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(617)482-7298 fax:(617)482-1837

**Meeting Date:** August 18, 2009

**MassHighway Project Name:** Fore River Bridge Replacement, Quincy-Weymouth  
Bridge No. Q-01-001= W-32-001

**MassHighway Contract No.:** 50281

**MassHighway District:** 6

**Designer:** STV Incorporated

**Minutes Prepared By:** Nathaniel Cabral-Curtis, Howard/Stein-Hudson

**Meeting Place:** STV Incorporated, 321 Summer Street, Boston, MA

**Persons in attendance:** Meeting attendance lists have been removed to protect the privacy of audience members.

**Purpose:** The design team held a targeted briefing session for maritime stakeholders as defined by the United States Coast Guard. Representatives of Citgo, various Boston Harbor Pilot associations and the harbor masters for Quincy and Weymouth also attended this meeting.

## **Items Discussed:**

Lieutenant Commander Pamela Garcia, United States Coast Guard (USCG), welcomed the attendees and explained that her office—Waterways Management, Environmental Protection, and Facilities Inspection, with assistance from the USCG Bridge Department in New York—addresses management of movable bridges in the Boston area. She noted that the purpose of the meeting was to inform marine users of the river about the replacement of the Fore River Bridge and to arrive at a consensus regarding the optimal horizontal channel clearance for the new bridge.

John McDonald (USCG) then explained that USCG normally requires a completed permit before making a pronouncement regarding channel width; however, because replacement of the Fore River Bridge is occurring under the Commonwealth's Accelerated Bridge Program,<sup>1</sup> USCG and MassHighway are working to develop a consensus regarding the channel width as early in the permitting process as possible. The horizontal

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<sup>1</sup> This program commits \$3B over the next 8 years to reduce the number of structurally deficient bridges in the Commonwealth and ensure that additional bridges are not added to the list.



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clearance of the navigation channel is particularly significant in this process, because it will play a central role in determining the type of bridge advanced by MassHighway in its permit application to USCG. Developing this early consensus with regard to channel width will ensure that the permit request includes a horizontal clearance and bridge type that have the strongest possible chance of being quickly permitted and easily accepted. John underscored that, while these efforts are underway to speed the permitting process, a full public comment period will precede the Coast Guard's final decision.<sup>2</sup> USCG will not issue an official direction or approval prior to that time. The overall USCG Bridge Permit process generally takes 9 to 12 months.

Lieutenant Commander Garcia then introduced Mike O'Dowd (MassHighway) who expressed his thanks to the Coast Guard for arranging the meeting and explained that the meeting was intended to follow up on the discussion with marine users and the Coast Guard begun at the July 23<sup>rd</sup> briefing for members of the Quincy 2000 business development collaborative. The current design/build project to replace the Fore River Bridge is underpinned by a previous study by Vollmer Associates that studied a number of options to replace the deteriorated 1936 bridge—including tunnel and fixed-bridge alternatives—and concluded that only a new *movable* bridge could provide a new permanent crossing without substantial disruption of submarine utilities and significant takings of local businesses and homes.

Because the replacement of the Fore River Bridge is being conducted under the Commonwealth's Accelerated Bridge Program, the project must be completed by 2015, when the \$3 billion allocated to the program expires. To meet this completion deadline, MassHighway seeks to begin construction of the new bridge by 2011. Mike underscored MassHighway's commitment to starting construction on the new bridge as soon as possible, based on both the difficulty of maintaining the temporary bridge and community dislike for it. He also noted the design team's understanding that the new bridge must serve not only commuters but also mariners.

## Highlights of the Presentation<sup>3</sup>

Mike then introduced Mark Ennis (STV), who briefed the group on the current phase of the project, as follows:

- The Fore River Bridge carries Route 3A and connects Quincy in the west to Weymouth in the east. The approximate limits of the project are the rotary on the Quincy side and the intersection of Bridge Street and Monatiquot Street on the

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<sup>2</sup> In general, comments to USCG come from maritime interests; however, general community members have commented on some projects as well.

<sup>3</sup> This presentation can be viewed at <http://www.mhd.state.ma.us/ProjectInfo/>. Search either Quincy or Weymouth for project number 604382.



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Weymouth side.

- The Fore River Bridge is being replaced under the Accelerated Bridge Program, which includes:
  - Faster construction techniques;
  - Advanced project scheduling and estimating;
  - Streamlining of the environmental process; and
  - Innovative delivery mechanisms such as design/build and single-phase construction.
  
- Members of the Fore River Bridge Replacement Design Team include:
  - **STV:** project management, structural engineering, electrical and mechanical, and civil/drainage;
  - **AECOM:** environmental and structural;
  - **TRC:** environmental;
  - **Howard/Stein-Hudson:** public involvement and traffic management;
  - **Rosales + Partners:** bridge aesthetics and architecture;
  - **ASEC:** survey;
  - **Domingo-Gonzalez Associates:** bridge lighting; and
  - **Pressley Associates:** landscape architecture.
  
- The goal of the current 25% design process is to identify the most appropriate movable span and approach structures for a new Fore River Bridge. In doing so, the design team is analyzing both a bascule bridge and a vertical lift bridge and will submit all of the paperwork required for the NEPA process. Once the NEPA process and 25% design are complete, a contractor will be selected to build the bridge.
  
- A significant step in developing the 25% design is completion of the bridge type study. Issues to consider for the type study include:
  - Establishing a horizontal channel clearance that meets the needs of marine interests using the Fore River; and
  - Determining whether a bascule or vertical lift bridge is appropriate, given the agreed-upon channel width.<sup>4</sup>
  
- To date, the design team has proposed a permanent bridge that:
  - Has a closed-position vertical clearance approximately 15 feet higher than the 1936 bridge to minimize bridge openings.

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<sup>4</sup> A bascule bridge has unlimited vertical clearance in the open position and is better suited for the site if a channel width of 225 feet is found to be acceptable. A vertical lift bridge at the site would have a vertical clearance of 175 feet in the open position and could accommodate any channel width.



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- Occupies the footprint of the 1936 bridge to avoid land takings, changes to the rotary on the Quincy side of the bridge, or interfering with a submarine utility tunnel in the river bed.
- Has a 225-foot horizontal channel clearance from fender to fender.<sup>5</sup> This clearance is based on historic analysis of ships traveling through the channel under the bridge and the location of the bridge at a bend in the Fore River. A 225-foot channel width would accommodate the Panamax ship class, currently the largest vessel to transit the Fore River.<sup>6</sup>
- Includes 2 westbound and 2 eastbound traffic lanes, as well as 6.5-foot sidewalks and 5-foot bike lanes on both sides of the bridge.
- Is aesthetically pleasing to the community. Depending on community preference, the design team's bridge architect Rosales + Partners can provide the new span with either a historic or a modern aesthetic.
- The permanent bridge construction will be staged in three significant construction phases:
  - Construction of the new movable span. This phase is not expected to impact vehicular traffic, but will require coordination with marine users to minimize impacts to navigation traffic.
  - Connection of the ramps to the new bridge and shifting traffic to the permanent span from the temporary bridge. This phase will include some disruptions to vehicular traffic.
  - Removal of the temporary bridge. Like the first phase, this step will not have major impacts on roadway users, but will require coordination with marine users.
- Major milestones in the replacement of the bridge will include the following:
  - Basic design: 2008–2010;
  - Creation of the 25% design: January–August 2010;
  - Creation of the design/build package: September 2010–April 2011; and
  - Completion of construction of the new bridge and demolition of the temporary span: 2015.

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<sup>5</sup> In this case, a protective system that prevents ships from striking the piers of the bridge.

<sup>6</sup> A Panamax vessel is the largest size ship that can pass through the current Panama Canal. When discussing the proposed channel width, Mark Ennis underscored the design team's wish to receive commentary and guidance from marine users on this topic.



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## Question and Answer Session<sup>7</sup>

**Q = Question**

**A = Answer**

**C = Comment**

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Q. What are the plans for the Citgo fuel terminals? That could change what we're talking about dramatically. It's hard for us to give answers as mariners unless we know what kind of vessel size that terminal is going to handle. I do know we are headed for post-Panamax ships (135-foot beam). Also, what was the clearance on the old bridge?

A. It had a horizontal clearance of 175 feet and a closed position vertical clearance of 33 feet at the fender line.

A. I think you ought to make the span as wide as possible, thinking of the future, since it was that 175-foot horizontal clearance that closed the shipyard. How wide could you make it?

A. We can build it as wide as you like it to be, but I can tell you that the wider the clearance gets, the more expensive it becomes. Above 250 feet, MassHighway would have to buy the submarine utility tunnel, and the environmental impacts of the project would multiply exponentially. Time of construction would also increase. We are trying to achieve a balance of staying within the footprint of the 1936 bridge while maximizing the utility to marine users. The future plans for the shipyard have a lot to do with what an appropriate channel width is. Does anyone here know anything about those plans?

A. The last thing I heard was that it was going to be a container terminal. If the bridge restricts the size of ships that can travel along the river too much, that won't happen.

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Q. I would pose the question to any of the pilots in the room: What does a 225-foot horizontal clearance do for you?

A. I think that's a bit of an unfair question. The only ships bigger than the Panamax that ever went through there were the LNG tankers that were built at the Fore River Shipyard. Those were immense ships, and they rubbed the fenders going out, ran over buoys, and scraped the bottom. I really can't answer the question when you phrase it as "at 225 feet, how big a ship can you move?"

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<sup>7</sup> Because attendees did not universally introduce themselves before giving their comments, commentary is shown anonymously throughout.



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Q. Is it currently a struggle to move a Panamax ship through the temporary bridge?

A. No, not really. The real struggle was when there were 2 spans that we had to move the ship through. That's why we have agreements currently in place with Citgo to limit the sizes of the ships that we're willing to pilot through the channel until the temporary bridge is removed. Beams are currently limited to 106 feet for ships over 600 feet in length, and 90 feet for ships over 660 feet in length.

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C. I do have a problem with you basing your channel width on historic data. We have a 1981 study that suggests a 300-foot horizontal clearance. That's 28 years ago, and I can't imagine that the need for fuel and home heating oil has gone down since then. Ships certainly haven't gotten smaller.

A. That report was based on the idea that the shipyard was going to be resurrected. I don't see ship-building starting up again in that area.

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C. What I haven't heard yet is a definite channel width and, from that, an understanding of what the biggest ship we can bring in would be. Ships are going to be built to the post-Panamax specifications, and we want to be able to bring in the largest ship possible.

A. Our mindset is that if you compare a 225-foot horizontal clearance, fender-to-fender, to what you have today, it gives you a substantial buffer even with a post-Panamax ship with a 135-foot beam.

A. It's going to be different though. A post-Panamax ship isn't just a wider Panamax; it will be longer and have a bigger freeboard for the wind to push against. It's a lot more steel going through the water. To ask us today: "You have a 135-foot beam and a 225-foot span, can you do it?" is a hard question to answer. The whole channel would need to be reconfigured to bring in a post-Panamax ship. I can tell you this: if you design a bascule bridge, the 225-foot horizontal clearance needs to be there at the tips of the leaves when the bridge is up.

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C. I don't want us to limit ourselves with regard to the idea of dredging. A lot of ports are going to 40 feet and "if we build it, they will come." Whatever depth you consider with the Army Corps of Engineers, you need to make sure that the support piers of the bridge could handle the subtraction of material from the bottom if the river were dredged to 40 feet.



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- A. We are aware that the channel is dredged to 35 feet of depth at this location and for quite some distance around the bridge. That could change in the future, but it's a significant effort of a mile or more, not just a little dredging around the bridge.
- A. Even so, we are not limited by the depth. If we were to bring in larger ships, they could be lightered<sup>8</sup> at another location to make sure they float high enough in the water to transit the channel. What about the modeling that Mass Maritime was going to do for the project?
- A. Unfortunately, they don't have the new software to model it; the older model they have isn't great—I personally would not want to rely on it. An Army Corps facility in New Orleans can do this type of modeling, but the software is proprietary and would not necessarily have the ship type entered into the program to accurately model the situation at Fore River with a post-Panamax vessel.

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Q. What's Citgo's vision for this area?

- A. We are not limited by the terminal; we are limited by the channel width. Many of the ships that come to us then go on to Logan Airport or Conoco Phillips in Chelsea. The fact is, the existing bridge doesn't give us enough clearance. We routinely experience delays, 8 to 10 times a year, because vessels can't transit the bridge.
- A. But that's not because of the channel width, but because the temporary bridge can't be opened in high winds. What we have right now is an agreement with Citgo that, while the temporary bridge is in place, we will restrict the length and beam of the ships we bring into the Fore River to a certain size.
- C. I would like to know what a safe channel clearance is based on the beam and lengths of ships that we expect in the future. Realistically, the post-Panamax is going to be the new "handy tanker." If you can tell me that a post-Panamax tanker will fit through the channel clearance that you're proposing, then I'll be fine with it. The draft should not be a hard variable, provided the ballast conditions are set correctly.

Q. What's the depth to which the Army Corps recently dredged the channel?

- A. It's supposed to be 35 feet, but we encountered some hard materials that we couldn't take out with the dredge we had at the time. Our plan for the moment is to get the hard materials out and bring the whole channel to 35 feet. Right now the largest ship than can move through is one with a 36-foot draft and then only at high water.

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<sup>8</sup> Partially unloaded.



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C. I think the point is that we should plan for the ships of the future rather than base the design on the ships of the past. We shouldn't build a bridge that precludes future developments.

A. I would agree with that. I work for Cashman, and I can tell you that the shipyard won't become a residential area; the views are awful. It is, however, a designated port area—meaning that federal money has been used to make improvements there for over 100 years—and it's an excellent port. It's got rail access, and Route 3A is adequate from a trucking standpoint. There could be a gypsum plant in there. I know US Gypsum has been talking about that. We won't see ships built there again—it hardly even happens in this county any more—but an industrial use is the best and most likely alternative. You can get a ship into deep water from here much faster than from Chelsea or even South Boston. In light of all this, I would say the vertical lift is the best option, because it gives you more flexibility.

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Q. Could you build a bascule bridge with unlimited vertical clearance at the fender lines?

A. That would be the intention. We can design the bridge so that the spans are 80 degrees relative to the surface of the water. The fixed trunnion would be at 300 feet, so there would be 225 feet of clearance between the 2 upper tips of the bascule bridge.

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Q. Who ultimately makes the decision as to whether it's safe to move a given vessel through the Fore River Channel?

A. The ship's captain won't go through unless he believes it's safe.

Q. And how is that decision made?

A. He would ask the pilot on board.

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C. The problem is that you guys are running out of time and you're trying to shorten the process. We aren't getting a model, because there's not enough time to find the money and spend it. We are being forced to guess about what's O.K. for our future based on the fact that this didn't come together quickly enough.

Q. But given the conversation we just had, that the captain of the ship would base his decision on whether a given channel is safe on the pilot's understanding of the channel, the question really comes down to: Based on your knowledge and experience, what is a safe buffer for a post-Panamax ship?





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- A. The criterion for turning circles is 1.5 with regard to length. I would consider the Fore River a turning basin.
- A. The question is: Can we bring a post-Panamax ship roughly 750 feet long by 135 feet wide into the Fore River with a 225-foot channel. My answer to you is yes, we can do it. More than likely it would be fine. I think what we keep hearing is that “more than likely” isn’t really good enough. Really, it should be a bit bigger, because the larger ships will blow all over in the wind. I certainly wouldn’t take an auto carrier through there at 225 feet. The carriers are so light that you either have to keep the velocity up to maintain steering capabilities or you have to use tugs to counter all of the wind load. The effective beam of these ships is much wider going through the bridge because they end up traveling through the water at an angle.
- A. Here’s a practical answer to your question: We have to charter our vessels at Citgo; we don’t own them. Right now, we can’t find a suitable barge because of the size issues; the distance between our tank fill locations requires a longer barge than can be accommodated by the width of the channel. We are restricted to the size of the vessels that are available. If we need to go hunting for smaller vessels, then we may well not be doing business in the Fore River anymore. Margins are tight. The little we can shave off for transportation costs mean a lot. Ships cost a billion dollars to build, so if you’re going to build a ship, you’ll make it as big as you can. We don’t want to be in a position of running out of ships the right size for the bridge.

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Q. Is there an upper limit on the bridge for MassHighway?

- A. The best we can give you is a horizontal clearance of 250 feet. Anything bigger than that, we have to buy the utility tunnel, which changes the whole nature of the project in terms of cost and schedule. Also, at that size, you automatically go to a vertical lift bridge. We can make that argument to the public, but we’ll need to support it.
- C. The argument is that we need to be able to bring commerce into the Fore River safely. The extra 25 feet would be an enormous benefit to Citgo.
- A. I understand that, but ultimately this is public money paying for this project, so we have to be responsive to their wishes.

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Q. Is a vertical lift bridge more expensive?

- A. It is about the same, because you have to build 4 towers instead of 2 piers. There are also some maintenance issues, because MassHighway has relatively little experience with keeping up a vertical lift bridge, but we can eventually address that part.



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- C. I want to point out that I think we are being cooperative when we say that Citgo would settle for 250 feet of channel clearance. We have this report--not our report, the Commonwealth's report—that says 300 feet. 250 feet is saying we understand the conditions MassHighway is working under and are trying to accommodate the agency.
- A. I would, however, point out that at the June meeting, people still had the original bascule bridge in mind. They definitely don't like the eyesore out there now; 16 out of 17 people at that meeting wanted a bascule bridge.
- A. We can understand the 250-foot clearance based on the costs you outlined. The 225-foot clearance is just based on aesthetics, and there's a lot more to this equation than just aesthetics. The extra 25 feet would be really helpful to us.
- A. What I think we are hearing out of this is that we need to find something closer to 250 feet of horizontal clearance that's amenable to all sides. We need to go back to the public and tell them about it. We are going to get some blowback with the vertical lift option, so we are going to investigate the options for the maximum length bascule bridge that we can recommend, probably closer to a 225- to 235-foot channel width. We want to give you a bridge that is economical to construct. I think we would be back to the public with these concepts sometime in mid-October, but I'd say we're closer now than we have ever been.

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- Q. Are there any concerns with a 250-foot horizontal clearance?
- A. As a mariner, I would say that the larger you make the channel, the better it is for us. The Chelsea Street bridge has been a hazard for 40 years, and the terminals on it need to partner with shipping owners to get vessels to serve them; 250 feet would definitely be better.
- C. In Portland, Maine, they've brought ships similar to those we've been discussing through a bascule bridge with a 200-foot channel clearance. Maybe we can reach out to them and see how they're doing it.
- C. We did the permitting for that bridge; in the end, it came down to money. The Federal Highway Administration and the Maine Department of Transportation wanted to build the least expensive bridge that met the needs. The politics got the channel clearance down to 200 feet, and it was an issue of whether or not to keep fighting or permit it. In the Northeast, the cost of fuel is really reaching a critical point. Anything that brings down that cost will help. People around the bridge are hurting because of the high cost of fuel, driven in part by using more, smaller ships. Maybe we need to start thinking in terms of deeper waterways and bigger bridges.



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Q. So, what are the criteria for which bridge type you choose?

A. We are going to choose a bridge that's safe for motorists and maritime users, economical to build and maintain, and acceptable to the public. Safety is always our number one concern, but public controversy is never far behind it.

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Q. When you go out to the public, will you show them some nice vertical lift bridges?

A. We will, but I can tell you that if it is a vertical lift bridge, it'll be some sort of truss. MassHighway doesn't have the funding to build anything extravagant.

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Q. How weighted is public opinion in all of this? You have people offering comments who aren't really qualified to express an opinion.

A. I make it a point never to underestimate the smarts of the public. They can always hire an expert who will refute your expertise.

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C. Maybe it's just me, but I perceive an inferred concern that if we don't acquiesce to a bascule bridge, the public outcry will be so huge that there will be negative connotations for Citgo's place in the community. I feel like we are working with you here.

A. Nobody is suggesting that you aren't.

A. I just don't want it suggested that Citgo demanded a certain channel width and so people are going to be saddled with an ugly bridge. If we can bring our ships through a wider channel, it will lower fuel costs and reduce the chance of ship strikes. We are being cooperative; I don't want Citgo presented to the community as a villain.

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C. I am happy we're getting a new bridge, but I definitely think we need to pursue additional dredging with the Army Corps of Engineers.

A. The Army Corps would be willing to pursue a study regarding additional dredging once the bridge channel width is established. Once you know the dimensions of the channel, please send them to me. In general, though, we don't generally conduct a study based on a request by a single user, and there's no guarantee that dredging would be funded.

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## **Next Steps**

The design team will develop an overall look for the bridge and study the impacts stemming from both a vertical lift bridge with a 250-foot horizontal clearance and a bascule bridge with a 235-foot horizontal clearance. These options will be presented to the community at a meeting in mid-October of 2009.

Upcoming public involvement milestones include a briefing for the North Weymouth Civic Association on September 18, 2009, and a briefing for the residents of Quincy Ward 2 on October 8, 2009.



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**File STV No. 20**

## **End of Meeting**

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**Note to the Reader:** the materials made available through this section of the website have been developed by the project team to support the public involvement process. As the materials cover roughly a year's worth of meetings, the reader should assume that all materials reflect the project team's best understanding of the project at the time prepared. Later materials offer the reader a deeper and clearer look at the project and should be assumed to supersede earlier materials.

These minutes are a close representation of what transpired at the meeting summarized herein, but should not be considered a verbatim transcript. Contact information provided by meeting attendees has been removed to protect their privacy.

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