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MEMORANDUM

TO: Murat Omay District Department of Transportation

FROM: Samantha Williams
Nicole White, P.E., PTOE

DATE: October 31, 2012

SUBJECT: JPDS: Supplemental Traffic Analysis and Parking Management Plan

INTRODUCTION

The following memorandum summarizes supplemental traffic analysis for the Jewish Primary Day School (JPDS) proposed Early Childhood Campus occupancy (at 4715 16th Street, NW). This memorandum also summarizes the Parking Management Plan that JPDS will employ to decrease staff vehicular trips to the campus and supply feasible off-site parking alternatives. The memorandum supplements the September 11, 2012 Transportation Impact Study (TIS) that was submitted to District Department of Transportation (DDOT) as part of the Board of Zoning Case No. 18399 and 18400.

Per the request of DDOT, the 16th Street, NW and Crittenden Street, NW (16th Street and Crittenden Street) intersection was analyzed to assess potential impacts associated with JPDS traffic. The 16th Street and Crittenden Street intersection is located one intersection south of the Proposed Early Childhood Campus which is located at the corner of 16th Street and Decatur Street, NW. Figure 1 provides an illustration of the roadways surrounding the school and identifies the 16th Street and Crittenden Street intersection.

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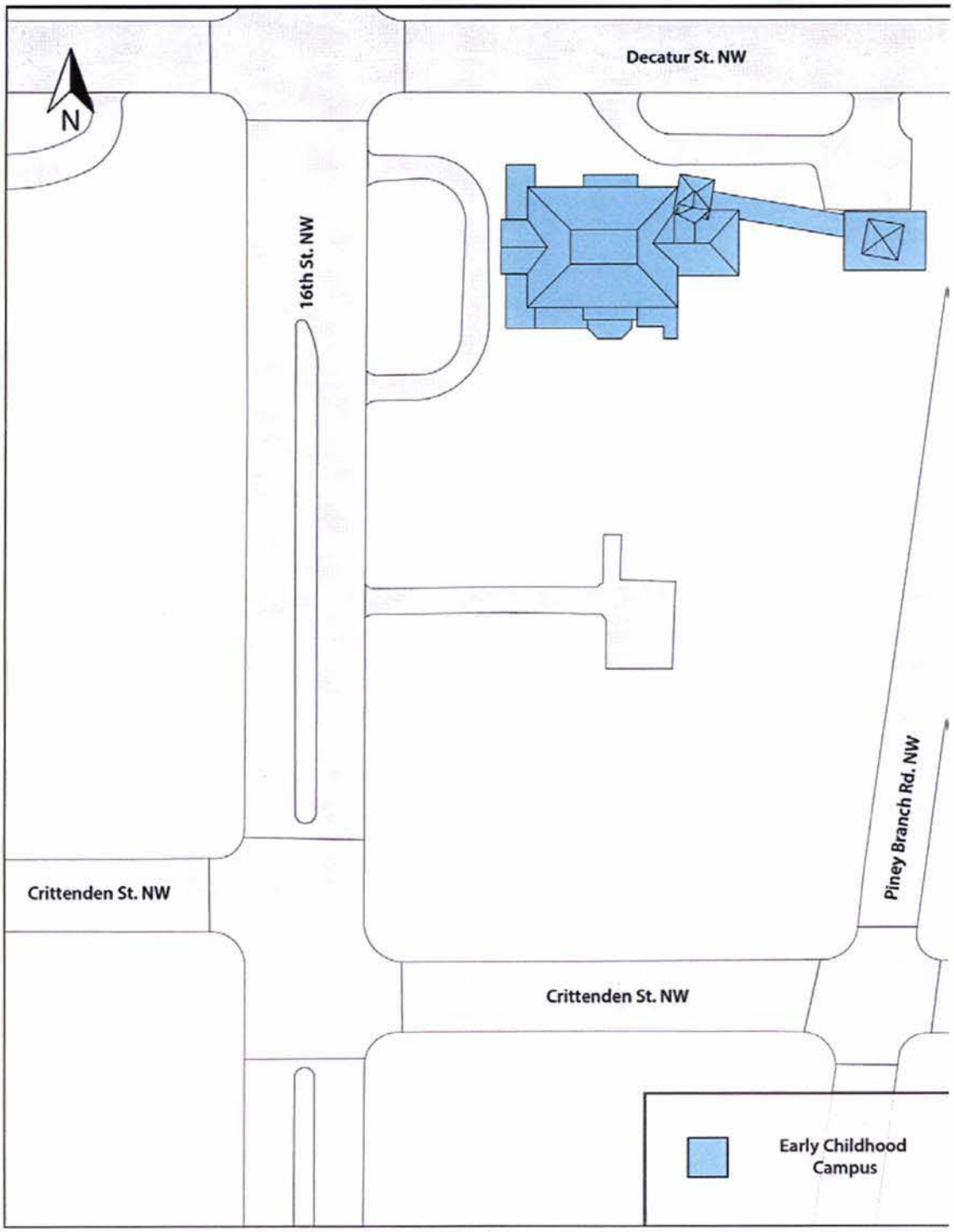

Figure 1: Proposed Early Childhood Campus and Surrounding Roadway

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EXISTING TRAFFIC CONDITIONS

Roadway

A description of 16th Street, NW and Crittenden Street, NW is described as follows:

- 16th Street is a four-lane, median divided, principal arterial. The roadway extends from H Street, NW to the south to Eastern Avenue to the north. The posted speed limit on 16th Street is 30 miles per hour (mph). Peak hour on-street parking restrictions are in place within the vicinity of the proposed Early Childhood Campus.

- Crittenden Street is a generally a two-lane local road that extends from 14th Street in the east to 17th Street in the west. It is a one-way eastbound road between 14th Street and 15th Street. Two-hour curb parking is permitted on Crittenden Street from 7:00AM to 8:30PM (Monday to Friday) and is Zoned 4C. Curb parking is prohibited for street cleaning on Mondays (eastbound lane) and Tuesdays (westbound lane) between 12:30PM and 2:30PM.

Traffic Counts and Field Observations

Traffic data (turning movement counts) and field observations were conducted at the 16th Street and Crittenden Street intersection on October 10, 2012 from 7:00AM to 9:15AM and 3:00PM to 6:00PM. The morning peak hour was 7:30AM to 8:30AM, school PM peak hour was 3:30PM to 4:30PM and the commuter peak hour was 4:45 PM to 5:45 PM.

Figure 2 illustrates peak hour traffic counted at the 16th Street and Crittenden Street intersection. As Figure 2 indicates Crittenden Street carries very low traffic levels and does not appear to be used in a noteworthy manner by the existing Washington Latin Public Charter School for circulation.

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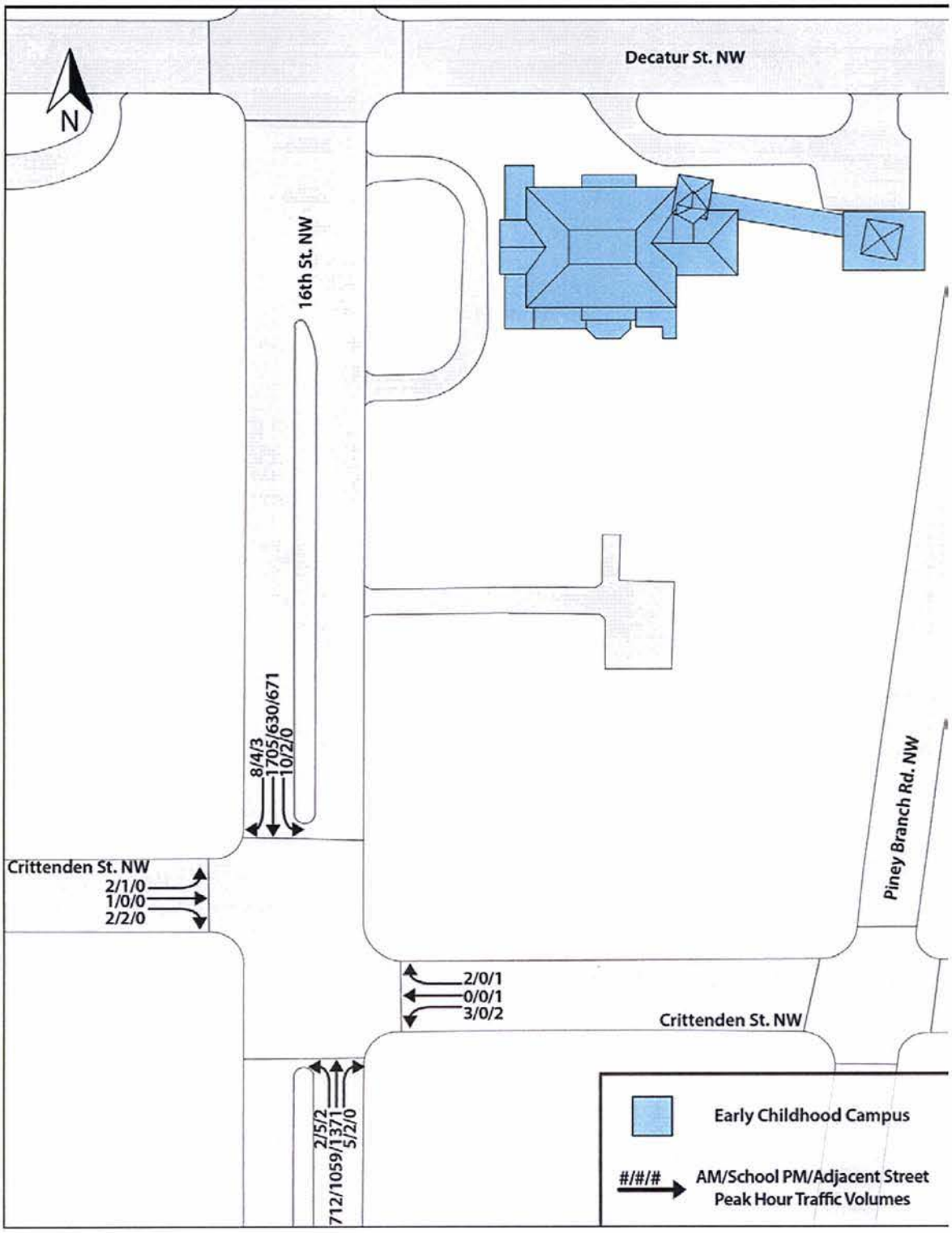

Figure 2: 16th Street and Crittenden Street Peak Hour Traffic

Existing Capacity Analysis: 16th Street, NW and Crittenden Street, NW

SYNCHRO 7 software was used to calculate existing Level of Service (LOS) using the Highway Capacity Method for the morning, school pm and evening peak hours at the 16th Street and Crittenden Street intersection.

Level of Service (LOS) is a measure of the average control (i.e. stop sign or traffic signal) delay experienced by all motorists arriving to an intersection. There are six representative Levels of Service defined for intersections and they are designated using letters A through F, with LOS "A" representing the best operating conditions and LOS "F" representing the worst. The DDOT Engineering Manual notes LOS "D" is the acceptable threshold limit though many urban intersections operate at a LOS "E" or LOS "F".

Level of Service is defined separately for signalized intersections and unsignalized intersections. For signalized intersections, delay is evaluated for the overall intersection; while at unsignalized intersection delay is analyzed for each movement separately (i.e. northbound, southbound, eastbound or westbound traffic). The thresholds for the intersection levels of service are shown in Table 1.

Table 1: Intersection Level of Service Threshold for Delay

Level of Service Threshold for Delay (seconds/vehicle)		
LOS	**Signalized**	**Unsignalized**
A	0-10 sec	0-10 sec
B	> 10-20 sec	> 10-15 sec
C	> 20-35 sec	> 15-25 sec
D	> 35-55 sec	> 25-35 sec
E	> 55-80 sec	> 35-50 sec
F	> 80 sec	> 50 sec

Table 2 provides the existing LOS for the 16th Street and Crittenden Street intersection.

Table 2: Existing Level of Service: 16th Street and Crittenden Street

Study Area Intersection	AM Peak		PM Peak		School Peak	
16th Street and Crittenden Street	LOS	Delay (second/ vehicle)	LOS	Delay (second/ vehicle)	LOS	Delay (second/ vehicle)
NB	A	0.0	A	0.0	A	0.0
SB	A	0.1	A	0.0	A	0.0
EB	D	27.0	A	0.0	B	11.5
WB	C	15.9	D	28.0	A	0.0

As shown in Table 2, all approaches of the 16th Street and Crittenden Street intersection currently operate at acceptable Levels of Service.

A queuing analysis was conducted to determine the 95th percentile queue lengths from Synchro 7 software. Table 4 summarized the 95th percentile queue lengths at the 16th Street and Crittenden Street intersection.

Table 3: Existing 95th Percentile Queue Length: 16th Street and Crittenden Street

Study Intersections	Direction	Available Storage Distance to nearest major intersection	AM Peak Hour Queue Length (ft)	PM Peak Hour Queue Length (ft)	School Peak Hour Queue Length (ft)
16th Street and Crittenden Street	NB	50*	0	0	0
	SB	50*	1	0	0
	EB	665	2	0	0
	WB	170	1	2	0

* Length of left turn storage bay

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As shown in Table 3, the 95th percentile queue lengths at all approaches of the 16th Street and Crittenden Street intersection are maintained within the available storage capacity.

FUTURE TRAFFIC CONDITIONS

JPDS projected site trips, as summarized in the September 11, 2012 TIS, and the directional distribution shown in Figure 3 were used to project future traffic volumes[1] at the 16th Street and Crittenden Street intersection.

JPDS will manage vehicular drop-off and pick-up along the Decatur Street driveway with parents being required to make a right onto the driveway (traveling east on Decatur Street) and make a left out of the driveway (traveling west on Decatur Street). This plan would make use of Crittenden Street unlikely for most vehicular traffic associated with the Proposed Early Childhood Campus.

Future traffic volumes for the 16th Street and Crittenden Street intersection are included in the SYNCHRO 7 worksheets in the Technical Appendix.

During the 2011-2012 academic school year 51%[2] to 69%[3] of the pre-kindergarten, kindergarten and first grade students (or 48 to 65 of the 94 students) were enrolled in the school bus program. In addition, since half to two-thirds of the projected new kindergarteners and pre-K students are siblings; JPDS anticipates a high percentage of children in the younger grades will continue taking the bus with their older siblings.

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[1] Future traffic volumes also include a reduction in traffic associated with the Washington Latin School existing site trips.

[2] AM Bus riders

[3] PM Bus riders

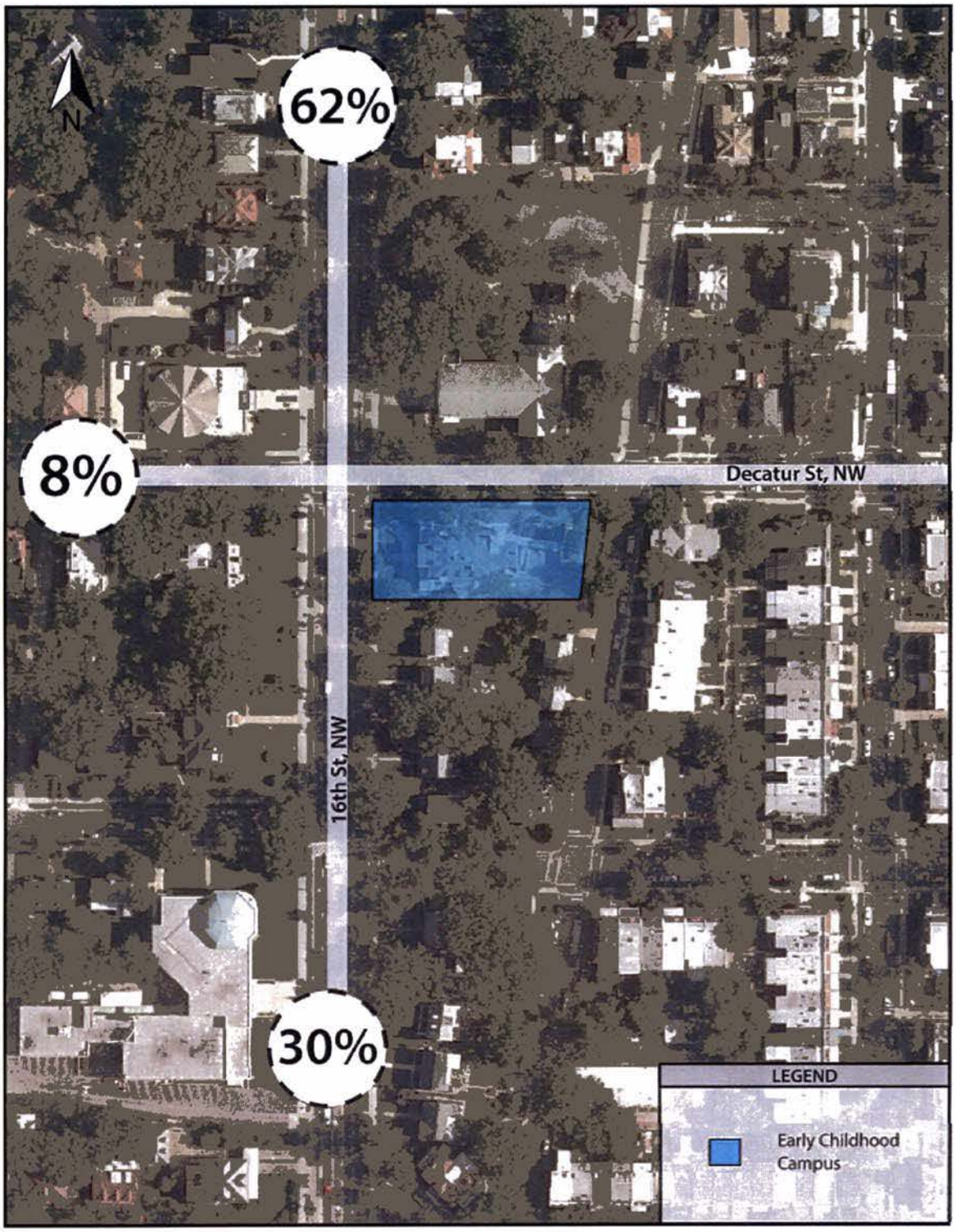

Figure 3: Directional Distribution

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Future Capacity Analysis: 16th Street and Crittenden Street

SYNCHRO 7 software was used to calculate future LOS (using Highway Capacity Method) for the morning, school pm and evening peak hours at the 16th Street and Crittenden Street intersection. Table 4 summarizes Future peak hour LOS projections for the 16th Street and Crittenden Street intersection.

Table 4: Future Level of Service: 16th Street, NW and Crittenden Street, NW

Study Area Intersection	AM Peak		PM Peak		School Peak	
16th Street and Crittenden Street	LOS	Delay (second/ vehicle)	LOS	Delay (second/ vehicle)	LOS	Delay (second/ vehicle)
NB	A	0.1	A	0.0	A	0.0
SB	A	0.1	A	0.0	A	0.0
EB	D	27.4	A	0.0	B	11.5
WB	C	16.1	D	27.9	A	0.0

As Shown in Table 4 all approaches for the 16th Street and Crittenden Street intersection will continue to operate at acceptable Levels of Service.

It should be noted that JPDS is not expecting an increase in traffic on Crittenden Street as the circulation plan would direct parents to make a left out of the school driveway onto Decatur Street instead of circulating through the neighborhood. The minor increase in delay for the eastbound approach at Crittenden Street (from 27.0 seconds existing to 27.4 seconds future) is due to a slight increase in traffic on 16th Street.

Table 5 summarizes the 95th percentile queue lengths at the 16th Street and Crittenden Street intersection.

Table 5: Future 95th Percentile Queue Length: 16th Street and Crittenden Street

Study Intersections	Direction	Available Storage Distance to nearest major intersection	AM Peak Hour Queue Length (ft)	PM Peak Hour Queue Length (ft)	School Peak Hour Queue Length (ft)
16th Street and Crittenden Street	NB	50*	0	0	0
	SB	50*	1	0	0
	EB	665	2	0	0
	WB	170	1	2	0

* Length of left turn storage bay

As shown in Table 5, with the occupancy of the proposed Early Childhood Campus the 95th percentile queue length at all approaches of the 16th Street and Crittenden Street intersection would be maintained within the available storage capacity as under existing conditions.

PARKING MANAGEMENT PLAN

Parking Requirement & On-Campus Parking Supply

JPDS is seeking a parking variance as follows:

- The main campus will be required to provide 48 parking spaces but will provide 24 on-site parking spaces (45 stacked)
- The lower campus will be required to provide 17 parking spaces but will provide 7 on-site parking spaces

There will be 45 parking spaces at the JPDS main campus in the future including stacked parking spaces and spaces at the new administrative building. The parking spaces support faculty/staff members of which there are currently 56 and a future total cap of 72.

The Early Childhood Campus will provide for seven vehicle spaces on-site. JPDS could have a maximum of 26 faculty/members at the Early Childhood campus.

Off-Campus Parking Supply

JPDS has confirmed an agreement with Ohr Kodesh Synagogue in Chevy Chase Maryland to provide 25 satellite parking spaces for faculty/staff. JPDS faculty/ staff at the main campus will utilize the Ohr Kodesh parking lot and either take the JPDS school bus[4] or carpool to/from the park and ride location. The north JPDS school bus route will service the Ohr Kodesh parking location during the morning. Designated faculty/staff members will also be assigned to stop at this location to pick-up faculty staff. Faculty/staff members that pick up colleagues from Ohr Kodesh will rotate and a parking space will be assigned on-campus for the driver of the carpool.

[4] Staff members who wish to ride the school bus from any of the stops are welcome to ride it for free.

During the afternoon there will be three separate opportunities to get to the Ohr Kodesh parking lot location; one as part of the afternoon north bus route, a second time[5] when the designated faculty staff member departs the JPDS campus and travels to this location and a third time when the school bus completes its route and returns to JPDS for a final run transporting any faculty/staff members still on campus.

JPDS will employ a number of incentives to encourage employees to park at the Ohr Kodesh location such as providing staff members who commit to using the lot at least two to three times a week with a financial stipend.

For the Early Childhood Campus, JPDS will utilize parking at the MOSAIC Church located at 4401 16th Street, NW Washington, DC, as off-site satellite parking. The MOSAIC church is located 0.3 miles south of the proposed Early Childhood Campus and is within walking distance to the campus via the sidewalk on 16th Street. The parking agreement with MOSAIC allows JPDS to use 15 parking spaces at the church.

Table 6 provides a list of all JPDS parking spaces including on-site and off-site locations.

[5] The carpool members would likely set their own time to depart the JPDS Campus in the afternoon

Table 6: JPDS Campus Parking Supply

Main Campus	Number of Spaces
Main Campus	45
Ohr Kodesh (Chevy Chase)[6]	25
Total Main Campus	**70**

Lower Campus	Number of Spaces
Early Childhood Campus	7
MOSAIC Church parking	15
Total Early Childhood Campus	**22**

There will be 70 total spaces available for the Main Campus and 22 total spaces available for the Early Childhood Campus.

Faculty/ Staff Transportation Modal Split

Existing faculty/staff transportation modal split at the Main JPDS Campus is as follows:

- 84% Drive
- 15% Metrobus
- 1% Walk Bike

With the existing modal split, it can be expected in the future a maximum of 60 faculty/staff will drive to campus. Therefore 45 faculty/staff members will be afforded an on-site parking space and the remaining 15 faculty/staff members will be required to park at Ohr Kodesh in Chevy Chase, Maryland. There would be 25 parking spaces at the Ohr Kodesh location thus the

[6] Parking spaces at Ohr Kodesh will primarily be used by Main Campus staff. This lot was mentioned at the BZA hearing as the "Silver Spring" lot.

additional parking demand can be adequately accommodated using the off-site parking.

Using the same modal split for faculty/staff at the proposed Early Childhood Campus, it can be expected that 84% of the 26 faculty/staff (or 22 faculty/staff) would likely drive to campus. There will be 7 spaces on site thus the remaining total of 15 faculty/staff members will be required to utilize off-site parking opportunities. As Table 6 indicates there would be a total of 15 parking spaces available for faculty/staff at the MOSAIC Church thus there would be adequate parking supply to meet the projected parking demand.

Transportation and Parking Demand Management

The 84% drive and park mode share is expected to decrease in the future as JPDS will look to enhance its current Transportation Demand Management measures geared towards faculty/staff. Additional TDM measures will include:

- *Preferred Carpool Parking* - Four designated carpool only parking spaces[7] at the Lower Campus to encourage ridesharing
- *Increased transit subsidies* - JPDS currently has approximately 11 people who receive a Metro card stipend to take public transportation to school and will make every effort to increase participation in this program
- *Bike racks and shower facilities* - JPDS will provide bike racks at both campus locations. The proposed Early Childhood building will furnish shower facilities and the administrative property at 6017 16th Street, NW (adjacent to the main campus) currently has showers

[7] Three remaining spaces will be reserved for the school director and administrators.

CONCLUSIONS

- Traffic analyses indicate the 16th Street/ Crittenden Street intersection currently operates at acceptable Levels of Service during both the AM and PM peak hours.

- JPDS is not expecting an increase in traffic on Crittenden Street as the circulation plan would direct parents to make a left out of the school driveway onto Decatur Street instead of circulating through the neighborhood.

- Future traffic analyses indicate the 16th Street/Crittenden Street intersection will continue to operate at acceptable LOS.

- JPDS has agreements in place at two satellite parking locations – Ohr Kodesh Synagogue in Chevy Chase, Maryland and MOSAIC Church located 0.3 miles from the Early Childhood Campus. Faculty/staff will use carpooling and/or the school bus as transportation to connect from the Ohr Kodesh satellite parking location to JPDS.

- With the off-site parking supply, JPDS will adequately accommodate projected parking demand.

- JPDS will enhance its current Transportation Demand Management measures geared towards faculty/staff by providing preferential carpool parking spaces, increased transit subsidies and bicycle racks and shower facilities.