THE BRIDGER

The Vermont Covered Bridge Society Newsletter – Issue #89
Melanie Schropp, Editor

Spring 2022 Meeting

VCBS Vice President Steve Miyamoto announced that the spring 2022 meeting will be held on Saturday, June 18, 2022, beginning at 10:30 a.m., via Zoom. Details will be emailed to the membership during the week before the meeting.

Election of Officers, January 2023

The process of electing VCBS officers begins with this, the summer issue of *The Bridger*. The Board of Directors is asking the Vermont Covered Bridge Society membership for candidates to run for the offices of president, vice president, secretary, and treasurer, each for two-year terms beginning on January 1, 2023.

Non-incumbent candidates are asked to introduce themselves to the membership by letter to *The Bridger*, explaining why they are seeking a leadership role. The letters will be published in the fall issue of *The Bridger*, along with the ballot. Voters will return the ballots by the deadline for the winter issue, in which the winners will be announced. The incumbent officers will serve until midnight on December 31, 2022.

The Society bylaws governing elections were changed by the Board of Directors in February 2012. The bylaws now state that if there are no challenging candidates for any of the four offices, election ballots will not be issued, and the Board of Directors will confirm the slate. The reason for this change is because of the membership voting record. When incumbent officers were not challenged by new candidates, ballot returns fell off. In a past election, of approximately 200 ballots, only 14 were returned.

Every member in good standing is entitled to run for office and to vote. This includes the adult members listed on a Family membership and the contact person on a Business/Organization/Municipality membership. The VCBS is an open organization, and all members are encouraged to participate, giving of their time and talent.

Candidates will please contact Acting Nominations Coordinator Joe Nelson by email at jcarlnelson@yahoo.com.

Membership Update

- Reported by Dan Monger, Chair

For those VCBS members who are receiving this newsletter with the mailing label marked in red, this indicates that you are behind in your membership dues. Membership fees are due in January. Annual members who are more than one year behind in their dues need pay only for the current year to return to good standing. Members who do not respond will unfortunately be purged from the membership list. We are very sorry to lose them as members.

President: Joe Nelson, P.O. Box 267, Jericho, VT 05465 email: jcarlnelson@yahoo.com
Vice President: Steve Miyamoto, 8 Ridge Rd., Essex Junction, VT 05452, email: spmiyamoto@comcast.net
Secretary: Sarah Pierce, 49 E. Cottage Ave., Millersville, PA 17551, email: ppierce2@gmail.com
Treasurer: Dan Monger, 26 Lake St., Tunkhannock, PA 18657-7128, email: teelmonger@ptd.net

We now have 152 members, including:

2 Student
44 Individual Yearly
27 Family Yearly
46 Single Lifetime
29 Couple Lifetime
4 Business, Organization, or Municipality

Of our membership, 73 (48%) are residents of Vermont, 23 (15.1%) are residents of other New England states, 47 (30.9%) are residents of states outside of New England, 8 (5.3%) are residents of states west of the Mississippi, and 1 (.7%) is international (Canada).

UPDATE: The online membership option is now up and running on the VCBS website. We have already had a handful of people join using this option. Additionally, membership fees can be paid using PayPal.

The VCBS wishes a very happy birthday and happy anniversary to:

June

04 Charlie Elflein
10 Ron & Marie Bechard
20 Mark & Jan Bramhall
22 Ken & Sara Spoor
27 Glen Hall
27 Terry Shaw
28 Bob Kane
30 Lionel & Debra Whiston

July

04 Neil & Suzanne Daniels
11 Marie Bechard
11 Charles & Evelyn Lovastik
16 Melanie Schropp
20 Bob & Trish Kane
28 Jan Lewandoski
28 Sandra Weaver

August

01 Irene Mele
08 Virginia Eckson
08 Evelyn Lovastik
10 Thomas Carpenter
13 David Charkes
18 Ed & Irene Barna
28 Mark Bramhall
30 Ada Jeffrey
30 Robert McPherson

Please note: If I have neglected to include anyone, please send me an email at teelmonger@ptd.net.

In Memorium

Erwin Eckson, age 88, died peacefully on March 1, 2022, at the VA Hospice Center in Togus, Maine, surrounded by his VA family.

Erwin and Ginny joined the Vermont Covered Bridge Society in May 2003. Wrote Ginny, "Erwin and I really enjoyed visiting all [of] our history. We looked at so many [covered bridges] during different seasons of the year. At first Erwin wasn't thrilled as I was, but soon he was bent on seeing all of them. We have also visited bridges in Pennsylvania, Maryland, Connecticut, Maine, and New Hampshire. You meet a lot of nice people as you travel."

Erwin was born in Groton, CT, and was a jack-of-all-trades, mostly with small engines and carpentry. He was happiest in his Vermont woods, cutting firewood. Erwin was a member of the Ellsworth Seventh Day Adventist Church in Ellsworth, Maine. He is survived by his wife, Virginia, to whom he was married for 66 years.

Erwin served two years in the U.S. Army. His family is grateful for the care he received at the VA Dementia Facility. He will be buried at the Vermont Veterans' Memorial Cemetery in Randolph Center, Vermont, at a later date.

Online condolences can be sent to Erwin's family at: www.dayfunerals.com.

The Covered Bridge Calendar Project Approved

A special Board of Directors meeting was called on April 1, 2002, to organize a committee to create a covered bridge calendar for 2023 and to find the funds to do it.

Dear Board Members,

It has been proposed that the Vermont Covered Bridge Society author a covered bridge calendar, the sales of which will finance the Save-a-Bridge Fund.

Question: Shall the Vermont Covered Bridge Society create and sell covered bridge calendars for the year 2023 to finance the Save-a-Bridge Fund? Please answer Yes or No.

Argument For: The cost of the activity for 200 calendars is $1,100. The cost to make each calendar, then, is $5.50. The retail price of each is to be $15.00.

Our 2/28/22 Union Bank balance is $16,525.91. $3,094.00 of that balance is budgeted to support the activities of our standing committees, leaving $13,431.91. $12,201.51 of that amount is in the Save-a-Bridge Fund, leaving $1,230.40 unassigned.

Of 13 directors, the vote was 8 Yes and 5 not voting due to illness or unavailability. The project is approved.

- Joe Nelson, Board of Directors Chairman

Board of Directors:

Ed Barna (gotobarn@comcast.net), Director-at-Large
Irene Barna (ibarna@middlebury.edu), Chair of Addison Chapter
Melody Beth Brown (melby5584@aol.com), Chair of Rutland Chapter
William Carroll (wcarroll@crocker.com), Chair of Historical Committee
William Caswell, Jr. (wscaswell@yahoo.com), President NSPCB, Advisory Director
Neil H. Daniels (ndanielsvt@gmail.com), Chair of Weathersfield Chapter
William McKone (williammckone7@comcast.net), Chair of Lamoille Chapter
Steve Miyamoto (spmiyamoto@comcast.net), Vice President
Daniel Monger (teelmonger@gmavt.net), Treasurer, Chair of Membership Committee
Joseph Nelson (jcarlnelson@yahoo.com), President, Chair of Communications Committee
Sarah Pierce (ppierce2@gmail.com), Secretary
Terry Shaw (terryshaw@myfairpoint.net), Chair of Legislation Watch Committee
John Weaver (johnw6cl@myfairpoint.net), Bridge Watch Committee

Bridge Watch

Red Bridge

- by Catherine Judkins

The Red Bridge in Sterling-Morristown was damaged in 2021, when an oversized box truck pushed its way through and damaged the tie beams. Two beams look just scraped, while one has damage on both sides.

Cornwall-Salisbury Covered Bridge – by Beth Brown

By way of update on the replacement of the bridge lost to fire in September 2016, there have been several public meetings this spring. One meeting, on April 7, 2022, was via Zoom and lasted over 90 minutes. The scoping study was presented by a VTrans engineer. Many questions from community members were asked and answered. A postcard with the three options for replacement bridge design was then sent to every registered voter in Cornwall and Salisbury. Based on the response from the residents, it was decided at a May 17, 2022, meeting of the Select Boards from both towns to move forward with a covered

bridge as the replacement. Per Paul Vaczy, Chair of the Salisbury Select Board, "It could possibly be a hybrid versus a completely wooden bridge. We are now in the design stage."

River Road Covered Bridge – by Beth Brown

Regarding the replacement of the bridge in Troy, which was lost to fire in February 2021, a survey done by the Missisquoi River Basin Association was sent to all town residents. The results indicated that over 86.5% of the people responding wanted the covered bridge replaced. Recently, four students from Norwich University School of Engineering, as part of their final capstone project, developed a concept design for an historical replacement covered bridge. The Select Board in Troy is currently having those designs reviewed by a licensed engineer.

Kingsley Covered Bridge – by Beth Brown

Per the Clarendon Town Report for the fiscal year ending June 30, 2021, "The town held many Select Board meetings via Zoom over FY21. A significant meeting to note was one with VTrans regarding updates on the rehabilitation of the Kingsley Covered Bridge. As of right now, rehabilitation is scheduled to begin in spring of 2023. The town share will be 2.5%, a major cost savings for a project of this extent." This covered bridge is located in East Clarendon in Rutland County.

Scribner Covered Bridge – by Catherine Judkins

I visited the Scribner Covered Bridge on May 20. I was happy to see that the approach to the bridge had been repaired and the riverbank was secured again. The bridge, built in 1919, was damaged by a heavy Halloween rainstorm that happened October 31 through November 1, 2019. The bridge is showing its age and needs some care soon. There are missing siding boards, and the guard rails and bridge deck needs sweeping. Brian Johnson, the Johnson town administrator, is seeking grants for bridge repairs.

See new deals on the **For Sale** page at the end of this newsletter

Introducing the Vermont Covered Bridge Society Calendar Inaugural Edition for 2023

by Beth Brown

A VCBS subcommittee has produced a 2023 calendar, featuring Vermont covered bridges. We hope to sell many copies, with proceeds going to the Save-a-Bridge Fund. Here is a preview to whet your appetite.

On the cover is a photograph taken by VCBS member and long-time covered bridge enthusiast Edwin Loveland of Rutland. The featured bridge, the Cornish-Windsor Covered Bridge, is the longest two-span covered bridge in the world and the longest wooden bridge in the United States. Just as the 460-foot bridge carries travelers to and from Vermont and New Hampshire, this calendar showcases the talents of photographers from both states and was printed in Concord, New Hampshire. Seventeen Vermont covered bridges are featured in the 2023 VCBS Calendar. Four are detachable postcards suitable for mailing. Let me tell you a bit about what is inside the calendar.

We start in January with a photograph taken by John Knox of Northfield. It is a beautiful view of the Upper Cox Brook Covered Bridge in Northfield. John has taken many photos of this bridge (and numerous other Vermont scenes) over the years, but this one is special as it has a sunburst over the bridge with a snowy landscape.

In February, we travel to Johnson, where the Scribner Covered Bridge is captured with snow and beautiful shadows by Joseph Nelson of Jericho. As President of the VCBS, Joe wears many hats. His book, *Spanning Time: Vermont's Covered Bridges,* is loaded with many pretty photos and tons of interesting information. See the VCBS website to purchase the 2023 calendar and Joe's book.

For March, Mike Santosusso, who toured all 100 Vermont covered bridges on his motorcycle in 2021, contributed a delightful photograph of the Gates Farm Covered Bridge in Cambridge. The mint green leaves and vivid green grass near the bridge offer a glimpse of the beauty of early spring in Vermont. I could stare at this photo for hours on a blustery March day and dream of the warmer days to come.

April in Vermont heralds the opening day of trout season. The photograph for this month, taken by Steph Ryder of Bennington, captures a fly fisherman knee deep in the Walloomsac River. The Burt Henry Covered Bridge in North Bennington stands just downstream. If this photo doesn't tempt you to wet a line yourself, you're not an angler!

May's photo is a nod to a very worthwhile organization that raises awareness and funds for prostate cancer research and men's mental health. The Distinguished Gentlemen's Ride of 2021 is pictured exiting the Lake Shore Covered Bridge in Charlotte. Taken by Stacey Buonanno of South Burlington, the photo frames the dapper riders by the covered bridge. DGR and Movember Foundation raised over $4.1 million in 2021, when 65,000 riders on classic and vintage motorcycles participated in 116 countries.

In June, kayak paddlers are pictured under the Cambridge Junction Covered Bridge. The warm days of summer, watercraft recreation, and a covered bridge are married beautifully in this photo taken by Steve Miyamoto of Essex. Steve's help with this calendar project has been invaluable. As Vice President of VCBS, he is Joe's right-hand man, and there is almost nothing he can't do! He generated the QR code to the VCBS website that appears in several places in the calendar.

The July photo showcases the lush greenery of Vermont in the summer. John Knox of Northfield caught the Hyde Covered Bridge in South Randolph at the height of this green beauty. One's mind can easily wander down the farm road and into the meadow beyond the bridge by gazing at this photograph.

August in Vermont is often burdened with the Dog Days of Summer. The group of swimmers that Peter Cosgrove photographed under the Montgomery Covered Bridge in Waterville is escaping the heat and humidity in a most picturesque setting. Most assuredly, recreation and covered bridges are woven into the tapestry of life in Vermont.

Recreation in the form of bicycling is featured in the September page of the calendar. Discovery Bicycle Tours of Woodstock contributed the photo of two of their cyclists at the Middle Covered Bridge in Woodstock. The leaves are hinting of spectacular color in the background.

October's photo displays the quintessential splendor of foliage in Vermont at the Black River Covered Bridge in Coventry. Peter Cosgrove of Pittsford is the photographer, who graciously shared his talent with the VCBS for our 2023 calendar.

In November, the only Vermont covered bridge still sporting a slate roof is featured. Brown Covered Bridge is located in Shrewsbury and crosses the Cold River at the base of Bald Mountain. Highlights about this historic bridge accompany the photo taken by Beth Brown of Sudbury. It is one of the finest and least-altered examples of a Town lattice truss covered bridge in America.

Covered bridges in Vermont are framed by the beauty of white snow and winter landscape in December. Steve Brown of Farmington, New Hampshire, caught the Cooley Covered Bridge in Pittsford on just such a winter wonderland of a day. His photo of the 1849 iconic red bridge against the white landscape is breathtaking.

The detachable postcards depict four covered bridges, different from the 12 which are featured in the calendar. Each showcases one of Vermont's four glorious seasons: spring at Schoolhouse Covered Bridge in Lyndon Corner (John Knox), summer at Greenbanks Hollow Covered Bridge in Danville (Peter Cosgrove), fall at Great Eddy Covered Bridge in Waitsfield (Joseph Nelson), and winter at Bartonsville Covered Bridge in Rockingham (Tom Hildreth).

On the back cover of the calendar is a map of Vermont, which was designed by Steve Miyamoto of Essex. The name and location of each covered bridge pictured in the calendar is identified on the map. It serves as a guide for those unfamiliar with Vermont. For those of us lucky enough to call Vermont home, the covered bridges closest to your neck of the woods can be spotted at a glance.

The retail cost is $15.00 per calendar or seven to the same address for $100, plus shipping and Vermont sales tax. See the VCBS website or any Board of Directors member to buy yours. Many thanks to everyone who contributed their time and talent to this endeavor and to those who support the important mission of the VCBS by purchasing the 2023 calendar.

Covered Bridges, Fiction or Fact

The above was the title of a *Bridger* newsletter feature authored by Bob and Trish Kane, asking and answering questions about covered bridges. The feature ran from the winter 2006 issue to the winter 2009 issue.

Our membership posed and answered questions about bridge trusses, camber, use of glulam, why covered bridges are preserved, favorite bridges, roofing, et al. Question number 8, about Richard Sanders Allen, was posed in the fall 2008 issue.

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Question Number 8 – I have always felt [wrote Trish] the best way to pay tribute to someone is to ask the folks who really knew them. With that is mind, I think our readers would enjoy your responses to the following questions/comments regarding Rick.

1. Did you ever meet Rick in person? If so, when, where, and what was the occasion(s)? What was your impression of him and how did he influence you in regards to covered bridges?

2. As you know, Rick also wrote many books on covered bridges. How did his books influence you in regards to our bridges?

Joseph Conwill, Maine – My first contact with Richard Sanders Allen was through his books, but I briefly saw him at the Second New England Covered Bridge Festival in Rutland, August 1968. We began corresponding about that time, and I think we met in person three times afterwards. We were living in different parts of the country, so most of the contact was by letter. Rick was always one of my greatest heroes. What he did is extremely difficult – becoming the premier authority in his chosen field of covered bridges (and a major authority in several other historical fields, too), without having any formal academic or institutional connection. Everyone respected him and relied upon his historical judgment. Most of the structure by which we understand covered bridge history was laid out by him; his ideas and even his language are echoed in nearly all subsequent writers. What Edward Gibbon is to the history of the Roman Empire, so is Rick Allen to the history of covered bridges.

Ben & June Evans – We never had the pleasure of meeting Rick Allen in person; however, he very graciously contacted us to compliment us after purchasing one of our guide books on covered bridges. His books, several of which are in our library, were an invaluable source of information in the preparation of the above-mentioned book, as well as any of our other covered bridge writings.

Bob & Trish Kane, New York – Bob and I never had the pleasure of meeting Rick Allen in person, be we sure felt like we knew him well through our correspondence. We also spoke with him several times by phone. He was wonderful about answering our many questions, and he always thanked us for keeping him up to date on covered bridge news, especially from New York. He was also very encouraging and complimentary about our covered bridge work. His message on his 2006 Christmas card was especially inspirational and heat warming to us. He wrote, "Dear Trish and Bob, You and Bob have my nomination as: Dedicated people who have done the most for authentic covered bridges in 2006 (and probably 2005 and 2007). Happy Holidays! Rick." Although we never met him in person, his continued support, encouragement, and praise made our covered bridge research even more enjoyable. Our covered bridge library includes each of his books, and they are a constant means of resource for us. He was a truly great man, and his passing is a tremendous loss to the covered bridge community. His legacy will certainly live on for a very long time.

Miriam Wood, Ohio – While I never met Rick Allen in person, I felt that I knew him, because he was always so courteous and helpful in answering my many questions. As I was working on my first book, *The Covered Bridges of Ohio, an Atlas & History*, in 1993, Rick sent me information from an old newspaper about the bridges over the Maumee River at Perrysburg. He knew I was writing a book, and it was so kind of him to think of me and to help me by sending information I could use. As for Rick's books, they were my "go to" source of authority when I had questions concerning truss designs or builders. I will occasionally take one down and sit and read through it, even though I know them so well. Rick has crossed his last covered bridge, but his legacy lives on.

Joe Nelson, Vermont – I first knew Richard Sanders Allen through his covered bridge books – I have all of them on my shelf, and I consult them often. When my wife, Ruth, introduced me to the covered bridges in her home state of Ohio, I was hooked and had to know more. Mr. Allen's books were my first source. I began to explore all of the bridges I could find and ultimately wrote a book of my own. Imagine my surprise and pleasure when Mr. Allen wrote me a letter, complimenting my work. He signed himself "Rick." He wrote often after that, commenting on articles in his copy of *The Bridger*. Hearing from Rick was always educational and always a pleasure.

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Covered Bridges, Fiction or Fact was a popular feature in those years. It had us sharing our knowledge and experiences with each other, learning things new to many of us. We shared our knowledge of bridge camber, and the why of it, about the various trusses and how they came to be, and making new friends.

If you have a question about covered bridges or have something you want to share about them, please send them to jcarlnelson@yahoo.com. We'll have a good old-fashioned discussion, like in the old days.

THEY ARE REHABILITATING MY FAVORITE COVERED BRIDGE

The Vermont Agency of Transportation (VTrans) inspects the covered bridges on our highways regularly to ensure our safety and to preserve an intriguing part of our living history. When a bridge needs restoration, VTrans accepts bids from engineering firms to inspect the bridge and report the cost of making it safe again and ready to survive another fifty years. The following are excerpts of a report from an engineering firm on the Hutchins Bridge in Montgomery that reveals to us the secrets of an aging bridge.

ENGINEERING STUDY *For the* HUTCHINS COVERED BRIDGE
Bridge No. 34 World Guide No. 45-06-02 Town Highway 27 Montgomery, VT
Prepared by: HTA Consulting Engineers, Burlington, VT
Prepared for: Vermont Agency of Transportation, The Town of Fairfield, VT
July 2006 Revised August 4, 2006

Executive Summary

Hoyle, Tanner & Associates, Inc. (HTA) has been assigned, through a retainer contract with the Vermont Agency of Transportation (VTrans), the task of preparing an Engineering Study for the rehabilitation of the Hutchins Covered Bridge. The project's Priority of Uses as defined by the Historic Covered Bridge Preservation Plan is "Special Use on Roads" if a six-ton live load is pursued and "Limited Use on Roads" if a twenty-ton live load is pursued.

The Hutchins Covered Bridge was inspected and load rated to determine its current condition. Our rating assumes replacement of deteriorated bridge members. It was determined that at the inventory stress limit, the existing trusses have a live load capacity of approximately H7.8 (7.8 tons), the floor beams have a capacity of H4.2 (4.2 tons), and the deck has a capacity of H7.2 (7.2 tons).

Additional items that are discussed in this report and recommended for the bridge include a temporary detour bridge, utilization of a Class 4 Town Highway as a detour, new siding; substructure repairs, replacement of deteriorated bridge members; fire protection, bridge approach railing, new back walls; and realignment of the trusses. The total estimated cost of all recommended work items, utilizing a temporary detour bridge and six-ton live load limit is approximately $578,025.00, including contingencies. The total estimated cost of all recommended work items, utilizing a temporary detour bridge and twenty-ton live load limit is approximately $777,525.00, including contingencies.

Introduction

On November 30, 2005, an inspection team from HTA visited the bridge to perform field observations and gather field data for this engineering study. An archeologist from Hartgen Archeological Associates, Inc. (HAA) visited the site on April 5, 2006, to assess the potential of encountering National Register listed or eligible sites which may be affected by the project.

Background

The Hutchins Covered Bridge is located in the town of Montgomery, Vermont, and was built in about 1883 by Sheldon and Savannah Hewett of Montgomery. The bridge's 76-foot single span timber superstructure utilizes Town lattice trusses, spaced at 17'-10" on-center. The bridge runs east to west and crosses over the south branch of the Trout River on Town Highway No. 27. It is supported by abutments originally constructed out of large stones. The east abutment has been encased with concrete. The west abutment is constructed from dry laid stones and abuts the former Hutchins Mill foundation, which serves as the northwest wing wall. The bridge is open to traffic and is on the National Register of Historic Places.

Wood Species Identification

Four small wood samples were removed from the bridge for the purpose of species identification. The samples were taken from deteriorated members that will most likely be replaced during the course of the bridge rehabilitation. The samples

were forwarded to Doug Gardner, Ph.D., a professor of wood science and technology at the University of Maine at Orono for identification. From analysis, it was determined that the deck and truss chord samples were Eastern Hemlock, and the lattice sample is Spruce. The trunnel sample was determined to be Hard Maple, which is somewhat unusual; oak is more typically utilized for trunnels. This species evaluation is consistent with historical records that indicate native wood was used during construction.

Roof Framing

The metal roof is in good condition, having been installed in 2002, and should be retained. Replacement of selected roof boards and rafters was also completed in 2002. We did not note any recent damage to the roof boards or rafters, and therefore are not recommending any replacement of those members. We are also not recommending any replacement at the ridge beam support post and braces. Based on the condition of the upper lateral bracing, we recommend the following repairs or additions:

- Replace two cross beams
- Repair splits at the bearing of four
- Replace two knee braces
- Install four knee braces that were missing
- Install a lag bolt at the top lateral intersection
- Install a lag bolt at the base of all knee braces.

We have assumed that local (northeast) wood species will be used for the members above. It is important to note that they may not be readily available for the cross beams due to the size, length, and grade needed.

Trusses

The bridge utilizes Town lattice trusses with members in very poor to good condition. The chords were identified as an Eastern Hemlock species with a grade of select structure assigned for analysis. The lattice members were identified as a Spruce species with a grade of select structure assigned for analysis. Steel beams have been added inside of each truss to help support the bridge due to the poor condition of the truss upper chords. The trusses were analyzed to determine their current live load capacity, using a 3-D full bridge computer model. The live load capacity of the trusses was found to be H7.8 (7.8 tons) at inventory and H8.0 (8.0 tons) at operating. Both ratings are controlled by the lattice-to-chord trunnel capacity.

Due to the stresses in the trusses and difficulty in obtaining local species, select structural Douglas Fir or Southern Pine is proposed for replacement members in the trusses. The following recommendations are made for the trusses, assuming a six-ton live load limit:

- Replace selected lattice members (22 total)
- Replace selected chord members (28 pieces at approximately 28’ each)
- Repair split ends of lattice with epoxy and lag screws (14 total)

The following changes would be required for a twenty-ton load rating:

- Replace the deck with a new glulam deck
- Replace the floor beams with new glulam floor beams
- Install new concrete abutments in front of the existing abutments
- Installation of new longitudinal glulam stringers
- Upgrade truss connections as required

Floor Beams

The existing floor beams and decking were analyzed to determine their live load capacity. The deck capacity was determined to be H7.2 (7.2 tons), assuming a No. 1 grade. The floor beam capacity was determined to be H4.2 (4.2 tons) for a No.1 grade at inventory and H5.9 (5.9 tons) at operating.

Based on the condition of the deck and floor beams and an H6.0 (6.0 tons) live load goal, we recommend complete replacement of the floor beams and decking with new sawn members of approximately the same size. The species of the new members would be Douglas Fir or Southern Pine to meet the H6.0 (6.0 tons) live load requirement. If H20.0 (20.0 tons) live load capacity is required, glulam decking and floor beams would be required as discussed above. In addition, we recommend that a new wood curb be added to the bridge to help keep vehicles from impacting the trusses and knee braces. This curb has previously been used by VTrans on the Union Covered Bridge in Thetford, the Comstock Covered Bridge in Montgomery, and the Greenbanks Hollow Covered Bridge in Danville.

Abutments

The east abutment and wing walls were most likely originally constructed out of large stones at some unknown date and were encased in concrete. The abutment and wing walls are in good condition, with some cracks and minor spalling noted. There does not appear to be a concrete or stone back wall, and no weep holes were noted. The west abutment and wing walls are constructed of dry laid stone. The abutment is founded on ledge, while the wing wall foundation is unknown. The abutment and wing wall are in fair to good condition, with some bulging of the abutment breast wall and missing stones noted. Poor drainage and a short wing wall have led to heavy erosion at the southwest corner of the bridge.

The following repair/replacement recommendations are made for the bridge substructure units:

East Abutment (concrete)

- Install three 4” diameter weep holes to relieve potential hydrostatic pressure
- Route and seal cracks
- Apply a water repellent to all surfaces
- Construct a new concrete back wall

West Abutment (stone)

- Reconstruct the stone breast wall
- Construct a new concrete bearing pad and back wall
- Construct a new stone wing wall extension at the southwest corner of the bridge

Bridge Approaches

Both bridge approaches are gravel and are in fair to good condition, with steep grades beyond each end of the bridge. There is no guardrail installed at either end of the bridge. There are no bridge closed, vertical clearance, or weight limit signs posted within the immediate vicinity of the bridge, with the exception of one weight limit sign found on the ground near the east portal. We recommend that each approach to the bridge be regraded and weathering steel guardrail be added to each corner of the bridge.

Fire Protection

There is no known fire protection system at the bridge. Three fire detection/protection systems are generally used for covered bridges: fire retardant coating (NOCHAR/POLASEAL), fire detection system (Protectowire), and a dry deluge sprinkler system.

A fire-retardant coating, such as NOCHAR or POLASEAL, can be used to protect the bridge from fire. This coating works by raising the flashpoint of the wood, and therefore making it difficult to start a fire. The coating is available in colored and clear versions that are applied to the wood by brush or spray. The coating does not affect the strength of the wood. The Protectowire system works by running a small wire through key locations in the bridge. If a rapid rise in temperature is detected or if the wire is cut, the system alerts the local fire department. This advance warning can greatly reduce fire damage to a bridge and hopefully prevent the fire from totally destroying the bridge. A deluge sprinkler system is not recommended for this bridge, since the span is relatively short and water can be directed to the center of the bridge from either end.

Estimate of Cost

An estimate of cost was prepared for this project, using the "Estimator" software and past HTA and VTrans covered bridge bid data for a six-ton live load limit and a temporary bridge structure. The estimate of cost includes the following major items:

Six-Ton Live Load

Remove and replace deteriorated bridge members, including:

- Cross beams
- Truss chord members
- All floor beams and all decking
- Siding
- Bed timbers
- Knee braces

Install new timber curb in the bridge

- Realign the bridge trusses to eliminate rack in the trusses
- Repair the west abutment (crack sealing, waterproofing, and add weep holes)
- Reconstruct the west abutment breast wall
- Install a new stone wing wall extension at the southeast corner of the bridge
- Install concrete back walls at each abutment
- Apply 50' of approach pavement at each end of the bridge
- Install a temporary detour bridge to the south of the existing bridge
- Install weathering steel guardrail at the four corners of the bridge
- Regrade 50' of approach pavement at each end of the bridge

The total estimated cost of all recommended work items is approximately $578,025.00, including 5% for contingencies.

Twenty-Ton Live Load

All items included under the six-ton live load option

- Install new concrete abutments in front of the existing abutments to support longitudinal stringers
- Install longitudinal glulam stringers beneath the bridge
- Additional upgrades to the bridge trusses
- Upgrade floor beams and decking to glulam

The total estimated cost of all recommended work items is approximately $777,525.00, including 5% for contingencies.

Conclusions

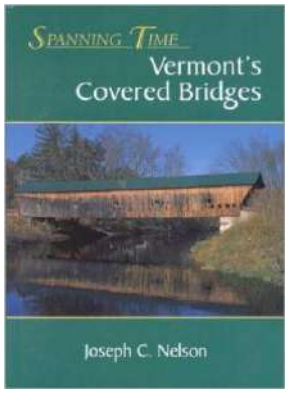
The Hutchins Covered Bridge was inspected and load rated to determine its current condition. Our rating assumes replacement of deteriorated bridge members. It was determined that at the inventory stress limit, the existing trusses have a live load capacity of approximately H7.8 (7.8 tons), the floor beams have a capacity of H4.2 (4.2 tons), and the deck has a capacity of H7.2 (7.2 tons).

An option was investigated to increase the live load capacity of the bridge to 20 tons. Since the trusses are unable to support 20 tons, glulam stringers, floor beams, and decking would be required.

Two detour options were evaluated for the project: A) installation of a temporary bridge to the south of the bridge, and B) upgrading TH 27 (Class 4 road). The estimated cost of Option A is $185,000.00, while the estimated cost of Option B is $315,000.00. The much higher cost of Option B is due to its length (1,800 feet) and location (terraced into a hill). The geometry of the hill location necessitates a large amount of fill and retaining walls to meet state standards. Option A is recommended due to its lower cost and much smaller environmental impact.

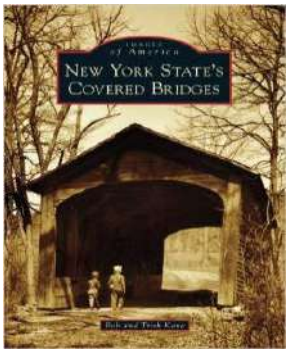
The total estimated cost of all recommended work items, utilizing a temporary detour bridge and six-ton live load limit, is approximately $578,025.00, including contingencies. The total estimated cost of all recommended work items, utilizing a temporary detour bridge and twenty-ton live load limit, is approximately $777,525.00, including contingencies.

For Sale



Spanning Time: Vermont's Covered Bridges, by Joseph C. Nelson, features 102 color photographs of Vermont's covered bridges in fifteen chapters, each a guided tour. The tours are complete with maps, commentary on the uniqueness of each bridge, and historic highlights about the towns and villages in which the bridges stand.

An appendix provides: A Summary of Vermont's Covered Bridges; A Covered Bridge Glossary; A Bridge Truss section, explaining how trusses work; Thumbnail biographies of the people who designed and built the bridges; A Covered Bridge Reading List for bridge and history buffs; and A detailed Index. *Spanning Time: Vermont's Covered Bridges:* 7" x 10", 288 pages. Published by New England Press of Shelburne, VT. For reviews of the book, go to www.vermontbridges.com/bookreviews.htm. *Spanning Time* is available directly from the author for $20.00, plus $3.00 shipping, U.S. Vermont residents add $1.20 (6% sales tax). Send your check or money order to: VCBS, P.O. Box 267, Jericho, VT 05489.

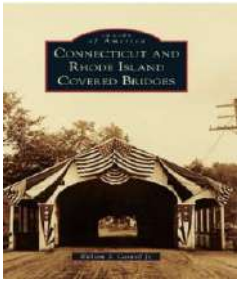


New York State's Covered Bridges - When one typically thinks of covered bridges, New York is not the first state to come to mind, but New York once had over 300 covered bridges. Floods, fires and progress have claimed all but 32. Readers will enjoy seeing NY's current bridges, including the oldest existing covered bridge in the U.S., the Hyde Hall Covered Bridge, located in Glimmerglass State Park, and the world's longest single-span covered bridge in the world, the Blenheim Covered Bridge, washed away by Tropical Storm Irene in 2011. This book also highlights the Theodore Burr Covered Bridge Resource Center in Oxford, NY, the first ever center of its kind specifically designed for covered bridge researchers. For a copy of the tour, contact Bob and Trish Kane, 167 Williams Rd., Sherburne, NY 13460, 607-674-9656, bobtrish68@twc.com.

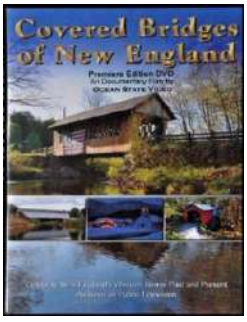
Visions of Vermont art gallery, Jeffersonville, Vermont at: https://www.visionsofvermont.com/, 802.644.8183

A special sale for the benefit of the Vermont Covered Bridge Society featuring the works of Eric Tobin. All proceeds of the unframed prints go to the VCBS. Sale of the framed prints will be shared 50/50. They are all Giclée on acid free paper. The glass is non-glare artist's glass.

10"x12" unframed, $125
16"x20" unframed, $175
16"x20" matted and framed, $550
20"x24" matted and framed, $850



Connecticut and Rhode Island Covered Bridges – **Price reduced!** During their heyday in the mid- to late 1800s, more than 150 covered bridges dotted the landscape of Connecticut and Rhode Island. Since that time, floods, fires, and progress have claimed all but two of the historic structures. With over 200 images, this book provides insight into the covered bridge history of an area that has not been well documented in the past. To order your signed copy, send $20.00 to Bill Caswell, 535 Second NH Turnpike, Hillsboro, NH 03244.



Covered Bridges of New England – **DVD**, During the 19th and early 20 centuries, New England was home to nearly 1,000 covered bridges. Today there are fewer than 200 in the six-state region. This one-hour documentary visits more than 75 bridges and interviews with several of the people dedicated to the preservation of these precious examples of our country's earliest infrastructure. Produced by Ocean State Video of Rhode Island for Public Television. Profits will go to the Vermont Covered Bridge Society's Save-a-Bridge Program. For your copy, send $10.00 plus $1.88 shipping to: Vermont Covered Bridge Society, c/o Joe Nelson, P.O. Box 267, Jericho, VT 05465-0267. Vermont residents add $1.20 (6% sales tax)

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