



A Charlevoix County Road Commission Publication

Holy Island Bridge Replacement (and a brief history of a very unique place)

By Jim Vanek and Ina Heaton

Frequently asked questions

- ◆ **Who pays for road brining that helps control summertime dust on my gravel road?**

— *The Road Commission pays for applying dust control brine on all the primary roads in the county. When local roads are brined, the individual townships pay for the application.*

- ◆ **The last time the Road Commission brined my road, it had just rained, is that the only time it can be done? Can the Road Commission brine more often?**

— *The optimum time to brine is just after a rain. The reason includes some basic chemistry and physics, explained on page 3. As to frequency of brining, the work is limited by cost—brining is expensive, and overbrining can be somewhat injurious to plants and flowers growing alongside the roadway.*

*For more information see **Dust Control** on page 3*

Holy Island is a beautiful piece of nature with an interesting history and some mystery surrounding the place. An eleven acre island in the south arm of Lake Charlevoix, which Mormon King James J. Strang set apart in 1855 as a place for holding the Feast of First Fruits. Over the years, there have also been quiet but persistent rumors told by the old timers that Strang and his congregation buried treasure somewhere on the island. Some years after he was assassinated on Beaver Island in 1856, it became a popular summer resort. The area to the east side of the island has a rocky bottom and weeds with good smallmouth bass and walleye fishing.

Holy Island is connected to the mainland by a small bridge on the west side. In the October 2007 CCRC NEWS we wrote about a project to replace the old bridge that was the last surviving pony truss bridge in Michigan (built in 1903 by

the Wabash Bridge company). The old bridge actually started out in life by carrying traffic across the Bear River on Springvale Road in Melrose Township, but by the late 1950's, the old one lane bridge was becoming inadequate to accommodate the larger vehicles and increased traffic volume using Springvale Road. Since the bridge was still in good condition at that time, it was moved from Springvale Road to Holy Island, where a one lane bridge was appropriate. More than a century of use, harsh weather and damage restricted the weight limit from 14 to 3 tons and it served only residents with normal passenger type vehicles.

Charlevoix County Road Commission applied for and received 95 percent funding through the Michigan Department of Transportation's Local Bridge Program. The total project cost is around \$ 685,000.

Holy Island property owners paid for dredging outside the Road Commission right-of-way. The project began in January 2009 and was completed on May 15, 2009.

The bridge was fabricated and shipped from Fort Payne, Alabama via two semi tractor trailers that arrived on site March 25, 2009. The steel used to fabricate the bridge consists of "self weathering" steel which is composed of steel alloys designed to form a stable rust-like appearance on its surface, then ceases to deteriorate further to avoid the need for costly painting. The trusses were fabricated in four sections and are bolted together at the bridges center. Over 1,400 bolts were needed to assemble the bridge, which includes the bolts that fasten the 6 Inch x 14 Inch x 16 FT timber deck to the floor beams.

The new bridge re-

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Prepared by Ina Heaton



The New Holy Island Bridge , June 2009

CHARLEVOIX COUNTY 2009 ROAD PROJECTS

ROAD NAME	TOWNSHIP	LENGTH (Miles)	Actual Cost	STATUS & CONTRACTOR
St. Louis Club Road Wedge & Overlay	Bay	0.70	\$ 104,724.58	Completed (Rieth-Riley Construction Inc.)
Metros Road 23 A Gravel Placement	Boyne Valley	0.04	\$ 716.25	Completed (CCRC Forces)
Addis Road Wedge & Overlay	Evangeline Melrose	0.11 0.69	\$ 12,415.18 \$ 75,806.75	Completed (Payne & Dolan)
Clute Road Wedge & Overlay	Evangeline Melrose	0.23 0.40	\$ 24,499.59 \$ 52,657.71	Completed (Payne & Dolan)
Peninsula & Mountain Roads Reconstruction	Eveline	0.53	\$ 158,151.70	Completed (Tri-County Excavating)
Holy Island Bridge Replacement	Eveline	N/A	\$ 684,785.75	Completed (Davis Construction Inc.)
Marshall Road Aggregate Placement	Eveline Wilson	1.03 0.51	\$ 21,038.50 \$ 10,362.25	Completed (Rieth-Riley Construction Inc.)
Burgess Road Wedge & Overlay	Hayes	0.50	\$ 69,303.01	Completed (Rieth-Riley Construction Inc.)
Maple Grove Road Wedge & Overlay	Hayes	1.16	\$ 179,965.19	Completed (Rieth-Riley Construction Inc.)
Pincherry Road Relocation (funded by Rieth-Riley Construction)	Hayes	0.50	\$ 207,605.00	Completed (Rieth-Riley Construction Inc.)
Maple Grove Road Afton Stone Placement	Hayes	1.08	\$ 60,753.26	Completed (Poquette Leasing)
Kuzmik Road Afton Stone Placement	Hudson	1.08	\$ 45,863.81	Completed (Poquette Leasing)
Bingham Road Afton Stone Placement	Hudson	0.93	\$ 29,020.72	Completed (Poquette Leasing)
Woodin Road Afton Stone Placement	Hudson	0.80	\$ 31,292.89	Completed (Poquette Leasing)
Bows Lake Road Afton Stone Placement	Hudson	0.06	\$ 1,342.67	Completed (Poquette Leasing)
Wickersham Road Overlay	Marion	1.11	\$ 104,553.44	Completed (Rieth-Riley Construction Inc.)
Matchett/Beck Road Wedge & Overlay	Marion	1.48	\$ 167,243.81	Completed (Payne & Dolan)
Bear River Road Reconstruction	Melrose	0.77	\$ 355,520.44	Completed (MDC Contracting)
River Road Reconstruction	Melrose	2.02	\$ 543,630.16	Completed (Tri-County Excavating)
Shadow Trails Wedge & Overlay	Melrose	0.28	\$ 34,691.40	Completed (Payne & Dolan)
Addis Road Paving Project (Gravel Portion)	Melrose	0.50	\$ 55,964.64	Completed (Payne & Dolan)
Miles Road South Wedge & Overlay	South Arm	1.27	\$ 154,295.44	Completed (Payne & Dolan)
Miles Road North Wedge & Overlay	South Arm	0.75	\$ 91,761.22	Completed (Payne & Dolan)
Jaquay Road Reconstruction	Wilson	1.67	\$ 320,188.30	Awarded to Payne & Dolan, Inc.
OVERBAND CRACK FILL PROJECT (process to fill roadway cracks with hot, liquid, rubber material)- Erickson Rd., Thumb Lake Rd., Glenwood Beach Dr., Raney Rd., Advance Rd., Lakeshore Dr., Ferry Rd., Huffman Lake Rd., Barnard Rd., South Shore Dr., Springvale Rd., Richardson Rd., BC/EJ Rd., Rogers Rd., Behling Rd., Wilson Rd.	Bay, Boyne Valley, Evangeline, Eveline, Hudson, Marion, Melrose, Norwood, South Arm, Wilson	50.00	\$ 81,620.00	Completed (AMP)
Pleasant Valley Road Culvert Replacement	Wilson	-	\$ 6,333.35	Completed (CCRC Forces)
Wickersham Road Culvert Replacement	Marion	-	\$ 986.25	Completed (CCRC Forces)
Phelps Road Culvert Replacement	Marion	-	\$ 3,893.82	Completed (CCRC Forces)
Raney Road Culvert Replacement	South Arm	-	\$ 1,781.44	Completed (CCRC Forces)
TOTAL		70.20	\$ 3,692,768.52	(townships funded over \$2.1 million)

Holy Island Bridge Replacement

Continued from page 1

placed the old 50 foot span that failed in 2004 and had been supported by temporary cribbing. The new bridge footings rest on steel H-Piles driven approximately 65 FT below the road surface, which is needed to adequately support the structure. Approximately 4 tons of rebar is encased within 175 cubic yards of concrete which form the bridge footings, abutments and wingwalls. The new longer span allows natural wave action to keep the newly dredged channel open and return the environment to a more natural condition. The bridge has an approximate 6 FT underclearance from the lowest point under the bridge to the water surface, and another 6 FT clearance from the water surface to the lake bottom.

Construction was done by Davis Construction of Lansing and engineered by Northwest Design

Group, Inc. of Petoskey.

Charlevoix County Road Commission staff engineer Jim Vanek was the project inspector.

The new bridge official opening celebration was held on July 1, 2009. The ceremonial ribbon was cut by island area resident Preston Parish and summertime resident Dave Burnett.

But what about the “buried treasure” reputed to be left on the island by Strang and his followers? Throughout the bridge construction process of excavation, there was no evidence found of earlier excavation that might conceal treasure of any kind. But not finding something doesn't really prove anything. What really happened nearly 150 years ago is now lost in the mist of time, but what we can say today is that Holy Island is one very unique place.



The ribbon cutting : Preston, Dave, Pat Harmon and Doug Way from The Road Commission.



Holy Island residents celebrate the opening of their new bridge.

Photos courtesy of Karen Walker

Dust Control

by Keith Ogden and Jim Vanek

continued from “Frequently asked questions” on page 1

During the months when dust is a problem, gravel roads are graded prior to the application of liquid calcium chloride, typically known as brine. The best weather for grading is during or just after a rain. Dust control will be completed either the same day or the day after the roads are graded.

The aggregate in road gravel contains some clay (somewhere between 10 and 15 percent) which acts as a “binder” to retain moisture. Clay is composed of hydrous aluminum silicate which forms a molecular bond with water, the bond acting like a weak glue to keep everything together. When roads are graded in a damp or slightly wet condition (but not saturated), the force of the truck's underbody blade overcomes the force that bonds the gravel together, so that the roadway surface is smoothed by the actions of the blade. In the interim between grading and brining, traffic (as well as our own trucks or grader doing the grading) will begin the process of re-compaction when driving over the gravel. When the liquid brine is sprayed onto the semi-compacted gravel surface, the brine optimally mixes with surface granulation and begins the process of re-binding. Subsequent traffic tends to continue the compaction process to provide a dust free, smooth surface.

But the process is never perfect, there are too many things that can go wrong. Consider, for example, a long dry spell (sometimes as long as a month) where the gravel surface has no moisture remaining—but does have significant clouds of dust to prove that it is dry (no moisture to hold the aggregate together). To satisfy public demand for relief from the excess dust, the Road Commission sometimes makes the decision to apply brine, even under less than perfect conditions. The brine isn't actually wasted, but it is much less effective when placed over a dry surface where moisture in the original material doesn't react with the liquid brine. Conversely, brine placed over a surface that is too wet (or after a hard rain on a surface optimally treated a few days earlier) will be washed off and out of the gravel surface. Since each gravel road has its own personality—the condition of the surface, the amount of clay therein, the basic sub-grade soil conditions in the area, the amount of shade provided by the trees along the roadway—it is easy to see how weather and existing roadway conditions can work against optimum results.

Methods of working with, rather than against nature, must also recognize that gravel roads do wear out

over time. As vehicles drive over a gravel road, the wheels and tires tend to pick up and fling granular material into the air to be blown away, or deposited in the ditches alongside the road. Wind and water erosion, even with no traffic for help, will deteriorate the surface over time. Surface loss can be as much as an inch a year, which is why additional gravel must be periodically placed to restore material lost through use. The townships throughout the county have been generous about funding the local road gravel program whereby four to six inches of new gravel are added every few years so that the various gravel road surfaces can be adequately maintained.

FACTS ABOUT BRINE

Local road brine is funded by townships and usually applied 1-2 times during each summer season, again depending on weather and road conditions.

Brine is applied to gravel roads at a rate of 2000 gallons per mile.

During the summer of 2009 the Road Commission applied 60,000 gallons of brine to the primary roads and 200,000 gallons of brine to the local roads within 15 townships including Beaver Island.

ORV Ordinance

After several public forums and input from a large segment of county residents, the Charlevoix County Board of Commissioners adopted a version of the State's ORV ordinance, effective May 1, 2009.

Four wheelers, three wheelers, multi-track recreational vehicles, dirt bikes and motorcycles are considered Off Road Vehicles or ORVs. It does not cover a registered snowmobile, a farm vehicle, a vehicle used for military, fire, emergency or law enforcement purposes.

According to the Charlevoix County ORV Law, ORVs are allowed to use the far right portion of any county designated road with some exceptions and safety standards:

- Speed limit of 25 mph
- Must wear a helmet
- Must be a licensed driver or have taken a safety class through the DNR or Law Enforcement Agency.
- Children younger than 16 can ride the designated shoulders once they have a safety class certificate and are under the direct supervision of an adult.

Due to high speed and high traffic volumes, ORVs are not allowed on the following county road shoulders, as a means to insure safety:

- Thumb Lake Road, from U.S. 131 to the Charlevoix County line;
- Boyne City/Charlevoix Road in its entirety;
- Boyne City/East Jordan Road from M-75 to the East Jordan city limits;
- Ellsworth Road from the East Jordan city limits to the Charlevoix County line;
- Marion Center Road, from Charlevoix city limits to the Charlevoix County line;
- Kings Highway, which includes Main Street, from the Light House, Sec. 26, St. James Township to East Side Drive, Sec 34, Peaine Township, Beaver Island.

During 2010, some roads may be added or removed from the list.

Federal and state highways remain off limits and ORV riders must stay with the flow of traffic and ride no later than a half hour after sunset and no earlier than a half hour before sunrise unless they have a head and tail light.

The upgraded version of ORV Ordinance to see:

<http://www.charlevoixcounty.org/govern6363537.asp>

CHARLEVOIX COUNTY ROAD COMMISSION

Main Office ~ Boyne City Garage

P.O. Box 39
1251 Boyne Avenue,
Boyne City, MI 49712-0039
Phone: (231) 582-7330
Fax: (231) 582-3110

Ironton Garage

11705 Shaw Road
Charlevoix, MI 49720
Phone: (231) 547-2551

Beaver Island Garage

38310 Bay Avenue
Beaver Island, MI 49782
Phone: (231) 448-2285
Fax: (231) 448-2193

We're on the Web!

www.Charlevoixcounty.org/ccrc.asp

Please visit our page on the Charlevoix County Website for information such as: meeting schedules, Board minutes, permit applications, CCRC NEWS, etc.

How to Contact Us

Office Hours

7:00 AM - 3:30 PM Weekdays
(Excluding Holidays)

Contact Information

Main Office Phone: (231) 582-7330
Main Office Fax: (231) 582-3110
E-mail: ccrcclerk@utmi.net



The Charlevoix County Road Commission Main Office and Boyne City maintenance garage is located on M-75 just east of the Boyne City Public School football field.