GOVERNMENT OF THE DISTRICT OF COLUMBIA
DEPARTMENT OF TRANSPORTATION

d. Policy, Planning and Sustainability Administration

MEMORANDUM

TO: District of Columbia, Board of Zoning Adjustment

FROM: Samuel Zimbabwe
Associate Director, PPSA
District Department of Transportation

DATE: April 3, 2013

SUBJECT: **DDOT Report for BZA Case 18531, Heritage Foundation**, Maryland Avenue, NE

APPLICATION

The Heritage Foundation, the Applicant, pursuant to 11 DCMR §§ 3104.1, 3103.2 and 1202.1, is seeking a variance from the floor area ratio requirements under section 771; a variance from the roof structure height provisions under subsection 1203.2(b); a variance from the nonconforming structure provisions under subsection 2001.3; a variance from the vehicle location and lot line requirements for a parking garage under subsection 2303.1(b), and a special exception for accessory parking under section 214, to allow a commercial and residential project with below-grade parking in the CAP/CHC/C-2-A and CAP/R-4 Districts at premises 208, 214 and 236 Massachusetts Avenue, N.E., and 426-430 3rd Street, N.E.

RECOMMENDATIONS IN BRIEF

The purpose of DDOT's review is to assess the potential impacts of a project on the District's transportation network. The Applicant is requesting zoning relief to construct a below-grade parking structure and six row houses as well as re-purpose existing buildings. The parking garage, accessed from 3rd Street, NE, will serve the row houses as well as the commercial/office space at 208, 214 and 236 Massachusetts Avenue, NE. The proposed 105-space parking garage will replace an existing 34-space lot, effectively increasing the Applicant's parking supply on 3rd Street by approximately 71 spaces. Of these additional 71 spaces, six are allocated for the residential portion of the redevelopment program, while the remaining spaces are allocated for the consolidated operations of the Heritage Foundation.

DDOT works to preserve the capacity of the surface transportation network. Demand for vehicle travel is great but the transportation network has relatively low capacity that is not growing. As such, DDOT is generally opposed to Applicants providing more vehicle parking than is necessary for land development projects. Adding parking capacity to an existing facility while holding the development program relatively constant creates potential for additional vehicular trips and increased congestion. The Applicant should implement measures to minimize new vehicle trips.

After an extensive multi-administration review of the case material and a site visit, DDOT finds:

- The project will generate some additional new vehicle trips and shift other existing site related vehicle trips onto the proposed 3rd Street access point.
- Travel delay will increase slightly at the intersection of 3rd Street, Massachusetts Avenue, and D Streets in the PM peak period. Queuing on the southbound approach of 3rd Street will increase by approximately five car lengths.
- Travel conditions are not expected to fail as a result of the project.
- Daytime curbside parking supply in the adjacent neighborhood may realize lower utilization rates.

DDOT understands that the Applicant has proposed funding a Capital Bikeshare station to mitigate potential impacts the site may cause. A bikeshare station mitigates conditions the project is expected to generate by allowing trips that would be made by vehicle to be made by bicycle. More specifically, bikeshare:

- Provides area residents and guests another option for mobility. Bikeshare allows area residents to make what might have otherwise been a vehicle trip by bicycle.
- Decreases the likelihood of intra-zonal travel. The project is expected to reduce the utilization of curbside parking in the adjacent neighborhood. This could lead to net new vehicle trips traveling to the neighborhood. Bikeshare reduces the likelihood that these trips will be made by vehicle by providing an alternative to short distance intra-zonal trips.

TRANSPORTATION ANALYSIS

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

Methodology

As part of the transportation impact assessment, DDOT requests that applicants evaluate the impacts to the pedestrian, transit, and roadway system resulting from the development. Accordingly, an applicant is expected to show the existing conditions for each transportation mode affected, the proposed impact on the respective network, and any proposed mitigations, along with the effects of the mitigations on other travel modes. A Comprehensive Transportation Review (CTR) should be performed according to DDOT direction. The evaluation should consider guidance from relevant documents, including guidance on the public realm, the pedestrian system, the bicycle system, as well as neighborhood-based studies. The Applicant and DDOT agreed on a scope of work for the CTR. An evaluation of the basic elements and assumptions of the Applicant's CTR follows.

Site Access

The following figure shows proposed site access to the Heritage Foundation for pedestrians, bicyclists, and vehicles, as well as loading and delivery trucks.

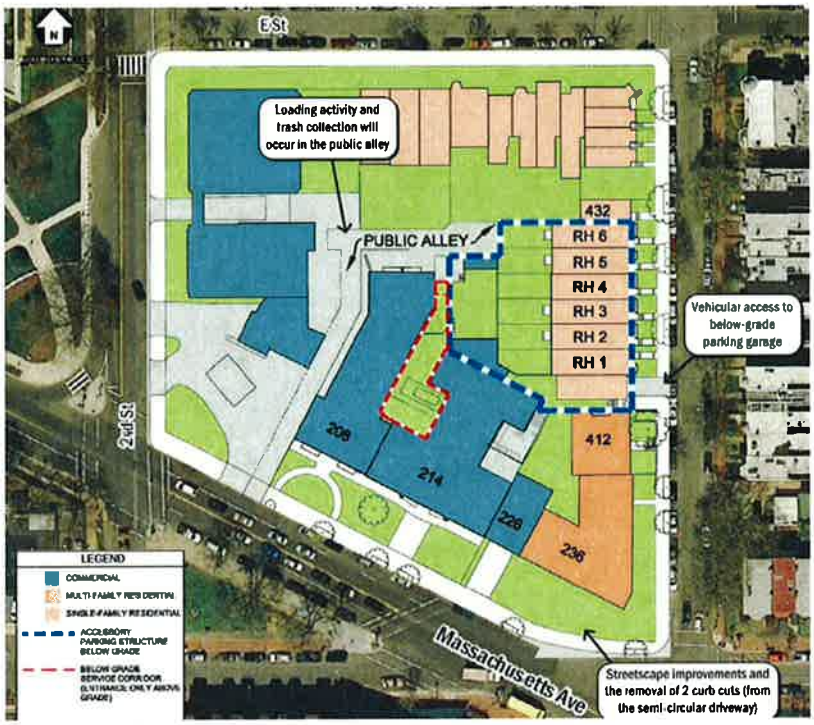

Figure 1: Proposed Site Layout and Access.

The Applicant's project consists of building an underground parking facility and six (6) row houses behind 208, 214, and 236 Massachusetts Avenue and along 3rd Street. The Applicant will consolidate office operations into 208 and 214 Massachusetts Avenue and will convert the existing office space at 236 Massachusetts Avenue into intern housing. The properties along 3rd Street consisting of a 34 space surface lot, a church, and an apartment building will be replaced with 6 row houses on top of a 105 space parking garage that will serve both the private townhomes and the operations of the Heritage Foundation.

As shown in Figure 1, the Applicant is proposing a parking garage, accessible from 3rd Street, NE. The parking garage will serve vehicles for the six row houses along with commercial/office portion of the project, directly associated with the Applicant's activities. The parking garage will serve vehicle parking and long-term bicycle parking for commuters. The parking garage driveway is proposed to be full access. Pedestrian access to the Heritage Foundation and its accessory buildings is via Massachusetts Avenue. Loading and all trash collection is proposed from a 10' public alley, directly west of 208 Massachusetts Avenue. Trash collection associated with row houses will be through the parking garage to the public alley behind 208 Massachusetts Avenue.

Finally, 236 Massachusetts Avenue currently has two curb cuts that serve a circular driveway. The Applicant is proposing to eliminate these access points as part of its landscaping plan. DDOT supports the closing of this circular driveway as it eliminates two vehicle conflict points in a heavily pedestrian-traveled area.

Roadway Capacity and Operations

Through the scoping process, the Applicant and DDOT agreed on a scope of work to analyze the roadway capacity of the surrounding network. The scope addressed the study area intersections,

existing data required for analysis, and the number and directional distribution of future generated traffic.

Study Area and Data Collection
The Applicant, in coordination with DDOT, identified four intersections where detailed vehicle, pedestrian, and bike counts would be conducted and a level of service analysis would be performed:

- Massachusetts Avenue and D Street, NE
- Massachusetts Avenue and 3rd Street, NE
- 3rd Street and D Street, NE
- 3rd Street and E Street, NE

These intersections are immediately adjacent to the site and have the greatest potential to see moderate to significant increases in vehicle delay. DDOT acknowledges that not all affected intersections are included in the study area and intersections outside of the study area will realize new trips. However, DDOT expects minimal to no increase in delay outside the study area as a result of the proposed project.

Background Developments and Regional Growth
As part of the analysis of future conditions, DDOT requires applicants to account for future traffic growth on the network, referred to as background growth. Background growth consists of approved developments whose traffic will impact the Site as well as regional growth. DDOT notes that some land development projects will likely be completed in the general vicinity prior to 2016. However none of these projects are expected to have a discernible impact on background growth. A regional arterial traffic growth rate of 1% annually was applied to Massachusetts Avenue through 2016. DDOT believes that this growth rate is conservative and will likely be lower than 1%.

Vehicle Parking
The overall parking demand created by the development is primarily a function of land use, development square footage, and price/supply of parking spaces. However in urban areas, other factors contribute to the demand for parking such as the availability of high quality transit, frequency of transit service, and proximity to transit. DDOT works through the zoning process to minimize the amount of on-site parking provided by the Applicant in order to preserve the capacity of the surface transportation network. Over provision of parking generally leads to excessive generation of vehicle trips. As such, DDOT is generally opposed to Applicants providing more vehicle parking than is necessary for land development projects.

A new below-grade parking structure is proposed with access off of 3rd Street. This new structure is proposed to have 105 parking spaces. Six spaces would be dedicated to use of the new row houses and 99 spaces would be for Heritage employee/visitor parking. Accordingly, the Applicant's proposed parking garage will increase the available parking by 71 spaces or one each for the proposed six row houses and 65 additional spaces for the Applicant's employees and visitors without significantly changing the development program of the site. DDOT is generally opposed to these types of changes as they tend to increase vehicle trip generation while not adding new development density.

The Applicant conducted a curbside parking utilization study in a ¼ mile walkshed around the Site. The study showed approximately 90% occupancy of the spaces in the morning and mid-afternoon time periods. This is effectually full utilization.

The Applicant noted that, based on an internal survey of the Heritage Foundation, 39 employees/visitors utilize off-site parking facilities. Presumably many of these utilize on-street spaces and will transfer to the private parking garage upon its completion thus freeing up neighborhood spaces for use by others. Given the demand illustrated in the utilization study, it is highly probable that these spaces will be filled by other users and increase vehicle trips in the area.

Trip Generation and Mode Split

As noted by the Applicant, there are several factors that affect trip generation at this site. Through the consolidation of uses and the renovation of 236 Massachusetts Avenue to accommodate intern housing, the Applicant is proposing that the overall project will have slightly fewer employees than are currently on-site. This will have a minor effect on trip generation. In addition, the proposed parking structure will increase the onsite spaces for Heritage use by 65. This will have the effect of shifting the estimated 39 current drivers who currently park off-site or curbside into the on-site parking garage. Further, the addition of 6 townhomes to 3rd Street will have a negligible effect on trip generation, particularly in light of the removal of the existing apartment building.

The new parking supply is higher than the current driving demand by 16 spaces. Thus, the additional vehicle parking has the potential to encourage additional commuters to switch from transit, biking, or carpooling to single occupant vehicle travel. The Applicant's report noted that, despite the program having fewer employees than are currently at the site today, the overall trip generation will increase, as both off-site parking commuters and new commuters utilize the 65 new spaces created. It is also possible that vehicle trip generation in the area will increase due to induced demand for vehicle travel. High parking occupancy in the neighborhood indicates additional demand for vehicle travel to the neighborhood exists. With more curbside parking spaces available, additional vehicle trips to occupy the newly vacated curbside parking resources are likely.

As noted by the Applicant, some existing vehicle trips that are parked off-site will be diverted to the new 3rd Street parking garage. While all 71 new spaces, 65 spaces for Heritage and 6 for the new row houses, will likely represent an equivalent number of new vehicles introduced to the study area, it is unlikely that all of the vehicles represent trips taken during the peak hours. The Applicant's survey indicated that 52% of employees arrive in the AM peak hour and 50% leave in the PM peak hours. Using these survey results, in conjunction with vehicle trips generation estimation using ITE[1] for the small retail and residential portions, the Applicant estimated the net new peak hour vehicle trips to be approximately 40 AM and 40 PM peak hour trips, as shown in the following table:

Table 1: New trip Generated by the proposed project

Peak Hour Vehicle Trip						
Land Use	**AM**			**PM**		
	in	*out*	*Total*	*in*	*out*	*total*
Residential	0	1	1	1	0	1
Retail	1	1	2	3	3	6
Heritage	36	0	36	0	35	35
TOTAL	37	2	**39**	4	38	**42**

[1] ITE trip generation were not used in isolation, but were reduced based on the Site proximity to high-quality public transit.

DDOT generally agrees with this methodology for estimating net new peak hour trip generation. However, it is possible that the projected trip generation is slightly low based on induced demand resulting from additional available curbside parking. The Applicant has proposed funding a Capital Bikeshare station to mitigate potential impacts the site may cause. A bikeshare station mitigates conditions by providing the opportunity to make a trip by bicycle that might be made with a vehicle. Specifically, bikeshare has the ability to limit intra-zonal vehicle trips and will allow area residents to shift vehicle trips to bicycle trips. Intra-zonal trips are those trips that begin and end in the same parking zone and are afforded full parking privileges of both the origin and destination. These trips can relatively easily be shifted to bikeshare if facilities are available and convenient. Similarly, trips originating in the immediate vicinity can shift to bicycle travel if facilities are available and convenient. DDOT believes a bikeshare facility in this location has the ability to mitigate the negative impacts of the project.

Trip Distribution and Assignment
The Applicant determined the directional distribution of vehicle trips from a survey in which employees were asked to specify the zip code in which they travel to and from on a typical work day. These data were used to determine an overall direction of approach based on the most likely route from each zip code. Based on the zip code survey of the current Heritage employees, the Applicant applied these new trips directionally, for the AM Peak hour as follows:

- Approximately 50% would originate from the west and utilize Massachusetts Avenue and D Streets to reach the 3rd Street lots.
- Approximately 25% would originate from the South and utilize northbound 3rd Street to reach parking.
- The remaining 25% would originate from the east and north utilizing Massachusetts Avenue, E Street, and southbound 3rd Street.

For the PM peak hour, the Applicant estimated that about 85% of the PM trips would the leave the 3rd Street garage/lot and head south on 3rd Street toward D and Massachusetts, while the remaining 15% would travel north to 3rd Street and eastbound E Street.

Existing and future Intersection Level of Service (LOS)
The Applicant conducted traffic counts for the study area intersections, as described above and applied these counts, using the Highway Capacity Manual (HCM) methodology to determine the existing level of service. To these existing counts, the Applicant then applied annualized background growth along Massachusetts Avenue to determine the background no-build condition for year 2016. The new trip generation numbers were then applied to this background condition using the distribution analysis provided by the Applicant. The analysis shows that vehicle traffic impacts from the project will produce a minor, but manageable, increase in delay. The resulting LOS analysis, documented in the table below, shows that the study area intersections retain an adequate LOS with the proposed project.

Table 2: 2016 Background and Future Levels of Service (LOS)

Intersection	Background		With Project	
	AM	*PM*	*AM*	*PM*
3rd & E Street	B	A	B	A
D Street & 3rd	C	B	C	B
Mass. Ave & 3rd	C	C	C	C
Mass. Ave & D	A	C	A	C

DDOT conducted a PM peak hour site visit to independently confirm the observed existing LOS. DDOT's observations are generally consistent with the Applicant's findings. DDOT noted several approaches that operated poorly for short stretches of time and overall the intersections appeared to be slightly worse than modeled by the Applicant, but no approach appeared to operate at LOS F. DDOT believes that there are three main causes in the difference between what was observed and what was modeled:

- No left-turning bays exist at the study area intersections. Thus, a single left-turning vehicle may block an entire approach causing significant queuing upstream for one or more cycle lengths.
- Illegally parked cars or delivery vans in the travel lane sporadically reduce the available travel lanes on Massachusetts Avenue.
- The area has a high level of buses. Buses are slower and take up more space than passenger cars.

DDOT notes that these observations may not have been modeled, and in some cases cannot be modeled accurately. However, applying these observations to the model would result in only a slightly worse LOS than was estimated by the Applicant and would not lead to a failing LOS at any of the study area intersections.

Vehicle Queuing

In addition to the LOS analysis which measures vehicle delay, DDOT reviewed existing and predicted queue lengths, based on the additional parking spaces and the concentration of parking on to 3rd Street. DDOT reviewed the average queue length and the 95% queue length during AM and PM peak hours, comparing the background *no-build* condition to the future *build-out* condition.

In the AM peak hour, all approaches saw negligible differences in the average and 95% queue lengths. These differences were typically between zero and one car length. The same condition was observed for the PM peak hour condition, with the exception of the southbound approach of 3rd Street at D Street. This approach had an average queue length that doubled from about 30 feet to about 60 feet – which represents about 3 to 4 vehicle lengths. The 95% queue length increased from about 50 feet to about 140 feet, representing a change in length from about 3 vehicles to about 7 vehicles in length. This queuing would result in short-term blocking of the proposed driveway, which in-turn may induce drivers into the neighborhood to find alternate routes to Massachusetts Avenue.

DDOT conducted a site visit to independently confirm existing queue lengths in order to validate those modeled by the Applicant. DDOT's observations confirmed the existing queue lengths predicted by the Applicant's existing counts and traffic models, though southbound 3rd Street was often seen having queue lengths five vehicles deep in the evening peak. DDOT observations indicate that the future average and 95% queue lengths may be approximately 2 to 3 car lengths longer than modeled, but would still not spill back to E Street.

Transit Service

The District and Washington Metropolitan Transportation Authority (WMATA) have partnered to provide extensive public transit service in the District of Columbia. DDOT's vision is to leverage this investment to increase the share of non-automotive travel modes so that economic development opportunities increase with minimal infrastructure investment. As noted by the Applicant, the Site is well-served by public transit. The Site is in close proximity to Union Station, which serves the Metro Red Line, but also serves commuter rail from Maryland and Virginia. In addition, both the Circulator and WMATA buses have stops adjacent to the site.

Pedestrian and Bike Facilities

The District of Columbia is committed to enhancing the walk-ability and bike-ability of the city by ensuring consistent investment in pedestrian and bike infrastructure on the part of both the public and private sectors. DDOT generally expects new developments to serve the needs of all trips they generate, including pedestrian and bicycle trips.

As noted by the Applicant, the site has good pedestrian access to nearby pedestrian generators such as the Senate office buildings, the United States Capitol, and the Supreme Court as well as nearby transit destinations, including bus stops and Union Station. The observations were independently confirmed by DDOT. The Applicant further noted that most sidewalks in the vicinity comply with DDOT's width requirements and that the large majority of pedestrian crossings complied with ADA standards.

The site has access to many nearby bike facilities including bike lanes on C and D Streets, the Metropolitan Branch trail, and the National Mall trails. DDOT confirmed that this area is very bike friendly and noted many bicycle commuters in the evening rush hour. A 31 dock Capital Bikeshare Station is located approximately three blocks to the West at Columbus Circle and a 23 dock station is located at D & Maryland, approximately four blocks to the east. A review of publically-available usage data[2] for the two surrounding Capital Bikeshare stations show that these stations are the origin or destination for approximate 315 bike trips per day; 230 per day for the Columbus Circle Station and 85 per day for the D Street Station.

Bike Parking

The Applicant observed bike parking demand at this location as seen from the many bikes locked to trees and signs and other objects. An independent DDOT site visit confirmed these observations in addition to the full utilization of two existing racks on Massachusetts Avenue. It is unclear from the observations if the demand was short term or long term, though no turnover was noted in DDOT's hour-long site visit. DDOT also observed many bicyclists along D Street, 3rd Street and Massachusetts Avenue, indicating that area is perceived as bicycle-friendly.

The Applicant is proposing 42 bike parking spaces in addition to the 10 existing secure long-term spaces below 208 Massachusetts Avenue. Six of these the spaces are to be located in a secure room in 236 Massachusetts, while the remaining 36 spaces will be located in the 1st and 2nd floors of the proposed parking garage[3]. The Applicant will exceed the zoning-minimum requirement of 22 long term spaces.[4]

[2] 4th Quarter 2012, October through December. http://capitalbikeshare.com/trip-history-data

[3] The Transportation Impact Study, dated February 28, 2014 referenced 40 long-term bike spaces. This number referenced only the spaces in the parking garage and did not include the spaces in the bike room at 236

DDOT notes, however, that only 33 of the 42 spaces meet the regulations for bike spaces per the District of Columbia Municipal Regulations[5].

Loading and Curbside Management

DDOT's practice is to accommodate vehicle loading in a reasonable and safe manner while at the same time preserving safety across non-vehicle modes. For new developments, DDOT requires that loading takes place in private space and that no back-up maneuvers occur in the public realm.

The existing loading for the site is as follows:

- 208 Massachusetts Avenue: loading via Public Alley
- 214 Massachusetts Avenue: curbside and existing parking lot.
- 236 Massachusetts Avenue: circular driveway
- 3rd Street properties: no existing loading

The proposed loading for 208 and 214 Massachusetts Avenue will be from the public alley. The proposed program for 236 Massachusetts Avenue is short-term intern housing and should require minimal loading facilities. A temporary loading zone exists in front of 214 Massachusetts Avenue, NE. DDOT is currently planning on removing this loading zone and the Applicant is aware of DDOT's plans.

The current loading operations rely on delivery vehicles backing out onto Massachusetts Avenue from the public alley. This practice is contrary to DDOT's required loading procedures, addressed in the *Design and Engineering Manual*[6]:

> "All motor vehicles accessing a loading dock driveway from a roadway shall both enter and exit a driveway entrance in a forward direction so as to avoid vehicle backing in the public space. All turning and backing movements associated with accessing a loading dock from a driveway entrance on a street shall take place on private property."

DDOT will address these concerns and other public space design issues in the public space permitting process.

Transportation Demand Management

As part of all major development review cases, DDOT requires the Applicant to produce a comprehensive Transportation Demand Management (TDM) plan. TDM is a set of strategies, programs, services, and physical elements that influence travel behavior by mode, frequency, time, route, or trip length in order to help achieve highly efficient and sustainable use of transportation facilities. In the District, this typically means implementing infrastructure or programs to maximize the use of mass transit, bicycle and pedestrian facilities, and reduce single occupancy vehicle trips during peak periods.

Massachusetts. Upon closer inspection of the available area in the garage in conjunction with the DDOT standard bike space (2' x 6'), the Applicant revised the number of bike parking spaces from 40 to 36.

[4] The office use would require 229 vehicles space per Zoning – equating to a minimum of 12 bike spaces, while the 28 residential units would equate to a need for 10 additional bike spaces.

[5] DCMR Title 18, Chapter 21 Section 2119 states Bicycle facilities shall have convenient access from the building or structure and street or other bicycle right-of-way, be clean, secure and well lit and shall be located within a building or structure, *either on the ground floor, basement, or first cellar level.* The 9 spaces two levels below grade do not meet this criteria.

[6] Section 31.2.3.2 "DDOT Requirements: Commercial Driveway." *Design and Engineering Manual.* DDOT

The Applicant currently utilizes the following TDM strategies:

- Charging employees $90 for parking on the existing surface lot or annex lot.
- Enrolling in SmartBenefits program that allows employers to assign the dollar value of employees' monthly commuting benefit directly to SmarTrip cards.
- Having available showers and lockers to encourage bike commuting.

The Applicant is proposing to continue charging employees for parking at the new proposed parking garage and will also maintain the enrollment in the SmartBenefits program. In addition, the Applicant is proposing to install 33 long-term bike parking spaces (to complement the 10 existing spaces) and ten additional short-term spaces in the public space. DDOT agrees that the additional bike parking spaces, in conjunction with the shower/locker facilities, will assist in mitigating some effect of the extra parking on the residential roadway approaches. In addition, the Applicant has agreed to provide a 40' bikeshare station at a cost of approximately $70,000. DDOT believes the suite of TDM measures currently in use and proposed by the Applicant are appropriate.

Streetscape and the Public Realm

In line with District policy and practice, any substantial new building development or renovation is expected to rehabilitate streetscape infrastructure between the curb and the property lines. This includes curb & gutter, street trees and landscaping, street lights, sidewalks, and other appropriate features within the public rights-of-way bordering the site. As part of this process, the Applicant must work closely with DDOT and the Office of Planning to ensure that the design of the public realm meets current standards, and will substantially upgrade the appearance and functionality of the streetscape for public users needing to access the property or circulating around it. The DDOT Public Realm Design Manual will serve as the main public realm reference for the Applicant.

DDOT has concerns about the effect of moving the existing 3rd Street driveway on the tree canopy. The Applicant should utilize the existing curb cut on 3rd Street NE and protect the adjacent street tree canopy. Removal of a healthy street tree and tree box requires approval by the Ward 6 Arborist. In addition, widening of existing street tree planters and planting of new trees in the public right of way is encouraged by DDOT. DDOT will address these concerns and any other public space design issues during the public space permitting process.

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