



Town: 47 - CHELSEA District 4, 17 - ORANGE County Owner: 3 - Town or Township Highway Agency Maintenance Responsibility: 3 - Town or Township Highway Agency





43.98933, -72.44849



Route C3044 / Structure #00045 / (Routine) C3044 over FIRST BRANCH WHITE R.

# Team Lead: Martin Kelley, Inspection Date: 10/26/2023

IDENTIFICA	TION
(1) State Names	50 - Vermont
(8) Structure Number	100904004509041
(2) Highway Agency District	4 - District 4
(3) County Code	17 - ORANGE
(4) Place Code	13525
(6) Features Intersected	FIRST BRANCH WHITE R.
(7) Facility Carried	C3044
(9) Location	0.1 MI JCT TH 44 + VT110
(11) Mile Point	0 mi
(12) Dase Flighway Network (13) LBS Inventory Rte & Subrte	INO
(16) Latitude	43,9893305555556
(17) Longitude	-72.448494444444
(98) Border Bridge State Code	
(99) Border Bridge Structure No.	
STRUCTURE TYPE AN	ND MATERIAL
(43) Main Structure Type	32
Material	3 - Steel
	2 - Stringer/Multi-beam or girder
(44) Approach Structure Type	UU 0. Other
	0 - Other
(45) No. of Spans in Main Unit	1
(46) No. of Approach Spans	0
(107) Deck Structure Type	1 - Concrete Cast-in-Place
(108) Wearing Surface/Protective System	
Type of Wearing Surface	6 - Bituminous
Type of Membrane	0 - None
Type of Deck Protection	U - None
AGE AND SEI	AVICE 1021
(27) Year Built (106) Year Reconstructed	1921
(42) Type of Service	15
On	1 - Highway
Under	5 - Waterway
(28) Lane	-
On	2
Under	0
(29) Average Daily Traffic	200
	2019
(19) Bypass, Detour Length	99 mi
GEOMETRIC	DATA
(48) Length of Maximum Span	29 ft
(49) Structure Length	31 ft
(50) Curb or Sidewalk Width	
	Left 0 ft
	Right 0 ft
(51) Bridge Roadway Width Curb to Curb	19.9 ft
(32) Deck Width Out to Out	22.4 II 20 ft
(33) Bridge Median	0 - No median
(34) Skew	10 Deg
(35) Structure Flared	0 - No flare
(10) Inventory Route Min Vert Clear	99.99 ft
(47) Inventory Route Total Horiz Clear	19.9 ft
(53) Min Vert Clear Over Bridge Rdwy	99.99 ft
(54) Min Vert Underclear	0 ft
Ker:	0.4
Ref <sup>.</sup>	011
(56) Min Lat Underclear LT	0 ft
NAVIGATION	DATA
(38) Navigation Control	0 - No navigation control on w
(111) Pier Protection	
(39) Navigation Vertical Clearance	0 ft
(116) Vert-Lift Bridge Nav Min Vert Clear	0 ft
(40) Navigation Horizontal Clearance	0 ft

CLASSIFI	CLASSIFICATION				
(112) NBIS Bridge Length	Y				
(104) Highway System	0				
(26) Functional Class	9 - Rural Local				
(100) Defense Highway	0 - The inventory route is not				
(101) Parallel Structure	N - No parallel structure exis				
(102) Direction of Traffic	2 - way traffic				
(103) Temporary Structure					
(105) Federal Lands Highways	0 - N/A				
(110) Designated National Network	<ol><li>0 - The inventory route is not</li></ol>				
(20) Toll	3 - On free road. The structu				
(21) Maintain	3 - Town or Township Highway A				
(22) Owner	3 - Town or Township Highway A				
(37) Historical Significance	5 - Bridge is not eligible for				
CONDI	ITION				
(58) Deck	5				
(59) Superstructure	6				
(60) Substructure	5				
(61) Channel & Channel Protection	5				
(62) Culverts	N				
LOAD RATING	AND POSTING				
(31) Design Load	0 - Other or Unknown				
(63) Operating Rating Method	1				
(64) Operating Rating					
Туре	1 - Load Factor(LF)				
Rating	19				
(65) Inventory Rating Method	1 - Load Factor(LF)				
(66) Inventory Rating					
Туре					
Rating	11				
(70) Bridge Posting	5 - Equal to or above legal loads				
(41) Structure Open/Posted/Closed	A - Open, no restriction				
APPRA	AISAL				
(67) Structural Evaluation	4				
(68) Deck Geometry	3				
(69) Clearances, Vertical/Horizontal	N				
(71) Waterway Adequacy	6				
(72) Approach Roadway Alignment	8				
(36A) Bridge Railings	0 - Inspected feature does not meet				
(36B) Transitions	0 - Inspected feature does not meet				
(36C) Approach Guardrall	0 - Inspected feature does not meet				
(36D) Approach Guardrall Ends	0 - Inspected feature does not meet				
(113) Scour Critical Bridges	3 - Bridge is scour critical; bridg				
PROPOSED IMI	PROVEMENTS				
(75) Type of Work	31 - Replacement of bridge or				
(76) Length of Structure Improvement	50 ft				
(94) Bridge Improvement Cost (Multipl	y value by 1000) \$ 372				
(95) Roadway Improvement Cost (Mul	tiply value by 1000) \$ 150				
(96) Total Project Cost (Multiply value	by 1000) \$ 522				
(97) Year of Improvement Cost Estima	ite 2020				
(114) Future ADT	210				
(115) Year OF Future AD I	2029				
INCDECT	FIONS *				

INSPECTIONS *						
(90) Inspection Date			10/26/2023			
(91) Frequency			24			
(92) Critical Feature Inspection	Done	Freq. (Mon)	Date			
A: Fracture Critical Detail	No					
B: Underwater Inspection	No					
C: Other Special Inspection						

\* The inspection date and frequency information in this box contains the current NBI date and frequency information. Please refer to the report header for the date this inspection was conducted.



Deck

B							
ELEMENTS	DESCRIPTION	UNITS	TOTAL	CS1	CS2	CS3	CS4
12	Reinforced Concrete Deck	SF	688	546	80	62	0
1080	Delamination/Spall/Patched Area	SF	107	0	45	62	0
1120	Efflorescence/Rust Staining	SF	35	0	35	0	0
510	Wearing Surfaces	SF	446	414	0	32	0
3220	Crack (Wearing Surface)	SF	32	0	0	32	0
331	Reinforced Concrete Bridge Railing	LF	64	0	0	64	0
1080	Delamination/Spall/Patched Area	LF	64	0	0	64	0
804	Concrete Fascia	LF	64	31	0	33	0
1080	Delamination/Spall/Patched Area	LF	33	0	0	33	0

**58 - Deck** (5 - FAIR CONDITION - all primary structural elements are sound but may have minor section loss, cracking, spalling or scour.)

Deck has heavy saturation along bay 3 at abutment 2 back wall interface and the remaining section of bay is delaminated the entire length with concrete has started to sag. Bay 4 has delams.

#### 200 - Existing Wearing Surface Depth (8")

#### A21 - Deck Wearing Surface Condition (Satisfactory)

Deck has map cracking and delamination

#### A39 - Deck Fascia Condition (Poor)

Along upstream fascia concrete spalling has exposed the encase steel beam.

**B.C.05 Bridge Railing Condition Rating** (SATISFACTORY - Widespread minor or isolated moderate defects.) Concrete parapet

## APPROACH

72 - Approach Roadway Alignment (8 - Equal to present desirable criteria)

#### A13 - Approach Rail Condition

None

A16 - Approach Post Condition

None

### A18 - Approach Erosion/Settlement

Erosion been repaired

# B.C.06 Bridge Railing Transitions Condition Rating

None



# Superstructure

ELEMENTS	DESCRIPTION	UNITS	TOTAL	CS1	CS2	CS3	CS4
107	Steel Open Girder/Beam	LF	145	21	116	8	0
1000	Corrosion	LF	124	0	116	8	0

**59 - Superstructure** (6 - SATISFACTORY CONDITION - structural elements show some minor deterioration.)

5 encased steel beam and upstream beam lower flange and outer edges are all exposed with rust scaling and pack rust. Other areas along interior beams with areas of steel beam exposed with freckle rust

B.C.14 NSTM Inspection Condition (NOT APPLICABLE - Component does not exist.)



## Substructure

ELEMENTS	DESCRIPTION	UNITS	TOTAL	CS1	CS2	CS3	CS4
215	Reinforced Concrete Abutment	LF	44	0	0	44	0
1080	Delamination/Spall/Patched Area	LF	22	0	0	22	0
1190	Abrasion/Wear (PSC/RC)	LF	22	0	0	22	0
800	Reinforced Concrete Wing/Retaining Wall	EA	3	0	0	3	0
1190	Abrasion/Wear (PSC/RC)	EA	3	0	0	3	0
801	Masonry Wing/Retaining Wall	EA	1	0	0	1	0
1640	Masonry Displacement	EA	1	0	0	1	0

**60 - Substructure** (5 - FAIR CONDITION - all primary structural elements are sound but may have minor section loss, cracking, spalling or scour.)

Abutment 1 has 1/4" vertical crack and minor settlement and minor cracking in random location. Abutment 2 has deep spalling along lower stem and cracking present. Lower section of stem has broken off and laying in stream bed

#### A71 - Abutment End Walls Condition (Fair)

Saturation along abutment 2 mainly bay 3 and scaling is present. Abutment 1 bay 4 backwall is cracked through.

#### A77 - Retaining/Wingwall Condition (Fair)

The wings along the downstream end have heavy scaling and cracked through along abutment 2 as it rest on stone. Since last inspection concrete facing has broken off

#### A78 - Abutment Footings Condition (Poor)

Abutment 1 added footing has cracked through with moderate to heavier abrasion and still in place. Abutment 2 added knee wall has broken away and fell in to channel

## CHANNEL

**61 - Channel Condition** (5 - Bank protection is being eroded. River control devices and/or embankment have major damage. Trees and brush restrict the channel.)

Scouring along the channel with no undermining at this time

**B.C.10 Channel Protection Condition Rating** (FAIR - Some moderate defects; performance of the channel protection is not affected.)

Protection over the years have been washed away with embankment erosion, repair made along abutment 2 up and downstream

**B.C.11 Scour Condition Rating** (Moderate scour; strength and stability of the bridge are not affected.)

Channel degradation over the years

# **GENERAL OBSERVATION**

Structure should be evaluated for full replacement in 5 years +/-

July 2023 Flooding: Structure remains in similar condition. Downstream abutment #2 wingwall concrete facing has failed and is now lying in channel with continuing movement in laid up stones. Abrasion along abutment #2 lower portions continue to progress with ~14" of penetration at worst location ~8'-0 - 9'-0" from the upstream corner. Heavy abrasion starts at ~6'-0" from the upstream edge and continues to downstream edge. Kneewall has failed along the abutment #2 side and has rotated forward ~34" and the upstream end continues to settle.



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1190	Abrasion/Wear (PSC/RC)	EA	3	0	0	3	0
801	Masonry Wing/Retaining Wall	EA	1	0	0	1	0
1640	Masonry Displacement	EA	1	0	0	1	0
804	Concrete Fascia	LF	64	31	0	33	0
1080	Delamination/Spall/Patched Area	LF	33	0	0	33	0



# **Channel Profile**

Waterway Flow:Left to rightOrigin:Bottom of b	eam	Top of Water: Bottom of Beam:			
Station	Distance	Downstream	Upstream		
Abut 1 eof eow dp	0	10	10		
+10.8	10.8		8.9		
+17.6	17.6	9.1			
+17.8	17.8		8.8		
+22	22	9			
Abut 2 eow	25	7.5	9.5		









Abutment 1 approach



Abutment 2 approach





Wearing surface and rail

Soffit and beams





Soffit and beams



Beams abutment 2





Abutment 2

Abutment 1







Facing upstream channel

Facing DS channel



### **Maintenance Needs**

Date Reported:	10/06/2021		
Priority:	4 - Maintenance Finding - Next Inspection Cycle	Status:	Open
Type of Work:	3 - General - Replacement project	Component:	

#### **Deficiency Description**

Town should do concrete repairs along the lower section of the bridge parapet, the deck has heavy saturation along bay 3 near abutment 2. The remaining section of bay 3 is entirely delaminated and concrete settled and matter of time before it pops off. Encased steel beam is exposed along the upstream end and should be cleaned and patched. Abutment 2 knee wall has fail and fell in to channel. Abutment stem has deep spalling.

#### Remarks



### **Maintenance Needs**

Date Reported:	07/18/2023		
Priority:	Flood Event	Status:	Open
Type of Work:	34 - Substructure - Wing/Retaining wall repair or (re)construction	Component:	Substructure

## **Deficiency Description**

Downstream winwall had concrete facing fall off with further progression of movement / displacement of stones and in concrete along the abutment #2 side of structure. Wingwall needs to be repaired.

### Remarks