#### New Hampshire Department of Transportation

# **Bridge Inspection Report**

NBI Structure Number: 014400440010300

Date of Inspection: 06/13/2017

**Date Report Sent:** 09/18/2017

Bridge Inspection Group: B-Team

Bridge also in: Hartford, Vermont

Bridge Maintenance Crew: 04

Owner: NHDOT

**Existing Bridge Section** Bureau of Bridge Design

Lebanon 044/103

I-89 SB

over

CONNECTICUT RIVER, NECRR **Vietnam Veteran Memorial** 

Interstate Bridge Number: 071

**Recommended Postings:** 

Weight: No Posting Required ✓ Weight Sign OK

✓ Width Sign OK Width: Not Required

Primary Height Sign Recommendation: None ✓ Height Sign OK Clearances: Over: 99.99

Under: 37.99 Optional Centerline Height Sign Rec: None (Feet)

Route: 99.99

**Condition:** State Redlist **Structure Type and Materials:** 

Deck: 5 Fair Number of Main Spans: 6 Superstructure: 4 Poor Number of Approach Spans:

Substructure: 6 Satisfactory Main Span Material and Design Type

Culvert: N N/A (NBI) Steel Continuous Multiple Beam

Bridge Rail: Substandard NH Bridge Type: IB-C (I Beams w/ Concrete Deck)

Rail Transition: Substandard Deck Type: Concrete, Cast in Place

Bridge Approach Rail: Meets Standards

Wearing Surface: Bituminous Approach Rail Ends: Substandard

Membrane: Other Deck Protection: None Curb Reveal: 9 in

Plan Location: 17-4-1

Total Bridge Length: 846.0 ft Right Curb/Sidewalk Width: 0.7 ft

Total Bridge Width: 35.8 ft

Median: No median Bridge Skew: 10.00°

Year Built/Rebuilt: 1966 Detour Length: 1.0 mi

(W/Shoulders)

Approach Roadway Width: 40.0 ft

Width Curb to Curb: 30.0 ft

Length Maximum Span: 150.0ft

0.7 ft

**Bridge Dimensions:** 

Left Curb/Sidewalk Width:

### Existing Bridge Section Bureau of Bridge Design

## Lebanon 044/103

# **Bridge Inspection Report**

NBI Structure Number: 014400440010300

#### **Bridge Service:**

Type of Service on Bridge: Highway

Type of Service Under: Railroad-waterway

Lanes on Bridge: 2

Lanes Under: Not Applicable

AADT: 20,433 Percent Trucks: 9 % Year of AADT: 2015 Future AADT: 30,240 Year of Future AADT: 2037

Federal or State Definition Bridge: Fed-Definition Bridge
National Highway System: NHS Roadway on Bridge

Roadway Functional Class: Urban Interstate

New Hampshire Highway System and Class: Interstate Highway

Eligibility for the National Register of Historic Places: Not Eligible

Traffic Direction: One-way traffic

### National Bridge Inventory (NBI) Appraisal Ratings:

Deck Geometry: 4 - Minimum Tolerable

Underclearances: 5 - Above Min. Tolerable

Approach Alignment: 8 - Equal Desirable Criteria

Structural Evaluation: 4 - Minimum Tolerable

Channel/Channel Protection: 6 - Bank Slumping

Waterway Adequacy: 9 - Above Desirable Criteria

Bridge Scour Critical Status: 3 - Critical during floods

Riprap Condition: G - Good Condition

Debris Present: N - No Debris Present

Channel Notes: LIGHT BANK EROSION. SCOUR: REFER TO MOST RECENT DIVE REPORT.

Scour Critical by CHA study. Pile study? TREE DEBRIS AT PIER # 2.

# **Bridge Inspection Report**

NBI Structure Number: 014400440010300

Lebanon 044/103

No.	Description	Material Notes and Condition Notes:
12	Reinforced Concrete Deck	ASPHALT- SEAM AT CENTERLINE. DEICING SYSTEM INSTALLED, CRACK SEALED. LOOSENED CURB STONES. MORTAR CRACKED AND MISSING AT MOST JOINTS. CURB
		STONES CRACKED, TIPPED AND MOVED AT NORTHWEST. CURB FASCIAS AND TOPS CRACKED, DELAMINATED AND SPALLED. CONCRETE CORE SAMPLES DRILLED AT SOUTHEAST. CRACKS, SEVERAL WITH EFFLORESCENCE, DELAMINATIONS AND SPALLS IN ALL BAYS AND ALL SPANS AT SOFFIT. MODERATE TO HEAVY LEAKING AT RELIEF
L 510	Wearing Surfaces	JOINTS.
- 510	Wearing Junaces	ASPHALT- SEAM AT CENTERLINE. DEICING SYSTEM INSTALLED, CRACK SEALED.
L <sub>1080</sub>	Delamination/Spall/Patched Area	NOTIFIED DENIET DENIETE DESCRIPTION OF THE MAINTENANCE DENIETE.
		DELAMINATIONS AND SPALLS IN ALL BAYS AND SPANS AT SOFFIT. CURB FASCIAS CRACKED AND SPALLED.
<sup>L</sup> 1120	Efflorescence/Rust Staining	
		LIGHT EFFLORESCENCE AT SEVERAL FINE CRACKS. FEW AREAS OF MODERATE LEAKING WITH LIGHT EFFLORESCENCE. MODERATE LEAKING, EFFLORESCENCE AND MINOR RUST STAINING UNDER RELIEF JOINTS IN SPANS # 3 & 4.
<sup>L</sup> 1130	Cracking (RC and Other)	
		LOOSENED CURB STONES. MORTAR CRACKED AND MISSING AT MOST JOINTS. CURB STONES CRACKED, TIPPED AND MOVED AT NORTHWEST. SEVERAL FINE TO LIGHT CRACKED AREAS AT SOFFIT AND CURB FASCIAS.
107	Steel Open Girder/Beam	
		PAINT CHALKING, CRACKED WITH LIGHT FLAKING AND PEELING. LIGHT RUST; HEAVY RUST UNDER EXPANSION, RELIEF JOINTS AND IN AREAS ON EXTERIOR FLANGES. 16 in. VERTICAL CRACK ADJACENT TO 1.5 in.x2.5 in. HOLE IN WEB OF GIRDER #1 IN SPAN #3. REPAIRED WITH A PLATES AND BOLTED AT WEB AND BOTTOM FLANGE BY B.O.B.M. CRACK HAS ADVANCED THROUGH HOLE AND 2 in. MORE ABOVE DRILLED HOLE (ARRESTED WITH NEW DRILL HOLE 6/15/2016 BY B.O.B.M.).
L 515	Steel Protective Coating	(AINCOTED WITHNEW BINEE HOLE 0/10/2010 BT B.O.B.M.).
	- 0	PAINT CHALKING, CRACKED WITH LIGHT FLAKING AND PEELING.
L 1000	Corrosion	LIGHT RUST IN AREAS. HEAVY RUST UNDER EXPANSION, RELIEF JOINTS AND IN AREAS ON EXTERIOR FLANGES. HEAVY RUST AND PITTING AT BEAMS #4 & #5 AT BOTTOM OF WEBS AND BOTTOM FLANGE, IN SPAN #3 AND BEAMS #1, #4, & #5 AT SPAN #4 UNDER EXPANSION JOINT. INTERIOR BOTTOM FLANGES RUSTED UNDER LEAKING DECK RELIEF JOINTS WITH MEASUREMENTS AS FOLLOWS - 7/8 INCH GIRDER #1, 7/8 in. GIRDER #4, SPAN #3, AND 15/16 INCH GIRDER #5, SPAN #4 (NO CHANGE SINCE LAST INSPECTION). HEAVY RUST WITH SECTION LOSS, HOLED AREAS AT CROSS BRACING UNDER RELIEF JOINTS.
<sup>L</sup> 1010	Cracking	
		16 in. VERTICAL CRACK ADJACENT TO 1.5 in.x2.5 in. HOLE IN WEB OF GIRDER #1 IN SPAN #3. REPAIRED WITH A PLATES AND BOLTED AT WEB AND BOTTOM FLANGE BY B.O.B.M. CRACK HAS ADVANCED THROUGH HOLE AND 2 in. MORE ABOVE DRILLED HOLE (ARRESTED WITH NEW DRILL HOLE 6/15/2016 BY B.O.B.M.).
210	Reinforced Concrete Pier Wall	EEW EINE CDACKS AND MINOR DOD OUT SDALLS
L <sub>1080</sub>	Delamination/Spall/Patched Area	FEW FINE CRACKS AND MINOR POP OUT SPALLS.
- 1000	belanination/opali/Patoneu Alea	MINOR POP OUT SPALLS.
L <sub>1130</sub>	Cracking (RC and Other)	
	,	FEW FINE TO LIGHT CRACKS.
215	Reinforced Concrete Abutment	
1000	Dolomination/Crall/Databad Assa	LIGHT TO MODERATE CRACKS, DELAMINATIONS, HOLLOW SOUNDING AREAS, PATCHES CRACKED. MINOR TO MODERATE SPALLS AT NORTH ABUTMENT. MINOR AND MODERATE SPALLS IN BACKWALLS. LARGE SPALLS, REBAR EXPOSED, IN SOUTH BACKWALLS.
L 1080	Delamination/Spall/Patched Area	DELAMINATIONS, HOLLOW SOUNDING AREAS, PATCHES CRACKED. MINOR TO MODERATE SPALLS AT NORTH ABUTMENT. MINOR AND MODERATE SPALLS IN BACKWALLS. LARGE SPALLS, REBAR EXPOSED, IN SOUTH BACKWALLS.

# **Bridge Inspection Report**

NBI Structure Number: 014400440010300

Lebanon 044/103

L 1130	Cracking (RC and Other)	
	,	LIGHT TO MODERATE CRACKS AT ABUTMENTS, BACKWALLS AND WINGS.
234	Reinforced Concrete Pier Cap	HAMMERHEADS
		FEW FINE CRACKS. MINOR DELAMINATION IN NORTHWEST CORNER #2.
<sup>L</sup> 1080	Delamination/Spall/Patched Area	
		MINOR DELAMINATION IN NORTHWEST CORNER PIER #2.
<sup>L</sup> 1130	Cracking (RC and Other)	
		FEW FINE CRACKS.
304	Open Expansion Joint	
		WELDED REPAIRS AT SOUTH, 22 MISSING FINGERS. SOUTH DECK END SETTLED.
		POTHOLED AREA AT SOUTHEAST APPROACH PATCH. JOINT WELDS BROKEN, SLAPPING AND HOLLOW SOUNDING, 3 FINGERS MISSING AT NORTH. UNDERSIDE RUSTED.
L <sub>2360</sub>	Adjacent Deck or Header	THE HOLLOW GOODERNO, OT INCLING IMPORTOR HOLLING THE CHEEK HOLLES.
	,	SOUTH DECK END SETTLED. POTHOLED AREA AT SOUTHEAST APPROACH PATCH.
L7000	Damage	
		22 MISSING FINGERS. HOLED AREA AT SOUTHEAST APPROACH. JOINT WELDS BROKEN,
		SLAPPING AND HOLLOW SOUNDING, 3 FINGERS MISSING AT NORTH.
311	Movable Bearing	ROCKERS
		HEAVY RUST; SECTION LOSS ON ANCHOR BOLTS AT SOUTH END AND NORTH. PAINT PEELING. RUST AT ALL ABUTMENT BEARINGS. SEVERAL ANCHOR BOLTS APPEAR LIFTED
		AT PIERS.
L 515	Steel Protective Coating	
		PAINT PEELING.
<sup>L</sup> 1000	Corrosion	
		HEAVY RUST; SECTION LOSS ON ANCHOR BOLTS AT SOUTH END AND NORTH.
<sup>L</sup> 1020	Connection	
		SEVERAL ANCHOR BOLTS APPEAR LIFTED AT PIERS.
313	Fixed Bearing	AT CENTER PIER
1		MINOR DETERIORATION AT EXTERIOR.
L 515	Steel Protective Coating	2.00
1 4000		PAINT
L 1000	Corrosion	MINOR RETERIORATION AT EXTERIOR
220	Motel Dridge Delling	MINOR DETERIORATION AT EXTERIOR.
330	Metal Bridge Railing	** Steel Angle Rail ** PAINTED ANGLE / POSTS WITH GALVN. TRANSITIONS MODERATE RUST. LIGHT DAMAGE.
L <sub>1000</sub>	Corrosion	INDULTATE NOST. LIGHT DAIMAGE.
- 1000	COITOSIOII	MODERATE RUST.
L <sub>7000</sub>	Damage	WODERATE NOT.
- 7000	Damage	LIGHT DAMAGE.
L		LIGHT BY WINGE.

## **Bridge Inspection Report**

NBI Structure Number: 014400440010300

Lebanon 044/103

#### Element States (see disclaimer below)

No.	Description	Quantity	Units	State 1	State 2	State 3	State 4
12	Reinforced Concrete Deck	30,290	sq.ft	58%	5%	37%	0%
└ 510	Wearing Surfaces			95%	5%	0%	0%
<sup>L</sup> 1080	Delamination/Spall/Patched Area	1,000	sq.ft	0%	50%	50%	0%
<sup>L</sup> 1120	Efflorescence/Rust Staining	500	sq.ft	10%	50%	40%	0%
<sup>L</sup> 1130	Cracking (RC and Other)	1,000	sq.ft	10%	40%	50%	0%
107	Steel Open Girder/Beam	4,209	ft	0%	70%	30%	0%
L 515	Steel Protective Coating			75%	25%	0%	0%
<sup>L</sup> 1000	Corrosion	3,000	each	0%	67%	33%	0%
<sup>L</sup> 1010	Cracking	10	ft	0%	100%	0%	0%
210	Reinforced Concrete Pier Wall	131	ft	94%	6%	0%	0%
<sup>L</sup> 1080	Delamination/Spall/Patched Area	10	ft	50%	50%	0%	0%
<sup>L</sup> 1130	Cracking (RC and Other)	10	ft	80%	20%	0%	0%
215	Reinforced Concrete Abutment	180	ft	9%	71%	16%	4%
<sup>L</sup> 1080	Delamination/Spall/Patched Area	90	ft	0%	67%	28%	6%
<sup>L</sup> 1130	Cracking (RC and Other)	50	ft	4%	90%	6%	0%
234	Reinforced Concrete Pier Cap	171	ft	93%	7%	0%	0%
<sup>L</sup> 1080	Delamination/Spall/Patched Area	10	ft	50%	50%	0%	0%
<sup>L</sup> 1130	Cracking (RC and Other)	10	ft	100%	0%	0%	0%
304	Open Expansion Joint	69	ft	0%	60%	0%	40%
<sup>L</sup> 2360	Adjacent Deck or Header	15	ft	0%	100%	0%	0%
└ 7000	Damage	50	ft	0%	50%	0%	50%
311	Movable Bearing	30	each	30%	37%	17%	17%
L 515	Steel Protective Coating			75%	25%	0%	0%
<sup>L</sup> 1000	Corrosion	11	each	0%	55%	45%	0%
<sup>L</sup> 1020	Connection	5	each	0%	100%	0%	0%
313	Fixed Bearing	5	each	80%	20%	0%	0%
L 515	Steel Protective Coating			100%	0%	0%	0%
<sup>L</sup> 1000	Corrosion	1	each	0%	100%	0%	0%
330	Metal Bridge Railing	1,873	ft	0%	80%	20%	0%
<sup>L</sup> 1000	Corrosion	1,000	each	0%	63%	38%	0%
L <sub>7000</sub>	Damage	100	ft	0%	100%	0%	0%

Element Disclaimer: NHDOT is transitioning from CoRe elements to AASHTO elements. The AASHTO element data shown above is the product of the automated element migration routine from the AASHTOWare BrM software. This migrated data has undergone limited field verification. Adequate quality control of this element data is not expected to be achieved until the conclusion of the 2020 inspection season. Please utilize element data with caution.

### Bridge Notes:

Vietnam Veterans Memorial Bridge (1983, Chapter 362) DEICING SYSTEM INSTALLED IN WEARING SURFACE AT CENTERLINE. LIFT INSPECTION 9/03.

LIFT INSPECTION 5/07.

LIFT INSPECTION 12/27/11 ADDED TO STATE REDLIST.

B.O.B.M MADE REPAIRS TO RELIEF JOINTS AND REMOVED RUST AND PRIMED AND PAINTED RUSTED BEAMS UNDER RELIEF JOINTS (JUNE OF 2012).

2ND DRILL HOLE MADE BY B.O.B.M. TO ARREST WEB CRACK PROPAGATING PAST 1ST DRILL HOLE FROM 2012. (6/15/2016) LIFT INSPECTION 6/16/2014, 5/28/2015. 6/1/2016, 6/13/2017.

### Existing Bridge Section Bureau of Bridge Design

Lebanon 044/103

## **Bridge Inspection Report**

NBI Structure Number: 014400440010300

Inspection Notes: 06/13/2017

MHC - inspection comments BRIDGE RAIL: MODERATE RUST.

DECK: ASPHALT SEALED AT CENTERLINE. GRANITE FACING CRACKED AND TIPPED AT NORTHWEST. MORTAR CRACKED, AND MISSING AT MOST JOINTS. CRACKS WITH LIGHT EFFLORESCENCE, DELAMINATIONS AND SPALLS AT SOFFIT. CURB FASCIAS CRACKED AND SPALLED. AREAS OF LIGHT LEACHING. MODERATE LEAKING UNDER RELIEF JOINT IN SPAN 3 AND 4. FINGER JOINT AT SOUTH IS MISSING 22 FINGERS AND 3 MISSING AT NORTH.

SUPERSTRUCTURE: CRACK AT GIRDER # 1 SPAN # 3 HAS BEEN ARRESTED BY BOBM. PAINT CRACKED AND FLAKING. HEAVY RUST UNDER EXPANSION JOINTS, RELIEF JOINTS, AND EXTERIOR FLANGES. HEAVY RUST AT MOVABLE BEARINGS, ANCHOR BOLTS LIFTED AT SEVERAL PIER BEARINGS.

SUBSTRUCTURE: LIGHT TO MODERATE CRACKS, DELAMINATIONS, AND SPALLS AT ABUTMENTS AND BACKWALLS. HEAVY DEBRIS BUILDUP AT BRIDGE SEATS. LIGHT CRACKS, MINOR SPALLS AT PIERS.

PICTURES: B585

- 26. SOUTH APPROACH PATCH POTHOLED.
- 27. DELAMINATION, SPALL BAY # 2, SPAN # 1.
- 28. DELAMINATION WITH LEACHING, BAY #1, SPAN #1.
- 29. DELAMINATION, SPALL BAY #4, SPAN #2.
- 30. TREE HUNG UP AT NOSE OF PIER # 2.
- 31. CROSS BRACE HOLED UNDER RELIEF JOINT # 1, BAY # 1.
- 32. PAINT PEELING, LIGHT RUST, BEARING # 1, PIER # 3
- 33. CRACKS, DELAMINATION, SPALL BAY #3, SPAN #6.

#### Previous Inspection Notes: 11/15/2016

MTC - inspection comments -

BRIDGE RAIL: MODERATE RUST.

DECK: ASPHALT SEALED AT CENTERLINE. GRANITE FACING CRACKED AND TIPPED AT NORTHWEST. MORTAR CRACKED, AND MISSING AT MOST JOINTS. CRACKS, DELAMINATIONS AND SPALLS AT SOFFIT. CURB FASCIAS CRACKED AND SPALLED. MODERATE LEAKING UNDER RELIEF JOINT IN SPAN 3 AND 4. FINGER JOINT AT SOUTH IS MISSING 22 FINGERS AND 3 MISSING AT NORTH. SUPERSTRUCTURE: CRACK AT GIRDER 1 SPAN 3 HAS ADVANCED PAST DRILL HOLE 2" IN LENGTH. PAINT CRACKED AND FLAKING. HEAVY RUST UNDER EXPANSION JOINTS, RELIEF JOINTS, AND EXTERIOR FLANGES. HEAVY RUST AT MOVABLE BEARINGS, ANCHOR BOLTS LIFTED AT SEVERAL PIER BEARINGS.

SUBSTRUCTURE: LIGHT TO MODERATE CRACKS, DELAMINATIONS, AND SPALLS AT ABUTMENTS AND BACKWALLS. HEAVY DEBRIS BUILDUP AT BRIDGE SEATS. LIGHT CRACKS, MINOR SPALLS AT PIERS.

PICTURES: B572

37. 22 TEETH MISSING AT SOUTH JOINT.

#### Approach and Roadway Notes:

ASPHALT- LIGHT CRACKS.

W-BEAM RAIL- MINOR DAMAGE.

#### Unusual or experimental features:

# Lebanon 044/103

# **Bridge Inspection Report**

NBI Structure Number: 014400440010300

### **Inspection History**

Inspection	Inspector	Inspe	Inspection Type(s) Performed			Major Element Ratings			Red	Dooting		
Date	Initials	NBI	Elem	FCM	U/W	Deck	Super	Sub	Culvert	list	Posting	
06/13/2017	MHC	<b>✓</b>	<b>✓</b>			5	4	6	N	<b>✓</b>	No Posting Req'd	
11/15/2016	MHC	<b>✓</b>	<b>✓</b>			5	4	6	N	<b>✓</b>	No Posting Req'd	
06/01/2016	MTC	<b>✓</b>	<b>✓</b>			5	4	6	N	<b>✓</b>	No Posting Req'd	
03/23/2016	MHC	✓	<b>✓</b>			5	4	6	N	<b>✓</b>	No Posting Req'd	
11/18/2015	MTC	<b>✓</b>	<b>&gt;</b>			5	4	6	N	<b>✓</b>	No Posting Req'd	
05/28/2015	MHC	<b>✓</b>	<b>&gt;</b>			5	4	6	N	<b>✓</b>	No Posting Req'd	
12/12/2014	MHC	<b>✓</b>	<b>\</b>			5	4	6	N	<b>✓</b>	No Posting Req'd	
06/16/2014	MTC	<b>✓</b>	>			5	4	6	N	<b>✓</b>	No Posting Req'd	
11/18/2013	MTC	<b>✓</b>	>			5	4	6	N	<b>✓</b>	No Posting Req'd	
07/31/2013	MHC	<b>✓</b>	>			5	4	6	N	<b>✓</b>	No Posting Req'd	
06/12/2013	MTC	<b>✓</b>	>			5	4	5	N	<b>✓</b>	No Posting Req'd	
03/18/2013	MHC	<b>\</b>	>			5	4	6	N	<b>✓</b>	No Posting Req'd	
11/27/2012	JEL	<b>\</b>	>		>	5	4	6	N	<b>\</b>	No Posting Req'd	
11/16/2012	MTC	<b>\</b>	>			5	4	6	N	<b>\</b>	No Posting Req'd	
05/24/2012	MTC	<b>\</b>	>			5	4	6	N	<b>\</b>	No Posting Req'd	
03/15/2012	MTC	<b>\</b>	>			5	4	6	N	<b>\</b>	No Posting Req'd	
12/27/2011	MTC	<b>\</b>	>			5	4	6	N	<b>\</b>	No Posting Req'd	
12/14/2011	NJL	<b>✓</b>	<b>✓</b>			5	5	6	N		No Posting Req'd	
06/13/2011	NJL	<b>~</b>	>			5	6	6	N		No Posting Req'd	
03/19/2009	JEL	<b>✓</b>	<b>\</b>			5	6	6	N		No Posting Req'd	
05/07/2007	WBL	<b>✓</b>	<b>&gt;</b>			5	6	6	N		No Posting Req'd	
09/17/2003	WBL	<b>✓</b>	>			5	6	6	N		No Posting Req'd	
06/12/2001	WBL	<b>✓</b>	>			5	7	6	N		No Posting Req'd	
08/10/1999	BEP	<b>✓</b>	>			5	7	6	N		No Posting Req'd	
05/01/1997		<b>✓</b>	>		<b>✓</b>	5	7	7	N		No Posting Req'd	
04/01/1995		<b>✓</b>	<b>&gt;</b>		<b>✓</b>	6	8	7	N		No Posting Req'd	
07/01/1993		<b>✓</b>	>		<b>✓</b>	6	8	7	N		No Posting Req'd	

Inspection Frequency (mo.)								
NBI	NBI Elem FCM U/W							
8	8	N/A	60					