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TECHNICAL MEMORANDUM

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Date:	September 5, 2012	
Subject:	National Presbyterian School Traffic Statement	

Introduction

This memorandum presents the findings of a Traffic Statement performed for National Presbyterian School (NPS) in support of its application for a special exception to the Board of Zoning Adjustment (BZA). The National Presbyterian Church, Inc. has applied for a special exception on behalf of NPS to allow for an addition to the existing private school and an increase in the student and employee caps for NPS, which is located at the southeast corner of Nebraska Avenue and Van Ness Street in Northwest DC. NPS is requesting to increase the existing student enrollment cap to 320 students and the employee cap to 70. In the 2011-2012 school year NPS had 273 students enrolled and 64 employees. NPS is planning on averaging 305 students in the future, but is requesting a larger maximum to take into account fluctuation in enrollment and yield, which can vary from year to year. In addition, the Church and School are requesting approval to convert an administrative building that is currently used for church purposes to be used as a part of the school. NPS also seeks variance approval for the temporary placement of modular units in a required side yard.

The purpose of this study is to determine if the request would generate a detrimental impact to traffic and parking in the surrounding area. Prior to completing this Traffic Statement, a meeting was held with DDOT on July 24, 2012, to discuss the application. Follow up interaction with DDOT determined the scope of this statement and the Transportation Demand Management (TDM) components as proposed. The first section describes the existing conditions of the site. The second section describes the impact of the proposed conditions. The third section discusses the proposed TDM techniques that will help reduce the amount of trips generated by NPS.

This memo concludes that there will be no detrimental impact to traffic and parking in the surrounding area due to the expansion of National Presbyterian School.

Existing Conditions

Detrimental impact can be caused by:

- Trip generation leading to traffic impacts
- Pick-up/drop-off spillover
- Parking spillover

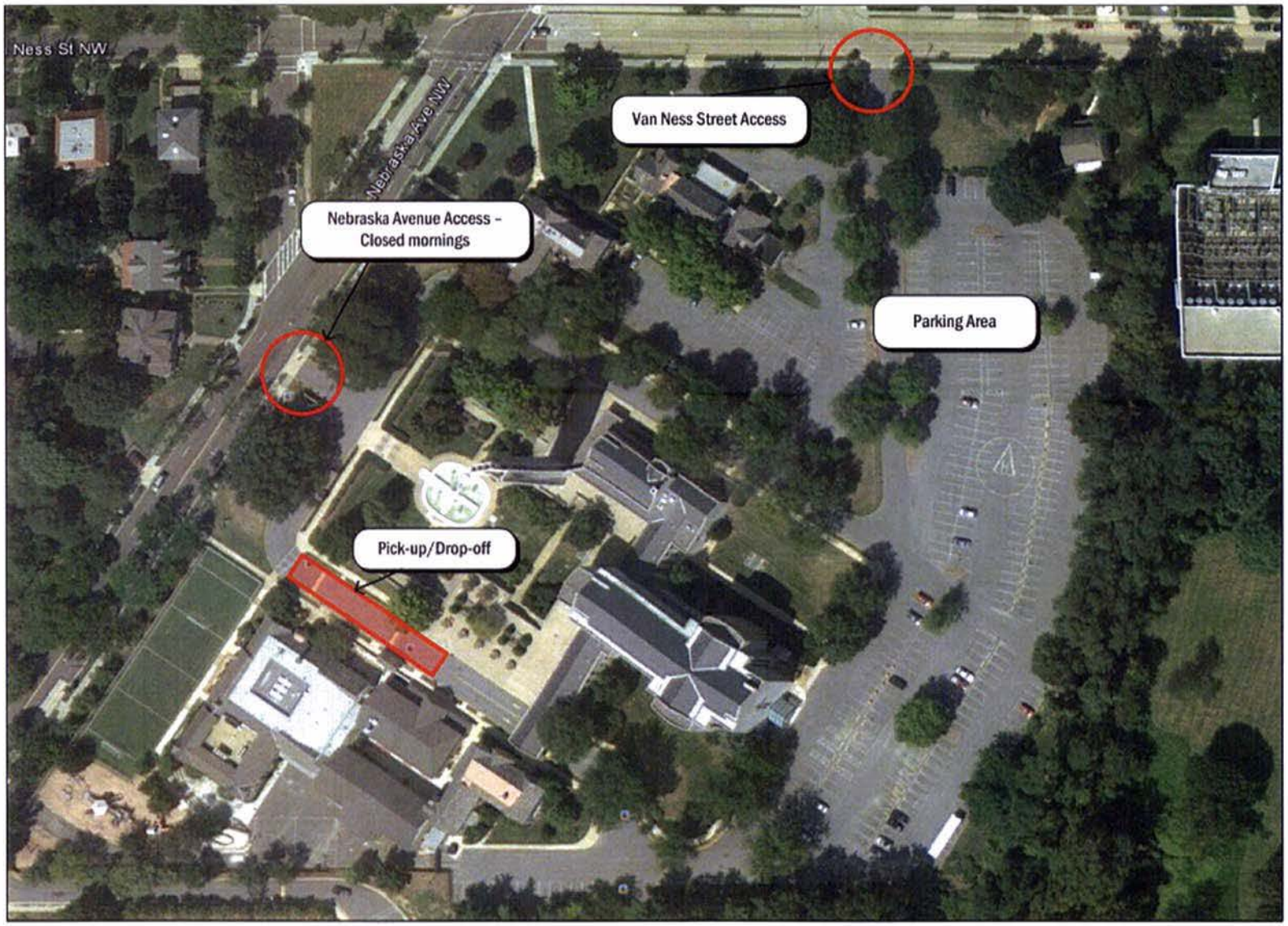

Figure 1: Study Area

This section reviews existing conditions for each of these transportation elements.

Trip Generation

As can be seen in Figure 1, NPS has two access points at Nebraska Avenue and Van Ness Street. The Nebraska Avenue access is coned off in the AM; thus Van Ness Street is the primary access point in the mornings. Traffic counts were performed from 7:45 to 8:45 AM at the Van Ness Street access and from 2:30 to 5:00 PM at the Van Ness Street and Nebraska Avenue accesses on May 30, 2012. The peak hours of NPS traffic occurred from 7:45 to 8:45 in the AM and 2:45 to 3:45 in the PM. The AM peak hour coincides with the peak hour of network traffic, but the PM peak differs from the network peak, which occurs from 4:45 to 5:45 PM.

The current distribution of traffic during the peak hours is shown in Table 1. The amount of traffic generated is greater in the morning than in the afternoon. No detrimental impacts were observed to traffic and parking in the surrounding area due to the school generated traffic. The only impacts that were observed were internal to the site. In the morning an internal queue at the Van Ness Street drive exiting the campus forms as shown in Figure 2. This queue lasts a short duration of approximately 10 to 15 minutes. The exit is far enough away from the pick-up/drop-off area that it does not cause further backups at any other internal school facilities. This queue has no community impact as it is contained within the parking lot of the School/Church. The Nebraska Avenue access opens in the afternoon; however, over 90% of the vehicles entering and exiting the School continue to use the Van Ness Street access during the afternoon peak hour. There is much less queuing in the afternoon as school related traffic is smaller in magnitude and more spread-out.

Table 1: Existing Trip Generation

Time	Van Ness Access		Nebraska Access		Total
	In	Out	In	Out	
AM Peak Hour	197	150	Closed in the AM		347
PM Peak Hour	76	88	9	6	179

Figure 2: Queue at Van Ness Street Exit

Pick-Up/Drop-Off

There is some queuing at the pick-up/drop-off location at NPS as can be seen in Figure 3. The highest observed queue was about nine vehicles or approximately 225 feet. There is 850 feet of space until the pick-up/drop-off lane will start interfering with the parking lot. Thus the current queue does not cause detrimental impact to the School parking or the surrounding area. School staff members also facilitate the pick-up/drop-off location in the morning and afternoon to increase the efficiency of the process.

Figure 3: Queue at Pick-up/Drop-off Location

Parking Demand

Parking counts were performed from 9:00 AM to 2:00 PM on May 30, 2012. There are a total of 407 spaces on the campus. The counts show that the parking demand peaks at 10:30 AM with 14% of the parking lot being used by the school during this time. This utilization rate is low because the parking supply is meant to accommodate Sunday church services and other large congregational events at the National Presbyterian Church. Existing parking demand is given in Table 3.

Proposed Conditions

Detrimental impact can be caused by:

- Trip generation leading to traffic impacts
- Pick-up/drop-off spillover
- Parking spillover

This section reviews projected conditions for each of these transportation elements, generated by the proposed increase in population.

Trip Generation

The net new trips generated by the school expansion was determined using a linear growth rate based on the increase in both student and employee population for the school. The existing trip gen was separated to student-based and employee-based by assuming that trips generated by student pick-up/drop-off would be equal for inbound and outbound during the AM and PM peak hour. Therefore all additional AM inbound trips and PM outbound trips were assumed to be employees. The new pick-up/drop-off trips were determined using a linear growth rate based on the increase of student enrollment from 273 to 320 students. The new faculty trips were determined using a linear growth rate based on the increase in employees from 64 to 70. Table 2 shows a summary of the existing and proposed trip generation. A total of 86 new peak hour trips are generated from the increase in students and employees; 56 of these trips occur during the AM peak hour and 30 during the PM peak hour. It should be noted that trip generation calculations do not take into account potential reductions from implementation of TDM measures.

Since the net new trip generation is low and avoids peaks there will be no detrimental impact to the surrounding area. The expansion will cause the largest impact on the internal queues leaving the School at Van Ness Street and at the pick-up/drop off location in the morning. Based on the existing observations, longer queues at the Van Ness Street exit and the pick-up/drop-off will not cause any additional impacts throughout the parking lot or surrounding area.

At the Nebraska Avenue access the network volume is much greater than the school generated volume and little school-related traffic uses this drive. Therefore the school expansion will not have a significant impact during the afternoon when this access is open.

Table 2: Summary of Existing and Proposed Trip Generation

		Existing			Future			Total
		Total PU/DO	Total Faculty	Total	Total PU/DO	Total Faculty	Total	New Trips
AM Peak Hour	Inbound	150	47	197	176	51	227	30
	Outbound	150	0	150	176	0	176	26
	Total	300	47	347	352	51	403	**56**
PM Peak Hour	Inbound	85	0	85	100	0	100	15
	Outbound	85	9	94	100	9	109	15
	Total	170	9	179	200	9	209	**30**
Total		470	56	526	552	60	612	**86**

Pick-Up/Drop-Off

The increase in student population can increase queuing at the school's pick-up/drop-off location. Based on the population growth of 273 to 320 students the max queue would increase from 9 to 11 vehicles or to a total of approximately 275 feet. This will not cause any problems as there is currently 850 feet of space until the pick-up/drop-off lane will start interfering with the parking lot. Figure 4 shows the proposed max queuing distance in relation to the total distance until the parking lot and Van Ness Street. Therefore the pick-up/drop-off location will continue to function adequately with the additional students.

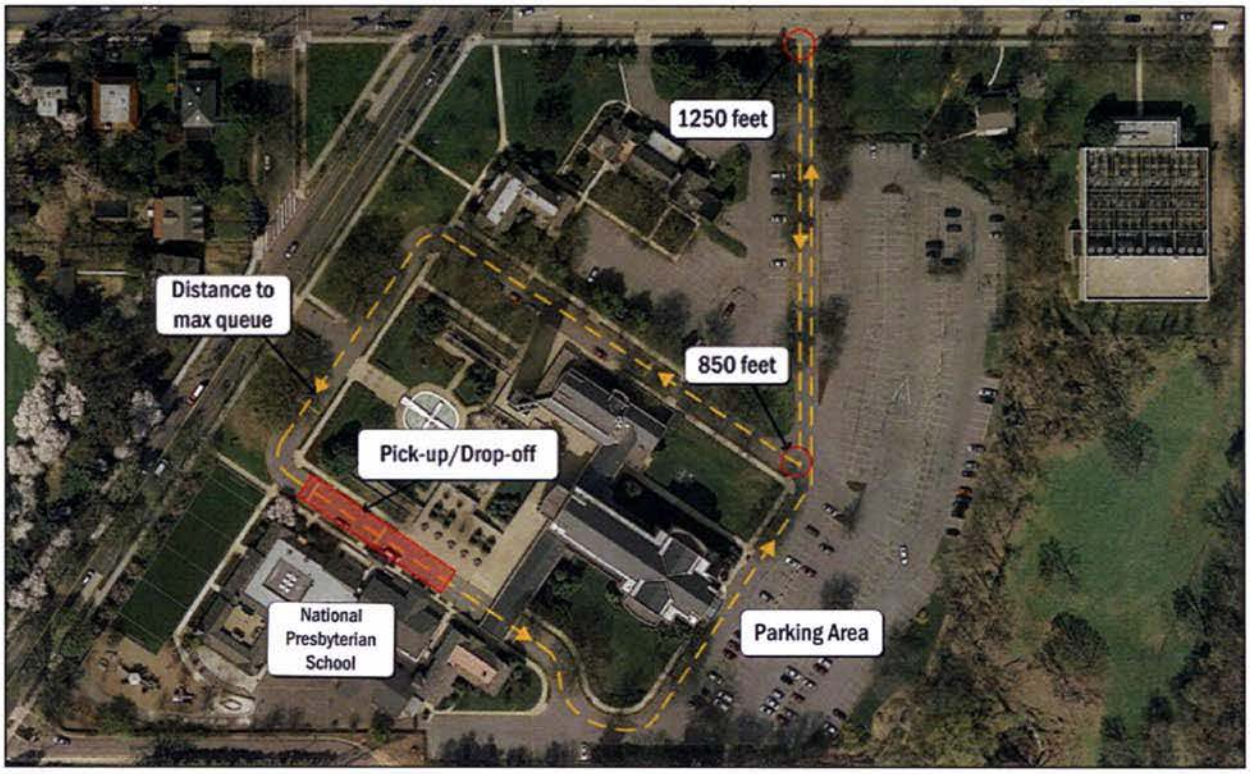

Figure 4: Proposed Queuing Distance

Parking Demand

The parking demand for the proposed expansion was determined using a linear growth rate based upon the increase in employees utilizing the parking lot from 64 to 70. Table 3 shows the impact on parking demands due to the proposed changes. There is only a small increase in employees therefore the proposed percentage of parking spaces used does not increase significantly.

Table 3: Parking Demands

	Spaces Used		Percentage Used	
Time	Existing	Proposed	Existing	Proposed
9:00 AM	49	54	12%	13%
9:30 AM	58	63	14%	16%
10:00 AM	58	63	14%	16%
10:30 AM	59	65	14%	16%
11:00 AM	58	63	14%	16%
11:30 AM	59	65	14%	16%
12:00 PM	58	63	14%	16%
12:30 PM	57	62	14%	15%
1:00 PM	56	61	14%	15%
1:30 PM	56	61	14%	15%
2:00 PM	57	62	14%	15%

Traffic Demand Management

The goal of TDM strategies for the school is to increase use of public transit, walking, biking, and/or carpooling in order to minimize the amount of trips generated by the school. Although the analyses above show no impact from new trips, NPS will implement TDM strategies with the goal of reducing trips such that NPS will not generate more trips with the expanded population in place. NPS has no existing formal TDM measures in place for students or employee presently.

Existing Mode Split

Of the employees, approximately 9% take transit or walk and 6% carpool with another employee on a daily basis. A summary of the existing mode split is shown below in Table 4. There are also 8 employees that are parents of NPS students and drive them, and occasionally other students, to school every day. This amounts to approximately 14 students commuting via employee parkers.

Table 4: Summary of Existing Mode Split

Mode of Transportation	Number of Employees	Percentage of Employees
Automobile	54	84%
Transit	4	6%
Walk	2	3%
Carpool	4	6%
Total	64	100%

Because NPS is a private school there are no buses that transport students to and from school. Therefore most students are picked up and dropped off by parents and those close enough may walk or ride their bike.

TDM Strategies

The proposed TDM strategies that NPS will commit to are listed and described below:

- *Coordination*
  A TDM Coordinator will be designated to oversee and implement TDM measures. The contact information for the TDM Coordinator will be provided to DDOT.

- *Education*
  Educational information will be developed by the TDM Coordinator and distributed at the beginning of each school year to educate the NPS population on the benefits of sustainable transportation practices. New student families and new employees will be given information on transportation options and TDM programs offered by NPS.

- *Carpooling*
  For private schools, carpooling can be a very effective way to reduce trips. Using information provided by NPS, Gorove/Slade plotted the current distribution of housing locations by zip code of students and employees, shown on Figure 5 and Figure 6 respectively. As can be seen, there are many opportunities for carpooling amongst both students and employees living in close proximity. NPS plans on providing an incentive for families to carpool by allowing cars picking-up and dropping-off multiple students to skip ahead of non-carpools in the pick-up queue. Incentives related to preferable parking locations will be developed to encourage employees to carpool as well.

Additionally, NPS is adding a ride-matching component to their website which will assist parents in connecting with other NPS families who live near them. The program integrates Google Maps with the school directory; thus all families are automatically enrolled and can access the information through the password protected section of the website. Google map pins indicate potential carpool matches and clicking on a pin reveals relevant information about the family. The TDM Coordinator will also speak with the Metropolitan Washington Council of Governments' (MWCOG) SchoolPool program coordinator, Stephen Finafrock. This program helps parents at a school find other parents to share trips. By signing up for this program, parents are able to create online profiles allowing them to find other parents at the school with whom to share trips (carpool trips, walking trips, or biking trips).

- *Subsidies*

  Subsidies will be provided for faculty and staff that commute via mass transit, bicycle or walking. Employees may choose to commit to using the DC Metro system or to walking/bicycling to work 50% or 90% of their workdays. Employees who choose to commit to one of these levels of non-vehicular commuting will receive either:

  i) SmarTrip cards valued at 50% (for a 50% transit mode choice commitment) or 100% (for a 90% transit mode choice commitment) of their commuting cost using Metrorail or Metrobus, or;

  ii) Non-vehicular Commuting Stipend for walkers or cyclists valued at the equivalent of 50% or 100% (based on the level of commitment) of the nearest Metro commute.

- *Walking/Bicycling*

  The school will participate in District Safe Routes to School (SRTS) programs and work in coordination with the DDOT SRTS liaison to improve access for non-auto modes. Additionally semi-regular "Walk or Bike to School" days will be held, with the incentive of free dress for students used to encourage participation. Biking may be limited to older grades for safety reasons. Bicycle parking for commuters and students will be provided. Shower facilities will be made available for employee commuters.

- *Monitoring*

  Trip generation and mode split for students and employees independently will be monitored annually and the information will be reported to DDOT. Data collection will occur annually in either May or late September (annual monitoring date still to be confirmed with DDOT) each year after school programs settle into typical patterns to demonstrate the actual traffic conditions in the Washington, DC region. The goal of the monitoring is to show progress in the implementation of the TDM program. Because TDM will be implemented with the start of the 2012-2013 school year, counts performed by Gorove/Slade in May 2012 will serve as the baseline for pre-TDM levels.

NPS will introduce these TDM strategies in coordination with the increase in the student and employee population. In order to track progress and determine the most effective strategies, the program will be monitored on a yearly basis. From there, improvements will be made to further increase the effectiveness of the overall program.

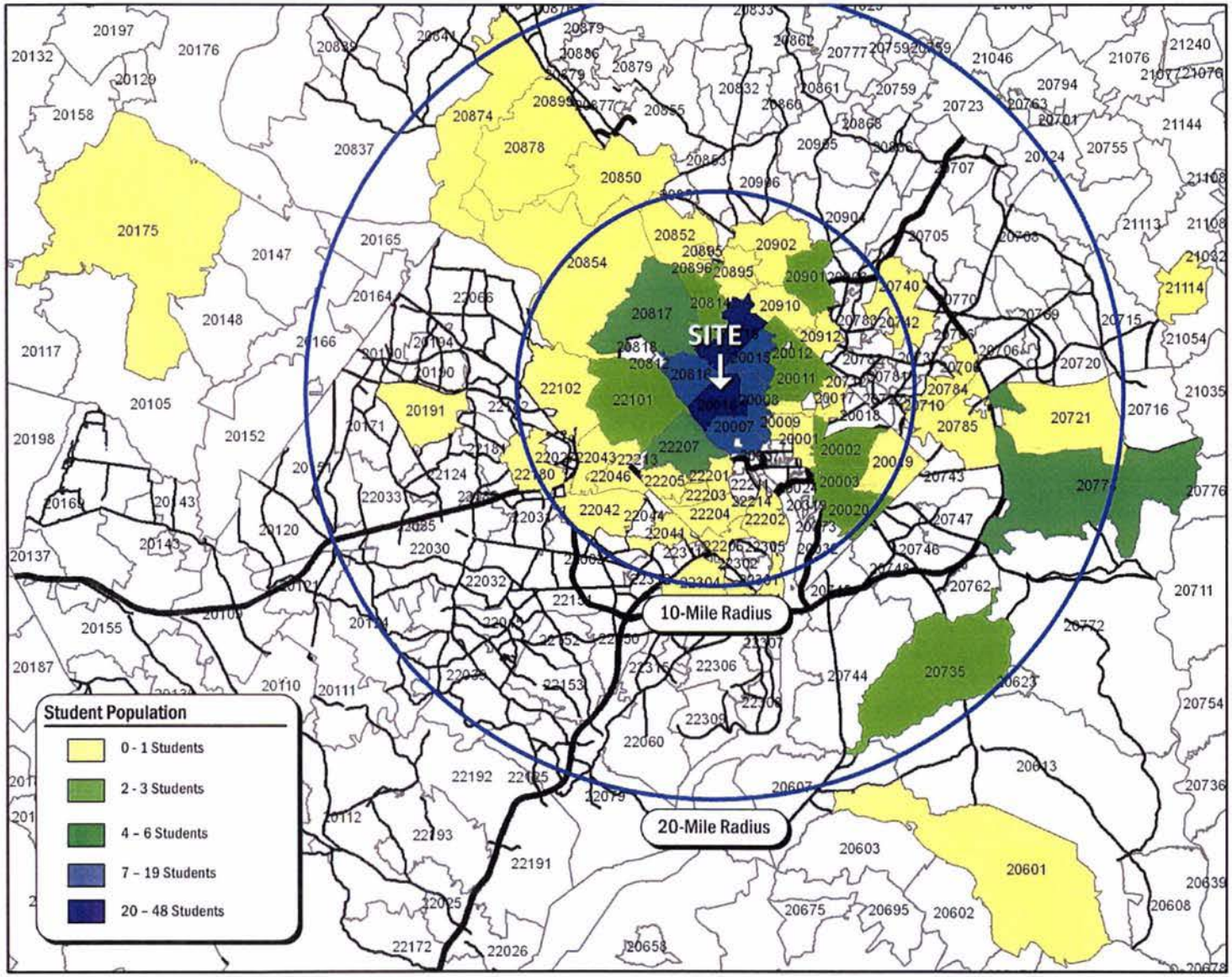

Figure 5: Student Population Map

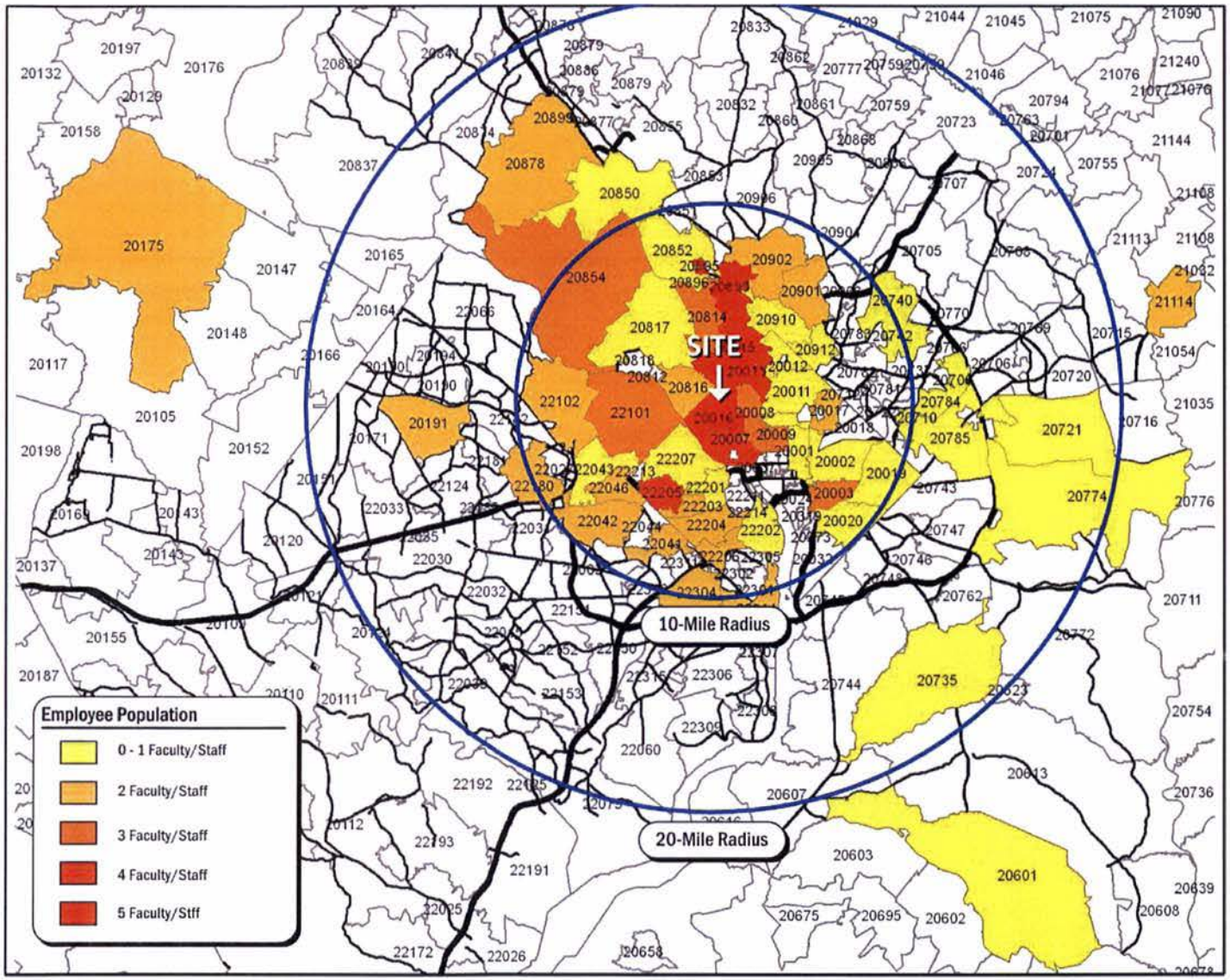

Figure 6: Employee Population Map

Conclusions

National Presbyterian School is requesting to increase their student enrollment cap to 320 and increase the number of faculty/staff members to 70. As of the date of our traffic count, the School had 273 students enrolled and 64 faculty/staff members employed. Based on the analysis the following conclusions have been made:

- The expansion will have no detrimental impacts to surrounding traffic and parking facilities
  - Net new trip generation is minimal and does not align with the PM peak;
  - All pick-up/drop-off activity can be accommodated on site; and
  - All parking can be accommodated on site.
- Transportation Demand Management (TDM) strategies will be implemented in order to reduce the amount of trips generated by the entire NPS, with the goal of negating new trips generated by the expansion. A TDM Coordinator will be designated and the program will be monitored annually based on trip generation and mode split. Proposed TDM commitments include:
  - Carpooling for both students and employees
  - Subsidies for employees using non-auto transportation
  - Implementation of "Walk or Bike to School" days