

SW 83 AVE

SW 82 AVE

SW 176 ST

SW 184 ST

OLD CUTLER RD

138 (31) ↓

68 (61) ↑

138 (31) ↓

68 (61) ↑

138 (31) ↓

68 (61) ←

158 (141) ←

DWY

321 (73) ↓

146 (31) ↓

11 (10) ↓

23 (5) ↓

298 (68) ↓

146 (13) ↓

298 (68) ↓

**LEGEND**

- 00 - AM PEAK HOUR
- [00] - PM PEAK HOUR

\$DATE\$

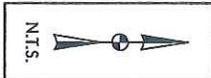
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PROJECT:  
**PALMER TRINITY  
TRAFFIC IMPACT STUDY**

TITLE:  
**FUTURE STUDENTS ACCESSING  
SW 184 ST DRIVEWAY  
(690 STUDENTS)**

EXHIBIT No.  
**15**



SW 83 AVE

SW 82 AVE

PTS DWY

PTS DWY

SW 176 ST

SW 184 ST

OLD CUTLER RD

**LEGEND**  
 00 - AM PEAK HOUR  
 [00] - PM PEAK HOUR

24 (38)  
 449 (298)  
 6 (12)

55 (36)  
 0 (2)  
 3 (0)

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 8 (4)  
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4 (2)  
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 25 (11)

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 22 (15)

56 (31)  
 386 (234)  
 40 (58)

46 (36)  
 3 (8)  
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 36 (12)  
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0 (0)  
 7 (6)  
 1 (3)

126 (52)  
 22 (3)  
 12 (4)

12 (3)  
 322 (426)  
 2 (2)

0 (3)  
 4 (3)  
 11 (27)

1 (1)  
 23 (22)  
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138 (31)  
 353 (178)

68 (61)  
 158 (141)

0 (0)  
 50 (27)  
 93 (25)

1 (2)  
 0 (0)  
 4 (4)

321 (73)  
 273 (48)

41 (36)  
 0 (2)  
 109 (96)

2 (7)  
 36 (41)  
 213 (44)

356 (311)  
 95 (19)  
 80 (76)

398 (341)  
 261 (820)  
 67 (7)

138 (72)  
 770 (379)  
 29 (13)

7 (74)  
 10 (77)  
 7 (35)

204 (156)  
 11 (14)

3 (10)  
 96 (70)

202 (105)  
 685 (1187)

SFILES



PROJECT:  
**PALMER TRINITY  
 TRAFFIC IMPACT STUDY**

TITLE:  
**FUTURE (2015)  
 TRAFFIC CONDITIONS  
 WITH PROJECT**

EXHIBIT No.  
**16**

**Exhibit 17**  
**Future (2015) with Project Roadway Segment Analysis**  
**Palmer Trinity School**

Roadway	Limits		Roadway Type	Direction	Number of Lanes	LOS Standard	Service Volume	2015 AM Pk Hr Volume	Meets LOS Std?	2015 PM Pk Hr Volume	Meets LOS Std?
	From	To									
Old Cutler Rd	SW 184 Street	SW 176 St	County Minor Arterial	NB	1LU	D	NA	1,088	Yes <sup>(1)</sup>	678	Yes <sup>(1)</sup>
SW 184 St	SW 87 Avenue	SW 83 Avenue	County Minor Arterial	EB	1LU	D	810	479	Yes <sup>(1)</sup>	1,168	Yes <sup>(1)</sup>
			County Minor Arterial	WB	1LU	D	810	583	Yes	348	Yes
	SW 83 Avenue	Proposed Palmer Trinity Dwy	County Minor Arterial	EB	1LU	D	810	402	Yes	559	Yes
			County Minor Arterial	WB	1LU	D	810	337	Yes	238	Yes
	Proposed Palmer Trinity Dwy	Old Cutler Road	County Minor Arterial	EB	1LU	D	810	482	Yes	433	Yes
			County Minor Arterial	WB	1LU	D	810	546	Yes	319	Yes

(1) See Travel Time and Delay Study in Appendix C.

Source: David Plummer and Associates, Inc.

### 5.3 Intersection Analysis

Exhibit 18 shows the resulting LOS at the intersections under study for future (2015) traffic conditions with Project. Analysis worksheets are included in Appendix D. As noted in future (2015) without project traffic conditions, during the AM peak hour, the northbound minor approach of the intersection of SW 184 Street with SW 82 Avenue continues to operate below the adopted LOS standards. For unsignalized intersections, the software tends to overestimate delay measurements for the side streets (minor approach). The actual delays (observed in the field) are acceptable and similar to other comparable intersections in the area. However, should the delays ever reach such a point shown by the software, motorists tend to use an alternate route, balancing demand throughout an area.

The following improvements are recommended in order to meet the adopted LOS standard by the Village:

- Old Cutler Road/SW 184 Street – add a southbound right turn lane; signal phasing adjustments.

**Exhibit 18**  
**Intersection Analysis Results - Weekday AM and PM Peak Hour**  
**Future (2015) with Project Traffic Conditions**

Intersection	Signalized /Unsignalized	Movement	LOS Standard	AM Peak Hour LOS	PM Peak Hour LOS
Old Cutler Road / SW 176 Street	S	Overall	D (NB/SB)	C	C
Old Cutler Road / Eureka Drive	S	Overall	D	C *	C *
SW 176 Street / SW 83 Avenue	U	NB SB	E E	A A	A A
SW 176 Street / SW 82 Avenue	U	NB SB	E E	A A	A A
SW 184 Street / SW 83 Avenue	U	Main Street - EB Main Street - WB Minor Street - NB Minor Street - SB	D D E E	A A E B	A A C B
SW 184 Street / SW 82 Avenue	U	Main Street - EB Main Street - WB Minor Street - NB Minor Street - SB	D D E E	A A F ** B	A A C B

Source: DPA

U= unsignalized S= signalized

\* Resulting LOS with addition of a SB RT lane adjusted signal timing.

\*\* for unsignalized intersections, the software tends to overestimate delay measurements for the side streets (minor approach). The actual delays (observed in the field) are acceptable and similar to other comparable intersections in the area. However, should the delays ever reach such a point shown by the software, motorists tend to use an alternate route, balancing demand throughout an area.

## 5.4 Project Driveway Analysis

Project driveways were also analyzed for future (2015) conditions with project. Analysis worksheets, including back of queue worksheets, are also included in Appendix D. It is recommended that an eastbound left turn lane and a westbound right turn lane are built on SW 184 Street at the proposed project driveway. The analysis shows that while there may be occasional delays for traffic exiting the school, flow on the external streets will not be interrupted by the addition of the proposed driveway. The projected queue at the driveways has been compared to the areas where vehicles will be waiting to ensure that enough storage is provided within the school and at the proposed turning lanes. The results are shown in Exhibit 19.

**Exhibit 19**  
**Proposed Driveway Queue Assessment**  
*Palmer Trinity School*

Driveway	Time Period	Maximum Back of Queue (veh) <sup>(1)</sup>	Distance Required (feet) <sup>(2)</sup>	Proposed Drop-off Distance from Street (Feet) <sup>(3)</sup>	Within Distance?
SW 176 St Driveway	AM	5.8	132	500	Yes
	Midday	3.99	88		Yes
	PM	0.97	22		Yes
SW 184 St Driveway	AM	23.09	528	1200	Yes
	Midday	26.93	594		Yes
	PM	4.42	110		Yes

<sup>(1)</sup> Maximum Back of Queue is based on HCS intersection analysis.

<sup>(2)</sup> 22 linear feet per vehicle.

<sup>(3)</sup> Based on estimated dimensions from site plan.

## 5.5 Accumulation Assessment

### 5.5.1 Methodology

An Accumulation Assessment for the expansion of the Palmer Trinity School to 1,150 students was completed per guidelines established by Miami Dade County Public Works Department for Private Schools. The existing facility was used as the “surrogate school”.

### 5.5.2 Analysis Periods

Data for the existing conditions was conducted on Thursday, February 28, 2008 during each arrival and dismissal period. The analysis periods can be seen in Exhibit 20.

**Exhibit 20**  
**Accumulation Assessment Analysis Periods**  
*Palmer Trinity School*

Drop-Off/Pick-Up	Time	
	Begin	End
AM Drop-Off	7:30 am	8:15 am
PM Pick-Up	2:45 pm	3:30 pm

Source: David Plummer & Associates

### **5.5.3 Data Collection**

The accumulation study was performed on Thursday, February 28, 2008. Consistent with the Miami-Dade Public Works guidelines for this type of study, the maximum accumulation of staged loading/unloading vehicles was recorded every 5 minutes from approximately 30 minutes prior to school start time to 15 minutes after; as well as 15 minutes prior to dismissal to 30 minutes after dismissal. Vehicles are categorized as passenger, student, or bus. Data collection consists of counting every 5 minutes all school related loading vehicles (legally or illegally, staged or parked, on or neighboring the school site). During the times when the data was gathered, neither vehicle overflow onto SW 176 Street or off-campus parking was observed. Summaries of the data collected are included in Appendix G.

### **5.5.4 Assessment Results**

The assessment analysis for future traffic conditions is consistent with the Miami-Dade County methodology. The school master plan will accommodate approximately 813 parked vehicles. In addition, it is estimated that inbound queuing areas within the site will be able to accommodate at least 130 vehicles.

The master plan adopted the following measures that have been included in the planning of the site, in order to minimize interference between project traffic and traffic the external roadway network during the schools arrival and/or dismissal periods:

- a. In the proposed site plan for Palmer Trinity School (see Exhibit 2), the distance between the drop-off areas and public right-of-way varies from 500-feet for the drop-off areas serviced by the SW 176 Street driveway, to approximately 1,200-feet for the drop off area serviced from SW 184 Street, in order to minimize conflicts with the external roadway network.
- b. The proposed driveway design on SW 184 Street will allow for approximately 4,800 linear feet of storage within the site along the main school driveway. Using the MDC standard of 22 linear feet per passenger vehicle or commercial van, the proposed driveway will be able to store 218 vehicles.

- c. The drop off for students accessing SW 176 Street is a two lane driveway that will provide approximately 1,000-feet of total linear feet of storage, allowing for the storage of 45 vehicles.

The location of the parking areas, as well as other on-site storage has been graphically portrayed in Exhibit 21. The analysis worksheet for future conditions with the proposed expansion is also included in Appendix G. A summary of the results is provided in Exhibit 22.

**Exhibit 22  
Accumulation Assessment Results**

Type of Vehicle	Maximum Existing Accumulation 600 students <sup>(1)</sup>	Maximum Forecasted Accumulation 1,150 Students	Proposed Provided Spaces <sup>(2)</sup>
passenger vehicles (including vans)	142 <sup>(3)</sup>	272	530
large school buses	1	2	4
student vehicles	160 <sup>(3)</sup>	307	409

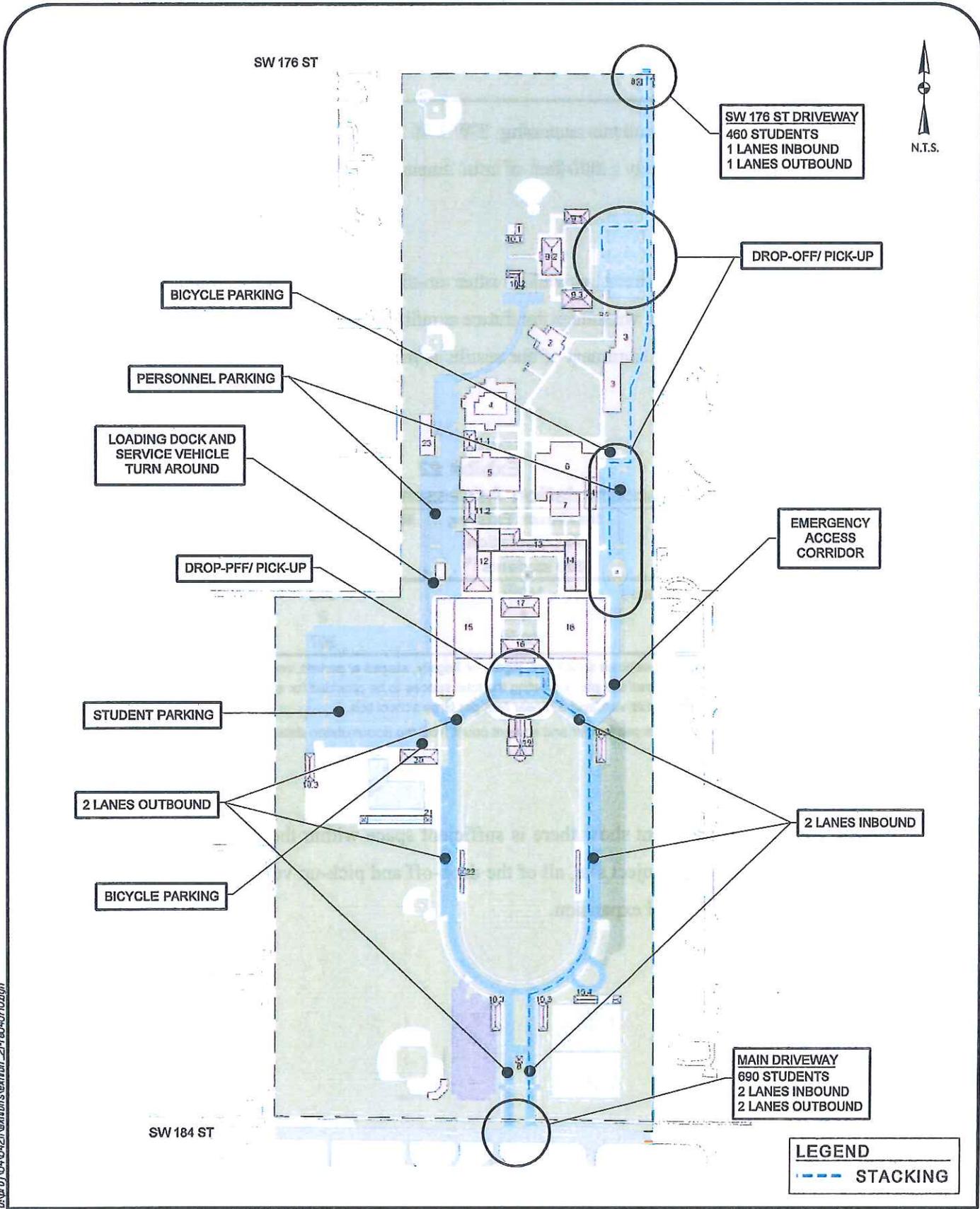
<sup>(1)</sup> These are all school related loading vehicles which are, legally or illegally, staged or parked, on or neighboring the school site.

<sup>(2)</sup> Information obtained from the proposed site plan indicating the total spaces to be provided for each vehicle type at 22 linear feet per passenger vehicle and/or commercial van, and 50 linear feet per large school bus.

<sup>(3)</sup> This is a combination of the maximum passenger and student count from the accumulation data collection.

The results of the assessment show there is sufficient space within the proposed master plan to accommodate, within the project site, all of the drop-off and pick-up vehicles associated with the future Palmer Trinity School expansion.

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PROJECT:  
**PALMER TRINITY  
TRAFFIC IMPACT STUDY**

TITLE:  
**PARKING AREA AND  
SITE STORAGE**

EXHIBIT No.  
**21**

## 6.0 NEIGHBORHOOD IMPACTS

Field data was gathered to address the impacts of the proposed school expansion on the neighborhood streets west of Palmer Trinity School. At buildout, the existing driveway on SW 176 Street will remain but will be limited to the exclusive use by 460 students, resulting in 23% fewer patrons accessing the school through the SW 176 Street driveway. The main driveway is proposed on SW 184 Street, an arterial roadway, for which there are plans for widening.

The proposed master plan will be implemented in stages described below.

1. The first stage will construct and open the proposed main driveway on SW 184 Street without the addition of new students. The existing school buildings will continue to be used. All vehicles parking on campus (students, teachers, and staff) will be required to use the new SW 184 Street Driveway. Drop-off and pick-up will continue to be serviced through the SW 176 Street driveway. PTS traffic using SW 176 Street will decrease by approximately 35% during the peak hours with this improvement. Furthermore, overall traffic volumes on SW 176 Street will decrease by approximately 25% during the peak hours with this improvement (see Exhibit 23).

**Exhibit 23**  
**Traffic Reductions on SW 176 Street**  
**Stage 1 - 600 Students <sup>(1)</sup>**

AM PEAK HOUR						
Roadway	Limits		Direction	2010 Volume @ PTS Dwy	Reduction in PTS Traffic	% Reduction of 2010 Traffic on 176 St
	From	To				
SW 176 St	SW 83 Av	PTS Dwy	EB	168	-62	-24%
			WB	88	0	
	PTS Dwy	Old Cutler Rd	EB	193	0	-28%
			WB	313	-141	
PM PEAK HOUR						
SW 176 St	SW 83 Av	PTS Dwy	EB	58	0	-16%
			WB	89	-23	
	PTS Dwy	Old Cutler Rd	EB	154	-63	-25%
			WB	102	0	

<sup>(1)</sup> Drop-off/Pick-up use Driveway at SW 176 St Driveway; Parked Vehicles use Driveway at SW 184 St Driveway.

2. At buildout, the total number of students will reach a maximum of 1,150. Access through the existing SW 176 Street driveway will be limited to 460 students, while the remaining students will be served by through the main driveway on SW 184 Street. At buildout, the proposed Palmer Trinity School Master Plan will result in a decrease in school traffic impacting the neighborhood in the vicinity of SW 176 Street. During the school peak hours of operations, an approximately 23% reduction of school traffic using the SW 176 Street driveway is anticipated. Furthermore, overall traffic volumes on SW 176 Street will decrease by approximately 15% during the peak hours of operation (see Exhibit 24).
- 3.

**Exhibit 24**  
**Traffic Reductions on SW 176 Street**  
**Buildout – 1,150 Students <sup>(1)</sup>**

<i>AM PEAK HOUR</i>						
Roadway	Limits		Direction	2010 Volume @ PTS Dwy	Reduction in PTS Traffic	% Reduction of 2010 Traffic on 176 St
	From	To				
SW 176 St	SW 83 Av	PTS Dwy	EB	168	-28	-16%
			WB	88	-13	
	PTS Dwy	Old Cutler Rd	EB	193	-33	-19%
			WB	313	-65	
<i>PM PEAK HOUR</i>						
SW 176 St	SW 83 Av	PTS Dwy	EB	58	-8	-14%
			WB	89	-12	
	PTS Dwy	Old Cutler Rd	EB	154	-29	-16%
			WB	102	-13	

<sup>(1)</sup> 690 Students use SW 184 St Driveway, & 460 Students use SW 176 St Driveway

The proposed plan will limit access through the SW 176 Street driveway to 460 students, serving fewer children than the 600 students using the driveway today. Therefore, the impacts of the proposed Palmer Trinity School expansion, with its main access at SW 184 Street and restricted access at SW 176 Street, will result in less traffic during peak hours of operation on SW 176 Street and the surrounding neighborhood streets when compared with the existing 600 student’s school and a single entrance on SW 176 Street.

In addition, the school has agreed to the following traffic management strategies to ensure future operations are consistent with the plan described above: