GOVERNMENT OF THE DISTRICT OF COLUMBIA
DEPARTMENT OF TRANSPORTATION

d. Planning and Sustainability Division

MEMORANDUM

TO: District of Columbia Board of Zoning Adjustment

FROM: Anna Chamberlin
Project Review Manager

DATE: November 17, 2017

SUBJECT: **BZA Case No. 19599** – Georgetown Day School

PROJECT SUMMARY

Georgetown Day School (the Applicant, GDS, or School) seeks a special exception to construct a new private school in the R-2, R-3, and MU-4 Zones to allow consolidation of its Lower/Middle School (LMS) onto the existing High School campus. The site is generally bounded by 42nd Street, Chesapeake Street, River Road, and Ellicott Street (Squares 1672 and 1673, Lots 4, 14, 804, 812, 815, 824, and 822). The overall proposed campus would consist of:

- 1,200 students (up from the current Davenport Campus cap of 500)
- 260 faculty/staff (up from the current Davenport Campus cap of 100)
- 282 off-street vehicle parking spaces (up from the current Davenport Campus cap of 196)
- 16 long-term and 44 short-term bicycle parking spaces

SUMMARY OF DDOT REVIEW

The District Department of Transportation (DDOT) is committed to achieve an exceptional quality of life in the nation's capital by encouraging sustainable travel practices, safer streets, and outstanding access to goods and services. As one means to achieve this vision, DDOT works through the zoning process to ensure that impacts from new developments are manageable within and take advantage of the District's multimodal transportation network.

The purpose of DDOT's review is to assess the potential safety and capacity impacts of the proposed action on the District's transportation network and, as necessary, propose mitigations that are commensurate with the action. After an extensive, multi-administration review of the case materials submitted by the Applicant, DDOT finds:

Site Design

- A robust network of public streets surrounds the site. These streets include 42nd Street, Chesapeake Street, River Road, and Ellicott Street, providing multimodal access to the school;
- Vehicular access to the site is proposed via driveways on River Road, Davenport Street, and an alley connection to Ellicott Street;
- The proposed site access points in combination with the street network has the potential to disperse site traffic in a way that minimizes the action's impact on the external road network;
- The site design provides an amount of queue space that is capable of accommodating queuing on-site consistent with DDOT requirements if pick-up/drop-off operations are properly managed;
- Loading access for the LMS is proposed to occur from a public alley and Davenport Street while High School loading will continue to take place via back-in maneuvers from Davenport Street;
- The potential for loading activities on Davenport Street during peak pick-up/drop-off activities has the potential to cause queuing onto adjacent public streets;
- The school occupies a significant portion of the large block, necessitating vehicular access points and pedestrian and bicycle accommodations to allow access for users to and through the school campus;
- 282 vehicle parking spaces are proposed for the two schools (106 and 176 for the LMS and High School, respectively), which represents a reduction in total parking supply of 34 but exceeds zoning requirements by 21 spaces; and
- 16 long-term bicycle parking spaces are proposed within the school facilities and 44 short-term spaces are proposed outside building entrances.

Travel Assumptions

- The action is expected to generate a significant number of new vehicle, transit, and pedestrian trips and a moderate number of bicycle trips;
- The background growth, trip distribution, trip assignment, and trip generation assumptions proposed by the Applicant are reasonable if supported by an appropriate transportation network and Transportation Demand Management (TDM) measures;
- The mode split assumptions are heavily dependent on the TDM program, which proposes a 51% reduction in auto trips in the AM peak equating to a trip cap of 595 to keep vehicle trip levels roughly consistent with levels when the site housed the Safeway and High School. Of note, PM peak hour trip caps are not proposed;
- The actual number of vehicle trips generated by the site will exceed projections if TDM measures are unsuccessful.

Analysis

- The Applicant utilized sound methodology to perform the analysis;
- If the 51% vehicular trip reduction is realized, the action is projected to increase travel delay at two intersections – Wisconsin Avenue/Ellicott Street and Wisconsin Avenue/42nd Street;
- The proposed AM peak hour trip cap provides a level of confidence that anticipated impacts are likely to be limited to these two intersections. The lack of a cap on PM peak hour trip may result in higher than expected vehicle trips and additional impacts in the afternoon/evening;
- The proposed 42nd Street "slip lane" closure between Ellicott Street and the "fish hook" connection to Wisconsin Avenue improves safety at this intersection but also leads to the degradation of LOS and safety concerns at the Wisconsin Avenue/42nd Street "fish hook" intersection which are not currently proposed to be mitigated by the Applicant;

- If the TDM reduction in vehicular traffic is successful, future school users are likely to utilize transit, walking, and bicycling as well as autos, in a manner similar to projections, requiring a transportation network supportive of these modes, some of which is inadequate;
- Existing transit service and on-street bicycle infrastructure should have capacity to accommodate future demand;
- While the Applicant proposes to make showers and changing facilities available, the quantity and location of these facilities is not specified;
- Pedestrian accommodations surrounding the school are inadequate in several locations and should be upgraded by the Applicant to meet pedestrian needs;
- The Applicant agrees to re-open an existing closed pedestrian entrance at 43rd Street with conditions to close the entrance to address neighborhood concerns regarding undesired vehicle drop-offs on 43rd Street south of Ellicott Street. The proposed conditions for closure require minor revision to clarify triggers and provide an opportunity to refine the operations plan prior to closure if undesirable pick-up/drop-off activity is observed;
- The Applicant proposes some mitigating measures, which DDOT supports and should be implemented following ongoing coordination and permitting with DDOT. Additional measures to mitigate multimodal safety, traffic, and access concerns for the school are necessary;
- The Applicant proposes a TDM commitment intended to promote non-auto trips and meet the proposed trip cap including requirements for two students per vehicle drop-off (with exceptions) and three (3) buses in the AM peak. While the TDM plan represents a significant investment, several additional TDM elements are needed to assist in achieving the proposed trip cap; and
- A robust Operations Plan and ongoing Performance Monitoring plan are proposed that will provide the opportunity to adjust TDM measures for effectiveness.

DDOT has no objection to the requested action with the following conditions:

Mitigations

Trip Cap

- Commit to an AM peak hour trip cap of 595, as proposed; and
- To provide certainty about the action's impacts during the PM peak periods, the Applicant should commit to PM school and PM peak trip caps of 465 and 265, respectively.

Site Circulation, Operations, and Design

- Provide an ADA connection between the north-south and east-west sidewalks internal to the site;
- Revise the triggers and monitoring proposal for the 43rd Street pedestrian entrance to:
    - Clarify the reporting and documentation of "prohibited drop-offs" to include additional details about reporting criteria and reporting responsibilities of the School and neighbors;
    - Provide an opportunity to refine the Operations Plan prior to the closure of the gate in the event that "prohibited drop-offs" are observed. This opportunity would allow for GDS to augment their Operations Plan to include additional safeguards (e.g. additional staff, notices to parents, etc.).

Right-of-Way Improvements

- Implement the following improvements as proposed

- Install an approximately 140 foot right turn lane at Ellicott Street/Wisconsin Avenue; and
- Close the 42nd Street "slip lane" between Ellicott Street and the Wisconsin Avenue "fish hook". To address impacts created by this closure, the following additional mitigations are required:
  - Prohibit left out movements at the fish hook; and
  - Install a traffic signal at Wisconsin Avenue/Chesapeake Street to provide a safe signalized left turn movement.

- Implement the following additional mitigations identified by DDOT:
  - Install new sidewalk where it is missing on the west side of 43rd Street between Ellicott Street and the alley;
  - Install detectable warnings in curb ramps where they are missing at the southwestern corner of Ellicott Street/42nd Street;
  - Reconstruct the alley curb cut to Ellicott Street such that the 6-foot clear sidewalk material, scoring pattern, and elevation extend across the entrance.

Management Plans

- Strengthen the TDM with the following additional measures:
  - Designate a TDM coordinator responsible for administering, organizing, marketing, and accomplishing the TDM plan;
  - Install a Transit Screen in the LMS and High School buildings;
  - Provide a bike maintenance facility and make a ZR-16 compliant number of showers and lockers available for biking or running commuters; and
  - Charge for staff and faculty parking with pricing incentives for carpooling;
  - Provide reserved parking spaces for carpools within the parking garage; and
  - Provide a location for a Capital Bikeshare station.
- Strengthen the Operations Plan to prohibit deliveries from Davenport Street for both school buildings during peak periods in order to maintain curbside space for pick-up/drop-off activities; and
- Strengthen the Monitoring Plan to add queuing analysis from the ingress points for school drop-off/pick-up. Queues that back up into DDOT rights-of-way are not acceptable and, if identified through monitoring, would require additional mitigations.

Continued Coordination

Given the complexity and size of the action, the Applicant is expected to continue to work with DDOT outside of the BZA process on the following matters:

- Public space, including curb and gutter, street trees and landscaping, street lights, sidewalks, and other features within the public rights of way, are expected to be to DDOT standards. Careful attention should continue to be paid to pedestrian and bicycle connections along the site's perimeter and adjacent infrastructure;
- Design of the 42nd Street "slip lane" closure and "fish hook" improvements, which are subject to public space permitting;
- Signal warrant analysis and design of the Wisconsin Avenue/Chesapeake Street traffic signal;
- Monitoring and operations plans specific to the 43rd Street pedestrian gate;
- Final design of pedestrian facilities internal to the site, particularly providing an ADA connection between the east-west and north-south sidewalks;

- Ongoing coordination in regard to the implementation of the TDM Plan, Operations Management Plan, and Monitoring Plan;
- Mitigation improvements in public space should be coordinated as part of the public space permitting. It is anticipated that the entirety of the public space surrounding the school site will be included in the public space permitting process;
- Coordination of the final design for vehicular access points is necessary to ensure that safe design is incorporated and pedestrian and cyclist connections are improved; and
- All utility vaults are expected to be accommodated on private property.

TRANSPORTATION ANALYSIS

DDOT requires applicants requesting an action from the Board of Zoning Adjustment (BZA) complete a Comprehensive Transportation Review (CTR) in order to determine the action's impact on the overall transportation network. Accordingly, an applicant is expected to show the existing conditions for each transportation mode affected, the proposed impact on the respective network, and any proposed mitigations, along with the effects of the mitigations on other travel modes. A CTR should be performed according to DDOT direction. The Applicant and DDOT coordinated on an agreed-upon scope for the CTR that is consistent with the scale of the action.

The review of the analysis is divided into four categories: site design, travel assumptions, analysis, and mitigations. The following review provided by DDOT evaluates the Applicant's CTR to determine its accuracy and assess the action's consistency with the District's vision for a cohesive, sustainable transportation system that delivers safe and convenient ways to move people and goods, while protecting and enhancing the natural, environmental, and cultural resources of the District.

At the time of this report, the Applicant has not submitted the proposed trip cap of 595 AM peak hour trips to the BZA Record, however DDOT understands that this trip cap represents the Applicant's current proposal for BZA consideration. The following review assumes a cap of 595 AM peak hour trips. Should the trip cap increase beyond this level, additional impacts would be likely and would require further DDOT review.

Site Design

Site design, which includes site access, loading, and public realm design, plays a critical role in determining a proposed action's impact on the District's infrastructure. While transportation impacts can change over time, the site design will remain constant throughout the lifespan of the proposed development, making site design a critical aspect of DDOT's development review process. Accordingly, new developments must provide a safe and welcoming pedestrian experience, enhance the public realm, and serve as positive additions to the community.

Site Access

The site is bounded by 42nd Street, Chesapeake Street, River Road, and Ellicott Street. As part of this action, the Applicant seeks to construct a new school building and related structures to allow consolidation of its Lower/Middle School (LMS) onto its Davenport Street campus. With this addition, the school occupies the majority of this large block, necessitating vehicular access points and pedestrian and bicycle accommodations to allow access for users to and through the school campus.

Currently, vehicle access to the High School is provided via Davenport Street and access to the Safeway site is provided via Davenport Street, 42nd Street, and a public alley from Ellicott Street. Proposed access is from River Road, Davenport Street, and the public alley from Ellicott Street. The overall site layout and vehicle circulation are shown in *Figure 1*. Of note, an existing closed vehicle entrance from 43rd Street is proposed to remain for emergency vehicle access only.

Given existing traffic volumes on River Road and its classification as a Principal Arterial in DDOT's classification system, the access point was analyzed for safety and operational impacts. The Applicant's analysis identified adequate gaps and queuing capacity to operate as a right-in/right-out/left-in operations. Left-out operations will not be permitted.

These vehicular entrances lead to an internal network of private driveways where pick-up/drop-off activities will occur. The proposed site access locations combined with the existing street network has the potential to disperse site traffic surrounding the site in a way that minimizes the action's impact on the road network in the vicinity.

Loading access for the LMS school is proposed to from the alley from Ellicott Street. Appropriately, the alley will provide ingress and egress for trucks accessing the loading berth but egress only for private vehicles serving the LMS. Truck turning diagrams provided by the Applicant indicate trucks egressing from the loading berth require approximately 11 additional feet of driving space in excess of the alley width, which will be accommodated by a paved area on private property adjacent to the alley. Secondary loading for the LMS school is proposed from Davenport Street. Loading for the high school is proposed to remain in its current configuration on the north side of the school building accessed via a curb cut on Davenport Street.

Pedestrian and bicycle access is currently provided via the Davenport entrance. The Applicant proposes several new access points to provide additional north-south porosity through the site, including from River Road and 43rd Street, which are discussed further in the Pedestrian Facilities section. Pedestrian and bicycle circulation is shown in *Figure 2* although this graphic omits the proposed 43rd Street pedestrian connection.

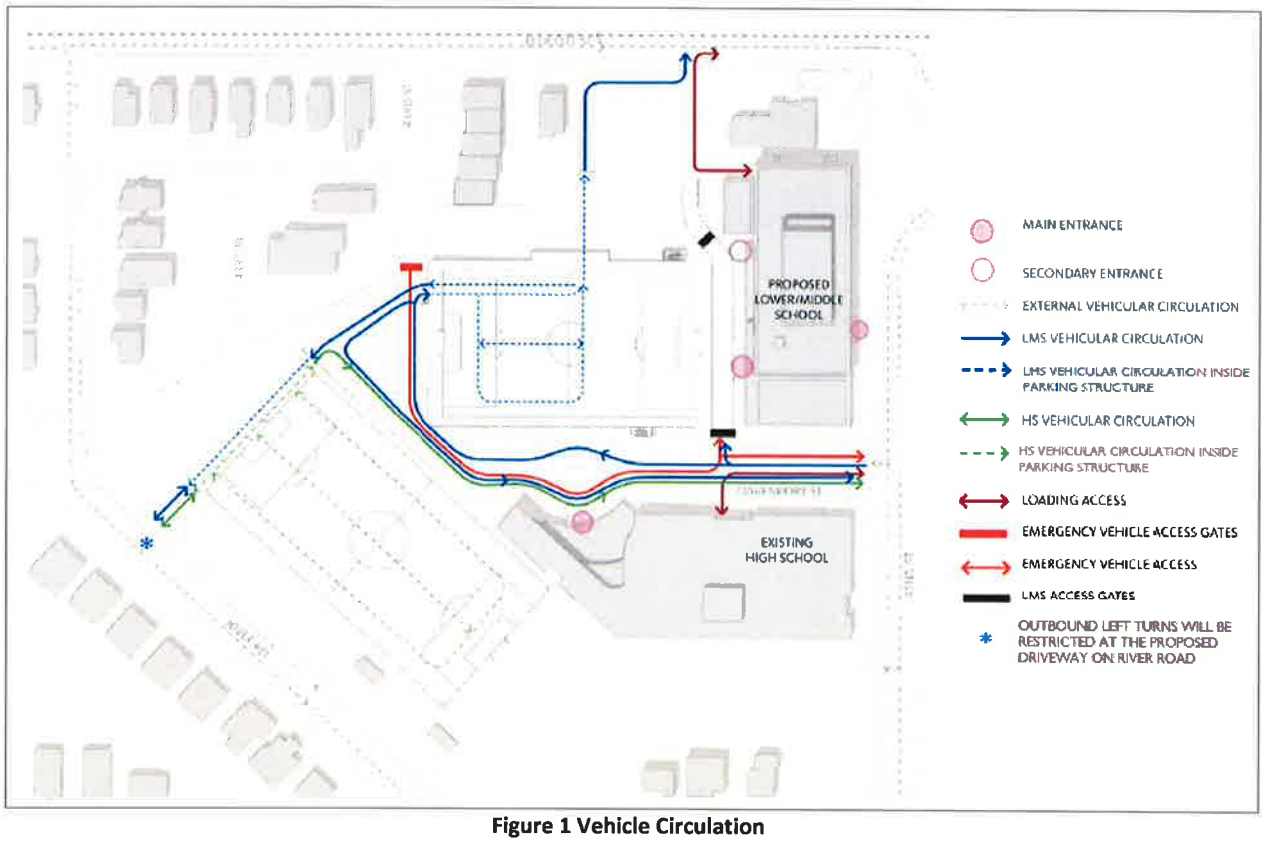

Figure 1 Vehicle Circulation

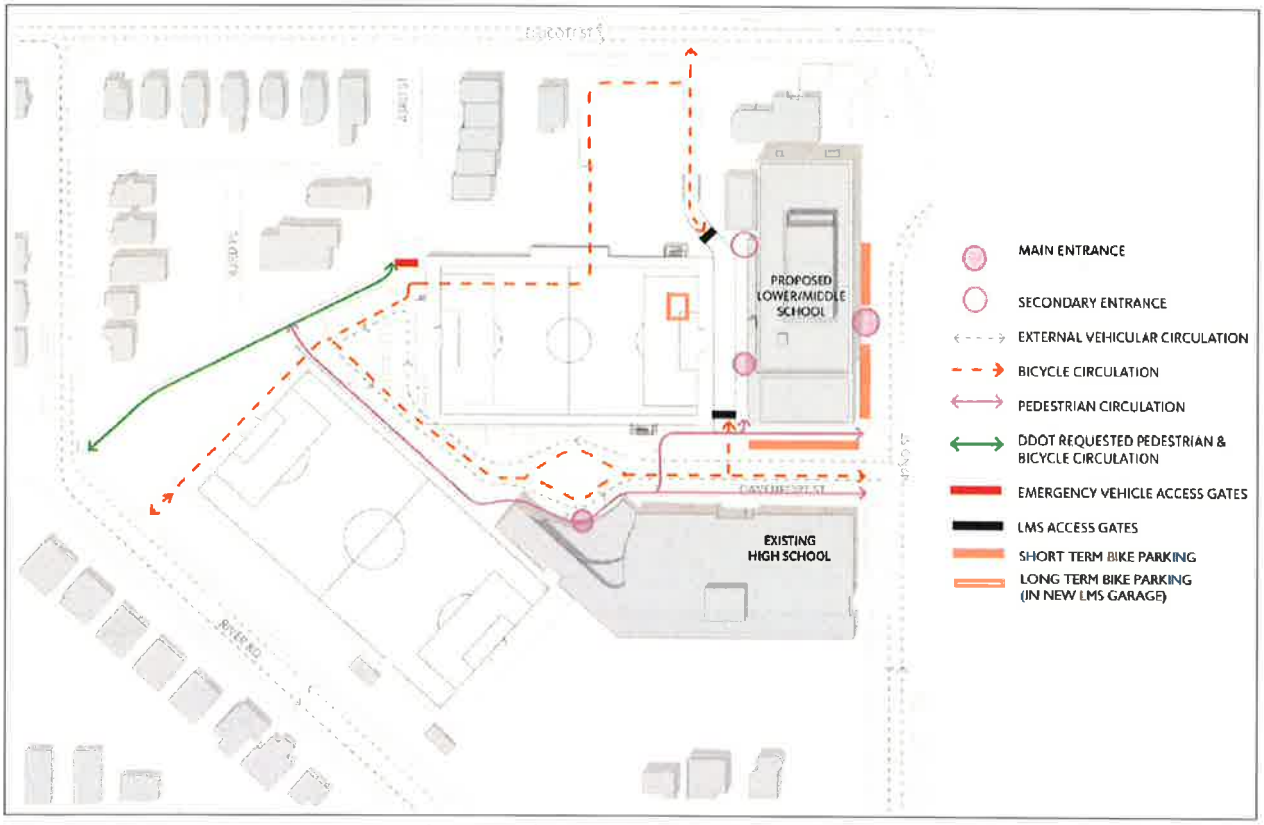

Figure 2 Pedestrian and Bicycle Circulation

Loading

DDOT's practice is to accommodate vehicle loading in a safe and efficient manner, while at the same time preserving safety across non-vehicle modes and limiting any hindrance to traffic operations. For new developments, DDOT requires that loading take place in private space and that no back-up maneuvers occur in the public realm. This often results in loading being accessed through an alley network.

Loading for the LMS includes one 30-foot berth, one 100 square foot platform, and a 30-foot service/delivery space, which meets or exceeds zoning requirements. The Applicant identified additional loading space along the Davenport Street curbside. As noted above, loading for the High School will continue to utilize an existing curb cut on Davenport Street which provides access via back-in maneuvers to a loading dock in the High School building. Due to the high volume of pick-up/drop-off activity along Davenport Street, it is imperative that all available curbside space be reserved for pick-up/drop-off activities during peak periods. Accordingly, loading from Davenport Street for both school buildings should be prohibited during peak periods.

Streetscape and Public Realm

In line with District policy and practice, any substantial new building development or renovation is expected to rehabilitate streetscape infrastructure between the curb and the property lines. This includes curb and gutters, street trees and landscaping, street lights, sidewalks, and other appropriate features within the public rights of way bordering the site.

The Applicant must work closely with DDOT and the Office of Planning to ensure that the design of the public realm meets current standards and will substantially upgrade the appearance and functionality of the streetscape for public users needing to access the property or circulate around it. In conjunction with the District of Columbia Municipal Regulations, DDOT's *Design and Engineering Manual* will serve as the main public realm references for the Applicant. DDOT staff will be available to provide additional guidance during the public space permitting process. Specifically, DDOT suggests that the Applicant participate in a Preliminary Design Review Meeting (PDRM) to address design related issues prior to the submission of public space permit applications.

As such, all public space shall be designed and constructed to DDOT standards. DDOT notes the importance of sidewalks approaching and along the perimeter of the site to accommodate pedestrian and bicycle activity. The Applicant will be expected to address any sidewalk gaps or deficiencies present. The locations identified as part of this action are fully addressed in the pedestrian section following. All tree planting and tree survey issues will be addressed at the time of public space permitting, at which point the Applicant will submit an application to DDOT for removal of street trees and special trees. Finally, DDOT expects utility vaults to be accommodated on private property. Curb cuts proposed for new use are subject to the public space permitting process. Final design of the public space will be determined during DDOT's public space permitting process.

Sustainable Transportation Elements

Sustainable transportation measures are targeted to promote environmentally responsible types of transportation in addition to the transportation mode shift efforts of TDM programs. These measures

can range anywhere from practical implementations that would promote use of vehicles powered by alternative fuels to more comprehensive concepts such as improving pedestrian access to transit in order to increase potential use of alternative modes of transportation. Within the context of DDOT's development review process, the objective to encourage incorporation of sustainable transportation elements into the development proposals is to introduce opportunities for improved environmental quality (air, noise, health, etc.) by targeting emission-based impacts.

DDOT recommends that the Applicant provide at least five (5) 240-volt electric car charging stations, which equates to approximately one (1) electric car charging station per 50 vehicle parking spaces.

Travel Assumptions

The purpose of the CTR is to inform DDOT's review of a proposed action's impacts on the District's transportation network. To that end, selecting reasonable and defensible travel assumptions is critical to developing a realistic analysis.

Background Developments and Regional Growth

As part of the analysis of future conditions, DDOT requires applicants to account for future growth in traffic on the network or what is referred to as background growth. The Applicant coordinated with DDOT on the appropriate background developments to include in the analysis. Generally, only projects that were both approved and included an origin or destination in proximity to the study area are included in the analysis. 4000 Brandywine Street, 4600 Wisconsin Avenue, and 4700 Wisconsin Avenue were included as background developments.

DDOT also requires applicants account for regional growth. This can be done by assuming a general growth rate or by evaluating growth patterns forecast in MWCOG's regional travel demand model. The Applicant coordinated with DDOT on an appropriate measure to account for regional growth based on historic growth rates that accurately accounted for regional growth.

Off-Street Vehicle Parking

The overall parking demand created by the development is primarily a function of land use, development square footage, and price/supply of parking spaces. However, in urban areas, other factors contribute to the demand for parking, such as the availability of high quality transit, frequency of transit service, and proximity to transit.

Currently, 196 vehicle parking spaces are provided for the High School at the Davenport campus and 120 spaces exist at the LMS. The Applicant proposes a total of 282 vehicle parking spaces between the two schools (106 and 176 for the LMS and High School, respectively), which represents a reduction in total parking supply of 34 but exceeds zoning requirements by 21 spaces.

Trip Generation

Each trip a person makes is made by a certain means of travel, such as vehicle, bicycle, walking, etc. The means of travel is referred to as a 'mode' of transportation. A variety of elements impact the mode of travel, including density of development, diversity of land use, design of the public realm, availability and cost of parking, among many others.

The Applicant utilized traffic counts at both the LMS and High School entrances to determine existing trip generation figures. Mode splits derived from surveys of the existing school facilities were utilized to determine the number of trips by mode.

For future conditions, the Applicant grew the number of trips associated with each school's desired cap increase and assumed a discount in total vehicle trip making for the consolidated campus based on the increase in transportation options of the Davenport campus compared to the current LMS campus as well as increased carpooling amongst families with students in both schools. Trips associated with the Safeway, which was in use at the time counts were taken at the High School, were also deducted from the total trip generation estimates for future conditions. These trip generation figures, summarized in Figure 4, represent a baseline trip generation estimation without a TDM plan in effect.

Trip Type	AM			PM School			PM Commuter		
	In	Out	Total	In	Out	Total	In	Out	Total
Lower/Middle School									
Total Existing Trips	339	283	622	126	154	280	46	65	111
Trips Associated with Cap Increase[1]	31	26	57	11	14	25	4	6	10
High School									
Total Existing Trips	294	189	483	80	98	178	63	85	148
Trips Associated with Cap Increase[2]	37	24	61	10	12	22	8	11	19
Sub-Total Site Trips	701	522	1,223	227	278	505	121	167	288
Consolidation Adjustment	-56	-42	-98	-18	-22	-40	-10	-13	-23
Total	**645**	**480**	**1,125**	**209**	**256**	**465**	**111**	**154**	**265**

[1] Existing trips were grown by 9.1 percent, which represents the percent increase in student and employee caps calculated on a weighted average basis (% increase in employees*# employees + % increase in students*# students ÷ # employees + # students = 0.07*642 + 0.183*142 ÷ 784 = 9.1

[2] Existing trips were grown by 12.7 percent, which represents the percent increase in student and employee caps calculated on a weighted average basis (% increase in employees*# employees + % increase in students*# students ÷ # employees + # students = 0.116*558 + 0.18*118 ÷ 676 = 12.7

Figure 3 Proposed Campus-Wide Site Trip Generation – Without TDM Plan

The Applicant then applied an aggressive non-single occupant auto reduction for the AM hour period via a TDM program to generate a trip cap. The resulting AM peak hour trip cap is proposed to be 595 trips, which reflects a 51% reduction of trips compared to the baseline trip generation estimates. Of note, no trip cap is proposed for the PM school peak hour or the PM commuter peak hour trip generation; rather, the Applicant expects to generate a level of vehicle trips consistent with the baseline trip generation estimates in Figure 4. As discussed in the Mitigations section, the Applicant should commit to PM school and PM peak trip caps of 465 and 265 respectively.

The proposed action is expected to generate a significant number of vehicular trips during the morning, afternoon (school), and evening peak hours; however, with the TDM reduction, the total number of morning peak hour trips would be approximately equal to existing levels with the High School and Safeway. Commensurately, non-auto trips will rise significantly.

Trip Distribution and Assignment

To model trip distribution, the Applicant assumed that trips would approximate existing travel patterns. As such, a detailed analysis of existing home origins was completed and these assigned trip routes.

Therefore, the Applicant created unique trip distribution routes for each geographic cluster of students and staff.

The Applicant worked with DDOT to perform a driveshed analysis utilizing these expected routes. This driveshed analysis based on student zip codes was then used to distribute the vehicle trips throughout the study area intersections.

DDOT is in agreement with the methodology used to determine trip distribution and resulting assignments.

Study Area and Data Collection

The Applicant in conjunction with DDOT identified 23 intersections where detailed vehicle, bicycle, and pedestrian counts would be conducted and a level of service analyses performed. These intersections are immediately adjacent to the site and include intersections radially outward from the site that have the greatest potential to see moderate to significant increases in vehicle delay. DDOT acknowledges that not all affected intersections are included in the study area and there will be intersections outside of the study area which realize new trips. However, DDOT expects minimal to no increase in delay outside the study area as a result of the proposed action.

The Applicant collected weekday intersection data in May and November 2014 and April and June 2015. In general, DDOT agrees with the timeframe and collection dates. None of the collection dates occurred outside of the school calendar.

Analysis

To determine the action's impacts on the transportation network, a CTR includes an extensive multi-modal analysis of the existing baseline conditions, future conditions, and future conditions with the proposed action and mitigations. The Applicant completed their analysis based on the assumptions described above.

Roadway Capacity and Operations

DDOT aims to provide a safe and efficient roadway network that provides for the timely movement of people, goods and services. As part of the evaluation of travel demand generated by the site, DDOT requests analysis of traffic conditions for the agreed upon study intersections for the current year and after the facility opens both with and without the site development or any transportation changes. In this case, the Applicant proposes a trip cap of 595 AM peak hour trips a result of their TDM program.

Analysis provided by the Applicant shows that vehicle traffic impacts from the action, with the 51% reduction, will impact the operations of two (2) intersections – Wisconsin Avenue/Ellicott Street and Wisconsin Avenue/42nd Street – in the study area as measured by Level of Service (LOS). Of note, the capacity analysis for future scenarios assumed the closure of the 42nd Street slip lane between the Wisconsin Avenue "fish hook" and Ellicott Street, which improves safety of this intersection but leads to degradation of operations at the Wisconsin Avenue/42nd Street "fish hook" intersection.

The Applicant proposes mitigations measures to address Wisconsin Avenue/Ellicott Street impacts, but does not propose mitigation measures for the Wisconsin Avenue/42nd Street impacts. Mitigations for impacted intersections are discussed in the Mitigations section.

To further assess impacts on roadway operations, queue length increases were examined. While the queue length at some intersections increases as a result of the proposed action, the queue length decreases at other intersections. Overall, the Applicant's analysis indicates no changes in queue lengths are significant.

Transit Service

The District and Washington Metropolitan Area Transit Authority (WMATA) have partnered to provide extensive public transit service in the District of Columbia. DDOT's vision is to leverage this investment to increase the share of non-automotive travel modes so that economic development opportunities increase with minimal infrastructure investment.

The northern edge of the site is located approximately 0.4 miles, roughly a ten minute walk, from the Tenleytown-AU Metro Station on the Red Line.

The site is also well-served by high-frequency bus routes. These routes run adjacent to the site, or stop at the Tenleytown Metro Station and provide excellent connectivity to the site along all major roads in the vicinity. Bus routes include:

- 30N & 30S – Friendship Heights - Southeast Line
- 31,33 – Wisconsin Avenue Line
- 96 – East Capitol Street – Cardozo Line
- H2, H3, H4 – Crosstown Line
- N2 – Massachusetts Avenue Line
- M4 – Nebraska Avenue Line

Pedestrian Facilities

The District is committed to enhancing pedestrian accessibility by ensuring consistent investment in pedestrian infrastructure on the part of both the public and private sectors. DDOT expects new developments to serve the needs of all trips they generate, including pedestrian trips. Walking is expected to be an important mode of transportation for the school.

The Applicant performed an inventory of the pedestrian infrastructure in the vicinity and noted any substandard conditions. Pedestrian accommodations surrounding the school are inadequate in several locations and should be upgraded by the Applicant to meet pedestrian needs.

To address the existing deficiencies in the pedestrian network leading to the school, several infrastructure improvements are expected from the Applicant. Specifically, the following deficiencies must be addressed:

- Missing sidewalk on the west side of 43rd Street between Ellicott Street and the alley;

- Missing detectable warnings in curb ramps at the southwestern corner of Ellicott Street/42nd Street;
- Reconstruction of the alley curb cut to Ellicott Street such that the 6-foot clear sidewalk material, scoring pattern, and elevation extend across the entrance.

In addition to assessing the routes to the school, DDOT asked the Applicant to assess the ability for pedestrians to walk through the school campus to facilitate pedestrian access. The proposed site design includes several opportunities to promote walking. The Applicant worked with DDOT to install a sidewalk connection from the 43rd Place/River Road into the campus that provides north-south connectivity through the site. A sidewalk on the south side of the private east-west road through the side provides a connection to 42nd Street via Davenport Street. Of note, the site plan does not appear to provide an ADA accessible pedestrian connection between these two sidewalks, which DDOT expects the Applicant to address. Furthermore, no sidewalk connection exists on the north side of the private east-west road, which could be a barrier to pedestrian connectivity through the site as pedestrians would need to cross the road or walk through the parking lot. DDOT recommends that a sidewalk connection be explored on the north side of the private east-west road.

In addition to the 43rd Place/River Road pedestrian connection, the Applicant also agrees to re-open an existing closed pedestrian entrance at 43rd Street. To address neighborhood concerns with undesired vehicle drop-offs on 43rd Street south of Ellicott Street, the Applicant proposes to open the 43rd Street pedestrian entrance during school hours as a pilot program with conditions and triggers that would lead to the closure of the gate. While DDOT's preference is that the gate remain open in perpetuity in order to ensure additional pedestrian and bicycle connectivity, DDOT agrees in concept to opening the pedestrian entrance subject to ongoing monitoring to ensure appropriate use of the gate that does not induce vehicular pick-up/drop-off activities near the gate. However, the specific proposal for evaluating the pedestrian gate requires adjustments, which are discussed in the Mitigations section. As discussed above and in the Mitigations section, to complete the pedestrian connection to Ellicott Street, the Applicant should construct approximately 100 feet of sidewalk on the west side of 43rd Street between the alley and Ellicott Street where there is currently a gap in the sidewalk network.

The school's pedestrian circulation is shown in *Figure 2*.

DDOT asked the Applicant to explore an additional pedestrian connection through the campus connecting to Chesapeake Street/River Road. A pedestrian facility in this location was deemed infeasible due to topography and conflicts with existing structures.

The Applicant is expected to work with DDOT through the public space permitting process to include these pedestrian infrastructure improvements and to ensure that pedestrian access points provide safe and convenient site access, with a focus on connecting to the adjacent sidewalk network and connections to nearby transit service. DDOT expects the Applicant to meet all DDOT standards for pedestrian facilities.

Bicycle Facilities

The District is committed to enhancing bicycle access by ensuring consistent investment in bicycle infrastructure by both the public and private sectors. DDOT expects new developments to serve the needs of all trips they generate, including bicycling trips. Directly within the vicinity of the school, no dedicated bicycle lanes exist, however bicycling is often conducted via the local streets.

Currently, two Capital Bikeshare stations are located within one-quarter mile of the site at Wisconsin Avenue/Fessenden Street and Wisconsin Avenue/Brandywine.

The Applicant has committed to providing long- and short-term bicycle facilities, as well as showers and changing facilities for staff and students. The Applicant proposes 44 short-term bicycle parking spaces, which exceeds the zoning requirement by one (1) space. The exact location of short-term bicycle facilities will be determined during the public space permitting process. The Applicant proposes 16 long-term bicycle parking spaces in the LMS garage in excess of the 12 spaces required by Zoning.

Safety

DDOT requires that the Applicant conduct a safety analysis to demonstrate that the site will not create new, or exacerbate existing, safety issues for all travel modes. DDOT asks for an evaluation of crashes at study area intersections as well as a sight distance analysis along the public space where there is expected to be conflicts between competing modes (e.g. crosswalks, driveway entrances, etc.)

The Applicant's analysis of DDOT crash data reveals two (2) intersections within the study area that have a crash rate of 1.0 Million Entering Vehicles (MEV) or higher.

Intersection	Type of Control	No. of Crashes (3 Years)	ADT (veh/day)	Crash Rate (MEV)
Fessenden Street/Wisconsin Avenue	Signal	22	15,030	1.34
Fessenden Street/41st Street	All-way Stop	3	6,440	0.43
Ellicott Street/River Road	Two-way Stop	2	8,960	0.20
Ellicott Street/43rd Place	All-way Stop	0	1,860	0.00
Ellicott Street/Public Alley	Two-way Stop	0	2,070	0.00
Ellicott Street/Wisconsin Avenue/42nd Street	Signal	11	21,650	0.46
Ellicott Street/41st Street	All-way Stop	1	2,450	0.37
Wisconsin Avenue/42nd Street	One-way Stop	6	19,200	0.29
River Road /Davenport Street/43rd Street	Two-way Stop	4	8,120	0.45
Davenport Street/42nd Street	One-way Stop	1	3,960	0.23
Davenport Street/Wisconsin Avenue	Signal	12	19,420	0.56
Chesapeake Street/43rd Street	Two-way Stop	0	1,930	0.00
Chesapeake Street/River Road	Signal	1	7,810	0.12
Chesapeake Street/42nd Street	All-way Stop	0	4,970	0.00
Chesapeake Street/Wisconsin Avenue	One-way Stop	7	19,760	0.32
River Road/42nd Street	Signal	5	9,100	0.50
Brandywine Street/42nd Street	All-way Stop	6	4,900	1.12
Brandywine Street/River Road	Two-way Stop	5	6,160	0.74
Brandywine Street/Wisconsin Avenue	Signal	22	25,050	0.80
River Road/Wisconsin Avenue	Signal	18	26,830	0.61
Albemarle Street/42nd Street	Signal	2	8,190	0.22
Albemarle Street/Wisconsin Avenue	Signal	21	29,760	0.64

Figure 4 Intersection Safety (Source: Applicant)

The Wisconsin Avenue/Fessenden Street and Brandywine/42nd Street intersections are classified as high crash intersections, although they are just slightly above the 1.00 Million Entering Vehicle (MEV) crash rate threshold. No safety improvements at these intersections are readily visible, however DDOT will continue to assess operations at these intersections.

Although not identified as a high crash intersection, the Ellicott Street/Wisconsin Avenue/42nd Street intersection features roadway geometry that facilitates speeding and presents conflicts with pedestrian movements, particularly along Wisconsin Avenue. As noted above, the Applicant proposes to address safety concerns at this intersection by closing the "slip lane" portion of 42nd Street between Ellicott Street and the Wisconsin Avenue "fish hook". DDOT agrees with this closure, but notes that the closure of this segment of roadway leads to the degradation of LOS at this intersection and is likely to increase potentially unsafe left turns from 42nd Street to northbound Wisconsin Avenue using the "fish hook, both of which require further mitigation discussed in the Mitigations section.

The Applicant will be required to coordinate with DDOT during the public space permitting process to ensure that safe design is incorporated into new streets and vehicular access points.

Mitigations

As part of all major development review cases, DDOT requires the Applicant to mitigate the impacts of the development in order to positively contribute to the District's transportation network. The mitigations must sufficiently diminish the action's vehicle impact and promote non-auto travel modes. This can be done through Transportation Demand Management (TDM), physical improvements, operations, and performance monitoring.

DDOT preference is to mitigate vehicle traffic impacts first through establishing an optimal site design and operations to support efficient site circulation. When these efforts alone cannot properly mitigate an action's impact, TDM measures may be necessary to manage travel behavior to minimize impact. Only when these other options are exhausted will DDOT consider capacity-increasing changes to the transportation network because such changes often have detrimental impacts on non-auto travel and are often contrary to the District's multi-modal transportation goals.

The following analysis is a review of the Applicant's proposed mitigations and a description of DDOT's suggested conditions for inclusion in the order.

Trip Cap

DDOT finds a trip cap to be an effective means to provide certainty about an action's impacts. The Applicant proposes an AM peak hour trip cap of 595, which DDOT finds appropriate. To provide certainty about the action's impacts during the PM peak periods, the Applicant should commit to PM school and PM peak trip caps of 465 and 265, respectively.

Site Circulation, Operations, and Design

The site should be designed in a manner to facilitate internal movement of people and vehicles such that the potential impacts to the external transportation network are minimized. When potential impacts are unavoidable, operational changes, such as limitations on turn movements or changes in directionality of roadways, can be an effective way to manage a site's potential transportation impact.

The Applicant proposes a site design and site access points that, combined with the existing street network, has the potential to disperse site traffic surrounding the site in a way that minimizes the action's impact on the road network in the vicinity.

The Applicant has worked closely with DDOT to improve pedestrian circulation throughout their site and as well to the school. Pedestrian and bike access to a school is paramount, and DDOT expects safe access to be provided. The Applicant should work with DDOT to implement these improvements, which will be further coordinated as part of public space permitting. Several necessary improvements will require infrastructure improvements within the public right-of-way.

As noted in the Pedestrian Facilities section, the Applicant proposes north-south and east-west pedestrian facilities through the site to increase pedestrian accessibility. However, the site plan does not appear to provide an ADA accessible pedestrian connection between these two sidewalks (*Figure 5*). The Applicant should revise the site plan to provide an ADA connection between these two pedestrian facilities.

Figure 5 Missing Sidewalk Connections Internal to the Site (shown in red)

The Applicant proposes to open the 43rd Street pedestrian gate on a pilot basis. The Applicant's proposed conditional opening of the gate is below:

> *A new sidewalk shall be constructed as shown on the Final Plans [term to be defined in the Order] to allow for a gated pedestrian connection (the "Pedestrian 43rd Street Gate") to the Campus at the southern end of 43rd Street, which has no outlet. The Pedestrian Gate shall be constructed at the terminus of 43rd Street and shall be open only on school days and only between the hours of 7:00 AM and 4:00 PM for the purpose of allowing pedestrian access to and from the Campus. At all other times, the Pedestrian 43rd Street Gate shall be locked. The Pedestrian 43rd Street Gate shall not be used for vehicular dropoffs of students or staff on 43rd Street or Ellicott Street (any such drop-off being a "Prohibited Drop-Off"). In the event that there are more than three Prohibited Drop-Offs during the first year of the operation of the consolidated Campus, the School shall notify DDOT with information regarding the date and time*

of such Prohibited Drop-Offs. Upon such notification, the School shall secure the Pedestrian 43rd Street Gate at all times. (Source: Exhibit 41C)

DDOT agrees in concept to opening the entrance subject to ongoing monitoring to ensure appropriate use of the gate that does not induce vehicular pick-up/drop-off activities near the gate. However, the specific proposal for evaluating the pedestrian gate requires the following adjustments:

- Clarify the reporting and documentation of "prohibited drop-offs" to include additional details about reporting criteria and reporting responsibilities of the School and neighbors;
- Provide an opportunity to refine the Operations Plan prior to the closure of the gate in the event that "prohibited drop-offs" are observed. This opportunity would allow for GDS to augment their Operations Plan to include additional safeguards (e.g. additional staff, notices to parents, etc.)

Physical Improvements to the Right-of-Way

Physical improvements to the right-of-way (i.e., striping changes, turn lanes, traffic signals, additional lanes) are occasionally needed in order to accommodate site-generated traffic.

The Applicant proposes the following improvements:

- Ellicott Street/Wisconsin Avenue: Install an approximately 140 foot right turn lane. The right turn lane would require the removal of two metered spaces on the south side of Ellicott Street, which would require compensation from the Applicant to DDOT. DDOT finds this proposed mitigation measure appropriate subject to final approval at permitting;
- Closure of 42nd street "slip lane" – As noted above, the closure of this segment of roadway between Ellicott Street and the Wisconsin Avenue "fish hook" improves safety at this intersection; however it leads to the degradation of LOS at the intersection and has the potential to increase left turns from 42nd Street to northbound Wisconsin Avenue using the "fish hook, both of which require further mitigations not currently proposed by the Applicant. Design details and required improvements to mitigate the impacts of the slip lane closure are discussed below:
    - Design of the slip lane closure: To facilitate southbound Wisconsin Avenue to 42nd Street traffic (*Figure 6*), the existing fish hook must be widened to accommodate two-way traffic. This will require moving the curb line and associated drainage facilities. In addition, a sidewalk should be added to the north side of the fish hook to connect Wisconsin Avenue and 42nd Street. The physical closure of the southbound Wisconsin Avenue directly to southbound Ellicott Street may be made using temporary means (e.g. signage, flexi-posts, concrete curbing, paint, and other similar treatments).
    - Fish hook operations and signalization of Chesapeake Street/Wisconsin Avenue: The closure of the slip lane blocks northbound vehicles exiting the School from accessing the existing traffic signal at Ellicott Street/Wisconsin Avenue/42nd Street to reach northbound Wisconsin Avenue. Thus, northbound vehicles would use either the widened fish hook, which offers poor site distances at an uncontrolled intersection, or the Wisconsin Avenue/Chesapeake Street intersection, which his currently uncontrolled, to reach northbound Wisconsin Avenue. In response to safety concerns for left turns at the fish hook and Wisconsin Avenue/Chesapeake Street, the following operational and signal improvements are expected of the Applicant:

prohibit left out movements at the fish hook and install a traffic signal at Wisconsin Avenue/Chesapeake Street to provide a safe signalized left turn movement.

Figure 6 Conceptual Design for "Fish Hook" Closure

DDOT expects the following improvements to be included, subject to final DDOT permitting, to further improve safety and operations for all modes:

- New sidewalk where it is missing on the west side of 43rd Street between Ellicott Street and the alley;
- Detectable warnings in curb ramps where they are missing at the southwestern corner of Ellicott Street/42nd Street;
- Reconstruction of the alley curb cut to Ellicott Street such that the 6-foot clear sidewalk material, scoring pattern, and elevation extend across the entrance.

Transportation Demand Management

As part of all major development review cases, DDOT requires the Applicant to produce a comprehensive TDM plan to help mitigate an action's transportation impacts. TDM is a set of strategies, programs, services, and physical elements that influence travel behavior by mode, frequency, time, route, or trip length in order to help achieve highly efficient and sustainable use of transportation facilities. In the District, this typically means implementing infrastructure or programs to maximize the use of mass transit, bicycle and pedestrian facilities, and reduce single occupancy vehicle trips during peak periods. The Applicant's proposed TDM measures play a role in achieving the desired and expected mode split.

The specific elements within the TDM plan vary depending on the land uses, site context, proximity to transit, scale of the development, and other factors. The TDM plan must help achieve the assumed trip generation rates to ensure that an action's impacts will be properly mitigated. Failure to provide a robust TDM plan could lead to unanticipated additional vehicle trips that could negatively impact the District's transportation network.

The Applicant proposes a 51% trip reduction through TDM to achieve the 595 trip cap. The Applicant proposes the following TDM strategies:

- Require students who are dropped-off in the morning to have at least two students in the car with some exceptions;
- Implement a morning bus program that will run a minimum of three (3) buses;
- Encourage the use of transit to faculty, staff, and students who are old enough to use it; and
- Provide up to $100.00 monthly in SmarTrip subsidies to Virginia and Maryland financial aid students.

Beyond these specific TDM measures, the Applicant proposes a "toolbox" of TDM elements to choose from to assist with achieving the trip cap but does not commit to additional specific TDM measures. Overall, the proposed TDM program represents a significant investment. However, DDOT seeks a commitment to the following additional specific TDM elements to assist in achieving the proposed trip cap:

- Designate a TDM coordinator responsible for administering, organizing, marketing, and accomplishing the TDM plan;
- Install a Transit Screen in the LMS and High School buildings;
- Provide a bike maintenance facility and make a ZR-16 compliant number of showers and lockers available for biking or running commuters. While the Applicant proposes to make showers and changing facilities available, it does not specify the quantity and location of these facilities; and
- Charge for staff and faculty parking with pricing incentives for carpooling;
- Provide reserved parking spaces for carpools within the parking garage; and
- Provide a location for a Capital Bikeshare station.

With these additions, DDOT finds the TDM plan would likely be adequate to achieve the proposed trip cap. The Applicant would be free to implement additional TDM measures identified in the toolbox as needed to meet the trip cap. Performance monitoring, as described following, will be necessary to continue moving towards optimally effective TDM measures. All TDM measures should be reassessed at that time.

Operations Plan

Pick-up/drop-off points are proposed adjacent to the LMS, beneath the LMS field, and adjacent to the High School. The Applicant coordinated with DDOT to propose circulation plans for both school buildings during the three analysis periods (AM peak, PM school, and PM peak) to maximize available queue space and provide optionality for vehicles accessing the site in a manner that effectively distributes site traffic to minimize impacts.

The Applicant prepared analysis that shows queues for both these locations should be contained onsite, with no backing up into public space anticipated. DDOT notes that this is critical, and operations that

minimize queuing is essential as no queuing into pubic space is acceptable to DDOT. The proposed operations plan is described below.

- Establish a clear drop-off/pick-up protocol for parents;
- Parents/guardians will be assigned a drop-off/pick-up location based on the grade of their child/children and must use the assigned area. Staff will note the number as the vehicle enters the pick-up line and radio the number back to the school as the vehicles enter campus. Staff at the school then will shepherd the appropriate students to the awaiting vehicles once they stop.
- Drop-off/pick-up not be permitted from public streets;
- To keep curbspace available for active pick-up and drop-off use, parents who must leave their vehicle to drop-off/pick up students during regular drop-off/pick-up times must park in a designated on-campus parking space. Parents using the drop-off/pick-up lanes must remain in their vehicles and will drop-off/pick-up their student(s) when they stop in front of the school;
- Lower/Middle School staff members will be stationed at each drop-off/pick-up location to direct traffic and to assist students in getting to the appropriate vehicle; and
- GDS staff will be stationed along the perimeter to ensure that Ellicott Street, 42nd Street, and 43rd Street are not used for pick-up/drop-off.

In addition to the measures noted above, the Applicant should prohibit deliveries from Davenport Street for both school buildings during peak periods in order to maintain curbside space for pick-up/drop-off activities.

With this additional measure, DDOT finds the Operations Plan appropriate. It is expected that monitoring of these queues will be part of the ongoing Performance Monitoring Plan, discussed below. If queues do arise, additional TDM, operational, or geometric adjustments will be required as part of the Performance Monitoring Plan.

Performance Monitoring Plan

The CTR provides a projection of an action's likely transportation impacts. However, in an urban environment that is rapidly developing and changing, the projections may not provide enough certainty to reveal the true future impacts of an action, particularly at the scale of this one. A performance monitoring plan provides the framework for increasing the level of certainty concerning expected impacts so that DDOT and the public can have a better idea of expected future travel conditions. A performance monitoring plan establishes thresholds for trips an action can generate, defines post-completion evaluation criteria and methodology, and establishes potential remediating measures.

DDOT's goal is to customize the performance monitoring plan to address the potential impacts identified. The Applicant has proposed a comprehensive monitoring program including the following elements:

- Traffic counts; and
- Mode split surveys.

The Applicant should amend the performance mounting plan to include the following element:

- Queuing from the ingress points for school drop-off/pick-up. As noted above, queues that back up into DDOT rights-of-way are not acceptable and, if identified through monitoring, would require additional mitigations.

To provide a measure by which the success of the TDM program and the proposed 51% reduction can be assessed, the Applicant has proposed a vehicular trip generation goal against which future trips will be measured. Specifically, the Applicant proposes an AM peak hour cap of 595 vehicle trips.

The Applicant proposes a phased increase to the student and faculty increases that are tied to satisfactorily meeting trip generation targets. The Applicant's specific phasing of trips has not been finalized at the time of this report. DDOT generally finds a phased increase in enrollment appropriate, but notes that final phasing should be coordinated with DDOT.

In the event that the school exceeds the projected vehicle trip generation, then the Applicant include in the monitoring report additional mitigation measures to be implemented prior to the next monitoring period. In addition, GDS will meet with DDOT and the ANC to explore, develop, and implement new mitigation strategies.

DDOT finds Performance Monitoring Plans to be an effective mechanism for ensuring that proposed trip generation estimates and transportation impacts are met. With the inclusion of queuing analysis at each of the ingress points for school drop-off/pick-up, DDOT finds the proposed Performance Monitoring Plan appropriate.

JS:jr