GOROVE / SLADE

1140 Connecticut Avenue NW
Suite 600
Washington, DC 20036
202.296.8625

MEMORANDUM

To:	Jamie Henson	DDOT – PPSA
	Anna Chamberlin	DDOT – PPSA
	Jonathan Rogers	DDOT – PPSA
Cc:	Anne Corbett	Vision McMillan Partners
From:	Robert B. Schiesel, P.E. Daniel VanPelt, P.E., PTOE	
Date:	April 17, 2014	
Subject:	McMillan Sand Filtration Site TIS – Supplemental Information & Revised Recommendations	

This memorandum contains information supplementing our March 17, 2014 Transportation Impact Study (TIS) for the McMillan Sand Filtration Site PUD (McMillan). It contains a summary of our interaction with community members and provides a revised set of recommendations reflecting feedback received from both the community and conversations with DDOT staff.

Community Interaction

We presented and participated in three meetings with the community on behalf of the Applicant, on March 13, April 3, and April 7, 2014. During these meetings, community members expressed a range of concerns, from traffic impacts to a desire to see more transit service. Attached to this memorandum are 82 questions and responses assembled during the community meetings process. The attachment provides a good review and summary of community concerns.

Some of the revisions to our recommendations were based on feedback received at these meetings. First, Stronghold residents expressed a desire for more connectivity to North Capitol Street. This altered our recommendations at the intersections of North Capitol Street and Franklin Street, and North Capitol Street and Evarts Streets, as described below. Second, residents south of the development along First Street expressed a desire to reduce commuting traffic that uses First Street. They requested that we not recommend altering the all-way stop intersection of First Street and Channing Street to a two-way stop condition. This recommendation was originally included in our March TIS as a congestion relief mitigation measure, and the community was concerned that it could lead to more commuting traffic on First Street. Based on this feedback we are withdrawing this recommendation.

Revised recommendations

Presented below are a revised set of recommendations, showing the original recommendations from our March TIS and changes/additions. These are based on the community feedback and several phone conversations with DDOT staff. We interpreted DDOT's three major concerns as:

- That the close spacing of intersections and driveways on First Street between the North Service Court and Michigan Avenue could lead to congestion and safety issues.
- That the concentration of Parcel 1 employee traffic at one driveway along First Street would lead to unnecessary congestion at intersections with existing capacity concerns.
- That the commitment to enhance transit capacity would be strengthened with passenger capacity targets.

We believe that the revised recommendations alleviate these concerns, along with others expressed by DDOT. The table below contains details on the revised recommendations, and attached to this memo are graphics depicting some of the recommendations. Of note:

- The proposed transit capacity increase is based on the cumulative passengers/hour added during the peak hours by the already planned Metrobus 80x, Neighborhood Connector, and DC Circulator routes described in the TIS.
- We have included some external roadway improvements as not recommended for construction at this time, but for review at the development's Phase 2 (Parcels 2 and 3). This is because we think that without traffic generated by those parcels, these improvements would not be necessary.
- Two capacity based improvements to weekday evening southbound traffic on First Street were developed but not included in the recommendations below. These were to remove some southbound parking along First Street to add another southbound through lane at Channing Street, which would then transition to a right-turn only lane at Bryant Street. Although these improvements alleviated congestion observed in the future traffic model, we are not recommending them due to the concerns expressed by the community regarding not making First Street a more desirable route for commuter traffic.

McMillan TIS - Revised Recommendations

Original Recommendation	Change/New Recommendation	Reasoning
Michigan Ave/Half St: Install new traffic signal. Construct a westbound left turn lane (100').	No change	
North Capitol St/North Service Court: Install new traffic signal. Construct northbound left turn lane (125'). Restrict left turns from Franklin Street.	Install new traffic signal. Construct northbound left turn lane (90'). Incorporate Franklin Street into signal to allow left turns. Restrict through movements across North Capitol Street.	Opinions expressed by Stronghold residents during community meetings. In addition, DDOT expressed a desire for more Stronghold access.
North Capitol St/Evarts St: Install new traffic signal. Construct northbound left turn lane (150'). Extend median to restrict Evarts Street traffic (westbound approach) to right-in/right-out movement only.	Install new traffic signal. Construct northbound left turn lane (150'). Do not restrict Evarts Street movements, and install short left turn lane to allow for left turn access to Stronghold.	Opinions expressed by Stronghold residents during community meetings.

Original Recommendation	Change/New Recommendation	Reasoning
First St/North Service Court: Install new traffic signal. Construct southbound left turn lane (50'). Remove parking to install an additional northbound through lane.	Remove parking to install an additional northbound through lane (do not construct new signal or southbound left turn lane).	Changes to Parcel 1's First Street driveway no longer create need for traffic signal.
Parcel 1 First St Driveway Construct Parcel 1 First Street driveway as three lanes wide. Construct a short left turn lane into the driveway.	Construct this driveway as a right-in/right-out driveway, with two lanes.	DDOT's capacity and safety concerns related to the close spacing of intersections between Michigan Avenue and the North Service Court on First Street.
Michigan Ave/North Capitol St: Construct eastbound right turn lane (100'). Restripe Michigan Avenue as it approaches North Capitol Street to extend left turn lane from 175' to 250'.	No change	
Michigan Ave/First St: Restripe Michigan Avenue as it approaches First Street to lengthen and improve left turn lane to First Street (from 40' to 150'). Construct a northbound through lane at the intersection of Michigan Ave and First Street. At Phase 2, review need for an eastbound right turn lane at the intersection of Michigan Avenue and First Street.	Same, plus add: Commit to funding the Southbound left turn lane on Michigan Avenue at First Street	DDOT expressed concern that although this improvement is needed to alleviate congestion from other developments, it is not currently funded.
First St/Evarts St: Construct a southbound left turn lane (100'). At Phase 2, review whether a traffic signal is needed & construct if necessary.	No change.	
First St/Channing St: Convert to one-way stop controlled intersection.	Do not convert the intersection, leave it as an all-way stop (delete this recommendation).	Request made during meetings with community.
Alter parking restrictions on North Capitol Street adjacent to the development so peak hour restrictions apply to both sides of the street for both peak hours.	No change.	

Original Recommendation	Change/New Recommendation	Reasoning
	Use operational & management measures to ensure that a significant portion of Parcel 1 employee traffic uses the Healing Gardens and North Service Court to help spread out peak hour traffic demand.	Spreading out demand helps alleviate the congestion and safety concerns DDOT expressed over the Parcel 1 driveway on First Street.
	Remove crosswalks on North Capitol Street at Girard Street.	DDOT request. They expressed a desire that the community know that the addition of new signalized crossings of North Capitol Street would lead to removal of nearby unsignalized crossings.
	Remove crosswalks on North Capitol Street at Douglass Street.	DDOT request. They expressed a desire that the community know that the addition of new signalized crossings of North Capitol Street would lead to removal of nearby unsignalized crossings.
That the Applicant coordinate with DDOT, nearby institutions, and the community to help bring significant increases in transit capacity to the area. Preferably, these are WMATA and DDOT's already planned improvements to the bus and streetcar systems. If these improvements do not come to fruition by full build-out of Phase 1 of the PUD, the Applicant will implement a private shuttle service to serve site generated transit demand in the interim.	That the Applicant coordinate with DDOT, nearby institutions, and the community to help increase the transit capacity by 1,100 passengers/hour, to a total of 2,500 passengers/hour (the current weekday evening capacity is 1,400 passengers/hour). This increase in capacity can be from public and/or private sources. The transit increase can be pro-rated based on the amount of development constructed, as follows: • Parcel 1: 750 passengers/hour • Parcel 2: 75 passengers/hour • Parcel 3: 75 passengers/hour • Parcel 4: 200 passengers/hour • Parcel 5/6: no commitment	Language change at DDOT's request to: (1) provide more flexibility on sources of new transit capacity, and (2) provide a minimum number of new transit service needed.
That the Applicant will coordinate with DDOT and the community to review bus stop locations and develop a plan to use the new pedestrian crossings to improve transit accessibility.	No change	

Original Recommendation	Change/New Recommendation	Reasoning
	The Applicant will pay for any bus stops (including shelters) relocated by the project. This would apply to any shelters and bus stops that have to be relocated during construction.	DDOT request.
The Applicant will commit to the grocery store having a loading dock manager.	No change	
The Applicant shall designate a TDM coordinator, who is responsible for organizing and marketing the TDM plan and who will act as a point of contact with DDOT.	No change	
All parking on site will be priced at market rates at minimum, defined as the average cost for parking in a 0.25 mile radius from the site. All residential parking (other than the row houses) will be unbundled from the costs of leasing apartments or purchasing condos.	No change	
All office employers and the grocery store will provide SmartBenefits for their employees.	No change	
On-street parking spaces will be reserved for car-sharing services, as needed throughout the development.	The Applicant will accommodate car-sharing company requests to provide parking spaces. The amount of spaces reserved for car-sharing will be based on the market, and will be a minimum of 10 spaces, to be located in a variety of on-street and off-street spaces on site depending on the car-sharing company request. Until requested by a car-sharing company, these spaces will be part of the general parking supply.	Re-wording for clarification
Office and residential building lobbies will display transit and other alternate mode information, using electronic messaging boards.	No change	
	The Applicant will provide funding for a minimum of 60 Capital Bikeshare docks on site, and an additional 20 docks offsite at a nearby Metrorail Station. The funding will include capital costs and one year of operations and maintenance.	DDOT request.

Revised Analysis

Also contained in this supplement are results from a revised analysis of the Total Future (Future Conditions with Development) scenario from the TIS, updated to reflect the revised recommendations. Attached to this memorandum is a table of delay and LOS results containing results for two new scenarios: (1) a Total Future scenario with no improvements (i.e. Exiting lane geometry and operations), and (2) a Total Future scenario with the revised recommendations and commitments described above and diagramed in the attached graphics. In addition, LOS and delay results of the improvements to be revisited during Phase 2 and those tested and not recommended on First Street, are included for your review.

GOROVE / SLADE

1140 Connecticut Avenue NW
Suite 600
Washington, DC 20036
202.296.8625

Transportation Impact Study Questions & Responses

Revised – 4/9/14 to include 4/3/14 Community Form

Questions from 3/13/14 MAG Meeting - General

1. Who paid for this meeting?
   The event was a regularly scheduled monthly meeting of the MAG (McMillan Advisory Group); CulturalDC and Gorove/Slade are both consultants under contract with Vision McMillan Partners (VMP), so all costs related to their attendance are paid for by VMP.

2. Who do the speakers work for?
   The two speakers on public art for CulturalDC and the two speakers on transportation work for Gorove/Slade Associates.

3. How do you determine and define if traffic is detrimental?
   Transportation Impact Study's (TIS) performed for PUD applications, such as McMillan define 'detrimental' traffic as a condition where unacceptable levels of congestion occur at an intersection in future projections, which includes traffic generated by the project in question, and where unacceptable levels of congestion do not occur at the same intersection in future projections that do not include traffic generated by the project.

   Gorove/Slade prepared two future traffic models that analyzed traffic congestion at a set of intersections adjacent to and near the McMillan site. One model included traffic generated by McMillan and future planned projects, the second model included only future planned projects. Analyses of traffic congestion are performed in both models and a 'detrimental' impact was determined when an intersection in the future model with McMillan traffic showed unacceptable levels of congestion where it did not in the future model without McMillan traffic.

4. Have small European style traffic circles been considered as an alternative to traffic lights?
   Yes, other solutions to the new traffic signals proposed in the TIS were considered, including traffic circles. Implementing traffic circles as an alternative to traffic signals would require right-of-way widening at all four corners of each intersections in order to create the circle. This would require the taking of land outside of the McMillan PUD, making implementation of traffic circles unfeasible.

   Smaller traffic circles, also known as mini-roundabouts, may be implemented in smaller spaces as an alternative to stop signs, but not traffic signals. There are locations where these alternatives may be feasible in or near the McMillan site; however the TIS did not conclude they were necessary to mitigate traffic impacts generated by the proposed development. Gorove/Slade did not recommend mini-roundabouts on the internal roadways in McMillan in order to show preference for pedestrian traffic – all-way stop signs have cars stopping for pedestrians, whereas mini-roundabouts only require cars to yield to pedestrians.

5. How many more cars over this mean in my neighborhood? How many projected cars because of development?
   The amount of vehicles per hour generated by the development in the morning and afternoon weekday and Saturday peak hours are shown in Tables 6 (pg. 25) and 7 (pg. 29) of the TIS. The morning weekday peak

hour traffic generated is 1,895 cars per hour or about one new car every 1.9 seconds. In the weekday afternoon peak hour, the development is projected to generate 2,061 cars per hour or 1 car every 1.7 seconds. The Saturday peak is 1,370 cars per hour or 1 car every 2.6 seconds. These cars will take various routes to and from the site, such that each major roadway approaching the development will have about 1 new car every 5 to 20 seconds during peak hours of demand.
The proposed McMillan plan contains 2,721 to 3,038 off-street parking spaces and 97 on-street spaces, so it has the capacity to accommodate that many vehicles coming to and from the site. Table 2 within the TIS breaks down the amount of parking provided per development parcel.

6. Left turns you are adding will cause more traffic in the Bloomingdale Neighborhood.
   Any development of the site will create new traffic demand and some of that traffic demand will want to go south through the Bloomingdale Neighborhood. The McMillan TIS projects the development will increase traffic on First Street south of Channing Street by 1 car every 10 seconds during the morning rush hour, 1 car every 9 seconds during the evening weekday rush hour and 1 car every 17 seconds in the Saturday peak hour.

7. What other projects has Gorove/Slade performed a traffic impact study for? Have you ever followed up on the accuracy of these?
   Gorove/Slade has performed traffic studies for many projects in the District and regional metropolitan area, including The Howard University Campus Master Plan, The Wharf (Southwest Waterfront Redevelopment) and National's Park. Professionals working on the McMillan TIS are registered professional transportation engineers.

   Typically, results of a TIS are not verified in the future because it is generally assumed that future projections of traffic are conservatively high. Instead, the methodologies used in the TIS are tailored to project a fair comparison between future conditions with and without the development. This allows traffic engineers to interpret the results and make conclusions on what impacts the development is expected to create. There are times when certain parts of a TIS are followed-up on, most often the projections of future traffic generated by the development. This is usually done to ensure the traffic generated by a development does not exceed certain thresholds (usually with the enticement that certain roadway improvements would be needed if traffic levels exceeded thresholds). Almost every time, the projections of future traffic are shown to be higher than the actual traffic generated by a development. This is because the methodologies that go into a TIS process always lean towards taking a conservative approach to estimating traffic – exaggerating traffic to get a better understanding of a development's impact. For example, the traffic projections in the TIS assume that the development builds all of the parking requested in the application, and that it uses all of the parking supply constructed (i.e. no empty spaces in the parking garages). In addition, the traffic projections do not take into account trends showing a decline in traffic generation, and that the amount of vehicles generated will be the same in 2025 as today.

   In the case of McMillan, there are simply too many variables that go into projecting traffic in the year 2025 to ensure an accurate result. Consider this, for the McMillan year 2025 projections to be completely accurate, the TIS would not only have to correctly model all McMillan traffic, but also the Armed Forces Retirement Home traffic, VAMC traffic, WHC traffic, among a lot of other variables.

8. Why do you have less total trips from each type than people in that type – for example, 60 AM trips for 146 townhomes?

Not every person living in an apartment or townhome will be an active part of the labor force, in other words working a job with traditional office hours and leaving within the same single hour as each other. With regards to the specific trips projected for the townhomes, Table 6 (pg. 25) in the TIS shows the AM peak trip generation for the townhomes as 74 in a single hour (28 transit, 6 walk, 2 bike, and 38 car), which is a very reasonable projection based on information collected national and regionally by the traffic planning and engineering industry. This assumption is further confirmed by Census information, where during the peak hour of traffic on North Capitol Street (7:30 to 8:30am based on data collected for the TIS) the amount of people in the labor force leaving for their jobs between 7:30 and 8:30 AM is 24.5% for the Census Tract where McMillan is located[1]. Therefore, if you assume each townhome has two active people in the labor force (a conservative assumption), 24.5% of those workers would equate to 72 trips.

9. What are the total trips to and from the site weekdays and Saturdays, not just peak hours?
   The same sources of information that provide trip generation estimates for the weekday peak hours may be used to calculate total weekday trips, however the TIS does not include this calculation because the methodology employed to convert vehicular estimates to multi-modal trips projections (see pages 22-24 of the TIS) cannot be performed to the same level of accuracy for total weekday trips. This is because the modal split used in the analysis is based on data collected for commuters, and is applicable to the weekday peak hours, but not necessarily for the entirety of a weekday. The modal split of development related traffic will differ during the day, and since the best modal split information is commuter based (census data and WMATA ridership survey), Gorove/Slade prefers not to replicate the calculations for weekday totals since it will only be at a lower level of accuracy.

   There are fewer information sources for Saturday trip generation estimates, so Gorove/Slade did employ a methodology to calculate total Saturday trips before breaking the trips down by hour to determine the peak overall hour of McMillan Saturday traffic (see pages 26 to 28 in the TIS). The methodology is detailed in the TIS Study's Technical Attachment B, which projects 22,794 total trips, of which 11,172 are vehicle. See Table 41 on (page 29) for the proposed development's total Saturday estimate trips per mode.

Questions from 3/13/14 MAG Meeting – Study Scope

10. Who tells us how this impacts our streets? Not in the development?
    The McMillan TIS looked at impacts not just at streets in and adjacent to the development, but at a scope spanning over 18 intersections in the vicinity of the site. Given the time constraints of the MAG meeting on 3/13/14, Gorove/Slade spent more time discussing streets close to the site because there are more development-related impacts adjacent to the site. The TIS contains much more detail on impacts to intersections and roadways not adjacent to the site, such as Rhode Island Avenue and Georgia Avenue. For a full overview of the study area, refer to page 3 of the TIS – "Study Area Overview".

11. How for south do your models look? As of now, when cars enter the Rhode Island Ave overpass, it bottlenecks all the way to the NY Ave underpass.
    The study scope stretched from Georgia Avenue to the west, to Irving Street to the north, Rhode Island Avenue to the south, and the intersection of Michigan Avenue with Franklin Street to the east. The study scope area was set after discussions with the District Department of Transportation, with the intent that the study area encompasses all intersections where a detrimental impact of the development may be found. The farther away from the site, the less of a chance the development will have any impact on traffic. For

[1] *ACS 5-yr estimates, factfinder2.census.gov, Census Tract 33.01*

example, the TIS shows that the McMillan development will constitute around 17-21% of future rush hour traffic at the intersection of Michigan Avenue and First Street, 7-8% at First and Rhode Island Avenue, and less than 1% at the intersections of North Capitol Street and Rhode Island Avenue.

12. Does the study address Traffic on N. Capital and 1st St south of Channing?
    Yes, traffic on N. Capital and First St south of Channing St is within the study area.

13. Why did the report not include the Monroe Street development in the scope? Catholic and Trinity projects?
    These projects are located outside of the study area prescribed by the District Department of Transportation so they are not specifically referenced in the report; however, the TIS analysis includes all traffic generating sources that are also contained in the 2040 Metropolitan Washington Council of Government (MWCOG) traffic model of the entire metropolitan DC area[2], which should include these projects.

14. Does your analysis of future traffic include known other PUDs or probable (empty or undeveloped properties) on the N. Capital Route or within a few miles?
    The analysis includes all traffic generating sources that are also contained in the 2040 Metropolitan Washington Council of Government (MWCOG) traffic model of the entire metropolitan DC area. General information from the MWCOG model was combined with detailed information from developments within the study area to build the future traffic models. A discussion on this methodology starts on page 38 of the TIS.

15. Do you assess accidents and being more prone as part of this study?
    The TIS contains a section that reviews crash data at intersections, including types of crashes (beginning on page 128). However, the traffic engineering industry has not yet developed a methodology to accurately predict how a development like McMillan will influence crash rates. Instead, the TIS qualitatively discusses intersections with high crash rates, possible reasons for the elevated rates are and how the proposed development may affect them.

16. Please address emergency and ambulance routes, vital concern with three hospitals.
    The McMillan TIS does not contain a detailed review of emergency routes, as such an analysis would only be needed if the proposed development or any suggested improvements would eliminate any current route of emergency access. Since the proposed development will create additional emergency route options from new internal roadways that provide more connectivity to the existing network, the development is considered as having a beneficial impact to emergency traffic.

Questions from 3/13/14 MAG Meeting – North Capitol Street

17. Why not extend North Capital and create two extra lanes from McMillan side – have two extra lanes?
    There are several reasons why widening North Capitol Street is not recommended. First, the preservation and reuse of Cell 14 at the northeast corner of the McMillan site prevents widening North Capitol Street where it is closest to Michigan Avenue. Second, to get the most benefit (additional vehicular capacity) from widening a roadway, ***both*** sides of the intersection must also be widened. The intersection with the most capacity problems on North Capitol Street is its intersection with Michigan Avenue; since proposed development does not control the northern portion of this intersection, widening North Capitol Street would not provide congestion relief and may actually cause more congestion at the intersection as capacity funnels back to 6 lanes from 8. Finally, any widening of North Capitol Street to accommodate additional

[2] *https://www.mwcog.org/transportation/activities/models/*

lanes would lengthen pedestrian crossings (~20 FT for 2 additional lanes), leading to a decrease in residential quality and safety.

18. The reason why no cars on North Capital is because they are on the other streets taking up space.
    The issue of improper parking in designated residential zones is outside the scope of the TIS and should be reported to the DDOT and/or MPD.

19. Do you have any plans to replace residents parking along N. Capital to another area, e.g. offer them passes to the medical office building?
    The TIS does not recommend and there are no plans to offer residents parking passes at the medical office building.

20. What if any considerations were made to ensure adequate egress for Stronghold residents, especially those trying to go south (left) onto N. Capital from Franklin? Girard is one way the other way.
    It is true that turning left from Stronghold is difficult at times. The TIS addresses this concern in two ways. First, new internal streets within the development will allow more options for drivers to go to and from Stronghold. For example, if a left turn is not possible, a right turn followed by a quick left into the development and turning back towards North Capitol Street will be possible (it is not currently possible because left turns are not allowed from North Capitol Street to Michigan Avenue). Second, new traffic signals on North Capital Street will provide improved spacing between vehicles traveling on North Capital, facilitating more opportunities for left turns. In addition, as presented at the meeting, alternatives for how the new development's street can connect with North Capitol Street are included in the TIS, such as connecting the Stronghold side of Franklin Street to the new traffic signal at the North Service Court.

Questions from 3/13/14 MAG Meeting – First Street

21. Shortening left turn lane northbound at first and Michigan will cause major traffic backup on First.
    The new parking garage entrance to Parcel 1 does impact this turn lane by making it shorter. However, the overall amount of left turns on to Michigan that may occur actually increases with all of the improvements recommended in the TIS. This is because geometric improvements at the intersection of First Street and Michigan Avenue allow for northbound and southbound left turns to take place concurrently (instead of sequentially, as they do now), which allows for the left turning traffic to get a longer green turn signal during each cycle of the traffic signal lights.

22. Extend extra lane on First ST to have two extra lanes.
    The additional lanes recommended on First Street were selected in order to reach a balance between accommodating vehicular traffic demand, not encouraging more traffic to cut-through First Street, and not creating an indirect negative impact to other modes of travel (wider roadways can be detrimental to pedestrians and cyclists). For these reasons, Gorove/Slade does not anticipate recommending additional lane widening on First Street.

23. What is there to deter traffic leaving south service court from flooding down First Street?
    The TIS does not anticipate a lot of traffic turning left from the South Service Court to First Street because the major traffic generators are located at the northern portion of the site and not along the South Service Court. In addition, the South Service Court does not extend all of the way through to North Capitol Street, which prohibits it from being an east-west cut through to North Capital Street. As described during the 3/13/14 MAG meeting, the new east-west internal streets, and how they connect to First Street and North

Capitol Street were designed to entice more vehicular traffic to cut-through the McMillan development than to travel south on First Street.

24. Strongly recommend all way stop signs at Channing remain, to remove them would have a negative impact to public safety and traffic calming.
    While the TIS's recommendation to convert the current all-way stop to a one-way stop was based on traffic capacity analysis results showing a detrimental impact at that location, the improvement to solve the impact contradicts the general plan to use the new development's internal streets to shift traffic from First Street to North Capitol Street. After hearing these comments expressed during the meeting, Gorove/Slade will discuss this concern with DDOT to consider altering the recommendation.

25. Channing and 1st Streets must have an all way stop.
    See response to Question #24.

26. Strongly recommend restricting the use of 1st St below Channing any service trucks or delivery vehicles. Streets are only one way each direction. Also there is damage caused to structures by the rattle of large vehicles. Also, there is considerable pedestrian traffic and children playing.
    First Street between Channing and Rhode Island Avenue is already restricted (by DDOT) to truck traffic[3]. The proposed development will not use First Street as a truck route.

Questions from 3/13/14 MAG Meeting – Internal Streets

27. How many streets are planned to be constructed on the site?
    The proposed development includes six new streets: (1), North Service Court, running east-west between First Street and North Capitol Street, (2) Evarts Street, running east-west between First Street and North Capitol Street, (3) South Service Court, running east-west from First Street to the community center, (4) Half Street, running north-south between Michigan Avenue and the South Service Court, (5) Three Quarters Street, running north-south between the Service Courts and (6) Quarter Street, running north-south between the Service Courts.

28. How much traffic do you estimate cutting through the site during peak hours? How do mitigate that?
    On the east-west streets that cut through the site (North Service Court and Evarts Street), the TIS estimates they will carry a few hundred cars per hour during peak weekday hours. This is around the level of traffic currently carried on Channing Street. There are no plans to mitigate this traffic, as the layout of the new streets is intended to provide porosity and encourage drivers to take advantage of the new routes, which spreads out demand so it's not concentrated on a fewer number of streets.

29. Are streets internal to the development (e.g. South Service Court) considered Public or Private? What are the implications for traffic management?
    All streets will be open to public traffic and pedestrians at all times but privately maintained. The developer of the site will be responsible for their maintenance, and will also control how the on-street parking will be controlled (for example, meters versus residential parking).

30. The MAG would like to see the south lane of the South Service Court removed for safety reasons.

[3] *http://www.godcgo.com/home/tools-for-getting-around/other-resources/freight-management.aspx*

Gorove/Slade does not see any safety concerns related to the South Service Court's southern lanes and does not recommend removing them. In addition, the South Service Court provides access and parking for the community center and public park.

31. If North Service Court is below street level of First ST, how will you connect two different levels of street?
    The North Service Court will not be below First Street allowing the streets to connect and extend to North Capital Street.

Questions from 3/13/14 MAG Meeting – Other Streets

32. How will this impact Bryant Street?
    The TIS found the development will have no significant impacts to Bryant Street; therefore, there are no recommendations to change Bryant Street.

33. Will Channing Street be widened?
    No, the TIS does not recommend widening of Channing Street.

Questions from 3/13/14 MAG Meeting – Public Transit

34. Did you also look at below surface transit such as the Metro Brown line or only at surface transit- which will only contribute to more congestion (unless dedicated lanes, which DC hates).
    The scope of a TIS for a development like McMillan only takes into account planned transit improvements that are documented and feasibly implemented by the study year (in this case 2025). The only improvements that fit this description are those documented in the North Capitol Street Line Study, DC Circulator Transit Development Plan and DC's Transit Future System Plan (described on page 95 of the TIS). The reasoning: the development should not be able to take advantage of potential improvements that are not at least at a planning level. This is done to help identify potential transit impacts and recommendations, which could be understated if too many improvements were included in the study.

35. Are there plans for dedicated bus/bike lanes at least during rush hour?
    See response to question #34.

36. Your discouraging cars by reducing driving, but what is being done to make public transportation more convenient and desirable?
    The TIS recommends implementation of the recommendations made in existing transit planning documents: the North Capitol Street Line Study, DC Circulator Transit Development Plan and DC's Transit Future System Plan. This includes the MetroExtra Route 80x, the Brookland-CUA Metro-Union Station Neighborhood Connector, the Tenleytown to Brookland Circulator Route and the Woodley Park/Adams Morgan to Brookland Streetcar line.

    Locally, the study recommends taking advantage of the new traffic signals proposed, which will have signalized crosswalks (with 'Walk'/'Don't Walk') signs, and consolidating/relocating transit stops to help riders cross the street.

37. Public transport doesn't do much / isn't convenient if the buses can't go anywhere. People will be incentivized to use bus if the bus moves.
    See response to question #36.

Questions from 3/13/14 MAG Meeting – Pedestrian

38. How do you envision pedestrians crossing the entrance to the medical facility when walking on the Olmstead Walk?
    The Olmstead Walk in front of Parcel 1 along Michigan Avenue will direct pedestrians towards the crosswalk at the intersection of Michigan Avenue and Half Street.

39. Light considered on Douglas St. crossing N. Capital?
    A pedestrian-oriented traffic light was considered at Douglas Street and North Capitol, but not included in the study recommendations. This is because the addition of any traffic operational control, such as a traffic signal, needs to balance the needs of adding access versus adding congestion and/or increasing crash rates. Any traffic control, from a stop sign to a traffic signal, can increase crash rates after installed (such as rear-end collisions at a traffic signal) and thus traffic engineers have a strict set of technical warrants that a new control needs to meet in order to be worthwhile. A pedestrian-oriented traffic signal at Douglas Street would not meet warrants, even considering future crossings generated by the new development. In addition, the new traffic signal at Evarts Street will provide a signalized option for pedestrian crossings approximately 300 FT away, providing an improved situation relative to existing conditions.

Questions from 3/13/14 MAG Meeting – Non-Traffic Related

40. Does your analysis account for idling times and new stops near residential?
    The results of the traffic models do calculate idling and stops at the intersections included in the study area, but the study does not account for the non-traffic related impact of these stops.

41. This report does not include analysis of what impact the development's additional traffic (cars and trucks) would cause to these intersections.
    A structural analysis of traffic impacts is beyond the scope of the TIS and not within the area of expertise for Gorove/Slade. This question has been referred to the Structural Engineers.

42. How will traffic impact and affect structural integrity of existing structures?
    See response to question #41.

Questions sent via Email after 3/13/14 MAG Meeting

43. When you used the 50+% figure as your anticipated onsite residence use of non-public transport, what variables went into that assumption?
    The assumptions we made regarding what percentage of residents will use each mode (the mode split) were based on several sources including:
    - The 2007-2011 American Community Survey (ACS) portion of the U.S. Census
    - WMATA's Ridership Survey of residential sites within the District
    - MWCOG's State of the Commute report, which contains the average mode split of commuters that live in the District

    Using those sources as a base, we adjust the mode split assumptions using knowledge on the development's site plan, notably the amount of parking provided. As is standard for development-related traffic studies, we take a conservative approach for all assumptions. In this case, even though most sources indicated the development would produce residents with a vehicular mode split under 50%, we 'rounded-up' to an

assumption of 55% for use in our traffic projections (census data shows the average resident living in the census tracts within and surrounding the development having a driving mode split of 48%).

44. If you were to use a higher figure for onsite resident car use in a regression type of model, at what value would your recommendations to mitigate traffic along N Cap no longer be successful?
Unfortunately, the methodology and software used to generate traffic models does not allow for multiple iterations to be performed quickly or efficiently. This is the one of the reasons why our industry makes conservative assumptions while building the traffic models. That said, we've performed enough development-based analyses to know what the most sensitive variables are, and in this case we're confident that a higher driving mode split for residents would not alter recommendations along North Capitol Street. First, as described in the response to question #43, we used a conservatively high driving mode split estimate as a starting point, and second, the residential component doesn't comprise a large portion of the all the trips generated by the development (11% in the PM peak hour).

45. Based on your current baseline for the intersection of 1st St NW and Michigan, how many vehicles currently use that intersection at peak travel times?
The current total amount of vehicles passing through First Street and Michigan Avenue NW is:
    - 2,742 in the AM peak hour
    - 2,461 in the PM peak hour
    - 1,475 in the Saturday peak hour

46. For the imputed continuous variables, have you done a sensitivity analysis to determine the top three that have the greatest impact on slow/stopped traffic?
As described above (response to question #44), the traffic models we use to not support these types of sensitivity analyses. Although we can easily pinpoint the most important assumptions in our future traffic models – those would be the density, build-out pace, and driving mode split of the Armed Forces Retirement Home development. Our future traffic models incorporate 4.3 million square feet of development at that location (over double the McMillan development), with 70% of trips made via automobile (per the AFRH's transportation studies).

    For the McMillan development itself, the factors/assumptions with the most significance are the amount of parking and the location of employee access to the parking garage for Parcel 1. Closer to the Parcel 1 employee driveway, these factors have greater significance than the AFRH-generated traffic.

47. For McMillan itself, which has greatest impact... residential or commercial vehicular traffic?
Commercial. The office component of Parcel 1 comprises 71% of the AM peak hour traffic the entire development generates (and 64% of the PM peak hour).

48. If you assume a worst case scenario (e.g., all the residential vehicles are in use during peak hours and you push your estimates for commercial trips to higher values), what additional traffic mitigation measures would be required?
As described above (response to question #44), our traffic models already approximate a 'worst-case' scenario by using conservative assumptions. That said, if we made our assumptions even more conservative and observed higher congestion in our future traffic models, we would probably not recommend more roadway improvements. Instead, we would recommend measures that reduce the amount of peak hour traffic generated by the development, such as looking at shifts at Parcel 1's Health Care office building and seeing if they could be changed so traffic would avoid peak hours, and providing higher subsides for non-

auto use (Bikeshare memberships, subsidized SmartTrip cars for transit, etc…). These types of recommendations are less preferable than those already in the TIS since they are more difficult to control and implement – for example the tenant for the Parcel 1 office building isn't even known yet.

49. The left turn lane into the medical bldg heading south on First St, just south of Michigan Ave: How many cars will fit into the new short left turn lane and what is the length of the area where the cars can safely occupy the lane? How long is the lane currently and how many cars can currently fit into the lane?
    The lane is around 40' and can accommodate two cars. (We should note that this is based on a preliminary plan and may not represent what the lane will actually accommodate once formally designed.) There is no current turn lane heading south on First Street.

50. The adjacent left turn lane heading north to turn left onto Michigan Ave: How many vehicles can safely and fully occupy the lane, which is slated to be shortened? How many cars can currently occupy the lane and how long is the lane?
    The current left turn lane is around 100'and can accommodate five cars. With the TIS recommendations, the lane is shortened to around 80', which can accommodate four cars. (We should note that this is based on a preliminary plan and may not represent what the lane will actually accommodate once formally designed.)

51. How will the west side of the North service court road transition to First St, which is approximately 15 feet above the grade of the service court?
    See response to Question #31.

52. Will the current 3 way stop sign remain in place in order to make drivers aware that they are entering a residential area and also to slow down traffic as it enters Bloomingdale?
    See response to Question #24.

53. What are the recommendations in the traffic study to slow down the tremendous increase in vehicular traffic on First St south of Channing St? Vehicular traffic is projected to possibly nearly triple in volume according to the traffic study.
    The TIS does not directly recommend any improvements to slow down traffic on First Street, because that is an existing issue as addressed in the Mid-City East Livability Study. However, we are concerned about this issue and realize that some development related traffic will use First Street. Our future traffic projections show that the development will add another vehicle to First Street south of Channing Street every 10 seconds on average during the AM peak hour, and every 9 seconds during the PM peak hour (much less than triple the existing volume). As we mentioned during the 3/13/14 MAG meeting, we would like feedback from the community on potential roadway elements that slow traffic, such as curb extensions, along First Street and plan to discuss this at the 4/3/14 community meeting.

Questions & Responses from 4/3/14 Community Forum on McMillan TIS

54. Why isn't there a left turn lane north bound on North Capital St at Michigan Ave?
    Gorove/Slade investigated the feasibility of adding a left turn lane from northbound North Capitol Street to Michigan Avenue and determined it would not work from both a geometrical and operational standpoint. The geometrical reasons are provided in the answer to Question #17. Operationally, a new left turn would require changes to the traffic signal to process the turns (green arrows). Adding in these new signal phases would stop most other traffic, notably southbound through movements. A quick analysis estimates that

overall congestion at the intersection would double, even if a new turn lane could be constructed. The results would be worse if turns were allowed without a new left turn lane.

55. Why/how was a no left turn from North Capital to Michigan Ave deemed not feasible? I think this is a mistake?
See response to Question #54.

56. Can you place left turn signals at the existing North Capital and Michigan Ave intersection or enforce the no left turns?
See response to Question #54. Regarding enforcing the 'no left turn' restriction, we will pass on this request to DDOT.

57. What if any review has been done on the impact of traffic (increased) lower down North Capital? Traffic is already congested without the development.
The TIS did not perform a review of the intersections that far south of North Capitol Street because the farther away from the development, the less impact the development has on traffic, and thus we did not anticipate finding significant results in our traffic modeling.

That said, we do not believe traffic volumes on North Capitol will increase significantly. This is because although it may not seem the case to drivers who use North Capitol Street on a regular basis, traffic levels have been and are expected to remain largely the same as they are today. Like many commuter corridors in the region, it is likely North Capitol Street reached its capacity limit years ago and any changes to traffic demand result in shifts that end in the same equilibrium state. What happens is that new local traffic generated ultimately displaces commuter volumes that just want to travel through the area. The growth expectations calculated in the regional traffic model, shown on Figure in the TIS, support this concept. As does DDOT's daily traffic counts summaries from 2002 to 2010 (data from more recent years have not been released yet). Their counts of North Capitol Street traffic show stagnant to no growth in traffic as follows:

- Daily Traffic on North Capitol Street – Between Michigan and Irving Streets (in thousand cars/day)
  - 2002: 36.8
  - 2006: 32.4
  - 2008: 31.9
  - 2009: 32.0
  - 2010: 30.9
- Daily Traffic on North Capitol Street – South of NY Ave (in thousand cars/day)
  - 2002: 29.1
  - 2006: 30.5
  - 2008: 27.0
  - 2009: 27.2
  - 2010: 26.2

58. Can we get more signage to the Hospital to indicate stay straight over North Capital and Michigan and then right turn on Irving to get to the Hospital?
The development cannot make signing changes to North Capitol Street, especially for directions to things that aren't in the project, but we can convey the concern to DDOT.

59. What will be done to improve the intersection of North Capital and Rhode Island Ave for pedestrians? Cars and people compete to cross in front of All Nations.
    After the meeting on April 3rd, Gorove/Slade observed some of these concerns, and agrees that the pedestrian situation at this interchange is not ideal. This location is within the study area of the Mid City East Livability Study that DDOT recently completed, but no improvements are recommended for this intersection specifically. Based on our short observation and information contained in the Livability Study, Gorove/Slade thinks that it may be possible to construct short curb extensions (bulb outs) on both sides of the Ramp approaches at this interchange. The ramps appear to be around 20' wide, accommodating one travel lane and one parking lane. At the intersection approaches, the curbs could be extended over the parking lane, shortening the crosswalk and providing better lines of sight between drivers and pedestrians. These extensions may not be feasible, though due to the turning needs of vehicles, especially buses and emergency vehicles. We recommend if the community feels strongly about improving this interchange, community representatives should take this concept to DDOT for further testing and review.

60. In follow to prior question #8 (from 3/13 MAG Q&A), the census data may not help test the assumptions. The neighborhoods surrounding the site have a high number of retirees. This is not likely to be the demographic buying the new residential units.
    That's a good point, but we use the census estimates that are based on responses by members of the labor force responding to a question on how they commute to work. We believe that's a reasonable starting point for assumptions on how future members of the labor force will behave.

61. Can you provide a sensitivity analysis around your assumptions?
    See the response for Question #44.

62. What is presumed for the VA Hospital Parking? Future permit numbers, trips, structured parking?
    Based on conversations with VAMC staff, we assumed that employment would increase from 2,400 to 3,000 and patient activity would increase 20%. Thus, our study based future VAMC traffic on percentage increases relative to their existing traffic.

    The future projections were not based on their Master Plan parking counts, which show an increase in parking overall, but a decrease in parking dedicated to employees. Between 2009 and 2029, the employee parking is shown decreasing from 1,025 to 736, and the patient/visitor parking increasing from 884 to 3,185.

63. Of the 3,000 parking spaces, what is the turnover ratio? What is the 9-5 turnover ratio?
    Data on turnover ratios is not heavily assembled and documented in the transportation engineering industry, but we can provide estimates based on information provided to us by Colonial Parking. This information shows that for office and residential space, assuming that all spaces are utilized, the turnover would be 1. For the Parcel 1 health care office building, the parking dedicated towards patient/visitors would have a turnover of 3. The retail parking would have a turnover ratio between 1 and 2 during 9am - 5pm, and between 2 and 4 on evenings and weekends depending on the eventual tenants. The grocery store would be at the higher end of that range.

64. Traffic on First Street is heavy to New York Ave as cars use it as an on ramp to the Third Street Tunnel. It is imperative to consider the negative impact south of Rhode Island. Will you look at First Street to New York Ave?
    The TIS did not perform a review of traffic that far south of First Street because the farther away from the development, the less impact the development has on traffic, and thus we did not anticipate finding

significant results in our traffic modeling (we projected the development would generate one more car every 23-24 seconds during commuting peak hours south of Rhode Island Ave). In addition, this area is within the study area of the Mid City East Livability Study, which includes some recommendations along the corridor.

65. You stated that a significant new transit service is needed. How many people do you estimate this new transit service will need to accommodate?
The TIS projects around 1,500 to 1,600 new transit riders during the peak commuting hours, at full build out of the development. This is a significant number, around one new rider every 2 to 2.5 seconds, which reflects our projections that the development will be multi-modal and transit-oriented.

66. How many people will the proposed shuttle service accommodate per hour?
The shuttle service, if needed, hasn't been planned yet other than reserving space in front of the Healing Gardens at Parcel 1. If needed, we expect the shuttle service to accommodate all anticipated demand, growing as needed as the development gets built-out.

67. Will any curb cut-outs for Metro buses be included on the west side of North Capital Street by the development to prevent clogging traffic on North Capital Street?
Gorove/Slade is not recommending any cut-outs for bus stops. Although they can reduce the buses impact to passenger car flow, they do so by degrading transit service.

68. Is DDOT contemplating red light cameras along North Capital with the introduction of the new lights?
Gorove/Slade is unaware of any plans, but we will pass this question on to DDOT.

69. When was the last time a truck was stopped for violating the "No trucks on First Street signage"?
Gorove/Slade does not know the answer to this, but we will pass this question on to DDOT.

70. Who is conducting a neighborhood wide traffic study and when will it be completed?
The Mid-City East Livability Study, which covers the neighborhoods to the south of the development, was completed last fall. Gorove/Slade is unaware of any planned studies of other adjacent neighborhoods.

71. Have you conducted an air quality pollution study to gauge the impact of all the new cars?
No – Gorove/Slade does not perform air quality analyses. An air quality study will be performed at the EISF stage of the development's approvals, which is required to obtain construction permits.

72. You suggested that residential parking will be unbundled from leasing costs. Have all of the developers committed to this agreement?
Yes.

73. How many car sharing spaces do you estimate?
Around 6-10 throughout the site. It is difficult to estimate future car-sharing needs, but the plan is to allow companies that request on-street parking on the development's internal streets to be able to reserve it for car-sharing parking. Car 2 Go parking will be allowed following the same guidelines in place for the District.

74. What other projects has G/S been involved in? Hospital Center? Brookland/CUA Small Area Plan? Chancellor's Row? VA? South Campus? AFRH Eastside?

We have been involved in the Brookland/CUA Small Area Plan and the CUA – South Campus. We have not worked for any of the hospitals or the AFRH recently. Of those not mentioned above, Gorove/Slade has worked on The Southwest Waterfront development (The Wharf), The Yards, CityCenterDC, National's Park, and Howard University, among many others in the firm's 35 year history based here in Washington, DC

75. Why don't the traffic improvements extend to 4th Street NW to divert some traffic to the west side of the reservoir – e.g. no rush hour parking on 4th, making Bryant and W ST 2-way again between 2nd and Georgia Ave NW?
Our recommendations need to strike a balance between assisting commuter traffic and providing neighborhoods with quality access, while preventing negative impacts from commuter traffic. While we worked on Howard University's Campus Plan, we were informed that the one-way configurations on Bryant and W St stem from neighborhood concerns of cut-through traffic. We would be wary of recommending changes to those streets that would simply replace one problem with another, especially when it negatively impacts residents in favor of providing better commuter access. We would have similar concern with altering rush hour parking on 4th Street NW.

76. W Street is the first cross street when going north on North Capital Street you can go left and it is currently a two way traffic without a signal. Will this street be converted to a one way street as traffic increases?
If W Street is converted to one-way operations eastbound, that would eliminate the ability for commuting traffic to turn left and cut through the neighborhood. It would also take away a piece of the transportation grid, limiting local access, and potentially negatively impacting other residential streets that commuters shift to. Generally, it is preferable to distribute traffic demand and not take routes out of the network, although there are many precedents where neighborhoods have opted to reduce their own access in order to reduce cut-through traffic. We recommend that if the community feels strongly about this, they present this concept to DDOT for their review.

77. What will be done to keep people from using the alleys in Stronghold as a cut through?
As we discussed at the 4/3/14 meeting, there are several options to consider. The first would be minor alterations like adding signs or traffic calming measures (speed humps). Second, more significant measures can be taken, such as closing Douglas Street at North Capitol Street, disconnecting the alley in one portion to make the cut-through route more circuitous, and changing Girard from one-way eastbound to one-way westbound just in the block between the alley to Franklin Street. Each of these could help with reducing cut-through traffic, but would also reduce overall access for Stronghold itself. If Stronghold wishes to pursue cut-through reduction strategies, Gorove/Slade suggests they present these concepts to DDOT for their review.

78. Re: your definition of detrimental, it would be helpful to know which of the intersections you studied showed unacceptable levels of congestion without McMillan Traffic.
Here's a list of Intersections in the TIS' study area that are projected to have unacceptable levels of congestion without McMillan Traffic:
    - Michigan Ave & First St NW
    - Michigan Ave and North Capitol Street
    - North Capitol Street & Franklin Street
    - North Capitol Street & Evarts Street
    - North Capitol Street & Channing Street
    - Georgia Avenue & Columbia Road
    - Georgia Avenue & Harvard Street

79. Your study mentioned that if intersections were already congested even without McMillan, then not included for mitigation. Which intersections were these?
    See the response for Question #78.

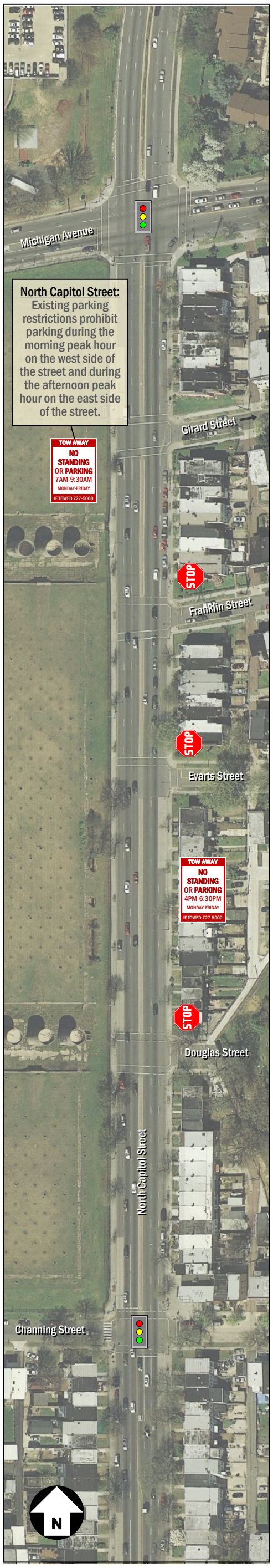
80. Who from DDOT is the point of contact for this development project?
    Jamie Henson and Anna Chamberlin from DDOT-Policy Planning & Sustainability Administration

81. Can you disclose meeting minutes from the conversations between G/S, VMP and DDOT?
    There have been two formal meetings with DDOT, and minutes were produced: (1) the TIS scoping meeting, and (2) the meeting of Michigan/Irving corridor stakeholders. The following links can be used to access these minutes:
    https://dl.dropboxusercontent.com/u/33210769/Scoping%20Mtg%20Notes%20050813.pdf
    https://dl.dropboxusercontent.com/u/33210769/IrvMich%20Corridor%20Mtg%20Notes_10.17.13%20Final.pdf

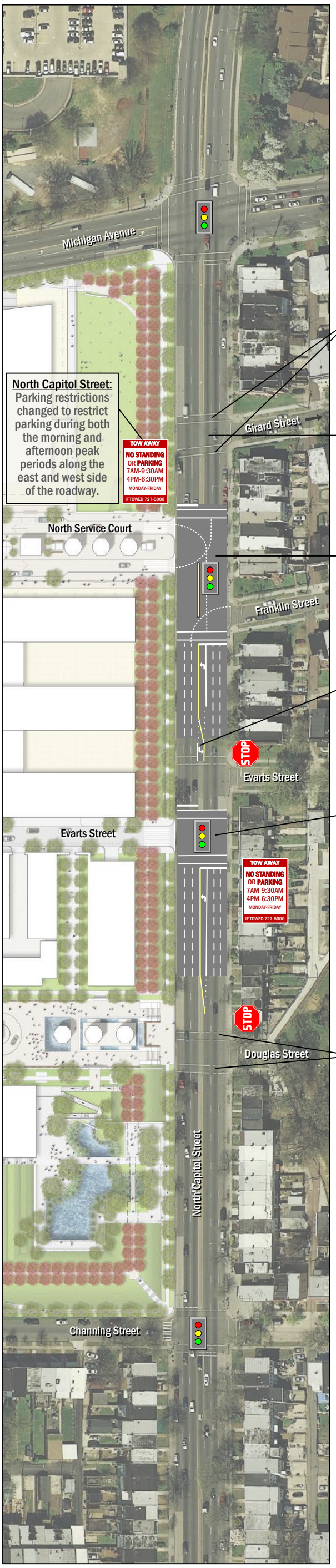
82. When does the construction project start? At what stage is the whole project at?
    The project is currently being reviewed by the DC Office of Planning and Zoning Commission. Hearing Dates have been set for May 1, 5, 8 and 13th (if needed). A construction start date has not been determined as this is dependent on completion of the entitlement process. Our current estimate is late 2015; however, this is subject to change depending on the entitlement process.

North Capitol Street

Existing



PUD Commitments/Recommendations



Remove crosswalks on North Capitol St at Girard St.

Install signage and pavement markings along N Capitol St to prevent vehicles from "blocking the box" at Girard St.

N Capitol St at N Service Ct/Franklin St:
Install new signal and enlarge intersection include Franklin Street. Through movements between North Service Court and Franklin Street will be prohibited (likely through use of a median). Construct northbound left-turn lane (90'). Intersection placement requires removal of ~345' of median. Pedestrian crossings are realigned from existing configuration.

N Capitol St at Evarts St, NE:
Replace median with a short left-turn lane and remove crosswalk.

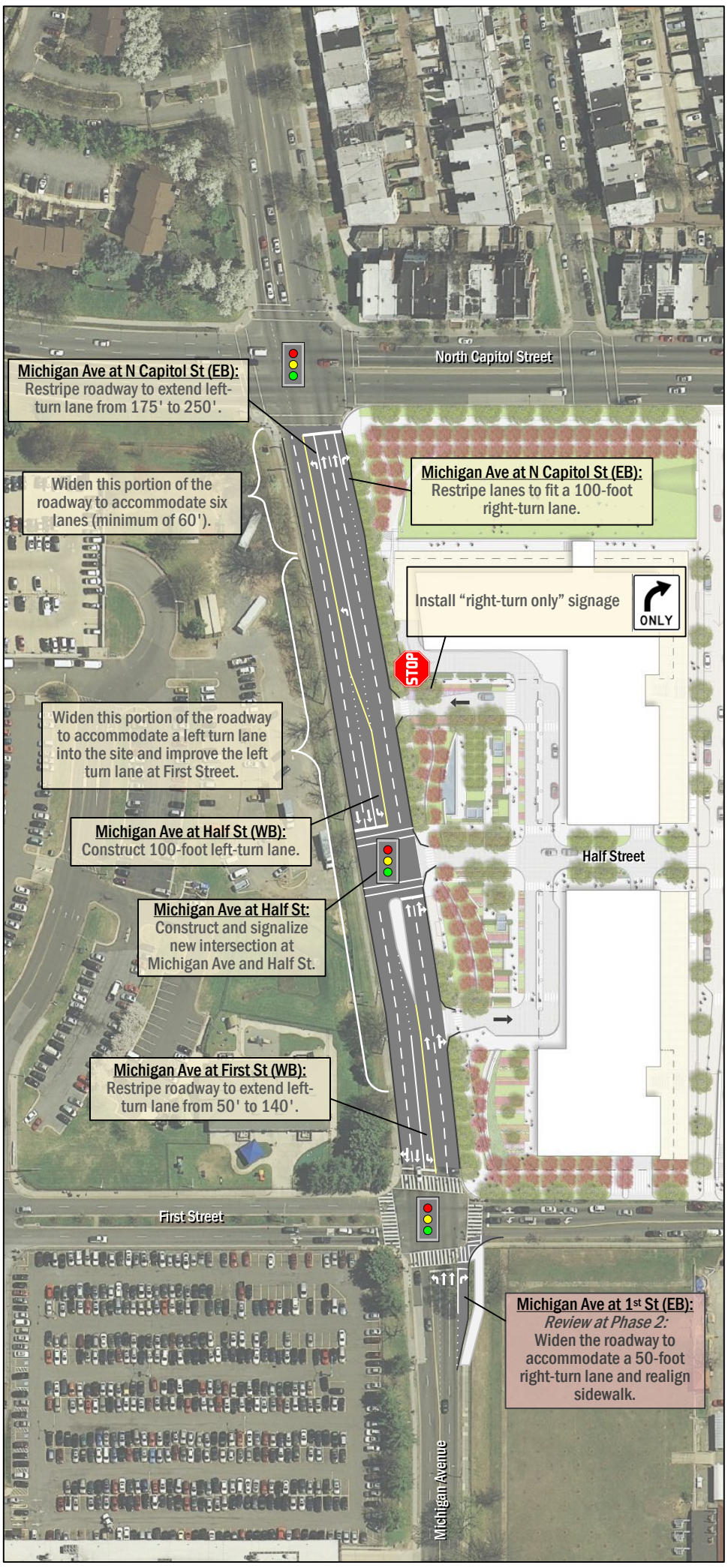
N Capitol St at Evarts St, NW:
Install traffic signal and replace median with a 150-foot left-turn lane. Intersection placement requires removal of ~285' of median. Pedestrian crossings are realigned from existing configuration.

Remove crosswalks on North Capitol St at Douglas St.

Michigan Avenue

Existing

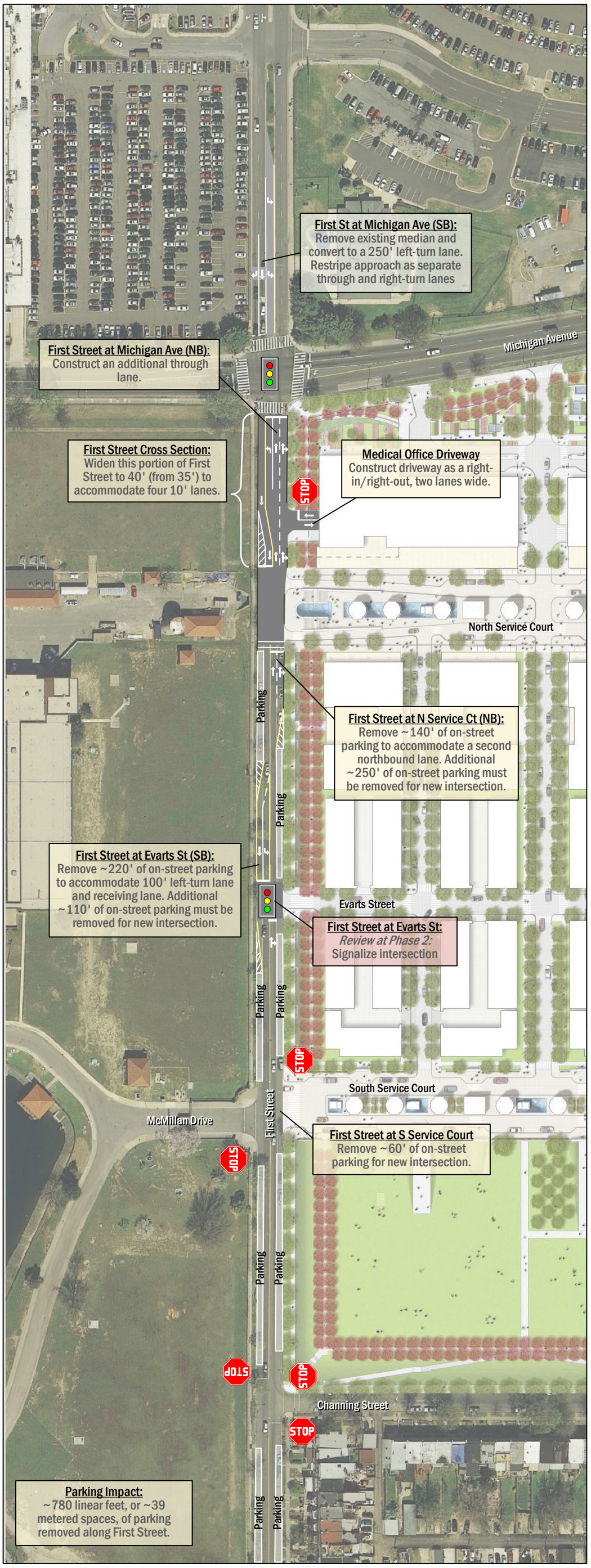
PUD Commitments/Recommendations



First Street

Existing

PUD Commitments/Recommendations



Intersection	Approach	Future Background Conditions (2025) with NO improvements (as shown in 03/2014 TIA)				Total Future Conditions (2025) with recommended improvements (as shown in 03/2014 TIA)				Total Future Conditions (2025) with no improvements (updated analysis - 04/2014)				Total Future Conditions (2025) with recommended improvements (updated analysis - 04/2014)			
		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour	
		Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
1 Irving Street & 1st Street NW	**Overall**	**44.8**	**D**	**59.6**	**E**	**49.5**	**D**	**61.6**	**E**	**48.5**	**D**	**70.7**	**E**	--	--	**66.8**	**E**
Updated improvements: Retime signal and adjust offsets in PM peak	Eastbound	45.2	D	66.1	E	45.2	D	66.1	E	45.6	D	66.9	E	--	--	66.9	E
	Westbound	47.9	D	48.2	D	57.2	E	56.8	E	55.0	E	55.2	E	--	--	70.2	E
	Northbound	39.3	D	73.2	E	36.0	D	72.2	E	36.9	D	99.3	F	--	--	70.0	E
	Southbound	21.1	C	39.6	D	21.1	C	39.6	D	21.1	C	55.4	E	--	--	53.4	D
2 Michigan Avenue & 1st Street NW	**Overall**	**48.1**	**D**	**184.6**	**F**	**30.2**	**C**	**51.3**	**D**	**76.8**	**E**	**235.5**	**F**	**27.2**	**C**	**77.9**	**E**
Updated improvements: construct 250' SB left turn lane, remove split phasing. Construct NB shared through/right-turn land. Retime and adjust offsets in AM & PM.	Eastbound	79.9	E	42.2	D	20.4	C	53.4	D	82.0	F	74.4	E	23.1	C	74.4	E
	Westbound	17.7	B	48.5	D	21.8	C	48.2	D	19.4	B	46.7	D	6.2	A	23.4	C
	Northbound	69.8	E	37.8	D	57.1	E	55.3	E	173.6	F	301.4	F	55.6	E	78.6	E
	Southbound	22.3	C	480.4	F	25.5	C	47.4	D	23.8	C	503.6	F	43.5	D	117.8	F
Additional Improvements:	***Overall***	--	--	--	--	--	--	--	--	--	--	--	--	***23.1***	***C***	***55.3***	***E***
Construct EB right turn lane	*Eastbound*	--	--	--	--	--	--	--	--	--	--	--	--	*23.1*	*C*	*60.7*	*E*
	Westbound	--	--	--	--	--	--	--	--	--	--	--	--	*6.2*	*A*	*46.7*	*D*
	Northbound	--	--	--	--	--	--	--	--	--	--	--	--	*44.9*	*D*	*61.5*	*E*
	Southbound	--	--	--	--	--	--	--	--	--	--	--	--	*27.4*	*C*	*48.9*	*D*
3 Michigan Avenue & North Capitol Street	**Overall**	**77.1**	**E**	**71.9**	**E**	**59.1**	**E**	**76.3**	**E**	**108.6**	**F**	**137.1**	**F**	**61.5**	**E**	**70.6**	**E**
Updated improvements: Remove on-street parking on N Cap. Extend EB left-turn lane to 250'. Construct 100' EB right-turn lane.	Eastbound	55.0	E	103.4	F	77.4	E	111.6	F	126.4	E	280.2	F	64.7	E	88.8	F
	Westbound	65.7	E	59.6	E	60.6	E	89.7	F	97.7	F	125.7	F	71.0	E	89.7	F
	Northbound	136.9	F	52.1	D	29.1	C	77.0	E	148.0	F	67.0	E	27.3	C	78.3	E
	Southbound	46.2	D	82.3	F	72.7	E	32.0	C	78.5	E	96.2	F	78.5	E	32.4	C
4 Michigan Avenue & Franklin Street NE	**Overall**	**26.5**	**C**	**14.7**	**B**	**34.9**	**C**	**16.5**	**B**	**35.0**	**C**	**16.5**	**B**	--	--	--	--
Updated improvements: None	Eastbound	7.6	A	4.7	A	7.7	A	6.4	A	7.6	A	6.4	A	--	--	--	--
	Westbound	12.3	B	14.4	B	12.6	B	16.1	B	12.6	B	15.9	B	--	--	--	--
	Northbound	53.4	D	37.8	D	74.8	E	40.2	D	74.8	E	40.2	D	--	--	--	--
5 Girard Street & North Capitol Street	Southbound Left	1.5	A	2.3	A	1.3	A	1.7	A	1.6	A	3.0	A	1.3	A	1.8	A
6 Franklin Street & North Capitol Street	**Overall**					--	--	--	--	--	--	--	--	**2.3**	**A**	**1.5**	**A**
Updated improvements: Incorporate intersection into traffic signal at North Service Court.	Westbound	19.5	C	119.2	F	0.0	A	9.1	A	14.3	B	335.4	F	44.1	D	40.2	D
	Northbound					--	--	--	--	--	--	--	--	3.6	A	2.0	A
	Southbound	0.3	A	0.3	A	--	--	--	--	0.4	A	0.4	A	1.3	A	0.9	A
7 Evarts Street & North Capitol Street	Westbound	19.8	C	68.5	F	19.6	C	14.1	B	14.1	B	158.8	F	45.0	E	18.1	C
	Southbound Left	0.2	A	0.5	A	0.6	A	0.6	A	0.2	A	0.6	A	15.0	C	17.2	C
8 McMillan Filter Plant & 1st Street NW	Eastbound	18.5	C	17.9	C	36.6	E	39.3	E	29.7	D	33.1	D	--	--	--	--
	Westbound	--	--	--	--	31.5	D	29.0	D	25.6	D	24.9	C	--	--	--	--
	Northbound Left	0.1	A	0.0	A	0.1	A	0.0	A	0.1	A	0.0	A	--	--	--	--
	Southbound Left	--	--	--	--	0.5	A	0.3	A	0.4	A	0.3	A	--	--	--	--
9 Douglas Street & North Capitol Street	Westbound	19.0	C	27.8	D	12.0	B	12.9	B	18.7	C	44.7	E	26.9	D	11.5	B
	Southbound Left	0.1	A	0.3	A	0.2	A	0.4	A	0.2	A	0.4	A	0.2	A	0.4	A
10 Channing Street & 1st Street NW	**Overall**	**13.3**	**B**	**31.6**	**D**	--	--	--	--	**20.3**	**C**	**105.9**	**F**	--	--	--	--
Updated improvements: None	Westbound	12.0	B	10.5	B	19.2	C	19.8	C	14.2	B	11.0	B	--	--	--	--
	Northbound	13.1	B	11.7	B	--	--	--	--	20.3	C	15.6	C	--	--	--	--
	Southbound	15.0	B	45.6	E	--	--	--	--	25.9	D	167.7	F	--	--	--	--
Additional Improvements:	***Overall***	--	--	--	--	--	--	--	--	--	--	--	--	***16.3***	***C***	***19.1***	***C***
Remove some SB parking to create second through lane at stop sign.	*Westbound*	--	--	--	--	--	--	--	--	--	--	--	--	*14.0*	*B*	*11.4*	*B*
	Northbound	--	--	--	--	--	--	--	--	--	--	--	--	*22.6*	*C*	*17.8*	*C*
	Southbound	--	--	--	--	--	--	--	--	--	--	--	--	*13.0*	*B*	*21.8*	*C*

Intersection	Approach	Future Background Conditions (2025) with NO improvements (as shown in 03/2014 TIA)				Total Future Conditions (2025) with recommended improvements (as shown in 03/2014 TIA)				Total Future Conditions (2025) with no improvements (updated analysis - 04/2014)				Total Future Conditions (2025) with recommended improvements (updated analysis - 04/2014)			
		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour	
		Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
11 Channing Street & North Capitol Street	**Overall**	**60.1**	**E**	**58.0**	**E**	**40.0**	**D**	**13.5**	**B**	**76.8**	**E**	**123.1**	**F**	**38.2**	**D**	**13.8**	**B**
Updated improvements: Remove parking during peak hours, retime signal and sdjust offsets in AM & PM	Westbound	50.2	D	54.8	D	50.2	D	53.8	D	50.4	D	57.2	E	50.2	D	53.8	D
	Northbound	7.4	A	8.1	A	9.4	A	4.3	A	9.4	A	8.7	A	6.5	A	4.7	A
	Southbound	106.1	F	118.6	F	71.5	E	22.9	C	149.7	F	244.5	F	72.2	E	23.4	C
12 Bryant Street & 1st Street NW	**Overall**	**17.0**	**B**	**35.2**	**D**	**29.7**	**C**	**35.2**	**D**	**25.3**	**C**	**87.5**	**F**	**--**	**--**	**30.6**	**C**
Updated improvements: Retime PM traffic signal to 100 second cycle length	Eastbound	19.5	B	24.3	C	26.7	C	62.6	E	25.9	C	32.9	C	--	--	62.2	E
	Northbound	12.6	B	9.7	A	21.0	C	7.7	A	15.6	B	13.8	B	--	--	8.5	A
	Southbound	18.9	B	53.2	D	38.1	D	38.2	D	31.2	C	147.8	F	--	--	28.0	C
Additional Improvements:	***Overall***	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	***16.6***	***B***	***29.0***	***C***
Remove on-street parking on SB approach to make room for SB right turn lane (extended cycle length not necessary with this improvement)	*Eastbound*	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	*25.9*	*C*	*32.9*	*C*
	Northbound	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	*15.3*	*B*	*13.7*	*B*
	Southbound	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	*13.1*	*B*	*35.0*	*D*
21 Michigan Avenue & PU-DO Inbound NW	--	--	--	--	--	--	--	--	--	--	--	--	--	**--**	**--**	**--**	**--**
22 Michigan Avenue & Half Street NW	**Overall**	**--**	**--**	**--**	**--**	**1.4**	**A**	**5.8**	**A**	--	--	--	--	**1.7**	**A**	**5.3**	**A**
Updated improvements: Construct traffic signal and 100' WB left turn lane.	Eastbound	**--**	**--**	**--**	**--**	0.7	A	2.3	A	--	--	--	--	1.1	A	2.7	A
	Westbound	--	--	--	--	0.7	A	6.9	A	4.7	A	4.9	A	0.6	A	2.7	A
	Northbound	--	--	--	--	47.2	D	44.4	D	10.5	B	27.6	D	47.4	D	43.9	D
23 Michigan Avenue & PU-DO Outbound NW	Northbound	--	--	--	--	11.1	B	14.3	B	12.8	B	54.2	F	11.2	B	15.3	C
24 North Service Court & North Capitol St	**Overall**	**--**	**--**	**--**	**--**	**10.1**	**B**	**5.9**	**A**	--	--	--	--	**3.5**	**A**	**5.3**	**A**
Updated improvements: Remove parking during peak hours. Construct traffic signal and NB left turn lane.	Eastbound	--	--	--	--	47.2	D	44.1	D	51.9	F	**	F	45.2	D	44.1	D
	Northbound	--	--	--	--	5.4	A	4.9	A	10.2	B	6.6	A	1.3	A	3.1	A
	Southbound	**--**	**--**	**--**	**--**	13.2	B	5.2	A	--	--	--	--	4.2	A	4.8	A
25 Evarts Street & North Capitol Street	**Overall**	**--**	**--**	**--**	**--**	**41.6**	**D**	**12.7**	**B**	--	--	--	--	**49.4**	**D**	**21.3**	**C**
Updated improvements: Remove parking during peak hours, retime signal and sdjust offsets in AM & PM	Eastbound	--	--	--	--	44.1	D	46.4	D	**	F	**	F	43.6	D	45.5	D
	Northbound	--	--	--	--	8.3	A	13.4	B	451.1	F	268.4	F	24.7	C	14.5	B
	Southbound	**--**	**--**	**--**	**--**	72.8	E	7.7	A	--	--	--	--	74.2	E	25.5	C
26 Evarts Street & 1st Street NW	**Overall**	**--**	**--**	**--**	**--**	**26.9**	**C**	**10.6**	**B**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**
Updated improvements: Remove on-street parking to create 100' SB left turn lane.	Westbound	--	--	--	--	18.6	B	35.7	D	94.3	F	48.2	E	94.4	F	47.6	E
	Northbound	**--**	**--**	**--**	**--**	37.1	D	6.3	A	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**
	Southbound	--	--	--	--	13.5	B	6.4	A	1.0	A	1.0	A	9.4	A	8.6	A
Additional Improvements:	***Overall***	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	***20.0***	***C***	***12.2***	***B***
Install traffic signal.	*Westbound*	--	--	--	--	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	*50.6*	*D*	*46.6*	*D*
	Northbound	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	*14.3*	*B*	*9.2*	*A*
	Southbound	--	--	--	--	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	5.5	A	3.0	A
27 North Service Court & 1st Street NW	**Overall**	**--**	**--**	**--**	**--**	**9.6**	**A**	**9.5**	**A**	--	--	--	--	--	--	--	--
Updated improvements: Remove on-street parking to create 100' NB shared through/right-turn lane.	Westbound	--	--	--	--	20.5	C	36.0	D	99.9	F	43.0	E	35.5	E	39.3	E
	Northbound	**--**	**--**	**--**	**--**	5.0	A	3.4	A	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**
	Southbound	--	--	--	--	12.2	B	7.3	A	1.1	A	0.6	A	1.1	A	0.6	A
28 Medical Office Dwy #1 & 1st Street NW	Westbound	--	--	--	--	63.9	F	40.3	E	26.4	D	54.8	F	16.8	C	22.5	C
	Southbound Left	**--**	**--**	**--**	**--**	9.3	A	2.4	A	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**