
VTRANS RAIL BRIDGE MANAGEMENT PROGRAM

prepared for the

SENATE TRANSPORTATION COMMITTEE

on

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BY

Dan Delabruere

Rail Program Director

Erin Charbonneau

Rail Bridge Management Engineer

Stephen Smith

GIS Project Supervisor

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RAIL BRIDGE MANAGEMENT PROGRAM

The FRA established Federal safety requirements for railroad bridges in 2010 under 49 CFR Part 237. VTrans established a Rail Bridge Management Program in September 2012 in accordance with these regulations. The program is responsible for collecting and maintaining an inventory of rail bridges, their condition, and making recommendations on repairs, strengthening or replacement of components or entire structures. These regulations also mandate that annual safety inspections are performed for each bridge, and that all bridges have an initial determination of load capacity completed by September 2017.

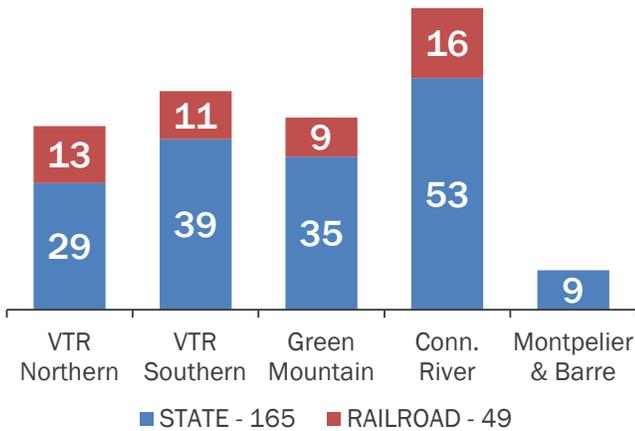
There are 214 rail bridges on State-owned property. The State is responsible for 165 of those bridges, with the railroad operator responsible for the remaining 49 bridges through existing lease agreements.

STATEWIDE BRIDGE INVENTORY

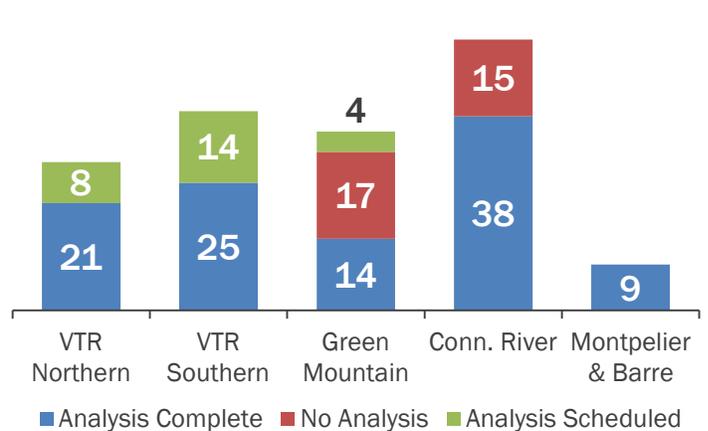
Summary:

# Spans	1	2	3	4	5	6	7	8	9	10	11	Total
# Bridges	171	25	9	3	1	2	1	1	0	0	1	214

Bridge Responsibility

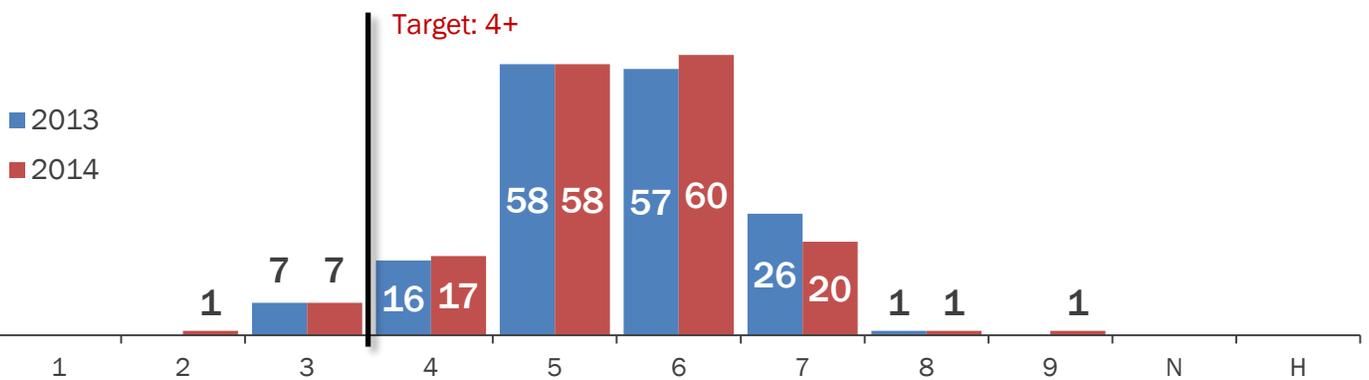


State Bridge Load Capacity



Based on 165 state-responsible bridges

STATEWIDE INSPECTION CONDITION RATING



Key:

1	2	3	4	5	6	7	8	9	N	H
Failure Imminent	Critical	Serious	Poor	Fair	Satisfactory	Good	Very Good	Excellent	Not Applicable	Hidden

VT RAIL BRIDGE INSPECTION FORM Type

Form Version 1.2.1

Town <input type="text"/>	Br. Num <input type="text"/>	Mile Post <input type="text"/>	Feature Crossed <input type="text"/>
Line Name <input type="text"/>	Branch <input type="text"/>	Superstructure <input type="text"/>	Substructure <input type="text"/>
No. Spans <input type="text"/>	Struc. Len <input type="text"/>	Span 1 Len <input type="text"/>	No. Tracks <input type="text"/>
Yr Built <input type="text"/>	Rennov. <input type="text"/>		
Horiz. Track Alignment <input type="text"/>	Vert. Track Alignment <input type="text"/>	Gauge <input type="text"/>	
Deck Type <input type="text"/>	Inspector <input type="text"/>	Date Inspected <input type="text"/>	Date Filled Out <input type="text"/>

Bridge General					
Elements	Cond.	Action	Elements	Cond.	Action
Action Under Load	<input type="text"/>	<input type="text"/>	Scour	<input type="text"/>	<input type="text"/>
Approach Track	<input type="text"/>	<input type="text"/>	Erosion	<input type="text"/>	<input type="text"/>
Track on Bridge	<input type="text"/>	<input type="text"/>	Channel	<input type="text"/>	<input type="text"/>
Approach Ties	<input type="text"/>	<input type="text"/>	Catwalks	<input type="text"/>	<input type="text"/>
Deck Ties	<input type="text"/>	<input type="text"/>	Handrails	<input type="text"/>	<input type="text"/>

Miscellaneous Notes			
Other Issues - Please Describe			Action
1.	<input type="text"/>	<input type="text"/>	<input type="text"/>
2.	<input type="text"/>	<input type="text"/>	<input type="text"/>
3.	<input type="text"/>	<input type="text"/>	<input type="text"/>

<input type="checkbox"/> NA Abutment Conditions	#1		#2	
Elements	Cond.	Action	Cond.	Action
Stem/Columns	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Wingwalls	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Backwalls	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Pedestals	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Bridge Seat	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Bearings	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Parapets & Capstones	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Pointing	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Footing	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Settlement	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Piles	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Pier Protection	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Cap Beams	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Top of stem/cap	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Diagonal Bracing	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

Girders or Trusses <input type="checkbox"/> NA		
Elements	Cond.	Action
Top Flanges/Chords	<input type="text"/>	<input type="text"/>
Bottom Flanges/Chords	<input type="text"/>	<input type="text"/>
Webs or Diagonals	<input type="text"/>	<input type="text"/>
Stiffeners or Verticals	<input type="text"/>	<input type="text"/>
Pins	<input type="text"/>	<input type="text"/>
Rivets or Bolts	<input type="text"/>	<input type="text"/>
Welds	<input type="text"/>	<input type="text"/>
Con pl/Guss/Ang	<input type="text"/>	<input type="text"/>
Top Lateral Bracing	<input type="text"/>	<input type="text"/>
Bottom Lateral Bracing	<input type="text"/>	<input type="text"/>
Cross Frames	<input type="text"/>	<input type="text"/>
Bracing Struts	<input type="text"/>	<input type="text"/>
Diagonal Bracing - Top	<input type="text"/>	<input type="text"/>
Diagonal Bracing - Bot	<input type="text"/>	<input type="text"/>
Portals	<input type="text"/>	<input type="text"/>

Floor Beams <input type="checkbox"/> NA		
Elements	Cond.	Action
Top Flanges	<input type="text"/>	<input type="text"/>
Bottom Flanges	<input type="text"/>	<input type="text"/>
Webs	<input type="text"/>	<input type="text"/>
Stiffeners	<input type="text"/>	<input type="text"/>
Rivets/Bolts	<input type="text"/>	<input type="text"/>
Welds	<input type="text"/>	<input type="text"/>
Con pl/Guss/Ang	<input type="text"/>	<input type="text"/>
Diaphragms	<input type="text"/>	<input type="text"/>

Slab <input type="checkbox"/> NA		
Elements	Cond.	Action
Slab	<input type="text"/>	<input type="text"/>

Stringers <input type="checkbox"/> NA		
Elements	Cond.	Action
Top Flanges	<input type="text"/>	<input type="text"/>
Bottom Flanges	<input type="text"/>	<input type="text"/>
Webs	<input type="text"/>	<input type="text"/>
Stiffeners	<input type="text"/>	<input type="text"/>
Rivets/Bolts	<input type="text"/>	<input type="text"/>
Welds	<input type="text"/>	<input type="text"/>
Con pl/Guss/Ang	<input type="text"/>	<input type="text"/>
Diaphragms	<input type="text"/>	<input type="text"/>

Culverts <input type="checkbox"/> NA		
Elements	Cond.	Action
Barrel	<input type="text"/>	<input type="text"/>
Head walls	<input type="text"/>	<input type="text"/>
Cutoff walls	<input type="text"/>	<input type="text"/>
Portals	<input type="text"/>	<input type="text"/>
Footings	<input type="text"/>	<input type="text"/>

FOR IMMEDIATE ATTENTION

Deck Condition	<input type="text"/>
Superstructure Cond.	<input type="text"/>
Substructure Cond.	<input type="text"/>
Overall Bridge Cond.	<input type="text"/>

Submit by Email

VTrans Railroad Bridge Management Program

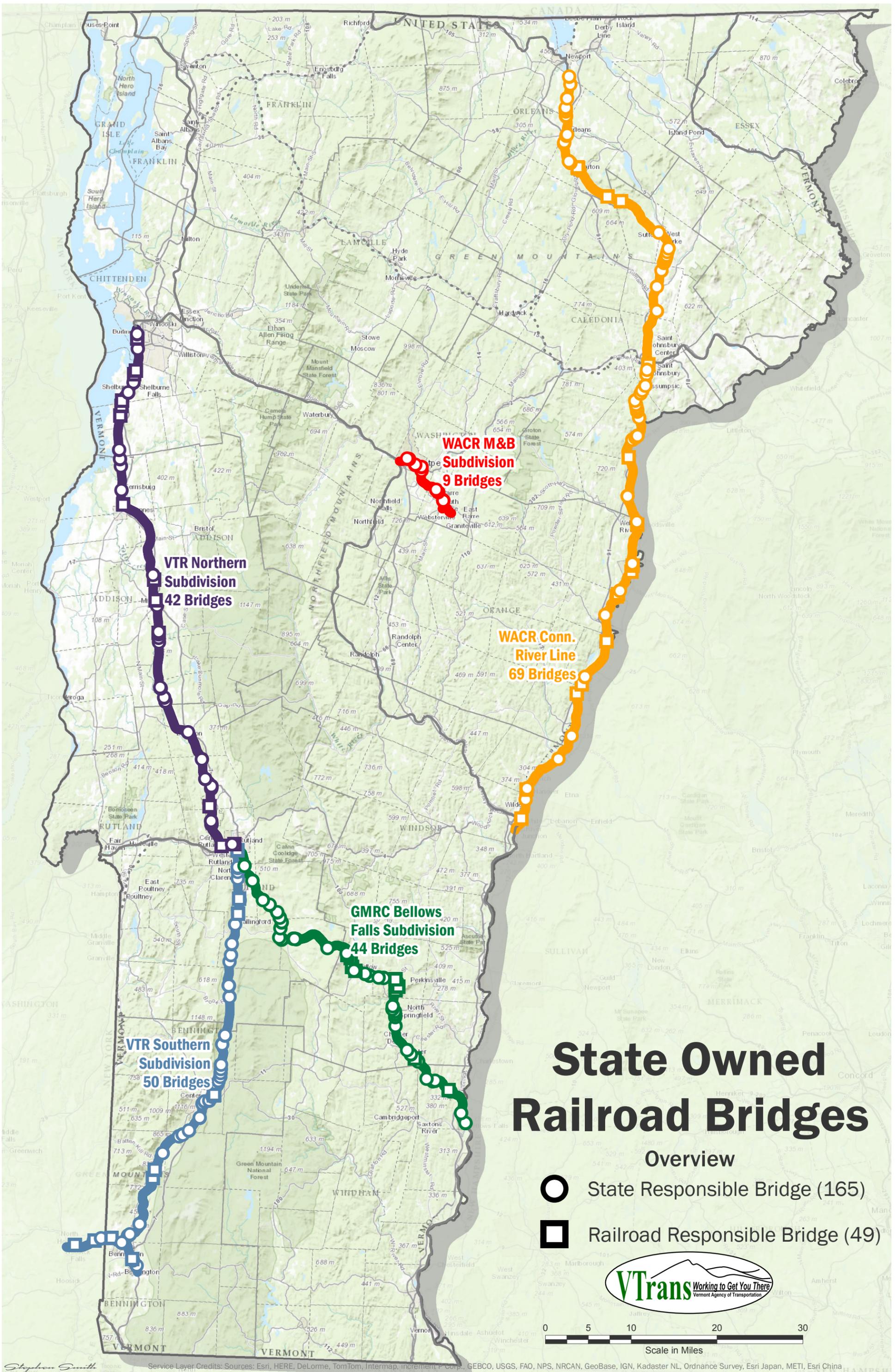
Rating Code Definitions

The purpose of the rating system is to ensure consistency in classifying structures with an appropriate code and to provide a corrective reaction for the identified condition. The rating system attempts to provide an overall understanding of a structure's condition and is based on an inspector applying appropriate condition rating codes. The following summarizes this relationship:

<u>Condition Rating</u>	<u>Condition Description</u>	<u>Implied Reaction</u>	<u>Key</u>
H	Hidden	Not Applicable	N/A
N	Not Applicable	Not Applicable	N/A
9	Excellent	No Action	AA
8	Very Good	No Action	AA
7	Good	No Action	AA
6	Satisfactory	Improve Maintenance	BB
5	Fair	Periodic Maintenance	CC
4	Poor	Long Term Rehabilitation	DD
3	Serious	Intermediate Term Rehabilitation	EE
2	Critical	Short Term Rehabilitation	FF
1	Failure Imminent	Emergency Declaration	GG
0	Structural Failure	Replace Structure	HH

Key – Explanation of Double Letter Codes:

- N/A Not Applicable
- AA Continue to inspect structure on a one year cycle.
- BB No rehabilitative measures are required for the next time the structure is to be inspected.
- CC Structure's component(s) can be treated effectively or improved with accelerated maintenance procedures and/or replacement of structural component(s) to extend service life.
- DD Structure listed in long term rehabilitation program for rehabilitation within the next five to ten year period.
- EE Structure listed in intermediate term rehabilitation program for rehabilitation within the next two to five year period.
- FF Structure listed in short term rehabilitation program for rehabilitation within the next two year period. Requires periodic monitoring of identified structural concern(s).
- GG Immediate rehabilitation necessary.
- HH Structure has failed and is to remain out of service pending reconstruction.



VERMONT RAILWAY – NORTHERN

There are 42 Bridges on this line, 29 of which are the responsibility of the State.

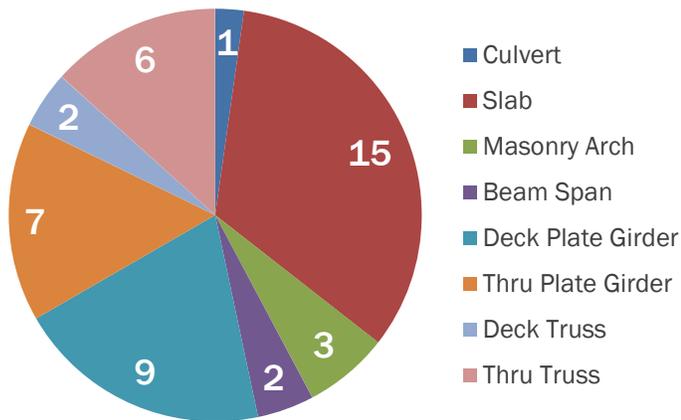
- All 29 bridges had an Annual Inspection during 2014.
- 8 Load Capacity Analyses remain to be completed by September 2017.
 - 6 are scheduled to be completed by 6/30/15.
 - 2 will be finalized when the programmed projects are constructed.

INVENTORY

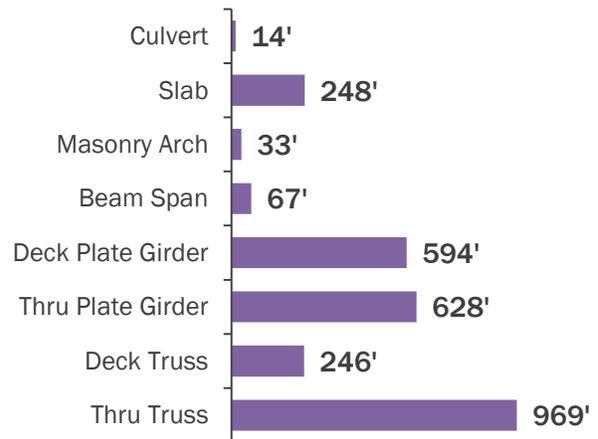
Summary:

# Spans	1	2	3	4	Total
# Bridges	18	7	3	1	29

Span Superstructure Types

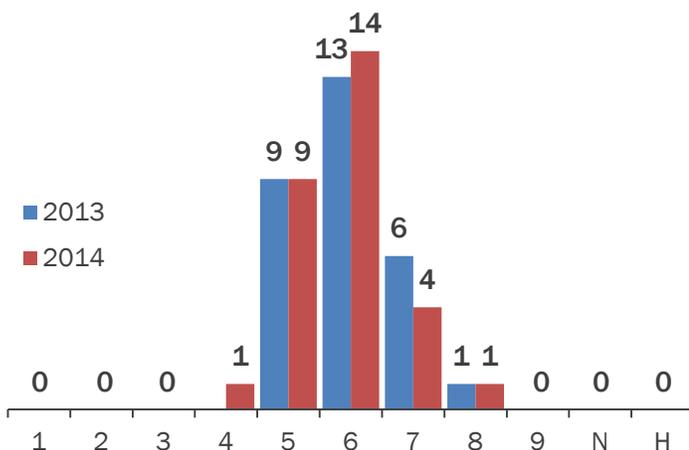


Superstructure Length¹



INSPECTION CONDITION RATING

Rating History



Rating by Bridge



¹ Superstructure length data differs from 2013 data based on updated, more accurate inventory information.

VERMONT RAILWAY – SOUTHERN

The VTR “Southern” is a combination of the B&R and Hoosick Subdivisions and the Bennington Branch.

There are 50 Bridges on this line, 39 of which are the responsibility of the State.

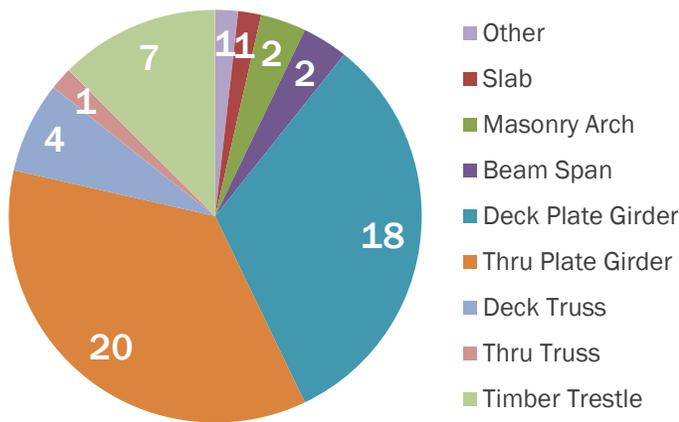
- All 39 bridges had an Annual Inspection during 2014.
- 14 Load Capacity Analyses remain to be completed by September 2017.
 - 11 are scheduled to be completed by 6/30/15
 - 3 will be finalized when the programmed projects are constructed.

INVENTORY

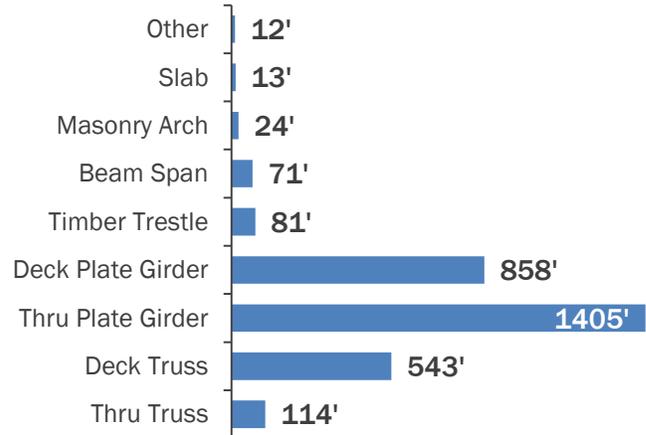
Summary:

# Spans	1	2	3	4	5	6	Total
# Bridges	31	5	1	0	0	2	39

Span Superstructure Types

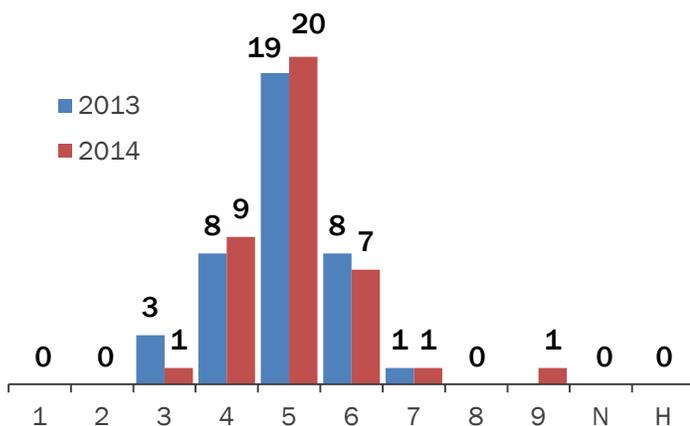


Superstructure Lengths¹



INSPECTION CONDITION RATING

Rating History



Rating by Bridge



¹ Superstructure length data differs from 2013 data based on updated, more accurate inventory information.

GREEN MOUNTAIN

There are 44 Bridges on this line, 35 of which are the responsibility of the State.

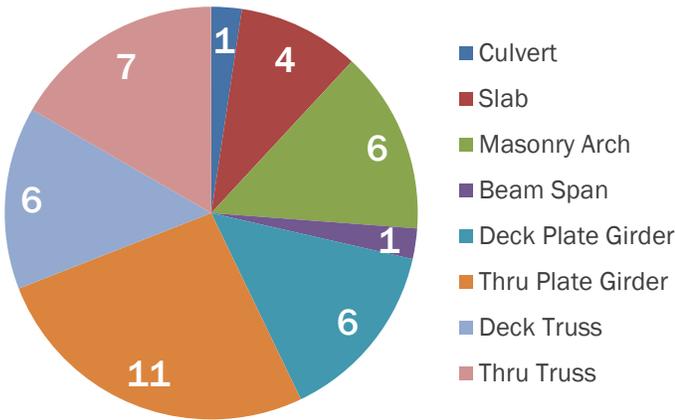
- All 35 bridges had an Annual Inspection during 2014.
- 21 Load Capacity Analyses remain to be completed by September 2017.
 - 4 will be finalized when the programmed projects are constructed.

INVENTORY

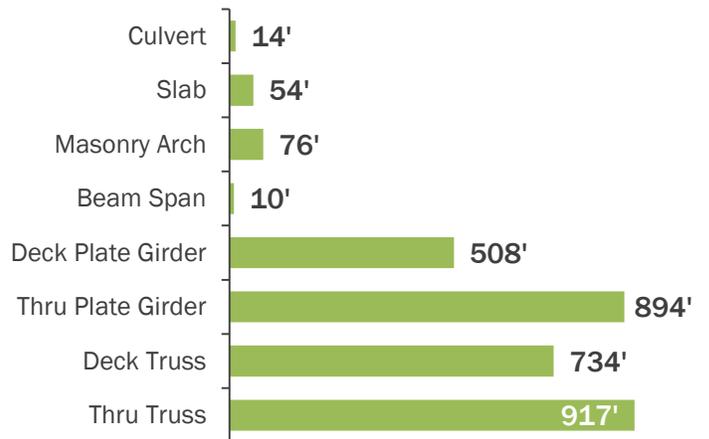
Summary:

# Spans	1	2	3	4	Total
# Bridges	30	4	0	1	35

Span Superstructure Types

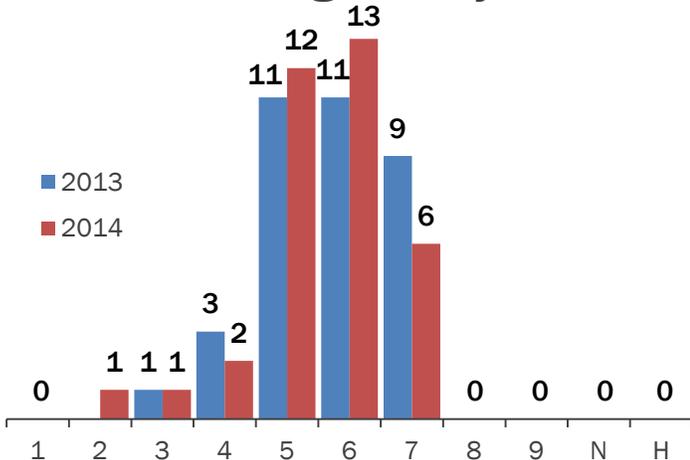


Superstructure Lengths¹



INSPECTION CONDITION RATING

Rating History



Rating by Bridge



¹ Superstructure length data differs from 2013 data based on updated, more accurate inventory information.

WACR – CONNECTICUT RIVER

There are 69 Bridges on this line, 53 of which are the responsibility of the State.

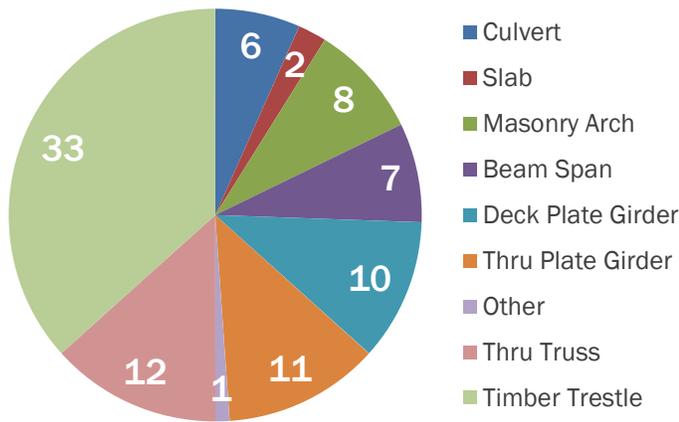
- All 53 bridges had an Annual Inspection during 2014.
- 15 Load Capacity Analyses remain to be completed by September 2017.

INVENTORY

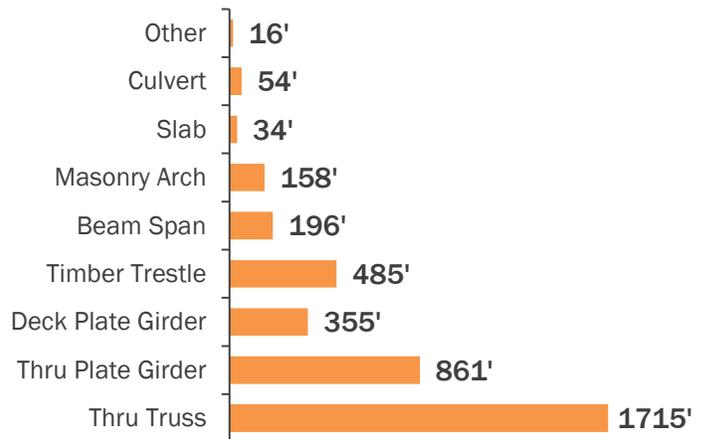
Summary:

# Spans	1	2	3	4	5	6	7	8	9	10	11	Total
# Bridges	42	5	1	1	1	0	1	1	0	0	1	53

Span Superstructure Types

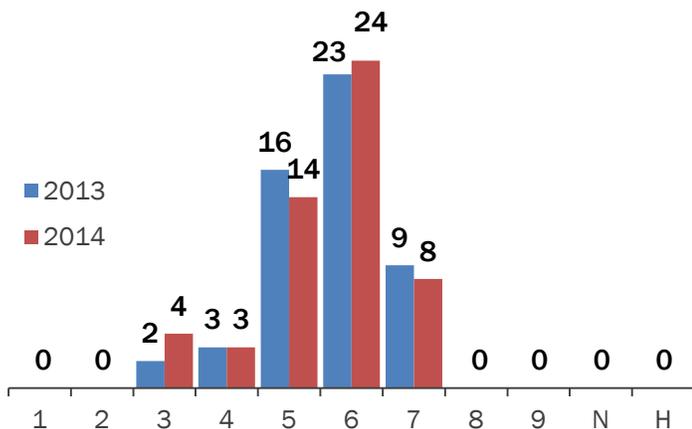


Superstructure Lengths¹

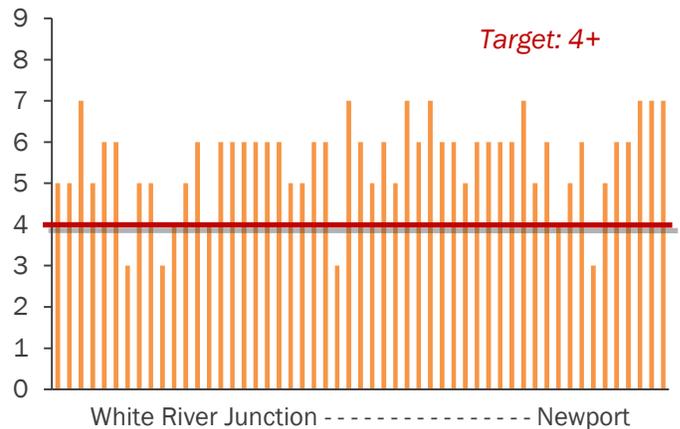


INSPECTION CONDITION RATING

Rating History



Rating by Bridge



¹ Superstructure length data differs from 2013 data based on updated, more accurate inventory information.

WACR – MONTPELIER & BARRE

There are 9 Bridges on the WACR – Montpelier & Barre Line, all of which are the responsibility of the State.

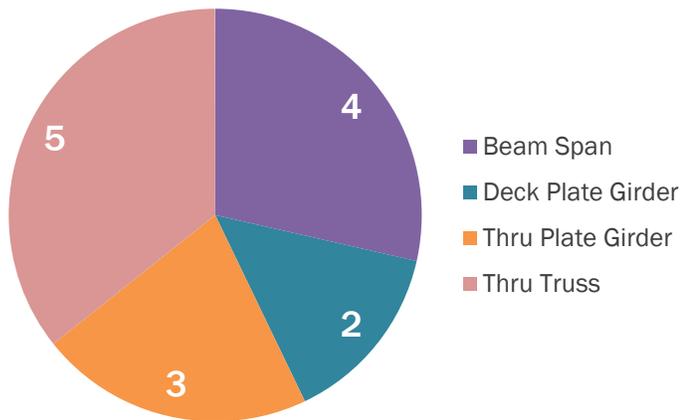
- All 9 Bridges had an Annual Inspection completed during 2014.
- All 9 Load Capacity Analyses have been completed.

INVENTORY

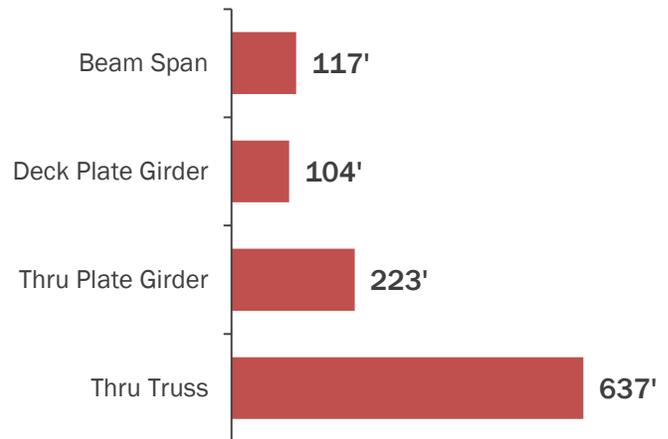
Summary:

# Spans	1	2	3	Total
# Bridges	6	1	2	9

Span Superstructure Types

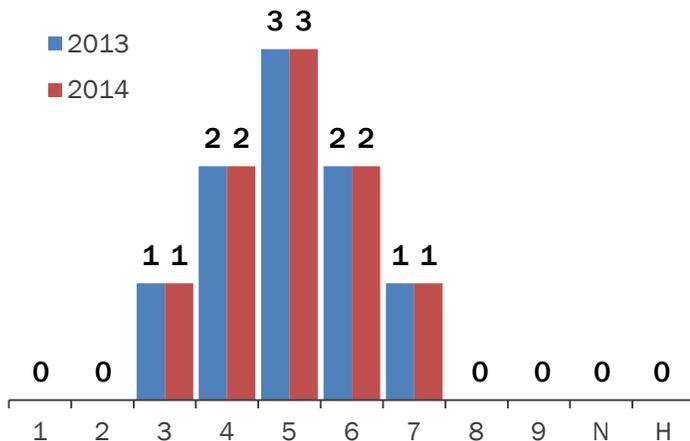


Superstructure Lengths¹

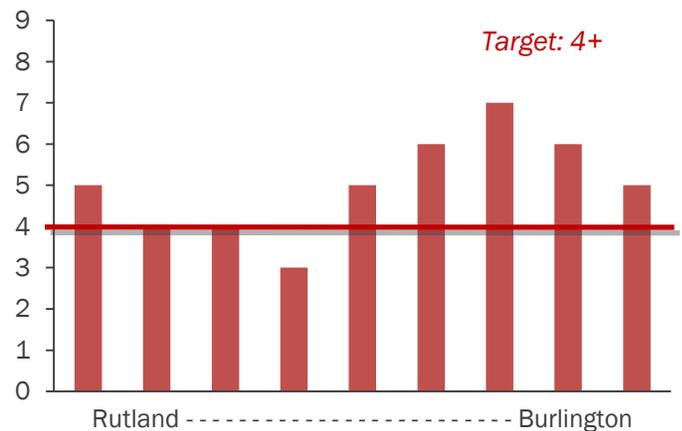


INSPECTION CONDITION RATING

Rating History



Rating by Bridge



¹ Superstructure length data differs from 2013 data based on updated, more accurate inventory information.

STATEWIDE LOAD CAPACITY

Load Capacity Analyses have been performed on 107 of our bridges.

17 Load Capacity Analyses are scheduled to be completed by 6/30/15.

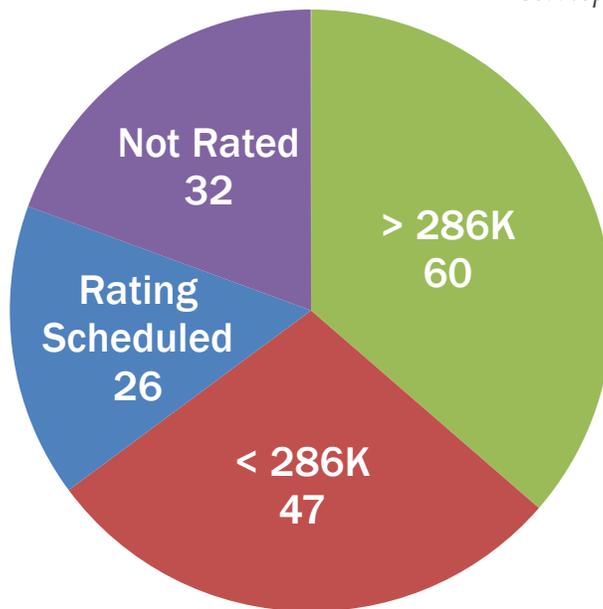
An additional 9 will be completed when construction of the programmed bridge project is completed.

The remaining 32 are required to be complete by September 2017.

Results from Annual Safety Inspections, or In-Depth Inspections, may require updated Load Capacity

LOAD CAPACITY ANALYSIS

Corresponds to map on the next page



LOOKING AHEAD

Estimated yearly activities:

Task	Historic	FY15	FY16	FY17	FY18	FY19	FY20	FY21 - 26
Initial Load Capacity Analysis	66	58	32	9	0	0	0	0
Updated Load Capacity Analysis		0	0	10	10	5	5	5
Annual Inspection		165	165	165	165	165	165	165
Detailed Inspection*		58	32	19	19	17	17	17
Underwater Inspection*		0	17	17	17	17	17	17
Bridge Maintenance		Yes	Yes	Yes	Yes	Yes	Yes	Yes
Data Maintenance		Yes	Yes	Yes	Yes	Yes	Yes	Yes
<i>*Estimated 10-year cycle</i>		<i>Scheduled to be complete by end of FY 2015</i>						

