Preventative Maintenance

Preventative Maintenance is scheduled work at regular intervals. The goal of Preventative Maintenance is to preserve structures in their present condition and prevent structural deficiencies. This type of work is typically performed on structures in 'fair' or better condition with significant remaining service life. Minor repairs may be necessary to maintain the integrity of the structure and prevent major rehabilitation. Structures that are not maintained are more likely to deteriorate at a faster rate and require costlier treatments sooner than maintained structures. Therefore, it is cost effective to maintain structures to avoid the need for replacement or major rehabilitation.

Rust Holes in Steel Members

FAQs

What is an NBIS Inspection?

National **B**ridge **I**nspection **S**tandards

A uniform procedure for all national bridges to be inspected and evaluated.

Who performs and pays for the NBIS Inspection?

NHDOT will coordinate the NBIS inspection. Funding is through the NHDOT.

What is considered deterioration?

- Rust holes in steel members
- Bending in steel members
- Cracks in gusset plates
- Loose bolts
- Significant rusting

Member Rusting

Structural members are rusting and deteriorating; now what?

Contact NHDOT or a structural engineer, to determine if the bridge integrity and load carrying capacity has been compromised and reduced.

Preventative Maintenance for Steel Truss Bridges

Today's Maintenance Preserves Yesterday's Treasures

Historic metal truss bridges represent an era of engineering innovation. They became prevalent in the 19th and 20th centuries when iron and steel manufacturers thrived after the industrial revolution, making these types of bridges inexpensive and easy to build. Today, many of these iconic historic structures serve as landmarks in their communities.

Ramsdell Road Bridge, Henniker, NH

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Barnet Road Bridge, Monroe, NH

Introduction

New England's weather causes extreme conditions for steel bridge trusses, such as flooding, ice and snow. Corrosive de-icing agents are used in the winter, which can accelerate deterioration of exposed bridge elements. Preventative maintenance is critical for steel truss bridges to reach their intended design service life and, therefore, attain the lowest life-cycle cost of the bridge investment. Presented are minimum recommended guidelines for preventative maintenance of steel truss bridges. The intent of this brochure is to encourage maintenance and preservation in order to preserve these historic truss bridges.

Actions to Avoid

- Do not bolt or weld to the structural steel members.
- Do not remove any portion of the structure.
- CAUTION! Paint may contain lead.

Guidelines

☐ **General:** Remove brush and vegetation around structure. *Annually.*

☐ **Bridge Deck & Sidewalks:** Sweep clean sand and other debris. Power wash with water to remove salt residue. *Annually.*

☐ **Wearing Surface:** Check for excessive cracking and deterioration. *Annually.*

☐ **Expansion Joint:** Power wash with water to remove debris, sand and salt residue. *Annually.*

☐ **Bolted Connections:** Inspect for excessive corrosion or cracking of the steel fasteners. Check for any loose or missing bolts. *Annually.*

☐ **Welded Connections:** Check for cracking in the welds. *Annually.*

☐ **Truss Members:** Power wash with water to remove sand, salt and debris, particularly along the bottom chord. Give specific attention to debris accumulation within partially enclosed locations such as truss panel point connections or tubular members. *Annually.*

☐ **Bridge Seats:** Clean around bearings by flushing with water or air blast cleaning. *Annually.*

☐ **NBIS Inspection:** Complete inspection of all components of the steel truss bridge. *Every 2 years unless on Red List.*

☐ **Painted Steel:** Scrape or wire brush clean, prime and paint isolated areas of rusted steel. *Every 2 to 4 years.*

☐ **Steel Members:** Check for rust, other deterioration or distortion around rivets and bolts, and elements that come in contact with the bridge deck which may be susceptible to corrosion from roadway moisture and de-icing agents. *Every 3 to 5 years.*

☐ **Bearings:** Remove debris that may cause the bearings to lock and become incapable of movement. Check anchor bolts for damage and determine if they are secure. *Every 3 to 5 years.*

Typical Truss Bearing

☐ **Exposed Concrete Surfaces:** Apply silane/siloxane sealers after cleaning and drying concrete surfaces. *Every 4 years.*

☐ **Bridge & Approach Rail:** Inspect for damage, loose or missing bolts, sharp edges or protrusions. *Every 5 years.*