

## TECHNICAL MEMORANDUM

To: Chris VanArsdale  
Mark James

From: Will Zeid, PE  
Erwin Andres, PE

Date: May 12, 2022

Subject: 4608-4618 14<sup>th</sup> Street NW, PUD, Z.C. Case No. 21-18  
Responses to Written Testimony of Reju Vijaya Radhakrishnan, P.E.,

### Introduction

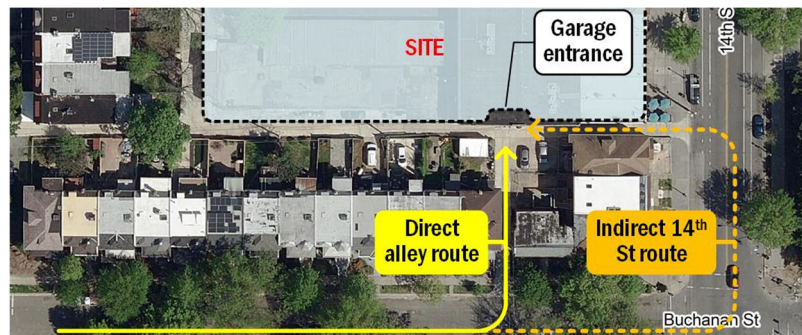
This memorandum contains responses to written testimony submitted for Reju Vijaya Radhakrishnan, P.E. The written testimony being responded to is presented in its entirety in blue text, with Gorove Slade's responses presented in italicized black text.

#### Testimony: "EXISTING CONDITIONS – TRAFFIC COUNTS"

Section 3.2.5 of the DDOT Guidelines for Comprehensive Transportation Review (CTR) Requirements states that at a minimum, the study area will include intersections where site impacts are most likely to occur, including all access points, adjacent streets/intersections at the boundary of the site. Section 3.2.6 of the CTR requirement further states that if the site currently generates traffic, all current site access driveways will be included in the TMCs. The current study only focuses on three (3) intersections on 14th street adjacent to the site. No traffic counts were performed at the intersection of the alley with 15th Street NW and Crittenden Street NW. No intersections were studied to the west of the site. Therefore, the current activity levels on the public alleys adjoining the proposed site and operational analysis on neighborhood streets were not adequately studied."

- **Response 1:** *Vehicular analyses were not required for the project, which was confirmed by DDOT during the CTR scoping process, because the project is not expected to generate 25 or more peak hour peak direction trips. The supplemental traffic assessment, dated April 4, 2022, was provided to go above and beyond in response to community feedback.*

*Reviewing the area road network, we do not anticipate the need for site users to approach from 15th Street, Buchanan Street or Crittenden Street. 14th Street connects through to the north past Military Road. Site users coming from the north on 16th Street would likely use Military Road to reach southbound 14th Street and proceed to the site. Since the alley system to the west of the site is only 10-foot wide, and 14<sup>th</sup> Street provides direct access to the project widened section of the alley connecting the garage, we would expect site users to tend to approach the site from 14th Street rather than the challenging alley network to the west. If site users were to occasionally utilize Buchanan Street to travel to/from the west on Buchanan Street, there is a direct north-south alley connection between the garage and Buchanan Street, as shown below:*



*Therefore, these vehicles would not likely travel through the 14th Street intersection with Buchanan Street.*

*To/From the south, 14th Street connects all the way into downtown DC, and we would expect users to make their way to 14th Street and not need to approach through the side streets. From the south on 16th Street, Arkansas Avenue provides a convenient diagonal cut across to 14th Street.*

*We did assign some traffic to approach from the east via Buchanan Street coming from the Georgia Ave and Petworth area, as that appears to be a potential travel route.*

*It is important to note that the peak direction trip generation for the project is 24 vehicles per hour. Dividing this up to the north and south results in approximately 12 vehicles in each direction. With this low of a magnitude of trips, sending 10 percent, or even 20 percent to the side streets of Crittenden or Buchanan Street represents only 1 or 2 vehicles per hour in each direction, or up to 1 vehicle every 30 minutes. This would not likely have a noticeable impact on operations along either of those roadways or increase delays at the intersections with 14<sup>th</sup> Street to beyond DDOT's acceptable thresholds. Therefore, even if traffic was assigned to those routes in the assessment, we would not expect it to have changed the report findings.*

#### **Testimony: "BACKGROUND CONDITIONS – EXCLUSION OF WMATA NORTHERN GARAGE TRAFFIC"**

Section 3.2.8 of the CTR requirement states the CTR will account for vehicle trips generated by developments in the study area that have an origin/destination within the study area. The WMATA Northern Garage across the proposed site is currently nonoperational for redevelopment. The redevelopment project is anticipated to begin in 2022 with a total duration of three to four years and is expected to be operational in 2026.

The Gorove/Slade study did not include this project as part of the Background traffic. The study states that "sufficient details are not currently available to estimate the net increase trips for this site relative to the existing operations for this garage."

Some of the pertinent details on this project are available on the WMATA website and are as follows: about 150 buses are expected to be stored and maintained at this facility. Additionally, the project includes amenities within the building such as office space for Uptown Main Street; 27,500 square feet of retail space; and a community room with capacity of up to 150 seating and up to 200 standing. The redevelopment project will include 306 onsite parking spaces for employees and non-revenue vehicles as well as 20 parking spaces for retail employees. The primary access to the facility would be via the 14th Street NW.

It is anticipated that construction-related impacts such as lane closures will last for the duration of construction which is 3-4 years, even with the implementation of maintenance of traffic measures.

The inclusion of traffic from this project and capacity reduction scenario due to long-term lane closures is an important element that were not addressed in the traffic study. Moreover, the concurrent nature of construction activity of these two projects on both sides of 14th Street NW is anticipated to increase the per vehicle delay during peak periods at neighborhood intersections during the construction period. The traffic from this project is likely to have a significant impact on the neighborhood streets and should have been included in the traffic study for both the background, and total conditions."

- **Response 2:** Vehicular analyses were not required for the project, which was confirmed by DDOT during the CTR scoping process, because the project is not expected to generate 25 or more peak hour peak direction trips. The analysis was provided to go above and beyond in response to community feedback.

*The supplemental traffic assessment prepared by Gorove Slade clearly identified and recognized that the WMATA Northern Bus Garage project was not in operation at the time traffic counts were collected and thus not accounted for in the assessment. Given the significant amount of capacity available on 14<sup>th</sup> Street, we concluded that traffic added back in from*

*the WMATA project once it reopened could be accommodated. This was subsequently confirmed by a newly published WMATA assessment.*

*WMATA recently released their Document of Categorical Exclusion for the WMATA project and published it to the project's web page (<https://www.wmata.com/initiatives/plans/northern-bus-garage/upload/DCE-Northern-Bus-Garage-FINAL.pdf>) sometime in April of 2022. The WMATA document is listed as approved on April 20, 2022, while the date on the document itself is April 1, 2022. To our knowledge, this document was not publicly available when we prepared the supplemental traffic assessment, dated April 4, 2022.*

*The WMATA document describes the following:*

- Reduce bus capacity from 175 buses (existing) to 150 buses (future). Designed to be WMATA's first all-electric bus garage with infrastructure needed to run 100% electric vehicles. Switch to EV will be a transitional process, and the garage may not open at 100% EV level.*
- Upgraded facility will relocate current on-street employee parking around the site to all internal parking on-site. Existing parking supply of 212 spaces will be increased to 306 spaces. Spaces to be occupied over multiple shifts and arrivals/departures will be staggered to reduce peak trip generation and reduce vehicular impact to area roads.*
- Retail intended to be neighborhood serving and only small amount of office space for Uptown Main Street*
- Traffic capacity is available on 14<sup>th</sup> Street and the project will not create unacceptable conditions on the road network.*

*The following is an excerpt from the WMATA Document of Categorical Exclusion:*

*"E. Traffic Impacts: This project is not anticipated to create unacceptable conditions on the regional roadway network. The number of buses stored and maintained at the garage will be reduced from 175 buses to 150 buses, thus reducing bus travel on the surrounding road network. Employee arrivals and departures are broadly dispersed throughout the day and evening. As a result, traffic from the proposed employee parking would have a negligible impact on nearby intersections.*

*Traffic volumes on the adjoining street network are relatively low and can readily accommodate the bus and employee traffic associated with the facility without creating unacceptable conditions. In 2018, the Average Annual Daily Volume on 14th Street NE adjacent to Northern Bus Garage was approximately 11,000 vehicles per day.<sup>1</sup> The volume on Buchanan Street NE was approximately 1,000 vehicles per day.*

*Currently, there are 212 on-site parking spaces for employees and non-revenue vehicles. The proposed project includes 306 onsite parking spaces for employees and non-revenue vehicles as well as 20 parking spaces for retail employees. The 326 parking spaces would be occupied over multiple shifts. This would result in only a limited amount of traffic being generated by the parking at any time.*

*Generally, the maximum acceptable conditions capacity for urban streets is based on intersection capacity. Based on DDOT Signal Optimization Synchro files using 2019 traffic counts, the Highway Capacity Manual Existing Conditions Level of Service (LOS) for the 14th Street NE and Buchanan Street NE intersection is shown in Table 2. The existing conditions are LOS A in the AM Peak Period and LOS B in the PM Peak. Since bus and employee traffic is distributed throughout the day rather than during peak periods, conditions are not anticipated to degrade to an unacceptable LOS E or F."*

*We spoke with WMATA and their contractor in late 2021. In that conversation, they indicated that the only ongoing public road impact would be converting Buchanan Street to one-way eastbound between 14th Street and Arkansas for the duration of the project. They did not indicate any other road or lane closures to us.*

As noted in the supplemental traffic assessment, and confirmed by the WMATA Document of Categorical Exclusion, significant capacity is available along 14th Street with the northbound and southbound approaches operating at LOS A and B at the signalized Buchanan Street intersection. Traffic added by the bus garage project would be able to utilize this available capacity and signal timing adjustments could be made if more green time were needed for the side street approaches of Buchanan Street.

**Testimony: “SITE TRIP GENERATION – MODE ASSUMPTIONS**

Section 3.2.3 of the CTR Requirements states that a CTR is expected to include further analysis of vehicle impacts if the proposed site generates 25 vehicle trips in the peak directions for either peak period, AM, PM, or weekend. The current study estimates the PM peak hour trip to be 24 vehicle trips. The trip computations assumed that only 35% of the residential trips are going to be based on the auto-mode of travel. The consequence of this assumption is underestimation of peak hour vehicle trips as the study assume more people would use the metro than travel by cars. This assumption is erroneous as the nearest metro rail station is 0.9 miles away and well outside the 0.5- mile walkshed.

The WMATA Development Related Ridership Survey (DRRS) shows the auto-mode to be 39% for the study area. This survey shows the distance between the residential site and station have a stronger correlation with mode share. The Metrorail use decreases by 0.87 percent for every 100 feet increase in distance a residential site is located from the station. Furthermore, the Census Transportation Planning Products (CTPP) which provides information on the characteristics about where people live and work, their journey to work, commuting patterns, and the modes they use for getting to work, finds the auto-mode to be about 46% for the study site area. Based on these survey data, the conservative assumption for auto-mode travel is about 45%. Computing residential trips on this basis will increase the PM peak hour trips to more than 25 vehicle trips thereby triggering the Traffic Impact Analysis Component of CTR.

The two land uses, Retail and Theatre are expected to generate considerable traffic during the weekend. The table below shows weekday versus weekend trips generated by the site. These trips were estimated using the ITE Trip Generation Handbook. The AM and PM trips were computed by Gorove/Slade and the weekend trips were computed by MCV.

ITE Code	Land Use	AM Total Trips	PM Total Trips	Saturday Total Trips	Sunday Total Trips
820	Shopping Center	2	7	27	53
460	Arena/Theater	0	23		
221	Multifamily Housing (Mid-Rise)	36	44	49	39

As seen, the weekend trips are considerably higher than the weekday peak hour trips. The study should have also analyzed the peak hour traffic during the weekend period. Further, as DDOT points out the ITE code 460 used in the Trip Generation for the Theater Land Use has a sample size of only one study. Data from similar land uses in the Washington DC area should have been collected for the weekday and weekend period to capture reliable trip generation rates and to estimate the peak hour trips.”

- **Response 3:** *The site is located immediately adjacent to the 14th Street bike lanes and the 14th Street Priority Corridor Metrobus Route, as well as within 1,000 feet of the 16th Street Priority Corridor Metrobus Route with newly opened bus lanes. Further, the site is implementing a robust TDM plan that includes expanding the nearby Capitol Bikeshare Station from 11 to 19 docks, installing new crosswalks, ADA ramps and curb extensions at the Crittenden Street / 14th Street intersection, exceeding ZR16 long term and short-term bike parking requirements and additional TDM measures, as outlined in the TDM plan and approved by DDOT. The site is also taking advantage of the ZR16 parking reduction of 50% due to the site’s proximity to the priority corridor metrobus routes, which recognizes that such proximity is conducive to a higher non-auto mode share. From our experience, DDOT’s position is that a reduced parking supply is a driver in reducing auto mode share trips as it results in a reduced availability of vehicles. A review of the census tract data for this specific area indicates the 971 occupied housing units in the area had access to 1,162 vehicles. This represents an average vehicle*

availability of approximately 1.2 per household. This is nearly four times the availability of vehicles when compared to the approximate parking supply (0.33 spaces per unit) for the new multifamily building at 4618 14<sup>th</sup> Street. This building will provide a lower parking supply, while meeting zoning requirements, that will attract residents more likely to use non-auto modes of transportation when compared to those that provide more parking and thus more personal automobile availability. Further, the residents will not be eligible for RPP permits, as RPP has been removed on the subject block of 14<sup>th</sup> Street. The site is providing 40 parking spaces, which is below DDOTs recommended maximum parking and within the ZR16 requirements with the allowable reduction. These factors are all taken into consideration when identifying the auto mode share. The site's proximity to metrorail is just one of the many considerations that goes into identifying the projected mode share for a future development. The auto mode share assumptions, which range from 35-45 percent for the various site uses (35% for residential), were reviewed by and approved by DDOT.

Weekend traffic assessments are primarily applicable for sites with a large retail component or other use that when layered onto the weekend traffic would create a traffic level higher than the weekday commuter peak periods. The proposed site has less than 2,000 sf of retail space (the 24,000 sf of existing retail space on-site will be removed with the redevelopment) and the peak traffic levels on 14<sup>th</sup> Street are represented by the weekday commuter peak periods. The proposed project would not qualify for requiring a Saturday analysis and none were required by or requested by DDOT. The peak traffic conditions on the area roads for the site are represented during the AM and PM weekday commuter peak periods when the site traffic layers onto commuter traffic on 14th Street. During the evening on weekends, theater traffic will not be layering onto a baseline traffic volume on 14th Street comparable to weekday commuter traffic, and thus sufficient capacity is expected to be available.

As discussed in the supplemental traffic assessment and the CTR traffic statement, the theater use does not hold events during the weekday commuter peak period, and traffic was generated using the closest available land use in order to provide a conservatively high estimate. Counting other theater spaces during the commuter peak period with no events taking place would be unlikely to generate useful data. Further, the theater space would not generate traffic during the peak weekend mid-day traffic flow on 14th Street as events are typically held during the evening. The estimate of 10 trips has been applied during the peak hour to provide a conservatively high estimate and does not represent the trip generation during an event. Events are expected to occur outside of the peak period where significant capacity is available along 14th Street.

**Testimony: ["TRIP DISTRIBUTION"](#)**

The trip distribution of site generated trips does not consider the existing count patterns and do not assign trips on east-west streets, some of which are currently operating at levels of service D. Almost all the trips in the study are assigned north and south on 14th Street NW and few inbound trips on Buchanan St, west of 14th Street NW. The trip distribution conspicuously ignores assigning trips on the Crittenden St NW and Buchanan St NW, east of 14th St NW and as it is the norm to distribute trips generated by the site throughout the study area network."

- **Response 4:** There is a north-south alley connection to Buchanan leading directly to/from the garage. There would be little need for this traffic to pass through the intersection to the east if coming from or going to the west. As previously discussed, the total site peak direction generation is 24 vehicles. Divided up between north and south of the site, this leaves 12 vehicles approaching from or departing to the south. Applying even 20 percent of this to Buchanan Street, would represent 2 vehicles in each direction, or approximately 1 vehicle every 30 minutes. This would not likely have a noticeable impact on traffic operations on that roadway, even if they were to travel through the 14<sup>th</sup> Street intersection at Buchanan Street and not utilize the direct north-south alley connection to/from Buchanan Street.

Further, at the Buchanan and 14th Street intersection, the northbound and southbound through movements make up 84% of the total intersection volume during the AM peak hour and 86% during the PM peak hour. The eastbound approach of Buchanan and Crittenden do not represent the primary travel routes to the site. Vehicles have numerous convenient

opportunities to the north and south to orient onto 14th Street to travel to the site. The side street approach of Buchanan Street with LOS D represents less than 5% of the total volume at the intersection, while the mainline 14th Street approaches with 90 percent of the intersection volume operate at LOS A and B. This is because the signal timings at this intersection are designed to move traffic efficiently on the mainline while allowing increased delay for the side streets. This is further indicated with the intersection's volume-to-capacity ratios of only 0.41 during the AM peak hour and 0.34 during the PM peak hour, which indicate significant capacity is available at the intersection. Given a higher delay on Buchanan and a lower delay on 14th Street, 14th Street represents the most convenient route to the site. The available north-south alley connection would also eliminate the need for site traffic to travel through that intersection if approaching from or traveling to the west on Buchanan Street. With the delay on the approach at approximately 37 seconds per vehicle, adding 2-3 additional vehicles would not likely increase the delay to above DDOT's threshold of 55 seconds per vehicle (LOS E) for adequacy. Therefore, it would not trigger mitigation, even if the project were subject to the vehicular adequacy test, which it is not. It is also important to note that the eastbound queues associated with the existing LOS D condition on Buchanan Street are fewer than two vehicles, which does not represent a significantly constrained traffic condition. Signalized intersection timings are often designed to prioritize the mainline traffic and allow higher side-street delays for low volume approaches, such as Buchanan Street. From our experience, mitigation at this intersection to reduce delays for Buchanan Street could easily be accomplished by adjusting the signal timing. However, such an improvement may not be desired by DDOT, and the Project's proposed TDM measures, including the CaBi Station expansion and extensive pedestrian and ADA improvements at Crittenden Street and 14th Street would more than mitigate any site traffic impact at this intersection, regardless of how much of the site traffic were apportioned to the west on Buchanan Street.

Similarly, at Crittenden Street, we did not feel that it was a likely primary route for inbound or outbound site traffic when compared to the options to the north on 14th Street, especially with only 24 peak direction trips to be distributed. With the side street operating at LOS B with fewer than 12 seconds of delay, adding a few vehicles would not have any potential of resulting in a failing condition and had no bearing on our distribution assumptions.

**Testimony: PARKING**

The study proposes to provide 19 parking spaces and 21 noncompliant stacked spaces. This is 55 spaces less than the ZR16 parking minimum of 74 spaces. The study does not address visitor parking and the demand on neighborhood streets as result. The study analyzed parking conditions on a weekday evening and a Saturday evening.

Based on the adjacent land uses, particularly the church, a Sunday analysis should also be done. The Ethiopian Orthodox Tewahedo Religion Church is at proximity to the site, and it seems that parking is an issue during the times when the church services are active. With limited parking proposed at the site, and the proposed theatre expected to attract more infrequent visitors, the parking analysis on Sunday evening should have been done."

- **Response 5:** Per Section 711.4: "An automated parking garage shall meet the requirements of Subtitle C § 711.3, although individual parking spaces provided as part of the automated parking garage do not." Therefore, the site is providing 40 parking spaces, all of which count towards the site's ZR16 parking requirement.

The theater space is not required to be parked as it is considered cellar space. The ZR16 parking requirement, before reduction for proximity to priority corridor bus routes, is 55 spaces. With the reduction, which the site is eligible for, the ZR16 parking requirement is 28 spaces. No parking relief is required.

The parking occupancy study prepared by Gorove Slade was an assessment of existing parking occupancy to identify the current availability of parking in the area. The study found the overall area at below 70% occupancy, which would indicate available parking for future site users, including visitors. The parking study was scoped, review and approved by DDOT. It was originally required because the project was previously seeking parking relief. The site is no longer seeking parking relief. Further, the recently released WMATA Document of Categorical Exclusion identifies that the WMATA Northern Bus

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*Garage project will be permanently moving employee parking on-site where employees previously utilized on-street parking surrounding the site.*

*The referenced church operates out of the adjacent converted rowhouse on the south side of the alley. Given the small size of the church and the theater events unlikely to overlap with church services, the applicable study times for the parking occupancy study was a weekday and Saturday evening, as approved by DDOT.*

#### **Testimony: “ALLEY OPERATIONS**

The current activity levels on the public alley are not captured adequately in the existing conditions as no traffic counts were performed at the intersection of the alley with 15th Street NW and Crittenden St NW. Many residents rely on the alley for vehicular access to their property. The alleys are not wide enough for two-way operations. This poses a challenge for vehicles entering/exiting the site from/to multiple access points at the same time having to negotiate the long alleys with limited sight distances. This will most likely increase the chance of conflicts.”

- **Response 6:** *The project includes widening of the alley from the garage to 14th street to accommodate site traffic. It is not expected that site users would commonly utilize the alley to the west, given the constrained nature of the alleyway and the widened and more convenient access to 14th Street. The project has included a commitment in the loading management plan to coordinate with DDOT following the opening of the building to identify whether additional signage or striping is needed in the alley or if the alley should be converted to one-way only operations.*

*Regarding traffic volumes at the west end of the alley, we would not expect those volumes to be very different from the east end of the alley where only 1 AM and 2 PM peak hour vehicles were observed using the alley. Given the relatively low traffic volumes on 15th Street and the negligible volume of alley traffic, a stop control delay analysis at that location would not show significant delays for any of the approaches, and that location does not represent an intersection where this site would have the likely potential to trigger DDOT’s mitigation criteria.*

#### **Testimony: “CONCLUSIONS**

The traffic analysis conducted by Gorove/Slade is incomplete and erroneous and therefore the study results are not valid.”

- **Response 7:** *Vehicular analyses were not required for the project, which was confirmed by DDOT during the CTR scoping process, because the project is not expected to generate 25 or more peak hour peak direction trips. The analysis was provided to go above and beyond in response to community feedback. DDOT confirmed the project’s mode share assumptions, and the project is providing the DDOT required TDM plan to further justify those assumptions.*