RE: CRITICAL BRIDGE DEFICIENCY
Webster Bridge #066/113 - White Plains Road over Meadow Brook

Dear Leslie:

During a recent underwater bridge inspection, the following critical deficiency was noted:

This structure has continued to deteriorate steadily since it was added to the Municipal Red List in 2005. The corrugated steel culverts have widespread areas of heavy corrosion and pitting with many areas rusted through, exposing the gravel fill. This deterioration is concentrated at and below the normal water elevation. In a few areas, the corrosion, pitting, and holes result in section losses exceeding 90%. Minor settlement in the roadway asphalt was noted above the areas of the heaviest section losses. Additionally, there is heavy debris accumulation (beaver dams) in the upstream opening of all three pipes.

The bridge is currently posted “E-2”.

This deterioration has reduced the safe calculated live load capacity, resulting in a required posting of “WEIGHT LIMIT 3 TONS” and “PASSENGER CARS ONLY” for the short-term. However, without action, this bridge will likely require a closure in the near future. The municipality should monitor this structure closely for signs of further deterioration. Due to the extensive nature of the deterioration, slip-lining or complete replacement may be the only viable remedial actions.

Due to this structural deficiency this bridge is included on the Department’s Municipal Red List of deficient bridge structures. It is in need of complete replacement or extensive rehabilitation to continue to carry all legal loads.

We are enclosing a copy of the inspection report and photos for your use. Please keep us informed of any actions taken by the Town so we can keep our records current. If you have any questions or comments, please contact us.

Sincerely,

C. R. Willeke, P.E.
Municipal Highways Engineer
Bureau of Planning and Community Assistance
Telephone: (603) 271-6472 / Fax: (603) 271-8093

CRW
Enclosure
cc: Webster Road Agent
Commissioner, Department of Education
Bridge Inspection Report
NBI Structure Number: 02560660011300

Date of Inspection: 07/15/2019
Date Report Sent: 07/24/2019
Owner: Municipality
Bridge Inspection Group: B-Team
Bridge Maintenance Crew: OTHER

☑ Critical Deficiency Status  ADDITIONAL CORROSION-RELATED DETERIORATION HAS REDUCED THE LIVE LOAD CAPACITY. POSTING REQUIRED.

Recommended Postings:
Weight: Weight Limit 3 Tons and Passenger Cars Only
   CURRENTLY POSTED "E-2". This bridge requires "Weight Limit 3 Tons" and "Passenger Cars Only" signs.
Width: Not Required

Weight Sign OK
Width Sign OK

Primary Height Sign Recommendation: None
Optional Centerline Height Sign Rec: None
Clearances: Over: 99.99
            Under: 0.00
            Route: 99.99
☐ Height Sign OK

Condition:
   Red List Status: Municipal Redlist
   Deck: N N/A (NBI)
   Superstructure: N N/A (NBI)
   Substructure: N N/A (NBI)
   Culvert: 2 Critical
   Sufficiency Rating: 40%
   Bridge Rail: N/A or not required
   Rail Transition: N/A or not required
   Bridge Approach Rail: Meets Standards
   Approach Rail Ends: Substandard

Structure Type and Materials:
   Number of Main Spans: 3
   Number of Approach Spans: 0
   Main Span Material and Design Type
   Steel/Culvert

   NH Bridge Type: MP (Metal Pipe)
   Deck Type: N/A (NBI)
   Wearing Surface: N/A (no deck (NBI))
   Membrane: N/A (no deck (NBI))
   Deck Protection: N/A (no deck (NBI))
   Curb Reveal: Not Measured
   Plan Location:
   Total Bridge Length: 13.0 ft
   Right Curb/Sidewalk Width: 0.0 ft
   Total Bridge Width: 0.0 ft
   Median: No median
   Bridge Skew: 0.00°
   Year Built/Rebuilt: 1930/1989

Bridge Dimensions:
   Length Maximum Span: 4.0 ft
   Left Curb/Sidewalk Width: 0.0 ft
   Width Curb to Curb: 0.0 ft
   Approach Roadway Width: 18.0 ft
   (W/Shoulders)

NHDOT 068 Inspection

Webster 066/113

Printed on: 7/23/2019 2:04:28 PM
Page 1 of 5
## Element Details (see disclaimer below)

<table>
<thead>
<tr>
<th>No.</th>
<th>Description</th>
<th>Material Notes and Condition Notes:</th>
</tr>
</thead>
<tbody>
<tr>
<td>215</td>
<td>Reinforced Concrete Abutment</td>
<td>CONCRETE HEADWALL HAS MINOR SPALLS AT BASE AND UNDERMINED IN AREAS.</td>
</tr>
<tr>
<td>L108</td>
<td>Delamination/Spall/Patched Area</td>
<td>CONCRETE HEADWALL HAS MINOR SPALLS AT BASE.</td>
</tr>
<tr>
<td>L600</td>
<td>Scour</td>
<td>SCOUR ON DOWNSTREAM END WITH UP TO 6 IN. PENETRATION IN SEVERAL AREAS.</td>
</tr>
<tr>
<td>217</td>
<td>Masonry Abutment</td>
<td>Voids around inlet and in headwall. Stone settled at northwest wing.</td>
</tr>
<tr>
<td>L164</td>
<td>Masonry Displacement</td>
<td>Voids around inlet between pipes with up to 16&quot; of penetration. Voids in headwall.</td>
</tr>
<tr>
<td>L400</td>
<td>Settlement</td>
<td>Stone settled at northwest wing.</td>
</tr>
<tr>
<td>L240</td>
<td>Steel Culvert</td>
<td>4' DIAMETER. THREE (3) SPIRAL MP- 2 2/3 IN. X 1/2 IN. WITH 3.5&quot; OF COVER.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>SAGS IN ROOFLINE OF ALL THREE PIPES. UPSTREAM JOINTS SEPARATED UP TO 2.5 IN. HOLED AREAS IN PIPE # 1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>&amp; 3 WITH FILL EXPOSED. MINOR TO LIGHT SCALE AND RUST IN PIPE # 2. ASPHALT IS SETTLED OVER HOLED</td>
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<tr>
<td></td>
<td></td>
<td>AREAS AT SOUTHWEST. DEBRIS IN PIPES # 2 &amp; 3 AT MIDSPAN. DAMAGED AREAS AT INLET END OF ALL PIPES.</td>
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<tr>
<td>L100</td>
<td>Corrosion</td>
<td>MINOR TO LIGHT SCALE AND RUST IN PIPE # 2. PIPE #1- 16&quot; FROM SOUTH END, HOLED IN A 6&quot; SECTION</td>
</tr>
<tr>
<td></td>
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<td>WITH UP TO 90% SECTION LOSS; 17&quot; FROM SOUTH END, HOLED THROUGH IN A 1&quot; AREA, 100% SECTION LOSS.</td>
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<tr>
<td></td>
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<td>PIPE #3- HOLED THROUGH IN A 8 IN. AREA WITH FILL EXPOSED, MIDSPAN. ALL THREE PIPES HOLED AT</td>
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<td>INLET INVERT AND SIDES FROM RUST AND DAMAGE.</td>
</tr>
<tr>
<td>L102</td>
<td>Connection</td>
<td>UPSTREAM JOINTS SEPARATED UP TO 2.5 IN.</td>
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<tr>
<td>L190</td>
<td>Distortion</td>
<td>SAGS IN ROOFLINE OF PIPE # 1.</td>
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<tr>
<td>L600</td>
<td>Scour</td>
<td>DEBRIS IN PIPES # 2 &amp; 3, MIDSPAN.</td>
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<tr>
<td>L700</td>
<td>Damage</td>
<td>INLET ENDS (NORTH) OF ALL THREE PIPES HAVE DAMAGE CAUSED BY BEAVER DAM REMOVAL.</td>
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## Element States (see disclaimer below)

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<tr>
<td>L600</td>
<td>Scour</td>
<td>5</td>
<td>ft</td>
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<td>100%</td>
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<td>217</td>
<td>Masonry Abutment</td>
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<tr>
<td>L164</td>
<td>Masonry Displacement</td>
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<td>ft</td>
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<td>100%</td>
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<td>L400</td>
<td>Settlement</td>
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<td>Steel Culvert</td>
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### Element Disclaimer

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

### Bridge Notes

ADDED TO THE MUNICIPAL RED LIST ON 8/31/05. ROAD NAME CHANGE FROM "SCHOODAC ROAD" TO "WHITE PLAINS ROAD". ONLY 16" OF FREEBOARD CAUSED BY BEAVER DAM DOWNSTREAM, 12/8/2015. 18" OF FREEBOARD, 11/28/2016, 10/13/2017.
Bridge Inspection Report

NBI Structure Number: 026800660011300

Webster 066/113

<table>
<thead>
<tr>
<th>Inspection History</th>
<th>Inspection Type(s) Performed</th>
<th>Major Element Ratings</th>
<th>Red list</th>
<th>Posting</th>
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Inspection Frequency (mo.)

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<th>Elem</th>
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</table>

Printed on: 7/23/2019 2:04:29 PM
Page 5 of 5
# Bridge Capacity Summary

**Form 4**  
**N.H. D.O.T.**

**Bridge Number:** 066/113  
**TOWN:** WEBSTER  
**RATED BY:** NBG  
**DATE:** 7/23/2019  
**CHECK BY:** JTP  
**DATE:** 7/24/19  
**OVER:** MEADOW BROOK

<table>
<thead>
<tr>
<th>RATED MEMBER</th>
<th>LONGITUD. EFFECTIVE SPAN LENGTH</th>
<th>CURRENT LEGAL LOADS</th>
<th>CERTIFIED VEHICLES</th>
<th>MULTIPLE LANES LOADED</th>
<th>SINGLE LANES LOADED</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>SINGLE UNIT</td>
<td>MULTIPLE UNIT</td>
<td>INVENTORY</td>
<td>OPERATING</td>
</tr>
</tbody>
</table>
| Corrugated Metal Pipes  
(3'-6" cover, 90%+ losses) | 5'-0" | HS 16.8 | HS 18.5 | HS 15.4 | HS 2.4 | HS 4.1 | HS 3.7 | HS 2.7 | HS 4.3 | HS 4.1 |

**Recommended Posting:**  
"WEIGHT LIMIT 3 TONS"  
& "PASSENGER CARS ONLY"

**Rating Method**  
(Op.) 63. LF  
(Inv.) 65. LF

**English Tons**  
64. (Op.) 7.4  
66. (Inv.) 4.3

**Metric Tons**  
6.7  
3.9
Monday, July 15, 2019

DOWNSTREAM ELEVATION. NOTE DEBRIS BLOCKAGE OF BARREL (TYPICAL OF ALL THREE PIPES).

Monday, July 15, 2019

TYPICAL HEAVY RUSY AND SECTION LOSSES ON PIPE WALL.

Monday, July 15, 2019

TYPICAL HEAVY RUSY AND SECTION LOSSES ON PIPE WALL. NOTE GRAVEL FILL EXPOSED.
RE: CRITICAL BRIDGE DEFICIENCY
Webster Bridge #066/113 - White Plains Road over Meadow Brook

Dear Leslie:

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This structure has continued to deteriorate steadily since it was added to the Municipal Red List in 2005. The corrugated steel culverts have widespread areas of heavy corrosion and pitting with many areas rusted through, exposing the gravel fill. This deterioration is concentrated at and below the normal water elevation. In a few areas, the corrosion, pitting, and holes result in section losses exceeding 90%. Minor settlement in the roadway asphalt was noted above the areas of the heaviest section losses. Additionally, there is heavy debris accumulation (beaver dams) in the upstream opening of all three pipes.

The bridge is currently posted "E-2".

This deterioration has reduced the safe calculated live load capacity, resulting in a required posting of "WEIGHT LIMIT 3 TONS" and "PASSENGER CARS ONLY" for the short-term. However, without action, this bridge will likely require a closure in the near future. The municipality should monitor this structure closely for signs of further deterioration. Due to the extensive nature of the deterioration, slip-lining or complete replacement may be the only viable remedial actions.

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Municipal Highways Engineer
Bureau of Planning and Community Assistance
Telephone: (603) 271-6472 / Fax: (603) 271-8093

CRW
Enclosure
cc: Webster Road Agent
Commissioner, Department of Education

S:\Planning\Community Assistance\1-Municipalities\Webster\Bridge Insp\Critical 066-113 7-25-19.doc

JOHN O. MORTON BUILDING • 7 HAZEN DRIVE • P.O. BOX 483 • CONCORD, NEW HAMPSHIRE 03302-0483
TELEPHONE: 603-271-3734 • FAX: 603-271-3914 • TDD: RELAY NH 1-800-735-2964 • INTERNET: WWW.NHDOT.COM
Bridge Inspection Report
NBI Structure Number: 026800660011300

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Bridge Inspection Group: B-Team
Bridge Maintenance Crew: OTHER

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CURRENTLY POSTED "E-2". This bridge requires "Weight Limit 3 Tons" and "Passenger Cars Only" signs.

Width: Not Required

Primary Height Sign Recommendation: None
Optional Centerline Height Sign Rec: None

Clearances: Over: 99.99 (Feet) Under: 0.00 Route: 99.99

Condition:
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Deck: N N/A (NBI)
Superstructure: N N/A (NBI)
Substructure: N N/A (NBI)
Culvert: 2 Critical
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Curb Reveal: Not Measured

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Total Bridge Length: 13.0 ft
Right Curb/Sidewalk Width: 0.0 ft
Total Bridge Width: 0.0 ft
Median: No median
Bridge Skew: 0.00°
Year Built/Rebuilt: 1930/1989
Bridge Inspection Report

Bridge Service:
Type of Service on Bridge: Highway
Type of Service Under: Waterway
Lanes on Bridge: 2
Lanes Under: 0
AADT: 490 Percent Trucks: 4% Year of AADT: 2017
Future AADT: 725 Year of Future AADT: 2039

Federal or State Definition Bridge: NH-Definition Bridge
National Highway System: Bridge does not carry NHS
Roadway Functional Class: Rural, Minor Collector
New Hampshire Bridge Tier: 5

Eligibility for the National Register of Historic Places: Possibly eligible for
Traffic Direction: 2-way traffic

National Bridge Inventory (NBI) Appraisal Ratings:
Deck Geometry: N Not applicable (NBI)
Underclearances: N Not applicable (NBI)
Approach Alignment: 6 Equal Min Criteria
Structural Evaluation: 2 Intolerable - Replace
Channel/Channel Protection: 7 Minor Damage
Waterway Adequacy: 7 Above Minimum
Bridge Scour Critical Status: 8 Stable Above Footing
Riprap Condition: Poor Condition
Debris Present: Debris Present
Channel Notes: BEAVER DEBRIS IS IMPACTING FLOW IN ALL THREE PIPES.
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</tr>
<tr>
<td>L 1020</td>
<td>Connection</td>
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</tbody>
</table>

### Element States (see disclaimer below)

<table>
<thead>
<tr>
<th>No.</th>
<th>Description</th>
<th>Quantity</th>
<th>Units</th>
<th>State 1</th>
<th>State 2</th>
<th>State 3</th>
<th>State 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>215</td>
<td>Reinforced Concrete Abutment</td>
<td>26</td>
<td>ft</td>
<td>62%</td>
<td>38%</td>
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<tr>
<td>L 1080</td>
<td>Delamination/Spall/Patched Area</td>
<td>5</td>
<td>ft</td>
<td>0%</td>
<td>100%</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td>L 6000</td>
<td>Scour</td>
<td>5</td>
<td>ft</td>
<td>0%</td>
<td>100%</td>
<td>0%</td>
<td>0%</td>
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<tr>
<td>217</td>
<td>Masonry Abutment</td>
<td>26</td>
<td>ft</td>
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<td>0%</td>
<td>0%</td>
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<td>L 1640</td>
<td>Masonry Displacement</td>
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<td>ft</td>
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<td>100%</td>
<td>0%</td>
<td>0%</td>
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<tr>
<td>L 4000</td>
<td>Settlement</td>
<td>5</td>
<td>ft</td>
<td>0%</td>
<td>100%</td>
<td>0%</td>
<td>0%</td>
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<tr>
<td>240</td>
<td>Steel Culvert</td>
<td>121</td>
<td>ft</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>100%</td>
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<tr>
<td>L 1000</td>
<td>Corrosion</td>
<td>80</td>
<td>ft</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>100%</td>
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<tr>
<td>L 1020</td>
<td>Connection</td>
<td>5</td>
<td>ft</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>100%</td>
</tr>
<tr>
<td>L 1900</td>
<td>Distortion</td>
<td>10</td>
<td>ft</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>100%</td>
</tr>
<tr>
<td>L 6000</td>
<td>Scour</td>
<td>10</td>
<td>ft</td>
<td>0%</td>
<td>0%</td>
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<td>100%</td>
</tr>
<tr>
<td>L 7000</td>
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**Bridge Notes:**

ADDED TO THE MUNICIPAL RED LIST ON 8/31/05. ROAD NAME CHANGE FROM "SCHOODAC ROAD" TO "WHITE PLAINS ROAD". ONLY 16" OF FREEBOARD CAUSED BY BEAVER DAM DOWNSTREAM, 12/8/2016. 18" OF FREEBOARD, 11/28/2016, 10/13/2017.
Bridge Inspection Report

NBI Structure Number: 026800660011300

Inspection Notes: 07/15/2019

NBG - office comments -
See underwater inspection report performed by Terracon divers on 7/15/2019 for complete results.

General:
There is significant debris blockage on the upstream opening of all three pipes, there is an estimated
difference of 1.5 feet in water elevation between the upstream and downstream sides due to the
blockage. The blockage consists of tree and organic debris. Pipes 1 and 2 are estimated to be 1/3
occluded while pipe 3 is block to approximately half the length.

Pipe 1 – 3 show similar characteristics:
Corrosion of the metal pipes is estimated to be 70 - 75 percent section loss along the length of all three
pipe, with areas of 100% section loss. The worst area of corrosion was noted at approximately 4 and 8
o'clock using a clock face as reference. Gravel backfill could be seen protruding through the steel wall, with approx. 4-inch voids behind the pipe
wall. Hammer soundings produced holes in the pipe from the water line to the invert. Pipe No. 2 had similar section loss, but generally more
severe. The longest length of 100% section loss
was approx. 6 feet, beginning approx. 3 feet from the downstream opening and extending to
approximately 9 feet. In isolated locations, the inspector could see through Pipe No. 2 and the side wall
of Pipe No. 1, with similar observations from Pipe No. 2 to Pipe No. 3.

Previous Inspection Notes: 10/30/2018

MHC - inspection comments -
CULVERT: MPS- UPSTREAM JOINTS SEPARATED UP TO 2.5" SAGS IN ROFFLINE OF PIPE # 1, PIPE #2, AND
PIPE #3. DAMAGED AND HOLED AREAS AT INLET ENDS OF ALL PIPES. DEBRIS AT MIDSPAN OF PIPES #
2 & 3. SHIMMED AREA SETTLED OVER HOLED AREAS AT SOUTHWEST.
SUBSTRUCTURE: MINOR SPALLS AT BASE OF SOUTH HEADWALL, VOIDS AND SETTLEMENT AT NORTH.

PICTURES: B606
54. DEBRIS IN PIPE # 3.
55. DAMAGE, HOLES AND VOIDS AT INLET END OF PIPE # 2.
56. DEBRIS IN PIPE # 2.
57. SAG IN ROFFLINE OF PIPE # 1.
58. DAMAGE, HOLES AND VOIDS AT INLET END OF PIPE # 3.
59. STONE PAD INSTALLED AT NORTHWEST.
60. STONE PAD INSTALLED AT NORTHWEST.

Approach and Roadway Notes:

ASPHALT: 4" OF SETTLEMENT OVER BARREL #1, SHIMMED AREA SETTLED.
W-RAIL AND POST DAMAGED. HEAVY RAIL AND POST DAMAGE, SEVERAL OFFSET BLOCKS BROKEN AT NORTH.

Unusual or experimental features:
<table>
<thead>
<tr>
<th>Inspection Date</th>
<th>Inspector Initials</th>
<th>Inspection Type(s) Performed</th>
<th>Major Element Ratings</th>
<th>Red list</th>
<th>Posting</th>
</tr>
</thead>
<tbody>
<tr>
<td>07/15/2019</td>
<td>NBG</td>
<td>✓ NBI ✓ Elem ✓ FCM ✓ U/W ✓</td>
<td>N N N</td>
<td>2 ✓</td>
<td>3 Tons PCO</td>
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<tr>
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<td>MHC</td>
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<td>09/05/2017</td>
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<td>3 ✓</td>
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<td>11/28/2016</td>
<td>MHC</td>
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<td>3 ✓</td>
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<td>4 ✓</td>
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<tr>
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<td>E-2</td>
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<tr>
<td>08/31/2005</td>
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<td>N N N</td>
<td>4 ✓</td>
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<tr>
<td>07/07/2003</td>
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<td>02/02/2001</td>
<td>FNM</td>
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<td>N N N</td>
<td>6 ✓</td>
<td>E-2</td>
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<td>01/12/1999</td>
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<td>N N N</td>
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<td>E-2</td>
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<td>N N N</td>
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<td>E-2</td>
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<td>N N N</td>
<td>N ✓</td>
<td>E-2</td>
</tr>
</tbody>
</table>
**Bridge Capacity Summary**

**Design Load:** Unknown  
**Design Method:** Unknown  
**Rating Method:** Load Factor  
**Plan File:** Unknown  
**Route:** White Plains Road  
**Town:** Webster  
**Bridge Number:** 066/113  
**Rated by:** NBG  
**Date:** 7/23/2019  
**Check by:** JTP  
**Date:** 7/24/19  
**Over:** Meadow Brook  

<table>
<thead>
<tr>
<th>Rating Member</th>
<th>Longitud, Effective Span Length</th>
<th>Required Capacity (HS Tons)</th>
<th>Available Capacity (HS Tons)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>CURRENT LEGAL LOADS</td>
<td>SINGLE UNIT</td>
<td>MULTIPLE UNIT</td>
</tr>
</tbody>
</table>
| Corrugated Metal Pipes  
(3'-6" cover, 90%+ losses) | 5'-0" | HS 16.8 | HS 18.5 | HS 15.4 | HS 2.4 | HS 4.1 | HS 3.7 | HS 2.7 | HS 4.5 | HS 4.1 |

**Recommended Posting:**  
"Weight Limit 3 Tons"  
& "Passenger Cars Only"  

**Rating Method**  
(Op.) 63. LF 
(Inv.) 65. LF 
64. (Op.) 7.4 
66. (Inv.) 4.3 

**English Tons**  
6.7  
3.9 

**Metric Tons**  
6.7  
3.9
Monday, July 15, 2019

DOWNSTREAM ELEVATION. NOTE DEBRIS BLOCKAGE OF BARREL (TYPICAL OF ALL THREE PIPES).

X018 04

Monday, July 15, 2019

TYPICAL HEAVY RUSTY AND SECTION LOSSES ON PIPE WALL.

X018 05

Monday, July 15, 2019

TYPICAL HEAVY RUSTY AND SECTION LOSSES ON PIPE WALL. NOTE GRAVEL FILL EXPOSED.

X018 06