WELLS + ASSOCIATES

MEMORANDUM

1420 Spring Hill Road
Suite 610
Tysons, Virginia 22102
703-917-6620
703-917-0739 FAX

www.mjwells.com

To: Jonathan Rogers, District Department of Transportation

CC: Andrew Jennings, P.E., Donatelli Development
Brian Rogers, Donatelli Development

From: Jami L. Milanovich, P.E.
Jason J. Shetler, E.I.T.

Re: Transportation Impact Analysis
Hill East, Washington, D.C.

Date: March 18, 2016

OVERVIEW

Donatelli Development proposes to redevelop property located in the Hill East Waterfront Neighborhood. The subject redevelopment, which comprises Lots F1 and G1 of the Hill East Waterfront Plan, is located in Square 1112 E (Lots 802, 803, and 804) and generally is situated east of 19th Street SE. The site currently is zoned HE-1 and HE-2 and is occupied by a surface parking lot for DC General Hospital. The site location map is shown on Figure 1.

Under the proposed development plan, Lots F1 and G1 will be developed with a mix of residential and retail uses. Lot F1 will consist of approximately 91 apartment units and 13,427 square feet of retail. The site will be bordered by 19th Street to the west, future Burke Street extension to the north, future C Street extension to the south, and proposed private access road to the east. Lot G1 will consist of approximately 258 apartment units and 19,874 square feet of retail. The site will be bordered by 19th Street to the west, future C Street extension to the north, future Massachusetts Avenue extension to the south, and proposed private access road to the east. The total completed project will provide approximately 349 apartment units and 33,301 square feet of retail.[1] The proposed site plan is shown on Figure 2 and set of plans are included in Appendix A.

[1] Before the development plan was finalized, the analysis in this study assumed 344 apartment units and 33,517 square feet of retail. The small increase in trips is de minimis and would not have any effect on the results of the study.

This traffic impact assessment (TIA) was conducted to evaluate the impact of the proposed development as required for the Environmental Impact Screening Form (EISF).

EXISTING CONDITIONS

Study Area

The study area was selected based on those intersections that potentially could be affected by the proposed development. The following intersections were selected for detailed analysis:

1. 19th Street/Burke Street,
2. 19th Street/C Street, and
3. 19th Street/Massachusetts Avenue.

Traffic Volumes

Vehicular turning movement, pedestrian, and bicycle counts were conducted the study intersections on Thursday, February 4, 2016 from 7:00 AM to 10:00 AM and from 4:00 PM to 7:00 PM. AM and PM peak hours for each of the study intersections were determined individually to provide the most conservative peak hour analysis, in accordance with standard DDOT practice.

The existing peak hour vehicular traffic volumes are shown on Figure 3 and existing pedestrian peak hour volumes are shown on Figure 4. Traffic count data are included in Appendix B.

Operational Analysis

Capacity/level of service (LOS) analyses were conducted based on the existing lane use and traffic control shown on Figure 5, existing vehicular traffic volumes shown on Figure 3, existing pedestrian volumes shown on Figure 4 and existing traffic signal timings (provided by DDOT) included in Appendix C.

Synchro software (version 7, build 773) was used to evaluate levels of service at each of the study intersections during the AM and PM peak hours. Synchro is a macroscopic model used to evaluate the effects of changing intersection geometrics, traffic demands, traffic control, and/or traffic signal settings and to optimize traffic signal timings. The levels of service reported for the signalized intersections were taken from the Highway Capacity Manual 2000 (HCM) reports generated by Synchro. Levels

of service descriptions are included in Appendix D. Synchro analysis results under existing conditions are presented in Appendix E and summarized in Table 1.

Table 1
Level of Service Summary

Approach	2016 Existing Conditions		2021 Background Conditions		2021 Total Future Conditions	
	AM Peak	PM Peak	AM Peak	PM Peak	AM Peak	PM Peak
1. Burke Street SE/19th Street SE						
EBL/EBLT	B	B	B	B	B	B
WBTR	B	A	B	A	B	C
NBLT	A	A	A	A	A	A
2. C Street SE/19th Street SE						
EBL	A	B	A	B	A	B
WBTR	N/A	N/A	N/A	N/A	B	B
NBLT	A	A	A	A	A	A
3. Massachusetts Avenue SE/19th Street SE						
EBLT	B	B	B	C	B	C
WBTR/WBT	B	C	B	C	B	B
WBR					B	B
NBLTR	C	C	C	C	C	C
Overall	**C**	**C**	**C**	**C**	**C**	**C**

As shown in Table 1, the signalized study intersection operates at overall levels of service C or better.

Safety Analysis

Crash data at the study intersections were obtained from DDOT. The information provided by DDOT included the total number of crashes over the latest three years of available data (i.e. 2012, 2013, and 2014) at each intersection and was further categorized by type of crash. Based on the data, Table 2 shows the overall intersection crash rates at each of the study intersections. Crash data provided by DDOT are included in Appendix F.

As shown in Table 2, the crash rates at the Massachusetts Avenue/19th Street intersection is above 1.0, which is considered high by DDOT.

Table 2
Crash Data Summary

Intersection	Type of Control	No. of Crashes (3 Years)	ADT (veh/day)	Crash Rate (MEV)
Burke Street/19th Street SE	Minor-Stop Controlled	2	10,150	0.18
C Street/19th Street SE	Minor-Stop Controlled	3	9,970	0.27
Massachusetts Avenue/19th Street SE	Signal	25	11,180	2.04

Massachusetts Avenue/19th Street SE

A review of the crash types at the Massachusetts Avenue/19th Street intersection reveals that the majority of the crashes at the intersection involved 'left turn hit vehicle' collisions (28 percent). Two other categories that made up more than 10 percent of the crashes included 'back hit parked vehicle' collisions (20 percent) and side swipe collisions (16 percent). Three crashes at the intersection involved pedestrians.

Based on the limited information provided, no discernable pattern, trend, or causation factors could be identified. In order to make recommendations to improve safety, details regarding the crash history including direction of travel, time of day (daylight or nighttime), and weather conditions would be needed.

SITE EVALUATION

Overview

The proposed redevelopment would contain approximately 349 residential units and approximately 33,301 SF of ground floor retail space in two buildings. The proposed redevelopment will provide approximately 156 off-street parking spaces in two below-grade parking garages. Access to the parking garages will be provided via the private access road.

Site Access and Circulation

The Applicant proposes to construct extensions of Burke Street, C Street, and Massachusetts Avenue to the east. A private access road will be constructed to the east

of the site between Burke Street and Massachusetts Avenue. Cross sections of the private access road are provided in Appendix G. The Applicant will be granting an easement for public use for half of the alley. The Applicant will provide draft language under separate cover prior to the hearing.

Circulation patterns for vehicles, pedestrians, and bicycles are described below and illustrated on Figures 6A and 6B. Circulation for service and delivery vehicles also is described below and depicted on Figures 7A and 7B.

Vehicular Access

Vehicular access to the below-grade parking for Lot F1 will be provided via Burke Street with secondary egress via the private access road to C Street. Vehicular access to the below-grade parking for Lot G1 will be provided via Massachusetts Avenue with secondary ingress via the private access road from C Street.

District of Columbia Municipal Regulations (DCMR) §2815.6 indicate that no driveway or garage entrance providing access to parking and loading should be provided from a primary or secondary street. Since all vehicular access to the proposed site, including parking and loading, will be provided via the private access road, the proposed access is in accordance with DCMR policy.

Access to loading operations for Lot F1 is proposed along the private access road adjacent to the building. Trucks and service vehicles will be able to access the private roadway front-first from Burke Street. Trucks will then exit the loading area and continue front-first out of the private roadway onto C Street. Access to loading operations for Lot G1 also is proposed along the private access road adjacent to the building. Trucks and service vehicles will be able to access the private roadway front-first from C Street. Trucks will then exit the loading area and continue front-first out of the private roadway onto Massachusetts Avenue.

Pedestrian Access

Primary pedestrian access for residential uses in Lot F1 will be located on C Street. Pedestrian access for retail uses in Lot F1 will be provided on the western side of the building nearest 19th Street.

Primary pedestrian access for residential uses in Lot G1 will be located on the corner of C Street and 19th Street. Secondary residential access will be provided on C Street, Massachusetts Avenue, and the private roadway. Pedestrian access for retail uses in Lot G1 will be provided on 19th Street and Massachusetts Avenue.

Bicycle Access

Bicycle parking for the project will be provided in a bicycle storage rooms on the below-grade garage of each building. Bicycle parking in the garage will be accessed via the garage ramps on the private access road.

Bicycle parking for visitors would be provided in public space. The exact number of exterior bicycle racks will be determined in consultation with DDOT during the public space process.

Proposed Parking

Vehicular Parking

The parking requirements for the proposed redevelopment are prescribed by DCMR §2815 and are summarized below in Table 3 along with the proposed parking supply. Both lots will include a below-grade parking garage. The garage on Lot F1 will include 45 spaces and the garage on Lot G1 will include 111 spaces for a total of 156 parking spaces. According to DCMR §2815.1, parking for residential uses are provided as prescribed for the R-5-B Residence zone district. As such, one parking space is required for every two residential dwelling units. According to DCMR §2815.2, parking for non-residential uses are provided as prescribed for the CR Mixed-Use zone district. As such, one parking space is required for every 750 SF in excess of 3,000 SF. Therefore, the proposed redevelopment would be required to provide 211 off-street parking spaces. The redevelopment plans include 156 off-street parking spaces. Therefore, zoning relief is requested for 55 parking spaces.

Table 3
Parking Summary

Land Use	Required Parking		
	Lot F1	Lot G1	TOTAL
Residential	46	129	175
Retail	14	22	36
Total	**60**	**151**	**211**
Land Use	**Proposed Parking**		
	Lot F1	**Lot G1**	**TOTAL**
Residential	31	89	120
Retail	14	22	36
Total	**45**	**111**	**156**

Bicycle Parking

According to the DCMR, bicycle parking spaces shall be provided or office, retail, and service uses, except retail and services uses in the C-3-C, C-4, and C-5 (PAD) Districts.[2] Therefore, the proposed redevelopment is required to provide bicycle parking for five percent of the retail vehicular parking space requirement.

District law also requires that one bicycle parking space be provided for every three residential dwelling units.[3] The number of required bicycle parking spaces for each development option is summarized in Table 4.

Table 4
Bicycle Parking Summary

Land Use	Required Parking		
	Lot F1	Lot G1	TOTAL
Residential	30	86	116
Retail	1	1	2
Total	**31**	**87**	**118**

[2] District of Columbia Municipal Regulations, Title 11-Zoning, 2119.2, 2005 Edition.
[3] D.C. Code § 50-1641.05(b)(1)

A review of the new zoning regulations that will take effect September 6, 2016 indicates that the new regulations also would require 118 long-term bicycle parking spaces for the proposed redevelopment. The proposed development will provide, at minimum, the required number of bicycle parking spaces in the P1 levels of the parking garages.

The proposed zoning regulations would also require 28 short-term bicycle spaces for the proposed redevelopment. A minimum of 28 short-term bicycle parking spaces also will be provided in public space. The location of the short-term bicycle racks will be determined in consultation with DDOT during the public space process.

Proposed Loading

According to the DCMR[4], in the R-5-B district, a residential building with 50 or more dwelling units requires one 55-foot loading berth, one 200 SF loading platform, and one 20-foot service/delivery space. The residential units for the proposed project would be distributed in two buildings, each requiring a 55-foot loading berth, 200 SF loading platform, and a 20-foot service/delivery space. In the CR district, retail uses with 5,000 to 20,000 SF of gross floor area require one 30-foot loading berth and one 100 SF loading platform. Retail space in Lot F1 consists of 13,427 SF, requiring one 30-foot loading berth and one 100 SF loading platform. Per DCMR §2201.2, loading berths for Lot G1 are calculated per the residential use since it occupies more than 90 percent of the gross floor area of the building. Therefore, no retail loading is required for Lot G1.

The loading requirements for the proposed redevelopment as prescribed by the DCMR are summarized in Table 5 along with the proposed loading facilities. As shown in Table 5, the Applicant is seeking relief from the loading requirements.

[4] District of Columbia Municipal Regulations, Title 11-Zoning, 2201, 2005 Edition.

Table 5
Loading Summary

Component	Required Loading	
	Lot F1	Lot G1
Residential	1 berth @ 55' 1 platform @ 200 SF 1 service/delivery @ 20'	1 berth @ 55' 1 platform @ 200 SF 1 service/delivery @ 20'
Retail	1 berth @ 30' 1 platform @ 100 SF	N/A[1]
	Proposed Loading	
	Lot F1	**Lot G1**
Total	1 berth @ 50'[2] 1 service/delivery @ 20'	1 berth @ 50'[2] 1 service/delivery @ 20'

[1] Per DCMR §2201.2, loading berths for Lot G1 are calculated per the residential use since it occupies more than 90 percent of the gross floor area of the building. Therefore, no retail loading is required.
[2] Per DCMR §2201.3, the 30' loading berth will be increased in depth resulting in an enlarged loading berth of 50', which will be equal in area to the combined loading berth and platform requirements.

In order to ensure that the loading relief does not adversely impact the surrounding roadway network, a loading management plan will be implemented for the project. The goals of this plan are to maintain a safe environment for all users of the site, loading dock, street, and nearby intersections; minimize undesirable impacts to pedestrians and to building tenants; reduce conflicts between truck traffic using the loading facilities and other street users; and ensure smooth operation of the loading facilities through appropriate levels of management and scheduled operations. The following are the components of the loading management plan:

1) A loading dock manager will be designated by the building management (duties may be part of other duties assigned to the individual). He or she will coordinate with vendors and tenants to schedule deliveries and will be on duty from 9:00 AM to 5:00 PM and will coordinate with the community and neighbors to resolve any conflicts should they arise.

2) All tenants will be required to schedule deliveries that utilize the loading dock (any loading operation conducted using a truck 30' in length or smaller) and all loading activities are required to occur at the loading dock, except as follows: In the event that a delivery or move-in/move-out requires a truck longer than 30 feet, the tenant will be required to obtain "Emergency No Parking Signs" in accordance with DDOT policies so that curbside loading may take place on an adjacent public street.

3) The dock manager will schedule deliveries such that the dock's capacity is not exceeded. In the event that an unscheduled delivery vehicle arrives while the dock is full, that driver will be directed to return at a later time when a berth will be available so as not to compromise safety or impede street or intersection function.

4) The dock manager will schedule residential loading activities so as not to conflict with retail deliveries. All residential loading will need to be scheduled with the dock manager and it is anticipated that residential loading will take place primarily during afternoons and evenings, when the retail loading activity is minimal.

5) The dock manager will monitor inbound and outbound truck maneuvers and will ensure that trucks accessing the loading dock do not block vehicular, bike, or pedestrian traffic along Burke Street, C Street, Massachusetts Avenue, and 19th Street except during those times when a truck is actively entering or exiting a loading berth.

6) Service vehicle/truck traffic interfacing with Burke Street, C Street, Massachusetts Avenue, and 19th Street traffic will be monitored during peak periods and management measures will be taken if necessary to reduce conflicts between truck and vehicular movements.

7) Trucks using the loading dock will not be allowed to idle and must follow all District guidelines for heavy vehicle operation including but not limited to DCMR 20 – Chapter 9, Section 900 (Engine Idling), the regulations set forth in DDOT's Freight Management and Commercial Vehicle Operations document, and the primary access routes listed in the DDOT Truck and Bus Route Map (godcgo.com/truckandbusmap).

8) The dock manager will monitor the timing of the retail and residential deliveries to see if any adjustments need to be made to ensure any conflicts with the retail and residential loading activities are minimized.

9) The dock manager will be responsible for disseminating suggested truck routing maps to the building's tenants and to drivers from delivery services that frequently utilize the development's loading dock as well as notifying all drivers of any access or egress restrictions. The dock manager will also distribute materials as DDOT's Freight Management and Commercial Vehicle Operations document to drivers as needed to encourage compliance with idling laws. The dock manager will also post these documents and notices in a prominent location within the service area.

Site Trip Generation

Total Trips

The Applicant proposes to construct approximately 349 apartments and 33,301 SF retail on the subject site. The total number of site trips anticipated to be generated by the proposed development was estimated based on the Institute of Transportation Engineers' (ITE) Trip Generation Manual (9th Edition). ITE Land Use Code 220 (Apartment) and LUC 820 (Retail) were used to estimate the total number of trips to/from the proposed development.[5]

Table 6 presents the anticipated number of site trips. As proposed, the development would generate 252 ***total*** AM peak hour trips (all modes) and 495 ***total*** PM peak hour trips (all modes).

Non-Auto Mode Split

A portion of the trips generated by the proposed development would be made via non-auto modes of transportation. The percentage of site-generated trips that would utilize public transportation is dependent on the proximity of the site to transit stops and the degree to which the use of public transit is encouraged, such as by implementation of a transportation demand management (TDM) program.

Non-auto mode splits were determined based on the site's proximity to the Stadium – Armory Metro Station, the WMATA Ridership Survey, and Census data. The WMATA Ridership Survey indicates approximately 55 percent of residents and 47 percent of trips for the retail component would travel via Metrorail and other public transportation modes (excluding pedestrian and bicycle modes). The Census data for this area indicate that 49 percent of residents in this census tract use alternative modes of transportation, while another four percent stay home and four percent carpool.

In addition to examining the prevailing mode splits in the area, the proposed parking supply also was taken into consideration. Based on Census data, approximately 30 to 40 percent of commuters leave during the peak hour. Therefore, based on the proposed parking supply, a non-auto mode split of 62 to 72 percent would be expected.

[5] Before the development plan was finalized, the analysis in this study assumed 344 apartment units and 33,517 square feet of retail. The small increase in trips is de minimis and would not have any effect on the results of the study.

Taking into account the location of the site at the transit station, data from WMATA, Census data for the area, and the proposed limited parking supply, the non-auto mode split for the residential component is anticipated to be 65 percent. The non-auto mode split for the retail component was estimated to be 60 percent based on the neighborhood serving nature of the proposed retail, the walkability of the site, and the abundance of transportation options near the site.

Accordingly, 160 AM peak hour trips and 308 PM peak hour trips are projected to be made by non-auto modes of transportation, as shown on Table 6. The non-auto trips presented in Table 6 were subdivided into transit, bicycle, and pedestrian trips based on census data and the 2005 WMATA Ridership Survey.

Pass-by Trips

Some of the trips generated by the retail portion of the proposed development would be made by vehicles already using the adjacent streets to reach a different destination but stop at the site in passing. This type of trip is called a pass-by trip, and is defined by ITE's Trip Generation Manual as a trip in which the retail or service destination is the secondary part of a primary trip, such as a work-to-shopping-to-home trip. An example of a pass-by trip would be one in which a driver stops at the retail uses on his/her way home from work.

Based on data contained in the Trip Generation Manual, the average pass-by rate for retail shopping centers is 34 percent during the PM peak hour. The pass-by rate for the AM peak hour was assumed to be 17 percent, half of the PM peak hour.

Accordingly, three AM peak hour trips and 29 PM peak hour trips are projected to be pass-by trips, as shown on Table 6.

New Vehicle Trips

The number of new vehicle trips added to the adjacent roadways was calculated by subtracting the number of non-auto trips and pass-by trips from the number of total trips to yield the number of new vehicle trips.

Table 6
Site Trip Generation Summary

	AM Peak Hour			PM Peak Hour			ADT
	In	Out	Total	In	Out	Total	
Residential – 344 Dwelling Units (LUC 220)							
Total Trips	34	138	172	135	72	207	2,208
Non-auto Trips	*22*	*90*	*112*	*88*	*47*	*135*	*1,435*
Transit	20	80	100	78	42	120	1,281
Bicycle	1	6	7	6	3	9	88
Pedestrian	1	4	5	4	2	6	66
Vehicle Trips	**12**	**48**	**60**	**47**	**25**	**72**	**773**
Retail – 33,517 SF (LUC 820)							
Total Trips	50	30	80	138	150	288	11,408
Non-auto Trips	*30*	*18*	*48*	*83*	*90*	*173*	*6,845*
Transit	21	13	34	58	63	121	4,791
Bicycle	5	3	8	15	16	31	1,255
Pedestrian	4	2	6	10	11	21	799
Vehicle Trips	*20*	*12*	*32*	*55*	*60*	*115*	*4,563*
Pass-by Vehicle Trips	*2*	*1*	*3*	*14*	*15*	*29*	*456*
New Vehicle Trips	**18**	**11**	**29**	**41**	**45**	**86**	**4,107**
Total Proposed Development							
Total Trips	84	168	252	273	222	495	13,616
Non-auto Trips	*52*	*108*	*160*	*171*	*137*	*308*	*8,280*
Transit	*41*	*93*	*134*	*136*	*105*	*241*	*6,072*
Bicycle	*6*	*9*	*15*	*21*	*19*	*40*	*1,343*
Pedestrian	*5*	*6*	*11*	*14*	*13*	*27*	*865*
Vehicle Trips	32	60	92	102	85	187	5,336
Pass-by Vehicle Trips	*2*	*1*	*3*	*14*	*15*	*29*	*456*
New Vehicle Trips	**30**	**59**	**89**	**88**	**70**	**158**	**4,880**

Note:
Before the development plan was finalized, the analysis in this study assumed 344 apartment units and 33,517 square feet of retail. The small increase in trips is de minimis and would not have any effect on the results of the study.

Site Trip Distribution and Assignment

The distribution of new peak hour residential site trips was based on existing traffic patterns in the study area and the premise that commuters will select routes that minimize travel time.

The trip distributions shown in Table 7 were applied to the new vehicle trip generation for the proposed development. The resulting traffic assignments for the proposed development are shown on Figure 8.

Table 7
Site Trip Distributions

Roadway	Residential Distribution	Retail Distribution
Independence Ave (to/from west)	20%	16.5%
Massachusetts Ave	10%	16.5%
Potomac Ave	10%	34%
East Capitol Street (to/from east)	35%	0%
19th Street/18th Street (to/from north)	25%	33%

Transportation Demand Management

Traffic and parking congestion can be solved in one of two ways: 1) increase supply or 2) decrease demand. Increasing supply requires building new roads, widening existing roads, building more parking spaces, or operating additional transit service. These solutions are often infeasible in constrained conditions in urban environments and, where feasible, can be expensive, time consuming, and in many instances, unacceptable to businesses, government agencies, and/or the general public.

The demand for travel and parking can be influenced by Transportation Demand Management (TDM) plans implemented by those in the private sector. Typical TDM measures include incentives to use transit or other non-auto modes of transportation,

bicycle and pedestrian amenities, parking management, alternative work schedules, telecommuting, and better management of existing resources. TDM plans are most effective when tailored to a specific project or user group have been proven to be effective in reducing vehicle travel and parking demand.

The Applicant has developed a TDM plan with strategies to reduce the need for vehicular travel to/from the proposed redevelopment. Specifically, the TDM plan would include:

1) A member of the property management team will be designated as the Transportation Management Coordinator (TMC). The TMC will be responsible for ensuring that information is disseminated to tenants of the building. The position may be part of other duties assigned to the individual.

2) Information on and/or links to transportation programs and services will be provided on the property management website. Such programs and services may include:

   - Capital Bikeshare,
   - Car-sharing services,
   - Uber,
   - Ridescout,
   - Commuter Connections Rideshare Program, which provides complimentary information on a variety of commuter programs to assist in determining which commuting options work best for commuters,
   - Commuter Connections Guaranteed Ride Home, which provides commuters who regularly (twice a week) carpool, vanpool, bike, walk or take transit to work with a free and reliable ride home in an emergency,
   - Commuter Connections Pools Program, which incentivizes commuters who currently drive alone to carpool. Participants can earn money for carpooling to work and must complete surveys and log information about their experience,
   - DDOT's DC Bicycle Map,
   - goDCgo.com, and
   - WMATA.

3) An electronic display will be provided in a common, shared space in each building and will provide public transit information such as nearby Metrorail

stations and schedules, Metrobus stops and schedules, car-sharing locations, and nearby Capital BikeShare locations indicating the number of bicycles available at each location.

4) Convenient and covered secure bike parking facilities will be provided in each building with storage for a minimum of 118 bicycles, as shown on Figure 6B.

FUTURE TRAFFIC CONDITIONS

Traffic Volumes

Background Traffic Forecasts

In order to develop background traffic forecasts without the Hill East development, a composite of existing traffic and increases in traffic associated with regional growth in the site vicinity was developed. For purposes of this analysis, no pipeline developments are located within the site vicinity.

A review of DDOT's traffic volume maps (2002 through 2013) indicate that the daily volumes on the roadways in the study area generally show a negative growth. However, to conservatively account for increases in regional traffic, a growth rate of 0.5 percent per year compounded annually was applied to baseline traffic volumes in the study area through 2021. This growth accounts for regional traffic growth outside the immediate vicinity of the site. Traffic forecasts with the increase associated with regional growth are shown as the background traffic forecasts on Figure 9.

Total Future Traffic Forecasts

To obtain 2021 total future peak hour forecasts with the proposed development, the site traffic assignments shown on Figure 8 were added to the 2021 background traffic forecasts shown on Figure 9. The resulting 2021 total future peak hour traffic forecasts with the proposed development are shown on Figure 10.

Operational Analysis

Capacity/level of service analyses were conducted for the study area for background conditions (without the proposed development) and total future conditions (with the proposed development) using Synchro. Background levels of service were calculated using 2021 background traffic forecasts shown on Figure 9, the lane configuration and traffic controls shown on Figure 5 and existing traffic signal timings. Total future levels of service were calculated using 2021 total future traffic forecasts shown on Figure 10,

the proposed lane configuration and traffic controls shown on Figure 11 and existing traffic signal timings. The results of these analyses are presented in Table 1.

Background Levels of Service

As shown on Table 1, under background conditions, each of the signalized study intersections would operate at levels of service consistent with the existing conditions.

Total Future Levels of Service

Under the total future conditions, as shown on Table 1, the signalized study intersections would operate at levels of service consistent with the background conditions.

Synchro worksheets for the background conditions analysis and total future conditions analysis are provided in Appendices H and I, respectively.

ENVIRONMENTAL IMPACT SCREENING FORM

Transportation related questions from the Environmental Impact Screening Form are outlined below. Responses to the questions are based on the foregoing analyses.

7a. Give the estimated number of peak hour morning (6:30 AM – 9:30 AM) and evening (4:30 PM – 6:30 PM) vehicular trips into and out of the property.

Based on the trip generation analysis, the proposed development is anticipated to generate 30 new vehicle trips inbound and 59 new vehicle trips outbound during the morning peak hour. During the evening peak hour, the proposed development is anticipated to generate 88 new vehicle trips inbound and 70 new vehicle trips outbound.[6]

7b. Give the location of parking entry, drop-off areas and pedestrian entry.

Parking will be available in two proposed below-grade parking garages. The parking garage on Lot F1 can be accessed via future Burke Street extension. The parking garage on Lot G1 can be accessed via future Massachusetts Avenue extension. Pedestrian access will be provided via proposed sidewalks along future streets,

[6] Before the development plan was finalized, the analysis in this study assumed 344 apartment units and 33,517 square feet of retail. The small increase in trips is de minimis and would not have any effect on the results of the study.

including Burke Street, C Street, and Massachusetts Avenue. No dedicated drop-off areas are proposed.

8. Give the number of daily deliveries by truck, if any, and location of loading area, if any.

The number of truck deliveries to the proposed development is anticipated to be minimal, on the order of 3 to 4 per day. Loading for Lot F1 will be located along a proposed private service drive between the future Burke Street extension and future C Street extension. Loading for Lot G1 will be located along a proposed private service drive between the future C Street extension and future Massachusetts Avenue extension.

10. Will the proposed project provide 50 or more new parking spaces?

Yes, parking for the proposed project will be provided in two the proposed below-grade parking garages; 45 parking spaces on Lot F1 and 111 parking spaces on Lot G1 for a total of 156 parking spaces.

14. Will the proposed project increase traffic volume, which would result in a street volume-to-capacity ratio of 0.90 or greater (Street Level-of-Service E or F)?

No, the proposed development will not cause any of the lane groups at any of the study intersections to operate at a volume-to-capacity ratio of 0.90 or greater, as shown on Table 8.

15. Will the proposed project increase traffic volume that would result in a vehicle delay of 55 or more seconds at any signalized intersections?

No, the proposed development will not cause any of the signalized intersections to operate with 55 or more seconds of delay. Table 9 illustrates the delay at each of the intersections with and without the proposed development anticipated to be built out by 2021.

Table 8
Volume-to-Capacity Ratios

Approach	Without Development	With Development
1. Burke Street SE/19th Street SE		
EBL/EBLT	0.02	0.02
WBTR	0.00	0.07
NBLT	0.29	0.36
2. C Street SE/19th Street SE		
EBL	0.10	0.16
WBTR	N/A	0.02
NBLT	0.44	0.35
3. Massachusetts Avenue SE/19th Street SE		
EBLT	0.24	0.35
WBTR/WBT	0.32	0.25
WBR	N/A	0.17
NBLTR	0.76	0.78

Table 9
Intersection Delays

Approach	Without Development		With Development	
	AM Peak	PM Peak	AM Peak	PM Peak
3. Massachusetts Avenue SE/19th Street SE				
EBLT	B	C	B	C
WBTR/WBT	B	C	B	B
WBR			B	B
NBLTR	C	C	C	C
Overall	**C**	**C**	**C**	**C**

CONCLUSIONS

The conclusions and recommendations of this traffic evaluation are as follows:

- The proposed redevelopment will generate 89 new vehicular trips during the AM peak hour and 158 new vehicular trips during the PM peak hour.[7]
- In order to reduce the number of vehicle trips generated by the proposed redevelopment, the Applicant will implement a Transportation Demand Management Plan, which will encourage the use of non-auto modes of transportation.
- The Applicant is seeking flexibility from the requirement to provide two 55-foot loading berths for the residential components. In lieu of the 55-foot berths, two 30-foot berths with 20-foot areas for unloading will be provided.
- The Applicant will implement a Loading Management Plan to ensure that the requested loading relief does not create any adverse impacts.
- Traffic associated with the proposed development will have a negligible impact on the study intersections.

We hope that this memorandum provides you with sufficient information regarding the traffic impact assessment of the proposed EISF application. Should you require any additional information, please do not hesitate to contact us at (703) 917-6620, jlmilanovich@wellsandassociates.com, or jjshetler@wellsandassociates.com.

O:\Projects\6500-7000\6600 Hill East\Documents\6600 EISF Memo_Revised.docx

[7] Before the development plan was finalized, the analysis in this study assumed 344 apartment units and 33,517 square feet of retail. The small increase in trips is de minimis and would not have any effect on the results of the study.

FIGURES

Figure 1
Site Location

North

Hill East
Washington, DC

WELLS + ASSOCIATES

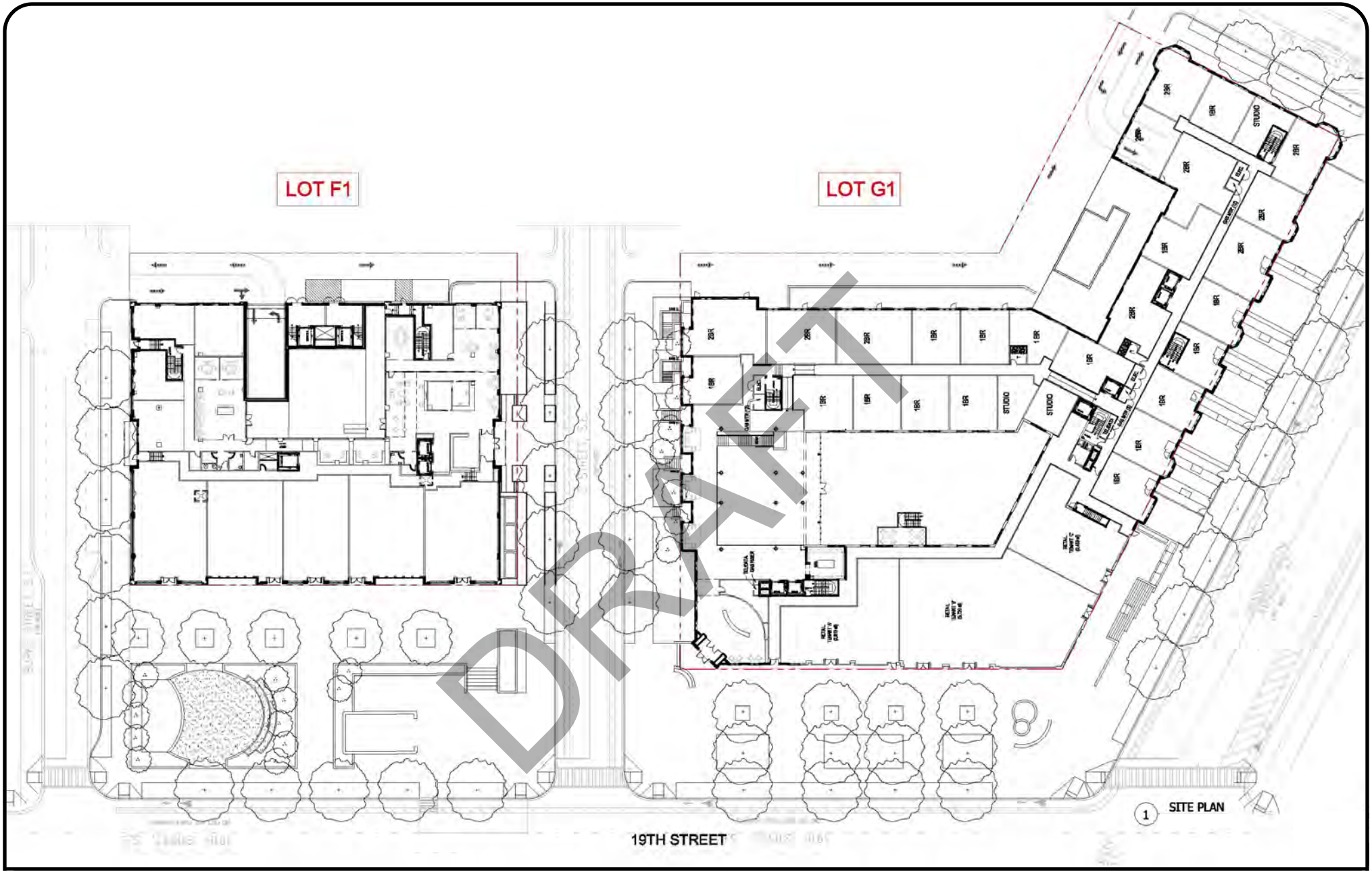


Figure 2
Proposed Site Plan

Provided by GTM Architects
Date: 03/11/2016

Elements of public space are not yet refined and will be formally submitted by GTM Architects.

North

Hill East
Washington, DC

WELLS + ASSOCIATES

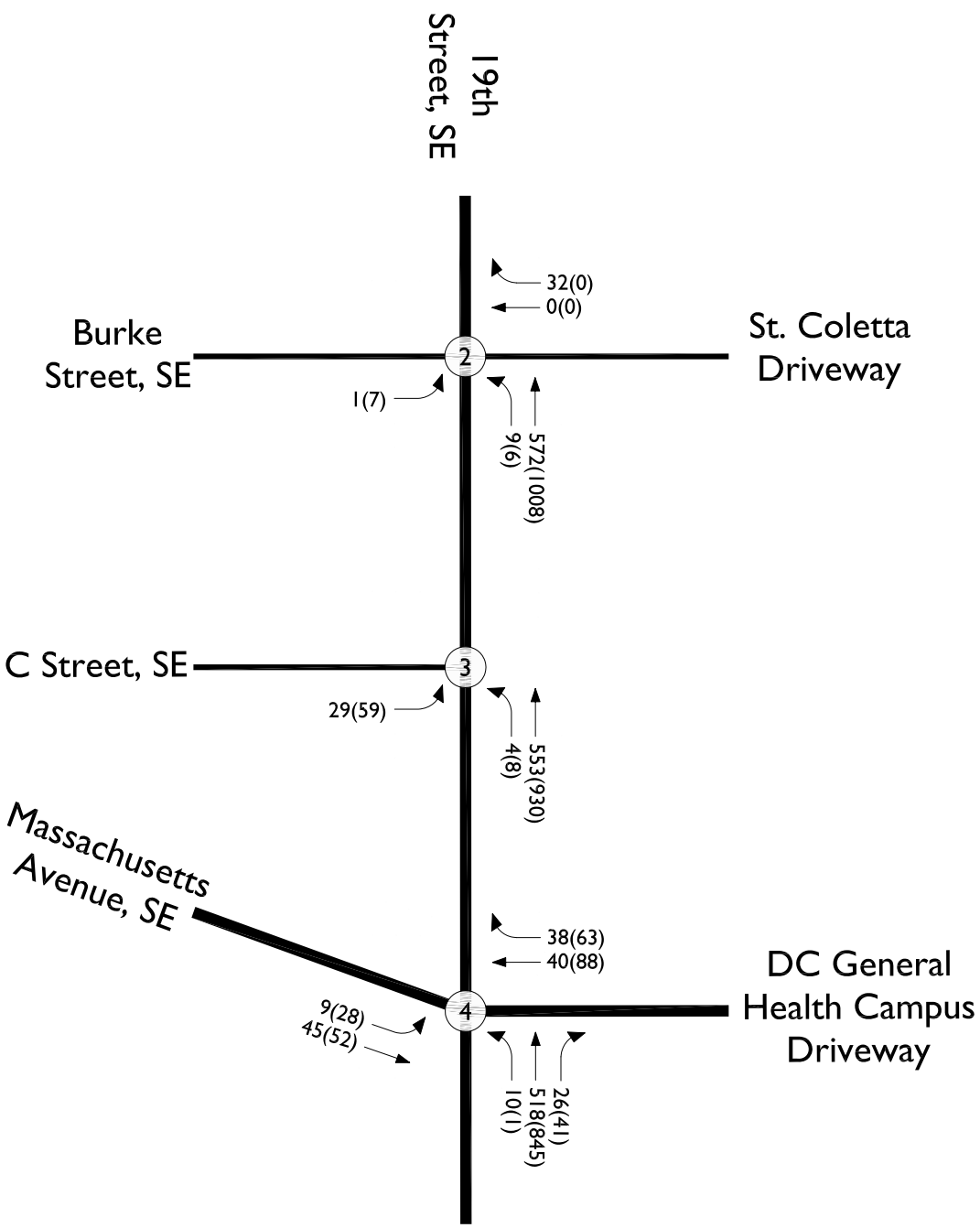


Figure 3
Existing Peak Hour Traffic Volumes

AM Peak Hour
PM Peak Hour
000 (000)

North
Not to Scale

Hill East
Washington, DC

Wells + Associates

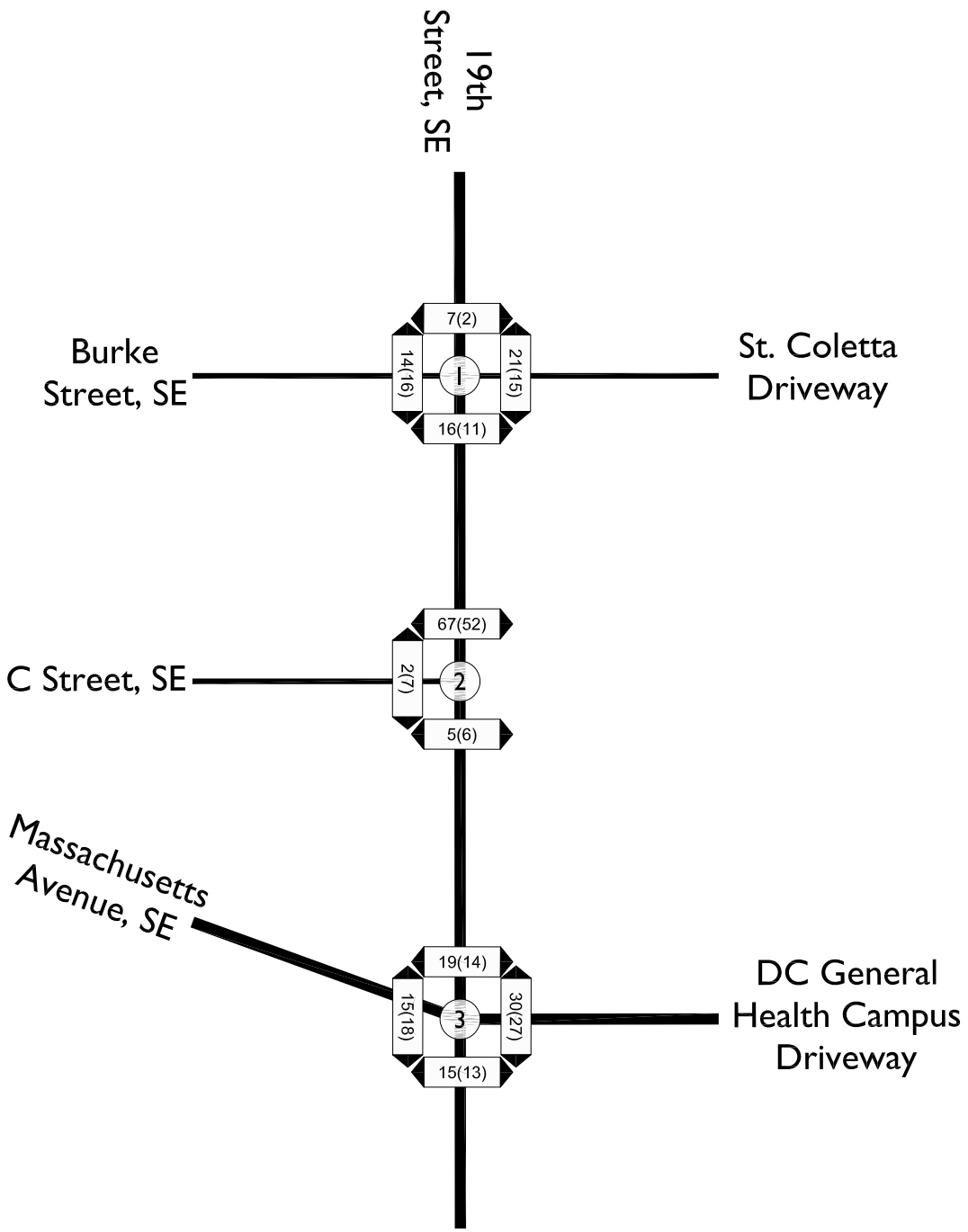


Figure 4
Pedestrian Peak Hour Volumes

AM Peak Hour
PM Peak Hour
000 (000)

North
Not to Scale

Hill East
Washington, DC

Wells + Associates

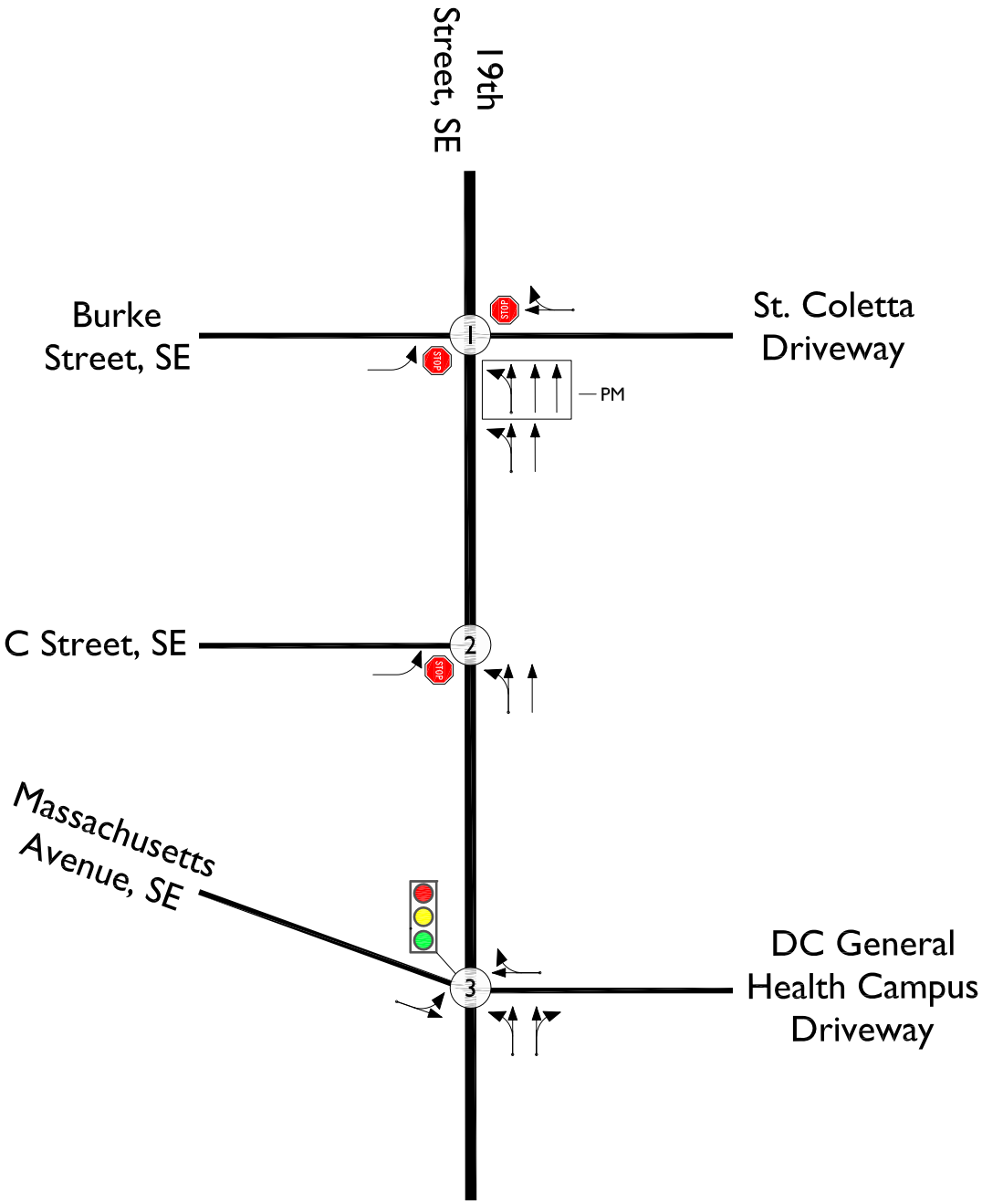


Figure 5
Existing Lane Use and Traffic Control

Represents One Travel Lane
Signalized Intersection
Stop Sign

North
Not to Scale

Hill East
Washington, DC

Wells + Associates

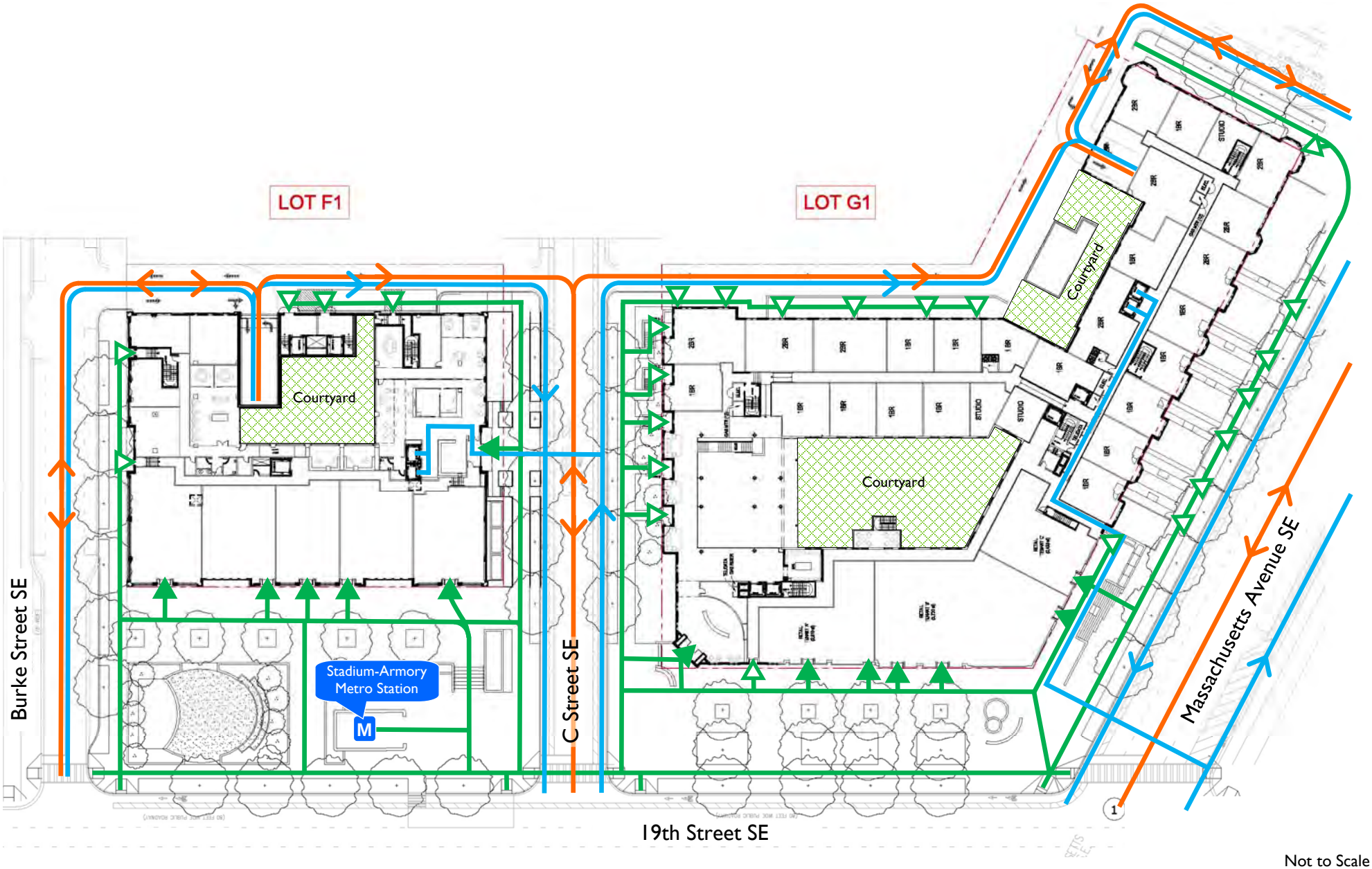


Figure 6A
Pedestrian, Bicycle and Vehicle Circulation - Ground Floor

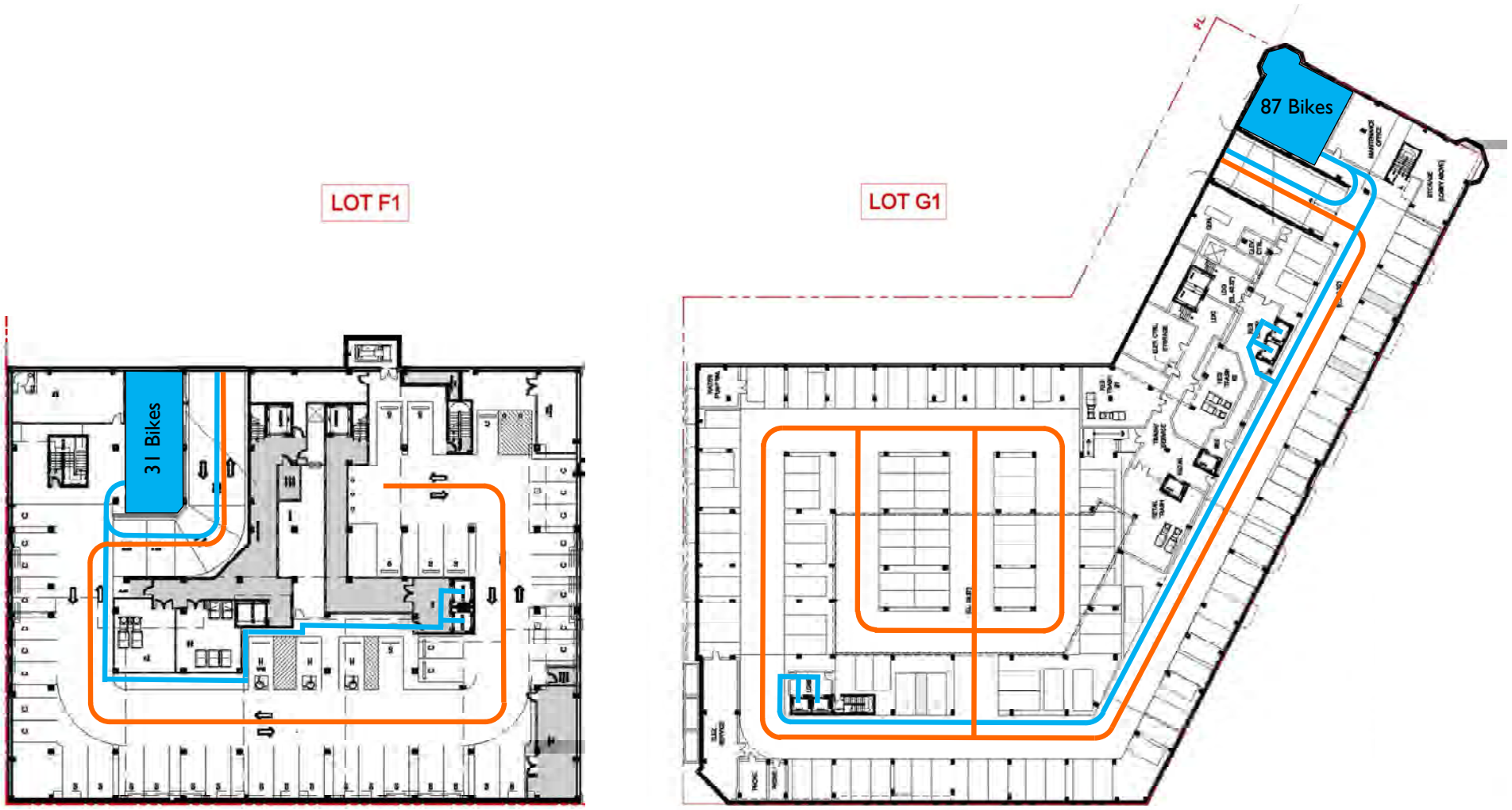
Pedestrian Circulation
Bicycle Circulation
Vehicle Circulation

Primary Access
Secondary Access

North

Hill East
Washington, DC

WELLS + ASSOCIATES



Not to Scale

Figure 6B
Bicycle and Vehicle Circulation - Garage Level

Bicycle Circulation
Vehicle Circulation

North

Hill East
Washington, DC

WELLS + ASSOCIATES

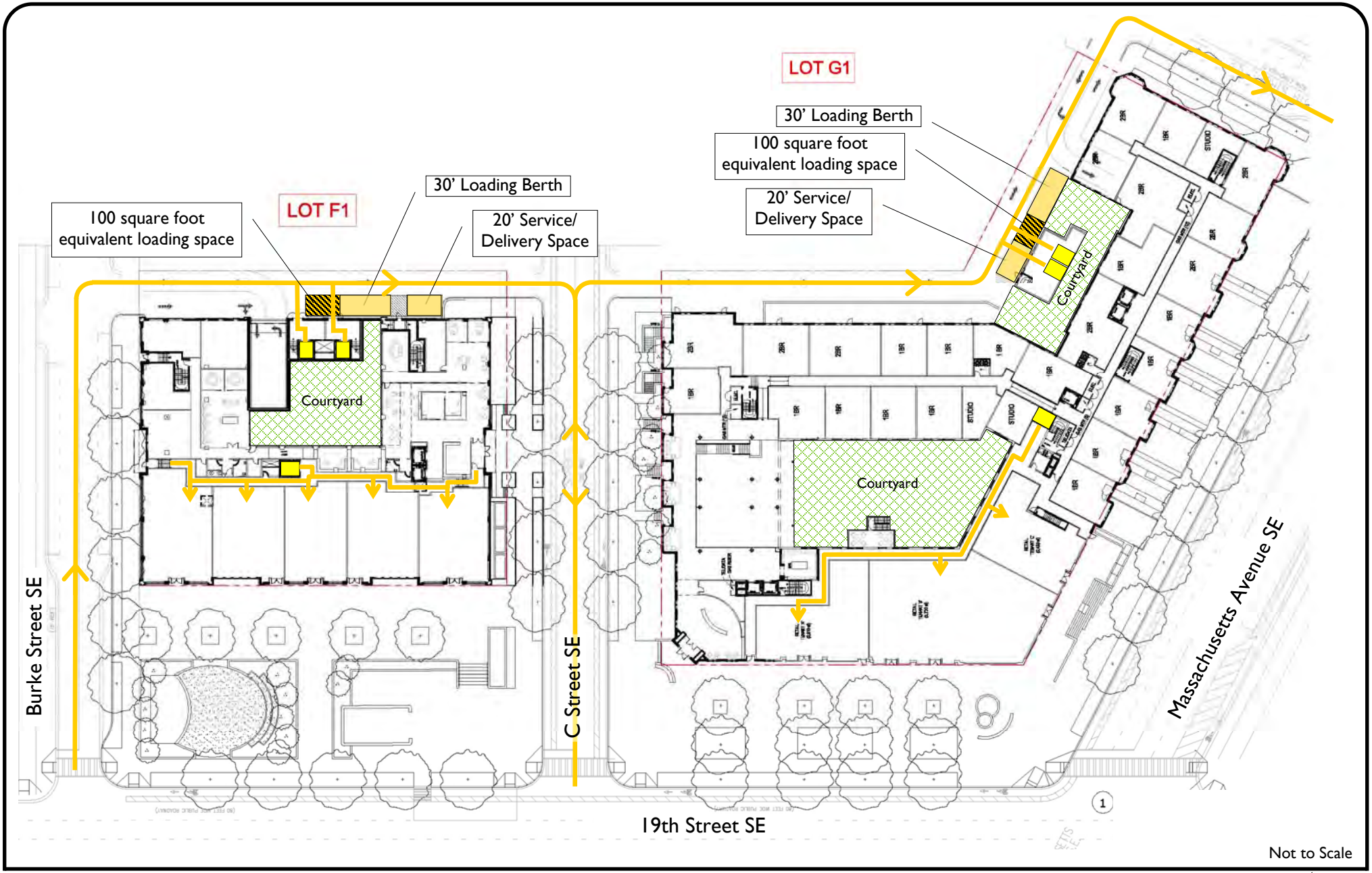


Figure 7A
Loading, Service, and Trash Circulation and Access - Ground Floor

Hill East
Washington, DC

WELLS + ASSOCIATES

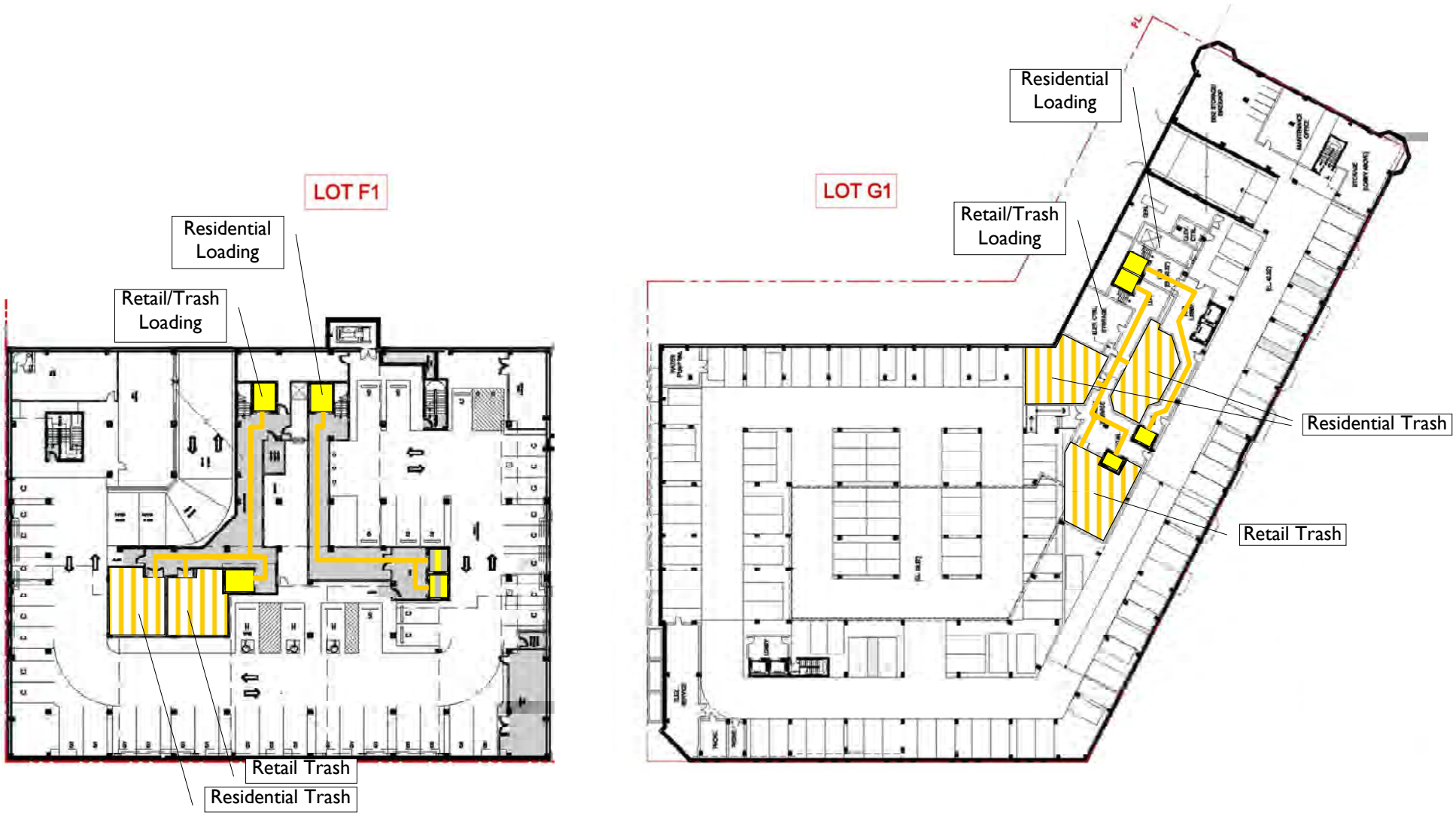


Figure 7B
Loading, Service, and Trash Circulation and Access - Garage Level

Hill East
Washington, DC

WELLS + ASSOCIATES

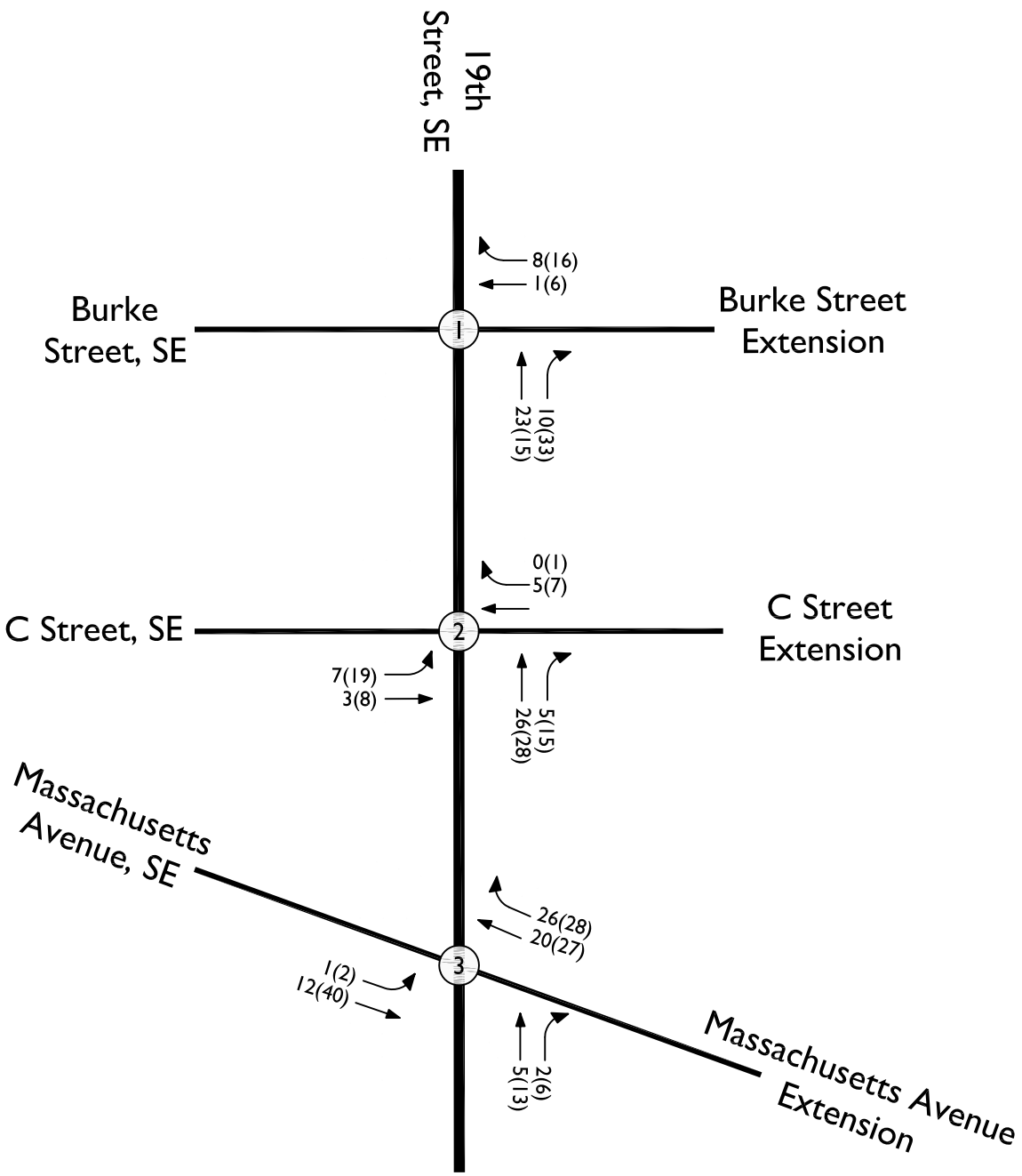


Figure 8
Site Trips

AM Peak Hour
PM Peak Hour
000 (000)

North
Not to Scale

Hill East
Washington, DC

Wells + Associates

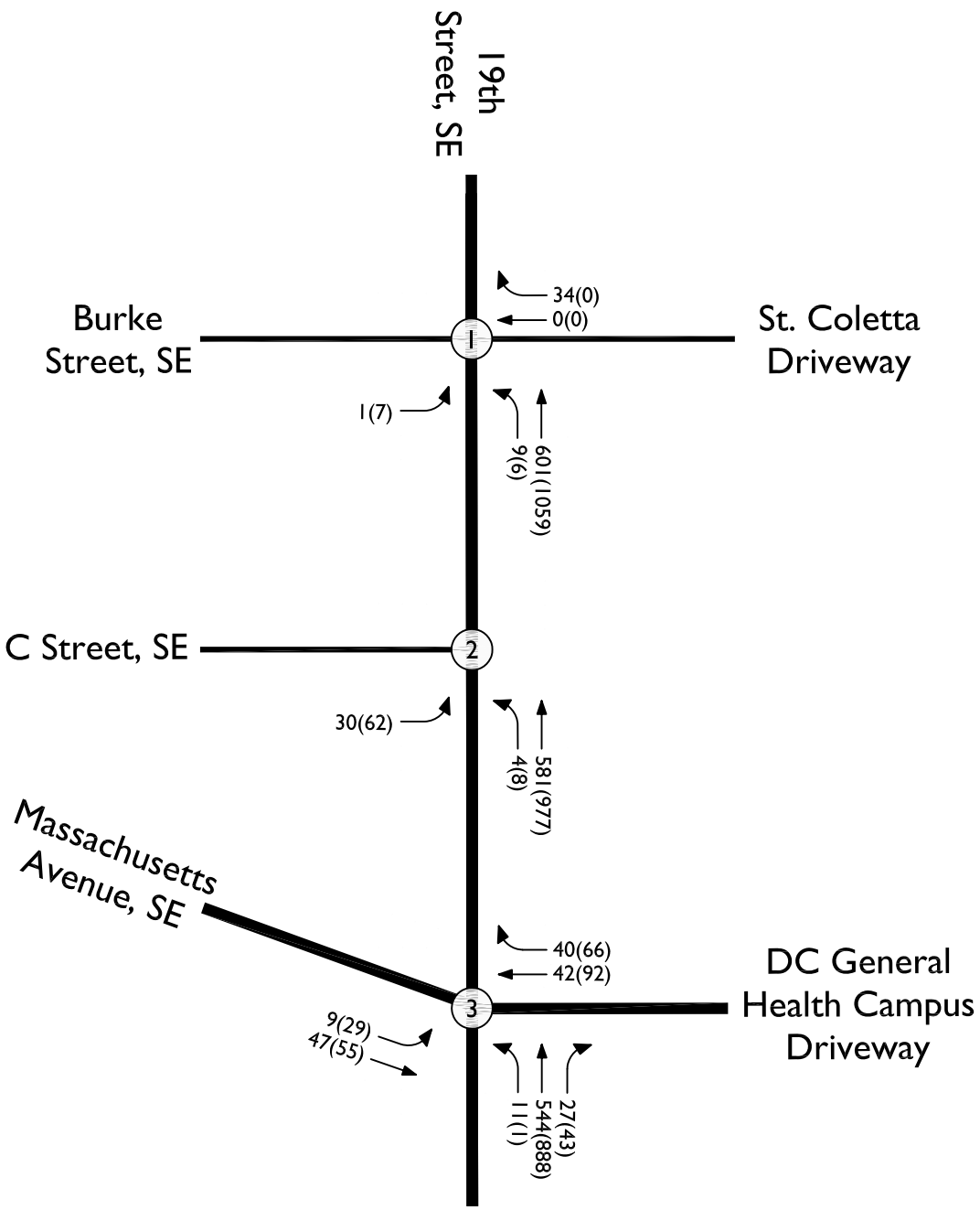


Figure 9
2021 Background Traffic Forecasts

AM Peak Hour
PM Peak Hour
000 (000)

North
Not to Scale

Hill East
Washington, DC

Wells + Associates

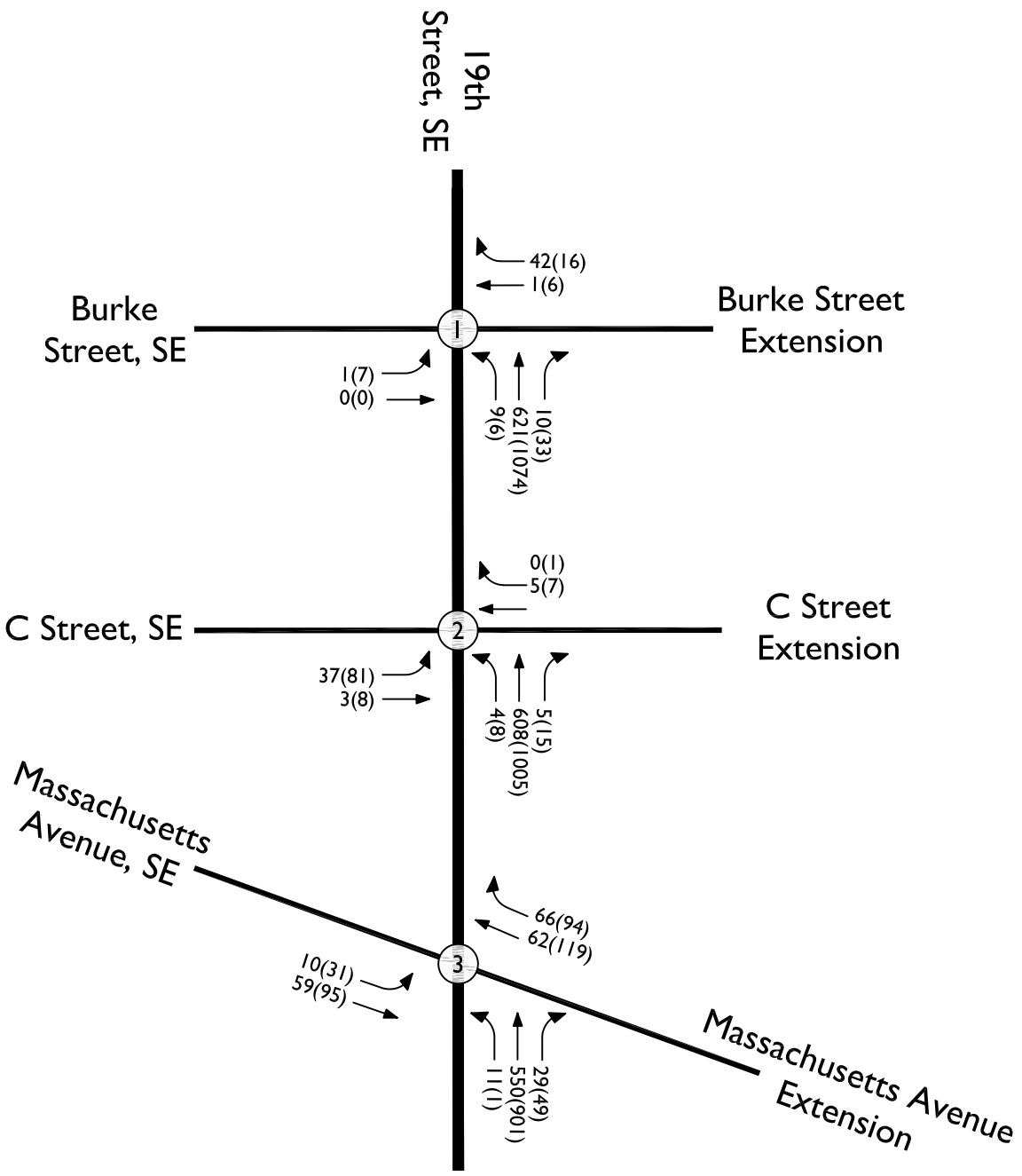


Figure 10
2021 Total Future Traffic Forecasts

AM Peak Hour
PM Peak Hour
000 (000)

North
Not to Scale

Hill East
Washington, DC

Wells + Associates

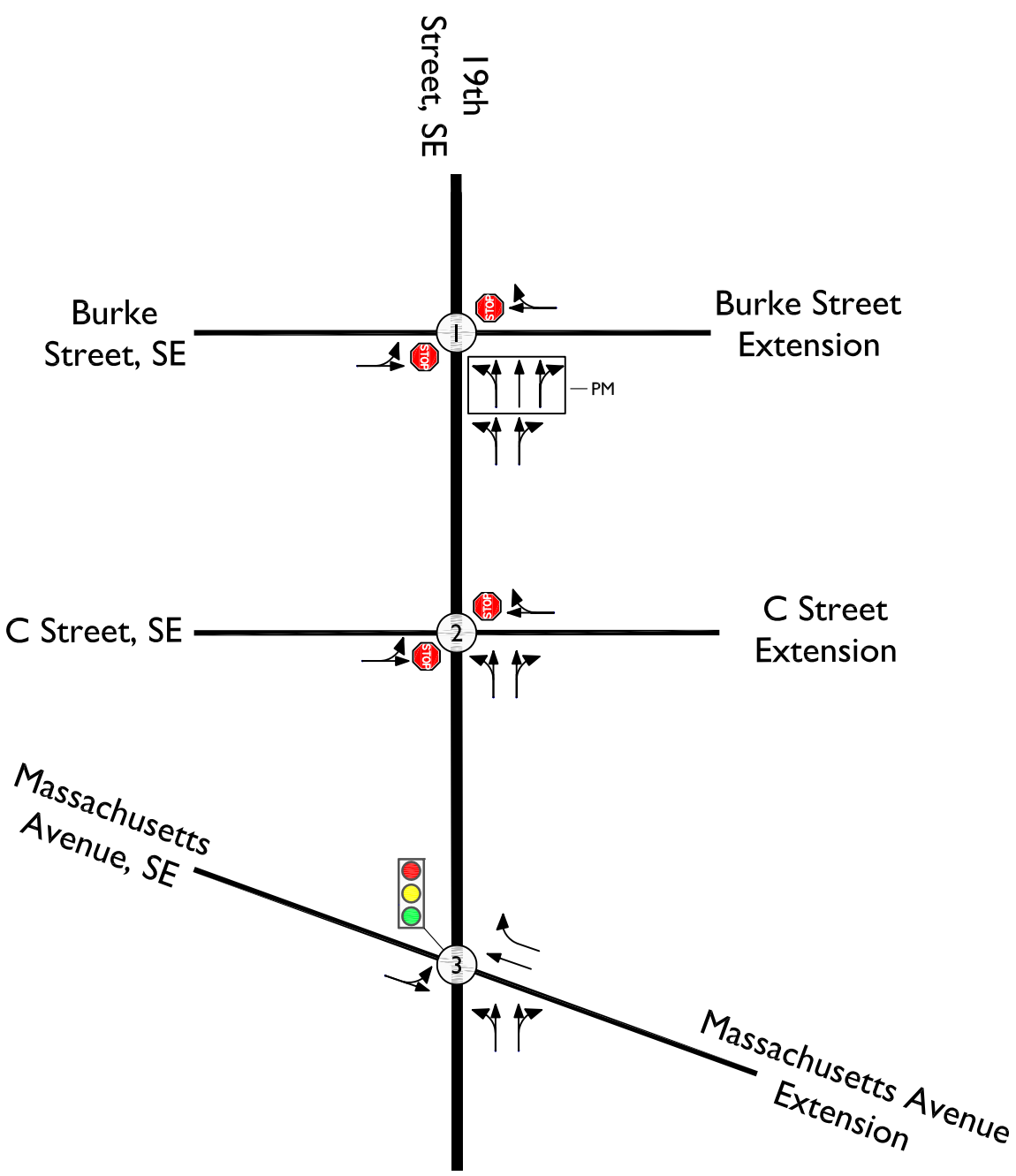


Figure 11
Future Lane Use and Traffic Control

Represents One Travel Lane
Signalized Intersection
Stop Sign

North
Not to Scale

Hill East
Washington, DC

Wells + Associates

Hill East

APPENDIX

A: Set of Plans

B: Traffic Count Data

C: Existing Signal Timings

D: LOS Descriptions

E: Synchro Results - Existing Conditions

F: Crash Data

G: Private Access Road Cross Sections

H: Synchro Results - Background Conditions

I: Synchro Results - Total Future Conditions

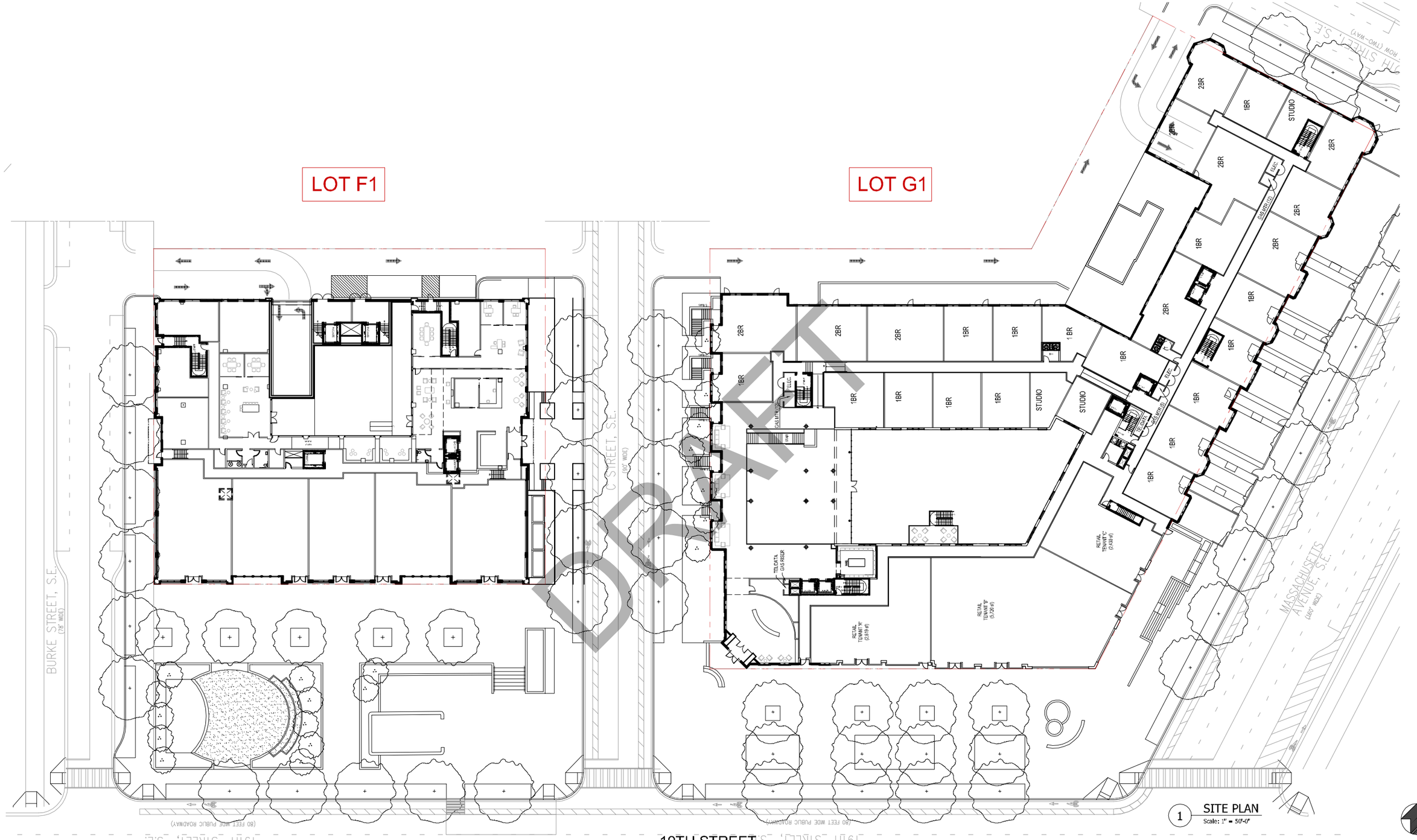
APPENDIX A

Set of Plans

Transportation Consultants
INNOVATION + SOLUTIONS

LOT F1

LOT G1



1 SITE PLAN
Scale: 1" = 50'-0"

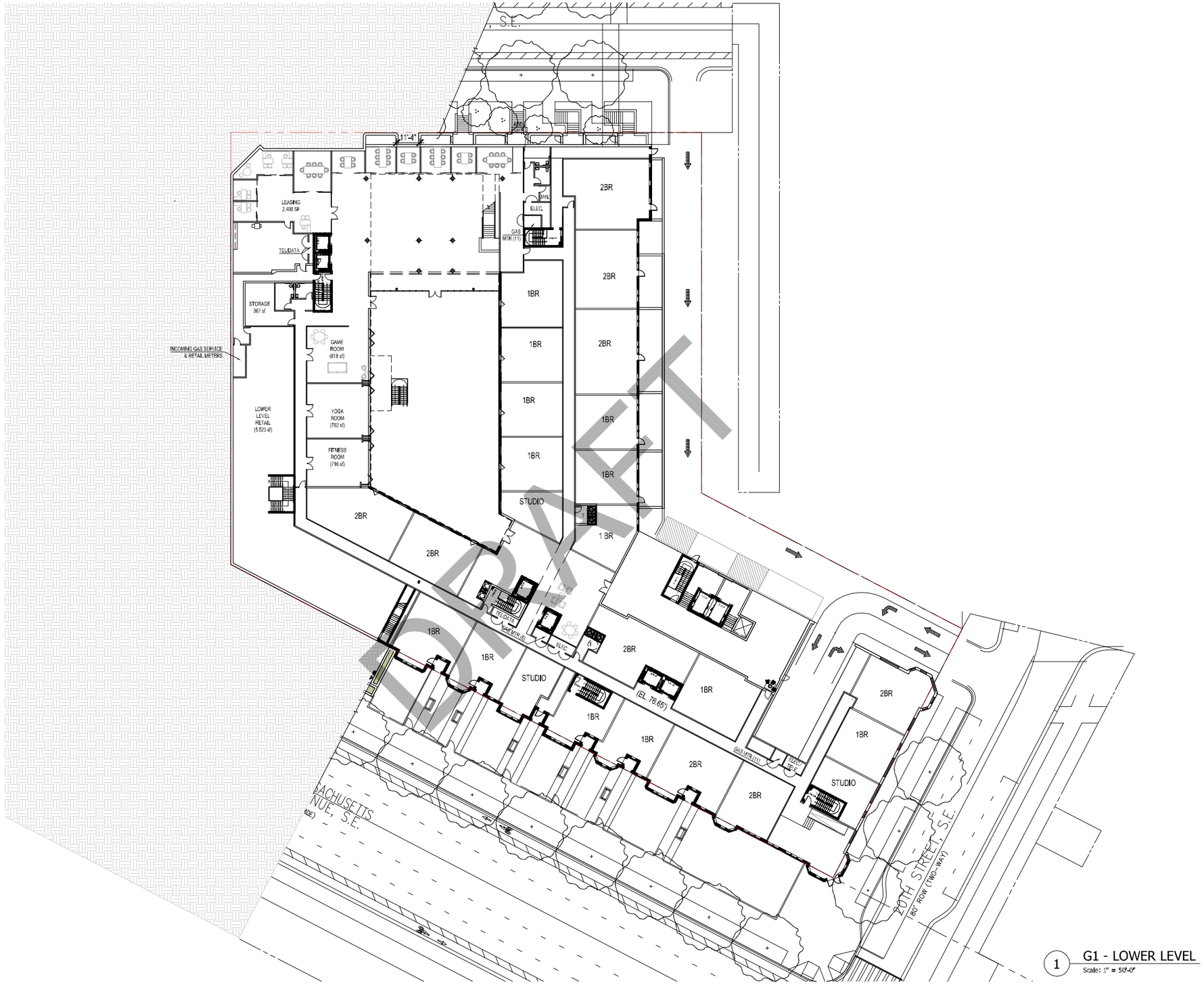
HILL EAST DESIGN REVIEW

OVERALL SITE PLAN

WASHINGTON, DC PROJECT NO.13.0376 03-11-2016

 7735 OLD GEORGETOWN ROAD, SUITE 700, BETHESDA, MD 20814 - TEL: (240) 333-2000 - FAX: (240) 333-2001

GTM ARCHITECTS



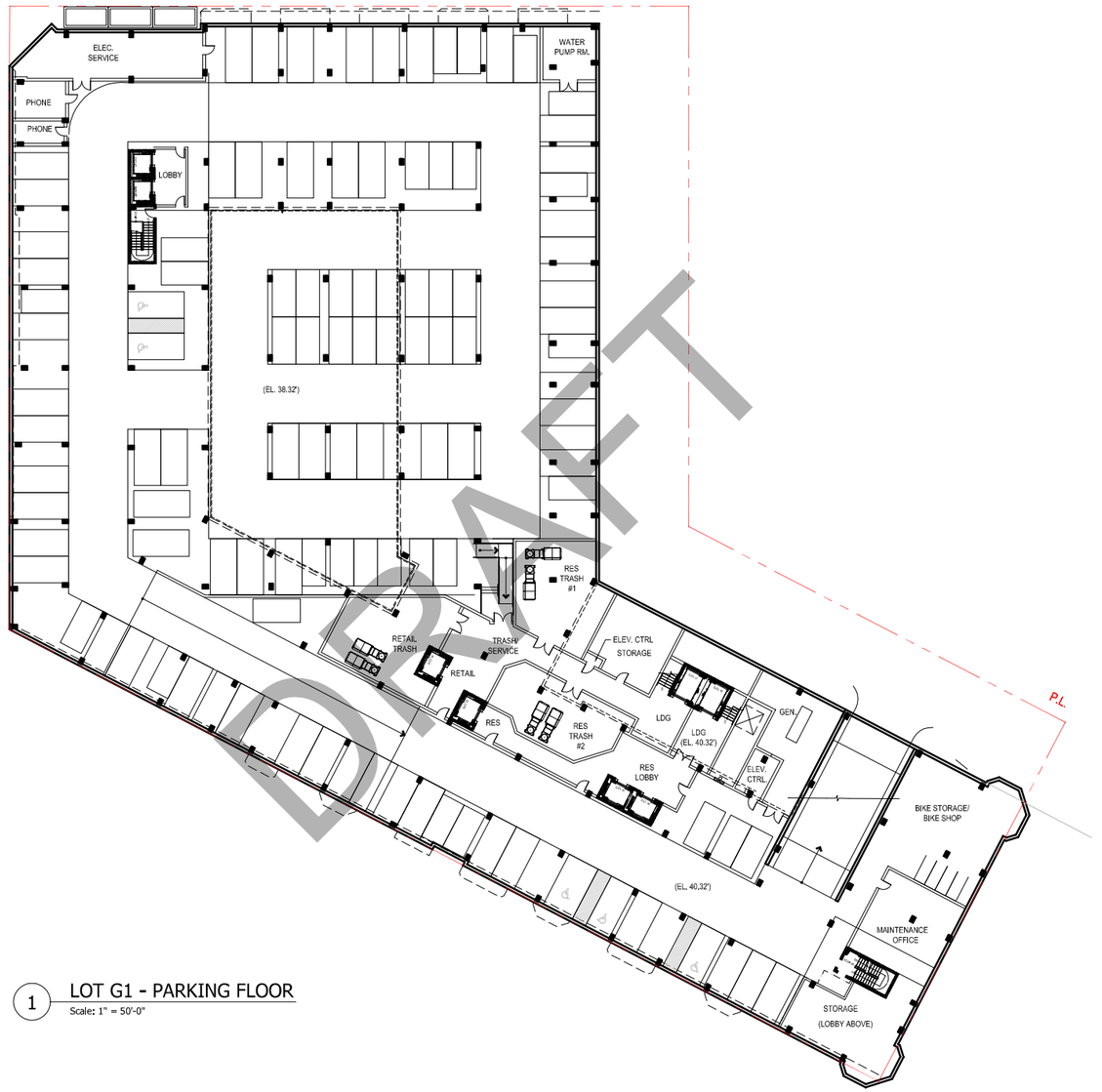
1 G1 - LOWER LEVEL
Scale: 1" = 50'-0"

HILL EAST DESIGN REVIEW

G1 FLOOR PLANS

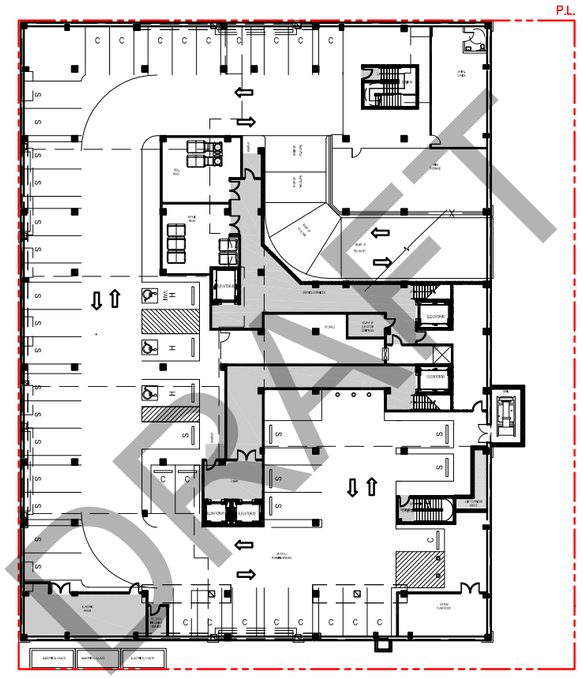
GTM ARCHITECTS

 7735 OLD GEORGETOWN ROAD, SUITE 700, BETHESDA, MD 20814 - TEL: (240) 333-2000 - FAX: (240) 333-2001



1 LOT G1 - PARKING FLOOR
Scale: 1" = 50'-0"

 7735 OLD GEORGETOWN ROAD, SUITE 700, BETHESDA, MD 20814 - TEL: (240) 333-2000 - FAX: (240) 333-2001



1 F1 - PARKING FLOOR
Scale: 1" = 50'-0"

 7735 OLD GEORGETOWN ROAD, SUITE 700, BETHESDA, MD 20814 - TEL: (240) 333-2000 - FAX: (240) 333-2001

APPENDIX B

Traffic Count Data

Transportation Consultants
INNOVATION + SOLUTIONS

Project:	Hill East
Wells + Associates Job No:	6600
Intersection:	19th Street & Burke Street
Location:	Washington,DC
Date:	2/4/2016
Day:	Tuesday
Weather:	clear
Inputed by:	agan
Intersection Count by:	Luz & Dzemo
Pedestrian Count by:	Luz
Bicycle County by:	Luz

Southbound Road:	19th Street SE
Northbound Road:	19th Street SE
Westbound Road:	Driveway
Eastbound Road:	Burke Street SE

AM Count Start Time:	7:00 AM
PM Count Start Time:	4:00 PM
Study AM Peak Hour:	7:30 AM - 8:30 AM
Study PM Peak Hour:	4:45 PM - 5:45 PM

Wells + Associates, Inc.

McLean, Virginia

Turning Movement Count - Passenger Cars

PROJECT:	Hill East	**DATE:**	2/4/2016	**SOUTHBOUND ROAD:**	19th Street SE
W+A JOB NO:	6600	**DAY:**	Tuesday	**NORTHBOUND ROAD:**	19th Street SE
INTERSECTION:	19th Street & Burke Street	**WEATHER:**	clear	**WESTBOUND ROAD:**	Driveway
LOCATION:	Washington,DC	**COUNTED BY:**	Luz & Dzemo	**EASTBOUND ROAD:**	Burke Street SE
		INPUTED BY:	agan		

Time Period	Southbound 19th Street SE				Westbound Driveway				Northbound 19th Street SE				Eastbound Burke Street SE				North & South	East & West	Total
	Right	Thru	Left	Total	Right	Thru	Left	Total	Right	Thru	Left	Total	Right	Thru	Left	Total			
AM 15 Minute Volumes																			
7:00 AM - 7:15 AM				0	0	0		0	0	80	2	82			0	0	82	0	82
7:15 AM - 7:30 AM				0	0	0		0	0	101	0	101			2	2	101	2	103
7:30 AM - 7:45 AM				0	0	0		0	0	126	1	127			1	1	127	1	128
7:45 AM - 8:00 AM				0	0	0		0	0	134	1	135			0	0	135	0	135
8:00 AM - 8:15 AM				0	4	0		4	1	123	0	124			0	0	124	4	128
8:15 AM - 8:30 AM				0	2	0		2	0	109	3	112			0	0	112	2	114
8:30 AM - 8:45 AM				0	0	0		0	0	99	0	99			0	0	99	0	99
8:45 AM - 9:00 AM				0	0	0		0	0	114	0	114			1	1	114	1	115
9:00 AM - 9:15 AM				0	0	0		0	0	101	1	102			2	2	102	2	104
9:15 AM - 9:30 AM				0	0	0		0	0	73	0	73			0	0	73	0	73
9:30 AM - 9:45 AM				0	0	0		0	0	77	2	79			2	2	79	2	81
9:45 AM - 10:00 AM				0	0	0		0	0	74	1	75			0	0	75	0	75
Total	0	0	0	0	6	0	0	6	1	1211	11	1223	0	0	8	8	1223	14	1237
AM One Hour Volumes																			
7:00 AM - 8:00 AM	0	0	0	0	0	0	0	0	0	441	4	445	0	0	3	3	445	3	448
7:15 AM - 8:15 AM	0	0	0	0	4	0	0	4	1	484	2	487	0	0	3	3	487	7	494
7:30 AM - 8:30 AM	**0**	**0**	**0**	**0**	**6**	**0**	**0**	**6**	**1**	**492**	**5**	**498**	**0**	**0**	**1**	**1**	**498**	**7**	**505**
7:45 AM - 8:45 AM	0	0	0	0	6	0	0	6	1	465	4	470	0	0	0	0	470	6	476
8:00 AM - 9:00 AM	0	0	0	0	6	0	0	6	1	445	3	449	0	0	1	1	449	7	456
8:15 AM - 9:15 AM	0	0	0	0	2	0	0	2	0	423	4	427	0	0	3	3	427	5	432
8:30 AM - 9:30 AM	0	0	0	0	0	0	0	0	0	387	1	388	0	0	3	3	388	3	391
8:45 AM - 9:45 AM	0	0	0	0	0	0	0	0	0	365	3	368	0	0	5	5	368	5	373
9:00 AM - 10:00 AM	0	0	0	0	0	0	0	0	0	325	4	329	0	0	4	4	329	4	333
PM 15 Minute Volumes																			
4:00 PM - 4:15 PM				0	0	0		0	0	192	2	194			2	2	194	2	196
4:15 PM - 4:30 PM				0	0	0		0	1	162	0	163			1	1	163	1	164
4:30 PM - 4:45 PM				0	0	0		0	0	195	1	196			0	0	196	0	196
4:45 PM - 5:00 PM				0	0	0		0	0	272	4	276			0	0	276	0	276
5:00 PM - 5:15 PM				0	0	0		0	0	233	0	233			2	2	233	2	235
5:15 PM - 5:30 PM				0	0	0		0	0	210	2	212			2	2	212	2	214
5:30 PM - 5:45 PM				0	0	0		0	0	233	0	233			2	2	233	2	235
5:45 PM - 6:00 PM				0	0	0		0	0	229	4	233			0	0	233	0	233
6:00 PM - 6:15 PM				0	0	0		0	1	232	1	234			1	1	234	1	235
6:15 PM - 6:30 PM				0	0	0		0	0	206	3	209			1	1	209	1	210
6:30 PM - 6:45 PM				0	0	0		0	0	206	3	209			3	3	209	3	212
6:45 PM - 7:00 PM				0	0	0		0	0	203	0	203			1	1	203	1	204
Total	0	0	0	0	0	0	0	0	2	2573	20	2595	0	0	15	15	2595	15	2610
PM One Hour Volumes																			
4:00 PM - 5:00 PM	0	0	0	0	0	0	0	0	1	821	7	829	0	0	3	3	829	3	832
4:15 PM - 5:15 PM	0	0	0	0	0	0	0	0	1	862	5	868	0	0	3	3	868	3	871
4:30 PM - 5:30 PM	0	0	0	0	0	0	0	0	0	910	7	917	0	0	4	4	917	4	921
4:45 PM - 5:45 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**948**	**6**	**954**	**0**	**0**	**6**	**6**	**954**	**6**	**960**
5:00 PM - 6:00 PM	0	0	0	0	0	0	0	0	0	905	6	911	0	0	6	6	911	6	917
5:15 PM - 6:15 PM	0	0	0	0	0	0	0	0	1	904	7	912	0	0	5	5	912	5	917
5:30 PM - 6:30 PM	0	0	0	0	0	0	0	0	1	900	8	909	0	0	4	4	909	4	913
5:45 PM - 6:45 PM	0	0	0	0	0	0	0	0	1	873	11	885	0	0	5	5	885	5	890
6:00 PM - 7:00 PM	0	0	0	0	0	0	0	0	1	847	7	855	0	0	6	6	855	6	861

Wells + Associates, Inc.

McLean, Virginia

Turning Movement Count - Heavy Vehicles

PROJECT:	Hill East	**DATE:**	2/4/2016	**SOUTHBOUND ROAD:**	19th Street SE
W+A JOB NO:	6600	**DAY:**	Tuesday	**NORTHBOUND ROAD:**	19th Street SE
INTERSECTION:	19th Street & Burke Street	**WEATHER:**	clear	**WESTBOUND ROAD:**	Driveway
LOCATION:	Washington,DC	**COUNTED BY:**	Luz & Dzemo	**EASTBOUND ROAD:**	Burke Street SE
		INPUTED BY:	agan		

Time Period	Southbound 19th Street SE				Westbound Driveway				Northbound 19th Street SE				Eastbound Burke Street SE				North & South	East & West	Total
	Right	Thru	Left	Total	Right	Thru	Left	Total	Right	Thru	Left	Total	Right	Thru	Left	Total			
AM 15 Minute Volumes																			
7:00 AM - 7:15 AM				0	0	0		0		11	0	11			0	0	11	0	11
7:15 AM - 7:30 AM				0	0	0		0		9	0	9			0	0	9	0	9
7:30 AM - 7:45 AM				0	0	0		0		15	0	15			0	0	15	0	15
7:45 AM - 8:00 AM				0	0	0		0		19	3	22			0	0	22	0	22
8:00 AM - 8:15 AM				0	8	0		8		27	1	28			0	0	28	8	36
8:15 AM - 8:30 AM				0	18	0		18		19	0	19			0	0	19	18	37
8:30 AM - 8:45 AM				0	14	0		14		16	0	16			0	0	16	14	30
8:45 AM - 9:00 AM				0	2	0		2		12	0	12			0	0	12	2	14
9:00 AM - 9:15 AM				0	0	0		0		11	0	11			0	0	11	0	11
9:15 AM - 9:30 AM				0	0	0		0		9	0	9			0	0	9	0	9
9:30 AM - 9:45 AM				0	0	0		0		12	0	12			0	0	12	0	12
9:45 AM - 10:00 AM				0	0	0		0		14	0	14			0	0	14	0	14
Total	0	0	0	0	42	0	0	42	0	174	4	178	0	0	0	0	178	42	220
AM One Hour Volumes																			
7:00 AM - 8:00 AM	0	0	0	0	0	0	0	0	0	54	3	57	0	0	0	0	57	0	57
7:15 AM - 8:15 AM	0	0	0	0	8	0	0	8	0	70	4	74	0	0	0	0	74	8	82
7:30 AM - 8:30 AM	**0**	**0**	**0**	**0**	**26**	**0**	**0**	**26**	**0**	**80**	**4**	**84**	**0**	**0**	**0**	**0**	**84**	**26**	**110**
7:45 AM - 8:45 AM	0	0	0	0	40	0	0	40	0	81	4	85	0	0	0	0	85	40	125
8:00 AM - 9:00 AM	0	0	0	0	42	0	0	42	0	74	1	75	0	0	0	0	75	42	117
8:15 AM - 9:15 AM	0	0	0	0	34	0	0	34	0	58	0	58	0	0	0	0	58	34	92
8:30 AM - 9:30 AM	0	0	0	0	16	0	0	16	0	48	0	48	0	0	0	0	48	16	64
8:45 AM - 9:45 AM	0	0	0	0	2	0	0	2	0	44	0	44	0	0	0	0	44	2	46
9:00 AM - 10:00 AM	0	0	0	0	0	0	0	0	0	46	0	46	0	0	0	0	46	0	46
PM 15 Minute Volumes																			
4:00 PM - 4:15 PM				0	0	0		0		21	0	21			0	0	21	0	21
4:15 PM - 4:30 PM				0	0	0		0		16	0	16			0	0	16	0	16
4:30 PM - 4:45 PM				0	0	0		0		16	1	17			0	0	17	0	17
4:45 PM - 5:00 PM				0	0	0		0		15	0	15			0	0	15	0	15
5:00 PM - 5:15 PM				0	0	0		0		19	0	19			0	0	19	0	19
5:15 PM - 5:30 PM				0	0	0		0		13	0	13			1	1	13	1	14
5:30 PM - 5:45 PM				0	0	0		0		13	0	13			0	0	13	0	13
5:45 PM - 6:00 PM				0	0	0		0		21	0	21			0	0	21	0	21
6:00 PM - 6:15 PM				0	0	0		0		10	0	10			0	0	10	0	10
6:15 PM - 6:30 PM				0	0	0		0		4	0	4			0	0	4	0	4
6:30 PM - 6:45 PM				0	0	0		0		11	0	11			0	0	11	0	11
6:45 PM - 7:00 PM				0	0	0		0		8	0	8			0	0	8	0	8
Total	0	0	0	0	0	0	0	0	0	167	1	168	0	0	1	1	168	1	169
PM One Hour Volumes																			
4:00 PM - 5:00 PM	0	0	0	0	0	0	0	0	0	68	1	69	0	0	0	0	69	0	69
4:15 PM - 5:15 PM	0	0	0	0	0	0	0	0	0	66	1	67	0	0	0	0	67	0	67
4:30 PM - 5:30 PM	0	0	0	0	0	0	0	0	0	63	1	64	0	0	1	1	64	1	65
4:45 PM - 5:45 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**60**	**0**	**60**	**0**	**0**	**1**	**1**	**60**	**1**	**61**
5:00 PM - 6:00 PM	0	0	0	0	0	0	0	0	0	66	0	66	0	0	1	1	66	1	67
5:15 PM - 6:15 PM	0	0	0	0	0	0	0	0	0	57	0	57	0	0	1	1	57	1	58
5:30 PM - 6:30 PM	0	0	0	0	0	0	0	0	0	48	0	48	0	0	0	0	48	0	48
5:45 PM - 6:45 PM	0	0	0	0	0	0	0	0	0	46	0	46	0	0	0	0	46	0	46
6:00 PM - 7:00 PM	0	0	0	0	0	0	0	0	0	33	0	33	0	0	0	0	33	0	33

Wells + Associates, Inc.

McLean, Virginia

Turning Movement Count - All Vehicles

PROJECT: Hill East
W+A JOB NO: 6600
INTERSECTION: 19th Street & Burke Street
LOCATION: Washington,DC

DATE: 2/4/2016
DAY: Tuesday
WEATHER: clear
COUNTED BY: Luz & Dzemo
INPUTED BY: agan

SOUTHBOUND ROAD: 19th Street SE
NORTHBOUND ROAD: 19th Street SE
WESTBOUND ROAD: Driveway
EASTBOUND ROAD: Burke Street SE

Time Period	Southbound 19th Street SE					Westbound Driveway					Northbound 19th Street SE					Eastbound Burke Street SE					North & South	East & West	Total
	Right	Thru	Left	Total	PHF	Right	Thru	Left	Total	PHF	Right	Thru	Left	Total	PHF	Right	Thru	Left	Total	PHF			
AM 15 Minute Volumes																							
7:00 AM - 7:15 AM	0	0	0	0		0	0	0	0		0	91	2	93		0	0	0	0		93	0	93
7:15 AM - 7:30 AM	0	0	0	0		0	0	0	0		0	110	0	110		0	0	2	2		110	2	112
7:30 AM - 7:45 AM	0	0	0	0		0	0	0	0		0	141	1	142		0	0	1	1		142	1	143
7:45 AM - 8:00 AM	0	0	0	0		0	0	0	0		0	153	4	157		0	0	0	0		157	0	157
8:00 AM - 8:15 AM	0	0	0	0		12	0	0	12		1	150	1	152		0	0	0	0		152	12	164
8:15 AM - 8:30 AM	0	0	0	0		20	0	0	20		0	128	3	131		0	0	0	0		131	20	151
8:30 AM - 8:45 AM	0	0	0	0		14	0	0	14		0	115	0	115		0	0	0	0		115	14	129
8:45 AM - 9:00 AM	0	0	0	0		2	0	0	2		0	126	0	126		0	0	1	1		126	3	129
9:00 AM - 9:15 AM	0	0	0	0		0	0	0	0		0	112	1	113		0	0	2	2		113	2	115
9:15 AM - 9:30 AM	0	0	0	0		0	0	0	0		0	82	0	82		0	0	0	0		82	0	82
9:30 AM - 9:45 AM	0	0	0	0		0	0	0	0		0	89	2	91		0	0	2	2		91	2	93
9:45 AM - 10:00 AM	0	0	0	0		0	0	0	0		0	88	1	89		0	0	0	0		89	0	89
Total	0	0	0	0		48	0	0	48		1	1385	15	1401		0	0	8	8		1401	56	1457
AM One Hour Volumes																							
7:00 AM - 8:00 AM	0	0	0	0	0.00	0	0	0	0	0.00	0	495	7	502	0.80	0	0	3	3	0.38	502	3	505
7:15 AM - 8:15 AM	0	0	0	0	0.00	12	0	0	12	0.25	1	554	6	561	0.89	0	0	3	3	0.38	561	15	576
7:30 AM - 8:30 AM	**0**	**0**	**0**	**0**	**0.00**	**32**	**0**	**0**	**32**	**0.40**	**1**	**572**	**9**	**582**	**0.93**	**0**	**0**	**1**	**1**	**0.25**	**582**	**33**	615
7:45 AM - 8:45 AM	0	0	0	0	0.00	46	0	0	46	0.58	1	546	8	555	0.88	0	0	0	0	0.00	555	46	601
8:00 AM - 9:00 AM	0	0	0	0	0.00	48	0	0	48	0.60	1	519	4	524	0.86	0	0	1	1	0.25	524	49	573
8:15 AM - 9:15 AM	0	0	0	0	0.00	36	0	0	36	0.45	0	481	4	485	0.93	0	0	3	3	0.38	485	39	524
8:30 AM - 9:30 AM	0	0	0	0	0.00	16	0	0	16	0.29	0	435	1	436	0.87	0	0	3	3	0.38	436	19	455
8:45 AM - 9:45 AM	0	0	0	0	0.00	2	0	0	2	0.25	0	409	3	412	0.82	0	0	5	5	0.63	412	7	419
9:00 AM - 10:00 AM	0	0	0	0	0.00	0	0	0	0	0.00	0	371	4	375	0.83	0	0	4	4	0.50	375	4	379
PM 15 Minute Volumes																							
4:00 PM - 4:15 PM	0	0	0	0		0	0	0	0		0	213	2	215		0	0	2	2		215	2	217
4:15 PM - 4:30 PM	0	0	0	0		0	0	0	0		1	178	0	179		0	0	1	1		179	1	180
4:30 PM - 4:45 PM	0	0	0	0		0	0	0	0		0	211	2	213		0	0	0	0		213	0	213
4:45 PM - 5:00 PM	0	0	0	0		0	0	0	0		0	287	4	291		0	0	0	0		291	0	291
5:00 PM - 5:15 PM	0	0	0	0		0	0	0	0		0	252	0	252		0	0	2	2		252	2	254
5:15 PM - 5:30 PM	0	0	0	0		0	0	0	0		0	223	2	225		0	0	3	3		225	3	228
5:30 PM - 5:45 PM	0	0	0	0		0	0	0	0		0	246	0	246		0	0	2	2		246	2	248
5:45 PM - 6:00 PM	0	0	0	0		0	0	0	0		0	250	4	254		0	0	0	0		254	0	254
6:00 PM - 6:15 PM	0	0	0	0		0	0	0	0		1	242	1	244		0	0	1	1		244	1	245
6:15 PM - 6:30 PM	0	0	0	0		0	0	0	0		0	210	3	213		0	0	1	1		213	1	214
6:30 PM - 6:45 PM	0	0	0	0		0	0	0	0		0	217	3	220		0	0	3	3		220	3	223
6:45 PM - 7:00 PM	0	0	0	0		0	0	0	0		0	211	0	211		0	0	1	1		211	1	212
Total	0	0	0	0		0	0	0	0		2	2740	21	2763		0	0	16	16		2763	16	2779
PM One Hour Volumes																							
4:00 PM - 5:00 PM	0	0	0	0	0.00	0	0	0	0	0.00	1	889	8	898	0.77	0	0	3	3	0.38	898	3	901
4:15 PM - 5:15 PM	0	0	0	0	0.00	0	0	0	0	0.00	1	928	6	935	0.80	0	0	3	3	0.38	935	3	938
4:30 PM - 5:30 PM	0	0	0	0	0.00	0	0	0	0	0.00	0	973	8	981	0.84	0	0	5	5	0.42	981	5	986
4:45 PM - 5:45 PM	**0**	**0**	**0**	**0**	**0.00**	**0**	**0**	**0**	**0**	**0.00**	**0**	**1008**	**6**	**1014**	**0.87**	**0**	**0**	**7**	**7**	**0.58**	**1014**	**7**	1021
5:00 PM - 6:00 PM	0	0	0	0	0.00	0	0	0	0	0.00	1	971	6	977	0.96	0	0	7	7	0.58	977	7	984
5:15 PM - 6:15 PM	0	0	0	0	0.00	0	0	0	0	0.00	1	961	7	969	0.95	0	0	6	6	0.50	969	6	975
5:30 PM - 6:30 PM	0	0	0	0	0.00	0	0	0	0	0.00	1	948	8	957	0.94	0	0	4	4	0.50	957	4	961
5:45 PM - 6:45 PM	0	0	0	0	0.00	0	0	0	0	0.00	1	919	11	931	0.92	0	0	5	5	0.42	931	5	936
6:00 PM - 7:00 PM	0	0	0	0	0.00	0	0	0	0	0.00	1	880	7	888	0.91	0	0	6	6	0.50	888	6	894

Wells + Associates, Inc.

McLean, Virginia

Turning Movement Count - Bicycles

PROJECT:	Hill East	**DATE:**	2/4/2016	**SOUTHBOUND ROAD:**	19th Street SE
W+A JOB NO:	6600	**DAY:**	Tuesday	**NORTHBOUND ROAD:**	19th Street SE
INTERSECTION:	19th Street & Burke Street	**WEATHER:**	clear	**WESTBOUND ROAD:**	Driveway
LOCATION:	Washington,DC	**COUNTED BY:**	Luz	**EASTBOUND ROAD:**	Burke Street SE
		INPUTED BY:	agan		

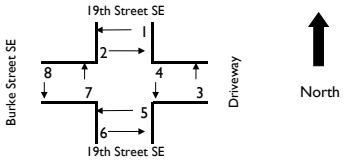
Time Period	Southbound 19th Street SE				Westbound Driveway				Northbound 19th Street SE				Eastbound Burke Street SE				North & South	East & West	Total
	Right	Thru	Left	Total	Right	Thru	Left	Total	Right	Thru	Left	Total	Right	Thru	Left	Total			
AM 15 Minute Volumes																			
7:00 AM - 7:15 AM				0				0				0				0	0	0	0
7:15 AM - 7:30 AM				0				0				0				0	0	0	0
7:30 AM - 7:45 AM				0				0		1		1				0	1	0	1
7:45 AM - 8:00 AM	1			1				0				0				0	1	0	1
8:00 AM - 8:15 AM				0				0				0				0	0	0	0
8:15 AM - 8:30 AM				0				0				0				0	0	0	0
8:30 AM - 8:45 AM				0				0				0				0	0	0	0
8:45 AM - 9:00 AM				0				0				0				0	0	0	0
9:00 AM - 9:15 AM				0				0				0				0	0	0	0
9:15 AM - 9:30 AM				0				0				0				0	0	0	0
9:30 AM - 9:45 AM				0				0				0				0	0	0	0
9:45 AM - 10:00 AM				0				0				0				0	0	0	0
Total	1	0	0	1	0	0	0	0	0	1	0	1	0	0	0	0	2	0	2
AM One Hour Volumes																			
7:00 AM - 8:00 AM	1	0	0	1	0	0	0	0	0	1	0	1	0	0	0	0	2	0	2
7:15 AM - 8:15 AM	1	0	0	1	0	0	0	0	0	1	0	1	0	0	0	0	2	0	2
7:30 AM - 8:30 AM	**1**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**1**	**0**	**0**	**0**	**0**	**2**	**0**	**2**
7:45 AM - 8:45 AM	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
8:00 AM - 9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM - 9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM - 9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM - 9:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:00 AM - 10:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PM 15 Minute Volumes																			
4:00 PM - 4:15 PM				0				0				0				0	0	0	0
4:15 PM - 4:30 PM		1		1				0				0				0	1	0	1
4:30 PM - 4:45 PM				0				0				0				0	0	0	0
4:45 PM - 5:00 PM				0				0				0				0	0	0	0
5:00 PM - 5:15 PM				0				0				0				0	0	0	0
5:15 PM - 5:30 PM				0				0				0				0	0	0	0
5:30 PM - 5:45 PM				0				0				0				0	0	0	0
5:45 PM - 6:00 PM				0				0				0				0	0	0	0
6:00 PM - 6:15 PM				0				0				0				0	0	0	0
6:15 PM - 6:30 PM				0				0				0				0	0	0	0
6:30 PM - 6:45 PM				0				0				0				0	0	0	0
6:45 PM - 7:00 PM				0				0				0				0	0	0	0
Total	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
PM One Hour Volumes																			
4:00 PM - 5:00 PM	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
4:15 PM - 5:15 PM	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
4:30 PM - 5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM - 5:45 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
5:00 PM - 6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM - 6:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM - 6:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM - 6:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:00 PM - 7:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Wells + Associates, Inc.

McLean, Virginia

Pedestrian Volume Survey

PROJECT: Hill East
W+A JOB NO: 6600
INTERSECTION: 19th Street & Burke Street
LOCATION: Washington,DC
DATE: 2/4/2016
DAY: Tuesday
WEATHER: clear
COUNTED BY: Luz
INPUTED BY: agan



Time Period	Movement 1	2	3	4	5	6	7	8	1 + 2	3 + 4	5 + 6	7+ 8	Total
AM 15 Minute Volumes													
7:00 AM - 7:15 AM				1		2		1					
7:15 AM - 7:30 AM	1	2	2	1		2	1	1					
7:30 AM - 7:45 AM	1	3	2	6		2	3	3					
7:45 AM - 8:00 AM	2		1	3		2		1					
8:00 AM - 8:15 AM				5		5	1	2					
8:15 AM - 8:30 AM	1			4	2	5	2	2					
8:30 AM - 8:45 AM			1	1	5	1	1	2					
8:45 AM - 9:00 AM			1			3		1					
9:00 AM - 9:15 AM			2			1		2					
9:15 AM - 9:30 AM			1		1	1		2					
9:30 AM - 9:45 AM			1	1	3								
9:45 AM - 10:00 AM			1	2			2						
Total	5	5	12	24	11	24	10	17					
AM One Hour Volumes													
7:00 AM - 8:00 AM	4	5	5	11	0	8	4	6	9	16	8	10	43
7:15 AM - 8:15 AM	4	5	5	15	0	11	5	7	9	20	11	12	52
7:30 AM - 8:30 AM	**4**	**3**	**3**	**18**	**2**	**14**	**6**	**8**	**7**	**21**	**16**	**14**	**58**
7:45 AM - 8:45 AM	3	0	2	13	7	13	4	7	3	15	20	11	49
8:00 AM - 9:00 AM	1	0	2	10	7	14	4	7	1	12	21	11	45
8:15 AM - 9:15 AM	1	0	4	5	7	10	3	7	1	9	17	10	37
8:30 AM - 9:30 AM	0	0	5	1	6	6	1	7	0	6	12	8	26
8:45 AM - 9:45 AM	0	0	5	1	4	5	0	5	0	6	9	5	20
9:00 AM - 10:00 AM	0	0	5	3	4	2	2	4	0	8	6	6	20
PM 15 Minute Volumes													
4:00 PM - 4:15 PM	1			1	3	1	1	3					
4:15 PM - 4:30 PM	1	1											
4:30 PM - 4:45 PM		2	2	5	2		1	2					
4:45 PM - 5:00 PM			6		3		3						
5:00 PM - 5:15 PM			1	1	1	1	3	3					
5:15 PM - 5:30 PM		1	2	2	1	1	1						
5:30 PM - 5:45 PM	1		1	2	1	3	3	3					
5:45 PM - 6:00 PM			3	2	3	2	2	3					
6:00 PM - 6:15 PM			4	7	1	1	3	4					
6:15 PM - 6:30 PM			2	3	2		2	1					
6:30 PM - 6:45 PM		1	1	4	1	2	1	3					
6:45 PM - 7:00 PM			2	2		1		1					
Total	3	5	24	29	18	12	20	23					
PM One Hour Volumes													
4:00 PM - 5:00 PM	2	3	8	6	8	1	5	5	5	14	9	10	38
4:15 PM - 5:15 PM	1	3	9	6	6	1	7	5	4	15	7	12	38
4:30 PM - 5:30 PM	0	3	11	8	7	2	8	5	3	19	9	13	44
4:45 PM - 5:45 PM	**1**	**1**	**10**	**5**	**6**	**5**	**10**	**6**	**2**	**15**	**11**	**16**	**44**
5:00 PM - 6:00 PM	1	1	7	7	6	7	9	9	2	14	13	18	47
5:15 PM - 6:15 PM	1	1	10	13	6	7	9	10	2	23	13	19	57
5:30 PM - 6:30 PM	1	0	10	14	7	6	10	11	1	24	13	21	59
5:45 PM - 6:45 PM	0	1	10	16	7	5	8	11	1	26	12	19	58
6:00 PM - 7:00 PM	0	1	9	16	4	4	6	9	1	25	8	15	49

Wells + Associates, Inc.

McLean, Virginia

Heavy Vehicle Percentages

PROJECT:	Hill East	**DATE:**	2/4/2016	**SOUTHBOUND ROAD:**	19th Street SE
W+A JOB NO:	6600	**DAY:**	Tuesday	**NORTHBOUND ROAD:**	19th Street SE
INTERSECTION:	19th Street & Burke Street	**WEATHER:**	clear	**WESTBOUND ROAD:**	Driveway
LOCATION:	Washington,DC	**COUNTED BY:**	Luz & Dzemo	**EASTBOUND ROAD:**	Burke Street SE
		INPUTED BY:	agan		

Time Period	Eastbound Burke Street SE				Westbound Driveway				Northbound 19th Street SE				Southbound 19th Street SE			
	Left	Thru	Right	Total	Left	Thru	Right	Total	Left	Thru	Right	Total	Left	Thru	Right	Total
AM One Hour Heavy Vehicle Percentages																
7:00 AM - 8:00 AM	0%			0%					43%	11%		11%				
7:15 AM - 8:15 AM	0%			0%			67%	67%	67%	13%	0%	13%				
7:30 AM - 8:30 AM	**0%**			**0%**			**81%**	**81%**	**44%**	**14%**	**0%**	**14%**				
7:45 AM - 8:45 AM							87%	87%	50%	15%	0%	15%				
8:00 AM - 9:00 AM	0%			0%			88%	88%	25%	14%	0%	14%				
8:15 AM - 9:15 AM	0%			0%			94%	94%	0%	12%		12%				
8:30 AM - 9:30 AM	0%			0%			100%	100%	0%	11%		11%				
8:45 AM - 9:45 AM	0%			0%			100%	100%	0%	11%		11%				
9:00 AM - 10:00 AM	0%			0%					0%	12%		12%				
PM One Hour Heavy Vehicle Percentages																
4:00 PM - 5:00 PM	0%			0%					13%	8%	0%	8%				
4:15 PM - 5:15 PM	0%			0%					17%	7%	0%	7%				
4:30 PM - 5:30 PM	20%			20%					13%	6%		7%				
4:45 PM - 5:45 PM	**14%**			**14%**					**0%**	**6%**		**6%**				
5:00 PM - 6:00 PM	14%			14%					0%	7%		7%				
5:15 PM - 6:15 PM	17%			17%					0%	6%	0%	6%				
5:30 PM - 6:30 PM	0%			0%					0%	5%	0%	5%				
5:45 PM - 6:45 PM	0%			0%					0%	5%	0%	5%				
6:00 PM - 7:00 PM	0%			0%					0%	4%	0%	4%				

Project:	Hill East
Wells + Associates Job No:	6600
Intersection:	19th Street & C Street
Location:	Washington,DC
Date:	2/4/2016
Day:	Tuesday
Weather:	clear
Inputed by:	agan
Intersection Count by:	Majda & Mina
Pedestrian Count by:	Mina
Bicycle County by:	Mina

Southbound Road:	19th Street SE
Northbound Road:	19th Street SE
Westbound Road:	
Eastbound Road:	C Street SE

AM Count Start Time:	7:00 AM
PM Count Start Time:	4:00 PM
Study AM Peak Hour:	7:30 AM - 8:30 AM
Study PM Peak Hour:	4:45 PM - 5:45 PM

Wells + Associates, Inc.

McLean, Virginia

Turning Movement Count - Passenger Cars

PROJECT:	Hill East	**DATE:**	2/4/2016	**SOUTHBOUND ROAD:**	19th Street SE
W+A JOB NO:	6600	**DAY:**	Tuesday	**NORTHBOUND ROAD:**	19th Street SE
INTERSECTION:	19th Street & C Street	**WEATHER:**	clear	**WESTBOUND ROAD:**	0
LOCATION:	Washington,DC	**COUNTED BY:**	Majda & Mina	**EASTBOUND ROAD:**	C Street SE
		INPUTED BY:	agan		

Time Period	Southbound 19th Street SE				Westbound 0				Northbound 19th Street SE				Eastbound C Street SE				North & South	East & West	Total
	Right	Thru	Left	Total	Right	Thru	Left	Total	Right	Thru	Left	Total	Right	Thru	Left	Total			
AM 15 Minute Volumes																			
7:00 AM - 7:15 AM				0				0		75	0	75			7	7	75	7	82
7:15 AM - 7:30 AM				0				0		102	3	105			3	3	105	3	108
7:30 AM - 7:45 AM				0				0		124	0	124			5	5	124	5	129
7:45 AM - 8:00 AM				0				0		120	1	121			11	11	121	11	132
8:00 AM - 8:15 AM				0				0		122	0	122			10	10	122	10	132
8:15 AM - 8:30 AM				0				0		112	1	113			2	2	113	2	115
8:30 AM - 8:45 AM				0				0		89	1	90			5	5	90	5	95
8:45 AM - 9:00 AM				0				0		104	3	107			7	7	107	7	114
9:00 AM - 9:15 AM				0				0		87	1	88			8	8	88	8	96
9:15 AM - 9:30 AM				0				0		80	1	81			2	2	81	2	83
9:30 AM - 9:45 AM				0				0		67	0	67			3	3	67	3	70
9:45 AM - 10:00 AM				0				0		72	2	74			3	3	74	3	77
Total	0	0	0	0	0	0	0	0	0	1154	13	1167	0	0	66	66	1167	66	1233
AM One Hour Volumes																			
7:00 AM - 8:00 AM	0	0	0	0	0	0	0	0	0	421	4	425	0	0	26	26	425	26	451
7:15 AM - 8:15 AM	0	0	0	0	0	0	0	0	0	468	4	472	0	0	29	29	472	29	501
7:30 AM - 8:30 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**478**	**2**	**480**	**0**	**0**	**28**	**28**	**480**	**28**	**508**
7:45 AM - 8:45 AM	0	0	0	0	0	0	0	0	0	443	3	446	0	0	28	28	446	28	474
8:00 AM - 9:00 AM	0	0	0	0	0	0	0	0	0	427	5	432	0	0	24	24	432	24	456
8:15 AM - 9:15 AM	0	0	0	0	0	0	0	0	0	392	6	398	0	0	22	22	398	22	420
8:30 AM - 9:30 AM	0	0	0	0	0	0	0	0	0	360	6	366	0	0	22	22	366	22	388
8:45 AM - 9:45 AM	0	0	0	0	0	0	0	0	0	338	5	343	0	0	20	20	343	20	363
9:00 AM - 10:00 AM	0	0	0	0	0	0	0	0	0	306	4	310	0	0	16	16	310	16	326
PM 15 Minute Volumes																			
4:00 PM - 4:15 PM				0				0		191	1	192			11	11	192	11	203
4:15 PM - 4:30 PM				0				0		139	2	141			9	9	141	9	150
4:30 PM - 4:45 PM				0				0		193	0	193			15	15	193	15	208
4:45 PM - 5:00 PM				0				0		254	0	254			13	13	254	13	267
5:00 PM - 5:15 PM				0				0		202	4	206			16	16	206	16	222
5:15 PM - 5:30 PM				0				0		208	0	208			18	18	208	18	226
5:30 PM - 5:45 PM				0				0		210	4	214			10	10	214	10	224
5:45 PM - 6:00 PM				0				0		205	2	207			13	13	207	13	220
6:00 PM - 6:15 PM				0				0		198	1	199			9	9	199	9	208
6:15 PM - 6:30 PM				0				0		212	0	212			9	9	212	9	221
6:30 PM - 6:45 PM				0				0		219	0	219			6	6	219	6	225
6:45 PM - 7:00 PM				0				0		172	0	172			9	9	172	9	181
Total	0	0	0	0	0	0	0	0	0	2403	14	2417	0	0	138	138	2417	138	2555
PM One Hour Volumes																			
4:00 PM - 5:00 PM	0	0	0	0	0	0	0	0	0	777	3	780	0	0	48	48	780	48	828
4:15 PM - 5:15 PM	0	0	0	0	0	0	0	0	0	788	6	794	0	0	53	53	794	53	847
4:30 PM - 5:30 PM	0	0	0	0	0	0	0	0	0	857	4	861	0	0	62	62	861	62	923
4:45 PM - 5:45 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**874**	**8**	**882**	**0**	**0**	**57**	**57**	**882**	**57**	**939**
5:00 PM - 6:00 PM	0	0	0	0	0	0	0	0	0	825	10	835	0	0	57	57	835	57	892
5:15 PM - 6:15 PM	0	0	0	0	0	0	0	0	0	821	7	828	0	0	50	50	828	50	878
5:30 PM - 6:30 PM	0	0	0	0	0	0	0	0	0	825	7	832	0	0	41	41	832	41	873
5:45 PM - 6:45 PM	0	0	0	0	0	0	0	0	0	834	3	837	0	0	37	37	837	37	874
6:00 PM - 7:00 PM	0	0	0	0	0	0	0	0	0	801	1	802	0	0	33	33	802	33	835

Wells + Associates, Inc.

McLean, Virginia

Turning Movement Count - Heavy Vehicles

PROJECT:	Hill East	**DATE:**	2/4/2016	**SOUTHBOUND ROAD:**	19th Street SE
W+A JOB NO:	6600	**DAY:**	Tuesday	**NORTHBOUND ROAD:**	19th Street SE
INTERSECTION:	19th Street & C Street	**WEATHER:**	clear	**WESTBOUND ROAD:**	0
LOCATION:	Washington,DC	**COUNTED BY:**	Majda & Mina	**EASTBOUND ROAD:**	C Street SE
		INPUTED BY:	agan		

Time Period	Southbound 19th Street SE				Westbound 0				Northbound 19th Street SE				Eastbound C Street SE				North & South	East & West	Total
	Right	Thru	Left	Total	Right	Thru	Left	Total	Right	Thru	Left	Total	Right	Thru	Left	Total			
AM 15 Minute Volumes																			
7:00 AM - 7:15 AM				0				0		9	0	9			0	0	9	0	9
7:15 AM - 7:30 AM				0				0		12	0	12			0	0	12	0	12
7:30 AM - 7:45 AM				0				0		12	0	12			0	0	12	0	12
7:45 AM - 8:00 AM				0				0		18	1	19			1	1	19	1	20
8:00 AM - 8:15 AM				0				0		32	1	33			0	0	33	0	33
8:15 AM - 8:30 AM				0				0		13	0	13			0	0	13	0	13
8:30 AM - 8:45 AM				0				0		15	0	15			0	0	15	0	15
8:45 AM - 9:00 AM				0				0		9	0	9			0	0	9	0	9
9:00 AM - 9:15 AM				0				0		11	0	11			0	0	11	0	11
9:15 AM - 9:30 AM				0				0		8	0	8			0	0	8	0	8
9:30 AM - 9:45 AM				0				0		11	0	11			0	0	11	0	11
9:45 AM - 10:00 AM				0				0		8	0	8			0	0	8	0	8
Total	0	0	0	0	0	0	0	0	0	158	2	160	0	0	1	1	160	1	161
AM One Hour Volumes																			
7:00 AM - 8:00 AM	0	0	0	0	0	0	0	0	0	51	1	52	0	0	1	1	52	1	53
7:15 AM - 8:15 AM	0	0	0	0	0	0	0	0	0	74	2	76	0	0	1	1	76	1	77
7:30 AM - 8:30 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**75**	**2**	**77**	**0**	**0**	**1**	**1**	**77**	**1**	**78**
7:45 AM - 8:45 AM	0	0	0	0	0	0	0	0	0	78	2	80	0	0	1	1	80	1	81
8:00 AM - 9:00 AM	0	0	0	0	0	0	0	0	0	69	1	70	0	0	0	0	70	0	70
8:15 AM - 9:15 AM	0	0	0	0	0	0	0	0	0	48	0	48	0	0	0	0	48	0	48
8:30 AM - 9:30 AM	0	0	0	0	0	0	0	0	0	43	0	43	0	0	0	0	43	0	43
8:45 AM - 9:45 AM	0	0	0	0	0	0	0	0	0	39	0	39	0	0	0	0	39	0	39
9:00 AM - 10:00 AM	0	0	0	0	0	0	0	0	0	38	0	38	0	0	0	0	38	0	38
PM 15 Minute Volumes																			
4:00 PM - 4:15 PM				0				0		18	0	18			0	0	18	0	18
4:15 PM - 4:30 PM				0				0		15	0	15			0	0	15	0	15
4:30 PM - 4:45 PM				0				0		13	0	13			1	1	13	1	14
4:45 PM - 5:00 PM				0				0		13	0	13			0	0	13	0	13
5:00 PM - 5:15 PM				0				0		17	0	17			1	1	17	1	18
5:15 PM - 5:30 PM				0				0		10	0	10			0	0	10	0	10
5:30 PM - 5:45 PM				0				0		16	0	16			1	1	16	1	17
5:45 PM - 6:00 PM				0				0		13	0	13			0	0	13	0	13
6:00 PM - 6:15 PM				0				0		11	0	11			0	0	11	0	11
6:15 PM - 6:30 PM				0				0		3	0	3			0	0	3	0	3
6:30 PM - 6:45 PM				0				0		11	0	11			0	0	11	0	11
6:45 PM - 7:00 PM				0				0		7	0	7			0	0	7	0	7
Total	0	0	0	0	0	0	0	0	0	147	0	147	0	0	3	3	147	3	150
PM One Hour Volumes																			
4:00 PM - 5:00 PM	0	0	0	0	0	0	0	0	0	59	0	59	0	0	1	1	59	1	60
4:15 PM - 5:15 PM	0	0	0	0	0	0	0	0	0	58	0	58	0	0	2	2	58	2	60
4:30 PM - 5:30 PM	0	0	0	0	0	0	0	0	0	53	0	53	0	0	2	2	53	2	55
4:45 PM - 5:45 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**56**	**0**	**56**	**0**	**0**	**2**	**2**	**56**	**2**	**58**
5:00 PM - 6:00 PM	0	0	0	0	0	0	0	0	0	56	0	56	0	0	2	2	56	2	58
5:15 PM - 6:15 PM	0	0	0	0	0	0	0	0	0	50	0	50	0	0	1	1	50	1	51
5:30 PM - 6:30 PM	0	0	0	0	0	0	0	0	0	43	0	43	0	0	1	1	43	1	44
5:45 PM - 6:45 PM	0	0	0	0	0	0	0	0	0	38	0	38	0	0	0	0	38	0	38
6:00 PM - 7:00 PM	0	0	0	0	0	0	0	0	0	32	0	32	0	0	0	0	32	0	32

Wells + Associates, Inc.

McLean, Virginia

Turning Movement Count - All Vehicles

PROJECT: Hill East
W+A JOB NO: 6600
INTERSECTION: 19th Street & C Street
LOCATION: Washington,DC

DATE: 2/4/2016
DAY: Tuesday
WEATHER: clear
COUNTED BY: Majda & Mina
INPUTED BY: agan

SOUTHBOUND ROAD: 19th Street SE
NORTHBOUND ROAD: 19th Street SE
WESTBOUND ROAD: 0
EASTBOUND ROAD: C Street SE

Time Period	Southbound 19th Street SE					Westbound 0					Northbound 19th Street SE					Eastbound C Street SE					North & South	East & West	Total
	Right	Thru	Left	Total	PHF	Right	Thru	Left	Total	PHF	Right	Thru	Left	Total	PHF	Right	Thru	Left	Total	PHF			
AM 15 Minute Volumes																							
7:00 AM - 7:15 AM	0	0	0	0		0	0	0	0		0	84	0	84		0	0	7	7		84	7	91
7:15 AM - 7:30 AM	0	0	0	0		0	0	0	0		0	114	3	117		0	0	3	3		117	3	120
7:30 AM - 7:45 AM	0	0	0	0		0	0	0	0		0	136	0	136		0	0	5	5		136	5	141
7:45 AM - 8:00 AM	0	0	0	0		0	0	0	0		0	138	2	140		0	0	12	12		140	12	152
8:00 AM - 8:15 AM	0	0	0	0		0	0	0	0		0	154	1	155		0	0	10	10		155	10	165
8:15 AM - 8:30 AM	0	0	0	0		0	0	0	0		0	125	1	126		0	0	2	2		126	2	128
8:30 AM - 8:45 AM	0	0	0	0		0	0	0	0		0	104	1	105		0	0	5	5		105	5	110
8:45 AM - 9:00 AM	0	0	0	0		0	0	0	0		0	113	3	116		0	0	7	7		116	7	123
9:00 AM - 9:15 AM	0	0	0	0		0	0	0	0		0	98	1	99		0	0	8	8		99	8	107
9:15 AM - 9:30 AM	0	0	0	0		0	0	0	0		0	88	1	89		0	0	2	2		89	2	91
9:30 AM - 9:45 AM	0	0	0	0		0	0	0	0		0	78	0	78		0	0	3	3		78	3	81
9:45 AM - 10:00 AM	0	0	0	0		0	0	0	0		0	80	2	82		0	0	3	3		82	3	85
Total	0	0	0	0		0	0	0	0		0	1312	15	1327		0	0	67	67		1327	67	1394
AM One Hour Volumes																							
7:00 AM - 8:00 AM	0	0	0	0	0.00	0	0	0	0	0.00	0	472	5	477	0.85	0	0	27	27	0.56	477	27	504
7:15 AM - 8:15 AM	0	0	0	0	0.00	0	0	0	0	0.00	0	542	6	548	0.88	0	0	30	30	0.63	548	30	578
7:30 AM - 8:30 AM	**0**	**0**	**0**	**0**	**0.00**	**0**	**0**	**0**	**0**	**0.00**	**0**	**553**	**4**	**557**	**0.90**	**0**	**0**	**29**	**29**	**0.60**	**557**	**29**	586
7:45 AM - 8:45 AM	0	0	0	0	0.00	0	0	0	0	0.00	0	521	5	526	0.85	0	0	29	29	0.60	526	29	555
8:00 AM - 9:00 AM	0	0	0	0	0.00	0	0	0	0	0.00	0	496	6	502	0.81	0	0	24	24	0.60	502	24	526
8:15 AM - 9:15 AM	0	0	0	0	0.00	0	0	0	0	0.00	0	440	6	446	0.88	0	0	22	22	0.69	446	22	468
8:30 AM - 9:30 AM	0	0	0	0	0.00	0	0	0	0	0.00	0	403	6	409	0.88	0	0	22	22	0.69	409	22	431
8:45 AM - 9:45 AM	0	0	0	0	0.00	0	0	0	0	0.00	0	377	5	382	0.82	0	0	20	20	0.63	382	20	402
9:00 AM - 10:00 AM	0	0	0	0	0.00	0	0	0	0	0.00	0	344	4	348	0.88	0	0	16	16	0.50	348	16	364
PM 15 Minute Volumes																							
4:00 PM - 4:15 PM	0	0	0	0		0	0	0	0		0	209	1	210		0	0	11	11		210	11	221
4:15 PM - 4:30 PM	0	0	0	0		0	0	0	0		0	154	2	156		0	0	9	9		156	9	165
4:30 PM - 4:45 PM	0	0	0	0		0	0	0	0		0	206	0	206		0	0	16	16		206	16	222
4:45 PM - 5:00 PM	0	0	0	0		0	0	0	0		0	267	0	267		0	0	13	13		267	13	280
5:00 PM - 5:15 PM	0	0	0	0		0	0	0	0		0	219	4	223		0	0	17	17		223	17	240
5:15 PM - 5:30 PM	0	0	0	0		0	0	0	0		0	218	0	218		0	0	18	18		218	18	236
5:30 PM - 5:45 PM	0	0	0	0		0	0	0	0		0	226	4	230		0	0	11	11		230	11	241
5:45 PM - 6:00 PM	0	0	0	0		0	0	0	0		0	218	2	220		0	0	13	13		220	13	233
6:00 PM - 6:15 PM	0	0	0	0		0	0	0	0		0	209	1	210		0	0	9	9		210	9	219
6:15 PM - 6:30 PM	0	0	0	0		0	0	0	0		0	215	0	215		0	0	9	9		215	9	224
6:30 PM - 6:45 PM	0	0	0	0		0	0	0	0		0	230	0	230		0	0	6	6		230	6	236
6:45 PM - 7:00 PM	0	0	0	0		0	0	0	0		0	179	0	179		0	0	9	9		179	9	188
Total	0	0	0	0		0	0	0	0		0	2550	14	2564		0	0	141	141		2564	141	2705
PM One Hour Volumes																							
4:00 PM - 5:00 PM	0	0	0	0	0.00	0	0	0	0	0.00	0	836	3	839	0.79	0	0	49	49	0.77	839	49	888
4:15 PM - 5:15 PM	0	0	0	0	0.00	0	0	0	0	0.00	0	846	6	852	0.80	0	0	55	55	0.81	852	55	907
4:30 PM - 5:30 PM	0	0	0	0	0.00	0	0	0	0	0.00	0	910	4	914	0.86	0	0	64	64	0.89	914	64	978
4:45 PM - 5:45 PM	**0**	**0**	**0**	**0**	**0.00**	**0**	**0**	**0**	**0**	**0.00**	**0**	**930**	**8**	**938**	**0.88**	**0**	**0**	**59**	**59**	**0.82**	**938**	**59**	997
5:00 PM - 6:00 PM	0	0	0	0	0.00	0	0	0	0	0.00	0	881	10	891	0.97	0	0	59	59	0.82	891	59	950
5:15 PM - 6:15 PM	0	0	0	0	0.00	0	0	0	0	0.00	0	871	7	878	0.95	0	0	51	51	0.71	878	51	929
5:30 PM - 6:30 PM	0	0	0	0	0.00	0	0	0	0	0.00	0	868	7	875	0.95	0	0	42	42	0.81	875	42	917
5:45 PM - 6:45 PM	0	0	0	0	0.00	0	0	0	0	0.00	0	872	3	875	0.95	0	0	37	37	0.71	875	37	912
6:00 PM - 7:00 PM	0	0	0	0	0.00	0	0	0	0	0.00	0	833	1	834	0.91	0	0	33	33	0.92	834	33	867

Wells + Associates, Inc.

McLean, Virginia

Turning Movement Count - Bicycles

PROJECT:	Hill East	**DATE:**	2/4/2016	**SOUTHBOUND ROAD:**	19th Street SE
W+A JOB NO:	6600	**DAY:**	Tuesday	**NORTHBOUND ROAD:**	19th Street SE
INTERSECTION:	19th Street & C Street	**WEATHER:**	clear	**WESTBOUND ROAD:**	0
LOCATION:	Washington,DC	**COUNTED BY:**	Mina	**EASTBOUND ROAD:**	C Street SE
		INPUTED BY:	agan		

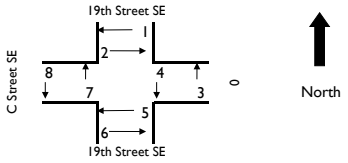
Time Period	Southbound 19th Street SE				Westbound 0				Northbound 19th Street SE				Eastbound C Street SE				North & South	East & West	Total
	Right	Thru	Left	Total	Right	Thru	Left	Total	Right	Thru	Left	Total	Right	Thru	Left	Total			
AM 15 Minute Volumes																			
7:00 AM - 7:15 AM				0				0				0				0	0	0	0
7:15 AM - 7:30 AM				0				0				0				0	0	0	0
7:30 AM - 7:45 AM				0				0		1		1				0	1	0	1
7:45 AM - 8:00 AM				0				0				0				0	0	0	0
8:00 AM - 8:15 AM				0				0				0				0	0	0	0
8:15 AM - 8:30 AM				0				0				0				0	0	0	0
8:30 AM - 8:45 AM				0				0				0				0	0	0	0
8:45 AM - 9:00 AM				0				0				0				0	0	0	0
9:00 AM - 9:15 AM				0				0				0				0	0	0	0
9:15 AM - 9:30 AM				0		1		1				0				0	0	1	1
9:30 AM - 9:45 AM				0				0				0				0	0	0	0
9:45 AM - 10:00 AM				0				0				0				0	0	0	0
Total	0	0	0	0	0	1	0	1	0	1	0	1	0	0	0	0	1	1	2
AM One Hour Volumes																			
7:00 AM - 8:00 AM	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	1	0	1
7:15 AM - 8:15 AM	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	1	0	1
7:30 AM - 8:30 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**1**	**0**	**0**	**0**	**0**	**1**	**0**	**1**
7:45 AM - 8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM - 9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM - 9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM - 9:30 AM	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	1	1
8:45 AM - 9:45 AM	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	1	1
9:00 AM - 10:00 AM	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	1	1
PM 15 Minute Volumes																			
4:00 PM - 4:15 PM				0				0				0				0	0	0	0
4:15 PM - 4:30 PM		1		1				0				0				0	1	0	1
4:30 PM - 4:45 PM				0				0				0				0	0	0	0
4:45 PM - 5:00 PM				0				0				0				0	0	0	0
5:00 PM - 5:15 PM				0				0				0				0	0	0	0
5:15 PM - 5:30 PM				0				0				0				0	0	0	0
5:30 PM - 5:45 PM				0				0				0				0	0	0	0
5:45 PM - 6:00 PM				0	1			1				0				0	0	1	1
6:00 PM - 6:15 PM				0				0				0				0	0	0	0
6:15 PM - 6:30 PM				0				0				0				0	0	0	0
6:30 PM - 6:45 PM				0				0				0				0	0	0	0
6:45 PM - 7:00 PM				0				0				0				0	0	0	0
Total	0	1	0	1	1	0	0	1	0	0	0	0	0	0	0	0	1	1	2
PM One Hour Volumes																			
4:00 PM - 5:00 PM	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
4:15 PM - 5:15 PM	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
4:30 PM - 5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM - 5:45 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
5:00 PM - 6:00 PM	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	1	1
5:15 PM - 6:15 PM	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	1	1
5:30 PM - 6:30 PM	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	1	1
5:45 PM - 6:45 PM	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	1	1
6:00 PM - 7:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Wells + Associates, Inc.

McLean, Virginia

Pedestrian Volume Survey

PROJECT: Hill East
W+A JOB NO: 6600
INTERSECTION: 19th Street & C Street
LOCATION: Washington,DC
DATE: 2/4/2016
DAY: Tuesday
WEATHER: clear
COUNTED BY: Mina
INPUTED BY: agan



Time Period	Movement 1	2	3	4	5	6	7	8	1 + 2	3 + 4	5 + 6	7+ 8	Total
AM 15 Minute Volumes													
7:00 AM - 7:15 AM		9	1	5									
7:15 AM - 7:30 AM		11	2	3									
7:30 AM - 7:45 AM	3	6	7	3	1	1	1						
7:45 AM - 8:00 AM	2	8	15	5		1		1					
8:00 AM - 8:15 AM	5	26	9	2									
8:15 AM - 8:30 AM		17	4	3	1	1							
8:30 AM - 8:45 AM		16	8	5		2	1	1					
8:45 AM - 9:00 AM	2	13	6	3	2								
9:00 AM - 9:15 AM		7	8	1		1		2					
9:15 AM - 9:30 AM	1	12	4	4	1	1							
9:30 AM - 9:45 AM	1	12	6	2		1	2						
9:45 AM - 10:00 AM		1	1	4		1	1						
Total	14	138	71	40	5	9	5	4					
AM One Hour Volumes													
7:00 AM - 8:00 AM	5	34	25	16	1	2	1	1	39	41	3	2	85
7:15 AM - 8:15 AM	10	51	33	13	1	2	1	1	61	46	3	2	112
7:30 AM - 8:30 AM	**10**	**57**	**35**	**13**	**2**	**3**	**1**	**1**	**67**	**48**	**5**	**2**	**122**
7:45 AM - 8:45 AM	7	67	36	15	1	4	1	2	74	51	5	3	133
8:00 AM - 9:00 AM	7	72	27	13	3	3	1	1	79	40	6	2	127
8:15 AM - 9:15 AM	2	53	26	12	3	4	1	3	55	38	7	4	104
8:30 AM - 9:30 AM	3	48	26	13	3	4	1	3	51	39	7	4	101
8:45 AM - 9:45 AM	4	44	24	10	3	3	2	2	48	34	6	4	92
9:00 AM - 10:00 AM	2	32	19	11	1	4	3	2	34	30	5	5	74
PM 15 Minute Volumes													
4:00 PM - 4:15 PM	1	3	3	4	1								
4:15 PM - 4:30 PM	6	4	7	6				1					
4:30 PM - 4:45 PM	4	8	8	4									
4:45 PM - 5:00 PM	5	3	3	4		2	2	2					
5:00 PM - 5:15 PM	7	5	9	5	1		1	1					
5:15 PM - 5:30 PM	8	8	6	5	1			1					
5:30 PM - 5:45 PM	12	4	4	3	2								
5:45 PM - 6:00 PM	6	2	3	5			2						
6:00 PM - 6:15 PM	6	1	2	3	3	1							
6:15 PM - 6:30 PM	12	5	4	3									
6:30 PM - 6:45 PM	11	6	2	4				4					
6:45 PM - 7:00 PM	14	3	5	3				1					
Total	92	52	56	49	8	3	5	10					
PM One Hour Volumes													
4:00 PM - 5:00 PM	16	18	21	18	1	2	2	3	34	39	3	5	81
4:15 PM - 5:15 PM	22	20	27	19	1	2	3	4	42	46	3	7	98
4:30 PM - 5:30 PM	24	24	26	18	2	2	3	4	48	44	4	7	103
4:45 PM - 5:45 PM	**32**	**20**	**22**	**17**	**4**	**2**	**3**	**4**	**52**	**39**	**6**	**7**	**104**
5:00 PM - 6:00 PM	33	19	22	18	4	0	3	2	52	40	4	5	101
5:15 PM - 6:15 PM	32	15	15	16	6	1	2	1	47	31	7	3	88
5:30 PM - 6:30 PM	36	12	13	14	5	1	2	0	48	27	6	2	83
5:45 PM - 6:45 PM	35	14	11	15	3	1	2	4	49	26	4	6	85
6:00 PM - 7:00 PM	43	15	13	13	3	1	0	5	58	26	4	5	93

Wells + Associates, Inc.

McLean, Virginia

Heavy Vehicle Percentages

PROJECT:	Hill East	**DATE:**	2/4/2016	**SOUTHBOUND ROAD:**	19th Street SE
W+A JOB NO:	6600	**DAY:**	Tuesday	**NORTHBOUND ROAD:**	19th Street SE
INTERSECTION:	19th Street & C Street	**WEATHER:**	clear	**WESTBOUND ROAD:**	0
LOCATION:	Washington,DC	**COUNTED BY:**	Majda & Mina	**EASTBOUND ROAD:**	C Street SE
		INPUTED BY:	agan		

Time Period	Eastbound C Street SE				Westbound 0				Northbound 19th Street SE				Southbound 19th Street SE			
	Left	Thru	Right	Total	Left	Thru	Right	Total	Left	Thru	Right	Total	Left	Thru	Right	Total
AM One Hour Heavy Vehicle Percentages																
7:00 AM - 8:00 AM	4%			4%					20%	11%		11%				
7:15 AM - 8:15 AM	3%			3%					33%	14%		14%				
7:30 AM - 8:30 AM	**3%**			**3%**					**50%**	**14%**		**14%**				
7:45 AM - 8:45 AM	3%			3%					40%	15%		15%				
8:00 AM - 9:00 AM	0%			0%					17%	14%		14%				
8:15 AM - 9:15 AM	0%			0%					0%	11%		11%				
8:30 AM - 9:30 AM	0%			0%					0%	11%		11%				
8:45 AM - 9:45 AM	0%			0%					0%	10%		10%				
9:00 AM - 10:00 AM	0%			0%					0%	11%		11%				
PM One Hour Heavy Vehicle Percentages																
4:00 PM - 5:00 PM	2%			2%					0%	7%		7%				
4:15 PM - 5:15 PM	4%			4%					0%	7%		7%				
4:30 PM - 5:30 PM	3%			3%					0%	6%		6%				
4:45 PM - 5:45 PM	**3%**			**3%**					**0%**	**6%**		**6%**				
5:00 PM - 6:00 PM	3%			3%					0%	6%		6%				
5:15 PM - 6:15 PM	2%			2%					0%	6%		6%				
5:30 PM - 6:30 PM	2%			2%					0%	5%		5%				
5:45 PM - 6:45 PM	0%			0%					0%	4%		4%				
6:00 PM - 7:00 PM	0%			0%					0%	4%		4%				

Project:	Hill East
Wells + Associates Job No:	6600
Intersection:	19th Street & Massachusetts Ave.
Location:	Washington,DC
Date:	2/4/2016
Day:	Tuesday
Weather:	clear
Inputed by:	agan
Intersection Count by:	Tyler & Austin
Pedestrian Count by:	Tyler
Bicycle County by:	Austin

Southbound Road:	19th Street SE
Northbound Road:	19th Street SE
Westbound Road:	Massachusetts Avenue SE
Eastbound Road:	Massachusetts Avenue SE

AM Count Start Time:	7:00 AM
PM Count Start Time:	4:00 PM
Study AM Peak Hour:	7:30 AM - 8:30 AM
Study PM Peak Hour:	4:45 PM - 5:45 PM

Wells + Associates, Inc.

McLean, Virginia

Turning Movement Count - Passenger Cars

PROJECT:	Hill East	**DATE:**	2/4/2016	**SOUTHBOUND ROAD:**	19th Street SE
W+A JOB NO:	6600	**DAY:**	Tuesday	**NORTHBOUND ROAD:**	19th Street SE
INTERSECTION:	19th Street & Massachusetts Ave.	**WEATHER:**	clear	**WESTBOUND ROAD:**	Massachusetts Avenue SE
LOCATION:	Washington,DC	**COUNTED BY:**	Tyler & Austin	**EASTBOUND ROAD:**	Massachusetts Avenue SE
		INPUTED BY:	agan		

Time Period	Southbound 19th Street SE				Westbound Massachusetts Avenue SE				Northbound 19th Street SE				Eastbound Massachusetts Avenue SE				North & South	East & West	Total
	Right	Thru	Left	Total	Right	Thru	Left	Total	Right	Thru	Left	Total	Right	Thru	Left	Total			
AM 15 Minute Volumes																			
7:00 AM - 7:15 AM				0	9	9		18	25	63	1	89		8	1	9	89	27	116
7:15 AM - 7:30 AM				0	5	9		14	17	96	0	113		10	0	10	113	24	137
7:30 AM - 7:45 AM				0	6	5		11	18	118	2	138		7	2	9	138	20	158
7:45 AM - 8:00 AM				0	3	5		8	17	122	2	141		5	3	8	141	16	157
8:00 AM - 8:15 AM				0	5	8		13	15	118	5	138		9	0	9	138	22	160
8:15 AM - 8:30 AM				0	9	10		19	11	106	1	118		10	2	12	118	31	149
8:30 AM - 8:45 AM				0	1	10		11	10	91	2	103		9	2	11	103	22	125
8:45 AM - 9:00 AM				0	4	5		9	11	97	3	111		9	3	12	111	21	132
9:00 AM - 9:15 AM				0	5	4		9	13	82	1	96		12	3	15	96	24	120
9:15 AM - 9:30 AM				0	6	1		7	7	67	0	74		11	0	11	74	18	92
9:30 AM - 9:45 AM				0	2	3		5	7	68	2	77		9	2	11	77	16	93
9:45 AM - 10:00 AM				0	4	4		8	10	72	2	84		8	1	9	84	17	101
Total	0	0	0	0	59	73	0	132	161	1100	21	1282	0	107	19	126	1282	258	1540
AM One Hour Volumes																			
7:00 AM - 8:00 AM	0	0	0	0	23	28	0	51	77	399	5	481	0	30	6	36	481	87	568
7:15 AM - 8:15 AM	0	0	0	0	19	27	0	46	67	454	9	530	0	31	5	36	530	82	612
7:30 AM - 8:30 AM	**0**	**0**	**0**	**0**	**23**	**28**	**0**	**51**	**61**	**464**	**10**	**535**	**0**	**31**	**7**	**38**	**535**	**89**	**624**
7:45 AM - 8:45 AM	0	0	0	0	18	33	0	51	53	437	10	500	0	33	7	40	500	91	591
8:00 AM - 9:00 AM	0	0	0	0	19	33	0	52	47	412	11	470	0	37	7	44	470	96	566
8:15 AM - 9:15 AM	0	0	0	0	19	29	0	48	45	376	7	428	0	40	10	50	428	98	526
8:30 AM - 9:30 AM	0	0	0	0	16	20	0	36	41	337	6	384	0	41	8	49	384	85	469
8:45 AM - 9:45 AM	0	0	0	0	17	13	0	30	38	314	6	358	0	41	8	49	358	79	437
9:00 AM - 10:00 AM	0	0	0	0	17	12	0	29	37	289	5	331	0	40	6	46	331	75	406
PM 15 Minute Volumes																			
4:00 PM - 4:15 PM				0	19	18		37	8	156	1	165		5	5	10	165	47	212
4:15 PM - 4:30 PM				0	4	11		15	12	151	1	164		6	6	12	164	27	191
4:30 PM - 4:45 PM				0	12	23		35	7	158	3	168		8	6	14	168	49	217
4:45 PM - 5:00 PM				0	21	23		44	7	222	0	229		10	11	21	229	65	294
5:00 PM - 5:15 PM				0	9	19		28	9	180	0	189		7	6	13	189	41	230
5:15 PM - 5:30 PM				0	11	18		29	6	182	1	189		7	6	13	189	42	231
5:30 PM - 5:45 PM				0	10	17		27	12	219	0	231		15	5	20	231	47	278
5:45 PM - 6:00 PM				0	8	13		21	12	181	2	195		18	4	22	195	43	238
6:00 PM - 6:15 PM				0	6	11		17	8	188	0	196		10	12	22	196	39	235
6:15 PM - 6:30 PM				0	7	10		17	5	184	1	190		3	3	6	190	23	213
6:30 PM - 6:45 PM				0	4	9		13	5	196	1	202		13	3	16	202	29	231
6:45 PM - 7:00 PM				0	9	11		20	8	174	2	184		13	4	17	184	37	221
Total	0	0	0	0	120	183	0	303	99	2191	12	2302	0	115	71	186	2302	489	2791
PM One Hour Volumes																			
4:00 PM - 5:00 PM	0	0	0	0	56	75	0	131	34	687	5	726	0	29	28	57	726	188	914
4:15 PM - 5:15 PM	0	0	0	0	46	76	0	122	35	711	4	750	0	31	29	60	750	182	932
4:30 PM - 5:30 PM	0	0	0	0	53	83	0	136	29	742	4	775	0	32	29	61	775	197	972
4:45 PM - 5:45 PM	**0**	**0**	**0**	**0**	**51**	**77**	**0**	**128**	**34**	**803**	**1**	**838**	**0**	**39**	**28**	**67**	**838**	**195**	**1033**
5:00 PM - 6:00 PM	0	0	0	0	38	67	0	105	39	762	3	804	0	47	21	68	804	173	977
5:15 PM - 6:15 PM	0	0	0	0	35	59	0	94	38	770	3	811	0	50	27	77	811	171	982
5:30 PM - 6:30 PM	0	0	0	0	31	51	0	82	37	772	3	812	0	46	24	70	812	152	964
5:45 PM - 6:45 PM	0	0	0	0	25	43	0	68	30	749	4	783	0	44	22	66	783	134	917
6:00 PM - 7:00 PM	0	0	0	0	26	41	0	67	26	742	4	772	0	39	22	61	772	128	900

Wells + Associates, Inc.

McLean, Virginia

Turning Movement Count - Heavy Vehicles

PROJECT: Hill East
W+A JOB NO: 6600
INTERSECTION: 19th Street & Massachusetts Ave.
LOCATION: Washington,DC
DATE: 2/4/2016
DAY: Tuesday
WEATHER: clear
COUNTED BY: Tyler & Austin
INPUTED BY: agan
SOUTHBOUND ROAD: 19th Street SE
NORTHBOUND ROAD: 19th Street SE
WESTBOUND ROAD: Massachusetts Avenue SE
EASTBOUND ROAD: Massachusetts Avenue SE

Time Period	Southbound 19th Street SE				Westbound Massachusetts Avenue SE				Northbound 19th Street SE				Eastbound Massachusetts Avenue SE				North & South	East & West	Total
	Right	Thru	Left	Total	Right	Thru	Left	Total	Right	Thru	Left	Total	Right	Thru	Left	Total			
AM 15 Minute Volumes																			
7:00 AM - 7:15 AM				0	2	2		4	2	8	0	10		2	0	2	10	6	16
7:15 AM - 7:30 AM				0	3	3		6	3	5	0	8		3	0	3	8	9	17
7:30 AM - 7:45 AM				0	2	4		6	4	9	0	13		5	0	5	13	11	24
7:45 AM - 8:00 AM				0	7	3		10	5	10	0	15		4	0	4	15	14	29
8:00 AM - 8:15 AM				0	4	1		5	4	23	0	27		2	2	4	27	9	36
8:15 AM - 8:30 AM				0	2	4		6	2	12	0	14		3	0	3	14	9	23
8:30 AM - 8:45 AM				0	3	1		4	3	8	0	11		3	0	3	11	7	18
8:45 AM - 9:00 AM				0	3	2		5	2	10	0	12		1	0	1	12	6	18
9:00 AM - 9:15 AM				0	1	4		5	1	10	0	11		5	0	5	11	10	21
9:15 AM - 9:30 AM				0	3	1		4	2	5	0	7		3	0	3	7	7	14
9:30 AM - 9:45 AM				0	3	2		5	1	5	0	6		3	0	3	6	8	14
9:45 AM - 10:00 AM				0	3	2		5	3	7	0	10		4	1	5	10	10	20
Total	0	0	0	0	36	29	0	65	32	112	0	144	0	38	3	41	144	106	250
AM One Hour Volumes																			
7:00 AM - 8:00 AM	0	0	0	0	14	12	0	26	14	32	0	46	0	14	0	14	46	40	86
7:15 AM - 8:15 AM	0	0	0	0	16	11	0	27	16	47	0	63	0	14	2	16	63	43	106
7:30 AM - 8:30 AM	**0**	**0**	**0**	**0**	**15**	**12**	**0**	**27**	**15**	**54**	**0**	**69**	**0**	**14**	**2**	**16**	**69**	**43**	**112**
7:45 AM - 8:45 AM	0	0	0	0	16	9	0	25	14	53	0	67	0	12	2	14	67	39	106
8:00 AM - 9:00 AM	0	0	0	0	12	8	0	20	11	53	0	64	0	9	2	11	64	31	95
8:15 AM - 9:15 AM	0	0	0	0	9	11	0	20	8	40	0	48	0	12	0	12	48	32	80
8:30 AM - 9:30 AM	0	0	0	0	10	8	0	18	8	33	0	41	0	12	0	12	41	30	71
8:45 AM - 9:45 AM	0	0	0	0	10	9	0	19	6	30	0	36	0	12	0	12	36	31	67
9:00 AM - 10:00 AM	0	0	0	0	10	9	0	19	7	27	0	34	0	15	1	16	34	35	69
PM 15 Minute Volumes																			
4:00 PM - 4:15 PM				0	2	6		8	1	16	0	17		8	0	8	17	16	33
4:15 PM - 4:30 PM				0	3	3		6	3	7	1	11		4	1	5	11	11	22
4:30 PM - 4:45 PM				0	1	2		3	1	10	0	11		1	0	1	11	4	15
4:45 PM - 5:00 PM				0	2	5		7	1	12	0	13		5	0	5	13	12	25
5:00 PM - 5:15 PM				0	4	3		7	3	11	0	14		4	0	4	14	11	25
5:15 PM - 5:30 PM				0	3	1		4	1	7	0	8		1	0	1	8	5	13
5:30 PM - 5:45 PM				0	3	2		5	2	12	0	14		3	0	3	14	8	22
5:45 PM - 6:00 PM				0	3	1		4	2	9	0	11		1	0	1	11	5	16
6:00 PM - 6:15 PM				0	1	2		3	1	8	0	9		2	0	2	9	5	14
6:15 PM - 6:30 PM				0	1	0		1	2	3	0	5		1	0	1	5	2	7
6:30 PM - 6:45 PM				0	3	4		7	1	7	0	8		6	0	6	8	13	21
6:45 PM - 7:00 PM				0	2	0		2	1	4	0	5		1	0	1	5	3	8
Total	0	0	0	0	28	29	0	57	19	106	1	126	0	37	1	38	126	95	221
PM One Hour Volumes																			
4:00 PM - 5:00 PM	0	0	0	0	8	16	0	24	6	45	1	52	0	18	1	19	52	43	95
4:15 PM - 5:15 PM	0	0	0	0	10	13	0	23	8	40	1	49	0	14	1	15	49	38	87
4:30 PM - 5:30 PM	0	0	0	0	10	11	0	21	6	40	0	46	0	11	0	11	46	32	78
4:45 PM - 5:45 PM	**0**	**0**	**0**	**0**	**12**	**11**	**0**	**23**	**7**	**42**	**0**	**49**	**0**	**13**	**0**	**13**	**49**	**36**	**85**
5:00 PM - 6:00 PM	0	0	0	0	13	7	0	20	8	39	0	47	0	9	0	9	47	29	76
5:15 PM - 6:15 PM	0	0	0	0	10	6	0	16	6	36	0	42	0	7	0	7	42	23	65
5:30 PM - 6:30 PM	0	0	0	0	8	5	0	13	7	32	0	39	0	7	0	7	39	20	59
5:45 PM - 6:45 PM	0	0	0	0	8	7	0	15	6	27	0	33	0	10	0	10	33	25	58
6:00 PM - 7:00 PM	0	0	0	0	7	6	0	13	5	22	0	27	0	10	0	10	27	23	50

Wells + Associates, Inc.

McLean, Virginia

Turning Movement Count - All Vehicles

PROJECT: Hill East
W+A JOB NO: 6600
INTERSECTION: 19th Street & Massachusetts Ave.
LOCATION: Washington,DC

DATE: 2/4/2016
DAY: Tuesday
WEATHER: clear
COUNTED BY: Tyler & Austin
INPUTED BY: agan

SOUTHBOUND ROAD: 19th Street SE
NORTHBOUND ROAD: 19th Street SE
WESTBOUND ROAD: Massachusetts Avenue SE
EASTBOUND ROAD: Massachusetts Avenue SE

Time Period	Southbound 19th Street SE					Westbound Massachusetts Avenue SE					Northbound 19th Street SE					Eastbound Massachusetts Avenue SE					North & South	East & West	Total
	Right	Thru	Left	Total	PHF	Right	Thru	Left	Total	PHF	Right	Thru	Left	Total	PHF	Right	Thru	Left	Total	PHF			
AM 15 Minute Volumes																							
7:00 AM - 7:15 AM	0	0	0	0		11	11	0	22		27	71	1	99		0	10	1	11		99	33	132
7:15 AM - 7:30 AM	0	0	0	0		8	12	0	20		20	101	0	121		0	13	0	13		121	33	154
7:30 AM - 7:45 AM	0	0	0	0		8	9	0	17		22	127	2	151		0	12	2	14		151	31	182
7:45 AM - 8:00 AM	0	0	0	0		10	8	0	18		22	132	2	156		0	9	3	12		156	30	186
8:00 AM - 8:15 AM	0	0	0	0		9	9	0	18		19	141	5	165		0	11	2	13		165	31	196
8:15 AM - 8:30 AM	0	0	0	0		11	14	0	25		13	118	1	132		0	13	2	15		132	40	172
8:30 AM - 8:45 AM	0	0	0	0		4	11	0	15		13	99	2	114		0	12	2	14		114	29	143
8:45 AM - 9:00 AM	0	0	0	0		7	7	0	14		13	107	3	123		0	10	3	13		123	27	150
9:00 AM - 9:15 AM	0	0	0	0		6	8	0	14		14	92	1	107		0	17	3	20		107	34	141
9:15 AM - 9:30 AM	0	0	0	0		9	2	0	11		9	72	0	81		0	14	0	14		81	25	106
9:30 AM - 9:45 AM	0	0	0	0		5	5	0	10		8	73	2	83		0	12	2	14		83	24	107
9:45 AM - 10:00 AM	0	0	0	0		7	6	0	13		13	79	2	94		0	12	2	14		94	27	121
Total	0	0	0	0		95	102	0	197		193	1212	21	1426		0	145	22	167		1426	364	1790
AM One Hour Volumes																							
7:00 AM - 8:00 AM	0	0	0	0	0.00	37	40	0	77	0.88	91	431	5	527	0.84	0	44	6	50	0.89	527	127	654
7:15 AM - 8:15 AM	0	0	0	0	0.00	35	38	0	73	0.91	83	501	9	593	0.90	0	45	7	52	0.93	593	125	718
7:30 AM - 8:30 AM	**0**	**0**	**0**	**0**	**0.00**	**38**	**40**	**0**	**78**	**0.78**	**76**	**518**	**10**	**604**	**0.92**	**0**	**45**	**9**	**54**	**0.90**	**604**	**132**	736
7:45 AM - 8:45 AM	0	0	0	0	0.00	34	42	0	76	0.76	67	490	10	567	0.86	0	45	9	54	0.90	567	130	697
8:00 AM - 9:00 AM	0	0	0	0	0.00	31	41	0	72	0.72	58	465	11	534	0.81	0	46	9	55	0.92	534	127	661
8:15 AM - 9:15 AM	0	0	0	0	0.00	28	40	0	68	0.68	53	416	7	476	0.90	0	52	10	62	0.78	476	130	606
8:30 AM - 9:30 AM	0	0	0	0	0.00	26	28	0	54	0.90	49	370	6	425	0.86	0	53	8	61	0.76	425	115	540
8:45 AM - 9:45 AM	0	0	0	0	0.00	27	22	0	49	0.88	44	344	6	394	0.80	0	53	8	61	0.76	394	110	504
9:00 AM - 10:00 AM	0	0	0	0	0.00	27	21	0	48	0.86	44	316	5	365	0.85	0	55	7	62	0.78	365	110	475
PM 15 Minute Volumes																							
4:00 PM - 4:15 PM	0	0	0	0		21	24	0	45		9	172	1	182		0	13	5	18		182	63	245
4:15 PM - 4:30 PM	0	0	0	0		7	14	0	21		15	158	2	175		0	10	7	17		175	38	213
4:30 PM - 4:45 PM	0	0	0	0		13	25	0	38		8	168	3	179		0	9	6	15		179	53	232
4:45 PM - 5:00 PM	0	0	0	0		23	28	0	51		8	234	0	242		0	15	11	26		242	77	319
5:00 PM - 5:15 PM	0	0	0	0		13	22	0	35		12	191	0	203		0	11	6	17		203	52	255
5:15 PM - 5:30 PM	0	0	0	0		14	19	0	33		7	189	1	197		0	8	6	14		197	47	244
5:30 PM - 5:45 PM	0	0	0	0		13	19	0	32		14	231	0	245		0	18	5	23		245	55	300
5:45 PM - 6:00 PM	0	0	0	0		11	14	0	25		14	190	2	206		0	19	4	23		206	48	254
6:00 PM - 6:15 PM	0	0	0	0		7	13	0	20		9	196	0	205		0	12	12	24		205	44	249
6:15 PM - 6:30 PM	0	0	0	0		8	10	0	18		7	187	1	195		0	4	3	7		195	25	220
6:30 PM - 6:45 PM	0	0	0	0		7	13	0	20		6	203	1	210		0	19	3	22		210	42	252
6:45 PM - 7:00 PM	0	0	0	0		11	11	0	22		9	178	2	189		0	14	4	18		189	40	229
Total	0	0	0	0		148	212	0	360		118	2297	13	2428		0	152	72	224		2428	584	3012
PM One Hour Volumes																							
4:00 PM - 5:00 PM	0	0	0	0	0.00	64	91	0	155	0.76	40	732	6	778	0.80	0	47	29	76	0.73	778	231	1009
4:15 PM - 5:15 PM	0	0	0	0	0.00	56	89	0	145	0.71	43	751	5	799	0.83	0	45	30	75	0.72	799	220	1019
4:30 PM - 5:30 PM	0	0	0	0	0.00	63	94	0	157	0.77	35	782	4	821	0.85	0	43	29	72	0.69	821	229	1050
4:45 PM - 5:45 PM	**0**	**0**	**0**	**0**	**0.00**	**63**	**88**	**0**	**151**	**0.74**	**41**	**845**	**1**	**887**	**0.91**	**0**	**52**	**28**	**80**	**0.77**	**887**	**231**	1118
5:00 PM - 6:00 PM	0	0	0	0	0.00	51	74	0	125	0.89	47	801	3	851	0.87	0	56	21	77	0.84	851	202	1053
5:15 PM - 6:15 PM	0	0	0	0	0.00	45	65	0	110	0.83	44	806	3	853	0.87	0	57	27	84	0.88	853	194	1047
5:30 PM - 6:30 PM	0	0	0	0	0.00	39	56	0	95	0.74	44	804	3	851	0.87	0	53	24	77	0.80	851	172	1023
5:45 PM - 6:45 PM	0	0	0	0	0.00	33	50	0	83	0.83	36	776	4	816	0.97	0	54	22	76	0.79	816	159	975
6:00 PM - 7:00 PM	0	0	0	0	0.00	33	47	0	80	0.91	31	764	4	799	0.95	0	49	22	71	0.74	799	151	950

Wells + Associates, Inc.

McLean, Virginia

Turning Movement Count - Bicycles

PROJECT:	Hill East	**DATE:**	2/4/2016	**SOUTHBOUND ROAD:**	19th Street SE
W+A JOB NO:	6600	**DAY:**	Tuesday	**NORTHBOUND ROAD:**	19th Street SE
INTERSECTION:	19th Street & Massachusetts Ave.	**WEATHER:**	clear	**WESTBOUND ROAD:**	Massachusetts Avenue SE
LOCATION:	Washington,DC	**COUNTED BY:**	Austin	**EASTBOUND ROAD:**	Massachusetts Avenue SE
		INPUTED BY:	agan		

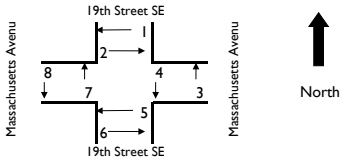
Time Period	Southbound 19th Street SE				Westbound Massachusetts Avenue SE				Northbound 19th Street SE				Eastbound Massachusetts Avenue SE				North & South	East & West	Total
	Right	Thru	Left	Total	Right	Thru	Left	Total	Right	Thru	Left	Total	Right	Thru	Left	Total			
AM 15 Minute Volumes																			
7:00 AM - 7:15 AM				0				0				0				0	0	0	0
7:15 AM - 7:30 AM				0				0				0				0	0	0	0
7:30 AM - 7:45 AM				0				0		1		1				0	1	0	1
7:45 AM - 8:00 AM				0				0				0				0	0	0	0
8:00 AM - 8:15 AM				0				0				0				0	0	0	0
8:15 AM - 8:30 AM				0				0				0				0	0	0	0
8:30 AM - 8:45 AM				0				0				0				0	0	0	0
8:45 AM - 9:00 AM				0				0				0				0	0	0	0
9:00 AM - 9:15 AM				0				0				0		1		1	0	1	1
9:15 AM - 9:30 AM				0				0				0				0	0	0	0
9:30 AM - 9:45 AM				0				0				0				0	0	0	0
9:45 AM - 10:00 AM				0				0				0				0	0	0	0
Total	0	0	0	0	0	0	0	0	0	1	0	1	0	1	0	1	1	1	2
AM One Hour Volumes																			
7:00 AM - 8:00 AM	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	1	0	1
7:15 AM - 8:15 AM	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	1	0	1
7:30 AM - 8:30 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**1**	**0**	**0**	**0**	**0**	**1**	**0**	**1**
7:45 AM - 8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM - 9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM - 9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	1	1
8:30 AM - 9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	1	1
8:45 AM - 9:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	1	1
9:00 AM - 10:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	1	1
PM 15 Minute Volumes																			
4:00 PM - 4:15 PM				0				0				0				0	0	0	0
4:15 PM - 4:30 PM		1		1				0				0				0	1	0	1
4:30 PM - 4:45 PM				0				0				0				0	0	0	0
4:45 PM - 5:00 PM				0				0				0				0	0	0	0
5:00 PM - 5:15 PM				0				0				0				0	0	0	0
5:15 PM - 5:30 PM				0				0				0	1			1	0	1	1
5:30 PM - 5:45 PM				0				0				0				0	0	0	0
5:45 PM - 6:00 PM				0				0				0				0	0	0	0
6:00 PM - 6:15 PM				0				0				0		1		1	0	1	1
6:15 PM - 6:30 PM				0				0			1	1				0	1	0	1
6:30 PM - 6:45 PM				0				0				0				0	0	0	0
6:45 PM - 7:00 PM				0				0				0				0	0	0	0
Total	0	1	0	1	0	0	0	0	0	0	1	1	1	1	0	2	2	2	4
PM One Hour Volumes																			
4:00 PM - 5:00 PM	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
4:15 PM - 5:15 PM	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
4:30 PM - 5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	1	1
4:45 PM - 5:45 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**1**	**0**	**1**	**1**
5:00 PM - 6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	1	1
5:15 PM - 6:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	2	0	2	2
5:30 PM - 6:30 PM	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	1	1	1	2
5:45 PM - 6:45 PM	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	1	1	1	2
6:00 PM - 7:00 PM	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	1	1	1	2

Wells + Associates, Inc.

McLean, Virginia

Pedestrian Volume Survey

PROJECT: Hill East
W+A JOB NO: 6600
INTERSECTION: 19th Street & Massachusetts Ave.
LOCATION: Washington,DC
DATE: 2/4/2016
DAY: Tuesday
WEATHER: clear
COUNTED BY: Tyler
INPUTED BY: agan



Time Period	Movement 1	2	3	4	5	6	7	8	1 + 2	3 + 4	5 + 6	7+ 8	Total
AM 15 Minute Volumes													
7:00 AM - 7:15 AM			2	2									
7:15 AM - 7:30 AM		1		1		1	3						
7:30 AM - 7:45 AM	1	3	3	2		5	3						
7:45 AM - 8:00 AM		4	10	2		3	7						
8:00 AM - 8:15 AM	2	3	5	3		5	4	1					
8:15 AM - 8:30 AM	4	2	3	2		2							
8:30 AM - 8:45 AM	6		4	3		1	1						
8:45 AM - 9:00 AM		2	5	2		2	2						
9:00 AM - 9:15 AM	2	7	1	1			5						
9:15 AM - 9:30 AM		1	3	2		1	1						
9:30 AM - 9:45 AM	3	2	1	1		1	4						
9:45 AM - 10:00 AM	2			2			1						
Total	20	25	37	23	0	21	31	1					
AM One Hour Volumes													
7:00 AM - 8:00 AM	1	8	15	7	0	9	13	0	9	22	9	13	53
7:15 AM - 8:15 AM	3	11	18	8	0	14	17	1	14	26	14	18	72
7:30 AM - 8:30 AM	**7**	**12**	**21**	**9**	**0**	**15**	**14**	**1**	**19**	**30**	**15**	**15**	**79**
7:45 AM - 8:45 AM	12	9	22	10	0	11	12	1	21	32	11	13	77
8:00 AM - 9:00 AM	12	7	17	10	0	10	7	1	19	27	10	8	64
8:15 AM - 9:15 AM	12	11	13	8	0	5	8	0	23	21	5	8	57
8:30 AM - 9:30 AM	8	10	13	8	0	4	9	0	18	21	4	9	52
8:45 AM - 9:45 AM	5	12	10	6	0	4	12	0	17	16	4	12	49
9:00 AM - 10:00 AM	7	10	5	6	0	2	11	0	17	11	2	11	41
PM 15 Minute Volumes													
4:00 PM - 4:15 PM	1	1	1	3	2	2		1					
4:15 PM - 4:30 PM	2		7	3	2	3		2					
4:30 PM - 4:45 PM	3	3	5		1			3					
4:45 PM - 5:00 PM		4	5	1		3	5	2					
5:00 PM - 5:15 PM	3	4	4	1		3	4	1					
5:15 PM - 5:30 PM	2	1	3	5	5	1	1	3					
5:30 PM - 5:45 PM			2	6	1			2					
5:45 PM - 6:00 PM	2	7	3				7	4					
6:00 PM - 6:15 PM			1	2			4						
6:15 PM - 6:30 PM	1	1	3	3				1					
6:30 PM - 6:45 PM			6	2				3					
6:45 PM - 7:00 PM	2	3	4	1		1		1					
Total	16	24	44	27	11	13	21	23					
PM One Hour Volumes													
4:00 PM - 5:00 PM	6	8	18	7	5	8	5	8	14	25	13	13	65
4:15 PM - 5:15 PM	8	11	21	5	3	9	9	8	19	26	12	17	74
4:30 PM - 5:30 PM	8	12	17	7	6	7	10	9	20	24	13	19	76
4:45 PM - 5:45 PM	**5**	**9**	**14**	**13**	**6**	**7**	**10**	**8**	**14**	**27**	**13**	**18**	**72**
5:00 PM - 6:00 PM	7	12	12	12	6	4	12	10	19	24	10	22	75
5:15 PM - 6:15 PM	4	8	9	13	6	1	12	9	12	22	7	21	62
5:30 PM - 6:30 PM	3	8	9	11	1	0	11	7	11	20	1	18	50
5:45 PM - 6:45 PM	3	8	13	7	0	0	11	8	11	20	0	19	50
6:00 PM - 7:00 PM	3	4	14	8	0	1	4	5	7	22	1	9	39

Wells + Associates, Inc.

McLean, Virginia

Heavy Vehicle Percentages

PROJECT:	Hill East	**DATE:**	2/4/2016	**SOUTHBOUND ROAD:**	19th Street SE
W+A JOB NO:	6600	**DAY:**	Tuesday	**NORTHBOUND ROAD:**	19th Street SE
INTERSECTION:	19th Street & Massachusetts Ave.	**WEATHER:**	clear	**WESTBOUND ROAD:**	Massachusetts Avenue SE
LOCATION:	Washington,DC	**COUNTED BY:**	Tyler & Austin	**EASTBOUND ROAD:**	Massachusetts Avenue SE
		INPUTED BY:	agan		

Time Period	Eastbound Massachusetts Avenue SE				Westbound Massachusetts Avenue SE				Northbound 19th Street SE				Southbound 19th Street SE			
	Left	Thru	Right	Total	Left	Thru	Right	Total	Left	Thru	Right	Total	Left	Thru	Right	Total
AM One Hour Heavy Vehicle Percentages																
7:00 AM - 8:00 AM	0%	32%		28%		30%	38%	34%	0%	7%	15%	9%				
7:15 AM - 8:15 AM	29%	31%		31%		29%	46%	37%	0%	9%	19%	11%				
7:30 AM - 8:30 AM	**22%**	**31%**		**30%**		**30%**	**39%**	**35%**	**0%**	**10%**	**20%**	**11%**				
7:45 AM - 8:45 AM	22%	27%		26%		21%	47%	33%	0%	11%	21%	12%				
8:00 AM - 9:00 AM	22%	20%		20%		20%	39%	28%	0%	11%	19%	12%				
8:15 AM - 9:15 AM	0%	23%		19%		28%	32%	29%	0%	10%	15%	10%				
8:30 AM - 9:30 AM	0%	23%		20%		29%	38%	33%	0%	9%	16%	10%				
8:45 AM - 9:45 AM	0%	23%		20%		41%	37%	39%	0%	9%	14%	9%				
9:00 AM - 10:00 AM	14%	27%		26%		43%	37%	40%	0%	9%	16%	9%				
PM One Hour Heavy Vehicle Percentages																
4:00 PM - 5:00 PM	3%	38%		25%		18%	13%	15%	17%	6%	15%	7%				
4:15 PM - 5:15 PM	3%	31%		20%		15%	18%	16%	20%	5%	19%	6%				
4:30 PM - 5:30 PM	0%	26%		15%		12%	16%	13%	0%	5%	17%	6%				
4:45 PM - 5:45 PM	**0%**	**25%**		**16%**		**13%**	**19%**	**15%**	**0%**	**5%**	**17%**	**6%**				
5:00 PM - 6:00 PM	0%	16%		12%		9%	25%	16%	0%	5%	17%	6%				
5:15 PM - 6:15 PM	0%	12%		8%		9%	22%	15%	0%	4%	14%	5%				
5:30 PM - 6:30 PM	0%	13%		9%		9%	21%	14%	0%	4%	16%	5%				
5:45 PM - 6:45 PM	0%	19%		13%		14%	24%	18%	0%	3%	17%	4%				
6:00 PM - 7:00 PM	0%	20%		14%		13%	21%	16%	0%	3%	16%	3%				

APPENDIX C

Existing Signal Timings

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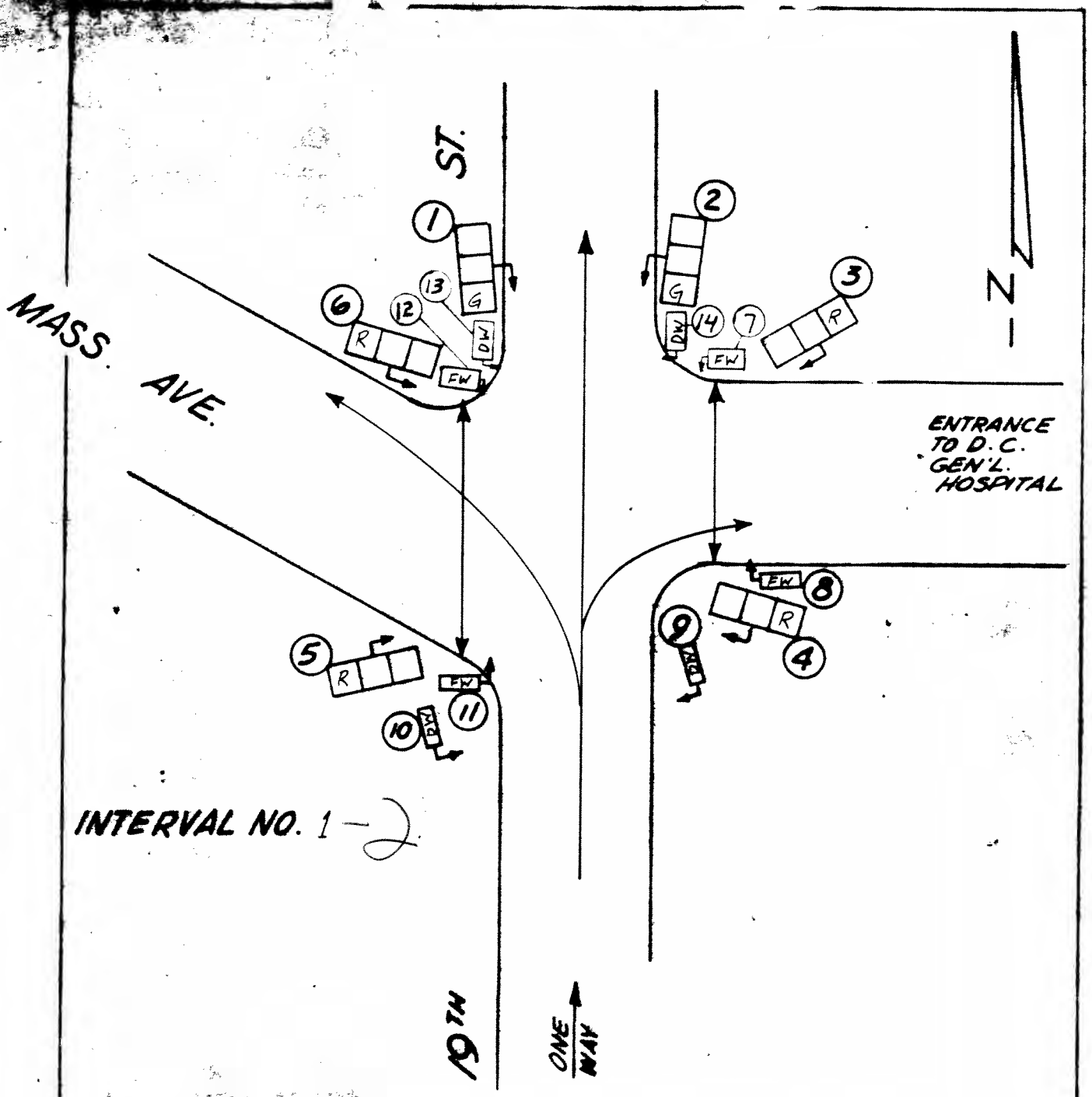
TIMING PLAN SCHEDULE			TS- 1227-A	19TH STREET AND MASSACHUSETTS AVENUE S.E. LOCATION		
PLAN	PERIOD	DATE	DEPARTMENT OF PUBLIC WORKS WASHINGTON, D.C. BUREAU OF TRAFFIC SERVICES	S-DRAWING NO:	SHEET:	1
1	OFF PEAK - 65					
2	AM PEAK - 80					
3	PM PEAK - 80					
4	OFF PEAK - 100					
5	AM PEAK - 100					
6	PM PEAK - 100					
7	AM PEAK - 120					
8	PM PEAK - 120					

CONTROLLER	ISNUM	ACISA
170	744	4056

Int. Sketch

DESCRIPTION (INTERSECTION / STREET / DIRECTION)	INTERVAL TYPE	INTERVAL NUMBER	TIMING PLAN NUMBER 1 S	1 C	2 S	2 C	3 S	3 C	4 S	4 C	5 S	5 C	6 S	6 C	7 S	7 C	8 S	8 C	S	C	S	C
19TH STREET GREEN + FW	F	1	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10				
19TH STREET GREEN + FW	V	2	9	(19)	16	(26)	22	(32)	39	(49)	26	(36)	32	(42)	36	(46)	42	(52)				
19TH STREET GREEN + FDW	F	3	8	27	8	34	8	40	8	57	8	44	8	50	8	54	8	60				
19TH STREET YELLOW + DW	F	4	4	31	4	38	4	44	4	61	4	48	4	54	4	58	4	64				
MASSACHUSETTS AVE. GREEN + FW(NS), W(SS)	F	5	10	41	10	48	10	54	10	71	10	58	10	64	10	68	10	74				
MASSACHUSETTS AVE. GREEN + FW(NS), W(SS)	V	6	12	(53)	20	(68)	14	(68)	17	(88)	30	(88)	24	(88)	40	(108)	34	(108)				
MASSACHUSETTS AVE. GREEN + FDW(NS, SS)	F	7	8	61	8	76	8	76	8	96	8	96	8	96	8	116	8	116				
MASSACHUSETTS AVE. YELLOW + DW(NS, SS)	F	8	4	65	4	80	4	80	4	100	4	100	4	100	4	120	4	120				
CYCLE LENGTH			65		80		80		100		100		100		120		120					
OFFSET			33		78		64		49		57		64		101		64					
PREPARED BY:			W.W.M.		W.W.M.		W.W.M.		BY		BY		BY		BY		BY					
DATE TO SHOP:			7/8/87		7/8/87		7/8/87		4/22/04		4/22/04		4/22/04		4/22/04		4/22/04					
WORK OR SHOP ORDER NO.									S04-04-17		S04-04-17		S04-04-17		S04-04-17		S04-04-17					
APPROVED BY:			R.A.		R.A.		R.A.		WWM		WWM		WWM		WWM		WWM					
DATE INSTALLED:									5/18/04		5/18/04		5/18/04		5/18/04		5/18/04					
INSTALLED BY:									NJ		NJ		NJ		NJ		NJ					

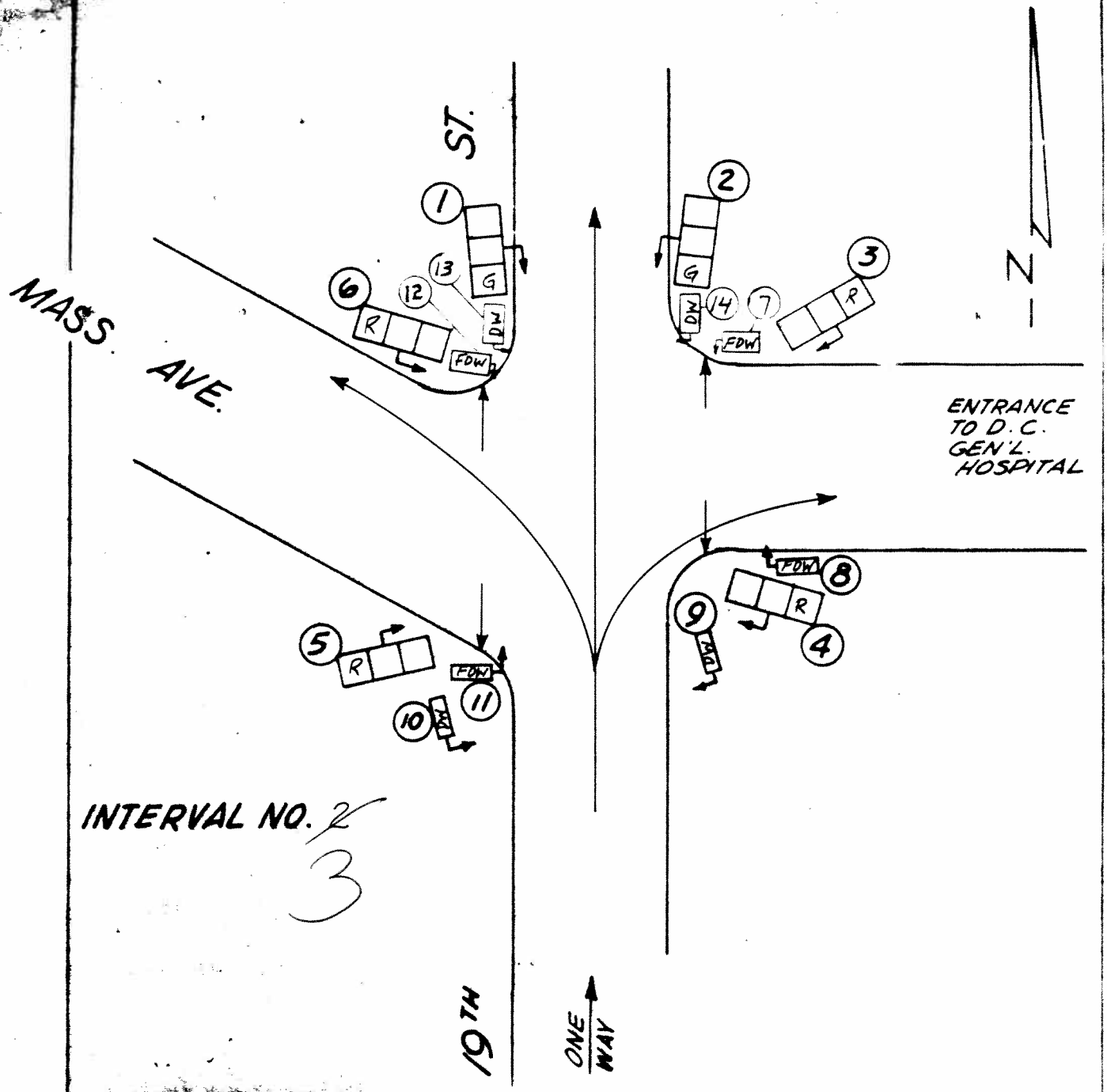
S=Seconds C=Cummulative secs F=Fixed interval V=Variable Interval ◯ = Force Off (circle the interval)



SIGNAL OPERATION

19TH STREET and MASSACHUSETTS AVENUE, S.E.

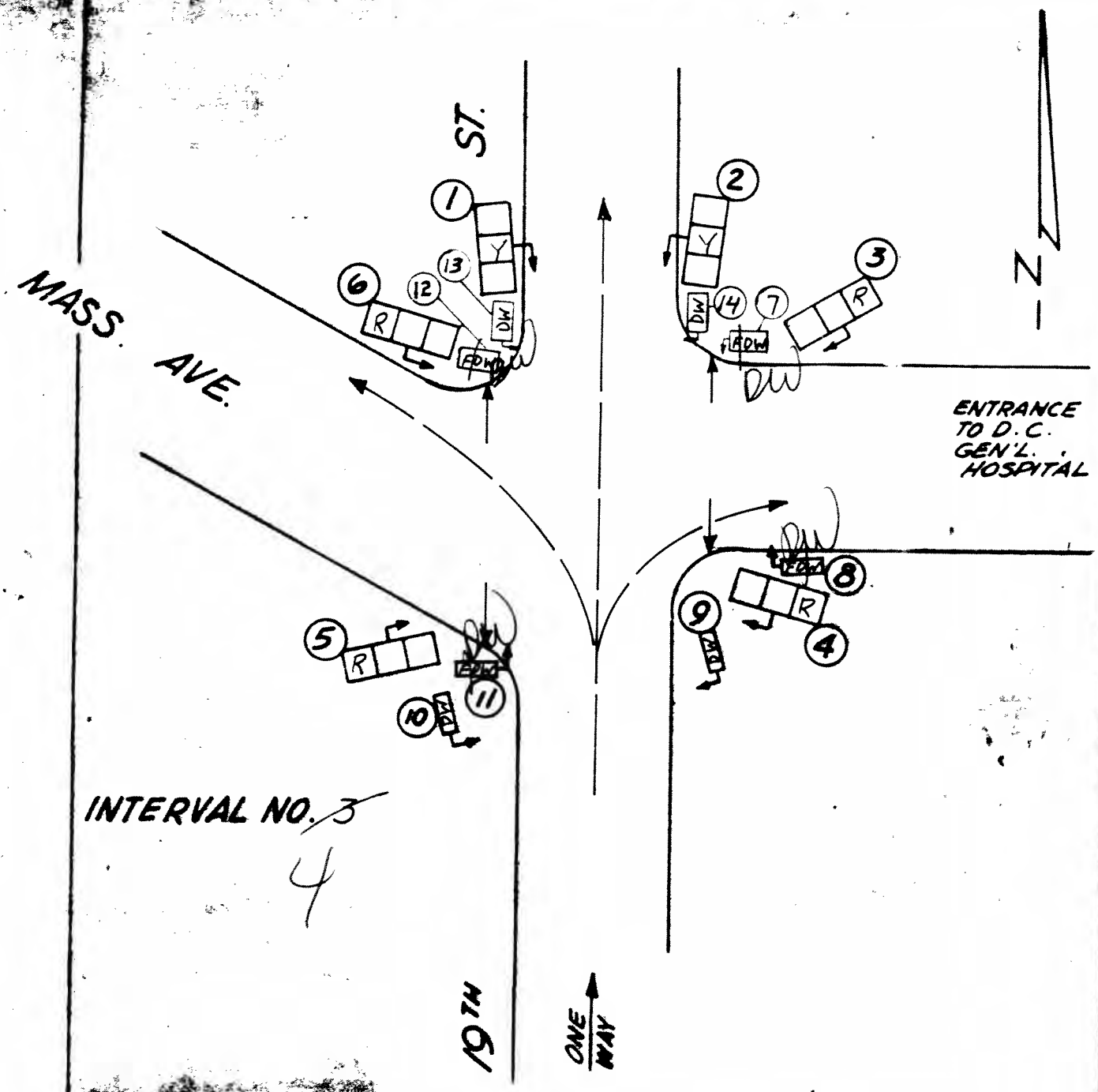
DEPARTMENT OF HIGHWAYS & TRAFFIC, D. C. BUREAU OF TRAFFIC ENGINEERING & OPERATIONS	Submitted Traffic Signal Engineer	T. S. 1227A
Designed by Checked by: LC Montgomery Date 6-13-74	Recommended Traffic Control Engineer	
Drawn by: Date: In Service: 2-21-78 Scale: NONE	Approved Traffic Operations Engineer	Sheet 1 of 6



SIGNAL OPERATION

19TH STREET and MASSACHUSETTS AVENUE, S.E.

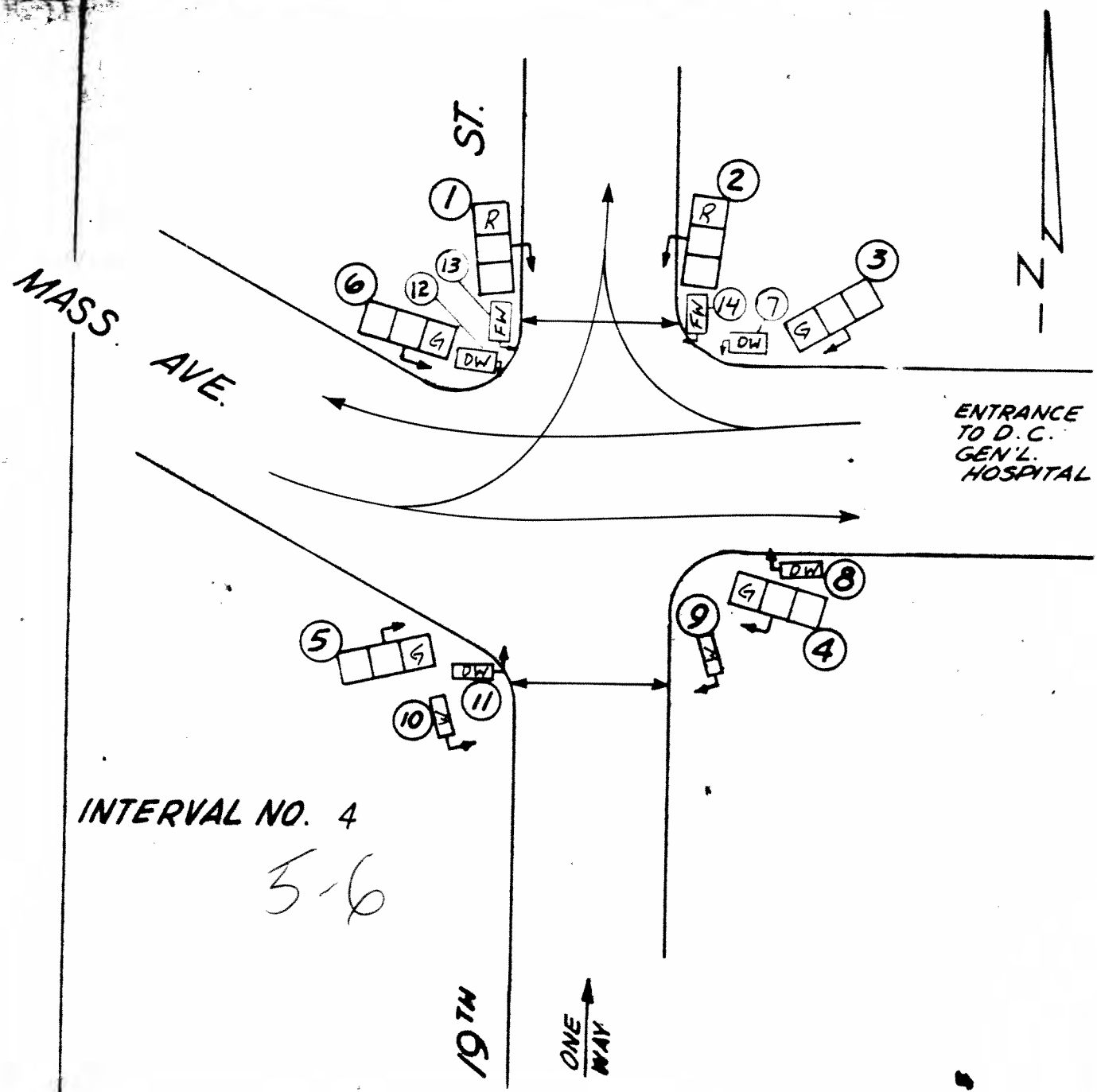
DEPARTMENT OF HIGHWAYS & TRAFFIC, D. C. BUREAU OF TRAFFIC ENGINEERING & OPERATIONS	Submitted Traffic Signal Engineer	T. S. 1227A
Designed by	Recommended Traffic Control Engineer	
Checked by Date		
Drawn by Date	Approved Traffic Operations Engineer	Sheet 2 of 6
In Service Scale NONE		



SIGNAL OPERATION

19TH STREET and MASSACHUSETTS AVENUE, S.E.

DEPARTMENT OF HIGHWAYS & TRAFFIC, D. C. BUREAU OF TRAFFIC ENGINEERING & OPERATIONS	Submitted Traffic Signal Engineer	T. S. 1227A
Designed by	Recommended Traffic Control Engineer	
Checked by: Date	Approved Traffic Operations Engineer	Sheet 3 of 6
Scale: NONE		



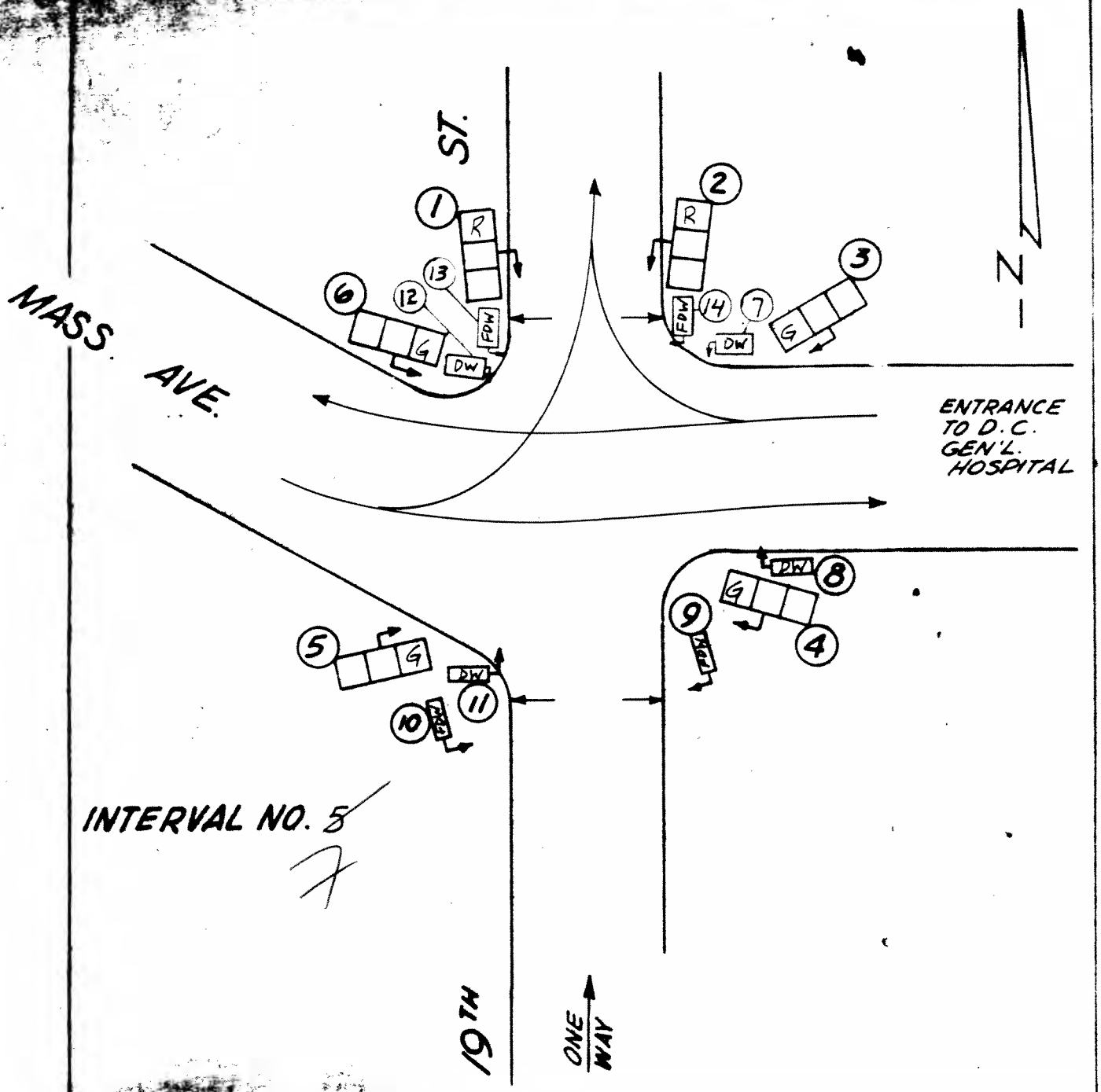
INTERVAL NO. 4

5-6

SIGNAL OPERATION

19TH STREET and MASSACHUSETTS AVENUE, S.E.

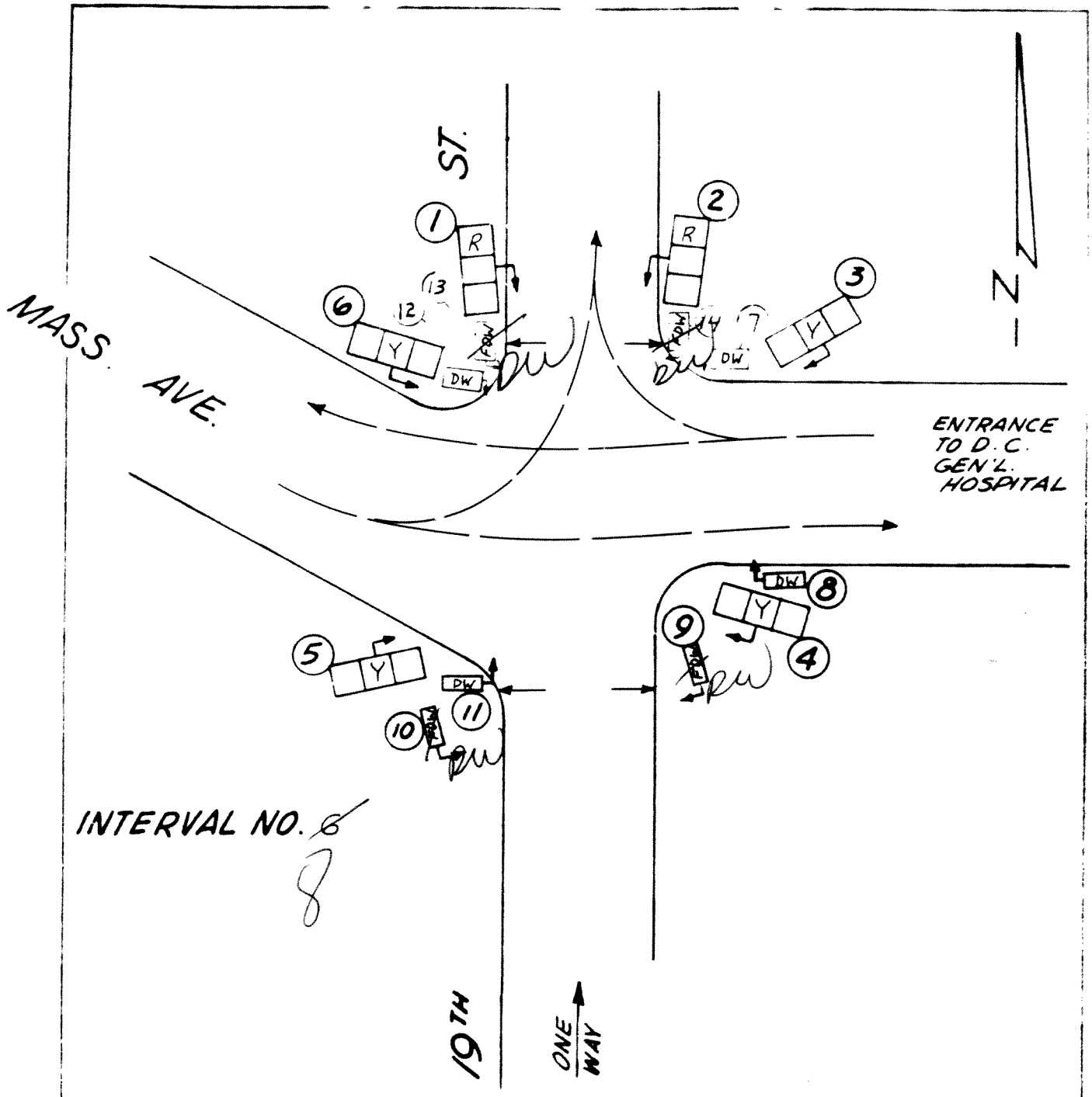
DEPARTMENT OF HIGHWAYS & TRAFFIC, D. C. BUREAU OF TRAFFIC ENGINEERING & OPERATIONS	Submitted Traffic Signal Engineer	T. S. 1227A
Designed by	Recommended Traffic Control Engineer	
Checked by: Date		
Drawn by Date	Approved Traffic Operations Engineer	Sheet 4 of 6
In Service Scale NONE		



SIGNAL OPERATION

19TH STREET and MASSACHUSETTS AVENUE, S.E.

DEPARTMENT OF HIGHWAYS & TRAFFIC, D. C. BUREAU OF TRAFFIC ENGINEERING & OPERATIONS		Submitted Traffic Signal Engineer	T. S. 1227A
Designed by		Recommended Traffic Control Engineer	
Checked by	Date		
Signed by	Date	Approved Traffic Operations Engineer	Sheet 5 of 6
In Service	Scale NONE		

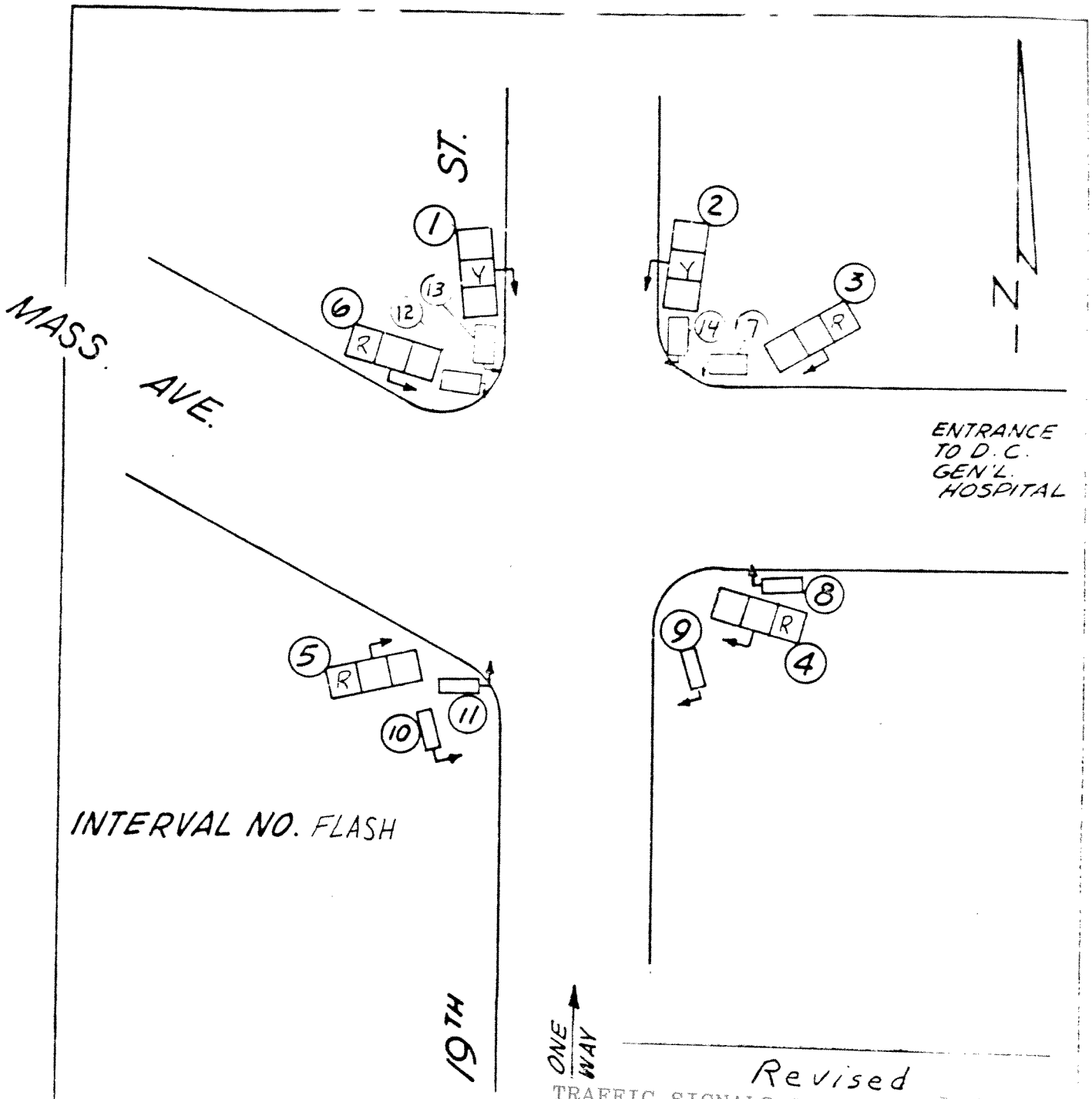


INTERVAL NO. 6
8

SIGNAL OPERATION

19TH STREET and MASSACHUSETTS AVENUE, S.E.

DEPARTMENT OF HIGHWAYS & TRAFFIC, D C BUREAU OF TRAFFIC ENGINEERING & OPERATIONS		Submitted Traffic Signal Engineer	T S 1227A
Designed by,		Recommended Traffic Control Engineer	
Checked by	Date		
Drawn by	Date	Approved Traffic Operations Engineer	Sheet 6 of 6
In Service	Scale NONE		



Revised
TRAFFIC SIGNALS OPERATE ON COLOR 24 HOURS PER DAY, FLASHING RED TO ALL DIRECTIONS ONLY DURING EMERGENCY CONDITIONS.
REVISED ON 10/1/90

SIGNAL OPERATION

19TH STREET and MASSACHUSETTS AVENUE, S.E.

DEPARTMENT OF HIGHWAYS & TRAFFIC, D.C. BUREAU OF TRAFFIC ENGINEERING & OPERATIONS		Submitted Traffic Engineer	T.S. 1227A
Designed by		Recommended Traffic Control Engineer	
Checked by	Date		
Drawn by	Date	Approved Traffic Operations Engineer	Sheet FLASH of
In Service	Scale NONE		

APPENDIX D

LOS Descriptions

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Level of Service Criteria for Signalized Intersections

Level of service for signalized intersections is defined in terms of delay, which is a measure of driver discomfort and frustration, fuel consumption, and lost travel time. Specifically, level-of-service (LOS) criteria are stated in terms of the average stopped delay per vehicle for a 15-min analysis period. The criteria are given in Exhibit 16-2. Delay may be measured in the field or estimated using procedures presented later in this chapter. Delay is a complex measure and is dependent on a number of variables, including the quality of progression, the cycle length, the green ratio, and the *v/c* ratio for the lane group in question.

LOS A describes operations with very low delay, up to 10 sec per vehicle. This level of service occurs when progression is extremely favorable and most vehicles arrive during the green phase. Most vehicles do not stop at all. Short cycle lengths may also contribute to low delay.

LOS B describes operations with delay greater than 10 and up to 20 sec per vehicle. This level generally occurs with good progression, short cycle lengths, or both. More vehicles stop than with LOS A, causing higher levels of average delay.

Exhibit 16-2. Level-of-Service Criteria for Signalized Intersections

LEVEL OF SERVICE	STOPPED DELAY PER VEHICLE (SEC)
A	≤10.0
B	> 10.0 and ≤20.0
C	> 20.0 and ≤ 35.0
D	> 35.0 and ≤ 55.0
E	> 55.0 and ≤ 80.0
F	>80.0

LOS C describes operations with delay greater than 20 and up to 35 sec per vehicle. These higher delays may result from fair progression, longer cycle lengths, or both. Individual cycle failures may begin to appear at this level. The number of vehicles stopping is significant at this level, though many still pass through the intersection without stopping.

LOS D describes operations with delay greater than 35 and up to 55 sec per vehicle. At level D, the influence of congestion becomes more noticeable. Longer delays may result from some combination of unfavorable progression, long cycle lengths, or high *v/c* ratios. Many vehicles stop, and the proportion of vehicles not stopping declines. Individual cycle failures are noticeable.

LOS E describes operations with delay greater than 55 and up to 80 sec per vehicle. This level is considered by many agencies to be the limit of acceptable delay. These high delay values generally indicate poor progression, long cycle lengths, and high *v/c* ratios. Individual cycle failures are frequent occurrences.

LOS F describes operations with delay in excess of 80 sec per vehicle. This level, considered to be unacceptable to most drivers, often occurs with oversaturation, that is, when arrival flow rates exceed the capacity of the intersection. It may also occur at high *v/c* ratios below 1.0 with many individual cycle failures. Poor progression and long cycle lengths may also be major contributing causes to such delay levels.

Source: Highway Capacity Manual, 2000. Transportation Research Board, National Research Council

Level of Service Criteria for Stop Sign Controlled Intersections

The level of service criteria are given in Table 17-2. As used here, control delay is defined as the total elapsed time from the time a vehicle stops at the end of the queue until the vehicle departs from the stop line; this time includes the time required for the vehicle to travel from the last-in-queue position to the first-in-queue position, including deceleration of vehicles from free-flow speed to the speed of vehicles in queue.

The average total delay for any particular minor movement is a function of the service rate or capacity of the approach and the degree of saturation. . . .

Table 17-2. Level of Service Criteria for TWSC Intersections

LEVEL OF SERVICE	AVERAGE CONTROL DELAY (sec/veh)
A	≤ 10
B	> 10 and ≤ 15
C	> 15 and ≤ 25
D	> 25 and ≤ 35
E	> 35 and ≤ 50
F	> 50

Average total delay less than 10 sec/veh is defined as Level of Service (LOS) A. Follow-up times of less than 5 sec have been measured when there is no conflicting traffic for a minor street movement, so control delays of less than 10 sec/veh are appropriate for low flow conditions. To remain consistent with the AWSC intersection analysis procedure described later in this chapter, a total delay of 50 sec/veh is assumed as the break point between LOS E and F.

The proposed level of service criteria for TWSC intersections are somewhat different from the criteria used in Chapter 16 for signalized intersections. The primary reason for this difference is that drivers expect different levels of performance from different kinds of transportation facilities. The expectation is that a signalized intersection is designed to carry higher traffic volumes than an unsignalized intersection. Additionally, several driver behavior considerations combine to make delays at signalized intersections less onerous than at unsignalized intersections. For example, drivers at signalized intersections are able to relax during the red interval, where drivers on the minor approaches to unsignalized intersections must remain attentive to the task of identifying acceptable gaps and vehicle conflicts. Also, there is often much more variability in the amount of delay experienced by individual drivers at unsignalized than signalized intersections. For these reasons, it is considered that the total delay threshold for any given level of service is less for an unsignalized intersection than for a signalized intersection. . . .

LOS F exists when there are insufficient gaps of suitable size to allow a side street demand to cross safely through a major street traffic stream. This level of service is generally evident from extremely long total delays experienced by side street traffic and by queueing on the minor approaches. The method, however, is based on a constant critical gap size - that is, the critical gap remains constant, no matter how long the side street motorist waits. LOS F may also appear in the form of side street vehicles' selecting smaller-than-usual gaps. In such cases, safety may be a problem and some disruption to the major traffic stream may result. It is important to note that LOS F may not always result in long queues but may result in adjustments to normal gap acceptance behavior. The latter is more difficult to observe on the field than queueing, which is more obvious.

Source: Highway Capacity Manual, 2000. Transportation Research Board, National Research Council

APPENDIX E

Synchro Results - Existing Conditions

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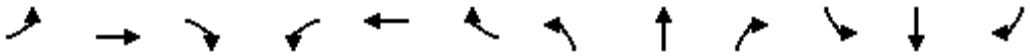
INNOVATION + SOLUTIONS

HCM Unsignalized Intersection Capacity Analysis
1: Burke Street SE & 19th Street SE

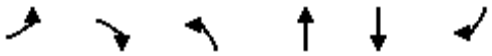
2/10/2016



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	1	0	0	0	0	32	9	572	0	0	0	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.75	0.75	0.75	0.92	0.75	0.75	0.93	0.93	0.93	0.92	0.92	0.92
Hourly flow rate (vph)	1	0	0	0	0	43	10	615	0	0	0	0
Pedestrians		14			21			16			7	
Lane Width (ft)		8.0			12.0			10.0			0.0	
Walking Speed (ft/s)		4.0			4.0			4.0			4.0	
Percent Blockage		1			2			1			0	
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)								573			565	
pX, platoon unblocked												
vC, conflicting volume	391	669	30	671	669	336	14			636		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	391	669	30	671	669	336	14			636		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	8.5	5.0			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	4.1	2.6			2.2		
p0 queue free %	100	100	100	100	100	91	99			100		
cM capacity (veh/h)	482	369	1025	328	369	468	1334			940		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2
Volume Total	1	43	215	410
Volume Left	1	0	10	0
Volume Right	0	43	0	0
cSH	482	468	1334	1700
Volume to Capacity	0.00	0.09	0.01	0.24
Queue Length 95th (ft)	0	7	1	0
Control Delay (s)	12.5	13.5	0.4	0.0
Lane LOS	B	B	A	
Approach Delay (s)	12.5	13.5	0.1	
Approach LOS	B	B		

Intersection Summary				
Average Delay	1.0			
Intersection Capacity Utilization	35.3%	ICU Level of Service	A	
Analysis Period (min)	15			



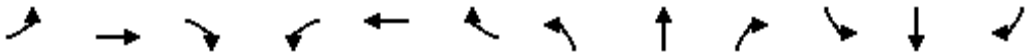
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	29	0	4	553	0	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.75	0.92	0.90	0.90	0.92	0.92
Hourly flow rate (vph)	39	0	4	614	0	0
Pedestrians	2			5	67	
Lane Width (ft)	11.0			10.0	0.0	
Walking Speed (ft/s)	4.0			4.0	4.0	
Percent Blockage	0			0	0	
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)				283	855	
pX, platoon unblocked	0.88					
vC, conflicting volume	385	7	2			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	45	7	2			
tC, single (s)	6.9	6.9	5.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.7			
p0 queue free %	95	100	100			
cM capacity (veh/h)	843	1074	1329			

Direction, Lane #	EB 1	NB 1	NB 2
Volume Total	39	209	410
Volume Left	39	4	0
Volume Right	0	0	0
cSH	843	1329	1700
Volume to Capacity	0.05	0.00	0.24
Queue Length 95th (ft)	4	0	0
Control Delay (s)	9.5	0.2	0.0
Lane LOS	A	A	
Approach Delay (s)	9.5	0.1	
Approach LOS	A		

Intersection Summary			
Average Delay	0.6		
Intersection Capacity Utilization	31.6%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBT	WBT	NBT
Lane Group Flow (vph)	60	100	657
v/c Ratio	0.12	0.17	0.60
Control Delay	15.2	8.9	23.3
Queue Delay	0.0	0.0	0.0
Total Delay	15.2	8.9	23.3
Queue Length 50th (ft)	20	17	157
Queue Length 95th (ft)	44	37	217
Internal Link Dist (ft)	444	505	94
Turn Bay Length (ft)			
Base Capacity (vph)	515	589	1104
Starvation Cap Reductn	0	0	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.12	0.17	0.60

Intersection Summary



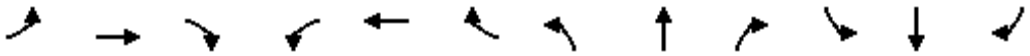
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	9	45	0	0	40	38	10	518	76	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	10	10	10	12	12	12
Total Lost time (s)		4.0			4.0			4.0				
Lane Util. Factor		1.00			1.00			0.95				
Frpb, ped/bikes		1.00			0.99			0.99				
Flpb, ped/bikes		1.00			1.00			1.00				
Frt		1.00			0.93			0.98				
Flt Protected		0.99			1.00			1.00				
Satd. Flow (prot)		1101			1174			2484				
Flt Permitted		0.97			1.00			1.00				
Satd. Flow (perm)		1074			1174			2484				
Peak-hour factor, PHF	0.90	0.90	0.90	0.78	0.78	0.78	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	10	50	0	0	51	49	11	563	83	0	0	0
RTOR Reduction (vph)	0	0	0	0	25	0	0	11	0	0	0	0
Lane Group Flow (vph)	0	60	0	0	75	0	0	646	0	0	0	0
Confl. Peds. (#/hr)	19		15	15		19	15		30			
Confl. Bikes (#/hr)									1			
Heavy Vehicles (%)	22%	31%	0%	0%	30%	39%	0%	10%	20%	0%	0%	0%
Bus Blockages (#/hr)	8	8	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)	6	6					6	6				
Turn Type	Perm						Perm					
Protected Phases		4			8			2				
Permitted Phases	4						2					
Actuated Green, G (s)		48.0			48.0			44.0				
Effective Green, g (s)		48.0			48.0			44.0				
Actuated g/C Ratio		0.48			0.48			0.44				
Clearance Time (s)		4.0			4.0			4.0				
Lane Grp Cap (vph)		516			564			1093				
v/s Ratio Prot					c0.06							
v/s Ratio Perm		0.06						0.26				
v/c Ratio		0.12			0.13			0.59				
Uniform Delay, d1		14.3			14.4			21.2				
Progression Factor		1.00			1.00			1.00				
Incremental Delay, d2		0.5			0.5			2.3				
Delay (s)		14.8			14.9			23.5				
Level of Service		B			B			C				
Approach Delay (s)		14.8			14.9			23.5			0.0	
Approach LOS		B			B			C			A	

Intersection Summary			
HCM Average Control Delay	21.8	HCM Level of Service	C
HCM Volume to Capacity ratio	0.35		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	83.3%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis
1: Burke Street SE & 19th Street SE

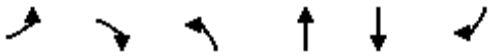
2/10/2016



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	7	0	0	0	0	0	6	1008	0	0	0	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.75	0.75	0.75	0.92	0.92	0.92	0.87	0.87	0.87	0.92	0.92	0.92
Hourly flow rate (vph)	9	0	0	0	0	0	7	1159	0	0	0	0
Pedestrians		16			15			111			2	
Lane Width (ft)		8.0			12.0			10.0			0.0	
Walking Speed (ft/s)		4.0			4.0			4.0			4.0	
Percent Blockage		1			1			8			0	
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)								573			565	
pX, platoon unblocked												
vC, conflicting volume	418	1203	127	1298	1203	403	16			1174		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	418	1203	127	1298	1203	403	16			1174		
tC, single (s)	7.8	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.6	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	98	100	100	100	100	100	100			100		
cM capacity (veh/h)	478	181	829	108	181	595	1600			595		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	NB 3
Volume Total	9	0	239	463	463
Volume Left	9	0	7	0	0
Volume Right	0	0	0	0	0
cSH	478	1700	1600	1700	1700
Volume to Capacity	0.02	0.00	0.00	0.27	0.27
Queue Length 95th (ft)	1	0	0	0	0
Control Delay (s)	12.7	0.0	0.2	0.0	0.0
Lane LOS	B	A	A		
Approach Delay (s)	12.7	0.0	0.1		
Approach LOS	B	A			

Intersection Summary				
Average Delay	0.2			
Intersection Capacity Utilization	37.1%	ICU Level of Service	A	
Analysis Period (min)	15			



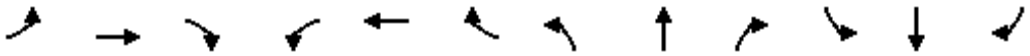
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	59	0	8	930	0	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.82	0.82	0.88	0.88	0.92	0.92
Hourly flow rate (vph)	72	0	9	1057	0	0
Pedestrians	7			6	52	
Lane Width (ft)	11.0			10.0	0.0	
Walking Speed (ft/s)	4.0			4.0	4.0	
Percent Blockage	1			0	0	
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)				283	855	
pX, platoon unblocked	0.75					
vC, conflicting volume	606	13	7			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	0	13	7			
tC, single (s)	6.9	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	90	100	99			
cM capacity (veh/h)	753	1060	1618			

Direction, Lane #	EB 1	NB 1	NB 2
Volume Total	72	361	705
Volume Left	72	9	0
Volume Right	0	0	0
cSH	753	1618	1700
Volume to Capacity	0.10	0.01	0.41
Queue Length 95th (ft)	8	0	0
Control Delay (s)	10.3	0.2	0.0
Lane LOS	B	A	
Approach Delay (s)	10.3	0.1	
Approach LOS	B		

Intersection Summary			
Average Delay	0.7		
Intersection Capacity Utilization	44.2%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBT	WBT	NBT
Lane Group Flow (vph)	104	201	975
v/c Ratio	0.23	0.33	0.73
Control Delay	20.4	16.7	23.5
Queue Delay	0.0	0.0	0.0
Total Delay	20.4	16.7	23.5
Queue Length 50th (ft)	42	64	245
Queue Length 95th (ft)	67	91	325
Internal Link Dist (ft)	444	505	94
Turn Bay Length (ft)			
Base Capacity (vph)	451	610	1338
Starvation Cap Reductn	0	0	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.23	0.33	0.73

Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	28	52	0	0	88	63	1	845	41	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	10	10	10	12	12	12
Total Lost time (s)		4.0			4.0			4.0				
Lane Util. Factor		1.00			1.00			0.95				
Frpb, ped/bikes		1.00			0.99			1.00				
Flpb, ped/bikes		1.00			1.00			1.00				
Frt		1.00			0.94			0.99				
Flt Protected		0.98			1.00			1.00				
Satd. Flow (prot)		1214			1389			2668				
Flt Permitted		0.87			1.00			1.00				
Satd. Flow (perm)		1073			1389			2668				
Peak-hour factor, PHF	0.77	0.77	0.77	0.75	0.75	0.75	0.91	0.91	0.91	0.92	0.92	0.92
Adj. Flow (vph)	36	68	0	0	117	84	1	929	45	0	0	0
RTOR Reduction (vph)	0	0	0	0	26	0	0	4	0	0	0	0
Lane Group Flow (vph)	0	104	0	0	175	0	0	972	0	0	0	0
Confl. Peds. (#/hr)	14		13	13		14	18		27	27		18
Heavy Vehicles (%)	0%	25%	0%	0%	13%	18%	0%	5%	12%	0%	0%	0%
Bus Blockages (#/hr)	8	8	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)	6	6					6	6				
Turn Type	Perm						Perm					
Protected Phases		4			8			2				
Permitted Phases	4						2					
Actuated Green, G (s)		42.0			42.0			50.0				
Effective Green, g (s)		42.0			42.0			50.0				
Actuated g/C Ratio		0.42			0.42			0.50				
Clearance Time (s)		4.0			4.0			4.0				
Lane Grp Cap (vph)		451			583			1334				
v/s Ratio Prot					c0.13							
v/s Ratio Perm		0.10						0.36				
v/c Ratio		0.23			0.30			0.73				
Uniform Delay, d1		18.6			19.2			19.7				
Progression Factor		1.00			1.00			1.00				
Incremental Delay, d2		1.2			1.3			3.5				
Delay (s)		19.8			20.6			23.2				
Level of Service		B			C			C				
Approach Delay (s)		19.8			20.6			23.2			0.0	
Approach LOS		B			C			C			A	

Intersection Summary			
HCM Average Control Delay	22.5	HCM Level of Service	C
HCM Volume to Capacity ratio	0.53		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	83.3%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

APPENDIX F

Crash Data

Transportation Consultants
INNOVATION + SOLUTIONS

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2/11/2016 2:40:20 PM

List of Query Results

Complaint Number	Accident Date	Time	Week Day	Accident Occured On	Side Street	Quad	Type of Collision	On Street	Off Street	# of Inj	# of Ped	# of Veh	Road Surface	Lighting Condition
12115112	8/15/2012	1820	Wed	NINTEENTH ST	BURKE ST	SE	Side Swiped	Within 100ft	N/A	0	0	2	Asphalt	Daylight
12162297	11/18/2012	0419	Sun	NINTEENTH ST	BURKE ST	SE	Parked Vehicle	Within 100ft	N/A	1	0	2	Concrete	Dark (Lighted)

2 accidents(0 not approved) listed in this query result.

Created by admin TARAS

2/11/2016 2:41:08 PM

List of Query Results

Complaint Number	Accident Date	Time	Week Day	Accident Occured On	Side Street	Quad	Type of Collision	On Street	Off Street	# of Inj	# of Ped	# of Veh	Road Surface	Lighting Condition
12047920	4/8/2012	1348	Sun	NINTEENTH ST	C ST	SE	Parked Vehicle	At Intersect	N/A	1	0	2	Asphalt	Daylight
12053169	4/19/2012	1454	Thu	NINTEENTH ST	C ST	SE	Side Swiped	Within 100ft	N/A	1	0	2	Asphalt	Daylight
13117759	8/19/2013	1335	Mon	NINTEENTH ST	C ST	SE	Left Turn Hit Veh.	Within 100ft	N/A	0	0	2		Daylight

3 accidents(0 not approved) listed in this query result.

List of Query Results

Created by admin TARAS
2/11/2016 2:41:52 PM

Complaint Number	Accident Date	Time	Week Day	Accident Occured On	Side Street	Quad	Type of Collision	On Street	Off Street	# of Inj	# of Ped	# of Veh	Road Surface	Lighting Condition
12018165	2/6/2012	0940	Mon	MASSACHUSETTS AVE	NINTEENTH ST	SE	Back Hit Parked Veh.	Not at Inter	N/A	0	0	2	Asphalt	Daylight
12018584	2/7/2012	0800	Tue	NINTEENTH ST	MASSACHUSETTS AVE	SE	Left Turn Hit Veh.	Within 100ft	N/A	0	0	2	Asphalt	Daylight
12053776	4/20/2012	1620	Fri	MASSACHUSETTS AVE	NINTEENTH ST	SE	Side Swiped	Private Prop	Private	0	0	2	Asphalt	Daylight
12054451	4/21/2012	1800	Sat	MASSACHUSETTS AVE	NINTEENTH ST	SE	Other	N/A	Public	0	0	1	Concrete	Daylight
12172519	12/10/2012	0044	Mon	MASSACHUSETTS AVE	NINTEENTH ST	SE	Back Hit Parked Veh.	Private Prop	Private	0	0	2	Asphalt	Dark (Lighted)
13016415	2/6/2013	1125	Wed	NINTEENTH ST	MASSACHUSETTS AVE	SE	Left Turn Hit Veh.	Private Prop	N/A	0	0	1	Asphalt	Daylight
13054296	4/25/2013	1715	Thu	NINTEENTH ST	MASSACHUSETTS AVE	SE	Left Turn Hit Ped.	At Intersect	N/A	1	1	1	Asphalt	Daylight
13075083	6/3/2013	1734	Mon	MASSACHUSETTS AVE	NINTEENTH ST	SE	Left Turn Hit Veh.	At Intersect	N/A	3	0	2	Asphalt	Daylight
13088369	6/27/2013	1600	Thu	NINTEENTH ST	MASSACHUSETTS AVE	SE	Left Turn Hit Veh.	At Intersect	N/A	1	0	2	Asphalt	Daylight
13091100	7/2/2013	1045	Tue	MASSACHUSETTS AVE	NINTEENTH ST	SE	Underride	N/A	Private	0	0	1	Asphalt	Daylight
13100706	7/19/2013	1350	Fri	MASSACHUSETTS AVE	NINTEENTH ST	SE	Right Turn Hit Veh.	N/A	Private	0	0	2	Asphalt	Daylight
13104513	7/26/2013	0800	Fri	MASSACHUSETTS AVE	NINTEENTH ST	SE	Back Hit Parked Veh.	Private Prop	Private	0	0	2	Asphalt	Daylight
13111780	8/8/2013	1133	Thu	MASSACHUSETTS AVE	NINTEENTH ST	SE	Side Swiped	Not at Inter	N/A	0	0	2	Asphalt	Daylight
13114523	8/13/2013	0329	Tue	MASSACHUSETTS AVE	NINTEENTH ST	SE	Back Hit Parked Veh.	Private Prop	Private	0	0	2	Asphalt	Daylight
13127426	9/6/2013	1820	Fri	MASSACHUSETTS AVE	NINTEENTH ST	SE	Left Turn Hit Veh.	Other	N/A	1	1	1	Asphalt	Daylight
13192532	9/10/2013	1730	Tue	MASSACHUSETTS AVE	NINTEENTH ST	SE	Side Swiped	Private Prop	Private	0	0	2	Asphalt	Daylight
14007123	1/15/2014	1639	Wed	MASSACHUSETTS AVE	NINTEENTH ST	SE	Side Swiped	Not at Inter	Private	2	0	2	Concrete	Daylight
14010860	1/23/2014	0915	Thu	MASSACHUSETTS AVE	NINTEENTH ST	SE	Side Swiped	Private Prop	Private	0	0	2	Concrete	Daylight
14014091	1/30/2014	0703	Thu	MASSACHUSETTS AVE	NINTEENTH ST	SE	Back Hit Parked Veh.	N/A	Private	0	0	2	Asphalt	Daylight
14022571	2/17/2014	1003	Mon	MASSACHUSETTS AVE	NINTEENTH ST	SE	Rear End	Within 100ft	Private	0	0	2	Asphalt	Daylight
14034464	3/13/2014	1030	Thu	MASSACHUSETTS AVE	NINTEENTH ST	SE	Back Hit Parked Veh.	Private Prop	Public	0	0	2	Concrete	Daylight
14040487	3/25/2014	0901	Tue	NINTEENTH ST	MASSACHUSETTS AVE	SE	Left Turn Hit Veh.	At Intersect	N/A	1	0	2	Asphalt	Daylight
14118214	8/7/2014	1303	Thu	MASSACHUSETTS AVE	NINTEENTH ST	SE	Back Hit Ped.	Private Prop	Public	1	1	1	Asphalt	Daylight
14128707	8/25/2014	1418	Mon	MASSACHUSETTS AVE	NINTEENTH ST	SE	Other	N/A	Private	0	0	1	Asphalt	Daylight
14133402	9/2/2014	1505	Tue	MASSACHUSETTS AVE	NINTEENTH ST	SE	Straight Hit Ped.	Private Prop	Private	1	1	1	Asphalt	Daylight
14154862	10/8/2014	1503	Wed	MASSACHUSETTS AVE	NINTEENTH ST	SE	Rear End	N/A	Private	0	0	2	Asphalt	Daylight
14158877	10/15/2014	1501	Wed	MASSACHUSETTS AVE	NINTEENTH ST	SE	Back Hit Parked Veh.	N/A	Private	0	0	2	Asphalt	Daylight

27 accidents(0 not approved) listed in this query result.

APPENDIX G

Private Access Road Cross Sections

Transportation Consultants
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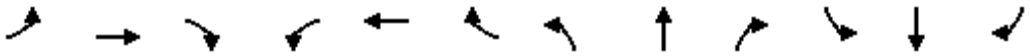
APPENDIX H

Synchro Results - Background Conditions

Transportation Consultants
INNOVATION + SOLUTIONS

HCM Unsignalized Intersection Capacity Analysis
1: Burke Street SE & 19th Street SE

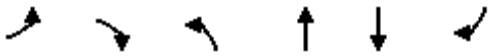
2/11/2016



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	1	0	0	0	0	34	9	601	0	0	0	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.75	0.75	0.75	0.92	0.75	0.75	0.93	0.93	0.93	0.92	0.92	0.92
Hourly flow rate (vph)	1	0	0	0	0	45	10	646	0	0	0	0
Pedestrians		14			21			16			7	
Lane Width (ft)		8.0			12.0			10.0			0.0	
Walking Speed (ft/s)		4.0			4.0			4.0			4.0	
Percent Blockage		1			2			1			0	
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)								573			565	
pX, platoon unblocked	0.93	0.93		0.93	0.93	0.93				0.93		
vC, conflicting volume	409	701	30	703	701	351	14			667		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	222	535	30	537	535	160	14			499		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	8.5	5.0			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	4.1	2.6			2.2		
p0 queue free %	100	100	100	100	100	92	99			100		
cM capacity (veh/h)	601	410	1025	381	410	601	1334			986		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2
Volume Total	1	45	225	431
Volume Left	1	0	10	0
Volume Right	0	45	0	0
cSH	601	601	1334	1700
Volume to Capacity	0.00	0.08	0.01	0.25
Queue Length 95th (ft)	0	6	1	0
Control Delay (s)	11.0	11.5	0.4	0.0
Lane LOS	B	B	A	
Approach Delay (s)	11.0	11.5	0.1	
Approach LOS	B	B		

Intersection Summary				
Average Delay	0.9			
Intersection Capacity Utilization	36.2%	ICU Level of Service	A	
Analysis Period (min)	15			



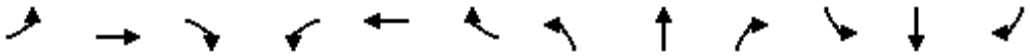
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	30	0	4	581	0	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.75	0.92	0.90	0.90	0.92	0.92
Hourly flow rate (vph)	40	0	4	646	0	0
Pedestrians	2			5	67	
Lane Width (ft)	11.0			10.0	0.0	
Walking Speed (ft/s)	4.0			4.0	4.0	
Percent Blockage	0			0	0	
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)				283	855	
pX, platoon unblocked	0.86					
vC, conflicting volume	401	7	2			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	0	7	2			
tC, single (s)	6.9	6.9	5.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.7			
p0 queue free %	95	100	100			
cM capacity (veh/h)	877	1074	1329			

Direction, Lane #	EB 1	NB 1	NB 2
Volume Total	40	220	430
Volume Left	40	4	0
Volume Right	0	0	0
cSH	877	1329	1700
Volume to Capacity	0.05	0.00	0.25
Queue Length 95th (ft)	4	0	0
Control Delay (s)	9.3	0.2	0.0
Lane LOS	A	A	
Approach Delay (s)	9.3	0.1	
Approach LOS	A		

Intersection Summary			
Average Delay	0.6		
Intersection Capacity Utilization	32.5%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBT	WBT	NBT
Lane Group Flow (vph)	62	105	632
v/c Ratio	0.12	0.18	0.56
Control Delay	15.2	9.0	23.0
Queue Delay	0.0	0.0	0.0
Total Delay	15.2	9.0	23.0
Queue Length 50th (ft)	21	18	152
Queue Length 95th (ft)	46	39	208
Internal Link Dist (ft)	444	505	94
Turn Bay Length (ft)			
Base Capacity (vph)	516	591	1123
Starvation Cap Reductn	0	0	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.12	0.18	0.56

Intersection Summary



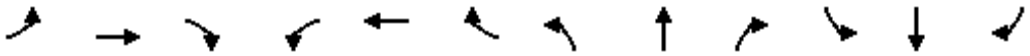
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	9	47	0	0	42	40	11	544	27	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	10	10	10	12	12	12
Total Lost time (s)		4.0			4.0			4.0				
Lane Util. Factor		1.00			1.00			0.95				
Frpb, ped/bikes		1.00			0.99			1.00				
Flpb, ped/bikes		1.00			1.00			1.00				
Frt		1.00			0.93			0.99				
Flt Protected		0.99			1.00			1.00				
Satd. Flow (prot)		1101			1175			2544				
Flt Permitted		0.97			1.00			1.00				
Satd. Flow (perm)		1074			1175			2544				
Peak-hour factor, PHF	0.90	0.90	0.90	0.78	0.78	0.78	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	10	52	0	0	54	51	12	591	29	0	0	0
RTOR Reduction (vph)	0	0	0	0	27	0	0	3	0	0	0	0
Lane Group Flow (vph)	0	62	0	0	78	0	0	629	0	0	0	0
Confl. Peds. (#/hr)	19		15	15		19	15		30			
Confl. Bikes (#/hr)									1			
Heavy Vehicles (%)	22%	31%	0%	0%	30%	39%	0%	10%	20%	0%	0%	0%
Bus Blockages (#/hr)	8	8	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)	6	6					6	6				
Turn Type	Perm						Perm					
Protected Phases		4			8			2				
Permitted Phases	4						2					
Actuated Green, G (s)		48.0			48.0			44.0				
Effective Green, g (s)		48.0			48.0			44.0				
Actuated g/C Ratio		0.48			0.48			0.44				
Clearance Time (s)		4.0			4.0			4.0				
Lane Grp Cap (vph)		516			564			1119				
v/s Ratio Prot					c0.07							
v/s Ratio Perm		0.06						0.25				
v/c Ratio		0.12			0.14			0.56				
Uniform Delay, d1		14.3			14.5			20.8				
Progression Factor		1.00			1.00			1.00				
Incremental Delay, d2		0.5			0.5			2.0				
Delay (s)		14.8			15.0			22.9				
Level of Service		B			B			C				
Approach Delay (s)		14.8			15.0			22.9			0.0	
Approach LOS		B			B			C			A	

Intersection Summary			
HCM Average Control Delay	21.2	HCM Level of Service	C
HCM Volume to Capacity ratio	0.34		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	83.3%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis
1: Burke Street SE & 19th Street SE

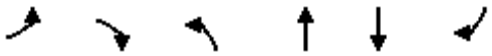
2/11/2016



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	7	0	0	0	0	0	6	1059	0	0	0	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.75	0.75	0.75	0.92	0.92	0.92	0.87	0.87	0.87	0.92	0.92	0.92
Hourly flow rate (vph)	9	0	0	0	0	0	7	1217	0	0	0	0
Pedestrians		16			15			111			2	
Lane Width (ft)		8.0			12.0			10.0			0.0	
Walking Speed (ft/s)		4.0			4.0			4.0			4.0	
Percent Blockage		1			1			8			0	
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)								573			565	
pX, platoon unblocked												
vC, conflicting volume	438	1262	127	1357	1262	423	16			1232		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	438	1262	127	1357	1262	423	16			1232		
tC, single (s)	7.8	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.6	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	98	100	100	100	100	100	100			100		
cM capacity (veh/h)	462	167	829	98	167	578	1600			565		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	NB 3
Volume Total	9	0	250	487	487
Volume Left	9	0	7	0	0
Volume Right	0	0	0	0	0
cSH	462	1700	1600	1700	1700
Volume to Capacity	0.02	0.00	0.00	0.29	0.29
Queue Length 95th (ft)	2	0	0	0	0
Control Delay (s)	13.0	0.0	0.2	0.0	0.0
Lane LOS	B	A	A		
Approach Delay (s)	13.0	0.0	0.0		
Approach LOS	B	A			

Intersection Summary				
Average Delay	0.1			
Intersection Capacity Utilization	38.2%	ICU Level of Service	A	
Analysis Period (min)	15			



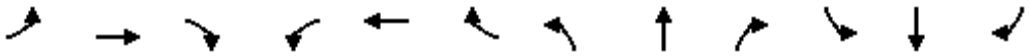
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	62	0	8	977	0	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.82	0.82	0.88	0.88	0.92	0.92
Hourly flow rate (vph)	76	0	9	1110	0	0
Pedestrians	7			6	52	
Lane Width (ft)	11.0			10.0	0.0	
Walking Speed (ft/s)	4.0			4.0	4.0	
Percent Blockage	1			0	0	
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)				283	855	
pX, platoon unblocked	0.72					
vC, conflicting volume	632	13	7			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	0	13	7			
tC, single (s)	6.9	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	90	100	99			
cM capacity (veh/h)	729	1060	1618			

Direction, Lane #	EB 1	NB 1	NB 2
Volume Total	76	379	740
Volume Left	76	9	0
Volume Right	0	0	0
cSH	729	1618	1700
Volume to Capacity	0.10	0.01	0.44
Queue Length 95th (ft)	9	0	0
Control Delay (s)	10.5	0.2	0.0
Lane LOS	B	A	
Approach Delay (s)	10.5	0.1	
Approach LOS	B		

Intersection Summary			
Average Delay	0.7		
Intersection Capacity Utilization	45.8%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBT	WBT	NBT
Lane Group Flow (vph)	109	211	1024
v/c Ratio	0.24	0.35	0.77
Control Delay	20.6	17.3	24.9
Queue Delay	0.0	0.0	0.0
Total Delay	20.6	17.3	24.9
Queue Length 50th (ft)	44	69	265
Queue Length 95th (ft)	70	97	352
Internal Link Dist (ft)	444	505	94
Turn Bay Length (ft)			
Base Capacity (vph)	448	609	1338
Starvation Cap Reductn	0	0	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.24	0.35	0.77

Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	29	55	0	0	92	66	1	888	43	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	10	10	10	12	12	12
Total Lost time (s)		4.0			4.0			4.0				
Lane Util. Factor		1.00			1.00			0.95				
Frpb, ped/bikes		1.00			0.99			1.00				
Flpb, ped/bikes		1.00			1.00			1.00				
Frt		1.00			0.94			0.99				
Flt Protected		0.98			1.00			1.00				
Satd. Flow (prot)		1214			1389			2668				
Flt Permitted		0.86			1.00			1.00				
Satd. Flow (perm)		1066			1389			2668				
Peak-hour factor, PHF	0.77	0.77	0.77	0.75	0.75	0.75	0.91	0.91	0.91	0.92	0.92	0.92
Adj. Flow (vph)	38	71	0	0	123	88	1	976	47	0	0	0
RTOR Reduction (vph)	0	0	0	0	26	0	0	4	0	0	0	0
Lane Group Flow (vph)	0	109	0	0	185	0	0	1021	0	0	0	0
Confl. Peds. (#/hr)	14		13	13		14	18		27	27		18
Heavy Vehicles (%)	0%	25%	0%	0%	13%	18%	0%	5%	12%	0%	0%	0%
Bus Blockages (#/hr)	8	8	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)	6	6					6	6				
Turn Type	Perm						Perm					
Protected Phases		4			8			2				
Permitted Phases	4						2					
Actuated Green, G (s)		42.0			42.0			50.0				
Effective Green, g (s)		42.0			42.0			50.0				
Actuated g/C Ratio		0.42			0.42			0.50				
Clearance Time (s)		4.0			4.0			4.0				
Lane Grp Cap (vph)		448			583			1334				
v/s Ratio Prot					c0.13							
v/s Ratio Perm		0.10						0.38				
v/c Ratio		0.24			0.32			0.76				
Uniform Delay, d1		18.7			19.4			20.2				
Progression Factor		1.00			1.00			1.00				
Incremental Delay, d2		1.3			1.4			4.2				
Delay (s)		20.0			20.8			24.5				
Level of Service		C			C			C				
Approach Delay (s)		20.0			20.8			24.5			0.0	
Approach LOS		C			C			C			A	

Intersection Summary			
HCM Average Control Delay	23.5	HCM Level of Service	C
HCM Volume to Capacity ratio	0.56		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	83.3%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

APPENDIX I

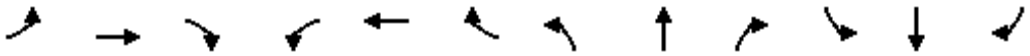
Synchro Results - Total Future Conditions

Transportation Consultants
INNOVATION + SOLUTIONS

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	1	0	0	0	1	42	9	621	10	0	0	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.75	0.75	0.75	0.92	0.75	0.75	0.93	0.93	0.93	0.92	0.92	0.92
Hourly flow rate (vph)	1	0	0	0	1	56	10	668	11	0	0	0
Pedestrians		14			21			16			7	
Lane Width (ft)		8.0			12.0			10.0			0.0	
Walking Speed (ft/s)		4.0			4.0			4.0			4.0	
Percent Blockage		1			2			1			0	
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)								573			565	
pX, platoon unblocked	0.94	0.94		0.94	0.94	0.94				0.94		
vC, conflicting volume	431	733	30	729	727	367	14			699		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	280	599	30	596	594	212	14			564		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	8.5	5.0			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	4.1	2.6			2.2		
p0 queue free %	100	100	100	100	100	90	99			100		
cM capacity (veh/h)	538	382	1025	351	385	554	1334			944		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2
Volume Total	1	57	344	345
Volume Left	1	0	10	0
Volume Right	0	56	0	11
cSH	538	548	1334	1700
Volume to Capacity	0.00	0.10	0.01	0.20
Queue Length 95th (ft)	0	9	1	0
Control Delay (s)	11.7	12.3	0.3	0.0
Lane LOS	B	B	A	
Approach Delay (s)	11.7	12.3	0.1	
Approach LOS	B	B		

Intersection Summary				
Average Delay	1.1			
Intersection Capacity Utilization	37.2%	ICU Level of Service	A	
Analysis Period (min)	15			



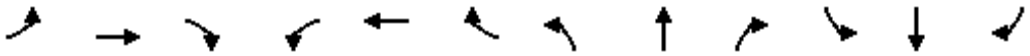
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	37	3	0	0	5	0	4	608	5	0	0	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.75	0.92	0.92	0.92	0.92	0.92	0.90	0.90	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	49	3	0	0	5	0	4	676	5	0	0	0
Pedestrians		2						5			67	
Lane Width (ft)		12.0						10.0			0.0	
Walking Speed (ft/s)		4.0						4.0			4.0	
Percent Blockage		0						0			0	
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)								283			855	
pX, platoon unblocked	0.86	0.86		0.86	0.86	0.86				0.86		
vC, conflicting volume	418	692	7	694	689	407	2			681		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	9	326	7	328	323	0	2			314		
tC, single (s)	7.6	6.5	6.9	7.5	6.5	6.9	5.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.7			2.2		
p0 queue free %	94	99	100	100	99	100	100			100		
cM capacity (veh/h)	855	507	1074	513	509	936	1328			1073		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2
Volume Total	53	5	342	343
Volume Left	49	0	4	0
Volume Right	0	0	0	5
cSH	821	509	1328	1700
Volume to Capacity	0.06	0.01	0.00	0.20
Queue Length 95th (ft)	5	1	0	0
Control Delay (s)	9.7	12.1	0.1	0.0
Lane LOS	A	B	A	
Approach Delay (s)	9.7	12.1	0.1	
Approach LOS	A	B		

Intersection Summary				
Average Delay	0.8			
Intersection Capacity Utilization	38.4%	ICU Level of Service	A	
Analysis Period (min)	15			

Lane Group	EBT	WBT	WBR	NBT
Lane Group Flow (vph)	77	79	85	642
v/c Ratio	0.15	0.13	0.18	0.57
Control Delay	15.6	15.1	4.3	23.2
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	15.6	15.1	4.3	23.2
Queue Length 50th (ft)	27	27	0	154
Queue Length 95th (ft)	55	46	18	212
Internal Link Dist (ft)	444	499		94
Turn Bay Length (ft)				
Base Capacity (vph)	517	631	470	1124
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.15	0.13	0.18	0.57

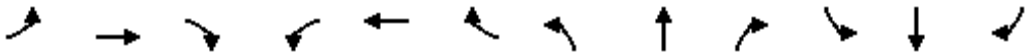
Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	10	59	0	0	62	66	11	550	29	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	10	10	10	12	12	12
Total Lost time (s)		4.0			4.0	4.0		4.0				
Lane Util. Factor		1.00			1.00	1.00		0.95				
Frpb, ped/bikes		1.00			1.00	0.98		1.00				
Flpb, ped/bikes		1.00			1.00	1.00		1.00				
Frt		1.00			1.00	0.85		0.99				
Flt Protected		0.99			1.00	1.00		1.00				
Satd. Flow (prot)		1101			1315	888		2544				
Flt Permitted		0.97			1.00	1.00		1.00				
Satd. Flow (perm)		1078			1315	888		2544				
Peak-hour factor, PHF	0.90	0.90	0.90	0.78	0.78	0.78	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	11	66	0	0	79	85	12	598	32	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	44	0	4	0	0	0	0
Lane Group Flow (vph)	0	77	0	0	79	41	0	638	0	0	0	0
Confl. Peds. (#/hr)	19		15	15		19	15		30			
Confl. Bikes (#/hr)									1			
Heavy Vehicles (%)	22%	31%	0%	0%	30%	39%	0%	10%	20%	0%	0%	0%
Bus Blockages (#/hr)	8	8	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)	6	6				6	6	6				
Turn Type	Perm					Perm	Perm					
Protected Phases		4			8			2				
Permitted Phases	4					8	2					
Actuated Green, G (s)		48.0			48.0	48.0		44.0				
Effective Green, g (s)		48.0			48.0	48.0		44.0				
Actuated g/C Ratio		0.48			0.48	0.48		0.44				
Clearance Time (s)		4.0			4.0	4.0		4.0				
Lane Grp Cap (vph)		517			631	426		1119				
v/s Ratio Prot					0.06							
v/s Ratio Perm		c0.07				0.05		0.25				
v/c Ratio		0.15			0.13	0.10		0.57				
Uniform Delay, d1		14.6			14.4	14.2		20.9				
Progression Factor		1.00			1.00	1.00		1.00				
Incremental Delay, d2		0.6			0.4	0.4		2.1				
Delay (s)		15.2			14.8	14.6		23.0				
Level of Service		B			B	B		C				
Approach Delay (s)		15.2			14.7			23.0			0.0	
Approach LOS		B			B			C			A	

Intersection Summary			
HCM Average Control Delay	20.8	HCM Level of Service	C
HCM Volume to Capacity ratio	0.35		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	126.7%	ICU Level of Service	H
Analysis Period (min)	15		

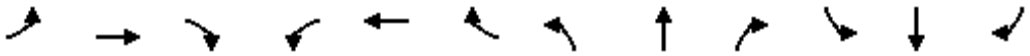
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	7	0	0	0	6	16	6	1074	33	0	0	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.75	0.75	0.75	0.92	0.92	0.92	0.87	0.87	0.87	0.92	0.92	0.92
Hourly flow rate (vph)	9	0	0	0	7	17	7	1234	38	0	0	0
Pedestrians		16			15			111			2	
Lane Width (ft)		8.0			12.0			10.0			0.0	
Walking Speed (ft/s)		4.0			4.0			4.0			4.0	
Percent Blockage		1			1			8			0	
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)								573			565	
pX, platoon unblocked												
vC, conflicting volume	464	1317	127	1393	1298	447	16			1287		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	464	1317	127	1393	1298	447	16			1287		
tC, single (s)	7.8	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.6	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	98	100	100	100	96	97	100			100		
cM capacity (veh/h)	415	155	829	92	159	557	1600			539		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	NB 3
Volume Total	9	24	316	617	347
Volume Left	9	0	7	0	0
Volume Right	0	17	0	0	38
cSH	415	331	1600	1700	1700
Volume to Capacity	0.02	0.07	0.00	0.36	0.20
Queue Length 95th (ft)	2	6	0	0	0
Control Delay (s)	13.9	16.7	0.2	0.0	0.0
Lane LOS	B	C	A		
Approach Delay (s)	13.9	16.7	0.0		
Approach LOS	B	C			

Intersection Summary				
Average Delay	0.5			
Intersection Capacity Utilization	41.5%	ICU Level of Service	A	
Analysis Period (min)	15			



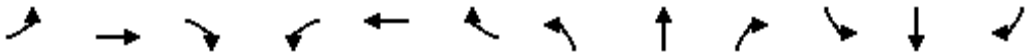
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	81	8	0	0	7	1	8	1005	15	0	0	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.82	0.92	0.82	0.92	0.92	0.92	0.88	0.88	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	99	9	0	0	8	1	9	1142	16	0	0	0
Pedestrians		7						6			52	
Lane Width (ft)		12.0						10.0			0.0	
Walking Speed (ft/s)		4.0						4.0			4.0	
Percent Blockage		1						0			0	
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)								283			855	
pX, platoon unblocked	0.71	0.71		0.71	0.71	0.71				0.71		
vC, conflicting volume	653	1184	13	1179	1175	631	7			1158		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	0	451	13	444	440	0	7			416		
tC, single (s)	7.6	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	86	98	100	100	98	100	99			100		
cM capacity (veh/h)	704	354	1060	343	359	773	1617			812		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2
Volume Total	107	9	580	587
Volume Left	99	0	9	0
Volume Right	0	1	0	16
cSH	652	385	1617	1700
Volume to Capacity	0.16	0.02	0.01	0.35
Queue Length 95th (ft)	15	2	0	0
Control Delay (s)	11.6	14.6	0.2	0.0
Lane LOS	B	B	A	
Approach Delay (s)	11.6	14.6	0.1	
Approach LOS	B	B		

Intersection Summary				
Average Delay	1.1			
Intersection Capacity Utilization	54.0%	ICU Level of Service	A	
Analysis Period (min)	15			

Lane Group	EBT	WBT	WBR	NBT
Lane Group Flow (vph)	163	159	125	1045
v/c Ratio	0.35	0.25	0.23	0.78
Control Delay	22.6	20.2	10.4	25.5
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	22.6	20.2	10.4	25.5
Queue Length 50th (ft)	69	64	22	274
Queue Length 95th (ft)	101	89	43	364
Internal Link Dist (ft)	444	499		94
Turn Bay Length (ft)				
Base Capacity (vph)	461	635	545	1337
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.35	0.25	0.23	0.78

Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	31	95	0	0	119	94	1	901	49	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	10	10	10	12	12	12
Total Lost time (s)		4.0			4.0	4.0		4.0				
Lane Util. Factor		1.00			1.00	1.00		0.95				
Frpb, ped/bikes		1.00			1.00	0.98		1.00				
Flpb, ped/bikes		1.00			1.00	1.00		1.00				
Frt		1.00			1.00	0.85		0.99				
Flt Protected		0.99			1.00	1.00		1.00				
Satd. Flow (prot)		1195			1513	1205		2666				
Flt Permitted		0.91			1.00	1.00		1.00				
Satd. Flow (perm)		1097			1513	1205		2666				
Peak-hour factor, PHF	0.77	0.77	0.77	0.75	0.75	0.75	0.91	0.91	0.91	0.92	0.92	0.92
Adj. Flow (vph)	40	123	0	0	159	125	1	990	54	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	39	0	4	0	0	0	0
Lane Group Flow (vph)	0	163	0	0	159	86	0	1041	0	0	0	0
Confl. Peds. (#/hr)	14		13	13		14	18		27	27		18
Heavy Vehicles (%)	0%	25%	0%	0%	13%	18%	0%	5%	12%	0%	0%	0%
Bus Blockages (#/hr)	8	8	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)	6	6					6	6				
Turn Type	Perm					Perm	Perm					
Protected Phases		4			8			2				
Permitted Phases	4					8	2					
Actuated Green, G (s)		42.0			42.0	42.0		50.0				
Effective Green, g (s)		42.0			42.0	42.0		50.0				
Actuated g/C Ratio		0.42			0.42	0.42		0.50				
Clearance Time (s)		4.0			4.0	4.0		4.0				
Lane Grp Cap (vph)		461			635	506		1333				
v/s Ratio Prot					0.11							
v/s Ratio Perm		c0.15				0.07		0.39				
v/c Ratio		0.35			0.25	0.17		0.78				
Uniform Delay, d1		19.8			18.8	18.1		20.5				
Progression Factor		1.00			1.00	1.00		1.00				
Incremental Delay, d2		2.1			0.9	0.7		4.6				
Delay (s)		21.9			19.7	18.8		25.1				
Level of Service		C			B	B		C				
Approach Delay (s)		21.9			19.3			25.1			0.0	
Approach LOS		C			B			C			A	

Intersection Summary			
HCM Average Control Delay	23.7	HCM Level of Service	C
HCM Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	121.7%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			