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Federal Highway Administration

Massachusetts Division

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January 23, 2013

Mr. Thomas F. Broderick, P.E.
Chief Engineer
MassDOT – Highway Division
10 Park Plaza, room 3510
Boston, MA 02116

In Reply Refer To:
HEC-MA

Subject: Arlington – Reconstruction of Massachusetts Avenue
Pond Street to the Cambridge City Line
Project No. 604687

Dear Mr. Broderick:

We have reviewed your letter dated December 6, 2012, and accompanying information, that was responding to our prior comments on the subject project. We have also reviewed additional information provided to us at the December 13, 2012 team meeting, responding to our follow-up comments and meeting discussion points e-mailed to the MassDOT Project Manager, Ms. Kimberley Sloan, on December 7, 2012.

The purpose and need of the subject project that was provided to the public in the handout documentation at the April 12, 2011 design public hearing stated: "The purpose of this project is to improve the vehicular, bicycle, and pedestrian movement, enhance streetscape, and also improve safety along the corridor by creating a consistent cross section, improving the roadway crossings and adjusting the lane configuration to create more orderly traffic flow." Further, in the Frequently Asked Questions handout provided to the public at that meeting, in response to question "How do we know the number of lanes will be sufficient?" the response in part notes that "The corridor design when built, will enhance motorist mobility." Also, in response to the question "Will there be diverted traffic onto side streets?" the response in part states that "Because of improved conditions, there will be no benefit or time savings to divert to the side streets. The enhanced motorist mobility will also improve safety."

In our August 20, 2012 comment memorandum on the 75% Design Submission of the project we commented that "There appears to be a high level of interest in the project including some opposition to the currently proposed assignment of cross sectional space between the different modes of travel." In that correspondence we recommended further analysis, based on the 2010 Highway Capacity Manual, Chapter 16, Urban Street Facilities methodology, to quantify the benefits and impacts of implementing a cross section with one vehicular and one bicycle through lane in the Westbound direction and two vehicular and one bicycle lane in the Eastbound direction of Massachusetts Avenue. We noted that the alternative option that could be evaluated could include providing two vehicular travel lanes with shared outside bicycle lane in both directions thru the limits of the project.

The results of the multi modal operational analysis were provided to us in a draft memorandum dated October 12, 2012, from the project designer Fay, Spofford & Thorndike. The results show improvement in the operation for bicyclists in the eastbound and westbound directions with the pedestrian operation not significantly affected by the project. In our prior December 7, 2012 e-mail correspondence to the project manager we noted that:

- The output data for the operation of the facility shows that the overall travel time in the eastbound direction was 270 seconds per vehicle for the 2028 No Build alternative as compared to 329 seconds per vehicle in the 2028 Build alternative, which represents an increase in travel time of 59 seconds per vehicle (22% increase) traveling during the PM peak period in the eastbound direction.
- Similarly, the output data for the facility shows that the overall travel time in the westbound direction was 167 seconds per vehicle in the 2028 No Build alternative as compared to 201 seconds per vehicle in the 2028 Build alternative, which represents an increase in travel time of 34 seconds per vehicle (20% increase) traveling during the PM peak period in the westbound direction.
- We noted that the increase of travel time above would affect the operation of the transit bus riders in this corridor.
- We also raised additional questions in relation to the completeness of the analysis with respect to fully quantifying delay to vehicles merging from two lanes to one lane going westbound on the Massachusetts Avenue and to additional delay introduced to vehicles traveling in a one westbound lane due to turning vehicles at unsignalized intersections (2010 HCM, Page 17-35, *Delay due to Turning Vehicles*). The above delay does not appear have been included in the output of the 2010 Highway Capacity Manual software.

As can be seen from the results of the multimodal operation analysis of the Urban Facility, the currently proposed alternative would introduce delays to vehicular and transit traffic as compared to a No-Build alternative. We noted in our prior comments, as communicated in the 2010 Highway Capacity Manual: "Design or operational decisions that are intended to improve the service provided to one mode can sometimes have an adverse impact on the service provided to another mode. The challenge for the analyst is to design and operate the urban system in such a way that all relevant modes are reasonably accommodated." Your response to our Comment # 2, included in your December 6, 2012 letter, briefly notes the fact that the currently proposed design provides a balance between the various modes of travel in the corridor. This statement needs to be expanded and fully supported to document that the current preferred alternative provides a reasonable balance, and adequately and reasonably accommodates all of the travel modes in the corridor. In light of the results of the multimodal analysis of the operation of Massachusetts Avenue, public input should be sought to ensure the preferred alternative reasonably accomplishes the purpose and need of the project.

Based on the result of the multimodal analysis and the correspondence received concerning the opportunity for public input on the referenced project, we have determined an additional "public hearing" for the above referenced project is in the public interest. The hearing will allow full disclosure of this project to the public and give the opportunity for additional public input. This additional opportunity for public input should follow MassDOT's standard public hearing

requirements, be transcribed, with public comments accepted. We would expect that MassDOT, the Town of Arlington and its design consultants be present to provide a project overview including description of the project as currently designed, highlighting any changes that have occurred since the 25% design "public hearing," including the results of additional multimodal operation analysis conducted on the project, and those changes accomplished to address the various public comments received. It is also our expectation that we receive the public hearing transcript. Although there appears to have been "other" public meetings and public outreach efforts conducted for the project by the Town, this additional opportunity for public input would be beneficial to clarify any changes that have occurred and allow the Town and their consultants to further explain the project in a more formal meeting.

Finally, we have been receiving e-mails and correspondence from members of the public regarding the subject project. The attached January 7, 2012 e-mail from Ms. Donna Janis contains a series of comments made by the East Arlington Concerned Citizens Committee on the multimodal operation analysis completed for the Massachusetts Avenue facility. Our expectation is that MassDOT will address those comments as part of the project development.

If you have any questions on this matter, please do not hesitate to contact me or Mr. Tomasz Janikula, at (617) 494-2176.

Sincerely,

John McVann
Director of Project Development

cc: Kimberley Sloan – Project Manager (MassDOT)
Patricia Leavenworth – District 4 Highway Director (MassDOT, D-4)

Janikula, Tomasz (FHWA)

From: Janis, Donna <DJanis@transnationalgroup.com>
Sent: Monday, January 07, 2013 1:41 PM
To: Stephenson, Pamela (FHWA); McVann, John (FHWA); Janikula, Tomasz (FHWA)
Subject: Mass Avenue Arlington Critical Mailing
Attachments: MK LOS analysis 12-31-12revised (2).docx

Follow Up Flag: Follow up
Flag Status: Flagged

TO: Tomasz Janikula, Pamela Stephenson, John McVann

FROM: Eric Berger, Maria Romano, Mark Kaepplein, Laura Nastasi, Walt Smith, Donna Janis, Muriel Fudala

DATE: January 7, 2013

RE: **ALERT RE MASS. AVENUE CRITICAL MAILING**

<<MK LOS analysis 12-31-12revised (2).docx>>

We are alerting you that a document of critical importance is being mailed to you in 10 days by the East Arlington Concerned Citizens Committee (EACCC). Along with evidence culled from our recently received Freedom of Information documents from MassDOT, this document will provide proof of the following charges regarding Arlington's Mass. Avenue Project No. 604687:

1. MassDOT, the Town of Arlington and Fay, Spofford & Thorndike (FST) officials misrepresented to FHWA that the Town's April 4, 2012 Open House was a formal public meeting about the Mass. Ave. Corridor Project.
2. Arlington officials, MassDOT and FST officials colluded to eliminate or curtail public participation in the development of the Mass. Ave. Corridor Project.
3. FST's Multi-Modal Analysis, produced in response to Tomasz Janikula's memorandum

of August 20, 2012, is replete with flaws and misrepresentations. **Attached is our preliminary outline of those mistakes.**

Our FOIA documents reveal that the Town of Arlington seeks to "advertise" the Mass. Ave. Corridor Project starting March 16, 2013. We believe that represents the Town's first step in the bid process.

Residents and local businesses have gathered more than 3,600 signatures on a petition submitted today to the Town's Registrars for certification of signatures. The petition requests to have the following non-binding question placed on the April 6, 2013 ballot:

"Shall the Town keep four vehicular travel lanes on Massachusetts Avenue

in East Arlington as now practiced? Yes___ No___"

The threshold to place a question on the ballot is 10% of the town's registered voters, and the submitted signatures are well in excess of that.

Any attempt by the Town to put this project out to bid mere weeks before voters are allowed finally to speak on this issue would be reprehensible, yet consistent with past Town actions to prevent public participation as our mailing will amply demonstrate.

WE ASK FHWA TO DIRECT ARLINGTON OFFICIALS NOT TO ADVERTISE THIS PROJECT UNTIL YOU HAVE READ OUR MAILED DOCUMENT, AND UNTIL THE APRIL VOTING RESULT IS KNOWN AND FHWA HAS HAD SUFFICIENT OPPORTUNITY TO ADDRESS THE VOTE RESULTS.

For further information, please contact EACCC representative Eric Berger at:

781-859-5096 (preferred) or 339-368-1713 (cell).

East Arlington Concerned Citizens Committee

18 Hamilton Rd., Apt. 205, Arlington, MA 02474

EACCC Contact: Eric Berger at 781-859-5096 (preferred) -- or, cell 339-368-1713

TO:	Federal Highway Administration
FROM:	East Arlington Concerned Citizens Committee
DATE:	January 7, 2013
RE:	Review of Town of Arlington and FST Multi-Modal Analysis of Mass. Ave. Corridor Project, No. 604687

Through a Freedom of Information Act request submitted to MassDOT, we members of the East Arlington Concerned Citizens Committee recently obtained documents which include Fay, Spofford & Thorndike's Oct. 12, 2012 response to FHWA's August 20, 2012 review memorandum for the 75% submission for the Mass. Avenue reconstruction project. FHWA in its memorandum requests FST perform a level of service analysis for the Town of Arlington's current Corridor Project design.

Our review of FST's analysis uncovered discrepancies, deficiencies, bad data and wrong conclusions which we've outlined here for your consideration. Many of these mistakes extend from errors in previous simulations, many from lack of experience in how the road operates. Errors at intersections propagate to segment calculations, invalidating them also.

1. **MISSING SEGMENT**

   FST's analysis extends from Foster Street to Alewife Parkway. While FST acknowledges that the Alewife Parkway intersection is not within the boundaries of this project, they neglect to mention their analysis omits approximately **23%** of the Corridor Project's length. Missing are the blocks beginning at the project's west edge at Pond Lane, and then to Palmer Street, Wyman Street, Allen Street, Adams Street to Foster.

2 **NOBUILD WESTBOUND AT LAKE INTERSECTION IS FLAWED**

   The current westbound lane configuration at Lake Street is simulated as being one through lane headed west toward the Center while the left lane acts as a through lane or a left turn lane for traffic turning onto Lake. However, the common scenario at this 79-80 foot wide intersection during rush hours is that 3 lanes of traffic form, with one waiting to turn left and two serving as through lanes (similar to how five total lanes fit at Medford Street in Arlington Center where the road width is about 78 feet). Consequently, the 2028 NoBuild westbound through LOS should be C, not F.

3. **BUILD AND NOBUILD EASTBOUND ERROR AT LAKE INTERSECTION**

A. The 2028 Nobuild and Build configurations at Lake Street are simulated as one right-turn lane and two through lanes, creating optimistic results. However, the bus stop in front of the Capital Theater at the corner of Lake and Mass. Ave. is not intended, nor can it always be used, as a right turn lane. In addition, there is no right on red. This might degrade the 2028 Build rating from C to D headed eastbound.

B. With regard to this false 'right turn lane' on Mass. Ave. eastbound at Lake Street, not only is that 'lane' an MBTA bus stop, but it is also frequently blocked while being used as a loading zone or passenger drop off for the Theater. The consequence of this simulation error is barely visible with the data shown as it is for PM peak hours when this eastbound effect is less pronounced due to less volume than in the AM.

4. **SIMULATION AT FOSTER STREET NOBUILD APPEARS FLAWED**

No turn on red is allowed for either direction when the Foster/Linwood light is red, resulting in optimistic westbound performance.

5. **LAKE TO THORNDIKE WESTBOUND NOBUILD 2028 SIMULATION FLAWED**

The simulation of the Lake to Thorndike westbound Nobuild 2028 scenario shows excessive 1.12 stops/vehicle compared to the single lane Build simulation with 0.89 stops/vehicle, resulting in optimistic performance for the Build configuration.

6. **URBAN STREET SEGMENT REVEALS SERIOUS LOS DEGRADATION**

The Urban street segment reports show serious service degradation when going from the Nobuild 2028 simulation to the Build simulation. Examples include:

A. Between Foster and Lake, with no changes, travel speed is 20.57 mph eastbound and 29.26 westbound. The Build plan adds a traffic light at Bates and more delay. The first 487 foot segment allows travel at 12.42 mph eastbound and 16.75 mph westbound. Bates to Lake segment is 1433 feet and simulated travel at 12.52 mph eastbound and 25.20 mph westbound.

B. The single lane for traffic headed west from Alewife Brook Parkway to Thorndike Street shows serious degradation compared to the Nobuild simulation. The travel speed drops from 17.79 mph to 9.19 mph--nearly half!

7. **SEGMENT COMPARISONS MISSING**

Segment comparisons for the entire project length, from Pond Lane to Alewife Brook Parkway are totally missing. What is the average travel speed for each plan?

8. **SIMULATIONS AT FOSTER INTERSECTION PROBLEMATIC**

A. The frequency that the light is activated for turning with the current design and low turn counts seems too high, at 22 seconds of Green on Mass. Ave. at a time. The Build estimate is 60.5 seconds, thus flowing almost 3X as long.

B. Under Movement Group Results, westbound through and left turning columns are not both full on either the Nobuild or Build simulations. Left turn, through and right turn should all have numbers, representing turns on Linwood and Foster, or through.

9. **NOBUILD -- OBSOLETE TRAFFIC LIGHTS**

All the Nobuild simulations are based on the obsolete traffic lights which have poor timing, as noted in the Functional Design Report. Timing can be improved, and updated/coordinated signals would be even better. A 4-lane plan would put the 3-lane plan to shame!

10. **FST's FAILURE TO PROVIDE 4-LANE PLAN ANALYSIS UNACCEPTABLE**

A. The Mass. Avenue Corridor Project at its narrowest point near Thorndike Street is 66' wide. This satisfies the width necessary for shared travel lanes as currently practiced:

Two 8' wide parking lanes
Two 14' wide shared (outer) travel lanes
Two 11' wide (inner) travel lanes
TOTAL = 66 feet

Most of the corridor is in excess of 66' wide and can accommodate 15' shared lanes and turn lanes easily.

By refusing to analyze a 4-lane configuration, the Town of Arlington and FST have failed to satisfy the FHWA request for information and, thus, continue to fail the public.

B. A simulation of a 4-lane configuration with updated traffic lights should be done for the corridor, to include two through lanes and a left turn at Lake Street (accommodated at Lake by Mass. Ave.'s 80' width).

C. NOBUILD simulations are inherently inaccurate due to the flexible use of lanes varying with volume, double parking, and truck/bus traffic. At peak times, traffic speeds are lower, working lane width needs decrease, and extra lanes form.

11. The LOS data are flawed in another way. One example is the Intersection LOS for the Alewife Brook Parkway for vehicles. That LOS is F for both the NoBuild and Build PM Peak Hour comparisons. However, just as a grade of F in school can represent a numerical grade from 0 to 64, so too are there gradations within the F LOS grade. This is true because the 2028 Build scenario is based on a corridor with one westbound travel lane removed.

Under the 2028 NoBuild scenario, traffic turning off Alewife Brook Parkway and into Arlington enters Mass. Avenue's existing 2 travel lanes. Under the Build scenario, those two entering lanes of traffic are pinched down (by 44%) into one 14' wide travel lane, starting approximately 125' from Alewife Brook Parkway. Across from the start of that single lane lies Boulevard Road, the first of many side streets (and driveways) on the eastbound side of Mass. Avenue. The driver of any westbound vehicle who wants to turn left onto Boulevard Road must cross the two eastbound travel lanes on the Mass. Avenue corridor. Any delay in that driver's left turn will cause all vehicles behind him to stop. They will no longer have room to go around without encroaching on the bike lane--an illegal and dangerous maneuver. From this point, it will only take 10 to 15 backed up vehicles to reach into the Alewife Brook intersection--a scenario that will happen with some frequency, especially in inclement weather at night during the late fall and winter months. The two eastbound lanes entering this intersection are often backed up during Peak drive times. The westbound driver desiring to turn left will often need to wait.

A second example occurs at the intersection of Lake Street with Mass. Avenue. The Intersection LOS for the Northbound vehicles at that intersection is F for both the No Build and Build 2028 PM Peak Hour scenarios. However, the F LOS for the No Build scenario is less degraded than the F LOS for the Build scenario. This is true because the 2028 Build scenario is based on one 11' wide westbound travel lane at that intersection rather than the existing 25' (two travel lanes) of westbound roadway in the No Build scenario.

In the Build scenario, drivers traveling north on Lake Street and taking a left to go westbound on Mass. Avenue will be turning into a roadway that has been narrowed by 56% from the roadway that exists in the No Build scenario. In extremely close proximity to this intersection lies the northbound one-way Winter Street with its east/west crosswalk. Some drivers entering Mass Ave from Lake Street will travel west for a distance of less than 40 feet and then seek to make a right onto Winter Street. Some of these drivers will need to wait at times because of pedestrians using the Winter Street unsignalized crosswalk.

In the NoBuild scenario, Lake Street's traffic exiting left simply gets into Mass. Ave.'s left lane and continues west, while left turning cars seeking a quick right onto Winter Street get in Mass. Ave.'s right lane. In the Build scenario, Lake Street's traffic exiting left gets into a single lane, and any car seeking a quick right turn onto Winter Street who must wait for pedestrians to clear the Winter Street crosswalk will effectively stop all vehicles behind it. This increases the risk of rear-ending, and also the likelihood of gridlock in the intersection as traffic, backed up behind the stopped car, will not have time to clear the intersection before Mass. Avenue east/west traffic gets a Green light.

12. FST MEMO OF 10-22-12 SUGGESTS KEEPING ANALYSIS UNDER WRAPS?

In FST's Memorandum dated October 22, 2012 to Kimberley Sloan (MassDOT) John Michalak (FST) writes:

"At this stage of this project, we believe it would be counterproductive and potentially confusing to the general public to begin presenting a vehicular level of service that is based on different criteria than the intersection analysis that has been discussed for the past two years.

Due to the issues highlighted in this memorandum, FST recommends that FWHA reconsider its request to use this new analysis on this project..."

This veiled suggestion that FST's LOS analysis, flawed as it is, be kept from public view would be stunning in its audacity, were it not so completely in keeping with the town's history of developing its corridor design under the radar and then, when the veil of secrecy was lifted (no thanks to the Town), employing misinformation and scare tactics to befuddle the public. Our FOIA did not uncover any evidence that Kimberley Sloan of MassDOT rejected Mr. Michalak's suggestion.

It is understandable that FST, MassDOT and the Town of Arlington would prefer to keep these poor results quiet as, even with the many procedural flaws outlined above, the best FST's analysis presents is a $5.8 million plan that makes pedestrians less safe, worsens traffic flow and offers only slight improvement for bicyclists in East Arlington--a part of town already bordered by three bicycle accommodations (Minuteman Bikeway, Alewife Bike Path, and Mystic Avenue bike lanes.)

The Town of Arlington predicated this project on making Mass. Avenue safer for pedestrians, continually referencing two pedestrian fatalities of seventeen years ago as the impetus for this plan. FST's analysis shows the present Corridor Project design falls well short of the town's stated goals.