MEMORANDUM

To:	Mike O'Dowd MassDOT Project Manager	Date:	November 22, 2019
From:	Nathaniel Cabral-Curtis Howard Stein Hudson	HSH Project No.:	2013061.14
Subject:	MassDOT Allston I-90 Taskforce Meeting Meeting Notes of October 10, 2019		

Overview

On October 10, 2019, members of the Allston Multimodal Project team and associated MassDOT staff held a Task Force meeting for the project. The Task Force is composed of local residents, business owners, transportation, and open space advocates, elected officials representing communities impacted by the project, as well as representatives of local and state agencies. The purpose of the group is, through the application of its members' in-depth knowledge, to assist and advise the Massachusetts Department of Transportation (MassDOT) in refining the preferred alternative selected by the Secretary of Transportation for documentation in a state Final Environmental Impact Report and in two federal documents: a Draft Environmental Impact Statement (DEIS) and a Final Environmental Impact Statement (FEIS). Once the process associated with these environmental documents is completed, the project will be bid using a 25% design/build package that MassDOT will make available to interested general contractors.

At this Task Force meeting, two presentations were given. The first presentation was made by Elizabeth Parent of TetraTech. Her presentation provided an overview of the project's stormwater management goals and constraints. Stormwater management for this project must comply with Massachusetts' stormwater management standards and the total maximum daily load for the Charles River, as well as improve existing conditions. Discussion regarding stormwater management was relatively brief and focused chiefly on how stormwater would be removed from the proposed, temporary Soldiers' Field Road (SFR) trestle in the Charles River. As of today, all stormwater falling on SFR is discharged directly to the Charles River without treatment. The temporary trestle offers the possibility of treatment of at least a portion of the stormwater which falls on it, an improvement on the way to full treatment under the permanent conditions proposed.

The second presentation was made by Mark Shamon of VHB, the railroad consultants on the project. His presentation provided an overview of issues that have come up regarding the commuter rail line and the travel analysis that was conducted. A simulation of the operation of the rail network around and through the project area had been planned but could not be run due to lack of time. Discussion regarding rail operations was intense with task force members actively questioning the assumptions driving the model used by VHB and the results outputted. Topics raised included the acceleration rate of locomotives, the positioning of West Station as related to other elements in the project area such as the proposed buffer park allowed by the Harvard Flip which reverses the position of the rail layover facility and the station as compared to what was proposed in the Draft Environmental Impact Report (DEIR), and the utility of the commuter rail layover facility itself.

Agenda

Detailed Meeting Minutes[1]

Welcome & Opening Remarks

C: Nathaniel Cabral-Curtis, HSH: I just want to make sure that everybody is in their seats. A couple of things, Michael O'Dowd, our Project Manager, is going to be a few minutes behind schedule. He asked me to kick this off. I'm Ed Ionata tonight. We have a full agenda, and we also have many people who came here on bicycles and a very heavy soaking rain coming in for their ride home. I'm going to try to move us through this at a reasonable clip. If you don't get to what you want tonight, remember on the 13th of November, we're back at the Fiorentino Center for a 4-hour workshop-style session in the afternoon from 2:00 PM until 6:00 PM.

Our agenda is a little bit mixed tonight. We are going to start with the stormwater approach, which is a holdover from our last taskforce meeting. Then we will go to the rail, and then after that, we'll get an update on the MEPA process, which is ongoing in the background. With that, stormwater.

[1] Herein "C" stands for comment, "Q" for question and "A" for answer. For a list of attendees, please see Appendix 1. For copies of meeting flipcharts, please see Appendix 2.

C: **Elizabeth Parent, Tetra Tech:** My name is Beth Parent, and I'm at Tetra Tech. I work in the highway group and am working on the stormwater piece of the Allston project. Tonight, I'll give a little overview of our stormwater approach for the project.

Presentation

C: **Elizabeth Parent, Tetra Tech:** This is an overview of our stormwater management project goals and constraints. We have two main goals. One is to comply with the Massachusetts stormwater management standards, and the second would be to comply with the total maximum daily load or the TMDL for the Charles River. For the stormwater management standards, the project is considered a redevelopment project because under proposed conditions we'll have less impervious area than under existing conditions, which means that certain standards such as recharge, total suspended solids removal and peak flow attenuation are required to be met to the maximum extent practical. The project must meet the remaining standards and improve on existing conditions.

For the TMDL, there are two TMDLs associated with the Charles River in the project area. It's the final TMDL for pathogens and pathogens are treated by nonstructural BMPs. Best management practices can include source controls, and reductions, education programs, and elimination of illicit connections, BWSC, DCR, and MassDOT are all of the owners and operators in the stormwater systems in the project area, and they have all implemented structural BMP programs to address the pathogen TMDL. For the nutrient TMDL, specifically for phosphorous, there is a reduction target associated with that, and this is treated by structural BMPs, which I'll get into in the next few slides in detail. The TMDL for phosphorus removal is really driving the stormwater design for this project. The proposed treatment volumes are directly tied to the phosphate reduction target at 64%. The constraints on the project are potential subsurface contamination from past land uses as well as the groundwater elevations that may influence the stormwater design.

For our stormwater treatment methodology, our treatment targets will be met project-wide using the macro approach which is allowed by stormwater management standards. That just means that treatment in some areas is oversized, where it's feasible to compensate for constraints elsewhere in the project. Stormwater treatment options will vary based on jurisdiction and land use. I-90 interstate and the ramps are owned and operated by MassDOT. Cambridge Street and connector roads are owned and operated by the City of Boston or BWSC. Soldiers' Field Road and the park are DCR. West Station and the railyard are MBTA. The table on the right shows options by jurisdiction. This was in the DEIR. Our main goal is to prioritize low impact

development and complete streets design. We'll prioritize that over-concentrated end-of -line treatment.

Q: Nathaniel Cabral Curtis, HSH: Could you tell the group what concentrated end-of-line treatment would be?

A: Elizabeth Parent, Tetra Tech: As an overview, it's if you collect all of the water into a giant pipe and push it all into one place to treat it. Whereas with a low impact approach, you treat the water right at the source, so you're not putting it all in one spot to treat it. I'll elaborate more on that.

This is just a conceptual stormwater plan. The dark blue areas are conceptual infiltration or bio-retention swales and basins in the park area. The teal is subsurface infiltration chambers. The green areas are rain gardens or bio-retention. The magenta is underground treatment in the rail yard. I'm sure it's going to change as we progress with the drawing, but it's to show the magnitude of treatment that is required for the phosphorous removal target. For I-90 interstate and ramps, the feasible option is to do subsurface infiltration in chambers and relocate it south of I-90; we'll arrange them linearly to increase the separation between the groundwater and where we'll be infiltrating underground. This will help reduce the potential for groundwater mounding and reduce the potential for mobilization of subsurface contaminants. This is another blow-up of the other graphic showing I-90 treatment specifically, the long teal box.

For Cambridge Street and the connector roads, treatment options include rain gardens, bio-retention, and biofiltration. We will maximize as much treatment as we can in the available space for the rain gardens in the buffer areas between the sidewalks, bicycle paths, and roadway. Then we'll use subsurface infiltration underneath the roadways as a supplement to get to the goal of the phosphorus removal target. Similarly, to the I-90 chambers, we'll arrange them linearly instead of concentrating them at the low points. These are pictures of installed rain gardens and swales to see what they could look like. These are more the planter type that could be in the buffer areas and bump-outs along Cambridge Street. We could also have some areas with more space where we could do bio-retention or enhanced treatment trench swales; it requires more space, but they all perform the same treatment. Then, a blow-up of the Cambridge Street typical intersection with the green areas being areas available for stormwater treatment. The teal areas are subsurface infiltration under the roadways.

For Soldiers' Field Road and the park, treatment options are rain gardens, bio-retention, biofiltration, infiltration swales. Planters and swales will treat path drainage. Swales will treat the runoff from Soldiers' Field Road, both from the viaduct and underpass area can be pumped

up to the park area to be treated before it discharges to the Charles River. All stormwater features will be integrated into the park design. Deneen Crosby, a landscape architect from CSS, and I will work together to make sure that treatment volumes are met and that it'll look pretty.

This is an area for Soldiers' Field Road treatment. We identified that the entire viaduct area is sloping down to the BU bridge area, so we can capture water in a type of basin for treatment. These areas are just representing volumes. Details will be worked out in the design. Park treatment will involve planters for runoff between the two paths. It won't be continuous like you see here, there will be breaks for pre-treatment and whatever else is in the buffer area. For the blue areas, we're envisioning more swales to treat Soldier's Field Road and the path that's adjacent to the river.

For West Station commuter rail and the railyard, treatment options include drip pans, oil-water separators, pours, rain gardens, subsurface infiltrators, or subsurface fan filters. The magenta areas are conceptual underground treatment. Most likely, they'll be adjacent to the track or underneath pavement, but the details haven't been completely worked out yet. There will certainly be some treatment in the railyard.

In summary, the MassDEP stormwater standards will be met to the maximum extent practicable, and the project-wide phosphorous reduction target is driving our stormwater treatment and BMP design. Low impact options and complete streets design will be prioritized and maximized, and subsurface infiltration will serve as a supplemental treatment for phosphorus reduction goals.

Q: Bruce Houghton, Houghton Chemical: You mentioned a variety of agencies that are responsible for different areas that may lead to coordination problems. At the same time, I know that a lot of that area still has reportable quantities of residual diesel fuel contamination. It wasn't mentioned up there, but that's now Harvard property, and they've taken ownership of it. Who will be responsible for the cleanup of the contamination?

A: Chris Calnan, Tetra Tech: During construction, the general contractor would have to handle and dispose of anything disturbed. far as cleanup goes, outside of those areas that aren't being disturbed, it's not like MassDOT is going to clean up there; it's more what is encountered during construction that MassDOT will deal with. They're not going to go in there and do a wholesale cleanup because that's Harvard's property.

Q: Bruce Houghton, Houghton Chemical: The railyard where there's residual fuel contamination will still be Harvard's responsibility?

A: Chris Calnan, Tetra Tech: During construction, we'll have the four agencies Beth mentioned handling material disposal. As far as cleanup goes, outside of those areas that aren't being disturbed, it not like MassDOT's going to do any cleanup there. Outside those areas, that's Harvard's problem. Our responsibility will be during construction.

C: Elizabeth Parent, Tetra Tech: To add to that, in the design phase, we'll be doing an analysis of the groundwater movement and mounding and making sure that we're not going to move any contaminants by infiltration. That would mean that we don't want to infiltrate in that area or cause harm because that's not the point.

Q: Nathaniel Cabral-Curtis, HSH: What is groundwater mounding?

A: Elizabeth Parent, Tetra Tech: When we are capturing the stormwater as it hits the pavement and we want to infiltrate it into the ground or recharge instead of having a surface runoff. When you do that in a concentrated area, it can pull the groundwater up, which would change the way that the groundwater is moving towards the Charles River. We don't want to change it in a way that would cause the mobilization of contaminants that maybe have been dormant.

C: Nathaniel Cabral-Curtis, HSH: Thank you.

Q: Pallavi Mande, Charles River Watershed Association: I didn't see anything here that was a surprise. I appreciate you presenting, but I was expecting more information regarding the constraints that you're offering. You articulated the contamination of the rail yard. You guys already have sections in terms of AULs, from where I can see lining the systems, it seems pretty even. I'm assuming the land is not allowing you to do that in the way you have planned. That's from the contamination standpoint. Groundwater levels are another piece. I'm curious to know why you have chosen to place groundwater infiltration basins in the places where groundwater will be highest?

A: Elizabeth Parent, Tetra Tech: I wouldn't say that we did.

Q: Pallavi Mande, Charles River Watershed Association: I was just wondering, in terms of the contamination levels of the site, there are some sections that are more contaminated than others. Since that information was not presented, I'm wondering what the criteria are for citing these different strategies are? If you're not going to cite things where you could eventually contaminate the land and the water. And the second piece, which is what I was asking about is, the darker blue, which is mostly where the park is, I understand that's where the real estate might be for you to incorporate this, but that's also where the highest groundwater level is.

A: Elizabeth Parent, Tetra Tech: That's where we found the lowest groundwater levels. As the water is moving towards the river, it's approaching the river level, which is about 0-2 feet below the surface.

Q: Pallavi Mande, Charles River Watershed Association: Will you be able to infiltrate in those areas as much as you expect?

A: Elizabeth Parent, Tetra Tech: Yes. Right now, we're at the conceptual level still. We have some information about the contamination, we have some groundwater information. We'll be gathering more information and subsurface investigations as we move forward. The information we have right now led us to this design, where we're making sure to have the separation between where we think the groundwater is based on the data that we have, and the bottom of our infiltration, so we shouldn't have an issue with that. For the contamination piece of it, there are certain areas that we're trying to avoid. It also led us to spread out our BMPs more, as I talked about a few times, where we are going to have linear infiltration, that allows us to keep them closer to the roadway elevation and a lot of the area in the connector roads, Cambridge Street South area will be filled, so the elevations under the proposed condition will be higher than the existing conditions. If we can keep our infiltration as high as possible, we will increase the separation of the groundwater and decrease the potential for contamination mobilization, but we will certainly edit later design phases and be checking for sure.

Q: Pallavi Mande, Charles River Watershed Association: Last question. Tying back to what Bruce was saying, since you have multiple owners for the infrastructure that currently exists between DCR, Harvard, BWSC, MassDOT, I forget if there was a fifth one, but, what's the process in terms of both design operations and maintenance. Are you looking at having proformas, like if I'm going to be in for trading in your land, you have an easement, and who gets to operate? I think you might say that all that is going to be worked out eventually, but I feel like that might be what designed in the first place and what you're putting in the ground would be impacted by that.

C: Nathaniel Cabral-Curtis, HSH: Did everybody get the question? The question is about the O&M, the operations and maintenance. There are different owners in the parcel, multiple actors at play. The question is, how are we going to arrange things so that if the water is going from one owner to the other, how will that be set up both in terms of design and the legal ramifications of whose water goes where?

A: Elizabeth Parent, Tetra Tech: We've already been coordinating with the agencies, and it's influencing the design, where the different owners prefer different types of treatment because of

their maintenance abilities. BWSC has told us that they prefer the subsurface chambers because they already had those, and they know how to take care of those; they have the equipment to do so. DCR maintains parks, so they're not going to want to be maintaining subsurface structures, so that's certainly influencing the design. The water that falls on a city street will be treated. The BMPs will be owned and operated by the city. If it falls on I-90, it will be owned and operated by the state; we're not mixing, no one wants to treat anyone else's stormwater.

Q: Pallavi Mande, Charles River Watershed Association: What's the plan for incorporating for the water when it's crossing multiple jurisdictions? I'm talking about water quantity, but there's a bunch of standards in terms of how that is with the design.

C: Nathaniel Cabral-Curtis, HSH: The question is in terms of water quantity, inundation, and how that overlays with the design.

A: Elizabeth Parent, Tetra Tech: The same BMPs treating the phosphorus are also infiltrating and attenuating peak flows. Everything is being accommodated at the BMP locations. Peak flows have to be less than existing to the maximum extent practicable. Volumes as a result of infiltration will also be less than existing.

C: Nathaniel Cabral-Curtis, HSH: Yes, Glen.

Q: Glen, A Better City: Thank you for your presentation. Is all of the stormwater going to egress through the ground straight down, or will any of it be collected in pipes and sent out through the bank into the river? The reason I ask is because I'm not just interested in project design but in construction staging and traffic management. It looked like in the DEIR that there was a dozen, two dozen different pipes that came through the bank into the river, and I know not all of them are serving just the project layout. For water that is being collected in this project layout, my first question is, will you have any pipes that go through the bank into the river? I didn't see that on the slide. The second question is, it sounds just from listening to your presentation that you're pretty comfortable, that this can all be handled fairly easily. What's the biggest challenge that you faced, and did you come across any surprises that really challenged you, your team, to figure out how to, how to solve?

A: Elizabeth Parent, Tetra Tech: The answer for the first part is yes, there will still be pipes discharging to the river. All of the subsurface chambers are designed within the overflow pipe for larger storms. The smaller storms will be captured and recharged to the ground, but for a larger storm, a lot of that will bypass so that it won't flood the roadways. Also, there'll be some areas

from the project that will not be directed towards the treatment areas. Not every inch of impervious area will be directed towards the treatment. I think we will be reducing the number of outfalls on the river. I think there are about 30 outfalls or so existing. We're going to try to combine as many as we can using the gravity that's out there and treat as much as possible. I don't think it's going to be easy, but I think the biggest challenge will be the contamination and figuring out where it's feasible to infiltrate, which we're planning to do. We don't know for sure how that's going to affect everything yet, so that might start diminishing some of our opportunity.

C: Bruce Houghton, Houghton Chemical: Having worked with many of those agencies that are responsible for this area and knowing they don't always work that well and communicate together. Correct me if I'm wrong. I'm assuming that all these stormwater plans that will be submitted in terms of best management practices and things like that will be reviewed by the construction agency which is MassDOT, to make sure they work together to make sure that they're not in conflict, to make sure that although they have different jurisdictions that they all have to be coordinated. I assume that's going to be your responsibility.

A: Elizabeth Parent, Tetra Tech: Ultimately, each owner-operator will need to approve what we're putting in because they'll be responsible for owning and maintaining it. We'll have to coordinate that before we finalize the design. I don't really follow how they could be conflicting.

C: Nathaniel Cabral-Curtis, HSH: I think the one thing that Bruce might be thinking about is, in years past, sometimes all the agencies haven't played particularly well in the sandbox together. And there's been questions about operations and maintenance. I think that's been improving if you look at the coordination of Melnea Cass Boulevard, where you have to MassDOT and the City of Boston and Boston Water and Sewer. I think the coordination is perhaps better among the agencies than it was some years ago. I think everybody will have all the appropriate eyes on this and certainly our team and various teams in the design-build entity. I think the coordination will be there so that we don't have, you know, a situation where two pipes are right next to each other and that sort of stuff.

Sir. Yes. Go ahead.

Q: No Name Given 1: What's the stormwater model, and how current is it?

A: Elizabeth Parent, Tetra Tech: I'm not sure what you're asking.

C: No Name Given 1: There are models of how much rainfall there is.

A: Elizabeth Parent, Tetra Tech: We're using the NOAA Atlas 14 rainfall, which is based on current rainfall data.

Q: No Name Given 1: It's not projecting into the future?

A: Elizabeth Parent, Tetra Tech: It is not, correct.

Q: Galen Mook, MassBike: I came here late, so I'm sorry if you've already covered this. Forgive my ignorance, where is a lot of the phosphorus coming from?

A: Elizabeth Parent, Tetra Tech: It's the impervious area. Pallavi would probably be able to answer this better than me. It can come from fertilizer.

C: Pallavi Mande, Charles River Watershed Association: Gasoline residue.

A: Elizabeth Parent, Tetra Tech: Gas residue.

C: Pallavi Mande, Charles River Watershed Association: Any particulate matter that is in the air and settles down, roads, or streets. It's not like people are fertilizing their lawns as much in Allston as other places. It's not really fertilizer.

Q: Galen Mook, MassBike: So, it comes from the vehicles?

A: Pallavi Mande, Charles River Watershed Association: Yes.

C: Galen Mook, MassBike: My next question, I think we should fix the source, not necessarily fix the symptoms. If we want to mitigate phosphorus, doesn't it make sense to have fewer vehicles? My first point. You might've mentioned this too. Is there a plan for construction during the 10 plus years of phasing? How does that plan streamline stormwater treatment? Does it happen at the end? Does it happen at the beginning? The proposal to put in four lanes of serviceable road in the river: what's the stormwater management of that?

A: Elizabeth Parent, Tetra Tech: During construction, the treatment of stormwater is governed by the construction general permit; it's separate from the final stormwater design. We don't know about the phasing yet. The contractor will determine the phasing and determine when they can build certain BMP's.

Q: Galen Mook, MassBike: How will you deal with stormwater during construction?

A: Mark Fobert, Tetra Tech: We have a program called the Construction General Permit. If you disturb over an acre, you're required to treat stormwater during construction. This part is directed by MEPA. It's the good housekeeping practices the contractor would have to observe based on the applicable EPA regulations. DEP has similar programs, but its driven by EPA regulations that the contractor must adhere to; there are regular inspections. It's the contractor's responsibility to address storm water management within the bound set by the general permit during construction. How they meet those requirements is their responsibility. We don't design it, they do.

C: Galen Mook, MassBike: It's a construction phasing question too, like where you put Soldier's Field Road, right on the river's edge, runoff and all of that. Also, it would be good to see when you put Soldier's Field Road in the river, how that's going to be managed too. I imagine that it would be part of the design. I don't know if that would be a contractor's job.

A: Mark Fobert, Tetra Tech: It's still a contractor's design. For anything during construction. We're not going to design those BMP's during temporary construction.

C: Jessica Robertson, Community Representative: I think this is an issue that's going to keep coming up, though. It might be good to have some general idea of how Soldiers' Field Road is going to be dealt with, even if it's just precedents from other projects in the past.

C: Chris Calnan, Tetra Tech: Ultimately, this project is going to get permits. Some of those details the Conservation Commission will figure out how they work, what the conditions will be. With the conditions, it goes back to the contract; the contractors will have to follow those orders.

C: Jessica Robertson, Community Representative: I understand all of that. What I'm saying is more of a political question. A lot of people have a lot of concerns about having Soldiers' Field Road in the river for 10 years, part of that is water pollution. Even if you're not actually designing it, just being able to answer the question with a little more detail, to say, these are some possible strategies for how we're going to deal with it, and it's not just going to get dumped straight into the river.

C: Chris Calnan, Tetra Tech: DEP has similar concerns. We have talked to them, and we're starting to work with them. It's going to be part of the environmental process, it has to.

C: Galen Mook, MassBike: One last comment. I like the idea of the linear path as bioswales for the mitigation project. I would encourage us to keep one of the alternatives with the grand junction in the people's pike pathway that people have been asking about, which is the high-

speed tracks. There was a long linear pathway along on Pratt Street along the south side along the base of the project that would be important to bring into the stormwater management concept is that long linear path of 30 feet wide could be a great tool for getting the stormwater as it flows from Allston into the project area. Just a comment.

C: Pallavi Mande, Charles River Watershed Association: Since it's connected to that. I think a lot of us have envisioned People's Pike, not as a pathway, but an open space system that connects floral fauna from the residence to the entire project area. I know it's not MassDOT jurisdiction to decide what happens on the land, it's Harvard, I've heard that a few times. My question to you is, you're going to be taking easements from the land, couldn't these BMPs, as far as the street right of way. What's

A: Elizabeth Parent, Tetra Tech: No, they'll be located within the layout or underneath the roadways. There won't be separate easements. We're not locating these outside of the corridor that will be used for all users.

C: Mark Fobert, Tetra Tech: The owners' parcels water will be treated within the parcel.

Q: Pallavi Mande, Charles River Watershed Association: But the owner's parcels are still being defined, right? You're still talking about what exactly is the right of way, how much space do you need for X, Y, and Z. Building on the point about, if you were to slide in these pedestrian and bike paths, you could add meaning to those. As connections, why don't we talk about a substantial open space system? As a linear point across, that can take stormwater. Provide that connection that we're all trying to get to. Why is everything trying to be squeezed in the street or packed? It's what's alluding a lot of us.

A: Chris Calnan, Tetra Tech: The best way I can explain is that stormwater treatment is pretty much established within the street now. Outside of that, we're not looking to take more real estate and more areas to treat storms. MassDOT is looking to minimize their footprint with Harvard and not maximize their taking on the conditional area.

C: Nathaniel Cabral-Curtis, HSH: Two things before I go to Bob. We've been joined by representative Kane, thank you for coming in. We've also been joined by our project manager, Michael O'Dowd. Glad he's here. Go ahead, Bob.

C: Bob Sloane, WalkBoston: I just want to emphasize that a lot of people in this room, that the issue of phosphorous is not irrelevant. The misuse of fertilizer was first introduced in the banks of the Charles 10 years ago. People messed up the Charles River Watershed.

C: Nathaniel Cabral-Curtis, HSH: Thank you, Bob. Yes, Glen, go ahead.

Q: Glen Berkowitz: Beth, I assume you've seen the drawings that show the possibility of having Soldiers' Field Road and PDW pulled out on a trestle over the river. My question is, let's say the trestle is out there for so many years, maybe 6-10 years, will the stormwater that hits that impact impervious surface? The collected catch basins are literally just dropped into the river. Or will it somehow be collected and treated? I acknowledge as I ask these questions that we heard you all say that the contractors can design it and you're not going to design it. Could you just give us one example of a possible way a contractor could design it other than just dropping water into the river?

A: Elizabeth Parent: I think that portions of the trestle close to the ends would slope back towards where the abutments would be. I believe they could collect some water in those areas, so they don't directly discharge. In the middle section of the trestle, it's a lot more difficult to get water anywhere by gravity without increasing the height of the trestle. I think they will be able to capture some water from the ends and get in a pipe, but it's a bridge, so it's a little different from when you're in a roadway and you're going to have that underground pipe system below it.

Q: Nathaniel Cabral-Curtis: Even if you pulled a portion of water off the temporary trestle, it's a better condition than what Soldiers' Field Road does today which is to just discharge directly into the river without much treatment at all. Is that correct?

A: Elizabeth Parent: That's correct.

Q: Glen Berkowitz: So, we can maintain the existing conditions. I think in a way where the presentation was in terms of what the standards may be. There are other stakeholders that have aspirational hopes that try to make the world a better place. If we're going to do something for 10 years, and the trestle is going to be in the river, is the stormwater from the trestle just going to drop into the river and go untreated or are there possible ways to treat it? I think it's a reasonable question.

A: Nathaniel Cabral-Curtis: I think that's what Beth just said. At least portions of it we'll be able to bring it back to the abutments and treat in some way. Does that seem accurate?

C: Elizabeth Parent: I think that's the probability. It's important to remember that during construction, it may be difficult to treat storm water. But the existing condition has zero stormwater treatment and we'll be providing a substantial improvement under proposed conditions.

C: Nathaniel Cabral-Curtis: Yes, Jack.

Q: Jack Wofford: I wanted to ask if the implication that I drew from your answer to what model you were using for rainfall is correct or incorrect. It sounded like, to put it bluntly, you're not planning for climate change to produce greater rainfall. Or are you building in some margin for additional capacity over what the present situation is?

A: Elizabeth Parent: Currently, we're using the Atlas 14 which is the current rainfall. That's a big improvement from over five years ago when we used to use the TP-40 numbers which were from 1960. I feel like that's already addressing a little bit of the urgency of climate change and resiliency. Also, I do think that we can look at increasing the size of some of the treatment, as we've done on other projects, but it's more for overflow for large storms to be able to attenuate the flow and not so much for the phosphorous target. Also, whenever we talk about resiliency, we have to remember that we have to work with the available space that we have and be able to build the infrastructure for the current design standards.

Q: Jack Wofford: What do you mean by that?

A: Elizabeth Parent: The current design standards would be the current rainfall; the Atlas 14 rainfall.

Q: Jack Wofford: You're saying there's a design standard that says you have to design for present rainfall?

A: Elizabeth Parent: Yes. That's what MassDOT uses, that's what BWSC uses or directs people to use for design at this stage.

Q: Jack Wofford: Professionally, do you think that's wise?

A: Elizabeth Parent: Yes. I think it's wise to analyze future conditions and see what can be done. That's practical, but we also have to think about what's buildable and what you're really gaining if we make things much bigger.

C: Mark Fobert: We're working with MEPA. Going forward, the component of climate change will be addressed in the documents also. It will be addressed, and it will be discussed**.**

C: Jack Wofford: Only if it's going to be discussed, but if some of the concepts you're describing, and I wasn't really focusing on just the phosphorous, but general implications of rainfall, and whether something over and above existing rainfall should be at least looked at as an

assumption. You know, we're getting a big storm later today and tomorrow, but we're going to have more of those apparently from predictions. I think it would be useful to at least have an alternative that you're looking at that says well I guess we could increase the capacity or there's different technology. And, you're looking at it and weighting it and these are the pluses and minuses, that's how I understand it.

A: Elizabeth Parent: I think you said it better than I did, but that's what I was trying to say. We do look at it and analyze it, and then make design changes when feasible to accommodate future numbers.

Q: Kane Larin: What does a large storm mean? It sounds like you're trying to accommodate a certain amount of rainfall and then beyond that, you just give up and it goes into the river. How much is that? Is that tomorrow? How often does that happen? Using your current model, how often is everything just washing into the river?

A: Elizabeth Parent: There are layers to that answer. The catch basin and pipe system that collects the water from the roadway and would bring the water to treatment locations is designed for a 10-year storm, meaning the probability is once in 10 years that that size storm will happen. The BMPs or treatment areas are designed to hold a 100-year storm, in case you have back to back storms or in case you get the 100-year storm and you can somehow get there, but you're probably going to have more of a backup at your catch basin grate on the roadway than you are at the BMP.

Q: Kane Larin: If it's less than a 10-year storm, then it should all be treated?

A: Elizabeth Parent: Yes. Everything that's directed to a BMP would be treated. There's still going to be some areas on the project that are not directed to a BMP because it's not feasible or possible by gravity.

C: Pallavi Mande: To build on what Kane just said, I think it would really useful, the next time we talk about stormwater, to already understand how increased precipitation is being incorporated. It would be great to see how we deal with ground water levels, where the contamination is, you guys have that information, just share it with us.

A: Elizabeth Parent: We have some of that information.

Q: Pallavi Mande: Whatever you have, it would be great for the rest of us to look at too. To Kane's point about, if all of the systems are going to be overwhelmed and everything is going to be

discharged to the river because we don't have enough land area to hold or treat, what does that look like? That also gets to the point of not the 20-year future, but tomorrow's rainfall. How is that going to potentially influence the system? If you're telling us, because of contamination, because of other constraints, that you're already going to find or assume you will, which will influence how large the system can be and where the system can be located, can we map that so the rest of us can understand the assumptions that you're making ? Where are we going to be experiencing inundation? Which systems can we expect to be overwhelmed? We have this line between the land and the water, but the reality is that there is stormwater and overflow, so that line is a little fuzzier than is depicted. I think that it would help the conversation if you start with how you're planning the climate resiliency and how the stormwater fits into that. You just have to lay that base out so people can follow along.

A: Elizabeth Parent: That makes sense. The system is going to function most storms. It's for the very rare events where it can't handle it that you're going to see flooding everywhere. It's going to be a lot better than today where there's no attenuation.

C: Pallavi Mande: Agreed, it has to be better than today.

C: Nathaniel Cabral-Curtis: We're going to take one more from Fred before we move on.

C: Fred Salvucci, Harvard University: I just want to make a couple of observations. One is that the increase in flooding is a very serious issue. Sometime between 2030 and 2040, we will lose the red line, orange line, and blue line. The Charles River Basin drains a really large area. We can't solve a problem of that magnitude within this map. I think we need a sense of scale here of what issues can be locally addressed and what needs to be done regionally. During the construction phase, the hybrid scheme: last time I looked, the Turnpike elevation was cut by six to eight feet. That could be a total disaster if the Charles River floods. There will have to be some sort of physical protection for the construction site during the construction period. The Turnpike is going to continue to be six to eight feet below grade when the job is done. You can see in the future; the scale of this problem is going to be recognized. The other thing is there are conflicts between the desire for parkland that's usable by humans and for storm drains. Sometimes they work together and often they don't. It's going to take a great deal of design. Mike is good, but he's not a magician. This is a complicated problem in which more than one value has to be respected.

C: Nathaniel Cabral-Curtis, HSH: Now we're going to talk about trains. Mark Shamon, take it away.

C: **Mark Shaman, VHB:** Good evening again, my name is Mark Shamon, I'm with VHB, and we are the railroad consultants on the project. Also, I'm joined today by my colleague Austin who will run a couple of simulations for you later and answer some of the questions that have come up in the past. I'll go through a couple of rail issues. I'm going to start to address some of the comments and questions that have been coming in over the last several months. I'm sure that I'm not going to get through everything, but we'll do the best we can. As Nate said, we'll have another meeting next month and follow up with more comments and questions.

I'm going to talk about rail issues. I'm going to start with the Grand Junction profile, that's been the subject of discussion; how to get to the profiles, the impact of the yard area. We'll talk about the layover yard and how we see that working, and its actually part of the simulation that Austin will be running at the end, showing how the railyard will work under traffic conditions. We'll talk about the travel time and speed analysis that we've done. Inside this program, there are a lot of data tables; it's going to be hard to read it or at least absorb it all. Ask me to slow down; I'm happy to slow down and point out what I can along the way.

Grand Junction Profile: what are the drivers of that profile? We're going to start from the Charles River side because that's really where it all starts for us. We have to cross the Charles River in the same line and grade as the existing bridge, and we build our way back from that point. We have a maximum height over I-90. We're trying to get as high over I-90 as possible to avert depressing I-90. It does have to go down, but we can only get so high, getting as high as we can, and it is one of our key points. We're using the steepest downgrade, after we get over I-90, coming down as steeply as we can but staying within the regulations. It's not so much the downgrading, then it is the operator coming back the other way, so we're using a 1.5% gradient.

The resulting profile meets the existing grade at Buick Street, and we run relatively parallel and on the existing grade into the area that we regard as West Station. Looking at this in the plan, we mentioned from a fixed point, North of Soldiers' Field Road. Crossing Soldier's Field Road and going up and over I-90, again, we are avoiding depressing that as much as possible. We get to a high point on the Eastern side, and then we start to dive down until we meet a low point; that is not a deep low point, but a steep low point just to the west side of the Buick Street intersection. Then we're running up gradient back to the existing grade through here, and beyond that, we're more or less on the existing grades. As you've seen on some of the drawings before, we are going to have a retaining wall between the Grand Junction tracks and Worcester mainline, and that's because they'll become bifurcated. That's because Grand Junction is going up, and Worcester Main Line is going down.

Looking at this from the profile point of view, we're meeting the existing grade at the Soldiers' Field Road, existing Charles River bridge. We're getting up and over Soldiers' Field Road the best we can. We're climbing at a 1.5% grade. We're putting in an appropriate railroad, the curve, and then we're diving back down again to the extent that we can at 1.5% until we get to the low point that I mentioned, a slight low point. Then, we start to come back up at .7%, which is actually, in most cases, the maximum gradient the MBTA uses for any commuter rail line. We are using every bit of gradient that we can take advantage of through here to try to maintain our grades where they are today and get us into the yard relatively low.

The other point that's been made before and asked before is where we are at Agganis Way. We are at existing grade, so wherever the railroad exists today, the railroad will be there in the future. Somebody may ask, well, why don't you dive down through there and go even lower? We have a retaining wall through Buick Street. If we dive any deeper, we're going to undermine that retaining wall. We have to build into Buick Street and actually take Buick Street out of service for some time during construction. That's where we are on the profile side.

Before I move on to the next slide, any questions or comments on that? Seeing none, I'll keep going.

One of the other questions that came up about the Grand Junction was what might the bridge look like? We haven't done a great deal of analysis on this, but we're looking at mimicking the existing style, which is a through girder. If you're familiar with the bridge that's out there today, it's basically this huge I-beam. It's actually carrying the railroad on beams going across to I-beams on the other side. We're looking at mimicking that again. One of the issues that we have is with the addition of the Paul Dudley White path, on this side, our span to the other side gets quite a bit longer, from the point of view of a structural analysis here. What that means is that I-beam has to get a lot higher. Also, because we're putting two tracks back, the bridge itself is getting wider because the beams are carrying the floor of the railroad are getting deeper as well. Everything is adding to more depth of this structure, which basically means we're going to be digging down to create a low point under Soldiers' Field Road to make this all happen in the future.

Any comments or questions on that? Glen.

Q: Glen Berkowitz, A Better City: On the cross-section of the new bridge, you just mentioned that you have the two tracks back, are you providing the width for a future multi-use path?

A: Mark Shamon, VHB: We talked about that internally, we're thinking that to the extent that there's going to be a path, it's probably going to be on the outside of the bridge. Our analysis will look at attaching it to the outside, so it's a possibility or founding it independently, we're not sure. We're not contemplating putting it inside the I-beams, because we don't want to extend that spread and make the other beams go longer.

Other questions? Yes, ma'am.

Q: No Name Given: What do you think the width of the I-beams will be?

A: Mark Shamon, VHB: Around 30 feet. Yes, Jack.

Q: Jack Wofford: Are you coordinating with the City of Cambridge on the river crossing part of this? I know the staff there has some concept about which side of the rail tracks the multiuse path should go on.

A: Mark Shamon, VHB: We had this discussion last week. I don't know personally, but I know the folks from the MBTA have been doing that. They're actually thinking about how this might all tie together, but I haven't been involved in those conversations myself.

C: Jack Wofford: It gets into the engineering aspect and the connectivity of that path that you're showing here.

C: Mark Shamon, VHB: Right. Agreed, but I haven't been part of that conversation yet.

Q: No Name Given: Could you show on your plan the existing elevation of the rail track is?

Q: Mark Shamon, VHB: The existing elevation?

A: No Name Given: Correct.

C: Mark Shamon, VHB: This is schematic in terms of what the rail track is, it's not necessarily to scale. As I said before, this is going up 1.5%, and what we're showing here is relatively level. We're meeting existing on this side and going up 1.5%, so if you take this point here and go up 1.5% for 60-70 feet, it goes up about 1.5 feet across the bridge.

Q: No Name Given: This is a river navigation issue. Are you using the present vertical supports for the bridge? The structures that are already in the river are they being retained?

A: Mark Shamon, VHB: We're not doing anything on the river side of the shore. Whatever is out there today is going to exist in the future, as far as this particular project is concerned. In the future, when a second track or rail is added to that, there may be some adjustment to those piers in the future, but not by us. We may be the new abutment for the Soldier Field Road bridge, right up behind it is the abutment for the Charles River bridge. It may be that we have to do some work on that abutment just because they're so close; we want to make sure that the interactions work appropriately, and we're not putting load from this bridge onto the other bridge.

C: Mark Shamon, VHB: I'm going to talk about the layover yard next.

Q: Fred Salvucci, Harvard University: It sounds like to me that you have made some progress in terms of the Grand Junction Line's elevations at Buick Street and Agannis Way; is that right?

A: Mark Shamon, VHB: There has been some adjustment to that, that's true. One of the earlier profiles flattened this out. Railroad designers want it to be a lot flatter, but after discussion and some feedback, we steepened this up to the maximum allowed gradient for this location.

Q: Fred Salvucci, Harvard University: O.K. so you achieved a better elevation, that's progress.

A: Mark Shamon, VHB: That's correct.

C: Fred Salvucci, Harvard University: Would it simplify your issue of maintaining two tracks on the Worcester Mainline during construction of you weren't chasing the grade here?

A: Mark Shamon, VHB: Jim Keller has looked at that a lot more than I have. I can answer it in part. I think the constructability for this segment is certainly a lot easier. My understanding of the interactions that we've had in the past with respect to the one track or two-track is really more of an issue of how you make the two tracks work in this area than the other area because we are hemmed in by the existing structure. Trying to get a second track around while the viaduct is in place, and we have to deal with the structure supporting the viaduct today, as well as, this semi abutment that sits in the middle. Trying to swing a second track in and maintaining railroad speeds and operations through that area is going to be very difficult. Yes, flattening this out makes it easier to build. We still have to address what we can do back there to make sure that we're meeting the existing condition underneath the Commonwealth Avenue bridge, which is a fixed point for us, much like the Charles River is on the Grand Junction.

C: Fred Salvucci, Harvard University: I understand the fixed point, but you'll be operating a low speed during construction on the temporary track anyways. It's moved in the right direction, but it sounds like you're not ready to say that two tracks will be operating at all times during construction.

A: Mark Shamon, VHB: I'm not prepared to say that. I don't know whether that's correct or not. I just know what certain constraints are at this time; we continue to try to get two tracks for as much of the time as we can.

Q: Harry Mattison, Community Representative: The side view you showed us with the bridge over Soldier's Field Road. I think it's a comment that a lot of us would love to see the next time, the section view that shows the walking and biking space potentially on both sides. Whether it's one structure or two structures, I don't think a whole lot of us really care, but we do care that this opportunity to crossover is part of this project. My question is, have you given thought to the part of the plan where Boston University was given an easement. There was something happening because they're moving the tracks away from the river, closer to the Boston University property. Is that still happening?

A: Mark Shamon, VHB: That is still happening. That's how we made the throat work as well as we could. Where that's starting to happen is back here on the eastern side of Buick Street because one of our constraints from the start was to respect the position of that wall and respect the fact that Buick Street is a very narrow road already, can't be narrowed any more than it is, and it needs to stay in service for the building back there. What we've always done is start to diverge into the tracks. We're coming as close as possible to this wall, but we start to diverge into the Boston University property through this property here and then swing that in.

Q: Harry Mattison, Community Representative: How wide is Buick Street?

A: Mark Shamon, VHB: Buick Street, curb to curb, is 24 feet.

Q: Ari Ofsevit, LivableStreets Alliance: That wall where Buick Street exists right now, or will that be built?

A: Mark Fobert, Tetra Tech: The wall exists today.

C: Ari Ofsevit, LivableStreets Alliance: I thought that was a slope right now.

A: Mark Shamon, VHB: No. It's not a formal retaining wall. It's not a big concrete wall; it's kind of a stepped brick wall, I believe.

C: **Harry Mattison, Community Representative:** It just seems strange that a project of this magnitude would be worried about a few hundred feet of retaining wall alongside an access road that's being treated as a sacred cow.

C: **Mark Shamon, VHB:** Okay, so the layover yard. I'm getting into some data tables here, and we're going to start and talk about the Worcester line schedule right now. I'm going to focus the presentation on the AM schedule. One of the things is that people are asking for more service and we've been through this and talked with folks at the MBTA. We really can't provide any more service during this period of the day. The only way they're going to increase capacity during the morning period is adding cars to the existing trains. The reason for that is the schedule is just completely tight. What's happening is trains starting out of Worcester at 4:45 AM, the next one is semi-express and stops at every station up through Natick Center and then jumps all the way down to Lansdowne Station. What's happening is that there's time to start, so it gets through the next boarding station, which is Framingham, about 10 minutes before the Framingham train needs to start. So, they're really close together, you start this train, you get through Framingham, and then you get the Framingham train. The Framingham train gets through its process, and it's being caught by the next express train down here. Trying to maintain a reasonable headway between trains, assuming that it's 75 degrees and there are no problems; the train is running on time all the time, and there are no problems, no boarding issues, etc. will leave about a 10-minute window. You leave the 10-minute window for a lot of different reasons. One of which is because it's not 75 degrees and sunny every day. The idea of putting anymore trains into this location really isn't going to work, at least until some major infrastructure work is done elsewhere in the system. The way the system is operating right now, the tracks that exist, the terminals that exist, etc., they've got the maximum number of deliveries into Boston on a daily basis.

Q: **Fred Salvucci, Harvard University:** Can you say what some of this other infrastructure is? Are you talking about a signal system?

A: **Mark Shamon, VHB:** It's not so much a signal system. There are thoughts about putting in a Worcester third track. It's a third track, that's a concept right now that would go from 128 to Framingham. What that does is it allows a third track to bypass the other trains by going down the middle. You're not interrupting the outbound or inbound; you're basically bypassing it on a third track. That's a long way off at this point.

Q: **Fred Salvucci, Harvard University:** You can't do better than 10 minutes with an improved signal system?

A: Mark Shamon, VHB: It's not the signal system, as I had said before. This is 75 degrees and sunny; this a perfectly ideal situation, but it's rare that that happens. Even meeting the on-time performance standard that exists today is difficult with the system the way that it is. Saying that we're going to reduce the travel time, reduce the schedule, putting smaller distances between the train coming through, and the next train coming through at the same space. If you've got a problem with this train, it cascades all the way through the morning, and there's no way that you're going to make up that distance.

Q: No Name Given: Is it all double-decker coaches now?

A: Mark Shamon, VHB: No, but there is one train, and I'll talk about that in a minute. The peak train in the morning is double-decker all the way through.

Q: Ari Ofsevit, LivableStreets Alliance: I have a really quick question. I totally understand that given the current configuration of the railroad that there are issues. I think that a lot of the delay is caused by the fact that we're running 1960's equipment and 1880's railroad. It seems that a lot of the issue is driven by the speed of the local trains and the amount of time they spend at stops.

A: Mark Shamon, VHB: I didn't quite say that, there's some of that to it.

C: Ari Ofsevit, LivableStreets Alliance: Obviously this is beyond the scope of this group, but this is why a lot of people are advocating for a regional rail system that would have hybrid platforms at every stop so that instead of having to stop for 2-3 minutes to board 100 people through all of the doors and take steep stairs, it would be like the Red Line, push a button, and the doors open, and everyone gets on. I know that's beyond the purview of this group.

Q: Jessica Robertson, Community Representative: My question is related to Ari's, isn't there an ongoing project to fix the Newton stations so there are platforms that can be accessed on both tracks at a higher level? Wouldn't that help?

A: Mark Shamon, VHB: Yes, that is in progress. It's not going to help us add more trains here. It might move trains through a little faster. I don't know that for sure how much.

C: Ari Ofsevit, LivableStreets Alliance: If the trains go faster, theoretically, you could add more trains.

A: Mark Shamon, VHB: True, but that depends on how much faster,

C: Ari Ofsevit, LivableStreets Alliance: Level boarding helps.

A: Mark Shamon, VHB: Absolutely agreed, to an extent.

I'm going to get a little more into the boarding and alighting. This data that I'm showing here for every station is AM peak, midday, PM peak, and all day long. It shows how many people are getting on at each station and how many people are getting off throughout the day. This data set is derived from the CTPS counts that were done in 2018 Spring and Fall. It is the current data that exists for this service. It is available on the MBTA website. If anyone is interested, it's also being fed into the CTPS model that we used to identify all the scenarios that we need to run for the environmental process.

Again, I'm going to focus on the AM peak as I go through these next couple of slides. These are trains that are running from 6 AM to roughly 9:30 AM or so. This happens to be the train with the maximum ridership. Right now, this train 508 departs Worcester just before 7 AM and gets into South Station at 8:20 AM; it's actually carrying upwards of 1400 people at some point during the day. That is the maximum load of any train in the system. They are running nine bi-level coaches on this train. This is indicative of how many people get on a particular train. In the future, we'll be running 9-car consists on all trains.

The other thing that I wanted to talk about was the AM operation. This chart shows each and every train at 500 right through the 512, where it originates from, where it departs, what time it arrives; this bar chart is basically showing the same thing. At any point in time, you can determine how many trains are running inbound on the Worcester mainline all the way through. You can see, during the middle of the peak hour, that 4-5 trains are running on the Worcester mainline inbound. It peaks around the 8 AM time frame, including the heart to heart, Worcester to Boston service.

We showed you all of the trains that are running. This is loads through the morning. We take up all of the people on all of the trains at a particular time in the morning coming inbound. This is how many people are on the trains. At 7 AM, there are around 1500 people. At 6 AM, 521 people. You get to a deep period somewhere around 7:45 and 8 AM, when we're running 3000 into Boston on this service. The other thing to notice about this is it dies off very quickly. We're still running 4-5 trains in the morning, but the number of people and boarding goes down significantly after this peak period. The point is, once you get to about 9 AM, you're running about 1/6th the number of people into Boston on a daily basis. You can probably understand where I'm going with this. Do we really need all of these trains operating all day long; the same

number of trains we need for 3000 people versus the 500 people that comes after that. The answer to that, to me, is no. That's the argument for the layover.

C: **Ari Ofsevit, LivableStreets Alliance:** But that's the chicken and the egg thing here. There are trains that arrive in Boston at 8:45, 8:55, 9:05, 9:40, and 10:30. Are there no people riding those trains between 9 and 10 because there are no people on it or are there no people riding those trains because there's only one train and it doesn't even come from Worcester?

A: **Mark Shamon, VHB:** Again, we're running those trains all the way through. This one is 8:50 in the morning.

C: **Ari Ofsevit, LivableStreets Alliance:** But, if you look at Grafton, Westborough, Southborough, you have a choice between a train that leaves at 7:30 AM and 9 AM. So, if you have to take your kid to school at 8 AM, there's no train for another hour.

C: **Representative Hannah Kane:** There's no parking. There's no place to park, which is the bigger issue. You can't put more people onto the trains until they can actually find a place to park.

C: **Glen Berkowitz, A Better City:** Or we find different ways to get people to the train. Mark, I hope you're not trying to have us all leave here tonight, thinking that for the next 50 years, the Worcester mainline branch isn't going to get any better.

A: **Mark Shamon, VHB:** The point is, people are saying that you don't need layover. The way the system is running right now, to add more trains and service throughout the day when basically one train can handle all of those people for those 4-5 hours with 9-car consists from 8 to 10:30 AM, just riding that one can carry everybody, we don't need that kind of capacity throughout the day.

C: **Jessica Robertson, Community Representative:** There are two fundamental problems with that argument. First, is they don't all want to go at the same time. Second, the frequency is part of what makes it possible for people to even think about taking the train or not. We're not saying run a million trains all day long. We're saying take all of those trains that you would park in some of the highest value real estate in Massachusetts and run each of them one more time to the existing parking lot that you already have on the other end.

A: **Mark Shamon, VHB:** I understand that argument. That is that the existing parking lot is 10 miles on the other side of Boston. To bring those trains into service, they have to go through

South Station where capacity is limited and you're using up capacity on the Fairmount and Providence lines that could be used for revenue trains.

C: Jessica Robertson, Community Representative: Right and people might ride that train if you actually provide some resources to this.

A: Mark Shamon, VHB: They might ride that train, but most of them aren't.

C: Fred Salvucci, Harvard University: You're painting a very static picture about ridership. Two things will happen, hopefully, as soon as this project gets going. A bunch of people are going to be driven out of their cars, and they've got to go someplace because they still have jobs to get to. The demand for rail is going to go up just from the action of doing this project. Second, Kendall Innovation District, the medical complex in Longwood are all adding jobs, so that's going to drive up the number. Third, there is presentation that the people in Toronto gave about a year and a half ago, basically, the Toronto fiscal control board basically said they made a demand decision 8 years ago. They were going to go to 15-minutes frequency, all day every day, including weekends, and they provide a regional system. When you provide better service, more riders come. You've got a push, in terms of construction, you've got an attraction because of the convenient job growth. If you didn't do a layup, but instead did more service, you'd get a response out of it. There's no other way to solve the problem. Logistically, how are people going to access their jobs? The growing number of jobs and then a turnpike that's even worse than it is today. You've got to do rail. You're spending money on a [train] parking lot in a very sensitive spot, not just because of the value of the land, how tight the design is in this area, West Station, People's Pike, Cambridge Street bypass, all the things that are needed to make this a really great area. It's a very precious space. The parking lot for trains is a waste. Recycle the trains and put them into service. You could also add, at the intersection of 128 and the Turnpike, there's a big chunk of land owned by MassDOT. It's the perfect spot for a park and ride. You could start a Boston express there. You could do a serious multimodal center there with an added train station that could help to release the constraint on parking. We need to get more bus service. Parking is definitely a constraint, and there's a potential solution to this; there's a whole chunk of parking right there. It needs to be part of this picture.

A: Mark Shamon, VHB: It's not part of this project, so I can't speak to that issue. I know that MassDOT is looking at it.

C: Fred Salvucci, Harvard University: I understand this project has its boundaries. A big part of it is just trying to say, 'well, it would be better if the I-90 Turnpike didn't fall down.' I agree. Let's not have the I-90 Turnpike fall down. The aspiration is not that we just fix the structural

issues but the functional efficiency. The Turnpike destroyed a very good rail system when it was built. An obligation of this project is to rebuild the rail system that would pick up some of the ridership. During the project, which is essential, and after. It's something that we need in this project. I know it's a policy issue. I'm making more of a statement than a question, but I don't buy that the trains will be empty if you ran more off-peak service under the circumstances that we're about to be facing.

C: **Nathaniel Cabral-Curtis, HSH:** Just a couple of more people. I know Mike is trying to get people home while it's dry. Representative Kane, then Bob, and then Ari. Then Mark tells me that he has a few more slides before we get to see the model. Let's get through those and let him finish making the case, and we'll talk about it some more.

C: **Representative Kane, MA House of Representatives:** I think it's important to recognize that even if this project isn't going on, then there are still growth demand issues on the Worcester mainline in terms of the number of people at 45% growth in a few years. I think that could be substantially higher if we actually had the ability to get people on these trains. This project is one thing. All of the issues that we're talking about are ongoing issues to deal with. I think it's important not to just think about this in terms of how the project is going to be impacted, but we have to think about it in terms of people who are relying on the system. Putting a park and ride on Route 128 is not going to impact all of the people that drive the entire way on the Pike. The Pike doesn't get busy on Route 128; it gets busy on the I-495/I-90 intersection which also is going to have a significant project going on. We need to get people on the train system far before they hit the I-495/I-90 intersection. I am a continual advocate for the Worcester/Framingham line. It's one of the things that I'm really concerned about sitting here. I do think it's important to recognize that there are a whole host of issues that people report on the line, which we're working on constantly, absent this project as well. We can't look at the issues with this line through the project lens; you have to look at it through all of the lenses by which we attempt to use it. The major reason you see that spike during the day is that people can't get on a later train because they can't park to get on a later train, so our usage is driven by constraints that exist.

C: **Bob Sloane, WalkBoston:** The South Station expansion study discussed that there would be an independent environmental study of layover options. That evaluation seems never to have been done.

A: Mark Shamon, VHB: I'm not an expert on the South Station Study. I read the certificate. My understanding is that the discussion of alternatives for the yard is part of the South Station Study.

C: Jessica Robertson, Community Representative: I think regardless of what was included in the South Station Study, it's essential that the environmental documents for this project include the evaluation of one alternative that does not have a railyard. You can have all of the different options that you want, but one of the alternatives studied must be no layover.

Q: Galen Mook, MassBike: Can you do that?

A: Mark Shamon, VHB: Can I do that? Developing options which do not have layover is not part of the plan now.

C: Mike O'Dowd, MassDOT: The layover is an integral component of the overall project design. It has been, and it continues to be.

Q: Galen Mook, MassBike: Is it in the purpose and need?

A: Mike O'Dowd, MassDOT: Yes, it is.

C: Jessica Robertson, Community Representative: You're introducing a new transportation facility into a neighborhood that wasn't there before. Therefore, you're required by environmental law to study the alternatives.

C: Ari Ofsevit, LivableStreets Alliance: The no build isn't anything for the pike. That's not feasible, that's not an alternative.

I completely agree with Representative Kane and the need to improve access to the Worcester Line. The Worcester Line, when the parking lots were built, the State said let's not build anything near walkable communities and put parking lots further out, which is great until the parking lots fill up, and there's no other way for people to get to the train. We have technology that can solve that, and it's called more parking lots. We have an even more high-tech solution, which is called a parking garage, which is relatively expensive. The biggest issue as Representative Kane knows, and not everyone may know this, but Westborough-Southborough fills up at 7:30 AM, so why run a train after that? If there's no parking, there are no passengers. There are no passengers; you don't need a train. If you don't need the trains, then you're going to build a layover yard. What if instead, we added some parking to those stations. That's actually the biggest gap in the line; it's 6.5 miles between Westboro and Southborough. The train goes

right through the town of Westborough, and there's a very large parking lot for supermarkets. That parking lot gets full on weekends but not on weekdays. We could probably add parking and put a station in the town of Westborough. That would provide access to the several thousand people that live within walking distance there and provide more parking for people who don't want to drive over an hour to outbound Westborough or inbound Southborough, or don't want to get on the train at 7:30 AM; they want to get up late and maybe get on a train at 8 AM and get to work at 9 AM. There's a lot of opportunity, and I think the word we want to talk about here is mitigation. If we're going to have the I-90 have less traffic during this period and we're not going to add any capacity to the train because there are no parking lots, what can we look at to get more service so we can get people off the I-90 and on the trains? I don't know if that's been discussed, or it can be discussed, but I think it might worth discussion.

A: Mark Shamon, VHB: I can't respond to that in detail at this time. I know we're starting to think about mitigation.

C: Representative Kane, MA House of Representatives: I can tell you that legislators are thinking a lot about mitigation.

Q: Nathaniel Cabral Curtis, HSH: The only thing that wasn't mentioned about Worcester/Framingham is what could be done with express buses. Is that an option as well?

A: Ari Ofsevit, LivableStreets Alliance: The express bus is great, but it sits in the same traffic.

A: Nathaniel Cabral Curtis, HSH: I know, but if you get some people on a bus, it could pull some cars off the road.

C: Fred Salvucci, Harvard University: There's one other element of ridership that has to be on the table. I respect the comments of the Representative, and more parking would be a good idea. There's also a lot of population at and within Route 128 that use Turnpike today that will be forced off the Turnpike. When they get of the Turnpike, they occupy Washington Street. They occupy the roads through Brighton. The spillover is already quite terrible. More rail service, even if it's just going in during the day, would pick up a lot of riders. I just don't buy that spending money on a parking lot for trains is a useful way to spend money when you could be running those trains and carry people in urban and suburban areas who don't need as much parking. I'm not at all against solving the parking problem, but we need a multifaceted approach. You've got to recognize the impact. The construction is necessary, and I think everyone agrees with that, but it's going to have a very adverse impact on people trying to get to their jobs and the people in the neighborhoods where the traffic will spill over into if there isn't adequate service provided. It

takes a long time to buy trains. Have a fixed number of trains during the construction period, and run them during the middle of the day, you'll get more use out of them.

C: Representative Kane, MA House of Representatives: I have a clarifying comment. My concern was not parking itself. My concern was how to maximize the utilization of an asset for the environmental benefit of us all. The key thing that is not the parking thing. I don't get up every day and worry about parking by itself. I get up every day and think about how we get more people on public transportation, so we have fewer people driving on the Pike and lower our environmental impact.

C: Mark Shamon, VHB: I'm going to change gears now that Fred's influenced people.

Q: Jessica Robertson, Community Representative: Can you go back to the last slide that you didn't talk about? How many of the consists in your midday storage are actually from the Framingham/Worcester line?

A: Mark Shamon, VHB: I don't have it broken down like that. They come and go from different lines all the time. This slide talks about the point that Mike and others have made before with the 60/40 split. 40% of the traffic is on the southside, 60% is on the westside, which is where West Station is. All of the layovers over here are at South Hampton Yard or are way down at Readville. All the layover that exists is on this side over here. Every train has to go through 3 switches and come back out again to make that western route, but there are trains that come in and out based on the model from almost anywhere at any time.

C: Jessica Robertson, Community Representative: It seems like the maximum that would be sensible in West Station layover would be 60% of traffic.

A: Mark Shamon, VHB: Perhaps. It depends on how it operates. You want to make sure that the train you move through the system doesn't mess up other traffic.

All right let's move on to questions have come up about travel time; I've got a couple of slides on that. One of the things that we've done in the past takes a look at the Harvard University flip versus the DEIR version. These analyses were done last Fall, just to acknowledge that Harvard made a lot of changes to their plans. Instead, we're looking at the DEIR and using slower speeds on the express track than we're looking at now. This is really just meant as a point of comparison. The analysis that's been done today and things that have to be done going forward for future analyses.

To walk you through quickly, this on the background are the trains Harvard Flip. Part of the issue with the location through the project area, it starts to divert from the Worcester Main Line track just past the point of Boston Landing. The reason it's doing that is that the idea of putting in the Franklin Street bridge over where the tracks are today. Obviously, the tracks have to divert around that location. We want to make way for the ramp that would happen in the future.

On the other side of West Station, there's a point of convergence where the express tracks would start to turn. Express tracks would be running at the full speeds of 79mph in the calculation; the Harvard Flip version would be running at 49mph. That blanket difference is about 4800 feet. I'll show you the math in a minute.

Slide 38 – Harvard Flip West: This highlights the curvature at the beginning of the platform. At Boston Landing, the landing area. This is based on the idea that this is a 5% ramp from 22 feet above grade and wanting to land before we get to Cambridge Street; that's how this has been derived. I don't know exactly how they're making the connection over to Cambridge Street, where there is a connection today. The point is to try to get at a reasonable speed and get past the ramp.

Slide 39 – Harvard Flip East: On the other side, beginning the express curve, this is where all of the trains slow down to 50mph through the throat; that's the difference in length.

Slide 40 – Train Speeds Through Project Area: When we do that calculation, taking the deviation point, taking deviation distance, and comparing 49mph and 79mph. Using a very simple calculation, time equals distance divided by speed; you find out that through one direction, it's about a 27-second difference. If you take it two-way traffic, it's 54 seconds for the round trip. If we've got 9,000 unique passengers, more than 18,000 going in both directions. With a 54 second delay each day, 9,000 unique passengers, that's 8,100 lost minutes per day; that's something close to 17 full-time jobs of people that are sitting on the train every single day just for this particular area, just so we can slow down the train and go to West Station, if we had every train going through West Station.

Q: Ari Ofsevit, LivableStreets Alliance: Where are the speed restrictions on either side? Do you have a 50mph speed restriction at the Nickerson Field area?

A: Mark Shamon, VHB: Yes.

Q: Ari Ofsevit, LivableStreets Alliance: A 60mph speed restriction at Market Street?

A: Mark Shamon, VHB: That's correct.

Q: Ari Ofsevit, LivableStreets Alliance: Assuming the train can accelerate from 60mph to 80mph.

C: Mark Shamon, VHB: There is a distance from that Market Street area where it comes out 1,000 feet or so, where they're speeding up to 79mph, I started the calculations at that point. On the other hand, that train that's going to West Station never speeds up and never gets up to 60mph through there. It stays slow so they can hit that 49mph curve and go up on the track into the station.

C: Ari Ofsevit, LivableStreets Alliance: The acceleration of the trains that we have running today accelerate above 60mph in this area at about ½ mile per second, based on a report for the Fairmont Line. We're looking at 1.4 miles. It is impossible for a train to accelerate from 60mph to 80mph to 50mph in 1.4 miles at that rate.

A: Mark Shamon, VHB: That may be true. I can't answer that because I don't have the calculations.

C: Ari Ofsevit, LivableStreets Alliance: That's the calculation that we need to do. Trains don't accelerate very quickly, especially at high speeds.

A: Mark Shamon, VHB: They're coming through the curve pretty quickly.

C: Ari Ofsevit, LivableStreets Alliance: They're going through the curve at 60mph. 60mph to 80mph at ½ mile per second. 40 seconds. Do I need to get some paper out to do the math? Should we do the math? It won't take very long; it's not that complicated. Does anyone have a big piece of paper?

This is Market Street; this is Nickerson Field. It's about 1.5 miles, right? The train has to clear Market Street, let's say it's 1.5 miles. What you said was, the whole way, it would go the entire way at 79mph versus 49mph; you came up with 54 seconds, that's probably correct. But trains don't accelerate very quickly, right? At 0.5mph per hour per second, you're going from 60 to 80mph will take approximately 40 seconds. I'm not going to do that calculus because I don't want to. seconds between 60 and 80 is about 70mph. 40 seconds, 2/3 mile, let's call it 60, 0.7 miles. That same deceleration. Let's assume the deceleration rate because trains are not quick to slow down either. For an engineer to go from 60 to 80 at the exact right point is difficult. On the other hand, they have to go from 80mph to 50mph, and that's going to take 60 seconds. That 60

seconds going 60mph, let's say they cover 1 mile. 1.7 miles is more than 1.5 is impossible for a train to maintain that speed for the entire project. That fact that you're doing this calculation and saying that it's 54 seconds a speed that a train cannot attain is just bunk. It doesn't work. We don't have magical trains.

A: Mark Shamon, VHB: They don't accelerate instantly; there's no doubt about that. But that's going to be true of any train.

C: Ari Ofsevit, LivableStreets Alliance: Let's say it has to go through West Station; it has to go 50mph the whole way. Now we're looking at a speed that starts at 60, and it goes up to 80 and comes down to 60; that's a mean of 70mph at best. The train going through West Station is going 50mph for 1.5 miles in 108 seconds, right? Here, we're looking at 40 seconds and 60 seconds. It's 1.7 miles, but we're using 1.5 miles. We're talking about 18 seconds, 18 seconds to reschedule the trains to minutes. 18 seconds is nothing. Plus, these trains are going to and from South Station. To assume the trains are going to go from 60mph to 80mph immediately, maintain that speed, and then drop from 80mph to 50mph immediately, it just doesn't happen. I know we have a lot of smart people in the room. I know there are people who know about railroad operations. If any of those want to talk about what they have to say. Trains hit Market Street at 60mph. An engineer might push it up if it has clearance to go 79mph if they know there's a speed restriction coming at Nickerson Field. The engineer is not going to want to hit that speed restriction at about 50mph. The engineer is probably going to start cutting that speed probably, and if they're on schedule, they're probably just going to coast along at about 60mph. We could probably do 10 more mph going through platform tracks at West Station and maintain that speed. It's only about 8-12 seconds. It's certainly not what you're saying.

C: Bruce Houghton, Houghton Chemical: I'm not that smart about all of this. But if the whole point is to get people onto the train and you're competing with I-90, I don't understand what a few seconds make for a difference one way or another. You don't have enough trains; you don't have enough parking lots; you don't have enough people on the train. The few seconds that people are on the train, they're probably figuring out so many 17 lost jobs for the amount of time that my staff is sitting on the I-90 Turnpike right now. I won't hire anyone outside of Route 128 and I couldn't if they applied to my company from I-495, I won't hire them. If you can get everyone off of the I-90 Turnpike and they sat on the train for 10 or 20 more seconds, or 10 more minutes, I might hire them if they were at I-495. I'm not sure what the point of this is.

A: Mark Shamon, VHB: The point of this is to respond to a question that was asked before.

Q: Harry Mattison, Community Representative: Mark, are you standing by 54 seconds?

A: Mark Shamon, Tetra Tech: Well, the math is right.

C: Ari Ofsevit, LivableStreets Alliance: The math is wrong.

A: Mark Shamon, VHB: I'm not disputing what you said in terms of the break, I haven't looked at that. The calculation, to the extent that it's there, is correct.

C: Ari Ofsevit, LivableStreets Alliance: You're telling me that the sky is green, and this is the perfect calculation because you have green glasses on. This is not true.

C: Jessica Robertson, Community Representative: How is it that you've been saying these things at meetings around the state, and it doesn't actually consider the existing constraints. You're lying to people.

Q: Galen Mook, MassBike: Has this slide been used?

A: Mark Shamon, VHB: This is the first time.

C: Ari Ofsevit, LivableStreets Alliance: We were told 1-2 minutes; now, we're down to 54 seconds, and that math isn't even right. We've been asking for months for an explanation. I did the math in about two minutes; it's not that hard. I know there's more exact math that can be done. I know they're modeling. The fact is, we know what the acceleration rates are of these trains. At high speeds, they're not that good. They're not really meant for that; that's why we have express trains because if they stop at every stop, it takes a lot longer. If they're going 60mph, they're immediately going to speed up to 80mph; they certainly don't immediately slow down to 50mph, especially with a restrictive curve. The engineer has to hit that curve at 50mph and not 53 or 55mph. It's not like you're driving on the turnpike, and you see that sign on the turnpike that says go 50mph on this curve, and you'll probably go 65mph, especially PTC. It's just not going to happen.

C: Bruce Houghton, Houghton Chemical: I still don't understand why this is so important. I must be missing something. The math might be wrong, or it's a misrepresentation of the models. Isn't it important that there's a bigger picture here?

C: Jessica Robertson, Community Representative: The bigger picture is that they're using this math to justify putting in two express tracks and only have three tracks at West Station instead of four. And, in order to do those things, they're taking away a bike and pedestrian path that would connect the Allston village side at West Station and into the river.

C: Bruce Houghton, Houghton Chemical: That makes more sense. Thank you.

C: Harry Mattison, Community Representative: So, they're completely screwing over the footbridge and Franklin Street. And they're going to have to take private property from the landowner at the end of Franklin Street across from Pizzeria Regina because they want to tear down the building to build this horrible intestinal switchback ramp. If you put back the plan that Harvard had, the plan that a lot of us thought was great. Do you have a copy of your footbridge design?

A: Mark Shamon, VHB: We do not have the footbridge in tonight's presentation.

C: Harry Mattison, Community Representative: If they could show us, it's only about one pixel wide and is hard to see on the slide. But, instead of a nice straight long ramp that Harvard designed, it's this thing that no one would even ride a bike on; you'd have to get off your bike and walk. It's worse than the Fielder footbridge, and it would probably be the first bike design for a footbridge design in the city. Given that the city, DCR, or MassDOT just built a very nice footbridge that you can ride, nice and smooth, that you can ride safely from Charles Circle over the river. To put a footbridge like they're proposing here would be a travesty. That's another thing that we'd lose by the design that MassDOT is currently proposing.

C: Ari Ofsevit, LivableStreets Alliance: I would just add that the one other thing that we're missing is what's being proposed, the express tracks and everything else, basically says to people from Central Massachusetts and from Framingham-Worcester corridor, 'we are not going to guarantee that you'll ever have a good connection to Kendall Square. We might have a few trains go up to West Station.'

Q: Mark Shamon, VHB: Why is that true?

A: Ari Ofsevit, LivableStreets Alliance: Because of the two express tracks. Remember what happened with the Auburndale project? What sunk that was you had to get from one track to the other to pull through. You have a train coming through on the #2 track, the southernmost track going east, that one has to get up into West Station and then has to crossover the westbound track. When you cross over a track, it's not like that track is occupied for 30 seconds. That track now has a restricted signal all the way back to South Station. The train is pulling out to Worcester to get more passengers; it now has to wait. If five or ten years from now, there are 7 million square feet and there's a good connection over to Kendall Square, then a lot of people who want to get to West Station. Do you want to stop more trains there? West Station will only have three tracks, and you can only turn so many trains there. We're shooting ourselves in the foot to

save some small number of seconds, less than 54 seconds per round trip, probably more like 20 seconds. We're not screwing up Cambridge Street south slash people's footbridge, which everyone wants. No one has objected to it except people who want this fake express track that's actually not going to save any time.

We're screwing up a lot of bike-pedestrian people. We're screwing up West Stations' potential for a good connection to Kendall Square for as many trains as we need. Maybe tomorrow we won't stop all of the trains there, but if there are 7 million square feet of Harvard development on this site, several million north of this there are a lot of jobs. With a good connection to Kendall Square, there might be a lot of people that do want to stop at this site. Let's build the station with 4 tracks and two platforms and make sure that if we want to stop all of the trains there, we can. We don't know what's coming down the pike, but we do know that if we build something now. Look what we did to the Seaport. We built the Silver Line and said, 'this is going to be great; people will come to South Station and get on this bus, and they can go over to their job, and it's a really nice connection. Then, in the afternoon, they get on the bus and go home.' When it rains now, there are so many people that want to get on the bus. The buses are so over capacity that people are standing at Courthouse Station waiting for three to five buses to get by so they can get to South Station. Why? Because we screwed up and we built something that was short-sighted and wasn't high enough capacity. Let's not make the same mistake here.

C: **Harry Mattison, Community Representative:** I think it's worth saying that we really would like to see better transit between all of the suburbs; Newton, Worcester, Springfield, wherever. That's why so many of us are saying that we really should start doing some mitigation planning now and not in three years. We built some stations in Newton, and there are a bunch of great things, so the whole ride really is faster and serves people the entire corridor much better than it does now. It has long-lasting value. You don't get cars on the road during this construction mess. That's the right way to make the trip from Worcester to Boston shorter, which we all support. Mark, will you do the math with us?

A: **Mark Shamon, VHB:** Sure, we can walk you through the model.

Q: **Harry Mattison, Community Representative:** Mike. You said we'd get the calculations tonight. I'm disappointed that we didn't see the math tonight. I'd like real commitment and not just Mark saying sure, but then says tomorrow that he can't. Can we get a real commitment that they will be proper math for these tracks?

A: **Mike O'Dowd, MassDOT:** We're providing the results of the calculations that we've received from Mark and his team.

C: Harry Mattison, Community Representative: My son could do better! If my son gave that answer, he would definitely not get a good grade. Could you do the math that really looks at the speed restrictions on both sides, how fast the trains accelerate and decelerate, and everything else, and get the real numbers?

A: Mike O'Dowd, MassDOT: We'll go back and reconvene with the rail operation group who've identified the speed restrictions and number of passengers along that line. We'll look at acceleration and deceleration, and everything that's been pointed out and come back to you in November.

C: Galen Mook, MassBike: Just to change this tone a bit, this doesn't have to be confrontational. It shouldn't have to be something we're trying to get something for months and years. Why can't this be something where we sit down together, Ari comes into MassDOT, like he's been saying for years, and you actually work together for once. We're here to work with you. We're spending years of our lives to present other views and opinions, you don't necessarily have intuitively, and you're working, which is why we're pushing, and we have other ideas like the Harvard flip. It has to come from external forces sometimes to really get you to understand that there are other ways of doing examples, like the Harvard flip. From a process standpoint, we're not being paid for this, most of us. We're here devoting our lives to make sure that this project is the best that it can be; yet, we keep getting this veil pulled over our eyes. I'm not saying you did this viaduct intentionally wrong, but had you been working with Ari for the past year, that slide would not be wrong.

It's the same tone that we had last time when you presented Harvard's "terrible" flip. It's the same tone you're taking here when you say how many jobs will be lost by having four tracks at West Station, throughout people's pike. It's such a negative painting. We're at least trying to start the conversation.

C: Ari Ofsevit, LivableStreets Alliance: And the math is wrong.

C: Galen Mook, MassBike: That's beside the point. My point here is the tone of this process. We asked to work with you. We shouldn't be refused and rejected and have to file public records requests to get something that's very basic knowledge about this project. It's a very important point that I want to get as because we're in it. We're not going to let go here.

A: Mike O'Dowd, MassDOT: The fact of the matter is, through the advisory board here, over the last five years, this project has taken many transformations to the point where it has improved. It's only because of the dedication and the time that each and every one of you. We recognize

that, but the fact is, Mark is coordinating all of his efforts designing a new station to maintain transportation services that we have and anticipate and aspire to have in the future. If that means maintaining express tracks for those to be used coming in from Central Massachusetts or MetroWest area, if there are time savings associated with it, without having to create the station on that different alignment, that is what Mark is going to give to you. That information that he gets is based on collective, cooperative, and ongoing conversations with railroad operations people. He's not making it up; he has to understand how the T is currently operating services and will continue to operate their services.

Q: Ari Ofsevit, LivableStreets Alliance: Is there anyone here from Commuter Rail Operations or MBTA Rail Operations? Great! What's the acceleration of a diesel train going eight or nine cars above 60mph?

A: Jodi Ray, MBTA Commuter Rail Operations: I don't have that number for you. I can tell you that it's significantly different between the different fleets and locomotives that run. When I heard you talk about the Fairmont Line, when we're looking at services, we have to build schedules with the worst-performing locomotives. The HSP-46 locomotives that we have, are 5700 horsepower. For the worst performing criteria, we use the F-40. The F-40 locomotives are old, and when they were new, they had 3000 horsepower. There are significantly different capabilities between those two locomotives.

C: Ari Ofsevit, LivableStreets Alliance: But you don't know the rate of the acceleration.

A: Jodi Ray, MBTA Commuter Rail Operations Representative: I don't know.

A: Ari Ofsevit, LivableStreets Alliance: O.K.

C: Jodi Ray, MBTA Commuter Rail Operations Representative: I do know it's going to be a different number between and F40 and HSP-46. The HSP-46 is going to do much better.

C: Ari Ofsevit, LivableStreets Alliance: But it's going to be in that ballpark; it's not going to accelerate at 2mph/second. I'm talking about a modern train.

C: Jodi Ray, MBTA Commuter Rail Operations Representative: It's also going to be talked about in some of the rail vision discussions about how the operations are going to evolve. There's a lot of talk about the future of the service that is going to be on all of the commuter rail systems. Building in flexible elements like express tracks or layover is going to helps us meet. There are many locations on this line where we could have some express tracks.

Q: Jessica Robertson, Community Representative: That's the first time that anyone on the project team has acknowledged that the rail vision study exists. We've been asking in many different contexts to incorporate some of the ideas that are being talked about in the study. Whenever it's to get something that we want, we're told that we can't look at that, and it's not part of the project. It's only when it's to take something away that we want, all of the sudden rail vision is the most important thing. Can we at least be consistent with how we include or don't include recommendations of the rail vision study?

C: Ari Ofsevit, LivableStreets Alliance: I'm going to go back to my paper here. These are the through tracks, and those are the express tracks. What we're saying is we're going to have these three express tracks up here. This is West Station. Let's say there's a train coming this way that needs to get to West Station. It's going to have to crossover the main outbound track to get to West Station. Then it's going to have to come back here and crossover that track again. We were just told that we need about eight or ten minutes between these trains. Let's say the train coming in is going to stop at West Station, well it needs to be eight minutes ahead of the train behind it. The train, if it goes into West Station, drops off and picks up passengers; that's only about a two to three-minute delay before it gets going. We were told that we could only have a train every ten minutes. Is there actually an ability to have a train every three minutes on this line, or is it every ten minutes? If it's every ten minutes, it doesn't matter because if this train comes here and goes over to West Station, it's going to be throwing restricting signals all through 128 or approach signals. The train coming in here comes to West Station. This interlock doesn't clear that track until it clears there. If the trains right here, that's a restricting signal. When that train clears here, now that last train before is in Newtonville. Newtonville is five miles, moving 80mph is four minutes. This train now has to sit for four minutes and wait for the express to come by. Now that the express is there, it's slowing down. This train has to sit for another four minutes so the express can go by. This is not a long enough track to run expresses and local trains at the same station.

None of this makes sense. I don't want to be told that this is imperative when it doesn't work. I know it doesn't work, and I'm not even an expert in this. The fact that the experts are saying this. It's all nonsense.

C: Mark Shamon, VHB: The idea of an express track may be a misnomer. It's a track that doesn't need to stop and slow down at West station. It's helping to maintain the spacing between the trains and preventing the trailing one from catching up and causing delays.

C: Ari Ofsevit, LivableStreets Alliance: I was just told five minutes ago that this would be a place for trains to pass each other; it doesn't work.

C: Glen Berkowtiz, A Better City: A piece of advice and then a request. The piece of advice is, when we first started this taskforce, Ari only did a bachelor's degree. We all knew he was entering to get a master's degree. The piece of advice is that you want to get this project done before he gets his Ph.D. — just a suggestion.

The request is about taskforce sessions, we've talked about construction staging, a bunch of us asked questions, we have a special workshop in terms of construction staging, you've been nice enough to say yes, including the project manager. What day is that?

C: Nathaniel Cabral-Curtis, HSH: It's November the 13th. It's four hours, drop-in, drop out. I expect there's going to be construction staging, discussion of the riverbank, and maybe more of this.

C: Glen, A Better City: Another request is, what is really objectionable about the last hour and a half is that it gives the false impression that it's a zero-sum game between two objectives. One objective is to have the best commuter rail system we can have. Doesn't everybody agree to have the objective be to have the best commuter rail system that we can have? The second objective is to have the best neighborhood in Allston that we can have. The best multimodal connections are where people want to go and walk. That is to have this thing that's called people's pike trail that Harvard put on the table, and everybody loved. Somehow, we're being told that can't happen if we want to save x number of seconds of the commuter rail. We haven't been shown anything about why having one objective means you have to kill the other objective. We've never been resentful of that. And so, my suggestion-request of you is to have a workshop on that. Let people come in and try to see if there's a way to get both of those objectives to happen so we can all work together to two goals that I think almost everybody wants to see happen.

C: Nathaniel Cabral-Curtis, HSH: We have four hours next month, let's see how much of that we can squeeze in there. We'll have the room set up so we can have stations. The idea is to let people rotate in and out and stay as much as they want. It's from 2-6PM.

C: Fred Salvucci, Harvard University: This is a process point. The three-track West Station with two express tracks bypassing it; Ari was just going through the additional calculations; this delays access to the west; it doesn't improve it. This idea was not on the table from the scoping sessions going back 7 or 8 years when this process started. It's been a four-track, two platform West Station design. This popped up a couple of months ago; it doesn't work. It's a false promise

to western commuters about how this is good for them. A lot of people at the two western public hearings say, 'thanks but no thanks; we'd rather have good access to the Kendall connection.' If you're going to insist on including these three tracks with two express tracks, then you absolutely have to carry both alternatives in the environmental process and do an even-handed evaluation of the two. Do the math problem. Three plus two is a bad idea and doesn't work. The only way you'll be able to judge that is by laying out the two options; the new West Station that we've been talking about and the West Station that we've been talking about for the past seven or eight years. Since you're in process with Federal Highway, I think it calls for a meeting on November 13th. A nice meeting in November will be too late if you don't include this in whatever you're doing with the federal highway. You're causing a delay if you don't include this in the Federal Highway report. No one believes that the four-track, two-track station is going to work. If you insist on putting this on the table, you better evaluate both options. Do not knock out the four tracks. Three plus two. You're doing something very wrong, and people will protest and cause a delay. I don't want to hear that we're causing the delay if you do that.

C: Pallavi Mande, Charles River Watershed Association: Just in the same vein of working together, because that's the spirit of having a workshop. Requests for a lot of data layers that we haven't seen yet. We've seen stormwater construction in one filing, we've seen the flood levels in another filing. Could we commit for this workshop to have the outfall data, stormwater infrastructure, utilities, contamination of soil, existing data that you guys already have?

Q: Nathaniel Cabral-Curtis, HSH: Can we pull that data together?

C: Mark Fobert, Tetra Tech: The design hasn't advanced that far.

C: Pallavi Mande, Charles River Watershed Association: Not a problem. We have the design. We just need the base mapping to make it something that can be added to the DEIR. I'm just asking for layers of basic information to inform the design moving forward. I'm not asking for the entire design fleshed out. I think the idea of having the workshop is to have that base information so everybody can get the constraints that you're operating under, the opportunities that might exist. I'm just asking for existing information that you already have that you could map out.

Q: Nathaniel Cabral-Curtis, HSH: Pallavi, there's a number of layers for this stuff that you have from the DEIR of existing conditions. If we bring to the workshop, rolled plans of pertinent sections of the DEIR, existing conditions because it hasn't changed, is that okay to bring that?

A: Pallavi Mande, Charles River Watershed Association: Yes, bring that, but things have evolved since the DEIR, and we all know that. In terms of the new issues, the trestle getting into the river wasn't part of the DEIR. Let's add to that. The second piece of this is, just like we have in-house experts from the rail community, there's more information that we have about navigation of the river from river users, who have a good sense of traffic and lanes, awesome stuff that we haven't seen documented to the extent that that can be brought. The third part is we haven't seen anything from DEP. If they could be invited, so we're not hearing from you about what DEP is doing in terms of the permit, temporary impacts, constraints, and environmental impacts.

C: Mark Fobert, Tetra Tech: They haven't really analyzed the project enough to get their opinion.

Q: Pallavi Mande, Charles River Watershed Association: Can you ask?

A: Mark Fobert, Tetra Tech: Sure. We met with them yesterday. They requested more meetings because they don't have the details that they need.

C: Pallavi Mande, Charles River Watershed Association: Can they come to this meeting, and then we'll hear from them? It's more useful to get information from them.

A: Mark Fobert, Tetra Tech: I don't think we can scratch the surface of that.

C: Jessica Robertson, Community Representative: That's fine. Tell them to come to a meeting so they can tell us that they can't answer our questions. It's still useful to have another meeting.

A: Mike O'Dowd, MassDOT: We can certainly invite them, but they're under no obligation to attend until there's more information about the design.

C: Pallavi Mande, Charles River Watershed Association: They're going to do what they have to do.

A: Mike O'Dowd, MassDOT: They're going to enforce regulations that are very strict and give MassDOT absolutely no relief from those regulations.

A: Pallavi Mande, Charles River Watershed Association: We understand that.

C: Mark Fobert, Tetra Tech: We are in the process of that.

C: Pallavi Mande, Charles River Watershed Association: That's the point! It has to be premature before we can set the constraints and say there will be no movement. If it's premature, that's fine. We just need to have that discussion.

Q: Bruce Houghton, Houghton Chemical: Do you have a specific timeline from DEP on the permits?

A: Mark Fobert, Tetra Tech: Yes. All of the permitting will be in 2021. The MEPA process is starting right now. We have two years from the notice of intent to get through everything, and it's a lot to get through.

Q: Harry Mattison, Community Representative: Are you filing anything between now and Thanksgiving?

A: Mark Fobert, Tetra Tech: You'll see the scoping report. First, the Notice of Intent issued by the FHWA, you'll see on October 17th. A Notice of Intent is a notice of intent to prepare an environmental impact statement. That kicks off the two-year period that we have to get through the environmental process. One Federal Decision is accelerated; it's very fast, and there's not much time to get through the process that we have to get through. The scoping report is coming out in early November, which will include the purpose and need, alternatives, environmental analysis; the methods we're using are similar to the DEIR. There will be agency and public coordination plans. All of that's under review right now.

Q: Jessica Robertson, Community Representative: Is there a comment period on that?

A: Mark Fobert, Tetra Tech: It will be 30 days from the day that it's issued.

Q: Jessica Robertson, Community Representative: Will it get sent to the taskforce on the day that it's issued?

A: Mark Fobert, Tetra Tech: Yes.

C: Jessica Robertson, Community Representative: In the past, there have been delays when it's officially issued and when it gets sent to the taskforce.

C: Mark Fobert, Tetra Tech: I don't expect that to happen because we have to stop 30 days after that happens.

Q: Harry Mattison, Community Representative: Two questions. One, for the meeting in November, can we send in a week in advance the materials that you'll be presenting.

A: Mike O'Dowd, MassDOT: I'll do the best I can. I won't make any promises. A lot of the information we have is very fluid up to the point that before we come here at 6 PM, we're actually making changes. In many instances, we're making changes to calculations.

Q: Harry Mattison, Community Representative: Can you send a draft a week ahead of whatever is ready?

A: Mike O'Dowd, MassDOT: I'll do the best I can.

Q: Harry Mattison, Community Representative: Will we get anything before the meeting?

A: Mike O'Dowd, MassDOT: We have in the past. I've been willing to do that on a regular basis. To the extent that I can, I'm trying to provide you with information that's accurate.

Q: Harry Mattison, Community Representative: One more question. The overpass by Pizza Regina where Cambridge Street goes over the tracks, does the position of those columns have any impact on the speed of the trains on the Worcester line?

A: Mark Shamon, VHB: Not today, no.

Q: Harry Mattison, Community Representative: If they were in a different position, would that have any impact on how the trains operate?

A: Mark Shaman, VHB: No, the tracks are very straight through there.

C: Harry Mattison, Community Representative: With the different options of the flip, West Station, and tracks, the question is about how the columns interact with any of this stuff.

A: Mark Shamon, VHB: Harvard brought up the idea because they're interested in potentially bringing four tracks through here. With the path, they would actually have to take out the pier that exists here. Right now, there's a pier that exists between the two tracks to the south, and there's a bay to the north. In that particular case, with the four tracks, if we did it this way, the pier would have to go. We'd have to find another way to support the bridge or rebuild the bridge.

Q: Harry Mattison, Community Representative: Is that bridge part of this project now?

A: Mike O'Dowd, MassDOT: Yes. The corrective actions proposed in 2015 are part of this project.

Q: Harry Mattison, Community Representative: When will it be done at the earliest?

A: Mike O'Dowd, MassDOT: If we roll it into this package, we will start to identify means to finance the projects on Metropolitan Highway System (MHS) and I-90. Obviously, this is one of those locations that's been pointed out to me. In the event that between now and the time that we go to construction, with the Allston intermodal, if we haven't undertaken anything, we are rolling that corrective action into this project.

C: Harry Mattison, Community Representative: We need to have conversations about interim improvements then because we've been living with a substandard condition for five years. I appreciate that you guys sent out someone with a weedwhacker, and they scooped up some trash last week. But, it's not a great neighbor, and it hasn't been for a long time.

C: Jack Wofford: Just a thought to build on what Galen and Glen were saying. In terms of getting ready for the November workshop, I think what we're really looking for is not your staff's best answers to the questions and all of the reasons why that's the best answer. I really think we're looking for a more look at the alternatives; here are the tradeoffs, what are the issues here. It's less sharing information with us, Mike, as you often say. It's not giving all of this information and getting pushback. It's a workshop to say, 'here's an issue, how can we work together on this.' It's not just here's a no-build option for you to compare. The point is if you phrase it as an issue. You may find in this group that there will be ways to come up with more creative alternatives than what you've come into the analysis with. That's where you say there's a tradeoff, or we're going to figure out a way to do both of these things, maybe not perfectly. I think that's the tone that we're really looking for if it's truly a workshop and not just sharing information. It's stating an issue, looking at alternatives, looking at the tradeoffs and seeing if people have better thoughts that should be explored in addition.

Let's remember that a year and three months ago, the Secretary came to the Taskforce and said that the prior work and the DEIR weren't sufficiently what she was looking for and she brought in a whole new team to take 60 or 90 days, and they came up with some new options. I'm afraid that the tone that we're hearing is replicating the very tone that the Secretary felt didn't produce the kind of analysis and report with options that she felt a true environmental process should produce. She's an expert on that as we know from her background in conservation law. I think there's time to take a deep breath and understand that the word workshop can have a really creative meaning to it, and that's what we're really looking for.

C: Galen Mook, MassBike: Just to add, especially going into the federal process, because we're going to have another layer of folks that we'll be engaging with. Up to this point, it's been very

MassDOT-centric, but now we're going to have another agency to ask questions of and pass alternatives from. We want to go into this hand in hand. We don't want to go into this saying, 'we asked for this, and we didn't get it; therefore, we're going to kick and scream.' We want to be with this collectively, because if we only have 30 days after the Notice of Intent, that's us going around and collectively complaining. That's going to stall and come out of the two years of the federal process. It's extra important now, as we are going into November to have a collaborative nature.

C: **Jack Wofford:** The sooner you can get to that kind of tone, the more likely you'll understand that everybody in this room doesn't want the Turnpike to fall down, and we want a good project to be built as soon as possible. It's not a conflict. It's not something that people just want to talk about endlessly. We'd like to get some resolution. To get to that, we really need to share the trade-offs and the issues, and seek creativity in the room, because it's here.

C: **Nathaniel Cabral-Curtis, HSH:** Meeting adjourned.

Next Steps

The I-90 Allston Multimodal Project Taskforce will next meet at 2:00 PM on December 13th, 2019, at the Fiorentino Center for a workshop-style meeting. The Center is located at 123 Antwerp Street off Western Avenue in Brighton. The federal and state environmental permitting processes will also continue.

Appendix 1: Meeting Attendees

First Name	Last Name	Affiliation
George	Batchelor	MassDOT
Joe	Beggan	Harvard University
Glen Berkowitz	Berkowitz	A Better City
Andrew	Bettenelli	Office of Senator Brownsberger
Nathaniel	Cabral-Curtis	HSH
Chris	Calnan	Tetra Tech
Jim	Cerbone	MassDOT
Paul	Christner	MASCO
Mark	Ciommo	Boston City Council
Nick	Cohen	VHB
Alex	Cornacchini	Allston Village Main Streets
Rick	Corsi	DCR
Deneen	Crosby	CSS
Donny	Daley	MassDOT
Bill	Deignan	City of Cambridge
Jeff	Dietrich	HSH
Anthony	D'Isidoro	Allston Civic Association
Guus	Driessen	Town of Brookline
Mark	Fobert	Tetra Tech
Karl	Haglund	Department of Conservation and Recreation
Jack	Halverson	Boston Planning & Development Agency
Sarah	Hamilton	MASCO
Ed	Ionata	Tetra Tech
Laura	Jasinski	Charles River Conservancy
Stephen	Kaiser	

First Name	Last Name	Affiliation
Hannah	Kane	State Representative
Jim	Keller	Tetra Tech
Wendy	Landman	WalkBoston
Robert	LaTremouille	
David	Loutzenheiser	MAPC
Pallavi	Mande	Charles River Watershed Association
Harry	Mattison	Allston Resident / Charles River Conservancy
Joel	McBrown	Bayside Engineering
Ken	Miller	FHWA
Galen	Mook	MassBike
Alejandro	Moore	
Tom	Nally	A Better City
Michael	O'Dowd	MassDOT
Ari	Ofsevit	Livable Streets Alliance
Beth	Parent	Tetra Tech
Jessica	Robertson	Allston Resdient
Mark	Shamon	VHB
Steve	Silveira	BTD Active Transportation
Bob	Sloane	WalkBoston
Alex	Strysky	Executive Office of Energy and Environmental Affairs
Brian	Sutherland	MassDOT District 6
Jack	Wofford	Resident
Courtney	Worhunsky	MassDOT D6
Fred	Yalouris	