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MEMORANDUM

TO: Mr. Kenneth G. Laden,
Administrator, Intermodal Planning

CC: Abdoulaye Bah, DPW
John Payne, DPW
Mary Vogle, OP

FROM: Louis J. Slade, P.E.

DATE: May 9, 2000

SUBJECT: Field School Access Plan

INTRODUCTION

The purpose of this memorandum is to address the points raised by Mr. Fred R. Hanscom, P.E. regarding the proposed entrance to the Field School on Foxhall Road. First, it is important to note that the letter from Richard Aguglia, which transmits Mr. Hanscom's letter refers to the entrance plan as a "final" traffic plan. This is a final **conceptual** plan for BZA review and approval. As is typically the case in BZA applications the design engineering work for this entrance has not been initiated at this time. The Field School's traffic engineers, civil engineers, and architects, have collaborated on the development of the dedicated left turn lane in Foxhall Road and revised entrance in consultation with the Department of Public Works. Ultimately, the Department of Public Works will review and approve a final engineering design of the dedicated left turn lane and entrance to the school in reliance upon their conceptual approval and the approval of the BZA.

This concept plan is based on a topographic survey of the site and not a surveyed profile of the road. That topographic survey was prepared in order to complete site grading plans and the survey contours are at two foot intervals. In the design phase of the project, a surveyed profile of the roadway will be prepared and it will be considerably more accurate. For this reason, the measurements of sight distance for the left turn lane and entrance cannot be as accurate as they will need to be in the final design phase. However, we have field checked the sight distances and in my professional judgment, a safe design can be constructed.

Mr. Hanscomb's letter raises four issues:

1. Does the design of the entrance provide adequate lengths for decision making, deceleration, and storage?

BZA
Case No. 16559
Exhibit No. 424

Board of Zoning Adjustment
District of Columbia
CASE NO.16559
EXHIBIT NO.424

2. Is the existing sight distance constraint caused by the vertical profile of Foxhall Road inadequate?
3. Does the Kreeger Museum fence create a sight distance constraint which is inadequate at the north entrance?
4. Is the sight distance constraint caused by a tree at the proposed south entrance inadequate?

DESIGN OF ENTRANCE

The geometric design of the entrance meets the dimensional requirements specified by AASHTO. These are independent of the sight distance issues. I make this point to separate these two issues to clarify matters for the BZA. The dimensions we have provided for the geometry of the entrance are adequate according to the AASHTO standards. Mr. Hanscom claims that we require a 364 foot deceleration lane, but in his first exhibit from the AASHTO, it is noted "where intersections occur as frequently as four per mile, it is customary to forego most of the deceleration length and to provide only the storage length plus taper." We discussed this particular matter with DPW and they agree that in this urban condition, it is not necessary to provide for the deceleration distance within the auxiliary lane.

Mr. Hanscom claims that a 250 foot storage length is required based on our plan. We have always noted that the maximum queue for left turns is 3 vehicles or no more than 75 feet of storage. Thus, the balance of at least 175 feet is available for deceleration purposes.

Mr. Hanscom raises the issue about the visibility of the striped taper proposed for the design. As a motorist is heading southbound on Foxhall Road, he needs to perceive that he is approaching a left-turn lane so he can make the proper decisions. In circumstances like this where sight distance is limited due to existing conditions, warning signs are used to augment the pavement striping to make the motorist aware with more than adequate time to adjust his travel path. These warning signs will be included in the Final Phase drawings for the proposed left turn lane.

SIGHT DISTANCE

The sight distance issue at the location of the entrance is an existing problem, not one created by the Field School. In general, Foxhall Road has marginal sight distance at several locations.

Given that we are retrofitting the entrances to the existing roadway, we measured the existing sight distance using the topographic mapping. We measured 300 feet from a driver's eye in a southbound vehicle to a 6 inch tall object located on the road at the proposed entrance location. We estimated the travel speed at approximately 38 miles per hour.

Mr. Hanscom claims that a 40 mph design speed is required and that the sight distance required is 325 feet plus a factor for the steep (7.5%) downgrade. He develops an estimate of 364 feet based on this, thus he questions whether the 300 feet proposed is adequate. We believe that it is, but note that we have judged that the distance available relates to a 38 mph design speed.

We believe that a lower design speed along Foxhall Road is appropriate given the existing characteristics of the road. DPW has posted the speed at 25 mph, and in sections where sight distance is limited, motorists are warned by yellow signs to slow down to 20 mph. The horizontal curve along the school site frontage has a radius of 400 ft. which, depending on the superelevation, probably has a design speed of approximately 30 mph. Thus, the available sight distance of 300 ft and the related design speed of 38 mph is compatible with the existing conditions.

A corollary issue is what are the actual hazards that we are trying to design for. There are two hazard scenarios which could cause a problem:

- AASHTO concerns itself with a motorist approaching a six inch tall object in the road, like a log or an animal. Using this standard, we determined that 300 feet of sight distance is available and adequate.

- Mr. Hanscom correctly cites that another problem would occur if a motorist did not make the proper decision to get into the left-turn lane to turn at the school and instead applied his brakes while in the southbound thru-lane. A second motorist coming over the crest of the hill would need adequate distance to see that vehicle. Because the second motorist needs to see an automobile, rather than a six inch tall object, he will see it sooner and will have adequate distance. By our estimate, he will have 376 feet, 12 feet more than Mr. Hanscom claims is necessary.

Finally, if the Department of Public Works determines that it is necessary to provide the maximum sight distance to see a six inch object, the School can regrade the profile of the roadway for a distance of about 300 feet during the reconstruction for the left-turn lane. This will lower the crest of the vertical curve so that the sight distance condition is improved to satisfy Mr. Hanscom's more conservative distances.

SIGHT DISTANCE LIMITATION AT THE NORTH ENTRANCE

A motorist leaving the school at the north entrance must be able to see north and south an adequate distance so that he can determine that it is safe to pull out onto Foxhall Road. Similarly, motorists on Foxhall Road must be able to see that motorist coming out of the north driveway with adequate distance so they can adjust their speed. This is a different sight distance issue than that discussed above. This requires that a motorist be able to see another vehicle. The best way to test this condition is with a field test which we have carried out and determined that there is

more than adequate sight distance in both directions and that the Kreeger fence does not create a problem. If, however, in the final design phase, DPW determines that there is a problem, the north entrance can be moved slightly south to improve the sight distance angle. As previously discussed, this adjustment is common practice in the conceptual and design stages for projects like this.

SIGHT DISTANCE AT SOUTH ENTRANCE

Mr. Hanscom points out that there is a tree which would obstruct the view of a motorist coming out of the driveway from the south entrance. That tree will be removed.

Finally, it is important to note that there are other visibility obstructions such as utility poles and other trees. All of this would be cleared up in the design phase of the project so that sight distance will not create a safety hazard on Foxhall Road.

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