STATE OF MAINE
Memorandum

Date: January 16, 2018

To: Kirk F. Mohney, MHPC
From: Julie Senk, Maine DOT/ENV
Subject: **Addendum to Supplemental Supporting Information for a Finding of Effect**
Frank J. Wood Bridge, Brunswick and Topsham 22603.00
Scope: Bridge Improvement
Finding of Effect: **Adverse Effect**

This addendum is to be considered in concert with, not in place of, the previous finding of effect filed with MHPC on February 3, 2017. It also considers correspondence between the lead federal agency, consulting parties, and the state historic preservation office/officer since the February 3, 2017 filing.

Background

Since the last Section 106 consulting parties meeting (October 27, 2016), Section 106 consultation has continued via electronic means between the Federal Highway Administration Maine Division (FHWA-ME), Maine Department of Transportation (MaineDOT), Maine Historic Preservation Commission (MHPC), Advisory Council on Historic Preservation (ACHP), and consulting parties. During that process, consulting parties asked FHWA-ME and MaineDOT specific questions regarding the individual eligibility of the Frank J. Wood Bridge (#2016), with particular interest in the bridge's role within the statewide context of truss bridges, the 1936 flood, and interurban rail line. Consulting parties and the public also requested additional information regarding the National Register-eligible Summer Street Historic District (SSHD)[1].

FHWA-ME and MaineDOT researched these points and made determinations of eligibility based on that research. Documentation of these efforts were submitted to MHPC for concurrence and to the consulting parties.[2] With regard to the Frank J. Wood Bridge, MHPC (November 16, 2017) stated that the bridge is, in their opinion, individually eligible for listing in the National Register of Historic Places under Criterion A for its local significance in Transportation for its significant association with regional interurban trolley lines. While most of the features associated with the interurban line are gone, MHPC noted that the standard width and height of the bridge, set specifically to accommodate the interurban line was adequate integrity to convey that significance. FHWA considered the new information and subsequently determined (December 11, 2017) that the Frank J. Wood Bridge is eligible for listing in the National Register as an individual resource. The bridge also remains a contributing resource to the National Register-eligible Brunswick-Topsham Industrial Historic District (BTIHD).

The finding of effect for this proposed bridge improvement project will not change as a result of the Frank J. Wood Bridge being determined an individually eligible resource. The proposed project

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[1] MHPC concurred the SSHD does not hold significant association with the Frank J. Wood Bridge and that the SSHD's period of significance (POS) ends prior to the construction of the bridge.

[2] Information was sent to MHPC in the following documents on the respective dates: Finding of Effect (February 3, 2017), Summer Street Historic District (March 17, 2017; requested by SHPO in its initial response to Finding of Effect), and a memo regarding the individual eligibility of the Frank J. Wood Bridge (October 25, 2017). MHPC replied on March 6, 2017, March 29, 2017, and November 16, 2017, respectively.

still results in adverse effects to historic properties. Effects are applied to historic properties and the Frank J. Wood Bridge has always been considered a historic property (as a contributing resource to the BTIHD). Each alternative's effects to historic properties within the Area of Potential Effect (APE) was assessed.

With the new determination that the bridge is individually eligible, FHWA-ME is documenting its updated assessment of all alternatives' effects to historic properties. The following descriptions have been updated from those included in the original finding of effect dated February 3, 2017.

No Build
No Historic Properties Affected

This alternative would result in a finding of no historic properties affected because the aspects of integrity of all properties would remain the same. The no build presumes the existing structure remains unchanged except for required regular maintenance activities.

Alternate 1 – Replacement Bridge on Existing Alignment
Adverse Effect

This alternative results in a finding of adverse effect due to the removal of the Frank J. Wood Bridge, a contributing resource to the BTIHD and an individually eligible resource. The removal represents a degradation of the integrity of design, materials, workmanship, feeling, and association of the BTIHD. As with the bridge being a contributing resource to the BTIHD, the integrity of setting of the Cabot Mill and Pejepscot Paper Company (PPC) would be diminished by removal of the individually eligible bridge, since the bridge represents one of the last remaining pieces of transportation infrastructure originating from the mills' period of significance. The Frank J. Wood Bridge would be adversely affected because of its proposed removal. The retention of the current alignment would avoid direct impacts to the Cabot Mill and PPC.

Alternate 2 – Replacement Bridge on Curved Upstream Alignment
Adverse Effect

This alternative results in a finding of adverse effect due to the removal of the Frank J. Wood Bridge, a contributing resource to the BTIHD and an individually eligible resource. The removal represents a degradation of the integrity of design, materials, workmanship, feeling, and association of the BTIHD. As with the bridge being a contributing resource to the BTIHD, the integrity of setting of the Cabot Mill and PPC would be diminished by removal of the individually eligible bridge, since the bridge represents one of the last remaining pieces of transportation infrastructure that originated during the mills' period of significance. The Frank J. Wood Bridge would be adversely affected because of its proposed removal.

Alternate 3 – Rehabilitation with Westerly Sidewalk Retention
No Adverse Effect

This alternative results in a finding of no adverse effect as the rehabilitation retains the Frank J. Wood Bridge, a contributing resource to the BTIHD and an individually eligible resource. Rehabilitation would follow the Secretary of the Interior's Standards for the Treatment of Historic Properties to include the replacement of in kind materials in the deck, superstructure, and substructure to reflect the original design of the bridge, while keeping original materials in the trusses. A finding of no adverse effect acknowledges a change to the features that qualify a

resource for listing in the National Register, but does not diminish them. The application of and compliance with the Secretary of Interior's Standards for the Treatment of Historic Properties would minimize harm to the bridge and avoid effects to surrounding resources.

Alternate 4 – Rehabilitation with Westerly Sidewalk Retention and Easterly Sidewalk Construction
No Adverse Effect

This alternative results in a finding of no adverse effect because the sidewalk addition would be designed following the Secretary of the Interior's Standards for the Treatment of Historic Properties. The new sidewalk would be constructed in a manner that is consistent with materials, type, and design of the Frank J. Wood Bridge. A finding of no adverse effect acknowledges a change to the features that qualify a resource for listing in the National Register, but does not diminish them. The application of and compliance with the Secretary of Interior's Standards for the Treatment of Historic Properties would minimize harm to the bridge and avoid effects to surrounding resources. MHPC noted in its March 6, 2017 response that it did not have adequate information to conclusively concur that the rehabilitation with a second sidewalk would result in a no adverse effect. MHPC also noted, "given the scale of the bridge, the addition of such a feature may not have an adverse effect upon it." FHWA-ME maintains that the use of the Secretary of the Interior Standard's in a way that would not alter the character defining features would not result in a finding of adverse effect because the second sidewalk would likely be cantilevered outside the trusses, retaining the width and height of the truss.

Alternate 5 – Replacement Downstream Parallel Alignment
Adverse Effect

Since the finding of effect and supplemental supporting information was submitted to the SHPO in February 2017, Alternative 5 (Replacement Bridge on Downstream Alignment) has been dismissed from further consideration. This is due to results of hydraulic analyses showing this alternative would substantially increase the base flood elevation and have substantial impacts to the Bowdoin Mill Complex.

STATE OF MAINE

Memorandum

Date: December 13, 2017

To: Kirk F. Mohney, MHPC
From: Julie Senk, Maine DOT/ENV
Project: MaineDOT WIN 22603.00 Brunswick-Topsham; MHPC #1595-15

The MaineDOT has reviewed the memo received on November 20, 2017 from the Maine Historic Preservation Commission addressing the MaineDOT's request for concurrence on the individual eligibility of the Frank J. Wood Bridge dated October 25, 2017.

The MaineDOT conducted additional research on areas of significance that were presented by a Section 106 consulting party in order to determine the individual eligibility of the Frank J. Wood Bridge. This research focused on the bridge's association with the 1936 flood, interurban history, and Boston Bridge Works. The MaineDOT concluded that the bridge was not individually eligible for listing in the National Register of Historic Places. The Commission did not concur with this determination, stating "the Frank J. Wood Bridge is individually eligible for listing in the National Register of Historic Places under Criterion A in the area of transportation."

Based on our research, the Federal Highway Administration, as the lead federal agency, has made the determination that the Frank J. Wood Bridge is individually eligible under Criterion A. Therefore, we will be moving forward with the bridge being an individually eligible resource and a contributing element to the Brunswick Topsham Industrial Historic District. This does not change the adverse effect determination for the preferred alternative.

Please contact me at Julie.Senk@maine.gov or 592-3486 if you have any questions. Thank you.

cc: CPD e-file

From:	Clarke, David (FHWA)
To:	Chase, Cassandra (FHWA)
Cc:	Martin, Cheryl (FHWA); Jorgensen, Todd (FHWA); Clarke, David (FHWA)
Subject:	RE: Review Requested for NR Eligibility of Frank J. Wood Bridge in Maine
Date:	Monday, December 11, 2017 9:51:21 AM
Attachments:	1-Historic Bridge Survey FJW.PDF 2-Initial106Packagebrunswick.pdf 3- MHPCConcurrence_6_16_16.pdf 4-Brunswick 22603.00 DOE Correspondence and Supporting Information.pdf 6-Eligibility Concurrence Request_10.25.17.pdf 7-November 16 2017 SHPO Response.pdf 5-E-mail Correspondence MHPC Consulting Parties.pdf

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Here you go, please include this as part of the administrative record and pass it on to the DOT and SHPO.

Attn: FHWA Maine Division Office,

On behalf of the Federal Highway Administration I was asked by the Maine Division Office to review and make a Section 106 eligibility determination for the Frank J. Wood Bridge. I was provided a recommendation from the Maine DOT, and other correspondences from the Maine SHPO (attached). I've reviewed all the attached documentation and put forth the following determination: The Frank J. Wood Bridge is individually eligible for listing in the National Register of Historic Places under Criteria A; the bridge is not eligible under criteria's B and D; there is insufficient information to determine if the bridge would be eligible under criteria C.

Thanks,

David S. Clarke
Federal Preservation Officer
Federal Highway Administration
1200 New Jersey Avenue, SE
Washington, DC 20590
(202) 366-2060
david.clarke@dot.gov

STATE OF MAINE

MEMORANDUM

November 16, 2017

To: Julie Senk, MaineDOT/ENV
From: Kirk F. Mohney, State Historic Preservation Officer KFM
Subject: 22603.00; Brunswick-Topsham; MHPC #1595-15

I have reviewed the information received October 26, 2017 to continue consultation on the above referenced undertaking pursuant to the Maine Programmatic Agreement and Section 106 of the National Historic Preservation Act of 1966, as amended.

The MaineDOT has asked the Commission to concur with or object to its conclusion that the Frank J. Wood Bridge is not individually eligible for listing in the National Register of Historic Places. The MaineDOT acknowledges that the structure is already considered to be a historic property as defined in 36 CFR Part 800.16(l)(1), and that it is eligible for inclusion in the National Register in accordance with Part 800.16(l)(2). Nevertheless, the MaineDOT has stated that making a determination about the bridge's individual eligibility "will better inform the Section 4(f) process and ensure utmost compliance with Section 106 and Section 4(f)." It is unclear how such a determination will affect the Section 106 process since both our office and MaryAnn Nabor of the Advisory Council on Historic Preservation have previously stated that such a distinction is irrelevant. Furthermore, the MaineDOT has not explained why it is important in the Section 4(f) process to make a distinction between a historic property's eligibility for listing in the National Register as a contributing resource in a historic district and one that is individually eligible in that same district. The Commission requests that the MaineDOT clarify the above referenced statement.

In response to my e-mail of October 4, 2017 to Phinney White, the MaineDOT conducted additional research to determine whether, in its opinion, the Frank J. Wood Bridge is individually eligible for listing in the National Register for its association with areas of significance not previously examined. The Commission's response to the MaineDOT's analysis and conclusions are as follows:

Association with Interurban History

The MaineDOT's research found that the Frank J. Wood Bridge was designed to meet minimum requirements of electric railway loading that had been set by the American Association of State Highway Officials (AASHO). Furthermore, the intended railway user – the Androscoggin & Kennebec Railway (A&K) – was responsible for a proportional share of the bridge cost. The MaineDOT concluded that the Lewiston, Augusta and Waterville Railway (whose system came under the operation of the A&K by 1919) is significant at the local level, but only for the period from c. 1900 to 1919. The subsequent history of the line through Brunswick-Topsham and its operator is not considered to be significant because the A&K "only saw the downfall of the interurbans…." The guidance in National
Register Bulletin 16A for establishing periods of significance under Criterion A states, in part, that "For properties associated with historic trends…the period of significance is the span of time

when the property actively contributed to the trend." Although the heyday of the interurban railway that served Brunswick and Topsham may have been reached prior to the construction of the Frank J. Wood Bridge, that does not mean that the railway's significance as a means of transportation ended. The fact that the bridge was designed and built to accommodate the railway and that the A&K paid for a share of the construction costs indicates that interurban service was still considered important – and viable – in 1931. Contrast this with the conditions only six years later when the A&K did decide to end service between Bath and Lisbon Falls when the State began to develop plans for a new highway between Topsham and Lewiston. In our opinion, 1937 should be considered the end date of significance for this particular interurban railway, not 1919.

The Commission concludes that the bridge is associated with "A pattern of events or a historic trend that made a significant contribution to the development of a community, a State, or the nation." (NR Bulletin 15, p.12.) The guidance in Bulletin 15 also states that "Mere association with historic events or trends is not enough, in and of itself, to qualify under Criterion A; the property's specific association must be considered important as well." Since the Frank J. Wood Bridge carried the A&K over a major river crossing (as had the predecessor bridge), it seems to have an important association with the interurban railway.

In addition to having an important association with an important event or trend, properties that are eligible for listing in the National Register must have integrity. Considered in relation to the interurban function of the Frank J. Wood Bridge, we believe that the structure fully retains integrity of location, setting and feeling. Although the design, materials, workmanship, and association of the bridge have been diminished by the removal of the original bridge deck, rails and catenary system, we nevertheless conclude that it possesses sufficient physical design characteristics - including its horizontal and vertical clearances - to convey the fact that it was not designed simply to carry two lanes of highway traffic.

For the reasons noted above, the Commission believes that the Frank J. Wood Bridge is individually eligible for listing in the National Register of Historic Places under Criterion A in the area of transportation.

Boston Bridge Works

The MaineDOT conducted additional research to ascertain whether the Frank J. Wood Bridge's association with the Boston Bridge Works (BBW) is significant, and what characteristics (if any) distinguish the bridge from one that might have been designed and fabricated by another company in this period. It determined that the bridge was designed by the Maine State Highway Commission to AASHO standards; that its standardized design does not have characteristics unique to the BBW; and that the BBW was contracted to supply the superstructure only. In addition, the MaineDOT stated that "the BBW's significance as a bridge contractor is based in

the period when it was designing smaller spans and dominating the fabrication industry." This period predates the construction of the Frank J. Wood Bridge. Based on this information, the MaineDOT concluded that the bridge's association with the BBW is not significant.

The Commission concurs with the MaineDOT's conclusion that the Frank J. Wood Bridge is not significant for its association with the BBW. Furthermore, our position takes into consideration the possibility that it may be the last remaining structure in Maine that has this association. In the absence of any specific design characteristics that are unique to the BBW and that have significance, the association with the BBW – or any other company in this period that was fabricating bridges to standardized specifications – does not meet any of the National Register Criteria. That is not to say that a bridge erected to standardized specifications in this period cannot be considered significant; rather we believe that association with a particular fabricator is not a primary area for assessing significance.

Flood of 1936

In his e-mail of August 29, 2017 Mr. White expressed his opinion that the Frank J. Wood Bridge is significant because it survived the 1936 flood. The Commission in its October 4, 2017 response came to a different conclusion. In our opinion, the fact that the bridge was present at the time of this historic event is not a significant association. Many buildings and structures existed at the time of the flood and directly experienced its effects, but we do not consider them to be individually eligible for listing in the National Register based on that fact alone.

Metal Truss Bridge Inventory

Consulting parties have questioned whether the determination in the Statewide Historic Bridge Survey that the Frank J. Wood Bridge is not individually eligible under Criterion C should be reevaluated due to the decline in the number of eligible metal truss bridges since the inventory was created. The MaineDOT has reaffirmed its position that the Frank J. Wood Bridge is not eligible under Criterion C because "it does not embody distinctive characteristics of the type; nor was its design innovative."

The Commission has previously stated that the metal bridge inventory should be revisited and updated, and that the original survey and inventory methodology should be reviewed. As the population of metal bridges in Maine declines, a point may be reached when the remaining examples, regardless of whether their design is innovative or not, will come to "Embody distinctive characteristics of a type, period, or method of construction" and be eligible for listing in the National Register under Criterion C. However, at this time the Commission does not have sufficient information to either concur with or object to the MaineDOT's conclusion that the Frank J. Wood Bridge is not individually eligible under Criterion C.

If you have any questions regarding our comments, please do not hesitate to contact me.

STATE OF MAINE

Memorandum

Date: October 25, 2017

To: Kirk F. Mohney, MHPC
From: Julie Senk, Maine DOT/ENV
Subject: Section 106 request for concurrence
Project: Brunswick/Topsham 22603.00, MHPC#1595-15

The Maine DOT has reviewed this project pursuant to the Maine Programmatic Agreement (PA) and Section 106 of the National Historic Preservation Act of 1966, as amended.

This request for concurrence is related to the bridge's potential individual significance. On June 16, 2016, MHPC concurred with MaineDOT's determination that the Frank J. Wood Bridge was a contributing element to the National Register eligible Brunswick Topsham Industrial Historic District. However, to date, MHPC has not taken a position on the individual eligibility of the Frank J. Wood Bridge. Due to new information presented by a Section 106 consulting party, MaineDOT has revisited this determination and is resubmitting a request for concurrence on the individual eligibility of the Frank J. Wood Bridge. Although the Frank J. Wood Bridge has already been determined to be historic under Section 106, as it is a contributing element to the Brunswick Topsham Industrial Historic District, determining the Frank J. Wood Bridge's individual eligibility will better inform the Section 4(f) process and ensure utmost compliance with Section 106 and Section 4(f).

In accordance with 36 CFR Part 800.4, the following identification efforts of historic properties were made:

800.4(c) – The Maine DOT researched significance using the resources on the included bibliography. **The MaineDOT has determined that the Frank J. Wood Bridge #2016 is not eligible for listing as an individual property. The bridge remains eligible for listing in the National Register as a contributing resource to the Brunswick Topsham Industrial Historic District.**

In accordance with the PA and 36 CFR Part 800, please reply with your concurrence or objection to the determination made for the Frank J. Wood Bridge as an individual property within 30 days.

Please contact me at Julie.Senk@maine.gov or at 592-3486 if you have any questions.

Thank you.

cc: CPD e-file
enc: Kleinfelder memorandum, dated 10/25/17

M E M O R A N D U M

TO:	Julie Senk, Cultural Coordinator; MaineDOT
FROM:	Kate Willis, Architectural Historian; Kleinfelder
DATE :	October 25, 2017SUBJECT: Brunswick 22603.00
CC:	David Gardner; MaineDOT, Amanda Taylor; Kleinfelder, file
ENCL:	1931 Plans, Frank J. Wood Bridge

This memo is in response to discussions with FHWA-ME and MHPC regarding the history of the Frank J. Wood Bridge, looking particularly at potential associations with an interurban trolley line and the Boston Bridge Works. Information was presented to MHPC by a consulting party, Phinney White, from August 29, 2017 to September 29, 2017.[1]

BACKGROUND

This memo is a continuation of information presented in the Section 106 Determination of Effect for MaineDOT Brunswick 22603.00 regarding potential individual significance of the Frank J. Wood Bridge. Within that determination, dated February 6, 2017, MaineDOT and FHWA-ME determined that the Frank J. Wood Bridge was not eligible for listing as an individual resource under Criteria B & C. Conclusions from the February 6, 2017 determination are summarized below.

A property must have association with an individual's (or entity's) productive life in order to be eligible for listing in the National Register under Criterion B. While the Frank J. Wood Bridge was named after the man who proposed its alignment, Mr. Wood's productive life was as a farmer. Therefore, the bridge does not have significance for this association.

Additionally, the consulting parties asked whether or not the bridge now had significance under Criterion C due to the reduction of the number of truss bridges within the state since the completion of the historic bridge survey in 2004. MaineDOT and FHWA-ME maintains that the bridge is not eligible as an individual resource under Criterion C because it does not embody distinctive characteristics of the type; nor was its design innovative. We also considered guidance from National Register Bulletin 16A regarding rarity.

RECENT DEVELOPMENTS

[1] *This memo shall be considered with all other submitted documentation regarding Section 106 for Brunswick 22603.00 to date. This includes, but is not limited to, the Architectural Survey materials, MHPC requests for additional information, and the Determination of Effect.*

On August 29, 2017, in an email to MHPC, Mr. White stated his opinion that three areas warranted new consideration: the bridge's association with the Boston Bridge Works, the 1936 Flood, and the unique characteristics of a bridge carrying a trolley line in the center of the deck.

This memo will specifically address questions posed by MHPC in its response to Mr. White on October 4, 2017. These questions are outlined below.

In addition to utilizing Maine specific resources, we reached out to the Massachusetts Department of Transportation (MassDOT), the Vermont Agency of Transportation (VAOT), and the Nevada Agency of Transportation as well as the National Register Coordinators in Kansas and Louisiana regarding documentation that the respective agencies may have on the subjects of this memo, particularly updated contexts for metal truss bridges. To date, New Hampshire has not completed a survey of pre-1945 bridges and were therefore not contacted as part of this effort.

MassDOT provided examples of HABS/HAER documentations it has found useful in recent eligibility determinations as well as "Boston Bridge Works and the Evolution of Truss Building Technology." The work is an undergraduate thesis by Greg Galer and cited in some materials, particularly HAER documentations, investigated as part of this effort.

VOAT sent us the Vermont Division of Historic Preservation (VTDHP)'s Metal Truss, Masonry, and Concrete Arch Multiple Property Documentation Form (MPDF), which was accepted by the Keeper of the National Register in 1991. VOAT also directed us to VTDHPs Online Resource Center (ORC). The ORC provides the public with many different materials relating to compliance and historic preservation issues applicable to the state of Vermont. Within the ORC we found the "Vermont Historic Metal Truss Bridge Survey Final Report and Preservation Plan, October 1997." The report provides valuable, specific information about metal trusses as well as preservation plans for some.

NevadaDOT sent "Indiana Bridges Historic Context 1830s-1965", "Historic Context and National Register Evaluation of New Mexico Department of Transportation Bridges", and a copy of "A Context for Common Historic Bridges Types" NCHRP Project 25-25, Task 15.

The National Register Coordinators did not have any specific material to provide.

MHPC QUESTIONS and MAINEDOT/FHWA-ME RESPONSES

1. *Above and beyond its significance as a contributing part of the eligible historic district, is the bridge associated with other events that have made a significant contribution to the broad patterns of our history (National Register Criterion A)? In other words, are there areas of significance that have not been considered with which the bridge has an important historic association?*

   ### 1936 Flood

   Regarding Mr. White's opinion that the bridge may have individual significance due to its performance during the 1936 Flood, MHPC wrote:

> As you have noted, the Frank J. Wood Bridge survived the 1936 flood because it had been engineered to do so. We agree. However, in our opinion that does not necessarily make it significant. The bridge did what it was designed to do, much as a house is designed to provide shelter or an industrial building is designed to meet the needs of a particular manufacturing process.

We agree with this statement and find that the bridge does not hold significance in association with the 1936 Flood, because the Frank J. Wood Bridge was built in 1931, prior to the 1936 Flood. With regard to National Register Criterion A, the ability of a bridge to survive a flood does not constitute significance in association with an important event/trend in history. Therefore, the Frank J. Wood Bridge would not be individually eligible for listing in the National Register for its relationship with the 1936 Flood.

Other Considerations under Criterion A

We examined whether or not a three-span truss bridge would be eligible for listing under Criterion A for Transportation without any documented association with a particular event or pattern of events while also considering that the bridge does not hold any significance under Criterion C. More simply, would a three-span truss have significance under Criterion A for Transportation because it is a three-span, but had no other association? We know of no example in Maine or New Hampshire of a bridge that fit this definition, nor could one be found in Massachusetts. We, therefore, examined the reports acquired from Vermont to ascertain if any bridge in that state was found significant solely for its role as a bridge, but not associated with any particular event or pattern of events nor for its engineering significance.

Based on information in the MPDF and the historic truss survey, many truss bridges are significant because of association with a specific event, particularly as part of Vermont's recovery from the devastating November 1927 flood. The state lost approximately 2000 bridges and most were replaced in two years. As of 1997, Vermont had 111 truss bridges left, 54 of which were built after and in response to the 1927 Flood, and are associated with the 1927 Flood.[2] We sampled at least 15 truss bridges (by type, locations, and year constructed) to review their individual survey form and preservation plan. We did not find a single example of a bridge holding significance under Criterion A without association with a specific event or pattern or events and were not eligible under Criterion C. Most, if not all, were eligible under Criterion A due to association with the 1927 flood recovery.[3]

Interurban History

We also examined the history of the bridge in the context of Maine's interurban lines. Interurban lines were born of city trolley lines. The roots of the line that the Frank J. Wood Bridge carried began in 1889 with the incorporation of the Brunswick Electrical Railway (aka. Brunswick & Topsham Electrical Railway). The line provided local service from the

[2] *For context – Vermont has approximately 4000 bridges.*

[3] *VOAT confirmed that a bridge's inclusion within the 1997 survey does not automatically lead to National Register eligibility.*

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Sagadahoc Fairground in Topsham, through Brunswick, and south to Harpswell. Its charter dictated construction must be finished in 1894; however, the company was granted two extensions. In 1895 Amos Gerald, of Fairfield, who would become known as "Electric Railroad King of Maine" purchased the charter.[4] Noted electric rail historian O. R. Cummings noted that the railway was required to strengthen the existing bridges over the Androscoggin River and Granny Hole Stream.

In 1897 Gerald, having by that time assumed control of the Bath Street Rail and the Lewiston & Auburn Horse Railroad, approached the legislature for approval of a charter for a line connecting Bath, Brunswick, and Lewiston. With approval in hand, he renamed the three lines the Lewiston, Brunswick, and Bath Railway (LBB). The line ran 18 miles in length. O. R. Cummings notes that Gerald always intended to sell the LBB.[5] In 1900 Gerald sold the LBB to a group of men from New York City. While the NYC group decreased debt from $13,275 to $4,000 in one year, they only paid small dividends in the next few years and continued to carry a small amount of debt.

The year of 1906 proved important for the LBB. A group headed by John R. Graham, of the Bangor Railway & Electric Company, absorbed the LBB along with three other lines: Augusta, Winthrop, and Gardiner Railway (AWG), Auburn, Mechanic Falls, and Norway Railway (AMN), and Augusta & Waterville Railway (AW). The following year Graham changed the name of AMN to the Lewiston, Augusta, and Waterville Railway (LAW), which in turn absorbed the ACH, AW, and the LBB. The AWG became the Augusta Division of the LAW while LBB became the Lewiston & Bath Division. In 1910 and 1913, the LAW absorbed the Auburn & Turner Railway and the Brunswick & Yarmouth Railway, becoming the Lewiston and Freeport divisions, respectively. By 1911, the LAW had expanded to 144 miles providing connection between Bath, Lewiston/Auburn, Augusta, and Waterville.[6] In *The Electric Interurban in America*, George Hilton notes that 1913 was the peak year for the LAW. He also described the LAW as "one of the principal electric railways in Maine."[7]

For context, while the charter for the Portland interurban had been issued, Portland and surrounding towns were still being served by a collection of local lines connecting to Brunswick and Lewiston. The Portland and Lewiston interurban would not open until 1914.[8] Bangor's electric rail trolleys would run until 1945.

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[4] *Cummings, O.R. "Trolleys to Brunswick, Maine 1896-1937." Transportation Bulletin, No.73, 1966, 4.*

[5] *Like many trolley lines of the time, the locals and the LBB were in part meant to provide access to a leisure park. Gerald had developed Merrymeeting Park; but it was out of business by 1906.*

[6] *Cummings, Trolleys to Brunswick, Maine, 15.*

[7] *Hilton, George Woodman and John F. Due. The Electric Interurban in America. Stanford, CA: Stanford University Press, 1960, 323.*

[8] *The Portland & Lewiston ceased operations by 1933 and its infrastructure was immediately removed and scrapped. Cummings, Portland-Lewiston Interurban, 2.*

From 1907 to 1917 the LAW was profitable; however, in 1918 troubles began. Workers went on strike and a deficit began to grow, even with a toll raise. By 1918, LAW went into receivership with approximately $132,000 in debt, including $39,000 to the Cumberland County Power & Light. By 1919, the LAW had dissolved and the system was under the operation of the Androscoggin & Kennebec Railway (A&K). It is unclear if the A&K is a result of company restructuring along with a name change or represents a purchase of assets and debt by another group. It could be some of both. Most importantly, the A&K only saw the downfall of the interurbans – there was no documented expansion of their holdings in its 21 year history.

The A&K saw a few good early years. In 1920, the lines carried 12,842,576 passengers and reported a $69,321 profit. O. R. Cummings notes a sharp drop in 1922 which only worsened in the following years. The decline is attributable to losing a battle with the rise of the automobile, courtesy of improved highways, which would often require the realignment of track. In 1927, the A&K carried only 7,863,810 passengers. The A&K's approach to mitigating financial losses was to examine abandonment of certain lines. In 1928, the Winthrop line was the first one decommissioned. When the state announced plans in 1931 to improve Route 201 north of Augusta to Waterville, the A&K elected to abandon the lines rather than expend monies to relocate in a time of degrading financial performance and relevancy. At the same time, the company had $55,500 in outstanding mortgage bonds for the previous AWG. The company was ordered to liquidate and it abandoned lines from Augusta south to Gardiner and Sabattus. The tracks, overheads, and cars, including plows, were sold to a company in New York. Interestingly, the A&K removed the tracks and overhead between Gardiner and Sabattus and Augusta and Waterville even though they were not included in the mortgage that had been defaulted on. Presumably, these resources were also sold to generate much needed revenue. These actions completely removed the Kennebec division of the A&K. These efforts could not stave a company loss; by 1930 the A&K saw its first deficit, $17,423, followed by $29,711 in 1931.

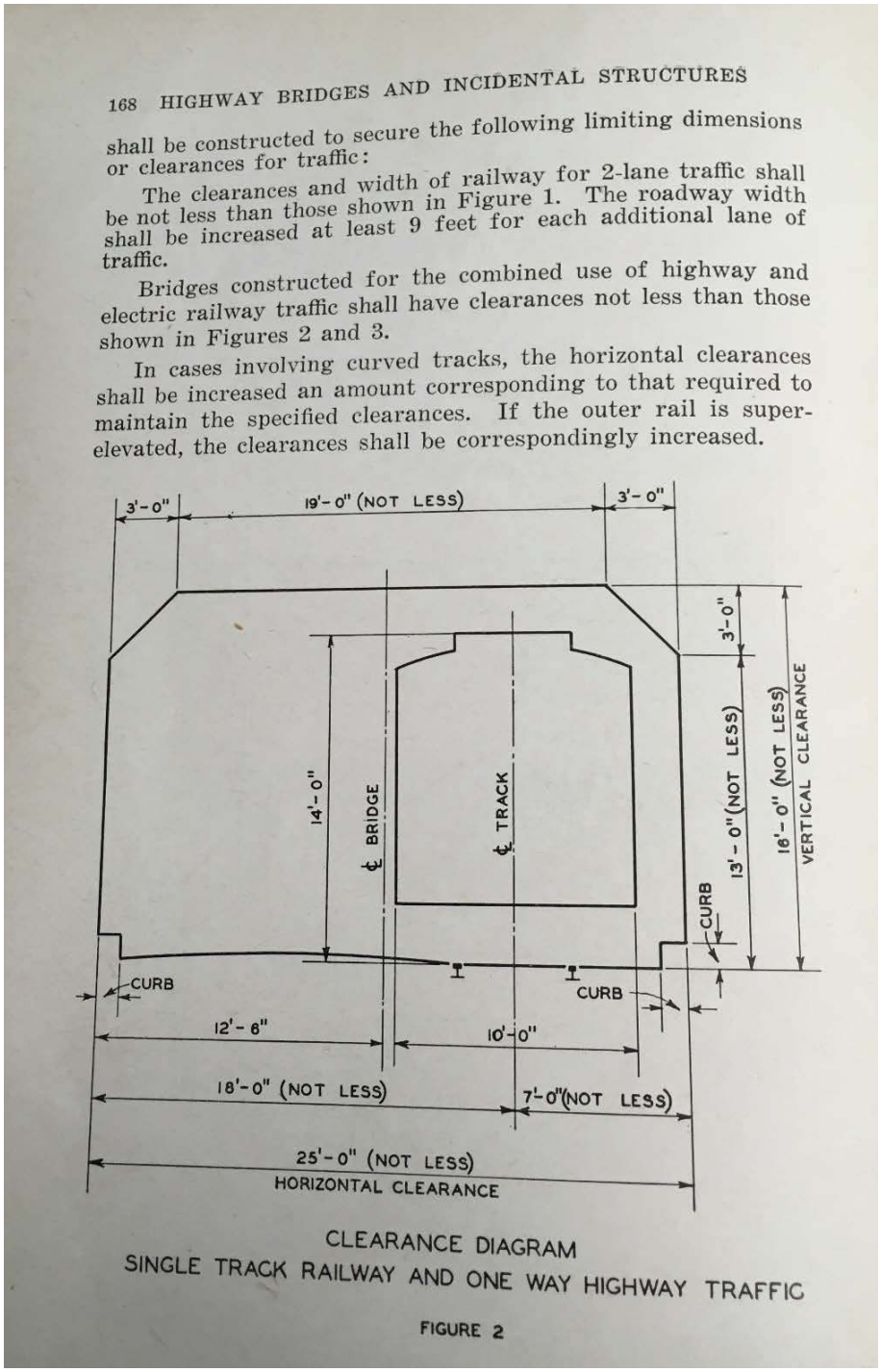
Additionally, when the Frank J. Wood Bridge was constructed, the A&K railway was responsible for a proportional part of the expense. In 1937, the state looked to construct a new highway between Lewiston and Topsham (State Route 196) which would greatly impact the A&K. At this time, the A&K decided to end service between Bath and Lisbon Falls. It was likely that the electric railway infrastructure was removed soon afterward. The A&K went into receivership in 1940 and on January 10, 1941 its assets were auctioned. Service between Lisbon Falls and Lewiston continued until 1941, when bus service replaced it.

Circa 1930-1931, Maine State Highway Commission (MSHC) realized that the bridge crossing the Androscoggin River between Topsham and Brunswick was failing. Originally the commission had planned to replace it on alignment; however, a small group successfully persuaded the commission to realign the bridge in part to eliminate a smaller crossing north of the Pejepscot Paper Company while hoping to increase the potential energy of the horseshoe dam by enlargement. It is unclear what bridge type the MSHC planned for the on-alignment replacement. The change in alignment necessitated MSHC to alter the design and engineering of the bridge without delaying the replacement any

more than absolutely necessary. The MSHC would have likely looked to a design that was efficient and known, as well as using the American Association of State Highway Officials (AASHO) standards (the precursor to today's AASHTO standards). Galer correctly identifies that "truss bridges could usually be erected more quickly and less expensively for longer spans than reinforced concrete bridges."[9] Another facet of the crossing was incorporating the A&K interurban line.

By 1931, MSHC had specific guidance on how to incorporate an electric railway on to a bridge. The 1931 AASHO standards provided the specification for minimal vertical and horizontal clearances as well as specific loads for a bridge carrying a single-track railway with one-way highway as well as for a single-track railway with a two-way highway. (*See Photo 1: Section 5.2.11 – Electric Railway Loading, Photo 2: Clearance Diagram Electric Railway and Two Way Highway and Photo 3: Electric Railway Loading*). The Standard even contains a section directing commissions how to distribute the railway wheel load.

[9] Lichtenstein Consulting Engineers. *MaineDOT Historic Bridge Survey Phase II Final Report & Historic Context.* Augusta, ME: MaineDOT, 2004, III-14.



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shall be constructed to secure the following limiting dimensions or clearances for traffic:

The clearances and width of railway for 2-lane traffic shall be not less than those shown in Figure 1. The roadway width shall be increased at least 9 feet for each additional lane of traffic.

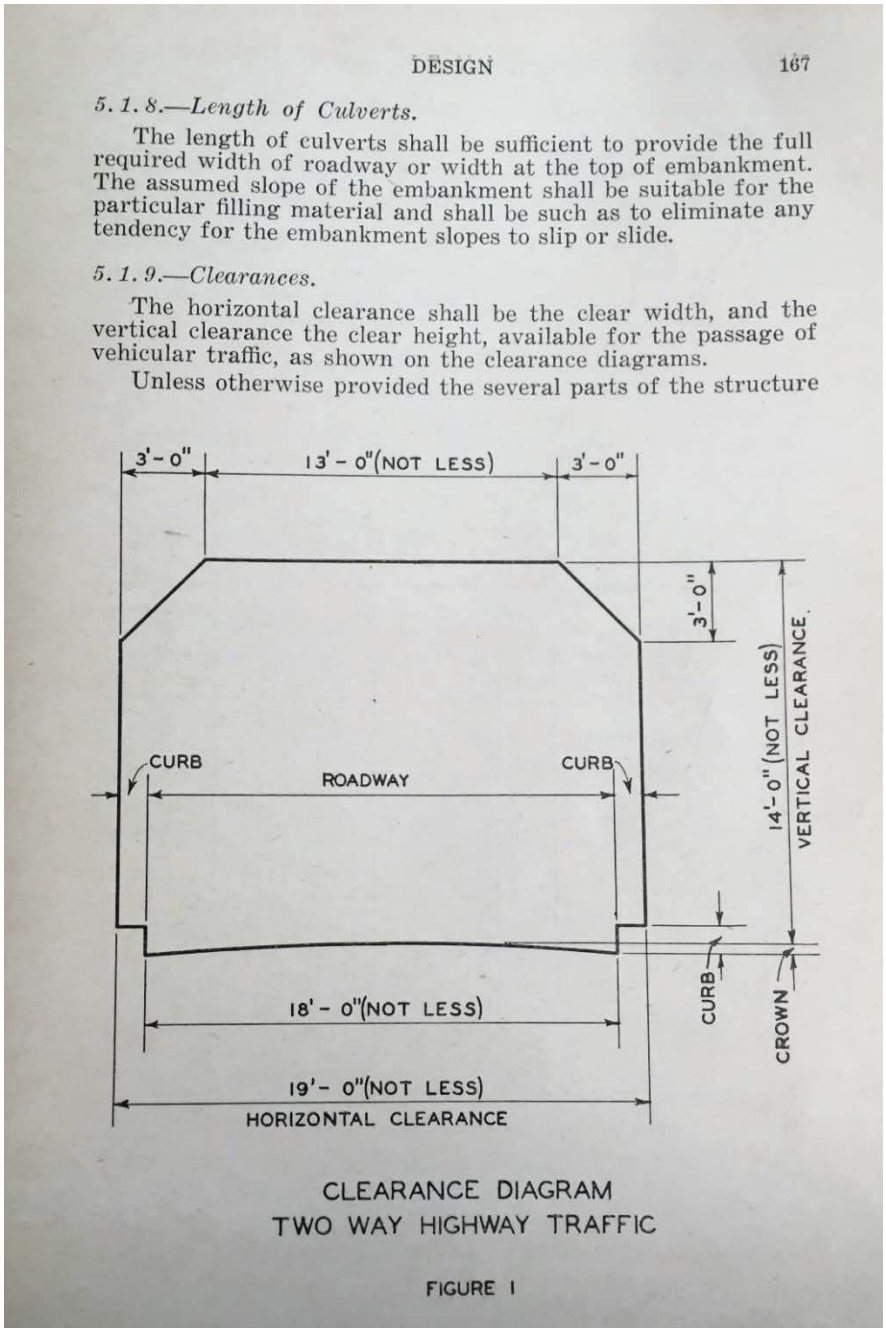
Bridges constructed for the combined use of highway and electric railway traffic shall have clearances not less than those shown in Figures 2 and 3.

In cases involving curved tracks, the horizontal clearances shall be increased an amount corresponding to that required to maintain the specified clearances. If the outer rail is super-elevated, the clearances shall be correspondingly increased.

CLEARANCE DIAGRAM
SINGLE TRACK RAILWAY AND ONE WAY HIGHWAY TRAFFIC

FIGURE 2

Photo 1: Clearance Diagram for electric railway with one way highway



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5.1.8.—Length of Culverts.

The length of culverts shall be sufficient to provide the full required width of roadway or width at the top of embankment. The assumed slope of the embankment shall be suitable for the particular filling material and shall be such as to eliminate any tendency for the embankment slopes to slip or slide.

5.1.9.—Clearances.

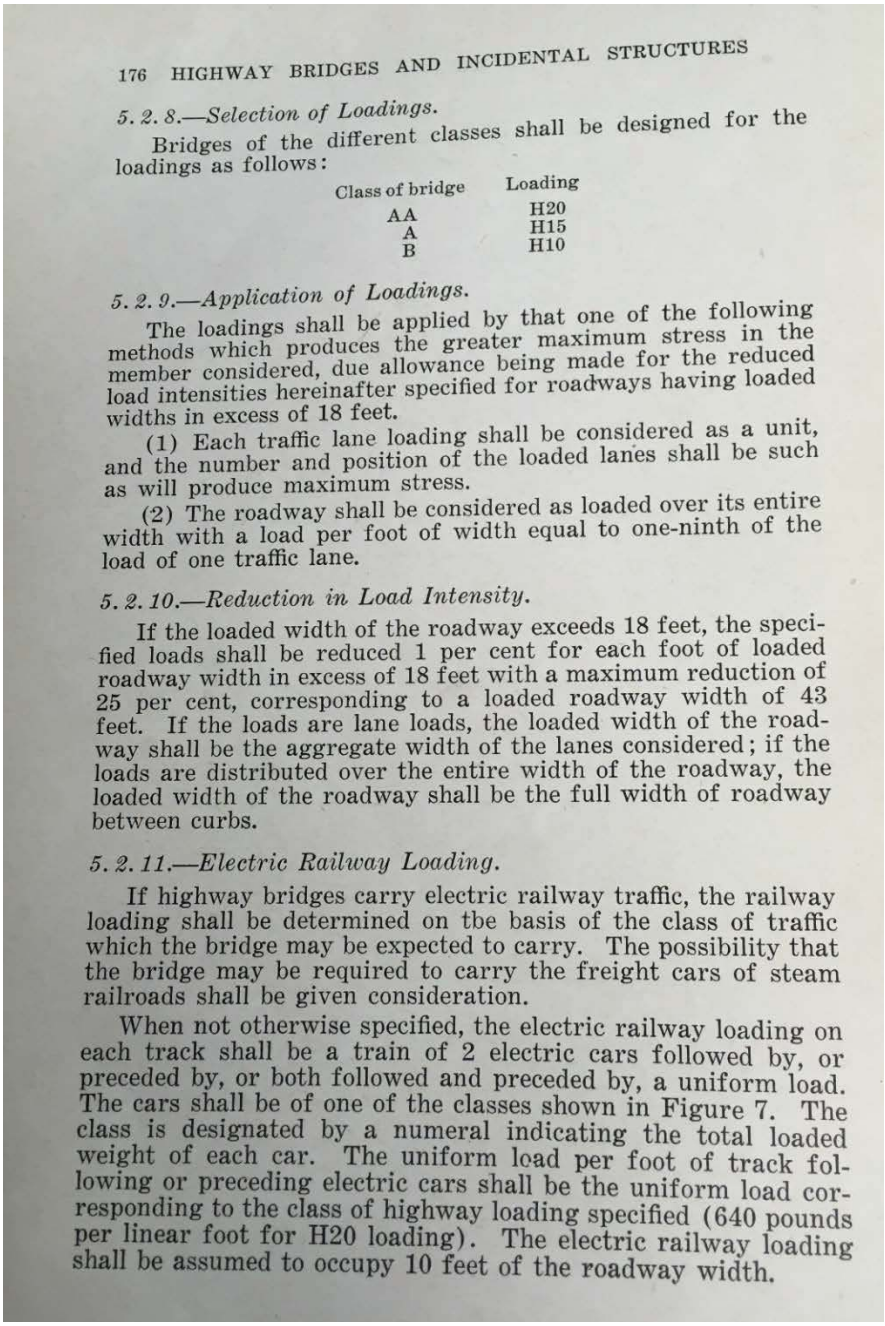
The horizontal clearance shall be the clear width, and the vertical clearance the clear height, available for the passage of vehicular traffic, as shown on the clearance diagrams.

Unless otherwise provided the several parts of the structure

CLEARANCE DIAGRAM
TWO WAY HIGHWAY TRAFFIC

FIGURE 1

Photo 2: Clearance standard for electric railway with two way highway.



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5. 2. 8.—Selection of Loadings.

Bridges of the different classes shall be designed for the loadings as follows:

Class of bridge	Loading
AA	H20
A	H15
B	H10

5. 2. 9.—Application of Loadings.

The loadings shall be applied by that one of the following methods which produces the greater maximum stress in the member considered, due allowance being made for the reduced load intensities hereinafter specified for roadways having loaded widths in excess of 18 feet.

(1) Each traffic lane loading shall be considered as a unit, and the number and position of the loaded lanes shall be such as will produce maximum stress.

(2) The roadway shall be considered as loaded over its entire width with a load per foot of width equal to one-ninth of the load of one traffic lane.

5. 2. 10.—Reduction in Load Intensity.

If the loaded width of the roadway exceeds 18 feet, the specified loads shall be reduced 1 per cent for each foot of loaded roadway width in excess of 18 feet with a maximum reduction of 25 per cent, corresponding to a loaded roadway width of 43 feet. If the loads are lane loads, the loaded width of the roadway shall be the aggregate width of the lanes considered; if the loads are distributed over the entire width of the roadway, the loaded width of the roadway shall be the full width of roadway between curbs.

5. 2. 11.—Electric Railway Loading.

If highway bridges carry electric railway traffic, the railway loading shall be determined on tbe basis of the class of traffic which the bridge may be expected to carry. The possibility that the bridge may be required to carry the freight cars of steam railroads shall be given consideration.

When not otherwise specified, the electric railway loading on each track shall be a train of 2 electric cars followed by, or preceded by, or both followed and preceded by, a uniform load. The cars shall be of one of the classes shown in Figure 7. The class is designated by a numeral indicating the total loaded weight of each car. The uniform load per foot of track following or preceding electric cars shall be the uniform load corresponding to the class of highway loading specified (640 pounds per linear foot for H20 loading). The electric railway loading shall be assumed to occupy 10 feet of the roadway width.

Photo 3: Electric Railway Loading

The 1931 plan set shows that the MSCH planned the bridge to meet the minimums required by AASHO. There was no technological innovation required on the part of Max Wilder and those who worked under him. Additionally, the tracks have since been removed. These facts quickly rule out individual eligibility under Criterion C for Engineering. This is because by the time the MSCH was designing the Frank J. Wood Bridge, the use of national standards had been in practice for nearly twenty years. The

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incorporation of an electric railway onto the crossing did not require technological innovation nor does it stand out within the greater context of the rich history of electric railway within the state. A national body instructed MSHC designers exactly how to move electric railcars over a crossing and the MSCH followed that guidance to the bare minimum.

National Register Criteria & Integrity

The history of the interurban and the bridge's construction need to be considered against National Register Bulletins 15 (Bulletin 15) and 16A (Bulletin 16A) to understand if the bridge has significance under Criterion A and integrity to be eligible for listing as an individual resource.

The LAW is significant on a local level for its contributions to a specific period in Transportation. The LAW represents the peak of the interurban trend. It is significant because it linked three smaller lines and brought each area's burgeoning suburbs together. Its period of significance would be ca. 1900 to 1919, coinciding with the construction of the 18 miles of track necessary to connect the individual city based trolley services, and would end when the company entered receivership, marking its eventual downfall to automobiles. The A&K, while it had two good years, is mostly associated with the downfall of the trend, and was not the last operational electric railway.

The physical features of the LAW would include: tracks, rolling stock, catenary/high tension wire system, poles, car houses, waiting rooms, and power generating facilities. Evidence of these resources would ideally be found in the original corridors (also physical features) in the middle of highways, including any crossings (rivers/valleys) or linear corridors constructed specifically for the railways. However, the LAW does not retain any of the essential physical features that made up its character in its period of significance. Therefore, it does not hold any aspects of integrity and cannot convey its significance.

As the Frank J. Wood Bridge is not part of the LAW, it is not considered a significant resource. However, in the event that additional information is found regarding potential significance of the A&K that illuminates it continued to gain character and association within the transportation trend not represented by the LAW or its predecessors, it would still be considered a contributing resource to a historic district as it lacks individual distinction. It does so due to the commonality and availability of standardization.

While we understand there are few resources associated with interurbans, it is our interpretation of Bulletin 15 that this bridge does not fit guidance regarding rare examples. We find that the bridge on its own, even considering guidance on rare examples, does not fit the definition of an individual resource – regardless of the difference in significance or lack thereof between the LAW and the A&K. Additionally, particularly as the bridge is a standard design, it does not represent or hold essential physical features, especially without tracks or catenary, to retain integrity to adequately convey significance of the A&K, if it were ever found to have significance.

2. *How important is the fact that the bridge was erected by the Boston Bridge Works, regardless of whether it is the last one in Maine? In addition, what characteristics of this*

bridge distinguish it from one that might have been designed and fabricated by any other bridge company in this period, and are those distinguishing characteristics – if any – significant (National Register Criterion C)?

It is more important to understand the significance of the company throughout its existence before fully understanding whether or not a "last" bridge can be significant because of that standing.

The early history and significance of the Boston Bridge Works (BBW) is better understood than in its later years. Information is found in resources by National Register nominations and HAER documentations (available through the Library of Congress). The Library of Congress has included an index function for the company within the HABS/HAER collection. The 9 BBW bridges documented in HAER all are from the earliest period of the company having been built in the late 19th century. The MPDF includes the following regarding the firm, "In the late 19th century this firm ranked second in New England to Berlin Iron Bridge in structural-fabrication capacity…movable bridges were a specialty, and its products also included railroad turntables and roof trusses."

There are no features of the Frank J. Wood Bridge built by the BBW that distinguish it from any other bridge company in this period. This is because the bridge was designed to standard by the MSHC. The MSHC looked only to BBW for the truss pieces. The BBW's significance as a bridge contractor is based in the period when it was designing smaller spans and dominating the fabrication industry. Staff engineers likely concentrated on bridges that could be ordered out of a catalog by a railroad company or other entity. No BBW catalogs have been found to date. BBW, as with many other steel fabrication firms, often installed a bronze plaque on bridges. They are common and while interesting pieces of our shared history, they are not considered character defining features due to their ubiquity. In his thesis, Greg Galer notes, "Bridge companies often had standard decorative pieces that acted as signatures of the company."[10]

Another issue to understand is the role of BBW in bridge design, fabrication, and construction after 1930. Galer presented three methods of constructing a truss bridge during the era of bridge companies. One, the company did the majority itself – fabrication and design, including substructures. Two, the fabricator would hire 'bridge-brokers' – those who specialized in construction. They delivered the bridge pieces and were responsible for the piers and abutments. Third, the companies would hire local men for construction, including a foreman, to construct the bridge from materials the company would ship to the site. Based on the research for this effort, it is likely the BBW had very little to do with the construction of the bridge, if any at all.

It is clear, based on the known history of bridge design and technology as well as conclusions reached by Galer in his thesis that truss fabrication and associated companies were waning by this time. By 1930, Galer states, "All evidence of the BBW disappeared from the Boston City Directory. . . The last known structure to be built by the company was

[10] *Galer, 81.*

in 1937 [with] evidence the company went out of business in 1938."[11] Additionally, Galer found the company obtained permits to demolish a large building at its facilities in Cambridge in 1936, likely the result of a large fire in 1932.

The Frank J. Wood Bridge was designed by MSHC engineers – as indicated by the 1931 set found at MaineDOT, which falls into the pattern of design at that time. Additionally, the MSCH annual report notes that Southern New England Contractors Supply was paid $294,000 for the superstructure and floor slab and that the BBW was paid for the steel superstructure.[12] The plan set indicates the size of members, the load they should carry, and details, like a sidewalk. While BBW may have produced shop drawings for the fabricating effort, it had exact guidance from the MSHC.

The MSHC had exacting guidance as well. In the years prior to the construction of the Frank J. Wood Bridge, standardization had become the norm in bridge engineering. In fact, nearby Vermont had lead the way in standardization for engineering during flood recovery in 1928-1929. With a rapidly failing bridge, the MSHC needed to quickly change designs on short notice to meet construction deadlines. It is likely that MSCH turned to a familiar type – a Warren truss. Engineers were also required to design the bridge to the AASHO standards for both the highway and interurban (even if the interurban, by this time, was struggling). The bridge is a standardized design using parameters produced by a semi-governmental agency.

As a result, the Frank J. Wood Bridge does not represent the work of the BBW during its period of significance; therefore, it is not eligible for listing in the National Register for its association with the company.

In conclusion and in consideration of materials used in research to date for this project, we determined the bridge remains ineligible for listing on the National Register of Historic Places as an individual resource because it is not individually distinctive under any criteria. Integrity is typically examined if a property is significant. Nevertheless, the loss of the interurban infrastructure, particularly the tracks and catenary system on the bridge represents a loss of integrity. The integrity of the standardized width and height of the highway/interurban bridge cannot overcome the loss of the tracks, catenary, cars, and other infrastructure associated with the resource. However, the Frank J. Wood bridge remains a contributing resource to the Brunswick Topsham Industrial Historic District.

[11] *Galer, 54.*

[12] *1931-1932 MSHC Annual Report.*

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