

New Hampshire Department of Transportation

Bureau of Bridge Design 2024 update

for



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**STRUCTURAL ENGINEERS
OF NEW HAMPSHIRE**

January 25, 2024

Outline

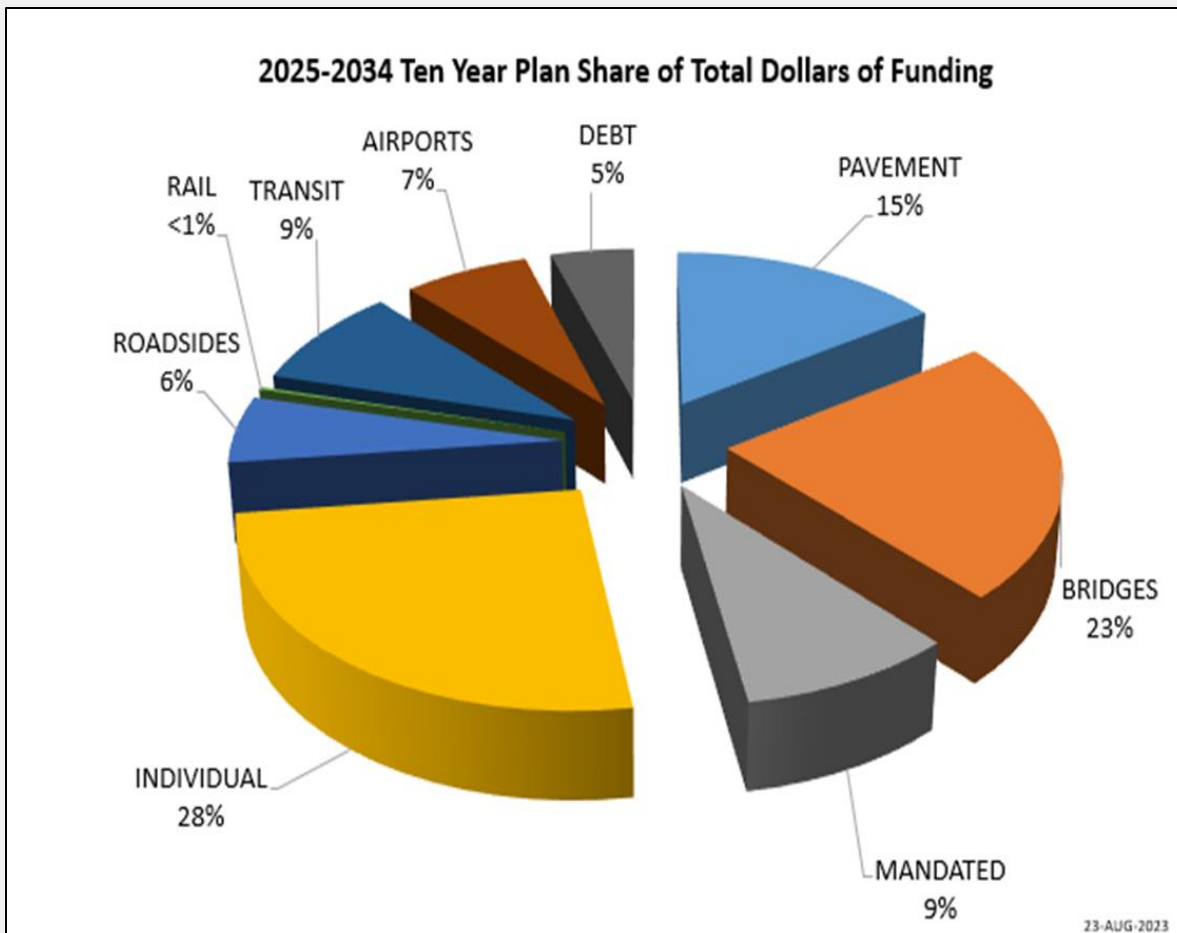
- Budget
- Staffing/Workload Status
- New CQI Process as applied to Bridge Design
- Design Changes
- Current State of Bridges in New Hampshire
- Bureau of Bridge Design Accomplishments
- Construction Photos



Budget

2025-2034 Ten-Year Plan

Grand Total Budget (all Funding) = \$4.89B over 10-ys



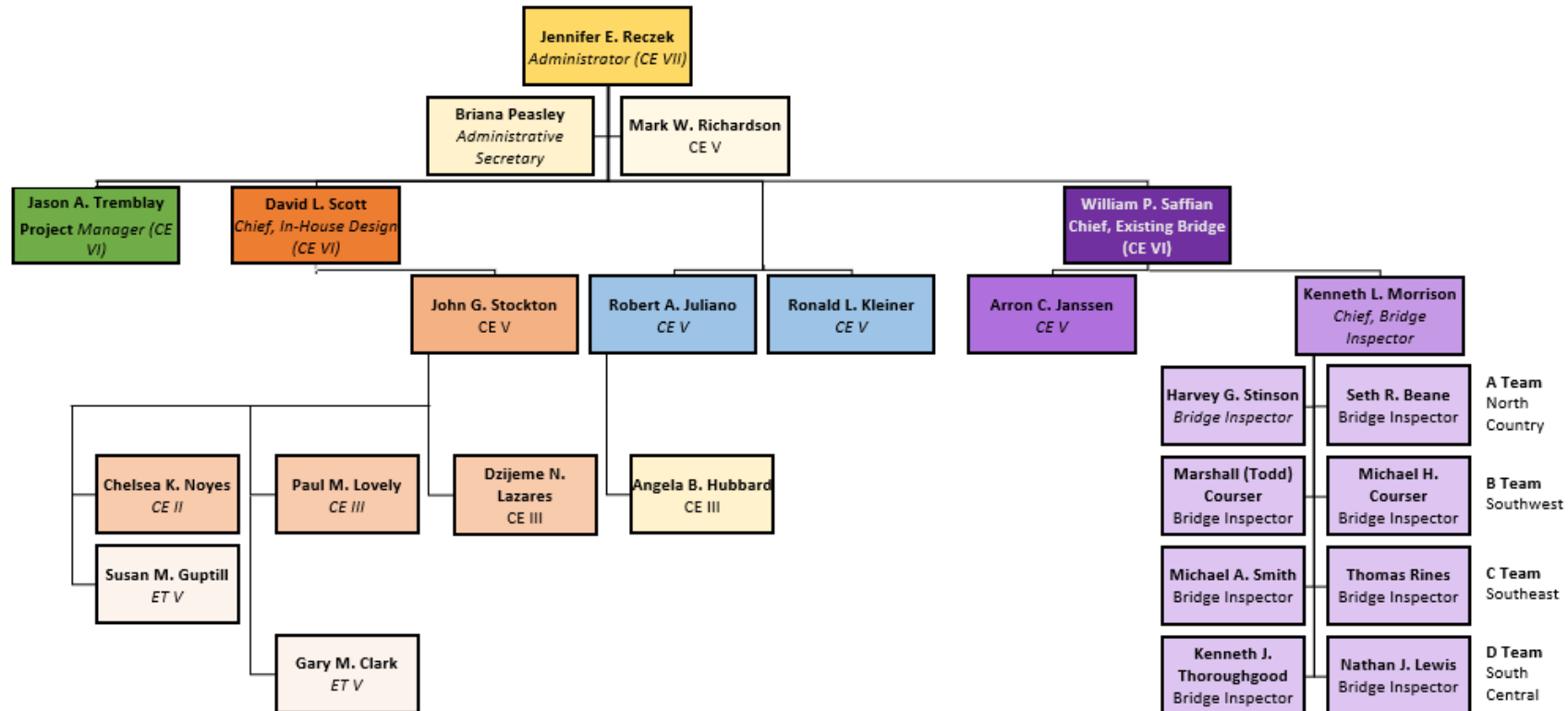
Total Funding for Bridges = \$1.13 B over 10-ys, all funding types

Additional \$156M State Bridge Investment due to IIJA funds

Staffing Status

Bureau of Bridge Design

Organizational Chart – Filled Positions



Bridge Design Workload

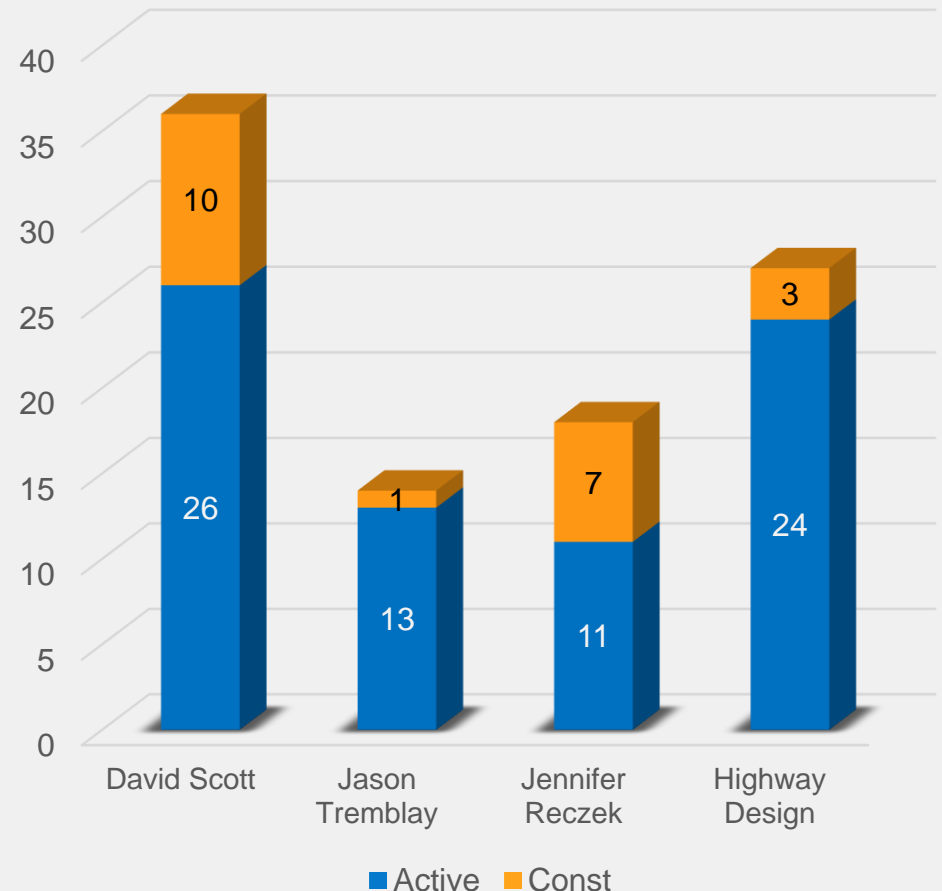
134 Projects

- 39 Planned
- 74 Active
- 21 in Construction

Bridge Design Staff

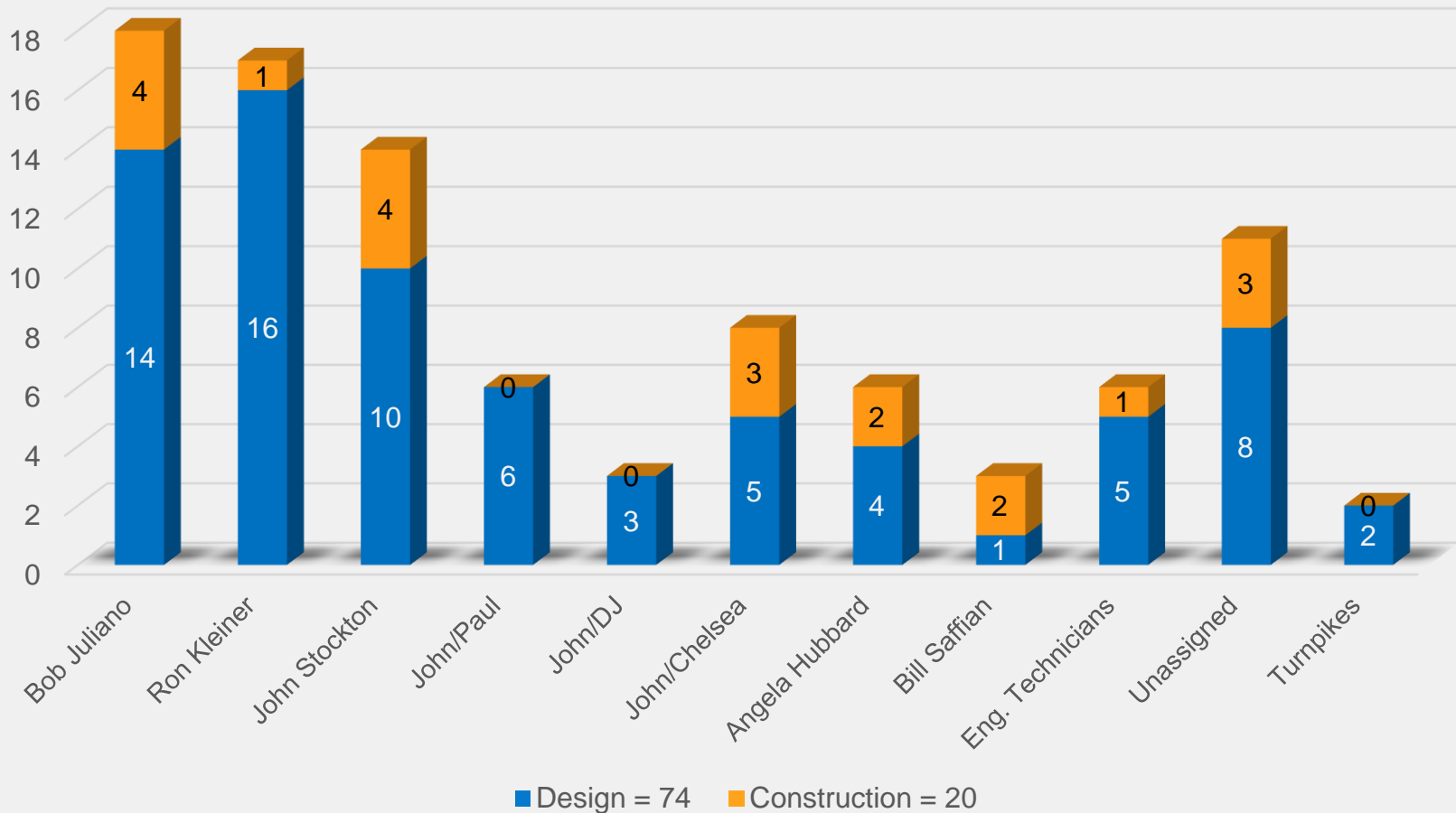
- Manages 72%
- Coord. lead on 77%

Active Projects by Project Manager



Bridge Design Workload

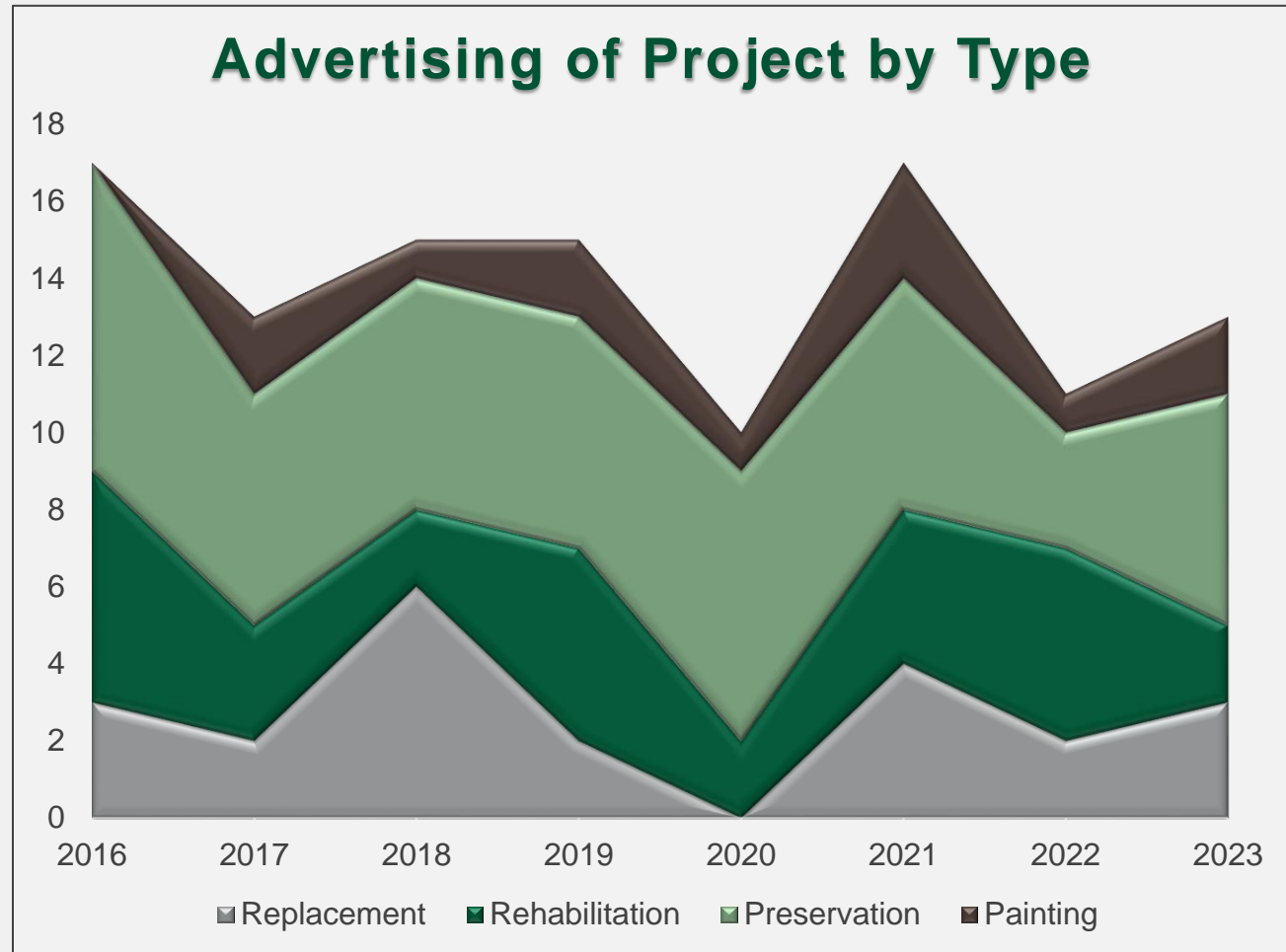
Project Count by Design Lead



Average of 16 projects per engineer

Bridge Design Workload

FFY Advertising Date	Total Projects Per Year
2016	17
2017	13
2018	15
2019	15
2020	10
2021	17
2022	11
2023	13
Avg.	14



Average of 25% In-House/75% Consultant

Consultant Project Review Process

In an effort to streamline the project review process the NHDOT, in partnership with ACEC firms, has implemented the following policy that is to be followed on all consultant lead projects.

Roles and responsibilities on Consultant lead projects.

Preamble

The increased level of funding available through the Infrastructure Investment and Jobs Act provides a rare opportunity to advance much needed infrastructure projects that can address current and future needs, spur economic growth, and enhance the lives of New Hampshire residents. The expectations for delivery are high at a time when both NHDOT and the consultant community are challenged for resources.

Purpose

To maximize the use of available resources and align responsibilities for engineering decisions in the most appropriate manner the New Hampshire Department of Transportation in partnership with ACEC firms will streamline the project design process by defining roles and responsibilities and working collaboratively.

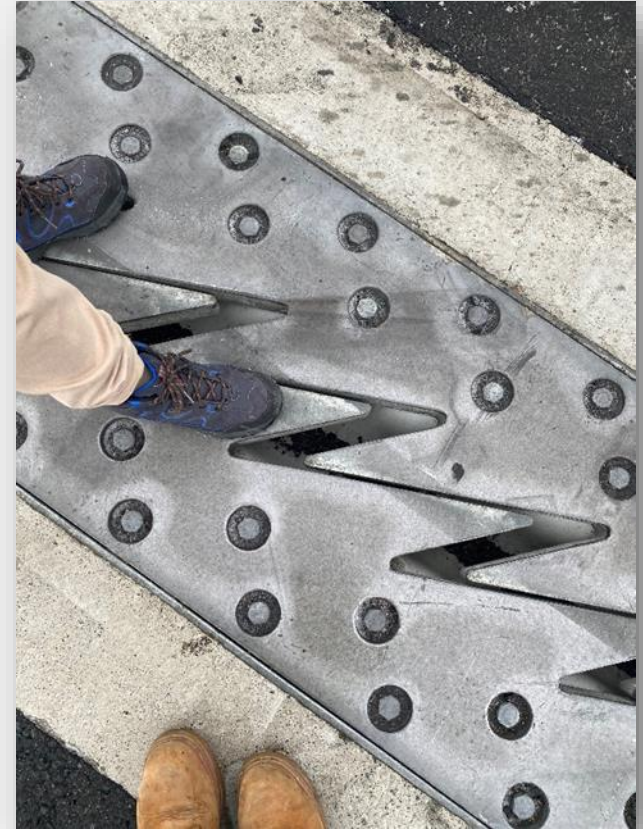


Design Updates

Finger Expansion Joint



Trough needs to be attached to the angles continuously along the joint. Pieces should abut above the hopper – no gaps.



Trough and Finger Changes

Bridge Mounted Sign Supports

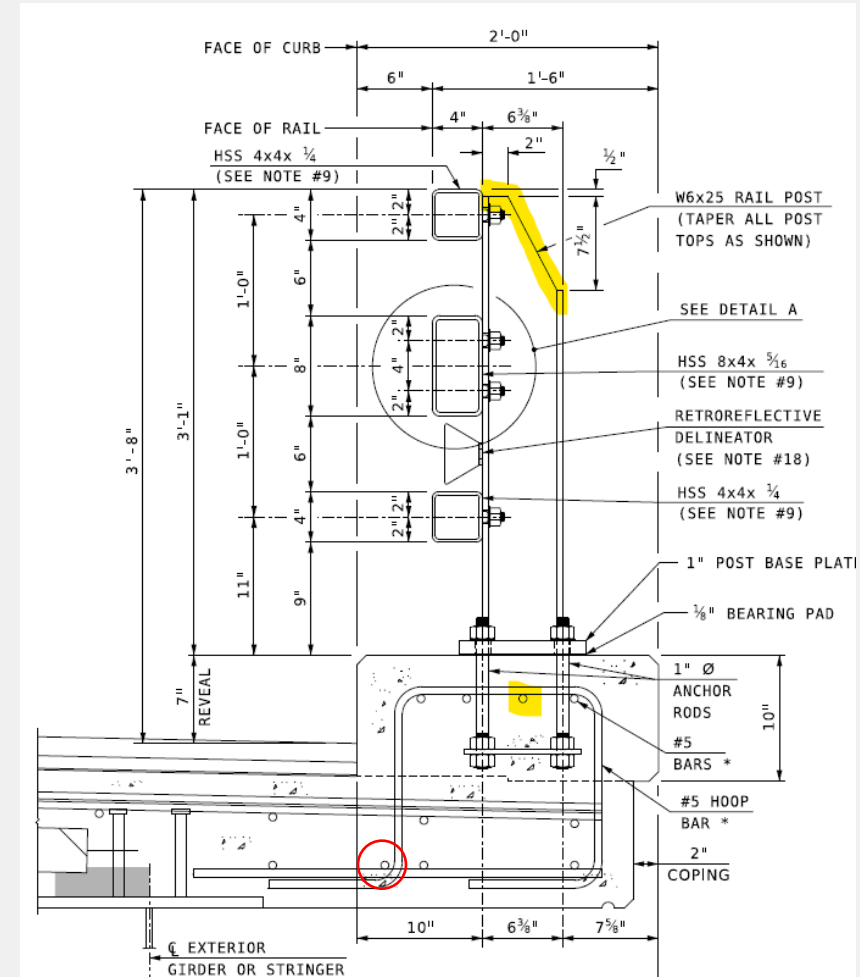
- Sign height limited to superstructure thickness + 3.5 ft
- Engineers must layout location of supports and rail
- Mechanical anchors are permitted



Bridge and Approach Railing

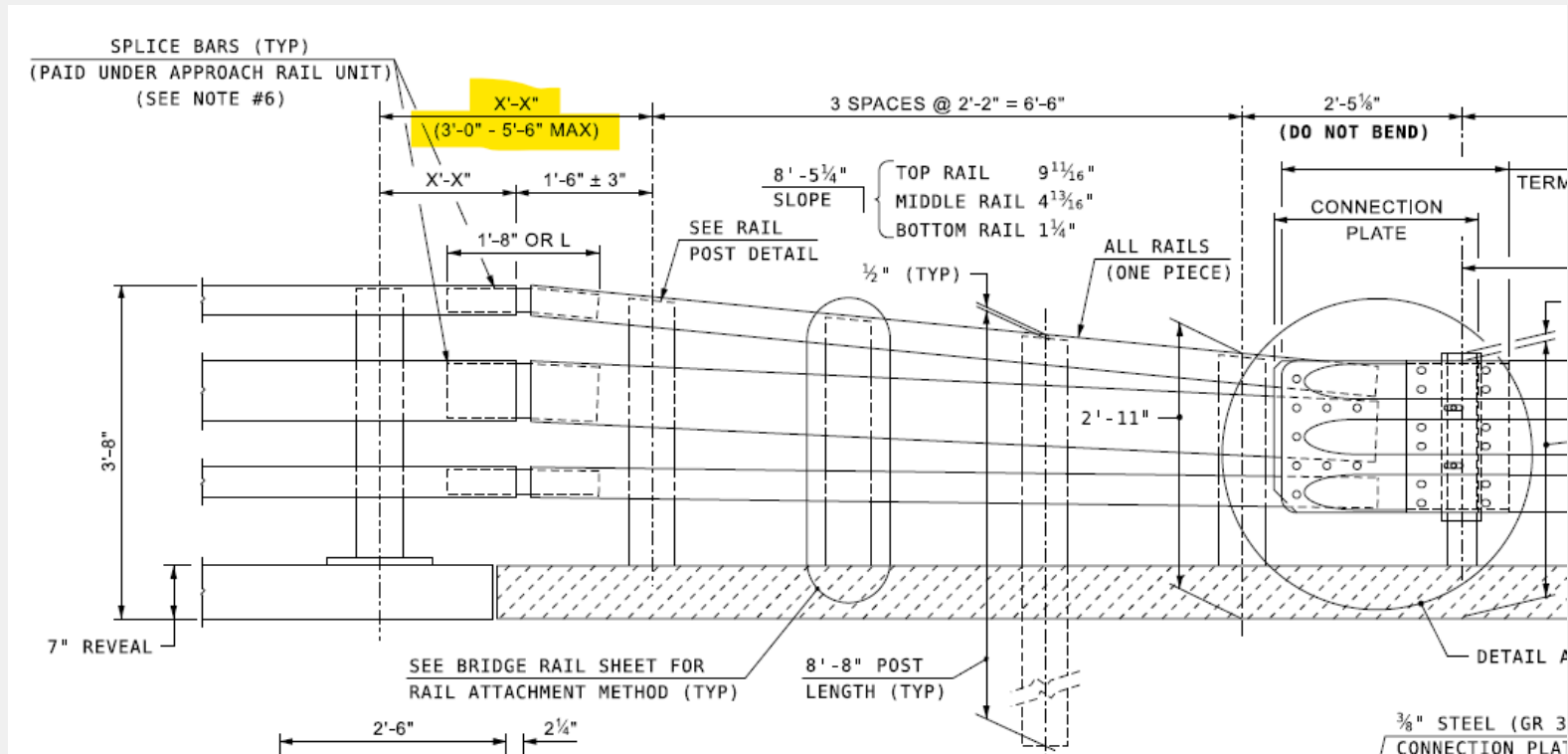
Changes:

- Posts clipped to prevent snagging of trucks.
- Added 4th longitudinal bar in the curb hoop.
- New longitudinal bar tied to front leg of the hoop bar
- T2 steel bridge and approach railing only to be used on local roads with speeds ≤ 45 mph.



Bridge and Approach Railing

- The 1st approach rail post can extend to 5'-6" maximum from the last bridge rail post. Designer will be noting the distance. This will help with expansion joint conflicts.



Concrete Soundwall

12. PRECAST CONCRETE SOUNDWALL PANELS SHALL HAVE A SC - ASHLAR ARCHITECTURAL FINISH ON BOTH FACES, CAST USING PATTERN NO. 1515 FORM LINERS BY SPEC FORMLINERS, INC. PRECAST CONCRETE LEVELING PANELS SHALL BE CAST SMOOTH. SEE SECTION 529 SPECIAL PROVISION FOR MORE INFORMATION.



A scenic landscape of a lake or river valley with mountains and a cloudy sky. The text is overlaid in the center.

Current State of Bridges in New Hampshire

2023 Bridge Inventory Snapshot

- 3,858 Bridges in the Inspection Inventory
 - 2,160 State-Owned & 1,698 Municipally-Owned Bridges
- 328 Red List Bridges
 - 115 State-Owned & 213 Municipally-Owned Bridges

	2022 Count	Add	Remove	2023 Count
State	118	8	11	115
Municipal	210	13	10	213

2023 State Red List Additions

- **8 ADDED to State Red List due to Condition**

<i>Bridge ID</i>	<i>Owner</i>	<i>Facility over Feature</i>
1 Manchester 091/063	TPK	I-293/FEET over Stark Way
2 Charlestown 181/058	NHDOT	NH12 over NECRR
3 Freemont 119/064	NHDOT	NH 111a over Exeter River
4 Gilford 121/102	NHDOT	NH 11B over Gunstock River
5 New London 070/112	NHDOT	Little Lake Sunapee Road over Brook
6 Acworth 095/060	NHDOT	NH 123A over Milliken Brook*
7 Washington 177/046	NHDOT	NH 31 over Shedd Brook
8 Dorchester 155/088	NHDOT	River Road over S Branch Baker River*

2023 State Red List Removals

- **11 REMOVED from State Red List due to Rehab/Replacement**

<i>Bridge ID</i>	<i>Owner</i>	<i>Facility over Feature</i>
1 Franconia 078/116	NHDOT	I-93 over Coal Hill Rd/Gale River (BOBM)
2 Manchester 176/106	NHDOT	Huse Road over I-293 (Stantec)
3 Bedford 128/114	NHDOT	NH 101 over Pulpit Brook (Kleinfelder)
4 Danbury 156/104	NHDOT	US 4 over NHRR (ABD) (BOBD)
5 Deerfield 137/116	NHDOT	NH 107 over Freese's Pond (VHB)
6 Dorchester 155/088	NHDOT	River Road over S Branch Baker River (BOBM)
7 Haverhill 139/133	NHDOT	NH 116 over Clark Brook (BOBM)
8 Tamworth 061/091	NHDOT	NH 113A over Swift River (McFarland Johnson)
9 Acworth 095/060	NHDOT	NH 123A over Milliken Brook (BOBM)
10 Warner 202/136	NHDOT	NH 103 over I-89 NB (VHB)
11 Amherst 135/109	NHDOT	NH 122 over NH 101 (BOBD)



2023 Bureau of Bridge Design Accomplishments

Bridge Inspection Accomplishments

(Inspection Data by Calendar Year, 2023)

- State Bridge Inspections – 1,362
- Municipal Bridge Inspections – 950
- Perennially receive high level of performance with the National Bridge Inspection Program audited yearly by FHWA
- All information submitted to FHWA on-time for the 23 performance metrics

SFY 2023 Accomplishments

- **Bridge Maintenance and Preservation Program**
 - 6 Contracts (16 Bridges) **advertised** – \$11.7M
 - Hanover-Norwich 42278 (Preservation, 1-bridge) **(F&O)**
 - Campton 43803 (Preservation, 5-bridges) **(In-House)**
 - Enfield-Lebanon 43800 (Painting, 3-bridges) **(In-House and GPI)**
 - Statewide Scour Response 41915A (3-bridges) **(HTA)**
 - Greenland 43298 (Painting, 1 bridge) **(In-House and GPI)**
 - Statewide Scour Response 41915B (3-bridges) **(In-House)**



Additional FFY 2023 Projects

- **Bridge Maintenance and Preservation Program**
 - 5 Contracts (13 bridges) **advertised** – \$14.8M
 - Hopkinton-Warner 43801 (Paint, 3-bridges) **(In-House and GPI)**
 - Charlestown 42484 (Preservation, 1-bridge) **(In-House)**
 - Marlborough 44054 (Preservation, 3-bridges) **(In-House)**
 - Hooksett 44098 (Preservation, 1-bridge) **(In-House)**
 - Manchester-Hooksett 42753 (Preservation, 5-bridges) **(HNTB)**



SFY 2023 Accomplishments

- **Bridge Rehabilitation/Replacement Program**
 - 3 Contracts **advertised** for construction – \$5.4M
 - Warner 40622 (Rehabilitation, 1-bridge) **(VHB)**
 - Tamworth 41434 (Superstructure replacement, 1-bridge) **(MJ)**
 - Deerfield 24477 (Replacement, 1-bridge) **(VHB)**



Additional FFY 2023 Projects

- **Bridge Rehabilitation/Replacement Program**
 - 3 Contracts **advertised** for construction – \$174 M
 - Claremont 27691 (Superstructure, 1-bridge) (**Transystems**)
 - Newington-Dover 11258S (Superstructure, 1-bridge) (**VHB**)
 - Seabrook-Hampton 15904 (Replacement, 1-bridge) (**HDR**)





2023 Construction Photos

Bridge Preservation

Meredith-Gilford 41483 – McFarland Johnson

US 3/NH 11/ NH 11A



Bridge Preservation – \$1.57M

Contractor: R.M.Piper

Started 3/14/22; Completed 9/20/23



Littleton 43444 – NHDOT NH 135 over I-93



Bridge Preservation – \$1.69M
Contractor: R.M. Piper, Inc.
Started 12/5/2022, Completed 10/17/2023

Littleton 43444 – NHDOT NH 135 over I-93



Bridge Preservation – \$1.69M

Contractor: R.M. Piper, Inc.

Started 12/5/2022, Completed 10/17/2023



Hanover, NH – Norwich, VT 42278 – F&O
NH 10A over the Connecticut River

Bridge Preservation – \$2.87M

Contractor: J.P. Sicard

Started 4/5/23; Anticipated Completion 2024



Hanover, NH – Norwich, VT 42278 – F&O NH 10A over the Connecticut River



Bridge Preservation – \$2.87M

Contractor: J.P. Sicard

Started 4/5/23; Anticipated Completion 2024



**Hanover, NH – Norwich, VT 42278 – F&O
NH 10A over the Connecticut River**

Bridge Preservation – \$2.87M

Contractor: J.P. Sicard

Started 4/5/23; Anticipated Completion 2024



Campton 43803

5 Bridges on I-93



Preservation – \$3.34M
Contractor: R.S. Audley
Completed 11/22/2023

Enfield-Lebanon 43800 – NHDOT

3 Bridges on I-89

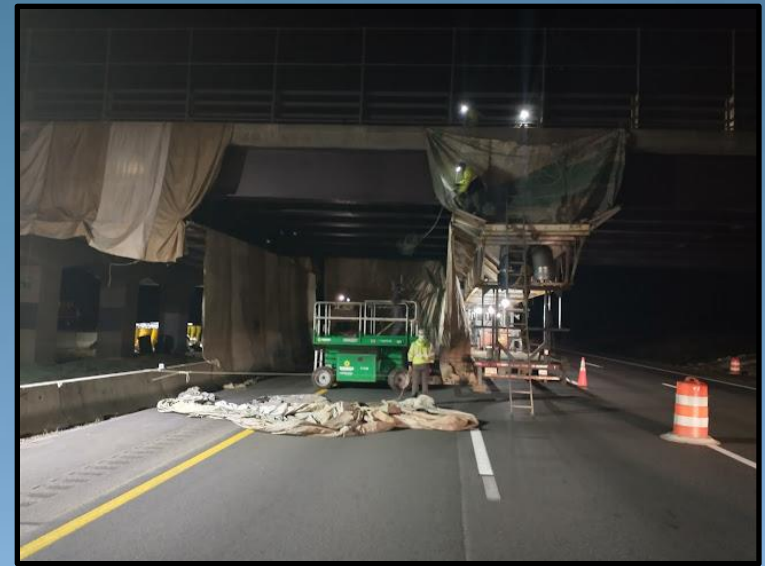


Bridge Painting – \$1.48M
Contractor: Royal Bridge, Inc.
Started 8/28/23; Anticipated Completion Fall 2023



Greenland 43298

Breakfast Hill Road over I-95



Bridge Painting – \$1.13M

Contractor: Monoko, LLC

Started 8/22/2023, Completed 10/25/2023

Bridge Rehabilitation

Allenstown-Pembroke 40362 - VHB NH 28 over Suncook River



Bridge Rehab – \$3.2M

Contractor: Evroks Corporation

Started 4/25/2022 – Completion Fall 2023



Allenstown-Pembroke 40362 - VHB

NH 28 over Suncook River



Bridge Rehab – \$3.2M

Contractor: Evroks Corporation

Started 4/25/2022 – Completion Fall 2023





Amherst 41413 40362 - NHDOT NH 122 over NH 101

Bridge Rehab – \$2.24M

Contractor: Evroks Corporation

Started 2/20/2023 – Anticipated Completion June 2024



Amherst 41413 40362 - NHDOT
NH 122 over NH 101

Bridge Rehab – \$2.24M

Contractor: Evroks Corporation

Started 2/20/2023 – Anticipated Completion June 2024

North Hampton 42979 – AECOM

Ramp over I-95



Bridge Rehabilitation – \$4.95M

Contractor: New England Infrastructure

Started: 9/8/2022 , Complete: Winter 2024



Lyme, NH – Thetford, VT
Stantec
E. Thetford Road over
Connecticut River

Bridge Rehab - \$8.94M

Contractor: New England Infrastructure (NEI)

Started 1/24/23; Anticipated Completion 2024





Lyme, NH – Thetford, VT Stantec E. Thetford Road over Connecticut River

Bridge Rehab - \$8.94M

Contractor: New England Infrastructure (NEI)

Started 1/24/23; Anticipated Completion 2024

Warner 40622 – VHB

NH 103 over I-89 NB



Bridge Rehab – \$1.16M

Contractor Beck & Bellucci

Started 4/12/23; Completed 12/6/23



Bridge Replacement

Lebanon, NH – Hartford, VT – McFarland Johnson I-89 over the Connecticut River

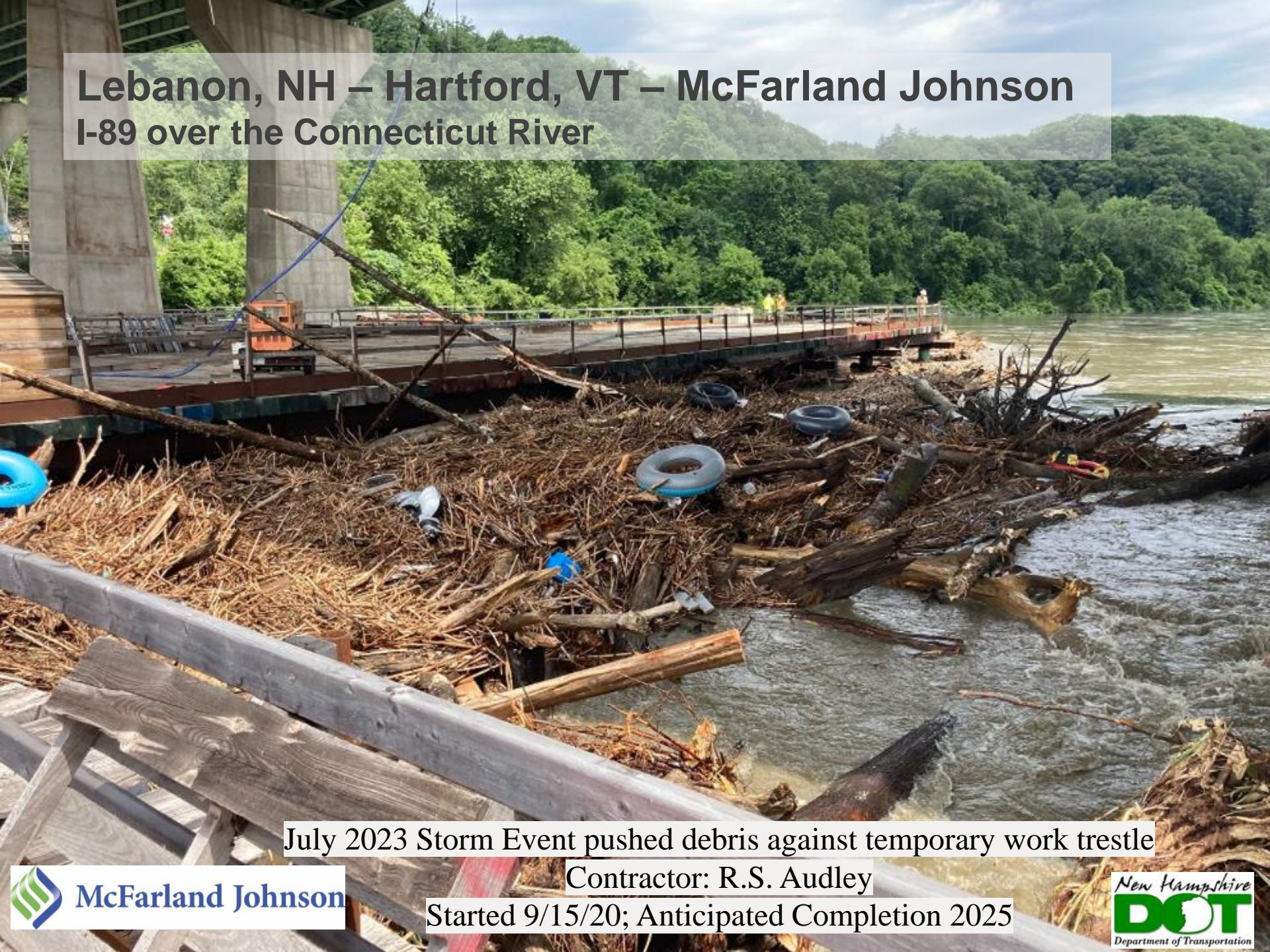


Widening and Superstructure Replacement - \$43.75M

Contractor: R.S. Audley

Started 9/15/20; Anticipated Completion 2025

Lebanon, NH – Hartford, VT – McFarland Johnson I-89 over the Connecticut River



July 2023 Storm Event pushed debris against temporary work trestle

Contractor: R.S. Audley

Started 9/15/20; Anticipated Completion 2025

Lebanon, NH – Hartford, VT – McFarland Johnson I-89 over the Connecticut River



Widening and Superstructure Replacement - \$43.75M

Contractor: R.S. Audley

Started 9/15/20; Anticipated Completion 2025

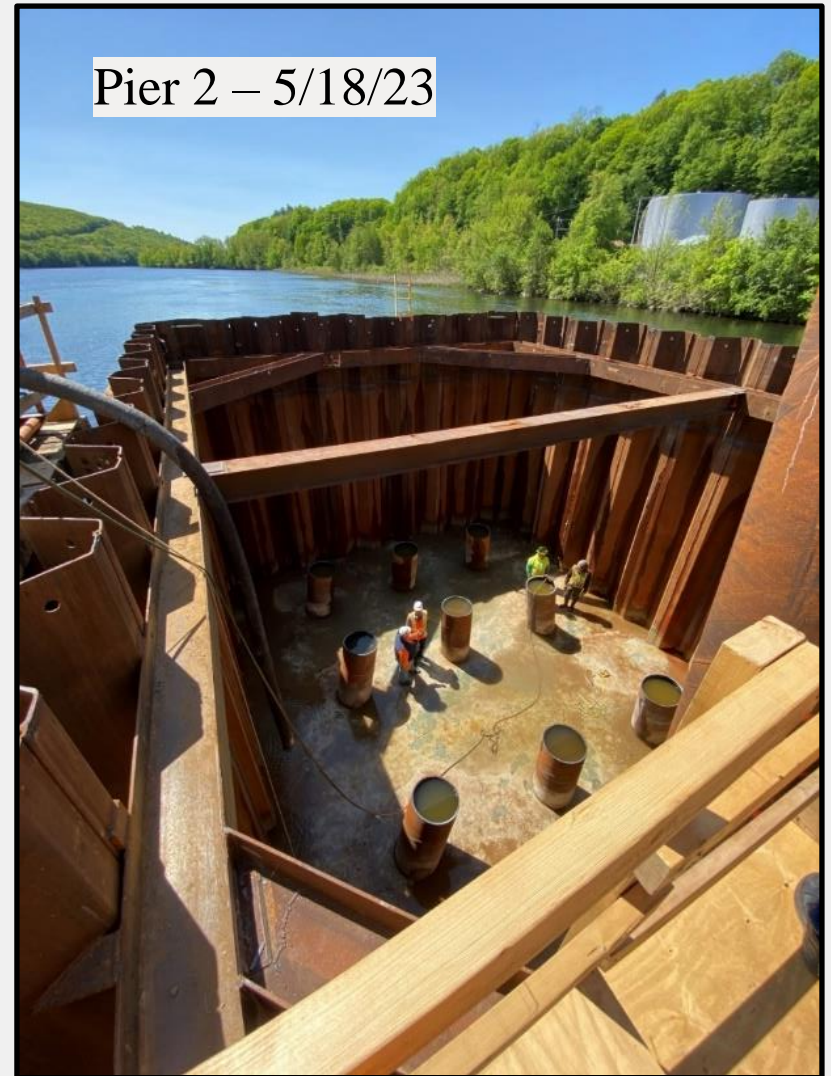
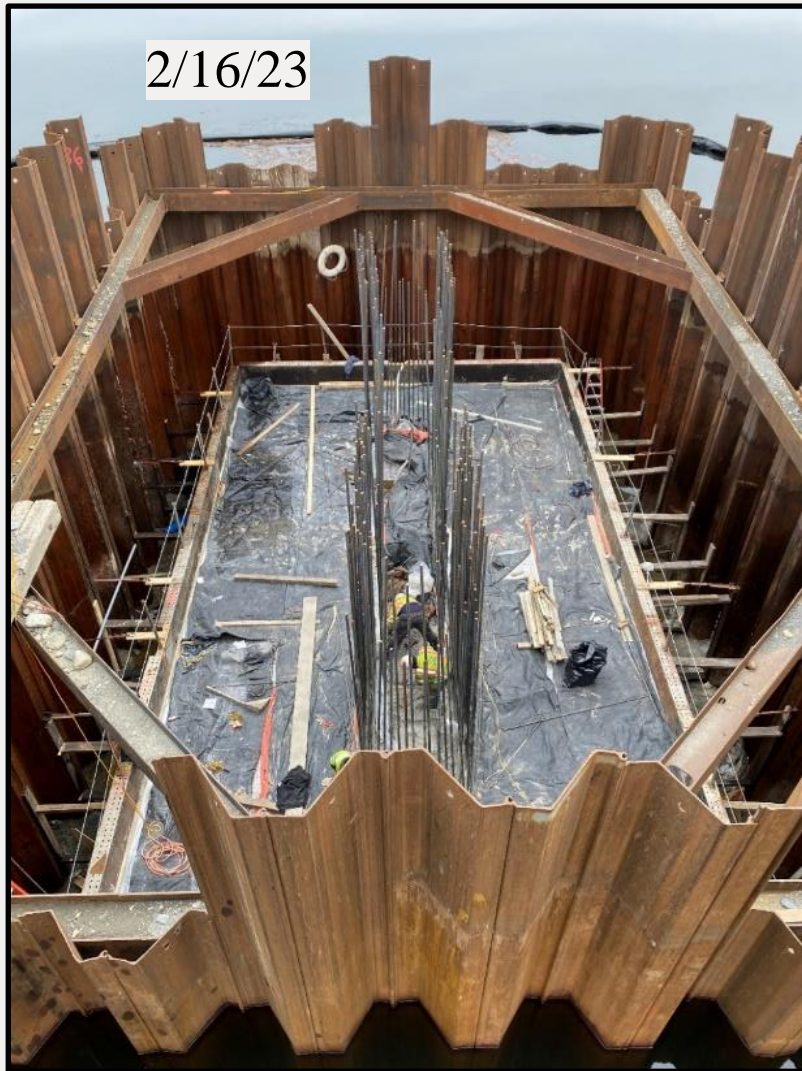
Peterborough 15879 – HTA US 202/NH 101 over Contoocook River



Bridge Replacement – \$8.5M
Contractor: E.D. Swett, Inc.

Started 10/27/21; Anticipated completion 2024

Hinsdale, NH – Brattleboro, VT 12210C – In-House/MJ



Bridge Replacement – \$61M

Contractor: Reed & Reed

Started 9/27/21; Ant. Comp. Fall 2024

Hinsdale, NH – Brattleboro, VT 12210C
In-House/MJ



Hinsdale, NH – Brattleboro, VT 12210C In-House/MJ



Bridge Replacement – \$61M
Contractor: Reed & Reed
Started 9/27/21; Ant. Comp. Fall 2024

Hinsdale, NH – Brattleboro, VT 12210C

In-House/MJ



Bridge Replacement – \$61M

Contractor: Reed & Reed

Started 9/27/21; Ant. Comp. Fall 2024



Danbury 16303 – In-House/VHB US 4 over NHRR



Bridge Replacement – \$4.87M
Contractor; Weaver Bros. Const. Co. Inc.
Started 2/28/2022, Completion Date 10/26/2023



Danbury 16303 US 4 over NHRR



Bridge Replacement – \$4.87M

Contractor; Weaver Bros. Const. Co. Inc.

Started 2/28/2022, Completion Date 10/26/2023



Danbury 16303 – In-House/VHB

US 4 over NHRR



Bridge Replacement – \$4.87M

Contractor; Weaver Bros. Const. Co. Inc.

Started 2/28/2022, Completion Date 10/26/2023



Bedford 13692C – Kleinfelder NH 101 over Pulpit Brook



Bridge Replacement – \$5.24M

Contractor: R.M. Piper

Started 2/22/22, Completion Date 9/8/2023



Bedford 13692C – Kleinfelder NH 101 over Pulpit Brook



Bridge Replacement – \$5.24M

Contractor: R.M. Piper

Started 2/22/22, Completion Date 9/8/2023

Bedford 13692C – Kleinfelder NH 101 over Pulpit Brook



Bridge Replacement – \$5.24M

Contractor: R.M. Piper

Started 2/22/22, Completion Date 9/8/2023





Derry-Londonderry 13065A – VHB

New Structure— \$45.5M

Contractor: Weaver Brothers

Started 7/27/22; Anticipated Completion Fall 2024





Tamworth 41434 – MJ – NH 113A over Swift River

Superstructure Replacement – \$2.6M

Contractor R.M. Piper

Started 6/19/23; Completed 11/8/23





Tamworth 41434 – MJ – NH 113A over Swift River

Superstructure Replacement – \$2.6M

Contractor R.M. Piper

Started 6/19/23; Completed 11/8/23





Tamworth 41434 – MJ – NH 113A over Swift River

Superstructure Replacement – \$2.6M

Contractor R.M. Piper

Started 6/19/23; Completed 11/8/23





**Deerfield 24477 – VHB
NH 107 over Freese's Pond**

Bridge Replacement – \$975K

Designer: VHB, Contractor: Northeast Earth Mechanics LLC

Started 7/26/2023, Completed 11/21/2023





**Deerfield 24477 – VHB
NH 107 over Freese's Pond**

Bridge Replacement – \$975K

Designer: VHB, Contractor: Northeast Earth Mechanics LLC

Started 7/26/2023, Completed 11/21/2023



Thank You!