement of Bridge Design engineers and/or Inspectors.

In addition, the Bridge Maintenance Bureau regularly responds to numerous calls from members of the public expressing concern regarding specific bridge-related conditions or situations they have observed. These concerns are generally communicated through the Highway Maintenance Districts or the Transportation Management Center.

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## 6 Overall Bridge Condition Forecast

It is challenging to predict the near-term condition and anticipated deterioration of state bridges, as well as the number of bridge projects scheduled and funds programmed, over the next three years to address their maintenance, preservation, rehabilitation, and replacement needs. Such projections are based on current data from bridge inspection records made over time. The Department strives to follow all adopted procedures for selection of bridge projects to develop projects for bid advertising and to complete construction activities, with the goal of improving the overall condition of state bridges. Bridge preservation, rehabilitation, and replacement efforts all contribute toward attaining the Department's goals and in ensuring the safety of the traveling public.

It is recognized that the projects and efforts actually put forth during this reported time period may be different from the original projections, possibly due to funding or staffing shortfalls, unanticipated delays during development of the project, or any emergency situations that may have occurred.

Regardless, it is projected that the number of State Red List bridges will slightly decrease over the next 3 years and the corresponding amount of deficient bridge deck area will decrease by more than 10%. However, other bridges will deteriorate further to where they are added to the Red List. When considering the number of State Yellow List bridges that are essentially one inspection away from moving onto the State Red List, this projection is truly uncertain, and the numbers can change quickly. With implementation of the *Recommended Investment Strategy*, the number of State Red List bridges and deficient deck area are expected to decrease over the long-term as the benefits of this strategy show the anticipated results.

The amount and availability of resources remain the biggest factors that affect the Department's progress towards the goal of significantly improving the overall condition of bridges in New Hampshire. There are many demands on the use of the limited transportation funds (federal, state, turnpike, and local) available for all transportation needs statewide, including bridges, and although engineering consultants can be utilized to supplement Department staff, it is uncertain whether existing staffing levels in Bridge Design are sufficient to develop, coordinate, review, and manage the annual number of bridge projects potentially required to meet the needs of the *Recommended Investment Strategy* as it applies to New Hampshire bridges.

The following information depicts the Department's progress and the above-described efforts anticipated by projects under development and to be advertised for bids within the next three (3) years, should all programmed funds become available. Although the efforts presented on the following pages may not explicitly adhere to all aspects of the *Recommended Investment Strategy* for all bridges, considerable progress is being made by addressing the deficiencies of several large and very costly bridges, as noted herein.

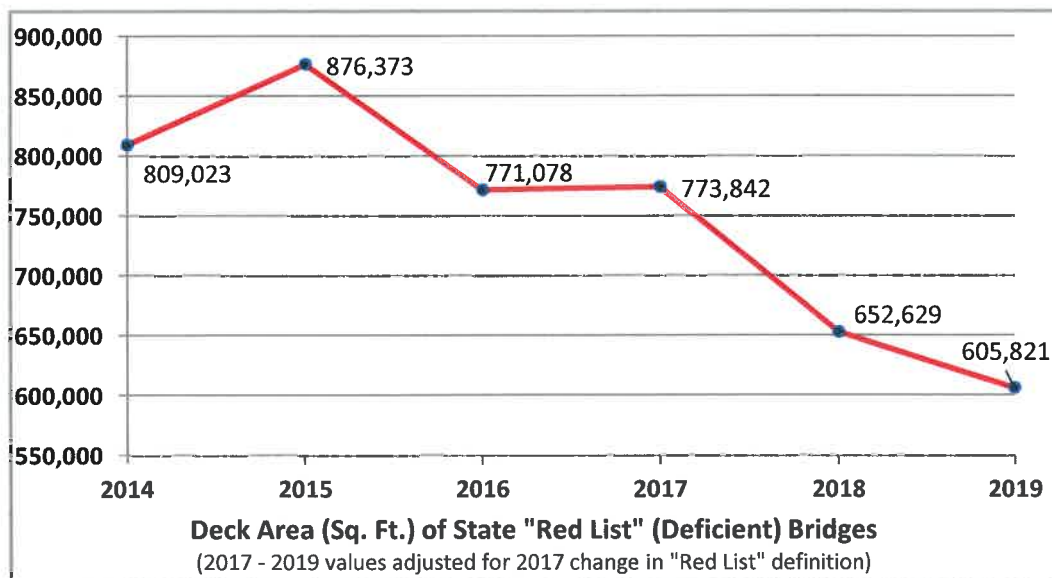
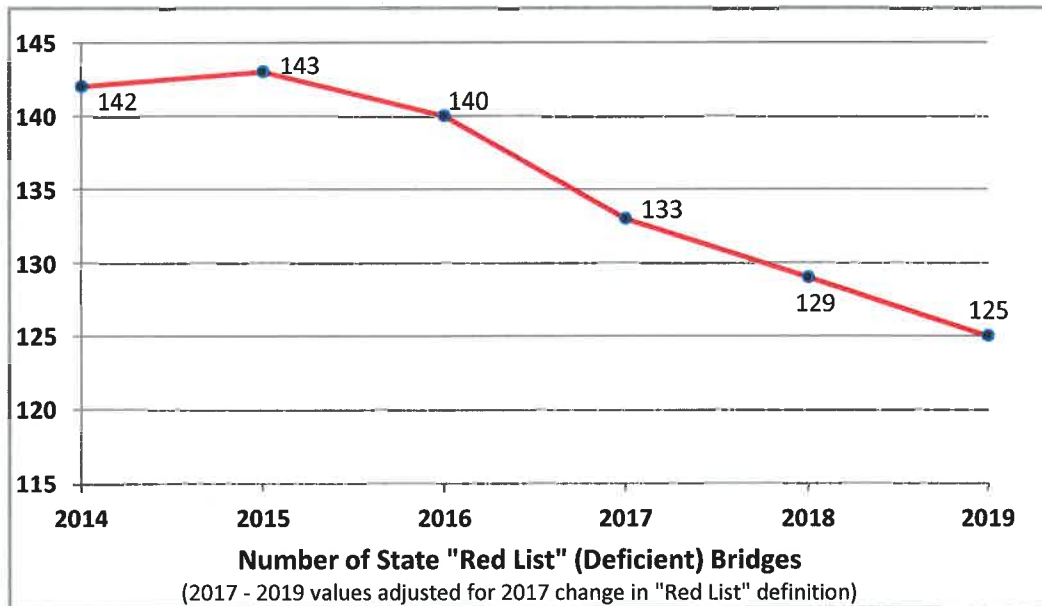
### 6.1 Bridge Condition Forecast

The overarching goal of the *Recommended Investment Strategy* is to improve the overall condition of New Hampshire bridges over time through appropriate, timely, and effective maintenance, preservation, rehabilitation, and replacement activities. In referencing the projects and data summarized in *Section 5.1 - Performance Goals and Results of Efforts of Previous Year* for preservation, rehabilitation, and replacement, it can be determined that although considerable expenditure of resources is being made, these efforts generally fall short of the RIS goals.

The following graphs depict past, current, and projected data for Red List, Yellow List, and Green List bridges from 2014 through 2019.

### 6.1.1 Red List 2014 - 2019

The graphs below depict the number and deck area of state Red List bridges based on data from 2014 through 2019. Please note that the values for 2014 - 2016 have **NOT** been adjusted for the change in the Red List definition that occurred in 2017. (See RSA 234:25-a.)

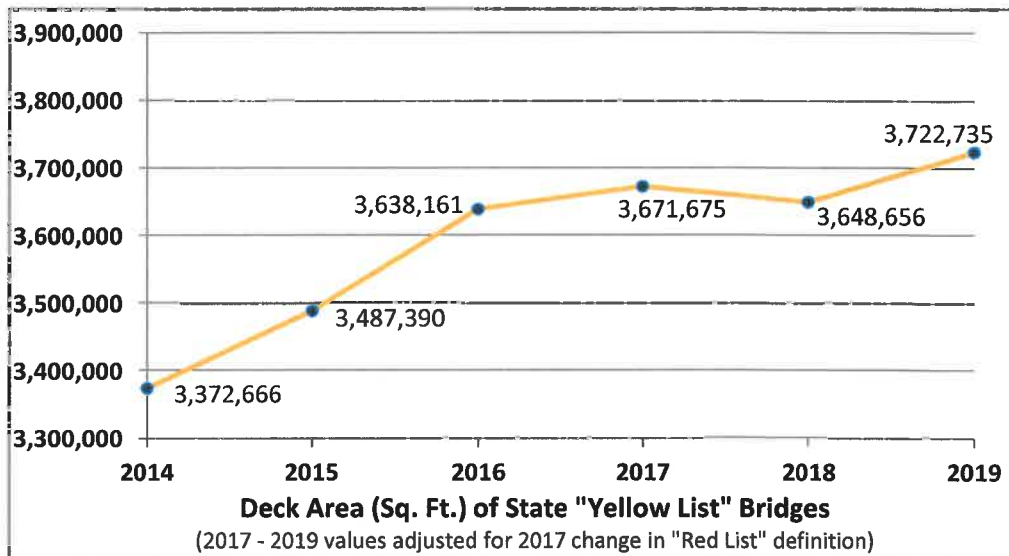
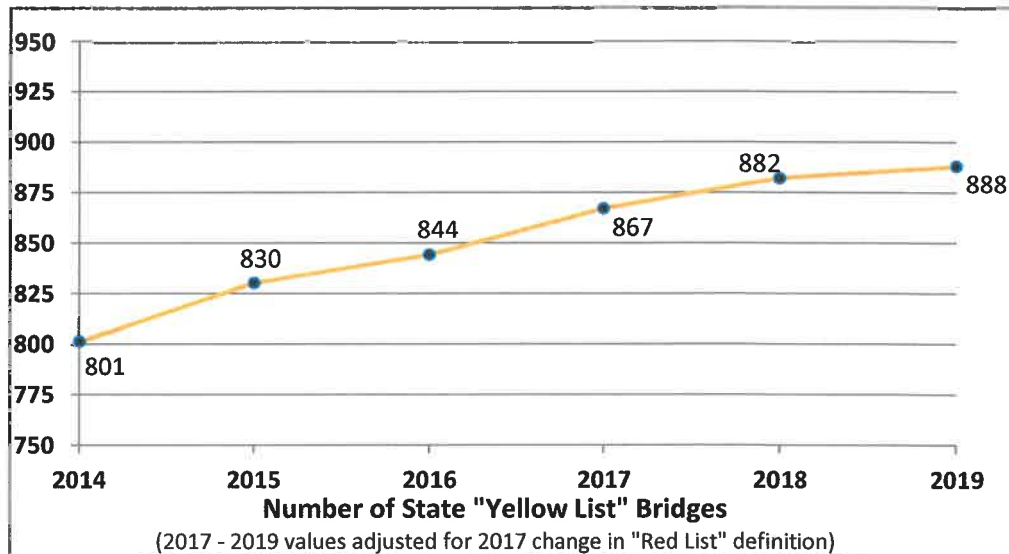


The above graphs and information show that the Department has achieved a significant reduction in the number and deck area of Red List bridges over the past 5 years. However, it is important to note that the general consistency in the number of Red List bridges over time is due to the many bridges previously on the Yellow List that deteriorate further each year and thus transition to the Red List.

It is the goal of the *Recommended Investment Strategy* to perform timely and appropriate preservation activities on bridges that are still in 5 = "Fair" to 7 = "Good" condition, thus keeping them off the Red List. The importance and cost effectiveness of this Strategy cannot be overstated.

## 6.1.2 Yellow List 2014 – 2019

The graphs below depict the number and deck area of state Yellow List bridges based on data from 2014 through 2019. Please note that the values for 2014 - 2016 have **NOT** been adjusted for the change in the Red List definition that occurred in 2017. (See RSA 234:25-a.)

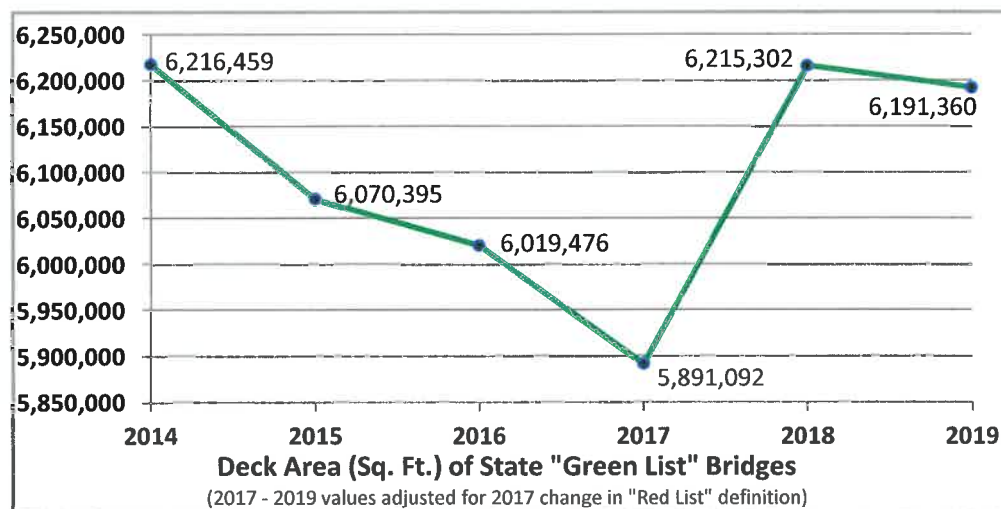
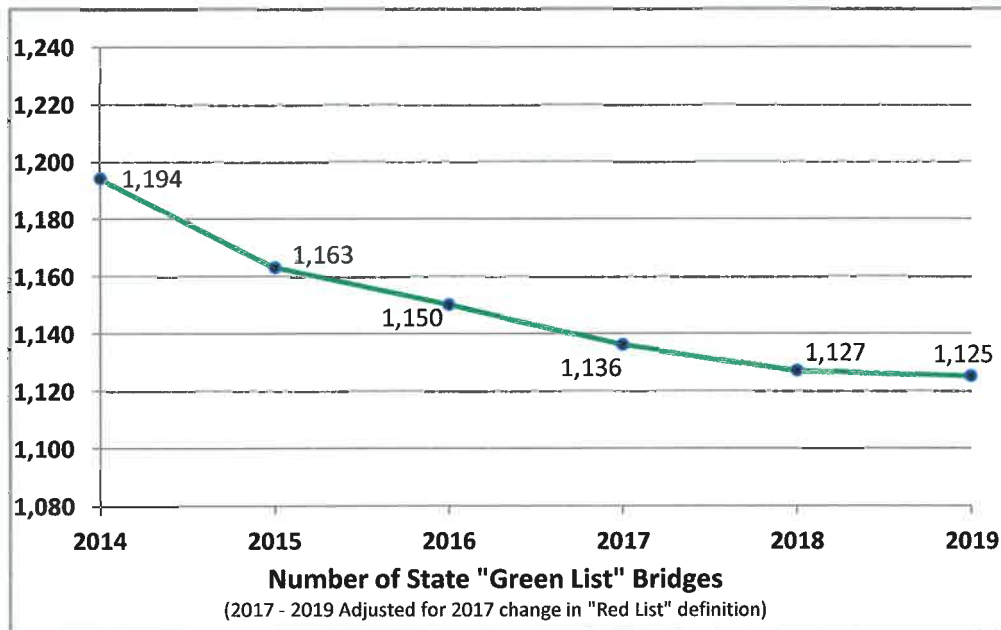


The above graph and information show that the Department has seen an increase in the number and deck area of Yellow List bridges over the past 5 years. If current and projected funding levels are maintained, this trend is expected to continue since bridges are now receiving needed preservation work. By following the *Recommended Investment Strategy*, bridges will remain on the Yellow List (5 = “Fair” or 6 = “Satisfactory” condition) for a longer period of time, rather than being allowed to deteriorate further and be added to the Red List, which would require more expensive rehabilitation or replacement options.

As bridges age and deteriorate, their condition will transition from “Green” to “Yellow”. The goal of the *Recommended Investment Strategy* is to allocate sufficient funding to address their deficiencies through appropriate and timely preservation activities before they deteriorate further, and thus keep them from being added to the Red List. The result of this effort would be a consistent number (range) of Yellow List bridges.

### 6.1.3 Green List 2014 – 2019

The graphs below depict the number and deck area of state Green List bridges based on data from 2014 through 2019. Please note that the values for 2014 - 2016 have **NOT** been adjusted for the change in the Red List definition that occurred in 2017. (See RSA 234:25-a.)



The above graph and information show that the Department is realizing an overall decrease in the number of Green List bridges over the past 5 years with a net decrease of 69 bridges moved from the Green List and shifted onto the Yellow List. There has also been a slight decrease in the overall deck area of Green List bridges during this same time period. This metric decreased dramatically from 2014 to 2017, but rebounded from 2017 to 2019, so that over the 2014 to 2019 time-period the Green List deck area has remained nearly the same, decreasing by only 25,099 sq. ft. (0.4%). Again, this is the result of addressing several major Red List bridges having very large deck areas during calendar years 2015 – 2017.

This trend supports the *Recommended Investment Strategy* to perform timely maintenance and preservation activities on Green List bridges to extend their service life, rather than following a “worst bridge first” strategy.



## Appendices

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**Appendix “A”**

**2019 State Red List**

**Numerical Ranking and Alphabetical Listing**

**(Based on bridge inspection data through December 31, 2019)**

**and**

**Location Map of all 2019 State Red List Bridges**

**(Based on bridge inspection data through December 31, 2019)**

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**2019 STATE Bridge Red List by Priority**  
(based on bridge inspection data through 12/31/2019)

2019 Priority From Ranking Sheet	2018 Priority From Ranking Sheet	Town / City	Bridge Number	Owner	State Project No.	Facility Carried	Feature Crossed	State Red List Status	Roadway Tier	ADT (Year)	Draft 2021-2030 10-Year Plan	Condition of Deck, Superstructure, Substructure, or Culvert	Total Length (ft); Total Width (ft); No. of Spans	Gross Deck Area (sf)	Date of Most Recent Inspection	Bridge Posting	Structure Type	Year Modified / Year Built
1	1	Hampton (Seabrook-Hampton)	235/025	NHDOT	15904	NH 1A	HAMPTON RIVER	1999	2	9,166-18	2023	Deck 8 Very Good Superstructure 4 Poor Substructure 6 Satisfactory	L=1199.0 W=33.5 13-span	40,167	11/18/2019	E-2	BAS	1984/1949
2	3	Lebanon, NH - Hartford, VT	044/103	NHDOT	16148	I-89 SB	CONNECTICUT RIVER,NECRR	2011	1	20,545-18	BRRP 2020	Deck 5 Fair Superstructure 4 Poor Substructure 6 Satisfactory	L=846.0 W=35.8 6-span	30,288	12/5/2019	NPR	IB-C	1966
3	2	Lebanon, NH - Hartford, VT	044/104	NHDOT	16148	I-89 NB	CONNECTICUT RIVER,NECRR	2012	1	21,530-18	BRRP 2020	Deck 4 Poor Superstructure 5 Fair Substructure 5 Fair	L=847.0 W=35.8 6-span	30,323	12/5/2019	NPR	IB-C	1966
4	New	Dover	106/133	Tpk Bureau, NHDOT	41824	NH 16,SP TPK NB	COCHECO RIVER	2019	1	24,688-18	2024	Deck 4 Poor Superstructure 4 Poor Substructure 6 Satisfactory	L=267.0 W=43.8 4-span	11,694	11/5/2019	NPR	IB-C	1991/1957
5	4	Dover (Newington-Dover) General Sullivan Bridge	200/023	Tpk Bureau, NHDOT	11238S	ROAD	LITTLE BAY	1979	6	0-18	2020	Deck 1 Closed - Failing Superstructure 1 Closed - Failing Substructure 1 Closed - Failing	L=1585.0 W=30.6 9-span	48,501	11/5/2019	BRC	HT	1950/1934
6	5	Concord (Bow-Concord)	152/108	NHDOT	13742	I-393,US 4,US202	I-93	2011	1	46,136-18 62,000-14	2026	Deck 4 Poor Superstructure 6 Satisfactory Substructure 4 Poor	L=167.0 W=93.8 2-span	15,665	11/25/2019	NPR	IB-C	1981/1958
7	6	New Castle-Rye	066/071	NHDOT	16127	NH 1B	LITTLE HARBOR	1994	3	3,879-18	2021	Deck 6 Satisfactory Superstructure 3 Serious Substructure 5 Fair	L=253.5 W=30.8 6-span	7,807	11/18/2019	15 Tons	BAS	1975/1942
8	7	Lyme, NH - Thetford, VT	053/112	NHDOT	14460	EAST THETFORD ROAD	CONNECTICUT RIVER	2013	4	1,750-18	HB 1817 2021	Deck 5 Fair Superstructure 4 Poor Substructure 4 Poor	L=471.0 W=23.7 2-span	11,163	10/29/2019	15 Tons	HT	1937
9	New	Dover	105/133	Tpk Bureau, NHDOT	41824	NH 16,SP TPK SB	COCHECO RIVER	2019	1	23,907-18	2024	Deck 4 Poor Superstructure 6 Satisfactory Substructure 6 Satisfactory	L=267.0 W=43.8 4-span	11,694	11/5/2019	NPR	IB-C	1991/1957
10	New	Dover	132/101	Tpk Bureau, NHDOT	42872	NH 16,SP TPK SB	NH108,PAR(ABD)	2019	1	21,551-18	Not Included	Deck 4 Poor Superstructure 6 Satisfactory Substructure 6 Satisfactory	L=300.0 W=47.8 6-span	14,340	11/5/2019	NPR	IB-C	1999/1957
11	8	Littleton, NH - Waterford, VT	109/134	NHDOT	27711	NH 18	CONNECTICUT RIVER	2014	3	1,314-18	2025	Deck 6 Satisfactory Superstructure 4 Poor Substructure 4 Poor	L=533.0 W=30.6 5-span	16,310	12/2/2019	NPR	DPG	1980/1934
12	9	Manchester	099/066	Tpk Bureau, NHDOT	16099A	I-293,NH 3A,TPK S	BLACK BROOK	2012	1	22,285-18	2025	Deck 5 Fair Superstructure 5 Fair Substructure 4 Poor	L=74.0 W=41.0 1-span	3,034	11/18/2019	NPR	IB-C	1956
13	14	Lee	073/084	NHDOT	41322	NH125	LITTLE RIVER	2014	2	20,272-18	HIP 2022	Culvert 3 Serious	L=18.0 W=39.0 1-span	702	11/8/2019	NPR	MP	1972
14	10	Concord (Bow-Concord)	150/107	NHDOT	13742	US202	NHRR,CONSTITUTION AV.	2011	2	46,136-18 2,100-14	2026	Deck 3 Serious Superstructure 7 Good Substructure 4 Poor	L=156.0 W=81.8 2-span	12,761	11/25/2019	NPR	IB-C	1981/1958
15	11	Andover	143/077	NHDOT	40392	US 4	BLACKWATER RIVER	2014	2	2,367-18	HIP 2021	Deck 4 Poor Superstructure 4 Poor Substructure 5 Fair	L=75.0 W=26.7 1-span	2,000	11/20/2019	NPR	TPG	1933
16	12	Hampton	163/184	NHDOT	42573	US 1	PAR(ABD)	2017	2	16,138-18	2028	Deck 6 Satisfactory Superstructure 4 Poor Substructure 4 Poor	L=120.0 W=40.0 1-span	4,800	11/18/2019	E-2	TPG	1977/1936
17	13	Deerfield	137/116	NHDOT	24477	NH107	FREESSE'S POND	2010	3	2,832-18	SB 367 2022	Culvert 3 Serious	L=13.0 W=22.0 1-span	286	11/8/2019	NPR	MP	1973
18	15	Peterborough	108/116	NHDOT	27712	US202,NH123	CONTOOCOOK RIVER	2012	2	6,915-18	2025	Deck 4 Poor Superstructure 5 Fair Substructure 4 Poor	L=176.0 W=52.0 2-span	9,152	11/4/2019	NPR	IB-C	1974/1942
19	16	Sanbornton	127/099	NHDOT	BOBM	I-93 NB	SALMON BROOK	2001	1	13,715-18	Bridge Maintenance 2020	Culvert 4 Poor	L=28.0 W=38.0 1-span	1,064	11/6/2019	NPR	CB	1962
20	18	Westmoreland	113/163	NHDOT	BOBM	NH 12	ALDRICH BROOK	2012	2	8,528-18	Bridge Maintenance 2022	Culvert 3 Serious	L=10.0 W=41.0 1-span	410	11/21/2019	NPR	CB	1960
21	19	Errol	071/030	NHDOT	BOBM	NH 16	OUTLET MOOSE POND	2013	2	1,370-18	Bridge Maintenance 2021	Deck 3 Serious Superstructure 3 Serious Substructure 5 Fair	L=12.0 W=28.5 1-span	342	11/4/2019	C-2	IB-C	1931

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22	20	Manchester	099/067	Tpk Bureau, NHDOT	16099A	I-293,NH 3A,TPK N	BLACK BROOK	2012	1	24,408-18	2026	Deck 5 Fair Superstructure 6 Satisfactory Substructure 4 Poor	L=74.0 W=41.0 1-span	3,034	11/18/2019	NPR	IB-C	1956
23	New	Dover	132/102	Tpk Bureau, NHDOT	42872	NH 16,SP TPK NB	NH108,PAR(ABD)	2019	1	23,012-18	Not Included	Deck 4 Poor Superstructure 6 Satisfactory Substructure 6 Satisfactory	L=206.0 W=47.8 4-span	9,847	11/5/2019	NPR	IB-C	1999/1957
24	21	Woodstock	177/148	NHDOT	27713	NH175	PEMIGEWASSET RIVER	2014	3	655-18	SB 367 2024	Deck 4 Poor Superstructure 4 Poor Substructure 6 Satisfactory	L=183.0 W=30.9 1-span	5,655	11/18/2019	E-2	SA	1939
25	22	Concord	147/028	NHDOT	42574	US202,NH 9	ASH BROOK	2018	2	2,731-18	2029	Culvert 3 Serious	L=30.0 W=25.0 3-span	750	11/20/2019	NPR	MP	1970
26	17	Sandwich	203/029	NHDOT	BOBM	NH 25	WEED BROOK	2016	2	4,627-18	Bridge Maintenance 2020	Culvert 3 Serious	L=13.0 W=36.0 1-span	468	11/7/2019	NPR	CB	1946
27	24	Bow	132/160	NHDOT	13742	I-89	SOUTH STREET	2016	1	48,774-18 7,000-13	2026	Deck 4 Poor Superstructure 4 Poor Substructure 7 Good	L=55.0 W=101.0 1-span	5,555	11/19/2019	NPR	CRF	1959
28	25	North Hampton	148/132	NHDOT	24457	US 1	PAR	2009	2	16,254-18	2021	Deck 3 Serious Superstructure 4 Poor Substructure 5 Fair	L=42.0 W=42.3 1-span	1,777	11/1/2019	E-2	CTB	1935
29	26	Concord (Bow-Concord)	154/121	NHDOT	13742	I-393,US 4,US202	FORT EDDY RD	2015	1	44,015-18 16,000-15	2026	Deck 4 Poor Superstructure 6 Satisfactory Substructure 6 Satisfactory	L=70.0 W=104.0 1-span	7,280	11/21/2019	NPR	IB-C	1980
30	27	Hinsdale	042/044	NHDOT	12210D	NH119	CONNECTICUT RIVER	2018	3	8,577-18	2023	Deck 7 Good Superstructure 4 Poor Substructure 5 Fair	L=297.0 W=21.0 3-span	6,237	11/22/2019	E-2	HT	1988/1920
31	28	Littleton	133/094	NHDOT	BOBM	I-93	MULLIKIN BROOK	2015	1	8,024-18	Bridge Maintenance 2020	Culvert 4 Poor	L=11.0 W=81.0 1-span	891	11/25/2019	NPR	MP	1984
32	29	Troy	089/114	NHDOT	40370	NH 12	S BRANCH ASHUELOT RIVER	2013	2	9,047-18	SB 367 2023	Deck 3 Serious Superstructure 3 Serious Substructure 5 Fair	L=36.0 W=32.3 1-span	1,163	11/15/2019	NPR	CRF	1941
33	30	Moultonborough	140/251	NHDOT	BOBM	NH109	BERRY POND BROOK	2010	3	754-18	Bridge Maintenance 2020	Deck 3 Serious Superstructure 3 Serious Substructure 4 Poor	L=17.0 W=26.3 1-span	448	11/7/2019	E-1	CS	1927
34	31	Jefferson	140/097	NHDOT	BOBM	US 2	PRISCILLA BROOK	2014	2	2,751-18	Bridge Maintenance 2022	Deck 4 Poor Superstructure 4 Poor Substructure 4 Poor	L=13.0 W=47.5 1-span	617	11/15/2019	E-2	Jack	1979/1900
35	33	Swanzy	149/072	NHDOT	27692	NH 32	MARTIN BROOK	2000	3	3,285-18	SB 367 2022	Deck 4 Poor Superstructure 4 Poor Substructure 3 Serious	L=27.0 W=23.7 1-span	639	11/18/2019	E-1	CS	1929
36	34	Madison	163/048	NHDOT	BOBM	NH153	PURITY POND BROOK	2013	3	2,607-18	Bridge Maintenance 2021	Deck 4 Poor Superstructure 4 Poor Substructure 4 Poor	L=27.0 W=35.0 1-span	945	11/15/2019	E-2	Jack	1967/1900
37	44	Bedford	090/065	NHDOT	13692C	NH101	PULPIT BROOK	2008	2	20,122-18	BRRP 2021	Culvert 4 Poor	L=12.5 W=40.0 2-span	500	11/26/2019	NPR	CP	1936
38	35	Hinsdale, NH-Brattleboro, VT	041/040	NHDOT	12210D	NH119	CONNECTICUT RIVER	2018	3	8,577-18	2023	Deck 7 Good Superstructure 4 Poor Substructure 6 Satisfactory	L=339.0 W=23.1 1-span	7,830	11/22/2019	E-2	HT	1988/1920
39	41	Shelburne	075/113	NHDOT	40551	NORTH ROAD	ANDROSCOGGIN RIVER	2013	4	502-18	2026	Deck 4 Poor Superstructure 4 Poor Substructure 5 Fair	L=182.0 W=24.0 5-span	4,368	11/21/2019	NPR	IB-C	1959/1900
40	37	Troy	096/091	NHDOT	40371	NH 12	NHRR(ABD)	2013	2	8,073-18	2023	Deck 4 Poor Superstructure 5 Fair Substructure 5 Fair	L=71.0 W=41.3 2-span	2,934	11/15/2019	NPR	IB-C	1957
41	38	Orford	219/112	NHDOT	41390	NH 25A	BAKER POND BROOK	2016	3	791-18	2026	Deck 4 Poor Superstructure 4 Poor Substructure 4 Poor	L=24.0 W=35.7 1-span	856	11/6/2019	E-2	CS	1980/1929
42	39	Dixville	206/101	NHDOT	BOBM	NH 26	CLEAR STREAM	2015	2	1,174-18	Bridge Maintenance 2021	Deck 4 Poor Superstructure 4 Poor Substructure 4 Poor	L=15.0 W=33.5 1-span	503	11/4/2019	NPR	CA	1970/1929
43	40	Westmoreland	159/125	NHDOT	BOBM	NH 12	MILL BROOK	2016	2	7,482-18	Bridge Maintenance 2021	Culvert 4 Poor	L=21.0 W=30.0 1-span	630	11/21/2019	NPR	CACUL	1941



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44	42	Bristol	100/082	NHDOT		NH 3A	NEWFOUND RIVER	2013	3	6,679-18	Not Included	Deck 4 Poor Superstructure 4 Poor Substructure 4 Poor	L=60.0 W=33.0 1-span	1,980	11/15/2019	C-2	CTB	1965/1924
45	43	Allenstown	107/098	NHDOT	40362	NH 28	SUNCOOK RIVER	2013	2	8,724-18	SB367 2021	Deck 4 Poor Superstructure 5 Fair Substructure 6 Satisfactory	L=214.0 W=43.6 3-span	9,330	11/21/2019	NPR	IB-C	1995/1958
46	45	Shelburne	049/089	NHDOT	40363	US 2	PEA BROOK	2013	2	3,281-18	SB 367 2022	Deck 4 Poor Superstructure 4 Poor Substructure 6 Satisfactory	L=28.0 W=43.8 1-span	1,227	11/21/2019	NPR	CTB	1932
47	46	Campton	124/129	NHDOT	41472	NH 49	PEMIGEWASSET RIVER	2018	3	2,303-18	2027	Deck 5 Fair Superstructure 4 Poor Substructure 6 Satisfactory	L=217.0 W=25.7 2-span	5,577	11/5/2019	NPR	TPG	1928
48	47	Danbury	156/104	NHDOT	16303	US 4	NHRR(ABD)	2016	2	2,429-18	BRRP 2020	Deck 4 Poor Superstructure 6 Satisfactory Substructure 5 Fair	L=117.0 W=28.5 3-span	3,335	12/9/2019	NPR	IB-C	1964/1929
49	48	Bethlehem	099/152	NHDOT	41575	NH142	AMMONOOSUC RIVER	2017	3	1,176-18	2027	Deck 6 Satisfactory Superstructure 4 Poor Substructure 6 Satisfactory	L=124.0 W=24.0 1-span	2,976	11/20/2019	E-2	HT	1998/1927
50	49	Harrisville	056/058	NHDOT	42575	CHESHAM ROAD	MINNEWAWA BROOK	2002	4	1,527-18	2029	Deck 4 Poor Superstructure 4 Poor Substructure 6 Satisfactory	L=90.0 W=27.0 3-span	2,430	11/1/2019	E-2	CS	1984/1939
51	51	Peterborough	087/077	NHDOT	15879	US202,NH101	CONTOCOOK RIVER	2006	2	14,701-18	BRRP 2021	Deck 4 Poor Superstructure 5 Fair Substructure 6 Satisfactory	L=195.0 W=43.8 3-span	8,547	11/4/2019	NPR	IB-C	1958
52	52	Weare	137/043	NHDOT	BOBM	NH114	OTTER BROOK	2018	2	8,333-18	Bridge Maintenance 2024	Culvert 4 Poor	L=12.0 W=27.0 2-span	324	11/15/2019	NPR	MP	1950
53	53	Orford	217/112	NHDOT	40366	NH 25A	BRACKETT BROOK	2013	3	791-18	HIP 2021	Deck 4 Poor Superstructure 4 Poor Substructure 5 Fair	L=40.0 W=35.7 2-span	1,427	11/6/2019	E-2	CS	1979/1929
54	55	Pelham	111/090	NHDOT	16145	MAIN STREET	BEAVER BROOK	2010	4	6,179-18	SB 367 2023	Culvert 3 Serious	L=11.0 W=24.0 1-span	264	11/22/2019	NPR	MP	1988
55	56	Andover	208/137	NHDOT	20650	NH 11	SUCKER BROOK	2014	2	2,689-18	2023	Culvert 4 Poor	L=28.0 W=24.0 1-span	672	11/20/2019	NPR	CACUL	1929
56	57	Barrington	181/047	NHDOT	41415	US 4	OYSTER RIVER	2016	2	12,288-18	2023	Culvert 4 Poor	L=10.0 W=44.0 1-span	440	11/4/2019	NPR	MP	1980
57	59	Alton	163/184	NHDOT	40624	NH 11	MERRYMEETING RIVER	2014	2	7,817-18	2023	Deck 4 Poor Superstructure 4 Poor Substructure 6 Satisfactory	L=35.0 W=37.6 1-span	1,316	11/6/2019	NPR	CRF	1934
58	69	Merrimack	107/131	Tpk Bureau, NHDOT	13761B	BABOOSIC LAKE ROAD	FEE TPK	2011	4	8,737-18 68,000-15	2022	Deck 4 Poor Superstructure 6 Satisfactory Substructure 4 Poor	L=167.0 W=35.5 4-span	5,929	11/15/2019	NPR	IB-C	1954
59	60	Thornton	239/152	NHDOT	40613	NH 49	MAD RIVER	2014	3	1,640-18	SB 367 2024	Deck 4 Poor Superstructure 7 Good Substructure 7 Good	L=540.0 W=39.5 5-span	21,330	11/5/2019	NPR	IB-C	1979
60	58	Meredith	189/150	NHDOT	BOBM	NH 25	SWAMP OUTLET	2015	2	17,979-18	Bridge Maintenance 2020	Deck 4 Poor Superstructure 4 Poor Substructure 4 Poor	L=16.0 W=200.0 1-span	3,200	11/15/2019	NPR	CB	1955/1946
61	70	Rollinsford-Dover	069/046	NHDOT	42578	OAK STREET	PAR	2017	4	9,687-18	2027	Deck 4 Poor Superstructure 3 Serious Substructure 5 Fair	L=65.0 W=26.5 1-span	1,723	11/5/2019	6 Tons	LT	1928/1890
62	61	Gilford	115/147	NHDOT	42577	NH 11	POOR FARM BROOK	2017	2	4,833-18	2028	Deck 4 Poor Superstructure 4 Poor Substructure 7 Good	L=30.0 W=55.9 1-span	1,677	11/6/2019	NPR	PVS	2000/1966
63	62	Danbury	138/094	NHDOT	40395	US 4	SMITH RIVER	2014	2	1,683-18	BRRP 2022	Deck 6 Satisfactory Superstructure 4 Poor Substructure 5 Fair	L=70.0 W=26.5 1-span	1,855	11/7/2019	NPR	TPG	1991/1929
64	63	Woodstock	195/093	NHDOT	42534	NH175	PEMIGEWASSET RIVER	2018	3	462-18	Preservation 2020	Deck 7 Good Superstructure 7 Good Substructure 4 Poor	L=320.0 W=34.5 3-span	11,040	11/18/2019	NPR	IB-C	1976
65	64	Nottingham	141/127	NHDOT	40612	NH152	NORTH RIVER	2012	3	3,244-18	SB 367 2024	Deck 5 Fair Superstructure 5 Fair Substructure 3 Serious	L=23.0 W=32.7 1-span	752	11/8/2019	C-1	IB-C	1970/1925

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66	65	Northwood	045/099	NHDOT	BOBM	NH107	NARROWS BROOK	2016	3	1,203-18	Bridge Maintenance 2021	Deck 4 Poor Superstructure 4 Poor Substructure 5 Fair	L=19.0 W=35.6 1-span	676	11/21/2019	NPR	CS	2000/1922
67	66	Barrington	075/122	NHDOT	BOBM	US202	ISINGLASS RIVER	2014	2	5,517-18	Bridge Maintenance 2020	Deck 7 Good Superstructure 4 Poor Substructure 7 Good	L=53.0 W=35.7 1-span	1,892	11/4/2019	C-1	CTB	1984/1934
68	67	Raymond	116/052	NHDOT	BOBM	NH102	FORDWAY BROOK	2018	3	6,880-18	Bridge Maintenance 2023	Deck 4 Poor Superstructure 4 Poor Substructure 7 Good	L=19.0 W=36.0 1-span	684	11/8/2019	E-2	IB-C	1972/1900
69	71	Webster	099/123	NHDOT	41429	NH127	BLACKWATER RIVER	2013	3	1,437-18	2022	Deck 4 Poor Superstructure 4 Poor Substructure 6 Satisfactory	L=166.0 W=34.0 3-span	5,644	12/9/2019	E-2	CRF	1941
70	72	Dublin	176/072	NHDOT	BOBM	NH137	STANLEY BROOK	2016	3	1,008-18	Bridge Maintenance 2020	Deck 4 Poor Superstructure 4 Poor Substructure 6 Satisfactory	L=21.0 W=27.7 1-span	581	11/1/2019	NPR	CS	1936
71	73	Bristol	109/061	NHDOT		NH 3A	NEWFOUND RIVER	2015	3	2,928-18	Not Included	Deck 4 Poor Superstructure 5 Fair Substructure 7 Good	L=72.0 W=51.2 2-span	3,685	11/15/2019	NPR	IB-C	1949
72	74	Center Harbor-New Hampton	080/040	NHDOT	24579	WAUKEWAN ROAD	LAKE WAUKEWAN INLET	2010	4	445-18	2021	Deck 4 Poor Superstructure 4 Poor Substructure 4 Poor	L=13.0 W=21.2 1-span	276	11/7/2019	NPR	CS	1928
73	75	Manchester	176/106	NHDOT	41414	HUSE ROAD	I-293,NH101	2015	4	8,199-18 83,000-15	2021	Deck 4 Poor Superstructure 7 Good Substructure 6 Satisfactory	L=300.0 W=41.5 5-span	12,450	11/26/2019	NPR	IB-C	1979/1960
74	76	Colebrook	102/083	NHDOT	BOBM	CARLETON HILL ROAD	MOHAWK RIVER	2012	4	489-18	Bridge Maintenance 2023	Deck 4 Poor Superstructure 4 Poor Substructure 5 Fair	L=56.0 W=23.5 1-span	1,316	11/14/2019	NPR	CTB	1935
75	77	Plainfield	096/079	NHDOT	BOBM	STAGE ROAD	BLOW-ME-DOWN BROOK	2012	4	688-18	Bridge Maintenance 2021	Deck 4 Poor Superstructure 5 Fair Substructure 6 Satisfactory	L=73.0 W=27.5 1-span	2,008	12/4/2019	E-2	IB-C	1954
76	78	Antrim	133/132	NHDOT	42579	NH 31	STEEL POND BROOK	2017	3	742-18	2029	Culvert 4 Poor	L=13.0 W=32.0 1-span	416	11/14/2019	NPR	MP	1977
77	79	Bennington	099/080	NHDOT	29486	S BENNINGTON ROAD	RUSSELL BROOK	2012	4	463-18	2021	Deck 4 Poor Superstructure 4 Poor Substructure 4 Poor	L=12.0 W=30.0 1-span	360	11/5/2019	NPR	CB	1925
78	80	Sandwich	226/162	NHDOT	BOBM	NH113A	MILL BROOK	2018	4	230-18	Bridge Maintenance 2023	Culvert 4 Poor	L=14.0 W=22.0 1-span	308	11/7/2019	NPR	MP	1957
79	81	Surry	101/142	NHDOT		GILSUM ROAD	THOMPSON BROOK	2014	4	296-18	Not Included	Culvert 4 Poor	L=12.0 W=21.0 1-span	252	11/18/2019	NPR	MP	1972
80	82	Dover, NH-South Berwick, ME	182/123	NHDOT	41433	GULF ROAD	SALMON FALLS RIVER	2008	4	6,192-18	2028	Deck 4 Poor Superstructure 6 Satisfactory Substructure 4 Poor	L=489.0 W=32.1 27-span	15,697	11/5/2019	NPR	IB-C	1982/1950
81	83	Amherst	135/109	NHDOT	41413	NH122,MAIN ST	NH101	2011	3	7,665-18 13,000-14	2021	Deck 3 Serious Superstructure 6 Satisfactory Substructure 7 Good	L=91.0 W=47.0 1-span	4,277	11/7/2019	NPR	IB-C	1969
82	85	Claremont	072/127	NHDOT	27691	NH 12A	SUGAR RIVER	2011	3	935-18	SB 367 2022	Deck 4 Poor Superstructure 6 Satisfactory Substructure 6 Satisfactory	L=281.0 W=32.7 3-span	9,189	11/6/2019	NPR	IB-C	1991/1967
83	86	Eaton	084/114	NHDOT	BOBM	BROWNFIELD ROAD	SNOW BROOK	2018	4	508-18	Bridge Maintenance 2020	Culvert 4 Poor	L=16.0 W=21.0 1-span	336	11/15/2019	NPR	MP	1975
84	87	Warner	254/180	NHDOT	15907	NH127	WARNER RIVER	2005	3	1,525-18	SB 367 2021	Deck 3 Serious Superstructure 6 Satisfactory Substructure 6 Satisfactory	L=123.0 W=28.2 3-span	3,468	11/14/2019	C-2	IB-C	1937
85	88	Boscawen	068/145	NHDOT	BOBM	LONG STREET	BEAVER DAM BROOK	2015	4	2,352-18	Bridge Maintenance 2021	Deck 4 Poor Superstructure 4 Poor Substructure 5 Fair	L=18.0 W=30.0 1-span	540	11/4/2019	E-2	CRF	1931
86	90	Springfield	091/048	NHDOT	20509	GEORGES MILLS ROAD	STAR LAKE OUTLET	2008	4	1,176-18	2020	Culvert 4 Poor	L=12.3 W=22.0 2-span	270	11/19/2019	NPR	MP	1951
87	91	Tamworth	061/091	NHDOT	41434	NH113A	SWIFT RIVER	2015	4	554-18	2023	Deck 4 Poor Superstructure 6 Satisfactory Substructure 6 Satisfactory	L=156.0 W=27.4 3-span	4,277	11/7/2019	NPR	IB-C	1956

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88	89	Salem	095/052	NHDOT	BOBM	I-93 REST EXIT	POLICY BROOK	2015	6	0-18	Bridge Maintenance 2021	Culvert 4 Poor	L=26.4 W=21.0 2-span	555	11/12/2019	NPR	MP	1967
89	92	Hancock-Greenfield	158/068	NHDOT	BOBM	FOREST ROAD	CONTOOCOOK RIVER	2018	4	2,364-18	Bridge Maintenance 2020	Deck 6 Satisfactory Superstructure 5 Fair Substructure 4 Poor	L=88.0 W=26.0 1-span	2,288	11/4/2019	8 Tons	TB-C	1937
90	93	Canaan	177/123	NHDOT	BOBM	NH118	INDIAN RIVER	2016	3	1,239-18	Bridge Maintenance 2020	Deck 4 Poor Superstructure 4 Poor Substructure 6 Satisfactory	L=35.0 W=27.9 1-span	977	11/7/2019	E-1	CRF	1948
91	94	Wilton	094/162	NHDOT	BOBM	NH 31	STONY BROOK	2016	3	3,480-18	Bridge Maintenance 2021	Deck 4 Poor Superstructure 4 Poor Substructure 7 Good	L=23.0 W=35.7 1-span	820	11/7/2019	NPR	CRF	1983/1929
92	95	Concord (Bow-Concord)	142/116	NHDOT	13742	DELTA DRIVE	I-93 US 4	1997	4	713-18 48,000-14	2026	Deck 3 Serious Superstructure 6 Satisfactory Substructure 7 Good	L=192.0 W=37.0 4-span	7,104	11/19/2019	NPR	IB-C	1958
93	97	Pelham	110/090	NHDOT	16145	MAIN STREET	BEAVER BROOK	1988	4	6,179-18	SB 367 2023	Deck 4 Poor Superstructure 5 Fair Substructure 4 Poor	L=46.0 W=35.0 2-span	1,610	11/22/2019	E-2	MA	1929/1900
94	98	Walpole, NH-Rockingham, VT (Bellows Falls) (Vilas Bridge)	062/052	NHDOT	41720	BRIDGE STREET	CONNECTICUT RIVER	1986	4	6,100-18	2028	Deck 1 Closed - Failing Superstructure 1 Closed - Failing Substructure 1 Closed - Failing	L=230.0 W=32.5 2-span	7,475	11/6/2019	BRC	CA	1974/1930
95	99	Warner	202/136	NHDOT	40622	NH103	I-89 NB	2014	3	1,433-18 9,500-13	SB 367 2023	Deck 4 Poor Superstructure 7 Good Substructure 7 Good	L=81.0 W=38.0 1-span	3,078	11/14/2019	NPR	IB-C	1993/1966
96	102	Cornish (Covered Bridge)	064/108	NHDOT	25067	CORNISH TOLL BR RD	CONNECTICUT RIVER	1991	4	2,638-18	Preservation 2020	Deck 5 Fair Superstructure 6 Satisfactory Substructure 2 Critical	L=449.0 W=20.7 2-span	9,294	12/5/2019	10 Tons	TB-C	1989/1866
97	101	Laconia	126/163	NHDOT	24181	CENTENARY AVENUE	NHRR	1991	4	88-18	2025	Deck 3 Serious Superstructure 3 Serious Substructure 4 Poor	L=121.0 W=22.6 7-span	2,734	11/6/2019	7 Tons	TB	1940
98	103	Bennington	093/094	NHDOT	41430	NHRR(ABD)	ANTRIM ROAD	2002	6	2,700-14	Not Included	Deck 4 Poor Superstructure 4 Poor Substructure 3 Serious	L=19.0 W=9.8 1-span	187	11/5/2019	NPR	TB	1930
99	104	Pittsburg	099/034	NHDES		MURPHY DAM ROAD	DAM SPILLWAY	1991	4	88-18	Not Included	Deck 4 Poor Superstructure 5 Fair Substructure 6 Satisfactory	L=38.0 W=20.5 1-span	779	11/14/2019	15 Tons	BGB	1938
100	106	Franklin	162/100	NHDOT		NHRR(ABD)	NH127	1997	6	1,700-13	Not Included	Deck 4 Poor Superstructure 5 Fair Substructure 4 Poor	L=72.0 W=12.0 1-span	864	11/4/2019	NPR	TPG	1928
101	108	Raymond	083/154	NHDOT	41437	DUDLEY ROAD	LAMPREY RIVER	1990	4	618-18	Not Included	Deck 5 Fair Superstructure 5 Fair Substructure 2 Critical	L=52.0 W=21.0 2-span	1,092	11/8/2019	10 Tons	CS	1972/1914
102	109	New Hampton	240/104	NHDOT	25365	SMITHS CROSSING	NHRR	1990	6	0-18	2025	Deck 1 Closed - Failing Superstructure 4 Poor Substructure 5 Fair	L=82.0 W=16.0 3-span	1,312	5/9/2019	BRC	TB	1940
103	New	North Hampton	130/064	NHDOT		CEDAR ROAD	PAR	2019	4	2,322-18	Not Included	Deck 4 Poor Superstructure 6 Satisfactory Substructure 7 Good	L=34.0 W=21.0 1-span	714	11/1/2019	11 Tons	TB	2002/1920
104	110	Pinkhams Grant	076/081	NHDOT		OLD NH 16	BROOK	2012	6	0-18	Not Included	Culvert 4 Poor	L=10.0 W=8.0 1-span	80	11/8/2019	NPR	CB	1931
105	111	Lyndeborough	108/070	NHDOT	41435	NHRR	GLASS FACTORY ROAD	2014	6	20-00	2028	Deck 4 Poor Superstructure 6 Satisfactory Substructure 6 Satisfactory	L=23.0 W=12.0 5-span	276	11/7/2019	NPR	IB-W	1920
106	105	Newton	064/107	NHDOT	41436	POND ROAD	PAR	2001	4	492-18	2028	Deck 3 Serious Superstructure 6 Satisfactory Substructure 7 Good	L=41.0 W=25.0 1-span	1,025	11/20/2019	8 Tons	TB	2003/1920

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Under Construction	Under Construction	Alstead	073/163	NHDOT	20817	NH123A	WARREN BROOK	2002	3	1,106-18	2018	Deck 3 Serious Superstructure 6 Satisfactory Substructure 5 Fair	L=34.0 W=29.1 1-span	989	11/22/2019	C-1	CTB	1935
Under Construction	Under Construction	Conway	158/137	NHDOT	15864	US302,NH113	CONWAY LAKE OUTLET	2010	2	11,920-18	SB367 2019	Deck 4 Poor Superstructure 4 Poor Substructure 4 Poor	L=106.0 W=33.0 3-span	3,498	11/8/2019	NPR	CTB	1955
Under Construction	107	Durham	093/080	NHDOT	41432	BENNETT ROAD	PAR	2013	4	521-	2028	Deck 3 Serious Superstructure 6 Satisfactory Substructure 5 Fair	L=33.5 W=21.5 1-span	720	11/14/2019	10 Tons	TB	2003/1910
Under Construction	54	Jackson	144/056	NHDOT	27709	NH 16	ELLIS RIVER	2011	2	7,055-18	HB 1817 2019	Deck 4 Poor Superstructure 4 Poor Substructure 7 Good	L=139.9 W=36.2 2-span	5,065	11/15/2019	NPR	CRF	1938
Under Construction	23	Laconia	131/154	NHDOT	16144	US 3	NHRR	2009	2	15,176-18	2019	Deck 4 Poor Superstructure 4 Poor Substructure 5 Fair	L=32.0 W=35.3 1-span	1,130	11/6/2019	E-1	CS	1933
Under Construction	Under Construction	Lancaster, NH-Guildhall, VT (Rogers Rangers)	111/129	NHDOT	16155	US 2	CONNECTICUT RIVER	2013	2	3,575-18	SB 367 2019	Deck 4 Poor Superstructure 4 Poor Substructure 4 Poor	L=404.0 W=34.8 2-span	14,059	11/20/2019	E-1	HT	1950
Under Construction	32	Lebanon	093/109	NHDOT	41191	I-89 NB	US 4,NH 10	2009	1	22,596-18 14,000-13	HB 1817 2019	Deck 4 Poor Superstructure 6 Satisfactory Substructure 6 Satisfactory	L=115.0 W=61.3 1-span	7,049	11/1/2019	NPR	IB-C	1966
Under Construction	100	Lebanon	103/116	NHDOT	25821	MASCOMA STREET	I-89,NH 10	2011	4	1,528-18 29,400-13	HB 1817 2019	Deck 4 Poor Superstructure 7 Good Substructure 6 Satisfactory	L=185.0 W=37.0 2-span	6,845	11/1/2019	NPR	IB-C	1993/1966
Under Construction	Under Construction	Ossipee	137/297	NHDOT	14749	NH 16,NH 25	BEARCAMP RIVER	2004	2	10,760-18	SB 367 2018	Deck 3 Serious Superstructure 4 Poor Substructure 5 Fair	L=396.0 W=33.2 5-span	13,147	11/12/2019	NPR	IB-C	1955
Under Construction	Under Construction	Ossipee	137/299	NHDOT	14749	NH 16,NH 25	RELIEF BEARCAMP RIVER	2004	2	10,760-18	SB 367 2018	Deck 3 Serious Superstructure 3 Serious Substructure 5 Fair	L=172.0 W=33.2 4-span	5,705	11/12/2019	NPR	IB-C	1955
Under Construction	Under Construction	Ossipee	152/268	NHDOT	14749	NH 16,NH 25	LOVELL RIVER	1999	2	10,760-18	SB 367 2018	Deck 4 Poor Superstructure 6 Satisfactory Substructure 6 Satisfactory	L=62.0 W=34.5 1-span	2,139	11/12/2019	C-2	IB-C	1950
Under Construction	Under Construction	Portsmouth	205/116	NHDOT	13455D	WOODBURY AVENUE	US 1 BYPASS	2001	4	6,403-18 11,000-15	2018	Deck 4 Poor Superstructure 4 Poor Substructure 5 Fair	L=90.0 W=52.0 1-span	4,680	11/14/2019	BRC	CRF	1950
Under Construction	Under Construction	Portsmouth	192/106	NHDOT	27690	US 1 BYPASS	HODGSON BROOK	2011	2	9,500-18	2018	Culvert 4 Poor	L=45.0 W=48.0 5-span	2,160	11/14/2019	NPR	CB	1966/1940
Under Construction	50	Barrington	073/127	NHDOT	BOBM	US202	OUTLET AYERS POND	2016	2	5,517-18	Bridge Maintenance 2020	Culvert 4 Poor	L=15.6 W=24.0 1-span	373	11/4/2019	NPR	MP	1978
Under Construction	Under Construction	Sullivan (Roxbury-Sullivan)	093/061	NHDOT	10439	NH 9	OTTER BROOK	2004	2	8,866-	2017	Deck 4 Poor Superstructure 7 Good Substructure 5 Fair	L=92.0 W=27.8 2-span	2,561	11/22/2019	NPR	CTB	1932
Under Construction	84	Freedom	205/041	NHDOT	BOBM	NH 25	OUTLET LOON POND	2018	2	3,298-18	Bridge Maintenance 2020	Deck 4 Poor Superstructure 4 Poor Substructure 7 Good	L=22.0 W=31.0 1-span	682	11/4/2019	E-2	CB	1941
Under Construction	96	Gilford	097/094	NHDOT	BOBM	NH 11B	MEADOW BROOK	2017	3	7,230-18	Bridge Maintenance 2021	Deck 4 Poor Superstructure 4 Poor Substructure 7 Good	L=13.0 W=36.5 1-span	474	11/6/2019	E-2	CB	1930
Under Construction	New	Orange	081/099	NHDOT	BOBM	CARDIGAN MT RD	ORANGE BROOK	2019	4	283-18	Bridge Maintenance 2019	Culvert 1 Closed - Failing	L=16.0 W=21.7 1-span	347	7/12/2019	BRC	MP-A	1968
Under Construction	Under Construction	Salem	098/049	NHDOT	BOBM	I-93 REST ENTRANCE	POLICY BROOK	2011	6	0-18	Bridge Maintenance 2019	Culvert 3 Serious	L=26.4 W=21.0 2-span	555	11/12/2019	NPR	MP	1967



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45	43	Allenstown	107/098	NHDOT	40362	NH 28	SUNCOOK RIVER	2013	2	8,724-18	SB367 2021	Deck 4 Poor Superstructure 5 Fair Substructure 6 Satisfactory	L=214.0 W=43.6 3-span	9,330	11/21/2019	NPR	IB-C	1995/1958
Under Construction	Under Construction	Alstead	073/163	NHDOT	20817	NH123A	WARREN BROOK	2002	3	1,106-18	2018	Deck 3 Serious Superstructure 6 Satisfactory Substructure 5 Fair	L=34.0 W=29.1 1-span	989	11/22/2019	C-1	CTB	1935
57	59	Alton	163/184	NHDOT	40624	NH 11	MERRYMEETING RIVER	2014	2	7,817-18	2023	Deck 4 Poor Superstructure 4 Poor Substructure 6 Satisfactory	L=35.0 W=37.6 1-span	1,316	11/6/2019	NPR	CRF	1934
81	83	Amherst	135/109	NHDOT	41413	NH122,MAIN ST	NH101	2011	3	7,665-18 13,000-14	2021	Deck 3 Serious Superstructure 6 Satisfactory Substructure 7 Good	L=81.0 W=47.0 1-span	4,277	11/7/2019	NPR	IB-C	1969
15	11	Andover	143/077	NHDOT	40392	US 4	BLACKWATER RIVER	2014	2	2,367-18	HIP 2021	Deck 4 Poor Superstructure 4 Poor Substructure 5 Fair	L=75.0 W=26.7 1-span	2,000	11/20/2019	NPR	TPG	1933
55	56	Andover	208/137	NHDOT	20650	NH 11	SUCKER BROOK	2014	2	2,689-18	2023	Culvert 4 Poor	L=28.0 W=24.0 1-span	672	11/20/2019	NPR	CACUL	1929
76	78	Antrim	133/132	NHDOT	42579	NH 31	STEEL POND BROOK	2017	3	742-18	2029	Culvert 4 Poor	L=13.0 W=32.0 1-span	416	11/14/2019	NPR	MP	1977
56	57	Barrington	181/047	NHDOT	41415	US 4	OYSTER RIVER	2016	2	12,288-18	2023	Culvert 4 Poor	L=10.0 W=44.0 1-span	440	11/4/2019	NPR	MP	1980
67	66	Barrington	075/122	NHDOT	BOBM	US202	ISINGLASS RIVER	2014	2	5,517-18	Bridge Maintenance 2020	Deck 7 Good Superstructure 4 Poor Substructure 7 Good	L=53.0 W=35.7 1-span	1,892	11/4/2019	C-1	CTB	1984/1934
Under Construction	50	Barrington	073/127	NHDOT	BOBM	US202	OUTLET AYERS POND	2016	2	5,517-18	Bridge Maintenance 2020	Culvert 4 Poor	L=15.6 W=24.0 1-span	373	11/4/2019	NPR	MP	1978
37	44	Bedford	090/065	NHDOT	13692C	NH101	PULPIT BROOK	2008	2	20,122-18	BRRP 2021	Culvert 4 Poor	L=12.5 W=40.0 2-span	500	11/26/2019	NPR	CP	1936
77	79	Bennington	099/080	NHDOT	29486	S BENNINGTON ROAD	RUSSELL BROOK	2012	4	463-18	2021	Deck 4 Poor Superstructure 4 Poor Substructure 4 Poor	L=12.0 W=30.0 1-span	360	11/5/2019	NPR	CB	1925
98	103	Bannington	093/094	NHDOT	41430	NHRR(ABD)	ANTRIM ROAD	2002	6	2,700-14	Not Included	Deck 4 Poor Superstructure 4 Poor Substructure 3 Serious	L=19.0 W=9.8 1-span	187	11/5/2019	NPR	TB	1930
49	48	Bethlehem	099/152	NHDOT	41575	NH142	AMMONOOSUC RIVER	2017	3	1,176-18	2027	Deck 6 Satisfactory Superstructure 4 Poor Substructure 6 Satisfactory	L=124.0 W=24.0 1-span	2,976	11/20/2019	E-2	HT	1998/1927
85	88	Boscawen	068/145	NHDOT	BOBM	LONG STREET	BEAVER DAM BROOK	2015	4	2,352-18	Bridge Maintenance 2021	Deck 4 Poor Superstructure 4 Poor Substructure 5 Fair	L=18.0 W=30.0 1-span	540	11/4/2019	E-2	CRF	1931
27	24	Bow	132/160	NHDOT	13742	I-89	SOUTH STREET	2016	1	48,774-18 7,000-13	2026	Deck 4 Poor Superstructure 4 Poor Substructure 7 Good	L=55.0 W=101.0 1-span	5,555	11/19/2019	NPR	CRF	1959
44	42	Bristol	100/082	NHDOT		NH 3A	NEWFOUND RIVER	2013	3	6,679-18	Not Included	Deck 4 Poor Superstructure 4 Poor Substructure 4 Poor	L=60.0 W=33.0 1-span	1,980	11/15/2019	C-2	CTB	1965/1924
71	73	Bristol	109/061	NHDOT		NH 3A	NEWFOUND RIVER	2015	3	2,928-18	Not Included	Deck 4 Poor Superstructure 5 Fair Substructure 7 Good	L=72.0 W=51.2 2-span	3,685	11/15/2019	NPR	IB-C	1949
47	46	Campton	124/129	NHDOT	41472	NH 49	PEMIGEWASSET RIVER	2018	3	2,303-18	2027	Deck 5 Fair Superstructure 4 Poor Substructure 6 Satisfactory	L=217.0 W=25.7 2-span	5,577	11/5/2019	NPR	TPG	1928
90	93	Canaan	177/123	NHDOT	BOBM	NH118	INDIAN RIVER	2016	3	1,239-18	Bridge Maintenance 2020	Deck 4 Poor Superstructure 4 Poor Substructure 6 Satisfactory	L=35.0 W=27.9 1-span	977	11/7/2019	E-1	CRF	1948
72	74	Center Harbor-New Hampton	080/040	NHDOT	24579	WAUKEWAN ROAD	LAKE WAUKEWAN INLET	2010	4	445-18	2021	Deck 4 Poor Superstructure 4 Poor Substructure 4 Poor	L=13.0 W=21.2 1-span	276	11/7/2019	NPR	CS	1928

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82	85	Claremont	072/127	NHDOT	27691	NH 12A	SUGAR RIVER	2011	3	935-18	SB 367 2022	Deck 4 Poor Superstructure 6 Satisfactory Substructure 6 Satisfactory	L=281.0 W=32.7 3-span	9,189	11/6/2019	NPR	IB-C	1991/1967
74	76	Colebrook	102/083	NHDOT	BOBM	CARLETON HILL ROAD	MOHAWK RIVER	2012	4	489-18	Bridge Maintenance 2023	Deck 4 Poor Superstructure 4 Poor Substructure 5 Fair	L=56.0 W=23.5 1-span	1,316	11/14/2019	NPR	CTB	1935
25	22	Concord	147/028	NHDOT	42574	US202,NH 9	ASH BROOK	2018	2	2,731-18	2029	Culvert 3 Serious	L=30.0 W=25.0 3-span	750	11/20/2019	NPR	MP	1970
29	26	Concord (Bow-Concord)	154/121	NHDOT	13742	I-393,US 4,US202	FORT EDDY RD	2015	1	44,015-18 16,000-15	2026	Deck 4 Poor Superstructure 6 Satisfactory Substructure 6 Satisfactory	L=70.0 W=104.0 1-span	7,280	11/21/2019	NPR	IB-C	1980
92	95	Concord (Bow-Concord)	142/116	NHDOT	13742	DELTA DRIVE	I-93,US 4	1997	4	713-18 48,000-14	2026	Deck 3 Serious Superstructure 6 Satisfactory Substructure 7 Good	L=192.0 W=37.0 4-span	7,104	11/19/2019	NPR	IB-C	1958
6	5	Concord (Bow-Concord)	152/108	NHDOT	13742	I-393,US 4,US202	I-93	2011	1	46,136-18 62,000-14	2026	Deck 4 Poor Superstructure 6 Satisfactory Substructure 4 Poor	L=167.0 W=93.8 2-span	15,665	11/25/2019	NPR	IB-C	1981/1958
14	10	Concord (Bow-Concord)	150/107	NHDOT	13742	US202	NHRR,CONSTITUT ION AV.	2011	2	46,136-18 2,100-14	2026	Deck 3 Serious Superstructure 7 Good Substructure 4 Poor	L=156.0 W=81.8 2-span	12,761	11/25/2019	NPR	IB-C	1981/1958
Under Construction	Under Construction	Conway	158/137	NHDOT	15864	US302,NH113	CONWAY LAKE OUTLET	2010	2	11,920-18	SB367 2019	Deck 4 Poor Superstructure 4 Poor Substructure 4 Poor	L=106.0 W=33.0 3-span	3,498	11/8/2019	NPR	CTB	1955
96	102	Cornish (Covered Bridge)	064/108	NHDOT	25067	CORNISH TOLL BR RD	CONNECTICUT RIVER	1991	4	2,638-18	Preservation 2020	Deck 5 Fair Superstructure 6 Satisfactory Substructure 2 Critical	L=449.0 W=20.7 2-span	9,294	12/5/2019	10 Tons	TB-C	1989/1866
48	47	Danbury	156/104	NHDOT	16303	US 4	NHRR(ABD)	2016	2	2,429-18	BRRP 2020	Deck 4 Poor Superstructure 6 Satisfactory Substructure 5 Fair	L=117.0 W=28.5 3-span	3,335	12/9/2019	NPR	IB-C	1964/1929
63	62	Danbury	138/094	NHDOT	40395	US 4	SMITH RIVER	2014	2	1,683-18	BRRP 2022	Deck 6 Satisfactory Superstructure 4 Poor Substructure 5 Fair	L=70.0 W=26.5 1-span	1,855	11/7/2019	NPR	TPG	1991/1929
17	13	Deerfield	137/116	NHDOT	24477	NH107	FREESE'S POND	2010	3	2,832-18	SB 367 2022	Culvert 3 Serious	L=13.0 W=22.0 1-span	286	11/8/2019	NPR	MP	1973
42	39	Dixville	206/101	NHDOT	BOBM	NH 26	CLEAR STREAM	2015	2	1,174-18	Bridge Maintenance 2021	Deck 4 Poor Superstructure 4 Poor Substructure 4 Poor	L=15.0 W=33.5 1-span	503	11/4/2019	NPR	CA	1970/1929
4	New	Dover	106/133	Tpk Bureau, NHDOT	41824	NH 16,SP TPK NB	COCHECO RIVER	2019	1	24,688-18	2024	Deck 4 Poor Superstructure 4 Poor Substructure 6 Satisfactory	L=267.0 W=43.8 4-span	11,694	11/5/2019	NPR	IB-C	1991/1957
9	New	Dover	105/133	Tpk Bureau, NHDOT	41824	NH 16,SP TPK SB	COCHECO RIVER	2019	1	23,907-18	2024	Deck 4 Poor Superstructure 6 Satisfactory Substructure 6 Satisfactory	L=267.0 W=43.8 4-span	11,694	11/5/2019	NPR	IB-C	1991/1957
10	New	Dover	132/101	Tpk Bureau, NHDOT	42872	NH 16,SP TPK SB	NH108,PAR(ABD)	2019	1	21,551-18	Not Included	Deck 4 Poor Superstructure 6 Satisfactory Substructure 6 Satisfactory	L=300.0 W=47.8 6-span	14,340	11/5/2019	NPR	IB-C	1999/1957
23	New	Dover	132/102	Tpk Bureau, NHDOT	42872	NH 16,SP TPK NB	NH108,PAR(ABD)	2019	1	23,012-18	Not Included	Deck 4 Poor Superstructure 6 Satisfactory Substructure 6 Satisfactory	L=206.0 W=47.8 4-span	9,847	11/5/2019	NPR	IB-C	1999/1957
5	4	Dover (Newington-Dover) General Sullivan Bridge	200/023	Tpk Bureau, NHDOT	11238S	ROAD	LITTLE BAY	1979	6	0-18	2020	Deck 1 Closed - Failing Superstructure 1 Closed - Failing Substructure 1 Closed - Failing	L=1585.0 W=30.6 9-span	48,501	11/5/2019	BRC	HT	1950/1934
80	82	Dover, NH-South Berwick, ME	182/123	NHDOT	41433	GULF ROAD	SALMON FALLS RIVER	2008	4	6,192-18	2028	Deck 4 Poor Superstructure 6 Satisfactory Substructure 4 Poor	L=489.0 W=32.1 27-span	15,697	11/5/2019	NPR	IB-C	1982/1950
70	72	Dublin	176/072	NHDOT	BOBM	NH137	STANLEY BROOK	2016	3	1,008-18	Bridge Maintenance 2020	Deck 4 Poor Superstructure 4 Poor Substructure 6 Satisfactory	L=21.0 W=27.7 1-span	581	11/1/2019	NPR	CS	1936
Under Construction	107	Durham	093/080	NHDOT	41432	BENNETT ROAD	PAR	2013	4	521-	2028	Deck 3 Serious Superstructure 6 Satisfactory Substructure 5 Fair	L=33.5 W=21.5 1-span	720	11/14/2019	10 Tons	TB	2003/1910
83	86	Eaton	084/114	NHDOT	BOBM	BROWNFIELD ROAD	SNOW BROOK	2018	4	508-18	Bridge Maintenance 2020	Culvert 4 Poor	L=16.0 W=21.0 1-span	336	11/15/2019	NPR	MP	1975



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21	19	Errol	071/030	NHDOT	BOBM	NH 16	OUTLET MOOSE POND	2013	2	1,370-18	Bridge Maintenance 2021	Deck 3 Serious Superstructure 3 Serious Substructure 5 Fair	L=12.0 W=28.5 1-span	342	11/4/2019	C-2	IB-C	1931
100	106	Franklin	162/100	NHDOT		NHRR(ABD)	NH127	1997	6	1,700-13	Not Included	Deck 4 Poor Superstructure 5 Fair Substructure 4 Poor	L=72.0 W=12.0 1-span	864	11/4/2019	NPR	TPG	1928
Under Construction	84	Freedom	205/041	NHDOT	BOBM	NH 25	OUTLET LOON POND	2018	2	3,298-18	Bridge Maintenance 2020	Deck 4 Poor Superstructure 4 Poor Substructure 7 Good	L=22.0 W=31.0 1-span	682	11/4/2019	E-2	CB	1941
62	61	Gilford	115/147	NHDOT	42577	NH 11	POOR FARM BROOK	2017	2	4,833-18	2028	Deck 4 Poor Superstructure 4 Poor Substructure 7 Good	L=30.0 W=55.9 1-span	1,677	11/6/2019	NPR	PVS	2000/1966
Under Construction	96	Gilford	097/094	NHDOT	BOBM	NH 11B	MEADOW BROOK	2017	3	7,230-18	Bridge Maintenance 2021	Deck 4 Poor Superstructure 4 Poor Substructure 7 Good	L=13.0 W=36.5 1-span	474	11/6/2019	E-2	CB	1930
16	12	Hampton	163/184	NHDOT	42573	US 1	PAR(ABD)	2017	2	16,138-18	2028	Deck 6 Satisfactory Superstructure 4 Poor Substructure 4 Poor	L=120.0 W=40.0 1-span	4,800	11/18/2019	E-2	TPG	1977/1936
1	1	Hampton (Seabrook-Hampton)	235/025	NHDOT	15904	NH 1A	HAMPTON RIVER	1999	2	9,166-18	2023	Deck 8 Very Good Superstructure 4 Poor Substructure 6 Satisfactory	L=1199.0 W=33.5 13-span	40,167	11/18/2019	E-2	BAS	1984/1949
89	92	Hancock-Greenfield	158/068	NHDOT	BOBM	FOREST ROAD	CONTOOCOOK RIVER	2018	4	2,364-18	Bridge Maintenance 2020	Deck 6 Satisfactory Superstructure 5 Fair Substructure 4 Poor	L=88.0 W=26.0 1-span	2,288	11/4/2019	8 Tons	TB-C	1937
50	49	Harrisville	056/058	NHDOT	42575	CHESHAM ROAD	MINNEWAWA BROOK	2002	4	1,527-18	2029	Deck 4 Poor Superstructure 4 Poor Substructure 6 Satisfactory	L=90.0 W=27.0 3-span	2,430	11/1/2019	E-2	CS	1984/1939
30	27	Hinsdale	042/044	NHDOT	12210D	NH119	CONNECTICUT RIVER	2018	3	8,577-18	2023	Deck 7 Good Superstructure 4 Poor Substructure 5 Fair	L=297.0 W=21.0 3-span	6,237	11/22/2019	E-2	HT	1988/1920
38	35	Hinsdale, NH-Brattleboro, VT	041/040	NHDOT	12210D	NH119	CONNECTICUT RIVER	2018	3	8,577-18	2023	Deck 7 Good Superstructure 4 Poor Substructure 6 Satisfactory	L=339.0 W=23.1 1-span	7,830	11/22/2019	E-2	HT	1988/1920
Under Construction	54	Jackson	144/056	NHDOT	27709	NH 16	ELLIS RIVER	2011	2	7,055-18	HB 1817 2019	Deck 4 Poor Superstructure 4 Poor Substructure 7 Good	L=139.9 W=36.2 2-span	5,065	11/15/2019	NPR	CRF	1938
34	31	Jefferson	140/097	NHDOT	BOBM	US 2	PRISCILLA BROOK	2014	2	2,751-18	Bridge Maintenance 2022	Deck 4 Poor Superstructure 4 Poor Substructure 4 Poor	L=13.0 W=47.5 1-span	617	11/15/2019	E-2	Jack	1979/1900
97	101	Laconia	126/163	NHDOT	24181	CENTENARY AVENUE	NHRR	1991	4	88-18	2025	Deck 3 Serious Superstructure 3 Serious Substructure 4 Poor	L=121.0 W=22.6 7-span	2,734	11/6/2019	7 Tons	TB	1940
Under Construction	23	Laconia	131/154	NHDOT	16144	US 3	NHRR	2009	2	15,176-18	2019	Deck 4 Poor Superstructure 4 Poor Substructure 5 Fair	L=32.0 W=35.3 1-span	1,130	11/6/2019	E-1	CS	1933
Under Construction	Under Construction	Lancaster, NH-Guildhall, VT (Rogers Rangers)	111/129	NHDOT	16155	US 2	CONNECTICUT RIVER	2013	2	3,575-18	SB 367 2019	Deck 4 Poor Superstructure 4 Poor Substructure 4 Poor	L=404.0 W=34.8 2-span	14,059	11/20/2019	E-1	HT	1950
Under Construction	32	Lebanon	093/109	NHDOT	41191	I-89 NB	US 4,NH 10	2009	1	22,596-18 14,000-13	HB 1817 2019	Deck 4 Poor Superstructure 6 Satisfactory Substructure 6 Satisfactory	L=115.0 W=61.3 1-span	7,049	11/1/2019	NPR	IB-C	1966
Under Construction	100	Lebanon	103/116	NHDOT	25821	MASCOMA STREET	I-89,NH 10	2011	4	1,528-18 29,400-13	HB 1817 2019	Deck 4 Poor Superstructure 7 Good Substructure 6 Satisfactory	L=185.0 W=37.0 2-span	6,845	11/1/2019	NPR	IB-C	1993/1966
2	3	Lebanon, NH-Hartford, VT	044/103	NHDOT	16148	I-89 SB	CONNECTICUT RIVER,NECRR	2011	1	20,545-18	BRRP 2020	Deck 5 Fair Superstructure 4 Poor Substructure 6 Satisfactory	L=846.0 W=35.8 6-span	30,288	12/5/2019	NPR	IB-C	1966
3	2	Lebanon, NH-Hartford, VT	044/104	NHDOT	16148	I-89 NB	CONNECTICUT RIVER,NECRR	2012	1	21,530-18	BRRP 2020	Deck 4 Poor Superstructure 5 Fair Substructure 5 Fair	L=847.0 W=35.8 6-span	30,323	12/5/2019	NPR	IB-C	1966
13	14	Lee	073/084	NHDOT	41322	NH125	LITTLE RIVER	2014	2	20,272-18	HIP 2022	Culvert 3 Serious	L=18.0 W=39.0 1-span	702	11/8/2019	NPR	MP	1972

**2019 STATE Bridge Red List by Town/City**  
(based on bridge inspection data through 12/31/2019)

2019 Priority From Ranking Sheet	2018 Priority From Ranking Sheet	Town / City	Bridge Number	Owner	State Project No.	Facility Carried	Feature Crossed	State Red List Status	Roadway Tier	ADT (Year)	Draft 2021-2030 10-Year Plan	Condition of Deck, Superstructure, Substructure, or Culvert	Total Length (ft); Total Width (ft); No. of Spans	Gross Deck Area (sf)	Date of Most Recent Inspection	Bridge Posting	Structure Type	Year Modified / Year Built
31	28	Littleton	133/094	NHDOT	BOBM	I-93	MULLIKIN BROOK	2015	1	8,024-18	Bridge Maintenance 2020	Culvert 4 Poor	L=11.0 W=81.0 1-span	891	11/25/2019	NPR	MP	1984
11	8	Littleton, NH-Waterford, VT	109/134	NHDOT	27711	NH 18	CONNECTICUT RIVER	2014	3	1,314-18	2025	Deck 6 Satisfactory Superstructure 4 Poor Substructure 4 Poor	L=533.0 W=30.6 5-span	16,310	12/22/2019	NPR	DPG	1980/1934
8	7	Lyme, NH-Thetford, VT	053/112	NHDOT	14460	EAST THETFORD ROAD	CONNECTICUT RIVER	2013	4	1,750-18	HB 1817 2021	Deck 5 Fair Superstructure 4 Poor Substructure 4 Poor	L=471.0 W=23.7 2-span	11,163	10/29/2019	15 Tons	HT	1937
105	111	Lyndeborough	108/070	NHDOT	41435	NHRR	GLASS FACTORY ROAD	2014	6	- 20-00	2028	Deck 4 Poor Superstructure 6 Satisfactory Substructure 6 Satisfactory	L=23.0 W=12.0 5-span	276	11/7/2019	NPR	IB-W	1920
36	34	Madison	163/048	NHDOT	BOBM	NH153	PURITY POND BROOK	2013	3	2,607-18	Bridge Maintenance 2021	Deck 4 Poor Superstructure 4 Poor Substructure 4 Poor	L=27.0 W=35.0 1-span	945	11/15/2019	E-2	Jack	1967/1900
12	9	Manchester	099/066	Tpk Bureau, NHDOT	16099A	I-293,NH 3A,TPK S	BLACK BROOK	2012	1	22,285-18	2025	Deck 5 Fair Superstructure 5 Fair Substructure 4 Poor	L=74.0 W=41.0 1-span	3,034	11/18/2019	NPR	IB-C	1956
22	20	Manchester	099/067	Tpk Bureau, NHDOT	16099A	I-293,NH 3A,TPK N	BLACK BROOK	2012	1	24,408-18	2026	Deck 5 Fair Superstructure 6 Satisfactory Substructure 4 Poor	L=74.0 W=41.0 1-span	3,034	11/18/2019	NPR	IB-C	1956
73	75	Manchester	176/106	NHDOT	41414	HUSE ROAD	I-293,NH101	2015	4	8,199-18 83,000-15	2021	Deck 4 Poor Superstructure 7 Good Substructure 6 Satisfactory	L=300.0 W=41.5 5-span	12,450	11/26/2019	NPR	IB-C	1979/1960
60	58	Meredith	189/150	NHDOT	BOBM	NH 25	SWAMP OUTLET	2015	2	17,979-18	Bridge Maintenance 2020	Deck 4 Poor Superstructure 4 Poor Substructure 4 Poor	L=16.0 W=200.0 1-span	3,200	11/15/2019	NPR	CB	1955/1946
58	69	Merrimack	107/131	Tpk Bureau, NHDOT	13761B	BABOOSIC LAKE ROAD	FEE TPK	2011	4	8,737-18 68,000-15	2022	Deck 4 Poor Superstructure 6 Satisfactory Substructure 4 Poor	L=167.0 W=35.5 4-span	5,929	11/15/2019	NPR	IB-C	1954
33	30	Moultonborough	140/251	NHDOT	BOBM	NH109	BERRY POND BROOK	2010	3	754-18	Bridge Maintenance 2020	Deck 3 Serious Superstructure 3 Serious Substructure 4 Poor	L=17.0 W=26.3 1-span	448	11/7/2019	E-1	CS	1927
7	6	New Castle-Rye	066/071	NHDOT	16127	NH 1B	LITTLE HARBOR	1994	3	3,879-18	2021	Deck 6 Satisfactory Superstructure 3 Serious Substructure 5 Fair	L=253.5 W=30.8 6-span	7,807	11/18/2019	15 Tons	BAS	1975/1942
102	109	New Hampton	240/104	NHDOT	25365	SMITHS CROSSING	NHRR	1990	6	0-18	2025	Deck 1 Closed - Failing Superstructure 4 Poor Substructure 5 Fair	L=82.0 W=16.0 3-span	1,312	5/9/2019	BRC	TB	1940
106	105	Newton	064/107	NHDOT	41436	POND ROAD	PAR	2001	4	492-18	2028	Deck 3 Serious Superstructure 6 Satisfactory Substructure 7 Good	L=41.0 W=25.0 1-span	1,025	11/20/2019	8 Tons	TB	2003/1920
28	25	North Hampton	148/132	NHDOT	24457	US 1	PAR	2009	2	16,254-18	2021	Deck 3 Serious Superstructure 4 Poor Substructure 5 Fair	L=42.0 W=42.3 1-span	1,777	11/1/2019	E-2	CTB	1935
103	New	North Hampton	130/064	NHDOT		CEDAR ROAD	PAR	2019	4	2,322-18	Not Included	Deck 4 Poor Superstructure 6 Satisfactory Substructure 7 Good	L=34.0 W=21.0 1-span	714	11/1/2019	11 Tons	TB	2002/1920
66	65	Northwood	045/099	NHDOT	BOBM	NH107	NARROWS BROOK	2016	3	1,203-18	Bridge Maintenance 2021	Deck 4 Poor Superstructure 4 Poor Substructure 5 Fair	L=19.0 W=35.6 1-span	676	11/21/2019	NPR	CS	2000/1922
65	64	Nottingham	141/127	NHDOT	40612	NH152	NORTH RIVER	2012	3	3,244-18	SB 367 2024	Deck 5 Fair Superstructure 5 Fair Substructure 3 Serious	L=23.0 W=32.7 1-span	752	11/8/2019	C-1	IB-C	1970/1925
Under Construction	New	Orange	081/099	NHDOT	BOBM	CARDIGAN MT RD	ORANGE BROOK	2019	4	283-18	Bridge Maintenance 2019	Culvert 1 Closed - Failing	L=16.0 W=21.7 1-span	347	7/12/2019	BRC	MP-A	1968
41	38	Orford	219/112	NHDOT	41390	NH 25A	BAKER POND BROOK	2016	3	791-18	2026	Deck 4 Poor Superstructure 4 Poor Substructure 4 Poor	L=24.0 W=35.7 1-span	856	11/6/2019	E-2	CS	1980/1929
53	53	Orford	217/112	NHDOT	40366	NH 25A	BRACKETT BROOK	2013	3	791-18	HIP 2021	Deck 4 Poor Superstructure 4 Poor Substructure 5 Fair	L=40.0 W=35.7 2-span	1,427	11/6/2019	E-2	CS	1979/1929
Under Construction	Under Construction	Ossipee	137/297	NHDOT	14749	NH 16,NH 25	BEARCAMP RIVER	2004	2	10,760-18	SB 367 2018	Deck 3 Serious Superstructure 4 Poor Substructure 5 Fair	L=396.0 W=33.2 5-span	13,147	11/12/2019	NPR	IB-C	1955

**2019 STATE Bridge Red List by Town/City**  
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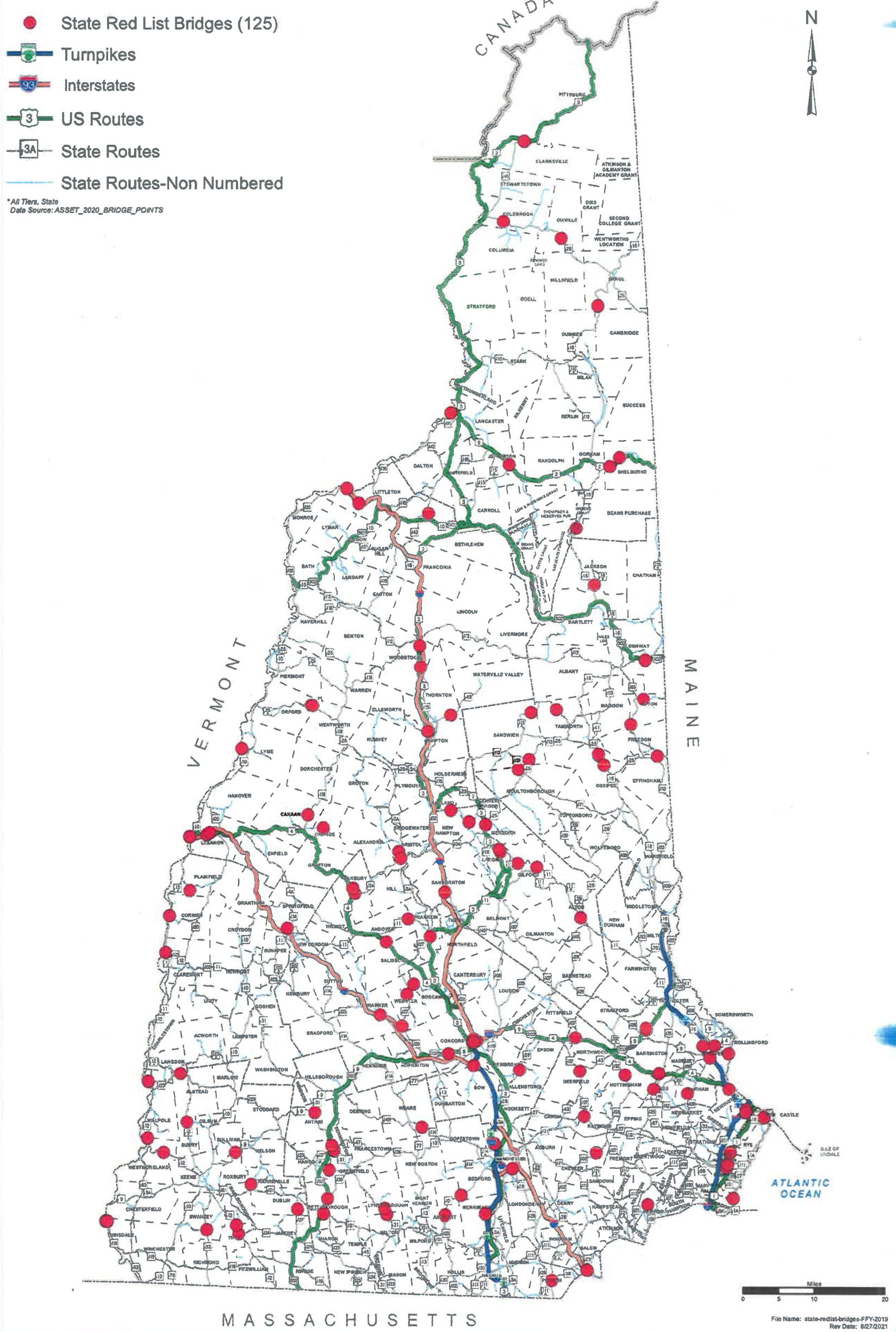
2019 Priority From Ranking Sheet	2018 Priority From Ranking Sheet	Town / City	Bridge Number	Owner	State Project No.	Facility Carried	Feature Crossed	State Red List Status	Roadway Tier	ADT (Year)	Draft 2021-2030 10-Year Plan	Condition of Deck, Superstructure, Substructure, or Culvert	Total Length (ft); Total Width (ft); No. of Spans	Gross Deck Area (sf)	Date of Most Recent Inspection	Bridge Posting	Structure Type	Year Modified / Year Built
Under Construction	Under Construction	Ossipee	137/299	NHDOT	14749	NH 16,NH 25	RELIEF BEARCAMP RIVER	2004	2	10,760-18	SB 367 2018	Deck 3 Serious Superstructure 3 Serious Substructure 5 Fair	L=172.0 W=33.2 4-span	5,705	11/12/2019	NPR	IB-C	1955
Under Construction	Under Construction	Ossipee	152/268	NHDOT	14749	NH 16,NH 25	LOVELL RIVER	1999	2	10,760-18	SB 367 2018	Deck 4 Poor Superstructure 6 Satisfactory Substructure 6 Satisfactory	L=62.0 W=34.5 1-span	2,139	11/12/2019	C-2	IB-C	1950
54	55	Pelham	111/090	NHDOT	16145	MAIN STREET	BEAVER BROOK	2010	4	6,179-18	SB 367 2023	Culvert 3 Serious	L=11.0 W=24.0 1-span	264	11/22/2019	NPR	MP	1988
93	97	Pelham	110/090	NHDOT	16145	MAIN STREET	BEAVER BROOK	1988	4	6,179-18	SB 367 2023	Deck 4 Poor Superstructure 5 Fair Substructure 4 Poor	L=46.0 W=35.0 2-span	1,610	11/22/2019	E-2	MA	1929/1900
18	15	Peterborough	108/116	NHDOT	27712	US202,NH123	CONTOOCOOK RIVER	2012	2	6,915-18	2025	Deck 4 Poor Superstructure 5 Fair Substructure 4 Poor	L=176.0 W=52.0 2-span	9,152	11/4/2019	NPR	IB-C	1974/1942
51	51	Peterborough	087/077	NHDOT	15879	US202,NH101	CONTOOCOOK RIVER	2006	2	14,701-18	BRRP 2021	Deck 4 Poor Superstructure 5 Fair Substructure 6 Satisfactory	L=195.0 W=43.8 3-span	8,547	11/4/2019	NPR	IB-C	1958
104	110	Pinkhams Grant	076/081	NHDOT		OLD NH 16	BROOK	2012	6	0-18	Not Included	Culvert 4 Poor	L=10.0 W=8.0 1-span	80	11/8/2019	NPR	CB	1931
99	104	Pittsburg	099/034	NHDES		MURPHY DAM ROAD	DAM SPILLWAY	1991	4	89-18	Not Included	Deck 4 Poor Superstructure 5 Fair Substructure 6 Satisfactory	L=38.0 W=20.5 1-span	779	11/14/2019	15 Tons	BGB	1938
75	77	Plainfield	096/079	NHDOT	BOBM	STAGE ROAD	BLOW-ME-DOWN BROOK	2012	4	688-18	Bridge Maintenance 2021	Deck 4 Poor Superstructure 5 Fair Substructure 6 Satisfactory	L=73.0 W=27.5 1-span	2,008	12/4/2019	E-2	IB-C	1954
Under Construction	Under Construction	Portsmouth	205/116	NHDOT	13455D	WOODBURY AVENUE	US 1 BYPASS	2001	4	6,403-18 11,000-15	2018	Deck 4 Poor Superstructure 4 Poor Substructure 5 Fair	L=90.0 W=52.0 1-span	4,680	11/14/2019	BRC	CRF	1950
Under Construction	Under Construction	Portsmouth	192/106	NHDOT	27690	US 1 BYPASS	HODGSON BROOK	2011	2	9,500-18	2018	Culvert 4 Poor	L=45.0 W=48.0 5-span	2,160	11/14/2019	NPR	CB	1966/1940
68	67	Raymond	116/052	NHDOT	BOBM	NH102	FORDWAY BROOK	2018	3	6,880-18	Bridge Maintenance 2023	Deck 4 Poor Superstructure 4 Poor Substructure 7 Good	L=19.0 W=36.0 1-span	684	11/8/2019	E-2	IB-C	1972/1900
101	108	Raymond	083/154	NHDOT	41437	DUDLEY ROAD	LAMPREY RIVER	1990	4	618-18	Not Included	Deck 5 Fair Superstructure 5 Fair Substructure 2 Critical	L=52.0 W=21.0 2-span	1,092	11/8/2019	10 Tons	CS	1972/1914
61	70	Rollinsford-Dover	069/046	NHDOT	42578	OAK STREET	PAR	2017	4	9,687-18	2027	Deck 4 Poor Superstructure 3 Serious Substructure 5 Fair	L=65.0 W=26.5 1-span	1,723	11/5/2019	6 Tons	LT	1928/1890
88	89	Salem	095/052	NHDOT	BOBM	I-93 REST EXIT	POLICY BROOK	2015	6	0-18	Bridge Maintenance 2021	Culvert 4 Poor	L=26.4 W=21.0 2-span	555	11/12/2019	NPR	MP	1967
Under Construction	Under Construction	Salem	098/049	NHDOT	BOBM	I-93 REST ENTRANCE	POLICY BROOK	2011	6	0-18	Bridge Maintenance 2019	Culvert 3 Serious	L=26.4 W=21.0 2-span	555	11/12/2019	NPR	MP	1967
19	16	Sanbornton	127/099	NHDOT	BOBM	I-93 NB	SALMON BROOK	2001	1	13,715-18	Bridge Maintenance 2020	Culvert 4 Poor	L=28.0 W=38.0 1-span	1,064	11/6/2019	NPR	CB	1962
26	17	Sandwich	203/029	NHDOT	BOBM	NH 25	WEED BROOK	2016	2	4,627-18	Bridge Maintenance 2020	Culvert 3 Serious	L=13.0 W=36.0 1-span	468	11/7/2019	NPR	CB	1946
78	80	Sandwich	226/162	NHDOT	BOBM	NH113A	MILL BROOK	2018	4	230-18	Bridge Maintenance 2023	Culvert 4 Poor	L=14.0 W=22.0 1-span	308	11/7/2019	NPR	MP	1957
39	41	Shelburne	075/113	NHDOT	40551	NORTH ROAD	ANDROSCOGGIN RIVER	2013	4	502-18	2026	Deck 4 Poor Superstructure 4 Poor Substructure 5 Fair	L=182.0 W=24.0 5-span	4,368	11/21/2019	NPR	IB-C	1959/1900

**2019 STATE Bridge Red List by Town/City**  
(based on bridge inspection data through 12/31/2019)

2019 Priority From Ranking Sheet	2018 Priority From Ranking Sheet	Town / City	Bridge Number	Owner	State Project No.	Facility Carried	Feature Crossed	State Red List Status	Roadway Tier	ADT (Year)	Draft 2021-2030 10-Year Plan	Condition of Deck, Superstructure, Substructure, or Culvert	Total Length (ft); Total Width (ft); No. of Spans	Gross Deck Area (sf)	Date of Most Recent Inspection	Bridge Posting	Structure Type	Year Modified / Year Built
46	45	Shelburne	049/089	NHDOT	40363	US 2	PEA BROOK	2013	2	3,281-18	SB 367 2022	Deck 4 Poor Superstructure 4 Poor Substructure 6 Satisfactory	L=28.0 W=43.8 1-span	1,227	11/21/2019	NPR	CTB	1932
86	90	Springfield	091/048	NHDOT	20509	GEORGES MILLS ROAD	STAR LAKE OUTLET	2008	4	1,176-18	2020	Culvert 4 Poor	L=12.3 W=22.0 2-span	270	11/19/2019	NPR	MP	1951
Under Construction	Under Construction	Sullivan (Roxbury-Sullivan)	093/061	NHDOT	10439	NH 9	OTTER BROOK	2004	2	8,866-	2017	Deck 4 Poor Superstructure 7 Good Substructure 5 Fair	L=92.0 W=27.8 2-span	2,561	11/22/2019	NPR	CTB	1932
79	81	Surry	101/142	NHDOT		GILSUM ROAD	THOMPSON BROOK	2014	4	296-18	Not Included	Culvert 4 Poor	L=12.0 W=21.0 1-span	252	11/18/2019	NPR	MP	1972
35	33	Swanzey	149/072	NHDOT	27692	NH 32	MARTIN BROOK	2000	3	3,285-18	SB 367 2022	Deck 4 Poor Superstructure 4 Poor Substructure 3 Serious	L=27.0 W=23.7 1-span	639	11/18/2019	E-1	CS	1929
87	91	Tamworth	061/091	NHDOT	41434	NH113A	SWIFT RIVER	2015	4	554-18	2023	Deck 4 Poor Superstructure 6 Satisfactory Substructure 6 Satisfactory	L=156.0 W=27.4 3-span	4,277	11/7/2019	NPR	IB-C	1956
59	60	Thornton	239/152	NHDOT	40613	NH 49	MAD RIVER	2014	3	1,640-18	SB 367 2024	Deck 4 Poor Superstructure 7 Good Substructure 7 Good	L=54.0 W=39.5 5-span	21,330	11/5/2019	NPR	IB-C	1979
32	29	Troy	089/114	NHDOT	40370	NH 12	S BRANCH ASHUELOT RIVER	2013	2	9,047-18	SB 367 2023	Deck 3 Serious Superstructure 3 Serious Substructure 5 Fair	L=36.0 W=32.3 1-span	1,163	11/15/2019	NPR	CRF	1941
40	37	Troy	096/091	NHDOT	40371	NH 12	NHRR(ABD)	2013	2	8,073-18	2023	Deck 4 Poor Superstructure 5 Fair Substructure 5 Fair	L=71.0 W=41.3 2-span	2,934	11/15/2019	NPR	IB-C	1957
94	98	Walpole, NH-Rockingham, VT (Bellows Falls) (Vilas Bridge)	062/052	NHDOT	41720	BRIDGE STREET	CONNECTICUT RIVER	1986	4	6,100-18	2028	Deck 1 Closed - Failing Superstructure 1 Closed - Failing Substructure 1 Closed - Failing	L=230.0 W=32.5 2-span	7,475	11/6/2019	BRC	CA	1974/1930
84	87	Warner	254/180	NHDOT	15907	NH127	WARNER RIVER	2005	3	1,525-18	SB 367 2021	Deck 3 Serious Superstructure 6 Satisfactory Substructure 6 Satisfactory	L=123.0 W=28.2 3-span	3,468	11/14/2019	C-2	IB-C	1937
95	99	Warner	202/136	NHDOT	40622	NH103	I-89 NB	2014	3	1,433-18 9,500-13	SB 367 2023	Deck 4 Poor Superstructure 7 Good Substructure 7 Good	L=81.0 W=38.0 1-span	3,078	11/14/2019	NPR	IB-C	1993/1966
52	52	Weare	137/043	NHDOT	BOBM	NH114	OTTER BROOK	2018	2	8,333-18	Bridge Maintenance 2024	Culvert 4 Poor	L=12.0 W=27.0 2-span	324	11/15/2019	NPR	MP	1950
69	71	Webster	099/123	NHDOT	41429	NH127	BLACKWATER RIVER	2013	3	1,437-18	2022	Deck 4 Poor Superstructure 4 Poor Substructure 6 Satisfactory	L=166.0 W=34.0 3-span	5,644	12/9/2019	E-2	CRF	1941
20	18	Westmoreland	113/163	NHDOT	BOBM	NH 12	ALDRICH BROOK	2012	2	8,528-18	Bridge Maintenance 2022	Culvert 3 Serious	L=10.0 W=41.0 1-span	410	11/21/2019	NPR	CB	1960
43	40	Westmoreland	159/125	NHDOT	BOBM	NH 12	MILL BROOK	2016	2	7,482-18	Bridge Maintenance 2021	Culvert 4 Poor	L=21.0 W=30.0 1-span	630	11/21/2019	NPR	CACUL	1941
91	94	Wilton	094/162	NHDOT	BOBM	NH 31	STONY BROOK	2016	3	3,480-18	Bridge Maintenance 2021	Deck 4 Poor Superstructure 4 Poor Substructure 7 Good	L=23.0 W=35.7 1-span	820	11/7/2019	NPR	CRF	1983/1929
24	21	Woodstock	177/148	NHDOT	27713	NH175	PEMIGEWASSET RIVER	2014	3	655-18	SB 367 2024	Deck 4 Poor Superstructure 4 Poor Substructure 6 Satisfactory	L=183.0 W=30.9 1-span	5,655	11/18/2019	E-2	SA	1939
64	63	Woodstock	195/093	NHDOT	42534	NH175	PEMIGEWASSET RIVER	2018	3	462-18	Preservation 2020	Deck 7 Good Superstructure 7 Good Substructure 4 Poor	L=320.0 W=34.5 3-span	11,040	11/18/2019	NPR	IB-C	1976



# State Bridge Conditions 2019 Red List



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**Appendix “B”**

**2019 Municipal Red List**

**(Based on bridge inspection data through December 31, 2019)**

**and**

**Location Map of all 2019 Municipal Red List Bridges**

**(Based on bridge inspection data through December 31, 2019)**



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**2019 MUNICIPAL BRIDGE RED LIST**

Town / City	Bridge Number	Facility Carried	Feature Crossed	Est. ADT (Year)	Condition of Deck, Superstructure, Substructure, or Culvert	Total Length (ft); Total Width (ft); No. of Spans	Gross Deck Area (sf)	Date of Most Recent Inspection	Bridge Posting	Structure Type	Year Modified / Year Built
Acworth	105/035	FOREST ROAD	GREAT BROOK	88-18	Culvert 1 Closed - Failing	L=18.0 W=20.0 1-span	360	10/18/2019	E-2	MP	1977
Albany	213/094	DRAKE HILL ROAD	MEADOW BROOK	131-18	Deck 5 Fair Superstructure 5 Fair Substructure 4 Poor	L=24.0 W=26.3 1-span	632	10/3/2019	E-2	CS	1930
Alexandria	096/112	SHEM VALLEY ROAD	BROCK BROOK	88-18	Deck 6 Satisfactory Superstructure 4 Poor Substructure 5 Fair	L=20.0 W=17.0 1-span	340	8/2/2019	E-2	IB-W	1930
Alexandria	136/131	COLE HILL ROAD	FOWLER RIVER	88-18	Deck 6 Satisfactory Superstructure 6 Satisfactory Substructure 4 Poor	L=43.0 W=11.9 1-span	512	8/20/2019	E-2	IB-W	1930
Alexandria	178/141	BAILEY ROAD	BOG BROOK	486-18	Deck 7 Good Superstructure 4 Poor Substructure 7 Good	L=58.0 W=20.6 1-span	1,195	8/26/2019	15 Tons	IB-W	1989
Ainstead	058/132	DREWSVILLE ROAD	DARBY BROOK	295-18	Culvert 4 Poor	L=16.0 W=20.0 1-span	320	10/18/2019	E-2	MP	1979
Ainstead	058/136	HILL ROAD	DARBY BROOK	88-18	Culvert 2 Critical	L=19.3 W=21.0 1-span	405	10/15/2019	E-2	MP	1974
Ainstead	059/134	HILL ROAD	DARBY BROOK	88-18	Deck 5 Fair Superstructure 5 Fair Substructure 4 Poor	L=30.0 W=24.1 1-span	723	10/15/2019	E-2	IB-BP	1970
Alton	141/222	LOON COVE ROAD	WATSON BROOK	88-18	Culvert 4 Poor	L=11.0 W=18.0 1-span	198	9/25/2019	NPR	MP	1968
Amherst	112/071	MONT VERNON ROAD	CEASARS BROOK	201-18	Culvert 4 Poor	L=14.0 W=22.0 2-span	308	6/19/2019	NPR	MP	1956
Amherst	145/106	THORNTONS FERRY RD	BEAVER BROOK	606-18	Culvert 4 Poor	L=20.0 W=20.0 2-span	400	6/19/2019	E-2	MP	1970
Andover	083/098	BRIDGE ROAD	BLACKWATER RIVER	88-18	Deck 6 Satisfactory Superstructure 4 Poor Substructure 7 Good	L=65.0 W=19.0 1-span	1,235	12/10/2019	E-2	TB-C	1882
Andover	104/078	HALL ROAD	BRADLEY BROOK	16-18	Deck 4 Poor Superstructure 5 Fair Substructure 5 Fair	L=16.0 W=18.9 1-span	302	12/10/2019	10 Tons	IB-C	1970/1932
Andover	125/129	ELBOW POND ROAD	MOUNTAIN BROOK	88-18	Deck 5 Fair Superstructure 5 Fair Substructure 3 Serious	L=20.0 W=18.7 1-span	374	11/27/2019	6 Tons	IB-C	1964
Andover	216/139	LAST STREET	SUCKER BROOK	88-18	Deck 9 Excellent Superstructure 9 Excellent Substructure 4 Poor	L=26.5 W=19.5 1-span	517	12/12/2019	E-2	TB	2019/1936
Antrim	113/143	LIBERTY FARM ROAD	NORTH BRANCH RIVER	88-18	Deck 4 Poor Superstructure 4 Poor Substructure 5 Fair	L=32.0 W=16.0 2-span	512	11/14/2019	E-2	PVS	1991
Antrim	174/070	HIGH STREET	GREAT BROOK	246-18	Culvert 4 Poor	L=18.0 W=26.0 1-span	468	11/13/2019	NPR	MP-A	1960

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Auburn	095/127	GRIFFIN MILL ROAD	MAPLE FALLS BROOK	201-18	Deck 1 Closed - Failing Superstructure 1 Closed - Failing Substructure 1 Closed - Failing	L=29.0 W=14.3 1-span	415	9/24/2019	BRC	IB-W	1991/1850
Barnstead	128/056	GRAY ROAD	CROOKED RUN BROOK	175-18	Culvert 4 Poor	L=12.0 W=18.0 1-span	216	11/20/2019	NPR	MP	1970
Barrington	139/116	MALLEGO ROAD	MALLEGO BROOK	1,001-18	Culvert 4 Poor	L=12.0 W=18.0 1-span	216	9/3/2019	E-2	MP	1970
Bath	130/162	TOWN ROAD	PETTYBORO BROOK	5-08	Deck 7 Good Superstructure 5 Fair Substructure 4 Poor	L=24.0 W=16.3 1-span	390	10/28/2019	4 Tons	IB-W	1930
Bedford	105/055	BEALS ROAD	BABOOSIC BROOK	513-18	Deck 7 Good Superstructure 7 Good Substructure 4 Poor	L=23.0 W=23.0 1-span	529	10/31/2019	E-2	CS	1984/1928
Belmont	078/132	UNION ROAD	DURGIN BROOK	2,042-18	Deck 4 Poor Superstructure 4 Poor Substructure 6 Satisfactory	L=19.0 W=33.3 1-span	633	12/6/2019	E-2	CTB	1960
Bennington	095/093	ANTRIM ROAD	MONADNOCK MILL CANAL	2,490-18	Deck 4 Poor Superstructure 4 Poor Substructure 6 Satisfactory	L=28.0 W=32.0 1-span	896	7/1/2019	E-2	CTB	1922
Berlin	238/055	MASON STREET	CANAL	5,021-18	Deck 6 Satisfactory Superstructure 7 Good Substructure 4 Poor	L=121.0 W=37.1 2-span	4,494	10/25/2019	E-2	IB-C	1977/1967
Bow	065/140	PAGE ROAD	BELA BROOK	1,173-18	Culvert 3 Serious	L=12.0 W=23.0 1-span	276	10/18/2019	E-2	MP	1950
Bow	182/113	DUNKLEE ROAD	BOW BOG BROOK	2,257-18	Culvert 4 Poor	L=22.0 W=24.0 1-span	528	10/18/2019	NPR	CRF-P	2006
Bradford	098/117	WEST MEADOW ROAD	HOYT BROOK	88-18	Deck 3 Serious Superstructure 5 Fair Substructure 6 Satisfactory	L=24.0 W=20.2 1-span	485	9/26/2019	6 Tons	IB-BP	1950
Bradford	104/141	JOHNSON HILL ROAD	WEST BRANCH BROOK	88-18	Deck 2 Critical Superstructure 5 Fair Substructure 5 Fair	L=27.0 W=12.1 1-span	327	9/26/2019	12 Tons	IB-BP	1950
Bradford	140/144	BRADFORD CENTER RD	W BR WARNER RIVER	88-18	Deck 4 Poor Superstructure 5 Fair Substructure 5 Fair	L=61.0 W=18.5 1-span	1,129	9/27/2019	3 Tons	TB-C	1964/1854
Bradford	168/162	BLAISDELL LAKE RD	STREAM	88-18	Deck 5 Fair Superstructure 6 Satisfactory Substructure 3 Serious	L=20.0 W=12.2 1-span	244	9/27/2019	15 Tons	IB-BP	1950
Brentwood	060/054	MILL ROAD	EXETER RIVER	514-18	Culvert 3 Serious	L=30.7 W=18.0 1-span	553	12/5/2019	E-2	MP-A	1967
Bridgewater	156/172	RIVER ROAD	CLAY BROOK	88-18	Culvert 4 Poor	L=21.0 W=21.0 2-span	441	8/22/2019	E-2	CACUL	1960/1900

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Bridgewater	166/093	HAMMOND HILL ROAD	WOODMAN BROOK	88-18	Deck 7 Good Superstructure 7 Good Substructure 4 Poor	L=17.0 W=25.0 1-span	425	8/26/2019	E-2	CS	1975
Bristol	123/079	DANFORTH BROOK RD	DANFORTH BROOK	126-18	Culvert 4 Poor	L=17.0 W=21.0 1-span	357	8/19/2019	E-2	MP	1960
Brookfield	096/070	MOUNTAIN ROAD	HANSON BROOK	228-18	Deck 5 Fair Superstructure 5 Fair Substructure 3 Serious	L=22.0 W=23.0 1-span	506	12/4/2019	E-2	CS	1920
Brookline	065/085	DUPAW GOULD ROAD	LANCY BROOK	554-18	Culvert 4 Poor	L=22.0 W=24.0 1-span	528	10/21/2019	NPR	MP-B	1987
Campton	170/075	PERCH POND ROAD	RYAN BROOK	88-18	Deck 5 Fair Superstructure 5 Fair Substructure 4 Poor	L=26.0 W=25.0 1-span	650	10/2/2019	E-2	CS	1940
Canaan	147/055	POTATO ROAD	INDIAN RIVER	497-18	Deck 5 Fair Superstructure 4 Poor Substructure 7 Good	L=54.0 W=22.1 1-span	1,193	10/23/2019	15 Tons	IB-W	1994/1930
Canaan	172/070	GRIST MILL HILL RD	INDIAN RIVER	367-18	Deck 4 Poor Superstructure 7 Good Substructure 6 Satisfactory	L=51.0 W=21.0 1-span	1,071	10/23/2019	E-2	IB-C	1956
Candia	151/123	OLD DEERFIELD ROAD	BROOK	144-18	Deck 4 Poor Superstructure 4 Poor Substructure 5 Fair	L=24.0 W=21.3 2-span	511	7/16/2019	5 Tons	MS	1920
Candia	188/105	BEANE ISLAND ROAD	BEAN BROOK	5-18	Deck 5 Fair Superstructure 5 Fair Substructure 4 Poor	L=13.0 W=22.5 1-span	292	7/16/2019	E-2	IB-C	1930
Canterbury	111/101	CLOUGH TAVERN ROAD	FOREST POND BROOK	88-18	Deck 5 Fair Superstructure 5 Fair Substructure 4 Poor	L=19.0 W=20.0 1-span	380	12/6/2019	NPR	IB-G	1990/1940
Charlestown	152/053	BRIDGE STREET	NECRR	856-18	Deck 5 Fair Superstructure 4 Poor Substructure 4 Poor	L=72.0 W=19.8 3-span	1,428	7/9/2019	10 Tons	IB-W	1992
Charlestown	248/060	OLD CHESHIRE TPK	HACKETT BROOK	88-18	Culvert 4 Poor	L=10.0 W=15.0 1-span	150	7/9/2019	NPR	MP	1940
Chester	169/122	SHEPARD HOME ROAD	EXETER RIVER	470-18	Culvert 4 Poor	L=28.0 W=22.0 2-span	616	7/31/2019	NPR	MP	2007/1986
Chester	170/135	HANSON ROAD	EXETER RIVER	1,802-18	Deck 4 Poor Superstructure 5 Fair Substructure 5 Fair	L=31.0 W=28.0 1-span	868	7/31/2019	E-2	IB-C	1932
Claremont	091/118	PLAINS ROAD	SUGAR RIVER	1,441-18	Deck 4 Poor Superstructure 6 Satisfactory Substructure 7 Good	L=194.0 W=36.4 2-span	7,065	9/25/2019	E-2	IB-C	1974
Colebrook	167/120	BEAR ROCK ROAD	W BR MOHAWK RIVER	71-18	Culvert 3 Serious	L=13.0 W=18.0 2-span	234	10/1/2019	6 Tons	MP	1950
Colebrook	190/109	HARVEY SWELL ROAD	E BRANCH MOHAWK RIVER	88-18	Culvert 4 Poor	L=14.0 W=24.0 1-span	336	10/1/2019	E-2	MP	1969

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Columbia	228/109	BUNGY ROAD	EAST BRANCH SIMMS STREAM	88-18	Deck 5 Fair Superstructure 5 Fair Substructure 3 Serious	L=17.0 W=24.0 1-span	408	10/1/2019	E-2	CS	1932
Concord	048/082	WASHINGTON STREET	CANAL INLET	2,887-18	Deck 5 Fair Superstructure 5 Fair Substructure 3 Serious	L=76.0 W=34.3 1-span	2,603	11/20/2019	E-2	IB-C	1975
Concord	163/111	NH 9(LOUDON ROAD)	MERRIMACK RIVER	25,347-18	Deck 4 Poor Superstructure 6 Satisfactory Substructure 5 Fair	L=525.0 W=77.3 4-span	40,583	11/21/2019	NPR	IB-C	1996/1966
Concord	190/067	IRON WORKS ROAD	TURKEY RIVER	1,378-18	Deck 3 Serious Superstructure 3 Serious Substructure 3 Serious	L=15.0 W=29.0 1-span	435	8/22/2019	E-2	CS	1925
Concord	193/027	BIRCHDALE ROAD	BELA BROOK	429-18	Deck 4 Poor Superstructure 4 Poor Substructure 4 Poor	L=22.0 W=24.0 1-span	528	10/22/2019	E-2	CRF	1928
Concord	200/015	HOOKSETT TURNPIKE	BELA BROOK	718-18	Deck 4 Poor Superstructure 4 Poor Substructure 4 Poor	L=16.0 W=24.0 1-span	384	10/22/2019	E-2	CRF	1928
Conway	065/057	CONWAY SCENIC RR	RIVER ROAD	0-80 2,200-15	Deck 5 Fair Superstructure 5 Fair Substructure 4 Poor	L=75.0 W=9.8 8-span	738	10/3/2019	NPR	TB	1931
Cornish	175/143	LEAVITT HILL ROAD	BLOW-ME-DOWN-BROOK	103-18	Deck 4 Poor Superstructure 7 Good Substructure 7 Good	L=23.0 W=25.1 1-span	577	10/8/2019	E-2	IB-BP	1991/1950
Croydon	104/069	BRIGHTON ROAD	BEAVER BROOK	88-18	Culvert 4 Poor	L=16.0 W=18.0 1-span	288	7/11/2019	E-2	MP	1985
Danbury	112/108	BOHONNON ROAD	WILD MEADOW BROOK	88-18	Culvert 3 Serious	L=16.0 W=20.0 1-span	320	10/7/2019	E-2	MP	1960
Danbury	178/057	WALKER BROOK ROAD	FRAZIER BROOK	76-18	Deck 7 Good Superstructure 4 Poor Substructure 6 Satisfactory	L=28.0 W=16.2 1-span	454	10/7/2019	6 Tons	IB-W	1950
Danbury	224/074	JACK WELLS ROAD	FRAZIER BROOK	44-18	Deck 7 Good Superstructure 7 Good Substructure 4 Poor	L=25.0 W=12.5 1-span	313	10/14/2019	NPR	IB-W	2016/1950
Deerfield	139/127	BLAKES HILL ROAD	LAMPREY RIVER	88-18	Deck 5 Fair Superstructure 4 Poor Substructure 5 Fair	L=19.0 W=20.9 1-span	397	9/18/2019	12 Tons	Jack	1930
Dover	057/173	SIXTH STREET	BLACKWATER BROOK	3,088-18	Culvert 4 Poor	L=16.0 W=18.0 1-span	288	11/27/2019	E-2	CRF	1937
Dummer	042/043	OLD NH110	UPPER AMMONOOSUC RIVER	86-18	Deck 3 Serious Superstructure 6 Satisfactory Substructure 4 Poor	L=70.0 W=24.3 1-span	1,701	10/4/2019	E-2	IB-C	1944
Durham	097/109	MILL ROAD	OYSTER RIVER	2,171-18	Culvert 4 Poor	L=17.0 W=26.0 1-span	442	9/12/2019	E-2	MP	1971
Durham	150/065	DURHAM POINT ROAD	CROMMET CREEK	251-18	Deck 5 Fair Superstructure 5 Fair Substructure 4 Poor	L=23.0 W=23.0 1-span	529	9/23/2019	15 Tons	IB-C	1970/1930

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Eaton	058/130	POTTER ROAD	SNOW BROOK	88-18	Deck 5 Fair Superstructure 4 Poor Substructure 4 Poor	L=19.0 W=18.2 1-span	346	9/13/2019	E-2	IB-S	1965
Effingham	165/112	SNOW ROAD	SOUTH RIVER	181-18	Culvert 3 Serious	L=32.0 W=20.0 4-span	640	8/16/2019	E-2	MP	1972
Effingham	166/082	GRANITE ROAD	SOUTH RIVER	88-18	Deck 5 Fair Superstructure 2 Critical Substructure 5 Fair	L=36.0 W=18.5 2-span	666	8/16/2019	BRC	IB-C	1950/1920
Enfield	198/103	OAK HILL ROAD	GRAFTON POND OUTLET	88-18	Culvert 3 Serious	L=11.0 W=21.0 1-span	231	12/4/2019	NPR	MP	1994
Exeter	068/083	GARRISON LANE	LITTLE RIVER	15-18	Deck 4 Poor Superstructure 6 Satisfactory Substructure 4 Poor	L=27.0 W=18.0 1-span	486	12/5/2019	NPR	IB-W	1976/1930
Farmington	071/089	HORNETOWN ROAD	MAD RIVER	88-18	Deck 5 Fair Superstructure 3 Serious Substructure 5 Fair	L=24.0 W=24.0 1-span	576	10/11/2019	6 Tons	IB-BP	1984
Farmington	076/135	SPRING STREET	COCHECO RIVER	793-18	Deck 4 Poor Superstructure 6 Satisfactory Substructure 5 Fair	L=39.0 W=30.0 1-span	1,170	10/16/2019	E-2	CTB	1926
Farmington	080/108	RIVER ROAD	MAD RIVER	104-18	Deck 4 Poor Superstructure 3 Serious Substructure 5 Fair	L=35.0 W=24.3 1-span	852	10/11/2019	3 Tons	IB-BP	1986
Farmington	142/050	SHEEPBORO ROAD	BERRYS RIVER	20-87	Deck 6 Satisfactory Superstructure 6 Satisfactory Substructure 4 Poor	L=21.5 W=20.0 1-span	430	10/4/2019	E-2	IB-W	2007/1983
Fitzwilliam	147/054	TEMPLETON TURNPIKE	PRIEST BROOK	123-18	Culvert 2 Critical	L=10.0 W=22.0 1-span	220	8/6/2019	NPR	MP	1987
Fitzwilliam	147/080	TEMPLETON TURNPIKE	PRIEST BROOK	123-18	Culvert 2 Critical	L=21.0 W=18.0 3-span	378	8/6/2019	3 Tons	MP	1984
Francestown	091/142	OLD COUNTY RD N	COLLINS BROOK	88-18	Culvert 3 Serious	L=30.0 W=15.0 2-span	450	11/6/2019	E-2	MP	1981
Francestown	114/062	RUSSELL STATION RD	RAND BROOK	88-18	Deck 6 Satisfactory Superstructure 5 Fair Substructure 3 Serious	L=29.0 W=19.5 1-span	566	11/6/2019	6 Tons	TB	1930
Francestown	149/058	SO NEW BOSTON ROAD	S BR PISCATAQUOG RIVER	305-18	Deck 5 Fair Superstructure 4 Poor Substructure 4 Poor	L=45.0 W=24.0 1-span	1,080	11/6/2019	E-2	IB-C	1926
Franconia	055/101	BICKFORD HILL ROAD	HAM BRANCH	88-18	Deck 4 Poor Superstructure 5 Fair Substructure 6 Satisfactory	L=47.0 W=21.4 1-span	1,006	12/12/2019	E-2	IB-G	1973
Franconia	057/083	LAFAYETTE ROAD	HAM BRANCH	497-18	Deck 6 Satisfactory Superstructure 4 Poor Substructure 6 Satisfactory	L=52.0 W=22.2 1-span	1,154	12/17/2019	E-2	IB-G	1979/1920
Fremont	106/076	SCRIBNER ROAD	EXETER RIVER	262-18	Deck 3 Serious Superstructure 5 Fair Substructure 5 Fair	L=47.0 W=24.3 1-span	1,142	11/20/2019	E-2	IB-C	1941



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Fremont	155/133	MARTIN ROAD	PISCASSIC RIVER	576-18	Deck 4 Poor Superstructure 6 Satisfactory Substructure 3 Serious	L=18.0 W=20.5 1-span	369	11/20/2019	15 Tons	IB-C	1930
Gilford	106/099	OLD LAKE SHORE RD	GUNSTOCK RIVER	1,112-18	Deck 3 Serious Superstructure 3 Serious Substructure 5 Fair	L=33.0 W=23.2 2-span	765	11/26/2019	E-2	CS	1927
Gilford	139/093	RECREATION TRAIL	GUNSTOCK RIVER	0-00	Deck 7 Good Superstructure 7 Good Substructure 4 Poor	L=42.0 W=10.5 1-span	441	11/26/2019	NPR	TB-C	1995
Gilsum	097/139	BANKS ROAD	HAYWARD BROOK	88-18	Culvert 3 Serious	L=12.0 W=18.0 1-span	216	8/7/2019	NPR	MP	1994
Goffstown	136/106	HENRY BRIDGE ROAD	PISCATAQUOG RIVER	7,596-18	Deck 5 Fair Superstructure 6 Satisfactory Substructure 4 Poor	L=126.0 W=33.0 1-span	4,158	7/24/2019	NPR	LT	1996/1937
Goshen	082/083	BALL PARK ROAD	TROW BROOK	88-18	Deck 6 Satisfactory Superstructure 5 Fair Substructure 3 Serious	L=15.0 W=18.0 1-span	270	8/12/2019	NPR	IB-BP	1994/1930
Goshen	084/077	LEMPSTER COACH RD	TROW BROOK	88-18	Deck 8 Very Good Superstructure 6 Satisfactory Substructure 4 Poor	L=25.0 W=18.0 1-span	450	8/13/2019	NPR	IB-BP	1999/1940
Grantham	083/108	OLDE FARMS ROAD	SAWYER BROOK	88-18	Culvert 3 Serious	L=13.0 W=20.0 1-span	260	9/6/2019	NPR	MP	1965
Grantham	108/147	FRYE LANE	STONY BROOK	50-00	Culvert 3 Serious	L=12.0 W=12.0 1-span	144	9/5/2019	NPR	MP	1972
Greenfield	151/089	SCHOOL HOUSE RD	BROOK	88-18	Culvert 1 Closed - Failing	L=14.0 W=14.0 1-span	196	8/6/2019	BRC	MP	1988
Greenville	075/114	WILTON ROAD	SOUHEGAN RIVER	1,769-18	Deck 7 Good Superstructure 5 Fair Substructure 4 Poor	L=173.0 W=32.0 1-span	5,536	10/16/2019	E-2	HT	1986/1938
Hancock	107/074	MIDDLE HANCOCK RD	SMALL BROOK	88-18	Culvert 4 Poor	L=13.0 W=22.0 1-span	286	11/5/2019	NPR	MP	1982
Hanover	056/089	RESERVOIR ROAD	CAMP BROOK	519-18	Culvert 4 Poor	L=12.0 W=21.0 1-span	252	8/8/2019	E-2	MP-A	1940
Hanover	116/097	HANOVER CENTER RD	MONAHAN BROOK	1,176-18	Deck 4 Poor Superstructure 4 Poor Substructure 6 Satisfactory	L=12.0 W=23.7 1-span	284	8/27/2019	E-2	CRF	1929
Hanover	118/080	RUDDSBORO ROAD	MINK BROOK	88-18	Culvert 4 Poor	L=37.0 W=22.0 2-span	814	8/19/2019	E-2	MP-A	1940
Harrisville	061/060	SOUTH ROAD	MINNEWAWA BROOK	88-18	Deck 6 Satisfactory Superstructure 6 Satisfactory Substructure 4 Poor	L=31.0 W=20.2 1-span	626	11/1/2019	NPR	PTB	1950
Haverhill	095/046	FLAT IRON ROAD	NORTH BRANCH	88-18	Culvert 4 Poor	L=12.0 W=12.0 1-span	144	10/28/2019	E-2	MP	1985



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Hill	131/080	BUNKER HILL ROAD	NEEDLE SHOP BROOK	88-18	Culvert 4 Poor	L=17.0 W=17.0 1-span	289	10/21/2019	E-2	MP	1978
Hill	140/099	BUNKER HILL ROAD	NEEDLE SHOP BROOK	77-18	Deck 1 Closed - Failing Superstructure 1 Closed - Failing Substructure 6 Satisfactory	L=25.0 W=24.3 1-span	608	10/21/2019	BRC	PVS	1960
Hill	171/105	SHOP ROAD	NEEDLE SHOP BROOK	49-18	Deck 6 Satisfactory Superstructure 3 Serious Substructure 5 Fair	L=35.0 W=12.2 1-span	427	11/27/2019	3 Tons	IB-W	1930
Hillsborough	088/093	GLEASON FALLS ROAD	BEARDS BROOK	88-18	Culvert 4 Poor	L=34.0 W=12.0 1-span	408	9/26/2019	6 Tons	MA	1900
Hillsborough	100/070	JONES ROAD	BEARDS BROOK	88-18	Culvert 4 Poor	L=45.0 W=12.0 2-span	540	9/27/2019	6 Tons	MA	1900
Hillsborough	146/102	COLBY ROAD	NELSON BROOK	88-18	Culvert 3 Serious	L=13.0 W=16.0 1-span	208	10/10/2019	E-2	MS	1900
Hillsborough	154/113	BOG ROAD	SAND BROOK	88-18	Culvert 3 Serious	L=11.0 W=16.0 1-span	176	9/30/2019	E-2	MP	1985
Hillsborough	158/080	RED FOX CROSSING	NELSON BROOK	100-93	Culvert 1 Closed - Failing	L=14.0 W=18.0 1-span	252	10/1/2019	BRC	MP	1984
Hillsborough	171/064	CONTOOCOOK FALLS R	CONTOOCOOK RIVER	459-18	Deck 6 Satisfactory Superstructure 4 Poor Substructure 7 Good	L=224.0 W=29.0 2-span	6,496	10/10/2019	C-2	TPG	1991/1933
Hopkinton	057/111	NH127	PENSTOCK (UNIT 1)	3,433-18	Culvert 2 Critical	L=10.0 W=23.0 1-span	230	6/16/2014	NPR	MP	1980
Hopkinton	154/136	BROAD COVE ROAD	DOLF BROOK	88-18	Culvert 4 Poor	L=12.0 W=24.0 1-span	288	6/21/2019	NPR	MP	1990
Hopkinton	178/039	STICKNEY HILL ROAD	BOUTWELL MILL BROOK	515-18	Culvert 1 Closed - Failing	L=10.0 W=20.0 1-span	200	6/24/2019	BRC	MP	1984
Hudson	116/080	NH 3A	FIRST BROOK	20,192-18	Culvert 4 Poor	L=10.0 W=44.0 1-span	440	9/13/2019	NPR	MP	1987
Jaffrey	159/094	NUTTING ROAD	CONTOOCOOK RIVER	1,858-18	Deck 4 Poor Superstructure 4 Poor Substructure 6 Satisfactory	L=43.0 W=27.0 1-span	1,161	10/21/2019	E-2	MA	1905
Jefferson	104/078	LARCOMB ROAD	ISRAEL RIVER OVERFLOW	88-18	Culvert 4 Poor	L=10.0 W=12.0 1-span	120	10/11/2019	NPR	MP	1979
Keene	079/080	WHITCOMB MILLS RD	WHITE BROOK	776-18	Deck 5 Fair Superstructure 5 Fair Substructure 4 Poor	L=23.0 W=16.3 1-span	376	7/17/2019	6 Tons	IB-C	1940
Keene	090/101	MAPLE AVE	BLACK BROOK	3,303-18	Culvert 3 Serious	L=23.0 W=22.0 3-span	506	8/16/2019	E-2	MP	1961

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Keene	091/099	SUMMIT ROAD	BLACK BROOK	2,391-18	Culvert 4 Poor	L=12.0 W=24.0 1-span	288	7/30/2019	E-2	CB	1979/1948
Keene	118/051	NH 10	ASH SWAMP BROOK	18,780-18	Deck 4 Poor Superstructure 4 Poor Substructure 6 Satisfactory	L=21.0 W=25.0 1-span	525	7/29/2019	E-2	CB	1941
Keene	140/075	CHURCH STREET	BEAVER BROOK	775-18	Deck 5 Fair Superstructure 5 Fair Substructure 3 Serious	L=20.0 W=37.0 1-span	740	7/22/2019	E-2	IB-C	1940
Keene	140/077	ROXBURY STREET	BEAVER BROOK	3,645-18	Deck 4 Poor Superstructure 4 Poor Substructure 3 Serious	L=19.0 W=50.0 1-span	950	7/24/2019	E-2	CS	1950
Keene	140/078	SPRING STREET	BEAVER BROOK	604-18	Deck 4 Poor Superstructure 4 Poor Substructure 4 Poor	L=22.0 W=34.2 1-span	752	7/24/2019	E-2	CTB	1923
Keene	140/079	BEAVER STREET	BEAVER BROOK	2,855-18	Deck 4 Poor Superstructure 4 Poor Substructure 3 Serious	L=15.0 W=40.5 1-span	608	7/24/2019	E-2	CS	1923
Keene	142/092	GEORGE STREET	BEAVER BROOK	486-18	Deck 4 Poor Superstructure 4 Poor Substructure 3 Serious	L=17.0 W=40.0 1-span	680	7/24/2019	E-2	CS	1923
Keene	173/135	FERRY BROOK ROAD	FERRY BROOK	59-18	Deck 5 Fair Superstructure 5 Fair Substructure 4 Poor	L=14.5 W=17.1 1-span	248	7/16/2019	E-2	CS	1940
Laconia	121/037	ACADEMY STREET	DURKEE BROOK	1,298-18	Deck 4 Poor Superstructure 3 Serious Substructure 5 Fair	L=22.0 W=67.0 1-span	1,474	11/26/2019	E-2	IB-C	1930
Laconia	123/049	RECREATION TRAIL	WINNIPESAUKEE RIVER	0-08	Deck 4 Poor Superstructure 5 Fair Substructure 6 Satisfactory	L=131.0 W=8.0 2-span	1,048	11/26/2019	NPR	IB-C	1960
Laconia	135/128	US 3,WEIRS BLVD	LANGLEY BROOK	9,518-18	Deck 4 Poor Superstructure 4 Poor Substructure 5 Fair	L=12.0 W=60.0 1-span	720	11/26/2019	NPR	IB-C	1933
Lancaster	218/076	MCGARY HILL ROAD	BONE BROOK	97-18	Culvert 4 Poor	L=14.0 W=19.0 2-span	266	10/15/2019	E-2	MP	1953
Landaff	074/159	SYM NOYES ROAD	MILL BROOK	88-18	Culvert 4 Poor	L=13.7 W=12.0 1-span	164	9/18/2018	E-2	MP	2001
Landaff	138/134	MERRILL MT ROAD	MILL BROOK	88-18	Deck 7 Good Superstructure 7 Good Substructure 4 Poor	L=14.0 W=15.9 1-span	223	10/18/2019	E-2	CRF	1922
Langdon	161/105	CRANE BROOK ROAD	COLD RIVER	441-18	Deck 4 Poor Superstructure 7 Good Substructure 7 Good	L=94.0 W=27.0 2-span	2,538	10/1/2019	E-2	IB-C	1964
Lebanon	062/117	NH 12A	NHRR	9,300-18	Deck 4 Poor Superstructure 5 Fair Substructure 6 Satisfactory	L=145.0 W=27.7 3-span	4,017	11/25/2019	E-2	IB-C	1949
Lebanon	066/059	TRUE'S BROOK ROAD	BLOODS BROOK	1,131-18	Deck 3 Serious Superstructure 5 Fair Substructure 6 Satisfactory	L=65.0 W=22.0 2-span	1,430	11/25/2019	E-2	IB-C	1986/1952

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Lebanon	100/110	US 4,MECHANIC ST	MASCOMA RIVER	14,340-18	Deck 4 Poor Superstructure 7 Good Substructure 6 Satisfactory	L=89.0 W=72.5 1-span	6,453	11/26/2019	E-2	IB-C	1977
Lebanon	121/117	NH120,PARK LOT,PED	NHRR(ABD)	5,947-18	Deck 4 Poor Superstructure 4 Poor Substructure 5 Fair	L=28.0 W=61.3 1-span	1,716	11/26/2019	E-2	PVS	1969
Lebanon	154/113	RIVERSIDE DRIVE	MASCOMA RIVER	1,659-18	Deck 4 Poor Superstructure 6 Satisfactory Substructure 6 Satisfactory	L=76.0 W=14.8 1-span	1,125	11/25/2019	10 Tons	TB-C	1991
Lempster	096/081	OLDS ROAD	DODGE BROOK	88-18	Deck 3 Serious Superstructure 5 Fair Substructure 6 Satisfactory	L=28.0 W=17.4 1-span	487	9/3/2019	E-2	IB-BP	1998/1976
Lisbon	088/125	PLAINS ROAD	MILL BROOK	88-18	Deck 6 Satisfactory Superstructure 4 Poor Substructure 6 Satisfactory	L=27.0 W=22.0 1-span	594	10/10/2019	E-2	IB-C	1975
Londonderry	070/135	HALL ROAD	LITTLE COHAS BROOK	1,991-18	Deck 6 Satisfactory Superstructure 6 Satisfactory Substructure 4 Poor	L=24.0 W=32.0 1-span	768	9/23/2019	E-2	CS	1974
Londonderry	077/151	STOKES ROAD	LITTLE COHAS BROOK	35-18	Deck 4 Poor Superstructure 4 Poor Substructure 4 Poor	L=28.0 W=18.0 1-span	504	9/23/2019	15 Tons	CS	1930
Loudon	054/065	WALES BRIDGE ROAD	SOUCOOK RIVER	342-18	Deck 4 Poor Superstructure 4 Poor Substructure 6 Satisfactory	L=146.0 W=29.0 3-span	4,234	9/4/2019	E-2	CRF	1934
Lyme	041/074	RIVER ROAD	HEWES BROOK	374-18	Deck 5 Fair Superstructure 5 Fair Substructure 4 Poor	L=31.0 W=16.0 1-span	496	10/16/2019	E-2	CS	1979
Lyme	113/147	PINNACLE ROAD	TROUT BROOK	239-18	Culvert 3 Serious	L=19.0 W=16.0 2-span	304	10/31/2019	E-2	MP	1980
Lyme	141/094	FLINT HILL ROAD	GRANT BROOK	88-18	Culvert 3 Serious	L=19.0 W=14.0 2-span	266	10/16/2019	E-2	MP	1979
Madbury	056/072	NUTE ROAD	BELLAMY RIVER	168-18	Culvert 4 Poor	L=15.0 W=15.0 1-span	225	11/27/2019	E-2	MP	1960
Madbury	160/086	FRESHET ROAD	JOHNSON CREEK	407-18	Culvert 3 Serious	L=14.2 W=18.0 1-span	256	11/27/2019	E-2	MP	1974
Manchester	107/072	SALMON STREET EB	MERRIMACK R,PAR,RD,RAMP	11,821-18 7,800-13 7,500-03	Deck 4 Poor Superstructure 6 Satisfactory Substructure 6 Satisfactory	L=1023.0 W=33.7 8-span	34,441	11/18/2019	NPR	IB-C	1999/1970
Manchester	151/065	US 3,NH 3A	I-293,NH 3A,PAR,MERR R	24,531-18 61,000-15 36,500-12	Deck 4 Poor Superstructure 5 Fair Substructure 5 Fair	L=1186.0 W=59.0 14-span	69,974	10/30/2019	NPR	DT	1995/1923
Manchester	188/092	GOFFS FALLS ROAD	PAR(ABD)	4,511-18	Deck 4 Poor Superstructure 6 Satisfactory Substructure 4 Poor	L=88.0 W=35.0 3-span	3,080	10/30/2019	NPR	IB-C	1979/1948

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Marlborough	128/077	OLD DUBLIN ROAD	MOUNTAIN BROOK	88-18	Deck 5 Fair Superstructure 5 Fair Substructure 4 Poor	L=22.0 W=20.2 1-span	444	10/16/2019	E-2	IB-C	1965
Meredith	106/128	BLAKE ROAD	BROOK	55-18	Deck 4 Poor Superstructure 4 Poor Substructure 7 Good	L=13.0 W=23.0 1-span	299	11/25/2019	E-2	CS	1929
Meredith	180/144	PARKING LOT ACCESS	WAUKEWAN LK OUTLET	200-01	Deck 4 Poor Superstructure 7 Good Substructure 7 Good	L=27.5 W=15.8 1-span	433	11/25/2019	15 Tons	TB	2000
Merrimack	112/115	RECREATION TRAIL	SOUHEGAN RIVER	0-11	Deck 7 Good Superstructure 4 Poor Substructure 8 Very Good	L=136.0 W=6.0 1-span	816	9/9/2019	NPR	HT	2011
Merrimack	113/159	BEDFORD ROAD	BABOOSIC BROOK	7,667-18	Culvert 4 Poor	L=21.0 W=26.0 1-span	546	9/6/2019	E-2	MP	1984
Merrimack	116/120	US 3	SOUHEGAN RIVER	14,690-18	Deck 5 Fair Superstructure 4 Poor Substructure 5 Fair	L=113.0 W=42.0 2-span	4,746	9/10/2019	E-2	MA	1934/1921
Merrimack	118/135	US 3	BABOOSIC BROOK	14,392-18	Culvert 4 Poor	L=30.0 W=32.0 1-span	960	9/10/2019	E-2	CACUL	1933
Milan	219/126	CHICKWOLNEP Y ROAD	CHICKWOLNEPY STREAM	88-18	Deck 6 Satisfactory Superstructure 4 Poor Substructure 6 Satisfactory	L=38.8 W=16.0 1-span	621	10/4/2019	6 Tons	IB-W	1950
Milan	254/038	STEARNS BROOK ROAD	STEARNS BROOK	88-18	Deck 4 Poor Superstructure 5 Fair Substructure 5 Fair	L=39.0 W=16.0 1-span	624	10/4/2019	NPR	BAIB	1950
Milford	089/106	MASON ROAD	GREAT BROOK	3,464-18	Culvert 4 Poor	L=11.0 W=22.0 1-span	242	10/29/2019	E-2	MP	1982
Milford	102/165	HARTSHORN ROAD	HARTSHORN BROOK	28-18	Culvert 3 Serious	L=13.0 W=19.0 1-span	247	10/29/2019	E-2	MP	1980
Milford	103/163	HARTSHORN ROAD	HARTSHORN BROOK	28-18	Culvert 3 Serious	L=18.0 W=17.0 2-span	306	10/29/2019	6 Tons	MS	1910
Milton-Lebanon	168/152	TOWNHOUSE ROAD	NORTHEAST POND	489-18	Deck 0 Failed - Closed Superstructure 0 Failed - Closed Substructure 0 Failed - Closed	L=94.0 W=26.2 4-span	2,463	8/14/2019	BRC	TB	1948
Milton	190/101	WINDING ROAD	LYMAN BROOK	88-18	Deck 5 Fair Superstructure 4 Poor Substructure 4 Poor	L=21.0 W=33.5 1-span	704	8/15/2019	E-2	IB-BP	1995
Mont Vernon	142/089	BEAVER BROOK ROAD	BEAVER BROOK	827-18	Deck 4 Poor Superstructure 4 Poor Substructure 7 Good	L=30.0 W=22.0 1-span	660	11/5/2019	E-2	CS	1932
Nashua	139/115	CANAL STREET	NASHUA RIVER	16,809-18	Deck 6 Satisfactory Superstructure 6 Satisfactory Substructure 4 Poor	L=160.0 W=54.0 2-span	8,640	8/14/2019	E-2	CA	1928

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Nelson	142/126	OLD STODDARD ROAD	BAILEY BROOK	88-18	Culvert 2 Critical	L=13.5 W=16.0 1-span	216	7/25/2019	NPR	MP	1988
New Boston	091/155	DOUGHERTY LANE	MID BR PISCATAQUOG RIVER	88-18	Deck 8 Very Good Superstructure 8 Very Good Substructure 1 Closed - Failing	L=21.7 W=20.0 1-span	435	7/15/2019	BRC	CRF-P	2004
New Hampton	061/069	BROOK ROAD	BLAKE BROOK	88-18	Deck 6 Satisfactory Superstructure 6 Satisfactory Substructure 4 Poor	L=22.0 W=15.3 1-span	337	10/7/2019	12 Tons	TB	1960/1920
New Ipswich	108/070	TAYLOR ROAD	WEST BR SOUHEGAN RIVER	88-18	Culvert 3 Serious	L=10.0 W=18.0 1-span	180	9/18/2019	BRC	MP	1981
New London	132/067	BROOKSIDE DRIVE	LION BROOK	88-18	Culvert 3 Serious	L=28.3 W=18.5 3-span	524	10/30/2019	NPR	MP	1990
Newport	086/095	CHANDLER MILL ROAD	CUTTS BROOK	539-18	Deck 5 Fair Superstructure 4 Poor Substructure 5 Fair	L=20.0 W=20.0 1-span	400	10/8/2019	E-2	IB-BP	1973
Newport	097/139	GREENWOOD ROAD	DODGE BROOK	88-18	Deck 1 Closed - Failing Superstructure 1 Closed - Failing Substructure 1 Closed - Failing	L=18.0 W=23.6 1-span	424	10/28/2019	BRC	IB-BP	1989
Newport	154/129	SAND HILL ROAD	BROOK	182-18	Deck 4 Poor Superstructure 4 Poor Substructure 5 Fair	L=27.0 W=24.3 1-span	656	10/29/2019	E-2	IB-BP	1984
Newport	177/117	PARADISE ROAD	SUGAR RIVER	88-18	Deck 1 Closed - Failing Superstructure 1 Closed - Failing Substructure 1 Closed - Failing	L=39.0 W=18.0 1-span	702	10/8/2019	BRC	IB-BP	1976
Newton	053/105	WILDERS GROVE RD	COUNTRY POND	470-18	Culvert 2 Critical	L=12.0 W=12.0 2-span	144	9/3/2019	NPR	MP	1989
Northwood	095/113	BOW LAKE ROAD	SHERBURNE BROOK	576-18	Deck 3 Serious Superstructure 3 Serious Substructure 3 Serious	L=14.0 W=25.0 1-span	350	11/21/2019	E-2	CS	1938
Orange	107/046	BROCK HILL ROAD	BROWN BROOK	88-18	Culvert 4 Poor	L=17.2 W=24.0 1-span	413	10/11/2019	E-2	MP	1980
Orford	080/120	ARCHERTOWN ROAD	JACOBS BROOK	395-18	Deck 4 Poor Superstructure 5 Fair Substructure 5 Fair	L=52.0 W=18.3 1-span	952	11/6/2019	E-2	IB-C	1930
Orford	087/108	HIGH BRIDGE ROAD	ARCHERTOWN BROOK	88-18	Deck 1 Closed - Failing Superstructure 1 Closed - Failing Substructure 1 Closed - Failing	L=24.0 W=14.0 1-span	336	10/16/2019	BRC	IB-W	1940
Orford	114/133	TOWN ROAD #100	ARCHERTOWN BROOK	88-18	Culvert 3 Serious	L=13.0 W=12.0 1-span	156	10/31/2019	E-2	MP	1997



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Peterborough	092/089	MAIN STREET	CONTOOCOOK RIVER	8,499-18	Deck 3 Serious Superstructure 3 Serious Substructure 5 Fair	L=86.0 W=41.5 1-span	3,569	7/8/2019	3 Tons	CRF	1940
Peterborough	132/134	SLAB ROAD	OTTER BROOK	88-18	Deck 5 Fair Superstructure 5 Fair Substructure 3 Serious	L=26.0 W=20.0 1-span	520	7/3/2019	E-2	Jack	1940
Pittsburg	134/057	HILL ROAD	PERRY STREAM	239-18	Deck 7 Good Superstructure 5 Fair Substructure 4 Poor	L=78.0 W=18.3 2-span	1,427	10/8/2019	E-2	TB-C	1991/1860
Portsmouth	198/107	CATE STREET	HODGSON BROOK	1,448-18	Deck 2 Critical Superstructure 5 Fair Substructure 6 Satisfactory	L=37.0 W=28.0 1-span	1,036	10/1/2019	15 Tons	IB-C	1940
Portsmouth	231/103	MAPLEWOOD AVENUE	NORTH MILL POND	6,603-18	Culvert 3 Serious	L=25.0 W=32.0 1-span	800	10/2/2019	E-2	MA-CA	1976/1940
Portsmouth	240/132	KEARSARGE WAY	PAR	541-18	Deck 4 Poor Superstructure 7 Good Substructure 7 Good	L=152.0 W=40.5 2-span	6,156	10/29/2019	E-2	IB-C	1979
Randolph	080/047	DURAND ROAD	MOOSE RIVER	88-18	Deck 4 Poor Superstructure 4 Poor Substructure 4 Poor	L=14.0 W=28.0 1-span	392	10/15/2019	E-2	CB	1920
Richmond	065/083	WHIPPLE HILL ROAD	ROARING BROOK	233-18	Deck 6 Satisfactory Superstructure 4 Poor Substructure 6 Satisfactory	L=43.0 W=20.5 3-span	882	8/5/2019	NPR	IB-BP	1983/1950
Richmond	155/066	TULLY BROOK ROAD	TULLY BROOK	88-18	Culvert 4 Poor	L=14.0 W=18.0 1-span	252	8/5/2019	15 Tons	MP	1990
Rindge	154/069	WELLINGTON ROAD	CONVERSEVILLE BROOK	789-18	Culvert 3 Serious	L=28.0 W=24.0 2-span	672	7/2/2019	3 Tons	MP	1950
Rochester	114/046	FOUR ROD ROAD	RICKERS BROOK	1,031-18	Culvert 4 Poor	L=11.2 W=23.0 1-span	257	8/27/2019	E-2	MP	1965
Rollinsford	090/052	OLD MILL LANE	ROLLINS BROOK	201-18	Deck 4 Poor Superstructure 2 Critical Substructure 3 Serious	L=21.0 W=18.5 1-span	389	11/27/2019	NPR	TB	1900
Rumney	093/082	BUFFALO ROAD	BROOK	454-18	Culvert 2 Critical	L=13.0 W=21.0 1-span	273	10/28/2019	E-2	MP	1972
Salem	115/097	BRIDGE STREET	SPICKET RIVER	5,776-18	Deck 4 Poor Superstructure 4 Poor Substructure 4 Poor	L=29.0 W=35.0 1-span	1,015	8/20/2019	E-2	Jack	1959/1900
Salem	116/116	BLUFF STREET EXT	WIDOW HARRIS BROOK	4,593-18	Culvert 0 Failed - Closed	L=23.3 W=24.8 3-span	577	8/27/2019	NPR	MP	1960
Sanbornton	118/089	BROOK ROAD	SALMON BROOK	88-18	Deck 8 Very Good Superstructure 8 Very Good Substructure 4 Poor	L=35.0 W=16.0 1-span	560	10/8/2019	NPR	CS	2012/1900
Sandwich	157/101	BASKET STREET	BEARCAMP RIVER	88-18	Deck 7 Good Superstructure 5 Fair Substructure 4 Poor	L=24.0 W=18.1 1-span	434	11/22/2019	E-2	IB-C	1940

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Sharon	071/056	SWAMP ROAD	GRIDLEY RIVER	88-18	Deck 7 Good Superstructure 7 Good Substructure 4 Poor	L=20.0 W=16.0 1-span	320	10/21/2019	NPR	IB-G	1991/1938
Shelburne	114/104	VILLAGE ROAD	CLEMENT BROOK	55-18	Deck 5 Fair Superstructure 5 Fair Substructure 4 Poor	L=45.0 W=30.1 2-span	1,354	10/15/2019	E-2	CS	1971/1929
South Hampton	069/066	HILLDALE AVE	POWWOW RIVER	201-18	Deck 4 Poor Superstructure 4 Poor Substructure 4 Poor	L=31.0 W=18.6 1-span	577	7/11/2019	15 Tons	IB-C	1920
South Hampton	099/062	WHITEHALL ROAD	POWWOW RIVER	605-18	Deck 6 Satisfactory Superstructure 4 Poor Substructure 7 Good	L=33.0 W=22.0 1-span	726	7/11/2019	E-2	IB-C	1976
Springfield	071/138	GEORGE HILL ROAD	GOVE BROOK	88-18	Culvert 4 Poor	L=12.0 W=21.0 1-span	252	10/24/2019	E-2	MP	1970
Stark	068/173	LEIGHTON MEADOW RD	PHILLIPS BROOK	88-18	Deck 5 Fair Superstructure 5 Fair Substructure 3 Serious	L=40.0 W=13.6 1-span	544	10/25/2019	6 Tons	CTB	1970/1940
Stewartstown	109/100	BISHOP BROOK ROAD	CEDAR BROOK	88-18	Culvert 4 Poor	L=12.0 W=19.0 1-span	228	10/8/2019	E-2	MP	1960
Stoddard	115/126	KINGS HIGHWAY	KENNEDY BROOK	88-18	Culvert 2 Critical	L=12.0 W=22.5 2-span	270	8/14/2019	10 Tons	MP	1980
Strafford	057/135	BARN DOOR GAP ROAD	BIG RIVER	88-18	Culvert 4 Poor	L=14.0 W=16.0 1-span	224	11/20/2019	E-2	MP	1984
Sugar Hill	202/128	CRANE HILL ROAD	GALE RIVER	88-18	Deck 4 Poor Superstructure 4 Poor Substructure 5 Fair	L=108.0 W=18.9 1-span	2,041	12/11/2019	8 Tons	HT	1960/1928
Sugar Hill	208/125	STREETER POND ROAD	INDIAN CREEK	474-18	Culvert 3 Serious	L=11.5 W=16.0 1-span	184	10/24/2019	NPR	CRF-P	2010
Sunapee	069/069	TRASK BROOK ROAD	WENDELL BROOK	88-18	Culvert 4 Poor	L=11.0 W=16.0 2-span	176	12/11/2019	NPR	MP	1983
Swanzy	098/122	CHRISTIAN HILL RD	NHRR(ABD)	3,050-18	Deck 1 Closed - Failing Superstructure 1 Closed - Failing Substructure 1 Closed - Failing	L=74.0 W=20.8 3-span	1,539	10/3/2019	BRC	TB	1960/1930
Swanzy	120/072	RABBIT HOLLOW ROAD	PERRY BROOK	88-18	Culvert 4 Poor	L=16.0 W=18.0 2-span	288	10/3/2019	E-2	MP	1979
Tamworth	037/157	SCOTT ROAD	CHOCORUA RIVER	88-18	Culvert 3 Serious	L=11.0 W=14.0 1-span	154	10/25/2019	NPR	MP	1995
Tamworth	110/072	BUNKER HILL ROAD	MILL BROOK	88-18	Deck 7 Good Superstructure 4 Poor Substructure 4 Poor	L=34.0 W=16.0 1-span	544	10/21/2019	6 Tons	IB-W	1960/1930



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Tamworth	168/070	MOUNTAIN ROAD	COLD BROOK	57-18	Deck 6 Satisfactory Superstructure 4 Poor Substructure 5 Fair	L=38.0 W=16.0 1-span	608	10/21/2019	E-2	IB-W	1983/1900
Temple	107/117	POWERS ROAD	BLOOD BROOK	88-18	Deck 4 Poor Superstructure 5 Fair Substructure 3 Serious	L=24.0 W=16.0 1-span	384	10/23/2019	3 Tons	IB-C	1920
Temple	116/139	PUTNAM ROAD	BROOK	88-18	Deck 6 Satisfactory Superstructure 6 Satisfactory Substructure 3 Serious	L=25.0 W=17.0 1-span	425	10/23/2019	6 Tons	IB-C	1930
Temple	117/138	PUTNAM ROAD	BROOK OVERFLOW	88-18	Deck 5 Fair Superstructure 6 Satisfactory Substructure 4 Poor	L=15.0 W=19.0 1-span	285	10/23/2019	6 Tons	IB-C	1930
Troy	093/084	PROSPECT STREET	BROOK	245-18	Deck 6 Satisfactory Superstructure 6 Satisfactory Substructure 4 Poor	L=19.0 W=23.7 1-span	450	10/2/2019	15 Tons	IB-C	1940
Wakefield NH-Acton,ME	186/118	CANAL ROAD	GREAT EAST LAKE OUTLET	459-18	Deck 4 Poor Superstructure 4 Poor Substructure 4 Poor	L=19.0 W=25.3 1-span	481	12/4/2019	3 Tons	MA	1920
Wakefield	290/064	MAPLE STREET	BRANCH RIVER	88-18	Deck 1 Closed - Failing Superstructure 1 Closed - Failing Substructure 1 Closed - Failing	L=35.0 W=22.3 1-span	781	12/4/2019	BRC	CTB	1972/1940
Walpole	122/067	MAIN STREET	OLD MILL POND BROOK	3,055-18	Culvert 4 Poor	L=10.0 W=40.0 1-span	400	7/25/2019	E-2	MP	1979
Walpole	213/076	WENTWORTH ROAD	HOUGHTON BROOK	134-18	Culvert 4 Poor	L=18.0 W=18.0 1-span	324	7/8/2019	NPR	MP-A	1955
Warner	189/099	NORTH VILLAGE ROAD	SILVER BROOK	88-18	Culvert 4 Poor	L=13.0 W=18.0 1-span	234	12/13/2019	E-2	MP	1979
Warren	106/086	LUND LANE	ORE HILL BROOK	88-18	Culvert 3 Serious	L=17.0 W=18.0 1-span	306	10/14/2019	E-2	MP	1970
Warren	120/058	FISH HATCHERY ROAD	PATCH BROOK	62-18	Deck 4 Poor Superstructure 4 Poor Substructure 4 Poor	L=33.0 W=23.3 1-span	769	10/14/2019	E-2	Jack	1930
Washington	186/126	AYERS POND ROAD	WOODWARD BROOK	88-18	Deck 6 Satisfactory Superstructure 5 Fair Substructure 4 Poor	L=17.0 W=16.0 1-span	272	10/22/2019	NPR	IB-W	1980
Weare	082/045	LULL ROAD	PEACOCK BROOK	112-18	Culvert 3 Serious	L=10.0 W=22.0 1-span	220	8/5/2019	E-2	MP	1973
Weare	084/040	OLD FRANCESTOWN RD	PEACOCK BROOK	258-18	Culvert 3 Serious	L=11.0 W=21.0 1-span	231	8/5/2019	E-2	MP	1973
Weare	110/150	RIVER ROAD	PISCATAQUOG RIVER	1,989-18	Deck 5 Fair Superstructure 3 Serious Substructure 5 Fair	L=117.0 W=29.5 1-span	3,452	10/24/2019	NPR	LT	1997/1940

**2019 MUNICIPAL BRIDGE RED LIST**

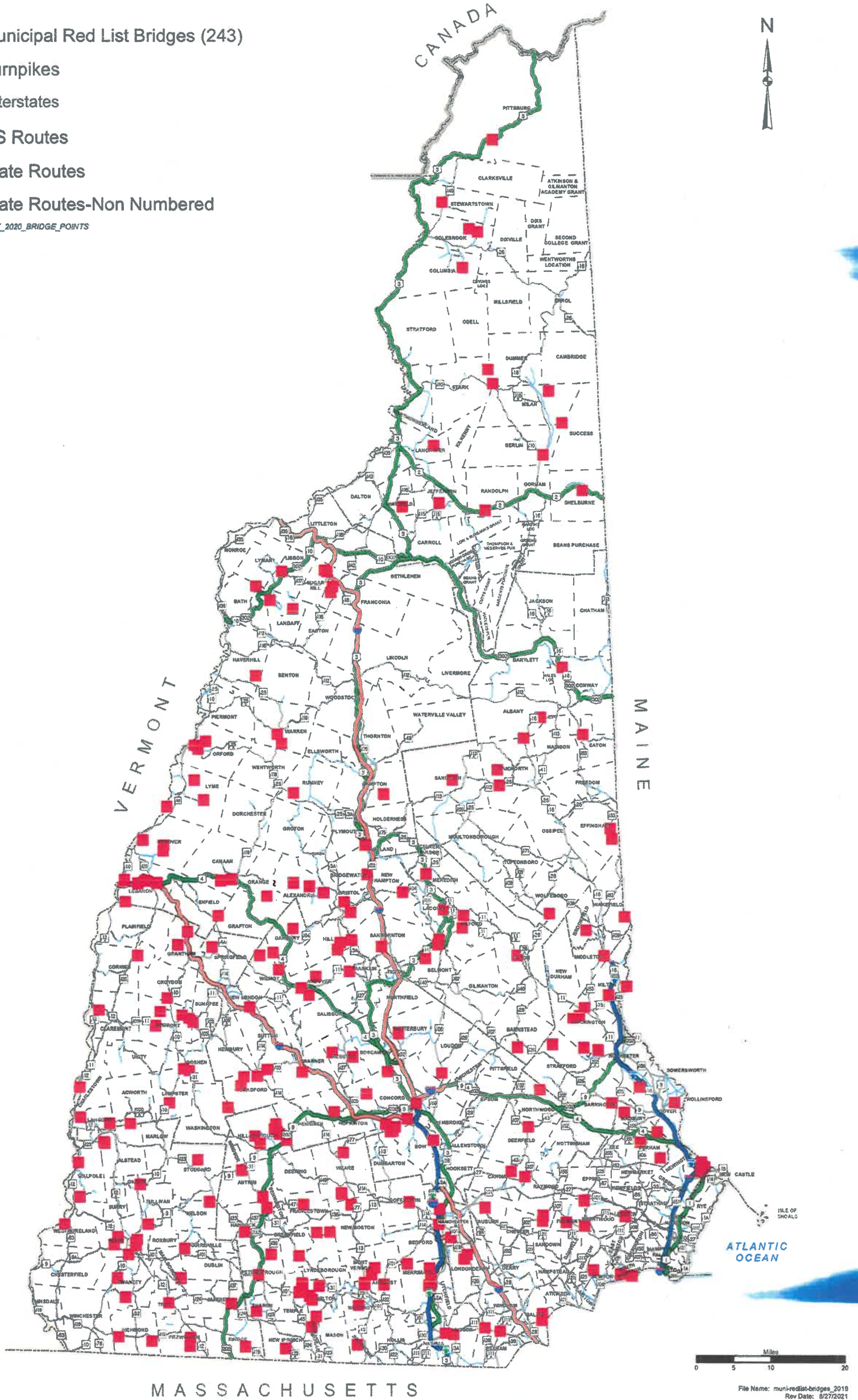
Town / City	Bridge Number	Facility Carried	Feature Crossed	Est. ADT (Year)	Condition of Deck, Superstructure, Substructure, or Culvert	Total Length (ft); Total Width (ft); No. of Spans	Gross Deck Area (sf)	Date of Most Recent Inspection	Bridge Posting	Structure Type	Year Modified / Year Built
Webster	066/113	WHITE PLAINS ROAD	MEADOW BROOK	496-18	Culvert 2 Critical	L=13.0 W=18.0 3-span	234	7/15/2019	3 Tons	MP	1989/1930
Webster	121/103	CLOTHESPIN BR ROAD	BLACKWATER RIVER	502-18	Deck 3 Serious Superstructure 5 Fair Substructure 4 Poor	L=73.0 W=20.6 1-span	1,504	10/25/2019	E-2	IB-C	1954
Westmoreland	089/100	RIVER ROAD SOUTH	PARTRIDGE BROOK	1,176-18	Deck 4 Poor Superstructure 4 Poor Substructure 4 Poor	L=147.3 W=25.3 6-span	3,727	7/15/2019	E-2	CTC	1937
Whitefield	159/098	HAZEN ROAD	JOHNS RIVER	88-18	Culvert 1 Closed - Failing	L=13.0 W=16.5 1-span	215	10/11/2019	E-2	MP	1973
Wilmot	081/066	PIPER POND RD	BROOK	88-18	Deck 6 Satisfactory Superstructure 7 Good Substructure 4 Poor	L=27.0 W=16.5 1-span	445	10/10/2019	6 Tons	IB-W	1983
Wilton	060/118	OLD COUNTY FARM RD	BLOOD BROOK	88-18	Deck 8 Very Good Superstructure 8 Very Good Substructure 3 Serious	L=26.0 W=18.0 1-span	468	10/28/2019	NPR	CS	2013/1950
Wilton	063/105	TEMPLE ROAD	BLOOD BROOK	1,176-18	Deck 3 Serious Superstructure 3 Serious Substructure 4 Poor	L=49.0 W=23.0 2-span	1,127	10/28/2019	10 Tons	MA	1901
Wilton	074/060	KING BROOK ROAD	KING BROOK	88-18	Culvert 3 Serious	L=12.0 W=20.0 1-span	240	10/28/2019	E-2	MA	1901
Wilton	080/145	FRYE MILL ROAD	BURTON POND OUTLET	41-18	Deck 8 Very Good Superstructure 8 Very Good Substructure 4 Poor	L=28.0 W=16.0 1-span	448	10/23/2019	NPR	CS	2014/1920
Windham	057/051	CASTLE HILL ROAD	BEAVER BROOK	284-18	Culvert 1 Closed - Failing	L=14.5 W=23.0 1-span	334	6/26/2019	BRC	MP	1984

# Municipal Bridge Conditions 2019 Red List



- Municipal Red List Bridges (243)
- Turnpikes
- Interstates
- US Routes
- State Routes
- State Routes-Non Numbered

\* All Tiers, State  
Data Source: ASSET\_2020\_BRIDGE\_POINTS



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## Appendix “C”

### Bridge Postings and Weight Restrictions

#### Definitions, Signs, and Examples

<http://www.gencourt.state.nh.us/rsa/html/XXI/266/266-18.htm>

[https://www.nh.gov/dot/org/projectdevelopment/bridgedesign/documents/definitions\\_of\\_weight\\_restrictions.pdf](https://www.nh.gov/dot/org/projectdevelopment/bridgedesign/documents/definitions_of_weight_restrictions.pdf)

[https://www.nh.gov/dot/org/projectdevelopment/bridgedesign/documents/signs\\_postings\\_for\\_certified\\_loads.pdf](https://www.nh.gov/dot/org/projectdevelopment/bridgedesign/documents/signs_postings_for_certified_loads.pdf)

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**TITLE XXI - MOTOR VEHICLES**  
**CHAPTER 266 - EQUIPMENT OF VEHICLES**  
**Weight - Section 266:18**

**266:18 Weight on Interstate and Defense Highway System.** – The driving on the interstate and defense highway system of this state of any vehicle or combination of vehicles exceeding the limitations of this section is hereby prohibited.

**I. Maximum tire and axle gross weights allowable:**

- (a) The manufacturer's load rating for the tires.
- (b) When being driven with a gross weight in excess of 73,280 pounds:
  - (1) 20,000 pounds per axle on axles more than 8 feet apart;
  - (2) 17,000 pounds per axle on axles not more than 8 feet apart;
- (c) When being driven with a gross weight not in excess of 73,280 pounds:
  - (1) 22,400 pounds per axle on 3-axle single unit vehicles and on all other vehicles with axles 10 feet or more apart, including combination vehicles;
  - (2) 18,000 pounds per axle on axles of vehicles less than 10 feet apart, except 3-axle single unit vehicles.
- (d) Two axles less than 40 inches apart shall be considered as a single axle unit.

**II. Maximum allowable vehicle gross weights:**

- (a) For 2-axle vehicles, 33,400 pounds.
- (b) For single unit 3-axle vehicles, 47,500 pounds, or a gross weight not in excess of that produced by application of the weight formula as defined in subparagraph (h), whichever is greater, as shown in table III.
- (c) For single unit 4-axle vehicles, provided that such vehicles shall have drive on 2 rear axles, and the tridem may contain not more than one retractable axle and, if not factory installed and load equalizing, must provide a system of load equalization by hydraulic, pneumatic, or mechanical means, and be equipped with brakes:
  - (1) 47,500 pounds, or a gross weight not in excess of that produced by application of the weight formula as defined in subparagraph (h), whichever is the greater; or
  - (2) If a heavy duty recovery vehicle, 75,000 pounds, or a gross weight not in excess of that produced by application of the weight formula as defined in subparagraph (h), whichever is the greater.
- (d) For a single unit 5-axle heavy duty recovery vehicle, 80,000 pounds, or a gross weight not in excess of that produced by application of the weight formula as defined in subparagraph (h), whichever is the greater. Such vehicles shall have drive on 2 rear axles, and the tridem may contain not more than one retractable axle and, if not factory installed and load equalizing, must provide a system of load equalization by hydraulic, pneumatic, or mechanical means, and be equipped with brakes.
- (e) For a combination of truck-tractor and semi-trailer equipped with 3 axles, the gross weight shall not exceed that set forth in table I as follows:

<b>Table I.</b>	
<b><u>Distance Between Extreme Axles in Feet</u></b>	<b><u>Maximum Gross Weight in Pounds</u></b>
25	54,500
26	55,500
27	56,000
28	57,000
29	57,500
30	58,000
31	59,000
32	60,000

Further provided that the maximum tire and axle gross weights as provided in paragraph I shall apply and the maximum load in pounds carried on any group of 2 or more consecutive axles shall not exceed that produced by application of the weight formula as defined in subparagraph (h).

- (f) For a combination of truck-tractor and semi-trailer equipped with 4 axles, the gross weight shall not exceed that set forth in table II as follows:

<b>Table II.</b>	
<b>Distance Between Extreme Axles in Feet</b>	<b>Maximum Gross Weight in Pounds</b>
28	60,500
29	61,500
30	62,000
31	62,500
32	63,500
33	64,000
34	64,500
35	65,500
36	66,000
37	66,500
38	67,500
39	68,000

Further provided that the maximum tire and axle gross weights as provided in paragraph I shall apply, and the maximum load in pounds carried on any group of 2 or more consecutive axles shall not exceed that produced by application of the weight formula as defined in subparagraph (h).

- (g) For a combination of truck-tractor and single semi-trailer with 5 or more axles with gross weight not in excess of 73,280 pounds, the weight on any single axle shall not exceed 22,400 pounds and the weight on any tandem axle shall not exceed 36,000 pounds.
- (h) For a combination of truck-tractor and single semi-trailer equipped with 5 or more axles with a gross weight in excess of 73,280 pounds or a combination of truck-tractor and more than one trailing unit, the total gross weight shall not exceed 80,000 pounds including all law enforcement tolerances, and the overall gross weight on a group of 2 or more consecutive axles shall not exceed that produced by application of the following formula, known as the weight formula:

$$W = 500 \left\{ \frac{LN}{N-1} + 12N + 36 \right\}$$

(In which W equals overall gross weight on any group of 2 or more consecutive axles to the nearest 500 pounds; L equals the distance measured to the nearest foot between the extreme of any group of 2 or more consecutive axles; and N equals the number of axles in the group under consideration.) Except that 2 consecutive sets of tandem axles may carry a gross load of 34,000 pounds each, provided the overall distance between the first and last axles of such consecutive sets of tandem axles is 36 feet or more and provided that such gross weight shall not exceed 80,000 pounds, including all law enforcement tolerances.

The formula

$$W = 500 \left\{ \frac{LN}{N-1} + 12N + 36 \right\}$$

when expressed in tabular form results in maximum allowable load in pounds carried on any group of 2 or more consecutive axles as follows in table III.

Table III.						
Distance*	2 axles	3 axles	4 axles	5 axles	6 axles	7 axles
4	34,000					
5	34,000					
6	34,000					
7	34,000					
8 and less	34,000	34,000				
more than 8	38,000	42,000				
9	39,000	42,500				
10	40,000	43,500				
11		44,000				
12		45,000	50,000			
13		45,500	50,500			
14		46,500	51,500			
15		47,000	52,000			
16		48,000	52,500	58,000		
17		48,500	53,500	58,500		
18		49,500	54,000	59,000		
19		50,000	54,500	60,000		
20		51,000	55,500	60,500	66,000	
21		51,500	56,000	61,000	66,500	
22		52,500	56,500	61,500	67,000	
23		53,000	57,500	62,500	68,000	
24		54,000	58,000	63,000	68,500	74,000
25		54,500	58,500	63,500	69,000	74,500
26		55,500	59,500	64,000	69,500	75,000
27		56,000	60,000	65,000	70,000	75,500
28		57,000	60,500	65,500	71,000	76,500
29		57,500	61,500	66,000	71,500	77,000
30		58,500	62,000	66,500	72,000	77,500
31		59,000	62,500	67,500	72,500	78,000
32		60,000	63,500	68,000	73,000	78,500
33			64,000	68,500	74,000	79,000
34			64,500	69,000	74,500	80,000
35			65,500	70,000	75,000	
**36			66,000	70,500	75,500	
**37			66,500	71,000	76,000	
**38			67,500	71,500	77,000	
39			68,000	72,500	77,500	
40			68,500	73,000	78,000	
41			69,500	73,500	78,500	
42			70,000	74,000	79,000	
43			70,500	75,000	80,000	
44			71,500	75,500		
45			72,000	76,000		
46			72,500	76,500		
47			73,500	77,500		
48			74,000	78,000		
49			74,500	78,500		
50			75,500	79,000		
51			76,000	80,000		
52			76,500			
53			77,500			
54			78,000			
55			78,500			
56			79,500			
57			80,000			

\* Distance in feet between the extremes of any group of 2 or more consecutive axles.

\*\*Distance in feet between the extremes of 4 axles. (2 sets of 2 axles) 68,000 gross weight exception. The permissible loads are computed to the nearest 500 pounds.

- (i) The following loaded vehicles shall not be driven over H15-44 bridges:
- (1) A combination vehicle equipped with 5 axles in the configuration of 3-axle truck-tractor and 2-axle semi-trailer with wheel base less than 38 feet or 2-axle truck-tractor with 1-axle semi-trailer and 2-axle full trailer with wheel base less than 45 feet.
  - (2) A loaded single unit vehicle with full trailer equipped with axles with wheelbase less than 45 feet.
  - (3) Vehicles with 7, 8, or 9 axles.
- (j) Coupled vehicles consisting of a truck together with a trailer attached to the truck by a pintle hook or similar coupling device with adequate breakaway protection as provided in RSA 266:63 may be driven, provided the total combined gross weight of the vehicles does not exceed 80,000 pounds and provided that each unit of the coupled vehicles shall be limited to the maximum permissible axle weights and gross weights of the individual units, and further provided that the weight of 2 or more consecutive axles of the coupled vehicle shall not be in excess of that produced by application of the weight formula as defined in subparagraph (h) and shall be limited to a total combined gross weight not in excess of 80,000 pounds, a single axle limit of 20,000 pounds and a tandem axle limit of 34,000 pounds:

III. Notwithstanding paragraphs I and II, for as long as exemptions exist in 23 U.S.C. section 127 that allow maximum gross weights of up to 99,000 pounds on interstate routes 89, 93, and 95 of the interstate and defense highway system, the provisions of RSA 266:18-a regarding weight on the non-interstate and general highway system shall also apply to vehicles or combination vehicles while being operated on any sections of interstate routes 89, 93, or 95 not posted by the commissioner of transportation for lower weights. Such vehicles shall not exceed the weight limits in paragraphs I and II unless they have been certified pursuant to RSA 266:18-d for the higher weights and paid the required fee the same as vehicles operating on the non-interstate highways as provided in RSA 266:18-d.

**Source.** 1921, 119:25. PL 103:22. 1927, 77:1. 1929, 33:1. 1933, 157:1. 1935, 133:1. 1937, 82:1. 1939, 131:1. 1941, 169:1. RL 119:37. 1947, 11:1. 1949, 104:1. 1950, 11:1, 2. 1951, 20:11. RSA 263:61. 1955, 230:1; 310:2. 1963, 189:1, 3; 202:1. 1973, 468:2. 1977, 487:1, 2. 1979, 219:1; 220:2; 239:1; 358:12. 1981, 55:1; 146:1. 1983, 434:15. 1986, 121:2. 1987, 404:20. 2005, 203:9, eff. July 1, 2005. 2018, 74:2, eff. July 24, 2018.

The following information provides a summary pertaining to load limitations imposed on Certified Vehicles crossing posted bridges. For more detailed information, refer to the referenced State Regulations, or you may contact New Hampshire Department of Safety, Division of Motor Vehicles, or the New Hampshire Department of Transportation, Bureau of Bridge Design.

### DEFINITIONS – VEHICLE WEIGHT LIMITS

**Certified Vehicle:** A vehicle that has certification under:

[RSA 266:18-d Additional Certification and Registration](#); and

is registered for the weight limits in:

[RSA 266:18-b Weight on Non-interstate and General Highway System for Vehicles With Additional Registration](#); and

is traveling at a weight limit in excess of the weight limit in:

[RSA 266:18-a Weight on Non-interstate and General Highway System](#); or

[RSA 266:18 Weight on Interstate and Defense Highway System](#). (if applicable)

**Single Unit Vehicle:** A vehicle traveling without a trailer.

**Combination Vehicle:** A combination of a truck and one or more trailers.

**Excluded Bridge:** A bridge with a sign ‘E-1’ or ‘E-2’. These signs Exclude Certified Vehicles from crossing the bridge, and are authorized in:

[RSA 266:18-c General Weight Provisions](#);

**Caution Crossing:** A bridge with a sign ‘C-1’, ‘C-2’ or ‘C-3’. These signs indicate that Caution Crossing Procedures are to be used by Certified Vehicles, and are authorized in:

[RSA 266:18-b-III-h Weight on Non-interstate and General Highway System for Vehicles With Additional Registration](#) and [RSA 266:18-c General Weight Provisions](#);

RSA 266:18-b-III-(h) The commissioner of Transportation may restrict at his discretion the crossing of certain bridges or other structures, which he determines to have insufficient strength to safely carry multiple legal loads, by limiting vehicles to a caution crossing, whereby the bridge is restricted to one vehicle certified under RSA 266:18-d exceeding 37,400 pounds on the bridge at any one time. When multiple vehicles of more than 2 axles are located on the designated bridge, all loaded certified vehicles shall be required to stop and wait until other traffic passes before crossing the bridge. A bridge so restricted shall be posted according to RSA 266:18-c.

**E-2 Sign:** This sign indicates an Excluded Bridge. Certified Vehicles, both Single Unit and Combination Vehicles, are excluded from crossing the bridge.

**E-1 Sign:** This indicates an Excluded Bridge for Single Unit Vehicles only. A Certified Vehicle that is a Single Unit Vehicle is excluded from crossing the bridge.

**C-2 Sign:** This indicates Caution Crossing Bridge. Certified Vehicles, both Single Unit and Combination Vehicles, are required to wait until they can cross the bridge with no other trucks on the bridge.

**C-1 Sign:** This indicates Caution Crossing Bridge, for Single Unit Vehicles only. A Certified Vehicle that is a Single Unit Vehicle is required to wait until they can cross the bridge with no other trucks on the bridge.

**C-3 Sign:** This indicates an Excluded Bridge for Single Unit Vehicles only; and a Caution Crossing Bridge for Combination Vehicles only. A Certified Vehicle that is a Single Unit Vehicle is excluded from crossing the bridge. A Certified Vehicle that is a Combination Vehicle is required to wait until they can cross the bridge with no other trucks on the bridge.

## SIGNS AND POSTINGS FOR CERTIFIED LOADS

Drivers will see one of the following signs as they approach a bridge that is posted to restrict Certified Vehicles:



**E-1 Sign:** This indicates an Excluded Bridge for Single Unit Vehicles only. A Certified Vehicle that is a Single Unit Vehicle is excluded from crossing the bridge.



**E-2 Sign:** This sign indicates an Excluded Bridge. Certified Vehicles, both Single Unit and Combination Vehicles, are excluded from crossing the bridge.



**C-1 Sign:** This indicates a Caution Crossing Bridge, for Single Unit Vehicles only. A Certified Vehicle that is a Single Unit Vehicle is required to wait until they can cross the bridge with no other trucks on the bridge.



**C-2 Sign:** This indicates a Caution Crossing Bridge. All Certified Vehicles, both Single Unit and Combination Vehicles, are required to wait until they can cross the bridge with no other trucks on the bridge.



**C-3 Sign:** This indicates an Excluded Bridge for Single Unit Vehicles only; and a Caution Crossing Bridge for Combination Vehicles only. A Certified Vehicle that is a Single Unit Vehicle is excluded from crossing the bridge. A Certified Vehicle that is a Combination Vehicle is required to wait until they can cross the bridge with no other trucks on the bridge.



**Appendix “D”**

**List and Location Map of all State Bridges Receiving**

**Preservation Work in 2019**

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## State Bridges receiving Preservation work in FFY 2019

(For additional information on these 2019 Bridge Preservation projects, please see Section 5.1.1.1.)

<b><u>BRIDGE DESIGN BUREAU</u></b>	
<b><u>BETHLEHEM 41901</u></b>	<b><u>WARNER 42546</u></b>
<ul style="list-style-type: none"> <li>• BETHLEHEM 111/064 – US Route 302, NH Routes 18 &amp; 116 over I-93</li> </ul>	<ul style="list-style-type: none"> <li>• WARNER 164/103 - I-89 SB over NH Route 103</li> <li>• WARNER164/104 - I-89 NB over NH Route 103</li> </ul>
<b><u>HAVERHILL 41297</u></b>	<ul style="list-style-type: none"> <li>• WARNER166/103 - I-89 SB over Warner River</li> <li>• WARNER166/104 - I-89 NB over Warner River</li> </ul>
<ul style="list-style-type: none"> <li>• HAVERHILL 067/092 – NH Route 25 over Oliverian Brook</li> </ul>	<ul style="list-style-type: none"> <li>• WARNER184/113 – I-89 NB over North Village Road</li> </ul>
<b><u>LEBANON 41191</u></b>	<ul style="list-style-type: none"> <li>• WARNER185/112 - I-89 SB over North Village Road</li> <li>• WARNER195/122 – I-89 NB over West Joppa Road</li> <li>• WARNER196/121 - I-89 SB over West Joppa Road</li> <li>• WARNER199/128 - I-89 NB over Warner River</li> </ul>
<ul style="list-style-type: none"> <li>• LEBANON 097/112 – I-89 NB, NH Route 10 over Truck Road, Mascoma River</li> <li>• LEBANON 098/111 - I-89 SB over Truck Road, Mascoma River</li> </ul>	<ul style="list-style-type: none"> <li>• WARNER206/141 - I-89 SB over Warner River</li> </ul>
<b><u>PORTSMOUTH – NEW CASTLE 41253</u></b>	
<ul style="list-style-type: none"> <li>• NEW CASTLE 031/142 – NH Route 1B over Piscataqua Estuary</li> <li>• PORTSMOUTH 241/053 - NH Route 1B over Piscataqua Estuary</li> </ul>	
	<b><u>TURNPIKE</u></b>
	<b><u>PORTSMOUTH, NH – KITTERY, ME 16189</u></b>
<b><u>SANBORNTON – NEW HAMPTON 41705 (Bridge Painting)</u></b>	PORTSMOUTH 257/127 – I-95 over Preble Way, Pan Am Railroad
<ul style="list-style-type: none"> <li>• NEW HAMPTON 137/060 – I-93 SB over NH Routes 104 &amp; 132</li> <li>• NEW HAMPTON 138/060 - I-93 NB over NH Routes 104 &amp; 132</li> <li>• NEW HAMPTON 147/082 - I-93 SB over NH Route 132</li> <li>• NEW HAMPTON 148/081 - I-93 NB over NH Route 132</li> <li>• SANBORNTON 124/074 - I-93 SB over NH Route 127</li> <li>• SANBORNTON 125/075 - I-93 NB over NH Route 127</li> </ul>	PORTSMOUTH 258/128 – I-95 over Piscataqua River

<b><u>BRIDGE MAINTENANCE BUREAU</u></b>	
<ul style="list-style-type: none"> <li>• BROOKLINE 091/076 – NH Route 130 over Village Brook</li> <li>• CONCORD 187/036 – NH Route 13 over Turee Brook</li> <li>• FRANCONIA 069/049 - NH Route 116 over Coppermine Brook (Scour protection)</li> <li>• HAMPTON 207/094 – NH Route 101 over Tide Mill Creek</li> <li>• LANDAFF 124/043 – NH Route 112 over Still Brook</li> <li>• LEMPSTER 122/167 – NH Route 10 over Cold Brook</li> <li>• LITTLETON 187/065 – US Route 302, NH Route 10 over I-93</li> <li>• LITTLETON 189/058 – I-93 SB over Industrial Park Road, NHRR (Abd)</li> <li>• LITTLETON 190/058 - I-93 NB over Industrial Park Road, NHRR (Abd)</li> <li>• MARLBOROUGH 089/127 – NH Route 101 over Robbins Brook</li> <li>• WESTMORELAND 111/072 – NH Route 63 over Partridge Brook</li> </ul>	<b><u>TURNPIKE</u></b>
	<ul style="list-style-type: none"> <li>• NORTH HAMPTON 089/123 – Walnut Avenue over I-95</li> </ul>

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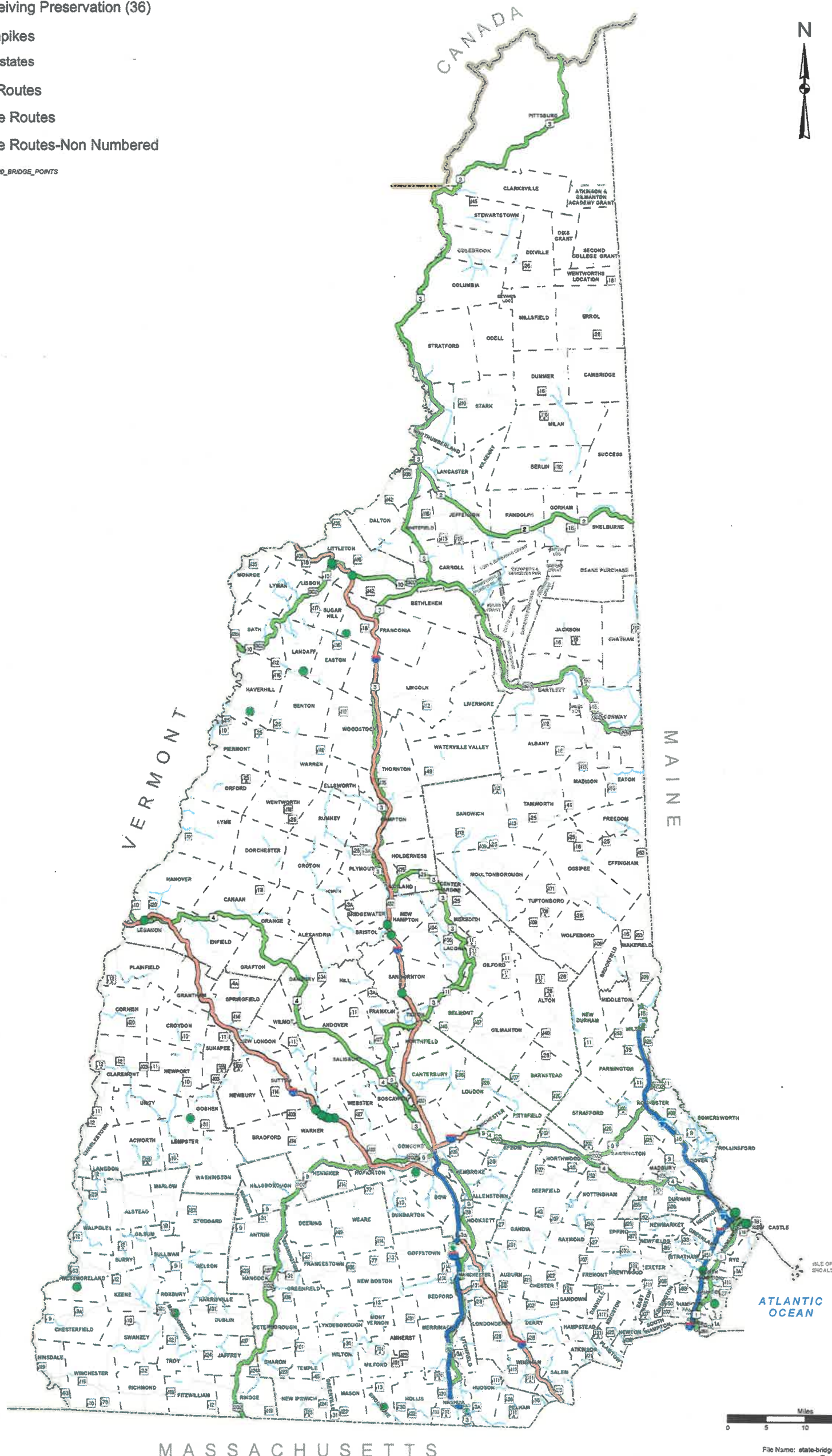
# State Bridge Conditions

## FFY 2019 Preservation State Bridge Work



- Receiving Preservation (36)
- Turnpikes
- Interstates
- US Routes
- State Routes
- State Routes-Non Numbered

\* All Tiers, State  
Data Source: ASSET\_2020\_BRIDGE\_POINTS



MASSACHUSETTS

File Name: state-bridges-PRR-FFY-2019  
Rev Date: 10/7/2021

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**Appendix “E”**

**List and Location Map of all State Bridges Receiving  
Rehabilitation Work in 2019**

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**State Bridges receiving Rehabilitation work in FFY 2019**

**(For additional information on these 2019 Bridge Rehabilitation projects, please see Section 5.1.1.2.)**

<b><u>BRIDGE DESIGN BUREAU</u></b>	<b><u>BRIDGE MAINTENANCE BUREAU</u></b>
<b>JACKSON 27709</b>	<ul style="list-style-type: none"> <li>• GORHAM 087/050 – NH Route 16 over Brook (Red List)</li> </ul>
<ul style="list-style-type: none"> <li>• JACKSON 144/056 – NH Route 16 over Ellis River (Red List)</li> </ul>	<ul style="list-style-type: none"> <li>• HAVERHILL 158/066 – NH Route 116 over Clark Brook</li> </ul>
	<ul style="list-style-type: none"> <li>• JACKSON 148/050 – NH Route 16A over Ellis River</li> </ul>
	<ul style="list-style-type: none"> <li>• KINGSTON 099/106 – NH Routes 111 &amp; 125 over Powwow River (Red List)</li> </ul>
	<ul style="list-style-type: none"> <li>• RANDOLPH 088/048 – US Route 2 over Moose River (Red List)</li> </ul>
	<ul style="list-style-type: none"> <li>• WATERVILLE VALLEY 119/087 – NH Route 49 over Dry Brook</li> </ul>

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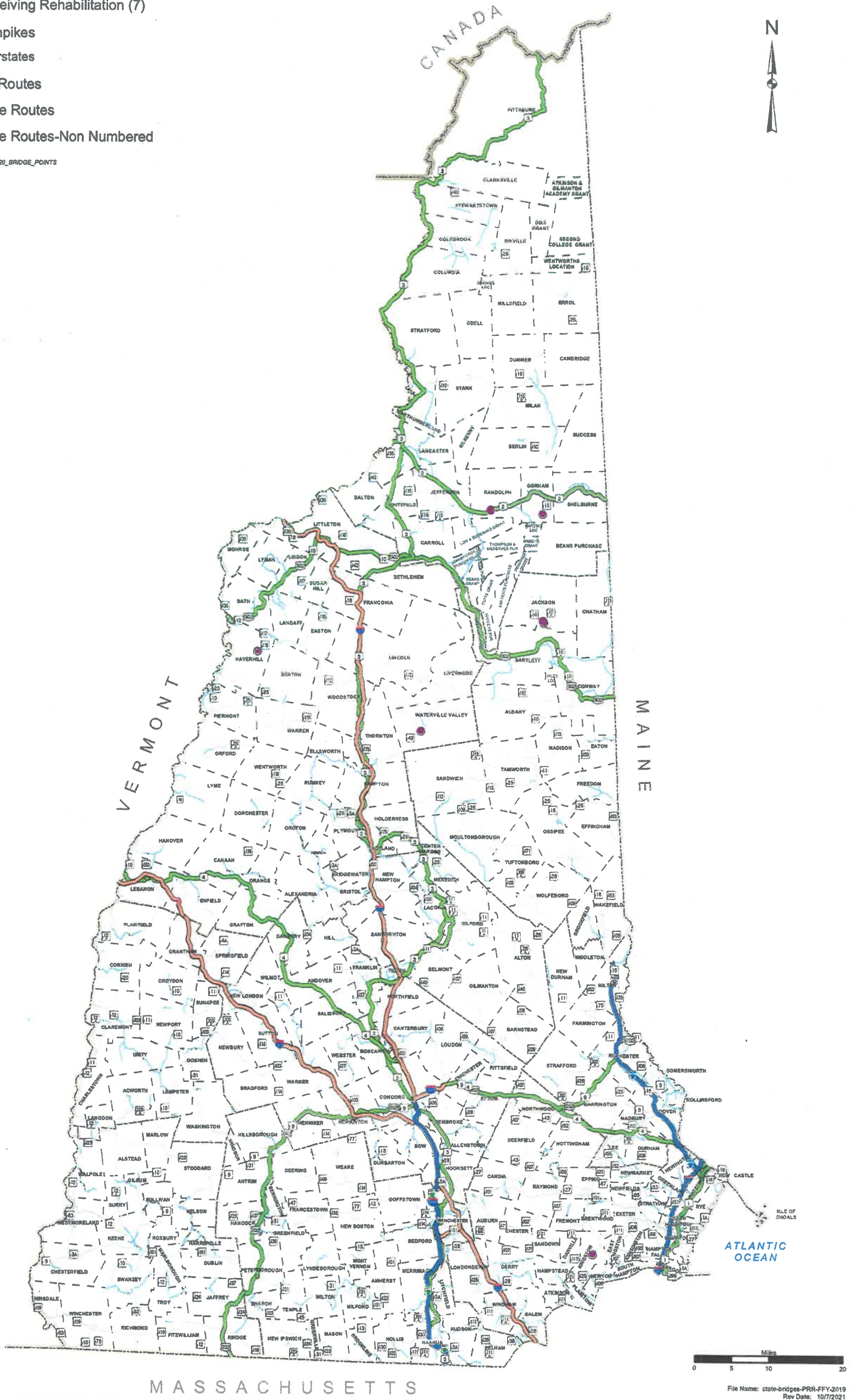
# State Bridge Conditions

## FFY 2019 Rehabilitation State Bridge Work



- Receiving Rehabilitation (7)
- Turnpikes
- Interstates
- US Routes
- State Routes
- State Routes-Non Numbered

\*All Tiers, State  
Data Source: ASSET\_2020\_BRIDGE\_POINTS



File Name: state-bridges-PRR-FFY-2019  
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**Appendix “F”**

**List and Location Map of all State Bridges**

**Replaced in 2019**

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### State Bridges Replaced in FFY 2019

(For additional information on these 2019 Bridge Replacement projects, please see Section 5.1.1.3.)

<u>BRIDGE DESIGN BUREAU</u>	<u>BRIDGE MAINTENANCE BUREAU</u>
<b><u>CONWAY 15864</u></b>	<ul style="list-style-type: none"> <li>• BROOKLINE 116/058 – Pepperell Road over Rocky Pond Brook</li> </ul>
<ul style="list-style-type: none"> <li>• CONWAY 158/137 – US Route 302, NH Route 113 over Conway Lake Outlet (Red List)</li> </ul>	<ul style="list-style-type: none"> <li>• TAMWORTH 095/162 – NH Route 113 over Chocorua River (Red List)</li> </ul>
	<ul style="list-style-type: none"> <li>• WESTMORELAND 109/061 – NH Route 63 over Branch Partridge Brook (Red List)</li> </ul>
<b><u>LACONIA 16144</u></b>	
<ul style="list-style-type: none"> <li>• LACONIA 131/154 – US Route 3 over NHRR (Red List)</li> </ul>	
<b><u>LANCASTER, NH – GUILDHALL, VT 16155</u></b>	
<ul style="list-style-type: none"> <li>• LANCASTER 111/129 – US Route 2 over Connecticut River (Red List)</li> </ul>	
<b><u>LEBANON 41191</u></b>	
<ul style="list-style-type: none"> <li>• LEBANON 093/109 – I-89 NB over US Route 4, NH Route 10 (Red List)</li> </ul>	
<ul style="list-style-type: none"> <li>• LEBANON 094/108 - I-89 SB over US Route 4, NH Route 10</li> </ul>	
<b><u>LEBANON 25821</u></b>	
<ul style="list-style-type: none"> <li>• LEBANON 103/116 – Mascoma Street over I-89, NH Route 10 (Red List)</li> </ul>	
<b><u>LEBANON, NH – HARTFORD, VT 16148</u></b>	
<ul style="list-style-type: none"> <li>• LEBANON 044/103 – I-89 SB over Connecticut River, NECRR (Red List)</li> </ul>	
<ul style="list-style-type: none"> <li>• LEBANON 044/104 - I-89 NB over Connecticut River, NECRR (Red List)</li> </ul>	

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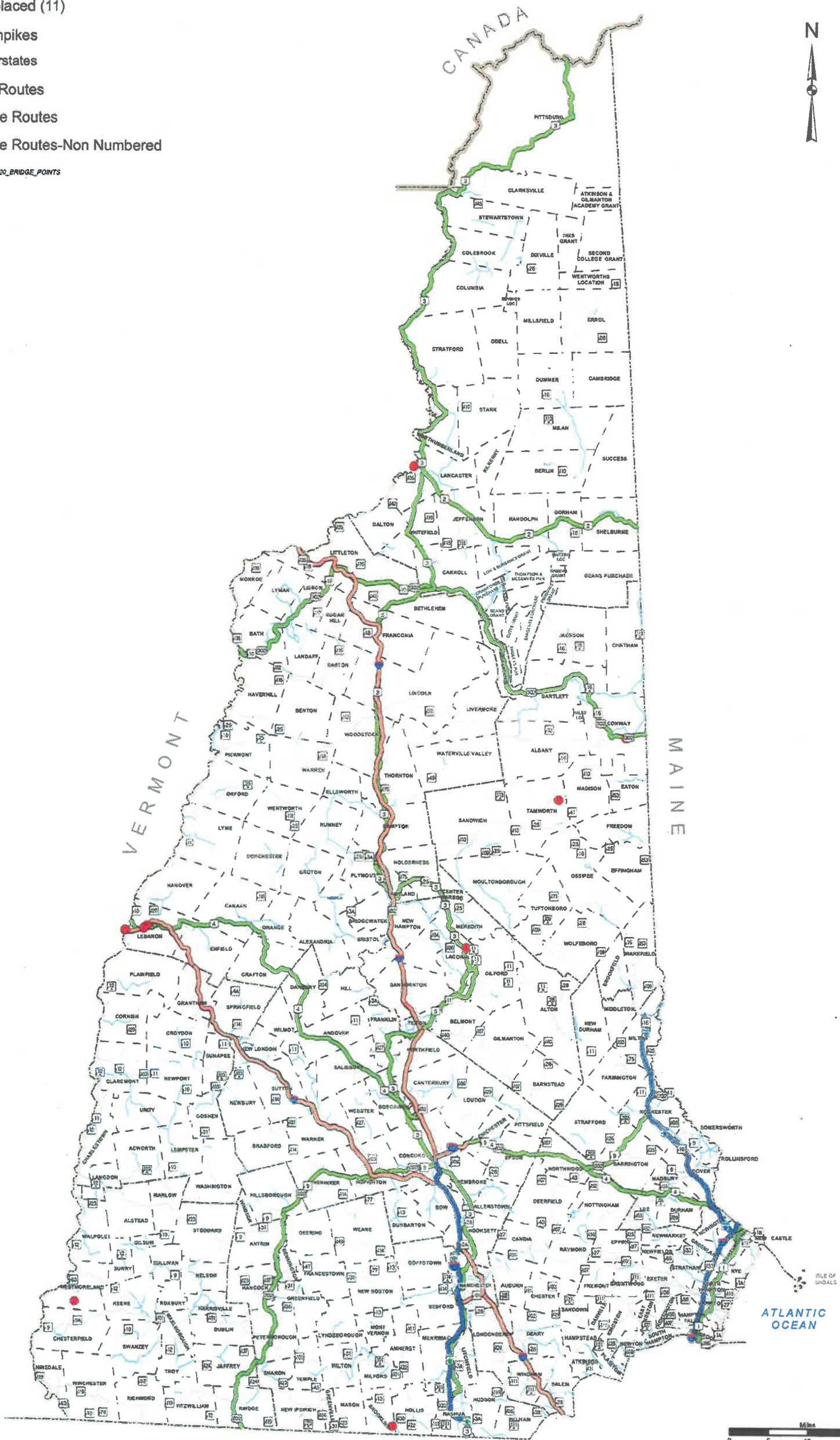
# State Bridge Conditions

## FFY 2019 Replaced State Bridge Work



- Replaced (11)
- Turnpikes
- Interstates
- US Routes
- State Routes
- State Routes-Non Numbered

\* All Tiers, State  
Data Source: ASSET\_2020\_BRIDGE\_POINTS



MASSACHUSETTS

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