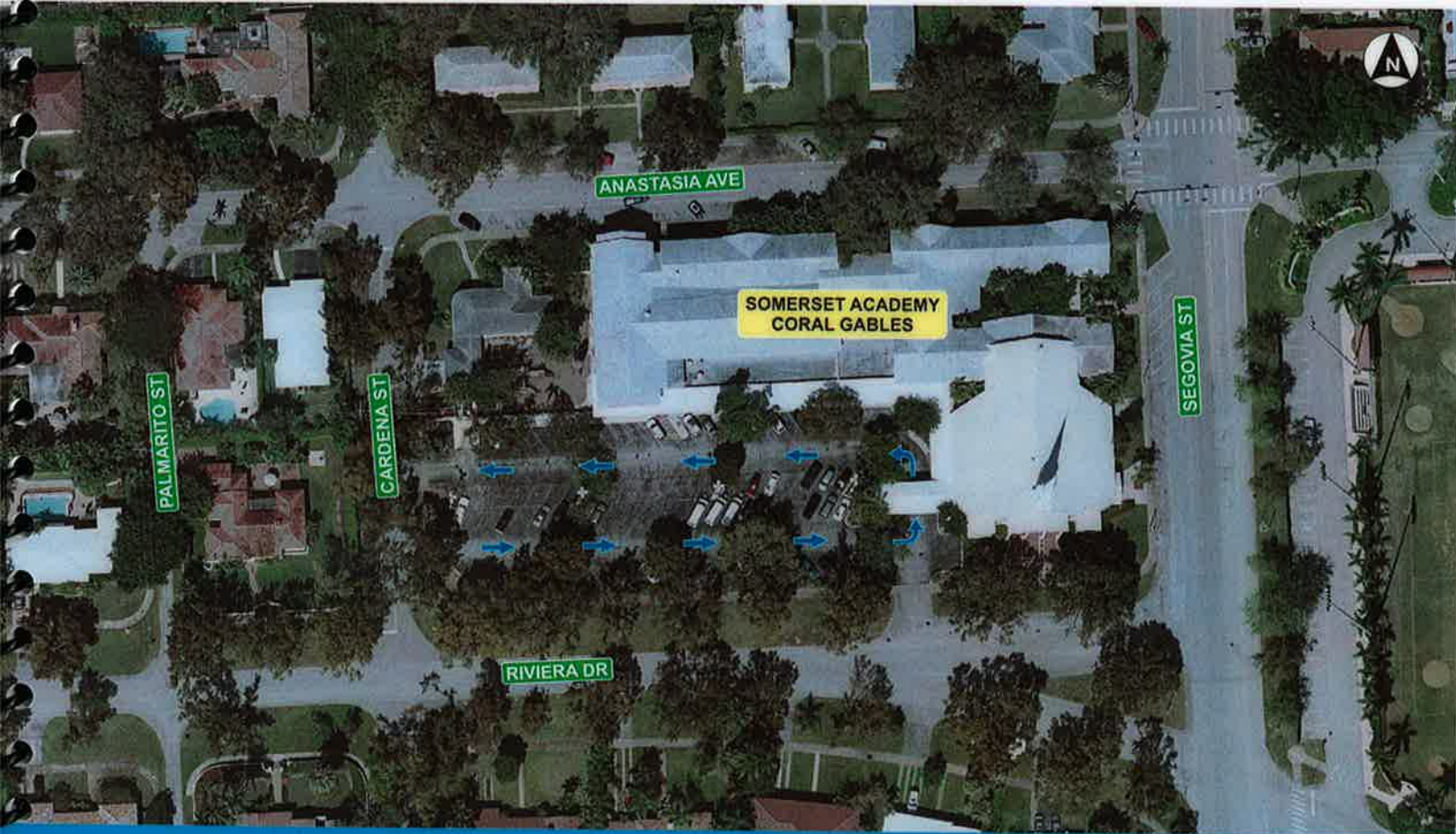


SOMERSET CORAL GABLES UBC Campus (PK-8)

TRAFFIC REVIEW



Prepared for:



CITY OF CORAL GABLES

Prepared by:



November 2011

**SOMERSET CORAL GABLES
 UBC CAMPUS (PK-8)
 TRAFFIC REVIEW**

EXECUTIVE SUMMARY

The proposed Somerset Coral Gables University Baptist Church (UBC) campus is located on the southwest corner of Segovia Street and Anastasia Avenue in Coral Gables. The existing site is currently operating as a Private School, Day Care, Religious Educational Center and Church. The site, which is bounded by Segovia Street (east), Anastasia Avenue (north), Cardena Street (west), and Riviera Drive (south) is surrounded by residential homes on all sides with the exception of Segovia Street (see Figure 1). The site would have vehicular access via three (3) driveways; two (2) on Cardena Street and one (1) on Riviera Drive. The Riviera Drive access would be closed during the school's arrival and dismissal periods.

The proposal submitted on the existing site would consist of a public charter school with a maximum of 436 students in grades Pre-Kindergarten through Eight (PK-8) phased in over a three-year period as follows (pursuant to the applicant's proffered "School Phasing Strategy"):

Phase I: Total of 260 students for first year

Phase II: Increase enrollment by 88 students for total of 348 students by second year.

Phase III: Increase enrollment by 88 students for total of 436 students by third year.

The proposed Traffic Operations Plan provides three AM arrival and three PM dismissal shifts as follows:

Table 1 Somerset Coral Gables Arrival and Dismissal Plan (Phase III – Third Year)			
School Shift	Arrival	Dismissal	Max. Number of Students
Shift 1 (Grades 6 - 8)	7:30 AM	2:30 PM	135
Shift 2 (Grades 2 - 5)	8:00 AM	3:00 PM	155
Shift 3 (Grades PK – 1)	8:30 AM	2:00 PM	146
TOTAL			436

According to the Applicant's PM Peak Accumulation Assessment (Phase III – 436 Students) **Appendix B**, the projected maximum PM dismissal accumulation for Somerset UBC would be 29 vehicles based on 155 students being dismissed during Shift 3 (**3:00 PM**). *During this time, the proposed accumulation would maximize the on-site capacity of 29 vehicles and provide no factor of safety for spillover.*

The *Traffic Operations Plan* states that the PM dismissal pick-up queue would begin at 1:30 PM and the first dismissal shift is **2:00 PM**. Table 8 (**Appendix C**) indicates that 29 vehicles would enter the site on an average day between 1:30 PM – 2:00 PM. *During this time parents arriving early would enter the site and maximize the site accumulation capacity of 29 vehicles.* Also, Per Table 8, 17 vehicles would enter the site from 2:00 PM – 2:15 PM with the first arrivals stacking behind the 29 early arrivals.

As a traffic contingency plan, the school is proposing a stacking area along Anastasia Avenue exclusively for vans providing transportation for students. While vans are not proposed for Phase I, they could be considered for subsequent phases if necessary. In addition, ten (10) additional vehicles could temporarily be accommodated on-site by double stacking along the internal by-pass lane. Lastly, the school would provide 22 on-site visitor parking spaces along the south side, which could be utilized by parents during the arrival and dismissal periods. The traffic operations site plan is contained in **Appendix D**. These proposed mitigation measures were not utilized in the accumulation assessment.

Based on the *Traffic Impact Study & Accumulation Assessment*, there is a high potential for queuing traffic to exceed the on-site stacking capacity of 29 vehicles. This could occur at 2:00 PM and at 3:00 PM each day. The proposed contingency plans for double-stacking and on-site visitor parking are reasonable plans but each would require on-site staff supervision and could potentially cause delays in the processing time. Vehicles in line would be stopped in order to allow overflow vehicles to re-enter the processing line. During this period, vehicles arriving on Cardena Street possibly would be unable to enter the driveway. This could take several minutes depending on the number of overflow vehicles. *The contingency plan which is for events that occur by accident or chance would most likely be needed every day.*

Since the Somerset UBC AM arrival shifts would coincide with the AM peak traffic period for the area, motorists that normally use Anastasia Avenue to either travel to downtown or to the Biltmore Hotel could avoid the increase in traffic at Segovia Street or the increase of turning vehicles at Cardena Street by using parallel streets such as Santander Avenue or Riviera Drive. This would be considered a secondary impact from school traffic that would affect neighborhood streets.

The estimation of school site traffic and the associated impacts is not an exact science and is evaluated on a case by case basis with consideration including but not limited to the following: site access and circulation; adjacent roadway network, e.g. number lanes and available capacity; and intersection level of service. While scientific formulas are used to estimate certain traffic impacts, traffic impact studies follow a “Best Practices” approach that is primarily based on studies that have been conducted for a similar land use such as PK-8 Public Charter School. The more studies that have been conducted for the proposed land use, the more reliable the conclusions and recommendations of the study. The Applicant’s traffic study is based solely on data that was collected for one day at a surrogate school that is located on a major County roadway within an industrial park as opposed to Somerset that is located on a City street and surrounded by a residential neighborhood. The surrogate school, Doral Academy, may not operate the same as Somerset and one day of data is not a reliable sample size, even though the Applicant’s study did satisfy Miami-Dade County requirements for data collection.

The proposed total number of students for the Somerset UBC represents a 400% increase over the existing site. In order to account for unpredictable events and to minimize potential spillover onto Cardena Street which would cause adverse impacts to the neighborhood, it is recommended a factor of safety be applied to the applicant’s request to increase student enrollment from 110 to 436 students. A factor of safety would provide a buffer for the projected maximum PM dismissal accumulation of 29 vehicles which maximizes the on-site capacity. A

10% factor of safety would reduce the accumulation to 26 vehicles while a 20% factor of safety would reduce the accumulation to 23 vehicles. The factory of safety range would provide a buffer of 3 to 6 vehicles during the PM dismissal period. The maximum factor of safety is recommended in order to provide the most buffer and allow the Applicant's contingency plans to be used for events that occur by accident or chance such as inclement weather. Therefore applying the 20% factor of safety, the maximum number of students at the facility should not exceed a total of 350 students with three AM arrival and three PM dismissal shifts.

**SOMERSET CORAL GABLES
UBC CAMPUS (PK-8)**

TRAFFIC REVIEW

The proposed Somerset Coral Gables University Baptist Church (UBC) campus is located on the southwest corner of Segovia Street and Anastasia Avenue in Coral Gables. The existing site is currently operating as a Private School, Day Care, Religious Educational Center and Church. The site, which is bounded by Segovia Street (east), Anastasia Avenue (north), Cardena Street (west), and Riviera Drive (south) is surrounded by residential homes on all sides with the exception of Segovia Street (see Figure 1). The site would have vehicular access via three (3) driveways; two (2) on Cardena Street and one (1) on Riviera Drive. The Riviera Drive access would be closed during the school’s arrival and dismissal periods.

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TOTAL			436

The Applicant’s updated Traffic Impact Study & Accumulation Assessment (October 15, 2011) was conducted for a school with 436 students in grades PK-8. The accumulation assessment used Doral Academy Elementary located at 2450 NW 97th Avenue, Doral, Florida as the surrogate school. Queuing and Parking data were collected at Doral Academy on February 8 and 9, 2010. Doral Academy has grades Pre-Kindergarten through Five (PK-5). At the time of the surveys, Doral Academy had a total of 798 students with one AM arrival and three PM dismissal shifts. Data was collected during the AM arrival period (7:00 AM – 9:00 AM) and PM dismissal periods (1:30 PM – 4:00 PM). The Doral Academy data was applied to the proposed Somerset UBC in the Traffic Impact Study & Accumulation Assessment. The traffic analysis was conducted with the ongoing Segovia Street improvements.



Based on the review of the Traffic Impact Study & Accumulation Assessment; Traffic Operations Plan; field reviews at the existing site and surrogate school, Doral Academy; and project review meetings with the Applicant, the following traffic comments are offered. All assumptions and conclusions are based entirely on data supplied by the Applicant, as well as field observations at the surrogate school, Doral Academy and other comparative schools.

Traffic Impact Study & Accumulation Assessment

Accumulation Assessment

Surrogate School – Doral Academy

Based on a letter from the principal of the surrogate school (Doral Academy) **Appendix A**, at the time of the accumulation surveys (February 2010) the school had a total of 798 students with one AM arrival period and three PM dismissal shifts as follows:

Arrival Shifts

7:30 AM – 8:30 AM Grade PK-5 798 students

Dismissal Shifts

2:00 PM Grades K-1 249 students

2:30 PM Grade PK 30 students

3:00 PM Grades 2-5 519 students

Somerset UBC

According to the Applicant's PM Peak Accumulation Assessment (Phase III – 436 Students) **Appendix B**, the projected maximum PM dismissal accumulation for Somerset UBC would be 29 vehicles based on 155 students being dismissed during Shift 3 (3:00 PM). During this time, the proposed accumulation would maximize the on-site capacity of 29 vehicles and provide no safety factor for spillover.

The *Traffic Operations Plan* states that the PM dismissal pick-up queue would begin at 1:30 PM and the first dismissal shift is 2:00 PM. Table 8 (**Appendix C**) indicates that 29 vehicles would enter the site on an average day between 1:30 PM – 2:00 PM. During this time parents arriving early would enter the site and maximize the site accumulation capacity of 29 vehicles. Also, Per Table 8, 17 vehicles would enter the site from 2:00 PM – 2:15 PM with the first arrivals stacking behind the 29 early arrivals.

Traffic Contingency Plan

As a traffic contingency plan, the school is proposing a stacking area along Anastasia Avenue exclusively for vans providing transportation for students. While vans are not proposed for Phase I, they could be considered for subsequent phases if necessary. In addition, ten (10) additional vehicles could temporarily be accommodated on-site by double stacking along the internal by-pass lane. Lastly, the school would provide 22 on-site visitor parking spaces along the south side, which could be utilized by parents during the arrival and dismissal periods. The traffic operations site plan is contained in **Appendix D**. These proposed mitigation measures were not utilized in the accumulation assessment.

Traffic Circulation Plan (Phase III – 436 Students)

Due to the limited stacking space on Cardena Street between the site entrance and Riviera Drive, 24 feet or 2 vehicles, (Figure 1) entrance to the site should be left-turn only from Cardena Street. Also, the distance between the site entrance and exit is approximately 45 feet which could accommodate 2 vehicles stacked at the entrance. In order to eliminate the potential for entering traffic to block exiting traffic, the site exit onto Cardena Street should be right-turn only in Phase III with maximum students. However, this scenario presents the worst case traffic condition for the intersection at Segovia Street and Anastasia Avenue. *During Phases I and II, full entrance and exit access could be provided at the school and closely monitored to prevent circulation problems.*

CONCLUSIONS

The *Traffic Operations Plan* states that the daily school Pick-up would have three separate shifts; the first dismissal shift would take place at 2:00 PM, the second dismissal shift will follow at 2:30 PM, and the final dismissal shift would be at 3:00 PM. The Pick-up queue would begin at 1:30 PM. Table 8 (**Appendix C**) indicates that 29 vehicles would enter the site on an average day between 1:30 PM – 2:00 PM. During this time parents arriving early would enter the site and maximize the site accumulation capacity of 29 vehicles. Also, Per Table 8, 17 vehicles would enter the site from 2:00 PM – 2:15 PM with the first arrivals stacking behind the 29 early arrivals.

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Based on the potential for site traffic to spill back onto Cardena Street before entering the site, the site exit onto Cardena Street should be right-turn only in Phase III with maximum students. This scenario presents the worst case traffic condition for the intersection at Segovia Street and Anastasia Avenue, therefore during Phases I and II, full entrance and exit access could be provided at the school and closely monitored to prevent circulation impacts.

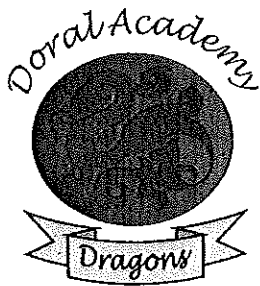
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APPENDIX A
SURROGATE SCHOOL
DORAL ACADEMY
ARRIVAL & DISMISSAL DATA



DORAL ACADEMY ELEMENTARY SCHOOL

2450 NW 97 Ave, Doral, FL 33172 PH: 305-597-9999 FAX: 305-591-2669

Eleonora Cuesta
Principal

Elizabeth Simon
Assistant Principal

July 20, 2011

Please allow this letter to serve as a description of Doral Academy Elementary School's dismissal numbers by grade level as of February 2010. Please note that these numbers reflect the total enrollment by grade level. Also note that our school provides after care services and the average enrollment in the aftercare program is 150 students daily.

Our school has three dismissal periods as follows:

Dismissal Time	Grade Level	Enrollment by grade level	Total number of students dismissed at each dismissal time.
2:00 pm	Kindergarten 1 st Grade	125 124	249
2:30 pm	Pre-Kinder	30	30
3:00 pm	2 nd Grade 3 rd Grade 4 th Grade 5 th Grade	127 135 135 122	519

Should you have any questions, please do not hesitate to contact me.

Sincerely

Eleonora Cuesta

Principal

APPENDIX B
PM PEAK ACCUMULATION ASSESSMENT
(PHASE III – 436 Students)

PM PEAK ACCUMULATION ASSESSMENT (Phase III - 436 Students)

for a New Public School (Countywide)

New School Name	Notes	Somerset UBC Coral Gables	
Surrogate School Name	1	Doral Academy Elementary	
Date / Day / Time of Data Collection		2/8/2010 1:30 PM - 4:00 PM	(collect maximum accumulation of staged loading vehicles at or around dismissal time on Tuesday, Wednesday or Thursday for elementary, middle, and/or high schools)
Surrogate Enrollment		519	Total number of students, E
Capacity of New School		155	Student Stations, C (Based on three (3) Dismissals. Max. Dismissal of 155 Students of 436 Students)
Multiplier	2	0.30	[C / E]
Surrogate Accumulations	3	97	passenger vehicles (including commercial vans)
		1	large school buses
		N/A	student vehicles (for high schools only)
Projected Accumulations		28.97	passenger vehicles
		0.30	large school buses
		N/A	student vehicles
Provided Spaces	4	29	passenger vehicles (See Table A14)
		N/A	large school buses
		N/A	student vehicles
Percent Accommodated	5	100%	passenger vehicles
		N/A	large school buses
		N/A	student vehicles

1 The facility to be used as a surrogate school will be determined by MDPWD staff. The surrogate school data is used to form the basis for the projected accumulations.

2 This figure is used to determine projected accumulations at the new school by applying it to existing surrogate school accumulations. It is calculated by dividing the new school student station capacity by the surrogate school student enrollment at the time of accumulation data collection.

3 These are all the school-related loading vehicles which are, legally or illegally, staged or parked, on or neighboring the school.

4 Information must be obtained from a field survey or 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. Credit may be taken for legal parking in paved swale areas along school property frontage. A sketch or site plan (maximum 40 scale) showing the location of these spaces, the type of spaces in each area, and linear footage provided for each area including the width of bus bays is required. On-street bus loading bays are required to have a minimum 14 foot width, on-street passenger vehicle loading bays are required to have a minimum of 10 foot width, and on-street passenger vehicle parking areas are required to have a minimum 8 foot width, unless otherwise allowed.

5 This is calculated as, $(\text{Provided Spaces} / \text{Projected Accumulations}) \times 100$, for each vehicle type. MDPWD requires all of the large school bus and student vehicle (if applicable) accumulations to be accommodated. The Department also expects 100 % of the passenger vehicle accumulation to be accommodated depending on adjacent roadway design and classification, and limitations of the school site.

Please print data collector name, title, mailing address, and phone number:

Signature of Data Collector

APPENDIX C
SOMERSET CORAL GABLES
TRAFFIC IMPACT STUDY

TABLE 8: School's PM Peak Hour Trip Generation

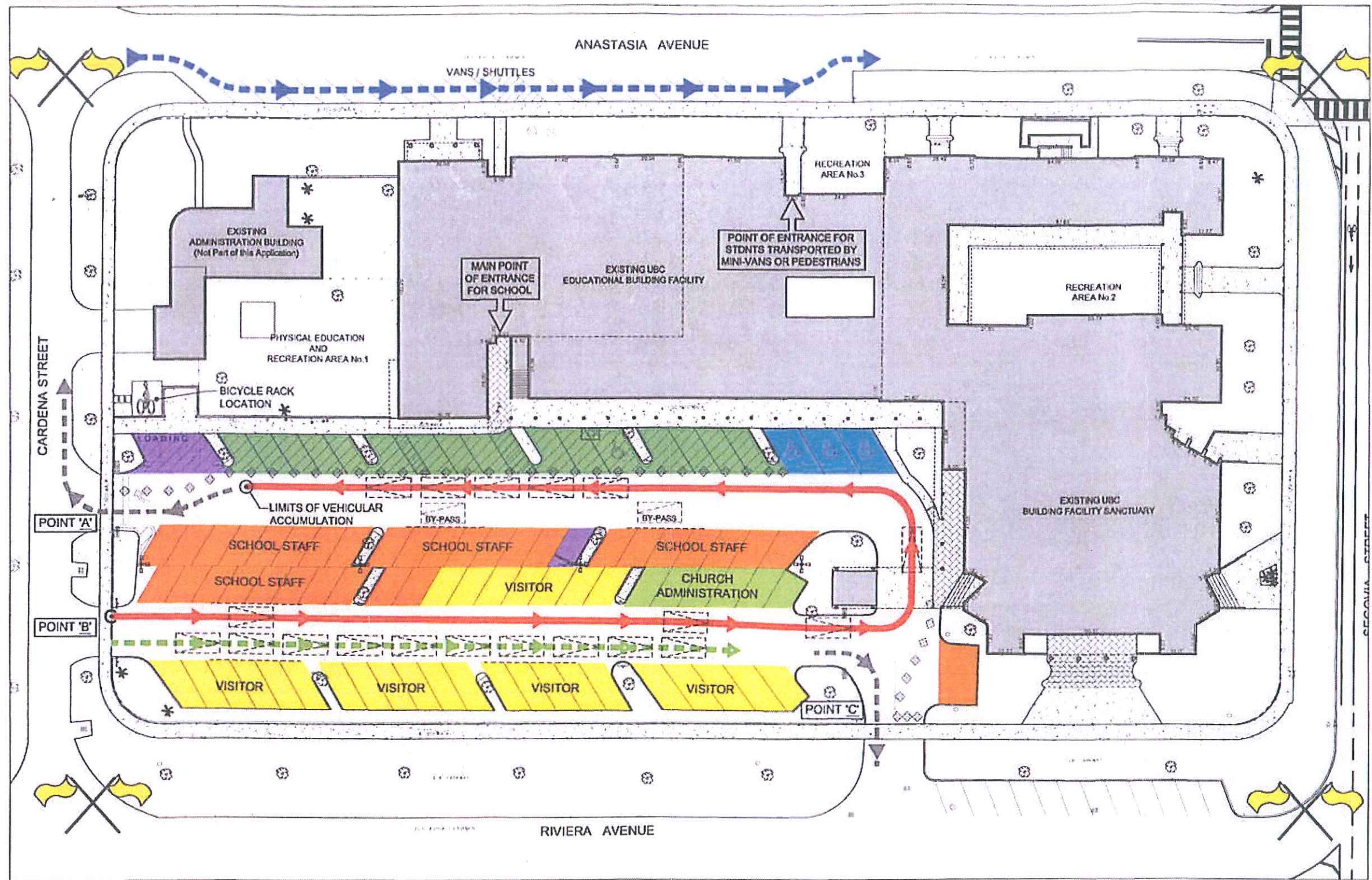
TABLE A-1
Somerset UBC Coral Gables
School PM Peak Hour Trip Generation (Three Dismissals)

Operation	Time	Percent Arrivals	Student Percentage	Equivalent Student Arrival	Cumulative Students	Percent IN	Percent OUT	Vehicles IN	Vehicles OUT	Total Trips	Cumulative Total Trips IN	Cumulative Total Trips OUT	Cumulative Total Trips	Running Queue	Operation
First Dismissal 2:00 PM (Grades PK - 1st)	1:30 PM - 1:45 PM	7%	33%	29	29	7%	0%	9	0	9	9	0	9	9	First Dismissal 2:00 PM (Grades PK - 1st)
	1:45 PM - 2:00 PM	14%	33%	65	93	15%	1%	20	2	22	29	2	31	28	
	2:00 PM - 2:15 PM	12%	31%	52	145	12%	15%	17	24	41	46	26	72	22	
Second Dismissal 2:30 PM (Grades 6th - 8th)	2:15 PM - 2:30 PM	25%	31%	108	168	25%	15%	34	29	63	34	29	63	28	Second Dismissal 2:30 PM (Grades 6th - 8th)
	2:30 PM - 2:45 PM	6%	36%	27	135	6%	20%	9	19	28	43	48	91	19	
Third Dismissal 3:00 PM (Grades 2nd - 5th)	2:45 PM - 3:00 PM	22%	36%	55	95	27%	10%	31	32	63	31	32	63	20	Third Dismissal 3:00 PM (Grades 2nd - 5th)
	3:00 PM - 3:15 PM	10%	100%	15	140	10%	24%	15	39	54	48	48	94	24	
	3:15 PM - 3:30 PM	4%	100%	16	155	4%	100%	5	39	44	51	87	138	0	PEAK HOUR
	Total	100%		438	438	100%		140	161	301	140	161	301		

SCHOOL PM PEAK HOUR PM Peak Hour (1:00 - 3:00)	TRIPS	
	IN	OUT
	91	104
	TOTAL	195












APPENDIX D

FIGURE 1 (TRAFFIC OPERATIONS PLAN)



1 **FIGURE No.1 (TRAFFIC OPERATIONS PLAN)**
 FIG-1 0 20 40 60
 SCALE 1" = 20'



SCHOOL STAFF 34 PKG SPACES RESERVED		VISITORS 29 PKG SPACES RESERVED		DELIVERY VAN / VEHICLE AND LOADING/STAGING		MAIN STACKING LANE (29 CARS)		VANS / SHUTTLES (ANASTASIA AVE)		INDICATES INTERSECTION CROSSGUARD	
CHURCH USE / ADMIN 6 PKG SPACES RESERVED		ACCESSIBLE ... 3 PKG SPACES PROVIDED		MAIN PICK-UP AND DROP-OFF AREA (224' FEET LONG, ON-SITE STACKING)		AUXILIARY LANE FOR 10 VEHICLES		POINTS OF SITE EXITING (EGRESS)		BICYCLE RACK PAD LOCATION	