Cedar Tree Academy Public Charter School

Comprehensive Transportation Review

January 27, 2025

Prepared for:

Cedar Tree Academy Public Charter School

701 Howard Road SE

Washington, DC 20020

Prepared by:

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Symmetra Design

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INTRODUCTION

Project Overview

The following Existing Conditions Transportation Study (CTR) has been prepared for the expansion of Cedar Tree Academy located at 701 Howard Road, SE in Washington, DC. The Property is in the NHR zone and is within the jurisdiction of Advisory Neighborhood Commission 8A. The site location is illustrated **Figure 1**.

As of School Year 2024-2025, Cedar Tree has an enrollment of 399 students. The school is authorized to serve up to 600 students by the Public Charter School Board. The existing building is outdated and lacks space to achieve Cedar Tree's future expansion goals. Hence, the school plans to expand to a fully developed elementary school serving PK-3 through 5th Grade and a total student population of 680 students. The expected build year of the school is 2027.

The project requires design review and approval by the Zoning Commission for all proposed buildings in the North Howard Roa (NHR) Zone under Subtitle K § 1005.1. This Comprehensive Transportation Review Study is to be submitted as part of the Zoning Commission process.

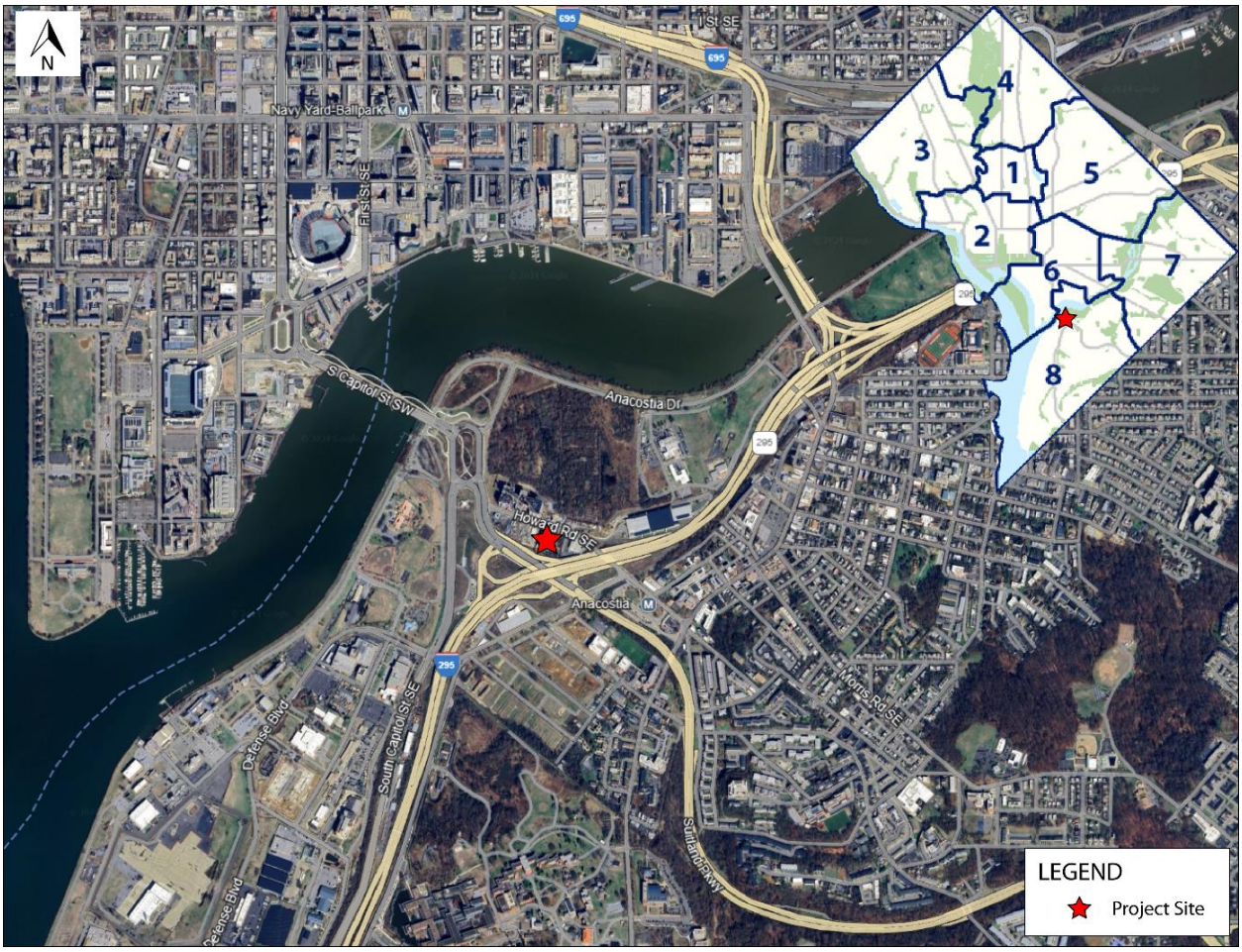

Figure 1: Site Location

Scope of Study

The study area and analysis assumptions have been coordinated as part of District Department of Transportation's (DDOT's) Comprehensive Transportation Review scoping process. This CTR Study includes an assessment of the transportation mode split, trip generation, transit services and facilities, pedestrian and bicycle facilities, sustainable transportation elements, transportation demand management plan, and curbside management. An approved scoping form is included in the Appendix of this report.

Analysis Scenarios

The TIS includes analysis scenarios to understand the impacts of the Cedar Tree Academy project. Accordingly, the following analysis scenarios have been analyzed:

- Existing Conditions (2024) - existing traffic counts and roadway network; student population of 399 for school driveway traffic.
- Future Background Conditions (2027) - future traffic volumes from background development projects and regional growth of existing traffic on the existing roadway network; student population of 600 for school driveway traffic.
- Total Future Conditions (2027) - future background traffic volumes; maintains the existing roadway network but with the proposed new school driveway; student population of 680, site-generated traffic from the increase of 600 to 680 students distributed throughout the roadway network.

Roadway Network

Regional access to the site is provided by I-695, I-295, and Suitland Parkway. Local access is provided via Howard Road.

The surrounding roadway network is illustrated in **Figure 2** and described below:

- Howard Road is a two-lane major collector connecting Suitland Parkway and Martin Luther King Jr. Avenue. The 2023 annual average daily traffic (AADT) through the study area is 12,519 vehicles per day (vpd). The speed limit is 25 miles per hour (MPH) with a 15 MPH speed limit during school hours (8:30 AM – 4 PM) adjacent to the school.
- South Capitol Street is a three-lane principal arterial that connects various neighborhoods and provides access to major highways, including I-695 and the Suitland Parkway. The 2023 AADT is 42,655 vpd.
- Suitland Parkway is a three-lane principal arterial that runs generally in the east-west direction. It begins in the west at an interchange with I-295 and South Capitol Street and extends east to Prince George's County. The 2023 AADT is 54,608 vpd.
- Firth Sterling Avenue is a two-lane major collector that connects South Capitol Street and Howard Road. No parking is allowed on either side of the roadway. The 2023 AADT is 7,312 vpd. The posted speed limit is 25 MPH.

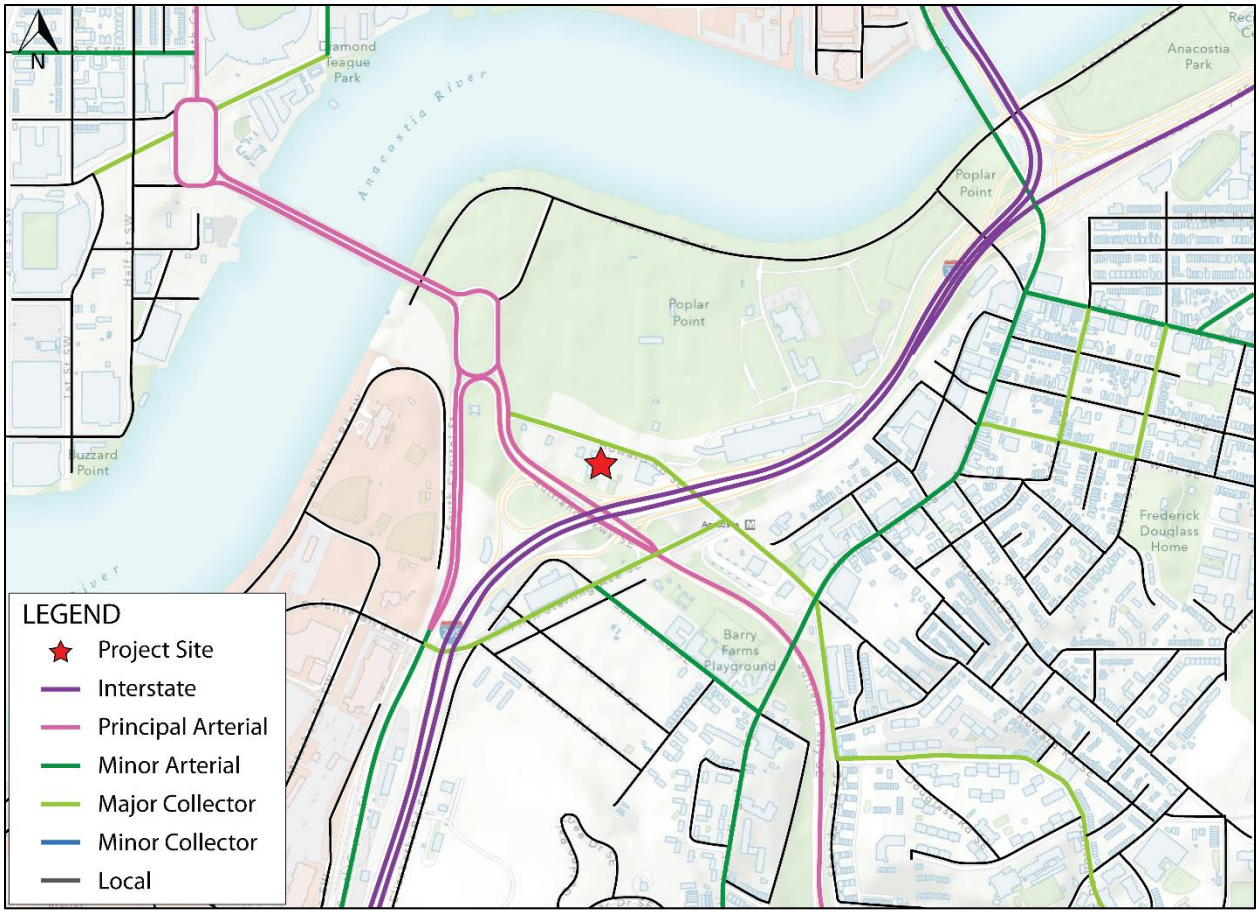

Figure 2: Roadway Classification

SITE DESIGN

Site Access & Circulation

The existing site access is provided via two curb cuts along Howard Road, forming a one-way circulation loop designed to facilitate efficient drop-off and parking access. The site driveways currently allow full access and egress in both directions on Howard Road. The proposed site plan maintains the two curb cuts with a one-way circulation loop, ensuring continued access/egress in both directions on Howard Road. The final entrance design is subject to DDOT Public Space review and approval.

Security Gate

Both driveways are secured by fenced gates that remain open only during school hours. In the future, the security gate will remain open during arrival and dismissal periods only. At all other times, the gate will provide controlled access for staff, parents, deliveries, and visitors. Potential design features include key fob access for staff or remote operation by security personnel. The security gate will be set back approximately 20 feet from the curb, allowing vehicles to queue on-site without impeding traffic on Howard Road. The final details will be coordinated during the public space approval process.

Pedestrian Access

Pedestrian access is provided via a sidewalk along Howard Road, which leads directly to the school entrance.

Site Plan Flexibility

The site plan currently incorporates two curb cuts to avoid impacting an adjacent special tree. However, in response to recent guidance from DDOT, the applicant has submitted a tree removal permit to address this constraint. If the permit is approved, the site plan, including the bioretention pond, will be redesigned to feature a single curb cut. Key elements of the site plan, such as the pick-up/drop-off space, will remain consistent with the current design featuring two curb cuts.

The transition from two curb cuts to a single curb cut is not expected to affect the results of the traffic analysis or the review of other site plan elements, such as pick-up/drop-off locations, stacking space, or multimodal connections. If necessary, vehicle maneuvering analysis will be updated during the site plan approval process to reflect any changes to the curb cuts.

The site plan is illustrated in **Figure 3**.

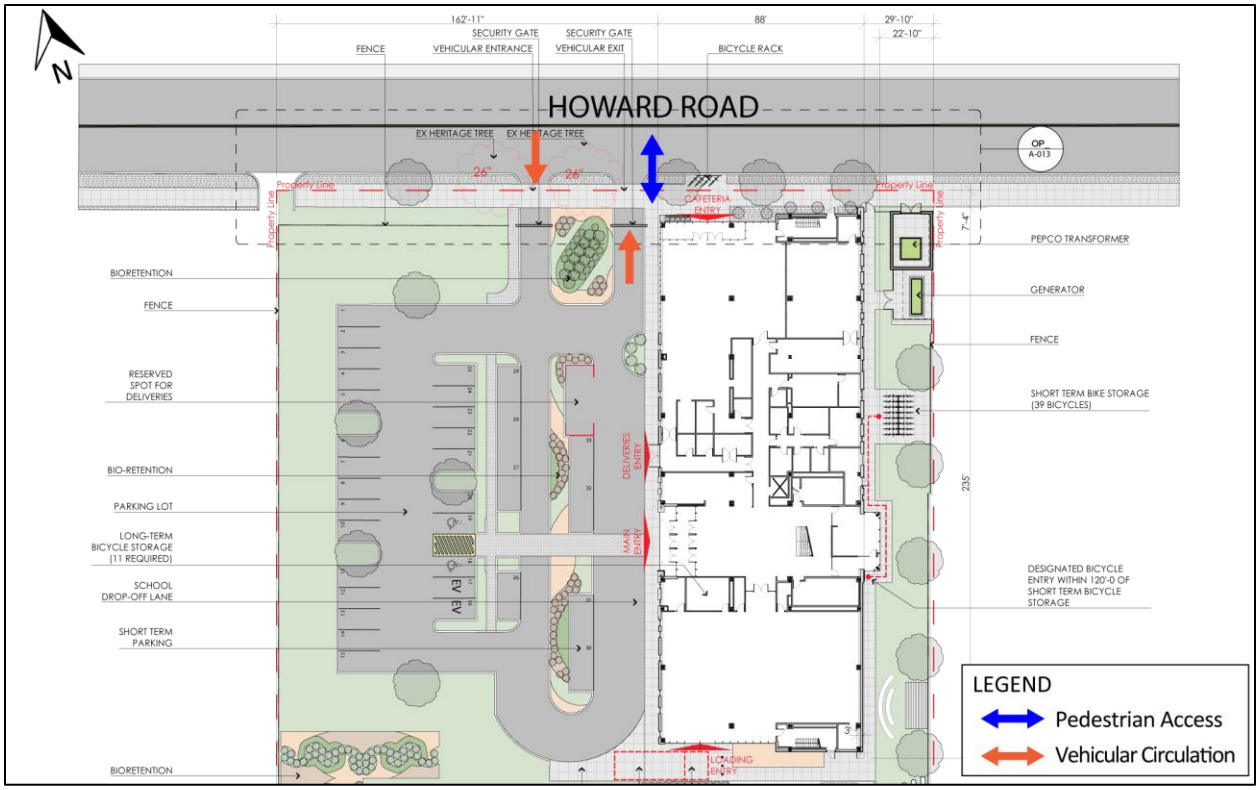

Figure 3: Site Access (conceptual)

Loading Conditions

Trash and loading locations are illustrated in **Figure 4**. Trash will be stored in a designated trash room within the building, located near the delivery entrance. It will be rolled out to the service/delivery area at the front of the school for collection. Trash removal will be scheduled to occur outside of pick-up/drop-off hours to minimize disruptions.

The loading berth will be designated exclusively for major furniture and equipment deliveries and will remain closed during school hours. All other deliveries will utilize the designated delivery space at the front of the building. To clearly indicate that the loading berth is not intended for regular use, the site plan will be updated to include removable bollards at the entrance to the loading berth. This measure will ensure the area is primarily reserved for exclusive access to the playground. The site plan will be revised accordingly to reflect these changes.

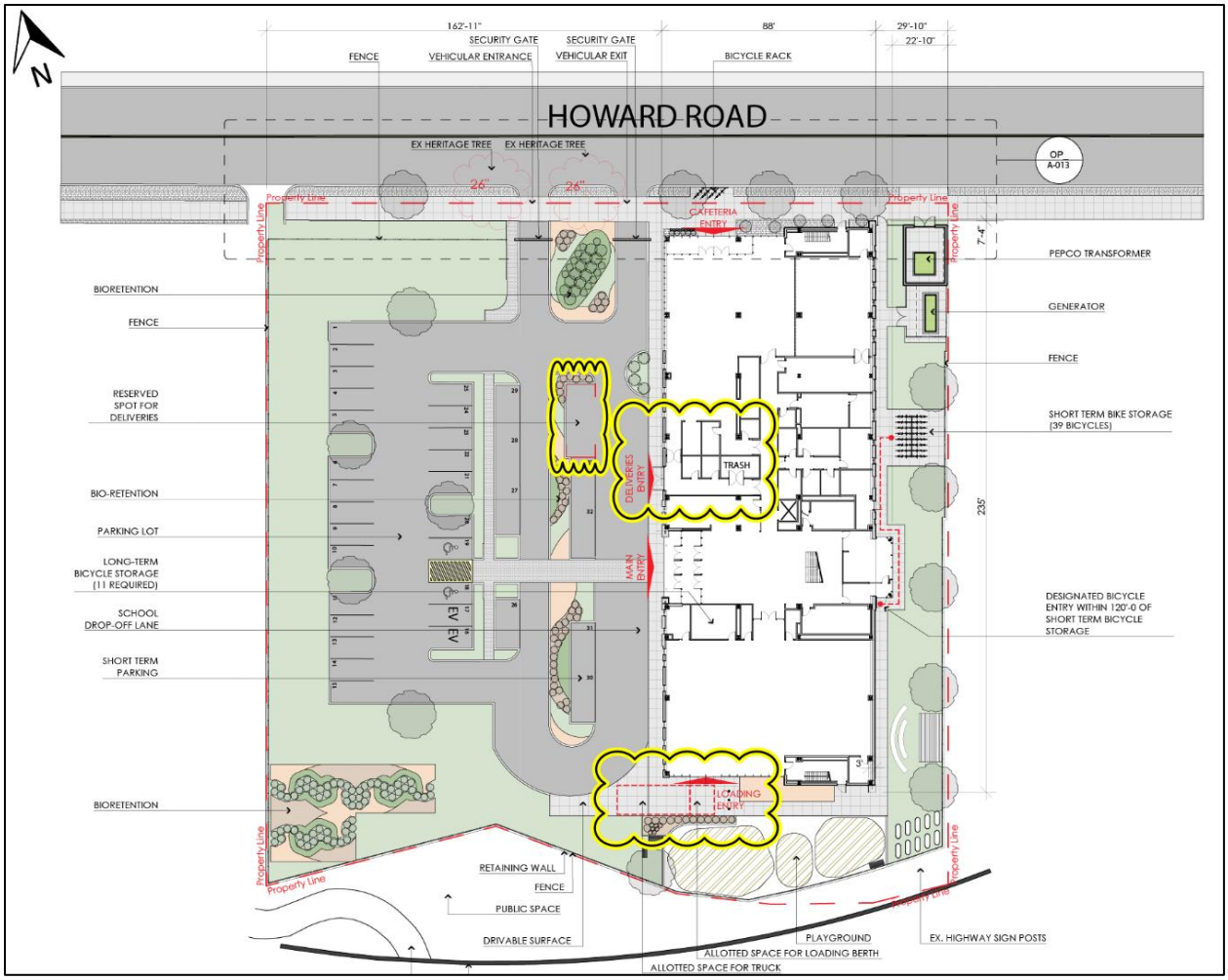

Figure 4: Site Plan – Trash and Loading

Vehicle Parking

The redeveloped school plans to provide 33 parking spaces, as shown on the site plan in **Figure 5**. There will be two electric vehicle charging stations on site. **Table 1** below compares the parking requirements per Zoning Regulations of 2016 (ZR-16) and DDOT's preferred parking rates. Based on the calculations, the off-street parking spaces proposed are sufficient in meeting the vehicle parking required by ZR-16 and DDOT.

Table 1: Vehicle Parking Requirements

Land Use/Units	Vehicle Parking Ratio per ZR-16	Vehicle Parking Required by ZR-16	DDOT Preferred Parking Rates: *(Figure 10): Less than ¼ Mile from Metrorail*	Parking Proposed
Education, Public (77,329 SF)	0.25 per 1,000 sq. ft.	10[1]	*Minimum: 50% of ZR-16* = 10 *Maximum: 75% of ZR-16* = 17	33 spaces

[1] The requirement is reduced by 50% from 20 to 10 due to proximity to a metro station.

Since the site offers more parking than DDOT's preferred maximum parking, an enhanced Transportation Demand Management (TDM) plan is proposed in a later section of this report to offset the additional trips induced by excess parking.

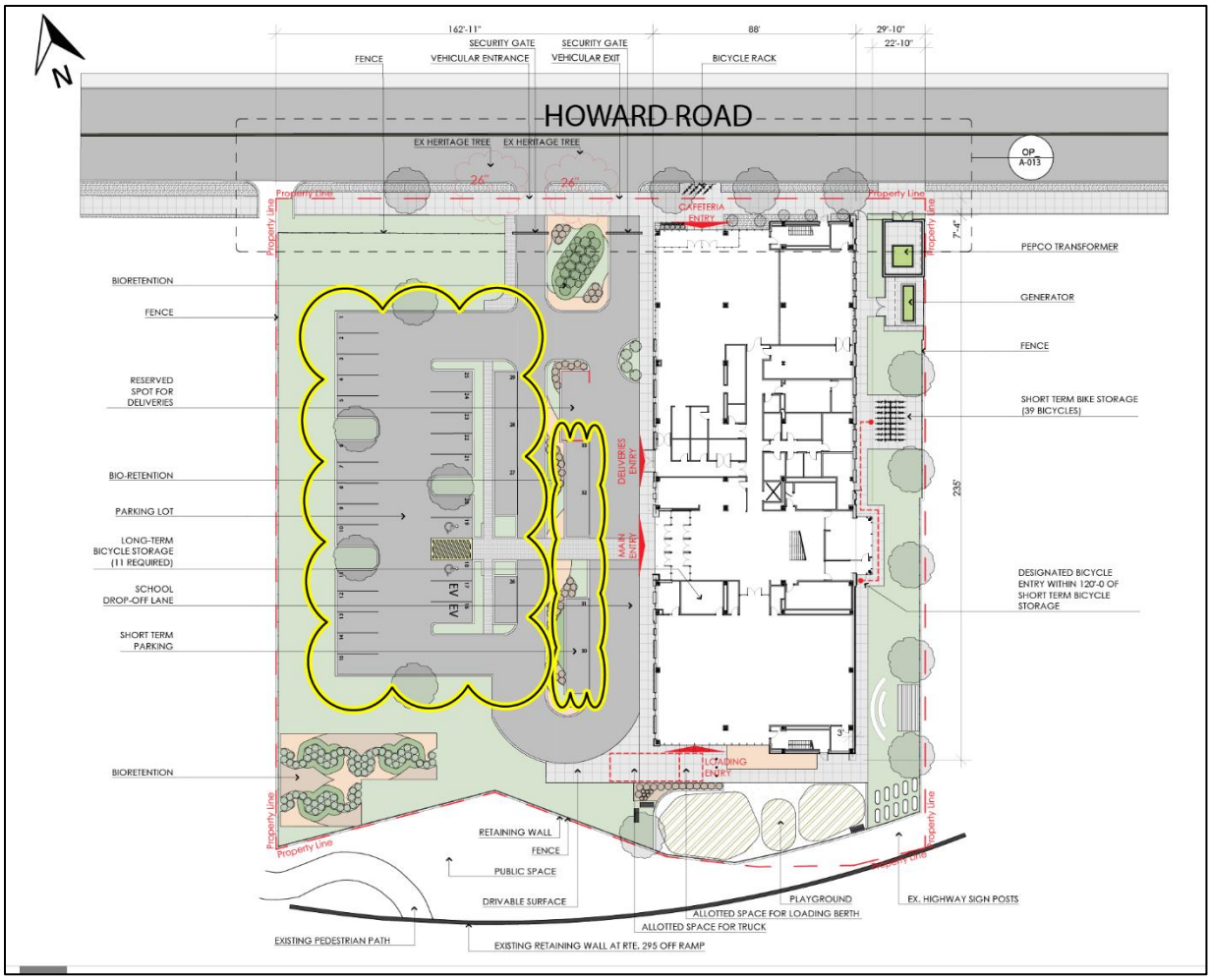

Figure 5: Site Plan – Off-Street Parking

Bicycle Parking

The project will provide the number of bicycle parking spaces required per Zoning Regulations of 2016 (ZR-16), shown in **Table 2**. Ten long-term indoor bicycle spaces will be provided. There will be no fee for the employees for usage of the bicycle storage room. The proposed short-term bicycle parking locations are on Howard Road by the school entrance and to east of the school building, as shown in **Figure 6**. All bicycle parking will be compliant with the design guidelines stipulated in the DDOT Bike Parking Guide.

Table 2: Bicycle Parking Requirements

Land Use/Units	Bike Parking Ratio per ZR-16	Bike Parking Required by ZR-16	Parking Proposed
Education, Public Short-term	1 per 2,000 sq. ft.	39	40
Education, Public Long-term	1 per 7,500 sq. ft.	10	11

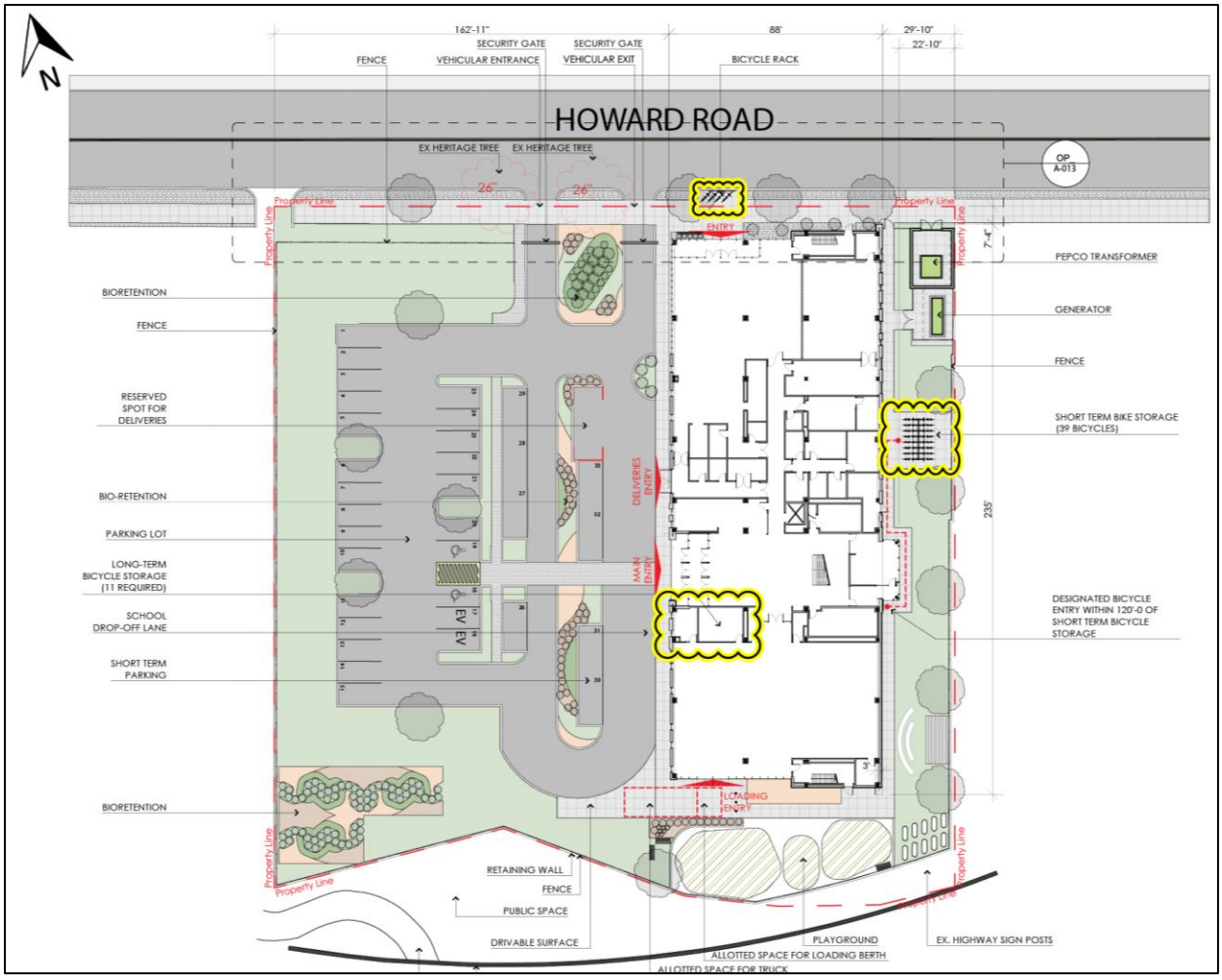

Figure 6: Site Plan – Bicycle Parking

Streetscape and Public Realm

The layout of the streetscape and public realm is shown in **Figure 7**. There are two special trees near the site entrance. Per DDOT Urban Forestry Division (UFD), the trees are in poor condition and should be removed.

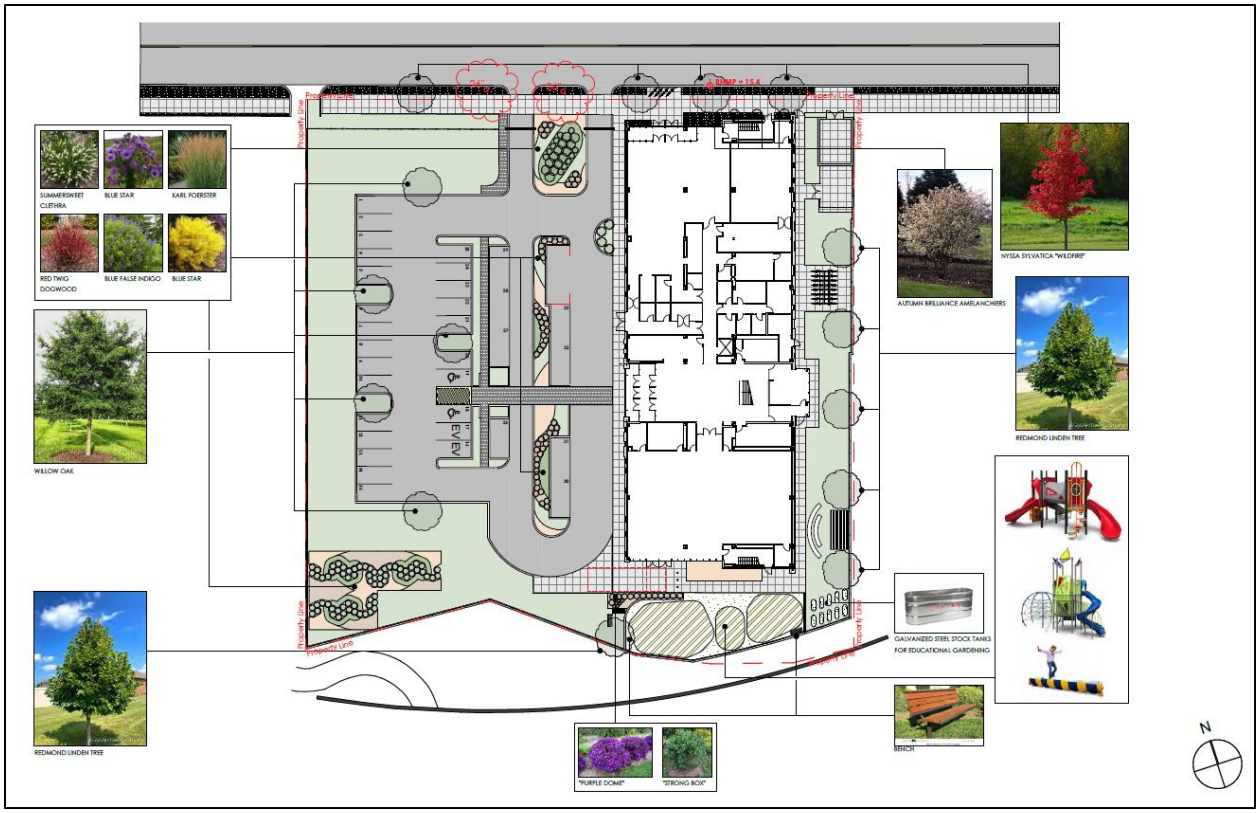

Figure 7: Site Plan – Streetscape and Public Realm

MULTIMODAL NETWORK EVALUATION

Pedestrian Assessment

The following section is an assessment of pedestrian facilities within a quarter mile of the site were evaluated, as well as walking routes to major destinations.

Existing Pedestrian Facilities

Existing sidewalk facilities within a quarter mile of the site are identified in **Figure 8**. All streets within the study area are high density residential/light commercial. In compliance with DDOT's *Design and Engineering Manual (2023)*, sidewalks must have an unobstructed clear width of 8 feet with a tree/furnishing zone of 4-8 feet. Howard Road immediately fronting the site and to the east of the site, up to the I-295 overpass, currently do not meet DDOT standards.

Americans with Disabilities Act (ADA) standards require that all curb ramps be provided wherever an accessible route crosses a curb and must have a detectable warning. Additionally, curb ramps shared between two crosswalks are not desired but where they are present, a 48" clear space is required outside active vehicle traffic lanes and within marked crossings. As shown in **Figure 8**, all existing curb ramps and crosswalks near the site meet ADA standards.

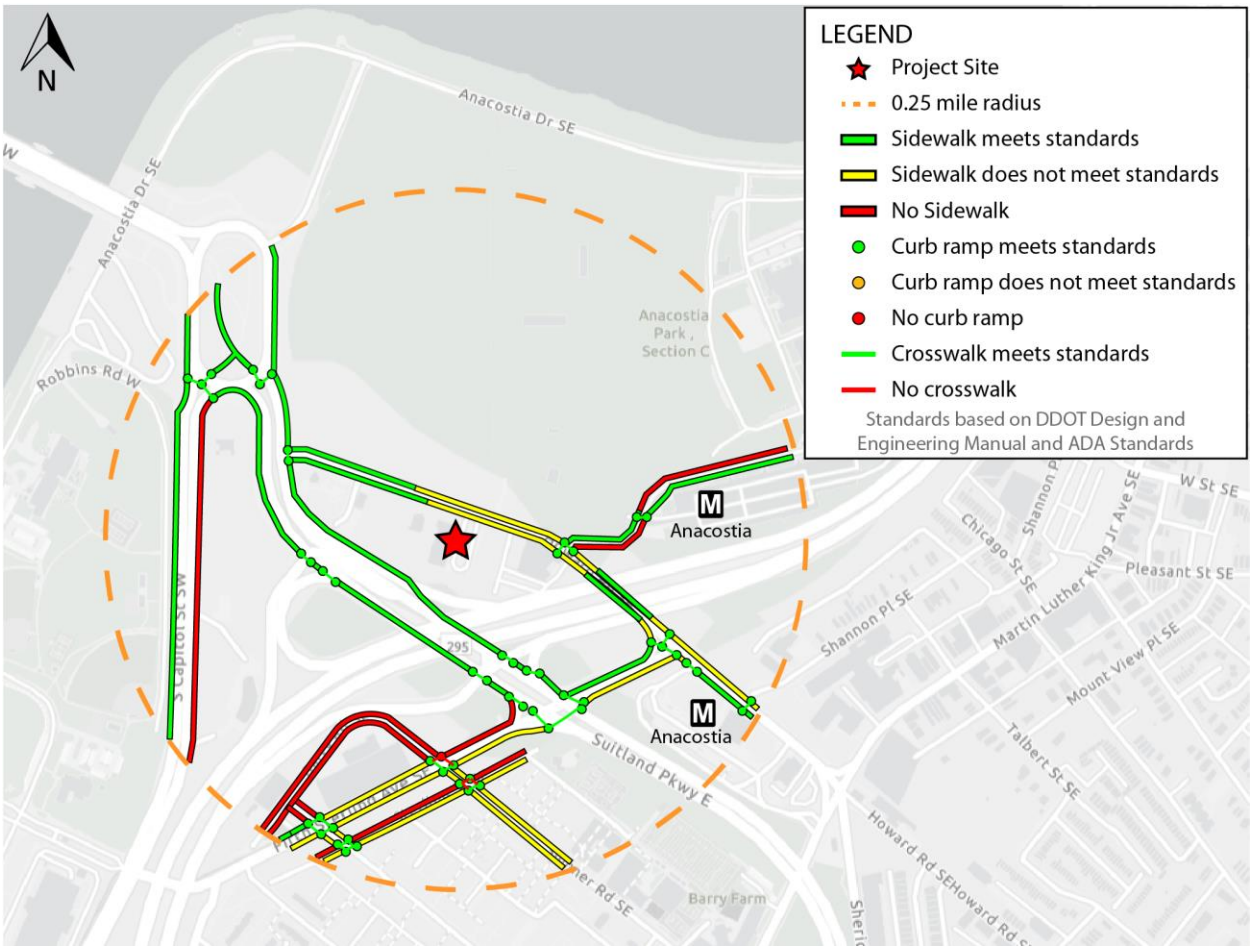

Figure 8: Existing Pedestrian Facilities – ¼ Mile Radius

Most of the sidewalks surrounding the site do not comply with DDOT standards, which regulate the quality and attractiveness of walking, although most of the curb ramps and crosswalks do comply. **Figure 9** shows pedestrian pathways to major destinations, distance, and walking times. The site's proximity to the Anacostia River, Anacostia Park, and the I-295/Suitland Parkway interchange result in few destinations within walking distance. Sidewalks on both sides of Howard Road connect the site to the Anacostia Metrorail station and commercial destinations along Martin Luther King, Jr. Avenue, and most streets connecting to destinations within the study area have a sidewalk on at least one side.

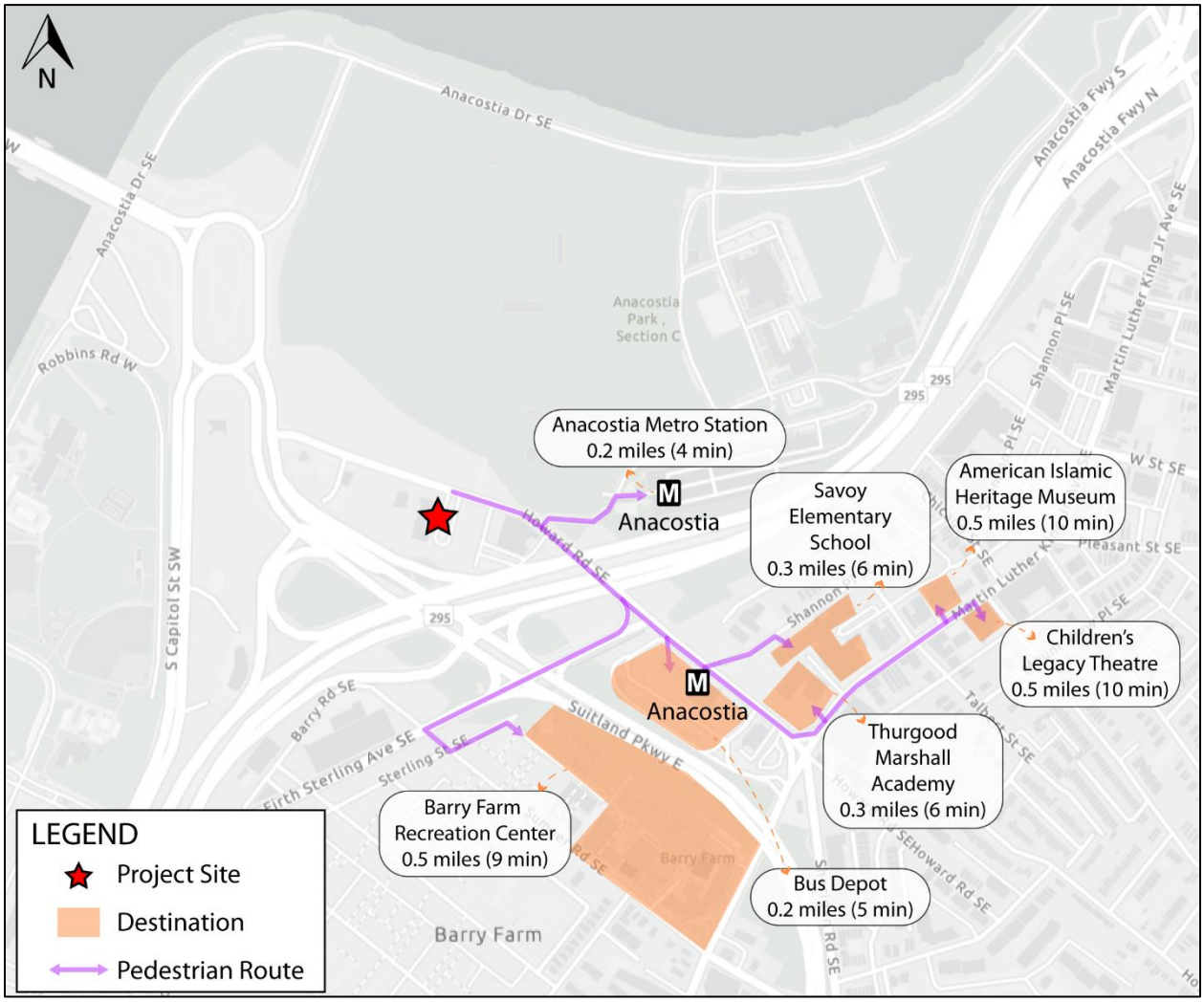

Figure 9: Pedestrian Pathways

Pedestrian Infrastructure Improvements

The project will upgrade the sidewalk on Howard Road along the site frontage to eight feet wide with a planting strip as buffer against street traffic.

DDOT is designing and planning to construct a bicycle and pedestrian bridge connecting the South Metro Entrance site at the Anacostia Metrorail Station with the Barry Farm development. This project aims to provide a safe crossing over Suitland Parkway for pedestrians and bicyclists, addressing

current and future connectivity needs while integrating community and Metro functionality. The anticipated design completion date is Winter 2025.

Direct access from the planned mixed-use path to the site was considered; however, it is not feasible due to grading constraints. Additionally, security concerns for the school further limit the feasibility of direct access from the path. Students and staff may still use the path for improved connectivity and access the school via the main entrance on Howard Road.

Bicycle Assessment

The following section is an assessment of existing and proposed bicycle facilities including trails, bike lanes and bikeshare within a half-mile radius of the site.

Existing Bicycle Facilities

As illustrated in **Figure 10**, there are two Capital Bikeshare locations within a half mile radius of the site. The closest station is on Shannon Place east of Howard Road, which is a six minute walk from the site. Howard Road is a signed on-street bike route. There are multiple off-street trails within the study area.

Planned Bicycle Improvements

Several bicycle improvements are planned near the project site, as shown in **Figure 10**.

South Capitol Street Trail

As part of the Anacostia Waterfront Transportation Master Plan, the existing Anacostia Riverwalk Trail will be extended from the South Capitol Street/Firth Sterling Avenue intersection south along South Capitol Street terminating at the Oxon Hill Farm Trail along DC Village Lane. With design nearing completion, the project will consist of a 10-foot-wide bicycle and pedestrian trail stretching 3.8 miles.

Shepherd Branch Trail

This trail is a proposed 3-mile-long, shared-use path that will connect the South Capitol Street Trail to the Greenway neighborhood in Anacostia. The trail will be built on the inactive Shepherd Branch rail corridor that extends from the CSX Benning Yard to Blue Plains. DDOT completed the preliminary design and feasibility study for the Shepherd Branch Trail in 2019. In 2020, DDOT placed the project on hold to acquire the property needed for the project.

Suitland Parkway Trail

The Suitland Parkway Trail is a 1.7-mile pedestrian and bicycle paved trail that runs along the Suitland Parkway from Pomeroy Road south to Southern Avenue. DDOT is currently conducting a feasibility study and conceptual engineering.

MoveDC Bicycle Priority Network

MoveDC, the District's multimodal long-range transportation Plan, includes planned on-street bike facilities along Firth Sterling Avenue SE from S. Capitol Street to Howard Road SE.

Barry Farm Redevelopment

As part of the Barry Farm Redevelopment, a future cycle track will be constructed along Firth Sterling Avenue between Sumner Road and Stevens Road.

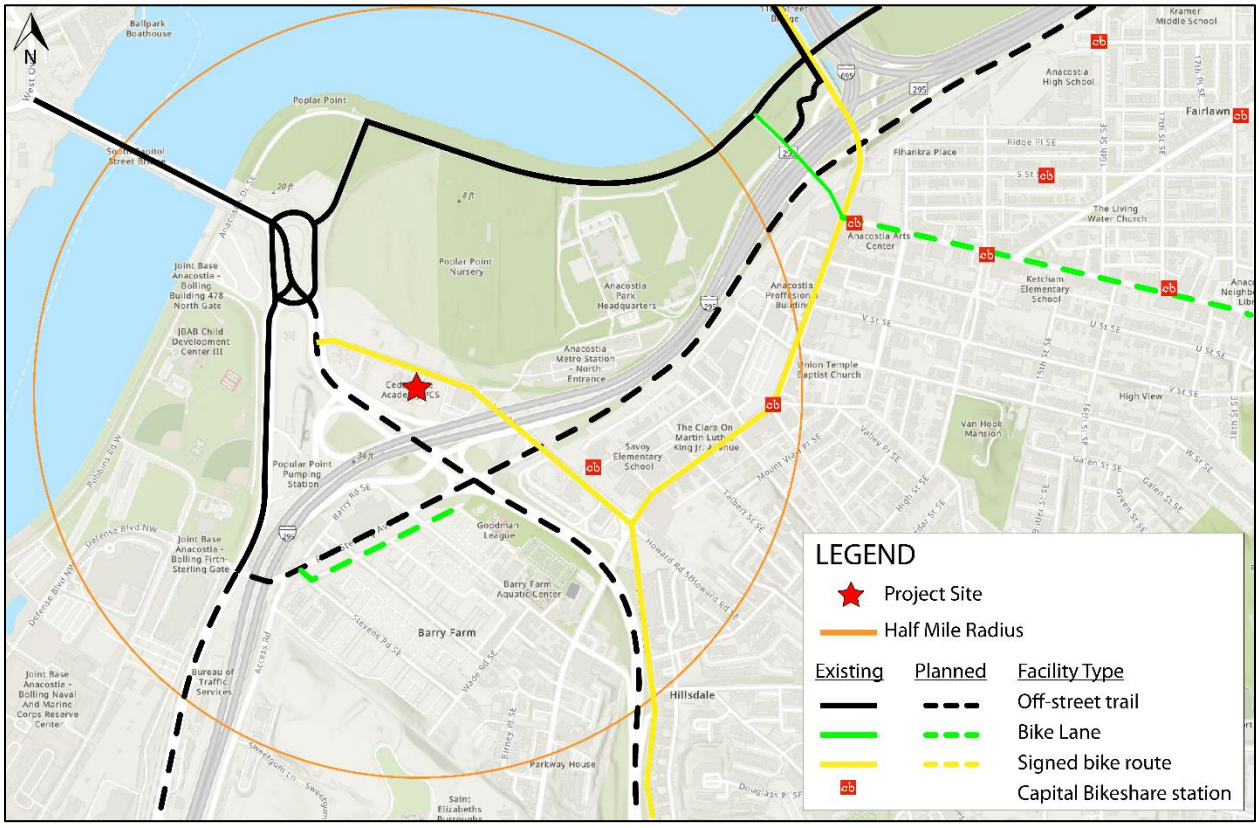

Figure 10: Existing and Future Bicycle Network Improvements

Transit Assessment

The following section will identify existing and proposed public transit facilities and services including routes and bus stops within proximity to the Site.

Metrorail

The project site is within the quarter-mile buffer of the Anacostia Metro Station and the one-mile buffer of the Navy Yard-Ballpark Metro Station, as shown on **Figure 11**. Both stations service the green line, which runs in Prince George's County MD, as well as northeast and southeast sections of DC.

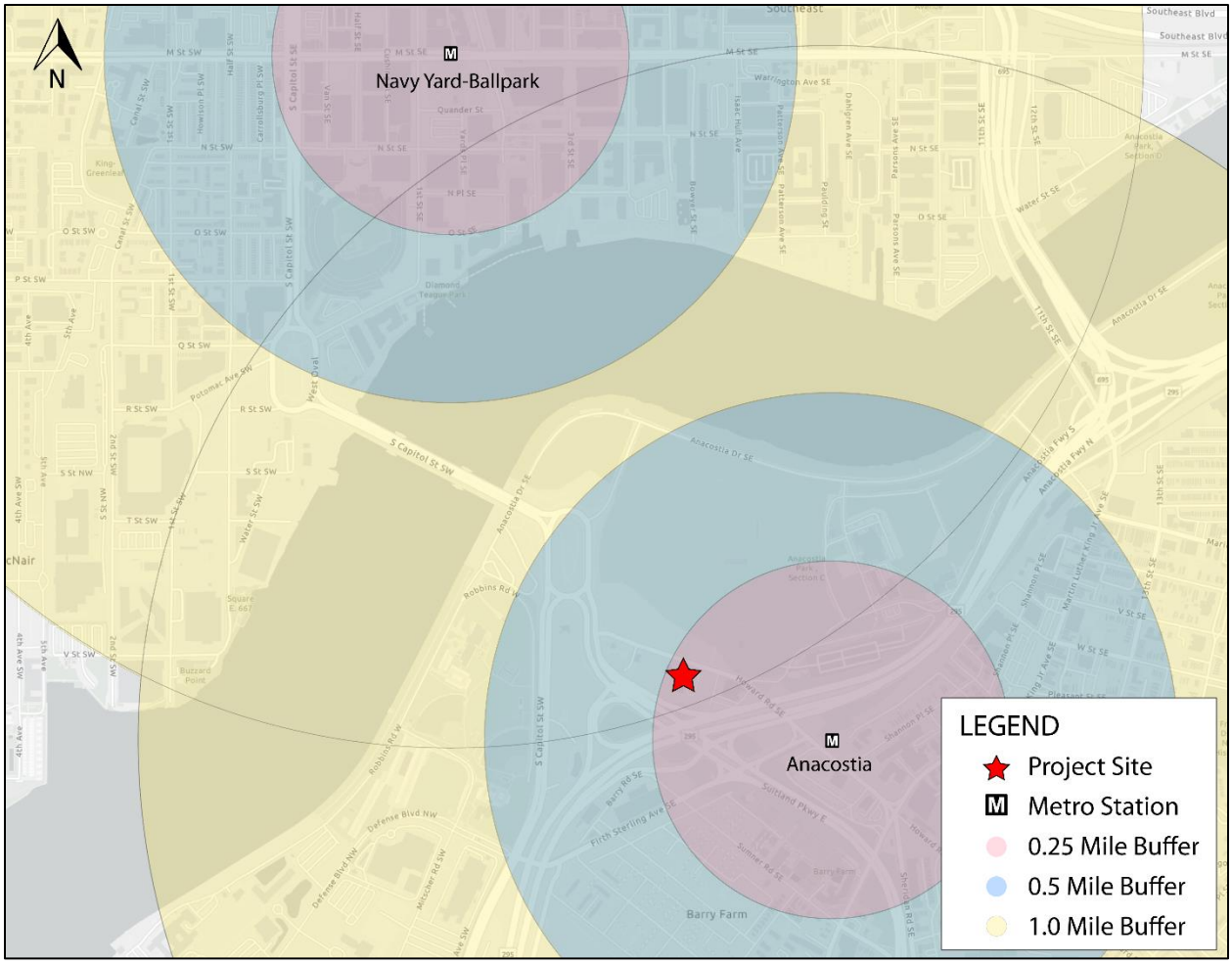

Figure 11: Proximity to Metrorail Stations

Metrobus

The project site falls within the quarter-mile buffer of metrobus routes, as illustrated in **Figure 12**. The closest metro bus stops are at the Anacostia Metro Station, which services the 90, A2, A4, A6, A7, A8, B2, P6, V2, W2, W3, W4, W5, W6, and W8 routes. The bus stops have shelters, seating, wayfinding, and lighting, all in good condition. **Table 3** lists the bus routes and frequency.

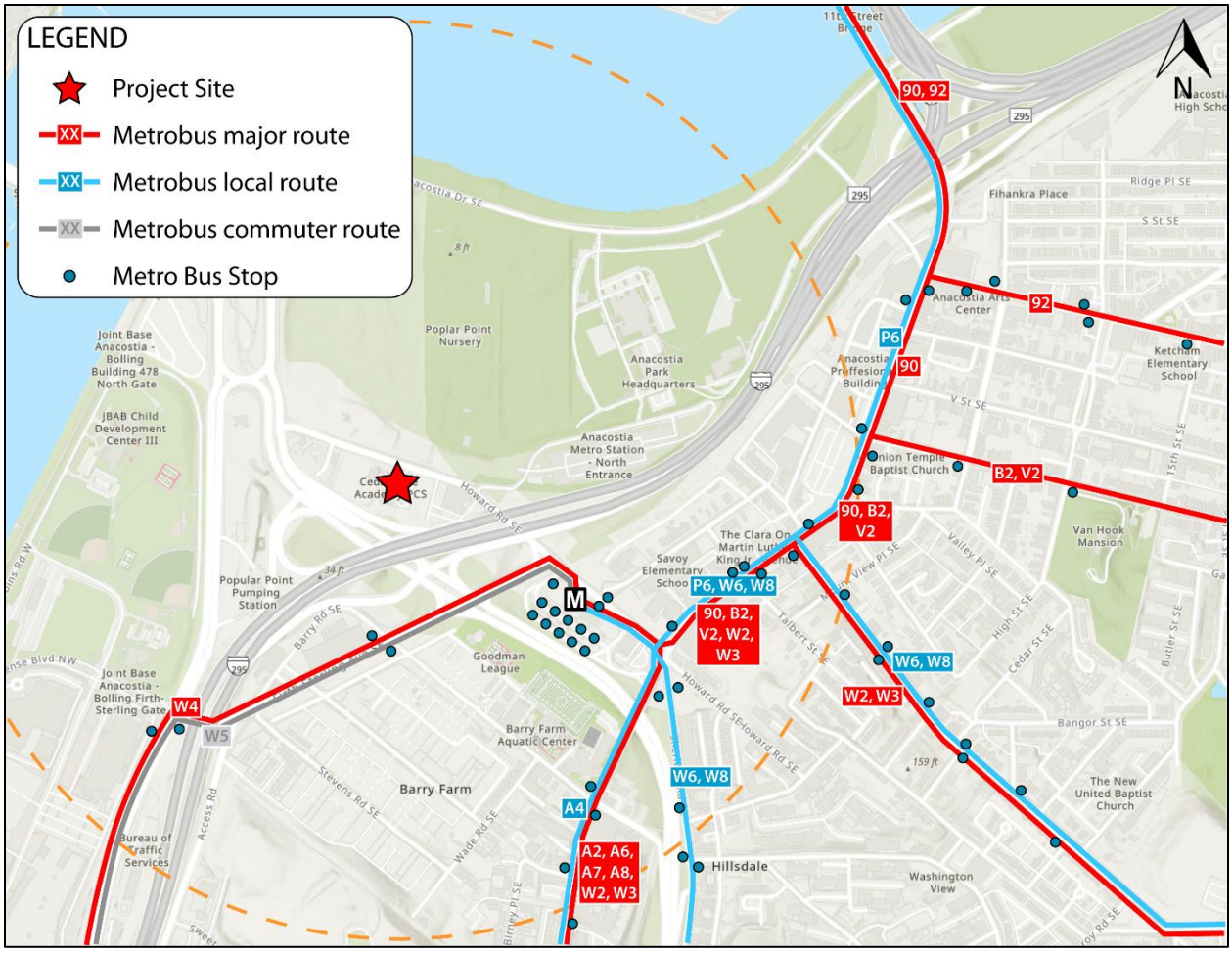

Figure 12: Proximity to Priority Transit Routes

Table 3: Bus Route Frequency

Route	Route Name	Key Destinations	Frequency
90	U Street–Garfield Line	• Anacostia Station • Martin Luther King Jr. Ave SE • U Street NW • Adams Morgan	15-20 min
A2	Anacostia–Washington Highlands Line	• Anacostia Station • Martin Luther King Jr. Ave SE • Washington Highlands	12-20 min
A4	Anacostia–Fort Drum Line	• Anacostia Station • Martin Luther King Jr. Avenue SE • Fort Drum	20 min
A6, A7, A8	Anacostia–Congress Heights Line	• Anacostia Station • Congress Heights • Livingston	10-20 min

Route	Route Name	Key Destinations	Frequency
B2	Bladensburg Road–Anacostia Line	• Anacostia Station • Minnesota Avenue SE • Bladensburg Road • Mount Rainier Terminal	5-20 min
P6	Anacostia–Eckington Line	• Anacostia Station • Navy Yard–Ballpark Station • Eckington • Rhode Island Avenue–Brentwood Station	15-24 min
V2	Capitol Heights–Minnesota Avenue Line	• Anacostia Station • Capitol Heights Station • Minnesota Avenue	20 min
W2, W3	United Medical Center–Anacostia Line	• Anacostia Station • Congress Heights Station • Southern Avenue Station (W2) • United Medical Center • Washington Overlook (W3)	20 min
W4	Deanwood–Anacostia Line	• Anacostia Station • Deanwood Station	12-20 min
W5	Anacostia-Blue Plains Line	• Anacostia Station • South Capitol Street SE • Overlook Avenue SW • Blue Plains Treatment Plant • DC Village	20 min
W6, W8	Garfield-Anacostia Loop Line	• Anacostia Station • Downtown Anacostia	12-30 min

Safety

The following locations have been identified as DDOT high crash locations:

- **Firth Sterling Avenue and Howard Road SE**
  - Issues:
    - This intersection has been recognized as one of the most dangerous in the city, with a significant number of crashes reported over recent years.
    - The intersection is located near the Anacostia Metro Station, making it a high-traffic area for both vehicles and pedestrians. Traffic congestion and conflicts between turning vehicles and pedestrians contributed to frequent crashes.
    - The Frederick Douglass Memorial Bridge replacement and other related projects in the vicinity led to temporary disruptions that may have contributed to safety challenges.

- Improvements:
  - Adjustments to lane alignments and turning movements implemented as part of the South Capitol Street Corridor Project in 2021.
  - Marked crosswalks and ADA-compliant curb ramps were installed by late 2021.
  - Signal retiming and pedestrian crossing time adjustments made in early 2022.
  - Brighter streetlights were installed in mid-2022 to improve visibility for pedestrians and vehicles.
  - Reduced turning radius and new signage added during lane reconfigurations in 2022.

- **Firth Sterling Avenue and Suitland Parkway SE**:
  - Issues:
    - The intersection serves as a critical connection for commuters accessing I-295, Suitland Parkway, and local roads, leading to congestion and frequent rear-end and left-turn crashes.
    - Limited pedestrian and cycling infrastructure posed safety risks in an area with significant foot and bike traffic.
    - Vehicles exiting or entering Suitland Parkway often travel at high speeds, increasing the severity of crashes.
  - Improvements:
    - Geometric reconfiguration was completed in August 2022 as part of the South Capitol Street Corridor Project.
    - Modernized traffic signals installed with countdown pedestrian timers and audible signals in mid-2022.
    - Sidewalks, bike lanes, and multi-use trails along Suitland Parkway west of the intersection completed in early 2023.
    - Speed limit reductions and speed camera installations finalized in late 2022.
    - Completion of the I-295/Suitland Parkway interchange redesign in August 2022, which improved connectivity.
    - High-lumen LED streetlights and improved warning signage installed in 2023.
    - DDOT deployed a red-light camera in October 2024 to address safety issues related to speeding and red-light running.

These intersections are part of DDOT's High Injury Network (HIN), which focuses on areas with high rates of traffic-related injuries and fatalities. DDOT uses this data to prioritize safety improvements and deploy automated traffic enforcement measures. Firth Sterling Avenue is categorized as Tier 1 – High Priority Locations.

Illustrated in **Figure 13** are traffic crashes by injury type that occurred on or after 1/1/2020 in proximity to the project site. The data are for persons injured, not the number of crashes. Most of the injuries were minor. One fatality occurred on 4/9/2024 on South Capitol Street south of the South Capitol East Oval. A few of the crashes were major but did not result in fatality.

Beginning January 1, 2025, motorists in D.C. will be prohibited from making right turns at red lights.

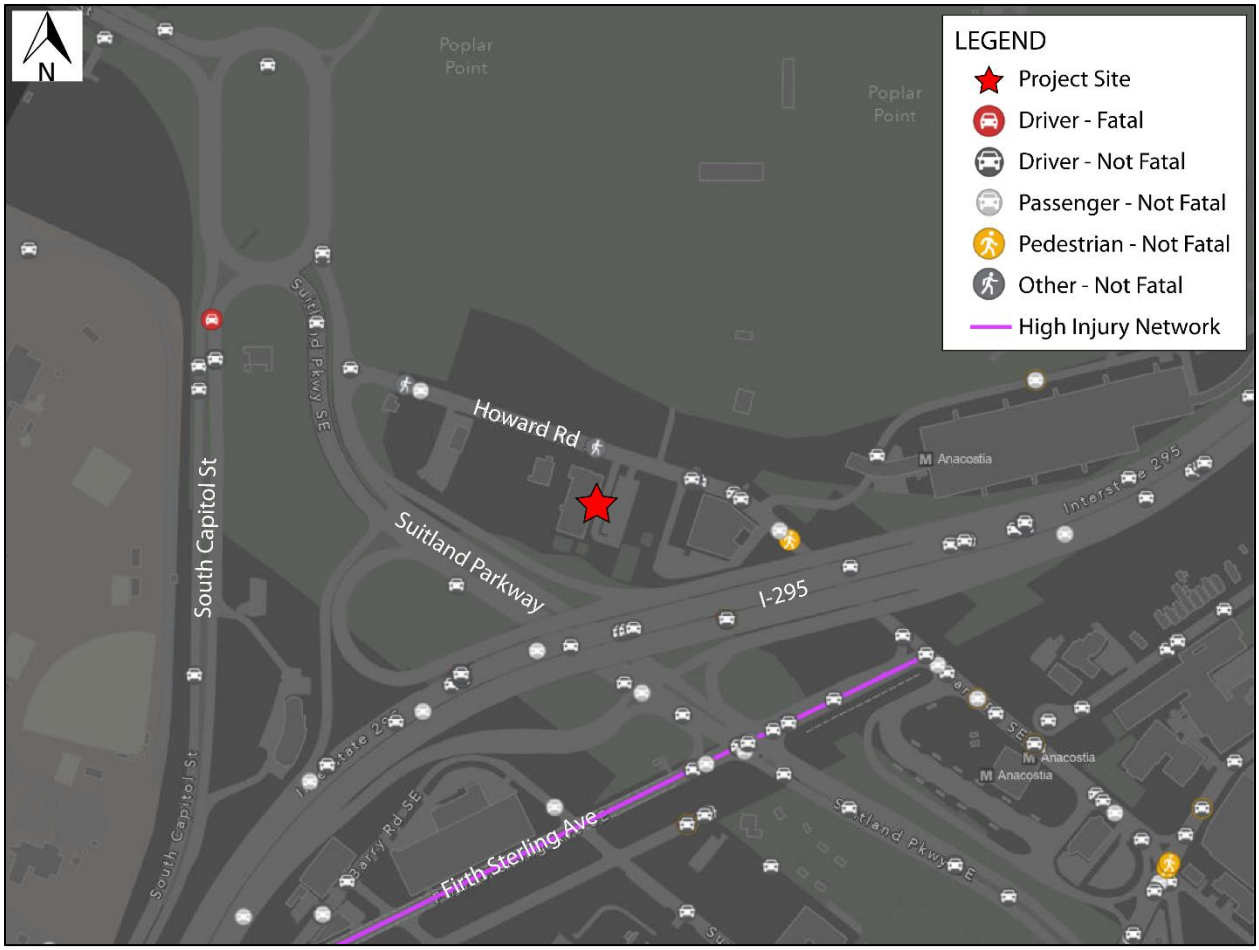

Figure 13: Traffic Crash Data (Source: Metropolitan Police Department)

Curbside Management

The following section provides a description of the curbside restrictions immediately fronting the project site, as well as the proposed changes to the curbside restrictions.

Existing Curbside Restrictions

Howard Road has a school parking zone immediately fronting the site for 11 vehicles. Currently, the school parking zone is designated as No Parking due to construction associated with the development at 632 Howard Road. Existing curbside designations within a two-block radius of the site are illustrated in **Figure 14**.

Figure 14: Existing Curbside Restrictions

Proposed Curbside Restrictions

There are no proposed changes to existing curbside restrictions.

Pick-up & Drop-off Plan

All pick-up and drop-off activities occur on-site within the drive loop, which is also used by the school bus for loading and unloading. The school bus currently loads and unloads near the building entrance, and this practice will continue in the future.

The on-site stacking space can accommodate one small bus plus 21 passenger vehicles, based on an assumed 20 feet per vehicle for stacking.

Spring 2024 driveway observations indicate that the maximum queue occurred during PM pick-up operations, with a peak of 14 vehicles at approximately 3:15 PM. With a projected student enrollment increase to 680 students, the maximum future queue is estimated to reach 22 vehicles.

All vehicles are expected to queue on-site during future pick-up and drop-off operations, considering the supplemental stacking space in the parking aisle to the west, which can accommodate up to 11 spaces. The pickup drop off plan is shown in **Figure 15**.

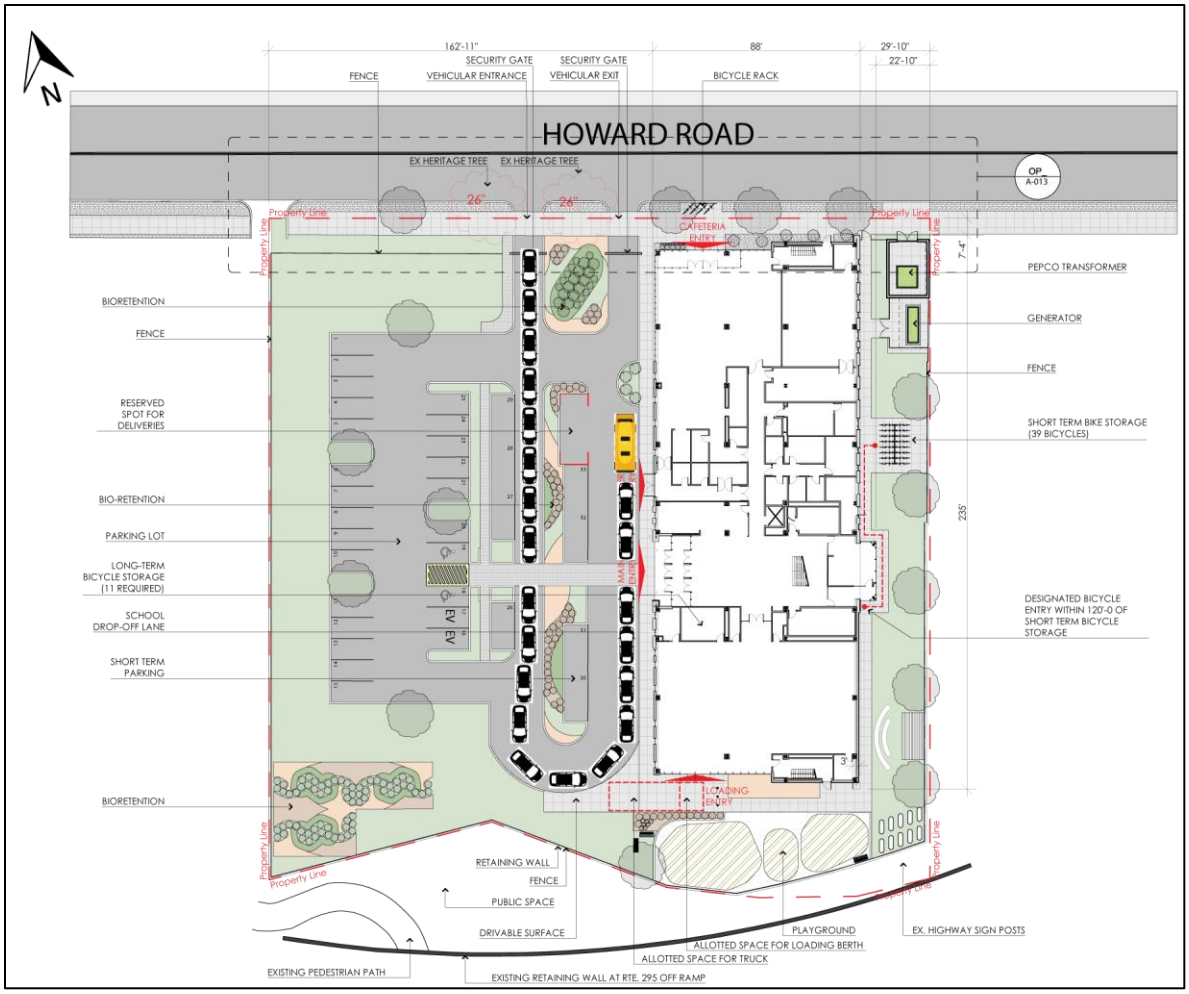

Figure 15: On-Site Queuing During Pick-up/Drop-off Operations

TRAFFIC IMPACT ANALYSIS

This section provides a summary of traffic analysis of the existing and future roadway capacity surrounding the site. The purpose of the capacity analysis is to:

- Assess the current capacity of roadways within the study area;
- Evaluate the overall impact of the project on these roadways; and
- Identify potential improvements and mitigation strategies to manage the additional vehicular trips.

Traffic Study Area

Traffic study area intersections are illustrated in **Figure 16**:

1. Howard Road/Firth Sterling Avenue
2. Howard Road/ Metro Parking Garage
3. South Capitol Street/South Capitol Street Oval (N)
4. South Capitol Street/South Capitol Street Oval (S)
5. Suitland Parkway/South Capitol Street Oval
6. Suitland Parkway/Northbound I-295 Ramps
7. Suitland Parkway/Howard Road
8. Suitland Parkway/Firth Sterling Avenue
9. Howard Road/Site Driveways

Figure 16: Study Area Intersections

Analysis Methodology

Intersection capacity analyses for the eight study intersections and site entrance were conducted using SYNCHRO 11 software based on the Highway Capacity Manual 2000 (HCM 2000) to determine the Level of Service (LOS) under each study scenario. LOS is a measure of the average control (i.e., signal or stop sign) delay experienced by all motorists arriving at an intersection. There are six representatives of LOS defined for intersections and they are designated using letters "A" through "F" with LOS "A" representing the best operating conditions and LOS "F" representing the worst.

Level of Service for unsignalized intersections can be further reduced into three intersection types: all-way stop, two-way stop, and roundabout control. All-way stop and roundabout control intersection LOS is expressed in terms of the weighted average control delay of the overall intersection or by approach. Two-way stop-controlled intersection LOS is defined in terms of the average control delay for each minor-street movement (or shared movement) as well as major-street left-turns. The unsignalized study intersections are two-way stop-controlled.

The thresholds for the intersection levels of service are shown in **Table 4**. Per January 2022 CTR guidelines, the LOS threshold will be defined as LOS "E" or "F" as requested by DDOT.

Table 4: Intersection Level of Service Threshold for Delay

LOS	Unsignalized	Signalized
A	0-10 sec	0-10 sec
B	> 10-15 sec	> 10-20 sec
C	> 15-25 sec	> 20-35 sec
D	> 25-35 sec	> 35-55 sec
E	> 35-50 sec	> 55-80 sec
F	> 50 sec	> 80 sec

Existing Conditions Analysis

Driveway counts were collected on Wednesday, April 10, 2024 from 7:00-9:15AM and 2:45-5:00PM. The student enrollment at the time was 428 students. The school's peak hours were determined to be 7:45-8:45AM and 3:00-4:00 PM, which will be used for the entire study area. The school aftercare program ends at 6PM, so the commuter PM peak hour is assumed to be from 5:00-6:00 PM for the entire study area.

Field reconnaissance (i.e., lane configurations and signal timings) was conducted to obtain information needed for traffic analysis. Turning movement vehicle counts, pedestrian counts, and bicycle counts were conducted at study intersections from 6:30-9:30AM and 2:00-7:00PM on Thursday, December 12, 2024. Counts were conducted while schools and Congress were in session. Detailed counts are included in the Appendix of this report.

Lane configurations are illustrated in **Figure 17**. Existing peak hour traffic volumes are shown in **Figure 18**. The traffic volumes were adjusted to balance between adjacent intersections since the same peak hours were used.

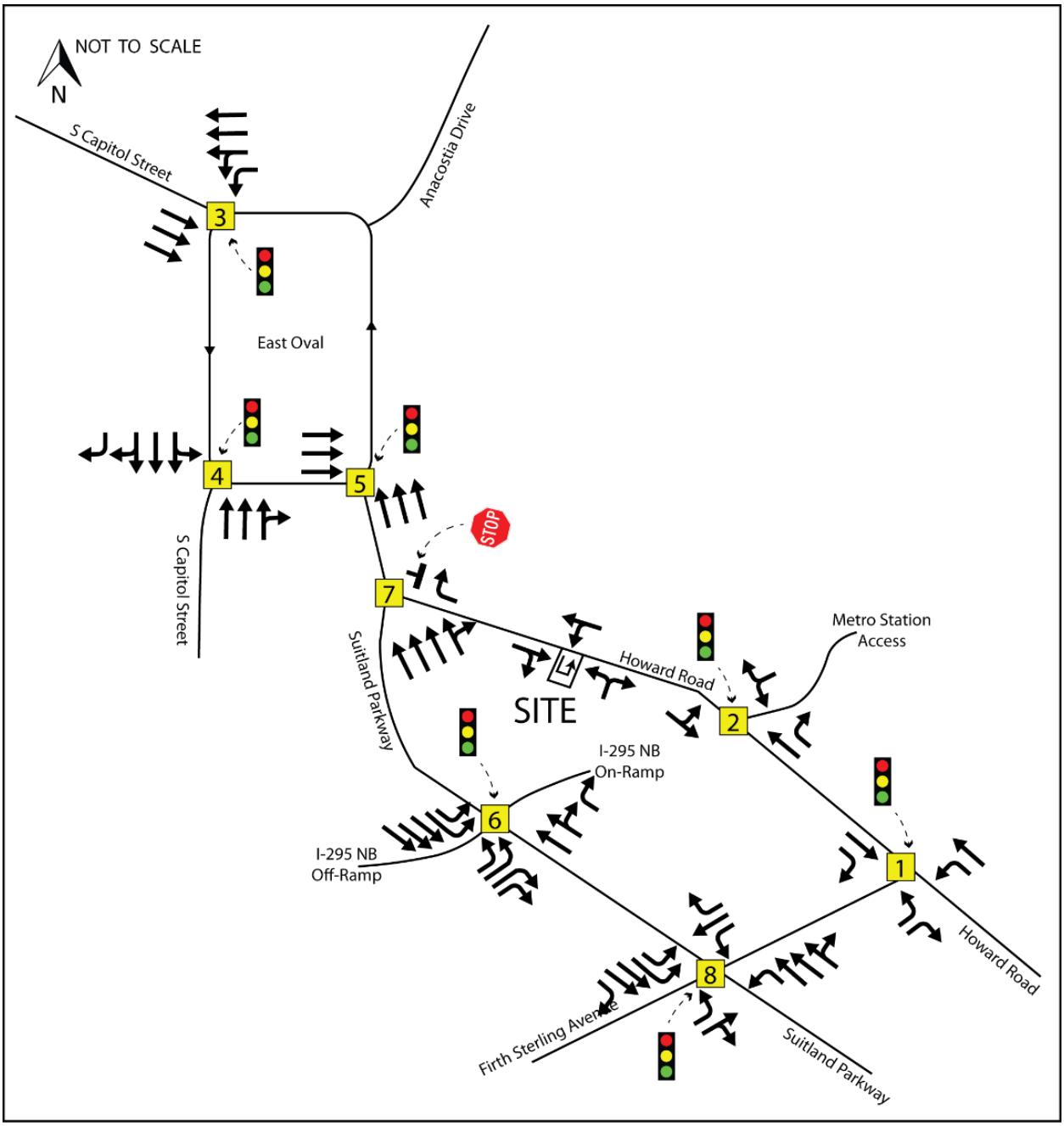

Figure 17: Existing Lane Configurations and Traffic Control

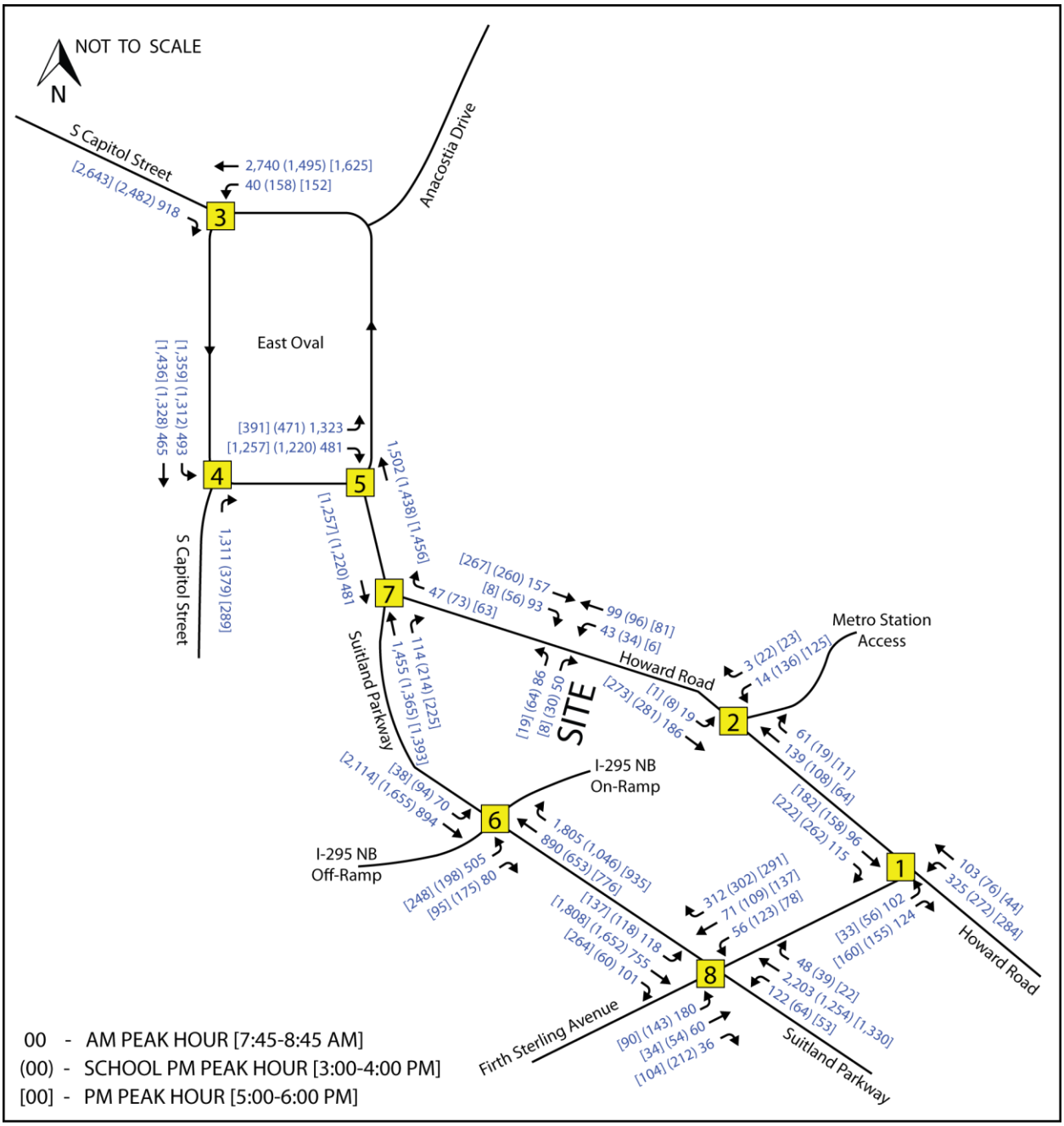

Figure 18: Existing Traffic Volumes (2024)

Background Conditions Analysis

This section evaluates the forecasted 2027 background traffic conditions in the study area. There are no multimodal improvements to the transportation network currently being planned around the project site, except for a bike trail in 2027 on South Capitol Street south of Firth Sterling Avenue. There are four approved development projects in proximity to the study area, listed below and shown in **Figure 19**:

1. Reunion Square
2. MLK Gateway Phase 2
3. Bridge District Parcels 3 & 4 (632 Howard Road)
4. Bridge District Parcels 1 & 2 (633 Howard Road)
5. Cedar Hill Regional Medical Center

A summary of background development trip generation is provided in **Table 5**. Not all trips were assigned to study intersections considering the location of the planned background project.

In addition to local traffic changes from background developments, regional traffic growth was added to existing traffic volumes as part of background conditions. The regional growth rates used in this analysis were derived using DDOT historical AADT data from 2017-2023, shown in **Table 6**. On roadways where the average growth rate is negative, a minimum annual rate of 0.1% is used per CTR guidelines. The guidelines also state that arterials during the weekday commuter peak periods should use a maximum annual growth rate of 0.50% in the peak direction of traffic and 2.0% in the non-peak direction should be used regardless of methodology (e.g., Suitland Parkway WB and I-295 NB).

At the time of school driveway vehicle count for existing conditions, the school had an enrollment of 428 students. The student enrollment during the time of traffic counts at study intersections was 399 students. The existing traffic at the school driveway are therefore reduced proportional to student enrollment. Historically, the school maintained an enrollment of approximately 600 students and anticipates returning to this capacity by 2027. As such, a student enrollment of 600 has been adopted as the baseline condition, as agreed by DDOT during the scoping process. The existing school trip generation rates are applied to background and future school enrollment.

The total projected 2027 background traffic volumes are shown in **Figure 20**. Individual background traffic volume figures can be found in the Appendix.

Table 5: Summary of Background Developments Trip Generation

Background Development	AM Peak Hour (veh/hr)			PM Peak Hour (veh/hr)		
	In	Out	Total	In	Out	Total
Reunion Square[2]	188	65	253	94	207	301
MLK Gateway Phase 2[2]	75	14	89	32	78	110
Bridge District Parcels 1 & 2[2]	68	98	166	165	142	307
Bridge District Parcels 3 & 4[3]	60	94	154	128	100	228
Total	**391**	**271**	**662**	**419**	**527**	**946**

[2] Trip generation extracted from Bridge District Parcels 1 & 2 CTR (February 3, 2023)
[3] Trip generation extracted from Bridge District Parcels 3 & 4 CTR (September 17, 2021)

Figure 19: Background Development Locations

Table 6: DDOT Historical AADT Data

Year		2017	2018	2019	2020	2021	2022	2023	Average Growth (%)	Average Growth per CTR (%)
Suitland Pkwy	AADT	53,530	53,802	60,843	46,849	51,674	54,258	54,608	1.1%	1.1%
	% Growth		0.5%	13.1%	-23.0%	10.3%	5.0%	0.6%		
Howard Rd	AADT	12,519	14,497	14,535	10,611	11,354	12,171	12,519	1.0%	1.0%
	% Growth		15.8%	0.3%	-27.0%	7.0%	7.2%	2.9%		
Firth Sterling Ave	AADT	9,381	9,429	9,454	6,901	7,384	7,916	7,312	-3.3%	0.1%
	% Growth		0.5%	0.3%	-27.0%	7.0%	7.2%	-7.6%		
S Capitol St	AADT	53,444	46,868	46,990	34,303	36,704	41,469	42,655	-2.7%	0.1%
	% Growth		-12.3%	0.3%	-27.0%	7.0%	13.0%	2.9%		
I-295	AADT	108,156	104,369	104,042	85,697	96,568	107,706	112,688	1.2%	1.2%
	% Growth		-3.5%	-0.3%	-17.6%	12.7%	11.5%	4.6%		

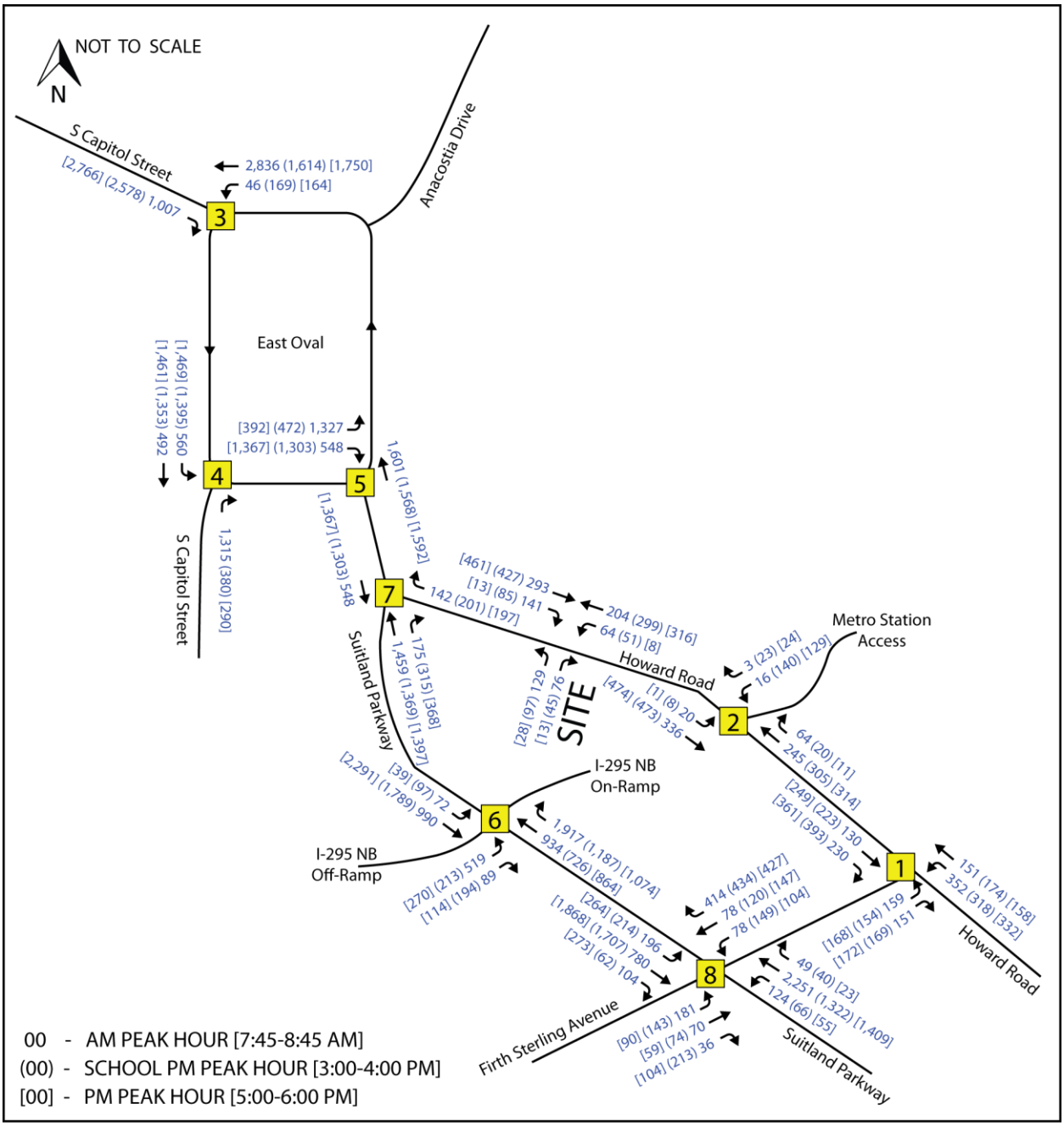

Figure 20: Total Background Traffic Volumes (2027)

Total Future Conditions Analysis

This section outlines future traffic conditions associated with the Cedar Tree Academy project. It summarizes the projected trip generation of the site and the trip distribution based on existing traffic volumes. This section also summarizes the capacity analysis results as the study intersections for Total Future conditions. The Total Future traffic volumes include traffic generated by existing volumes, background developments, background growth, and the proposed project.

Trip Generation

The school background and total future vehicle trip generation are calculated using existing rates determined from driveway traffic counts, shown in **Table 7**. The net increase in trips between background and total future conditions are shown in **Table 8**. The school will generate a net increase of 54 vehicle trips during the AM peak hour, 36 vehicle trips during the School PM peak hour, and 8 vehicle trips during the PM peak hour.

Table 7: Existing Vehicle Counts and Rates

Land Use	Mode	AM Peak (7:45-8:45AM)			School PM Peak (3:00-4:00PM)			PM Peak (5-6PM)[4]		
		In	Out	Total	In	Out	Total	In	Out	Total
Public Charter School (428 Students)	Auto	146	146	292	97	101	198	15	29	44
	Rate	**.34**	**.34**	**.68**	**.23**	**.24**	**.47**	**0.04**	**0.07**	**0.10**

Table 8: Trip Generation Summary

Land Use	AM Peak (7:45-8:45AM)			School PM Peak (3-4PM)			PM Peak (5-6PM)[5]		
	In	Out	Total	In	Out	Total	In	Out	Total
Future Capacity (680 Students)	232	232	464	154	160	314	24	46	70
Baseline Capacity (600 Students)	205	205	410	136	142	278	21	41	62
Net Increase	**27**	**27**	**54**	**18**	**18**	**36**	**3**	**5**	**8**

Trip Distribution

Trip distribution for the site-generated trips was determined based on student zip codes. Trip distribution assumptions are provided in **Figure 21** and **Figure 22.** The assignment of site-generated traffic volumes through the study intersections are shown in **Figure 23**. 2027 total future traffic volumes are shown in **Figure 24**. This includes total background volumes, shown in **Figure 20**, and site-generated traffic.

[4] Commuter peak rates are calculated using [the ITE ratio of PM Peak Hour of Generator (School PM) to PM peak of street traffic (4-6 PM)] multiplied by [the School PM rate].
[5] Commuter peak hour trips were projected using the Fall 2024 ratio of 123 aftercare student enrollment and a total of 399 students. Inbound/outbound vehicle rates were assumed to be the same as School PM trips.

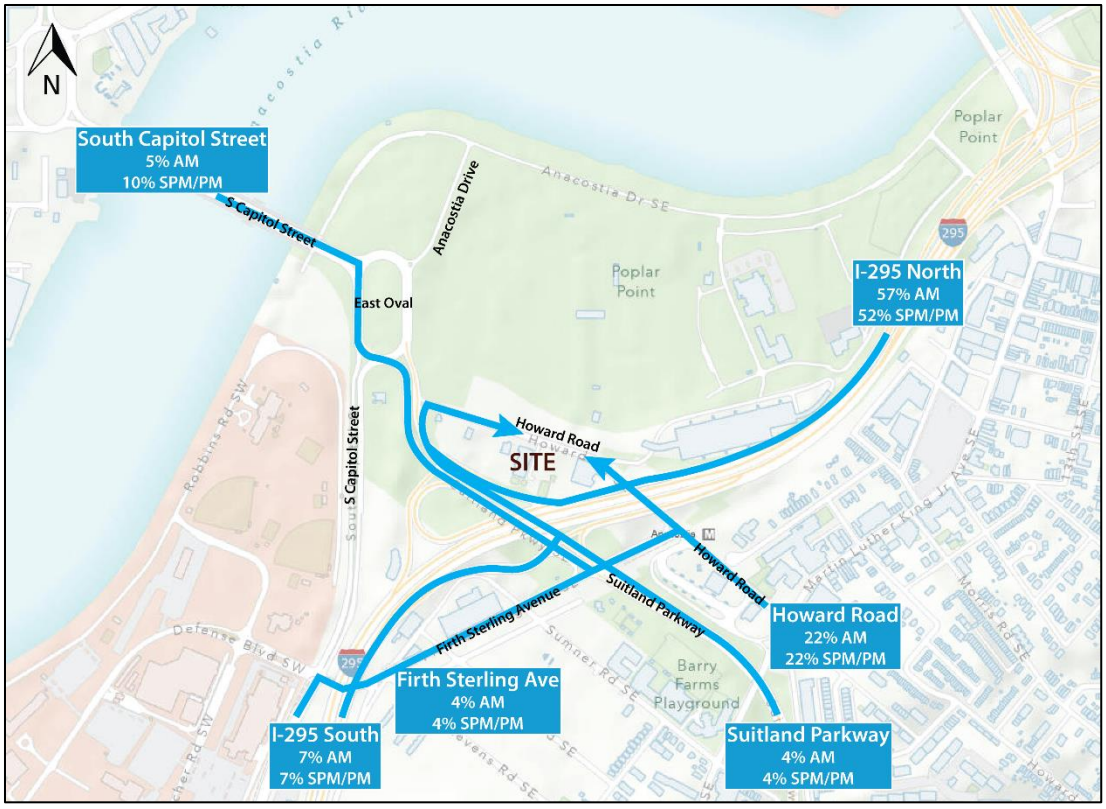

Figure 21: Inbound Site Trip Distribution

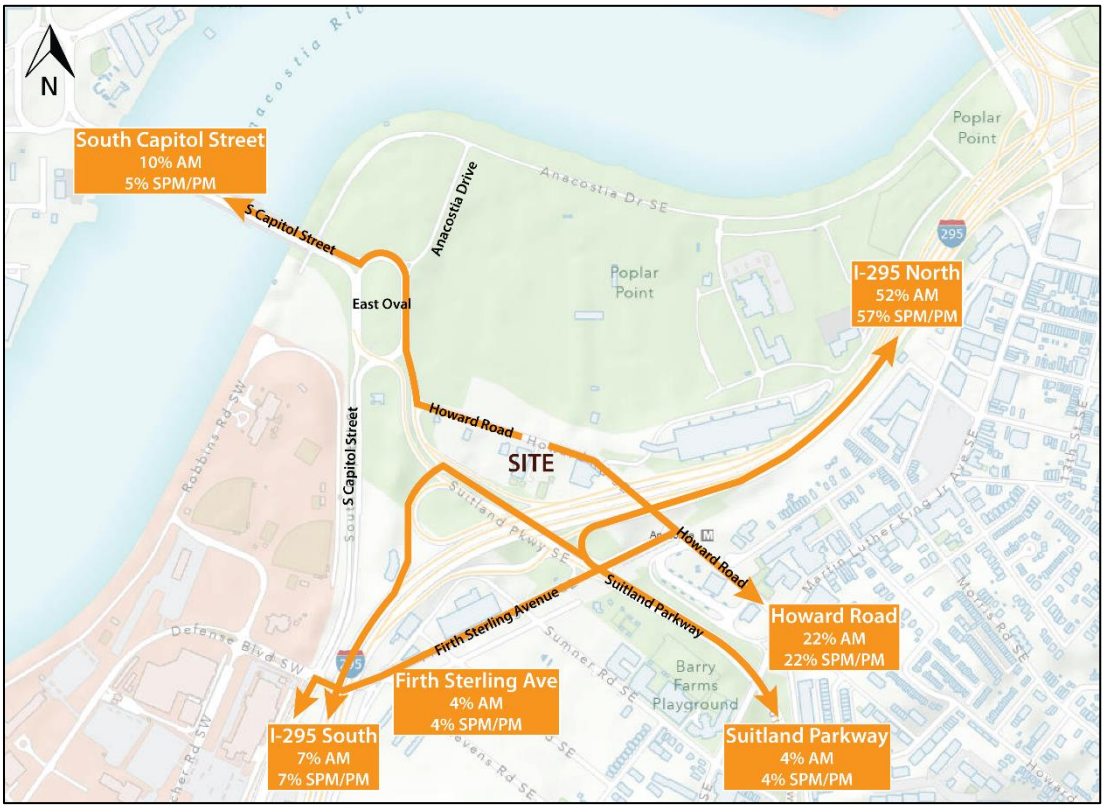

Figure 22: Outbound Site Trip Distribution

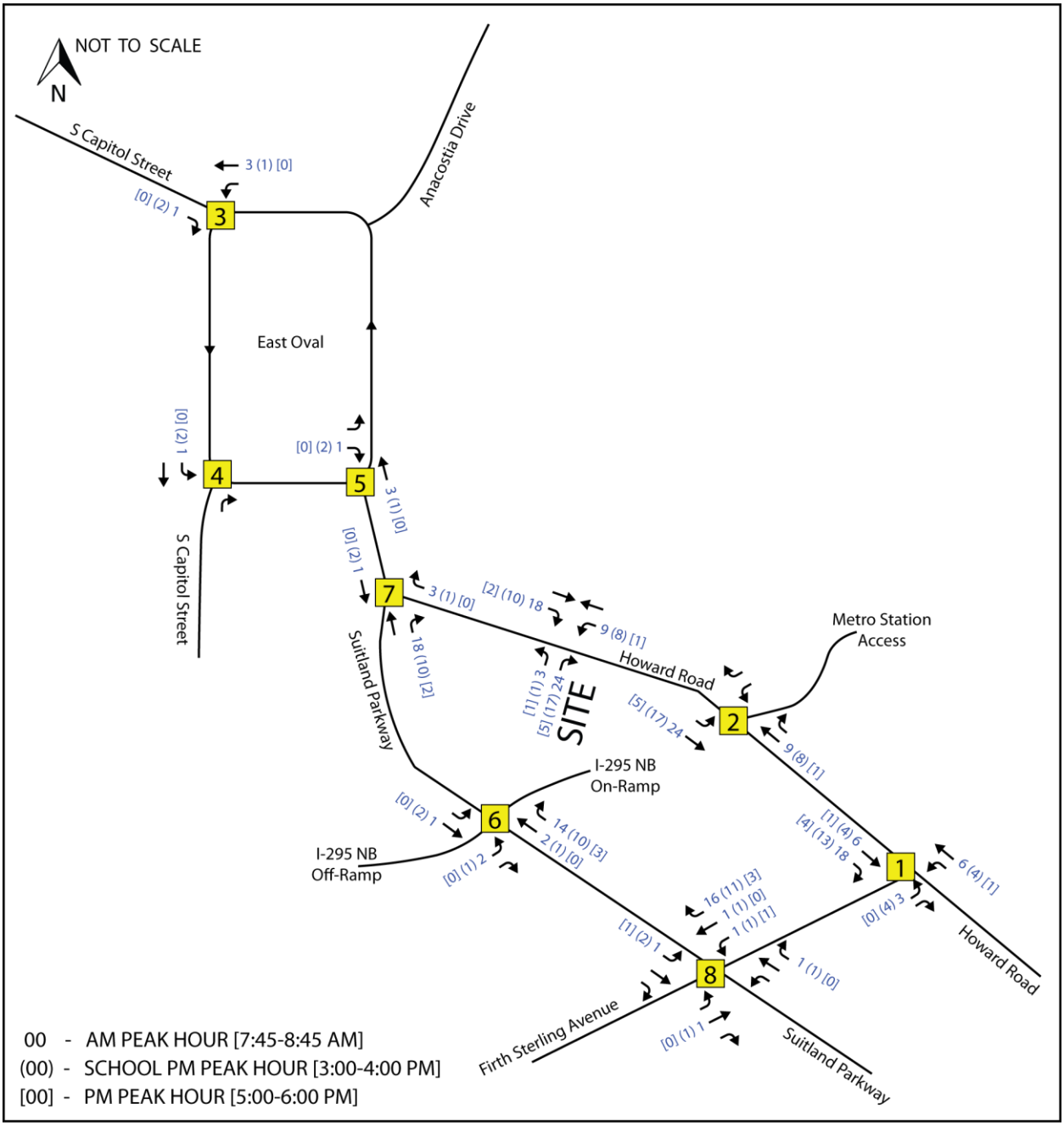

Figure 23: Site Trip Assignment

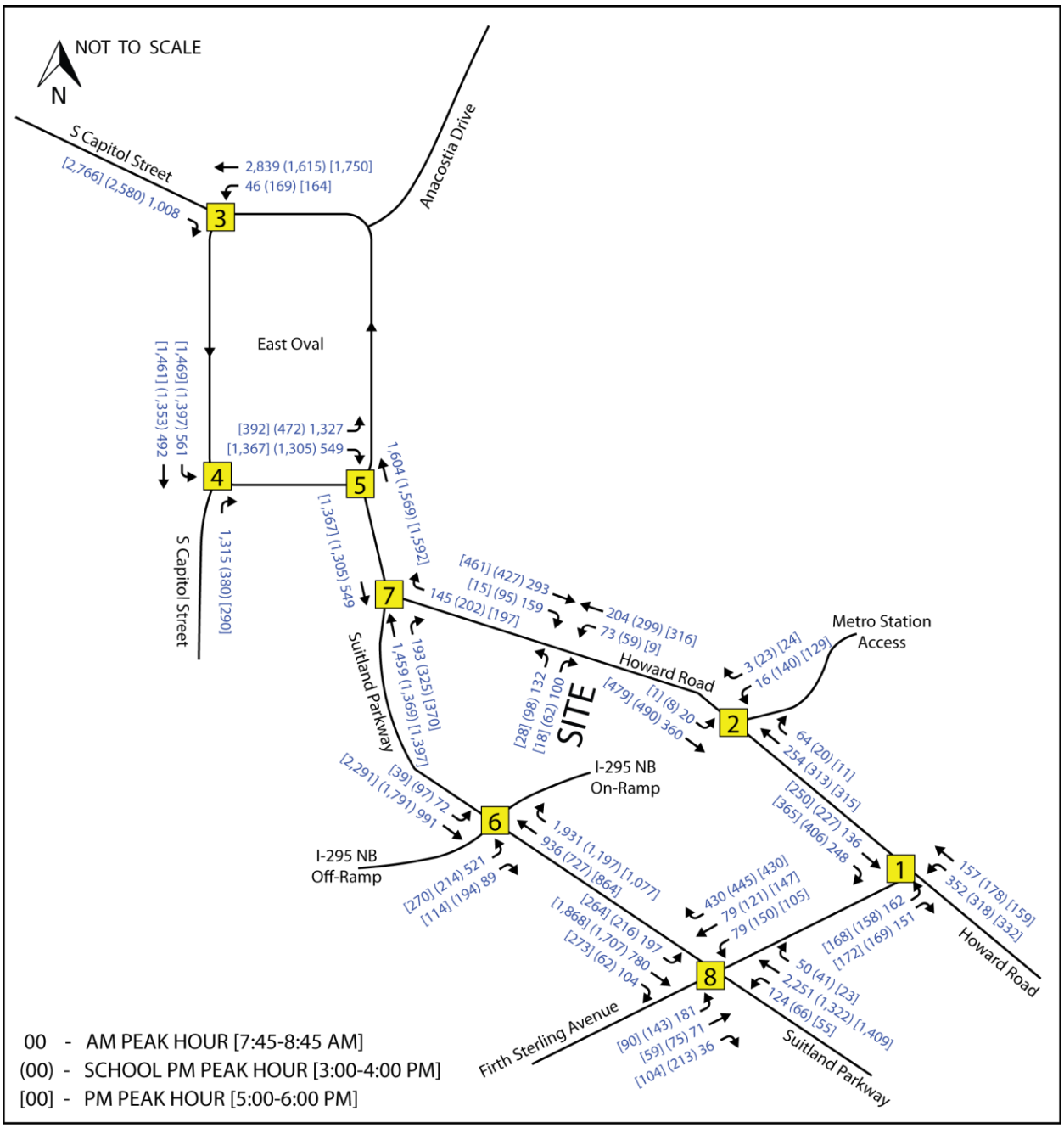

Figure 24: Total Future Traffic Volumes (2027)

Traffic Analysis Summary

LOS and delay results are summarized in **Table 9** for Existing, Background (2027), and Future (2027) Conditions for comparison. Volume-to-capacity (v/c) ratios are shown in **Table 10**. The 50th and 95th percentile queue lengths are shown in **Table 11** and **Table 12**, respectively.

Table 9: Traffic Analysis LOS Results

Intersection	Direction	Existing Conditions			Background Conditions			Future Conditions		
		AM Peak	SPM Peak	PM Peak	AM Peak	SPM Peak	PM Peak	AM Peak	SPM Peak	PM Peak
Howard Road @ Firth Sterling Avenue	Overall	B/13.0	C/21.8	C/28.8	B/19.9	C/22.3	C/28.8	B/19.7	C/22.1	C/28.1
	Eastbound	A/3.7	A/5.2	A/5.1	A/4.2	A/5.9	A/5.9	A/4.3	A/6.0	A/5.9
	Westbound	A/6.8	A/7.0	A/8.2	A/7.5	A/7.9	A/9.9	A/7.5	A/7.9	A/10.0
	Northbound	C/33.5	**E/79.3**	**F/113.5**	**E/58.3**	**E/75.8**	**F/97.1**	**E/58.5**	**E/75.0**	**F/95.0**
Howard Road @ Metro Parking Garage	Overall	A/7.8	C/26.4	C/30.0	D/36.4	**E/76.1**	D/54.4	D/50.4	**F/85.6**	**E/56.3**
	Eastbound	B/12.3	B/14.0	B/10.5	**E/67.4**	**F/124.9**	**E/78.4**	**F/92.5**	**F/143.6**	**F/82.1**
	Westbound	A/1.1	A/1.8	A/1.8	A/1.2	A/2.2	A/2.3	A/1.2	A/2.3	A/2.3
	Southbound	C/29.0	**E/69.0**	**F/80.6**	C/29.0	**E/79.0**	**F/90.7**	C/29.0	**E/79.0**	**F/90.7**
S. Capitol Street @ S. Capitol Street Oval (N)	Overall	B/13.7	B/16.2	B/17.9	B/13.8	B/16.8	B/19.3	B/13.8	B/16.8	B/19.3
	Eastbound	A/5.0	A/7.0	B/10.0	A/5.1	A/7.7	B/12.1	A/5.1	A/7.7	B/12.1
	Westbound	B/16.6	C/30.0	C/29.6	B/16.8	C/30.0	C/29.7	B/16.9	C/30.0	C/29.7
Suitland Parkway @ S. Capitol Street Oval	Overall	C/34.0	A/9.2	A/9.9	C/34.9	A/9.4	B/10.6	C/35.0	A/9.4	B/10.6
	Eastbound	**E/59.4**	D/51.0	D/43.1	**E/60.2**	D/50.4	D/42.5	**E/60.2**	D/50.4	D/42.5
	Northbound	C/25.4	A/4.6	A/6.3	C/28.4	A/5.1	A/7.1	C/28.5	A/5.1	A/7.1
	Southbound	B/13.3	A/5.7	A/8.4	B/13.8	A/6.2	A/9.4	B/13.8	A/6.2	A/9.4
Suitland Parkway @ NB I-295 Ramps	Overall	D/47.0	C/26.7	C/26.0	**E/68.5**	C/31.8	C/31.0	**E/70.4**	C/32.1	C/31.0
	Eastbound	C/26.2	C/26.3	C/28.7	C/25.8	C/27.4	C/31.2	C/25.8	C/27.4	C/31.2
	Westbound	D/51.3	C/20.2	B/16.4	**F/84.4**	C/30.2	C/25.3	**F/87.4**	C/31.0	C/25.3
	Northbound	**E/61.6**	**E/58.3**	**E/56.6**	**E/68.5**	**E/59.7**	**E/58.7**	**E/68.6**	**E/59.7**	**E/58.8**
Suitland Parkway @ Howard Road	Westbound	B/12.4	B/13.0	B/13.1	C/15.1	C/18.2	C/19.3	C/15.4	C/18.5	C/19.3
	Northbound	A/0.0	A/0.0	A/0.0	A/0.0	A/0.0	A/0.0	A/0.0	A/0.0	A/0.0
Suitland Parkway @ Firth Sterling Avenue	Overall	**F/125.0**	**F/101.2**	**F/114.9**	**F/139.7**	**F/130.1**	**F/137.4**	**F/142.8**	**F/132.3**	**F/138.1**
	Eastbound	**E/65.2**	**F/147.2**	**F/170.6**	**E/60.6**	**F/157.8**	**F/180.1**	**E/60.6**	**F/157.7**	**F/180.1**
	Westbound	**F/155.6**	D/42.8	D/43.4	**F/158.3**	D/43.9	D/44.9	**F/158.8**	D/44.0	D/44.9
	Northbound	**E/61.8**	**E/65.6**	D/53.0	**E/71.6**	**F/84.7**	**E/56.8**	**E/71.7**	**F/85.1**	**E/56.9**
	Southbound	**F/117.0**	**F/119.6**	**F/97.9**	**F/237.4**	**F/254.5**	**F/219.2**	**F/256.7**	**F/266.8**	**F/222.9**
Site Driveway Inbound @ Howard	Eastbound	A/0.0	A/0.0	A/0.0	A/0.0	A/0.0	A/0.0	A/0.0	A/0.0	A/0.0
	Westbound	A/1.9	A/1.7	A/0.6	A/2.2	A/1.7	A/0.3	A/2.5	A/1.9	A/0.3
Site Driveway Outbound @ Howard Road	Eastbound	A/0.0	A/0.0	A/0.0	A/0.0	A/0.0	A/0.0	A/0.0	A/0.0	A/0.0
	Westbound	A/0.0	A/0.0	A/0.0	A/0.0	A/0.0	A/0.0	A/0.0	A/0.0	A/0.0
	Southbound	B/11.4	B/11.9	B/10.7	C/18.2	C/21.2	C/15.6	C/19.5	C/21.8	C/15.4

As depicted in **Table 9**, the following intersections exceed the threshold of LOS E under Future Conditions:

- Howard Road/Firth Sterling Avenue: exceeds LOS E for the northbound approach during all three peak hours but does not increase in delay compared to Background Conditions.
- Howard Road/Metro Parking Garage: exceeds LOS E for the eastbound approach during all three peak hours with significant increase in delay compared to Background Conditions (by more than 5%). The southbound approach also exceed LOS E during the School PM and PM peak hours but does not increase in delay compared to Background Conditions.
- Suitland Parkway/South Capitol Street Oval: exceeds LOS E for the eastbound approach during the AM peak hour but does not have any increase in delay compared to Background Conditions.
- Suitland Parkway/NB I-295 Ramps: exceeds LOS E for the westbound approach during the AM peak hour and for the northbound approach during all three peak hours with some increase in delay compared to Background Conditions (by less than 5%).

- Suitland Parkway/Firth Sterling Avenue: exceeds LOS E for all approaches under almost all three peak hours with some increase in delay compared to Background Conditions (by less than 5%).

Table 10: Traffic Analysis Volume-to-Capacity Ratios

Intersection and Movement	Existing Conditions			Background Conditions			Future Conditions		
	AM Peak	SPM Peak	PM Peak	AM Peak	SPM Peak	PM Peak	AM Peak	SPM Peak	PM Peak
Howard Road @ Firth Sterling Avenue									
Eastbound Thru	0.09	0.14	0.19	0.13	0.20	0.26	0.13	0.21	0.26
Eastbound Right	0.11	0.22	0.20	0.22	0.33	0.32	0.24	0.34	0.32
Westbound Left	0.52	0.42	0.50	0.57	0.52	0.64	0.58	0.52	0.64
Westbound Thru	0.10	0.07	0.05	0.15	0.16	0.17	0.16	0.17	0.17
Northbound Left	0.43	0.20	0.13	0.68	0.55	0.66	0.69	0.56	0.66
Northbound Right	0.11	0.13	0.15	0.13	0.14	0.16	0.13	0.14	0.16
Howard Road @ Metro Parking Garage									
Eastbound Left Thru	0.58	0.63	0.53	1.04	1.20	1.09	1.12	1.25	1.10
Westbound Thru Right	0.19	0.11	0.08	0.29	0.29	0.33	0.29	0.30	0.33
Southbound Left	0.24	0.91	0.96	0.24	0.95	0.99	0.24	0.95	0.99
S. Capitol Street @ S. Capitol Street Oval (N)									
Eastbound Right	0.27	0.72	0.83	0.30	0.75	0.87	0.30	0.75	0.87
Westbound Left	0.33	0.21	0.23	0.34	0.22	0.25	0.34	0.22	0.25
Westbound Right	0.72	0.37	0.43	0.74	0.40	0.46	0.74	0.40	0.46
Suitland Parkway @ S. Capitol Street Oval									
Eastbound Thru	1.00	0.69	0.45	1.00	0.68	0.44	1.00	0.68	0.44
Northbound Right	0.82	0.47	0.50	0.87	0.52	0.56	0.87	0.52	0.56
Southbound Thru	0.30	0.58	0.69	0.34	0.61	0.73	0.34	0.61	0.73
Southbound Right	0.18	0.50	0.57	0.19	0.51	0.58	0.19	0.51	0.58
Suitland Parkway @ Northbound I-295 Ramps									
Eastbound Left	0.26	0.25	0.10	0.27	0.26	0.10	0.27	0.26	0.10
Eastbound Thru	0.34	0.59	0.74	0.37	0.64	0.81	0.37	0.64	0.81
Westbound Thru	1.14	0.89	0.87	1.17	1.00	0.99	1.18	1.01	0.99
Westbound Right	1.00	0.61	0.58	1.10	0.70	0.66	1.10	0.70	0.67
Northbound Left	0.65	0.29	0.33	0.75	0.33	0.38	0.76	0.33	0.38
Northbound Right	0.03	0.07	0.04	0.03	0.08	0.04	0.03	0.08	0.04
Suitland Parkway @ Howard Road									
Westbound Right	0.10	0.15	0.13	0.30	0.45	0.45	0.31	0.45	0.45
Northbound Thru	0.26	0.26	0.26	0.26	0.32	0.35	0.25	0.33	0.35
Southbound Thru	0.10	0.26	0.26	0.12	0.27	0.28	0.12	0.28	0.28
Suitland Parkway @ Firth Sterling Avenue									
Eastbound Left	0.47	0.34	0.40	0.78	0.62	0.77	0.78	0.63	0.77
Eastbound Thru	0.61	1.26	1.38	0.63	1.30	1.42	0.63	1.30	1.42
Eastbound Right	0.07	0.04	0.35	0.07	0.05	0.37	0.07	0.05	0.37
Westbound Left	0.58	0.32	0.26	0.54	0.33	0.27	0.54	0.33	0.27
Westbound Thru Right	1.23	0.67	0.70	1.24	0.71	0.74	1.24	0.71	0.74
Northbound Left	0.68	0.45	0.31	0.78	0.46	0.32	0.78	0.46	0.32
Northbound Thru Right	0.26	0.74	0.29	0.33	0.91	0.47	0.33	0.92	0.47
Southbound Left	0.20	0.57	0.27	0.29	0.72	0.37	0.28	0.73	0.38
Southbound Thru	0.21	0.35	0.41	0.24	0.38	0.44	0.24	0.39	0.44
Southbound Right	1.09	1.15	1.04	1.49	1.64	1.51	1.55	1.68	1.53
Site Driveway Inbound @ Howard Road									
Eastbound Thru Right	0.17	0.21	0.18	0.29	0.34	0.31	0.31	0.34	0.31
Westbound Left Thru	0.04	0.03	0.01	0.07	0.06	0.01	0.09	0.07	0.01
Site Driveway Outbound @ Howard Road									
Eastbound Thru	0.10	0.17	0.17	0.19	0.28	0.30	0.19	0.28	0.30
Westbound Thru	0.09	0.08	0.04	0.18	0.23	0.19	0.18	0.23	0.19
Northbound Left-Right	0.23	0.17	0.05	0.49	0.42	0.12	0.54	0.46	0.13

As shown in **Table 10**, the following movements have a v/c ratio over 1.0 under Future Conditions:

- Howard Road/ Metro Parking Garage: eastbound left-thru movement exceeds v/c ratio of 1.0 during all three peak hours under Background Conditions and continued to increase under Future Conditions (by more than 5% during the AM peak hour).
- Suitland Parkway/NB I-295 Ramps: westbound thru and westbound right movements exceeds v/c ratio of 1.0 during the AM peak hour under Background Conditions and continued to increase slightly under Future Conditions (less than 5% increase).
- Suitland Parkway/Firth Sterling Avenue: eastbound thru, westbound thru-right, and southbound right movements exceeds v/c ratio of 1.0 under Background Conditions and continued to increase under Future Conditions (less than 5% increase).

Table 11: Traffic Analysis 50th Percentile Queue Lengths

Intersection and Movement	Storage Length (ft)	Existing Conditions			Background Conditions			Future Conditions		
		AM Peak	SPM Peak	PM Peak	AM Peak	SPM Peak	PM Peak	AM Peak	SPM Peak	PM Peak
Howard Road @ Firth Sterling Avenue										
Eastbound Thru	502	344	363	108	507	509	506	506	506	502
Eastbound Right	216	225	225	104	234	239	239	238	237	240
Westbound Left	512	521	311	293	521	518	492	517	490	517
Westbound Thru	512	263	26	30	304	236	277	280	28	315
Northbound Left	432	51	26	17	168	77	85	104	82	103
Northbound Right	357	43	60	45	34	56	57	39	76	40
Howard Road @ Metro Parking Garage										
Eastbound Left Thru	296	42	67	64	304	304	306	300	306	295
Westbound Thru Right	502	4	4	4	9	51	33	8	31	56
Southbound Left	162	22	125	74	-	180	186	15	175	171
S. Capitol Street @ S. Capitol Street Oval (N)										
Eastbound Right	300	306	292	306	304	300	298	294	298	298
Westbound Left	228	36	228	228	5	230	228	29	228	217
Westbound Right	228	243	183	196	249	145	159	244	211	233
Suitland Parkway @ S. Capitol Street Oval										
Eastbound Thru	656	682	160	138	685	165	102	672	156	101
Northbound Right	214	216	201	202	230	201	223	240	150	202
Southbound Thru	498	503	497	498	498	495	465	476	495	465
Southbound Right	498	498	405	547	433	498	499	498	498	513
Suitland Parkway @ Northbound I-295 Ramps										
Eastbound Left	350	23	33	9	32	44	7	34	32	18
Eastbound Thru	517	159	133	203	127	166	241	119	132	262
Westbound Thru	165	156	101	97	189	119	105	140	73	127
Westbound Right	165	61	125	114	63	145	144	29	64	170
Northbound Left	448	192	67	118	220	95	163	237	81	155
Northbound Right	448	14	47	39	24	81	61	29	51	45
Suitland Parkway @ Howard Road										
Westbound Right	692	27	35	36	408	121	93	119	38	90
Northbound Thru	551	31	66	56	478	102	207	168	40	104
Suitland Parkway @ Firth Sterling Avenue										
Eastbound Left	205	33	32	43	36	105	32	38	79	99
Eastbound Thru	165	113	121	133	99	133	157	100	120	146
Westbound Left	440	91	66	41	410	17	38	70	29	39
Westbound Thru Right	475	550	302	323	454	327	335	550	355	339
Northbound Left	404	145	241	111	157	183	75	186	198	157
Northbound Thru Right	404	28	418	102	70	311	176	52	403	263
Southbound Left	357	383	364	314	381	371	370	374	370	382
Southbound Thru	357	410	299	268	374	394	410	404	384	409
Southbound Right	240	277	273	261	279	283	273	284	279	272
Site Driveway Inbound @ Howard Road										
Westbound Left Thru	>100	9	13	4	11	-	-	0	9	-
Site Driveway Outbound @ Howard Road										
Northbound Left-Right	>100	48	41	18	163	159	41	162	141	58

Table 12: Traffic Analysis 95th Percentile Queue Lengths

Intersection and Movement	Storage Length (ft)	Existing Conditions			Background Conditions			Future Conditions		
		AM Peak	SPM Peak	PM Peak	AM Peak	SPM Peak	PM Peak	AM Peak	SPM Peak	PM Peak
Howard Road @ Firth Sterling Avenue										
Eastbound Thru	502	571	592	260	519	521	512	512	514	530
Eastbound Right	216	254	277	259	247	244	245	248	247	243
Westbound Left	512	541	451	539	532	527	614	524	531	530
Westbound Thru	512	641	76	64	712	635	654	648	66	666
Northbound Left	432	94	55	42	259	134	134	150	144	165
Northbound Right	357	67	106	74	75	86	113	75	122	72
Howard Road @ Metro Parking Garage										
Eastbound Left Thru	296	95	132	141	314	317	317	308	314	326
Westbound Thru Right	502	19	22	22	31	102	61	39	71	89
Southbound Left	162	64	198	157	-	201	218	39	181	194
S. Capitol Street @ S. Capitol Street Oval (N)										
Eastbound Right	300	306	292	306	304	300	298	294	298	298
Westbound Left	228	75	228	228	21	234	228	87	228	247
Westbound Right	228	262	270	260	259	245	319	263	281	245
Suitland Parkway @ S. Capitol Street Oval										
Eastbound Thru	656	711	229	244	705	253	195	689	246	167
Northbound Right	214	253	284	288	248	315	253	259	278	243
Southbound Thru	498	503	498	498	498	503	465	496	503	465
Southbound Right	498	498	405	547	433	498	499	498	498	513
Suitland Parkway @ Northbound I-295 Ramps										
Eastbound Left	350	47	79	35	48	89	23	47	63	39
Eastbound Thru	517	278	191	268	209	236	319	175	233	300
Westbound Thru	165	239	189	151	226	188	169	220	115	173
Westbound Right	165	220	159	187	228	236	214	147	231	236
Northbound Left	448	300	120	169	316	152	222	343	107	233
Northbound Right	448	40	84	75	32	133	108	61	84	74
Suitland Parkway @ Howard Road										
Westbound Right	692	58	95	71	776	256	210	224	73	175
Northbound Thru	551	100	233	161	670	331	545	236	203	266
Suitland Parkway @ Firth Sterling Avenue										
Eastbound Left	205	91	120	132	60	209	102	63	146	186
Eastbound Thru	165	184	250	263	175	262	246	163	229	259
Westbound Left	440	345	118	73	630	38	108	102	57	76
Westbound Thru Right	475	550	397	437	596	446	453	551	507	469
Northbound Left	404	257	430	178	233	264	139	237	382	365
Northbound Thru Right	404	57	484	183	167	471	295	120	462	453
Southbound Left	357	411	379	530	417	394	395	391	388	420
Southbound Thru	357	430	585	449	463	454	423	417	474	409
Southbound Right	240	292	292	287	298	293	284	293	290	314
Site Driveway Inbound @ Howard Road										
Westbound Left Thru	>100	32	38	23	34	-	-	0	32	-
Site Driveway Outbound @ Howard Road										
Northbound Left-Right	>100	81	69	43	178	175	77	179	216	91

As shown in the tables above, although 95th percentile queue length of some movements exceeded the available capacity, none were exceeded by more than 150 feet of what was under Background Conditions in the Future Conditions.

Traffic Mitigations

The CTR Guidelines require mitigation measures for any capacity or queuing issues identified in the traffic analysis. The following defines "significant impact" to the roadway network:

1. When the proposed project causes any one or more intersection approaches to exceed the established LOS threshold. This threshold will be set for each project and will be defined as LOS "E" or "F" as requested by DDOT; or
2. When the proposed project causes any one or more intersection approaches with an existing LOS "E" or "F" to experience an increase in vehicle delay of 5% or more; or
3. When the proposed project causes the 95th percentile queue length to exceed the available capacity of an approach or turn lane; or
4. When the proposed project causes the 95th percentile queue length to exceed the available capacity in the short- or long-term planning horizon and experience an increase in queue of 150 feet or more; or
5. When the proposed project causes a movement or lane group's V/C ratio to increase above 1.0; or
6. When the proposed project causes any deficient movement or lane group's V/C ratio to increase by 5 percent or more

As the previous indicates, the following intersection requires mitigation measure:

- Howard Road/Metro Parking Garage: more than 5% increase in delay and more than 5% increase in v/c ratio.

To mitigate this intersection, it is proposed to change the signal cycle length from 60 seconds to 90 seconds, which matches the cycle length at the adjacent Howard Road/Firth Sterling intersection. This would bring the LOS and v/c ratios to acceptable levels, as shown in **Table 13** and **Table 14**, respectively. The proposed TDM measures in the next section will further reduce the traffic impact the project creates on the surrounding roadway network.

Table 13: Traffic Analysis LOS Results – with Mitigation

Intersection	Direction	Background Conditions			Future Conditions			Future Conditions Mitigated		
		AM Peak	SPM Peak	PM Peak	AM Peak	SPM Peak	PM Peak	AM Peak	SPM Peak	PM Peak
Howard Road @ Metro Parking Garage	Overall	D/36.4	**E/76.1**	D/54.4	D/50.4	**F/85.6**	**E/56.3**	C/28.6	**E/63.8**	C/32.6
	Eastbound	**E/67.4**	**F/124.9**	**E/78.4**	**F/92.5**	**F/143.6**	**F/82.1**	D/51.0	**F/112.2**	D/50.2
	Westbound	A/1.2	A/2.2	A/2.3	A/1.2	A/2.3	A/2.3	A/0.9	A/3.8	A/3.7
	Southbound	C/29.0	**E/79.0**	**F/90.7**	C/29.0	**E/79.0**	**F/90.7**	D/43.7	D/38.4	D/39.2

Table 14: Traffic Analysis Volume-to-Capacity Ratios – with Mitigation

Intersection and Movement	Background Conditions			Future Conditions			Future Conditions Mitigated		
	AM Peak	SPM Peak	PM Peak	AM Peak	SPM Peak	PM Peak	AM Peak	SPM Peak	PM Peak
Howard Road @ Metro Parking Garage									
Eastbound Left Thru	1.04	1.20	1.09	1.12	1.25	1.10	0.98	1.15	0.96
Westbound Thru Right	0.29	0.29	0.33	0.29	0.30	0.33	0.29	0.31	0.34
Southbound Left	0.24	0.95	0.99	0.24	0.95	0.99	0.27	0.63	0.65

TRANSPORTATION DEMAND MANAGEMENT

This following section outlines the TDM plan:

- Identify Transportation Coordinators for the planning, construction, and operations phases of development. The Transportation Coordinators will act as points of contact with DDOT, goDCgo, and Zoning Enforcement and will provide their contact information to goDCgo.
- Transportation Coordinator will conduct an annual commuter survey of employees on-site and parents, and report TDM activities and data collection efforts to goDCgo once per year.
- Check in with goDCgo's School Services Team halfway through the year to track progress
- Transportation Coordinators will develop, distribute, and market various transportation alternatives and options to the employees and families, including promoting transportation events (i.e., Bike to Work Day, National Walking Day, Car Free Day) on property website and in any internal building newsletters or communications.
- Transportation Coordinators will receive TDM training from goDCgo to learn about the transportation conditions for this project and available options for implementing the TDM Plan.
- Transportation Coordinator will demonstrate to goDCgo that the school is in compliance with the DC Commuter Benefits Law to participate in at least one of the three transportation benefits outlined in the law (employee-paid pre-tax benefit, employer-paid direct benefit, or shuttle service), as well as any other commuter benefits related laws that may be implemented in the future such as the Parking Cash-Out Law.
- Transportation Coordinator will implement a carpooling system such that individuals working in the building who wish to carpool can easily locate other employees who live nearby.
- Facilitate car/vanpool formation meetings and ride matching.
- Sign up for and promote SchoolPool, a ride matching platform for students and families
- Promote the Carpool Now App and Commuter Connections' ride matching platform
- Designate a minimum of two preferential carpooling spaces in a convenient location within the parking lot for employee use.
- Provide links to CommuterConnections.com and goDCgo.com on school website.
- Comprehensive bicycle/walking program (showers, bike racks, lockers, financial incentives)
    - Provide at least 40 short term bicycle parking spaces.
    - Provide at least four showers and eight lockers for use by employees
    - Long-term bicycle storage room will accommodate eleven bicycles. There will be no fee to the employees for usage of the bicycle storage room.
    - Host bike safety course for staff and students
    - Promote WABA bicycling classes to staff
    - Promote Capital Bikeshare as a form of commuting to and from school
    - Provide a SmarTrip card and one (1) complimentary Capital Bikeshare coupon good for a free ride to each new employee.

- Send out reminders for Commuter Benefits Open Enrollment
- Promote commuter benefits and other sustainable transportation programs to new and existing hires
- Host a tabling event with goDCgo to sign staff up for commuter benefits
- Provide information on nearby transportation options on the school's website
- Set up transportation display

PERFORMANCE MONITORING PLAN

This following section outlines the proposed performance monitoring plan:

Cedar Tree Academy shall conduct counts and provide a monitoring report to DDOT's Policy, Planning, and Sustainability Administration twice per year (fall and spring semesters, not to coincide within a week before or after any extended school breaks) for two years beginning in the Fall 2027 semester and again when the school reaches the proposed cap of 680 students.

- Trip generation counts and queuing shall be observed from 7:30AM – 9:00AM and 2:30PM – 4:30PM.
- Vehicle trip generation shall include all vehicle trips to the site, including vehicles traveling to the site but not entering the driveway.
- The number of trips in the AM peak hour must not exceed 464 total trips, and the number of trips in the PM peak hour must not exceed 314 total trips.
- If site trips exceeds the vehicle trip generation count, Cedar Tree Academy shall employ additional Transportation Demand Management measures and continue monitoring twice per year for two years for a total of four successful monitoring reports.

SUMMARY AND RECOMMENDATIONS

This report concludes that the Cedar Tree Academy project will not have a detrimental impact on the surrounding transportation network assuming a signal cycle length change at the Howard Road/Metro Station Access intersection.

The project also has several positive design elements that minimize potential transportation impacts, including:

- The site's close proximity to transit and existing bicycle infrastructure;
- Several planned future bicycle and pedestrian facility improvements linking the site, the Frederick Douglass Memorial Bridge, and the Anacostia Metrorail Station;
- A robust TDM plan that reduces the demand of single-occupancy, private vehicles during peak period travel times and encourages other modes of transportation.