Figure 1: ***View of the Memorial Bridge, Portsmouth, N.H. taken from Prescott Park [Source: Josh Pierce]***

The Case for a Memorial Bridge with Shared-Use Paths

A "green" paper comparison between the Memorial Bridge in Portsmouth, N.H. and the Hawthorne Bridge in Portland, Oregon

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Figure 2: View of the Hawthorne Bridge, Portland Oregon taken from Tom McCall Waterfront Park

Rehabilitating the Memorial Bridge with Shared-Use Paths

The purpose of this paper is to evaluate two similar vertical lift bridges in the United States in order to better understand how rehabilitation of such structures to include shared-use paths for pedestrians and cyclists can meet modern-day, multi-modal transportation demands while preserving the overall historical integrity of the structure. The hope is that this comparison will help the people and governments of Maine and New Hampshire find a balance between potentially competing goals. While this paper clearly supports a bridge with separate shared-use paths for pedestrian and cyclist, the intent is not to curtail public process with regard to design, but suggest a starting point. With regard to process it should be clearly understood that this paper is intended to be part of the public and internal [governmental] dialogue as the Connections Study scenarios, which include rehabilitation and replacement of the Memorial Bridge, are explored.

Whether the Memorial Bridge is rehabilitated or replaced with a new structure, the useful life expectancy ranges from 50-85 years. The significant resources required underscore the reality that we will likely not have such an opportunity to design a crossing that meets the demands of today and the future needs of tomorrow again in our lifetime. Not long ago the business of constructing transportation systems took little consideration of any form that was not motorized. Today we are witnessing a shift brought about by a variety of factors that include environmental impacts, energy cost and consumption, matters of health & wellbeing, and a desire to live a more connected life. Our communities have also changed so that what once may have been the central economic focus no longer is or has become just one component of a diverse economy. This differs greatly from the philosophy and priorities that existed when much of our transportation infrastructure, including the Memorial Bridge, was designed.

The Need for High Quality Pedestrian & Bicycle Facilities on the Memorial Bridge

Today, once considered a special use, walking and biking are becoming more and more a part of the way people live. This requires a transportation system and a Memorial Bridge that is responsive to this shift. The Memorial provides the only legal crossing of the Piscataqua River between New Hampshire and Maine for pedestrians and cyclists. Not simply a local route for pedestrian and cyclists, the bridge is a designated State Bicycle Route for both states. It also carries the East Coast Greenway (ECG) designated as the New Hampshire Seacoast Greenway in New Hampshire and the Eastern Trail in Southern Maine. Developed as a multi-use, “urban Appalachian Trail”, the ECG runs nearly 3,000 miles connecting cities, towns and natural areas along the eastern seaboard from Calais, Maine to Key West, Florida (www.greenway.org). While envisioned as an off-road trail network, the ECG depends on local roads and bridges in places where an off-road connection is not possible such as the Piscataqua River. The local and national significance of

the ECG can be best understood by considering that Route 1 is to vehicles what the ECG is to cyclists and pedestrians. In summary, without the Memorial Bridge or a similar replacement structure, the connection between the non-motorized Maine and New Hampshire routes will be severed and the ECG will no longer be a single contiguous route.

Design Limitations on the Memorial Bridge & Approach Roads

As a shared use (multi-modal) facility the current design of the Memorial Bridge creates several endangering conditions for all users with a disproportionately high risk for cyclists. The following structural conditions currently pose the most significant risk:

- **Open-grate decking** on the lift span roadway catches bicycle tires under optimum conditions, but becomes treacherous under wet conditions causing tires to slip and riders to loose control. When a cyclist falls, just the impact on the grate can cause serious injuries, without consideration of additional injuries caused by vehicles on the bridge at the time of the fall.

- **Narrow auto travel lanes** allow very little room for error between automobiles and bicycles. A cyclist that is riding appropriately in the narrow shoulders (approximately 3-ft from outside of line to curbing) must remain alert for vehicles, appurtenances or items in tow that enter the shoulder because of size, driver error or in order to avoid another vehicle in the opposite lane. This situation significantly decreases the likelihood that a cyclist will be able find a safe area if he/she experiences trouble while riding.

- **Drainage grates** spaced at regular intervals leading up to the lift span create an additional hazard for cyclists already trying to navigate the narrow shoulders. The grates are designed with wide spaces and sit approximate 2-inches below the road surface creating an opportunity to catch a wheel or destabilize a rider.

- **Narrow sidewalks** on each side of the bridge do not allow pedestrians and cyclists to safely co-exist. The approach sidewalks currently provide an approximate 9-ft travel way; however this decreases on the truss spans where structural beams reduce the sidewalk to approximately 5½-ft. This is complicated further by the presence of several bridge operator stations which in addition to creating blind spots, reduce the sidewalk around them to 4-ft. The net effect is like a funnel which forces users traveling in different directions, at varying speeds, with equipment in tow (bicycle, stroller, etc.) to share increasingly smaller space. This creates an endangering situation for bridge operators, pedestrians and

cyclists alike. For comparison, the American Association of State Highway Transportation Officials (AASHTO) recommends a width off 10 feet for a multi-use path that will receive significant traffic.

- **Sidewalk surfaces** currently used on the Memorial Bridge and Scott Avenue Overpass include pavement, wood and an aluminum grating. This creates inconsistencies and safety concerns for users that could be avoided by the use of a single type of surface. It is worth noting how many users avoid walking on the aluminum sidewalk grates by walking on the curbing or in the roadway because they and/or their pets are frightened. Metal grating and wet wood decking can also be difficult to safely navigate for dismounted cyclists wearing standard cycling shoes, which have protruding cleats and little tread for grip. The grate creates an un-necessary risk easily corrected by a solid deck material.

- **Sidewalk railing height** does not currently meet AASHTO's 42" height requirements for use by cyclists. Increasing the railing height would be necessary in addition to adding width to the flanking walkways to make them safe for mounted cyclists

- **Road crossing conflicts** occur for pedestrian and cyclists as they transition between bridge and connecting roads on both the Kittery and Portsmouth sides. Conflicts are more significant on the Portsmouth side because of additional road connections and confusing traffic patterns. This illustrates the need to redesign traffic patterns and traffic control devices that consider pedestrian and cyclist travel patterns rather than just motor vehicles.

User Issues on the Memorial Bridge and Approach Roads

- **Maine & New Hampshire Laws** generally grant the same rights and duties to cyclists that drivers of motorized vehicles have. Both states require a 3-foot minimum clearance when passing a bicycle and allow drivers to cross a double yellow line to allow the 3-foot clearance in passing a cyclist if it is safe to do so. The Memorial Bridge is especially challenging because the narrow roadway, coupled with high traffic volumes during peak periods, reduces the ability of a driver to pass a bicycle in accordance with these laws. Further the cyclist does not have the option to leave the roadway in order to avoid a more severe collision with a motor vehicle that did not follow the above rules because of the structural barrier created by the railings and trusses.

- **Diverse non-motorized uses on sidewalks** must try to safely co-exist. Many of these non-motorized uses introduce additional factors such as strollers, pets or bicycles which require more space in all directions between users. Users also travel at different speeds, creating a desire to pass slower users. This creates a potential conflict amongst users who refuse to yield the way or maintain little

consideration for the safety of their fellow users. This situation has resulted in concerns over potential injury and a history of arguments between users. Also of note is the use of the sidewalk by more passive users who stop for long periods of time for various reasons including sightseeing.

- **Cyclists must walk:** In response to current sidewalk conditions, a policy was implemented that requires cyclists to walk their bicycles if they chose to use the sidewalks. While this is understandable under the current conditions and laws governing sidewalk use, it has the net effect of unfairly causing the cyclist to be less effective in his chosen method of transportation. It also does not solve the design problem that sidewalks are too narrow to meet today's moderate to heavy use.

A Tale of Two Bridges

Separated by 2,535 miles, the Memorial Bridge and the Hawthorne Bridge have surpassed their roles as mere pieces of transportation infrastructure and have come to be an iconic symbol of the rich history and vibrancy of the regions they serve. Sister bridges, they share a steel, through-truss design and vertical lift first invented by John Waddell, who actually designed both the Memorial and Hawthorne. One could quite literally call the Hawthorne Bridge the "black sheep" of this family of bridges as when first constructed it was painted entirely black! Color aside, the Hawthorne holds the distinction of being the oldest operating vertical lift bridge in the United States, while the Memorial Bridge was the first of its size in the Eastern U.S. Together they served as the prototypes for future metal truss bridges throughout the country galvanizing a place of importance in the history of United States transportation infrastructure and engineering.

Figure 3: Memorial Bridge
[Source Steve Workman]

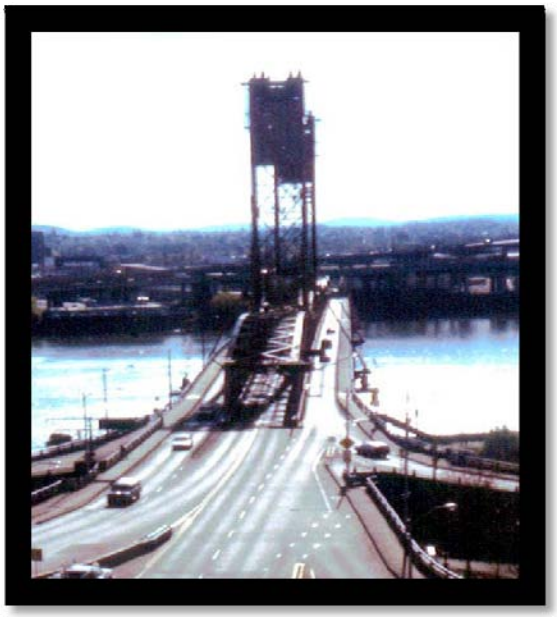

Figure 4: Hawthorne Bridge
[Source: Alta Planning & Design

Side-by-Side Bridge Comparison

The Hawthorne Bridge is one of eight bridges crossing the Willamette River connecting East and West Portland; while the Memorial Bridge is one of three bridges crossing the Piscataqua River connecting Kittery, Maine and Portsmouth,

New Hampshire. While the Memorial Bridge was built for two lanes of automotive traffic, the Hawthorne Bridge was built with two lanes for automotive and two lanes with tracks for streetcar traffic. The use of electric bus trolleys eventually eliminated the use of streetcars by 1957 on the Hawthorne Bridge making way for four lanes of automotive traffic. Both bridges are vital to their regions' mobility and each are now classified as highway bridges with traffic volumes far surpassing original considerations. Consideration of the needs of cyclists, and to a certain extent pedestrians, was limited in the design of highway facilities during most of the 20th Century, so it is not surprising that both bridges were originally designed with narrow five-foot sidewalks for pedestrian use only. When viewed through a historical lens, one can understand why each bridge was built the way it was and how difficult it would have been for engineers to foresee the demands the 21st Century would place upon them.

Table 1: Bridge Facts

	Memorial Bridge	Hawthorne Bridge
Location	Maine & New Hampshire	Portland, Oregon
Type of Bridge	Through Truss Vertical Lift Bridge	Through Truss Vertical Lift Bridge
Designed By	John Waddell	John Waddell
Year Opened	1923	1910
Width	27.9 ft.	73 ft.
Length	1,201 ft.	1,383
Maximum Vertical (lift) Clearance	150 ft.	110 ft.
Number of Auto Lanes	2	4
***Sidewalk width**	Varied 4-5 ft. with pinch points on truss spans	Originally 5 ft. with pinch points. Now a consistent 10 ft.
Shared-Use Path	No – Sidewalk for walking only	Yes – mixed uses
Openings/Year	4,023 (2008 data)	Approximately 2,400
Average Opening Time	8.9 minutes	8 minutes
Claim to Fame	First major vertical lift bridge in the Eastern US and World War I Memorial	Oldest operating vertical lift bridge in US
Major Rehabilitation	Pending	Yes

**Memorial is currently a sidewalk while Hawthorne employees a shared use path concept*

Bridging Past, Present & Future Needs

The end of the 20th Century placed new demands on the Memorial and Hawthorne Bridges, not the least of which was the end of what was considered their useful lifespans. Some of the shared questions that each community would have to grapple with were clear: What to do with a bridge that is historically significant and a visual representation of the communities it serves? Can a bridge designed 80-plus years ago be rehabilitated to meet the demands of a multi-modal, 21st Century, transportation infrastructure? Can a balance be struck between historical preservation, the design needs of different users, mobility and overall user safety?

The Portland Community was the first to face these bridge questions. However, a review of the history of repairs made to the Hawthorne Bridge and connecting viaducts suggest that significant investment in routine upgrades/rehabilitation eliminated the need, to date, to consider total replacement. The most significant repairs and upgrades to the Hawthorne occurred in the years between 1970 and 2000. The last major renovation during this period took place in 1998, cost $21 million and required a one-year closure to all bridge traffic. The work consisted of the following major tasks: Removal of existing paint and rust; application of a longer lasting, more environmentally-friendly paint; replacement of steel grid (road) deck with a thicker, galvanized grating that has a better driving surface; replacement of the original six-foot sidewalks with 10-foot multi-use paths; replacement of all 48 counterweight ropes and turnbuckles and all four operating ropes and drums; repair of dents and bends in the structural steel by flame straightening and other methods; and extension and widening of the multi-use paths at both ends of the bridge to provide better access.

It is clear after reviewing the history of the Hawthorne Bridge that regular investment in the preservation of this structure has kept it from reaching the critical level of deficiency facing the Memorial Bridge. This reflects a shared political and public will that made it possible to develop first a long-term vision for the bridge and then to make the investment of resources necessary to achieve that vision. While researching the Hawthorne Bridge it became clear to this author that the people of Portland value the history and functionality of the Hawthorne Bridge no less than most individuals in Portsmouth, Kittery and surrounding communities value the Memorial Bridge. Until recently, the communities served by the Memorial Bridge had not come together to articulate the many aspects of its actual and potential value nor a clear vision for it as a first-class, multi-modal piece of transportation infrastructure. It seems this has been done in time to prevent total loss of the bridge, but whether the political will and dedicated resources will improve capacity or simply preserve the status quo remains to be seen. If ultimately it is to maintain the status quo or make minor improvements that fall short of creating a first-class walking and cycling facility then an opportunity demonstrated by the Hawthorne Bridge renovations has been missed. Fortunately we can examine how

Portland approached bridge rehabilitation, reasons why certain improvements were made and most beneficially look at the Hawthorne Bridge itself to see how renovations such as the addition of a 10-foot shared-use path would look like on a structure similar to the Memorial Bridge.

Comparing Walking and Cycling on the Hawthorne & Memorial Bridges

The largest renovations to the Hawthorne Bridge occurred in the 1990's which is the same time period when the City of Portland began to pursue a strategy to develop a comprehensive bicycle network and increase bicycling. The City recognized that without bicycle and pedestrian routes that were safe and made meaningful connections (destination based travel) the goal of increased bicycling would not be realized. It wasn't long before it became obvious that the bridges over the Willamette River would be central to a high functioning bicycle network. The City approached this challenge with a collaborative ISTEA-funded study called the Willamette River Bridges Access Project. The study identified over $15 million in potential bicycle, pedestrian and ADA improvements most of which were or will be implemented as stand-alone projects or in conjunction with regularly planned maintenance work, including bridge rehabilitation. The result of this strategic effort, including an overview of specific pedestrian and bicycle upgrades made to the Portland bridges, is well documented in a 2005 study titled, "Bridging the Gaps: How the Quality and Quantity of a Connected Bikeway Network Correlates with Increasing Bicycle Use". The full study has been provided to the Maine-New Hampshire Connections Study Team with a request to post it on its website http://www.mainenhconnections.org. The following are excerpts from the Study's Abstract which highlight the significant return on investments made to the City's bridge and bicycle infrastructure.

> *Between 1992 and 2005 Portland increased its developed bikeway network by 215%, from 83 miles to 260 miles. During this same period, bicycle use in Portland soared. A comparison of 1990 and 2000 census data shows a doubling of bicycle commute trips citywide, with more dramatic increases in close-in neighborhoods.*
>
> *Annual bicycle counts on Portland's central city bridges, which connect close-in residential neighborhoods across the Willamette River to the city's primary commercial and employment center, show a 210% increase in bicycle trips between 1991 and 2004. This dramatic increase in bicycling occurred primarily in those corridors where the city has made significant investment to: improve bicycling conditions on the river bridges; create connected bicycle facilities leading to the bridges; and mitigate for traffic designs that are not particularly bicycle-friendly. The corridors where the network is most connected, and where the quality of the facilities is the highest, display the largest growth in bicycle trips. (Bridging the Gaps, Alta Planning & Design, 2005)*

The Willamette River Bridges Access Project found that all bridges over the river presented significant challenges to pedestrian and cyclists. The following are deficiencies found on the Hawthorne Bridge during that study which have also been identified on the Memorial Bridge:

- Bicyclists use steel grate roadway or share sidewalks on bridge
- No dedicated bike lanes
- Conflicts between cyclists and motorized traffic
- Conflicts between cyclists and pedestrians on narrow, slippery sidewalks and other points
- Cyclists and pedestrians have to cross roadways with no or minimal markings or yield controls
- Limited curb cuts at connection points
- Lack of bikeway facilities on approaching streets and structures

Figure 6: Hawthorne Bridge before any improvements for pedestrians and cyclists
[Source: Alta Planning & Design]

Figure 5: Memorial Bridge – Existing Conditions
[Source: Steve Workman]

Through a systematic approach, Portland was able to correct all identified deficiencies on the Hawthorne Bridge that negatively impacted pedestrians and cyclists. The total approximate cost for these corrective measures was $1.4 million. Savings were realized by incorporating these measures into other planned projects where there was a logical fit. The most significant corrective measures taken were:

- Sidewalks were widened to 10.5-ft. and designated as shared-use paths
- Bike lanes stripped on all approaches and connecting roadways
- Blue bike lanes used in conflict zones
- Separate pedestrian and cyclist crossing areas
- Sidewalk in-fill on approaches
- Curb cuts and ramps installed that were ADA compliant
- Connector roads/ramps were reconfigured to give pedestrians and cyclists priority

Figure 7: Hawthorne Bridge with pedestrian and bicycling improvements
[Source: Alta Planning & Design]

Making the Memorial Bridge a First-Class Walking & Cycling Facility

The following measures will expand the capacity of the Memorial Bridge and improve the safety of both motorized and non-motorized users. They draw from similar measures used on the Hawthorne Bridge which were proven to have had a positive impact on walking and cycling on the bridge and Portland in general.

1. The installation of wider, shared use paths on each side of the Memorial Bridge would replace the existing concept of “walking-only” sidewalks. A properly designed shared use path is built wide enough

to accommodate two-way, traffic comprised of diverse, non-motorized uses (walking, biking, etc.) moving at varying speeds. The path is typically signed and marked so that users are aware of traffic flow patterns, maximum speeds and rules for yielding the right-of-way amongst the different users. The AASHTO standard width for multi-use paths of 10 feet would be appropriate for Memorial Bridge based on current conditions and use, future traffic predictions and comparable design standards. This can be comprised of two 5-ft travel lanes allowing traffic to move in both directions.

2. The installation of 10-ft shared use paths on the bridge will also require improved road connections, traffic flow patterns and crossing options for non-motorized users. Currently, the sidewalks prior to the lift span are approximately 9-ft wide requiring little expansion to gain the preferred 10-ft width. Work will be required on Badger's Island, the Kittery Viaduct and the Scott Avenue Overpass in order to maintain the capacity and safety gained by the shared use paths. This should include safe transition points for cyclists to resume travel in roadway shoulders designed to meet an ideal 4-ft. width standard, but minimally 3-ft. The creation of logical and safe connection points that allow non-motorized access to the same roads and/or destinations available to motorized traffic should also be a priority.

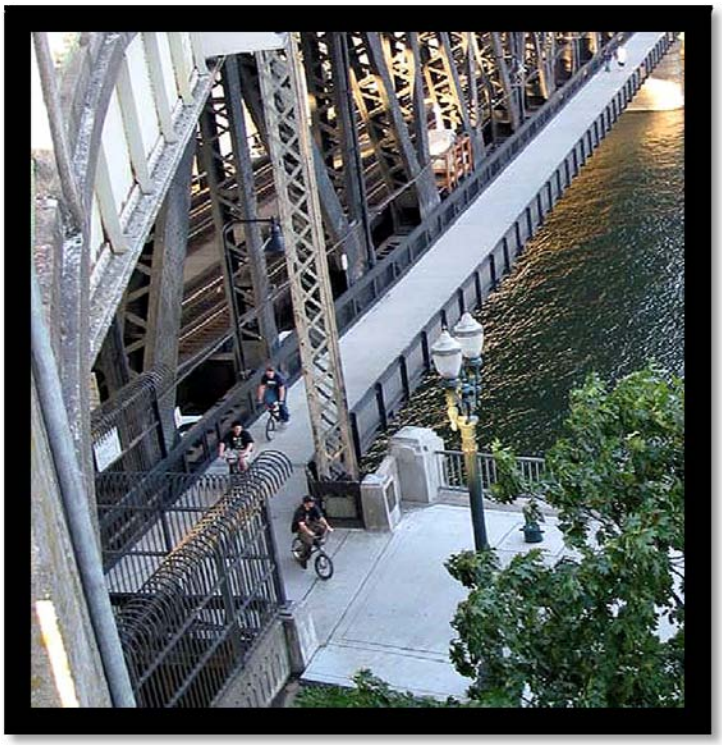

Figure 8: The Steel Bridge in Portland, Oregon with a 10-ft, cantilevered, shared-use path
[Source: Alta Planning & Design]

3. If an asphalt or concrete surface cannot be used on any portion of the shared use paths a material should be selected that provides optimum skid resistance.

4. The use of MUTCD-approved traffic control devices on the new shared use paths, re-designed roads and unaffected connector roads will be important to clearly delineate uses, govern said uses and generally reduce potential conflicts between user groups. It is anticipated that these should include cross walks, pavement striping, bicycle pavement markings, signage, warning lights, etc.

We are not alone - Portland Oregon provides an example of how balance can be achieved between a historical, landmark bridge and modern-day needs. Figure 7: Hawthorne Bridge with pedestrian and bicycling improvements on page 10 shows what the bridge looks like after improvements including the addition of the 10-ft shared-use paths were made. Understandably, the additional lanes for autos outside the towers on the Hawthorne Bridge may make it difficult to fully appreciate what the inclusion of a 10-ft shared-use path would look like on the Memorial Bridge which does not have outside lanes. Fortunately, another bridge in Portland called the Steel Bridge can provide a better sense of what 10-ft, cantilevered, shared-use paths would look like. See Figure 8 on page 11.

The Benefits of Shared-Use Paths on the Memorial Bridge

- The creation of well connected, first-class bicycle/pedestrian facilities correlates with increased walking and bicycling. Increased walking and bicycling have been identified as effective strategies to improve health, reduce carbon emissions and fuel dependency while fostering a general sense of community wellbeing.

- Adding 10-ft shared use paths on each side of the Memorial Bridge effectively doubles the current sidewalk capacity while translating to a modest, approximate 12-ft (6-ft per side) addition to the bridge's total width.

- The improvements suggested above will provide a first-class, multi-modal Memorial Bridge and related connections that will allow diverse uses to safely co-exist and reduce conflicts amongst responsible users.

Increased walking and bicycling have been identified as effective strategies to improve health, reduce carbon emissions and fuel dependency while fostering a general sense of community wellbeing.

- The East Coast Greenway, known locally as the N.H. Seacoast Greenway and Eastern Trail, connection between Maine and New Hampshire will be preserved and overall capacity increased.

Conclusion

There is a growing demand for better walking and bicycling facilities throughout the United States and the region served by the Memorial Bridge is no different. Called by some a "build it and they will come" approach in the early days of developing pedestrian and bicycling facilities, cities such as Portland Oregon could be considered pioneers. Initiatives such as the New Hampshire Seacoast Greenway and the Eastern Trail are already linking our local communities while the overlay of the East Coast Greenway forms

a connection between states from Maine to Florida. Data collected as part of the Maine-N.H. Connections Study illustrates that walking and cycling on the unimproved Memorial is significant. Clearly, a strategic investment in the development of the Memorial's walking and bicycling facilities will only increase usage.

A paradigm shift has occurred that requires alternative forms of transportation that foster a healthier environment, community and individual. Multi-use trails are an integral part of a balanced transportation system, provide recreational opportunities for all ages, help promote healthier lifestyles, and support local economic development. It has taken 60+ years to construct our current transportation network designed largely for automobile travel at the expense of non-motorized travel. Fixing this problem and transforming our transportation infrastructure so that it can meet this change will not happen overnight. However, one way to work through this challenge is to view every project, like the Memorial Bridge rehabilitation or a road repair, as an opportunity to include improvements for walking and bicycling. It is often more cost effective to include these improvements while a construction force is already mobilized than to approach it as a stand-alone project. That is why it is critical that we consider fully the ways in which the Memorial Bridge can become a first class walking and bicycling facility. This is especially true when considering the proposed addition of 10-ft shared use paths because the added weight will have to be factored in to improvements made to the structure and lift mechanism. While the proposed paths will add cost to the rehabilitation consider how costly or likely prohibitive it will be to determine after-the-fact that measures should have been taken to expand the current capacity.

The purpose of comparing the Hawthorne and Memorial Bridges was to demonstrate how one community was able to preserve a historic structure while adapting it to meet changing needs. The comparison is even more helpful because it is between two bridges that are truly sisters. While the Portland Community is larger than that served by the Memorial Bridge, and the Hawthorne is a larger bridge than the Memorial (four lanes of motorized traffic) the benefit of the comparison remains. It clearly shows that capacity can be improved and the impact to the overall historical integrity of the bridge minimized.

Proposed solutions to the challenges facing pedestrians and cyclists on the Memorial Bridge to date have focused primarily on policy, laws and enforcement. The real challenge is not the laws that protect cyclists and other roadway users, but users (drivers and cyclists) who do not follow the laws; thus compounding dangerous conditions caused by the current design of the bridge. Law enforcement is one method to reduce this problem; however, it is a reactive approach that occurs after a law has been broken or an accident has occurred. Instead, there is a proactive opportunity to eliminate much of the problem by designing a bridge that meets demand and is better suited for diverse types of usage.

The worsening conditions on the Memorial Bridge, and concern for its future, have effectively shifted public focus from enforcement and band-aid solutions to one of comprehensive repairs or replacement and design improvements. The first round of discussion that resulted in the rejected 2008 plan for rehabilitation started with limited consideration for walking and cycling on the Memorial Bridge – it focused mainly on replacing the steel grid deck with a solid surface. As concern grew, several advocates including the author formed a group in 2006 called Bridge to the Greenway. Together with members of Seacoast Area Bike Routes, the Eastern Trail Management District and the East Coast Greenway Alliance; we spoke of the need to include comprehensive improvements that will make a real difference for walking and cycling on the bridge. At that time information about the Hawthorne Bridge in Portland was provided to both New Hampshire and Maine Departments of Transportation with the request that they examine closely the addition of shared-use paths on the Memorial Bridge. Based on the 2008 rehabilitation plans, it appears that structural and mechanical improvements will primarily benefit motorized and aquatic traffic. Missing are improvements that maximize the potential to make the Memorial Bridge a first class walking and biking facility. Creating a solid deck on the lift span and relocating operator stations does improve the bridge for pedestrians and cyclists; however, several concerns listed above remain if improvements stop there. For example, a solid deck on the road portion of the lift span would be an adequate improvement for an experienced cyclist; however the narrow roadway still presents a challenge for less experienced users such as children.

The ME-NH Connections Study has engaged a positive public process that this author feels is often lacking from projects undertaken by departments of transportation. While at times painful, it has brought people with different priorities together to really think about mobility over, on and around the Piscataqua River. Many have learned that by working together despite our differences we can reach a greater level of understanding and produce a better product. Much of the conversation to date has focused on number, type and location of crossings. A next step needs to be in-depth discussion of specific improvements that could be made to an existing structure or design aspects that could be included on a new structure. The recent news that New Hampshire and Maine's application for TIGER stimulus grant funding was unsuccessful actually has a silver lining in this regard. Had the TIGER proposal been successful, the two states would likely have been locked into a rehabilitation scope from the original 2008 project. We have come too far in our public dialogue to miss the opportunity to design the rehabilitation of the Memorial Bridge, or the design of a replacement bridge, to truly address the safe accommodation of all users of the Bridge. These are our communities and our bridges, so we must require a process that reflects that, and find workable solutions that will allow for the incorporation of the walking and cycling improvements contained herein. Remember, we will likely not have such an opportunity to design a crossing that meets the demands of today and future needs of tomorrow again in our lifetime.

Resources

The following articles and websites were helpful in the development of the background for this paper:

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