

## TECHNICAL MEMORANDUM

To: Aaron Zimmerman  
CC: Mustafa Durrani  
Cary Kadlecsek  
From: Vinay Varadarajan, EIT  
Katie Wagner, P.E., PTOE  
Erwin Andres  
Date: August 5, 2019  
Subject: 2483-2491 Alabama Avenue, SE—Transportation Statement

DDOT  
Durrani Development  
Goulston & Storrs

### ***Introduction***

This memorandum presents a limited-scope Transportation Statement conducted for Alabama Apartments LLC (“Applicant”) in support of its Board of Zoning Adjustment (BZA) application. The BZA case number for this project is 20110.

The project site (“site”) is located at 2483-2491 Alabama Avenue, SE in the Knox Hill neighborhood of Southeast Washington, DC, as shown on Figure 1 and Figure 2. The site is currently occupied by a small building that was previously home to a church. This project proposes to redevelop the property into a residential building consisting of 86 affordable units, 21 surface parking spaces, and 30 long-term bicycle spaces. The site is bounded by Alabama Avenue to the west, a 16-foot wide public alley to the east, a residential building to the north, and residential buildings to the south. A 20-foot paper alley currently bisects a portion of the site, which will be partially developed and incorporated into the development. Pedestrian access to the site is located off Alabama Avenue, bicycle access is located off the 16-foot alley, and vehicular access is located off the improved 20-foot alley for parking/loading and the 16-foot alley for trash operations.

The BZA application seeks relief in order to allow a new residential development within the RA-1 zone. As the BZA relief being sought is not transportation-related, a Low Impact Development Exception Transportation Statement has been prepared to evaluate the transportation impacts of the project.

This Transportation Statement includes the following four (4) sections:

- **Existing Transportation Conditions:** This section summarizes the vehicular access, public transit, and pedestrian facilities in the vicinity of the project site.
- **Trip Generation:** This section reviews the proposed operations and trip generation for the development. A vehicular capacity analysis is not required, as the project is projected to generate fewer than 25 peak hour vehicular trips in the peak direction.
- **Design Review:** This section reviews the transportation features of the project, including the proposed site plan and parking accommodations. It includes descriptions of the site’s vehicular access, loading facilities, and pedestrian/bicycle accommodations.

- Transportation Demand Management: This section outlines the proposed TDM plan for the development based on specific needs of the site.

This Transportation Statement concludes that:

- The proposed parking meets ZR16 regulations and DDOT's preferred parking rate for sites within 0.25 miles of a Priority Corridor Network Metrobus Route.
- The site's location and proximity to Metrobus makes public transit a preferable option for residents.
- The site's proposed trip generation will not trigger DDOT's 25-vehicle in the peak direction criteria for a vehicular analysis.
- The proposed project includes bicycle accommodations that will meet ZR16 requirements for short-term and long-term parking. Long-term bicycle parking will be available in the rear of the property and short-term bicycle parking will be placed curbside along Alabama Avenue. The Applicant has committed to setting aside space along the Alabama Avenue frontage for a new Capital Bikeshare Station to be installed.
- The proposed Transportation Management Plan adequately promotes non-auto modes of travel for residents that are consistent with the specific needs of the site and updated District standards and goals.

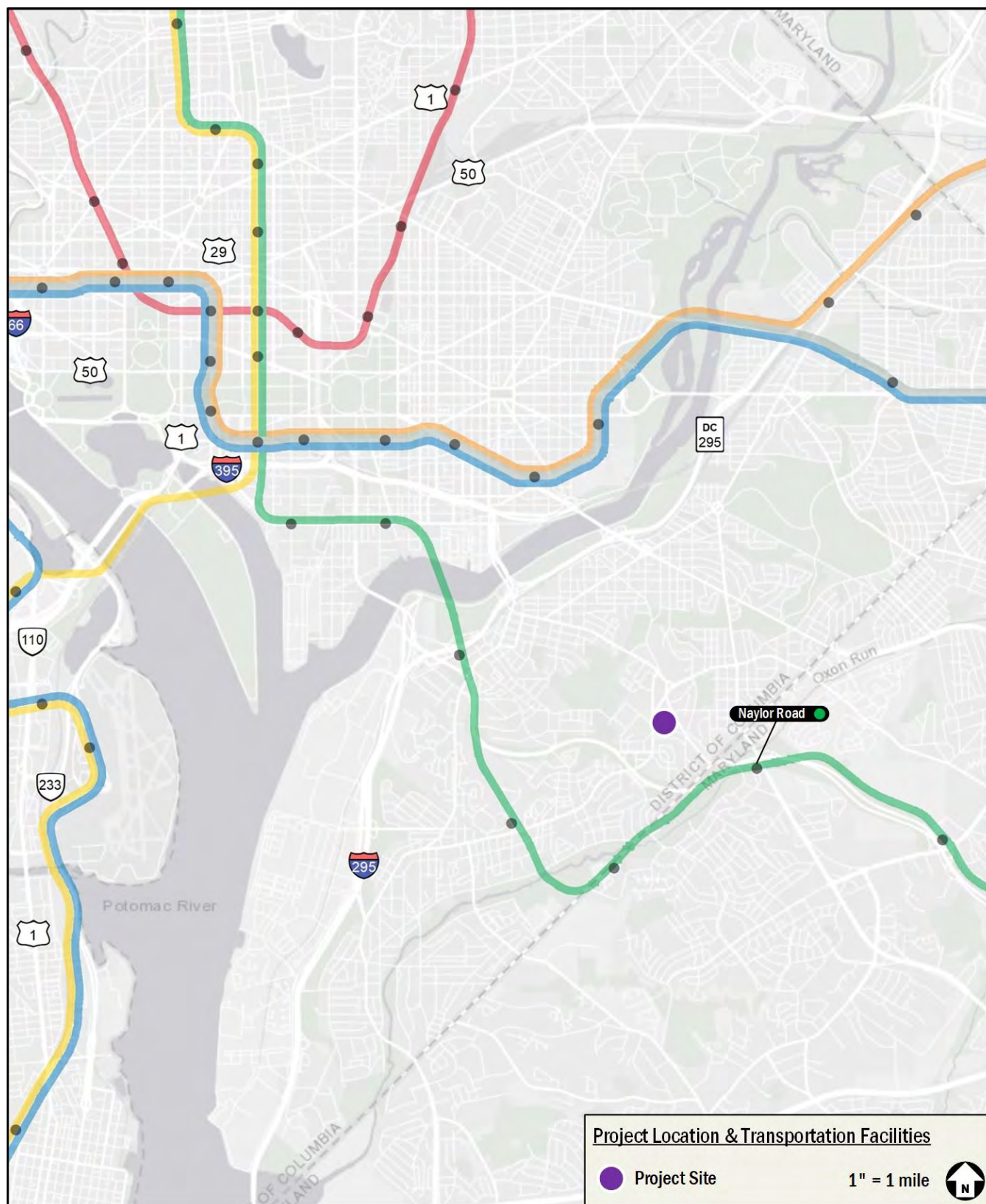


Figure 1: Regional Location





Figure 2: Site Location

### ***Existing Transportation Conditions***

This section reviews the existing vehicular, transit, and pedestrian facilities in the vicinity of the site. The site is served by Metrobus, which connects to nearby Metrorail stations on the Green, Blue, Orange, and Silver Lines. The site is also served by a pedestrian network consisting of sidewalks and crosswalks along the streets surrounding the site. The site is served by an on-street bicycle network, consisting of signed routes and nearby off-street bicycle trails.

#### ***Vehicular***

The site is accessible from several principal arterials such as Pennsylvania Avenue to the north and Branch Avenue to the east. These roadways create southern connectivity to Suitland Parkway and northern connectivity to DC-295, both of which provide access to the Capital Beltway (I-495), which surrounds Washington, DC and its inner suburbs, as well as providing connectivity to the District core.

The site is directly served by Alabama Avenue—a minor arterial and is served by a local vehicular network that includes other minor arterials such as 25<sup>th</sup> Street, Naylor Road, and Good Hope Road. These minor arterials are supplemented by an existing network of connector and local roadways.

#### ***Transit***

The site is serviced by Metrobus along the Alabama Avenue, 25<sup>th</sup> Street, and Naylor Road corridors with multiple bus stops located within walking distance of the site. These bus lines connect the site to many areas of Southeast, DC, including several Metrorail stations where transfers can be made to reach areas in the District, Virginia, and Maryland. The site study area is currently served by 12 Metrobus routes. The 30S, 32, 92, A32, D51, V7, W2, W3, W4, W6, and W8 routes make a stop adjacent to the site on Alabama Avenue. The 30S, 32, and 92 lines provide a direct ride from the site to downtown Washington DC. The 92 route is classified as a Priority Corridor Network, which has undertaken improvements to increase service, reliability, and capacity. Table 1 shows a summary of the bus route information for the routes that serve the site, including service hours, headway, and distance to the nearest bus stop.

The closest Metrorail station to the site is the Naylor Road station in Prince George's County, which is served by the Green Line and located approximately one (1) mile (a 23-minute walk) from the site. Connections to other Metrorail Stations closer to the Downtown, DC area can be made using the bus lines traveling along Alabama Avenue. These buses provide service to stations including Benning Road on the Blue and Silver Lines and Minnesota Avenue on the Orange Line. Connections to the Red Line may be made at the Gallery Place-Chinatown or Metro Center stations. The proximity to nearby bus stops allows much of the DC metropolitan area to be accessible from the site. Existing transit facilities surrounding the site are shown on Figure 3.



**Table 1: Bus Route Information**

Route Number	Route Name	Service Hours	Headway	Walking Distance to Nearest Bus Stop
30S	Friendship Heights-Southeast Line	Weekdays: 4:12 AM-3:39 AM Weekends: 4:20 AM-3:56 AM	47-71 min	<0.1 miles, 1 minute
32,34	Pennsylvania Avenue Line	Weekdays: 4:32 AM-12:10 AM Weekends: 5:00 AM-12:32 AM	1-64 min	<0.1 miles, 1 minute
92	U Street-Garfield Line	Weekdays: 4:08 AM-3:05 AM Weekends: 4:10 AM-2:59 AM	24-50 min	<0.1 miles, 1 minute
A32	Minnesota Avenue-Anacostia Line	Eastbound: 3:39 PM	One (1) daily bus	<0.1 miles, 1 minute
D51	Congress Heights-Georgetown Line	Westbound: 6:38 AM	One (1) daily bus	<0.1 miles, 1 minute
V7	Benning Heights-Alabama Avenue Line	Northbound: 5:58 AM-6:17 PM Southbound: 6:26 AM-6:52 PM	12-28 min	<0.1 miles, 1 minute
W2, W3	United Medical Center-Anacostia Line	Weekdays: 5:31 AM-12:42 AM Weekends: 6:20 AM-12:38 AM	8-40 min	<0.1 miles, 1 minute
W4	Deanwood-Alabama Avenue Line	Weekdays: 5:20 AM-2:49 AM Weekends: 6:19 AM-2:54 AM	4-36 min	<0.1 miles, 1 minute
W6, W8	Garfield-Anacostia Loop Line	Weekdays: 5:49 AM-12:44 AM Weekends: 5:58 AM-2:22 AM	12-45 min	<0.1 miles, 1 minute

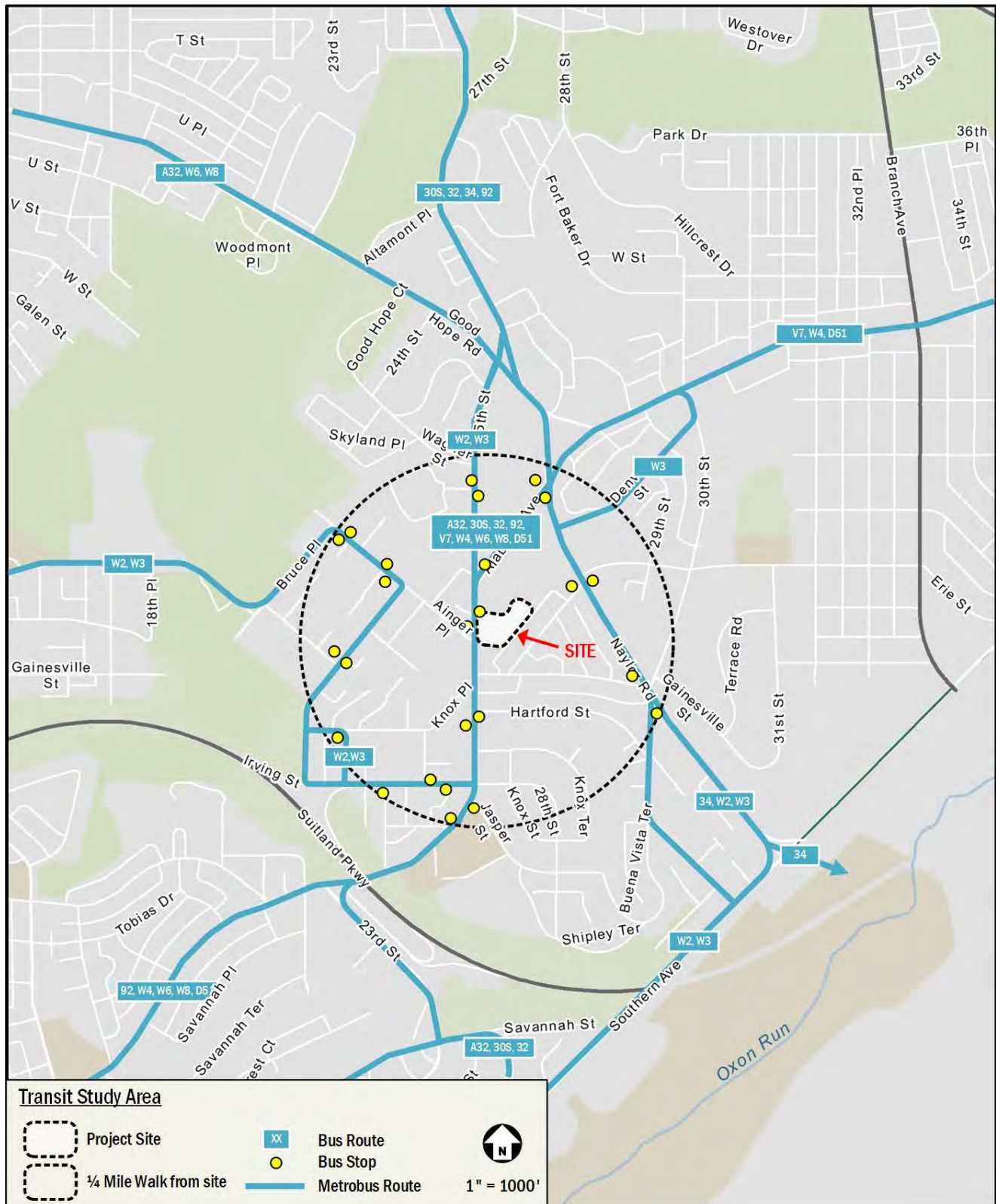


Figure 3: Existing Transit Facilities

### *Bicycle Facilities*

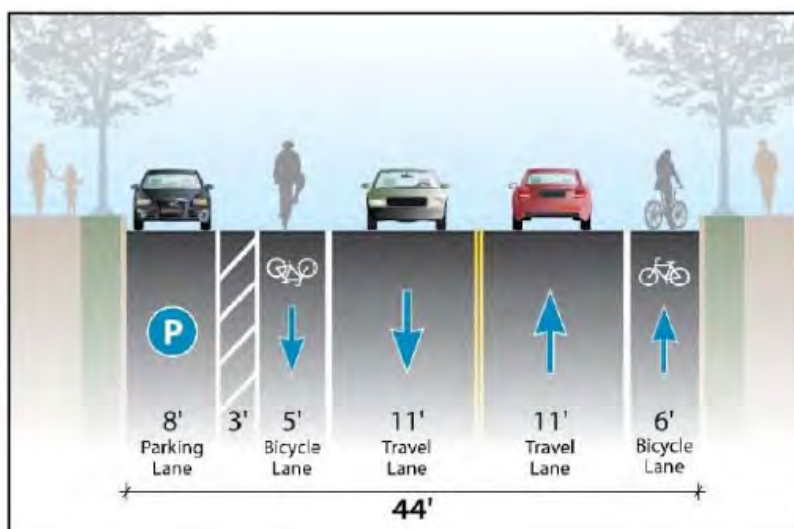
The project site is located in an area with emerging on-street bicycle facilities. Existing on-street facilities consist of signed routes along Alabama Avenue and 25<sup>th</sup> Street. These facilities lead to the Fort Circle Trail to the north and the Suitland Parkway Trail to the south. The Fort Circle Trail travels north towards the Fort Dupont Ice Arena and terminates at the Marvin Gaye Trail near the Minnesota Avenue Metrorail Station. The Suitland Parkway Trail travels east to Prince George's County and west towards Historic Anacostia. The signed route along Alabama Avenue connects with the Pennsylvania Avenue cycle track to the north and the signed route along 25<sup>th</sup> Street connects to the Anacostia Riverwalk Trail to the northwest. Figure 5 illustrates the existing bicycle facilities in the area.

Using these connections along the on-street and off-street routes within the study area, bicyclists have access to a number of robust regional bicycle facilities. To accommodate these cyclists, the site is planned to provide on-site bicycle facilities as discussed in detail in the Design Review section.

Further additions to the bicycle infrastructure are proposed in the vicinity of the site, as outlined in the *Alabama Avenue SE Corridor Safety Study* published by DDOT in 2017. A recommendation from the study was to construct bicycle lanes along Alabama Avenue, reducing the existing four-lane roadway profile to a two-lane profile in order to accommodate bicycle and parking lanes, as shown in Figure 4. These recommendations are also made in the city's MoveDC plan. The project has advanced in DDOT's project development cycle and is in the process of being implemented over the next few years. This improvement to the study area will significantly improve bicycling conditions.

The Capital Bikeshare program provides additional cycling options for residents. The Bikeshare program has placed over 500 Bikeshare stations across the Washington, DC metropolitan area with over 4,300 bicycles provided. There is one (1) nearby Capital Bikeshare station, a 10-dock station at Good Hope Road & Naylor Road located three (3) blocks north of the site. Figure 5 illustrates the existing Capital Bikeshare facilities in the area.

In addition to Capital Bikeshare, DDOT has engaged in a program with dockless transportation companies, allowing point-to-point dockless bikesharing and electric scootering. Bicycle and scooter availability are tracked through mobile phone applications for each company individually.



**Figure 4: Proposed Cross Section of Alabama Avenue adjacent to site (*Alabama Avenue SE Corridor Safety Study*, DDOT)**





Figure 5: Existing Bicycle Facilities

### *Pedestrian Facilities*

Overall, the pedestrian facilities within the study area provide excellent connections to major local destinations, including the shopping corridor at Alabama Avenue and Naylor Road to the north. A summary of the pedestrian facilities within a 0.25-mile walk of the site is shown in Figure 6, with a summary of sidewalk width and buffer requirements provided in Table 2.

Within the study area shown, most roadways are classified low to moderate density residential. In general, most sidewalks within the study area meet DDOT standards for minimum sidewalk and buffer width, including Alabama Avenue in the vicinity of the site. The sidewalks that do not meet DDOT standards are typically along routes that provide a minimum unobstructed width of 6 feet but do not provide the minimum buffer width. Many of these sidewalks are located on lower-volume neighborhood streets.

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 (2) crosswalks is not desired. As shown in Figure 6, under existing conditions most crosswalks and curb ramps meet standards along the major pedestrian routes of Alabama Avenue, 25<sup>th</sup> Street, and Naylor Road. The pedestrian facilities in the area provide residents a quality walking environment to/from major destinations, such as nearby bus stops and the shopping corridor at Alabama Avenue and Naylor Road to the north.

**Table 2: Sidewalk Requirements**

Street Type	Minimum Buffer Width	Minimum Sidewalk Unobstructed Width	Total Minimum Sidewalk Width
Residential (Low to Moderate Density)	4-6 feet	6 feet	10 feet
Residential (High Density)	4-8 feet	8 feet	13 feet
Central DC and Commercial Areas	4-10 feet	10 feet	16 feet



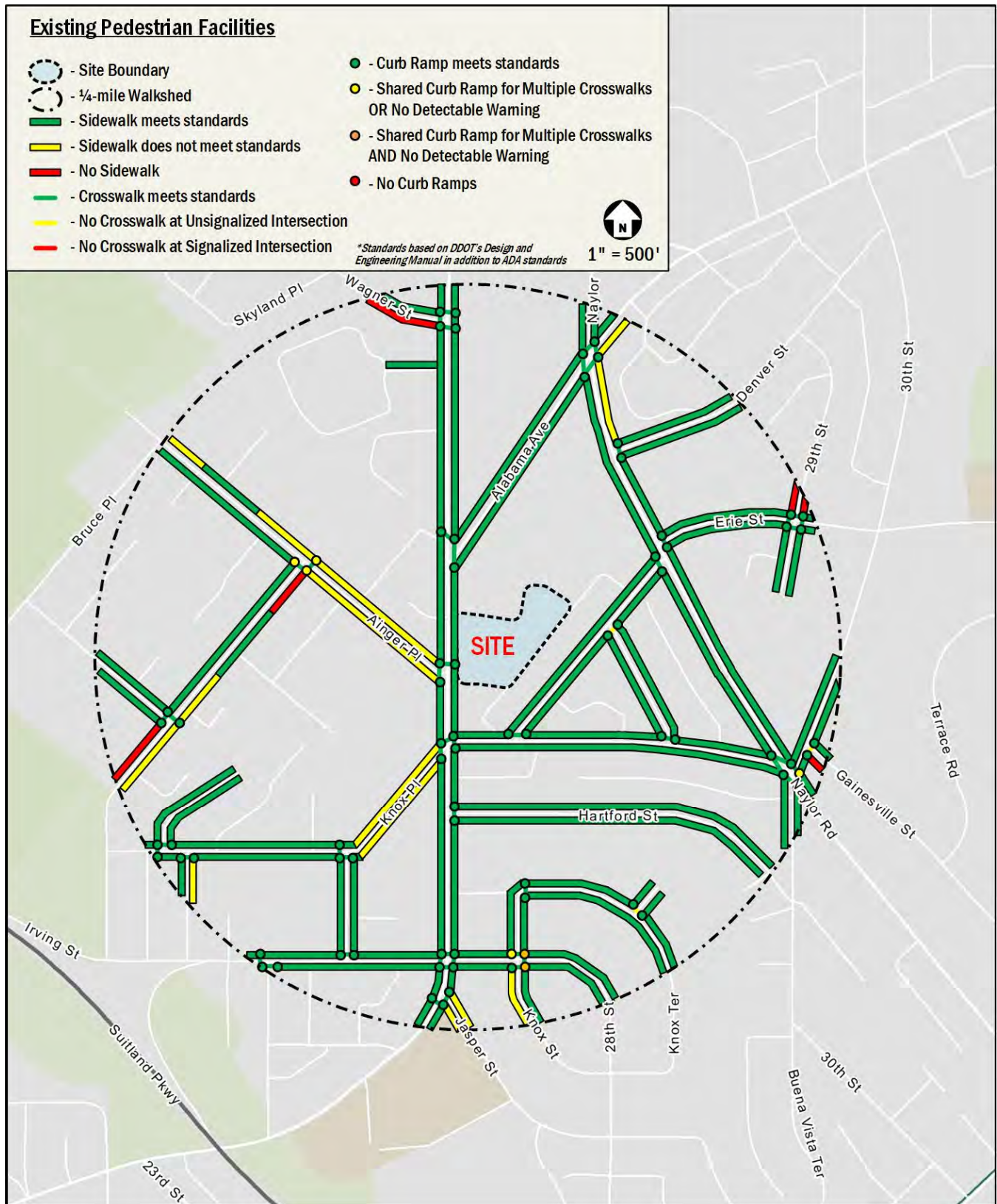


Figure 6: Existing Pedestrian Facilities



### ***Trip Generation***

Vehicle trips were calculated for the site to determine whether the site would generate enough trips to warrant a full review of the traffic impacts of the development based on DDOT's CTR guidelines.

Traditionally, weekday peak hour trip generation is calculated based on the methodology outlined in the Institute of Transportation Engineers' (ITE) *Trip Generation Manual, 10<sup>th</sup> Edition*. This methodology was supplemented to account for the urban nature of the site (the *Trip Generation Manual* provides data for non-urban, low transit use sites) and to generate trips for multiple modes. Trip generation was calculated based on ITE Land Use 221, Residential, Mid-Rise for the proposed development of 86 units. Mode splits were primarily based on data for residential sites from assumptions derived from census data for residents that currently live near the site. This information was supplemented with data from the WMATA Ridership Survey for residential locations within the Capital Beltway. The vehicular mode split was then adjusted to reflect the proposed parking supply of 21 spaces and proximity to nearby transit facilities. The modal split assumptions are presented in Table 4 and a summary of the multimodal trip generation for the project is provided in Table 3.

**Table 4: Modal Split**

Land Use	Mode			
	Drive	Transit	Bike	Walk
Residential	45%	50%	1%	4%

**Table 3: Multimodal Trip Generation Summary**

Mode	AM Peak Hour			PM Peak Hour		
	In	Out	Total	In	Out	Total
Auto	3 veh/hr	11 veh/hr	14 veh/hr	10 veh/hr	7 veh/hr	17 veh/hr
Transit	5 ppl/hr	14 ppl/hr	19 ppl/hr	14 ppl/hr	9 ppl/hr	23 ppl/hr
Bike	0 ppl/hr	0 ppl/hr	0 ppl/hr	0 ppl/hr	0 ppl/hr	0 ppl/hr
Walk	0 ppl/hr	1 ppl/hr	1 ppl/hr	1 ppl/hr	1 ppl/hr	2 ppl/hr

The proposed development is expected to generate 14 morning peak hour trips (3 inbound and 11 outbound) and 17 afternoon peak hour trips (10 inbound and 7 outbound). The number of trips does not exceed the number of trips that would require additional vehicular capacity analysis (25 trips in the peak direction). Thus, no additional vehicular analysis was required for DDOT and not included in this report. Given the low number of trips generated by the redevelopment and the exemption from DDOT vehicular analysis concludes that the proposed residential development will not have an adverse impact on traffic in the surrounding neighborhood. Detailed modal split assumptions and trip generation calculations are attached to this memo.

### ***Design Review***

This section provides an overview of the on-site transportation features of the development, including an overview of site access. The development program consists redeveloping the entire site into a residential development with 86 affordable units, 21 surface parking spaces, and 30 long-term bicycle parking spaces. An overall site plan is provided in Figure 7.

### *Site Access*

Pedestrian access to the development is located at the main entrance along Alabama Avenue. The pedestrian entrance is located adjacent to the bus stop of the 30S, 32, 92, A32, D51, V7, W2, W3, W4, W6, and W8 routes that run along Alabama Avenue. The sidewalk along the site frontage on Alabama Avenue meets DDOT and ADA requirements for sidewalk widths and curb ramps.

Bicycle access to the site consists of 30 long-term spaces in the rear of the property and four (4) short-term spaces along the Alabama Avenue frontage. The long-term spaces are accessible from the 16-foot public alley, which connects to 28<sup>th</sup> Street to the east and Gainesville Street to the south.

Vehicular access to the site consists of parking in the rear of the property. The 21 on-site parking spaces are located in the rear of the site and will be accessible from the 20-foot public alley. This alley currently exists only in paper form and part of it will be incorporated into the site area through an alley closing. The rest of the alley will be publicly accessible, and the Applicant will improve it. Access to the public alley is provided from a curb cut to the north along northbound Alabama Avenue. As part of the development, two (2) existing curb cuts along Alabama Avenue will be removed, decreasing pedestrian-vehicular conflicts. No additional curb cuts are proposed to the streetscape as part of the proposed project. Access to the public alley from Alabama Avenue will operate with right-in/right-out operations. Loading vehicles will also use the 20-foot public alley for access, with the exception of trash trucks. Trash trucks will use the 16-foot public alley accessible from 28<sup>th</sup> Street to the east. Site circulation and access for all modes is provided in Figure 8.

### *On-Site Parking*

As mentioned previously, the proposed development will supply 21 on-site parking spaces located in the back of the property, accessible from the 20-foot public alley. Under ZR16, the Applicant is required to provide a minimum of one (1) space for every three (3) units in excess of four (4) units, which amounts to 27 spaces. However, under DCMR 11, Subtitle C, Section 702.1(c)(5), the parking requirement may be reduced by 50% for any site located within 0.25 miles of a Priority Corridor Network Metrobus Route, provided the property is on a street on which participation in a District Residential Parking Permit program is not permitted. The site meets this criterion as it is within 0.25 miles of the U Street/Garfield corridor (Route 92) and Residential Parking Permitting is not allowed along Alabama Avenue adjacent to the site. Applying this reduction, the development is required to provide 14 spaces. The proposed parking supply of 21 spaces will meet ZR16 requirements. The proposed parking supply amounts to a ratio of 0.24 spaces per unit, which meets DDOT's preferred vehicle parking rate (0.4 or less) for a residential development within 0.25 miles of a Priority Corridor Network Metrobus Route.

### *On-Street Parking*

On-street parking in the vicinity of the site is composed of time-restricted (during peak period) spaces and unrestricted spaces. Figure 9 shows an inventory of existing on-street parking and curbside management in the vicinity of the site. Parking south to the site along Alabama Avenue consists of two-hour spaces which are restricted from 7:00 AM-9:30 AM and from 4:00 PM-6:30 PM, Monday to Friday. Additional peak period restrictions are in place along other portions of Alabama Avenue and 25<sup>th</sup> Street. A majority of residential streets in a two-block radius of the site do not have parking restrictions, allowing for additional parking options.

Improvements made to Alabama Avenue in the vicinity of the site (as referenced earlier in Figure 4) will remove the time-restricted spaces along the east side of Alabama Avenue but add parking spaces along the west side, providing additional on-street parking capacity.

The proposed on-site parking supply and additional unrestricted parking spaces within a two-block radius of the site concludes that the proposed development will not have an adverse impact on parking in the surrounding neighborhood.

### *Loading*

Under ZR16, all residential developments greater than 50 units are required to provide a minimum of one (1) 30-foot loading berth and one (1) 20-foot service/delivery space. The proposed development will meet loading requirements, providing one (1) 38-foot loading berth and one (1) 20-foot service/delivery space. Trash collection is expected to occur in an area accessible from the 16-foot public alley, with the other loading and delivery activity taking place in the loading berth accessible from the 20-foot public alley. All loading vehicles will enter the loading areas using head-in, head-out maneuvers. Removable bollards near the 38-foot loading berth allow for loading vehicles to turn around when making deliveries. Truck turning maneuvers will be provided in the Technical Attachments.

Truck routing to and from the loading area will be focused on designated truck routes. The nearest designated truck route to the site is Alabama Avenue, therefore it is assumed that all trucks will access and egress the loading area from this route.

The amount of daily loading activities expected at the proposed development is estimated as follows:

- Three (3) general deliveries consisting of trash removal, mail, and parcel deliveries
- One (1) residential delivery, calculated based on an average unit turnover of 18 months with two (2) deliveries per turnover (one move-in and one move-out)

### *Bicycle Facilities*

Under ZR16 regulations, a residential development is required to provide one (1) long-term bicycle space per every three (3) dwelling units and one (1) short-term space per every 20 dwelling units. This amounts to 29 long-term spaces and four (4) short-term spaces for this project. The Applicant is proposing to accommodate its long-term parking in the rear of the property. The bicycle parking area will have 30 long-term spaces and will be accessible from the 16-foot public alley. The short-term bicycle spaces will be placed curbside along the Alabama Avenue frontage, with a final location to be determined in consultation with DDOT.

The Applicant has also committed to setting aside space along the Alabama Avenue frontage for a future Capital Bikeshare Station. The station will be at no cost to the Applicant, with the bikeshare space taking a six (6) foot by 50-foot footprint.

The combination of proposed on-site bicycle parking, and the Applicant's commitment to opening a bikeshare station on site frontage allows the proposed development to practically meet bicycle demand for residents and guests.

### *Pedestrian Facilities*

Along the Alabama Avenue site frontage, streetscape facilities will be improved upon to include sidewalk widths that meet or exceed DDOT requirements, with additional landscaping present, including trees and greenery. The improved site frontage and elimination of two (2) existing curb cuts will help facilitate pedestrian travel and is in line with DDOT's Vision Zero strategies.





Figure 7: Site Plan





Figure 8: Site Circulation and Access



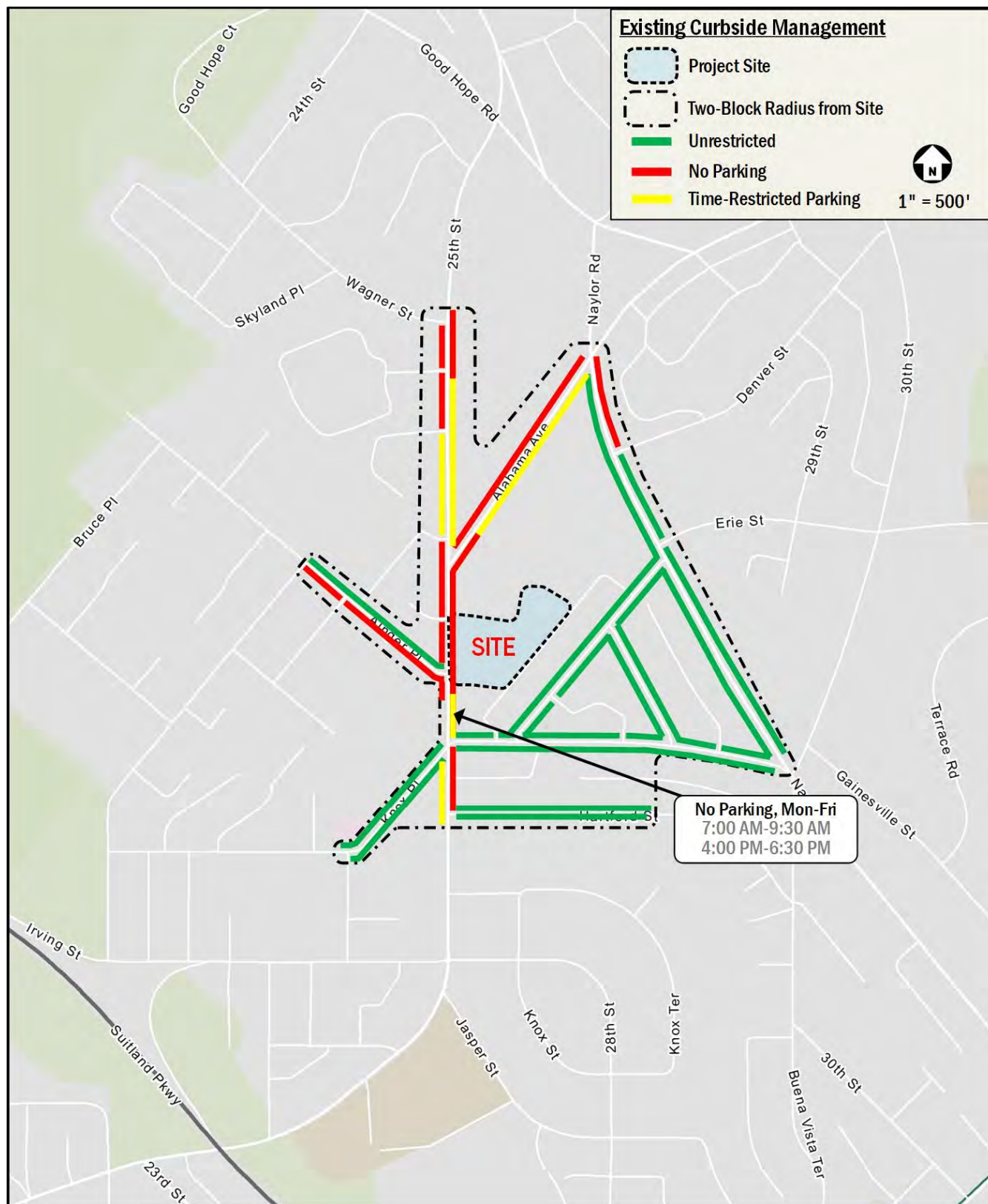


Figure 9: Existing Curbside Management and On-Street Parking Inventory



### ***Transportation Demand Management (TDM)***

TDM is the application of policies and strategies used to reduce travel demand or to redistribute demand to other times or spaces. TDM typically focuses on reducing the demand of single-occupancy, private vehicles during peak period travel times or on shifting single-occupancy vehicular demand to off-peak periods.

The Applicant proposed the following TDM strategies in order to help minimize potential impacts of the project to the surrounding neighborhood. These TDM measures are as follows:

- Unbundle the cost of vehicle parking from the lease or purchase agreement for each residential unit and charge a minimum rate based on the average market rate within a quarter mile.
- 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. There will be a Transportation Coordinator for the entire site. The Transportation Coordinators will act as points of contact with DDOT, goDCgo, and Zoning Enforcement.
- Will provide Transportation Coordinators' contact information to goDCgo and report TDM activities to goDCgo once per year.
- Transportation Coordinators will develop, distribute, and market various transportation alternatives and options to the residents, including promoting transportation events (i.e., Bike to Work Day, National Walking Day, Car Free Day) in any internal building newsletters or communications.
- Transportation Coordinators will receive TDM training from goDCgo to learn about the TDM conditions for this project and available options for implementing the TDM Plan.
- Provide welcome packets to all new residents that should, at a minimum, include the Metrorail pocket guide, brochures of local bus lines (Circulator and Metrobus), carpool and vanpool information, Capital Bikeshare coupon or rack card, Guaranteed Ride Home (GRH) brochure, and the most recent DC Bike Map. Brochures can be ordered from DDOT's goDCgo program by emailing [info@godcgo.com](mailto:info@godcgo.com).
- Provide residents who wish to carpool with detailed carpooling information and will be referred to other carpool matching services sponsored by the Metropolitan Washington Council of Governments (MWCOG) or other comparable service if MWCOG does not offer this in the future.
- Transportation Coordinator will subscribe to goDCgo's residential newsletter.
- Post all TDM commitments on website, publicize availability, and allow the public to see what commitments have been promised.
- Provide a free SmarTrip card to every new resident and a complimentary Capital Bikeshare coupon good for one ride.
- Will meet or exceed ZR16 short- and long-term bicycle parking requirements. The development will provide 30 long-term spaces in the rear of the property and four (4) short-term spaces on the Alabama Avenue frontage.
- Long-term bicycle storage rooms will accommodate non-traditional sized bikes including cargo, tandem, and kids bikes.

### ***Summary and Conclusions***

The findings of this Low Impact Development Exemption Transportation Statement conclude that:

- The proposed parking meets ZR16 regulations and DDOT's preferred parking rate for sites within 0.25 miles of a Priority Corridor Network Metrobus Route.
- The site's location and proximity to Metrobus makes public transit a preferable option for residents.
- The site's proposed trip generation will not trigger DDOT's 25-vehicle in the peak direction criteria for a vehicular analysis.
- The proposed project includes bicycle accommodations that will meet ZR16 requirements for short-term and long-term parking. Long-term bicycle parking will be available in the rear of the property and short-term bicycle parking will be placed curbside along Alabama Avenue. The Applicant has committed to setting aside space along the Alabama Avenue frontage for a new Capital Bikeshare Station to be installed.
- The proposed Transportation Management Plan adequately promotes non-auto modes of travel for residents that are consistent with the specific needs of the site and updated District standards and goals.

## **TECHNICAL ATTACHMENTS**



### **Mode Split Assumptions (2483 Alabama Ave)**

#### **Residential Component**

*The development will provide 86 affordable residential units.*

#### **Pertinent Mode Split data from other sources:**

Information Source	Mode						
	SOV	Carpool	Transit	Bike	Walk	Telecommute	Other
CTPP - TAZ Residents (TAZ 10346)	47%	8%	35%	0%	3%	2%	5%
CTPP - Adjacent TAZ Residents (TAZ 10350)	46%	6%	43%	0%	5%	0%	0%
CTPP - Adjacent TAZ Residents (TAZ 10351)	44%	5%	50%	0%	1%	0%	0%
ACS - Census Tract (75.02)	48%	5%	45%	0%	1%	0%	2%
State of the Commute (of District residents)	41%	7%	41%	11%		---	
WMATA Ridership Survey - Residential (average for <i>Suburban-Inside the Beltway</i> )	39%		49%	14%		---	

#### **Mode Split assumed in TIS:**

Land Use	Mode				
	Drive	Transit	Bike	Walk	Telecommute/Other
Residential Mode Split	45%	50%	1%	4%	---

Notes: -Census data (CTPP) and parking supply used as basis for assumptions

**Trip Generation - Residential**

**86 Residential Units**

Step 1: Base trip generation using ITEs' *Trip Generation* 10th Edition

Land Use	Land Use Code	Quantity (x)	AM Peak Hour			PM Peak Hour			Daily	Saturday Peak Hour		
			In	Out	Total	In	Out	Total	Total	In	Out	Total
Apartments	221	86 du	8 veh/hr	23 veh/hr	31 veh/hr	23 veh/hr	15 veh/hr	38 veh/hr	467 veh	21 veh	22 veh	43 veh
Calculation Details:			26%	74%	=0.36(x)	61%	39%	=0.44(x)	=5.45(x)-1.75	49%	51%	=0.42(x)+6.73

Step 2: Convert to people per hour, before applying mode splits

Land Use	People/Car (from 2017 NHTS, Table 16)	AM Peak Hour			PM Peak Hour			Weekday	Saturday Peak Hour		
		In	Out	Total	In	Out	Total	Total	In	Out	Total
Apartments	1.18 ppl/veh	9 ppl/hr	28 ppl/hr	37 ppl/hr	27 ppl/hr	18 ppl/hr	45 ppl/hr	551 ppl	25 ppl	26 ppl	51 ppl

Step 3: Split between modes, per assumed Mode Splits

Land Use	Mode	Split	AM Peak Hour			PM Peak Hour			Weekday	Saturday Peak Hour		
			In	Out	Total	In	Out	Total	Total	In	Out	Total
Apartments	Auto	45%	4 ppl/hr	13 ppl/hr	17 ppl/hr	12 ppl/hr	8 ppl/hr	20 ppl/hr	248 veh	11 veh/hr	12 veh/hr	23 veh/hr
Apartments	Transit	50%	5 ppl/hr	14 ppl/hr	19 ppl/hr	14 ppl/hr	9 ppl/hr	23 ppl/hr	276 ppl	13 ppl/hr	13 ppl/hr	26 ppl/hr
Apartments	Bike	1%	0 ppl/hr	0 ppl/hr	0 ppl/hr	0 ppl/hr	0 ppl/hr	0 ppl/hr	6 ppl	0 ppl/hr	1 ppl/hr	1 ppl/hr
Apartments	Walk	4%	0 ppl/hr	1 ppl/hr	1 ppl/hr	1 ppl/hr	1 ppl/hr	2 ppl/hr	22 ppl	1 ppl/hr	1 ppl/hr	2 ppl/hr

Step 4: Convert auto trips back to vehicles/hour

Land Use	People/Car (from 2017 NHTS, Table 16)	AM Peak Hour			PM Peak Hour			Weekday	Saturday Peak Hour		
		In	Out	Total	In	Out	Total	Total	In	Out	Total
Apartments	1.18 ppl/veh	3 veh/hr	11 veh/hr	14 veh/hr	10 veh/hr	7 veh/hr	17 veh/hr	210 veh	9 veh/hr	10 veh/hr	19 veh/hr

**Trip Gen Summary for Residential**

Mode	AM Peak Hour			PM Peak Hour			Weekday	Saturday Peak Hour		
	In	Out	Total	In	Out	Total	Total	In	Out	Total
Auto	3 veh/hr	11 veh/hr	14 veh/hr	10 veh/hr	7 veh/hr	17 veh/hr	210 veh	9 veh/hr	10 veh/hr	19 veh/hr
Transit	5 ppl/hr	14 ppl/hr	19 ppl/hr	14 ppl/hr	9 ppl/hr	23 ppl/hr	276 ppl	13 ppl/hr	13 ppl/hr	26 ppl/hr
Bike	0 ppl/hr	0 ppl/hr	0 ppl/hr	0 ppl/hr	0 ppl/hr	0 ppl/hr	6 ppl	0 ppl/hr	1 ppl/hr	1 ppl/hr
Walk	0 ppl/hr	1 ppl/hr	1 ppl/hr	1 ppl/hr	1 ppl/hr	2 ppl/hr	22 ppl	1 ppl/hr	1 ppl/hr	2 ppl/hr

Trip Gen Summary by Mode							
Mode	Land Use	AM Peak Hour			PM Peak Hour		
		In	Out	Total	In	Out	Total
Auto	Apartments	3 veh/hr	11 veh/hr	14 veh/hr	10 veh/hr	7 veh/hr	17 veh/hr
	<b>Total</b>	<b>3 veh/hr</b>	<b>11 veh/hr</b>	<b>14 veh/hr</b>	<b>10 veh/hr</b>	<b>7 veh/hr</b>	<b>17 veh/hr</b>
Transit	Apartments	5 ppl/hr	14 ppl/hr	19 ppl/hr	14 ppl/hr	9 ppl/hr	23 ppl/hr
	<b>Total</b>	<b>5 ppl/hr</b>	<b>14 ppl/hr</b>	<b>19 ppl/hr</b>	<b>14 ppl/hr</b>	<b>9 ppl/hr</b>	<b>23 ppl/hr</b>
Bike	Apartments	0 ppl/hr	0 ppl/hr	0 ppl/hr	0 ppl/hr	0 ppl/hr	0 ppl/hr
	<b>Total</b>	<b>0 ppl/hr</b>	<b>0 ppl/hr</b>	<b>0 ppl/hr</b>	<b>0 ppl/hr</b>	<b>0 ppl/hr</b>	<b>0 ppl/hr</b>
Walk	Apartments	0 ppl/hr	1 ppl/hr	1 ppl/hr	1 ppl/hr	1 ppl/hr	2 ppl/hr
	<b>Total</b>	<b>0 ppl/hr</b>	<b>1 ppl/hr</b>	<b>1 ppl/hr</b>	<b>1 ppl/hr</b>	<b>1 ppl/hr</b>	<b>2 ppl/hr</b>

**Parking Requirements - Residential**

*Parking Supply: 21 Spaces*

Step 1: Parking Requirements Based on ZR16 Regulations (701.5)

Land Use	Minimum Requirement	Quantity	Calculation		
			Equation	Total	Total, rounded
Residential	1 space per every 3 units in excess of 4	86 Units	$(86-4)/3$	27.33 spaces	27 spaces
Total Requirement:					27 spaces

Step 2: Apply Reductions, if necessary

Reduction	Reduction Description	Nearest Priority Route	Calculation		
			Equation	Total	Total, rounded
702.1(a)	50% reduction if site is within 0.25 miles of a Priority Corridor Network Metrobus Route and RPP not permitted. Site is within 0.25 miles of 92 Priority Metrobus Route and RPP is not allowed on Alabama Avenue adjacent to site.	92 (U-Street-Garfield Line)	$0.5*(27)$	13.50 spaces	14 spaces
Requirement with Reduction:					14 spaces

Step 3: Compare Parking Supply to DDOT-Preferred Vehicle Parking Rates

Land Use	Distance from Transit Facility	Rate	Calculation		Supply Meets Rate?
			Equation	Total	
Residential	Less than 0.25 miles from Priority Corridor Network Metrobus Route	0.40 or less (spaces/unit)	$(21\text{ spaces}/86\text{ units})$	0.24	Yes