

**BRUNSWICK-TOPSHAM BRIDGE
DESIGN ADVISORY COMMITTEE**



**PRELIMINARY
REPORT
on
DESIGN
RECOMMENDATIONS**

Connecting Two Great Villages



The Brunswick – Topsham Bridge Design Advisory Committee (DAC or Committee) is pleased to present this Preliminary Report on Design Recommendations. The purpose of this report is update the communities and spur public interest by setting forth the Committee’s current vision, design suggestions, underlying rationales, and broad conclusions regarding the new upstream curved bridge alternative preferred by the Maine Department of Transportation (MaineDOT) and the Federal Highway Administration (FHWA).

The Committee has worked hard to solicit input from a broad array of constituencies and would welcome additional comments now and in the future. As the DAC anticipates that it will have an opportunity formally present this report in the coming month, comments received before mid-September would aid the Committee in preparing for that presentation.

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EXECUTIVE SUMMARY

This is an exciting time for Brunswick and Topsham. We have a once-in-a-century opportunity to influence the function, look and feel of the new bridge and the Pejepscot Falls site. As envisioned below, the preferred new low-profile bridge will open new vistas and will fit comfortably into the site. It will be beautiful, durable, cost effective, functional and inviting to all users.



The Design Advisory Committee (DAC) appointed last year by the town governments of Topsham and Brunswick recommends that the new bridge connecting the two village centers have a low-profile design that maximizes open vistas of the Androscoggin River and waterfront mills, and that accommodates equally well people who drive, walk and cycle across the bridge.

Equally important, we recommend that the bridge be designed as a bridge connecting two active villages. Efforts should be made in the design to keep motor vehicle traffic speeds on the new bridge appropriate to residential, recreational and commercial activities in the two villages. Walkers and cyclists should feel as comfortable on the bridge as those in motor vehicles.

We believe this new bridge can create a stronger connection between the two communities, as gorgeous views are rediscovered and people are newly attracted to the area. Scenic overlooks, parks at either end of the bridge, and intersecting trails will better connect us with the natural beauty and historic importance of this special site. They should make the bridge a place of pride for both towns and the State.

Summary of Recommendations

More specifically, we recommend that the new bridge incorporate the following design elements. These design recommendations have been discussed with MaineDOT and we appreciate their agreement with these features.

- There should be sidewalks on both sides of the bridge. Walkers should no longer need to cross Main/e Street at both ends of the bridge, which today can be dangerous, especially for people who are the elderly, disabled, or accompanied by small children.
- There should be safe and adequate bicycle lanes on both sides of the bridge.
- We recommend the width of the bridge should be allocated as follows (see image 1.1 Bridge Cross Section):
 - Two 11-foot motor vehicle lanes,
 - Two 5-foot shoulder/bikeways, and
 - Two 6'-4" sidewalks.

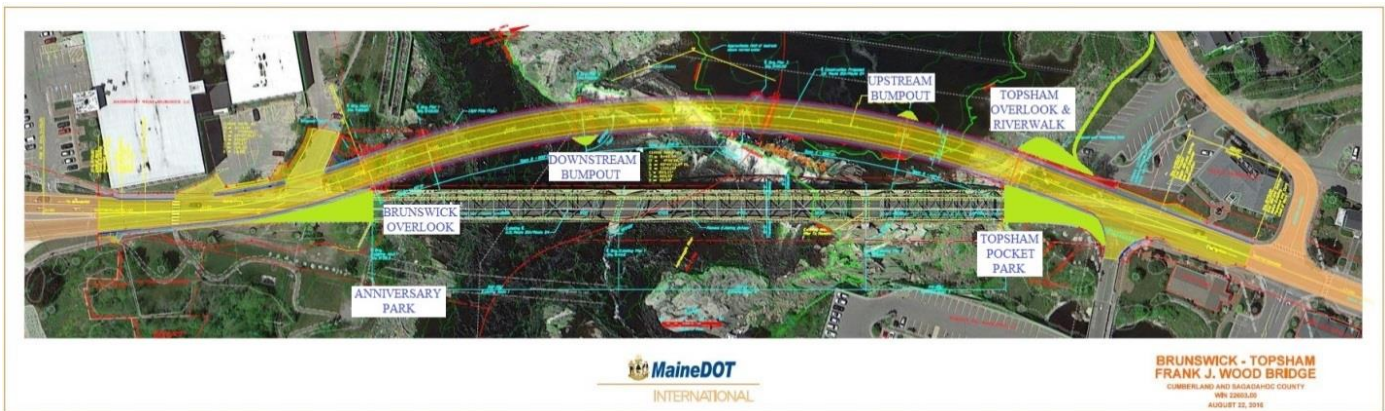


- We recommend that the bridge railings have a solid concrete lower portion with recessed arch-shaped insets with a smooth finish, a black metal rail upper, concrete posts with a recessed gray brick imprint, and black curved lampposts incorporated within the concrete posts. This wall / railing will meet crash standards, acknowledge area architecture,

recognize that the bridge was also designed for pedestrians, screen headlights, and be aesthetically pleasing.

- We recommend that the bridge not have an interior rail separating the shoulder/bikeway and the sidewalk. An interior rail is not necessary for public safety, would needlessly use precious bridge width, would make bicycling less comfortable on the shoulder and thus push cyclists toward the vehicle lanes, or onto the sidewalks, and could cause other unintended safety issues from people jumping over or sitting on an interior rail.
- To calm traffic and better delineate spaces for people who walk or bike, we recommend that the shoulder / bikeway be colored brick red. This color is timeless, contrasts with the simple brushed concrete finish recommended for the sidewalk surface, matches the brick walls of the nearby Cabot Mill, and will coordinate with possible enhanced surface treatments on bumpouts and overlooks.
- We recommend the design incorporate two large, crescent-shaped bumpouts on the bridge sidewalks. The upstream or westerly bumpout we recommend to be located over a pier near the Topsham side to allow the views of upper falls, upriver toward the Swinging Bridge, and area architecture. We recommend that the downstream or easterly bumpout be located over a pier near the Brunswick side over year-round water to allow for beautiful downstream views and provide an improved venue for the wreath ceremony that takes place every Memorial Day.
- For the bridge's supporting piers, we recommend stone colored concrete imprinted with an ashlar, or stone block pattern, which references other bridge piers and riverside foundations in the immediate vicinity of the crossing. These tapering trapezoidal piers with an ashlar finish could either be solid or include two open arches.
- The bridge superstructure will be steel girders with a haunch, or slight arch, at each girder end. They will be painted to match the color of the river's stone ledges.
- Other recommended amenities include a Brunswick Overlook, a Topsham Overlook and Pocket Park:
 - We envision an elevated Brunswick Overlook, created by repurposing the current bridge abutment. This would provide stunning downriver views and could connect seamlessly into a refurbished Anniversary Park.
 - The Brunswick Overlook would be an ideal location to memorialize the natural beauty and ecology of the Androscoggin, the successful environmental restoration of the River, and the Native Americans who lived and fished at these falls long before European colonists arrived.

- We envision the Topsham Overlook as a rounded, balcony-like extension of new northerly bridge abutment. This Overlook would provide views upriver, which will be especially popular when the river is roaring during the spring snowmelt or after heavy rains.
- We envision construction of a Topsham Pocket Park using the current bridge abutment on the Topsham side combined with some high ground located easterly of the abutment. This small park would have direct views of the Lower Falls, both the Pejepscot Paper Company and the Cabot Mill, as well as the northerly Frank J. Wood Bridge pier, and would be an excellent place to memorialize past bridges, including the current bridge, as well as the development of mills at Pejepscot Falls.



See larger version of this image on page 13.

- We recommend connecting the bridge sidewalks with trails at both ends of the bridge. On the Topsham side this would include a spur of the Riverwalk along the shore of the Priority Group property with stairs up to the Topsham Overlook. If feasible, this proposed Riverwalk spur could be extended via a pedestrian underpass along the abutments of the new and old bridges, and connected to the Topsham Pocket Park via stairs. On the Brunswick side, we envision a trail to connect Anniversary Park to Water Street (near The Daniel Hotel) with a trail through the woods around a cove of the river.

The new bridge and its potential amenities – the open vistas, two wide sidewalks, comfortable bicycle lanes, the bumpouts, the scenic overlooks, the parks, and connecting trails - will create attractive public spaces for both towns, which will serve the needs and interests for community residents, businesses, and visitors.

A. INTRODUCTION

The purpose of this report is to set forth the Committee's vision, its current design suggestions with underlying rationales, and some broad conclusions regarding the new upstream curved bridge replacement option preferred by the Maine Department of Transportation (MaineDOT) and supported by the Federal Highway Administration. The members of the DAC were appointed by the Topsham Board of Selectman and the Brunswick Town Council in the summer of 2016, and are listed on the last page of this report.

Brunswick and Topsham have a once-in-a-century opportunity to influence the function, look and feel of the Pejepscot Falls area. MaineDOT's preferred new bridge alternative will open new vistas and allow the communities to better connect with each other and the historic and natural aspects of this special site. Through a collaborative partnership with MaineDOT, the new bridge will fit well into the site, and will be beautiful, durable, cost effective, and functional and inviting for all users. The second downstream sidewalk will be a huge improvement, and potential pedestrian amenities on or near the bridge – including scenic overlooks, parks, and connecting trails - can make this a place of pride for both communities and the State.

The DAC has many people to thank. First, we would like to thank the Topsham Board of Selectmen and the Brunswick Town Council for assembling the Committee. We have worked without borders, and the result will be a better connection between our two great communities. We hope that this report serves as a useful update, and we would be happy to provide presentations to you at your convenience. Second, we would also like to thank the municipal staffs who have engaged with us, especially John Shattuck and Linda Smith. We could not have gotten this far without them. Third, the DAC thanks the members of the public who have taken time to provide input. This new bridge will be for all of us, and the more public engagement on its design, the better. Lastly, but certainly not least, we must thank MaineDOT for their collaborative approach and thoughtful responses to our many requests. As will be seen below, they have already made some significant accommodations to local design preferences.

As its name makes clear, the role of the DAC is advisory. MaineDOT is the owner, financier, and engineer of the bridge. Therefore, we do not expect or intend that these various specific suggestions and examples be exactly incorporated into the final design of the new bridge. However, MaineDOT is listening, and they have said that they will do what they feasibly can to incorporate local design preferences into their integrated, holistic design. Infrastructure design is an iterative process. To those new to this process, it is important to note that the design is only in its early stages, and that the final bridge will not look exactly like the images contained in this report. These images are provided to allow the best available preliminary response to the most commonly asked questions: "What will the bridge look like? How will it feel to me when I use it?" Although there can be no definitive answers now, these images should help people visualize and spur more public input.

MaineDOT has asked the DAC to continue to engage with them as the design proceeds. The DAC is happy to do so with the support of local officials, especially after MaineDOT’s design team has had time to consider this input, apply its professional judgment, provide its initial feasibility impressions on some of the DAC requests set forth below, create revised holistic design concepts, and prepare-additional high-quality renderings or 3-D models that can shared with the DAC, local officials, and the public.

As noted above, Section B of this report first sets forth a narrative of the DAC’s vision and goals, as well as some supporting statements intended to help flesh them out. Section C then presents the DAC’s current suggestions on the specific elements of the new bridge and related facilities listed below, and lastly Section D sets forth some broad conclusions.

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B. VISION & GOALS

The DAC agreed upon the following vision, goals and supporting statements.

We envision a new bridge to connect the village centers of Brunswick and Topsham, Maine Street to Main Street, and therefore we recommend a design grounded in these principles. The bridge should be:

- Equally safe and accommodating to all people who drive, walk or bicycle;
- Visually appropriate to its natural and historical setting;
- Supportive of the daily activities of the residents and businesses in the towns at both ends of the bridge; and,
- A lower-speed connection that carries all travelers between two villages, which will complement the Route 196 Coastal Connector Bridge, which carries higher-speed regional motor traffic through the towns to destinations elsewhere.

Supporting Statements

We want a bridge that will be beautiful, durable, cost effective, functional and inviting.

Its design will have understated, unpretentious beauty. Calling little attention to itself, it will integrate into and complement the natural and historic setting. It will maximize opportunities for all users to see the river and the rocks. An iconic destination as well as a passage, the bridge and its surroundings will draw people to the river to walk, bike, eat lunch, watch the sunset over the dam and enjoy the wildlife and human activities on the river.

It will be a complete bridge in the sense that it will serve all people equally well, regardless of whether they are driving, walking or bicycling. The bridge will connect people of all ages and abilities to the stunning views, nearby parks and trails, reclaimed wildlife, and the natural and human history of this unique Pejepscot Falls site.

C. RECOMMENDATIONS REGARDING SPECIFIC BRIDGE ELEMENTS

The remainder of this report sets forth the DAC's suggestions regarding specific elements of the bridge and the surrounding connections. To do so, it is broken into five subsections.



First, the cross section – how wide the bridge is and how that width is allocated and delineated is presented. The cross section is the element that most people see and use, and it has the most impact of the functionality and comfort of bridge users. The cross section also has a big impact on how fast traffic will go, how comfortable people walking, bicycling, or sightseeing will feel, and how future maintenance activities will impact traffic.

Second, the railings and lighting for the new bridge are discussed. These elements can seem like design details, but the bridge railings and lighting may be the most often viewed elements of a bridge, and therefore can have a big impact on the look and feel of the bridge. These details can make the difference between whether a bridge feels like a pedestrian friendly space or a highway overpass.

Third, pedestrian amenities on and near the bridge are envisioned. Although the bridge itself will be handsome and comfortable for all users, it may be these amenities that make this project truly special. Such amenities include bumpouts, overlooks with gorgeous views, parks, and

connecting trails. This section presents ideas that may happen now, or may have to wait, but it helps define our broader vision of a sense of place, not just a bridge.

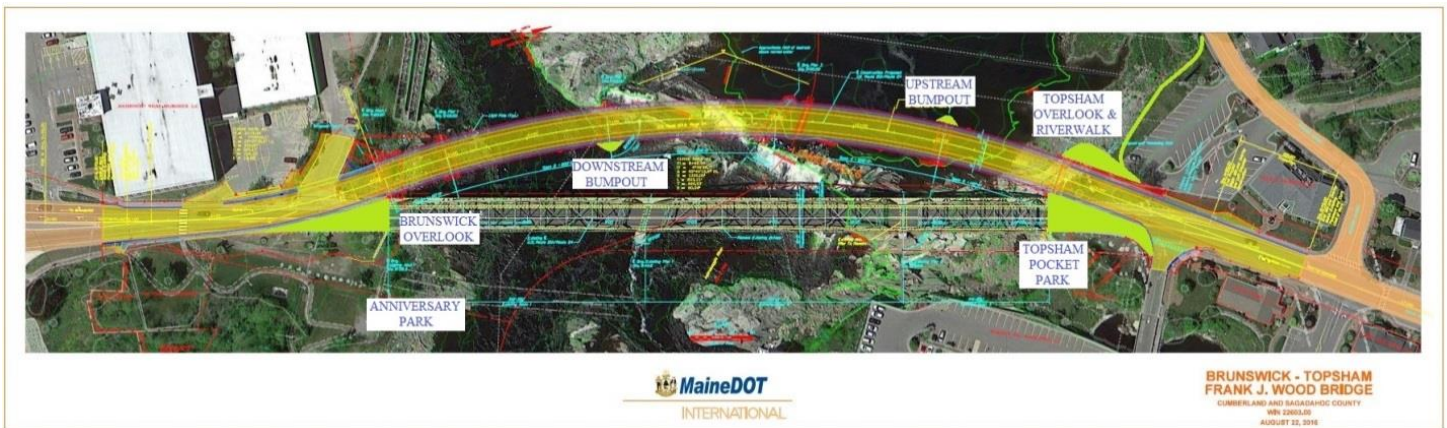
Fourth, the substructure and superstructure elements are discussed. These bridge elements (footings, piers, girders) are literally foundational. They require highly technical decisions that clearly need to be made by experienced professional bridge engineers working for MaineDOT. Despite this, local suggestions regarding pier shape, colors and textures deemed feasible by MaineDOT can help assure a more beautiful and fitting bridge.

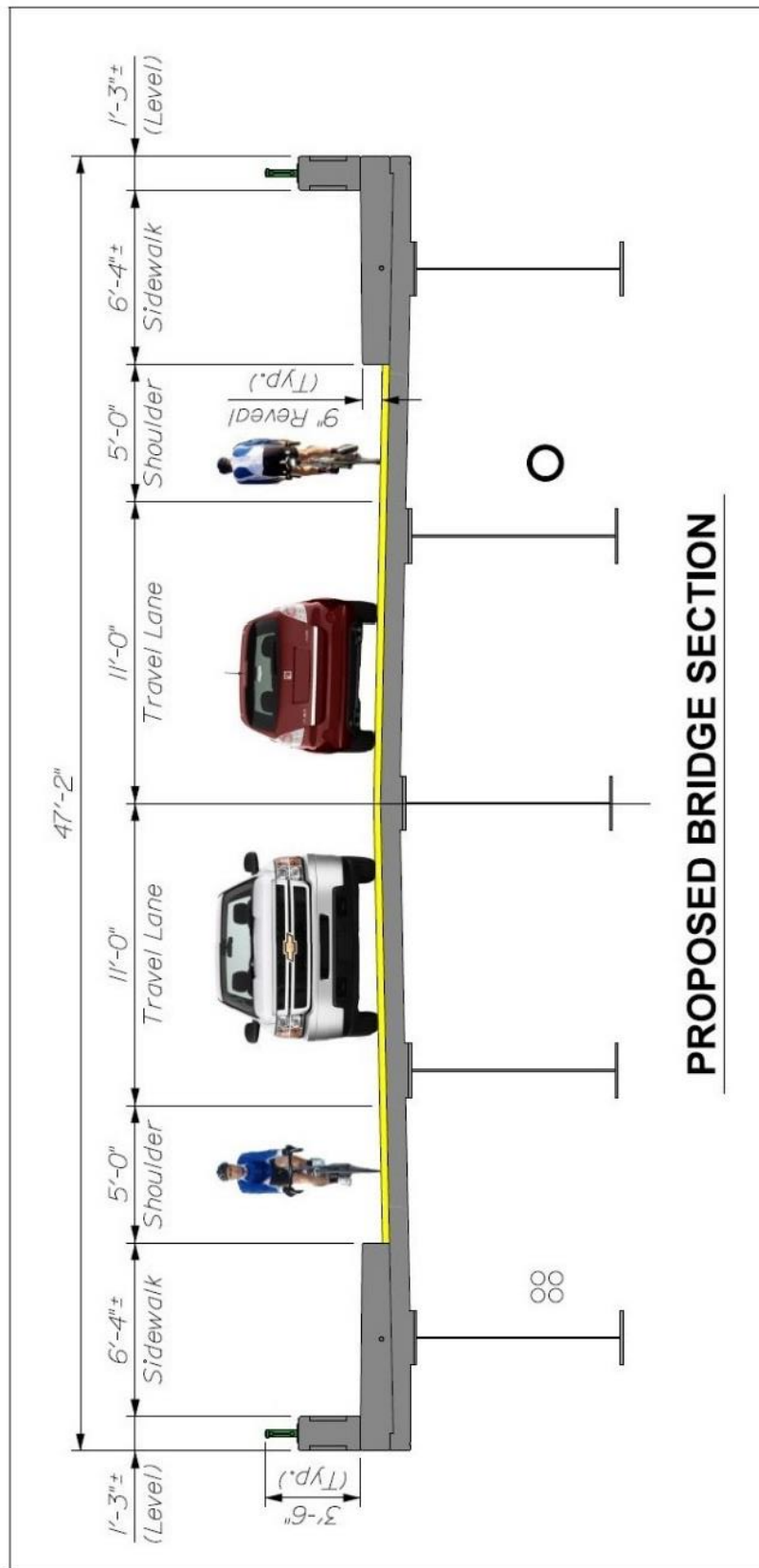
Fifth, preliminary DAC suggestions regarding other important design details are summarized or identified. They include surface treatments – including materials, textures, finishes and colors – as well as memorialization of the history of the site and bridges, culture and public art, and landscaping. These are important design details that the DAC started to consider to allow the preparation of the renderings in this report and spur more public input. Because final local input on these topics is not needed until the design has progressed further, these details will be revisited at a later date.

1. CROSS SECTION – HOW THE BRIDGE DECK WILL LOOK AND FEEL

This section sets forth what engineers call the “the cross section”, which is simply how wide the bridge is and how that width is allocated and delineated. The cross section is the element that most people see and use, and has the most impact of the functionality and comfort of bridge users. The cross section also has a big impact on how fast motor vehicles will go, how future maintenance activities will impact traffic flows, and how comfortable people who are walking, bicycling, or sightseeing will feel.

- The current design concept calls for a total bridge width of 47'-2" feet. This is about 2 feet wider than MaineDOT's original design concept, for the reasons set forth below.
- As shown in image 1.1 on the next page, the DAC suggests, and MaineDOT has agreed subject to further design, that this bridge width will be allocated as follows: two 11-foot motor vehicle lanes, two 5-foot shoulder/bikeways, and two 6'-4" sidewalks.





1.1 Bridge Cross Section

- The addition of the second downstream sidewalk by MaineDOT at state expense is an *extremely* important and noteworthy benefit to the safety, use and feel of the bridge. See image 1.2 below. It makes clear that people who walk and the views of the river and Pejepscot Falls site were not an afterthought; that the bridge was designed and built with them in mind. Walkers will no longer need to cross the road to access existing sidewalks at both ends of the bridge. At busy times, crossing is not an easy task, especially for people who are the elderly, disabled, or with small children. Further, the open design will allow walkers to rediscover the stunning downriver views, and will allow easy access to existing and future pedestrian amenities. See section 2 below. It is anticipated that this new downstream sidewalk and connecting pedestrian facilities will quickly become widely acknowledged as a significant new local amenity.



1.2 Rendering showing additional downstream sidewalk

- In an effort to increase pedestrian space on the bridge and to calm traffic, the DAC asked MaineDOT to investigate whether 10-foot vehicle travel lanes would be possible. After deliberation, MaineDOT responded that the 11-foot travel lanes width is the minimum standard for a new bridge like this, and is necessary given truck traffic and geometrics. Unlike highway lane widths that can be altered, if an experiment with a 10-foot lane does not work, this is a 100-year decision. Like all engineering judgments related to this bridge, lane width was MaineDOT's call to make, but to the extent it is relevant to readers, the DAC found the MaineDOT position on vehicle lane width to be well reasoned and appropriate.

- The DAC also discussed reducing the shoulder width from 5 to 4 feet to increase sidewalk width. After input from MaineDOT engineers and their bicycle/pedestrian staff, and from bicyclists on the DAC, it was apparent that the narrower shoulder width would be less comfortable for bicyclists, could cause more bicyclists to use the sidewalks, and would cause more traffic backups during future bridge maintenance activities. Thus the 5 foot shoulder width became the DAC suggestion as well.
- Further, at request of the DAC, MaineDOT reviewed their design concept to see if it can support any additional bridge width. After much consideration, the designers determined that about 2 feet could be added to the bridge width without substantial impacts to their design and without any local cost share. This allowed the sidewalks to be increased from the 5 feet in the original concept to 6'-4" now. This was a major accommodation in response to a local request and will substantially improve the pedestrian experience on the bridge. The DAC thanks MaineDOT for this important accommodation.



1.3 Rendering showing brick red shoulder and wider sidewalk

- The DAC asked about other traffic calming options. Surface texture and colors of the shoulder / bikeway was an obvious cost-effective option. MaineDOT indicated that there are no requirements for such a color choice. A bright green has been used for dedicated bike lanes like those on Forest Avenue in Portland. This was considered but rejected as too loud. After much consideration of cost, the need for easy snow removal, the need for a smooth surface for bicyclists, and the brick color of the Cabot Mill, the DAC recommends that the shoulder be painted a brick red as shown in image 1.3 above. This

color will contrast with the simple brushed concrete finish recommended for the sidewalk surface and thus delineate the space for people who walk. It is also being used as an experiment on nearby Green Street in Topsham, and will work with possible enhanced surface treatments (brick or tile work) on bumpouts and overlooks. This pairing of the shoulder will be done initially by the contractor when the bridge is built, but will require periodic reapplication by the municipalities.

- Moving forward, if any additional width can be found during design, the DAC hopes that MaineDOT will allocate it to the sidewalks.

2. RAILINGS & LIGHTING

a. Railings

The railings for the new bridge can seem like a design detail, but it is the bridge component that is most often viewed by users of a bridge, and therefore can have a big impact on the look and feel of the bridge. It can make the difference between a bridge that feels and is used like pedestrian friendly space, and a highway overpass bridge. Thus the DAC spent a considerable amount of time discussing railings.

- No Interior Rail. After input from MaineDOT regarding bridge design standards and safety statistics, and after extensive debate and discussion, the DAC unanimously found that an interior rail separating the shoulder and the sidewalk (along the sidewalk curb) is not necessary for public safety, would needlessly use precious bridge width, would make bicycling less comfortable, and could even cause safety issues including people jumping over or sitting on an interior rail.
- Outside combination wall/railing. The DAC considered many aspects of outside rail design. Of course, it had to be crash tested to meet engineering standards, so light, airy artisan rails used on pedestrian bridges were not possible. But the standard bridge rail shown in the original MaineDOT design concept looked institutional, cold, and highway oriented. Summer Street residents were concerned about headlights and the flickering effect that a completely open rail would create. But a full height solid railing would detract from the open feel of the bridge. Further, aesthetics were obviously considered because the rail is so visible to all users.

After much discussion and review of numerous rail types, the DAC drew inspiration from a bridge in a village in Vermont (see image 2.1 below) and suggests that the rail instead be a solid concrete lower portion with arch insets, a metal rail upper, concrete posts with pedestal lampposts incorporated within them at the appropriate spacing. This

wall/railing will pass crash standards, will complement area architecture, screens headlights, makes the bridge feel more like a bridge for pedestrians, allows the curve theme to continue with arch insets like the piers, and is aesthetically more pleasing.



2.1 Railings inspiration: Saxons River Bridge, VT

Black railings and lamp posts. Regarding the color of the metal for the upper rail and lamp posts, the DAC considered several alternatives. It reviewed a brighter green like the color of the existing bridge, but rejected it as too bright and obtrusive. Dark green like the sashes of nearby mill windows was favored by some. In the end, the majority of the DAC settled on black. Black will match lamp posts on either side of the bridge – which will help integrate it into our Main/e Streets - and will help the bridge fade into the Pejepscot Falls site. Of course, color choices like this do not need to be final until much later in the design process, but are important to many, and some choice needed to be made to facilitate the production of renderings.

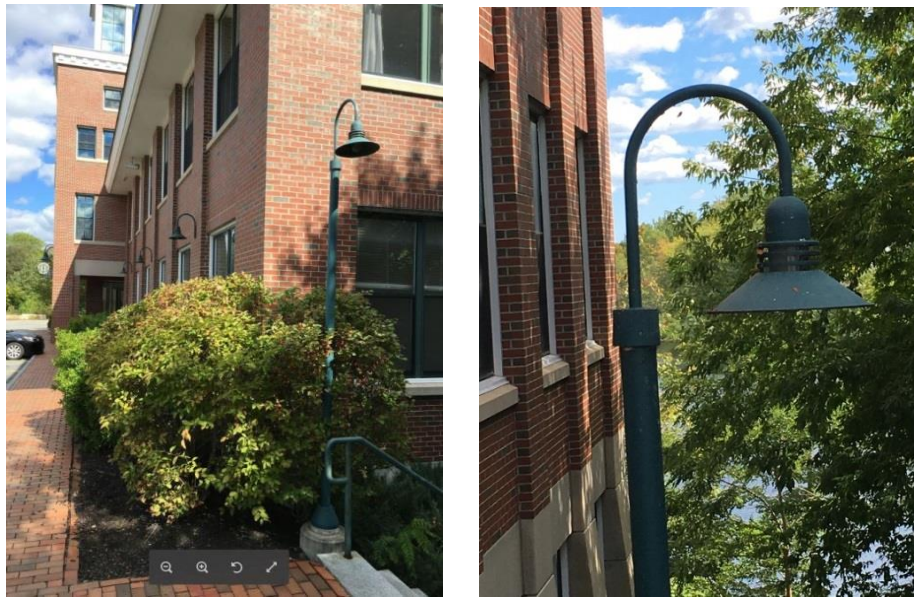


2.2 Rendering of wall/railing showing with lamp posts and arch-shaped insets

b. Lighting

The DAC considered several lamp styles. We noticed several nearby examples of posts that meet current “dark sky” standards, promote the curve theme, and are simple and elegant. See images 2.3 through 2.5 below.

The DAC recommends the bridge lamp posts shown in image 2.2, above. They reflect the area examples, are simple, promote the curve theme, and their black color will match lamps in both Brunswick and Topsham. These posts should be outfitted with flagpole hardware to allow the display of flags or banners.



2.3 Lamps: Red Mill, Topsham, Maine



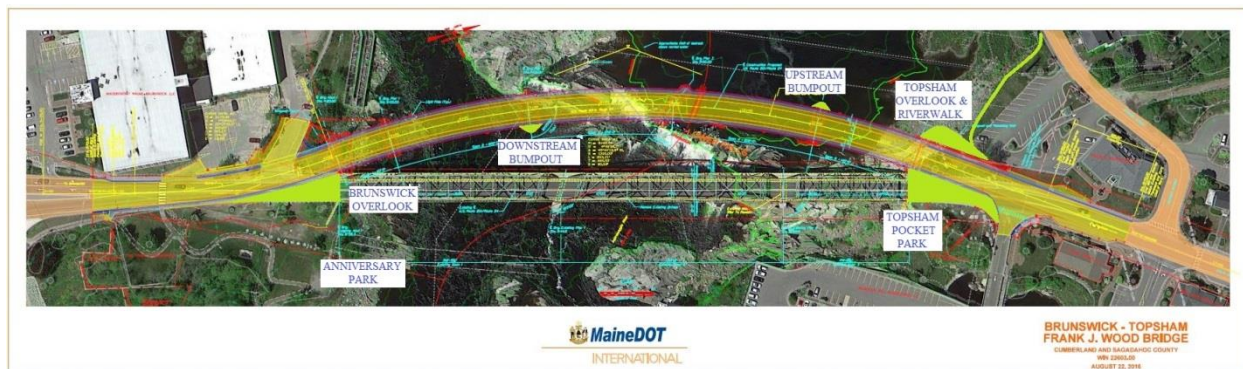
2.4 Priority Group Lamps



2.5 Lamps at Saco Train Station

3. PEDESTRIAN AMENITIES ON OR NEAR THE BRIDGE

Although the focus of this effort is on the bridge itself for obvious reasons, special pedestrian amenities on and near the bridge may be what makes this new bridge and site truly special. Such amenities include bumpouts on the bridge, reuse of the abutments of the old bridge and integration of the bridge with local parks and trails. The locations of some of these amenities are roughly depicted on image 3.1 below, and in a larger format on the following page.



3.1 Approximate location of pedestrian amenities on or near the new bridge

- Bumpouts (i.e. viewing platforms) on bridge. MaineDOT's original design concept called for bumpouts to be built at State expense. This is a special bridge design feature, and represents a major MaineDOT accommodation in recognition of the village and natural setting, the views opened by the lower profile of the new bridge, and the relatively heavy current and future pedestrian use of this bridge by people who walk or bicycle. The DAC thanks the MaineDOT for this feature.

Although the precise number and location of the bumpouts deserves further consideration, at this time the DAC suggests that given the other pedestrian amenities noted below, the bridge should have two bumpouts.

For structural support reasons, MaineDOT wants the bumpouts to be located over piers. The DAC suggests that the upstream or westerly bumpout be located over a pier nearer to the Topsham side to allow the view of high spring water, area architecture, and longer upstream views. For similar reasons, the DAC recommends that the downstream or easterly bumpout be located over year round water closer to the Brunswick side, which will again highlight the rediscovered beautiful downstream views. This downstream bumpout would also provide an improved venue for the wreath ceremony that takes place every Memorial Day. See image 3.1 for bumpout locations.



3.1 Approximate location of pedestrian amenities on or near the new bridge

In terms of size and shape, the DAC suggests that the bumpouts be as large as structurally and economically possible, and that they have a curved, crescent shaped appearance similar to image 3.2 below. This will again soften their appearance, promote the curve theme, and make them feel more appropriate to an undulating river setting.



3.2 Crescent-shaped pedestrian bumpout on
Woodrow Wilson Bridge over the Potomac River, VA & MD

There was substantial discussion regarding whether seating at the bumpouts was appropriate. Seating in the form of large granite blocks exists in the bumpouts on the Martin's Point Bridge between Portland and Falmouth. See image 3.3 below. Seating is great for those who want or use it, but it can dominate use of the bumpouts, clutter the look and feel, and cause snow removal challenges. DAC opinions varied and this obviously can be considered more later, but at this time the DAC suggests that seating that can be bolted down and removed seasonally be investigated, and that local public works departments be consulted further.



3.3 Seating in bumpout at Martin's Point Bridge, Portland & Falmouth, Maine

A simple brushed concrete finish is suggested for the sidewalk surface. But the DAC would like the designers to investigate the cost implications (both amount and allocation) of more elaborate tile or paver work at these bumpouts and the overlooks described below, perhaps incorporating some brick colored elements.

- Brunswick Overlook – Repurpose Abutment & Connect to Anniversary Park

Although it can be hard to imagine that a space that currently has thousands of vehicles per day passing over it could become a treasured viewing platform and pedestrian space, the DAC believes that is exactly what can happen with the old abutments of the Frank Wood Bridge.

Given its higher elevation, outstanding panoramic views of the river and the architecture including the historic Bowdoin Mill (see image 3.4 below), and the proximity of 250th Anniversary Park, the DAC believes that the Brunswick abutment repurposed to an overlook has the potential to become a true gem for the communities.



3.4 Downriver view from future Brunswick Overlook

The DAC envisions that this Brunswick overlook would be seamlessly incorporated into the downstream sidewalk, have a curved corner footprint (as opposed to the current sharp angle in the NE corner of the current abutment), and allow use of the same wall / rail system that will be used on the new bridge as described in subsection 2 above.

Further, the DAC hopes that the Brunswick Overlook can have an ADA compliant pedestrian connection to the abutting 250th Anniversary Park. If acceptable to highway design engineers, a relocated Maine Street crosswalk might be located at that connection.

Amphitheater Possibilities. The DAC also hopes that the opportunity for realizing Brunswick's vision for an amphitheater located on the raised bluff in the northwesterly portion of Anniversary Park be explored.



3.5 Rendering - Anniversary Park amphitheater concept from the Master Plan for Downtown Brunswick and Outer Pleasant Street Corridor (p. 35), adopted by the Brunswick Town Council on January 24, 2011 – By Loren Deeg, architect with Ball State University, Muncie, Indiana

Photos of amphitheaters in Maine and beyond are provided in images 3.6 through 3.8 below for inspiration. Once this Park is more fully discovered, there are many possibilities – maybe even fireworks over the river someday.



3.6 Amphitheater example: Camden Library, Maine



3.7 Amphitheater example: Route 302 Causeway, Naples, Maine



3.8 Grass amphitheater example

Interpretive Panels. Subject to further discussion, the DAC suggests that the Brunswick Overlook and Anniversary Park have interpretive panels that highlight the natural and human history of the Pejepscot Falls site, including fishing, Native culture, current wildlife, or the environmental reclamation of the river.

Underground Power Lines. To open the vistas even more, the DAC asks that designers assess the technical and cost feasibility (both amount and allocation) of placing power lines underground in this area. Burying power lines can be expensive, but the number of feet to be buried appears to be relatively low, and the long-term public benefit maybe high.

Brunswick Pedestrian Underpass Feasibility. The DAC also requests that MaineDOT assess the technical and cost feasibility (both amount and allocation) of a pedestrian underpass from Anniversary Park to the Brunswick Fishway facility. Based upon the vertical drop (see image 3.9 below) and the seasonal fast moving river waters, the DAC understands that this looks like a big challenge, but we ask for MaineDOT's engineering impression of the feasibility of this idea.



3.9 Existing Brunswick abutment looking west

Park Parking. As a topic placeholder, there may be a benefit to exploring whether a few car parking spaces – perhaps handicapped only – are appropriate in the higher southerly portion of Anniversary Park (along the highway off ramp). The new bridge will impact parking at the Fishway, and the new overlook and park amenities may draw people, and some may need to arrive in cars. This concept requires much more discussion with Brunswick officials and MaineDOT to determine desirability and feasibility.

The DAC is keenly aware that amphitheater construction, burying power lines, a pedestrian underpass, and parking would likely trigger a discussion from MaineDOT about a local cost share, and that the DAC has absolutely no spending authority. That authority properly rests with elected officials in both Towns.

Despite this, the DAC felt obligated to identify these opportunities for consideration because costs may never be lower and the time may never be better. The new bridge is expected to have a 100-year life. We have a collaborative technical expert as a partner with MaineDOT. Such opportunities for relatively low cost transformation change are rare. But again, we understand that our municipal leaders face many competing revenue and funding challenges. Even if funding is unavailable now, we may be able to transform a vision into a design that can be implemented over time.

- Topsham Overlook - New Platform With Upstream Views and Connection to Riverwalk

The concept of an overlook at the northwest quadrant of this bridge crossing that allows Riverwalk users to enjoy upstream views was conceived as part of the Androscoggin Riverwalk vision years ago. See www.androscogginriverwalk.org/riverwalk-plan.html and image 3.10 below.

Although a new bridge was not known to be needed at the time of that vision, its core elements are just as applicable to a new bridge. Those elements include a spur of the Riverwalk along the shore on the property of the Priority Group, and stairs up to pedestrian viewing platform or overlook that is connected to the westerly sidewalk of Main Street or the new bridge. Placed at the proper elevation, it may be possible to allow good views over the dam and upstream (see image 3.11 below) toward the Swinging Bridge, a destination in itself and the jewel of the Riverwalk. This new Topsham Overlook would provide a welcoming pedestrian space year around, and would be especially popular places when the river is roaring during the spring snowmelt or after heavy rains in the Androscoggin Valley.



3.10 Renderings from Priority Park Overlook Park & Riverwalk Concept Plan, 2011-07-20
By Anthony Muench, Landscape Architect



3.11 Topsham Overlook concept (Muench)



3.12 View upstream from Topsham Overlook



3.12a View upstream to Swinging Bridge from Topsham Overlook

MaineDOT's preferred new bridge alternative allows this concept to be revised and augmented in some potentially exciting ways. Subject to a technical and economic review by MaineDOT, this outlook could be made as an integral part of the westerly side of northerly abutment of the new bridge. One design suggestion is to incorporate the curve theme that would make the overlook a portion of circle (perhaps a 20-foot radius) which would yield a balcony feel, somewhat like the design concept shown in image 3.13 below. The outer wall of this circular wedge portion of the overlook could transition to a line that is 45 degrees to the westerly edge of the sidewalk. Texturing the concrete on the walls of the overlook to match the piers, together with concrete stairs with black handrails located along this 45 degree line, would provide an aesthetically-pleasing direct connection from the new Riverwalk spur to Main Street.



3.13 Rendering of similar concept to the Topsham Overlook

Interpretive Panels. Subject to further discussion, the DAC suggests that the Topsham Overlook and Riverwalk spur could also have interpretive panels highlighting the history of bridges, dams and industry of the site. This theme is consistent with the Riverwalk plan, as shown by an existing interpretive panel shown in image 3.14 below.



3.14 Topsham Interpretative panel on industrial history

Topsham Pedestrian Underpass Feasibility. The DAC requests that the MaineDOT design team assess the technical, legal, and cost feasibility (both amount and allocation) of a pedestrian underpass from the proposed new Riverwalk spur to the Topsham Pocket Park suggested below. If feasible, this underpass would allow pedestrians heading east on the new Riverwalk spur to safely pass under the new bridge along the abutments of the new and old bridges and ascend to the Topsham Pocket Park suggested below via stairs.

Further analysis of flowage rights and elevations are required, but it appears it may be possible for the footing for the new bridge abutment to be built with a pedestrian underpass in mind, and allow sufficient vertical clearance. See image 3.15 below.



3.15 Existing Topsham abutment looking west

At this point the Topsham Overlook and pedestrian underpass can only be considered an idea. MaineDOT has not reviewed it for feasibility. Although every project is different, it is noteworthy that MaineDOT has been able to make a pedestrian underpass work in Naples when it was conceived at the beginning of the design process. See images 3.16 and 3.17 below.



3.16 Pedestrian underpass example: Naples Causeway, Maine



3.17 Pedestrian underpass example: Naples Causeway, Maine

- Topsham Pocket Park – Repurpose Abutment and Memorialize Bridges

Although not as elevated as the potential Brunswick Overlook, the old FWB abutment on the Topsham side – when combined with some high ground located easterly of the abutment - provides a great opportunity for a small green space – also known as a pocket park. This area will have direct views of the Lower Falls, Granny Hole, and the northerly FWB pier, which MaineDOT said needs to remain for hydrological reasons.

Given its location – directly where the FWB now stands – one potential use of this space would be to memorialize the FWB and past bridges. A bridge plaque from the existing bridge can be refurbished and displayed (see image 3.18 below), pieces of the FWB bridge could be displayed as sculpture (perhaps even on the remaining FWB pier), and interpretative panels on past bridges provided. Subject to more discussion, railings here could be the same wall/rail described in section C, 2, above, for consistency, or old FWB bridge rail might be refurbished and used here.



3.18 Frank J. Wood Bridge plaque

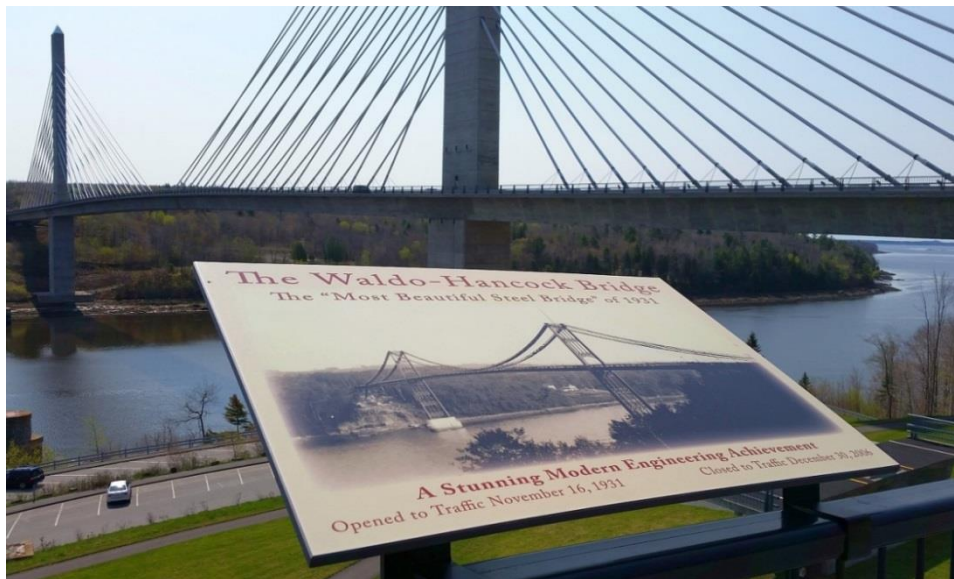
This same reuse concept became a reality with the Penobscot Narrows Bridge in Prospect, Maine. See images 3.19 through 3.21 below.



3.19 Repurposed old abutment for bridge memorialization
Penobscot Narrows Bridge, Prospect, Maine



3.20 Original Waldo-Hancock Bridge plaques on display today



3.21 Interpretive panel re: former Waldo-Hancock Bridge

As suggested above, this pocket park might be connected by stairs to a pedestrian underpass that runs along the faces of the old and new abutments and to the proposed new Riverwalk spur, if feasible.

Underground Power Lines. To open the vistas on the Topsham side of the bridge, the DAC asks that designers assess the technical and cost feasibility (both amount and allocation) of placing power lines underground in this area. The power line traversing the Priority Group property and crossing to what could become the Topsham Pocket Park are the lines to consider burying. As noted above, underground power lines are expensive, but the number of feet to be buried is relatively low, and the public benefit would be high.

Again, the DAC knows that it has no checkbook. A Riverwalk spur, a pedestrian underpass, and underground power lines would likely trigger a discussion from MaineDOT about a local cost share. Like the Brunswick amenities, the DAC felt obligated to identify these opportunities because costs may never be lower and the time may never be better to transform a vision into a design that can be implemented over time.

- Maine/Main Street Crosswalks

The DAC had the following suggestions regarding street crosswalks on both ends of the bridge.

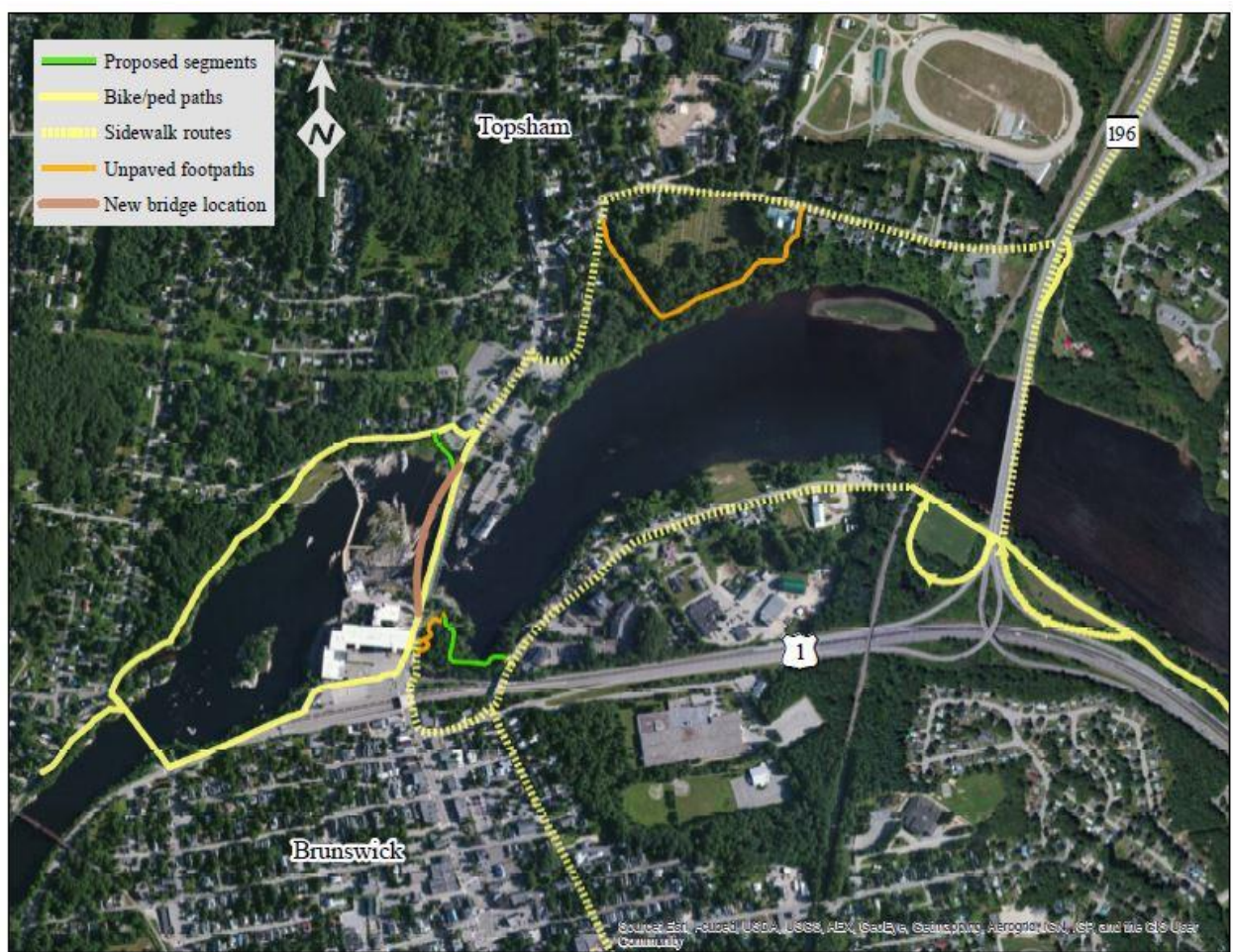
- Install pedestrian activated flashing lights like the one install on Mill Street at the Swinging Bridge at crosswalks on both end of the new bridge
- Topsham – Install an additional crosswalk across Main Street aligned with existing sidewalk at the southerly entrance into the Bowdoin Mill complex.
- Brunswick – Subject to engineering and operational review, consider align the cross walk with the potential new entrance to 250th Anniversary Park from the Brunswick Overlook. See “Brunswick Overlook” discussion on page 22 above.

- Part of a Large Walking Network

The FWB is already in the center of an extensive trail and walkway network on both sides of the river. With two proposed new segments (shown in green in image 3.22 below) and enhanced vistas, this bridge could become a hub for walkers.

- Possible Coveside Trail to Water Street

Although likely a longer term project, the potential exists to connect Anniversary Park to Water Street near The Daniel Hotel with a trail through the woods around a cove of the river. As previously envisioned in a study for the Town of Brunswick, such a trail might start from the top of easterly existing stairs that lead down to the river level in Anniversary Park, follow the top of the bank headed south, turn east and cross over a new pedestrian bridge over the low area at the head of the cove, run along toe of Rt. 1 off ramp, bend a climb toward Water Street, cross the culvert outflow, and switchback to Water Street at a point across from The Daniel Hotel. Such a trail would allow people to hike from the Pejepscot Falls site to Water Street and eventually the Brunswick bike path without navigating the vehicular congestion of the “pool table” and Mason Street. The property over which this trail might pass appears to be owned by the Town of Brunswick, Brookfield, and perhaps MaineDOT.



3.22 Trail and walkway network adjacent to bridge – larger version on following page

A Coveside Trail can only be considered an idea at this point, and requires much more vetting regarding its desirability and feasibility with Brunswick officials, landowners, MaineDOT, and others. It almost certainly will not be part of this bridge project. But again, to that extent ideas and visions can become a design, it could influence how the Brunswick Overlook is connected to Anniversary Park.



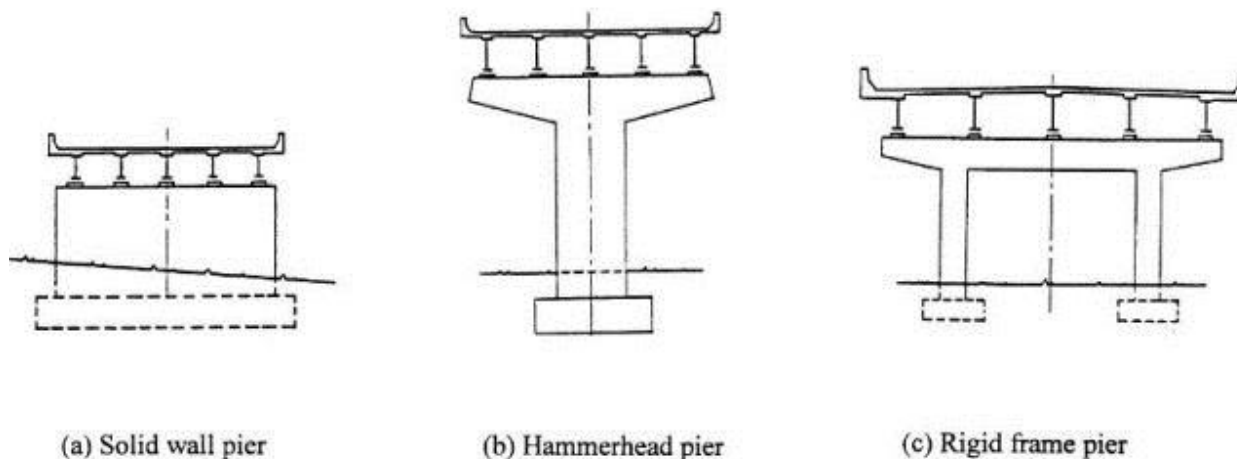
3.2.2 Trail and walkway network adjacent to bridge

4. SUBSTRUCTURE & SUPERSTRUCTURE

As noted above, these bridge elements –consisting of footings, piers, and girders - are literally foundational. Their design requires highly technical decisions that clearly need to be made by experienced professional bridge engineers. Working with MaineDOT, the DAC was able to make some significant recommendations regarding pier shape and textures that will make this a more beautiful and fitting bridge.

a. Substructure - Pier Type, Shape, Texture, and Details

MaineDOT indicated that there were many piers types that could work from a function and cost standpoint. For educational purposes, some generic pier types are shown schematically in image 4.1 below.



4.1 Basic Pier Types

The DAC reviewed many options. Initially, many DAC members were attracted to the reduced mass and more light provided by a hammerhead pier type. But many thought such a pier seemed too modern, too much like other “cookie-cutter” bridges, and not fitting to the site.

After much discussion, the DAC drew inspiration from bridge foundations in the immediate vicinity, which are shown in images 4.2 to 4.5 below.



4.2 Frank J. Wood Bridge pier

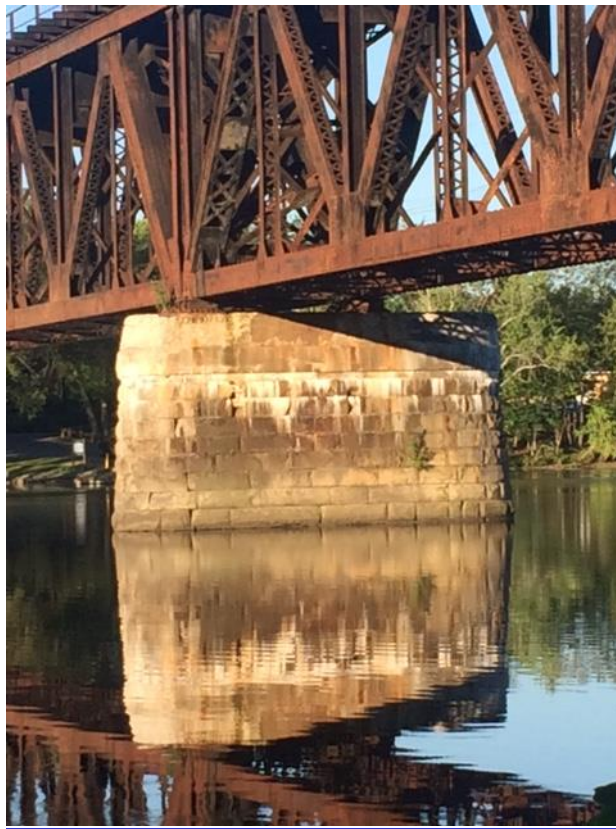
Trapezoidal solid concrete wall pier with smooth finish

(Recall that the FJW pier nearest to Topsham side is to remain for hydrologic reasons.)



4.3 Black Bridge carrying railroad (Mill St. to Bridge St.)

Trapezoidal granite block pier with pointed upstream end



4.4 Railroad Bridge (near bike path at Water Street Boat ramp)
Trapezoidal granite block pier with curved ends



4.5 Bridge at this site previous to Frank J. Wood Bridge
Trapezoidal granite block pier with pointed upstream end

The block piers are aesthetically pleasing, and would be consistent or complement other foundations at the Pejepscot Falls site. See images 4.6 through 4.8 below.



4.6 Cabot Mill Foundation, Brunswick



4.7 Bowdoin Mill Foundation



4.8 Old mill foundation now supporting Bowdoin Mill parking lot.

Of course, block foundations were replaced with concrete technology decades ago and are simply cost prohibitive. Fortunately, however, there are methods to incorporate the aesthetic and historical feel of a blocking effect – known as an ashlar finish – into a concrete pier design. The DAC reviewed many examples, and two are shown in images 4.9 and 4.10 below.



4.9 Ashlar concrete finish example #1



4.10 Ashlar concrete finish example #2

In order to have the piers and abutments fit the historic and natural setting, be aesthetically pleasing, and be cost effective, the DAC makes the following three recommendations regarding substructure.

1. The piers should be a tapered concrete trapezoidal shape with an ashlar finish.
2. The footings for the piers should be as low profile and unobtrusive as possible, perhaps with rounded or angled top edges to reduce mass and minimize the opportunities for graffiti.
3. The abutments should also have an ashlar finish.

After agreeing on the basic pier type and finish, the DAC then focused on two design alternatives for its recommended pier. After much debate, a majority of DAC members attending our August 2017 meeting preferred the simplicity, architectural accuracy, and the rugged supportive feel of a solid pier like that shown in image 4.11 below. The entire DAC believes this would be a good pier choice. (Note that footings for the piers in image 4.11 and 4.12 are not yet shown, as are still being analyzed. Future renderings and the final piers will have a visible footing on some piers.)



4.11 Pier alternative 1 - solid trapezoidal concrete pier with ashlar finish

An almost equal number of DAC members wanted to further explore a second design alternative of this pier. To further reflect the arch windows of nearby mill, reduce the mass of concrete, allow more light and views under the bridge, and provide less opportunity for graffiti, many members hoped it would be feasible to incorporate two daylight arches into the piers as depicted in image 4.12 below. According to the MaineDOT designers, the cost of this daylight arch option will be slightly higher, but not substantially so, and would be assumed by the State.



4.12 Pier alternative 2 - trapezoidal concrete pier with ashlar finish and two daylight arches

Given the closeness of DAC sentiment regarding these two pier alternatives and the preliminary nature of the design to date, the DAC decided to present both options in this report and asked MaineDOT to move forward with both alternatives at this time. Like all DAC suggestions, further public input and technical analysis will guide future DAC deliberations on its final pier design recommendations.

b. Superstructure

- Haunched steel girders with as much arch as possible. This superstructure design allows the new bridge to be supported from beneath, instead of primarily from above as with the current Frank Wood Bridge (FWB), which is a through truss bridge. This means there are no steel support members above the bridge deck, which allows the new bridge to better fade into and become part of the site, instead of dominating it. The open road deck creates a plateau with open vistas from all directions, allowing bridge users and those throughout the Pejepscot Falls site to see the river, the architecture, and each other. This superstructure type is also constructible, maintainable, and cost effective – which is required by MaineDOT and Maine taxpayers. The DAC recommends that the girders be haunched or curved as much as possible, painted as indicated below, and that other design measures can be taken to help this part of the bridge fade into its surroundings.
- Paint color: gray. To help focus attention on the Pejepscot Falls site, as opposed to the bridge, the DAC suggests that the steel superstructure be painted gray to match natural local rock colors, making it as “invisible” as possible. Again, this will allow the focus to be on the site, not the bridge itself.



4.13 Superstructure rendering of view from Sea Dog deck – trapezoid piers



4.14 Superstructure rendering of view from Sea Dog deck – trapezoid piers with open arches



4.15 Superstructure rendering of view from Summer Street – trapezoid piers



4.16 Superstructure rendering of view from Summer Street – trapezoid piers with open arches

5. OTHER IMPORTANT DESIGN DETAILS

a. Materials, Textures and Colors

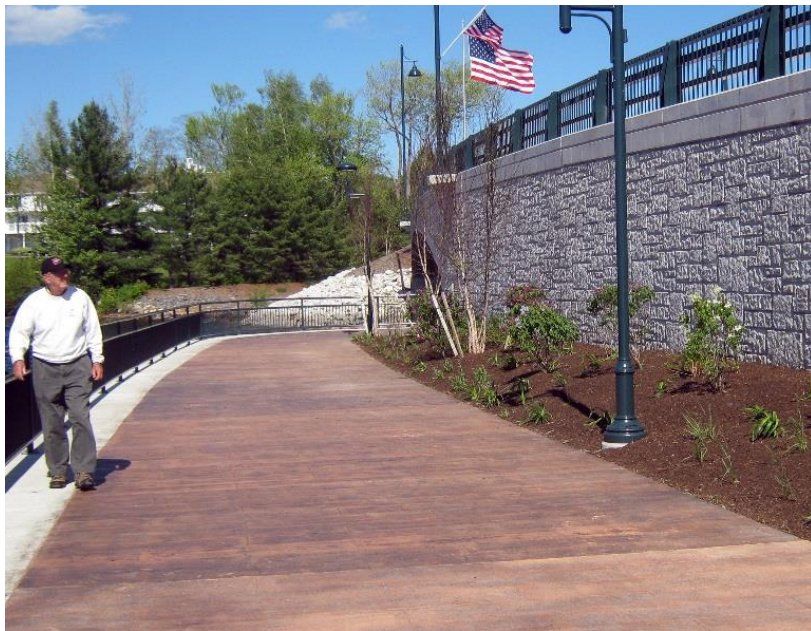
These topics have been considered above as each design element was considered. Subject to change pending further discussion and design, the DAC's current thoughts can be summarized as follows.

- Vehicle Lane surface – bituminous (black).
- Shoulder surface – Red Brick color, probably painted. Maintainability needs to be assessed.
- Piers: Concrete gray, texture inside arch only.
- Abutments: Consider more arches or texture to inhibit graffiti.
- Old FWB Abutments – repair / refurbish?
- Bridge Sidewalks: brushed concrete finish.
- Overlooks, Bumpouts: TBD. Perhaps a more elaborate paver/ tile design or concrete with red brick access?
- Bridge wall/rail: Concrete lower with brick imprint texture on concrete posts. Railing and lamp post color: black.
- Stairs (if applicable regarding Riverwalk and pedestrian underpass): concrete with black handrails.

Again, these suggestions will be considered further as public input and the design process proceeds. There are many area materials, textures and colors nearby that could inspire that further discussion, as illustrated by images 5.1 through 5.5 below.



5.1 Materials, textures & colors: Cabot Mill, Brunswick



5.2 Concrete texture & colors: Naples Causeway



5.2 Existing westerly sidewalk approaching Frank Wood Bridge, Topsham



5.4 Bridge abutment, Washington, DC



5.5 Wall materials, handrail and stairs, York Public Library

b. Historic Memorialization, Art, Landscaping, etc.

Preliminary suggestions have been set forth above can bring the history and natural wonders of the Pejepscot Falls site alive. The opportunity clearly exists to make the new bridge and its environs a first class public space. Given the early stage of design, and the need to define how the space will physically look and feel, opportunities for historical memorialization, themes for interpretive panels, public art, landscaping and related matters will be more fully developed later in the design process.

D. CONCLUSIONS

This is an exciting time for Brunswick and Topsham. A once-in-a-century opportunity exists to influence the function, look and feel of the Pejepscot Falls area. MaineDOT's preferred new bridge will open new vistas and allow the communities to better connect with each other and the historic and natural aspects of this special site. MaineDOT has shown a willingness to incorporate local preferences as it meets its statewide obligation to responsibly provide a safe and reliable transportation system.

The DAC believes that the new bridge envisioned above will fit well into the site, and will be beautiful, durable, cost effective, functional and inviting. The second downstream sidewalk will be a huge improvement, and potential pedestrian amenities on or near the bridge – including bumpouts, scenic overlooks, parks, and connecting trails - can make this a place of pride for both communities and the State.

With the continued support of local officials, the DAC looks forward to continuing to work with MaineDOT and all stakeholders toward making this exciting design concept a reality.

DESIGN ADVISORY COMMITTEE MEMBERS

NAME	TOWN	AFFILIATION
Bruce Van Note, CHAIR	Topsham	Topsham Planning Board
Michael Lyne, VICE CHAIR	Brunswick	Recreation Commission
Douglas Bennett	Topsham	Lower Village Development Committee
Ann Carroll	Topsham	Summer Street Representative
Larissa Darcy	Brunswick	Brunswick Development Corporation
Natasha Goldman	Brunswick	Brunswick Public Art
James Howard	Topsham	Lower Village Development Committee
Debora King	Brunswick	Brunswick Downtown Association
Margo Knight	Brunswick	Master Plan Implementation Committee
Cathy Lamb	Both Towns	Riverwalk Committee
Victor Langelo	Topsham	Topsham Community Fund
Gary Massanek	Brunswick	Village Review Board
Nancy Randolph	Topsham	SaveOurSwingingBridge.org
Gary Smart	Topsham	Historical District Commission
Donald Spann	Topsham	Topsham Development, Inc.
Sande Updegraph	Brunswick	Planning Board
William Wilkoff	Brunswick	Brunswick Bike-Ped Advisory Committee