Municipal Bridge Maintenance & Management
Municipal Bridge Maintenance & Management

1. General Bridge Overview
2. Bridge Inspection Organization
3. Bridge Inspection Terms and Process
4. Bridge Inspection Results and Outcomes
5. Legal Responsibilities, Posting, Enforcement, and Permitting
6. Bridge Preventive Maintenance and Safety
7. Bridge Programming and Funding
8. Questions
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8. Questions
## Bridge Count & Deficiencies

Vermont’s “Highway” Structure Population  
(as submitted to FHWA in March 2019)

<table>
<thead>
<tr>
<th>Structure Type</th>
<th>Interstate</th>
<th>State Highway</th>
<th>Town Highway</th>
<th>Other</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Long Structures</td>
<td>313</td>
<td>809</td>
<td>1,652</td>
<td>7</td>
<td>2,781</td>
</tr>
<tr>
<td>(span length &gt; 20 ft.)</td>
<td>(22 buried</td>
<td>(72 buried</td>
<td>(123 buried</td>
<td>(1 buried</td>
<td>(218 buried</td>
</tr>
<tr>
<td></td>
<td>structures)**</td>
<td>structures)</td>
<td>structures)</td>
<td>structures)</td>
<td>structures)</td>
</tr>
<tr>
<td>Short Structures</td>
<td>210</td>
<td>1,053</td>
<td>***</td>
<td>***</td>
<td>1,263</td>
</tr>
<tr>
<td>(span &gt; 6 ft. &amp; ≤ 20 ft.)</td>
<td>(210 buried</td>
<td>(887 buried</td>
<td>(see note)</td>
<td>(see note)</td>
<td>(1,097 buried</td>
</tr>
<tr>
<td></td>
<td>structures)</td>
<td>structures)</td>
<td></td>
<td></td>
<td>structures)</td>
</tr>
<tr>
<td>Totals</td>
<td>523</td>
<td>1,862</td>
<td>1,652</td>
<td>7</td>
<td>4,044</td>
</tr>
<tr>
<td>Structurally Deficient</td>
<td>7</td>
<td>33</td>
<td>31</td>
<td>0</td>
<td>71</td>
</tr>
<tr>
<td>“Longs”</td>
<td>(2.24%)</td>
<td>(4.08%)</td>
<td>(1.88%)</td>
<td>(0.00%)</td>
<td>(2.55%)</td>
</tr>
<tr>
<td>Functionally Obsolete</td>
<td>97</td>
<td>91</td>
<td>414</td>
<td>5</td>
<td>607</td>
</tr>
<tr>
<td>“Longs”</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Buried structures include metal culverts, concrete box culverts, frames, masonry arches, and concrete arches.

***Note: VTrans does not maintain an inventory of town highway or other short structures
# Bridge Status

**Vermont’s “Highway” Structure Population**  
(as submitted to FHWA in March 2019)

<table>
<thead>
<tr>
<th>Structure Type</th>
<th>Interstate</th>
<th>State Highway</th>
<th>Town Highway</th>
<th>Other</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>A = Open, no restriction</td>
<td>311</td>
<td>794</td>
<td>1,496</td>
<td>5</td>
<td>2,563</td>
</tr>
<tr>
<td>B = Open, posting recommended but not legally implemented</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>D = Open, would be posted or closed except for temporary shoring, etc. to allow for unrestricted traffic</td>
<td>0</td>
<td>2</td>
<td>2</td>
<td>0</td>
<td>4</td>
</tr>
<tr>
<td>E = Open, temporary structure in place to carry legal loads while original structure is closed and awaiting replacement or rehabilitation</td>
<td>0</td>
<td>3</td>
<td>6</td>
<td>0</td>
<td>9</td>
</tr>
</tbody>
</table>
### Vermont’s “Highway” Structure Population
(as submitted to FHWA in March 2019)

<table>
<thead>
<tr>
<th>Structure Type</th>
<th>Interstate</th>
<th>State Highway</th>
<th>Town Highway</th>
<th>Other</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>G = New structure not yet open to traffic</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>K = Bridge closed to all traffic</td>
<td>1</td>
<td>2</td>
<td>8</td>
<td>0</td>
<td>11</td>
</tr>
<tr>
<td>P = Posted for load (may include other restrictions such as temporary bridges which are load posted)</td>
<td>0</td>
<td>7</td>
<td>140</td>
<td>2</td>
<td>149</td>
</tr>
<tr>
<td>R = Posted for other load-capacity restriction (speed, number of vehicles on bridge, etc.)</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>2</td>
</tr>
</tbody>
</table>
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VTrans Organization – Highways

Wayne Symonds
Director of Highway Division
867010 97

Ann Gammell
AOT Sr Mgr III
861405 32

Terry Gray
Admin Support Coord
861704 22

Mladen Gagulic
AOT Sr Mgr III
860713 32

Kenneth Robie
AOT Sr Mgr III
860661 32

Construction & Materials Bureau

Project Delivery Bureau

Maintenance Bureau

Municipal Assistance Bureau

Support Services Bureau

Asset Management Bureau

Todd Law
AOT Sr. Mgr III
860007 32

Susan Scribner
Admin Civil Engineer
860039 31

N. Alec Portalupi
AOT Sr Mgr III
860005 32

Chad Allen
Admin Civil Engineer
861482 31

Operations & Safety Bureau

Joshua Schultz
AOT Sr. Manager I
861370 30

Todd Sears
AOT Emergency Management Director
861891 29
VTrans Organization – Bridge Inspection

- Bridge Inspection & Budget Program Manager
- Lead / Quality Assurance Inspector
- Qualified Team Leaders
  - Perform visual assessments by qualified and trained bridge inspectors each having a minimum of 5 years of experience
- Assistant Inspectors
  - Assist in all aspects of the NBI and element-level inspections as required
- Load Rating Engineer(s)
  - Perform load rating analyses based on existing conditions
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What’s inspected?

**Bridge.** The National Bridge Inspection Standards published in the Code of Federal Regulations (23 CFR 650.3) give the following definition:

A structure including supports erected over a depression or an obstruction, such as water, highway, or railway, and having a track or passageway for carrying traffic or other moving loads, and having an opening measured along the center of the roadway of more than 20 feet between undercopings of abutments or spring lines of arches, or extreme ends of openings for multiple boxes; it may also include multiple pipes, where the clear distance between openings is less than half of the smaller contiguous opening.
What’s inspected?

**Culvert.** The National Bridge Inspection Standards published in the Code of Federal Regulations (23 CFR 650.3) give the following definition:

A structure designed hydraulically to take advantage of submergence to increase hydraulic capacity. Culverts, as distinguished from bridges, are usually covered with embankment and are composed of structural material around the entire perimeter, although some are supported on spread footings with the streambed serving as the bottom of the culvert. Culverts may qualify to be considered "bridge" length.
Bridge Inspection Terms

- Bridges are considered **structurally deficient** if significant load carrying elements are found to be in poor condition due to deterioration or the adequacy of the waterway opening provided by the bridge is determined to be extremely insufficient to point of causing intolerable traffic interruptions.
- The fact that a bridge is classified under the federal definition as “structurally deficient" does not imply that it is unsafe.
- A structurally deficient bridge, when left open to traffic, typically requires significant maintenance and repair to remain in service and eventual rehabilitation or replacement to address deficiencies. To remain in service, structurally deficient bridges are often posted with weight limits to restrict the gross weight of vehicles using the bridges to less than the maximum weight typically allowed by statute.
Bridge Inspection Terms

- **A functionally obsolete** bridge is one that was built to standards that are not used today. These bridges are not automatically rated as structurally deficient, nor are they inherently unsafe. Functionally obsolete bridges are those that do not have adequate lane widths, shoulder widths, or vertical clearances to serve current traffic demand, or those that may be occasionally flooded.

- A functionally obsolete bridge is similar to an older house. A house built in 1950 might be perfectly acceptable to live in, but it does not meet all of today’s building codes. Yet, when it comes time to consider upgrading that house or making improvements, the owner must look at ways to bring the structure up to current standards.
Bridge Inspection Terms

- The **sufficiency rating** of a bridge is a single number from 0 to 100 taking into account, bridge condition, geometry, traffic, and how well the waterway passes underneath the bridge.

- A **fracture critical member** is a steel member in tension that does not have enough additional, structural members to sufficiently redistribute load in the bridge if one member loses capacity, thus resulting in a portion of or entire bridge collapse.

- **Fatigue** is a material response that describes the tendency of a material to break when subjected to repeated loading.
Bridge Inspection

- **How?**
  - Visual assessment
  - 116 standard data NBIS fields
  - 75 supplemental state data field

- **When?**
  - 24 months “NBI structures”
  - 60 months “non-NBI structures”

- **Who?**
  - Qualified and trained inspectors each having a minimum of 5 years experience
Types of Data Collected

- **Identification**
  - Bridge number, route, and location
- **Structure type and material**
- **Age and service**
- **Geometric data**
  - Length, width, and clearances
- **Navigation data**
- **Classification**
  - Functional class, ownership, direction of traffic, etc.
Types of Data Collected

- **Condition**
  - Deck, superstructure, substructure, culvert, and channel
- **Load rating and posting**
  - Design load, inventory/operating rating, and posting
- **Appraisal**
  - Deck geometry, scour critical, safety features, etc.
- **Proposed improvements**
  - Type of work, cost, and future traffic
- **Inspections**
  - Routine, fracture critical, underwater, and special
Types of Inspection

- **Initial**
  - The first inspection of a bridge to determine baseline structural conditions

- **Routine**
  - Regularly scheduled inspection consisting of observations and/or measurements needed to determine the physical and functional condition

- **In-Depth**
  - A close-up inspection of one or more members to identify deficiencies
Types of Inspection

• Fracture Critical
  • A hands-on inspection of a fracture critical member. A fracture critical member is a steel member in tension that does not have enough additional, structural members to sufficiently redistribute load in the bridge if one member loses capacity, thus resulting in a portion of or entire bridge collapse.

• Special
  • An inspection scheduled at the discretion of the inspector used to monitor a known or suspected deficiency
Types of Inspection

- **Damage**
  - Unscheduled inspection to assess structural damage resulting from environmental factors or human actions

- **Underwater**
  - Inspection of the underwater portion of the bridge substructure
Inspection Numbering Standard

- Interstate, US, and Vermont routes have abutments and piers numbers relative to route log stationing (south → north or west → east)
- On the Interstate, adjacent structures are numbered identically (i.e. bridges 9 N and S on I-91 have abutment #1 at their southern ends)
- FAS, FAU, and Town Highway bridges have abutments numbered in relationship to the stream flow. When looking downstream through bridge opening, abutment #1 is on the right side of channel and abutment #2 is on the left side. If there is no stream, the abutments numbering should be described in the report, or east/west, north/south labels should be used.
- Individual beams or stringers shall be numbered left to right, looking in direction of stationing (i.e. on town system bridges, upstream beam is beam #1).
Bridge Inspection

- **Condition Ratings**
  - **Deck**
    - Roadway portion of a bridge which carries traffic, including shoulders
  - **Superstructure**
    - Supports the deck and connects substructure elements to another
  - **Substructure**
    - Supports the superstructure and distributes all loads to foundation
  - **Culvert**
    - A structure used for drainage under a highway or railroad
## Bridge Condition Ratings

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>N</td>
<td>NOT APPLICABLE</td>
</tr>
<tr>
<td>9</td>
<td>EXCELLENT CONDITION</td>
</tr>
<tr>
<td>8</td>
<td>VERY GOOD CONDITION - no problems noted.</td>
</tr>
<tr>
<td>7</td>
<td>GOOD CONDITION - some minor problems.</td>
</tr>
</tbody>
</table>
## Bridge Condition Ratings

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>6</td>
<td>SATISFACTORY CONDITION - structural elements show some minor deterioration.</td>
</tr>
<tr>
<td>5</td>
<td>FAIR CONDITION - all primary structural elements are sound but may have minor section loss, cracking, spalling or scour.</td>
</tr>
</tbody>
</table>
# Bridge Condition Ratings

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td><strong>POOR CONDITION</strong> - advanced section loss, deterioration, spalling or scour.</td>
</tr>
<tr>
<td>3</td>
<td><strong>SERIOUS CONDITION</strong> - loss of section, deterioration, spalling or scour have seriously affected primary structural components. Local failures are possible. Fatigue cracks in steel or shear cracks in concrete may be present.</td>
</tr>
</tbody>
</table>
## Bridge Condition Ratings

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>CRITICAL CONDITION - advanced deterioration of primary structural elements. Fatigue cracks in steel or shear cracks in concrete may be present or scour may have removed substructure support. Unless closely monitored it may be necessary to close the bridge until corrective action is taken.</td>
</tr>
<tr>
<td>1</td>
<td>&quot;IMMINENT&quot; FAILURE CONDITION - major deterioration or section loss present in critical structural components or obvious vertical or horizontal movement affecting structure stability. Bridge is closed to traffic but corrective action may put back in light service.</td>
</tr>
<tr>
<td>0</td>
<td>FAILED CONDITION - out of service - beyond corrective action.</td>
</tr>
</tbody>
</table>
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SI&A Report

- Every bridge will have a structure inspection, inventory, and appraisal report (SI&A) created and available to the bridge owner.
- The SI&A provides a sense of the immediate and pending bridge needs.
- Don’t wait for a town bridge needs letter.
SI&A Report

- Condition Ratings
  - Deck
  - Superstructure
  - Substructure
  - Culvert
- Appraisal Ratings
  - Structure Evaluation
  - Deck Geometry
  - Waterway Adequacy
- Summary and Needs
Bridge Needs Letter

To: Town of Hardwick
Re: Hardwick bridge 18 on VT 30 (Class 3) over Lamoille River

October 4, 2013

We have just completed a visual inspection of the bridge. During the inspection, several cracks were found in the concrete deck slab and the asphalt concrete on the roadway.

We recommend that the bridge be closed to traffic until a structural analysis can be done. The town may consider using a temporary barrier to reduce the risk of injury to the public.

If the town decides to close the bridge, we will provide the necessary information to begin the process of obtaining a permit from the Vermont Agency of Transportation.

Sincerely,

[Signature]
Michael G. Budge, P.E.
Agencies Program Manager
## Classifying Work Candidates

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
<th>Commonly Employed Feasible Actions</th>
</tr>
</thead>
<tbody>
<tr>
<td>9</td>
<td>Excellent Condition</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Very Good Condition</td>
<td>Preventive Maintenance</td>
</tr>
<tr>
<td>7</td>
<td>Good Condition</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Satisfactory Condition</td>
<td>Preventive Maintenance or Rehabilitation</td>
</tr>
<tr>
<td>5</td>
<td>Fair Condition</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Poor Condition</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Serious Condition</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Critical Condition</td>
<td>Rehabilitation or Replacement</td>
</tr>
<tr>
<td>1</td>
<td>Imminent Failure Condition</td>
<td></td>
</tr>
<tr>
<td>0</td>
<td>Failed Condition</td>
<td></td>
</tr>
</tbody>
</table>
VTransparency
http://vtrans.vermont.gov/vtransparency
VTransparency
http://vtrans.vermont.gov/vtransparency
VTransparency
http://vtrans.vermont.gov/vtransparency

BRIDGE INSPECTION REPORTS

Select a town from the dropdown menu below to view links to the reports. Filter by selecting an ownership.

A web map interface for selecting Bridge Inspections is also available, (zoom in to see locations)

<table>
<thead>
<tr>
<th>Town</th>
<th>Bridge Number</th>
<th>Route</th>
<th>Approx. Location</th>
<th>Link</th>
<th>Link</th>
</tr>
</thead>
<tbody>
<tr>
<td>Benson</td>
<td>000179,</td>
<td>C2003</td>
<td>0.1 MI TO JCT W CL2 TH4</td>
<td>Report</td>
<td>Photos</td>
</tr>
<tr>
<td>Benson</td>
<td>00019,</td>
<td>C3025</td>
<td>0.9 MI TO JCT W VT22A</td>
<td>Report</td>
<td>Photos</td>
</tr>
<tr>
<td>Benson</td>
<td>00020,</td>
<td>C3025</td>
<td>1.0 MI TO JCT W VT22A</td>
<td>Report</td>
<td>Photos</td>
</tr>
<tr>
<td>Benson</td>
<td>00021,</td>
<td>C3025</td>
<td>0.45 MI TO JCT W CL3 TH7</td>
<td>Report</td>
<td>Photos</td>
</tr>
</tbody>
</table>

Download All Reports * may take a few seconds - only click once
Welcome to VTCULVERTS

Provided by the Vermont Agency of Transportation and the Vermont Regional Planning Commissions.

The Vermont Agency of Transportation was directed by the Vermont Legislature to complete and deploy an integrated software product to handle data entry, access and status reporting of town bridge and culvert inventories currently collected by the Regional Planning Commissions (RPCs), towns and their contractors.

All town bridge and culvert inventory data which has been previously collected and submitted through the old VORCIT website is currently located in this system. All bridge and culvert data that adheres to the requirements of this database may be entered into this application.

Search structures ➤ Export structures ➤

© State of Vermont

Legend:
- Undetected bridge
- Undetected culvert
- Selected bridge
- Selected culvert
- VTtrans structure

Map data ©2016 Google | Terms of Use
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Vermont Statutes

- Town Liability For Neglecting Repairs
  - 19 V.S.A. § 985. Injuries from defective bridges and culverts
  - 19 V.S.A. § 991. Fine
  - 19 V.S.A. § 992. Notice before indictment
  - 19 V.S.A. § 996. Highway construction, maintenance, and repair best management practices
Vermont Statutes

- Weight, Size, Loads
  - 23 V.S.A. § 1392. Gross weight limits on highways
    - (1) 16,000 pounds upon any bridge with a wood floor, wood subfloor, or wood stringers on a class 3 or 4 town highway or 20,000 pounds on a bridge with wood floor, wood subfloor, or wood stringers on a class 1 or 2 town highway unless otherwise posted by the selectboard of such town.
    - (2) 24,000 pounds, upon a class 2, 3, or 4 town highway or bridge with other than wood floor, in any town, incorporated village, or city.

- 23 V.S.A. § 1400. Permit to operate in excess of weight and size limits; State highways
  - ... operating over State highways or class 1 town highways
Load Rating and Permitting

- Responsibility
- Liability
Posting and Enforcement

- Properly enforce for legal load limits and vertical restrictions
Posting and Enforcement

- Make sure signs are properly placed and visible per the Manual of Uniform Traffic Control Devices (MUTCD)
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Why Preventive Maintenance

- Economic analysis has shown that preventive maintenance is more cost effective than reactive maintenance. The old saying “An ounce of prevention is worth a pound of cure” is true for bridges too.

- Something as simple as sweeping and washing inhibits
  - Concrete delamination, spalling, and scaling
  - Steel corrosion and section loss
Why Preventive Maintenance

1987 inspection

1991 inspection
Why Preventive Maintenance

1993 inspection

1995 inspection
Why Preventive Maintenance

1996 inspection

2001 inspection
Why Preventive Maintenance

2002 inspection

2003 inspection
Preventive Maintenance

- Brush cutting around the bridge
- Removal of stream debris buildup or beaver dams
- Wash bridges (deck, superstructure, and substructure)
- Apply water repellent to all exposed concrete surfaces
- Train every member of the bridge maintenance workforce on proper bridge maintenance and the benefits of each activity
Preventive Maintenance

- Smooth wearing surface and approaches (including filling potholes) to reduce impact damages
- Restripe approaches and bridge to enhance safety
- Repair bent, broken and/or unattached approach and bridge rail
- Install load, vertical and/or horizontal restriction signs
- Keep oversize/overweight vehicles off bridges thru enforcement efforts
Preventive Maintenance

- Clean bearing area and take measures to reduce buildup or moisture
- Patch bearing area (superstructure jacking not required)
- Grease bearings
Preventive Maintenance

- Clean expansion joint and drainage troughs
- Reseal or replace pavement joints at bridge ends as needed
- Replace or repair deck joint drainage systems as needed
- Maintain deck joints and ensure that they do not leak
Preventive Maintenance

- Patch holes in metal culverts to deter loss/piping of material
- Maintain protective riprap countermeasures
- Monitor for scour after high water events and place concrete sub-footings and/or stone fill as needed
- Eliminate mitered ends on large multi-plate structures
Preventive Maintenance

- Plug curb wind slots and drain off ends of deck
- Maintain runner planks on timber decks
- Spot paint or grease steel components below deck joints or other severe environments
- Repair or replace failed concrete deck waterproofing membrane
- Seal cracks/minor patching of concrete (deck, slab, abutments, piers, culvert headwall, etc.)
Preventive Maintenance

- Maintain leak free roofs on covered bridges
- Maintain side boards on covered bridges
- Apply wood preservatives and insecticides
- Maintain mortar in mortared stone work
- Keep debris off truss chords on covered bridges and trusses
- Maintain secondary members on covered bridges and trusses
Preventive Maintenance

- Remove snow load
- Clear debris / beaver dams
Bridge Safety

- Fall Protection
  - an unprotected edge of 6 feet or more
- Working over /near Water
- Lead Paint
- Pigeon Droppings
- Traffic Protection and Control
- Hazardous Materials
- Environmental Considerations and Permits

**Operations Division**
Vermont Agency of Transportation

<table>
<thead>
<tr>
<th>Original Policy Adopted Date:</th>
<th>Original Identification No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Responsible Section:</td>
<td>Policy Name:</td>
</tr>
<tr>
<td>Maintenance Districts</td>
<td>Bridge Washing</td>
</tr>
</tbody>
</table>

**Subject:** Training

**Approval Date:** 11/29/2005

**Page(s):** 1 of 1

**Statutory Reference / Other Authority:** Federal and state rules and regulations, and the Manual on Uniform Traffic Control Devices (MUTCD)

**Approved by:** Samuel B. Lewis, Director of Operations

**BRIDGE WASHING**

**Purpose:**
Bridge preventive maintenance is critical in extending the life of bridges. Decks, seats, pier caps and troughs need to be periodically cleaned of debris and salt residue. Over the winter, sand and debris accumulate along the deck/curbing interface, as well as on abutments or pier caps, allowing a perfect medium for residual salt to penetrate to the reinforcing steel and cause deterioration of both the steel and structural concrete. It is important that the process of removing of the sand and debris is accomplished early in the spring and in a manner that does not harm the environment or violate state or federal regulations.

**Policy:**
Sand, debris, and other material must be removed from the bridge deck prior to the use of pressure water which will remove the salt latens from the deck/curbing interface. Appropriate removal of material can be accomplished with hand tools and power or hand brooms. All removed material must be deposited in an area which will not affect the river, brook or other body of water crossed by the bridge. Generally, an appropriate place for depositing the material can be found along the approaches of the bridge. No foreign material can be deposited over the side of the bridge rail, even if it is not directly over water!

Water used to flush the salt latens from the deck must come from a source which has no potential to harm the receiving water body. Scoupers will need to be sand bagged or plugged if they have a direct route to the body of water crossed by the bridge.

Care needs to be taken when washing bridge seats, pier caps, and diaphragms to minimize any impact on the receiving water. Traffic control shall follow the guidance provided in the MUTCD.

It is expected that bridges will be washed at least every other year.
Municipal Bridge Maintenance & Management

1. General Bridge Overview
2. Bridge Inspection Organization
3. Bridge Inspection Terms and Process
4. Bridge Inspection Results and Outcomes
5. Legal Responsibilities, Posting, Enforcement, and Permitting
6. Bridge Preventive Maintenance and Safety
7. Bridge Programming and Funding
8. Questions
Programs

- **Town Highway Bridge Program** (Project Delivery Bureau)
  - For major rehabilitation or reconstruction on class 1, 2, or 3 highways
  - Selection based on prioritization system and regional input
  - $ no maximum; 2.5% - 10% share

- **Structures Grant Program** (Maintenance & Operations Bureau)
  - Competitive program based on recent awards
  - Projects are selected from applications submitted annually attempting to provide equitable distribution of funds allotted
  - $175,000 maximum; 10% - 20% share

- **Bridge owners need to preserve their own structures and cannot afford to defer maintenance or preventive maintenance treatments**
Appropriation Trend

<table>
<thead>
<tr>
<th>Year</th>
<th>Highway Bridge Program</th>
<th>Highway Structures Grants</th>
</tr>
</thead>
<tbody>
<tr>
<td>2014</td>
<td>$16,566,597</td>
<td>$6,333,500</td>
</tr>
<tr>
<td>2015</td>
<td>$16,482,361</td>
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<td>2016</td>
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<td>2017</td>
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<td>2019</td>
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<tr>
<td>2020</td>
<td>$13,833,851</td>
<td>$6,333,500</td>
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</tbody>
</table>

Legend:
- Town Highway Bridge Program (80% Federal Participation)
- Town Highway Structures Grants (100% State Funded)
Town Highway Grants

- VTrans administers three separate appropriations which provide grant to municipalities for roads and bridges. The statute governing these grant programs is 19 V.S.A.§ 306 (d), (e), and (h)
  - Town Highway Structures
  - Class 2 Town Highway Roadway
  - Town Highway Emergency
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Questions?

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