



MEMO

TO: Eamon Kernan, MassDOT Project Manager
FROM: Nathaniel Cabral-Curtis, WSP Senior Consultant
RE: PFC Ralph. T Basiliere Bridge Replacement Project Targeted Meeting – Chamber of Commerce
DATE: July 18, 2023

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OVERVIEW

On Tuesday, July 18th, 2023, members of MassDOT and consultant staff associated with the PFC Ralph T. Basiliere Bridge Replacement held attended a targeted briefing organized by the Greater Haverhill Chamber of Commerce. Attendees included Chamber staff, membership, City Councilor John Mitchison, and Pam Price, a representative of Haverhill’s Planning and Economic Development office.¹ The meeting was held at the UMass Lowell Innovation Hub located at 2 Merrimack Street in Haverhill, a location suggested by Haverhill city staff and home of the Chamber itself. Built in 1925, the Basiliere Bridge is named for Private First Class Ralph T. Basiliere, Haverhill’s first Vietnam War casualty. While the bridge is routinely inspected by MassDOT and remains safe for all users, it is approaching the end of its useful lifespan and must be replaced. The purpose of the meeting was to introduce the chamber members to the need to replace the structure, provide a status update on the concept design process, discuss issues related to the replacement and unique to the business community, and to foster connections between the project and local businesses. The presentation given noted the importance of the Basiliere Bridge to City² and showcased some of the concepts developed to date to replace the bridge both in terms of cross-section and general appearance.

The meeting’s tone was strongly positive. All attendees acknowledged the necessity of replacing the Basiliere Bridge. With regard to aesthetics, attendees agreed that something should be considered on the bridge to echo the verticality of the existing towers but felt that the wind screen elements presented an attractive canvas for graffiti and would be hard to keep clean. A strong preference for a four-lane cross-section, two in each direction, was noted though the project team made it clear that the difference in how the four-lane cross-section would perform would be marginal when compared to three lanes. A concern shared with the general population, but of particularly interest to the business community is the idea of increased congestion during construction and how long that congestion would be

¹ As all meeting attendees did not introduce themselves when speaking, all content is presented anonymously. The presentation and responses to questions and comments should be assumed to have come from a member of the project team unless otherwise noted. Questions and comments should be assumed to have come from a member of the audience unless otherwise noted.

² The Basiliere Bridge appears on the City of Haverhill’s website, the badges of municipal firefighters, and on the websites of several, local community organizations.



experienced with the idea that clients might opt to stay away from downtown businesses if travel times to them became significantly longer.

PRESENTATION

C: Thank you to Kate and Alexandria from the Chamber of Commerce for, putting this together. This is the first of three of these targeted briefings that we're doing for several specific groups that have been identified as part of our research. There's this group, obviously representatives of the business community. After we finish up here, we'll be heading across the river to the yacht club to visit with the boaters where they have a bar and will be serving refreshments. That may be a more unhinged conversation. We continue to work to connect with the Latino Coalition of Haverhill. I was up at Jacqueline's Service Station earlier speaking with Argenis Marte about a time to meet and looking at his passion project which is a 1942 Ford Fire truck. It's sitting in the back slowly rusting, but I know its going to come out beautiful.

Again, the idea here is to talk to all you folks, make sure that you're plugged into this, get an understanding of things in the business community that we need to know about. Things that happen every year like the Longest Table, River Ruckus and specific challenges you may have. At Kate's request, we put together a very brief survey with all the questions based on what we'd heard to date. One thing that's nice is the answers we got are not surprising. What are the business community's concerns: how long is this going to take? What's it going to be like when you're staging it? Are people going to get so sick of congestion they don't come to you, you know, maybe get that haircut somewhere else.

At the end of the day, this is about just making sure that we've made contact. We know we have a live wire at the Chamber, you know, Kate and Alexandria always helped to cross promote our full-blown public meetings. It's nice to have that and I know Pam helps out with the *News You Can Use*. I don't think anything here tonight is going to break a whole lot of really new ground, but it will give us a chance just to talk about, your concerns and also give you just kind of a sense of where we are. This is your project manager, yours and mine, Eamon Kernan. This is Rich Lenox with WSP. I'm Nathaniel Curtis who you've all seen out in front of the Market Basket asking you to come to my meeting. We have a short show and then we can have some conversation. Eamon, take it away. This is your project manager, yours and mine. This is Rich Lennox from WSP, Eamon Kernan who you've all met. I'm Nathaniel Curtis, who you've seen out in front of the Market Basket.

C: I am the project manager with MassDOT and with us tonight is the design firm: WSP. They're doing the work and I'm the conductor, you know? Hands up everyone who has been to one of these before...O.K. nearly all of you. I don't think you'll see things tonight you haven't seen before, but just a quick agenda: we want to tell you where we are with the project and how we will keep Haverhill open for business during construction – we know that is of concern to you. We will cover our construction approach. We'll go through that and then we'll talk; we'll provide elaboration on anything that's unclear or where you have questions. It's your feedback that helps us produce a good design.

If you weren't aware, the bridge was built in 1925. It's the third bridge out there for this crossing. Ours will be the fourth. In 1966 it was named for Ralph T. Basiliere. I'm sorry, it was named in memory of Ralph T. Basiliere in 1972 after he had become Haverhill's first Vietnam War casualty in 1966. In 2018, we undertook a study to replace the deck, just as we do an investigation for most of our bridges. If we can just replace what they call the superstructure, that's the piece on the top, we would do that, but after the investigation, we determined we would have to replace the whole bridge. In 2022, we initiated a design phase and in 2023 began our public outreach.



I say we've had five meetings, but Nate tells me we've had three. In December of 2022, we met with the city and the state officials for Haverhill. We have had three public meetings. The first one, we explained what it is that MassDOT wants. We had a charette where we said, "here are some ideas for how this could look, now give us yours." Then we had another one where we said, "O.K. this is what we've heard from you," with the goal to really move forward, push, and get this design going. The design firm have been working on this, but we haven't really opened the floodgates to the point where they can say exactly what they are going to do, you know, with things like the cross-section, how wide or how many lanes the road is going to be, what the architecture is going to look like because obviously they have to design that and we'll need to have the usual battle between the architect and engineers as to what we'll finally get, but that's where are at the moment.

So, here we are tonight, standing here with the bridge right out those windows. The bridge serves as a gateway into the city center of Haverhill. Running south to north through the middle of this image is Route 125 going towards City Hall and all the different locations you likely know. I think you're perfectly aware of where we are. Here's the locus plan of this project and it wouldn't be just the bridge, it's down to the different intersections: a portion of Main Street as far north as Bailey Boulevard and in the south, just past the intersection of Main Street and Middlesex Street including short stretches of the intersection approaches. The length of the blue on the map on this slide is how far the project would stretch so it's basically to tie in our new bridge with the surroundings and ultimately, we would be doing the traffic signaling and arrangements at those intersections.

For the bridge, this is some of the terms you could hear tonight. We talked about scour and today is, well, take a look if you can. See the water? See it really rushing around the pier and the turbulence along the sides? Well, the problem is that, and we have an imagine that shows this further along, but what scour does, if you remember as a kids when you would stand in the water at the beach, if the tide came in and went around your feet, it would eventually create little holes behind your feet. What's happening out there is that on a much bigger scale. That's why these piers need to be replaced. When we build the new bridge, we will need to reconstruct parts of the riverbed to stop this from happening again; so that term scour is the water scouring away the riverbed. The piers are the foundations, and the arch is clearly just that; everyone remembers the Roman arch which gets talked about: it's a very good structural element for holding up the deck which is where we cycle, drive or walk.

Why was this project initiated? As we talked about earlier, you know the bridge was opened in 1925. The bridge is about 800 feet long. From where we sit tonight, we think this bridge is going to cost between \$100M and \$150M to replace. It is a major project. The bridge carries 20,000 vehicles per day; four percent of those are the heavy vehicles, you know, buses and trucks. Currently, the bridge is at the end of its useful lifespan, however it remains safe for all users. You can see the barriers out in the middle and the structure is constantly monitored and inspected. Bridges get rated by those inspections and when we say, "this bridge is at the end of its useful life," that means its time to replace the bridge, but it doesn't mean we won't repair it. Any repairs that need to be done to keep this bridge operational till we're ready to build a new bridge will obviously happen. I know they had to do some sidewalk repairs recently and then an investigation found that one of the beams wasn't supported properly so they put these barriers around it and eventually I think District 4 which takes care of the bridge will support the beam and remove the barrier. Here are some pictures. You can see some pieces are missing from the bridge and conditions are pretty bad. This is an example of what scour can do when its flowing fast and the current out there is high right now. You all know firsthand with the tree that took out the City's dock today. One tree with that current was able to take out a dock, so you can see just the flow of water can remove the support to the piers.

Where are we currently? We're trying to work out what type of bridge we're doing. We're very cross to that. The cross-section, and you can see some of our display boards off to the side, we will walk about a little later. We've been discussing a four-lane concept or a three-lane concept. We have to accommodate bicycles. Do we have a di-directional facility with all of the bicycle facilities in one part or do we have a lane for bicycles going north and one



going south; are they protected bicycle lanes? Obviously, sidewalks on both sides, but how wide are those sidewalks? How wide can we actually build this bridge? One of the things we can talk about a little later is our method of construction. We are going to push traffic to one side of the bridge, demolish one half of the bridge, build one half of our new structure, put the traffic on that, and then build the new second half. Because of what we need to accommodate in that first section, this bridge is going wind up being a little wider than it is currently which is to our advantage; this gives us more room to play with because of how we have to build it. The real estate is tight at either end so we have to squeeze it at the ends and really, this end by the UMass building is the difficult one.

So, here's a three-lane concept. A lot of people had the reaction of "oh, we can't go from four lanes down to three!" but if you think of how this bridge operated before the striping that's out there, it was operating in the middle as one lane each way and when it got to the ends, only then did it spread out to two. The striping they had to put down to avoid the beam that was compromised has turned this into the three-lane concept in that short area. There as a lot of conversation about how people don't want three lanes because it would screw up traffic for half the city. I said to Rich [Lenox, lead designer for WSP] that the communication didn't get through the large organization which is MassDOT a little sooner, I know this repair needed to get done, but the district came in and did the repair pretty much immediately, and if we'd have a little more advance notice it would have been great to stripe the bridge as three lanes and see what happens. If it becomes a nightmare, well, then you're able to say, "let's not worry about that." You know where you'll go because it would prove to us, we need the four-lane concept, but if the three-lane concept does work, there's the benefit of more space on either side for pedestrians and cyclists. The three-lane cross-section gives us more options. Here's the four-lane cross-section. Two lanes, north and south, the bicycle facilities, and then sidewalks on both sides, all fitting into 75 feet. Right now, the bridge is 68 feet wide, in the future we'll be working with 75 and that does not include, you'll see them later on, the overlooks. The overlooks will be an add-on to this 75 feet.

Right now the study about the cross-section has been submitted to me and MassDOT for review. That study is where the people at WSP took all the research they have done, what the City wants, what's available, how space there is, what they see as the best ideas, because ultimately, they want the answer back from MassDOT: go with three lanes, go with four lanes; that's what's ultimately under review. I think, towards the end of the month, there will be replies as to what sort of cross-section we should use. Right now, we know there's a clear recommendation for directional symmetry for the cycling and walking facilities. The four-lane option is clearly the local preference. That provides additional space for emergency response during congested conditions and reserve capacity for anticipated future traffic. A three-lane cross section remains under review by MassDOT. We know the City has strongly implied they don't like three lanes, but the science will come out as to whether four lanes works as well as three. So, WSP has given the report to MassDOT and hopefully DOT agrees letting us know just what our cross-section is going to be.

This is the first of our architectural renderings; Option One and you can see the overlooks at each pier. It was just one of the ideas. The second was an overlook which would spread out between the two central piers. Thinking back to the cross-section, if we go back, this could be concrete or steel also. If you take a look at this one, you can see it's got something of that Kenneth F. Burns Bridge style. For those of you who haven't been to previous meetings, people were talking about the wind going down the river and they commented that you could almost get blown over. So, folks asked for ideas, such as could you put some sort of screening up there. This is one of one those ideas. This second idea could be of steel or also concrete. This third option includes haunched girders, they are either steel or concrete, either way they are more convention beams with a more mini-arching effort. This one doesn't involve much of what the existing bridge looks like, it's got a more modern profile, and this is another wind screen option with a little roof on it. We didn't get too much good feedback on this version, but we wanted to share it with you and show you the ideas that are out there.



I think the way things are going, I think the bridge is going to match, or evoke the existing bridge. It will likely have the deeper arches, but you're here: give us your input. What do you like about the cross-sections or profiles you saw? One of our goals is to open the views from the riverbank. Right now if you're on the Bradford Rail Trail, you're stuck in a bit of a tunnel. Those walls will be moved so you'll actually be able to see out and underneath the bridge and look at the water, so it won't have that tunnel effect.

The bridge and the surrounding walkways are designed so that they connect. We have to work on the connection to the Rail Trail on the Bradford side, so it is not so tight and more welcoming to cyclists. We would like to connect the Wall Street path and the Dempsey Boardwalk, but that's a little bit more difficult because of the elevation change. We are looking at that. There was a concept at one point which did that, but we can't necessarily go outside the footprint of the bridge and over the water. That said, we don't want our design to preclude a future connection by say putting some structural element in the way so the connection could never be achieved. The biggest problem is the difference in elevation and how we make a path that works for all users. I suppose we could put a ladder in there and the firefighters would be fine, but that would only accommodate a very small portion of the population, and as DOT, we can't do something like that unless all are included. We are also looking to improve the rail trail connection with gateway features, lighting, and other vertical elements.

There was a lot of talk about the towers out there and whether we can save them. We can't save towers and we can't pick them up and move them because they are very heavy and not in great condition, but we do want to try and take some elements of them to relocate maybe near the rail trail or something as opposed to just getting rid of them completely. We want to blend some of the architectural design of the towers into the new bridge or use some features of them near the rail trail. More to follow on the bridge appearance soon when we choose which structure we're going with and architecturally, how it's going to look.

DISCUSSION

Q: From a funding point of view, is that going to limit what the selection is in other words? You know how you get changes during the course of a project, right? Usually you start stripping away features as opposed to adding features and so the simpler one usually comes out in the end.

A: You know, when we were saying \$150M, I'd seen some paperwork inside MassDOT that was talking about the bridge being like \$100M or \$120M, and I asked Rich, I said 'we need a better number for what this is going to cost so that when we're talking about it, we're not way off.' We didn't want to say that this was a \$100M bridge and everybody is working towards that, and then suddenly it goes to \$150M and now, we don't have funding because we only tried to get \$100M in the first place.

C: That's kind of what I was getting at; I was just wondering if everything matched.

A: Obviously, I would think the simple design would be the cheaper alternative, however, I think that \$150M will cover almost all the sorts of architectural concepts that we're currently showing. Does that seem fair, Rich?

A: I think that's about fair. That's part of the bridge type study that was reference in the previous slide. Our next big step is to take these options and do a detailed engineering analysis and put that into an overall report of which cost is a component that we need to figure out. What's the cost of a given option now? If for some reason it was double, which I don't think any of these is as compared to the others, maybe there's a decision to be made at that point – when that delta is too big, right? I don't think that we have that issue here based on whichever option you're talking about, you still have some pretty sizable foundations you have to build. You have to demolish the old bridge. You have to maintain all the stuff that is common. So one particular element, yes, it might be more



expensive, but I'm not sure there's anything here that's an order of magnitude bigger or that would pull the cost estimate completely out of whack.

A: Yes, it could be like if you were building a house, right, and the two houses were going to look identical and it's going to cost you, for the sake of even numbers, \$500,000 for both houses and then somebody says they want a nice architectural feature on let's the front of the house like a farmer's porch or something like that. Well, the main structure and everything else in it is going to cost \$500,000 and the porch is an additional \$30,000 for the bill. So now you've got one \$500,000 house and one \$530,000 house which means \$30,000 for the architectural feature. The expensive parts of the bridge, as Rich says, still have to happen. The demolition still has to happen. The roadway, the superstructure, the piers, those all still have to happen. It could be that the cheaper option is \$130M and the more expensive is \$150M. That becomes a discussion and a big part of that is the State Bridge Engineer and he has a budget for all the bridges in the state and he might, you can imagine, want to pair some of that back. That said, we've been having these meetings with the City of Haverhill and all of you and professing that this is what we're going to do. That means I'm in big trouble if I show you these beautiful architectural renderings and suddenly turn around and give you a highway bridge. In all the conversations we've had, you've heard me say that our goal is to give you something that has more character than something you might drive under on Route 128. In all the conversations I've had inside MassDOT, nobody's said to me 'Eamon, don't talk about doing something more than a highway bridge.' Right from the beginning we brought a bridge architect onboard. We would not need a bridge architect if we just meant to give you a plain, steel bridge. I'm not sure just what the DOT is willing to spend here, but like Rich said, the next study has a cost component and that will start a whole new set of conversations.

I do want to take a moment and finish the presentation. As business owners, you are interested in how your employees get to and from work, vendors get to businesses and customers get to your businesses. During construction, it's going to be very important. We're going to keep one lane open in both directions and maintain one sidewalk at a minimum. We would have potential turn restrictions. Obviously, with the two lanes pushed to one side, how they blend in at both intersections, well, that's the traffic engineer's nightmare, but there will be some possible restrictions.

When it comes to overall project completion time, that's where design/build section is. Most projects are design-bid-build which means the bridge gets design and then goes out for contractors to bid on and build. It can take around two years to go from early concept to design and then once it goes out to bid, another four months for a contractor to get it and then start construction. A bridge like this one would take around three years to build. I have a one lane, wooden bridge in Wilmington, and we're going to be able to shut the bridge down, demolish the bridge over the MBTA. The new bridge we will put in will be two lanes wide with sidewalks on both sides, but it's a four-and-a-half-year project. Although the Highway Division and the MBTA are both in DOT, the process of dealing with the MBTA is very tough. So that's a design-build project and \$15M. The Basiliere is a \$150M bridge and I'm confidently telling you three years, but what happens is when you go design/build is that when the design gets to the 25% level or base technical concept, teams of contractors paired with engineering firms bid for it and they start construction while wrapping up the design. I know that's a bit of simplification, but it means if the bridge was going to take three years to build then they can get an early start on it, and we're not spending a full two years just designing the bridge followed by three more years of construction.

So, this bridge will be going design/build to compress the construction timeframe. The design/build contract will have stipulations such as traffic management, but the design/build flexibility allows the contract to do many things because they are working directly with a designer and can come up with innovative ways to speed up the process. It's in their interests to get in and out as quickly as they can, and they have to follow the rules we lay out such as our architectural design and how many lanes they have to keep open.



Q: I have a couple of questions. I'm curious about those screens. Are there other examples of bridge in Massachusetts that have a similar kind of windscreen, like you're proposing in these drawings?

A: I'd have to look into some. I think some of the MBTA stations that are on bridges have something like that, but I can dig into it and see if I can find some. Did you like or dislike it?

C: I don't like the look of it. I'm going to be honest and having lived in Boston for 12 years, thinking of the bridges over the Charles, there are no screens.

A: It's just that we'd been told, it's going to be windy. It does kind of break up the ability to look up and down the river and I was just wondering if it's a really important element and if so, does it work on other bridges? If you're on the boardwalk and you're looking down the river, you know, this takes a section out if we put this screen up. It's still up for debate because it came from a suggestion, we received from our meetings that we've had, but then we were asked what it would be made of and we replied that it would be sort of a frosted glass kind of situation. Then the question was asked, what happens when the first piece of graffiti goes on; who's cleaning it up?

Q: Or if a panel breaks, who's responsible to deal with that?

A: And that hasn't been sorted out. Yes, the district would ultimately be responsible, but that doesn't mean they'd get a call on Monday morning that there's some graffiti and it would be fixed that week. Can you complain and they'll go? Yes, but they'll put it on the schedule. 'We'll be right out there...two years later.'³

Q: And then it's a maintenance situation; would we be blocking traffic for the 20 or so people who want to sit on the bridge?

A: I could be a maintenance situation, yes. When we came in, we weren't thinking of wind screens or anything else, but as the architect was listening to what people were asking for, one person mentioned a screen and other people said, 'yes, yes, that's a great idea.' It's not set in stone yet, how it's going to look isn't locked in yet, and we appreciate the input. This is a bit of a different group, a smaller group, but it's a good point.

C: We've never had a wind screen before, and I don't think anyone ever has suggested the need for one.

A: I know, I get it. This came from one person mentioning the wind coming down the river in the wintertime and other people agreeing it was a good idea, but how many people are walking across the bridge in the dead of winter, in a windstorm? We're developing these concepts based on talking to the city and people like you. Our bridge engineer hasn't gotten ahold of this yet, and when the state bridge engineer gets this and sees a nice wind screen, I won't be looking for a new job because I work for the Commonwealth, but I might be sent somewhere else, I don't know, but it's an architectural response to a comment we got. It's intended to give the bridge some sort of vertical element to honor the towers that have been here a hundred years and give the new bridge some character. The image isn't in this presentation, but when you look at the wind screen from the side, there's a parallel curve formed with the girders which gives us a modern bridge which is still nice and still evocative of what's here today. I can't get in the mind of an architect. Some of this is in the eye of the beholder, but sometimes you don't actually realize what you like until someone puts it in front of you.

³ MassDOT has also looked into the idea of turning care of the wind screens over to the City of Haverhill or potentially UMass Lowell which maintains a presence immediately adjacent to the bridge at its 2 Merrimack Street site.



C: That's why I was asking if one had ever been done elsewhere.

A: Again, this doesn't show too well, but the screen is integrated with an overlook where the bridge is widened making an area where people can come and hang out. Imagine, this bridge is 800 feet long and ultimately it will connect to the boardwalk on one side and the rail trail on the other. So, you'd have a situation where people can make the circle, fine a circle isn't a square, but it's an important connection that we're trying to make. Haverhill doesn't have very many parks in this general area so it was envisioned that this bridge would serve as a spot to sit or stand, enjoy the view, and stay a while.

A: Etty, who's the bridge architect Rich mentioned earlier, the one who wouldn't be out here if we were trying for an off-the-shelf sort of design, what she is trying to do, as both Eamon and Rich have said, is respond to community commentary, but also, to your earlier point about cost, create something that is meaningfully integrated with the bridge because if something is a purely decorative feature, to extend the metaphor Eamon gave us, if the state bridge engineer sees that farmer's porch and says 'oh, decorative scrollwork on the newel posts. If I take that off, it makes it a lot easier to clean and paint, so take that off and give me plain railings.' It's a decorative feature that can be stripped away when that value engineer mindset starts. The idea is to try to have something that isn't just sitting there waiting for the question about 'what's it doing there? Just making the end of the bridge nice?' The wind screens are an effort to provide vertical character without being exposed to that question, but what happens when someone puts their sticker on it or tags it or a panel breaks; those are all real questions and we've heard those as well.

C: So, when we started the Comeau Bridge, it looked like London Bridge when they started, but in the end it would up just as plain as any bridge.

Q: So are you talking about London Bridge or Tower Bridge, because everyone mixes that up.

C: I'm talking about the one outside the Tower of London; the bridge everybody recognizes as London Bridge.

A: The real London Bridge is actually in Arizona because somebody purchased it and moved it there; that is terrible, but the really ornate bridge you see in movies is Tower Bridge. There we go; you learned something new today.

In all seriousness, everybody went away from it, but there was a concept that showed the north and southbound bicycle lanes on this [the upstream] side and no cycling on this [the downstream] side so it wouldn't have been symmetrical. One of the advantages of the bidirectional lanes, and well, this is a little different, but when you have a bicycle lane, you need certain protections like the wall we're showing on this slide, and if there's just one space for bicycles, you can save some room. My thought was if we had a sidewalk, and then the roadway, and then we had this bidirectional bicycle lane, and then one much larger sidewalk on the other [upstream] side, it becomes part of that loop. So, if the city wanted to have an event, like a 5K or something, you could start it and end it out here. We had two different meetings, and the cycle advocates came to us and said 'when we come up to the intersection on this side, we don't want to cross the bridge, go over, and then have to cross back. We want to ride straight across.'

Having the cycling facilities all on one side was part of an idea to really set up that loop between the two bridges, the boardwalk, and the rail trail. The city does not have too many park spaces or a location where you can come and sit down. My thought was about people in this building. During the summer, they could grab their lunch and go sit on the bridge to enjoy it, before coming back to work.

C: The new project over here [the redevelopment of the municipal parking deck] is going to have a big open space



on the top floor with a skating rink. I don't know, but I think four lanes are better than three; in my opinion four would move better.

A: Right now, the repairs have reduced the bridge to three lanes. Before that, the bridge was really acting like two lanes except at the ends where you had four lanes. On the Bradford side, it was three lanes, there was one lane coming towards this building, one through lane going south into Bradford, and one right turn lane. Coming north, the cars would sort of drive staggered, but once they stopped for the intersection, they would queue in pairs. You say that four lanes works better and the signs right now suggest that's correct, but it only works a little bit better than three.

A: The study that we've submitted to MassDOT and referred to tonight is under review. We looked at four options in that document: three lanes with asymmetric or symmetric bicycle lanes and four lanes with asymmetric or symmetric bicycle lanes. The one clear thing that came out of that was that regardless of how many lanes there are, there's a preference for keeping it symmetric. On the four versus three, the difference is marginal. Traffic operations can still function just fine depending on some modifications at the northern intersection to let just one lane onto the bridge. There's a slight difference in the queue on the north side of the Merrimack Street/Water Street intersection, but it's a slight difference. That's ultimately why it's sort of a toss-up. Based on everything we have heard, the public preference is clear for four given the future development, emergency response, etc., but it's still got to go through MassDOT. It's not set in stone, but I do want to note three lanes could work.

A: Right, three lanes can function. So, we currently say the four lanes would operate better than the three lanes which is what everybody would have expected, but the question is would it operate so much better than it erases some of the advantages that come with three lanes.

A: So, there are some compromises, right? With three lanes you have a nice, 8-foot-wide sidewalk and a 6-foot cycle track. When you go to four lanes, the sidewalk and cycle track are only five feet wide each. I think if we go with the four-lane option, we will probably need to widen the bridge to see if we can't find a few more feet.

Q: But isn't a five-foot sidewalk a regular sidewalk?

A: It is a regular sidewalk, but more like one you'd see in a neighborhood and not a city's downtown. I don't know how wide the sidewalk is in front of this building, but I would say it's more 8-10 feet. Everything gets squeezed with the four-lane concept. Up until now, things have been all about cars, cars, cars with everything designed for cars. We're now trying to reduce that and raise the number of people who cycle or walk. Like we were saying when we came in here, "save the bats," well, this is a little bit of trying to save the humans from themselves.

Q: Does MassDOT do any kind of population density studies because we've got an apartment complex here. There's another apartment complex approved for Bradford and at the Friends' Landing parcel and so not only will you have all those folks, and so thinking about them walking, I was wondering is there a potential to have the boardwalk connect under the bridge. Would you try to do it like they do in Boston; kind of a zigzag?

A: When we reconstruct a bridge, we need to look 20 years into the future on traffic volumes; that's the standard. We contacted the Merrimack Valley MPO and the City of Haverhill to set our expectations regarding the growth of traffic we could expect in the next 20 years. Understanding the development that's happening in the city is factored in, though that can be something of a moving target which is why we connect with the city and the MPO and coordinate with them relative to a growth percentage that is appropriate. We've certainly been made aware of everything that's happening in the city, so relative to development that is factored into our analysis. We're not doing



the analysis based on the counts we took last May; it's based on taking that plus adding a percentage every year through 2045 or 50 when the bridge would have been in service 20 years.

A: In terms of a five-foot sidewalk versus an eight-foot sidewalk, obviously, a five-foot sidewalk will accommodate nearly any pedestrian volume so we're not really analyzing that the way we would with cars; I don't think we'd ever show that, but the eight feet is more about comfort for walking across the bridge and being sort of an architectural feature.

A: Another thing: we still need to really dig down on these dimensions here. Once we agree with MassDOT relative to the configuration of three versus four, you could see some subtle differences in the dimensions. So, you can see on the three-lane option that we're providing 12-foot lanes and 3-foot shoulders, so we actually have a 42-foot travel way. If you look at the four-lane, we have 11-foot lanes and only a 2-foot shoulder so it's only a 6-foot delta. Nowadays, we get recommendations to make the turn lanes 10.5 feet, and we could pick up six inches there or use a different barrier system to gain some space. I think if we end up with four lanes, we will certainly be pressed to see how we bump up those sidewalks and bicycle lanes. We're constantly tweaking the numbers since when someone needs to ride next to a vertical railing, you're supposed to have a one- or two-foot offset so they don't catch their pedal or something. So, we'd certainly be looking with the four-lane option to tweak the dimensions to gain a little bit of space to make the pedestrian and bicycle areas a bit more generous.

Q: Just a couple of comments: I went to the public meeting, and I couldn't believe how many people were just dead set on four lanes because they are thinking car-centric and they didn't think of the bicyclists at all. The other thing, I'm watching as we're here and how the cars are queuing. There is that fear of congestion. It's the thing everybody's worried about: how am I going to get home from work? How do I get out of the city? How do I get downtown for dinner? And I think that's really the big reason why everyone is so in love with the four-lane idea, but to me one of the advantages of this four-lane thing is that you've got the bicycle lane and the sidewalk, but if they are at the same level, because you're not going to have a different level for the bicycle lane, right?

A: Well, if my wife was here, and she cycles to work, the City of Boston and MassDOT built a cycle track through the North End, a bidirectional cycle facility at the same level as the sidewalk. Every day she comes home and tells me about the people with their baby carriages, kids on scooters, and dogs on the extendable leashes, they all go onto the bidirectional bicycle lane even though there's an 8-foot sidewalk, there are joggers there with their earpieces and it drives her insane and says she'd feel safer out in traffic, which she wouldn't be, but the issue is real. Right now, we're showing a concrete barrier which is great for cyclists, but if didn't have that and they were at the level of the road we would need a buffer like on the Longfellow Bridge where they have a 2-3-foot striped section with bollards down the middle which looks like a bit of an afterthought and that would have impacts on our cross-section. I think the thought process you'll hear people talk about is Complete Streets which is, you know, pedestrians, cyclists, all users, and they would suggest if we had an elevation change between the sidewalk and the cycling facilities it would help to keep everyone in their own space. We'll get the latest thought process on that. A curb for the sidewalk just for that physical separation helps to keep the pedestrians from effectively having a 10-foot sidewalk. I know we're showing the green stripe right now which might not look great on your freshly completed bridge. You might have to do it just to sort of keep people off. These are just concepts to get us a cross-section, but these are the sorts of things, the nitty-gritty we can get down to when we have the cross-section settled.

A: Those are definitely the sorts of discussions we'd be having. I think some of it's already happened in terms of what's the appropriate level for bicycles, relative to the roadway, relative to the sidewalk, I'd be surprised if we don't end up at the same level as the sidewalk.



A: It's a constant discussion, because when they built that bicycle lane in the North End, they were all excited, the City of Boston went totally overbudget, took away all this parking, but the cyclists aren't happy with it, the pedestrians aren't happy with it, in the end, was there a better option? It hurts when you have to build something like that just to discover it, but based on that knowledge we might get input whether the cyclists and pedestrians should be on the same level or not.

A: One thing to think about in terms of having a difference in height between the sidewalk and the bicycle facility is the idea that if we wind up having that curb and taking the sidewalk up higher, it does mean more weight on the bridge's outer structure.

A: But, this is just a concept to try and get an idea across and give it to people to talk about. As I say, nobody knows what they don't want until they see it. Draw a few things and get them out there so people can say, I like this, I don't like this; we had a meeting here and on this side of the room we had our traffic expert and on the other side of the room, we had fifty traffic experts who were telling our scientist that there's no way three lanes can work as well as four and that is not quite true, but it's a balance and we haven't fully decided it yet and MassDOT needs to provide the input to the designers and tell them which way to go.

A: We do need to have a crash-worthy railing somewhere in the cross-section. In this case, we're showing it at the edge of the roadway which allows us to put a more ornate, decorative railing on the outer edge of the bridge which we think is the preference based on public input. There are different ways to do it...

Q: That's so nobody drives off the bridge?

A: Yes. Maybe we could put the crash-worthy barrier between the bicycles and the pedestrians, but that crash barrier needs to be somewhere and it doesn't need to be concrete, it could be a combination of concrete and steel.

Q: So, I don't quite recall, but one of you guys talked about this project over here [pointing in the direction of the parking deck redevelopment] and this project, will they be going on at the same time?

A: Not quite, Eamon if you have the clicker, could you go back to the grid. That did come up during one of the public meetings, the one at the beginning of April, the first Monday in April, and about 10 days after that, we went back and sat with the City of Haverhill, John, and Pam and a bunch of other people and they had in the engineer for that city project, and you folks probably know this better than I do, but that whole parcel is slated for redevelopment. The part that's got the biggest impact for us is in Phase One, which is right down here on the Pentucket Bank corner. That will include the changes to signals, changes to curb lines, and putting up that big, challenging building that has the garage in the core of it. That would involve bringing in special members that have to travel on an extra long truck. That all gets done in 2025 prior to us really starting in on the bridge. The hardest part of the Renaissance Project gets squared away before we get working and the nice thing is that team for that job gave us all their line work, and traffic stuff, and the renderings of the building which we provided to the bridge architect. That way, she can take those into her thinking and so, since people can see the bridge at the same time as they see the building, the two structures can at least converse with each other. At least from where we're standing now, it's not a problematic overlap, but that's the big second bullet on the slide right there, and we know it concerns you. We'll continue to talk to Pam and talk to John so that nothing sneaks up on us.

C: And away from this end, there's the other project where there's 290 apartments going up, where the Comeau Bridge is, this is going on, that's going on.

Q: That's the one near the Bradford train station?



A: Yes, it's going to be a mess. There's a lot going on all at once.

C: Which is why it's great to have these cycling and walking lanes.

A: So, I'm working on two bridges that I just advertised for construction in Wilmington. They'll both start construction, both over the MBTA towards the end of this year. In the middle of those is Route 38 in Wilmington and it's a \$30M roadway job, and there's another bridge going over I-93 in Wilmington. They'll have these four projects going on, starting now, and the last one will finish about six years or seven maybe.

C: It's scary, because me for instance, I have a business in the middle of the two bridges. For me, who's going to want to come from that direction, or come anywhere near this because they're going to be in traffic and traffic and traffic and so my concern is all this overlapping and this has nothing to do with you guys because you need to build the new bridge, but it's scary because I think of all the people who won't want to come or my employees who live over here, how are they going to come, 495, River Street. Every way's going to be blocked somehow.

Q: Kate says you own a restaurant, which one?

A: It's called G's, right in the middle of the downtown.

C: Of course, and I do sympathize because my brother is an executive chef and he's cycled through a number of places over the years and there's the question of will people keep coming, how do my servers get here? Now, I expect people will keep coming because if it's as good as everyone says, I imagine folks will wade through a little traffic for that, on top of that, how will Sysco and your beer distributor get here and drop off what you need? So, it's a legitimate concern. It's a good problem to have that you have all this development here, but this is why we have these events like this so we can hear about your issues and bake them into our thinking.

A: The bridge will be reduced to one lane in each direction, but except at the ends, this bridge really has been operating like a single lane in each direction. Now the queue lengths will be different because it's at the end where they start doubling up and queuing, but there is no other alternative because we're not shutting the bridge down. There will be one lane in each direction and the sidewalk and that's important and whatever traffic work needs to be done to blend that in, we will do that.

A: Right, we'll be looking at signal retiming, and turn restrictions or localized detours.

A: Cumulatively, there has to be some impact, but I don't think that this bridge will during construction greatly restrict traffic. It can't handle the same volume per minute, but the hope is that it won't have a huge impact.

C: We should probably wrap up; we should be getting over to the yacht club.

A: Well, thank you all for coming.

A: Thank you, this was good.

C: This was really nice in this small setting.



NEXT STEPS

The project team's next targeted briefing will be at the Crescent Yacht Club beginning at 6:00PM on July 18th. MassDOT continues to evaluate the cross-section memorandum discussed in this meeting with the goal of scheduling the Over-the-Shoulder Review for August of 2023.