

Proposed Loading

The loading requirements for the proposed redevelopment are prescribed by the DCMR and are summarized in Table 14 along with the proposed loading facilities.

The proposed loading facilities are consistent with the loading facilities approved in conjunction with the previous zoning cases for the site (Case Nos. 06-46 and 06-46A).

Table 14
Loading Summary

Component	Required Loading	
	Option 1A/2A	Option 2A/2B/2C
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 @ 55' 1 platform @ 200 SF 2 berth @ 30' 2 platforms @ 100 SF 1 service/delivery @ 20'	1 berth @ 55' 1 platform @ 200 SF 2 berth @ 30' 2 platforms @ 100 SF 1 service/delivery @ 20'
Hotel	N/A	1 berth @ 30' 1 platform @ 100 SF 1 service/delivery @ 20'
	Proposed Loading	
	Option 1A/2A	Option 2A/2B/2C
Total	1 berth @ 55' 1 platform @ 200 SF 3 berths @ 30' 3 platforms @ 100 SF 2 service/delivery @ 20'	1 berth @ 55' 1 platform @ 200 SF 3 berths @ 30' 3 platforms @ 100 SF 2 service/delivery @ 20'

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 building. The goals of this plan are to maintain a safe environment for all users of the site, loading dock, street, and nearby intersection; 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 20' in length or larger) and all loading activities are required to occur at the loading dock.
- 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 and/or hotel 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 and hotel 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 M Street, N Street, and Cushing Place except during those times when a truck is actively entering or exiting a loading berth.
- 6) Service vehicle/truck traffic interfacing with M Street, N Street, and Cushing Place 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, residential, and/or hotel deliveries to see if any adjustments need to be made to ensure any conflicts with the retail, residential, and hotel 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.

TOTAL FUTURE CONDITIONS

Traffic Forecasts

Total future traffic forecasts with the proposed development were determined by combining the 2018 background traffic forecasts shown in Figure 13 with the site traffic volumes shown on Figure 18 to yield the 2018 total future traffic forecasts shown on Figure 19.

Capacity Analysis

Capacity analyses were performed at the study intersections using the future lane use and traffic controls shown on Figure 20, the total future peak hour traffic forecasts shown on Figure 19, and existing signal timings.

The level of service results for the 2018 total future conditions with the proposed redevelopment are included in Appendix K and summarized in Table 5.

By comparing total future levels of service to background levels of service, the impact of the proposed development can be identified. In accordance with the methodology outlined during the scoping process, an impact is defined as follows:

- Degradation in approach or overall level of service to LOS E or LOS F or
- Increase in overall intersection delay operating at a LOS E or LOS F by more than five seconds when compared to background conditions.

As shown in Table 5, where overall intersection levels of service under background conditions are projected to be at a LOS D or better, overall intersection levels of service under total future conditions with the proposed redevelopment also are projected to be at a LOS D or better.

At the M Street/South Capitol Street (East) intersection, the AM and PM peak hour overall levels of service are projected to be at a LOS F under background conditions. With the proposed development, the overall LOS will remain at a LOS F, but the delays will increase by more than five seconds.

At the M Street/First Street intersection, the PM peak hour eastbound level of service is projected to drop from a LOS E to a LOS F with the proposed development.

At the N Street/South Capitol Street intersection, the AM and PM peak hour overall levels of service are projected to be at a LOS F under background conditions. With the proposed development, the overall LOS will remain at a LOS F, but the delays will increase by more than five seconds.

At the N Street/First Street intersection, the PM peak hour westbound level of service is projected to drop from a LOS D to a LOS E with the proposed development.

At the I Street/South Capitol Street intersection, the AM peak hour overall level of service is projected to be at a LOS F under background conditions. With the proposed development, the overall LOS will remain at a LOS F, but the delay will increase by just over five seconds.

Queue Analysis

A queuing analysis was conducted for 2018 total future conditions. Synchro was used to conduct the analyses, using the 95th percentile queue lengths. The results are summarized in Table 6 and queue reports are provided in Appendix K.

By comparing total future queues to background queues, the impact of the proposed development can be identified. In accordance with the methodology outlined during the scoping process, an impact is defined as an increase in the 95th percentile queue greater than 150 feet when compared to background conditions. As shown in Table 6, none of the queue lengths would increase by more than 150 feet under total future conditions with the proposed development.

Improvement Analysis

To mitigate the impact of the proposed development, improvements were examined at each impacted intersection. Note that the cycle lengths and offsets are consistent with existing conditions. Results of the analyses are summarized in Tables 15 and 16. For comparison purposes, the background and total future conditions (without improvements) also are provided in Tables 15 and 16.

M Street/South Capitol Street (West)

Minor timing adjustments in the AM would reduce the overall delay by 37 seconds, would improve the eastbound level of service from a LOS F to a LOS E, would reduce the southbound left delay by 97.8 seconds, would reduce the southbound left/through/right delay by 97.9 seconds, and would reduce queues on every approach of this intersection.

Minor timing adjustments in the PM peak would improve the level of service for the westbound approach from a LOS C to a LOS B and would reduce queues on the eastbound and westbound approaches of this intersection. The following timing adjustments are recommended to mitigate the impact of the development:

- During the AM peak, shift seven seconds of green time from the westbound phase (phase 4) and give four seconds of green time to the southbound phase (phase 3)

and three seconds of green time to the eastbound/westbound phase (phases 2,6, and 9) and

- During the PM peak, shift one second of green time from the southbound phase (phase 3) to the eastbound/westbound phase (phases 2, 6, and 9).

M Street/South Capitol Street (East)

Minor timing adjustments in the AM would reduce the overall delay by 11.6 seconds, would reduce the eastbound delay by 57.3 seconds, would reduce the westbound delay by 95.9 seconds, and would reduce queues on the eastbound and westbound approaches of this intersection. Minor timing adjustments in the PM peak would reduce the overall delay by 7.3 seconds, would reduce the westbound delay by 17.9 seconds, and would reduce queues on the westbound approach of this intersection. The following timing adjustments are recommended to mitigate the impact of the development:

- During the AM peak, shift seven seconds of green time from the northbound phase (phase 4) and give four seconds of green time to the eastbound phase (phase 3) and three seconds of green time to the eastbound/westbound phase (phases 2, 6, and 9) and
- During the PM peak, shift one second of green time from the eastbound phase (phase 3) to the eastbound/westbound phase (phases 2, 6, and 9).

M Street/First Street

Minor timing adjustments in the PM would improve the overall level of service from a LOS F to a LOS E and would reduce queues on the eastbound approach of the intersection. The following signal timing adjustments are recommended to mitigate the impact of the development:

- During the PM peak, shift 1.5 seconds of green time from the advance westbound left phase to the eastbound/westbound phase.

N Street/South Capitol Street

Minor timing adjustments in the AM would reduce the overall delay by 7.3 seconds, would reduce the westbound delay by 2.6 seconds, would reduce the southbound frontage lane delay by 165 seconds, and would reduce queues on the southbound frontage lane and southbound right approaches of this intersection.

Minor timing adjustments in the PM peak would reduce the overall delay by 20.5 seconds, would reduce the southbound frontage lane delay by 127.2 seconds, and would reduce queues on the southbound frontage lane and southbound right approaches of this intersection. The following timing adjustments are recommended to mitigate the impact of the development:

- During the AM peak, shift five seconds of green time from the southbound mainline lane phase to the southbound frontage lane phase and,
- During the PM peak, shift four seconds of green time from the southbound mainline lane phase to the southbound frontage lane phase.

N Street/First Street

Minor timing adjustments in the PM would reduce queues on the eastbound and westbound approaches and would improve the level of service for the eastbound approach from a LOS E to a LOS D. The following timing adjustments are recommended to mitigate the impact of the development:

- During the PM peak, shift one second of green time from the northbound/southbound phase to the eastbound/westbound phase.

I Street/South Capitol Street

Minor timing adjustments in the AM would reduce the overall delay by 6.1 seconds, would reduce the westbound through delay by 11.6 seconds, would reduce the westbound right delay by 15.7 seconds, and would reduce queues on the eastbound and westbound approaches. The following timing adjustments are recommended to mitigate the impact of the development:

- During the PM peak, shift one second of green time from northbound/southbound phase to the eastbound/westbound phase.

As shown on Table 16, the queues under the improved scenario at this intersection would be equal to or less than queues experienced under background conditions, with the exception of the northbound approach of the M Street/Cushing Place intersection.

M Street/Cushing Place

Under background conditions without the proposed development, the northbound, Cushing Place approach is expected to significantly increase in delay as a result of the pipeline projects. The northbound approach would see a modest increase in delay as a result of traffic related to the subject development. It is important to note that the subject development would account for less than one third of the Cushing Place traffic during the AM peak hour and less than one half of the Cushing Place traffic during the PM peak hour.

The increase in delay associated with the site-generated traffic is minimized as a result of the Applicant's extension of Cushing Place to N Street. This improvement will provide a second point of ingress and egress not only for traffic associated with the subject development but also for existing traffic generated by 55 M Street and the proposed Ballpark Square pipeline development on the east side of Cushing Place. By creating a

second point of ingress and egress, the burden on the M Street/Cushing Place intersection would be eased.

As a result of the increased delay projected for the northbound, Cushing Place approach, peak hour traffic signal warrants were evaluated to determine whether volumes would justify signalization.

Based on the peak hour traffic signal warrants prescribed in the Manual on Uniform Traffic Control Devices,²⁸ projected PM peak hour traffic volumes would meet the peak hour warrant under both background and total future conditions. Projected AM peak hour volumes would meet the peak hour warrant under total future conditions. However, due to the close proximity of signals to the east and west (approximately 220 feet in either direction), signalization is not recommended.

Traffic exiting the proposed project will have a number of options and will choose the path of least delay, particularly during peak periods. For example, if the left turn from Cushing Place onto M Street causes excessive delay for a motorist, he or she could simply turn right onto M and then left onto First Street, and then left onto L Street or K Street.

The Synchro reports for level of service and queue improvement analyses are provided in Appendix L.

Table 15

Level of Service Summary with Recommended Improvements

Approach	Background Conditions		Total Future Conditions		Total Future Conditions With Improvements	
	AM Peak	PM Peak	AM Peak	PM Peak	AM Peak	PM Peak
1. M Street/South Capitol Street (West)						
EBT	E (79.3)	D	F (83.1)	D	E (59.2)	D
EBR	D	C	D	C	D	C
WBL	A	B	A	C	A	B
SBL	F (379.9)	F (101.7)	F (390.5)	F (126.9)	F (292.7)	F (139.9)
SBLTR	F (395.2)	F (94.3)	F (406.1)	F (117.5)	F (308.2)	F (129.6)
Overall	F (144.4)	D	F (148.9)	D	F (111.9)	D
2. M Street/South Capitol Street (East)						
EBLT	F (134.2)	A	F (142.0)	B	F (84.7)	B
WBTR	F (295.1)	F (232.3)	F (343.0)	F (253.8)	F (247.1)	F (236.3)
NBL	F (156.4)	E (73.2)	F (156.4)	E (73.2)	F (248.1)	E (73.2)
NBLTR	F (163.2)	E (70.8)	F (163.2)	E (70.8)	F (256.3)	E (70.8)
Overall	F (179.5)	F (111.6)	F (195.0)	F (120.2)	F (183.4)	F (113.0)
[x.x] = unsignalized intersection control delay in sec/veh						
(x.x) = signalized intersection control delay in sec/veh						

Table 15 (continued)
Level of Service Summary with Recommended Improvements

Approach	Background Conditions		Total Future Conditions		Total Future Conditions With Improvements	
	AM Peak	PM Peak	AM Peak	PM Peak	AM Peak	PM Peak
3. M Street/Half Street						
EBLTR	A	B	A	B	A	B
WBLTR	A	A	A	A	A	A
NBLTR	C	C	C	C	C	C
SBLTR	D	F (462.1)	D	F (459.9)	D	F (459.9)
Overall	B	F (123.4)	B	F (120.8)	B	F (120.8)
4. M Street/Cushing Place						
EBLTR	A	A	A	A	A	A
WBLTR	A	A	A	A	A	A
NBLTR	F [171.8]	F [861.2]	F [213.5]	F [916.9]	F [213.5]	F [916.9]
SBLTR	C	C	C	C	C	C
5. M Street/First Street						
EBLTR	B	E (62.2)	B	F (85.5)	B	E (65.3)
WBTR	A	B	A	B	A	B
NBLTR	C	C	C	C	C	C
SBLTR	C	C	C	C	C	C
Overall	B	D	B	D	B	D
6. M Street/New Jersey Avenue						
EBLTR	B	B	B	B	B	B
WBLTR	B	B	B	B	B	B
NBL	B	B	B	B	B	B
NBTR	B	C	B	C	B	C
SBL	C	D	C	D	C	D
SBTR	B	C	B	C	B	C
Overall	B	B	B	B	B	B
7. L Street/First Street						
EBLTR	A	A	A	A	A	A
WBLTR	A	A	A	A	A	A
NBLTR	A	A	A	A	A	A
SBLTR	A	A	A	A	A	A
Overall	A	A	A	A	A	A
[x.x] = unsignalized intersection control delay in sec/veh						
[x.x] = signalized intersection control delay in sec/veh						

Table 15 (continued)
Level of Service Summary with Recommended Improvements

Approach	Background Conditions		Total Future Conditions		Total Future Conditions With Improvements	
	AM Peak	PM Peak	AM Peak	PM Peak	AM Peak	PM Peak
8. I Street/Half Street						
EBLTR	A	C	A	C	A	C
WBLTR	A	B	A	B	A	B
NBLTR	B	B	B	B	B	B
SBLTR	A	B	A	B	A	B
Overall	A	B	A	B	A	B
9. N Street/South Capitol Street						
WBLT	F (86.5)	F (237.6)	F (95.4)	F (293.4)	F (95.4)	F (291.7)
WBR	D	E (62.5)	D	E (62.5)	D	E (62.5)
NBTR	F (297.0)	B	F (318.1)	B	F (318.1)	B
SBT mainline	C	D	C	D	D	D
SBT frontage	F (437.2)	F (702.5)	F (437.2)	F (702.5)	F (272.2)	F (575.3)
SBR	E (57.7)	D	E (57.7)	D	D	D
Overall	F (155.7)	F (168.4)	F (167.2)	F (172.3)	F (159.9)	F (152.0)
10. N Street/Half Street						
EBLT	B	A	B	A	B	A
WBTR	A	A	B	A	B	A
SBLR	A	A	A	A	A	A
Overall	A	A	A	A	A	A
11. N Street/First Street						
EBLTR	C	B	C	B	C	B
WBLTR	D	D	D	E (58.6)	D	D
NBLTR	A	B	A	B	A	B
SBLTR	A	B	A	B	A	B
Overall	B	C	B	C	B	C
12. N Street/Tingey Street/New Jersey Avenue						
EBLT	B	B	B	B	B	B
WBTR	A	B	A	C	A	C
SBL	A	B	A	B	A	B
SBTR	A	A	A	A	A	A
Overall	A	A	A	A	A	A
[x.x] = unsignalized intersection control delay in sec/veh (x.x) = signalized intersection control delay in sec/veh						

Table 15 (continued)

Level of Service Summary with Recommended Improvements

Approach	Background Conditions		Total Future Conditions		Total Future Conditions With Improvements	
	AM Peak	PM Peak	AM Peak	PM Peak	AM Peak	PM Peak
13. I Street/South Capitol Street						
EBLT	F (1175.8)	F (7444.8)	F (1175.8)	F (7444.8)	F (1058.1)	F (7444.8)
EBR	D	D	D	D	D	D
WBT	F (137.1)	F (590.5)	F (137.1)	F (590.5)	F (125.5)	F (590.5)
WBR	F (190.2)	D	F (191.3)	D	F (175.6)	D
NBTR	F (234.2)	F (101.2)	F (247.8)	F (109.9)	F (254.8)	F (109.9)
SBT	B	B	B	B	B	B
SBR	A	A	A	A	A	A
Overall	F (189.8)	F (704.7)	F (195.0)	F (697.2)	F (188.9)	F (697.2)
14. N Street/Cushing Place						
EBLT	-	-	A	A	A	A
WBTR	-	-	A	A	A	A
SBLR	-	-	A	B	A	B
Overall	-	-	A	A	A	A
[x.x] = unsignalized intersection control delay in sec/veh						
(x.x) = signalized intersection control delay in sec/veh						

Table 16
Synchro 95th Percentile Queue Summary (in feet)

Approach	Available Storage [†]	Background Conditions		Total Future Conditions		Total Future with Improvements	
		AM Peak	PM Peak	AM Peak	PM Peak	AM Peak	PM Peak
1. M Street/South Capitol Street (West)							
EBT	90'	275 [#]	326	282 [#]	340	252 [#]	335
EBR	305'	62	62	62	62	59	61
WBLT	50'	18	211	23	224	7 ^m	216
SBL	555'	880 [#]	574 [#]	893 [#]	629 [#]	854 [#]	638 [#]
SBLTR	555'	884 [#]	561 [#]	897 [#]	617 [#]	857 [#]	627 [#]
2. M Street/South Capitol Street (East)							
EBLT	50'	575	139	588	143	552	145
WBTR	350'	421 [#]	680 [#]	452 [#]	709 [#]	428 [#]	701 [#]
NBL	425'	997 [#]	415 [#]	997 [#]	415 [#]	1069 [#]	415 [#]
NBLTR	425'	1006 [#]	405 [#]	1006 [#]	405 [#]	1078 [#]	405 [#]
3. M Street/Half Street							
EBLTR	350'	163	223	169	247	169	247
WBLTR	160'/345'	66	70	67	59	67	59
NBLTR	570'	73	59	64	60	64	60
SBLTR	295'	93	685 [#]	93	685 [#]	93	685 [#]
4. M Street/Cushing Place							
EBLTR	160'	5	3	5	3	5	3
WBLTR	160'	5	7	6	18	6	18
NBLTR	165'/580'	163	625	245	693	245	693
SBLTR	290'	6	10	7	13	7	13
5. M Street/First Street							
EBLTR	150'/345'	115	315 ^{m#}	122	340 ^{m#}	122	329 ^{m#}
WBLTR	375'	48	79	49	85	49	86
NBLTR	250'/555'	77	101 ^m	77 ^m	101 ^m	77 ^m	101 ^m
SBLTR	265'	41	83	41	83	41	83
† All distances measured to nearest intersection or end of turn lane, as appropriate. Where two storage lengths are given, the first is the distance to the driveway, the second is the distance to the nearest intersection.							
m Volume for 95 th percentile queue is metered by upstream signal.							
# 95 th percentile volume exceeds capacity; queue may be longer.							

Table 16 (Continued)
Synchro 95th Percentile Queue Summary (in feet)

Approach	Available Storage [†]	Background Conditions		Total Future Conditions		Total Future with Improvements	
		AM Peak	PM Peak	AM Peak	PM Peak	AM Peak	PM Peak
6. M Street/New Jersey Avenue							
EBLTR	385'	130	108 ^m	138	111	138	108
WBLTR	115'	167	146	168	151	168	151
NBL	475'	24	46	24	46	24	46
NBTR	475'	62	110	62	110	62	110
SBL	290'	64	144 [#]	64	144 [#]	64	144 [#]
SBTR	290'	70	117	74	129	74	129
7. L Street/First Street							
EBLTR	135'	10	18	10	18	10	18
WBLTR	290'	23	18	23	18	23	18
NBLTR	265'	20	23	23	25	23	25
SBLTR	230'	10	20	10	20	10	20
8. L Street/Half Street							
EBLTR	355'	25	173	28	175	28	175
WBLTR	165'	10	20	13	23	13	23
NBLTR	295'	43	18	43	18	43	18
SBLTR	260'	15	38	18	38	18	38
9. N Street/South Capitol Street							
WBLT	335'	208	477 [#]	242	538 [#]	242	538 [#]
WBR	90'	26	178	26	178	26	178
NBTR	505'	2606 [#]	561	2623 [#]	607	2623 [#]	609
SBT mainline	1290'	660	614	660	614	714	647
SBT frontage	555'	632 [#]	1406 [#]	632 [#]	1406 [#]	585 [#]	1362 [#]
SBR	555'	39	80	39	80	36	76
† All distances measured to nearest intersection or end of turn lane, as appropriate. Where two storage lengths are given, the first is the distance to the driveway, the second is the distance to the nearest intersection.							
^m Volume for 95 th percentile queue is metered by upstream signal.							
[#] 95 th percentile volume exceeds capacity; queue may be longer.							

Table 16 (Continued)
Synchro 95th Percentile Queue Summary (in feet)

Approach	Available Storage†	Background Conditions		Total Future Conditions		Total Future with Improvements	
		AM Peak	PM Peak	AM Peak	PM Peak	AM Peak	PM Peak
10. N Street/Half Street							
EBLT	335'	38	30	38	35	38	35
WBTR	155'/345'	28	35	40	43	40	38
SBLR	570'	8	18	10	10	10	10
11. N Street/First							
EBLTR	345'	97	80	99	84	99	82
WBLTR	505'	113#	355#	116#	361#	116#	354#
NBLTR	230'	43	54	44	55	44	57
SBLTR	555'	16	112m	16m	109m	16m	113m
12. N Street/Tingey Street/New Jersey Avenue							
EBLT	220'/505'	43	35	45	38	45	38
WBTR	330'	23	100	25	103	25	103
SBL	490'	20	28	20	28	20	28
SBTR	490'	5	18	5	18	5	18
13. I Street/South Capitol Street							
EBLT	345'	950#	1130#	950#	1130#	940#	1130#
EBR	345'	113	177	114	179	113	179
WBT	310'	600#	1297#	600#	1297#	589#	1297#
WBR	90'	632#	61	634#	61	624#	61
NBTR	270'	1844#	1351#	1898#	1389#	1907#	1389#
SBT	130'	578	497	585	523	598	523
SBR	205'	23	37	23	37	25	37
14. N Street/Cushing Place							
EBLT	160'	-	-	3	3	3	3
WBTR	160'	-	-	0	0	0	0
SBLR	220'	-	-	75	11	8	9

† All distances measured to nearest intersection or end of turn lane, as appropriate. Where two storage lengths are given, the first is the distance to the driveway, the second is the distance to the nearest intersection.

m Volume for 95th percentile queue is metered by upstream signal.

95th percentile volume exceeds capacity; queue may be longer.

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.

TDM measures have proven to be effective in reducing vehicle travel and parking demand. As indicated in Arlington County's Residential Building Performance Monitoring Study, vehicle ownership and vehicle travel has decreased in residential projects where TDM measures were employed and where transit is prevalent.²⁹ Additionally, Wells + Associates' own experience in the Washington, DC metropolitan area shows that TDM plans reduce the number of vehicle trips generated by developments with TDM plans.

While the location of the proposed redevelopment adjacent to the Navy Yard Metro Station, 12 Metrobus routes, a DC Circulator Route, and other transportation options will naturally encourage the use of non-auto modes of transportation, the Applicant also has developed a TDM plan with strategies to reduce the number of vehicles at the proposed project. Specific TDM measures for the residential component 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. The property management website will include information on and/or links to current transportation programs and services, such as:
 - 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, and
 - 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.
3. Property management staff will provide personalized outreach to new residents of the building informing them of available transportation options. Such outreach will include a one-on-one meeting to review options and answer questions.
 4. An electronic display will be provided in a common, shared space in the 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.
 5. A business center will be provided on-site for residents who work from home.
 6. Convenient and covered secure bike parking facilities will be provided with storage for at least the minimum required by the DCMR and District law.

Specific TDM measures for the hotel component would include:

1. A display will be provided in the lobby of the hotel 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.
2. Free bicycle maps will be available to hotel guests.

CONCLUSIONS AND RECOMMENDATIONS

The conclusions and recommendations of this study are as follows:

1. The subject site is well-served by a high-quality, multi-modal transportation system that includes: a corridor of arterial, collector, and local streets; a connected network of sidewalks; the Navy Yard Metro station; multiple bus lines; and bicycle facilities.
2. The site is ideally located proximate to amenities, such as grocery stores, pharmacies, a post office, restaurants, etc. As a result, many daily errands can be made on foot or by bicycle.
3. The proposed development is anticipated to generate a maximum of 162 AM peak hour vehicle trips and 280 PM peak hour vehicle trips.
4. Pipeline projects in the vicinity of the site are expected to generate over 3,000 AM peak hour trips and nearly 3,700 PM peak hour trips prior to build out of the subject development.
5. The proposed development traffic would account for just five percent of the AM peak hour trips and just seven percent of the PM peak hour trips generated by all planned/approved developments by the year 2018.
6. In accordance with DDOT's policies regarding driveways and curb cuts, all vehicular access, including parking and loading, will be provided via Cushing Place.
7. The proposed development is expected to have only minor impacts on the off site study intersections. A number of signal timing improvements are recommended to offset the impact of the proposed development.
8. The Applicant will implement a Transportation Demand Management plan to encourage non-auto modes of transportation.
9. The Applicant will implement a Loading Management Plan to promote safe and efficient access for all users.

REFERENCES

- ¹ Metrorail Station Access and Capacity Study Final Report, Washington Metropolitan Area Transit Authority, April 2008.
- ² District of Columbia Pedestrian Master Plan, District Department of Transportation, April 2009, [<http://ddot.dc.gov/page/pedestrian-master-plan-2009>].
- ³ District of Columbia Bicycle Master Plan, District Department of Transportation, April 2005, [<http://ddot.dc.gov/DC/DDOT/On+Your+Street/Bicycles+and+Pedestrians/Bicycles/Bicycle+Master+Plan/DC+Bicycle+Master+Plan++April+2005>].
- ⁴ Ibid.
- ⁵ Traffic Impact Assessment Square 700 Development, Gorove/Slade, January 2009.
- ⁶ Trip Generation Manual, 9th Edition, Volumes 2 and 3, Institute of Transportation Engineers, Washington, DC, 2012.
- ⁷ Ibid.
- ⁸ Traffic Impact Study Square DC Water Occupied Sites, Gorove/Slade, June 2013.
- ⁹ Trip Generation Manual, 9th Edition, Volumes 2 and 3, Institute of Transportation Engineers, Washington, DC, 2012.
- ¹⁰ Ibid.
- ¹¹ 1111 New Jersey Avenue Traffic Impact Study, Wells + Associates, September 2012.
- ¹² 50 M Street SE Transportation Assessment, Wells + Associates, May 2014.
- ¹³ Trip Generation Manual, 9th Edition, Volumes 2 and 3, Institute of Transportation Engineers, Washington, DC, 2012.
- ¹⁴ Ibid.
- ¹⁵ The Randall School Transportation Impact Study, Wells + Associates, March 2007.
- ¹⁶ St. Matthew's Church and Community Center Planned Unit Development, Gorove/Slade, June 2011.
- ¹⁷ Trip Generation Manual, 9th Edition, Volumes 2 and 3, Institute of Transportation Engineers, Washington, DC, 2012.
- ¹⁸ RiverFront on the Anacostia Planned Unit Development Transportation Impact Study, Gorove/Slade, April 2012.
- ¹⁹ Ballpark Square Transportation Impact Study, Gorove/Slade, April 2012.
- ²⁰ One M Street Transportation Impact Study, Gorove/Slade, December 2012.
- ²¹ 1244 South Capitol Street SE Transportation Impact Study, Gorove/Slade, October 2014.
- ²² Trip Generation Manual, 9th Edition, Volumes 2 and 3, Institute of Transportation Engineers, Washington, DC, 2012.
- ²³ Trip Generation Manual, 9th Edition, Volumes 2 and 3, Institute of Transportation Engineers, Washington, DC, 2012.
- ²⁴ 2005 Development-Related Ridership Survey, Washington Metropolitan Area Transit Authority, Washington, DC, March 2006.

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- ²⁵ Trip Generation Manual, 9th Edition, Volumes 2 and 3, Institute of Transportation Engineers, Washington, DC, 2012.
- ²⁶ District of Columbia Municipal Regulations, Title 11-Zoning, 2119.2, 2005 Edition.
- ²⁷ D.C. Code § 50-1641.05(b)(1)
- ²⁸ Manual on Uniform Traffic Control Devices, U.S. Department of Transportation, Federal Highway Administration, 2001 Edition.
- ²⁹ Residential Building Performance Monitoring Study, Arlington County Commuter Services, September 2013.

FIGURES

SQUARE 701



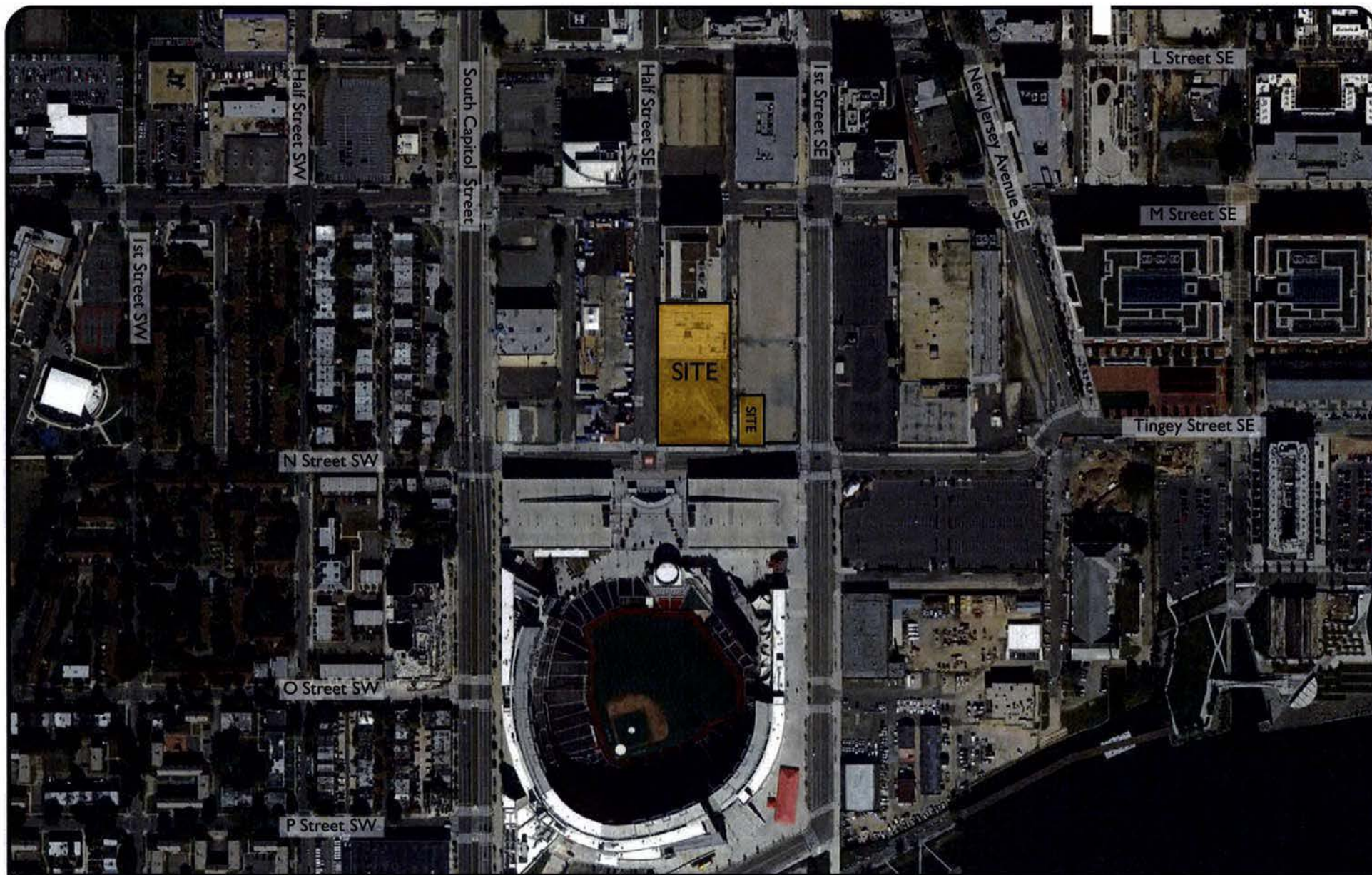


Figure 1
Site Location Map



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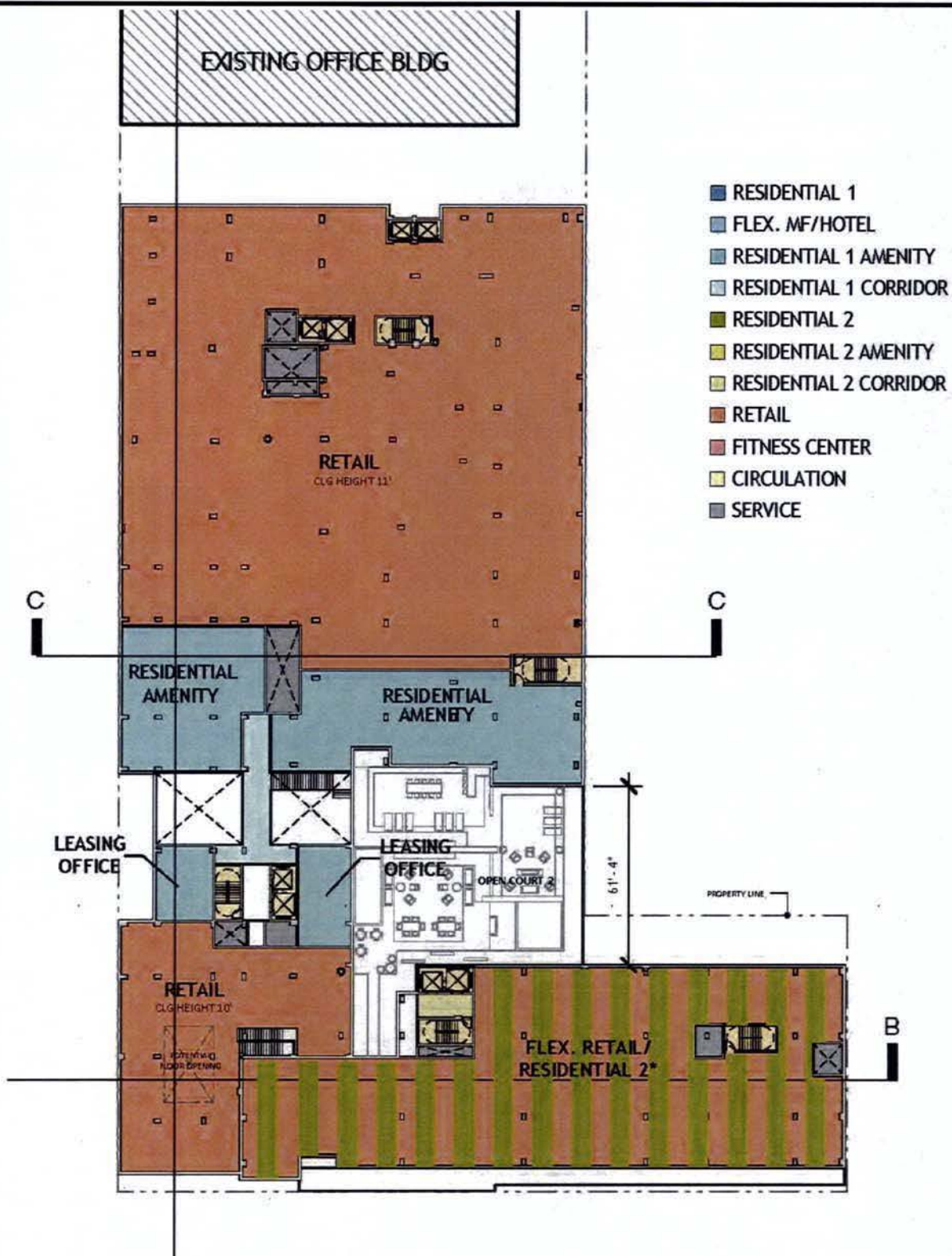


Figure 2B
Proposed Site Plan - Second Level

Source: Hord Coplan Macht
Date: 2.20.2015
1" = 50'





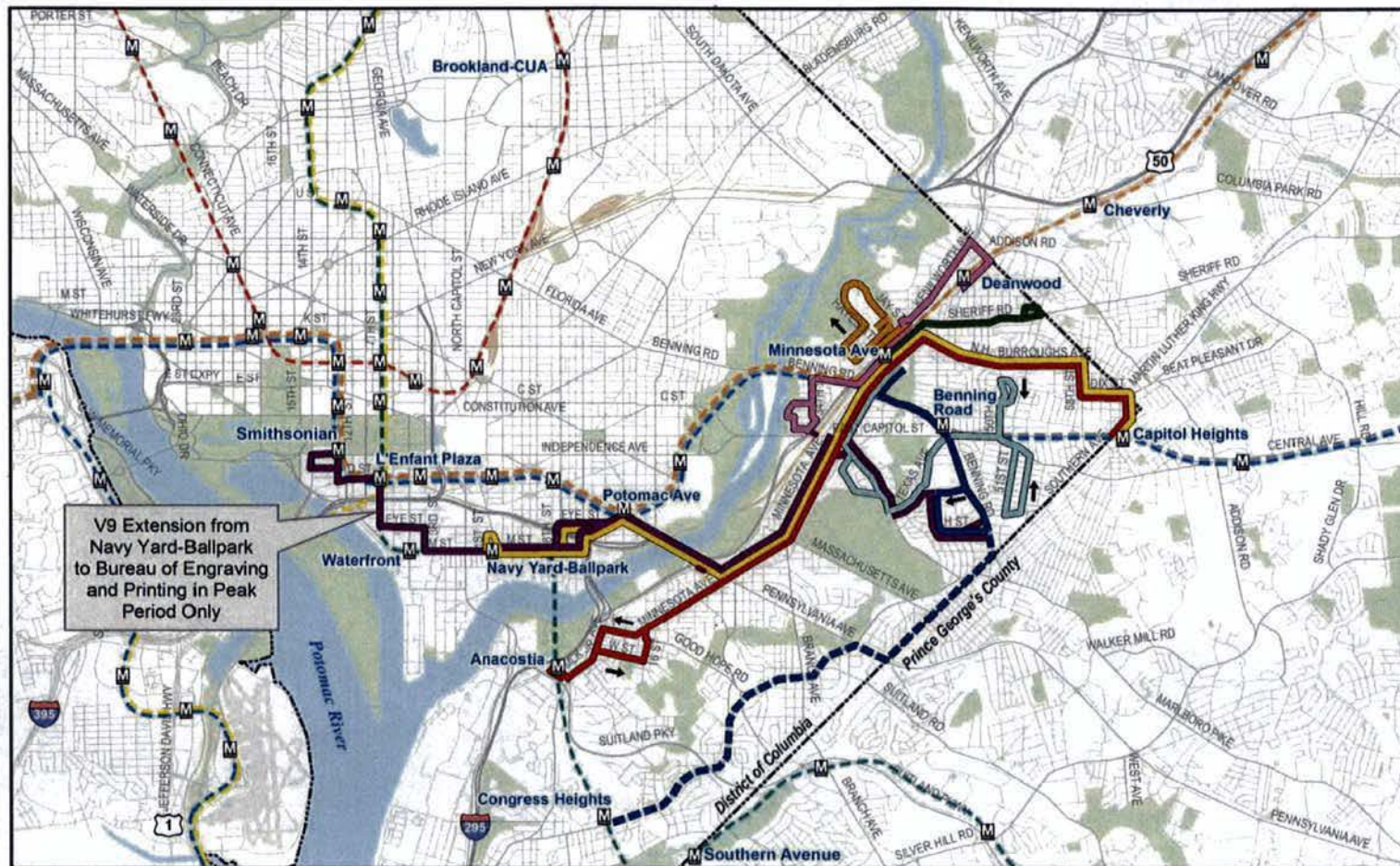
■ Zipcar Locations (Number of Zipcars)
 ■ Enterprise Car Share (Number of Cars)
 # The number of cars at any given location change frequently. These numbers are accurate as of 3/20/15.
 * In addition to the car sharing services shown, Car2Go has 500 cars in the District. Since Car2Go vehicles can be returned to any legal on-street parking space in the District or certain parking garages that are Car2Go approved, their locations could not be shown on this map.

Figure 3
 Alternate Modes of Transportation

- | | | |
|--|---------------------|------------------------------|
| # Capital Bikeshare Locations (Number of Docks) | XX Metrobus Route | XX MTA Commuter Route |
| M Navy Yard - Ballpark Metrorail Station (Green Line) | XX MetroExtra Route | LC LC Transit Commuter Route |
| CIRC DC Circulator Route (Union Station - Navy Yard Metro) | XX PRTC OmniRide | Bus Stop - Shelter |
| | | No Shelter |



Square 701
 Washington, DC



Potential Service Restructuring

LEGEND

- Metro Blue Line
- Metro Green Line
- Metro Orange Line
- Metro Red Line
- Metro Silver Line
- Metro Yellow Line
- M Metrorail Station
- Proposed Route U1
- Proposed Route U2
- Proposed Route U4
- Proposed Route U5/6
- Proposed Route U7
- Proposed Route U8
- Proposed Route U8 Extension
- Proposed Route V7
- Proposed Route V9

Route V7 will be modified to operate between the Capitol Heights Metrorail station and Navy Yard Metrorail station. Between the Capitol Heights and Minnesota Avenue Metrorail stations, Route V7 will operate along Nannie Helen Burroughs Avenue NE. Route V7, along with Route U2, will replace U8 service along Nannie Helen Burroughs Avenue NE. The current Route V7 alignment will be utilized between the Minnesota Avenue Metrorail Station and the Navy Yard Metrorail Station. Service between the Minnesota Avenue and Deanwood Metrorail stations will now be provided by Route U4, as previously mentioned. Service between the Navy Yard Metrorail station and the Bureau of Engraving and Printing will be provided by Route V9, with no V Line service operating to the Bureau of Engraving and Printing and Archives Navy-Memorial during off-peak periods and weekends.

Figure 4
Potential Metrobus Restructuring

Source: Metrobus Service Evaluation U-V Lines, WMATA
Date: March 2015.



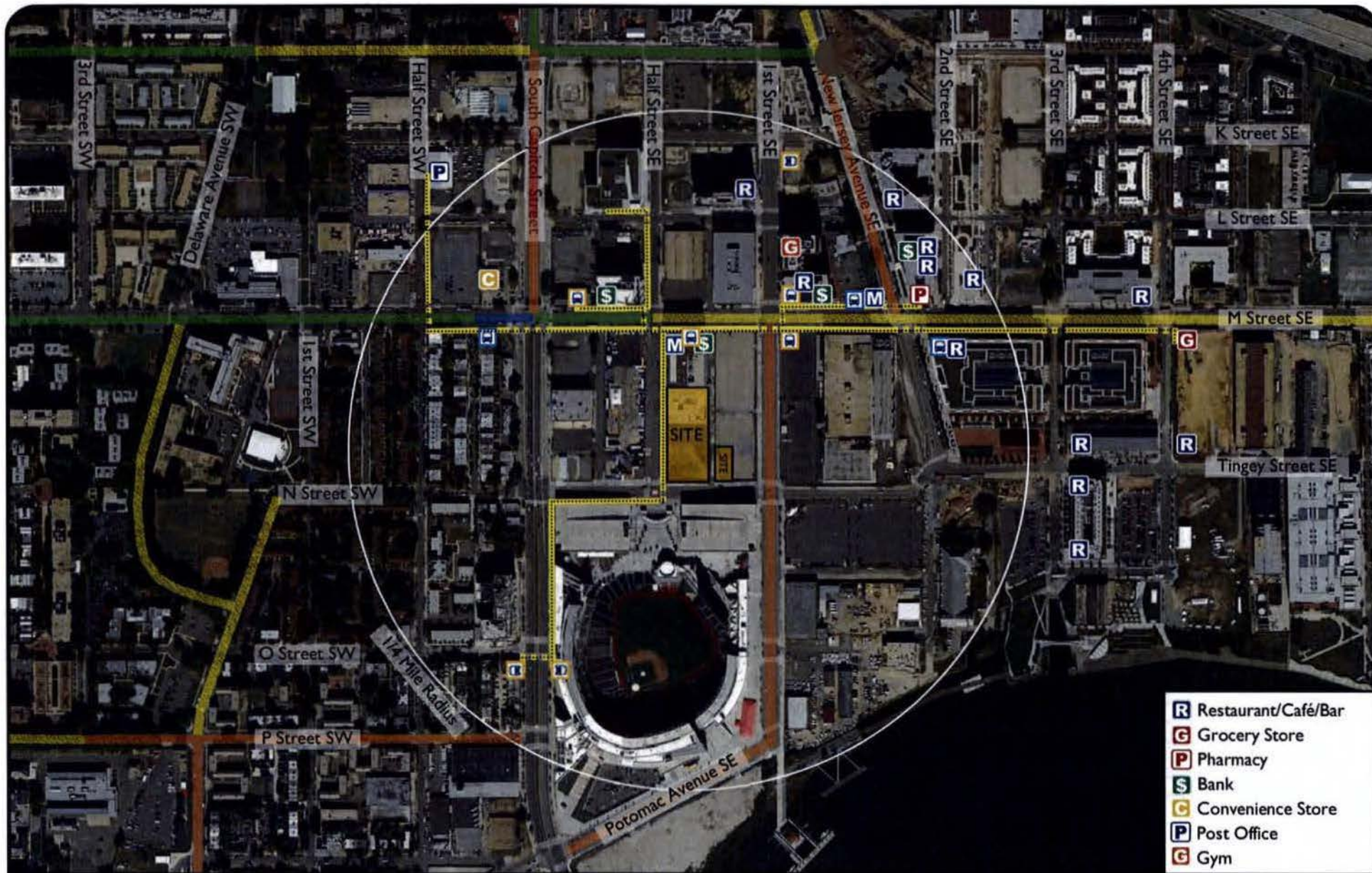


Figure 5
One Quarter Mile Walk Shed

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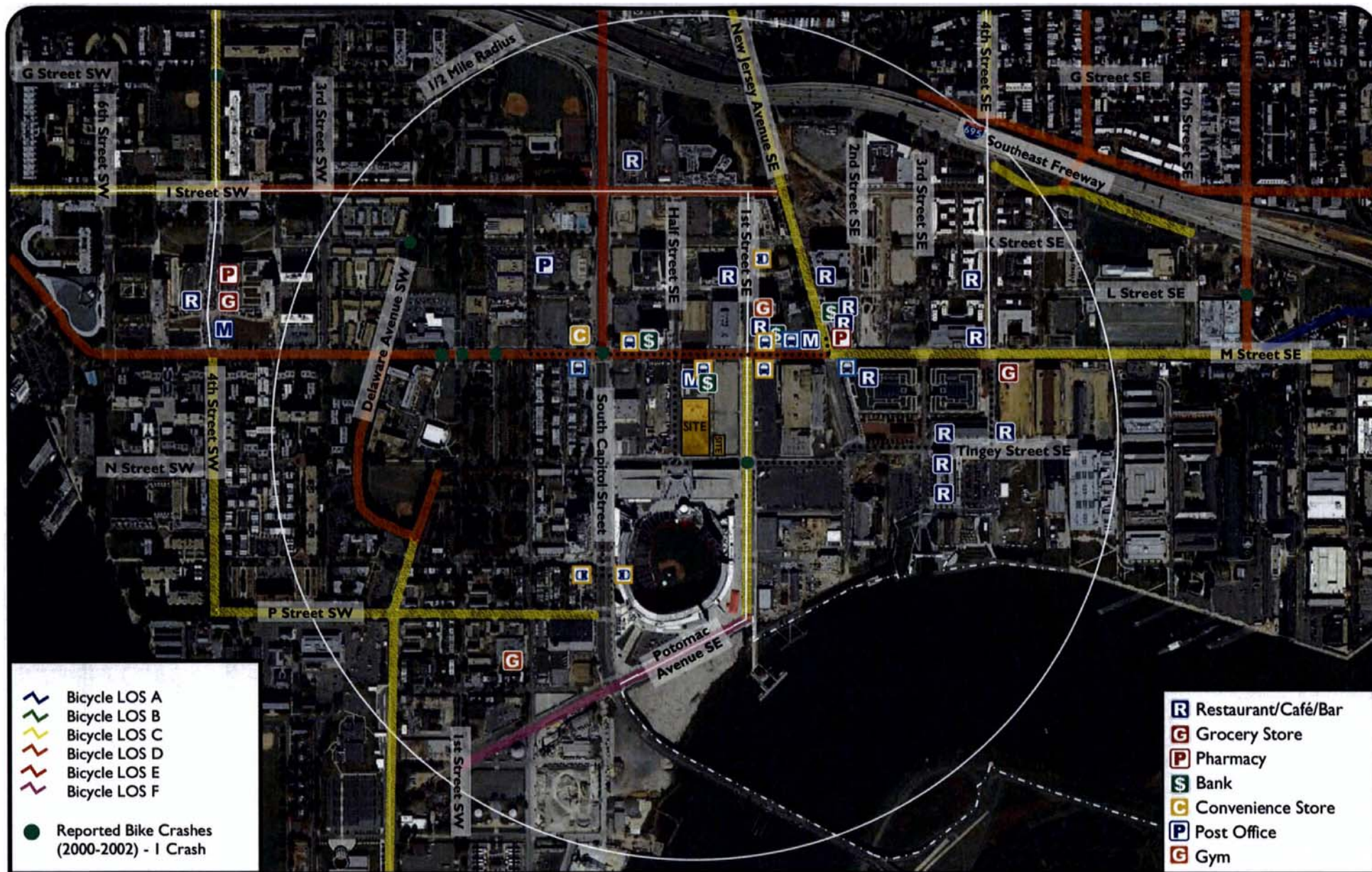


Figure 6
One Half Mile Bike Shed

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Washington, DC

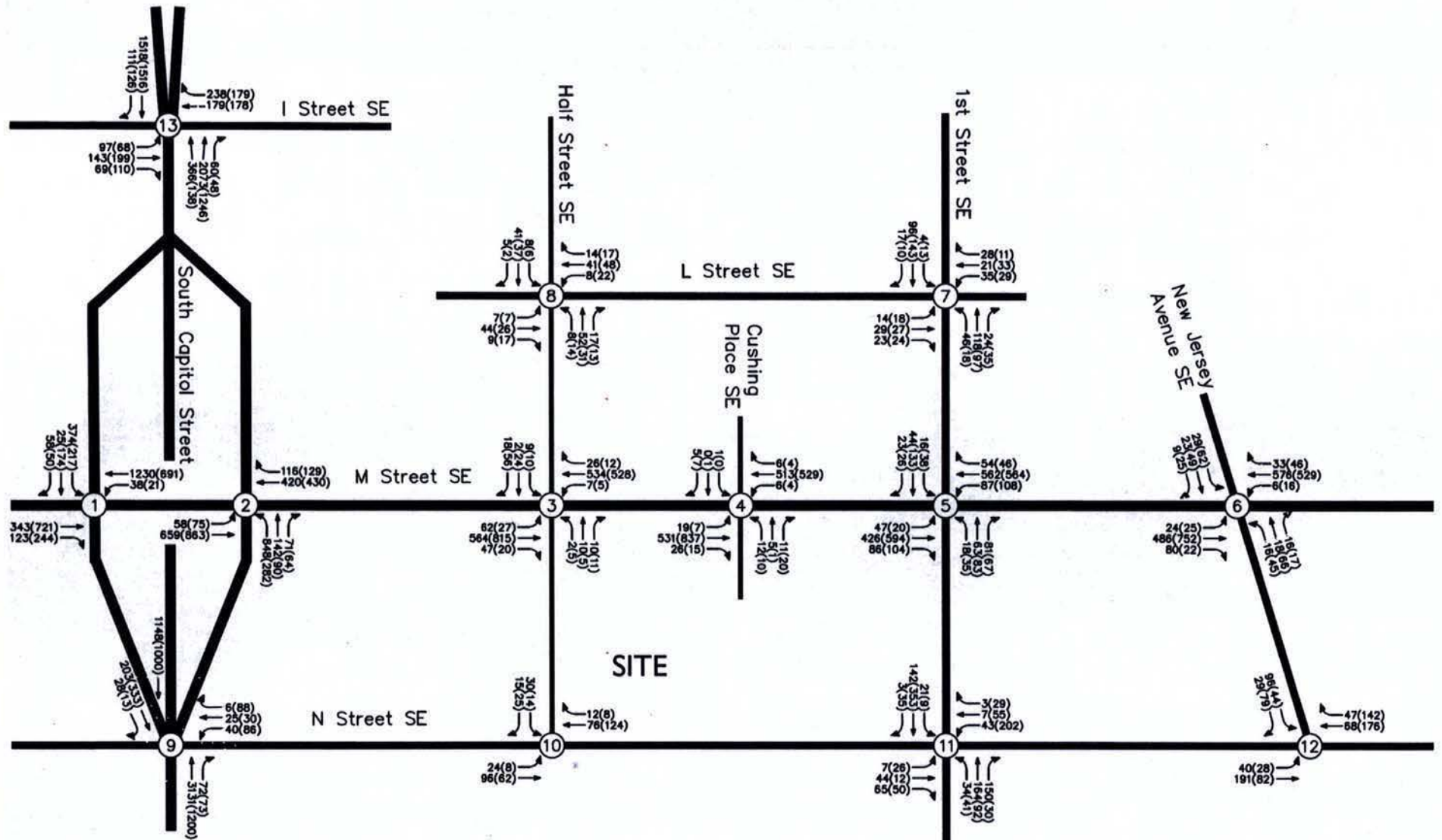


Figure 7
Existing Peak Hour Traffic Volumes

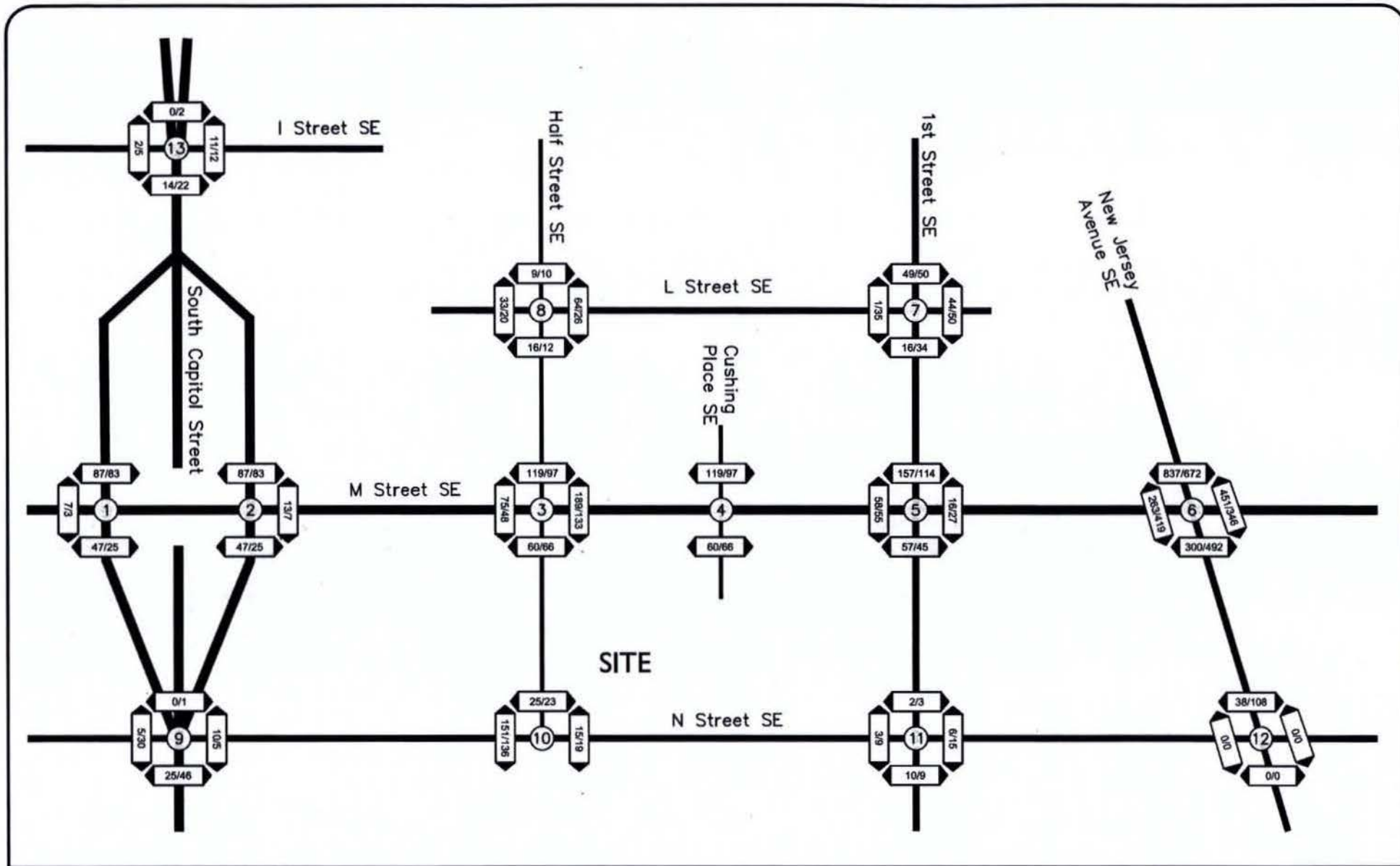


Figure 8
Existing Peak Hour Pedestrian Volumes

AM Peak Hour
PM Peak Hour
000/000

North
Not to Scale

Square 701
Washington, DC

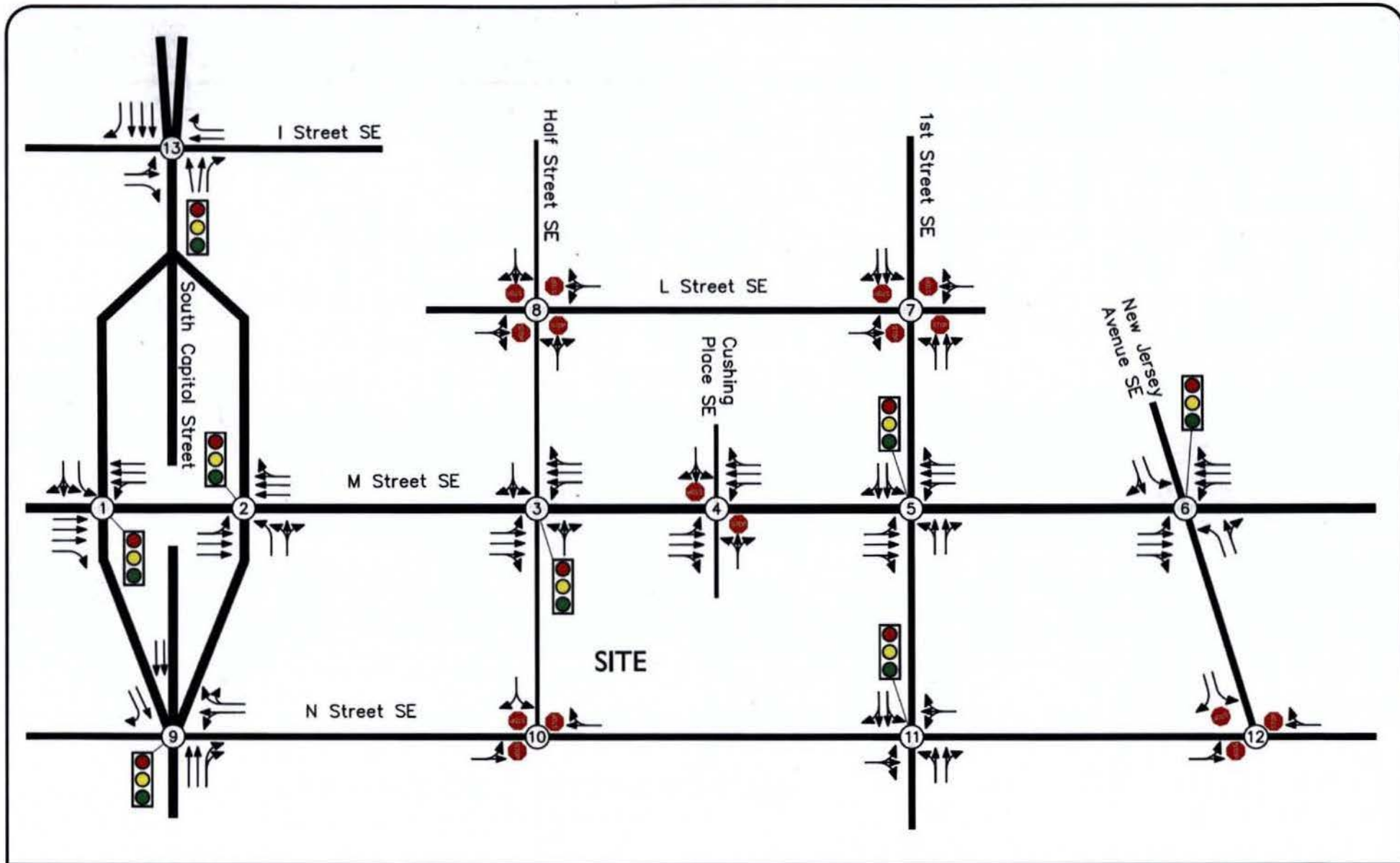


Figure 9
Existing Lane Use and Traffic Control

- ← Represents One Travel Lane
- ⬢ Signalized Intersection
- Stop Sign

North
Not to Scale

Square 701
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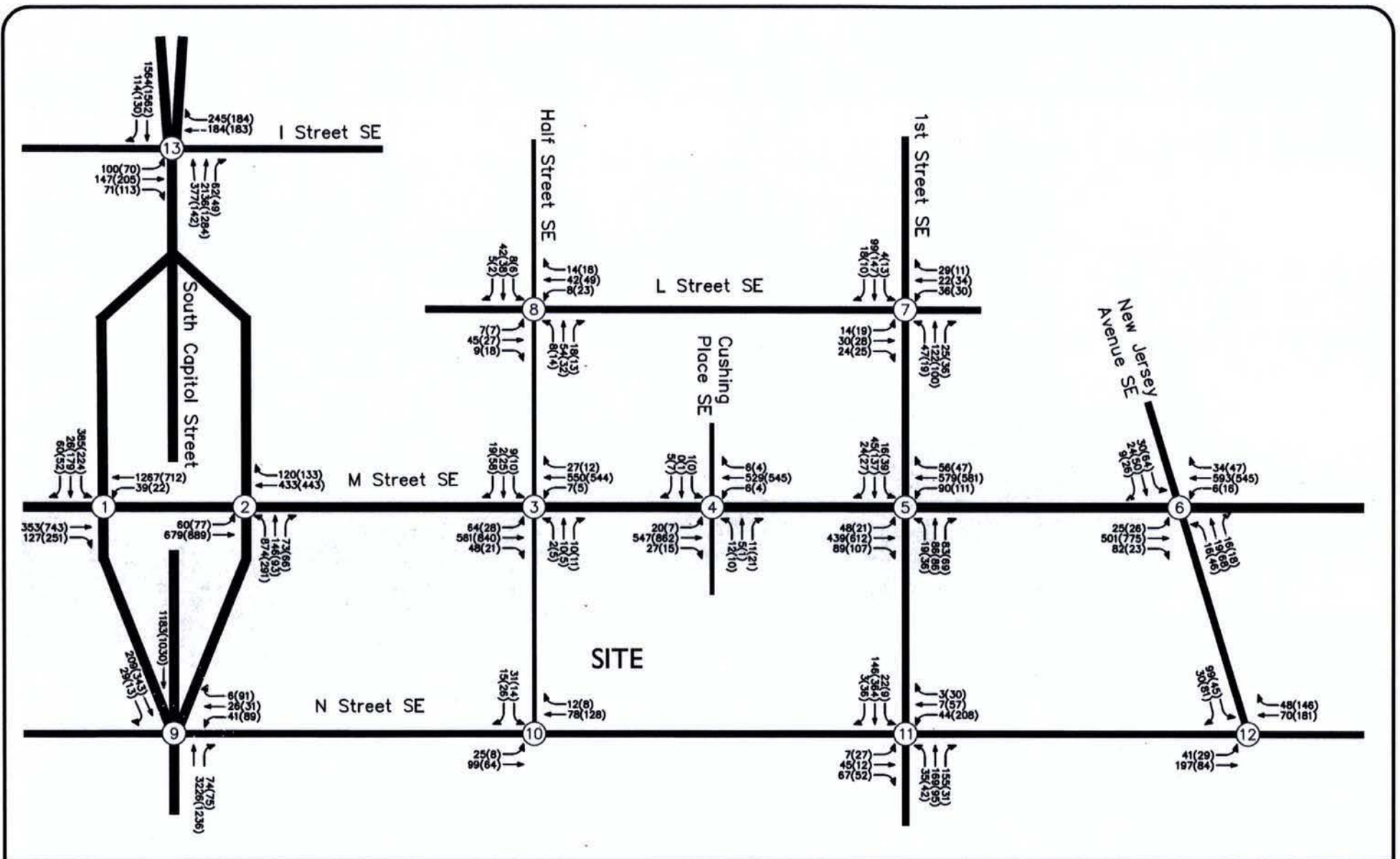


Figure 10
Existing Volumes with Regional Growth

AM Peak Hour
PM Peak Hour
000(000)

North
Not to Scale

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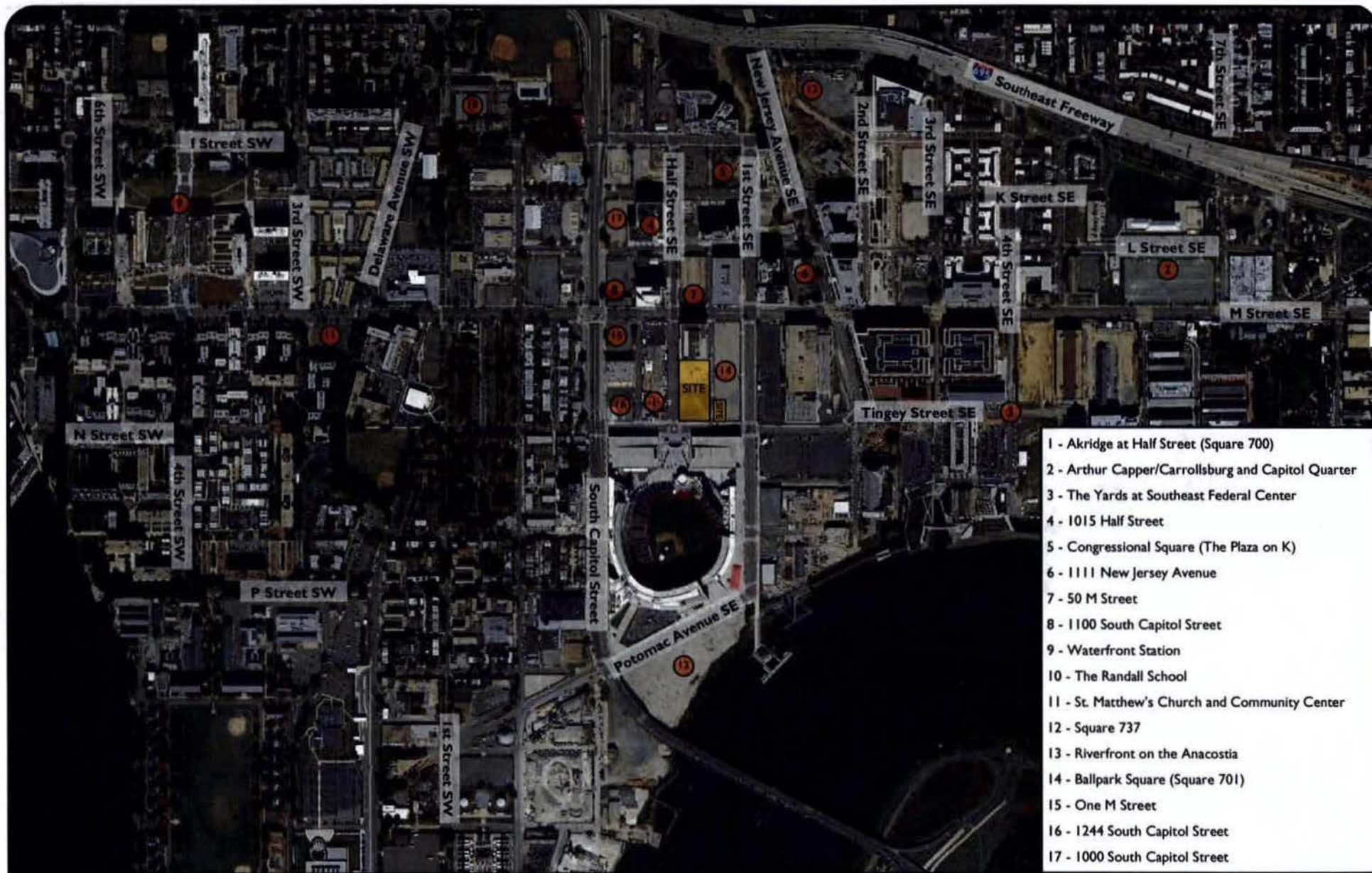


Figure 11
Pipeline Locations



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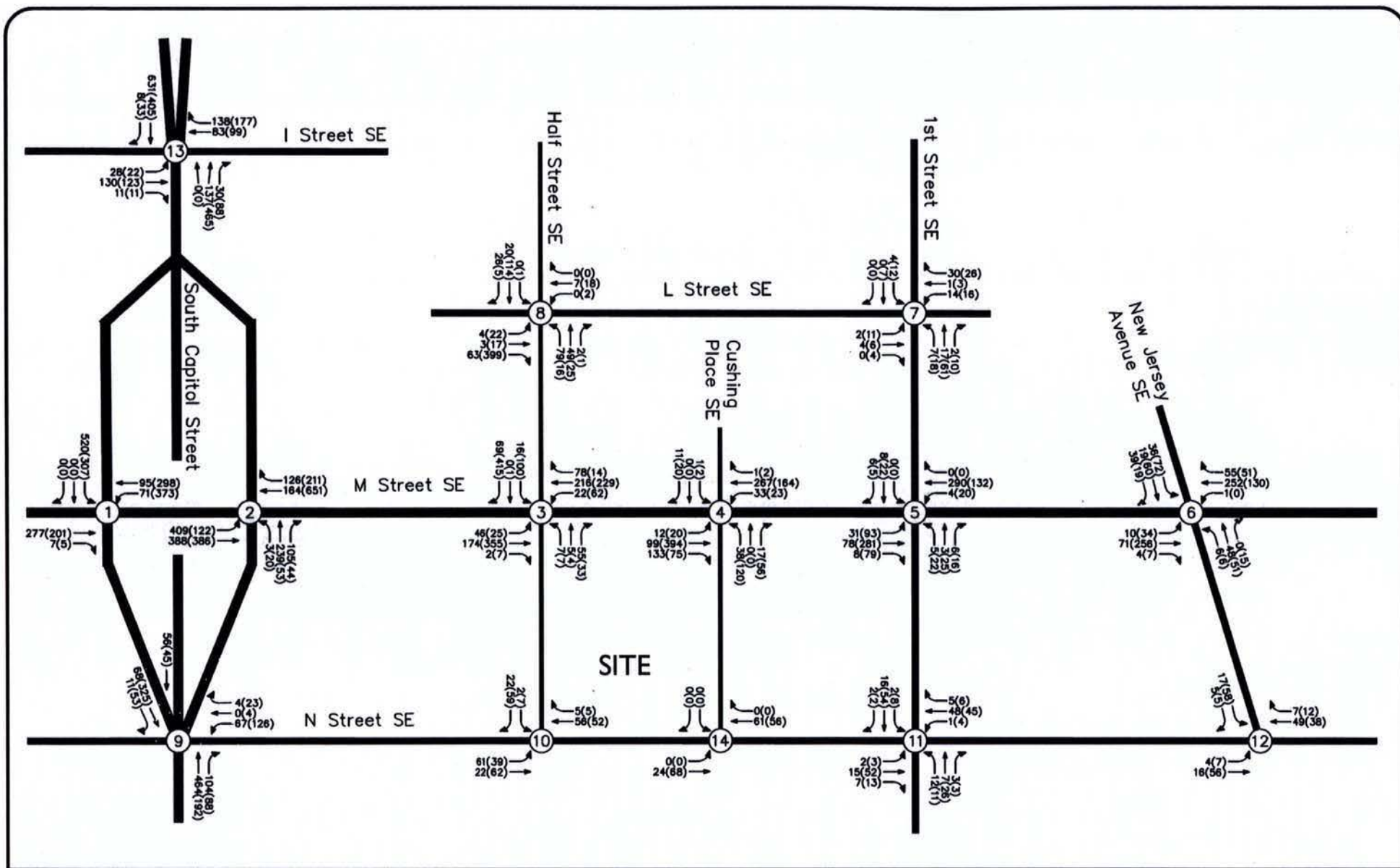


Figure 12
Pipeline Traffic Volumes

AM Peak Hour
PM Peak Hour
000(000)

North
Not to Scale

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Wells + Associates

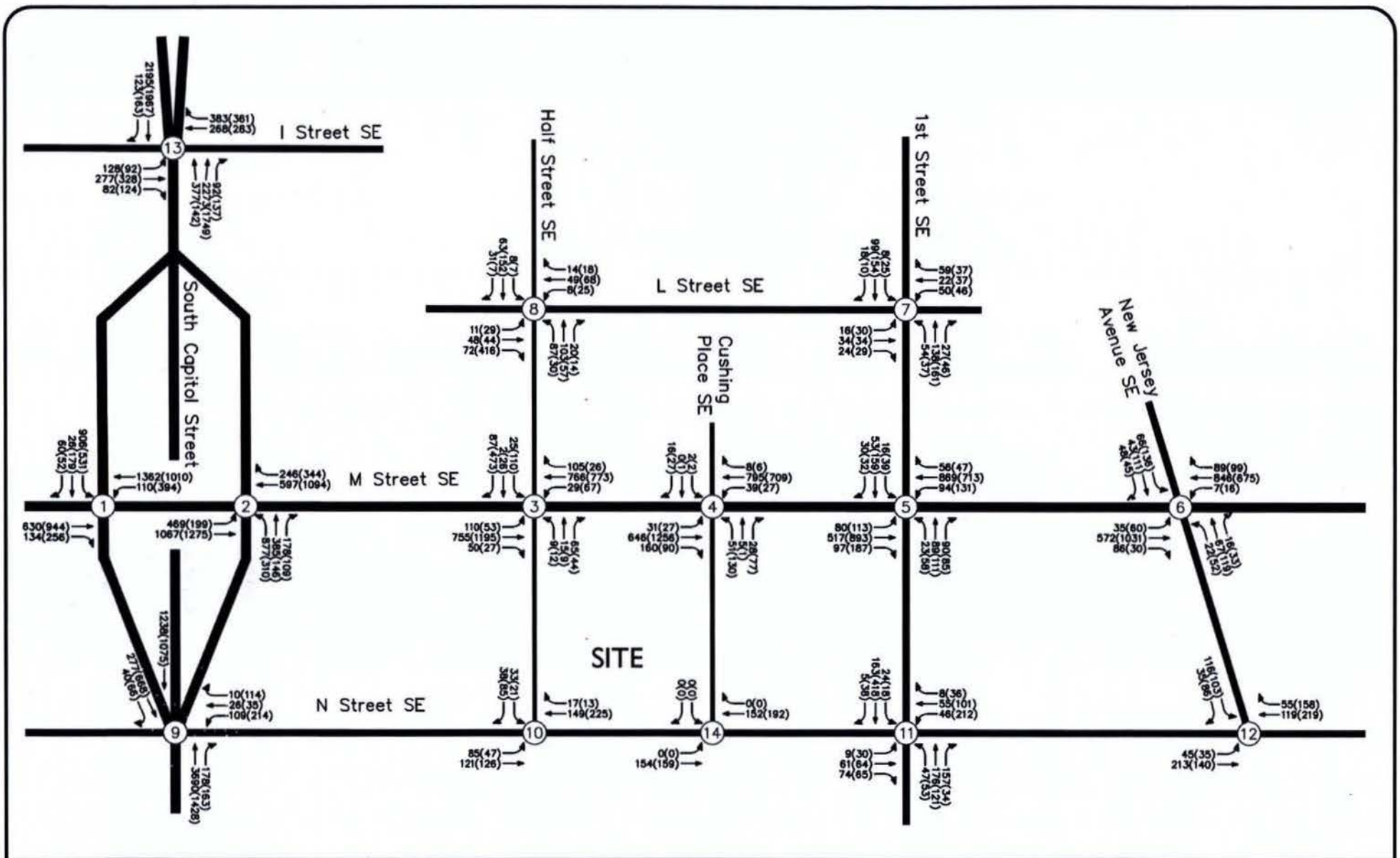


Figure 13
2018 Background Traffic Volumes

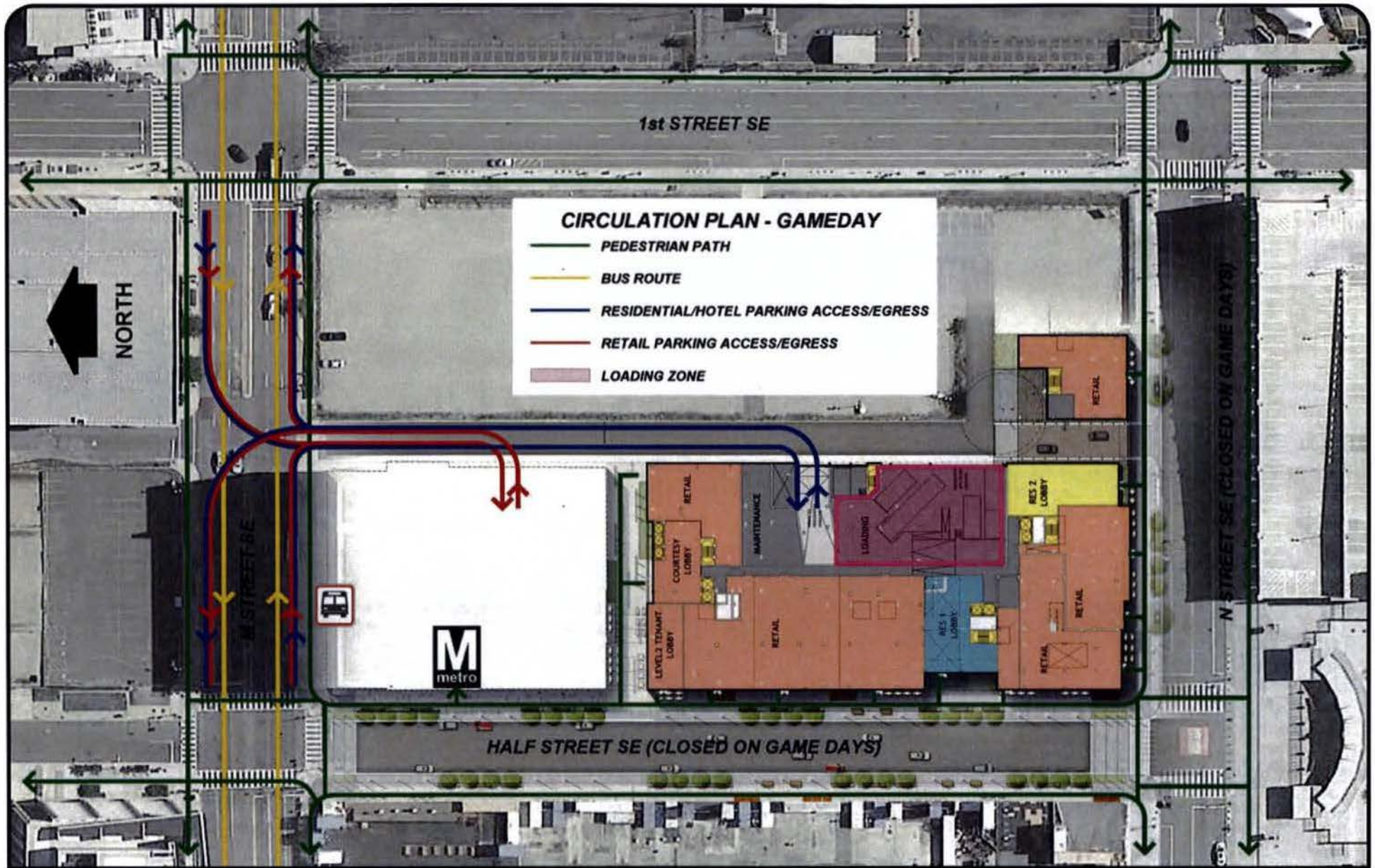


Figure 15
Site Circulation Plan - Game Day

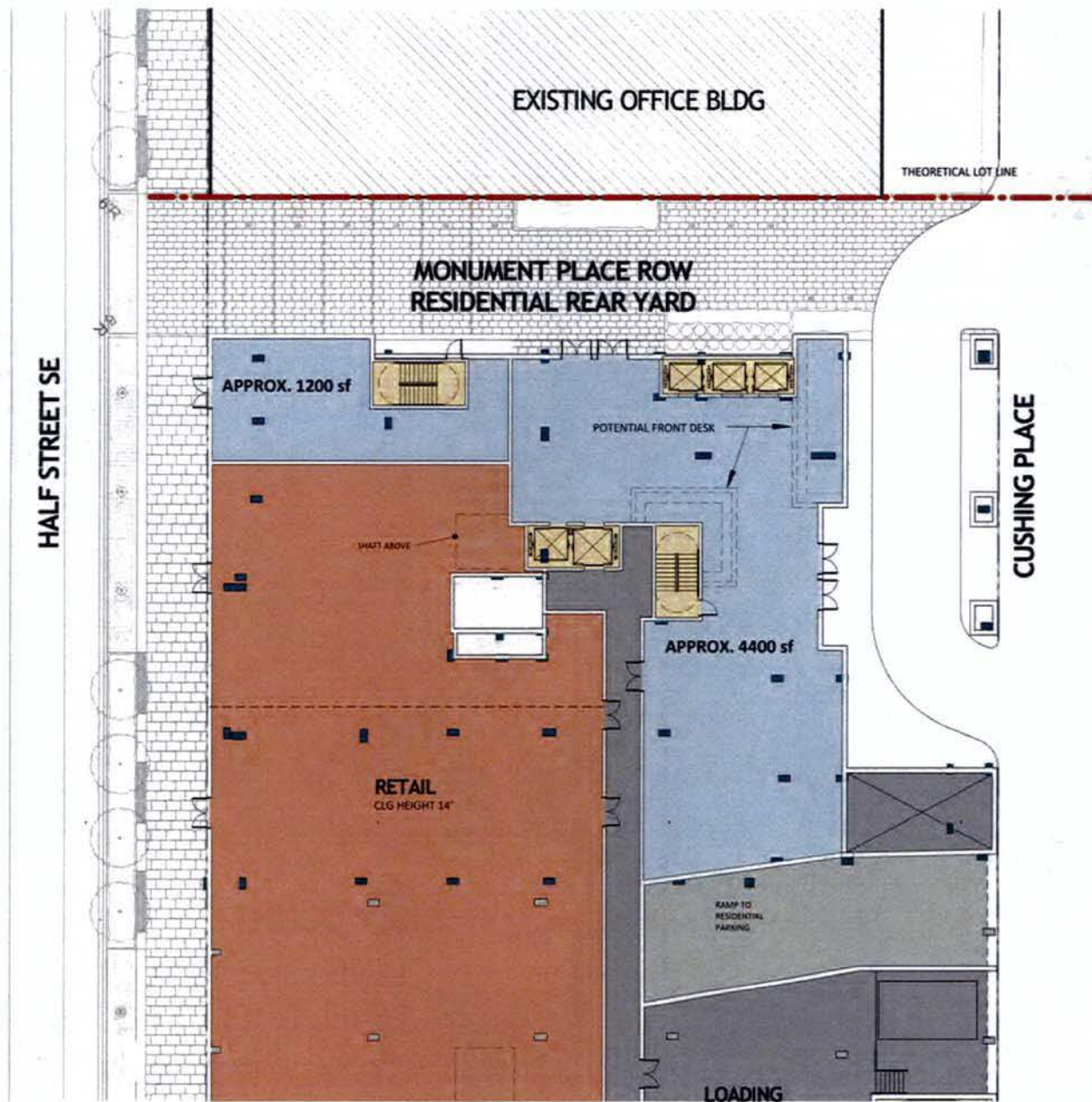


Figure 16A
Draft Potential Hotel Options

Source: Hord Coplan Macht
Date Received: 04.09.2015
1" = 30'-0"



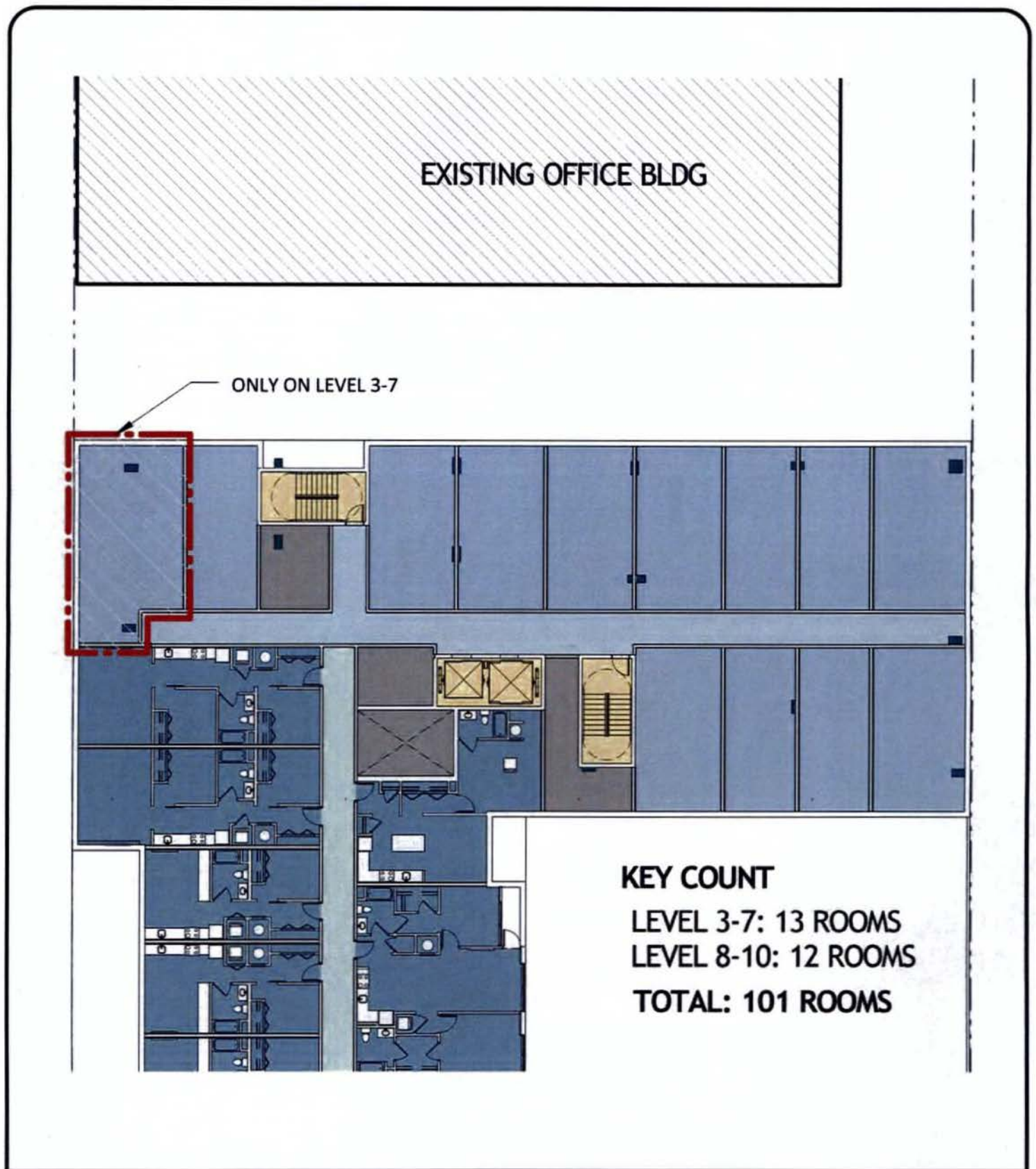


Figure 16B
Draft Potential Hotel Options

Source: Hord Coplan Macht
Date Received: 04.09.2015
1" = 30'-0"



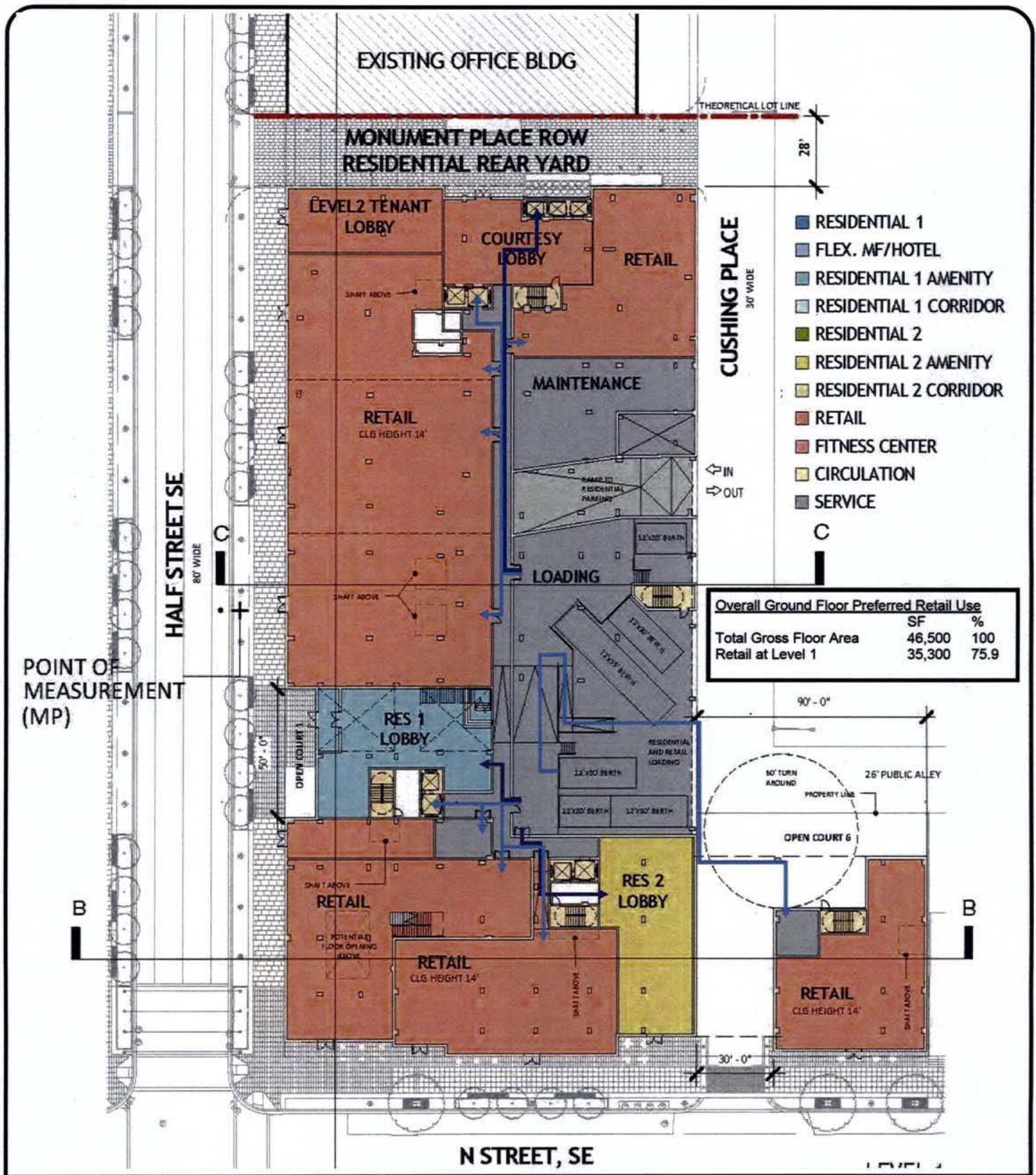


Figure 17A
Internal Access to Loading Facilities Level 1

- ➡ Retail Delivery Routes Internal
- ➡ Internal Residential Delivery Routes
- ➡ Hotel Delivery Route Internal

Source: Hord Coplan Macht
Date: 2.20.2015
1" = 50'



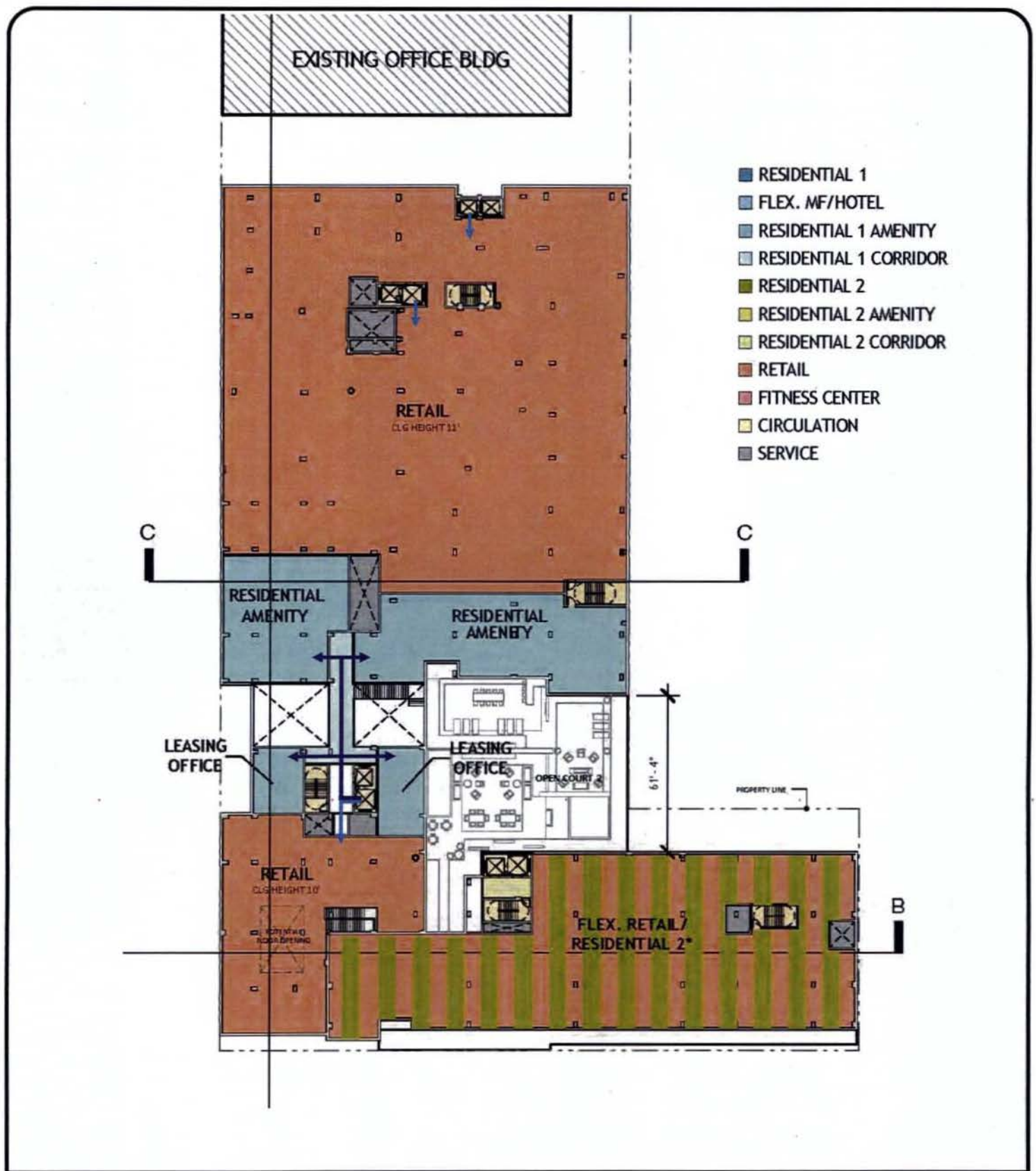


Figure 17B
Internal Access to Loading Facilities Level 2

← Retail Delivery Routes Internal
← Internal Residential Delivery Routes

Source: Hord Coplan Macht
Date: 2.20.2015
1" = 50'



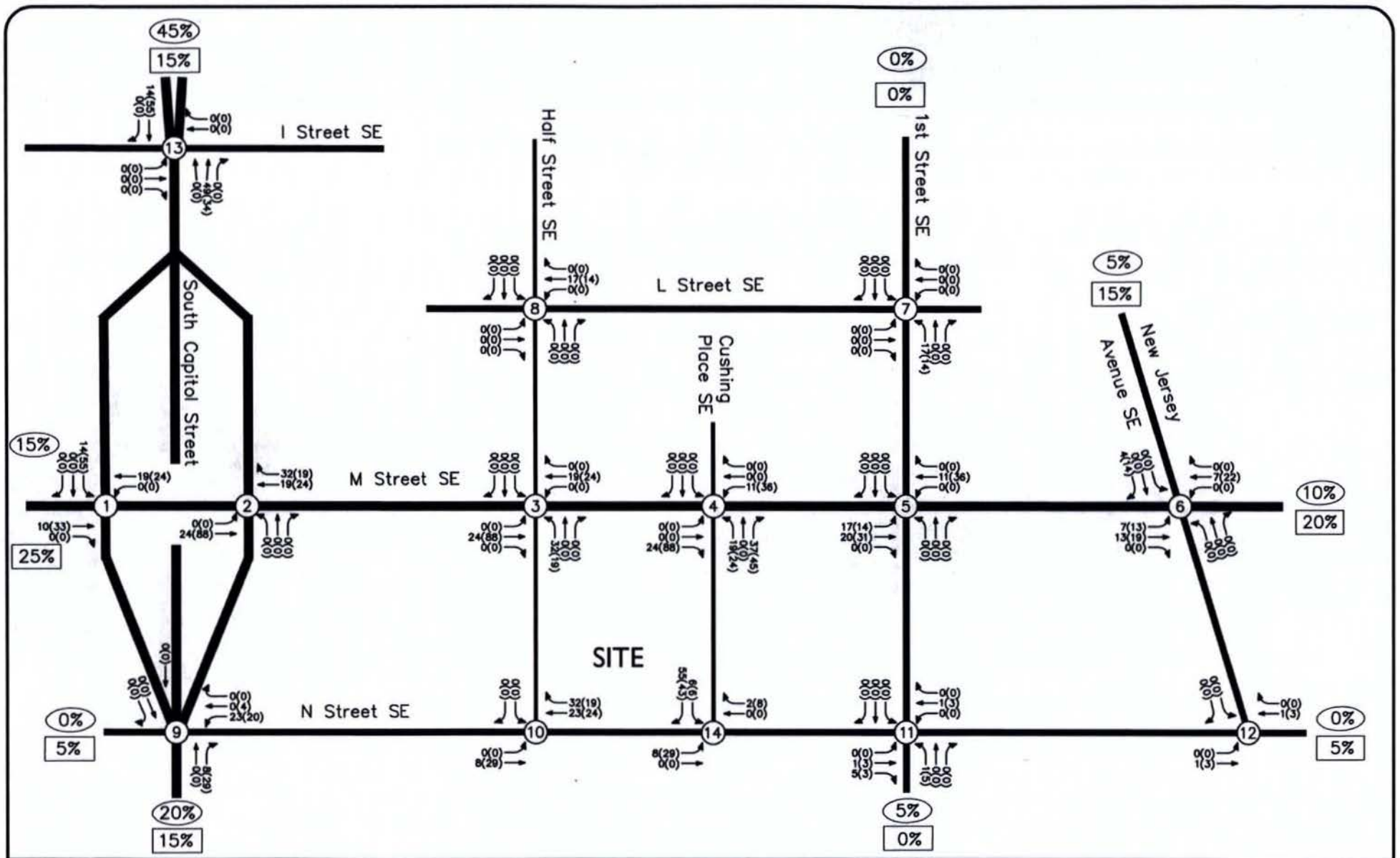


Figure 18
Site Trip Distribution and Assignment

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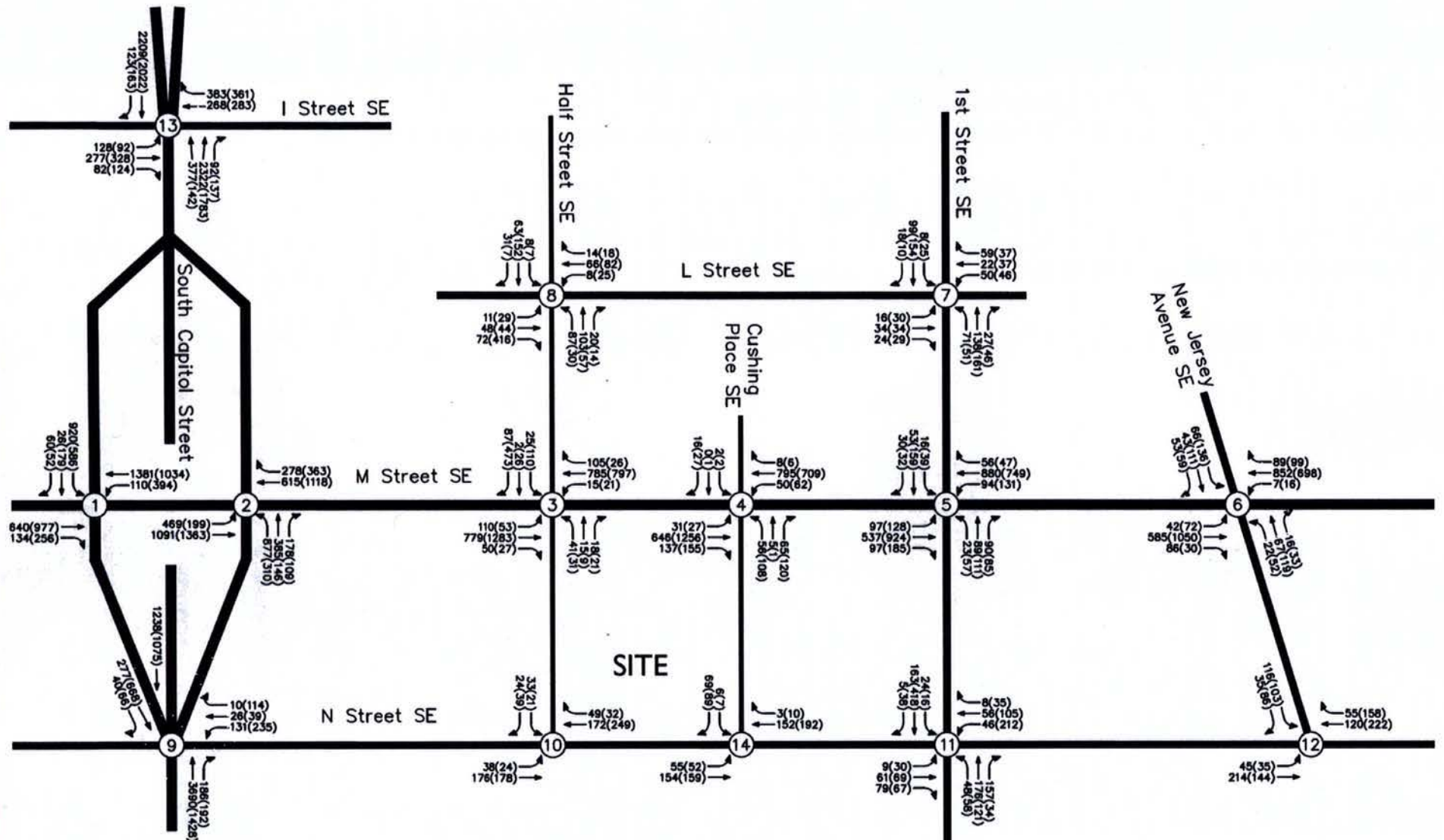


Figure 19
Total Future Traffic Volumes

AM Peak Hour
PM Peak Hour
000(000)

North
Not to Scale

Square 701
Washington, DC

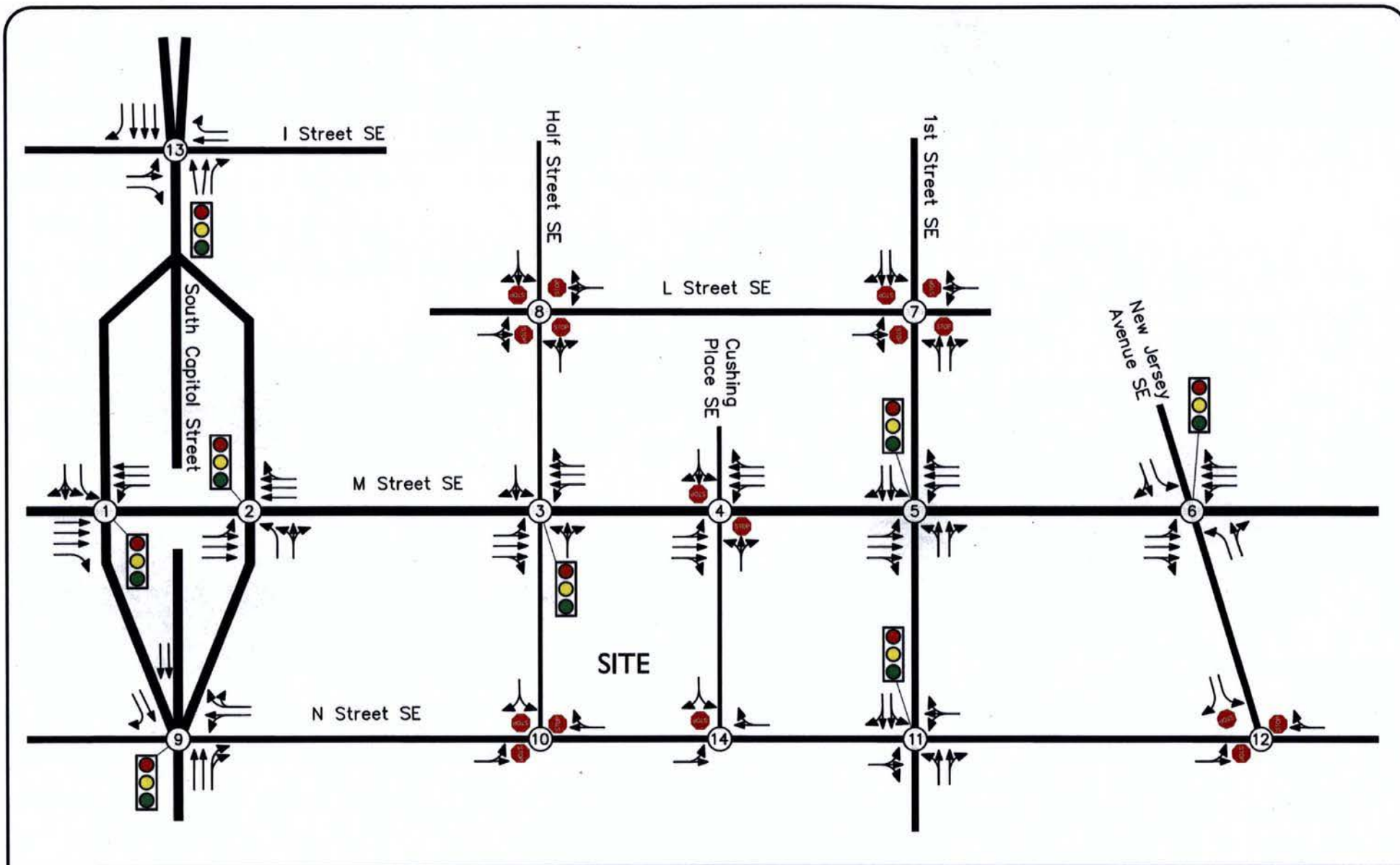


Figure 20
Future Lane Use and Traffic Control

← Represents One Travel Lane
 Signalized Intersection
 Stop Sign


 North
 Not to Scale

Square 701
 Washington, DC

 Wells + Associates