



WELLS + ASSOCIATES

MEMORANDUM

TO: Lucy Wildrick

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FROM: Martin J. Wells, P.E.
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DATE: May 4, 2009

SUBJECT: Review of PSI's Friendship Shopping Center
Traffic Study Peer Review

Introduction

This memorandum presents our review of the "Friendship Shopping Center Traffic Study Peer Review" prepared by Precision Systems, Inc. (PSI). PSI reviewed the Wisconsin Avenue Giant Transportation Impact Study dated May 14, 2008, and Addendum dated October 22, 2008, prepared by Wells + Associates (W+A).

The sections below present the points on which PSI and W+A agree, the points on which PSI and W+A disagree, and W+A's truck dock and Metrobus service analyses.

Points of Agreement

There are several points on which PSI and W+A agree:

1. Post "No Through Trucks" signs on Macomb, Newark, and other nearby local neighborhood streets.
2. Most PUD trucks will use Wisconsin and Idaho Avenues.
3. Sufficient turning radii are provided for truck entrance/exit activity at both the North and South Parcels.

4. Adding a left turn phase on northbound Wisconsin Avenue at Macomb Street, Newark Street, and Idaho Avenue will not significantly worsen levels of service at these intersections.
5. A traffic signal warrant study should be conducted at the Wisconsin Avenue/Idaho Avenue intersection. In fact, W+A determined that the Peak Hour Warrant would be met. DDOT appropriately requested a new signal at this intersection.

Points of Disagreement

There are several points on which PSI and W+A disagree:

1. The claim that truck turns from northbound Wisconsin Avenue to westbound Idaho Avenue would be a “difficult and dangerous movement” is without foundation and untrue. PSI offers no data or proof of this claim. Swept-area diagrams prepared by W+A clearly demonstrate that the re-configured intersection can adequately accommodate northbound-to-westbound left turns and the eastbound-to-southbound right turns by tractor-trailer trucks. PSI did not acknowledge that the curbs on the west side of Wisconsin Avenue at Idaho Avenue would be modified to make these turns possible.
2. Loading from local streets occurs at other supermarkets in the Washington D.C. For the Safeway, north of here in Friendship Heights, loading is accessed from 42nd Street and Ellicott Street, both local streets. 17th Street, a local street, provides loading access for the Harris Teeter in Adams Morgan.
3. The counts that appear in the PSI report apparently were taken by a sub-consultant, Daniel Consultants, not PSI. The W+A counts were taken by W+A personnel using W+A equipment.
4. The counts that appear in the PSI report were taken at different locations than the W+A counts, therefore, direct comparison is not possible.

5. The link counts presented in the W+A Addendum are baseline counts that may be used to gauge the actual impact of the proposed PUD after it is built and actual traffic impacts can be measured in the field. They were not used to evaluate the potential impacts of this PUD at this time. Counts that are disputed by DDOT, the community, and/or the applicant should be discarded or repeated.
6. W+A used the same background traffic growth rate that DDOT's consultants used in the Connecticut Avenue Traffic Study (1%). W+A used a 1/4 % growth rates at the other intersection, which is similar to the 0.11% growth rate computed in the Wisconsin Avenue Corridor Traffic Study
7. The W+A site trip generation projections for the proposed PUD are 36 percent **higher** than the PSI estimates during the weekday AM peak hour, nine percent **higher** during the weekday PM peak hour, and 10 percent **higher** than the Saturday mid-day peak hour for the following reasons:
 - a. The W+A trip generation estimates are based on ITE's *Trip Generation*, **7th Edition**, which was the latest edition available at the time of the W+A study. The PSI trip generation estimates are based on ITE's *Trip Generation*, **8th Edition**, which was published after the W+A study was completed.
 - b. PSI used the ITE trip generation **rates** whereas W+A used the ITE **rates or equations**, whichever resulted in higher estimates.
 - c. W+A assumed that 48 percent of all residential peak hour trips would be made by non-auto modes, based on 2000 U.S. Census Journey-to-Work data for the subject neighborhood. PSI took no residential non-auto trip reduction.
 - d. W+A used rates observed at the retail stores during the weekday AM peak hour, which were significantly higher than the ITE rates and equations. The higher observed rates are attributable to Starbuck's brisk morning business.
 - e. PSI assumed that the apartments would generate no Saturday mid-day peak hour trips.
8. W+A did not estimate daily site-generated trips; therefore, comparison to PSI daily estimates is not possible.

9. It is not “very difficult to coordinate and schedule the arrivals of trucks of various retail businesses” as PSI contends. DDOT testified at the April 6 hearing before the Zoning Commission that this is successfully done elsewhere in the District of Columbia.

Additionally, existing designated on-street loading areas on Macomb Street and on Idaho Avenue could be used for the proposed project as well as commercial uses in the area.

10. PSI uses three methods to project daily truck deliveries for the PUD. The first two are severely flawed; the third is limited to the Giant Food Store only:
 - a. Method One is based on Australian data reported by ITE. ITE notes that “the [truck trip generation] rates were presented in a 1992 paper without any information regarding sample size or any statistical measures¹”. Suspect Australian data are in no way a reliable method for estimating truck trips in this case.
 - b. Method Two uses suburban Baltimore data also reported by ITE. ITE states that “tremendous variation exists in observed rates” and “land uses do not match ITE land use codes²”.

Regarding both Method One and Two, ITE states that “a user of the data presented should thoroughly review the more detailed material presented in the original documentation before simply adopting a truck trip generation rate as accurate and dependable³”. PSI does not state that they did so.

PSI appropriately states that “It shall be noted that these two methods are strictly for informational purposes. They provide no recommended practices, procedures, or guidelines”. Yet, PSI inappropriately uses Method Two to estimate the number of truck trips upon which their South Parcel truck dock analysis is based.

- c. Method Three is based on PSI’s truck trip surveys of seven other Giant Food Stores in metropolitan Washington.

¹ Institute of Transportation Engineers, “Trip Generation Handbook”, 2nd Edition, p. 113.

² Ibid, p. 114.

³ Ibid, p. 113.

These data corroborate W+A's counts at the subject Giant. W+A observed five tractor-trailer trucks and 18 single-unit vendor trucks, or 23 trucks in total, at the subject Giant Food Store. PSI observed three to 11 tractor-trailer trucks and six to 20 vendor trucks, or nine to 26 trucks in total at seven other Giant Food Stores. PSI's average total was 18 deliveries, which is five fewer deliveries than observed by W+A at the subject Giant.

11. PSI did not observe or report truck deliveries at the existing Giant on the subject site, which are the most relevant observations on which to base future projects of daily truck deliveries.
12. PSI did not observe truck deliveries at the existing retail stores on the subject site or anywhere else. Their entire analysis of the South Parcel loading berth is based on information that is suspect as stated in their own report. W+A did observe truck deliveries to retail establishments at two locations as described below.
13. PSI's analysis of the South Parcel truck dock is incorrect for at least three reasons:

- a. The 68 truck trip estimate is based on unreliable data.

The 68 truck trips were calculated using Method Two, which is inappropriate and should not be used for the reasons listed above and acknowledged by PSI in their report.

- b. PSI confuses **truck deliveries** with **truck trips**.

There are two **truck trips** associated with each **truck delivery**: one inbound trip and one outbound trip. Using Method Two, PSI estimates that the South Parcel offices and shops (not including Giant) would generate 68 daily **truck trips**. PSI then confuses **truck trips** with **truck deliveries**, which should be 34 (i.e., $68/2 = 34$), if 68 were correct which it is not.

- c. PSI did not account for the space for in the South Parcel loading area that will allow a second truck to wait and/or unload.

- d. Two on-street loading zones also are available to tenants of the South Parcel: (1) on the north side of Macomb Street, west of Wisconsin Avenue, and (2) on the south side of Macomb Street, west of Wisconsin Avenue. Both of these zones is posted with signs with the following message: "TOW AWAY/NO PARKING/LOADING ZONE/ FOR COMMERCIAL/VEHICLES ONLY/7:00 AM-6:30 PM/MONDAY-FRIDAY/IF TOWED 727-5000.

14. PSI makes several references to pavement damage that will be caused by PUD truck traffic. DDOT testified before the Zoning Commission on April 6 that their pavement construction standards are designed to accommodate heavy bus and truck traffic. PSI's concerns about pavement damage and their recommendation to relocate the Giant loading dock from Idaho Avenue to Newark Street because of grades and pavement damage, therefore, are unfounded.

15. Parking analysis

PSI estimates that 518 parking spaces will be required for the retail and office components on the South Parcel. They made no projections of the number of spaces required by the proposed new Giant Food Store on the South Parcel.

PSI estimated that the combined 62,984 S.F. of "retail" space would generate a need for 380 parking spaces, or 6.03 spaces per 1,000 S.F. using ITE's equation for "shopping centers".

The PSI's parking estimates are flawed for the following reasons:

- a. They are incomplete. They do not account for all commercial uses proposed in the PUD. They do not include the Giant Food Store.
- b. PSI's estimates that a parking ratio of 6.03 spaces per 1,000 S.F. is needed for the combined North and South Parcel retail space (i.e., $(189 + 191)/(30,779 + 32,155)/1,000 = 6.03$). This is significantly higher than ITE's average ratio of 2.65, higher than ITE's 85th percentile of 3.35, and outside of the range of ITE's observations (1.33 to 5.58). PSI did not apply the "sound engineering judgment" or consider the "unique characteristics that can affect parking demand"⁴ in this case.

⁴ Institute of Transportation Engineers, "Parking Generation", 3rd Edition, p. vii.

- c. PSI estimates that a parking ratio of 7.97 spaces per 1,000 S.F. is required for the proposed urban office space (i.e., $138/(17,320/1,000) = 7.97$). This is significantly higher than ITE's average ratio of 2.40, higher than ITE's 85th percentile of 2.97, and outside of the range of ITE's observations (1.46 to 3.43). Again, PSI did not apply the "sound engineering judgment" or consider the "unique characteristics that can affect parking demand" in this case.
- d. PSI's parking evaluation did not take into appropriate account the synergies among uses in this mixed-use PUD, shared parking, Travel Demand Management (TDM) measures, the excellent bus service to this site, and the many households located within convenience walking distance of this site.

The parking provided in the PUD for the retail component, 388 spaces or 2.84 spaces per 1,000 S.F., is slightly less than required by the Zoning Regulations, it is in excess of the industry standards for retail and, more importantly, consistent with the ratios (2.78 spaces per 1,000 S.F.) observed at existing stores in the urban District of Columbia region.

Adequate parking is provided for the new residents. The PUD provides more residential parking than required by the Zoning Regulations and is consistent with auto ownership in this neighborhood, as reported by the U.S. Census.

Truck Dock Analysis

Overview. W+A projected the use of the South Parcel loading berth and determined that the single truck dock that is proposed to serve the non-Giant commercial uses will adequately accommodate anticipated loading requirements.

The South Parcel loading berth contains space for a second truck to wait and/or unload. Additionally, the on-street loading zones located on the north and south sides of Macomb Street, west of Wisconsin Avenue would accommodate deliveries to the South Parcel in the unlikely event that a delivery truck arrives at a time when the off-street loading berth is occupied.

Field Observations. One tractor-trailer and nine single-unit trucks made deliveries to the 66,916 S.F. of occupied retail stores on the subject site on Tuesday, September 16, 2008. That's equivalent to 0.15 deliveries per day per 1,000 S.F. of retail space (i.e., $(1 + 9) / (66,916 / 1,000) = 0.15$).

Seven trucks made deliveries to the 21,841 S.F. of occupied retail stores at City Vista on Thursday, March 21, 2009. That's equivalent to 0.32 deliveries per day per 1,000 S.F. of retail space (i.e., $7 / (21,841 / 1,000) = 0.32$).

Delivery Estimates. The 32,155 S.F. of retail and 17,320 S.F. of office space proposed on the South Parcel would generate eight daily deliveries based on the rate observed at the subject site (i.e., $(32,155 + 17,320) / 1,000 \times 0.15 = 8$). The South Parcel would generate 16 daily deliveries based on the rate observed at City Vista (i.e., $(32,155 + 17,320) / 1,000 \times 0.32 = 16$).

These more reliable estimates are 52 to 60 (or 76 to 89 percent) **fewer** deliveries than the 68 deliveries over-estimated by PSI.

Berth Capacity. At an average dwell time of 30 minutes per delivery, a truck would occupy the single loading berth proposed for the non-Giant uses on the South Parcel for 4:00 to 8:00 hours on a typical weekday (i.e., $8 \times 0:30 = 4:00$; $16 \times 0:30 = 8:00$). The berth would be available over a 14-hour period, from 7 AM to 9 PM, therefore, the berth would be occupied about a quarter to half of the business day (i.e., $4:00 / 14:00 = 0.29$; $8:00 / 14:00 = 0.57$).

The proposed loading berth could adequately meet the loading requirements of the non-Giant uses on the South Parcel. Excess capacity would be available for the loading needs of the adjacent Two Amys.

The South Parcel loading berth contains space for a second truck to wait and/or unload. The on-street loading zones located on the north and south sides of Macomb Street, west of Wisconsin Avenue would accommodate deliveries to the South Parcel in the unlikely event that a delivery truck arrives at a time when the off-street loading berth is occupied.

Metrobus Service

Overview. The PUD Site is well-served by multiple bus lines along the popular Wisconsin Avenue Corridor. As described below, that service has been enhanced in recent months to improve rush-hour service connections to the downtown core.

In addition, the PUD site is served by a number of cross-town lines that connect the site to other neighborhoods throughout the District.

Finally, the PUD site is also the origination point for a number of these bus lines, which provides riders with particularly reliable and predictable bus service. As a result, residents, employees, and customers of the PUD Site can all be expected to use bus transit as an affordable and sustainable alternative to automobile travel.

Wisconsin Avenue Corridor Service (Lines 31, 32/36, and 37). The 31, 32, and 36 lines are the primary lines that serve the PUD Site along Wisconsin Avenue. All three lines provide northbound service that connects the site to the Tenleytown and Friendship Heights Metro stations to the north. All three lines also provide southbound service along Wisconsin Avenue through Glover Park and Georgetown.

The 31 terminates in Foggy Bottom, while the 32 and 36 lines continue eastward along Pennsylvania Avenue through downtown D.C., Capitol Hill, and across the Anacostia River into Southeast Washington. Service is approximately every 5-10 minutes during the weekday AM and PM peak periods, and every 10-12 minutes off-peak and on weekends.

Recent service enhancements by WMATA have improved rush-hour service along this corridor. Specifically:

- The 32/ line provides service that originates and terminates at the PUD Site. This provides convenient and predictable downtown service, particularly for the AM bus departures that originate at the PUD Site. Approximately 5 buses provide service every 15 minutes during the AM and PM peak periods.
- The 37 line provides express service to the Downtown business core via Massachusetts Avenue. By using Massachusetts Avenue, these buses bypass Georgetown and connect to the Dupont, Farragut West, McPherson Square, Federal Triangle, and Archives/Navy Memorial Station areas. Approximately 9-10 buses provide service every 15 minutes during the AM and PM peak periods.

Crosstown Service (Lines 96, X3, and H4). The PUD site is an origination/termination point for the 96 and X3 lines, which provide cross-town connections to Woodley Park, Adams Morgan, U Street, and points east via Woodley Road. The 96 line provides service approximately every 18-24 minutes during the AM and PM peak periods and approximately every 24-30 minutes off-peak and on weekends. The X3 line provides additional peak period service to the PUD site.

The H4 bus line stops just north of the PUD site at Wisconsin and Porter Streets, and provides additional cross-town connections to Cleveland Park, Mount Pleasant, Columbia Heights, and Brookland. The bus route also provides additional service connecting the PUD site to the Tenleytown Metro station. Service is approximately every 30 minutes.