

# *HISTORIC BRIDGE SURVEY*

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## *Metal Truss Re-evaluation*

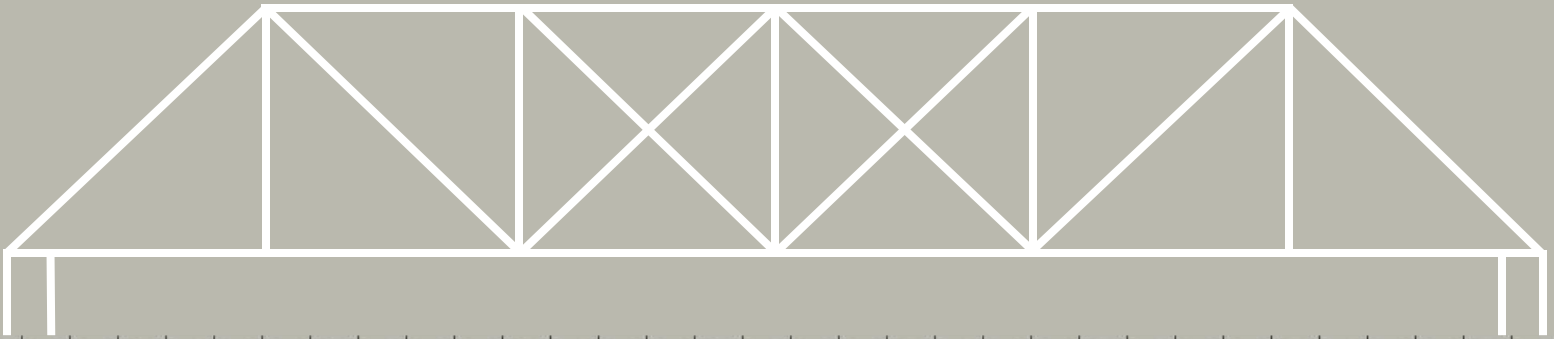
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*April 2019*

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*Supplement to Historic Bridge Survey*

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**MaineDOT**



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## Introduction

The Federal Highway Administration (FHWA)-Maine Division, Maine Department of Transportation (MaineDOT), and Maine Historic Preservation Commission (MHPC) determined that metal truss bridge evaluations made during the MaineDOT Historic Bridge Survey (HBS) completed in 2004 required re-evaluation. This determination was made during Section 106 of the National Historic Preservation Act consultation.

Planning for the HBS began in the mid-1990s and much of the field survey was completed from 1998 to 2000. With the passage of nearly twenty years since the field survey portion of the HSB was completed, numerous truss bridges have been removed from the MaineDOT infrastructure system. Thus, FHWA-Maine Division and MaineDOT are undertaking this re-evaluation of the remaining MaineDOT-owned truss bridges to ascertain if the previous determinations of eligibility for listing in the National Register for Historic Places are accurate.

Fieldwork for this re-evaluation effort was completed in 2017 and 2018. MaineDOT prepared new survey forms for all metal truss bridges previously found not eligible for listing in the National Register. All metal truss bridges previously found eligible for listing in the National Register were not surveyed, but reviewed based on the information outlined in this report. This effort is limited to metal truss bridges within the MaineDOT system; metal truss bridges under non-MaineDOT ownership were not considered. The number of metal truss bridges under other ownership is not known.

This update should be considered in concert with the 2004 MaineDOT Historic Bridge Survey; not in place of it.

## Background

In 2004 the MaineDOT completed an inventory of its bridges built before 1956. The HBS included a historic context about bridge technology in Maine, a narrative history of the Maine State Highway Commission Bridge Division (1915-1955), detailed survey forms for 650 field checked bridges, and simplified survey forms for 1,480 bridges that were not field inspected. As a result of this effort, the MaineDOT determined 136 bridges eligible for listing in the National Register. This work was completed in consultation with the FHWA-Maine Division and MHPC.

In terms of metal truss bridges, 88 were field inspected as part of the HBS. Of those, MaineDOT determined 37 eligible for listing in the National Register and 51 were determined not eligible for the listing in the National Register.<sup>1</sup> Figure 1 outlines the metal truss types that were evaluated during the HBS, how many of each truss type was found in the MaineDOT system, and how many were determined eligible or not eligible for listing in the National Register.

**Figure 1: 2004 MaineDOT Metal Truss Bridge National Register Eligibility**

Truss Type	HBS Totals	Eligible	Not Eligible
Baltimore	4	3	1
Camelback	5	2	3
Cantilever	3	3	0
Parker	11	3	8
Pennsylvania	6	4	2
Pratt	11	5	6
Warren	48	17	31
Total	88	37	51

Since the completion of the HBS, many metal truss bridges in Maine have been replaced. As of 2019, of the 88 metal truss bridges previously evaluated, 32 are extant. This population of 32 extant bridges excludes the Frank J. Wood Bridge #2016, a Warren Thru truss, and Madawaska International Bridge #2399, a Pennsylvania Thru truss. These bridges were determined eligible during the HBS and are both in the late stages of Section 106 review and slated for replacement as of January 2019. With regard to truss type, the study considered that the Frank J. Wood Bridge was part of the largest subset of truss bridges in the MaineDOT system, while the Madawaska International Bridge was one of two extant examples of a truss subset. As with the other previously determined eligible bridges, no additional areas of significance were researched for these two bridges. Additionally, these two bridges were largely representative examples of truss types and construction found in the existing population. An exception is that the Frank J. Wood Bridge is assumed to be the only extant metal truss bridge designed to carry a trolley.

<sup>1</sup> The HBS determined 38 metal truss bridges eligible for listing in the National Register and 50 metal truss bridge not eligible. This effort included determining the Martin Memorial Bridge #3248 a contributing resource to a National Register-eligible historic district in Rumford Point. Subsequent Section 106 consultation revealed that the bridge was not a contributing resource to the historic district. The numbers presented account for the Martin Memorial Bridge as a not eligible resource.

The total number of metal truss bridges in the MaineDOT system in 2019 represent a loss of 64% of the metal truss bridges from 1998. Of the 37 metal truss bridges determined eligible for listing in the National Register during the HBS, 14 remain extant for a loss of 64%. Of the 51 bridges determined not eligible, 18 are extant representing a loss of 65%.

Figure 2 outlines the metal truss bridges remaining in the MaineDOT system in 2019, how many of each type, and National Register eligibility status as assigned in the HBS.

Figure 2: 2019 MaineDOT Metal Truss Bridge National Register Eligibility			
Truss Type	2018 Totals	Eligible	Not Eligible
Baltimore	3	3	0
Camelback	3	1	2
Cantilever	3	3	0
Parker	1	0	1
Pennsylvania	1	0	1
Pratt	1	1	0
Warren	20	6	14
Total	32	14	18

Figure 3 provides detailed counts and loss percentages of MaineDOT’s existing metal truss bridges compared with the numbers identified in the HBS.

Figure 3: Loss by Type			
Truss Type	HBS Totals	2019 Totals	% Lost
Baltimore	4	3	25%
Camelbacks	5	3	40%
Cantilever	3	3	0%
Parker	11	1	91%
Pennsylvania	6	1	83%
Pratt	11	1	91%
Warren	48	20	58%

As a result of this decrease in extant metal truss bridge statewide, MaineDOT is undertaking this re-evaluation of metal truss bridges in its system. This evaluation will include updates to the historic context of metal truss bridges in Maine and determinations of National Register-eligibility for all remaining metal truss bridges.

## Methodology

MaineDOT met with MHPC staff to discuss the methodology of the re-evaluation including: understanding other states’ recent approaches to metal truss re-evaluation, updating sections of the HBS context which may require it, and researching all National Register of Historic Places levels of significance (local, State, National), National Register Criteria, and National Register Areas of Significance.

Thus, MaineDOT sought guidance documents for national and statewide contexts from other transportation entities and states. The National Cooperative Highway Research Program (NCHRP) published “A Context for Common Historic Bridge Types,” in 2005. This document provided a historic context of bridge building in the United States from the founding of the country to the post-WWII era. Metal truss bridge building was discussed from after the Civil War up to the 1950s and within the context of standardization in the twentieth century. The document also provides a national context for individual metal truss bridge types, including Pratt, Baltimore, Parker, Pennsylvania, and Warren. The discussion of individual types also offers guidance on National Register-eligibility and significance.<sup>2</sup>

Input from other states was sought through the AASHTO Committee on Environment and Sustainability, in particular its Communities and Cultural Concerns and Environmental Process subcommittees; however, the MaineDOT did not receive any information from member participants.

MaineDOT examined historic bridge evaluations recently completed by other states. The most recent identified state inventories include Nebraska (2007—post 1945 bridge only), Indiana (2007), Maryland (2011), and Pennsylvania (2012—metal truss bridges in historic districts, and 2017—metal truss bridges only).

The Nebraska Department of Roads report, “National Register Evaluation of Nebraska Bridges 1947 to 1965,” offered understanding into how post-1945 metal truss bridges would qualify for listing in the National Register. The current re-evaluation of Maine’s metal truss bridges includes five bridges that were constructed after 1947. It also provided historic context of individual metal truss types built after 1947. The Nebraska effort evaluated each bridge for significance under Criteria A and C. Under Criterion A, the study looked at Agriculture, Community Planning and Development, Conservation, Economic Development, Government, Politics, Social History, and Transportation. Under Criterion C, the study analyzed the engineering significance of each bridge, which included associations with engineers or bridge building firms.<sup>3</sup>

The Indiana Department of Transportation report, “Indiana Bridges Historic Context Study, 1830s-1965,” provided a historic context of bridge building and types in Indiana and discussion of National Register criteria and areas of significance. Similar to the Nebraska study, the Indiana inventory evaluated bridges under Criteria A and C. Under Criterion A, the study discussed significance related to transportation systems, programs, or projects, and a state or local history event. Under Criterion C, the study analyzed engineering significance related to each truss type and any association with significant engineers or bridge building firms.<sup>4</sup>

The Maryland Department of Transportation report, “Phase II: State Historic Bridge Context and Inventory of Modern Bridges,” was completed in 2011 and built upon a previous study completed in 1995. This study is similar to the Nebraska report above and provided additional

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<sup>2</sup> Parsons Brinckerhoff, et al., “A Context for Common Historic Bridge Types,” National Cooperative Highway Research Program, Transportation Research Council, October 2005.

<sup>3</sup> Mead & Hunt, “National Register Evaluation of Nebraska Bridge 1947 to 1965,” Nebraska Department of Roads, May 2007.

<sup>4</sup> Mead & Hunt, “Indiana Bridges Historic Context Study, 1830s-1965,” Indiana Department of Transportation, February 2007.



context for evaluating metal truss bridges constructed after WWII. This study evaluated 21 bridges under Criteria A, B, and C. The study considered each bridge's association with statewide transportation planning efforts, infrastructure projects, scale, safety improvements, technology, and integrity.<sup>5</sup>

In 2017 the Pennsylvania Department of Transportation undertook a re-evaluation of metal truss bridges and published "Methodology for 2017 Metal Truss Bridge Reevaluation." This document relates the impetus for the re-evaluation: the loss of metal truss bridges throughout the state. The re-evaluation also noted inconsistencies in research and evaluations in the original bridge survey. The Pennsylvania study focused on evaluating each bridge under Criterion C for its engineering significance and association with significant bridge builders or engineers. The study acknowledges that significance under Criteria A and B was not practical or feasible under the scope of the undertaking and that these areas would be considered as part of future project reviews or surveys.<sup>6</sup> The Pennsylvania Historical and Museum Commission completed a guidance document for planning evaluation of metal truss bridges in historic districts. This document describes a systematic process for initial identification and evaluation of historic metal truss bridges in potential historic districts.<sup>7</sup>

Indiana and Pennsylvania utilized metric based systems to determine eligibility. Values considered included rarity, exceptional length per type and subtype, special features (skew), ornamentation, and age. The team concluded that this analysis was not appropriate due to the overall population of metal truss bridges in Maine.

Both the Indiana and Pennsylvania studies evaluated Warren Pony and Warren Thru trusses with different metric systems as these truss types exhibit different engineering significances. The re-evaluation team applied information from these studies about exceptional length, truss composition, skew, and age for Warren Pony and Warren Thru trusses.

Additionally, the team reviewed older, yet valuable material, regarding trusses, including Multiple Property Documentation Forms for Vermont's Metal Truss and Concrete Arch Bridges and Idaho's Metal Highway Truss Bridges, and James L. Cooper's *Iron Monuments to a Distant Posterity: Indiana's Metal Bridges 1870-1930*. These reports offered further insights into national and statewide historic contexts for bridge building and National Register evaluations and determinations. Other New England states, such as Massachusetts and New Hampshire, have not completed comprehensive metal truss studies; however in New Hampshire, the State Historic Preservation Office relies on comparative analysis of similar types of remaining bridges to concur with eligibility. For instance, the New Hampshire State Historic Preservation Office concurred with a determination of eligibility for a metal truss bridge in part because it was one of two remaining trusses in a particular county.

Many of the older materials previously mentioned were consistent in only examining eligibility under Criterion C, while providing less guidance about the appropriate analysis of eligibility under Criterion A. All states were consistent in pointing out that association with a significant builder resulted in eligibility under Criterion C for Engineering rather than Criterion B for

<sup>5</sup> URS, "Phase II: State Historic Bridge Context and Inventory of Modern Bridges," Maryland Department of Transportation, September 2011.

<sup>6</sup> "Methodology for 2017 Metal Truss Bridge Reevaluation," Pennsylvania Department of Transportation, 2017.

<sup>7</sup> "Final Report: Potential Historic Districts," Pennsylvania Historical and Museum Commission, June 2012.

association with significant persons. The states also acknowledged that a bridge would rarely, if ever, be eligible for listing under Criterion D, which relates to archaeological resources. Levels of significance seemed to focus on the state level; however, some states, including Pennsylvania and the HBS would note local significance if found in the course of high level of research, particularly for bridges that contribute to previously identified National Register-eligible historic districts.

In consideration of dialogue with the MHPC and the studies above, National Register-eligible metal truss bridges, based on maintenance records and project since the HBS, retain integrity to convey significance. The bridges that were previously determined not eligible for listing in the National Register were resurveyed for inclusion in MHPC's Cultural & Architectural Resource Management Archive (CARMA). The resurvey includes a description of each bridge, along with narrative history, significance, discussion of integrity, and a finding of eligibility. Surveyors completed extensive research for each non-eligible bridge for evaluation under National Register Criteria A, B, and C. Site visits at each non-eligible bridge included taking digital photographs, evaluating integrity, and considering setting for any potential National Register-eligible historic district.

Surveyors completed research at the MaineDOT, focusing on Maine State Highway Commission (MSHC) Annual Reports, bridge plans, and Bridge Maintenance photographs. Research was also completed at the Maine State Library, Bangor Public Library, and numerous municipal libraries. Local historical societies with winter contact information were also consulted.

## Historic Context Update

When the HBS was completed MaineDOT had at least 88 metal truss bridges in its network. In 20 years metal trusses have declined 64%. The remaining metal truss bridges, as a whole, represent some of the earliest examples of the technology in the state through to the maturation of the technology as well its continued use to meet the needs of a rapidly changing transportation network.

From 1920 to 1955 Maine's roadways modernized. Maine, and the rest of the nation, was coming to terms with the new automobile age. Modernization efforts included widening roadways, paving travel lanes, and constructing bridges above known flood limits, elevating roadway approaches, constructing concrete abutments, widening hydraulic openings, and building substantial spans that could accommodate heavy traffic. During this time, transportation agencies utilized new technologies that increased efficiency for crossings and carried larger loads.

With 32 metal truss bridges remaining in the MaineDOT system, all bridges are eligible for listing in the National Register under Criterion C for their statewide significance in Engineering because they embody the distinctive characteristics of a type, period, or method of construction of bridges. This group of bridges age from 1890 to 1952 and are the remaining examples of a once common bridge type. Many of these metal truss bridges represent the last example of that type in the state.

Finally, some metal truss bridges hold significance under Criterion A for reasons described in the individual forms. Many have significance related to important events in local and regional history.

### **HBS Clarifications**

The intent of this re-evaluation was to update the context of metal truss bridges which was first presented in the HBS. Therefore, the HBS was relied upon with an eye to analyze, clarify, and amend findings of that survey. For the most part the narrative was found to be accurate and informative; however, MaineDOT did find that some specific, salient details were overlooked or omitted from the individual bridge forms and some important themes in American history were minimized. Therefore, this section seeks to clarify some of those issues without negating valuable information in the HBS.

- Generally, the HBS classified Pratt, Parker, and Camelback trusses together. MaineDOT found in 2019 that there are design differences between each to warrant independent discussion of the remainder of each.
- The individual forms of the HBS indicated that pertinent information under Criterion A was inconsistently documented and it rarely resulted in a determination of eligibility. In the course of the last 20 years, this has been one of the most significant areas of inconsistency. For example, Penobscot River #3790 is the first bridge on its location and was not noted in the HBS; but other forms would note the number of bridges at the location or reference a previous bridge.
- The Flood of 1936 was not properly addressed. Many of the forms would provide detailed context of the bridge's construction related to the Flood and/or using Works Progress Administration (WPA) funds. However, HBS eligibility consideration was ultimately limited to Criterion C for those bridges that reflected a new or emerging technology. Thus, significance under Criterion A was not fully developed or acknowledged.

The following list identifies specific places in the HBS historic contexts where updates are needed based on the status of metal truss bridges today. The specific update is identified by section, paragraph, and line and is followed by the updated information.

II-4, 4, 1: The HBS identified three pre-1900 metal truss bridges. Currently, there is 1 pre-1900 metal truss bridge, St. John Underpass Bridge #0327 built in 1890, remaining in the MaineDOT system. The St. John Underpass Bridge is a pin-connected Baltimore Thru truss.

II-6, 1, 3: The HBS identified several pre-1920 rivet-connected Warren truss bridges. Currently, there are 2 pre-1920 rivet-connected Warren truss bridge, the 1912 Ryefield Bridge #0238 and 1912 Gambo Falls Bridge #0266.

II-6, 1, 4: The 1916 New Sharon Bridge #2608 was the last pin-connected highway bridge in the MaineDOT system. It was removed in 2014. The MaineDOT system includes the following pin-connected railroad bridges: St. John Underpass #0327 and B&A RR MP #A44.74 #0159.

II-6, 1, 5: The 1909 Free/Black Bridge #0323 is a pre-1920 rivet-connected Baltimore Thru truss. Its pin-connected lower roadway deck has been removed; however, MHPC concurred in 2018 that the bridge remains eligible for listing in the National Register.

II-6, 2, 2: When the HBS was completed there were 67 MSHC designed metal truss bridges in use. There are 25 MSHC designed metal truss bridges currently in use.

II-7, 2, 1: The HBS counted 48 Warren truss bridges and 20 remain in the MaineDOT system. The HBS counted 31 Warren Thru trusses and currently 13 are extant. The HBS counted 17 Warren Pony truss bridges and 5 are extant. Other extant variations of the Warren truss include 2 Warren Deck trusses (Piscataquis River Bridge #0484 and Carlton Bridge #3007) and 1 Double Intersection Warren Truss (Ryefield Bridge #0238).

The HBS counted 25 Pratt or Pratt variation type trusses (Pennsylvania, Parker, or Camelback). The MaineDOT system retains 1 Pratt truss. The MaineDOT system has 1 extant example of a Pennsylvania truss.<sup>8</sup> The MaineDOT system has 1 extant example of a Parker truss. The MaineDOT system has 3 extant examples of the Camelback truss.

II-7, 3, 3: The HBS identified 2 bridges that exemplify the prototypical design practices. Of these 2 bridges, 1 remains, the Androscoggin River Bridge #5084.<sup>9</sup>

II-7, 4, 2: The HBS identified 3 bridges as significant examples of the first use of rolled sections instead of built-up sections. All of these bridges have been replaced. These bridges were all constructed in 1929 when the use of rolled sections was considered innovative. The use of rolled sections became widespread and common in late 1929 and onward. As this technology became commonplace within a year, its use in metal truss bridges became an integral part of the physical design and thus a distinctive feature of metal truss bridge construction. Bridges constructed with rolled sections after 1929 are not significant because of this use, but are instead expected to have rolled sections as part of characteristic truss construction.

II-8, 2, 2 and III-22, 3, 3: The HBS identified 3 metal truss bridges as significant examples of continuous designs. Of these bridges 1 remains, the West Buxton Bridge #3340. No other extant metal truss bridges feature continuous design.

III-21, 1, 2: This closing paragraph about the Flood of 1936 emphasizes the engineering technology context of flood recovery, and downplays the social and political trends related to this event on the local level. The Flood of 1936 and its recovery efforts were major events that impacted transportation in numerous towns and cities throughout Maine.

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<sup>8</sup> As of January 2019, Madawaska International Bridge #2399 represents a second Pennsylvania truss, but it is slated for replacement. Its current 5 ton posting does not adequately meet the need of the crossing between Madawaska, ME, and Edmunston, New Brunswick (Canada).

<sup>9</sup> The other example is the 1921 International Bridge #2399 in Madawaska. See above.

## *Previously Determined Eligible Bridges*

Based on National Register guidance and the status of all remaining metal truss bridges, the 14 bridges determined eligible for listing in the National Register during the HBS remain eligible for listing. National Register Bulletin #15 notes: “The rarity and poor condition . . . of other extant examples of the type [metal truss bridges] may justify accepting a greater degree or fewer features provided that enough of the property [32 metal truss bridges] survives for it to be a significant resource.” While a substantial maintenance project would likely not result in a previously identified eligible bridge no longer qualifying for listing in the National Register, this would be determined during Section 106 consultation for individual bridge projects.

Of the 14 bridge determined eligible in 2004, 13 were determined individually eligible as early examples of a type or sub-type. The one exception was the Dock Bridge #3284, which was determined a contributing resource to the National Register-eligible Alna Rural Historic District, noted by MHPC as a “pristine rural area.” Two other bridges were determined eligible under Criterion A: Elm Street #1351 in Biddeford, significant for its grade separation associated with the Boston & Maine Railroad; and West Buxton Bridge #3340, a contributing resource to the National Register-eligible West Buxton Historic District.

Most bridges have undergone minimal change since their respective determinations. One exception is the Free/Black Bridge #0323, a 1909 rivet-connected Baltimore truss. The lower level roadway bridge has been removed, but the bridge’s metal truss retains enough integrity to convey its significance in Engineering. Another exception is the Gambo Falls Bridge #0266, which has been converted into a pedestrian bridge, but its truss retains all levels of integrity to convey its significance under Engineering.

Since the HBS was completed, the B&A RR MP#44.74 Bridge #0159 in Ashland has also been found to hold significance under Criterion A as a contributing resource to the Bangor & Aroostook (B&A) Railroad Historic District. This determination was made as part of Section 106 consultation for bridge rehabilitation in 2017.

## *Previously Determined Not Eligible Bridges*

The 18 previously ineligible bridges underwent intensive study to understand potential significance under any level and any criteria. Each bridge was researched via materials available at the Maine State Library, Maine Memory Network (Maine Historical Society), and local libraries/historical societies. Each bridge was visited to understand any changes in setting and design since the determination made as part of the HBS. Also, MaineDOT historic bridge files and plans were accessed to examine photographs of the bridges close to the end of original construction as well as any prior bridge at that crossing. Additionally, MSHC annual reports were reviewed for funding source or unique circumstances. This information is included in the following forms.

Figure 4 on the following page lists all 32 metal truss bridges in the MaineDOT network. The chart shows National Register eligibility for each bridge, including its HBS and re-evaluation determinations.

Figure 4: MaineDOT Metal Truss Bridges and National Register Eligibility

Bridge Number	Bridge Name	Town	Type	Period of Significance	National Register Criteria	Areas of Significance
0484	Piscataquis River	Medford	Warren	1947	C	Engineering
3007	Carlton	Bath	Warren & Lift	1926	A, C	Engineering, Transportation
3181	Williams #2	Chesterville	Camelback	1937	C	Engineering
3244	Pleasant River	Milo	Warren	1936	C	Engineering
3309	Village	Detroit	Warren	1936	A, C	Engineering, Government/Politics
3321	Sebastcook	Clinton	Warren	1936	A, C	Engineering, Government/Politics
3341	Middle	Dresden	Warren	1936	A, C	Engineering, Government/Politics
3417	Charles E. Hill	Brownfield	Warren	1936	A, C	Engineering, Government/Politics
3499	Songo Lock	Casco/Naples	Warren	1937	A, C	Engineering, Transportation
3505	Hathaway	Passadumkeag	Warren	1937	C	Engineering
3507	Old Covered	Abbot	Warren	1940	C	Engineering
3666	West Branch	T3 Indian Purchase	Parker	1948	A, C	Engineering, Transportation
3790	Penobscot River	Chester/Lincoln	Warren	1950	A, C	Engineering, Transportation
5002	Stinchfield	Leeds	Pennsylvania	1923	C	Engineering
5165	Nason's Mill	Limington	Warren	1923	C	Engineering
5188	High	Rumford	Camelback	1951	C	Engineering
5190	Brooklyn	Bowdoinham	Warren	1953	C	Engineering
7766	Madawaska #133.14	Grindstone Township	Warren	c.1925 - c.1960	A, C	Agriculture, Engineering, Industry
0159	B&A RR MP#A44.74	Asland	Pratt	1902 - c.1960	A, C	Agriculture, Engineering, Industry
0238	Ryefield	Harrison	Warren	1912	C	Engineering
0266	Gambo Falls	Windham	Warren	1912	C	Engineering
0323	Free/Black	Brunswick	Baltimore	1909	C	Engineering
0327	St. John Underpass	Portland	Baltimore	1890	C	Engineering
1351	Elm Street	Biddeford	Baltimore	1928	A, C	Engineering, Industry
2026	Max L. Wilder	Arrowsic	Cantilever	1950	C	Engineering
2789	Southport	Southport	Warren	1939	C	Engineering
3284	Dock	Alna	Warren	1936	A, C	Agriculture, Engineering
3330	Bernard Lown Peace	Auburn	Warren	1937	A, C	Engineering, Government/Politics
3340	West Buxton	Buxton	Warren	1937	C	Engineering
5084	Androscoffin	Gilead	Camelback	1921	C	Engineering
5196	Memorial	Augusta	Cantilever	1949	C	Engineering
5572	Aroostook River	Caribou	Cantilever	1952	C	Engineering

2019 National Register Eligible Re-evaluation

Previously Determined Eligible Bridges

*Re-evaluation Forms for  
Previously Determined  
Not Eligible Metal  
Truss Bridges*





# STATE OF MAINE DEPARTMENT OF TRANSPORTATION

## Historic Bridge Survey Form – 2018 Truss Re-evaluation

**Bridge #:** 0484  
**Region:** 4  
**NR Eligible:** Yes.

**Bridge Name:** Piscataquis River  
**County:** Piscataquis  
**Priority:** >4

**Town:** Medford  
**Owner:** MaineDOT



**Feature on:** Trestle Road

**Type:** Truss (Deck)

**Superstructure:** Steel

**Railing type:** Metal guardrail

**Overall Length:** 607'

**Year Built:** 1947

**Designer/Builder:** Bangor & Aroostook Railroad/Bethlehem Steel Company

**Feature under:** Piscataquis River

**Design:** Warren (Riveted)

**Substructure:** Concrete

**Number of Spans:** 3

**Deck Width:** 15'

**Alteration (Date):** 1981

The Piscataquis River Bridge carries Trestle Road over the Piscataquis River in Medford. The bridge connects North Road in northern Medford with Medford Center Road in southern Medford. It is the only bridge that crosses the Piscataquis River in Medford. The bridge is a former railroad bridge and Trestle Road follows much of the former Bangor and Aroostook (B&A) Railroad corridor. The Piscataquis River Bridge is 1 of 2 Warren deck trusses in the MaineDOT network.

The B&A's Medford Extension, which ran between South Lagrange to Packard, opened on December 30, 1907. The high grades at Schoodic Hill and Milo Junction slowed traffic along the main B&A branch, and the 32.5-mile Medford Extension was constructed to speed shipping of potatoes and pulp from the northern portions of the state. In 1906 the Aroostook Construction Company began surveying the location of the Piscataquis River Bridge for the railroad. The original bridge was a three-span pin-connected deck truss bridge. It was built by the Pennsylvania Steel company. The B&A operated passenger traffic on the Medford Extension until the 1930s, though cabooses on freight trains continued to carry passengers afterwards. The corridor ceased rail operations around 1974.

In 1947 the 1909 bridge was replaced with the existing structure. The pin-connected deck truss was replaced with a Warren deck truss composed of standard built-up sections of

channels, angles, and plates. The bridge includes built-up deck girder approach spans. The bridge likely utilized the same concrete piers and abutments as the previous bridge. As noted by local historian William Sawtell, "Some of the steel on the trestle crystallized, necessitating the renewal of the three center spans."

With the abandonment of this line in the 1970s, the Town of Medford saw the opportunity to create a vehicular crossing over the Piscataquis River. At that time, the town had been without a means to cross the Piscataquis River for 40 years when ferry services ceased. Thus, if a town resident north of the Piscataquis River traveled to the town office south of the river, it was a forty-mile round trip. With the B&A removing the railroad tracks and set to remove the bridge, the Town, in discussion with MaineDOT, purchased the bridge for \$31,000. In August 1981 the Town and MaineDOT began converting the bridge for vehicular use by removing the open timber deck and added a closed pressure treated timber deck with a metal guardrail. The bridge opened to vehicular traffic on November 17, 1981. The project cost \$151,000 split between the state, county, and town. H. B. Fleming of South Portland completed the construction.

Although the B&A is a National Register-eligible historic district, the Medford Extension does not retain enough integrity to contribute to the historic district. The loss of the railroad tracks and the conversion of the rail corridor into roads and shared-use paths has diminished the Extension's integrity of design, workmanship, materials, feeling, setting, and association.

The Piscataquis River Bridge is eligible for the National Register under Criterion C for Engineering because of the rarity of metal truss bridges within the MaineDOT system and as it represents the distinctive characteristics of the Warren deck truss type.

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Medford Bridge, 1980 Photographs, Bridge Maintenance Division Files, Maine Department of Transportation.

Medford Bridge over Piscataquis River, Medford, Piscataquis County, Maine Department of Transportation, February 2, 1981.

Piscataquis River Bridge, Medford Extension, Aroostook Construction Company, 1907.

Sawtell, William R. *Medford Revisited*. Dover-Foxcroft, ME: D & B Printing, 1996.

**STATE OF MAINE DEPARTMENT OF TRANSPORTATION  
Historic Bridge Survey Form – 2018 Truss Re-evaluation**

**Bridge #:** 3007      **Bridge Name:** Carlton      **Town:** Bath  
**Region:** 1      **County:** Sagadahoc      **Owner:** MaineDOT  
**NR Eligible:** Yes.      **Priority:** n/a



**Feature on:** Rockland Branch Railroad  
**Type:** Truss (Deck) & Lift Span  
**Superstructure:** Steel  
**Railing type:** Tubular metal pipe with metal bar fill  
**Overall Length:** 2,195'  
**Year Built:** 1926-1927  
**Designer/Builder:** J. A. L. Waddell/McClintic-Marshall/Foundation Company

**Feature under:** Kennebec River  
**Design:** Warren (Riveted)  
**Substructure:** Concrete  
**Number of Spans:** 7  
**Deck Width:** 35'  
**Alteration (Date):** 2000

The Carlton Bridge spans the Kennebec River between Bath and Woolwich. It connects the small city of Bath with the small town of Woolwich. The bridge carries the Rockland Branch Railroad of the Maine Central Railroad on the lower deck. US Route 1 originally crossed the upper deck of the bridge. The Carleton Bridge is 1 of 2 Warren deck trusses in the MaineDOT network.

The bridge consists of a 234' vertical lift span flanked by 2 rivet-connected Warren deck truss spans to the west and 4 Warren deck truss spans to the east. The lift span is also a Warren truss. The bridge members are composed of standard built-up sections composed of angles, channels, and plates. The span is lifted by conventional means of steel ropes passed over sheaves at the top of the tapered built-up steel towers. The ropes pass over the sheaves and connect with concrete counterweights. The machinery house is located above the roadway at the center of the lift span. The bridge is supported by concrete piers and abutments.

Prior to 1926 a ferry linked Bath and Woolwich across the Kennebec River. As early as 1718 a ferry operated between the two locations. Ferry operations remained constant throughout the next two centuries and even included a steam ferry in the 1830s. As the automobile

became more popular in the early twentieth century, combined with growing leisure travel and tourism, Route 1 deposited more and more cars into downtown Bath. In 1920 over 20,000 cars were ferried across the Kennebec River between Bath and Woolwich. Lines of cars waiting for the ferry in Bath often backed up traffic down Centre Street. During peak travel season, cars waited as long as 1 to 3 hours for ferry service.

In 1925 Governor Ralph O. Brewster signed a bill to allow \$3 million in bonds to pay for a toll bridge across the Kennebec River between Bath and Woolwich. Representative Frank Carleton, who would be the bridge's namesake, led the legislative effort for monies to construct the bridge. The Kennebec Bridge Commission was established at this time to oversee construction and contracted with J. A. L. Waddell to serve as consulting engineer. Waddell designed the first modern vertical lift span bridge in 1894 and improved upon the design to become the foremost American bridge engineer for vertical lift spans. On May 25, 1926 the Commission signed construction contracts with the Foundation Company for the substructure and McClintic-Marshall Company for the superstructure.

The first pilings for the new bridge were driven on June 28, 1926. The bridge would require a year to construct. The truss spans were placed from March 19 to September 28, 1927. Notably, the bridge's innovative use of caissons garnered national attention. The caissons were sunk to record depths and the bridge's piers and foundations were formed with quick-hardening cement. Curved approach spans swung traffic on both sides of the bridge onto Route 1. Construction lasted into the fall of 1927 with the railway traffic ceremonially initiated on October 24 and highway traffic opening on November 15.

From June 30 to July 4, 1928 the City of Bath staged a "Historical Pageant of the State of Maine" as part of a special dedication ceremony for the Carleton Bridge. The pageant involved 1,000 participants and 10,000 spectators. Historical pageants were popular in the 1920s to demonstrate national patriotism and local civic pride.

The Carleton Bridge opened as a toll bridge in order to pay for the bonds that funded its construction. By 1935 the toll was lifted for local residents and in 1941 the tolls ceased altogether. In 1959 the roadway deck was widened, which required the placement of the current tubular metal railing. The deck was widened to accommodate the construction of the West Approach Bridge, which elevated Route 1 through Bath directly to the Carleton Bridge. The lift span break was replaced in 1992. In 2000 the approach span on the Bath side was removed from the Carleton Bridge and highway traffic was diverted onto the Sagadahoc Bridge, built immediately to the north. The bridge continues to carry the Rockland Branch of the Maine Central Railroad.

Under the MaineDOT's Historic Bridge Survey Phase II the Carleton Bridge was determined not eligible for listing in the National Register. At the time of the survey, the Sagadahoc Bridge had just been constructed and thus the removal of approach spans and removal of vehicular traffic proved a substantial loss of integrity of setting, association, and design. The survey at that time also noted that the Carleton Bridge was one of three lift-span bridges constructed in Maine from 1921 to 1940. Of the three lift span bridges, the Carleton Bridge was one of two lift-span bridges designed by Waddell in Maine.

Since the completion of Phase II, the Carleton Bridge is now the only remaining historic lift span bridge in Maine and the only extant example of a Waddell lift span design in Maine. The other Waddell lift span, the Memorial Bridge between Kittery and Portsmouth, New Hampshire, was replaced in 2012. The third lift span, the Sarah Mildred Long Bridge, also between Kittery and Portsmouth, was replaced in 2016.

Despite the Carleton Bridge's diminished integrity of setting, association, and design, it does retain enough integrity to convey its significance as a Waddell lift span. The lift span remains operational and intact. The bridge continues to maintain rail traffic and it retains its roadway deck despite the removal of traffic. It also retains its integrity of location. The bridge retains the operator's house, spiral grooved winding drums, multiple tower sheaves, and concrete counterweights.

The Carleton Bridge is eligible for listing in the National Register under Criteria A and C for Engineering and Transportation. The bridge is a representation of an important upgrade to US Route 1 in the 1920s that greatly improved transportation and connectivity along mid-coast Maine. The bridge is also an important example of a Waddell lift span and is the last extant example in Maine. Even though it is not the earliest Waddell lift span constructed in Maine, Waddell remained at the forefront of lift span bridge technology and design when he worked on the Carleton Bridge. The bridge is significant for its innovative use of quick-hardening concrete and caissons set to record depths and for its exceptional total length of over 2,000'. Its period of significance is 1926.

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# STATE OF MAINE DEPARTMENT OF TRANSPORTATION

## Historic Bridge Survey Form – 2018 Truss Re-evaluation

**Bridge #:** 3181      **Bridge Name:** Williams No. 2      **Town:** Chesterville  
**Region:** 3      **County:** Franklin      **Owner:** MaineDOT  
**NR Eligible:** Yes.      **Priority:** 3



**Feature on:** State Route 156      **Feature under:** Wilson Stream  
**Type:** Truss (Thru)      **Design:** Camelback (Riveted)  
**Superstructure:** Steel      **Substructure:** Concrete  
**Railing type:** 2 rail high steel channel      **Number of Spans:** 1  
**Overall Length:** 176'      **Deck Width:** 23'  
**Year Built:** 1937      **Alteration (Date):** n/a  
**Designer/Builder:** MSHC/Pittsburgh-Des Moines Steel Company/Reed & Reed

The Williams #2 Bridge #3181 carries Route 156 (Lucy Knowles Road) over Wilson Creek in Chesterville at the town line with Farmington. The bridge is located just southwest of the village of Farmington Falls. The bridge is located in a rural area with a mixture of cultivated fields, wooded areas, and residential properties. Route 156 connects Chesterville with Weld via Wilton. The Williams #2 Bridge is 1 of 3 Camelback trusses in the MaineDOT network.

The truss was constructed in 1937 and has standard built-up chords, portal bracing, and upper laterals. It has rolled section diagonals and verticals. The floorbeams and stringers are rolled steel as well. The Williams #2 Bridge replaced a wooden bridge and provided the crossing with the ability to carry much larger loads. The MSHC raised the bridge elevation slightly from 96' to 100'. The MSHC was able to construct a single-span bridge where a two-span bridge had previously been located.

Wilson Stream separates Chesterville and Farmington for approximately two miles. The bridge is located, geographically, between Keith's Mills to the west and Farmington Falls to the east. Farmington Falls was the earliest site settled in the area, established in 1776 and Keith's Mills was an industrious village with many manufactories founded in the early 1800s. Many bridges crossed Wilson Stream in various locations prior to 1800, but the stream was known to rise rapidly and has a history of flooding, which destroyed or damaged numerous

bridges throughout the eighteenth and nineteenth centuries. Floods and freshets required residents of Chesterville and Farmington to constantly repair or replace bridges over Wilson Stream. For example, in 1855 a freshet swept away the first bridge above the mouth of Wilson Stream (likely the general location of Williams #2 Bridge) and the Town of Chesterville paid for the damages and rebuilding.

While the date of construction for any bridge located near or at this crossing is unknown, MaineDOT maintains photographs of the predecessor to Williams #2 Bridge. This bridge, as shown in 1924 photographs, was a two-span wooden bridge on stacked granite block abutments and a central pier. An enclosed wooden rail obscures the composition of the bridge, but braced wooden deck beams extend beyond the rail. Construction of the Williams #2 Bridge removed the stacked stone abutments and pier. By removing the pier and raising the elevation slightly with built up approaches, the MSHC greatly improved the crossing's flood resiliency. The steel Camelback truss would also withstand flood waters to a much greater extent than the previous wooden structure.

Although Williams #2 Bridge remained a vital link along Route 156 connecting Farmington Falls and northern Chesterville with Wilton and Weld, research did not reveal additional community development associated with the surrounding area and the improved crossing.

The Williams #2 Bridge is eligible for the National Register under Criterion C for Engineering because of the rarity of metal truss bridges within the MaineDOT system and as it represents the distinctive characteristics of the Camelback truss type.

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# STATE OF MAINE DEPARTMENT OF TRANSPORTATION

## Historic Bridge Survey Form – 2018 Truss Re-evaluation

**Bridge #:** 3244      **Bridge Name:** Pleasant River      **Town:** Milo  
**Region:** 4      **County:** Piscataquis      **Owner:** MaineDOT  
**NR Eligible:** Yes.      **Priority:** 4

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<b>Feature on:</b> Pleasant Street	<b>Feature under:</b> Pleasant River
<b>Type:</b> Truss (Thru)	<b>Design:</b> Warren (Riveted)
<b>Superstructure:</b> Steel	<b>Substructure:</b> Concrete
<b>Railing type:</b> 2 rail high steel channel	<b>Number of Spans:</b> 2
<b>Overall Length:</b> 309'	<b>Deck Width:</b> 23'
<b>Year Built:</b> 1936	<b>Alteration (Date):</b> n/a
<b>Designer/Builder:</b> MSHC/Harris Structural Steel Company/W. H. McPherson	

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The Pleasant River Bridge #3244 carries Pleasant Street over the Pleasant River. The bridge is located northeast of Milo proper. This part of Milo is rural with sparse development. Much of the area alternates between wooded forest lands and open fields. Some agricultural cultivation remains to the north of the crossing. The bridge is 1 of 13 Warren Thru trusses in the MaineDOT network.

The bridge was constructed in 1936 with a 20-degree skew and on concrete abutments. The chords are built-up sections composed of channels and plates and the verticals and diagonals are rolled sections. The portal bracing and upper lateral bracing is built up and the floorbeams and stringers are rolled sections.

The Snow family first settled this part of Milo in 1801 and cultivated wheat. The family continued to farm in this area well into the nineteenth century. As early as the 1830s, a road ran from Milo to Medford, following the general path of current-day North Road and connected Milo with Howland and Brownsville. With this improved road following the Pleasant River the Town of Milo discussed establishing a ferry or bridge at this location in the 1830s and 1840s. The Pleasant River, which is shallower than the nearby Sebec or Piscataquis Rivers, proved easier to cross and the first bridge in this general location was built in 1853,

after nearly ten years of discussion by the town. It was a two-span wooden covered bridge that stood until 1900 when its western span collapsed. The western span was replaced with a light steel bridge later that year. It was built by the Berlin Construction Company. The eastern span was repaired and remained a covered bridge. The bridge retained its granite abutments with a central pier. Later in the early twentieth century, possibly in 1919, the eastern span was replaced with a light metal truss that matched the western span. The light metal truss had a wooden deck on steel stringers.

The MSHC completed a field survey in preparation of replacing the earlier metal truss bridge in 1935. The Pleasant River Bridge was placed approximately 200 feet north of the previous bridge. Based on previous high-water elevations at 86', the bridge was constructed at over 90'. The project included increases in the roadway approach grades to accommodate the taller spans.

Although the Pleasant River Bridge remained a vital link between Pleasant Street and North Road connecting Milo with Medford and Howland, research did not reveal additional development associated with the surrounding area and the improved crossing.

The Pleasant River Bridge is eligible for the National Register under Criterion C for Engineering because of the rarity of metal truss bridges within the MaineDOT system and as it represents the distinctive characteristics of the Warren truss type.

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# STATE OF MAINE DEPARTMENT OF TRANSPORTATION

## Historic Bridge Survey Form – 2018 Truss Re-evaluation

**Bridge #:** 3309      **Bridge Name:** Village      **Town:** Detroit  
**Region:** 4      **County:** Somerset      **Owner:** MaineDOT  
**NR Eligible:** Yes.      **Priority:** 4

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<b>Feature on:</b> State Route 69/220	<b>Feature under:</b> East Branch Sebasticook River
<b>Type:</b> Truss (Pony)	<b>Design:</b> Warren (Riveted)
<b>Superstructure:</b> Steel	<b>Substructure:</b> Concrete
<b>Railing type:</b> 2 rail high steel channel; metal lattice railing	<b>Number of Spans:</b> 1
<b>Overall Length:</b> 94'	<b>Deck Width:</b> 23'
<b>Year Built:</b> 1936	<b>Alteration (Date):</b> n/a
<b>Designer/Builder:</b> MSHC/Berlin Construction Company/Edmond Cyr	

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Village Bridge #3309 carries Routes 69 and 220 over the East Branch of the Sebasticook River. The bridge is located at the southeast end of the village center of Detroit. The village center consists of numerous nineteenth-century residences, many with carriage barns, a church, store, and small veterans park. The Village Bridge maintains a crossing that connects Detroit with Plymouth and Bangor to the east. The bridge is 1 of 5 Warren Pony trusses in the MaineDOT network.

The Village Bridge is a Warren Pony truss with a polygonal top chord. The chords are built-up sections, while the diagonals are rolled sections, and the verticals alternate between rolled and built up sections. Rolled floorbeams are located at every other panel point supporting the steel stringers and concrete deck. The bridge has a sidewalk on the northeast side with a decorative metal lattice railing. This bridge is 1 of 3 1930s MSHC-designed Warren Pony trusses with floorbeams located at every other panel point. This arrangement loads all the verticals in tension, which requires larger stringers and floorbeams. This design may have been in response to constructability as this bridge would have been built on-site. The truss was not assembled off-alignment and moved into place with a crane, but was instead constructed in place. The two other Warren Pony trusses extant today with this same configuration are the Songo Lock Bridge #3449 and Hathaway Bridge #3505.

The Village Bridge replaced an 1896 wrought iron thru truss bridge with light verticals and diagonals. The existing bridge greatly increased the load that this crossing could accommodate, but the elevation of the bridge and the hydraulic opening were not altered. Completed in 1936, the Village Bridge replaced a bridge that was damaged by the Flood of 1936. As noted by local historian Ira Fernald, "Of course the New England Flood of 1936 brought havoc, taking out the towering iron bridge at the village." The Flood caused massive amounts of damage to private and public property in the spring of 1936 when heavy rains combined with a thick snow and ice pack resulted in catastrophic flooding in Maine and other New England states. As a result of the Flood, the State of Maine sought federal funds from New Deal programs in order to replace 25 lost bridges. The state succeeded at securing \$184,023 from the Works Progress Administration for these bridges, including the Village Bridge. The Works Progress Administration was created in 1935 in hopes of funding large infrastructure and other projects that could provide employment to skilled and unskilled workers during the Great Depression.

The Village Bridge is eligible for listing in the National Register under Criteria A and C for Engineering and Government/Politics. The bridge is eligible because of the rarity of metal truss bridges within the MaineDOT system and because it represents the distinctive characteristics of the Warren pony truss type. The bridge is also one of 25 bridges in Maine that were rebuilt as part of federally-funded flood relief efforts after the devastating Flood of 1936. The bridge's period of significance is 1936.

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# STATE OF MAINE DEPARTMENT OF TRANSPORTATION

## Historic Bridge Survey Form – 2018 Truss Re-evaluation

**Bridge #:** 3321      **Bridge Name:** Sebacook      **Town:** Clinton  
**Region:** 2      **County:** Kennebec      **Owner:** MaineDOT  
**NR Eligible:** Yes.      **Priority:** 4



**Feature on:** Pleasant Street      **Feature under:** Sebacook River  
**Type:** Truss (Thru)      **Design:** Warren (Riveted)  
**Superstructure:** Steel      **Substructure:** Concrete  
**Railing type:** 2 rail high steel channel; metal pipe on sidewalk      **Number of Spans:** 1  
**Overall Length:** 190'      **Deck Width:** 23'  
**Year Built:** 1936      **Alteration (Date):** n/a  
**Designer/Builder:** MSHC/American Bridge Company/J. R. Cianchette & Company

The Sebacook Bridge carries Pleasant Street over the Sebacook River. The bridge is located south of Route 11/100 and connects the southern end of Clinton with the rest of the town north of the river. Pleasant Street also connects Clinton to Route 139. The bridge is seated near the upper end of an oxbow in the Sebacook River. The bridge is 1 of 13 Warren Thru trusses in the MaineDOT network.

The Sebacook Bridge was completed in 1936 to replace a previous bridge after the Flood of 1936. The previous bridge was a Lenticular truss bridge built in 1909. The bridge was carried 200' downstream during the Flood. One of its abutments was destroyed down to the water line during the Flood due to ice. The Sebacook River flooded to over 59' with ice at about 4' higher. The ordinary high-water mark at this location at that time was 55'.

The Flood caused massive amounts of damage to private and public property in the spring of 1936 when heavy rains combined with a thick snow and ice pack resulted in catastrophic flooding in Maine and other New England states. As a result of the Flood, the State of Maine sought federal funds from New Deal programs to replace 25 lost bridges. The State



succeeded at securing \$184,023 from the Works Progress Administration for these bridges, including the Seabasticook Bridge. The Works Progress Administration was created in 1935 to fund large infrastructure and other projects that could provide employment to skilled and unskilled workers during the Great Depression. Town selectman Ralph B. Runnels also pushed the State to obtain federal funds for the bridge project. The MSHC hired the American Bridge Company to construct the truss and J. R. Cianchette and Company of Pittsfield to construct the substructure.

When the Seabasticook Bridge was constructed in 1936 it changed this crossing to avoid future flooding. The bridge's elevation was increased to over 70' and roadway approaches were increased in elevation to reach the bridge and required substantial amounts of fill. The bridge was supported with new concrete abutments and wingwalls. The bridge features built-up chords and verticals with rolled diagonals. The floorbeams are rolled steel and the portal bracing and upper lateral bracing is built-up. The bridge also has a cantilevered sidewalk.

The Seabasticook Bridge is eligible for listing in the National Register under Criteria A and C for Engineering and Government/Politics. The bridge is eligible because of the rarity of metal truss bridges within the MaineDOT system and because it represents the distinctive characteristics of the Warren truss type. The bridge is also one of 25 bridges in Maine that were rebuilt as part of federally-funded flood relief efforts after the devastating Flood of 1936. The bridge's period of significance is 1936.

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# STATE OF MAINE DEPARTMENT OF TRANSPORTATION

## Historic Bridge Survey Form – 2018 Truss Re-evaluation

**Bridge #:** 3341      **Bridge Name:** Middle      **Town:** Dresden  
**Region:** 2      **County:** Lincoln      **Owner:** MaineDOT  
**NR Eligible:** Yes.      **Priority:** 3

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<b>Feature on:</b> State Route 197	<b>Feature under:</b> Eastern River
<b>Type:</b> Truss (Thru)	<b>Design:</b> Warren (Riveted)
<b>Superstructure:</b> Steel	<b>Substructure:</b> Concrete
<b>Railing type:</b> 2 rail high steel channel	<b>Number of Spans:</b> 1
<b>Overall Length:</b> 296'	<b>Deck Width:</b> 23'
<b>Year Built:</b> 1936	<b>Alteration (Date):</b> n/a
<b>Designer/Builder:</b> MSHC & Fay, Spofford, & Thorndike/Pittsburgh-Des Moines Steel Company/F. W. Carlton	

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The Middle Bridge #3341 carries Route 197 (Patterson Road) over the Eastern River. The eastern side of the river at the bridge is largely wooded and sparsely developed, while the western side features cultivated fields and nineteenth-century and twentieth-century residences. The bridge is 1 of 13 Warren Thru trusses in the MaineDOT network.

The Middle Bridge was completed in 1936 to replace a previous bridge after the Flood of 1936. The previous bridge was a wooden stringer bridge supported on stacked stone abutments and timber cribbing. The bridge included a wooden king post truss drawbridge. One of the bridge's abutments and a span was pushed out of alignment from 1' to 1.5' caused by an ice jam below Swans Island that formed during the Flood. High tide at the bridge swelled to over 102', up from a normal high tide of over 96'.

The Flood caused massive amounts of damage to private and public property in the spring of 1936 when heavy rains combined with a thick snow and ice pack resulted in catastrophic flooding in Maine and other New England states. As a result of the Flood, the State of Maine sought federal funds from New Deal programs in order to replace 25 lost bridges. The state succeeded at securing \$184,023 from the Works Progress Administration for these bridges, including the Middle Bridge. The Works Progress Administration was created in 1935 to fund

large infrastructure and other projects that could provide employment to skilled and unskilled workers during the Great Depression.

When the Middle Bridge was constructed in 1936 it greatly changed this crossing to avoid future flooding. The bridge was located just north of the previous structure and diverted the roadway to higher ground. The bridge's elevation was raised up to nearly 130'. Substantial roadway approaches were graded to meet the new bridge's height. The bridge also received substantial concrete abutments. The truss chords are built-up sections, along with the portal bracing and sway bracing. It features rolled verticals, diagonals, and floorbeams. The truss has a polygonal top chord.

The Middle Bridge is eligible for listing in the National Register under Criteria A and C for Engineering and Government/Politics. The bridge is eligible because of the rarity of metal truss bridges within the MaineDOT system and because it represents the distinctive characteristics of the Warren truss type. The bridge is also one of 25 bridges in Maine that were rebuilt as part of federally-funded flood relief efforts after the devastating Flood of 1936. The bridge's period of significance is 1936.

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# STATE OF MAINE DEPARTMENT OF TRANSPORTATION

## Historic Bridge Survey Form – 2018 Truss Re-evaluation

**Bridge #:** 3417  
**Region:** 1  
**NR Eligible:** Yes.

**Bridge Name:** Charles E. Hill  
**County:** Oxford  
**Priority:** 4

**Town:** Brownfield  
**Owner:** MaineDOT



**Feature on:** State Route 160  
**Type:** Truss (Thru)  
**Superstructure:** Steel  
**Railing type:** 2 rail high steel channel  
**Overall Length:** 339'  
**Year Built:** 1936  
**Designer/Builder:** MSHC/Harris Structural Steel Company/Wyman & Simpson, Inc.

**Feature under:** Saco River  
**Design:** Warren (Riveted)  
**Substructure:** Concrete  
**Number of Spans:** 1  
**Deck Width:** 26'  
**Alteration (Date):** n/a

The Charles E. Hill Bridge #3417, previously known as Covered Bridge #3417, carries Route 160 (Denmark Road) over the Saco River. The bridge is located northeast of the village of Brownfield. It is in a rural area with forested lands and recreational development. The bridge also includes steel girder approach spans at approximately 70' with concrete two-part railings. The truss chords are built up sections of channels and plates and the verticals and diagonals are rolled sections. The bridge has a polygonal top chord and built up portal bracing and sway bracing. It has rolled floorbeams and stringers. The bridge is 1 of 13 Warren Thru trusses in the MaineDOT network.

The Hill Bridge was completed in 1936 to replace a previous bridge after the Flood of 1936. The previous bridge was a two-span wooden covered bridge. The bridge's abutments featured both granite blocks and fieldstone, while the pier was stacked granite. A 1934 photo of the bridge shows it in poor condition with much of the exterior wood sheathing missing. The bridge sat at an elevation of 93' and was swept away by the Flood in March 1936 when the Saco River rose to 98'. The normal water level for the Saco River at that time was recorded at 74'.

The Flood caused massive amounts of damage to private and public property in the spring of 1936 when heavy rains combined with a thick snow and ice pack resulted in catastrophic flooding in Maine and other New England states. As a result of the Flood, the State of Maine sought federal funds from New Deal programs to replace 25 lost bridges. The state succeeded at securing \$184,023 from the Works Progress Administration for these bridges, including the Hill Bridge. The Works Progress Administration was created in 1935 to fund large infrastructure and other projects that could provide employment to skilled and unskilled workers during the Great Depression.

When the Hill Bridge was constructed in 1936 it greatly changed this crossing to avoid future flooding. The bridge's elevation was increased to over 105'. The bridge opening across the Saco River was widened from approximately 150' to 339'. The roadway approaches were greatly increased in elevation to reach the bridge and required substantial amounts of fill. The bridge was renamed the Charles E. Hill Bridge in 1999.

The Charles E. Hill Bridge is eligible for listing in the National Register under Criteria A and C for Engineering and Government/Politics. The bridge is eligible because of the rarity of metal truss bridges within the MaineDOT system and because it represents the distinctive characteristics of the Warren truss type. The bridge is also one of 25 bridges in Maine that were rebuilt as part of federally-funded flood relief efforts after the devastating Flood of 1936. The bridge's period of significance is 1936.

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**STATE OF MAINE DEPARTMENT OF TRANSPORTATION  
Historic Bridge Survey Form – 2018 Truss Re-evaluation**

**Bridge #:** 3499      **Bridge Name:** Songo Lock      **Town:** Naples/Casco  
**Region:** 1      **County:** Cumberland      **Owner:** MaineDOT  
**NR Eligible:** Yes.      **Priority:** 4



**Feature on:** State Park Road      **Feature under:** Crooked River  
**Type:** Truss (Pony)      **Design:** Warren (Riveted)  
**Superstructure:** 2 high steel channel      **Substructure:** Concrete  
**Railing type:** Steel      **Number of Spans:** 1  
**Overall Length:** 123'      **Deck Width:** 35'  
**Year Built:** 1937      **Alteration (Date):** n/a  
**Designer/Builder:** MSHC/Lackawanna Steel Construction

The Songo Lock Bridge #3499 spans the Crooked River carrying State Park Road on the town line between Casco and Naples in Cumberland County. It is approximately 800' west of the Songo Lock. State Park Road connects the area around Sebago Lake State Park with State Route 35 (Roosevelt Trail) and State Route 114 as well as different areas of Sebago Lake State Park. The park is located on either side of the Crooked River; users must cross over the Songo Lock Bridge to access one side from the other. Development is sparse in the area with few year-round homes and a few family seasonal camps, likely due to the large privately-owned tracts and the area's flood prone nature. The bridge is 1 of 5 Warren Pony trusses in the MaineDOT network.

The Sebago Lake State Park was developed by the Works Progress Administration (WPA) and the Civilian Conservation Corps (CCC) from two large tracts of land. The Chase Transfer Company sold the camping area to the federal government; however, the Portland Start Match Company owned it prior to the Chase Transfer Company. The picnic area was also sold to the federal government by an unknown company. This unknown company purchased the parcel from the Dupont de Numeurs Company. The federal government transferred the land to the state for use as a state park circa 1938. It is unclear when the WPA/CCC began work on the park.

MaineDOT historic bridge photos show that this bridge is at least the third at this location. The first appears to be a narrow wooden truss with a polygonal top chord on dry laid granite abutments and was replaced in 1918. The replacement was a concrete stringer with a cantilevered decorative concrete railing supported by concrete abutments and wingwalls.

The concrete bridge was damaged in 1936, likely a result of the devastating statewide flood in March. The floodwaters undermined the pier, causing it to drop over 2', resulting in the concrete stringer breaking over the pier. While research has not confirmed this bridge as one impacted by the March flood, photos of the damaged bridge appear to be taken in Spring 1936. The bridge was replaced by the current Warren Pony truss. A truss bridge was likely selected because trusses can cross wide rivers in a single span whereas other types of bridges may require piers to support the load of a bridge. Construction included the expansion of the concrete abutments to widen the roadway to 22'. The width was likely dictated by AASHTO standards and the desire to carry two lanes of traffic over State Park Road. The bridge has a sidewalk on the northeast side with a decorative metal lattice railing.

This bridge is one of several 1930s MSHC-designed Warren Pony trusses with floorbeams located at every other panel point. This arrangement loads all the verticals in tension, which requires larger stringers and floorbeams. This design may have been in response to constructability as this bridge would have been built on-site. The truss was not assembled off-alignment and moved into place with a crane, but was instead constructed in place. Two other Warren Pony trusses, Village Bridge #3309 and Hathaway Bridge #3505, also constructed in 1936-1937, feature the same configuration. Unlike Warren Thru trusses constructed at the same time, the vertical alignment of the crossing was not increased at these three bridges.

The Songo Lock Bridge is eligible for listing in the National Register under Criteria A and C for Engineering and Transportation for its association with the 1936 flood recovery efforts without the use of federal funding. The bridge is eligible because of the rarity of metal truss bridges within the MaineDOT system and because it represents the distinctive characteristics of the Warren pony truss type. Its period of significance is 1937.

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Songo Lock Bridge, 1918, ca. 1936, and ca. 1937 Photographs, Bridge Maintenance Division Files, Maine Department of Transportation.



# STATE OF MAINE DEPARTMENT OF TRANSPORTATION

## Historic Bridge Survey Form – 2018 Truss Re-evaluation

**Bridge #:** 3505      **Bridge Name:** Hathaway      **Town:** Passadumkeag  
**Region:** 3      **County:** Penobscot      **Owner:** MaineDOT  
**NR Eligible:** Yes.      **Priority:** >4

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<b>Feature on:</b> Goulds Ridge Road	<b>Feature under:</b> Passadumkeag River
<b>Type:</b> Truss (Pony)	<b>Design:</b> Warren (Riveted)
<b>Superstructure:</b> Steel	<b>Substructure:</b> Concrete/Granite
<b>Railing type:</b> 2 high steel channel	<b>Number of Spans:</b> 1
<b>Overall Length:</b> 109	<b>Deck Width:</b> 14'
<b>Year Built:</b> 1937	<b>Alteration (Date):</b> n/a
<b>Designer/Builder:</b> MSHC/Pan American Bridge Company	

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The Hathaway Bridge # 3505 spans the Passadumkeag River carrying Goulds Ridge Road in Passadumkeag. Goulds Ridge Road is located on the Passadumkaeg Esker (aka Enfield Horseback). The esker is one of the longest in the state running north to south from Enfield to Greenbush. The area around the bridge is sparsely developed with a single dwelling to the north. Goulds Ridge Road is a secondary road connecting the eastern portions of Passadumkeag and Olamon. The bridge is located approximately 2 miles east of the small village center. The bridge is 1 of 5 Warren Pony trusses in the MaineDOT network.

Joshua Hathaway settled north of the bridge at the confluence of the Passadumkeag and Cold Streams in 1826. Hathaway was a farmer who likely settled at this location to take advantage of the marshlands for hay production. Historic photos indicate this area was likely home to a number of large farms. The bridge played a critical role in transportation patterns of farmers getting to points north, such as Enfield. The National Register nomination for the nearby District #2 School includes the following quote from the *History and Description of New England* (1859): The town has “fertile soil, promising bountiful harvests to the industrious farmer.” The small town also has a history rooted in the lumber industry, as the nomination stated that many of the residents made their livings with the lumber industry.

From 1850 to 2010 the population of the town has fluctuated between 205 and 367 with a peak 409 in 1909.

The current Goulds Ridge Road (south of the bridge) and St. John Road (north of the bridge) were historically known as Goulds Ridge Road and has followed the Passadumkeag Esker for over 10 miles for over 100 years. Goulds Ridge Road was first settled to the south by Zebediah Gould in 1822. When Gould settled here he utilized an existing path, used by the Ayerses, settlers of Argyle, who used it to access the meadows. Likely, the path used by the Ayers was the esker. The Hathaway Bridge remains a critical component of transportation and can be identified as a cultural route. Cultural routes have been developed over time by necessity using natural features or historic associations, such as Native American trails or Colonial footpaths, and were not engineered.

The bridge was constructed in 1937, replacing another metal truss bridge. The 109' polygonal top chord Warren Pony truss is supported by concrete capped granite abutments. Traffic is currently carried by a metal grate deck; however this replaced the original concrete deck. In a time of standardization, this bridge did not use AASHTO standards, as evidenced by the narrow deck width (standard at the time was 22').

The MSHC elected to place floor beams at every other panel to put all vertical members in tension while preventing any from being in compression. This configuration allowed the Commission to use smaller vertical members at the skipped panels; however, the floor beams were larger than typical. It is possible the Commission chose this configuration because it eased construction in the field. The truss would have likely been constructed on site and a lesser number of floor beams would have required fewer temporary bents to support the bridge. At the time there were no cranes to facilitate the lifting of a truss into place. The 2004 survey noted that by skipping the panels, the truss did not meet its full capacity. It is 1 of 3 bridges that features this configuration, the others being Songo Lock Bridge #3449 and Village Bridge #3309. The existing bridge replaced another metal truss bridge on the same alignment.

The Hathaway Bridge is eligible for listing in the National Register under Criterion C for Engineering. The bridge is eligible because of the rarity of metal truss bridges within the MaineDOT system and because it represents the distinctive characteristics of the Warren pony truss type. The bridge may also be a contributing resource to a potential historic district that encompasses the Passadumkaeg Esker and Goulds Ridge Road, but the additional research needed to confirm the historic district is beyond the scope of this effort. The bridge's period of significance is 1937.

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# STATE OF MAINE DEPARTMENT OF TRANSPORTATION

## Historic Bridge Survey Form – 2018 Truss Re-evaluation

**Bridge #:** 3507

**Bridge Name:** Old Covered

**Town:** Abbot

**Region:** 4

**County:** Piscataquis

**Owner:** MaineDOT

**NR Eligible:** Yes.

**Priority:** >4



**Feature on:** Back Road

**Type:** Truss (Pony)

**Superstructure:** Steel

**Railing type:** 2 high steel channel

**Overall Length:** 101'

**Year Built:** ca. 1940

**Designer/Builder:** MSHC/Berlin Construction Company

**Feature under:** Piscataquis River

**Design:** Warren (Riveted)

**Substructure:** Concrete

**Number of Spans:** 1

**Deck Width:** 21'

**Alteration (Date):** n/a

Old Covered Bridge #3507 carries Back Road over the Piscataquis River. The area is sparsely developed with Back Road serving as the easterly connector to Guildford versus Route 6 on the western bank of the Piscataquis River. The bridge is located ¼ mile east of the village of Abbot. The Village is oriented around the intersection of State Route 6 and State Route 16. Old Covered Bridge replaced a previous covered wooden truss bridge on the same alignment. There are no other structures near the bridge. The bridge is 1 of 5 Warren Pony trusses in the MaineDOT network.

The ca. 1940 Warren Pony truss with horizontal top chord is a late example of Warren truss technology. It is 1 of 2 Warren Pony trusses in the MaineDOT network with a horizontal top chord. The truss is a combination of rolled members as the diagonals and verticals with built up members at the channels and plate. The 96' span length of this bridge exceeds the typical engineered horizontal top chord pony truss technology. Both Indiana and Pennsylvania truss re-examination note that Warren Pony trusses that span over 85' are considered an exceptional length for the technology. Horizontal top chords were better suited for shorter spans, while polygonal top chord Pony trusses or Thru trusses could more efficiently span longer crossings. Thus, this bridge is a rare example of a horizontal top chord Warren Pony truss used for a significant span length.

The 1939 plan set notes that the Abbot Depot of the Bangor & Piscataquis Railroad (B&P RR) is approximately ½ mile away from an overflow channel east of the bridge. The railroad ran northerly to Greenville. This crossing provided a critical connection point between the village and the depot for those living on either side of the river. The B&P RR was dismantled in 1964 and the depot is no longer extant; however, the crossing itself, regardless of a specific bridge, remains a connection for locals to access State Routes 6 and 16 from the east side. However, research did not reveal any additional significance under Criterion A. There is conflicting information regarding the date of construction. MaineDOT notes the construction as 1940; however, local histories state it was replaced in 1938.

The Old Covered Bridge is eligible for listing in the National Register under Criterion C for its local significance in Engineering for its exceptional length as a Warren Pony truss with a horizontal top chord. The bridge is also eligible because of the rarity of metal truss bridges within the MaineDOT system. Its period of significance is 1940.

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Old Covered Bridge, ca. 1940 Photographs, Bridge Maintenance Division Files, Maine Department of Transportation.

# STATE OF MAINE DEPARTMENT OF TRANSPORTATION

## Historic Bridge Survey Form – 2018 Truss Re-evaluation

**Bridge #:** 3666      **Bridge Name:** West Branch      **Town:** T3 Indian Purchase  
**Region:** 5      **County:** Penobscot      **Owner:** MaineDOT  
**NR Eligible:** Yes.      **Priority:** 3

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<b>Feature on:</b> State Route 11	<b>Feature under:</b> Penobscot River
<b>Type:</b> Truss (Thru)	<b>Design:</b> Parker (Riveted)
<b>Superstructure:</b> Steel	<b>Substructure:</b> Concrete
<b>Railing type:</b> 1 high steel channel	<b>Number of Spans:</b> 3
<b>Overall Length:</b> 369'	<b>Deck Width:</b> 26'
<b>Year Built:</b> 1948	<b>Alteration (Date):</b> n/a
<b>Designer/Builder:</b> MSHC/American Bridge Company	

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The West Branch Bridge #3666 carries State Route 11 over the West Branch of the Penobscot River. The river connects South Twin Lake and Quakish Lake west southwest of Millinocket. Route 11 follows a similar route as the Bangor & Aroostook (B&A) Railroad. Research did not reveal any additional information regarding the township and bridge, which is not uncommon for townships in Maine. The bridge is the only example of a Parker truss in the MaineDOT network.

The bridge is a 241' riveted Parker truss with two 64' long steel stringer spans. The truss has standard built-up section chords and rolled section diagonals and verticals. The bridge is east of a steel thru plate girder railroad bridge associated with B&A Railroad. A modern suspension bridge for pedestrian/ATV/snowmobiles has been constructed between the two.

In 1926 Frank Speed proposed a road connecting Brownville and Millinocket (current day Route 11). Survey for the roadway began in 1935 and work began in 1938. The roadway was funded partially with WPA funds, likely in part due to the expansion and growth of the Great Northern Paper Company in Millinocket and its effect on the surrounding area. In 1940 the road was further funded with Defense monies and additional funding added in 1942. Despite these efforts, WWII delayed the completion of the road. The road officially opened with the

completion of the West Branch Bridge in 1948. From all accounts, this bridge was the first roadway bridge at this location.

The West Branch Bridge is eligible for listing in the National Register under Criteria A and C for Engineering and Transportation. The bridge is the last remaining example of a Parker truss type in Maine and was part of a significant road building project that linked Brownville and Millinocket at a time of great economic expansion. Its period of significance is 1948.

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**STATE OF MAINE DEPARTMENT OF TRANSPORTATION  
Historic Bridge Survey Form – 2018 Truss Re-evaluation**

**Bridge #:** 3790      **Bridge Name:** Penobscot River      **Town:** Chester/Lincoln  
**Region:** 5      **County:** Penobscot      **Owner:** MaineDOT  
**NR Eligible:** Yes.      **Priority:** 3



**Feature on:** Chester Road      **Feature under:** Penobscot River  
**Type:** Truss (Thru)      **Design:** Warren (Riveted)  
**Superstructure:** Steel      **Substructure:** Concrete  
**Railing type:** 1 high steel channel      **Number of Spans:** 3  
**Overall Length:** 610'      **Deck Width:** 23.6  
**Year Built:** 1950      **Alteration (Date):** 1983  
**Designer/Builder:** MSHC/Lackawanna Steel Construction Corporation

The Penobscot River Bridge #3790 carries Chester Road over the Penobscot River connecting Chester and Lincoln. It also connects US Route 2 in Lincoln to State Route 116 in Chester, where it diverts from its route along the Penobscot River to follow a northerly route connecting to Medway and Route 11. The bridge is comprised of three 200' long spans of rolled section diagonals, verticals and top laterals; built-up members are limited to the section chords and plate. Of the remaining 32 truss bridges in the state, this is the first to extend the use of rolled section to additional members than the verticals and diagonals thereby further reducing construction time in the field as rolled members did not require any further action in the field (unlike built-up members). The bridge is 1 of 13 Warren Thru trusses in the MaineDOT network.

The bridge replaced one of three known ferries connecting Chester and Lincoln and is the first bridge at this location. Historic aerials from the 1940s to 1950s indicate that this crossing was the first roadway to connect north and south over the Penobscot River between Medway and Howland. The exact reasons for the construction of the bridge were not found during research; however, it is likely the bridge was constructed due to the changing transportation patterns of the time, particularly in relation to the wood industry. Ferries were no longer adequate to carry people and goods between Chester and Lincoln. The bridge was constructed at a time when wood products were moving off of river and railroads and onto trucks. It is highly probable that the MSHC looked to make a permanent crossing near the

ferry location due to those already utilizing it as well as being one of the narrowest locations on the river and close to US Route 2 and Route 116.

The Lincoln-Chester Bridge is eligible for listing in the National Register under Criteria A and C for Engineering and Transportation. The bridge is eligible because of the rarity of metal truss bridges within the MaineDOT system and because it represents the distinctive characteristics of the Warren truss type. It is also eligible as the first bridge at this crossing and its contribution to regional transportation.

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# STATE OF MAINE DEPARTMENT OF TRANSPORTATION

## Historic Bridge Survey Form – 2018 Truss Re-evaluation

**Bridge #:** 5002

**Bridge Name:** Stinchfield

**Town:** Leeds

**Region:** 2

**County:** Androscoggin

**Owner:** MaineDOT

**NR Eligible:** Yes.

**Priority:** 4



**Feature on:** State Route 106

**Type:** Truss (Thru)

**Superstructure:** Steel

**Railing type:** 2 high steel channel

**Overall Length:** 177'

**Year Built:** 1922

**Designer/Builder:** MSHC Bridge Division/United Construction Company

**Feature under:** Dead River

**Design:** Pennsylvania (Riveted)

**Substructure:** Concrete

**Number of Spans:** 1

**Deck Width:** 21'

**Alteration (Date):** 1974, 1988

The Stinchfield Bridge #5002 is a single-span Pennsylvania truss carrying State Route 106 over the Dead River in Leeds, Androscoggin County. The bridge is constructed of all built-up members at the channels, angles, and plates. Rolled section floorbeams and stringers support the concrete deck. Development is sparse with one dwelling at the northeast which now serves as the office and owner's residence of a large campground east of the bridge. The bridge is the only example of a Pennsylvania truss in the MaineDOT network.

Constructed in 1922, it replaced a narrow stringer bridge with wood rails. A railroad bridge, also a Pennsylvania truss, is located approximately 150' east of the Stinchfield Bridge. The railroad bridge is not owned by MaineDOT. The bridge was 1 of 7 identified as constructed by the MSHC from 1921 to 1929. It is the only remaining example of a Pennsylvania truss in the MaineDOT network. While the portal bracing was increased (1974 or 1988) to allow for taller vehicles, the bridge retains its integrity.

Additional research did not reveal any significance under Criterion A.

The bridge is eligible for listing in the National Register of Historic Places under Criterion C for its statewide significance in Engineering as the last example of a Pennsylvania truss in

the MaineDOT network. The bridge's period of significance is 1922.

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# STATE OF MAINE DEPARTMENT OF TRANSPORTATION

## Historic Bridge Survey Form – 2018 Truss Re-evaluation

**Bridge #:** 5165  
**Region:** 1  
**NR Eligible:** Yes.

**Bridge Name:** Nason's Mill  
**County:** Cumberland  
**Priority:** >4

**Town:** Limington  
**Owner:** MaineDOT



**Feature on:** Millturn/Salt Pond Road  
**Type:** Truss (Pony)  
**Superstructure:** Steel  
**Railing type:** Steel channel  
**Overall Length:** 111'  
**Year Built:** 1923  
**Designer/Builder:** MSHC/United Construction Company

**Feature under:** Little Ossipee River  
**Design:** Warren (Riveted)  
**Substructure:** Concrete  
**Number of Spans:** 2  
**Deck Width:** 35'  
**Alteration (Date):** n/a

The Nason's Mill Bridge #5165 spans the Little Ossipee River carrying Millturn/Salt Pond Road through the Little Ossipee River Wildlife Management Area. The bridge is 1 of 5 Warren Pony trusses in the MaineDOT system.

The area was home to the Nason family and the site of their saw and grist mills in the nineteenth century. By the time the current bridge was constructed the mills were gone and the area was losing population. The Nason family likely built and maintained any previous bridges constructed at this location.

Interestingly, in 1923, the Western Maine Power Company paid for the substructure of the Nason's Mill Bridge while the MSHC paid for the superstructure (truss). The Western Maine Power Company was a successor to the Limerick Water & Electric Company and a precursor to Central Maine Power (CMP; CMP purchased the Western Maine Power Company). No information into why the power company bore financial responsibility for the substructure of the new bridge has been found; however, it would likely be related to controlling water flow for power generation.

Currently, the road accessing the bridge is closed over the winter. The bridge, constructed in 1923, is a two-span Warren Pony truss with horizontal top chords. Each span is 53' long.

Historic photos show that the bridge replaced a rudimentary wood bridge assumed to be damaged in a 1923 flood. The National Oceanic and Atmospheric Administration noted in its April 1923 Monthly Weather Report that Maine experienced a severe flood as a result of rapid snow melt and rain over April 28-30. While the Kennebec River Region and Aroostook County experienced the most damage, western Maine also experienced flood levels. The 1923 MSHC Annual Report does not include a comprehensive overview of bridges in a similar manner found in later annual reports; therefore, the exact circumstances or funding source for this bridge is unknown.

The Nason's Mill Bridge is eligible for the National Register under Criterion C for Engineering. The bridge is eligible because of the rarity of metal truss bridges within the MaineDOT system and because it represents the distinctive characteristics of the Warren pony truss type.

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Nason's Mill Bridge, ca. 1922 Photographs, Bridge Maintenance Division Files, Maine Department of Transportation.

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# STATE OF MAINE DEPARTMENT OF TRANSPORTATION

## Historic Bridge Survey Form – 2018 Truss Re-evaluation

**Bridge #:** 5188

**Bridge Name:** High

**Town:** Rumford

**Region:** 3

**County:** Oxford

**Owner:** MaineDOT

**NR Eligible:** Yes.

**Priority:** 4



**Feature on:** South Rumford Road

**Feature under:** Androscoggin River

**Type:** Truss (Thru)

**Design:** Camelback (Riveted)

**Superstructure:** Steel

**Substructure:** Concrete/Granite

**Railing type:** 2 high steel channel

**Number of Spans:** 1

**Overall Length:** 205'

**Deck Width:** 35'

**Year Built:** 1951

**Alteration (Date):** n/a

**Designer/Builder:** MSHC/American Bridge Company

The High Bridge #5188 spans the Androscoggin River carrying South Rumford Road to its intersection with US Route 2. The bridge sits above the natural falls of the river, which historically provided power to the town's paper mills and currently produces hydroelectric power. The bridge is on the same alignment as a previous lenticular metal truss, the first at this location. There are no other structures around the bridge; however, a rail line used to run parallel to the bridge connecting South Rumford and Rumford. The High Bridge is 1 of 3 Camelback truss bridges in the MaineDOT system.

The bridge is located in the immediate area known as Virginia, located on the west side of the Androscoggin River. The area was (first settled in the mid-nineteenth century and named after one of the first settlers as well as the first sawmill owner. A bridge at this location was discussed throughout the nineteenth century; however, construction did not come to fruition until c.1898. It was likely the result of Rumford's growth associated with the paper industry along with the advancement of technology to cross here near the Rumford Falls.

The Dunton Lumber Company was located just southwest of the bridge's western abutment. At that time South Rumford, approximately two miles to the southwest on the opposite side of the river, boasted a saw mill, mineral spring, and logging ventures, which were owned by



the inter-related Putnam and Sloan families. The Sloan family stored wood from their saw mill at the Dunton Lumber Company, which further necessitated the crossing. Eventually, a rail line was extended along the east side of the river to the east side near the bridge from Rumford, though it is unclear to its use. The lumber company was demolished by the 1960s, approximately seven years after the bridge's construction.

The bridge is not associated with the development and initial construction of this crossing nor is it associated with further development in this area. Interestingly, unlike other bridges built at this time, the town of Rumford bore the highest cost in this replacement effort. The town paid slightly over \$36,190 while the MSHC and Oxford County paid \$25,448 and \$26,146, respectively. The bridge is comprised of rolled sections save the chords, which are built-up. This configuration is similar to the Penobscot Bridge #3790 in Chester/Lincoln and Brooklyn Bridge #5190 in Bowdoinham.

The High Bridge is eligible for listing in the National Register under Criterion C for Engineering. The bridge is eligible because of the rarity of metal truss bridges within the MaineDOT system and because it represents the distinctive characteristics of the Camelback truss type.

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# STATE OF MAINE DEPARTMENT OF TRANSPORTATION

## Historic Bridge Survey Form – 2018 Truss Re-evaluation

**Bridge #:** 5190      **Bridge Name:** Brooklyn      **Town:** Bowdoinham  
**Region:** 2      **County:** Sagadahoc      **Owner:** MaineDOT  
**NR Eligible:** Yes.      **Priority:** 3

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<b>Feature on:</b> State Route 24	<b>Feature under:</b> Cathance River
<b>Type:</b> Truss (Thru)	<b>Design:</b> Warren (Riveted)
<b>Superstructure:</b> Steel	<b>Substructure:</b> Concrete
<b>Railing type:</b> Two high steel channel	<b>Number of Spans:</b> 1
<b>Overall Length:</b> 156'	<b>Deck Width:</b> 25.9'
<b>Year Built:</b> 1953	<b>Alteration (Date):</b> 2000
<b>Designer/Builder:</b> MSCH/Herbert C. Callahan	

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The Brooklyn Bridge #5190 carries State Route 24 over the Cathance River in Bowdoinham, Sagadahoc County. The bridge, a 1953 Warren truss, is at least the third bridge on this crossing. It is located in the southern corner of the central village, immediately west of the Maine Central Railroad corridor. The bridge is comprised of rolled section save the chords, which are built up. This configuration is a similar to the Penobscot Bridge #3790 in Chester and Lincoln and High Bridge #5188 in Rumford. The bridge is 1 of 13 Warren Thru trusses in the MaineDOT system.

Historically State Route 24 was the primary route connecting Topsham and Brunswick to the villages of Bowdoinham, Richmond, and Gardiner. The route followed Merrymeeting Bay to the Cathance River and then along the Kennebec River. The name of the bridge comes from the area immediately east of the bridge.

The prior bridge survived both a 1923 flood and the better known Flood of 1936. The MaineDOT removed it from the network in 1950 due to safety concerns. A pontoon bridge served as the crossing until 1953 when the existing bridge was put into service. The 1953 bridge utilizes a well-known technology. It was likely selected to cross the tidal Cathance River in an efficient single-span, while providing a strong enough bridge to accommodate the increased heavy truck traffic that was entering the state highway system.

The bridge did not contribute to additional development in Bowdoinham and the surrounding area. By the time of its construction in 1953 the Town of Bowdoinham was declining economically. Therefore, the bridge does not demonstrate significance under Criterion A.

The Brooklyn Bridge is eligible for the National Register under Criterion C for Engineering. The bridge is eligible because of the rarity of metal truss bridges within the MaineDOT system and because it represents the distinctive characteristics of the Warren truss type.

### **Bibliography**

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**STATE OF MAINE DEPARTMENT OF TRANSPORTATION  
Historic Bridge Survey Form – 2018 Truss Re-evaluation**

**Bridge #:** 7766<sup>1</sup>      **Bridge Name:** Madawaska #133.14      **Town:** Grindstone Township  
**Region:** 5      **County:** Penobscot      **Owner:** MaineDOT  
**NR Eligible:** Yes.      **Priority:** 4



**Feature on:** Bangor & Aroostook Railroad      **Feature under:** State Route 11 & East Branch Penobscot River  
**Type:** Truss (Thru)      **Design:** Warren (Riveted)  
**Superstructure:** Steel      **Substructure:** Granite/Concrete  
**Railing type:** 2 rail high steel channel      **Number of Spans:** 2  
**Overall Length:** 330'      **Deck Width:** 17.4'  
**Year Built:** 1925      **Alteration (Date):** 1947  
**Designer/Builder:** Bangor & Aroostook Railroad

The Madawaska #133.14 Bridge carries the Bangor and Aroostook (B&A) Railroad over the East Branch of the Penobscot River. Grindstone Bridge #0814 is the eastern approach span to Madawaska #133.14 and carries the rail line over Route 11. The approach span is a 40' girder-floorbeam bridge. Grindstone Township was first known as Plantation No. 1 in Penobscot County. The township has historically been sparsely populated with 66 inhabitants in 1870 and 97 in 1880. The township remains sparsely developed today and is largely covered with forest lands. The Madawaska #133.14 Bridge is 1 of 13 Warren Thru trusses in the MaineDOT network.

The Madawaska #133.14 Bridge was constructed in 1925. At an unknown date, a built-up vertical and diagonal member on the south side of the eastern Warren truss was replaced with rolled members. Otherwise the Warren truss spans are composed of built-up members. Built-up floorbeams and stringers carry the open deck. It sits on granite block piers and abutments.

<sup>1</sup> The Madawaska #133.14 Bridge #7766 was surveyed under the name of the Grindstone Township Bridge #0814 during Phase II of the MaineDOT Historic Bridge Survey. The Grindstone Township Bridge is a girder floorbeam bridge over Route 11. Both bridges are being considered here.

This B&A line extends from Millinocket north through Island Falls to Houlton. The B&A played an important role in the development of Aroostook County and the potato and wood products industries in northern Maine. The line was first established in 1893 in Bangor and reached Houlton in 1894, Caribou in 1895 and Van Buren in 1899. These lines, combined with additional spurs and extensions, greatly improved these industries' competitiveness and efficiency shipping to markets.

By 1947 the approach span had been modified to increase clearance over Route 11. The approach span, as shown in 1938 MaineDOT Bridge Maintenance photos, was originally a deck girder-floorbeam bridge. It sat on cut granite block abutments with the western abutment being shared with the truss span. In 1947 in order to gain more vertical clearance, the approach span was raised into a thru girder-floorbeam and the eastern abutment was reconstructed in concrete to accommodate this change.

The Madawaska Bridge #133.14 and Grindstone Township #0814 are eligible for listing in the National Register under Criteria A and C. The bridge is a contributing resource to the B&A Railroad Historic District. The B&A was determined eligible for listing in the National Register as a historic district in 2016 for statewide significance under Criteria A and C for Agriculture, Engineering, and Industry. The alterations to the truss and approach span all likely occurred during the period of significance (1893-c.1960) for the historic district and have little effect on the bridge's overall integrity. The bridge is also significant because of the rarity of metal truss bridges within the MaineDOT system and because it represents the distinctive characteristics of the Warren truss type. The bridges' period of significance is 1925-c.1960.

### **Bibliography**

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Mohney, Kirk. MHPC Concurrence, TA R7 WELS 22636.00. February 3, 2016.