

Governor's Advisory Commission
on Intermodal Transportation



Transportation excellence enhancing the quality of life in New Hampshire

2019 - 2028 Ten Year Plan Kickoff Meeting

July 19, 2017

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Legislative Changes to the 2017-2026 Ten Year Plan

Summary of House Changes:

(page numbers refer to April 20, 2016 Governor's Recommendations for the Ten Year Transportation Improvement Plan 2017-2026)

- Removed Nashua-Manchester-Concord Capital Corridor Project - \$4M FTA funding (page 114 in former January 14, 2016 document)
- Added Littleton US302 / Saranac Intersection Project under SAH Program - \$309k SAH Funding (page 90)
- Revised Center Harbor – New Hampton Bridge Project to Bridge Rehabilitation (page 33)
- Added Statewide Districts Programmatic - Betterment District Force Account Program - \$1.2M/year (page 209)
- Adjusted Derry-Londonderry Exit 4A Project funding to align with MOA (page 53)
- Advanced Funding (Vermont) for Hinsdale-Brattleboro Bridge Project to coincide with advanced construction schedule (page 74)

Summary of Senate Changes:

(page numbers refer to June 24, 2016 Approved Ten Year Transportation Improvement Plan 2017-2026)

- Dixville-Colebrook 40518 - Prohibits the department of transportation from expending any funds on the Dixville-Colebrook road project until all approvals for the Balsams project are complete.
- Advance the Milford safety improvements project, the Northfield-Tilton bridge rehabilitation project, and the East Kingston bridge deck replacement project to 2016, removing it from the 2017-2026 Ten Year Plan (Milford 13692B on page 105 in former April 20, 2016 TYP document, Northfield-Tilton 16147 on page 124 in former April 20, 2016 TYP document, East Kingston 26942 on page 59 in former April 20, 2016 TYP document)
- Add Salem-Manchester projects to pave a 4th lane along I-93 and to construct a 4th lane on I-93 to the state border (Salem to Manchester 13933A on page 143 and 14633J on page 146)
- Modify funding for the park and ride project in Windham and for the reconstruction of the intersection of NH 28 and NH 97 (Salem to Manchester 10418H on page 142 and Salem 12334 on page 152).
- Modify provisions of projects to make improvements to Ocean Boulevard in Hampton, a railroad crossing upgrade in Portsmouth, and a highway intersection in Salem. (Hampton 40797 on page 72, Portsmouth 40644 on page 137 and Salem 12334 on page 152)
- Add the study of a possible location for a wildlife crossing to the Jefferson-Randolph project, project number 13602C (on page 77)

Committee of Conference Changes:

(based on June 24, 2016 Approved Ten Year Transportation Improvement Plan 2017-2026)

- Dixville-Colebrook 40518 - shall be contingent upon an agreement between the towns and/or county to take ownership of the road prior to construction. Construction costs shall not exceed \$2,500,000.

Meeting Goals

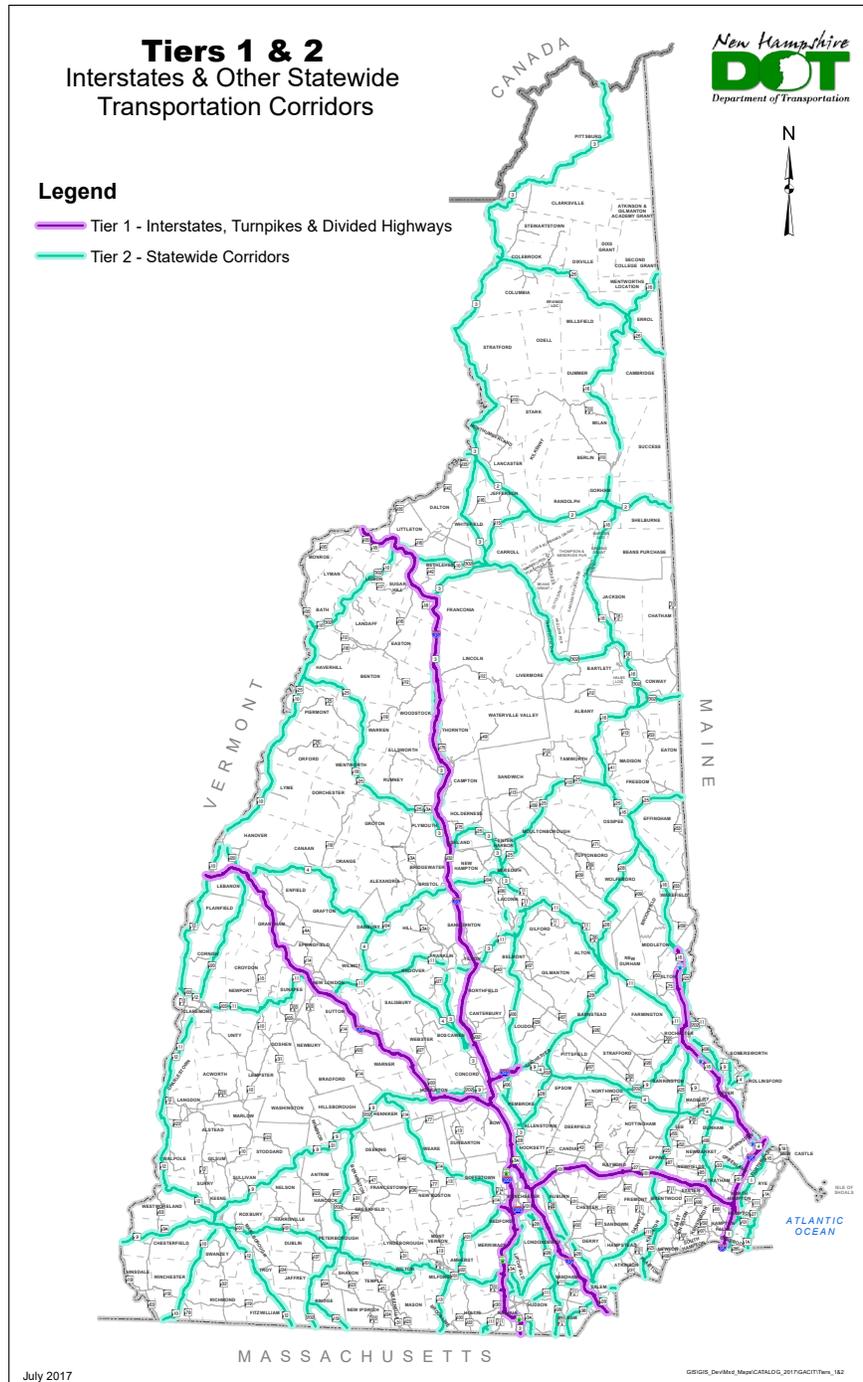
- Overview of Ten Year Plan Process
- Current State of the State's Infrastructure (Roads and Bridges)
- Federal Funding Status
- Proposed Ten Year Plan Synopsis/Strategies
- Items for Consideration
- Ten Year Plan GACIT Meeting Schedule
- CMAQ Update and Direction

Ten Year Plan Process Pursuant to RSA 228:99 and RSA 240

- April 2017 - Community outreach and regional prioritization by RPC's
- July 19th - Initial GACIT meeting
- August 2017 - Meetings with RPCs Executive Directors
- August 23, 2017 (tentative) - NHDOT Draft TYP (2019-2028) Release
- September - October 2017 - Public Hearings
- November 2017 - GACIT meetings and revisions
- December 2017 - Governor's review and revisions
- January 15, 2018 - Governor's Draft TYP transmittal to Legislature
- January - May 2018 - Legislative review & revisions
- June 2018 - Final TYP (2019-2028) Adopted into Law

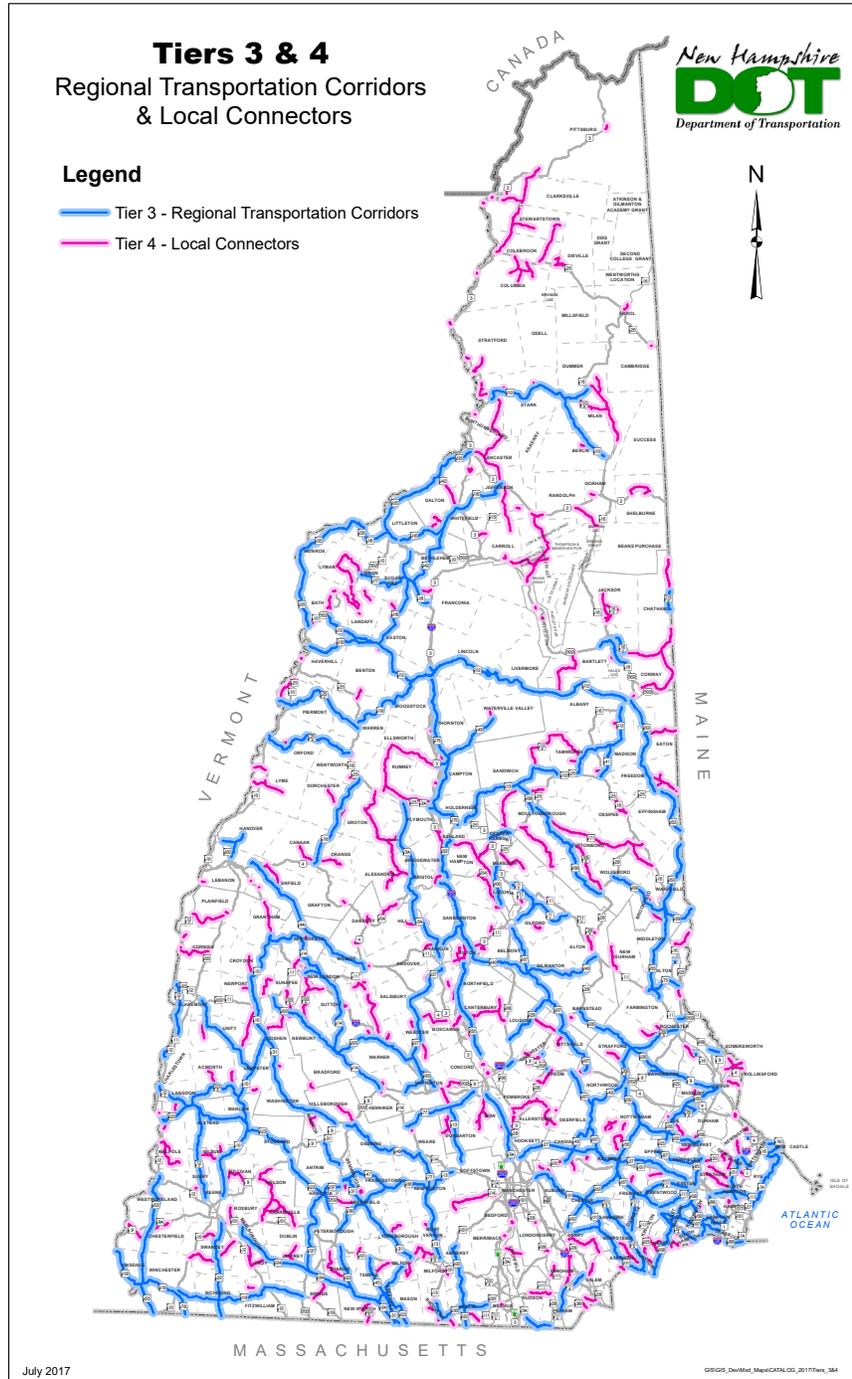
Current State of Infrastructure (Tiers)

- Tiers 1 & 2 (Statewide Transportation Corridors)
 - Tier 1 - Interstates, Turnpikes & Divided Highways
 - Tier 2 – Major Statewide Corridors (US 4, US 3, NH 10, NH 25)
 - These are typically higher volume, higher speed facilities. Important for commuter, tourist and freight movement of goods



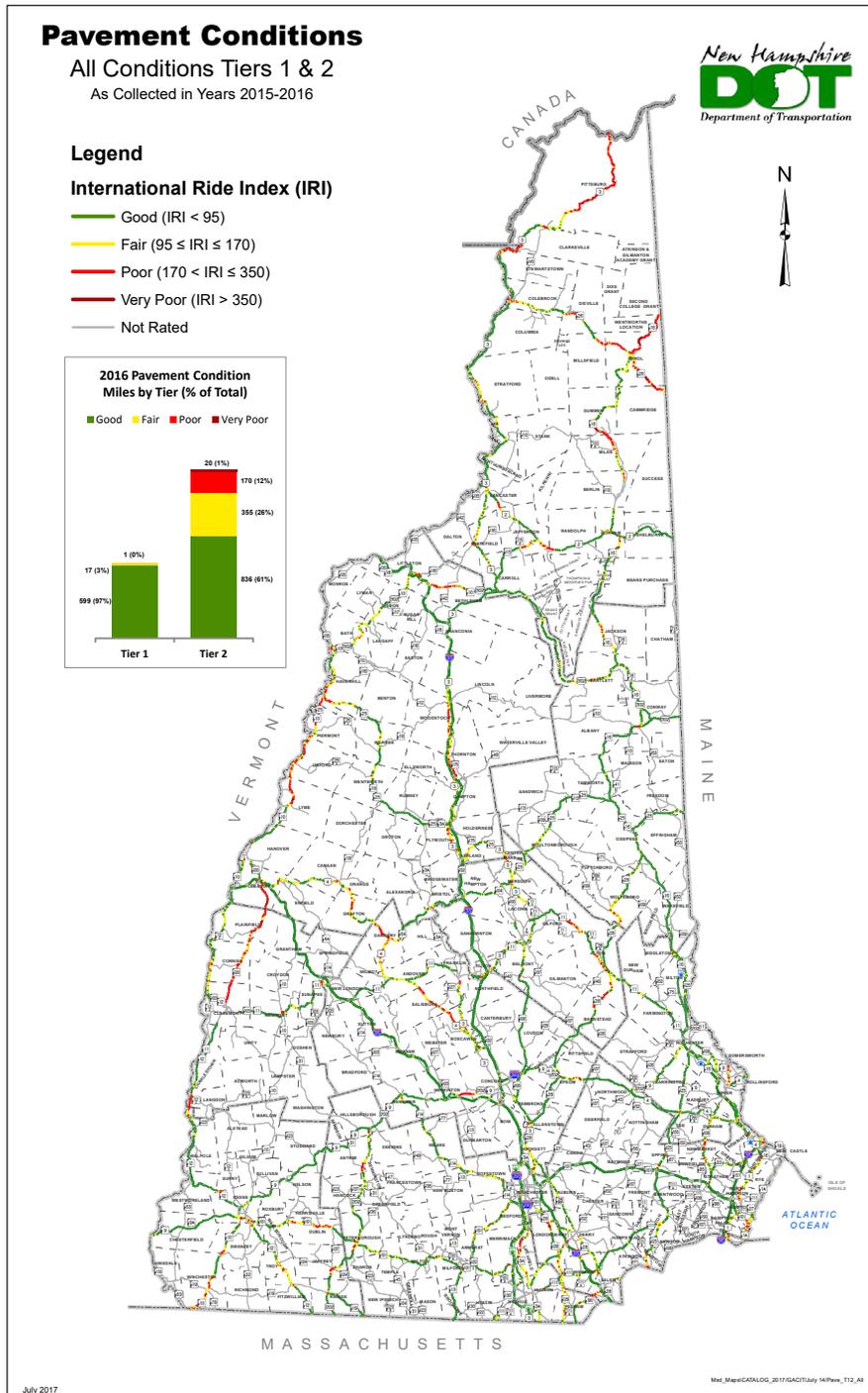
Current State of Infrastructure

- Tiers 3 & 4 (Regional Corridors & Local Connectors)
 - Tier 3 – Regional Corridors (Rte 4A, Rte 135, Rte 112, Rte 108). Moderate speeds, moderate traffic volumes, provide connectivity within regions
 - Tier 4 – Secondary Highways & Unnumbered state roads (Route 103A in Sunapee or Stinson Lake Rd in Rumney). Usually low speed, low traffic volumes, provide local connections within or between communities



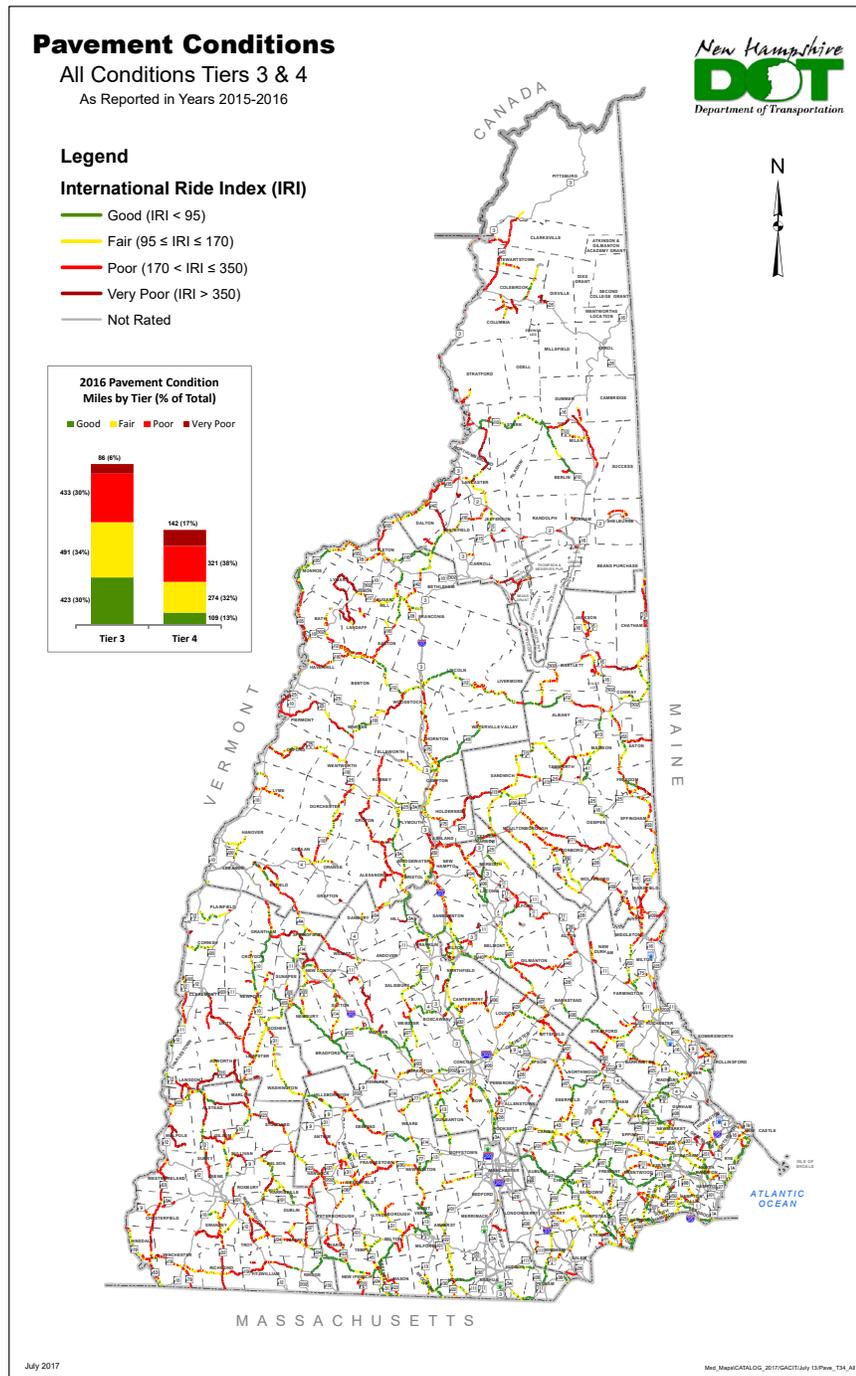
Current State of Infrastructure

- Tier 1 - 617 miles
 - 100 % of pavement in good or fair condition
- Tier 2 - 1382 miles
 - 87% of pavement in good or fair condition
 - 13% (190 miles) of pavement in poor or very poor condition

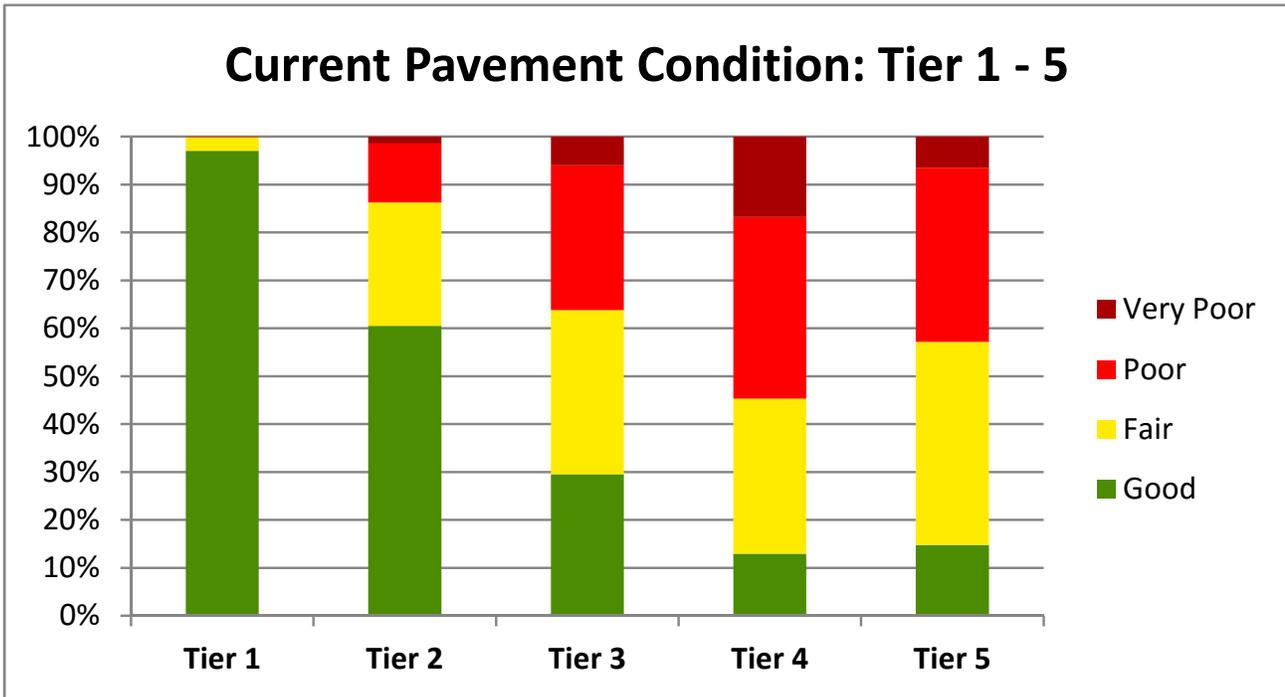


Current State of Infrastructure

- Tier 3 - 1433 miles
 - 64% of pavement in good or fair condition
 - 36% (519 miles) of pavement in poor or very poor condition
- Tier 4 – 847 miles
 - 45% of pavement in good or fair condition
 - 55% (463 miles) of pavement in poor or very poor condition

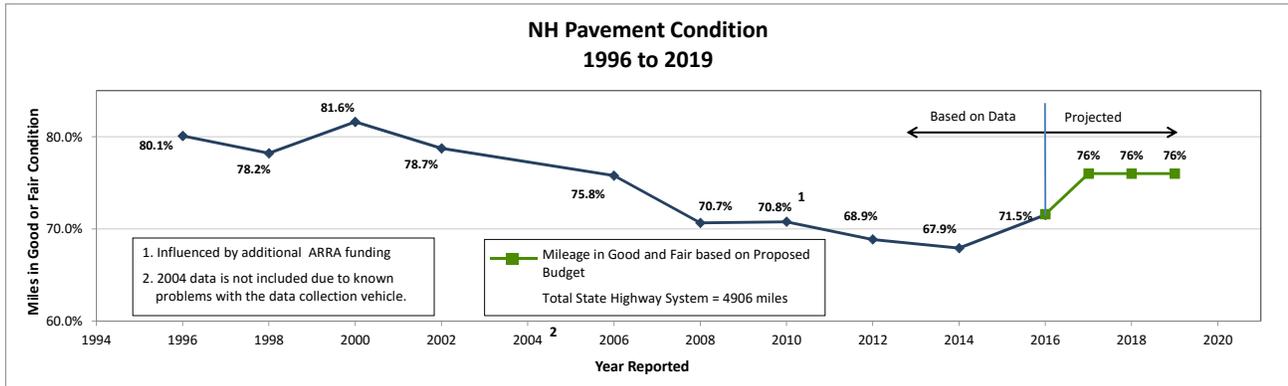


Current State of Infrastructure



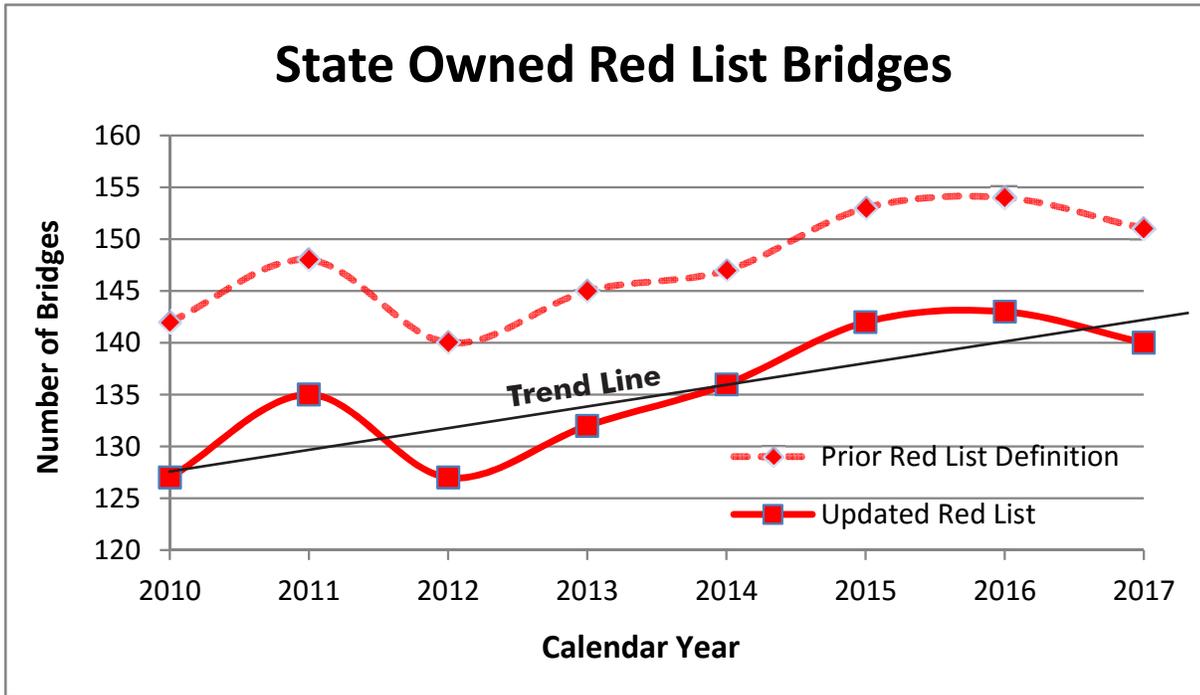
- Tiers 1 & 2 – 91% of roads are in good or fair condition
- Tiers 3 & 4 – 57% of roads are in good or fair condition
- Overall, 72% of NH’s roads (state & municipal) are good/fair
- Conversely, 28% (1,172 miles) are poor/very poor condition

Current State of Infrastructure



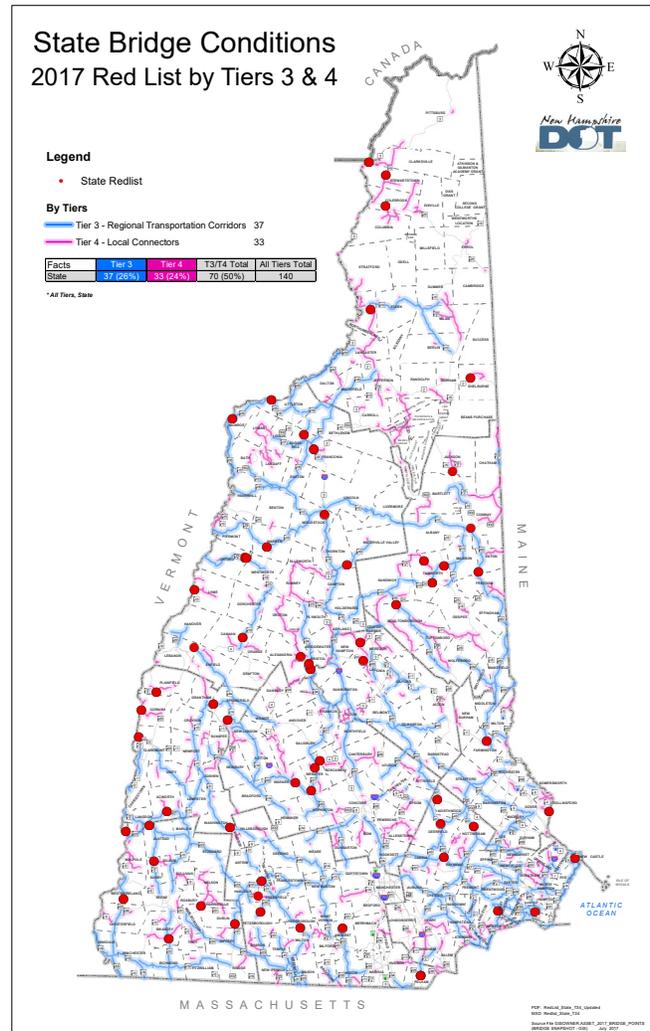
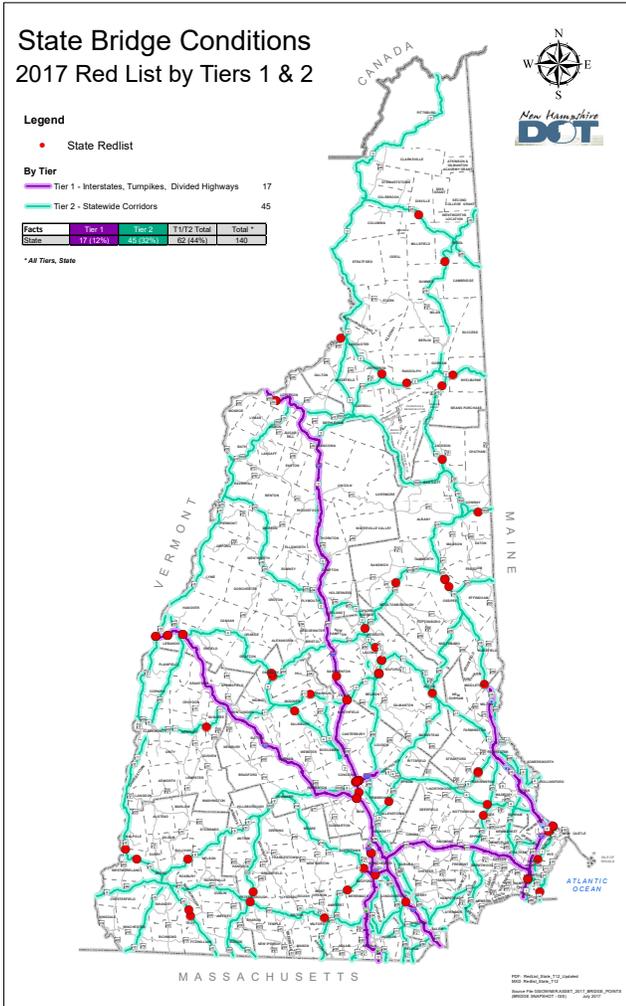
- Overall % of Good & Fair Roads was on a downward trend over a 14 year period (2000 – 2014)
- That trend is now showing an upswing in condition due to the increased level of investment in pavement
- 72% of state roads are in good or fair condition which is up 4% from conditions in 2014.

Current State of Infrastructure

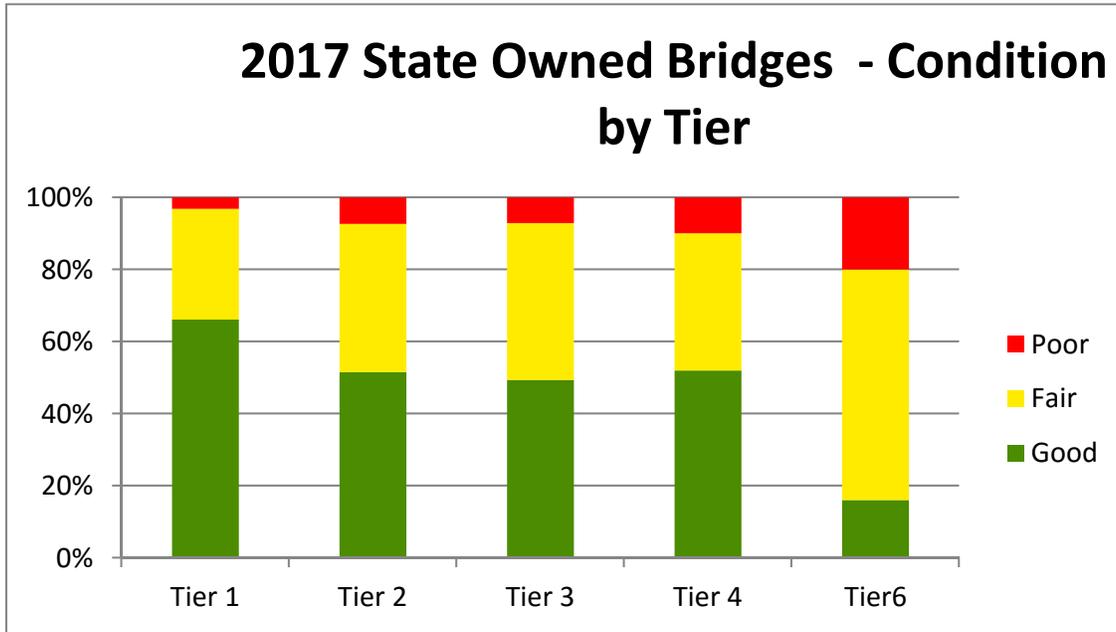


- The number state owned red list bridges (poor condition) have trended upward over the last 5 years.
- Over the last 5 years, on average 22 bridges per year added to the red list with 21 bridges per year removed from the red list
- Today (2017), 6.5% of State owned bridges or 140 are in poor condition.
- This total reflects recent change in the red list definition as only bridges in poor condition are included (11 less).

Current State of Infrastructure



Current State of Infrastructure



Red List Bridges 17 45 37 42 10

- Presently (2017) - 140 State Red-List Bridges (new definition)
- Tiers 1 & 2 – 3% (62 bridges) in poor condition (red list)
- Tiers 3,4,6 – 4% (78 bridges) in poor condition (red list)
- Tier 5 - Additionally 254 Municipal Red-List Bridges (2017)

NOTE: Tier 5 not shown as the bridges in that tier are municipally owned/maintained.

Approved TYP (2017-2026) Funding

2017-2026 Ten Year Plan											
All Funding											
FISCAL YEAR	PAVEMENT	BRIDGES	I-93 EXPANSION	MANDATED FEDERAL	INDIVIDUAL PROJECTS	ROADSIDE	RAIL	TRANSIT	AIRPORTS	DEBT SERVICE	GRAND TOTAL
2017	75.07	79.06	64.33	28.10	61.28	8.47	0.60	29.26	31.32	19.61	397.11
2018	78.19	93.43	59.39	32.83	45.15	8.47	0.60	29.20	29.59	20.28	397.14
2019	72.85	96.38	76.16	32.48	40.71	8.47	2.10	28.47	26.06	20.95	404.63
2020	72.39	115.25	35.96	32.59	52.21	8.47	0.60	30.45	67.60	29.44	444.97
2021	77.83	110.34	11.00	34.86	41.19	8.47	0.60	31.43	18.55	28.41	362.67
2022	75.05	62.71	16.50	34.72	66.46	8.47	2.10	32.43	22.24	28.12	348.81
2023	72.19	67.03	0.00	34.68	68.37	8.47	0.60	33.47	11.80	27.84	324.44
2024	72.55	47.96	0.00	34.41	108.61	8.47	0.60	34.54	21.14	27.54	355.83
2025	82.65	58.95	0.00	34.41	83.69	8.47	2.10	35.65	11.83	27.21	344.96
2026	71.31	70.79	0.00	34.41	98.23	8.47	0.60	36.79	20.66	31.54	372.78
Total	750.09	801.91	263.35	333.50	665.91	84.65	10.50	321.70	260.80	260.93	3753.35
% Grand Total	20.0%	21.4%	7.0%	8.9%	17.7%	2.3%	0.3%	8.6%	6.9%	7.0%	100.0%

~ Dollars include indirect costs and inflation (3.2%)

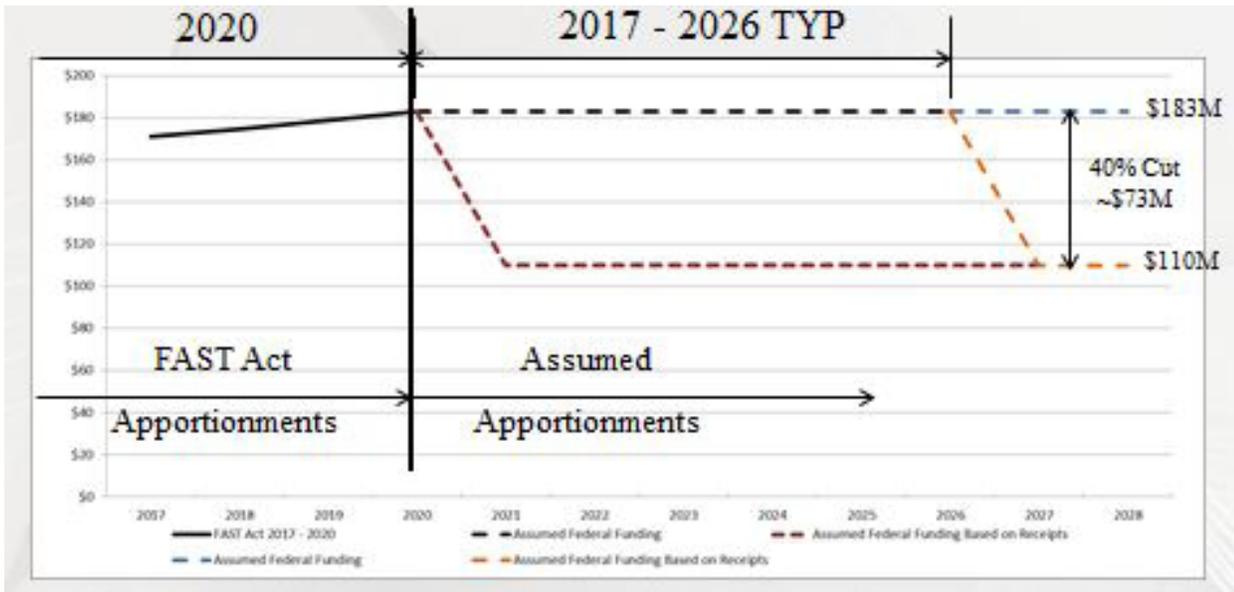
5/18/2016

- FY17-FY26 Estimated Program Expenditures
 - Pavement (state & federal) – averages \$75M per year
 - Bridges (state & federal) – averages \$80M per year
 - I-93 Expansion - \$263M over ten-year period
 - Mandate Federal – averages \$33M per year
 - Individual Projects- \$665M over ten-year period
 - Transit & Airports - \$580M over ten-year period
 - Total Program - \$3.75B

Status of Projects in First Two Years of Approved TYP (2017-2026)

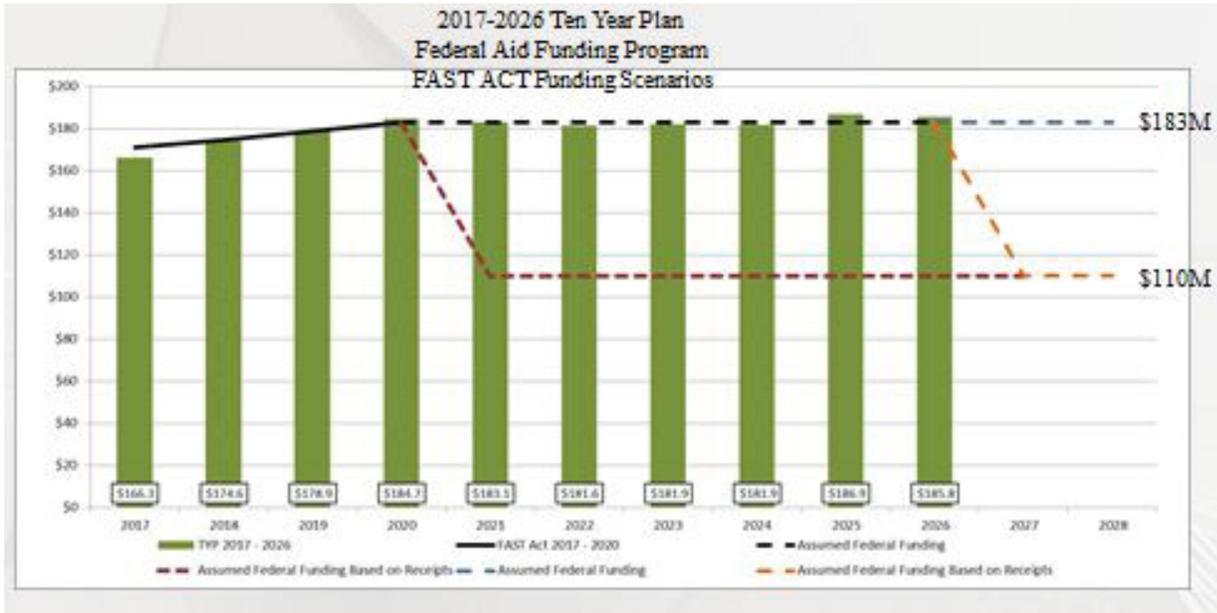
- Received \$17.4M in federal redistribution in Sept. of 2016 which allowed projects to advance
- Earmark repurposing \$6.6M
 - Funds must be allocated to projects within 50 miles of the original project
- Status of FY2017 & FY2018 Projects (Construction) in approved TYP (2017-2026) – 79 total projects
 - 13 projects are under construction
 - 9 projects were advanced to an earlier start date
 - 46 are planned for 2018
 - 9 projects were delayed
 - 2 projects were withdrawn

Federal Funding Status



- FAST Act Federal funding 2016-2020 (\$167M - \$183M)
- \$183M Federal funding assumed 2020-2026
- Approximately \$42M rescission possible in 2020
 - Will reduce the flexibility in how the apportionment is used on projects
- Approximately 40% reduction possible (\$73M) based on federal gas tax receipts
 - Could result in a \$110 M federal program per year

Federal Funding Status



- Similar scenarios with 2017-2026 TYP program

Federal Funding Status

\$1 Trillion Infrastructure Package

- \$200B in federal funds
 - targeted investments over 8 years
 - Maximum funding level in 2021 (\$50B)
- Leverage private sector funding
 - Public Private Partnerships – P3's
- Encourage self help
- Fund projects with National Significance.

Financing Tools

- Expand TIFIA program
- Incentivize innovative approaches to mitigate congestion
- Liberalize tolling policy
- Allow private investment in rest areas

Typical TYP Funding Synopsis

Typical Annual Funding Utilization

FAST Act Federal Funding approximately \$183M/year

- Preservation & Maintenance (Roads & Bridges): \$72M
- Mandated Federal (CMAQ, TA, SPR, HSIP, LTAP,etc): \$34M
- GARVEE Debt Service: \$24M

Annual Dedicated Funding: \$130M

- Individual Projects (remainder of federal funding): avg. - \$53M/yr
- Transit Funding (FTA): averages \$32 M/yr
- Airport Funding (FAA): averages \$26 M/yr

Typical TYP Funding Synopsis

Typical Annual Funding Utilization

Betterment Funding \$22M/yr

- Preservation & Maintenance (Roads & Bridges)

Turnpike Funding for Capital & TRR

- Ranges from \$35M - \$65M/yr

SB367 Funding for I-93 Expansion, SAB, TIFIA DS

- \$30M per year net of Municipal Block Grant Aid
- State Aid Bridge: \$6.8M/year
- I-93 Debt Service: Averages \$2.0M/year (thru 2025)
- TIFIA Pledged Paving & Bridge Work: \$12M/year (paving)
\$ 9M/year (bridges)
- I-93 Debt Service 2026-2034 increases to \$23.4M/yr

TIFIA Program – \$200M Loan

DOT		STATE OF NEW HAMPSHIRE					
12/09/16		SB 367 - AMENDMENT #2015-1810s BY THE SENATE AND HOUSE PASSED 2018 - 2019 AGENCY BUDGET					
		BUDGETARY ESTIMATES WITH TIFIA FINANCING					
Fiscal Year	\$0.042 Dedicated Road Toll Increase ¹	Municipal Block Grant Aid (12% PY Revenue)	Debt Service & Cost of Issuing Bonds Due on \$200M TIFIA Financing ² for I-93	Additional State Aid for Municipal Bridges	DOT Operating Budget	Transfer from FY 16 savings in Operating ⁴	TIFIA Pledged Paving and Bridge Repair ³
2015 Actual	\$34,317,587	-	\$100,000	\$9,117,587	-		\$25,100,000
2016 Actual	\$34,686,888	\$4,118,110	\$284,354	\$6,800,000	\$8,300,000		\$15,184,423
2017 Budget	\$34,425,781	\$4,131,094	\$888,337	\$6,800,000	\$8,300,000	\$4,000,000	\$18,306,350
2018 Agency Budget	\$34,343,750	\$4,131,094	\$830,987	\$6,800,000	-		\$22,581,669
2019 Agency Budget	\$34,343,750	\$4,131,094	\$1,396,683	\$6,800,000	-		\$22,015,973
2020	\$34,343,647	\$4,121,250	\$1,864,483	\$6,800,000	-		\$21,557,914
2021	\$34,343,544	\$4,121,238	\$2,147,107	\$6,800,000	-		\$21,275,199
2022	\$34,343,441	\$4,121,225	\$2,195,000	\$6,800,000	-		\$21,227,216
2023	\$34,343,338	\$4,121,213	\$2,195,000	\$6,800,000	-		\$21,227,125
2024	\$34,343,235	\$4,121,201	\$2,197,986	\$6,800,000	-		\$21,224,048
2025	\$34,343,132	\$4,121,188	\$2,192,014	\$6,800,000	-		\$21,229,930
2026	\$34,343,029	\$4,121,176	\$2,340,570	\$6,800,000	-		\$16,147
2027	\$34,342,926	\$4,121,163	\$23,405,706	\$6,800,000	-		\$16,056
2028	\$34,342,823	\$4,121,151	\$23,405,706	\$6,800,000	-		\$15,966
2029	\$34,342,720	\$4,121,139	\$23,405,706	\$6,800,000	-		\$15,875
2030	\$34,342,617	\$4,121,126	\$23,405,706	\$6,800,000	-		\$15,784
2031	\$34,342,514	\$4,121,114	\$23,405,706	\$6,800,000	-		\$15,694
2032	\$34,342,411	\$4,121,102	\$23,405,706	\$6,800,000	-		\$15,603
2033	\$34,342,308	\$4,121,089	\$23,405,706	\$6,800,000	-		\$15,512
2034	\$34,342,205	\$4,121,077	\$23,405,706	\$6,800,000	-		\$15,422
TOTAL	\$687,261,642	\$78,328,844	\$226,943,305	\$138,317,587	\$16,600,000	4,000,000.00	\$231,071,906

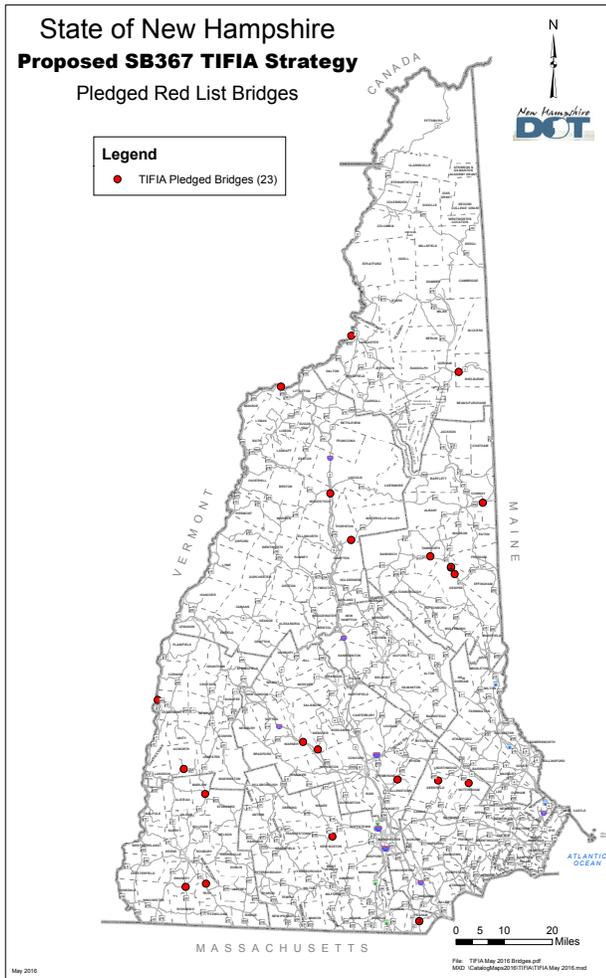
¹ - For FY 2017, Approved Budget as passed Chapter 275 Laws of 2015; FY 2018-2019 is the Agency Budget submitted Sept 2016; FY 2020 - FY 2034 provided by the Department of Safety, assumes a 0.0003% decrease each year thereafter.

² - Actual/Projected debt service based on loan closing 5/24/2016.
 - \$200M TIFIA Financing; 9 year deferral period for principal payments
 - All-In True Interest Cost = 1.09%
 - Includes \$15,000 annual TIFIA Administrative Fee.

³ - Pursuant to SB367 requirements, funds identified will be allocated based on RSA 235:23-a, Highway and Bridge Betterment Account.

⁴ - Savings realized in Highway Maintenance in FY2016 transferred to TIFIA Pledged Paving and Bridge Repair pursuant to CH 0324:10 L16.

TIFIA Program Impact



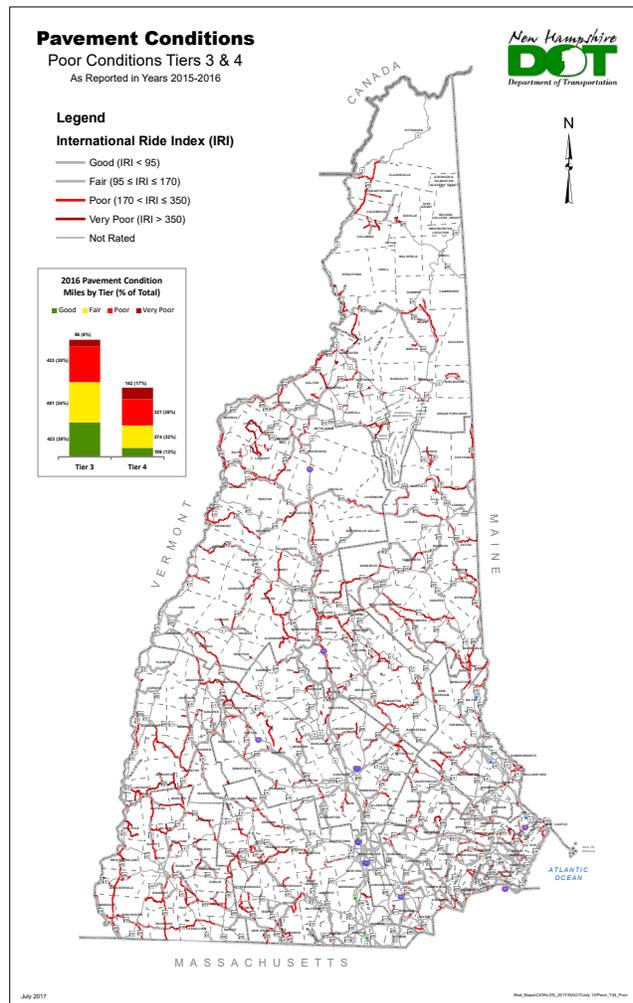
Statewide Impact

\$231M of Pledged Bridge and Paving Work

23 Red List Bridges

1160 Miles of Tier 3 & 4 Poor & V. Poor Roads

\$200 M Loan for I-93 Completion

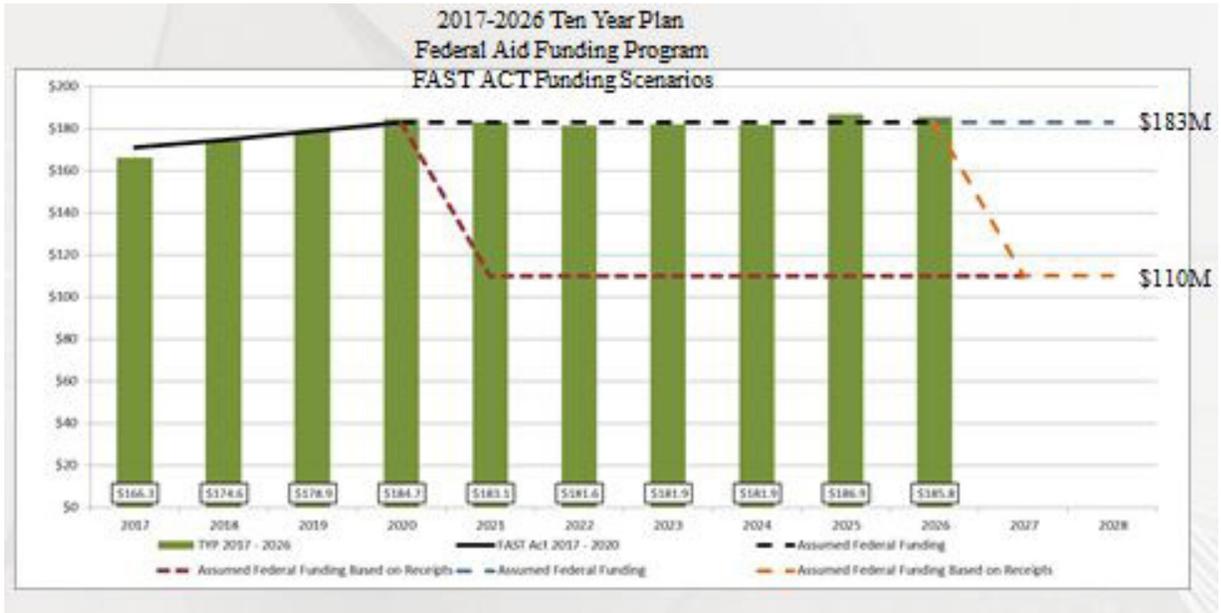


Proposed TYP Focus

- Focus on Pavement Preservation
 - “Keeping good roads good”
 - Maintenance and Preservation strategies on existing system
- Focus on Red List Bridges & Bridge Preservation
 - Funding to address State’s Red List Bridge backlog
 - Funding for bridge preservation work to extend bridge life
- Dedicated SB367 funds for TIFIA loan pledged rural roads and bridges
- Completion of I-93 & Funding for Exit 4A
- Heightened Financial Constraint
 - FAST Act federal funding thru FY20
 - Fully financially constrained TYP
 - Increased level of accountability, predictability & ability to deliver

Supplemental Information

Federal Funding Status



General Financial Constraint Considerations for First Draft TYP (2019-2028)

- **Assume Level Formula Federal Funds – Projects programmed at average of \$183 M/year**
 - Mandated federal programs - funding maintained at current levels
 - CMAQ, HSIP, TA, Off-system bridge, etc.
 - Include \$50M for RPC projects in 2027/2028 (\$25M/yr)
 - Received \$283M in project requests from 9 RPC's
 - Maintain & extend all existing programs by 2 years
 - Include \$12M/yr in 2026-2028 for paving
 - To replace SB367 funding directed to debt service in 2026
- Include approximately \$60M (total) for additional individual Bridge projects in 2027-2028 including Vilas Bridge funded at 50%
 - Include \$6M/yr in 2025-2028 for Red List Bridges
 - Extends existing program and increases by 20% (\$5M to \$6M)
 - Include additional \$2M/yr in 2026-2028 for culvert program

General Financial Constraint Considerations for First Draft TYP (2019-2028)

- **Assume Conservative Level of Formula Federal Funds – Projects programmed at average of \$110M/year**
 - Reduce 2021-2028 by 40% (\$73M/yr)
 - Eliminate \$584M in projects over 8 years
- **Assume Moderate Level of Formula Federal Funds – Level funding through 2026**
 - Keep current TYP funding levels
 - Reduce 2027 & 2028 by 40% (\$73M/yr) to \$110 M/yr in federal funds
 - Eliminate \$146M in projects over the 2-year period

General Projected Outputs of Draft TYP (2019-2028)

- Pavement Resurfacing 425 mi/year (estimated)

- Preservation (crack seal) 164 mi/year
- Preservation 133 mi/year
- Light Capital 116 mi/year
- Rehabilitation 12 mi/year

TIFIA Pledged Pavement Resurfacing

- Additional 185 mi/year (estimated)
- Maintenance & Roughness Paving on Poor & V. Poor Roads

- State-Owned Bridges

- Rehabilitate / Replace: 79 bridges (61 Red list Bridges)
- Bridge Maintenance (39 Red list Bridges over 4-year period)
- 135 of 140 red list bridges addressed through 2028 including previous TYP projects

TIFIA Pledged Bridge Work

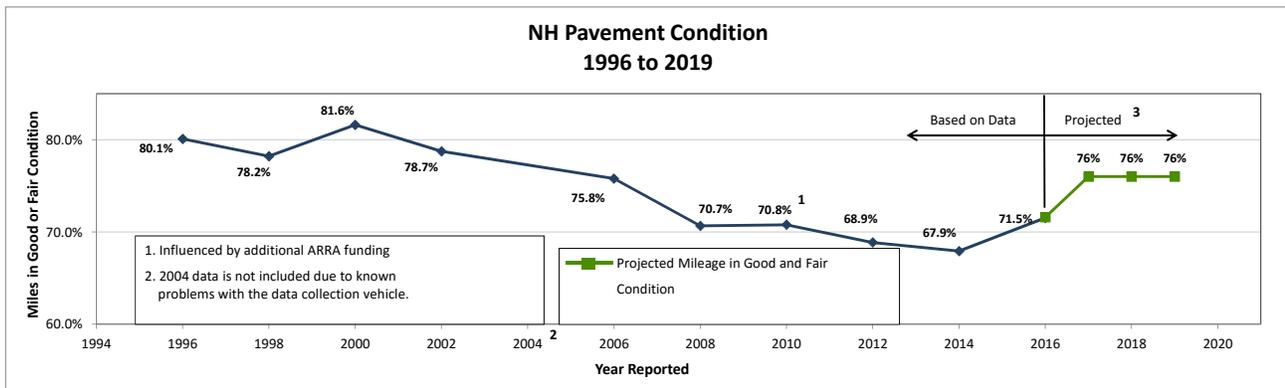
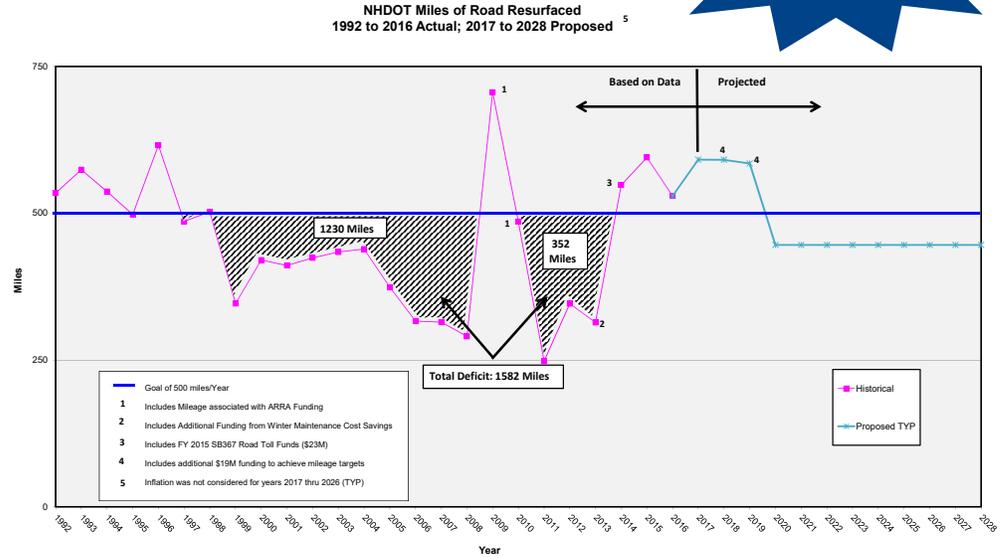
- Rehabilitates / Replaces Additional 23 bridges

Items for Consideration

A Look Ahead – Road Condition

Based on current level of investment in the TYP

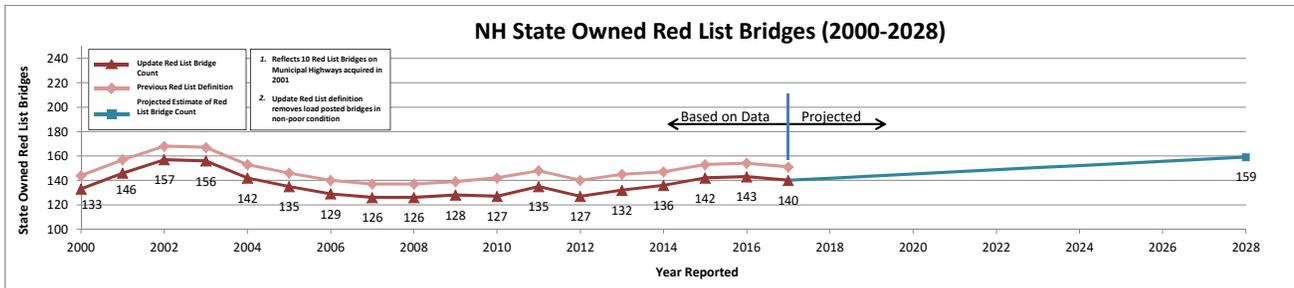
- Past years backlog of deficit paving reduced the state's overall pavement condition from a high of 81.6% of roads in good or fair condition to a low of 67.9%
- Current and projected condition is expected to rise to 76% with the current level of investment through 2019



Supplemental Information

Items for Consideration

A Look Ahead – State Bridge Condition



State-Owned Counts	2010	2011	2012	2013	2014	2015	2016	2017
Poor Count ("4" or less)	127	135	127	132	136	142	143	140
Fair Count ("5")	254	261	267	271	286	295	295	300
Fair Count ("6")	527	522	517	508	517	506	535	544
Good Count ("7" or greater)	1189	1191	1206	1216	1193	1194	1163	1150
Black Count (non-hwy/closed)	30	27	26	26	23	23	23	24
Total State-Owned Count	2127	2136	2143	2153	2155	2160	2159	2158

Based on recommended level of investment in draft TYP

- Number of State Red List Bridges (SRL) - which is representative of bridges in poor condition (rating of 4 or lower) is **expected to increase**
- Higher number of “fair condition” bridges with rating of 5 today than 7 years ago
- 135 of 140 red list bridges addressed
- Current SRL bridge total – **140**
- Bridges added to SRL by 2028 – **242**
 - 22 bridges added annually over last 5 years – extrapolated to 2028 projects to **242** bridges
- Bridges expected to be removed from SRL by 2028 – **223**
 - **121** removed by Bridge Maintenance forces
 - **102** removed by projects

Items for Consideration

Turnpike Capital Program

Estimated costs for two projects have increased due to advancing the design alternatives.

- Nashua-Bedford increased from \$71M to \$143M
 - Project completion in 2025
- Bow-Concord increased from \$248M to \$382M
 - Approximately \$246M in funding beyond 2028
 - Project completion in 2033
- Toll Increase and Turnpike expansion northward through Exit 15 in Concord would allow both projects to be completed by 2028
- All Electronic Toll (cashless tolling) Authorization

Supplemental Information

Items for Consideration

Additional needs

- Fund Type 2 Sound Wall Program?
 - 37 miles of wall for 49 eligible locations - \$125M
- Fund Road Reconstruction Program?
 - 1300 miles of poor/very poor roads @ \$2M/mile
- Fund Rock Slope Mediation Program?
 - 44 rock slopes identified as high-hazard
- Fund additional assets including culverts, guardrail, traffic signals
- \$230M in unfunded RPC priorities

Supplemental Information

Upcoming Schedule of Events

- NHDOT Release Draft TYP (2019-2028) – Aug 23rd
- GACIT Meeting on Aug 23rd - tentative
- Public Hearings – September through October
- GACIT Meeting – November
 - Public Hearings Summary
- GACIT Meeting – December
 - Revised Draft TYP Presentation

Supplemental Information

Status of 2017-2018 Construction Projects

Name	Number	Ad Date	Current CON Year	2017-2026 TYP CON	Advertised
ANTRIM	29468	Municipal	2018	2017	Planned
BEDFORD	20000	Municipal	2017	2017	Complete
BELMONT	16202	Municipal	2018	2017	Planned
BERLIN	15792	Municipal	2017	2017	Planned
BOW	20965	1/10/2016	2017	2017	Advertised
BOW	20966	Municipal	2017	2017	Planned
BOW	40346	Municipal	2017	2017	Planned
CLAREMONT	13248	Municipal	2018	2017	Planned
CLAREMONT	28693	Municipal	2017	2017	Planned
CONCORD	28417	3/27/2018	2018	2017	Planned
CONCORD - PEMBROKE	14841A	Municipal	2018	2017	Planned
DERRY	24861	9/11/2018	2018	2017	Planned
DUMMER	15815	Municipal	2018	2017	Planned
DUMMER	16304A	9/4/2018	2018	2017	Planned
DURHAM - NEWMARKET	13080B	10/11/2016	2017	2017	Planned
ENFIELD	12967B	1/24/2017	2017	2017	Advertised
HAMPTON - PORTSMOUTH	26485	2/17/2018	2018	2017	Planned
HUDSON	13353	Municipal	2017	2018	Planned
MANCHESTER	14966	7/23/2013	2017	2017	Advertised
MANCHESTER	15401	Municipal	2018	2017	Planned
MANCHESTER	40367	6/7/2016	2016-2017	2017	Advertised
MEREDITH	10430	7/18/2017	2017	2017	Planned
NASHUA-MERRIMACK	40036	2/2/2016	2016-2017	2017	Advertised
PITTSFIELD	14972	Municipal	2018	2017	Planned
PORTSMOUTH	28757	7/5/2017	2017	2017	Planned
ROCHESTER-MILTON	40038	2/2/2016	2016-2017	2017	Advertised
SALEM TO MANCHESTER	14633Z	4/14/2015	2015-2017	2017	Advertised
SANBORNTON	29744	Municipal	2017	2017	Planned
STATEWIDE	28956	5/8/2018	2018	2017	Planned
STEWARTSTOWN, NH - CANAAN, VT	15838	9/20/2016	2017	2017	Advertised
SUNAPEE	15836	Municipal	2017	2017	Complete
TILTON	29358	1/30/2018	2018	2017	Planned
WILTON	15767	Municipal	2018	2017	Planned
ACWORTH	16301	10/10/2017	2018	2018	Planned
BEDFORD	16156	9/5/2017	2017	2018	Planned
BEDFORD	21193	Municipal	2018	2018	Planned
CONCORD	15877	Municipal	2018	2018	Planned
CONCORD	15878	Municipal	2018	2018	Planned
CONWAY	15864	9/4/2018	2018	2018	Planned
CONWAY	40018	2/6/2018	2017-2018	2018	Planned
GILFORD	15890	Municipal	2018	2018	Planned
HUDSON	13354	Municipal	2018	2018	Planned
LANCASTER	22192	Municipal	2018	2018	Planned
LITTLETON	40884	Municipal	2018	2018	Planned
LOUDON-CANTERBURY	29613A	1/14/2020	2020-2021	2018	Planned
NEWPORT	16109	2/6/2018	2018	2018	Planned
PIERMONT	16193	Municipal	2018	2018	Planned
PLAISTOW	23117	Municipal	2018	2018	Planned
PORTSMOUTH	20258	5/22/2018	2018	2017	Planned
THORNTON	15938	Municipal	2018	2018	Planned
BEDFORD	13953	4/25/2017	2017	2017-2018	Advertised
BEDFORD - MERRIMACK	16100	11/7/2017	2018	2017-2018	Planned
HOOKSETT	14950	Municipal	2018	2017-2018	Planned
LEBANON	15880	8/29/2017	2017-2018	2017-2018	Planned
NEWINGTON - DOVER	112380	9/23/2014	2015-2018	2017-2018	Advertised
PORTSMOUTH, NH - KITTERY, ME	15731	11/21/2014	2017-2018	2017-2018	Advertised
TAMWORTH	16239	10/3/2017	2018	2017-2018	Planned
ROXBURY - SULLIVAN	10439	8/15/2017	2017	2017-2019	Planned
WALPOLE-CHARLESTOWN	14747A	9/9/2017	2017-2020	2017-2020	Planned

Total projects with construction funding in 2017-2018 59
 Projects w/Construction underway 13
 Projects planned for 2018 46

Supplemental Information

Delayed/Advanced/Withdrawn projects 2017-2018 from the 2017-2026 TYP

Name	Number	Reason	2017-2026 TYP CON	Revised TYP CON
AMHERST	10136C	Advanced	2019	2018
BELMONT	16203	Advanced	2017	2016
BRADFORD	16106	Withdrawn	2018	--
DUMMER-CAMBRIDGE-ERROL	16304	Delayed	2018	2019
EATON	15997	Advanced - SAB	2019	2016
KEENE	15854	Delayed by Sponsor - SAB	2018	2019
KEENE	28737	Advanced	2017	2016
LACONIA	16144	Advanced	2019	2018
LEBANON	13558A	Delayed by Sponsor - SAB	2018-2019	2020-2021
MANCHESTER	15837	Delayed by Sponsor - SAB	2017	2026
MERRIMACK	29174	Delayed by Sponsor - SAB	2018	2023
PETERBOROUGH	14772A	Delayed NEPA re-evaluation	2017	2019
PETERBOROUGH	14933	Delayed by sponsor - NEPA re-evaluation	2017-2018	2019-2020
NASHUA	16314	Delayed by sponsor- Municipally managed	2017-2018	2020
SALEM TO MANCHESTER	10418H	Advanced	2017	2016
SANBORNTON	16154	Advanced	2019	2017
HAMPTON FALLS-HAMPTON	13408B	Withdrawn	2017-2018	--
HAVERHILL	16238	Advanced	2020	2017
ANTRIM	29468	Advanced - SAB	2022	2018
WEARE	14338	Delayed by Sponsor - SAB	2017	2024

Projects withdrawn	2
Projects advanced & will be completed in earlier than planned	9
Projects delayed	9

Regional Planning Commission and the Ten Year Plan

Each Regional Planning Commissions (RPC) works with their member communities in developing recommendations for changes (including a list of regional priorities) they would like to see added or continued to be part of the States Ten Year Plan. As part of the process, the RPC recommendations are transmitted to NHDOT for consideration. NHDOT reviews the recommendations submitted as well as other input from other NHDOT sources and creates the draft TYP for consideration by GACIT.

In the update of the 2017-2026 Ten Year Plan, the RPCs and the Department significantly improved the process they are both involved in. Improvements allowed for RPCs to submit recommendations for inclusion in the TYP in a similar format and using the same rating criteria to be prioritized. The NHDOT solicited input from the RPCs on potential project additions/modifications. The outcome is that the RPCs have an understanding of the process and the ability to explain how the TYP was developed and how recommendations were made to their communities.

In this update, the Department and the RPCs recognize that there is still room for improvement. There was discussion and consensus achieved between all of the parties that criteria should be simplified further and that all RPCs should also utilize the same criteria weights that were developed by staff of each RPC in coordination with NHDOT.

The current update efforts included:

- Updated guidance issued in writing from Department to all RPCs at the beginning of Ten Year Plan update process
- Continued use of Decision Lens software to keep all efforts documented and accountable
- Updated project information forms to be used by RPCs to collect common information for all project recommendations
- Communication of theoretical revenue projections if funding were distributed by same methodology as Block Grant Aid
- Refinement of criteria used by RPCs and NHDOT:
 - State of Repair
 - Safety
 - Network Significance
 - Mobility and Accessibility
 - Support
- Single priority listing from each RPC
- DOT staff evaluated top regional projects using RPC submitted information
- Currently scheduling to meet with each RPC one on one to review priorities

Both the Department and the RPCs are hopeful that these changes, and others as the process is continually reviewed in the future, will result in clearer communications and expectations, and a more understandable Ten Year Plan process, with documented support for the priorities put forward.

Supplemental Information

NHDOT Highway Tiers – Definitions

System Strategies

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

Tier 1 – Interstates, Turnpikes, and Divided Highways

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

Tier 2 – Statewide Corridors

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

Tier 3 – Regional Transportation Corridors

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

Supplemental Information

NHDOT Highway Tiers – Definitions

Tier 4 – Local Connectors

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

Tier 5 – Local Roads

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

Tier 6 – Off Network

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

Supplemental Information

NHDOT Bridge Strategy - Summary

The New Hampshire Department of Transportation (NHDOT) is focused on managing the state's transportation network as efficiently and effectively as possible. With that goal in mind, the Bridge Strategy is based on the following concepts:

1. Bridge Priorities (Tiers)
2. Making Sustainable Investments
3. Redundant Bridges

Bridge Priorities (Tiers) - Not all bridges are equal

While every bridge is critical to the people and businesses that rely upon it, each bridge also serves a different number of users and provides different levels of connectivity between homes, businesses, and other destinations. The Department has categorized the state managed road system and the bridges along each road into the following priorities (tiers):

- High Investment Bridges (HIB) – Largest & most costly bridges (Memorial, I-95, Amoskeag)
- Tier 1 – Interstates, Turnpikes & the divided section of Route 101
- Tier 2 – Major corridors (like US 3, US 4, US 202, and Route 16)
- Tier 3 – Collectors (like Route 112, Route 31, and Route 155)
- Tier 4 – Secondary highways and unnumbered routes

Making Sustainable Investments

New Hampshire's inventory of more than 3,800 bridges (2,155 state-owned and 1,688 locally-owned) required a massive initial investment of public funds over many decades. To maximize the return on that investment, bridges require a thorough preservation and maintenance strategy. For recently constructed bridges, our goal is to extend the expected service life up to and beyond 120 years. This strategy relies on recurring investments in preservation and maintenance which reduces the frequency of higher-cost reconstruction and replacement projects.

Maintenance & Preservation – Keeping good bridges good

Bridges are made up of many different parts working together and each of those parts requires upkeep to stay in good working order. Upkeep includes everything from washing to repairing damage to replacing certain parts that wear out over time. This type of upkeep is generally **low-cost**, but can vary based on how large and busy a bridge is. The impact to travelers would normally be between a few hours and several months. Routine maintenance and preservation performed on-schedule will keep bridges operating for as long as possible before more substantial work is required.

Supplemental Information

Rehabilitation – Restoring poor bridges

Because certain parts of a bridge cannot be maintained or repaired forever, every bridge will require rehabilitation at some point in its lifecycle. The result of rehabilitation is a bridge that can be maintained and preserved for many years to come. These activities are generally **moderate-cost** and usually take several months or up to a year to complete.

Reconstruction – Making a good bridge

Most bridges will need to be reconstructed at some point because certain parts that are difficult to rehabilitate wear out over time. The result of reconstruction is a brand new bridge that is very similar in function to the prior bridge. Reconstruction is high-cost and requires 1 to 3 years to complete. Because of the **high cost**, each bridge must be carefully evaluated to determine when or if it should be reconstructed, down-posted, or closed.

Table 1 - Bridge Strategy Investment Priority

Bridge Strategies	HIB	Tier 1	Tier 2	Tier 3	Tier 4
Maintenance	High	High	High	High	High
Preservation	High	High	High	High	High
Rehabilitation	High	High	High	Moderate	Low
Reconstruction	High	High	Moderate	Low	Low

Redundant Bridges – Should all bridges be kept open

Each bridge required a substantial initial investment made by the people of New Hampshire and our goal is to protect that investment for as long as possible. In addition, each bridge also requires a recurring investment for routine maintenance, preservation, rehabilitation, and, ultimately, reconstruction. Over the years, new roads and bridges have been built that may make certain bridges somewhat redundant. With limited resources we must evaluate whether or not continued long-term investment is justified on redundant bridges.

Supplemental Information

NHDOT Bridge Strategy - Definitions

Maintenance & Preservation Bridge Strategy – Getting the most for your investment

Definition – A long term strategy that uses a variety of small- to mid- sized efforts to extend the life of a bridge. Maintenance includes activities like washing and sealing a bridge, cleaning drainage ways, and keeping vegetation controlled. Preservation includes activities like replacing expansion joints, sealing cracks, and replacing the membrane protecting the bridge deck.

Department’s Perspective – Like most things, bridges last longer when proper maintenance and preservation work is performed. For each type of bridge, there is a recommended preservation and maintenance schedule that should be followed to get the maximum benefit. Unfortunately, there is not enough money to follow the recommended schedule for all bridges because the NHDOT has a backlog of Red List bridges. Though costing more in the near term, performing regular preservation and maintenance will cost the state less money in the long term.

Rehabilitation Project – Restoring bridges in poor condition

Definition – A one-time project that significantly improves the condition of the major parts of a bridge while keeping the underlying structure in place.

Department’s Perspective – A bridge rehabilitation project requires more work than scheduled preservation and maintenance, but does not require a brand new bridge (reconstruction). This work is used when major parts of the bridge need to be replaced, but there is some service life remaining in other parts of the bridge. Because this strategy involves replacing major parts of the bridge, it should only be used when those parts have been used for as long as safely possible. These projects are included in the Department’s Ten Year Transportation Improvement Plan.

Reconstruction Project – A new bridge is needed.

Definition – A one-time project that replaces an entire bridge with a brand new bridge.

Department’s Perspective – Reconstruction happens when the entire bridge is too deteriorated for a cost effective rehabilitation. This high-cost work has a significant impact on traffic and often requires closures, detours, and / or temporary bridges. While this work cannot be completely avoided, it can be significantly postponed by applying effective maintenance and preservation strategies. Bridge reconstruction should be planned well in advance of when the effort will be needed.

Supplemental Information

NHDOT Bridge Strategy - Definitions

Priority List – Which bridges should we fix?

Definition – A list of bridges, updated annually, that ranks rehabilitation and reconstruction investment priorities based on various bridge characteristics.

Department’s Perspective – Each year, NHDOT updates a prioritized list of bridges so that limited funding is put to the best use. NHDOT uses a variety of factors to determine how a bridge is prioritized, including roadway tier, detour length, bridge condition, and the amount of traffic. This list helps determine which bridges are included and when they are scheduled in the Ten Year Transportation Improvement Plan.

Red List – Bridges requiring more attention

Definition – A list of bridges requiring additional inspections and more frequent repairs due to known deficiencies, poor condition, or load restrictions, usually the result of structural deterioration.

Department’s Perspective – Over time, the condition of every bridge will deteriorate so that at some point it will be on the Red List due to one or more structural deficiencies. A bridge on the Red List requires additional effort by NHDOT, including two inspections per year, as well as plans to address the deficiency in a timely fashion before the bridge is down posted, closed, or requires special/emergency interim attention. When funding levels are insufficient, this list can grow at a rapid pace.

Structurally Deficient – A backlog of poor condition bridges.

Definition – Any bridge that has deteriorated such that at least one major element (deck, superstructure, substructure) is classified as being in “poor” condition, and thus fails to meet the needs of the highway it carries because of its deteriorated condition.

Department’s Perspective – Structurally deficient bridges comprise most of the Red List. Depending on the severity of the deficiency, the bridge’s condition may be improved through rehabilitation or reconstruction. When funding levels are insufficient, the number of structurally deficient bridges can grow at a rapid pace, potentially compromising public safety.

Supplemental Information

NHDOT Bridge Strategy - Definitions

High Investment Bridges – The most expensive bridges in the State

Definition – Any bridge, regardless of ownership, that has a deck area (the surface that vehicles drive on) greater than 30,000 square feet or has a lift mechanism.

Department’s Perspective – The state has made significant investments in High Investment Bridges (HIBs). In order to get the most out of this investment, NHDOT is developing a separate bridge strategy for HIBs. This strategy will include a detailed maintenance plan and a high priority rating for preservation and maintenance activities. Unlike tiers, HIBs are not based on ownership. While most HIBs are owned by the state, some HIBs are municipally owned such as the Loudon Road Bridge over the Merrimack in Concord.

Costs

All bridge costs are approximate and evolving as data is further analyzed for bridge treatment life cycles and costs. As such, these costs and treatments will change over time and are based on the best available information as of 2014. The associated costs for preservation and maintenance efforts are shown in Table 1 and represent the yearly costs to preserve and maintain state and turnpike owned bridges.

Table 1: Yearly Cost for Bridge Preservation and Maintenance Strategies

Strategy	HIB*	Tier 1	Tier 2	Tier 3	Tier 4	Tier 5
Preservation and Maintenance Cost	\$4,300,000	\$7,720,000	\$6,990,000	\$3,700,000	\$1,870,000	\$2,070,000
Bridge area (millions sq ft)	1.9	3.4	2.0	1.1	1.9	0.7

* HIB cost is only for state and turnpike owned structures, not the 9 municipally owned HIB’s.

Supplemental Information

NHDOT Bridge Strategy - Definitions

The associated costs for rehabilitation and reconstruction are shown in Table 2. These are approximate one-time project costs. The costs for rehabilitation and reconstruction are highly variable and are dependent on a number of factors such as the width and length of the bridge, property impacts, traffic control alternatives, and environmental impacts.

Table 2: Average Cost per 2000 ft2.

Strategy	HIB	Tier 1	Tier 2	Tier 3	Tier 4	Tier 5
Rehabilitation	\$200,000	\$200,000	\$300,000	\$300,000	\$300,000	\$300,000
Reconstruction	\$1,300,000	\$1,300,000	\$1,820,000	\$1,820,000	\$1,820,000	\$1,690,000

Typical Bridge Work Schedule

To get the most out of the initial investment, the state should follow a routine work schedule. While schedules for individual bridges vary depending on geography and type of bridge, Table 3 lists scheduled work efforts for a typical bridge.

Table 3: Typical Bridge Schedule Work Effort

Category	Work Effort
Preservation/Maintenance	Wash and Oil Every Year
	Crack Seal the Pavement (every 10 years starting in year 5)
	Replace the Bridge Pavement (every 10 years starting in year 10)
	Replace Membrane and Expansion Joints (every 20 years)
	Paint exposed steel, if any (every 20 years)
Rehabilitation	Replace Worn Out Components (year 60)
Reconstruction	Completely Replace Bridge (year 120)

Note: Many existing bridges have not had the recommended maintenance to this point; therefore, they will likely require rehabilitation and reconstruction before 120 years.

Supplemental Information

NHDOT Pavement Strategy - Summary

The New Hampshire Department of Transportation (NHDOT) is focused on managing the state's road network as efficiently and effectively as possible. With that goal in mind, the Pavement Strategy is based on the following concepts:

1. Highway Priorities (Tiers)
2. Making Sustainable Investments (Strategies)
3. Funding Priorities

Highway Priorities (Tiers) - Not all roads are equal

While every road is critical to the people and businesses that rely upon it, each road also serves a different number of users and provides different levels of connectivity. The Department has categorized the state managed road system into the following priorities (tiers):

- Tier 1 – Interstates, Turnpikes & the divided section of Route 101
- Tier 2 – Major corridors (like US 3, US 4, US 202, and Route 16)
- Tier 3 – Collectors (like Route 112, Route 31, and Route 155)
- Tier 4 – Secondary highways and unnumbered routes

Making Sustainable Investments (Strategies)

The road network in New Hampshire required a massive investment of public funds over many decades. In order to maximize the useful life of that prior investment, along with current and future investments, strategies are developed for different types of roads.

Preservation Strategy – Keeping good roads good

Pavement, as just about everything else that endures wear and tear, needs some attention every now and then to stay in good working condition. A variety of low-cost pavement treatments are used to keep roads in good working condition for as long as possible. These treatments extend the useful life of the road, are low-impact, and usually limit construction disruption to only a few weeks; however, they can only be used on roads that are already in good condition which makes their use time sensitive.

Roughness Paving Strategy – Keeping roads functional and acceptable

While preservation and light capital paving focus on good and reasonable pavement, the focus of roughness paving is solely on very rough roads. When roughness paving is proposed, the road has reached or is about to reach a point where the road is so rough that the public is dissatisfied, it is difficult to plow snow, and safety is becoming a concern. Roughness paving restores a minimum standard for state owned roads, is **low-cost**, and construction takes one season. This strategy is a one-time investment. A light capital paving strategy will maintain the roadway after this initial investment.

Light Capital Paving Strategy – Keeping roads in working order

The Department uses light capital paving for roads that are in reasonable condition, but are not

Supplemental Information

NHDOT Pavement Strategy - Summary

suitable for preservation. This strategy of preventative maintenance uses **low-cost** treatments to protect the pavement that has developed cracking or other flaws thus extending the useful life of the pavement. Periodic paving will occur over the long-term to keep the road in a reasonable condition because light capital paving does not completely fix the pavement’s needs.

Rehabilitation – Restoring poor pavements

The result of this activity is a new preservable pavement. Rehabilitation is not suitable for every road that needs attention and particular site conditions can significantly affect the cost or how long the rehabilitated road will last. These activities are generally **moderate-cost** and may take a couple months to complete. The Department evaluates rehabilitation candidates for cost effectiveness on a case-by-case basis. This strategy is a one-time investment.

Reconstruction – Building a good road

Because the road network in New Hampshire has developed organically over many decades, many roads do not have constructed foundations. These roads present a challenge for sustainability because no investment in them, short of reconstruction, will last for very long. Reconstruction has a **high-cost** and may take more than a year to complete. This activity is not a priority of the Pavement Strategy because NHDOT is seeking to maximize the effectiveness of limited paving budgets and reconstruction can be cost prohibitive.

Funding Priorities – Making Tough Choices

Table 1 shows the paving priorities for NHDOT. These priorities provide the most benefit to the public based on a limited budget. Tiers and strategies combine to prioritizing roadway needs.

1. Prioritize preservation for all roads
2. Eliminate unacceptable roads through roughness paving
3. Maintain a reasonable condition through light capital paving
4. Rehabilitate high volume corridors with remaining funds

Priorities shown in Table 1 determine the distribution of paving funds.

Table 1 - Pavement Strategy Priority

Pavement Strategies	Tier 1	Tier 2	Tier 3	Tier 4
Preservation	High	High	High	High
Roughness Paving	-	High	Moderate	Moderate
Light Capital Paving	-	High	Moderate	Moderate
Rehabilitation	High	Moderate	Low	Moderate
Reconstruction	-	-	-	-

The Department will review this document every two years in concurrence with the development of the Department’s Ten Year Transportation Improvement Plan and update as necessary.

NHDOT Pavement Strategy

Signature Page

New Hampshire Department of Transportation –
Pavement Strategy – Summary

Approved by:



William Cass, PE
Assistant Commissioner
New Hampshire Dept. of Transportation

Date 7/16/17

Last Signed: March 9th, 2015

April 12, 2017

Mission:

Transportation excellence enhancing the quality of life in New Hampshire.

Purpose:

Transportation excellence in New Hampshire is fundamental to the state's sustainable economic development and land use, enhancing the environment, and preserving the unique character and quality of life. The Department will provide safe and secure mobility and travel options for all of the state's residents, visitors, and goods movement, through a transportation system and services that are well maintained, efficient, reliable, and provide seamless interstate and intrastate connectivity.

Vision:

Transportation in New Hampshire is provided by an accessible, multimodal system connecting rural and urban communities. Expanded transit and rail services, and a well-maintained highway network and airport system provide mobility that promotes smart growth and sustainable economic development, while reducing transportation impacts on New Hampshire's environmental, cultural, and social resources. Safe bikeways and sidewalks bring together neighborhoods parks, schools, and downtowns. Creative and stable revenue streams fund an organization that uses its diverse human and financial resources efficiently and effectively.

Christopher T. Sununu, Governor

Executive Councilors:

Joseph D. Kenney - District 1

Andru Volinsky - District 2

Russell E. Prescott - District 3

Christopher C. Pappas - District 4

David K. Wheeler - District 5

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