



Michigan Vehicular Timber Bridge Commercialization Project

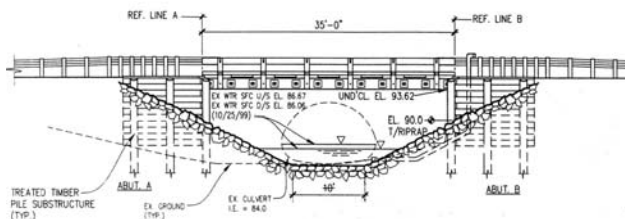


North Sharon Road Bridge

Structure/Design Type: Vehicular bridge/
Stress-laminated, glued-laminated
Location: Kalkaska County, Michigan
Owner: Kalkaska County Road Commission
Engineer: Howard Haselschwardt
Spans over: North Branch of Manistee River
Length (out-to-out): 35'
Width (out-to-out): 32'
Number of Spans/Skew: 1 / 0.0
Design Live Load: HS-25
Primary Wood Species: Red pine/southern pine
Superstructure Preservative: CCA

Preliminary costs	\$30,690
Substructure cost	\$64,315
Superstructure cost	\$97,734
Other costs	\$80,664
Surfacing	*
Total cost	\$273,403

*Surfacing was not included in original bridge design

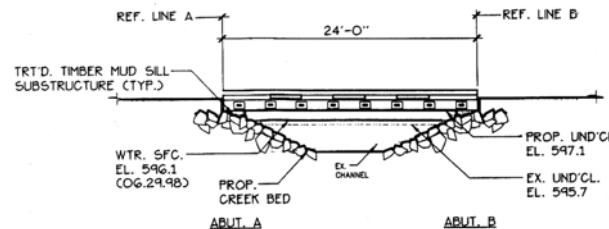


Camp Petosega Bridge

Structure/Design Type: Vehicular bridge/
Stress-laminated sawn lumber
Location: Emmet County, Michigan
Owner: Emmet County
Engineer: Howard Haselschwardt
Spans over: Cedar Creek
Length (out-to-out): 24'
Width (out-to-out): 14'
Number of Spans/Skew: 1 / 0.0
Design Live Load: HS-15
Primary Wood Species: Red pine
Superstructure Preservative: CCA

Preliminary costs	\$12,000
Substructure cost	\$3,002
Superstructure cost	\$24,354
Other costs	\$7,300
Surfacing	*\$0
Total cost	\$46,656

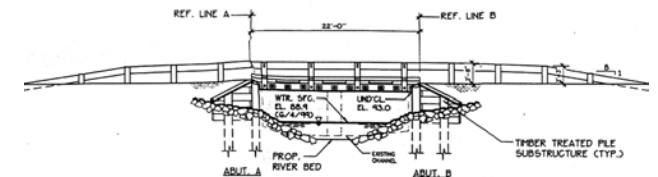
*Bridge was not surfaced



Lewiston Grade Road Bridge

Structure/Design Type: Vehicular bridge/
Stress-laminated sawn lumber
Location: Crawford County, Michigan
Owner: Crawford County Road Commission
Engineer: Howard Haselschwardt
Spans over: East Branch of Au Sable River
Length (out-to-out): 22'
Width (out-to-out): 16'
Number of Spans/Skew: 1 / 0.0
Design Live Load: HS-20
Primary Wood Species: Red pine
Superstructure Preservative: CCA

Preliminary costs	\$14,300
Substructure cost	\$47,400
Superstructure cost	\$24,000
Other costs	\$34,400
Surfacing	\$2,200
Total cost	\$122,300



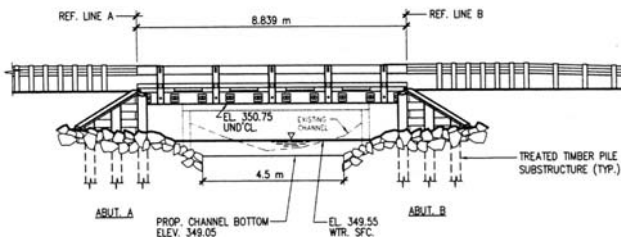


Wilcox Bridge

Structure/Design Type: Vehicular bridge/
Stress-laminated, glued-laminated
Location: Crawford County, Michigan
Owner: Crawford County Road Commission
Engineer: Paul Repasky
Spans over: East Branch of Au Sable River
Length (out-to-out): 29'
Width (out-to-out): 32'
Number of Spans/Skew: 1 / 0.0
Design Live Load: HS-20
Primary Wood Species: Red pine/ southern pine
Superstructure Preservative: CCA

Preliminary costs	\$31,300
Substructure cost	\$59,780
Superstructure cost	\$82,720
Other costs	\$112,100
Surfacing	*
Total cost	\$285,900

* Cost of surfacing bridge and approaches (\$13,500) was included in "Other costs."



COST DEFINITIONS:

Preliminary Costs include costs associated with surveys, soils investigations, design, staking, and other costs that precede construction work.

Substructure Costs include costs associated with excavation, abutments, bents/piers and on-site work associated with the placement and assembly of the bridge substructure.

Superstructure Costs include costs associated with materials, labor, and preservative treatment of decks, beams/stringers, and railings and on-site work associated with the placement and assembly of the bridge superstructure.

Other Costs include costs associated with detours, mobilization, demolition, site work/approaches, monitoring costs.

Surfacing Costs include costs of materials for superstructure only, and costs associated with the installation of surfacing materials.

LOCAL IMPACT:

1. All bridges were designed and installed using in-state firms.
2. Most fabrication and some preservative treatment were done in Michigan.
3. Native red pine was used in the construction of all four bridges.
4. Long-term business relationships were formed between the public and private participants.

FUNDING SOURCES:

USDA Forest Service: \$121,000; Balance of funding from other partners including the Grayling Regional Chamber of Commerce, Michigan Department of Natural Resources, Road Commission for Crawford County, Emmet County, Kalkaska County Road Commission.

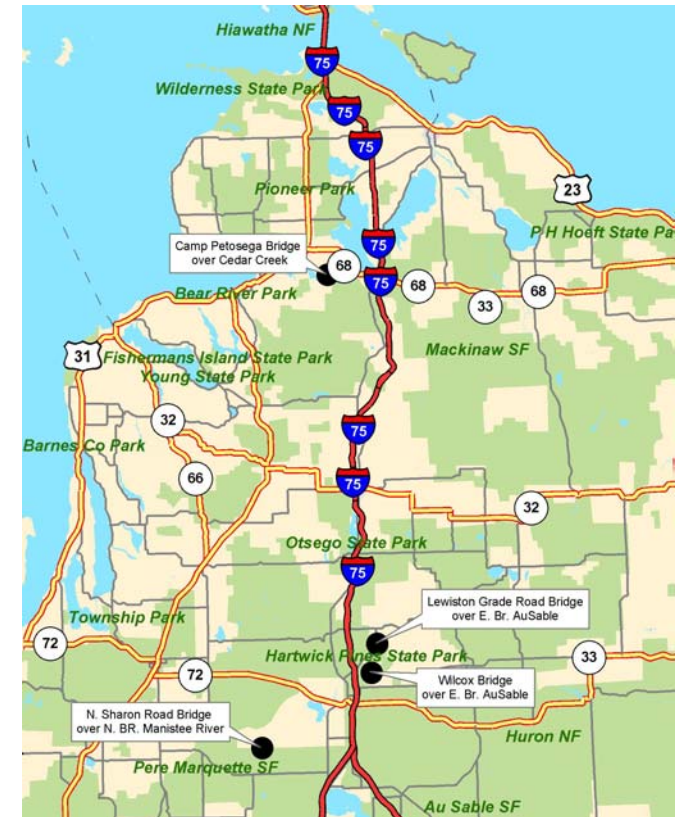
LOCAL CONTACT:

Huron Pines Resource Conservation & Development Area Council, Inc.
501 Norway Street
Grayling, MI 49738
Phone: 517-348-9319
FAX: 517-348-7945
Email: huron@freeway.net
Web site: www.huronpines.org

NATIONAL CONTACT:

USDA Forest Service
180 Canfield Street
Morgantown, WV 26505
Phone: 304-285-1591
FAX: 304-285-1587
Email: na_WIT@fs.fed.us
Web site: www.fs.fed.us/na/wit/

STRUCTURE LOCATION:



The publication *Best Management Practices for the Use of Preservative-Treated Wood in Aquatic Environments in Michigan* was developed over the course of this project. This publication can be viewed by visiting: <http://www.fs.fed.us/na/wit/WITPages/michbmp.html>.