

Intersection and Approach	Future (2035)			
	AM Peak		PM Peak	
	Delay	LOS	Delay	LOS
Southbound	16.1	C	16.7	C
18. 4th Street & Bryant Street, NW				
Overall	33.4	C	48.3	D
Eastbound	90.5	F	113.9	F
Westbound	58.0	E	50.7	D
Northbound	5.4	A	2.6	A
Southbound	12.8	B	40.3	D
19. Georgia Avenue & W Street, NW				
Overall	27.7	C	94.2	F
Eastbound	--	--	--	--
Westbound	85.8	F	284.8	F
Northbound	11.2	B	6.6	A
Southbound	5.8	A	2.2	A
20. 6th Street & W Street, NW				
Eastbound	--	--	--	--
Westbound	0.0	A	0.0	A
Southbound	13.1	B	17.9	C
21. 4th Street & W Street, NW				
Overall	21.4	C	32.7	C
Eastbound	--	--	--	--
Northbound	44.9	D	34.6	C
Southbound	11.7	B	31.3	C
22. Georgia Avenue & V Street/HU Hospital, NW				
Overall	219.3	F	124.6	F
Eastbound	35.5	D	79.2	E
Westbound	30.2	C	33.4	C
Northbound	497.6	F	219.3	F
Southbound	103.0	F	84.8	F
23. Georgia Ave NW & HU Hospital				
Northbound	0.0	A	0.0	A
Southbound	1.0	A	2.1	A
24. Georgia Avenue/7th Street & Florida Avenue, NW				
Overall	43.7	D	87.4	F
Eastbound	22.6	C	28.5	C
Westbound	40.0	D	88.8	F
Northbound	118.4	F	157.0	F
Southbound	29.1	C	80.9	F
25. Georgia Avenue & Gresham Place, NW				
Westbound	101.9	F	21.3	C
Northbound	0.0	A	0.1	A

Intersection and Approach	Future (2035)			
	AM Peak		PM Peak	
	Delay	LOS	Delay	LOS
Southbound	0.0	A	0.0	A
26. 10th Street/Barry Place & Florida Avenue, NW				
Eastbound	9.3	A	9.8	A
Westbound	10.4	B	10.2	B
Northbound	10.4	B	10.5	B
Southbound	10.0	B	11.7	B
27. 9th Street & Barry Place, NW				
Eastbound	8.9	A	9.5	A
Westbound	9.0	A	9.7	A
Northbound	10.3	B	9.6	A
Southbound	9.1	A	11.0	B
28. 4th Street & V Street, NW				
Eastbound	10.3	B	12.9	B
Westbound	11.5	B	10.0	B
Northbound	14.1	B	16.1	C
Southbound	16.7	C	14.4	B
29. 5th Street & Oakdale Place, NW				
Northbound	10.1	B	9.6	A
Southbound	9.5	A	9.8	A
30. 5th Street & V Street, NW				
Eastbound	7.9	A	7.9	A
Westbound	8.3	A	9.3	A
Northbound	8.5	A	8.4	A
Southbound	8.3	A	8.1	A

Table 26: Queueing Results (2035)

Intersection and Lane Group	Storage Length (ft)	Future (2035)			
		AM Peak		PM Peak	
		50th	95th	50th	95th
1. Georgia Avenue & Harvard Street, NW					
Eastbound Left	60	16	40	21	47
Eastbound TR	760	125	176	143	195
Northbound TR	100	141	187	393	511
Southbound LT	200	-596	#732	256	#406
2. Harvard Street & 5th Street, NW					
Eastbound TR	630	293	378	388	#533
Westbound Left	315	-840	#1206	224	401
Northbound Right	150	42	114	211	416
Southbound LT	90	2	11	2	11
3. Georgia Avenue & Girard Street, NW (North)					
Eastbound LR	760	--	3	--	18
Northbound LT	100	--	3	--	1
Southbound TR	130	--	0	--	0
4. Georgia Avenue & Girard Street, NW (South)					
Eastbound LTR	300	--	2	--	2
Northbound LTR	165	--	0	--	0
Southbound LTR	100	--	1	--	1
5. Georgia Avenue & Fairmont Street, NW (North)					
Northbound LT	80	25	32	62	51
Southbound TR	100	438	542	241	301
6. Georgia Avenue & Fairmont Street, NW (South)					
Westbound LR	260	20	63	24	68
Northbound Thru	160	11	23	87	97
Southbound Thru	80	3	3	1	1
7. Fairmont Street & 6th Street, NW					
Westbound Thru	360	--	0	--	0
Northbound Left	860	--	7	--	11
8. Georgia Avenue & Euclid Street, NW					
Eastbound Left	500	59	104	127	198
Eastbound Right	25	5	37	14	42
Northbound Thru	610	154	197	227	283
Southbound Thru	160	65	75	28	36
9. Georgia Avenue & Howard Place, NW					
Northbound TR	430	71	77	74	m72
Southbound LT	610	262	353	155	206
10. 6th Street & Howard Place, NW					
Eastbound LTR	260	--	19	--	16
Westbound LTR	715	--	10	--	4

Intersection and Lane Group	Storage Length (ft)	Future (2035)			
		AM Peak		PM Peak	
		50th	95th	50th	95th
11. 5th Street/4th Street & Howard Place, NW					
Eastbound LTR	1900	45	96	6	29
Westbound LTR	715	15	44	43	95
Northbound LTR	425	61	120	115	m194
Southbound LTR	1650	241	345	125	164
12. Sherman Avenue & Barry Place, NW					
Eastbound LTR	120	98	164	225	#395
Westbound LT	230	127	212	103	174
Westbound Right	100	0	31	0	32
Northbound Left	110	4	13	8	22
Northbound Thru	315	75	118	154	227
Northbound Right	100	0	17	2	24
Southbound Left	95	16	35	33	68
Southbound TR	1100	141	182	90	122
13. Georgia Avenue & Barry Place, NW					
Eastbound LR	240	146	#280	164	#330
Eastbound Left	240	--	--	--	--
Eastbound Right	100	--	--	--	--
Northbound Left	125	12	m14	31	m20
Northbound Thru	280	112	m130	96	m61
Southbound Thru	430	~1007	#1247	~813	#1064
Southbound Right	430	8	m21	6	27
14. 6th Street & College Street, NW					
Westbound Left	705	--	--	--	--
Southbound LT	425	--	--	--	--
15. 4th Street & College Street, NW					
Eastbound LTR	705	43	#121	~299	#440
Westbound LTR	290	1	9	2	13
Northbound LTR	295	19	m6	130	m175
Southbound LTR	420	103	125	138	161
16. Georgia Avenue & Bryant Street, NW					
Eastbound LTR		9	32	14	45
Westbound LTR		--	--	--	--
Northbound Thru	285	478	#888	~948	m#1111
Northbound Right	100	56	m90	54	m65
Southbound Left	125	~143	m#85	~163	m#127
Southbound Thru	280	64	m43	24	m20
17. 6th Street & Bryant Street, NW					
Eastbound TR	260	--	0	--	0
Westbound LT		--	--	--	--

Intersection and Lane Group	Storage Length (ft)	Future (2035)			
		AM Peak		PM Peak	
		50th	95th	50th	95th
Northbound Right	315	--	1	--	7
Northbound LR	315	--	--	--	--
Southbound LT	300	--	30	--	26
Southbound LTR	300	--	--	--	--
18. 4th Street & Bryant Street, NW					
Eastbound LTR	700	~231	m#289	~367	m#447
Eastbound LT	700	--	--	--	--
Eastbound Right	75	--	--	--	--
Westbound LR	830	106	#244	88	#221
Westbound LTR	830	--	--	--	--
Northbound TR	295	0	m0	0	m0
Northbound LTR	295	--	--	--	--
Southbound LT	295	196	247	359	m#530
Southbound LT	295	--	--	--	--
19. Georgia Avenue & W Street, NW					
Eastbound LR	235	--	--	--	--
Westbound Left	300	~222	m#393	~432	#629
Westbound TR	190	57	160	~175	#375
Westbound Right	190	--	--	--	--
Northbound Thru	360	290	m176	208	m186
Southbound Thru	280	66	m70	8	12
20. 6th Street & W Street, NW					
Eastbound LT		--	--	--	--
Westbound Thru	350	--	0	--	0
Westbound TR	350	--	--	--	--
Southbound Right	300	--	19	--	46
Southbound LR	300	--	--	--	--
21. 4th Street & W Street, NW					
Eastbound LTR		--	--	--	--
Northbound LTR	300	205	312	323	460
Southbound LT	300	207	m265	280	m308
Southbound Right	105	2	m10	96	m101
22. Georgia Avenue & V Street/HU Hospital, NW					
Eastbound LTR	215	60	123	164	#331
Westbound LT	170	0	0	0	0
Westbound Right	170	0	0	0	0
Northbound LT	430	~778	m#774	~761	m#595
Northbound Right	115	0	0	0	0
Southbound LT	360	~972	m#1141	~774	m#710
Southbound Right	150	11	m19	25	m36

Intersection and Lane Group	Storage Length (ft)	Future (2035)			
		AM Peak		PM Peak	
		50th	95th	50th	95th
23. Georgia Ave NW & HU Hospital					
Northbound TR	195	--	0	--	0
Southbound LT	190	--	2	--	6
24. Georgia Avenue/7th Street & Florida Avenue, NW					
Eastbound TR	225	115	158	164	219
Westbound TR	160	348	#484	~465	#586
Northbound TR	150	~308	#495	~492	#698
Southbound Left	100	181	m145	~311	m#275
Southbound Thru	430	232	m175	280	m254
Southbound Right	160	5	m5	5	m6
25. Georgia Avenue & Gresham Place, NW					
Westbound LTR	630	--	282	--	83
Northbound LT	130	--	0	--	1
Southbound TR	100	--	0	--	0
26. 10th Street/Barry Place & Florida Avenue, NW					
Eastbound LTR	400	--	--	--	--
Westbound LTR	125	--	--	--	--
Northbound LTR	215	--	--	--	--
Southbound Left	150	--	--	--	--
Southbound TR	225	--	--	--	--
27. 9th Street & Barry Place, NW					
Eastbound LTR	230	--	--	--	--
Westbound LTR	225	--	--	--	--
Northbound LTR	200	--	--	--	--
Southbound LTR	1115	--	--	--	--
28. 4th Street & V Street, NW					
Eastbound LTR	300	--	--	--	--
Westbound LTR	820	--	--	--	--
Northbound LTR	120	--	--	--	--
Southbound LTR	300	--	--	--	--
29. 5th Street & Oakdale Place, NW					
Northbound TR	250	--	20	--	12
Southbound LT	130	--	7	--	15
30. 5th Street & V Street, NW					
Eastbound LTR	200	--	--	--	--
Westbound LTR	300	--	--	--	--
Northbound LTR	130	--	--	--	--
Southbound LTR	250	--	--	--	--

95th percentile volume exceeds capacity, queue may be longer.
m Volume for 95th percentile queue is metered by upstream signal.
~ Volume exceeds capacity, queue is theoretically infinite.

Summary and Recommendations

This section summarizes the transportation strategies of the Campus Plan, reviews the transportation impacts of the Campus Plan by mode, and presents recommendations for implementing the transportation strategies of the Campus Plan.

Summary

The Campus Plan's transportation strategy is guided by its Planning Principles of improving quality of life, improving the public realm, and enhancing physical access and connectivity. The transportation strategy is comprised of five (5) elements, including:

1. Ensuring there is no net increase in parking supply;
2. Improving pedestrian conditions and connectivity;
3. Increasing multimodal access;
4. Providing safe, efficient access to the new Howard University Hospital; and
5. Being a good transportation neighbor.

As stated at the end of the Parking, Pedestrian, Bicycle, Transit, Transportation Demand Management (TDM), and Roadway chapters, there are ways which each of the major transportation proposals presented in this CTR supports at least some of these strategies. These are presented together in Table 27.

Recommendations

The following are recommendations for implementing the transportation strategies of the Campus Plan.

Campus-wide Recommendations

No net increase in parking supply

This CTR recommends ensuring there is no net increase in parking supply on campus throughout the duration of the Campus Plan.

Transportation Demand Management (TDM)

This CTR also recommends implementing each of the proposed TDM plan's Committed Actions and as many of the Discretionary Actions as possible.

The following Committed Actions are included in the proposed TDM Plan:

- The University has already increased staff and student parking permit rates substantially since the 2011 Campus Plan. The University will continue to increase permit rates to help deter single-occupant driver parking and raise revenue for TDM programs.
- The University will unbundle tenant parking by raising the monthly visitor parking permit rate to \$180. The University already charges non-University tenants for access to University parking facilities. However, to qualify as "unbundled" according to DDOT's CTR guidelines, tenant parking rates need to increase until they at least equal the lowest monthly rate offered by a commercial parking facility within one quarter-mile of the campus. Based on a recent survey of nearby parking rates, the lowest monthly rate is \$180, compared to HU's current monthly rate of \$160 for a visitor permit.
- The University will continue to invest in improving its shuttle services based on staff and student feedback, as well as in anticipation of new development projects that may alter traffic patterns and sources of demand for shuttle service. Further Processing for each building proposed in the Campus Plan will include a review of existing shuttle ridership patterns, whether the proposed building is expected to alter ridership patterns, and recommendations for improving shuttle service if applicable.

- The University will maintain existing bus routes and stops during any and all University construction events in order to avoid transit service disruptions for the University and surrounding communities. Further Processing for parcels abutting WMATA bus routes or stops (Parcels A, E, F, and J as shown on Figure 5) will include plans for maintaining bus service.
- The University will continue promoting transit commuting benefits for faculty and staff via WMATA's SmartBenefits program. Currently the maximum pre-tax allowed amount is \$270/month for transit only, \$104/month for parking only, and \$374/month for transit and parking.
- The University will provide space for and fund an additional Capital Bikeshare station on the central campus. Based on the location of existing and planned stations, this CTR recommends somewhere on the southern part of campus near the new Howard University Hospital as a potential location. If this location is chosen, the University will fund the station as part of Further Processing for whichever of the hospital-related parcels (Parcels D, E, G, or H as shown on Figure 5) is developed first. If another location is chosen, the station will be funded as part of Further Processing for whichever of the Campus Plan proposed buildings (shown on Figure 5) is closest to the proposed station.
- The University will post a downloadable copy of the final TDM Plan on its website and in other University media.
- The University will continue designating a TDM Coordinator, who will implement, monitor, and market the TDM programs, provide personalized commuter counseling to help members of the HU population understand their options, and act as a point of contact with DDOT, goDCgo, and Zoning Enforcement.
- The University's Transportation Coordinator will develop, distribute, and market various transportation alternatives and options to employees and students, including promoting transportation events (i.e., Bike to Work Day, National Walking Day, Car Free Day) on relevant websites and in any relevant internal newsletters, communications, or displays. These materials will contain sections oriented to different users, including faculty/staff, students, and visitors. Any students living on-campus will be provided with a packet of information upon or prior to moving-in. New faculty/staff hires will be provided with a similar packet of information. Further Processing for each building proposed in the Campus Plan will include a discussion of building-specific TDM marketing materials, if applicable.
- The University will prominently display links to commuter support websites on appropriate University webpages, including links to CommuterConnections.com, DDOT's Washington, DC Bicycle Map, Washington Walks, nearby bicycle vendors and service providers, goDCgo.com, and WMATA.
- The University will perform annual monitoring to understand student, faculty and staff mode choice in relation to TDM practices, parking pricing, and University transportation policies, and release annual monitoring reports containing this information. The purpose of this monitoring is to make data-driven decisions about which TDM measures, if any, need to be adjusted to meet the primary TDM goal of ensuring that academic parking demand per student does not rise above its current level. The monitoring reports will include the recommended survey question modifications outlined in the above TDM Assessments section of this report. The monitoring will be used to inform future TDM- and parking-related decisions to further incentivize non-auto modes and minimize impacts by the University on the surrounding community. The monitoring reports will include the following:
 - Mode split surveys of the campus population, broken down by students and employees;
 - Current parking inventory and occupancy on a typical weekday;
 - Number of permits sold per year;
 - Parking availability on surrounding neighborhood streets;
 - Number of registered carpools;

- Number of people enrolled in WMATA SmartBenefits; and
- Inventory and occupancy of bicycle racks.
- The University will prepare an annual TDM and Parking report to be submitted to DDOT. These reports will focus first and foremost on documenting progress toward the TDM Plan performance targets that the University has agreed to. Further Processing for each building proposed in the Campus Plan will reference these reports, identifying trends and progress towards TDM goals and allowing these to inform parking and other transportation-related elements of the proposed buildings. The performance targets that the University has agreed to are as follows:
 - By the end of the 2020 Campus Plan (2030), the University sets a goal of ensuring that academic parking demand per student does not rise above its current level of 0.126 peak hour-occupied parking spaces per student. This will be the primary measure of success for the Campus Plan's five (5) transportation strategies, as this metric is the result of a direct measurement, not of surveys which may be susceptible to error. Achieving this goal will also help the University implement the Campus Plan, as reduced demand can lead to less parking supply being added to proposed buildings, reducing costs to the University. If parking demand per student increases, it will be seen as an indicator that more discretionary TDM measures are needed. A decrease in parking demand per student is an aspirational goal of the Campus Plan.
 - The University sets the following mode split goals for trips to campus by the end of the 2020 Campus Plan (2030), which are informed by A) *MoveDC's* non-auto mode share goal for commute trips of 75%, B) the latest mode splits for both residents and employees in the campus's census Transportation Analysis Zone (TAZ), and C) the 2019 cumulative student/faculty/staff mode splits of 53% auto, 30% transit, 1% bike, and 16% walk for trips to campus. While the mode splits below are identified as aspirational goals, the primary measure of success for the TDM Plan is peak parking demand per student, as noted above. The mode split goals are as follows:
 - For students:
 - Drive alone: ≤ 40%
 - Carpool: ≥ 2%
 - Transit: ≥ 50%
 - Bike: ≥ 15%
 - Walk: ≥ 30%
 - For faculty/staff:
 - Drive alone: ≤ 20%
 - Carpool: ≥ 2%
 - Transit: ≥ 40%
 - Bike: ≥ 5%
 - Walk: ≥ 20%
- The University will develop formal "Alternative Work Schedule" guidelines, which will define opportunities for telecommuting as well as maintaining non-traditional weekly work schedules. The University's Transportation Coordinator will ensure that the TDM benefits of various policy options – reducing peak-hour travel and parking demand – are considered when developing and implementing these guidelines.

- The University will significantly expand the quantity and quality of bicycle parking facilities on campus, both at existing building sites and at the new University development sites identified in the Campus Plan. A more detailed discussion of proposed bicycle parking quantities and locations will be included in Further Processing for proposed buildings.
- The University will install an additional 20 bicycle parking spaces every year over the course of the Campus Plan and include a bicycle parking inventory with every annual TDM report. These spaces are intended to serve existing buildings that do not have sufficient bicycle parking and does not include parking spaces added as part of new buildings.
- As part of Further Processing for Parcel B or C (shown on Figure 5), whichever enters Further Processing first, the University will coordinate with DDOT to explore removing on-street parking spaces along 6th Street between Fairmont Street and Bryant Street to make room for multimodal improvements such as bike lanes, curb extensions, or bike/scooter parking corrals.

TDM Performance Monitoring

This CTR recommends conducting annual TDM surveys which will inform annual TDM monitoring. These surveys and assessments should follow the recommended survey question modifications outlined earlier in the TDM chapter of this report. The purpose of this monitoring is to make data-driven decisions about which TDM measures, if any, need to be adjusted to meet the primary TDM goal of ensuring that academic parking demand per student does not rise above its current level.

Recommendations for Further Processing

This CTR recommends the following actions be taken during Further Processing for each of the proposed buildings in the Campus Plan.

Parcel A: Burr Intercollegiate Athletic Center

Prepare a Comprehensive Transportation Review or Transportation Statement as required by DDOT, including:

- A detailed review of pedestrian, bicycle, and transit facilities along Georgia Avenue adjacent to the parcel;
- Details on the building's proposed loading operations; and
- Any building-specific TDM measures that may be applicable or advisable in meeting the University's overall TDM commitments.

Have the project explore upgrading the sidewalks adjoining the site along Georgia Avenue and Girard Street, which currently do not meet DDOT width requirements. The project should also explore improving the existing WMATA bus stop at Georgia Avenue and Gresham Place, just north of the parcel, which currently does not have all recommended bus stop amenities.

Parcel B: Center for Arts & Communications

Prepare a Comprehensive Transportation Review or Transportation Statement as required by DDOT, including:

- An updated inventory of existing campus-wide parking supply and proposed parking facilities for the building, including bicycle parking;
- A potential analysis of parking access to ensure safe and efficient operations on HU and public streets, to be scoped with DDOT at the time of Further Processing;
- An examination of potential mitigations at the following intersections with movements or approaches that operate at unacceptable conditions, which are partially attributable to the addition of parking facilities at this parcel:
 - Georgia Avenue and Harvard Street NW (minor signal timing adjustments)
 - Harvard Street and 5th Street NW (minor signal timing adjustments)
- Details on the building's proposed loading operations; and

- Any building-specific TDM measures that may be applicable or advisable in meeting the University's overall TDM commitments.

Parcel C: Howard Student Union

Prepare a Comprehensive Transportation Review or Transportation Statement as required by DDOT, including:

- An updated inventory of existing campus-wide parking supply and proposed parking facilities for the building, including bicycle parking;
- A potential analysis of parking access to ensure safe and efficient operations on HU and public streets, to be scoped with DDOT at the time of Further Processing;
- An examination of potential mitigations at the following intersections with movements or approaches that operate at unacceptable conditions, which are partially attributable to the addition of parking facilities at this parcel:
 - Georgia Avenue and Harvard Street NW (minor signal timing adjustments)
 - Harvard Street and 5th Street NW (minor signal timing adjustments)
- Details on the building's proposed loading operations; and
- Any building-specific TDM measures that may be applicable or advisable in meeting the University's overall TDM commitments.

Parcel D: Health Sciences Complex

Prepare a Comprehensive Transportation Review or Transportation Statement as required by DDOT, including:

- A detailed review of pedestrian, bicycle, and transit facilities along 6th Street adjacent to the parcel;
- An updated inventory of existing campus-wide parking supply and proposed parking facilities for the building, including bicycle parking;
- A potential analysis of parking access to ensure safe and efficient operations on HU and public streets, to be scoped with DDOT at the time of Further Processing;
- An examination of potential mitigations at the following intersections with movements or approaches that operate at unacceptable conditions, which are partially attributable to the addition of parking facilities at this parcel:
 - 4th Street and College Street NW (minor signal timing adjustments)
 - 4th Street and Bryant Street NW (converting Bryant Street from one-way to two-way, converting on-street parking into a 75-foot eastbound right-turn lane, minor signal adjustments)
 - Georgia Avenue and W Street NW (converting W Street from one-way to two-way, minor signal timing adjustments)
 - 4th Street and W Street NW (converting W Street from one-way to two-way)
 - Georgia Avenue and V Street/HU Hospital NW (minor signal timing adjustments)
 - Georgia Avenue/7th Street and Florida Avenue NW (minor signal timing adjustments)
- Details on the building's proposed loading operations; and
- Any building-specific TDM measures that may be applicable or advisable in meeting the University's overall TDM commitments.

Have the project explore upgrading the sidewalks adjoining the site along 6th Street and College Street, which currently do not meet DDOT width requirements. The project should also explore upgrading the curb ramps adjoining the parcel at 6th Street and College Street, and 6th Street and Bryant Street, which do not comply with ADA standards.

Parcel E: STEM Facility

Prepare a Comprehensive Transportation Review or Transportation Statement as required by DDOT, including:

- An updated inventory of existing campus-wide parking supply and proposed parking facilities for the building, including bicycle parking;
- A potential analysis of parking access to ensure safe and efficient operations on HU and public streets, to be scoped with DDOT at the time of Further Processing;
- An examination of potential mitigations at the following intersections with movements or approaches that operate at unacceptable conditions, which are partially attributable to the addition of parking facilities at this parcel:
 - 4th Street and College Street NW (minor signal timing adjustments)
 - 4th Street and Bryant Street NW (converting Bryant Street from one-way to two-way, converting on-street parking into a 75-foot eastbound right-turn lane, minor signal adjustments)
 - Georgia Avenue and W Street NW (converting W Street from one-way to two-way, minor signal timing adjustments)
 - 4th Street and W Street NW (converting W Street from one-way to two-way)
 - Georgia Avenue and V Street/HU Hospital NW (minor signal timing adjustments)
 - Georgia Avenue/7th Street and Florida Avenue NW (minor signal timing adjustments)
- Details on the building's proposed loading operations; and
- Any building-specific TDM measures that may be applicable or advisable in meeting the University's overall TDM commitments.

Have the project explore upgrading the sidewalks adjoining the site along 4th Street and College Street, which currently do not meet DDOT width requirements.

Parcel F: Apartment-style Residences

Prepare a Comprehensive Transportation Review or Transportation Statement as required by DDOT, including:

- An updated inventory of existing campus-wide parking supply and proposed parking facilities for the building, including bicycle parking;
- A potential analysis of parking access to ensure safe and efficient operations on HU and public streets, to be scoped with DDOT at the time of Further Processing;
- Details on the building's proposed loading operations; and
- Any building-specific TDM measures that may be applicable or advisable in meeting the University's overall TDM commitments, which for this facility may include TDM strategies specifically targeted for students living on campus.

Have the project explore upgrading the sidewalks adjoining the site along 9th Street, which currently do not meet DDOT width requirements. The project should also consider installing a pedestrian path between the buildings that connects Sherman Avenue and 9th Street.

Parcel G: Medical Office

Prepare a Comprehensive Transportation Review or Transportation Statement as required by DDOT, including:

- A detailed review of pedestrian, bicycle, and transit facilities along 6th Street adjacent to the parcel;
- An updated inventory of existing campus-wide parking supply and proposed parking facilities for the building, including bicycle parking;

- A potential analysis of parking access to ensure safe and efficient operations on HU and public streets, to be scoped with DDOT at the time of Further Processing;
- An examination of potential mitigations at the following intersections with movements or approaches that operate at unacceptable conditions, which are partially attributable to the addition of parking facilities at this parcel:
 - 4th Street and College Street NW (minor signal timing adjustments)
 - 4th Street and Bryant Street NW (converting Bryant Street from one-way to two-way, converting on-street parking into a 75-foot eastbound right-turn lane, minor signal adjustments)
 - Georgia Avenue and W Street NW (converting W Street from one-way to two-way, minor signal timing adjustments)
 - 4th Street and W Street NW (converting W Street from one-way to two-way)
 - Georgia Avenue and V Street/HU Hospital NW (minor signal timing adjustments)
 - Georgia Avenue/7th Street and Florida Avenue NW (minor signal timing adjustments)
- Details on the building's proposed loading operations; and
- Any building-specific TDM measures that may be applicable or advisable in meeting the University's overall TDM commitments, which for this facility may include TDM strategies specifically targeted for medical staff.

Have the project explore upgrading the sidewalks adjoining the site along 6th Street and Bryant Street, which currently do not meet DDOT width requirements.

Parcel H: Howard University Hospital

Prepare a Comprehensive Transportation Review or Transportation Statement as required by DDOT, including:

- A detailed review of pedestrian, bicycle, and transit facilities along 6th Street adjacent to the parcel;
- An updated inventory of existing campus-wide parking supply and proposed parking facilities for the building, including bicycle parking;
- A potential analysis of parking access to ensure safe and efficient operations on HU and public streets, to be scoped with DDOT at the time of Further Processing;
- An examination of potential mitigations at the following intersections with movements or approaches that operate at unacceptable conditions, which are partially attributable to the addition of parking facilities at this parcel:
 - 4th Street and College Street NW (minor signal timing adjustments)
 - 4th Street and Bryant Street NW (converting Bryant Street from one-way to two-way, converting on-street parking into a 75-foot eastbound right-turn lane, minor signal adjustments)
 - Georgia Avenue and W Street NW (converting W Street from one-way to two-way, minor signal timing adjustments)
 - 4th Street and W Street NW (converting W Street from one-way to two-way)
 - Georgia Avenue and V Street/HU Hospital NW (minor signal timing adjustments)
 - Georgia Avenue/7th Street and Florida Avenue NW (minor signal timing adjustments)
- Details on the building's proposed loading operations; and
- Any building-specific TDM measures that may be applicable or advisable in meeting the University's overall TDM commitments, which for this facility may include TDM strategies specifically targeted for medical staff and hospital patients and visitors.

Have the project explore upgrading the sidewalks adjoining the site along 6th Street, Bryant Street, and W Street, which currently do not meet DDOT width requirements. The site plan should also explore upgrading the curb ramp adjoining the parcel at 6th Street and College Street, which does not comply with ADA standards.

Parcel J: Wonder Plaza Mixed-Use

Prepare a Comprehensive Transportation Review or Transportation Statement as required by DDOT, including:

- A detailed review of pedestrian, bicycle, and transit facilities along Georgia Avenue adjacent to the parcel;
- An updated inventory of existing campus-wide parking supply and proposed parking facilities for the building, including bicycle parking;
- A potential analysis of parking access to ensure safe and efficient operations on HU and public streets, to be scoped with DDOT at the time of Further Processing;
- An examination of potential mitigations at the following intersections with movements or approaches that operate at unacceptable conditions, which are partially attributable to the addition of parking facilities at this parcel:
 - Georgia Avenue and Barry Place NW (converting on-street parking into a 100-foot eastbound right-turn lane, minor signal timing adjustments)
 - Georgia Avenue and Bryant Street NW (converting Bryant Street from one-way to two-way, minor signal adjustments)
 - Georgia Avenue/7th Street and Florida Avenue NW (minor signal timing adjustments)
- Details on the building's proposed loading operations; and
- Any building-specific TDM measures that may be applicable or advisable in meeting the University's overall TDM commitments, which for this facility may include TDM strategies specifically targeted for students living on campus and retail patrons.

Have the project explore upgrading the sidewalks adjoining the site along Georgia Avenue and Bryant Street, which currently do not meet DDOT width requirements. The project should also explore improving the existing WMATA bus stop at Georgia Avenue and Barry Place adjoining the parcel, which currently does not have all recommended bus stop amenities.

Table 27: How Proposals Support Campus Plan Transportation Strategies

Campus Plan Transportation Strategy	How Parking Proposals Support the Strategy	How Pedestrian Proposals Support the Strategy	How Bicycle Proposals Support the Strategy	How Transit Proposals Support the Strategy	How TDM Proposals Support the Strategy	How Roadway Proposals Support the Strategy
1. Ensure there is no net increase in parking supply.	Remove parking from the campus core; Ensure each proposed building's Further Processing notes the number and existing parking spaces on campus and demonstrates the project will not lead to an increased parking supply.	Improved pedestrian facilities will enhance multimodal access, encouraging more people to walk, which will reduce pressure on parking supply.	N/A	N/A	The proposed TDM plan will reduce demand of single-occupant vehicles to and from campus, which will reduce pressure on parking supply.	N/A
2. Improve pedestrian conditions and connectivity.	Removing parking from the campus core will reduce the amount of vehicular activity in the core, which will result in a more pedestrian-friendly environment and allow new pedestrian connections where parking lots currently exist.	Removing parking from the campus core will reduce the amount of vehicular activity in the core, which will allow a more pedestrian-friendly environment as well as room for physical improvements such as curb extensions and green spaces.	N/A	Reevaluating HU shuttle routes as new activity centers emerge on campus will help the shuttles better function as "pedestrian accelerators" for short trips around campus.	The proposed TDM plan includes a discretionary action to implement physical improvements to the campus's pedestrian network.	The recommended roadway modifications around the new hospital will include safe, generous pedestrian facilities.
3. Increase multimodal access and facilities in the campus core.	Removing vehicular activity from the campus core will allow for multimodal improvements like bike/scooter parking corrals, bike lanes, or curb extensions.	Improved pedestrian facilities will foster better pedestrian access to shuttles, transit, and other multimodal facilities.	Reducing the amount of vehicles accessing parking from campus core roadways will result in an improved bicycling experience in this area, with fewer vehicles overall and more road space that can be dedicated to bike lanes and bike/scooter parking.	Reevaluating HU shuttle routes as new activity centers emerge on campus will help the shuttles better function as "pedestrian accelerators" for short trips around campus, contributing to a more multimodal profile in the campus core. Considering upgrades to existing shuttle or WMATA bus stops during Further Processing for applicable buildings will improve multimodal facilities.	The proposed TDM plan includes committed actions to A) fund and provide space for a new Capital Bikeshare station on campus, and B) expand bicycle parking, as well as discretionary actions to A) develop a bike parking map, B) add changing and showering facilities for bicycle commuters, and C) explore ways to improve multimodal services on campus, including on-street bike/scooter parking corrals.	N/A
4. Provide safe, efficient access to the new Howard University Hospital.	N/A	The new hospital's forthcoming transportation and access scheme will include pedestrian-friendly streets and facilities.	The new hospital's forthcoming transportation and access scheme will include bicycle-friendly streets and facilities.	The new hospital's forthcoming transportation and access scheme will include considerations of how best to serve the facility with existing public transit and a possible reconfiguration of HU shuttles.	N/A	The recommended roadway modifications around the new hospital will include safe, efficient facilities for all modes of travel.
5. Be a good transportation neighbor.	Reduce vehicle trips to and from the campus, creating a more pedestrian-friendly environment for students, faculty, and nearby residents and allow a less auto-centric frontage along Georgia Avenue.	Removing parking from the campus core will allow a more pedestrian-friendly environment at the public-facing areas of the campus, particularly along Georgia Avenue and at the eventual development of the old hospital site.	Reducing the amount of vehicles accessing parking from campus core roadways will result in an improved bicycling experience in this area, which can be enjoyed by students, faculty, and nearby residents alike.	Reevaluating HU shuttle routes as new activity centers emerge on campus will allow the campus to maintain a multimodal transportation profile, reducing vehicular trips to and from the campus. Considering upgrades to existing shuttle or WMATA bus stops during Further Processing for applicable buildings will improve transit facilities for students, faculty, and nearby residents alike.	The proposed TDM plan will reduce demand of single-occupant vehicles to and from campus, which will reduce the traffic and parking impacts of the campus.	The recommended roadway modifications around the new hospital will ensure a safe and orderly transportation scheme that allows the hospital to be a good neighbor.

Transportation Technical Attachments

Howard University
2020 Central Campus Plan

Washington, DC

December 11, 2020

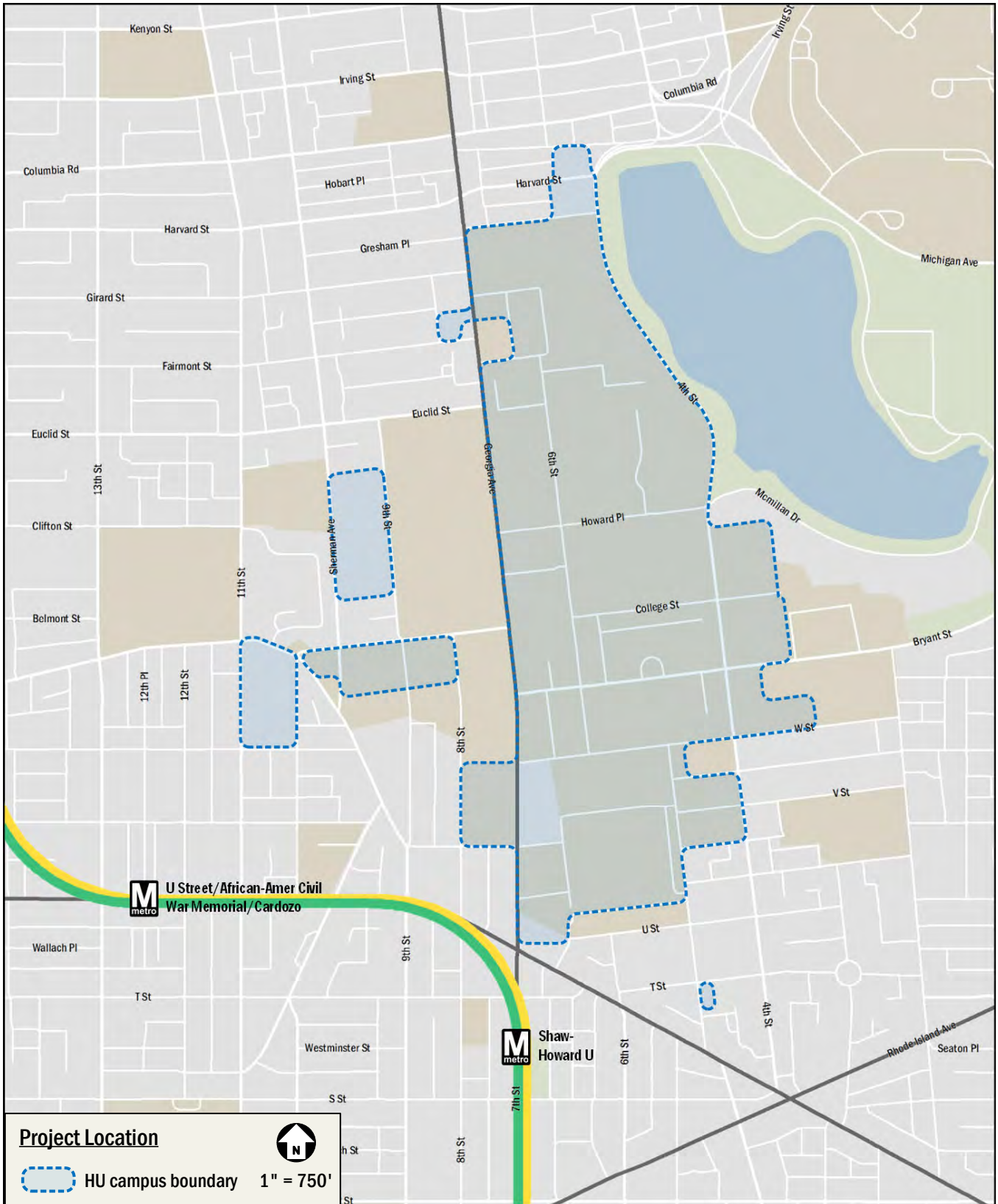
GOROVE SLADE
Transportation Planners and Engineers

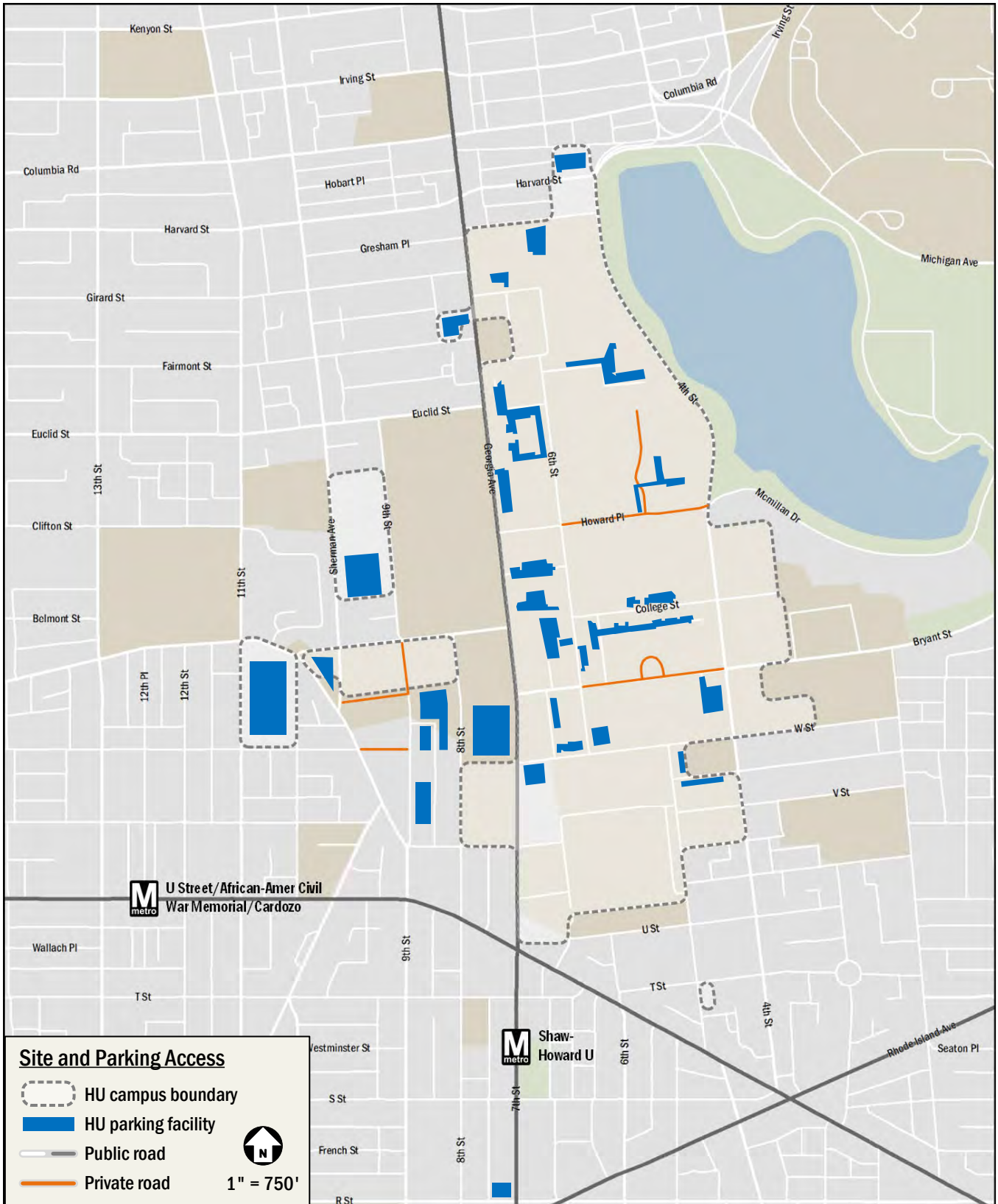
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- A. Scoping Information
- B. 2019 Off-street Parking Occupancy Counts
- C. 2019 On-street Parking Occupancy Counts
- D. 2012 Transportation Demand Management (TDM) Plan
- E. 2013, 2014, 2016, and 2019 Annual Transportation Demand Management (TDM) Assessments
- F. Existing Turning Movement Counts
- G. Vehicle Level of Service Definitions
- H. Intersection Capacity Analysis – Existing conditions (2019 Existing)
- I. Intersection Capacity Analysis – Future conditions without the development (2030 Background)
- J. Intersection Capacity Analysis – Future conditions with the development (2030 Total Future)
- K. Intersection Capacity Analysis – Future conditions with the development + mitigations and recommendations (2030 Total Future with Mitigations and Recommendations)
- L. Intersection Capacity Analysis – Future conditions with the development + mitigations and recommendations (2035 Total Future with Mitigations and Recommendations)


A. Scoping Information





Site and Parking Access

-  HU campus boundary
 -  HU parking facility
 -  Public road
 -  Private road
- 
 1" = 750'

 U Street/African-Amer Civil War Memorial/Cardozo

 Shaw-Howard U

Mode Split Assumptions for Background Developments

Residential Component

Pertinent Mode Split data from other sources:

Information Source	Mode						
	SOV	Carpool	Transit	Bike	Walk	Telecommute	Other
Census Tract 34 Residents	29%	5%	38%	---	7%	7%	14%
Census Tract 35 Residents	35%	3%	42%	---	7%	6%	7%
CTPP - TAZ Residents (TAZ 10169)	19%	1%	35%	26%	15%	4%	0%
CTPP - TAZ Residents (TAZ 10170)	9%	5%	44%	4%	29%	9%	0%
State of the Commute 2019 (of DC Residents)	31%	2%	47%	17%		3%	
WMATA Ridership Survey Table 9 (U Street/African-Amer Civil War Memorial/Cardozo)	22%		51%	27%		---	
WMATA Ridership Survey Table 10 (Residential Mode Share: Inside Beltway)	39%		49%	14%		---	

Mode Split assumed in TIS:

Land Use	Mode				
	Drive	Transit	Bike	Walk	Telecommute/Other
Residential Mode Split	30%	40%	5%	25%	0%

Office Component

Pertinent Mode Split data from other sources:

Information Source	Mode						
	SOV	Carpool	Transit	Bike	Walk	Telecommute	Other
CTPP - TAZ Workers (TAZ 10169)	62%	10%	21%	0%	5%	1%	1%
CTPP - TAZ Workers (TAZ 10170)	47%	8%	23%	0%	11%	11%	0%
State of the Commute 2019 (of DC Workers)	32%	6%	53%	7%		---	
WMATA Ridership Survey Table 3 (U Street Main Street Office)	58%		35%	7%		---	
WMATA Ridership Survey Table 4 (Office Mode Share: Inside Beltway)	66%		30%	6%		---	

Mode Split assumed in TIS:

Land Use	Mode				
	Drive	Transit	Bike	Walk	Telecommute/Other
Office Mode Split	55%	40%	2%	3%	0%

Mode Split Assumptions for Background Developments, cont'd.

Retail Component

Pertinent Mode Split data from other sources:

Information Source	Mode						
	SOV	Carpool	Transit	Bike	Walk	Telecommute	Other
CTPP - TAZ Workers (TAZ 10169)	62%	10%	21%	0%	5%	1%	1%
CTPP - TAZ Workers (TAZ 10170)	47%	8%	23%	0%	11%	11%	0%
State of the Commute 2019 (of DC Workers)	32%	6%	53%	7%		---	
WMATA Ridership Survey Table 12 (U Street Main Street Retail)	19%		57%	25%		---	
WMATA Ridership Survey Table 12 (Retail Sites)	36%		37%	27%		---	

Mode Split assumed in TIS:

Land Use	Mode				
	Drive	Transit	Bike	Walk	Telecommute/Other
Retail Mode Split	35%	15%	5%	45%	0%

Hotel Component

Pertinent Mode Split data from other sources:

Information Source	Mode						
	SOV	Carpool	Transit	Bike	Walk	Telecommute	Other
CTPP - TAZ Workers (TAZ 10169)	62%	10%	21%	0%	5%	1%	1%
CTPP - TAZ Workers (TAZ 10170)	47%	8%	23%	0%	11%	11%	0%
State of the Commute 2019 (of DC Workers)	32%	6%	53%	7%		---	
WMATA Ridership Survey (Average for Hotel Sites)	38%		31%	31%		---	

Mode Split assumed in TIS:

Land Use	Mode				
	Drive	Transit	Bike	Walk	Telecommute/Other
Hotel Mode Split	45%	45%	2%	8%	0%

Trip Generation
Effingham Apartments

Step 1: Base trip generation using ITEs' *Trip Generation* 10th Edition

Land Use	Land Use Code	Quantity (x)	AM Peak Hour			PM Peak Hour			Weekday
			In	Out	Total	In	Out	Total	Total
Multifamily (Mid-	221	128 du	12 veh/hr	34 veh/hr	46 veh/hr	34 veh/hr	22 veh/hr	56 veh/hr	696 veh
<i>Calculation Details:</i>			26%	74%	=0.36X	61%	39%	=0.44X	=5.44X
Retail	820	4,000 sf	2 veh/hr	2 veh/hr	4 veh/hr	7 veh/hr	8 veh/hr	15 veh/hr	151 veh
<i>Calculation Details:</i>			62%	38%	=0.94(X/1000)	48%	52%	=3.81(X/1000)	=37.75(X/1000)

Note: Setting used for trip generation above is General Urban/Suburban

Step 2: Convert to people per hour, before applying mode splits

Land Use	People/Car (from 2017 NHTS, Table 16)	AM Peak Hour			PM Peak Hour			Weekday
		In	Out	Total	In	Out	Total	Total
Multifamily (Mid-	1.18 ppl/veh	14 ppl/hr	40 ppl/hr	54 ppl/hr	40 ppl/hr	26 ppl/hr	66 ppl/hr	821 ppl
Retail	1.82 ppl/veh	4 ppl/hr	3 ppl/hr	7 ppl/hr	13 ppl/hr	14 ppl/hr	27 ppl/hr	275 ppl

Step 3: Split between modes, per assumed Mode Splits

Land Use	Mode	Split	AM Peak Hour			PM Peak Hour			Weekday
			In	Out	Total	In	Out	Total	Total
Multifamily (Mid-	Auto	30%	4 ppl/hr	12 ppl/hr	16 ppl/hr	12 ppl/hr	8 ppl/hr	20 ppl/hr	246 ppl
Multifamily (Mid-	Transit	40%	6 ppl/hr	16 ppl/hr	22 ppl/hr	16 ppl/hr	10 ppl/hr	26 ppl/hr	328 ppl
Multifamily (Mid-	Bike	5%	1 ppl/hr	2 ppl/hr	3 ppl/hr	2 ppl/hr	1 ppl/hr	3 ppl/hr	41 ppl
Multifamily (Mid-	Walk	25%	3 ppl/hr	10 ppl/hr	13 ppl/hr	10 ppl/hr	7 ppl/hr	17 ppl/hr	206 ppl
Retail	Auto	35%	1 ppl/hr	1 ppl/hr	2 ppl/hr	5 ppl/hr	4 ppl/hr	9 ppl/hr	96 ppl
Retail	Transit	15%	1 ppl/hr	0 ppl/hr	1 ppl/hr	2 ppl/hr	2 ppl/hr	4 ppl/hr	41 ppl
Retail	Bike	5%	0 ppl/hr	0 ppl/hr	0 ppl/hr	1 ppl/hr	0 ppl/hr	1 ppl/hr	14 ppl
Retail	Walk	45%	2 ppl/hr	2 ppl/hr	4 ppl/hr	5 ppl/hr	8 ppl/hr	13 ppl/hr	124 ppl

Step 4: Convert auto trips back to vehicles/hour

		In	Out	Total	In	Out	Total	Total
Multifamily (Mid-	1.18 ppl/veh	3 veh/hr	11 veh/hr	14 veh/hr	10 veh/hr	7 veh/hr	17 veh/hr	208 veh
Retail	1.82 ppl/veh	1 veh/hr	0 veh/hr	1 veh/hr	3 veh/hr	2 veh/hr	5 veh/hr	53 veh

Trip Gen Summary for Proposed Land Uses

Mode	AM Peak Hour			PM Peak Hour			Weekday
	In	Out	Total	In	Out	Total	Total
Auto	4 veh/hr	11 veh/hr	15 veh/hr	13 veh/hr	9 veh/hr	22 veh/hr	261 veh
Transit	7 ppl/hr	16 ppl/hr	23 ppl/hr	18 ppl/hr	12 ppl/hr	30 ppl/hr	369 ppl
Bike	1 ppl/hr	2 ppl/hr	3 ppl/hr	3 ppl/hr	1 ppl/hr	4 ppl/hr	55 ppl
Walk	5 ppl/hr	12 ppl/hr	17 ppl/hr	15 ppl/hr	15 ppl/hr	30 ppl/hr	330 ppl

Trip Generation
East Towers Parking Lot

Step 1: Base trip generation using ITEs' *Trip Generation* 10th Edition

Land Use	Land Use Code	Quantity (x)	AM Peak Hour			PM Peak Hour			Weekday
			In	Out	Total	In	Out	Total	Total
Multifamily (Mid-	221	250 du	23 veh/hr	67 veh/hr	90 veh/hr	67 veh/hr	43 veh/hr	110 veh/hr	1360 veh
<i>Calculation Details:</i>			26%	74%	=0.36X	61%	39%	=0.44X	=5.44X
Retail	820	30,000 sf	17 veh/hr	11 veh/hr	28 veh/hr	55 veh/hr	59 veh/hr	114 veh/hr	1,133 veh
<i>Calculation Details:</i>			62%	38%	=0.94(X/1000)	48%	52%	=3.81(X/1000)	=37.75(X/1000)

Note: Setting used for trip generation above is General Urban/Suburban

Step 2: Convert to people per hour, before applying mode splits

Land Use	People/Car (from 2017 NHTS, Table 16)	AM Peak Hour			PM Peak Hour			Weekday
		In	Out	Total	In	Out	Total	Total
Multifamily (Mid-	1.18 ppl/veh	27 ppl/hr	79 ppl/hr	106 ppl/hr	79 ppl/hr	51 ppl/hr	130 ppl/hr	1,605 ppl
Retail	1.82 ppl/veh	31 ppl/hr	20 ppl/hr	51 ppl/hr	100 ppl/hr	107 ppl/hr	207 ppl/hr	2,062 ppl

Step 3: Split between modes, per assumed Mode Splits

Land Use	Mode	Split	AM Peak Hour			PM Peak Hour			Weekday
			In	Out	Total	In	Out	Total	Total
Multifamily (Mid-	Auto	30%	8 ppl/hr	24 ppl/hr	32 ppl/hr	24 ppl/hr	15 ppl/hr	39 ppl/hr	482 ppl
Multifamily (Mid-	Transit	40%	11 ppl/hr	31 ppl/hr	42 ppl/hr	32 ppl/hr	20 ppl/hr	52 ppl/hr	642 ppl
Multifamily (Mid-	Bike	5%	1 ppl/hr	4 ppl/hr	5 ppl/hr	4 ppl/hr	3 ppl/hr	7 ppl/hr	80 ppl
Multifamily (Mid-	Walk	25%	7 ppl/hr	20 ppl/hr	27 ppl/hr	19 ppl/hr	13 ppl/hr	32 ppl/hr	401 ppl
Retail	Auto	35%	11 ppl/hr	7 ppl/hr	18 ppl/hr	35 ppl/hr	37 ppl/hr	72 ppl/hr	722 ppl
Retail	Transit	15%	5 ppl/hr	3 ppl/hr	8 ppl/hr	15 ppl/hr	16 ppl/hr	31 ppl/hr	309 ppl
Retail	Bike	5%	2 ppl/hr	1 ppl/hr	3 ppl/hr	5 ppl/hr	5 ppl/hr	10 ppl/hr	103 ppl
Retail	Walk	45%	13 ppl/hr	9 ppl/hr	22 ppl/hr	45 ppl/hr	49 ppl/hr	94 ppl/hr	928 ppl

Step 4: Convert auto trips back to vehicles/hour

Land Use	People/Car (from 2017 NHTS, Table 16)	AM Peak Hour			PM Peak Hour			Weekday
		In	Out	Total	In	Out	Total	Total
Multifamily (Mid-	1.18 ppl/veh	7 veh/hr	20 veh/hr	27 veh/hr	20 veh/hr	13 veh/hr	33 veh/hr	408 veh
Retail	1.82 ppl/veh	6 veh/hr	4 veh/hr	10 veh/hr	19 veh/hr	21 veh/hr	40 veh/hr	397 veh

Trip Gen Summary for Proposed Land Uses

Mode	AM Peak Hour			PM Peak Hour			Weekday
	In	Out	Total	In	Out	Total	Total
Auto	13 veh/hr	24 veh/hr	37 veh/hr	39 veh/hr	34 veh/hr	73 veh/hr	805 veh
Transit	16 ppl/hr	34 ppl/hr	50 ppl/hr	47 ppl/hr	36 ppl/hr	83 ppl/hr	951 ppl
Bike	3 ppl/hr	5 ppl/hr	8 ppl/hr	9 ppl/hr	8 ppl/hr	17 ppl/hr	183 ppl
Walk	20 ppl/hr	29 ppl/hr	49 ppl/hr	64 ppl/hr	62 ppl/hr	126 ppl/hr	1,329 ppl

Trip Generation
9th and V Street Parking Lots

Step 1: Base trip generation using ITEs' *Trip Generation* 10th Edition

Land Use	Land Use Code	Quantity (x)	AM Peak Hour			PM Peak Hour			Weekday
			In	Out	Total	In	Out	Total	Total
Multifamily (Mid-	221	300 du	28 veh/hr	80 veh/hr	108 veh/hr	81 veh/hr	51 veh/hr	132 veh/hr	1632 veh
Calculation Details:			26%	74%	=0.36X	61%	39%	=0.44X	=5.44X
Retail	820	30,000 sf	17 veh/hr	11 veh/hr	28 veh/hr	55 veh/hr	59 veh/hr	114 veh/hr	1,133 veh
Calculation Details:			62%	38%	=0.94(X/1000)	48%	52%	=3.81(X/1000)	=37.75(X/1000)

Note: Setting used for trip generation above is General Urban/Suburban

Step 2: Convert to people per hour, before applying mode splits

Land Use	People/Car (from 2017 NHTS, Table 16)	AM Peak Hour			PM Peak Hour			Weekday
		In	Out	Total	In	Out	Total	Total
Multifamily (Mid-	1.18 ppl/veh	33 ppl/hr	94 ppl/hr	127 ppl/hr	96 ppl/hr	60 ppl/hr	156 ppl/hr	1,926 ppl
Retail	1.82 ppl/veh	31 ppl/hr	20 ppl/hr	51 ppl/hr	100 ppl/hr	107 ppl/hr	207 ppl/hr	2,062 ppl

Step 3: Split between modes, per assumed Mode Splits

Land Use	Mode	Split	AM Peak Hour			PM Peak Hour			Weekday
			In	Out	Total	In	Out	Total	Total
Multifamily (Mid-	Auto	30%	10 ppl/hr	28 ppl/hr	38 ppl/hr	29 ppl/hr	18 ppl/hr	47 ppl/hr	578 ppl
Multifamily (Mid-	Transit	40%	13 ppl/hr	38 ppl/hr	51 ppl/hr	38 ppl/hr	24 ppl/hr	62 ppl/hr	770 ppl
Multifamily (Mid-	Bike	5%	2 ppl/hr	4 ppl/hr	6 ppl/hr	5 ppl/hr	3 ppl/hr	8 ppl/hr	96 ppl
Multifamily (Mid-	Walk	25%	8 ppl/hr	24 ppl/hr	32 ppl/hr	24 ppl/hr	15 ppl/hr	39 ppl/hr	482 ppl
Retail	Auto	35%	11 ppl/hr	7 ppl/hr	18 ppl/hr	35 ppl/hr	37 ppl/hr	72 ppl/hr	722 ppl
Retail	Transit	15%	5 ppl/hr	3 ppl/hr	8 ppl/hr	15 ppl/hr	16 ppl/hr	31 ppl/hr	309 ppl
Retail	Bike	5%	2 ppl/hr	1 ppl/hr	3 ppl/hr	5 ppl/hr	5 ppl/hr	10 ppl/hr	103 ppl
Retail	Walk	45%	13 ppl/hr	9 ppl/hr	22 ppl/hr	45 ppl/hr	49 ppl/hr	94 ppl/hr	928 ppl

Step 4: Convert auto trips back to vehicles/hour

Land Use	People/Car (from 2017 NHTS, Table 16)	AM Peak Hour			PM Peak Hour			Weekday
		In	Out	Total	In	Out	Total	Total
Multifamily (Mid-	1.18 ppl/veh	8 veh/hr	24 veh/hr	32 veh/hr	25 veh/hr	15 veh/hr	40 veh/hr	490 veh
Retail	1.82 ppl/veh	6 veh/hr	4 veh/hr	10 veh/hr	19 veh/hr	21 veh/hr	40 veh/hr	397 veh

Trip Gen Summary for Proposed Land Uses

Mode	AM Peak Hour			PM Peak Hour			Weekday
	In	Out	Total	In	Out	Total	Total
Auto	14 veh/hr	28 veh/hr	42 veh/hr	44 veh/hr	36 veh/hr	80 veh/hr	887 veh
Transit	18 ppl/hr	41 ppl/hr	59 ppl/hr	53 ppl/hr	40 ppl/hr	93 ppl/hr	1,079 ppl
Bike	4 ppl/hr	5 ppl/hr	9 ppl/hr	10 ppl/hr	8 ppl/hr	18 ppl/hr	199 ppl
Walk	21 ppl/hr	33 ppl/hr	54 ppl/hr	69 ppl/hr	64 ppl/hr	133 ppl/hr	1,410 ppl

Trip Generation
Parking Lot Three

Step 1: Base trip generation using ITEs' *Trip Generation* 10th Edition

Land Use	Land Use Code	Quantity (x)	AM Peak Hour			PM Peak Hour			Weekday
			In	Out	Total	In	Out	Total	Total
Multifamily (Mid-	221	400 du	37 veh/hr	107 veh/hr	144 veh/hr	107 veh/hr	69 veh/hr	176 veh/hr	2176 veh
<i>Calculation Details:</i>			26%	74%	=0.36X	61%	39%	=0.44X	=5.44X
Retail	820	70,000 sf	41 veh/hr	25 veh/hr	66 veh/hr	128 veh/hr	139 veh/hr	267 veh/hr	2,643 veh
<i>Calculation Details:</i>			62%	38%	=0.94(X/1000)	48%	52%	=3.81(X/1000)	=37.75(X/1000)

Note: Setting used for trip generation above is General Urban/Suburban

Step 2: Convert to people per hour, before applying mode splits

Land Use	People/Car (from 2017 NHTS, Table 16)	AM Peak Hour			PM Peak Hour			Weekday
		In	Out	Total	In	Out	Total	Total
Multifamily (Mid-	1.18 ppl/veh	44 ppl/hr	126 ppl/hr	170 ppl/hr	126 ppl/hr	82 ppl/hr	208 ppl/hr	2,568 ppl
Retail	1.82 ppl/veh	75 ppl/hr	45 ppl/hr	120 ppl/hr	233 ppl/hr	253 ppl/hr	486 ppl/hr	4,810 ppl

Step 3: Split between modes, per assumed Mode Splits

Land Use	Mode	Split	AM Peak Hour			PM Peak Hour			Weekday
			In	Out	Total	In	Out	Total	Total
Multifamily (Mid-	Auto	30%	13 ppl/hr	38 ppl/hr	51 ppl/hr	38 ppl/hr	24 ppl/hr	62 ppl/hr	770 ppl
Multifamily (Mid-	Transit	40%	18 ppl/hr	50 ppl/hr	68 ppl/hr	50 ppl/hr	33 ppl/hr	83 ppl/hr	1,027 ppl
Multifamily (Mid-	Bike	5%	2 ppl/hr	7 ppl/hr	9 ppl/hr	6 ppl/hr	4 ppl/hr	10 ppl/hr	128 ppl
Multifamily (Mid-	Walk	25%	11 ppl/hr	31 ppl/hr	42 ppl/hr	32 ppl/hr	21 ppl/hr	53 ppl/hr	643 ppl
Retail	Auto	35%	26 ppl/hr	16 ppl/hr	42 ppl/hr	82 ppl/hr	88 ppl/hr	170 ppl/hr	1,684 ppl
Retail	Transit	15%	11 ppl/hr	7 ppl/hr	18 ppl/hr	35 ppl/hr	38 ppl/hr	73 ppl/hr	722 ppl
Retail	Bike	5%	4 ppl/hr	2 ppl/hr	6 ppl/hr	12 ppl/hr	12 ppl/hr	24 ppl/hr	241 ppl
Retail	Walk	45%	34 ppl/hr	20 ppl/hr	54 ppl/hr	104 ppl/hr	115 ppl/hr	219 ppl/hr	2,163 ppl

Step 4: Convert auto trips back to vehicles/hour

Land Use	People/Car (from 2017 NHTS, Table 16)	AM Peak Hour			PM Peak Hour			Weekday
		In	Out	Total	In	Out	Total	Total
Multifamily (Mid-	1.18 ppl/veh	11 veh/hr	32 veh/hr	43 veh/hr	32 veh/hr	21 veh/hr	53 veh/hr	653 veh
Retail	1.82 ppl/veh	14 veh/hr	9 veh/hr	23 veh/hr	45 veh/hr	48 veh/hr	93 veh/hr	925 veh

Trip Gen Summary for Proposed Land Uses

Mode	AM Peak Hour			PM Peak Hour			Weekday
	In	Out	Total	In	Out	Total	Total
Auto	25 veh/hr	41 veh/hr	66 veh/hr	77 veh/hr	69 veh/hr	146 veh/hr	1,578 veh
Transit	29 ppl/hr	57 ppl/hr	86 ppl/hr	85 ppl/hr	71 ppl/hr	156 ppl/hr	1,749 ppl
Bike	6 ppl/hr	9 ppl/hr	15 ppl/hr	18 ppl/hr	16 ppl/hr	34 ppl/hr	369 ppl
Walk	45 ppl/hr	51 ppl/hr	96 ppl/hr	136 ppl/hr	136 ppl/hr	272 ppl/hr	2,806 ppl

Trip Generation
Bond Bread/WRECO

Step 1: Base trip generation using ITEs' *Trip Generation* 10th Edition

Land Use	Land Use Code	Quantity (x)	AM Peak Hour			PM Peak Hour			Weekday
			In	Out	Total	In	Out	Total	Total
Multifamily (Mid-	221	450 du	42 veh/hr	120 veh/hr	162 veh/hr	121 veh/hr	77 veh/hr	198 veh/hr	2448 veh
<i>Calculation Details:</i>			26%	74%	=0.36X	61%	39%	=0.44X	=5.44X
Retail	820	74,000 sf	43 veh/hr	27 veh/hr	70 veh/hr	135 veh/hr	147 veh/hr	282 veh/hr	2,794 veh
<i>Calculation Details:</i>			62%	38%	=0.94(X/1000)	48%	52%	=3.81(X/1000)	=37.75(X/1000)
Hotel	310	156 rooms	43 veh/hr	30 veh/hr	73 veh/hr	48 veh/hr	46 veh/hr	94 veh/hr	1,304 veh
<i>Calculation Details:</i>			59%	41%	=0.47X	51%	49%	=0.6X	=8.36X

Note: Setting used for trip generation above is General Urban/Suburban

Step 2: Convert to people per hour, before applying mode splits

Land Use	People/Car (from 2017 NHTS, Table 16)	AM Peak Hour			PM Peak Hour			Weekday
		In	Out	Total	In	Out	Total	Total
Multifamily (Mid-	1.18 ppl/veh	50 ppl/hr	141 ppl/hr	191 ppl/hr	143 ppl/hr	91 ppl/hr	234 ppl/hr	2,889 ppl
Retail	1.82 ppl/veh	78 ppl/hr	49 ppl/hr	127 ppl/hr	246 ppl/hr	267 ppl/hr	513 ppl/hr	5,085 ppl
Hotel	2.10 ppl/veh	90 ppl/hr	63 ppl/hr	153 ppl/hr	101 ppl/hr	96 ppl/hr	197 ppl/hr	2,738 ppl

Step 3: Split between modes, per assumed Mode Splits

Land Use	Mode	Split	AM Peak Hour			PM Peak Hour			Weekday
			In	Out	Total	In	Out	Total	Total
Multifamily (Mid-	Auto	30%	15 ppl/hr	42 ppl/hr	57 ppl/hr	43 ppl/hr	27 ppl/hr	70 ppl/hr	867 ppl
Multifamily (Mid-	Transit	40%	20 ppl/hr	56 ppl/hr	76 ppl/hr	57 ppl/hr	37 ppl/hr	94 ppl/hr	1,156 ppl
Multifamily (Mid-	Bike	5%	3 ppl/hr	7 ppl/hr	10 ppl/hr	7 ppl/hr	5 ppl/hr	12 ppl/hr	144 ppl
Multifamily (Mid-	Walk	25%	12 ppl/hr	36 ppl/hr	48 ppl/hr	36 ppl/hr	22 ppl/hr	58 ppl/hr	722 ppl
Retail	Auto	35%	27 ppl/hr	17 ppl/hr	44 ppl/hr	86 ppl/hr	94 ppl/hr	180 ppl/hr	1,780 ppl
Retail	Transit	15%	12 ppl/hr	7 ppl/hr	19 ppl/hr	37 ppl/hr	40 ppl/hr	77 ppl/hr	763 ppl
Retail	Bike	5%	4 ppl/hr	2 ppl/hr	6 ppl/hr	12 ppl/hr	14 ppl/hr	26 ppl/hr	254 ppl
Retail	Walk	45%	35 ppl/hr	23 ppl/hr	58 ppl/hr	111 ppl/hr	119 ppl/hr	230 ppl/hr	2,288 ppl
Hotel	Auto	45%	41 ppl/hr	28 ppl/hr	69 ppl/hr	45 ppl/hr	44 ppl/hr	89 ppl/hr	1,232 ppl
Hotel	Transit	45%	41 ppl/hr	28 ppl/hr	69 ppl/hr	45 ppl/hr	44 ppl/hr	89 ppl/hr	1,232 ppl
Hotel	Bike	2%	2 ppl/hr	1 ppl/hr	3 ppl/hr	2 ppl/hr	2 ppl/hr	4 ppl/hr	55 ppl
Hotel	Walk	8%	7 ppl/hr	5 ppl/hr	12 ppl/hr	8 ppl/hr	8 ppl/hr	16 ppl/hr	219 ppl

Step 4: Convert auto trips back to vehicles/hour

Land Use	People/Car (from 2017 NHTS, Table 16)	AM Peak Hour			PM Peak Hour			Weekday
		In	Out	Total	In	Out	Total	Total
Multifamily (Mid-	1.18 ppl/veh	13 veh/hr	35 veh/hr	48 veh/hr	36 veh/hr	23 veh/hr	59 veh/hr	735 veh
Retail	1.82 ppl/veh	15 veh/hr	9 veh/hr	24 veh/hr	47 veh/hr	52 veh/hr	99 veh/hr	978 veh
Hotel	2.10 ppl/veh	20 veh/hr	13 veh/hr	33 veh/hr	21 veh/hr	21 veh/hr	42 veh/hr	587 veh

Trip Gen Summary for Proposed Land Uses

Mode	AM Peak Hour			PM Peak Hour			Weekday
	In	Out	Total	In	Out	Total	Total
Auto	48 veh/hr	57 veh/hr	105 veh/hr	104 veh/hr	96 veh/hr	200 veh/hr	2,300 veh
Transit	73 ppl/hr	91 ppl/hr	164 ppl/hr	139 ppl/hr	121 ppl/hr	260 ppl/hr	3,151 ppl
Bike	9 ppl/hr	10 ppl/hr	19 ppl/hr	21 ppl/hr	21 ppl/hr	42 ppl/hr	453 ppl
Walk	54 ppl/hr	64 ppl/hr	118 ppl/hr	155 ppl/hr	149 ppl/hr	304 ppl/hr	3,229 ppl

Trip Generation
901W

Step 1: Base trip generation using ITEs' *Trip Generation* 10th Edition

Land Use	Land Use Code	Quantity (x)	AM Peak Hour			PM Peak Hour			Weekday
			In	Out	Total	In	Out	Total	Total
Multifamily (Mid-	221	97 du	9 veh/hr	26 veh/hr	35 veh/hr	26 veh/hr	17 veh/hr	43 veh/hr	528 veh
<i>Calculation Details:</i>			26%	74%	=0.36X	61%	39%	=0.44X	=5.44X
Retail	820	20,000 sf	12 veh/hr	7 veh/hr	19 veh/hr	36 veh/hr	40 veh/hr	76 veh/hr	755 veh
<i>Calculation Details:</i>			62%	38%	=0.94(X/1000)	48%	52%	=3.81(X/1000)	=37.75(X/1000)

Note: Setting used for trip generation above is General Urban/Suburban

Step 2: Convert to people per hour, before applying mode splits

Land Use	People/Car (from 2017 NHTS, Table 16)	AM Peak Hour			PM Peak Hour			Weekday
		In	Out	Total	In	Out	Total	Total
Multifamily (Mid-	1.18 ppl/veh	11 ppl/hr	30 ppl/hr	41 ppl/hr	31 ppl/hr	20 ppl/hr	51 ppl/hr	623 ppl
Retail	1.82 ppl/veh	22 ppl/hr	13 ppl/hr	35 ppl/hr	66 ppl/hr	72 ppl/hr	138 ppl/hr	1,374 ppl

Step 3: Split between modes, per assumed Mode Splits

Land Use	Mode	Split	AM Peak Hour			PM Peak Hour			Weekday
			In	Out	Total	In	Out	Total	Total
Multifamily (Mid-	Auto	30%	3 ppl/hr	9 ppl/hr	12 ppl/hr	9 ppl/hr	6 ppl/hr	15 ppl/hr	187 ppl
Multifamily (Mid-	Transit	40%	4 ppl/hr	12 ppl/hr	16 ppl/hr	12 ppl/hr	8 ppl/hr	20 ppl/hr	249 ppl
Multifamily (Mid-	Bike	5%	1 ppl/hr	1 ppl/hr	2 ppl/hr	2 ppl/hr	1 ppl/hr	3 ppl/hr	31 ppl
Multifamily (Mid-	Walk	25%	3 ppl/hr	8 ppl/hr	11 ppl/hr	8 ppl/hr	5 ppl/hr	13 ppl/hr	156 ppl
Retail	Auto	35%	8 ppl/hr	4 ppl/hr	12 ppl/hr	23 ppl/hr	25 ppl/hr	48 ppl/hr	481 ppl
Retail	Transit	15%	3 ppl/hr	2 ppl/hr	5 ppl/hr	10 ppl/hr	11 ppl/hr	21 ppl/hr	206 ppl
Retail	Bike	5%	1 ppl/hr	1 ppl/hr	2 ppl/hr	3 ppl/hr	4 ppl/hr	7 ppl/hr	69 ppl
Retail	Walk	45%	10 ppl/hr	6 ppl/hr	16 ppl/hr	30 ppl/hr	32 ppl/hr	62 ppl/hr	618 ppl

Step 4: Convert auto trips back to vehicles/hour

Land Use	People/Car (from 2017 NHTS, Table 16)	AM Peak Hour			PM Peak Hour			Weekday
		In	Out	Total	In	Out	Total	Total
Multifamily (Mid-	1.18 ppl/veh	3 veh/hr	7 veh/hr	10 veh/hr	8 veh/hr	5 veh/hr	13 veh/hr	158 veh
Retail	1.82 ppl/veh	4 veh/hr	3 veh/hr	7 veh/hr	13 veh/hr	13 veh/hr	26 veh/hr	264 veh

Trip Gen Summary for Proposed Land Uses

Mode	AM Peak Hour			PM Peak Hour			Weekday
	In	Out	Total	In	Out	Total	Total
Auto	7 veh/hr	10 veh/hr	17 veh/hr	21 veh/hr	18 veh/hr	39 veh/hr	422 veh
Transit	7 ppl/hr	14 ppl/hr	21 ppl/hr	22 ppl/hr	19 ppl/hr	41 ppl/hr	455 ppl
Bike	2 ppl/hr	2 ppl/hr	4 ppl/hr	5 ppl/hr	5 ppl/hr	10 ppl/hr	100 ppl
Walk	13 ppl/hr	14 ppl/hr	27 ppl/hr	38 ppl/hr	37 ppl/hr	75 ppl/hr	774 ppl

Trip Generation
The Wren

Step 1: Base trip generation using ITEs' *Trip Generation* 10th Edition

Land Use	Land Use Code	Quantity (x)	AM Peak Hour			PM Peak Hour			Weekday
			In	Out	Total	In	Out	Total	Total
Multifamily (Mid-	221	433 du	41 veh/hr	115 veh/hr	156 veh/hr	117 veh/hr	74 veh/hr	191 veh/hr	2356 veh
		<i>Calculation Details:</i>	26%	74%	=0.36x	61%	39%	=0.44x	=5.44x
Supermarket	850	49,156 sf	113 veh/hr	75 veh/hr	188 veh/hr	20 veh/hr	20 veh/hr	40 veh/hr	4,697 veh
		<i>Calculation Details:</i>	60%	40%	=3.82(x/1000)	51%	49%	=0.75(x/1000)+3.21	=70.89(x/1000)+1212.64

Note: Setting used for trip generation above is General Urban/Suburban

Step 2: Convert to people per hour, before applying mode splits

Land Use	People/Car (from 2017 NHTS, Table 16)	AM Peak Hour			PM Peak Hour			Weekday
		In	Out	Total	In	Out	Total	Total
Multifamily (Mid-	1.18 ppl/veh	48 ppl/hr	136 ppl/hr	184 ppl/hr	138 ppl/hr	87 ppl/hr	225 ppl/hr	2,780 ppl
Supermarket	1.82 ppl/veh	206 ppl/hr	136 ppl/hr	342 ppl/hr	36 ppl/hr	37 ppl/hr	73 ppl/hr	8,549 ppl

Step 3: Split between modes, per assumed Mode Splits

Land Use	Mode	Split	AM Peak Hour			PM Peak Hour			Weekday
			In	Out	Total	In	Out	Total	Total
Multifamily (Mid-	Auto	30%	14 ppl/hr	41 ppl/hr	55 ppl/hr	41 ppl/hr	27 ppl/hr	68 ppl/hr	834 ppl
Multifamily (Mid-	Transit	40%	19 ppl/hr	55 ppl/hr	74 ppl/hr	55 ppl/hr	35 ppl/hr	90 ppl/hr	1,112 ppl
Multifamily (Mid-	Bike	5%	2 ppl/hr	7 ppl/hr	9 ppl/hr	7 ppl/hr	4 ppl/hr	11 ppl/hr	139 ppl
Multifamily (Mid-	Walk	25%	13 ppl/hr	33 ppl/hr	46 ppl/hr	35 ppl/hr	21 ppl/hr	56 ppl/hr	695 ppl
Supermarket	Auto	35%	72 ppl/hr	48 ppl/hr	120 ppl/hr	13 ppl/hr	13 ppl/hr	26 ppl/hr	2,992 ppl
Supermarket	Transit	15%	31 ppl/hr	20 ppl/hr	51 ppl/hr	5 ppl/hr	6 ppl/hr	11 ppl/hr	1,282 ppl
Supermarket	Bike	5%	10 ppl/hr	7 ppl/hr	17 ppl/hr	2 ppl/hr	2 ppl/hr	4 ppl/hr	427 ppl
Supermarket	Walk	45%	93 ppl/hr	61 ppl/hr	154 ppl/hr	16 ppl/hr	16 ppl/hr	32 ppl/hr	3,848 ppl

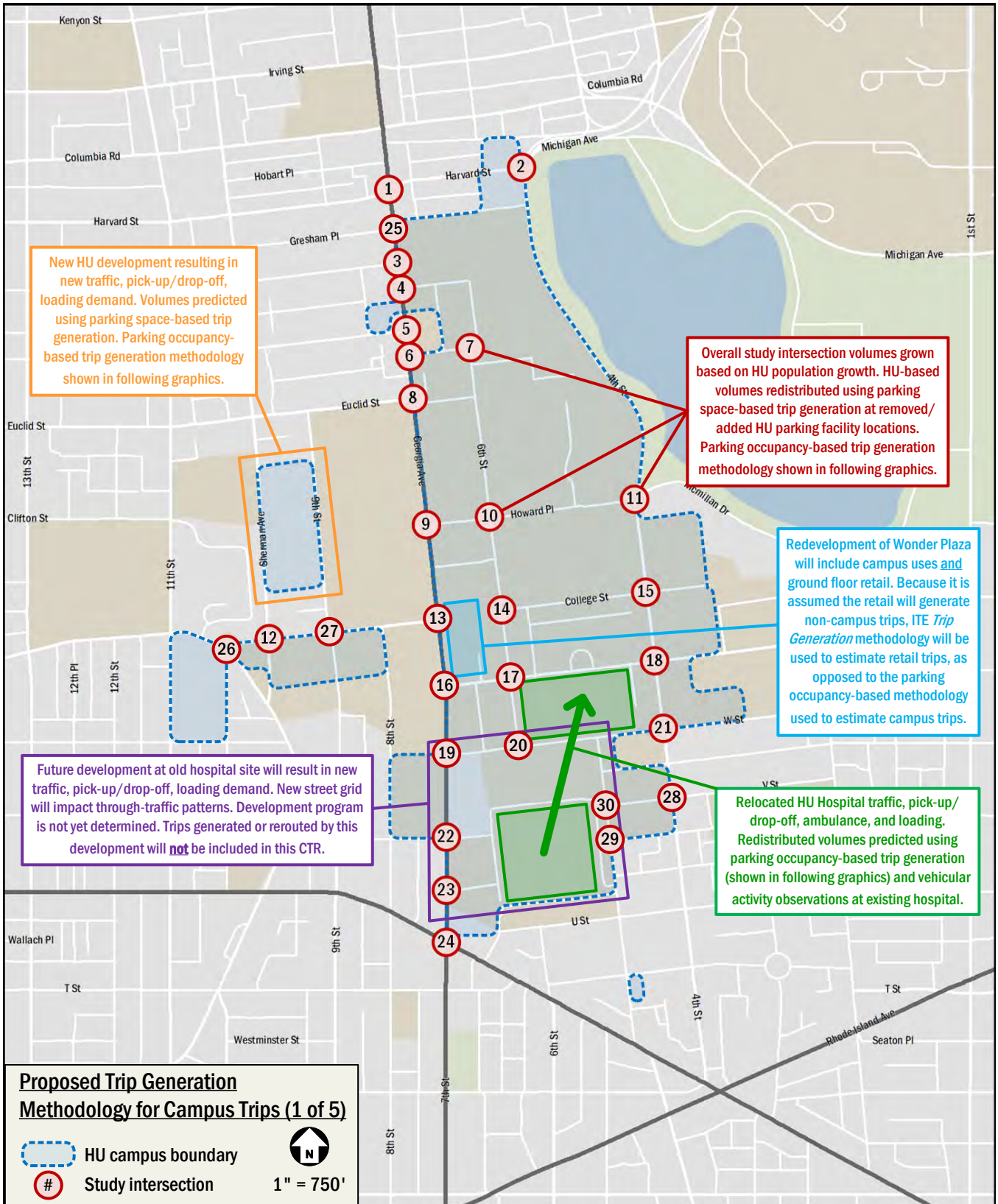
Step 4: Convert auto trips back to vehicles/hour

Land Use	People/Car (from 2017 NHTS, Table 16)	AM Peak Hour			PM Peak Hour			Weekday
		In	Out	Total	In	Out	Total	Total
Multifamily (Mid-	1.18 ppl/veh	12 veh/hr	35 veh/hr	47 veh/hr	35 veh/hr	23 veh/hr	58 veh/hr	707 veh
Supermarket	1.82 ppl/veh	40 veh/hr	26 veh/hr	66 veh/hr	7 veh/hr	7 veh/hr	14 veh/hr	1,644 veh

Trip Gen Summary for Proposed Land Uses

Mode	AM Peak Hour			PM Peak Hour			Weekday
	In	Out	Total	In	Out	Total	Total
Auto	52 veh/hr	61 veh/hr	113 veh/hr	42 veh/hr	30 veh/hr	72 veh/hr	2,351 veh
Transit	50 ppl/hr	75 ppl/hr	125 ppl/hr	60 ppl/hr	41 ppl/hr	101 ppl/hr	2,394 ppl
Bike	12 ppl/hr	14 ppl/hr	26 ppl/hr	9 ppl/hr	6 ppl/hr	15 ppl/hr	566 ppl
Walk	106 ppl/hr	94 ppl/hr	200 ppl/hr	51 ppl/hr	37 ppl/hr	88 ppl/hr	4,543 ppl

Background Developments Trip Generation						
Project	AM Peak Hour			PM Peak Hour		
	In	Out	Total	In	Out	Total
Effingham Apartments	4 veh/hr	11 veh/hr	15 veh/hr	13 veh/hr	9 veh/hr	22 veh/hr
East Towers Parking Lot	13 veh/hr	24 veh/hr	37 veh/hr	39 veh/hr	34 veh/hr	73 veh/hr
9th and V Street Parking Lots	14 veh/hr	28 veh/hr	42 veh/hr	44 veh/hr	36 veh/hr	80 veh/hr
Parking Lot Three	25 veh/hr	41 veh/hr	66 veh/hr	77 veh/hr	69 veh/hr	146 veh/hr
Bond Bread/WRECO	48 veh/hr	57 veh/hr	105 veh/hr	104 veh/hr	96 veh/hr	200 veh/hr
901W	7 veh/hr	10 veh/hr	17 veh/hr	21 veh/hr	18 veh/hr	39 veh/hr
The Wren	52 veh/hr	61 veh/hr	113 veh/hr	42 veh/hr	30 veh/hr	72 veh/hr
Total	163 veh/hr	232 veh/hr	395 veh/hr	340 veh/hr	292 veh/hr	632 veh/hr



New HU development resulting in new traffic, pick-up/drop-off, loading demand. Volumes predicted using parking space-based trip generation. Parking occupancy-based trip generation methodology shown in following graphics.

Overall study intersection volumes grown based on HU population growth. HU-based volumes redistributed using parking space-based trip generation at removed/added HU parking facility locations. Parking occupancy-based trip generation methodology shown in following graphics.

Redevelopment of Wonder Plaza will include campus uses and ground floor retail. Because it is assumed the retail will generate non-campus trips, ITE Trip Generation methodology will be used to estimate retail trips, as opposed to the parking occupancy-based methodology used to estimate campus trips.

Future development at old hospital site will result in new traffic, pick-up/drop-off, loading demand. New street grid will impact through-traffic patterns. Development program is not yet determined. Trips generated or rerouted by this development will **not** be included in this CTR.

Relocated HU Hospital traffic, pick-up/drop-off, ambulance, and loading. Redistributed volumes predicted using parking occupancy-based trip generation (shown in following graphics) and vehicular activity observations at existing hospital.

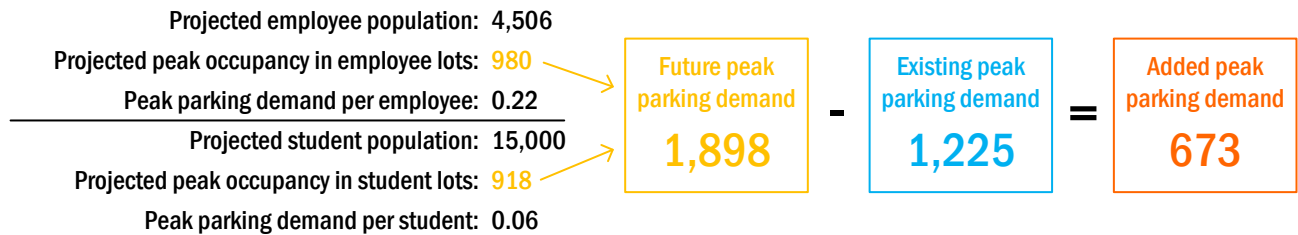
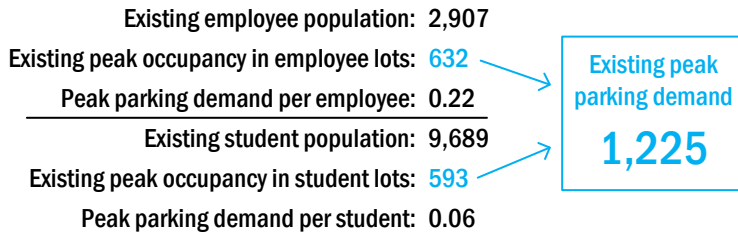
Proposed Trip Generation Methodology for Campus Trips (1 of 5)

 HU campus boundary
Study intersection

1" = 750'

Proposed Trip Generation Methodology for Campus Trips (2 of 5)

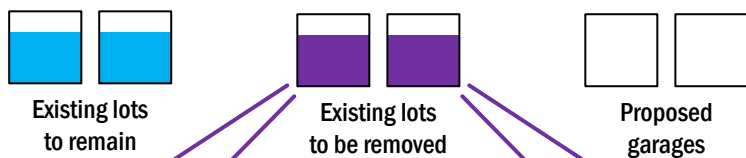
1. Estimate future employee and student peak parking demand by extrapolating existing demand per individual to projected populations.



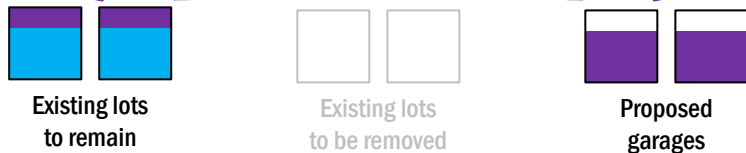
2. Distribute existing and added employee and student parking demand into individual parking locations based on proposed lot removals and additions.

- Existing parking demand to remain in place
- Existing parking demand to be redistributed
- Added parking demand

Remove existing demand from lots to be removed.



Redistribute that demand to remaining lots and proposed garages.



Add new demand to proposed garages.



Proposed Trip Generation Methodology for Campus Trips (3 of 5)

3. Convert redistributed and added parking demand into peak hour trips for each parking location using the following rates of trips generated per occupied parking space:

AM peak hour: 0.35 (0.30 inbound and 0.05 outbound)

PM peak hour: 0.40 (0.05 inbound and 0.35 outbound)

■ Existing parking demand to remain in place

■ Existing parking demand to be redistributed

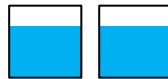
■ Added parking demand

← Accounted for in trip generation

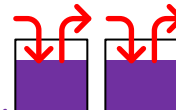
→ Removed trips

→ Added trips

Remove existing demand from lots to be removed.



Existing lots to remain

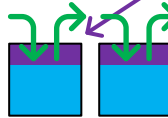


Existing lots to be removed



Proposed garages

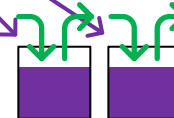
Redistribute that demand to remaining lots and proposed garages.



Existing lots to remain



Existing lots to be removed

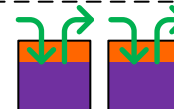


Proposed garages

Add new demand to proposed garages.



Existing lots to remain



Proposed garages

Proposed Trip Generation Methodology for Campus Trips (4 of 5)

4. For hospital* trip generation, use the same parking space-based trip generation rates to relocate all parking demand at the existing hospital to the new hospital site. The relocated trips are a straight swap (no increase or decrease in demand from the old to the new site).

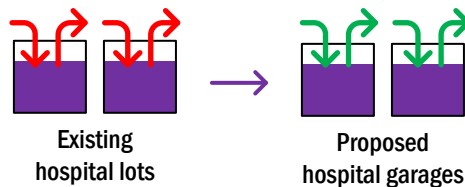
AM peak hour: 0.35 (0.30 inbound and 0.05 outbound)

PM peak hour: 0.40 (0.05 inbound and 0.35 outbound)

■ Existing parking demand to be relocated

→ Removed trips

→ Added trips

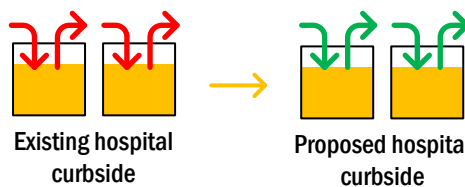


5. Relocate all hospital* trips generated by non-parking curbside vehicles (TNC, ambulance, delivery, etc.) from the existing hospital to the new hospital site. These trip quantities are based on video data collected at the existing hospital and are a straight swap (no increase or decrease in demand from the old to the new site).

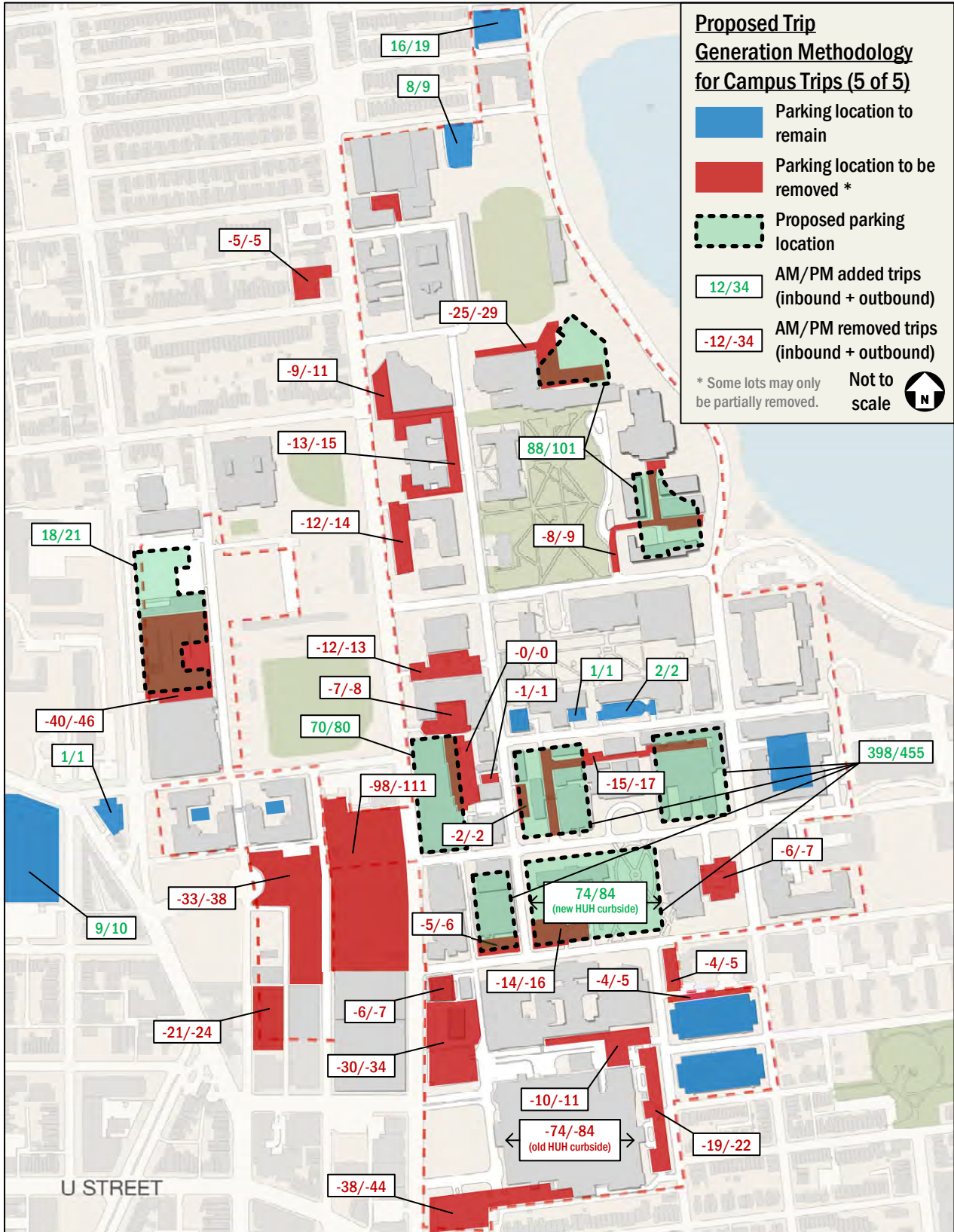
■ Existing curbside activity to be relocated

→ Removed trips

→ Added trips



* For both the existing and new sites, "hospital" includes the hospital itself and all associated medical office and educational buildings.



Mode Split Assumptions for Wonder Plaza retail

Retail Component

Pertinent Mode Split data from other sources:

Information Source	Mode						
	SOV	Carpool	Transit	Bike	Walk	Telecommute	Other
CTPP - TAZ Workers (TAZ 10169)	62%	10%	21%	0%	5%	1%	1%
CTPP - TAZ Workers (TAZ 10170)	47%	8%	23%	0%	11%	11%	0%
State of the Commute 2019 (of DC Workers)	32%	6%	53%	7%		---	
WMATA Ridership Survey Table 12 (U Street Main Street Retail)	19%		57%	25%		---	
WMATA Ridership Survey Table 12 (Retail Sites)	36%		37%	27%		---	

Mode Split assumed in TIS:

Land Use	Mode				
	Drive	Transit	Bike	Walk	Telecommute/Other
Retail Mode Split	35%	15%	5%	45%	0%

Trip Generation

Added Wonder Plaza retail

Step 1: Base trip generation using ITEs' *Trip Generation* 10th Edition

Land Use	Land Use Code	Quantity (x)	AM Peak Hour			PM Peak Hour		
			In	Out	Total	In	Out	Total
Retail	820	60,000 sf	35 veh/hr	21 veh/hr	56 veh/hr	110 veh/hr	119 veh/hr	229 veh/hr
<i>Calculation Details:</i>			62%	38%	=0.94(X/1000)	48%	52%	=3.81(X/1000)

Note: Setting used for trip generation above is General Urban/Suburban

Step 2: Convert to people per hour, before applying mode splits

Land Use	People/Car (from 2017 NHTS, Table 16)	AM Peak Hour			PM Peak Hour		
		In	Out	Total	In	Out	Total
Retail	1.82 ppl/veh	64 ppl/hr	38 ppl/hr	102 ppl/hr	200 ppl/hr	217 ppl/hr	417 ppl/hr

Step 3: Split between modes, per assumed Mode Splits

Land Use	Mode	Split	AM Peak Hour			PM Peak Hour		
			In	Out	Total	In	Out	Total
Retail	Auto	35%	22 ppl/hr	14 ppl/hr	36 ppl/hr	70 ppl/hr	76 ppl/hr	146 ppl/hr
Retail	Transit	15%	10 ppl/hr	5 ppl/hr	15 ppl/hr	30 ppl/hr	33 ppl/hr	63 ppl/hr
Retail	Bike	5%	3 ppl/hr	2 ppl/hr	5 ppl/hr	10 ppl/hr	11 ppl/hr	21 ppl/hr
Retail	Walk	45%	29 ppl/hr	17 ppl/hr	46 ppl/hr	90 ppl/hr	97 ppl/hr	187 ppl/hr

Step 4: Convert auto trips back to vehicles/hour

		In	Out	Total	In	Out	Total
Retail	1.82 ppl/veh	12 veh/hr	8 veh/hr	20 veh/hr	38 veh/hr	42 veh/hr	80 veh/hr

Trip Gen Summary for Proposed Land Uses

Mode	AM Peak Hour			PM Peak Hour		
	In	Out	Total	In	Out	Total
Auto	12 veh/hr	8 veh/hr	20 veh/hr	38 veh/hr	42 veh/hr	80 veh/hr
Transit	10 ppl/hr	5 ppl/hr	15 ppl/hr	30 ppl/hr	33 ppl/hr	63 ppl/hr
Bike	3 ppl/hr	2 ppl/hr	5 ppl/hr	10 ppl/hr	11 ppl/hr	21 ppl/hr
Walk	29 ppl/hr	17 ppl/hr	46 ppl/hr	90 ppl/hr	97 ppl/hr	187 ppl/hr

Trip Generation

Removed Wonder Plaza retail

Step 1: Base trip generation using ITEs' *Trip Generation* 10th Edition

Land Use	Land Use Code	Quantity (x)	AM Peak Hour			PM Peak Hour		
			In	Out	Total	In	Out	Total
Retail	820	-50,000 sf	-29 veh/hr	-18 veh/hr	-47 veh/hr	-92 veh/hr	-99 veh/hr	-191 veh/hr
<i>Calculation Details:</i>			62%	38%	=0.94(X/1000)	48%	52%	=3.81(X/1000)

Note: Setting used for trip generation above is General Urban/Suburban

Step 2: Convert to people per hour, before applying mode splits

Land Use	People/Car (from 2017 NHTS, Table 16)	AM Peak Hour			PM Peak Hour		
		In	Out	Total	In	Out	Total
Retail	1.82 ppl/veh	-53 ppl/hr	-33 ppl/hr	-86 ppl/hr	-167 ppl/hr	-181 ppl/hr	-348 ppl/hr

Step 3: Split between modes, per assumed Mode Splits

Land Use	Mode	Split	AM Peak Hour			PM Peak Hour		
			In	Out	Total	In	Out	Total
Retail	Auto	35%	-19 ppl/hr	-11 ppl/hr	-30 ppl/hr	-58 ppl/hr	-64 ppl/hr	-122 ppl/hr
Retail	Transit	15%	-8 ppl/hr	-5 ppl/hr	-13 ppl/hr	-25 ppl/hr	-27 ppl/hr	-52 ppl/hr
Retail	Bike	5%	-3 ppl/hr	-1 ppl/hr	-4 ppl/hr	-8 ppl/hr	-9 ppl/hr	-17 ppl/hr
Retail	Walk	45%	-23 ppl/hr	-16 ppl/hr	-39 ppl/hr	-76 ppl/hr	-81 ppl/hr	-157 ppl/hr

Step 4: Convert auto trips back to vehicles/hour

Land Use	People/Car	AM Peak Hour			PM Peak Hour		
		In	Out	Total	In	Out	Total
Retail	1.82 ppl/veh	-10 veh/hr	-6 veh/hr	-16 veh/hr	-32 veh/hr	-35 veh/hr	-67 veh/hr

Trip Gen Summary for Proposed Land Uses

Mode	AM Peak Hour			PM Peak Hour		
	In	Out	Total	In	Out	Total
Auto	-10 veh/hr	-6 veh/hr	-16 veh/hr	-32 veh/hr	-35 veh/hr	-67 veh/hr
Transit	-8 ppl/hr	-5 ppl/hr	-13 ppl/hr	-25 ppl/hr	-27 ppl/hr	-52 ppl/hr
Bike	-3 ppl/hr	-1 ppl/hr	-4 ppl/hr	-8 ppl/hr	-9 ppl/hr	-17 ppl/hr
Walk	-23 ppl/hr	-16 ppl/hr	-39 ppl/hr	-76 ppl/hr	-81 ppl/hr	-157 ppl/hr

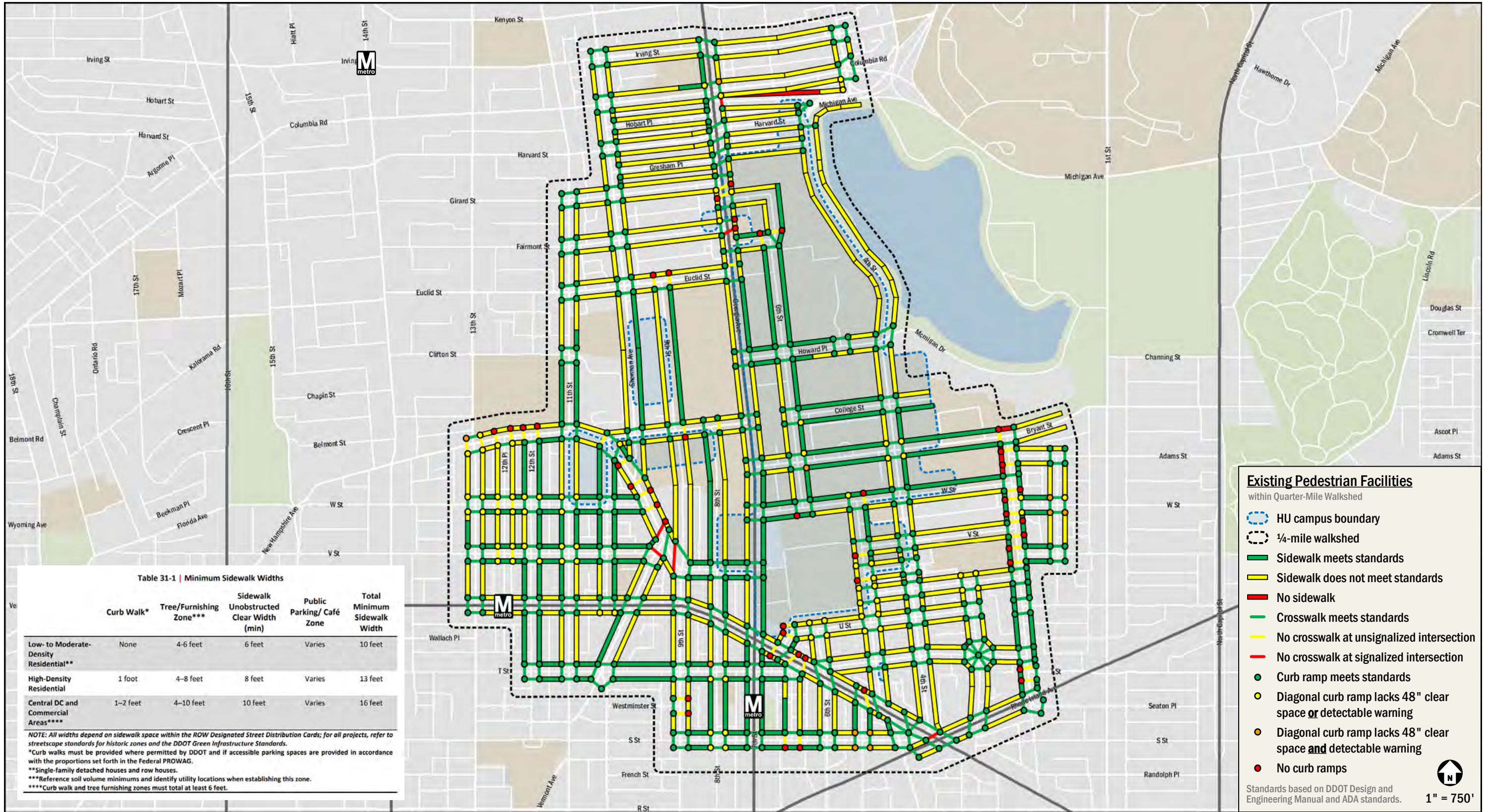


Table 31-1 | Minimum Sidewalk Widths

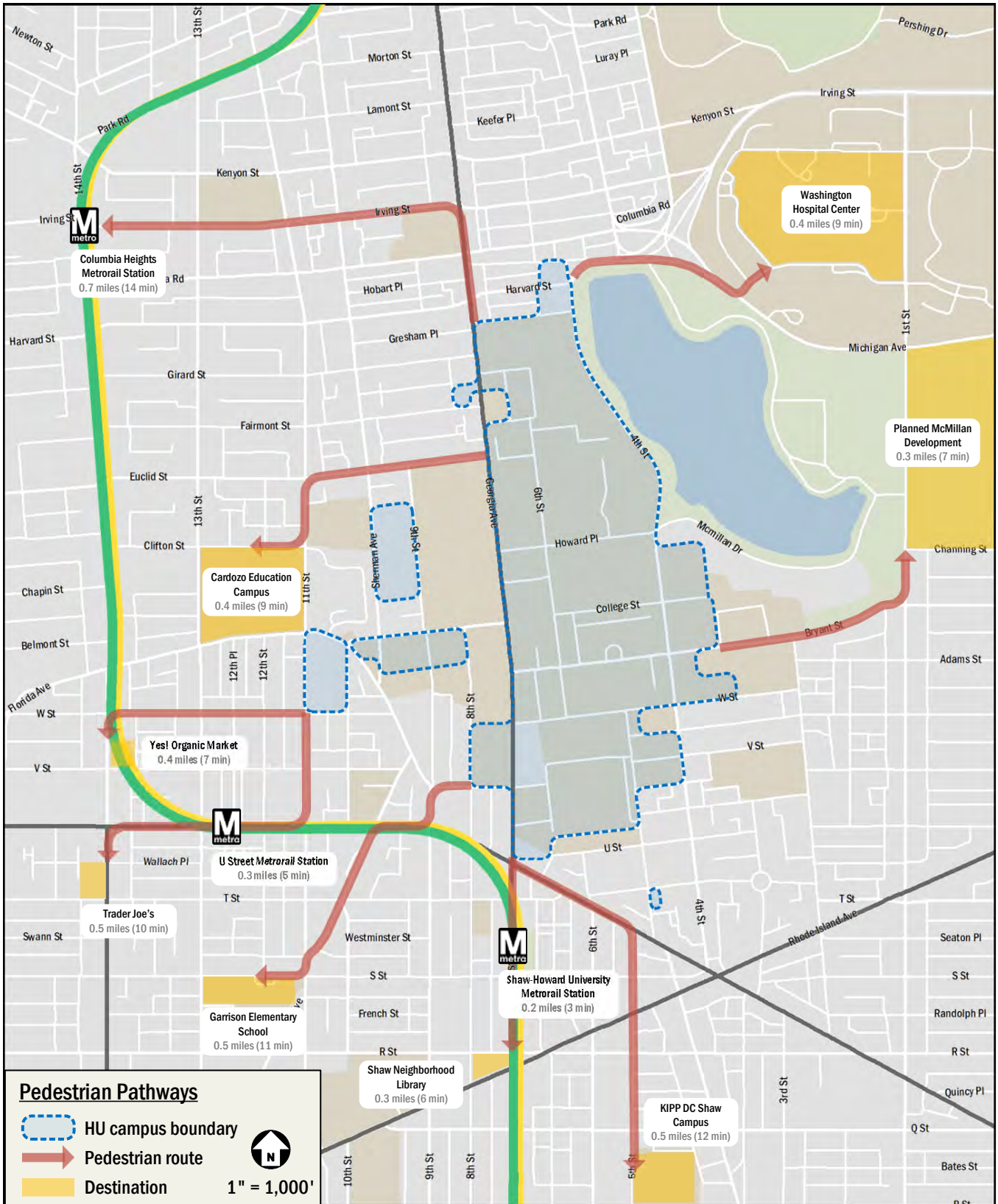
	Curb Walk*	Tree/Furnishing Zone****	Sidewalk Unobstructed Clear Width (min)	Public Parking/ Café Zone	Total Minimum Sidewalk Width
Low- to Moderate-Density Residential**	None	4-6 feet	6 feet	Varies	10 feet
High-Density Residential	1 foot	4-8 feet	8 feet	Varies	13 feet
Central DC and Commercial Areas****	1-2 feet	4-10 feet	10 feet	Varies	16 feet

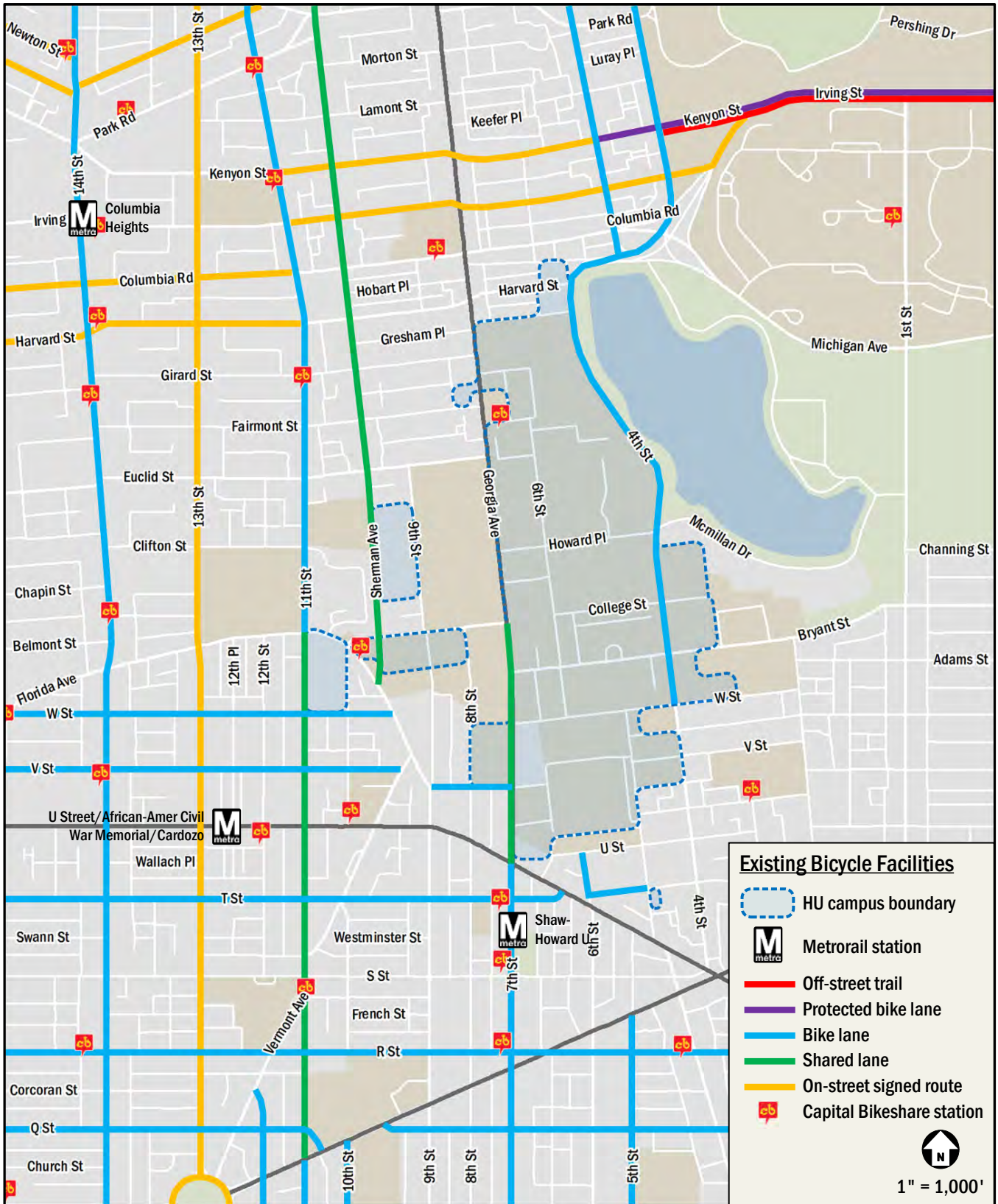
NOTE: All widths depend on sidewalk space within the ROW Designated Street Distribution Cards; for all projects, refer to streetscape standards for historic zones and the DDOT Green Infrastructure Standards.
 *Curb walks must be provided where permitted by DDOT and if accessible parking spaces are provided in accordance with the proportions set forth in the Federal PROWAG.
 **Single-family detached houses and row houses.
 ***Reference soil volume minimums and identify utility locations when establishing this zone.
 ****Curb walk and tree furnishing zones must total at least 6 feet.

Existing Pedestrian Facilities













- within Quarter-Mile Walkshed
- HU campus boundary
 - ¼-mile walkshed
 - Sidewalk meets standards
 - Sidewalk does not meet standards
 - No sidewalk
 - Crosswalk meets standards
 - No crosswalk at unsignalized intersection
 - No crosswalk at signalized intersection
 - Curb ramp meets standards
 - Diagonal curb ramp lacks 48" clear space **or** detectable warning
 - Diagonal curb ramp lacks 48" clear space **and** detectable warning
 - No curb ramps

Standards based on DDOT Design and Engineering Manual and ADA standards. 1" = 750'





Existing Transit Facilities

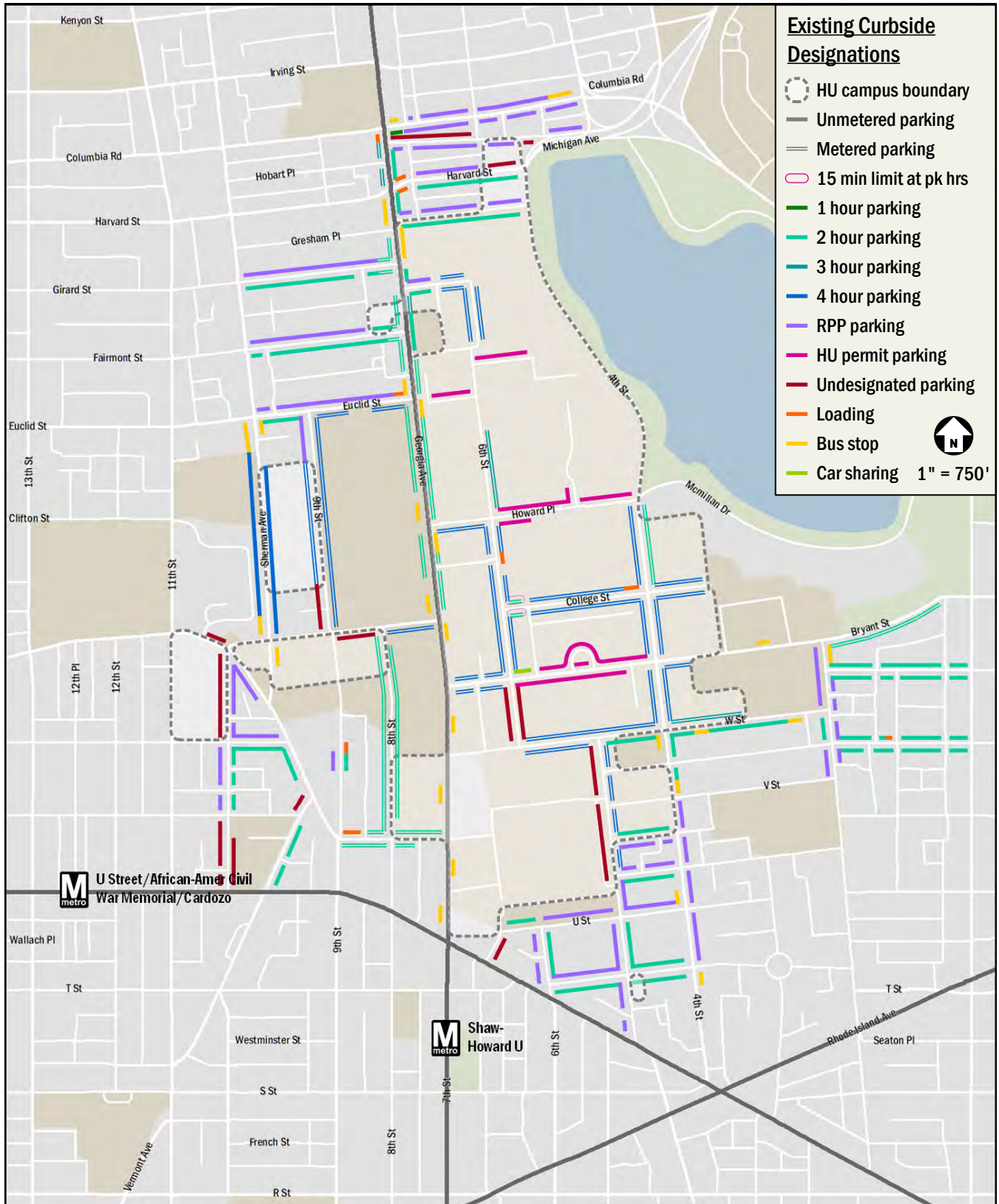
-  HU campus boundary
-  Metrorail station
-  Metrorail line
-  Bus route (frequent)
-  Bus route (less frequent)
-  Metrobus major route
-  MetroExtra route
-  Metrobus local route
-  Metrobus commuter route
-  Bus stop w/ most amenities
-  Bus stop w/ some amenities
-  Bus stop w/ few amenities

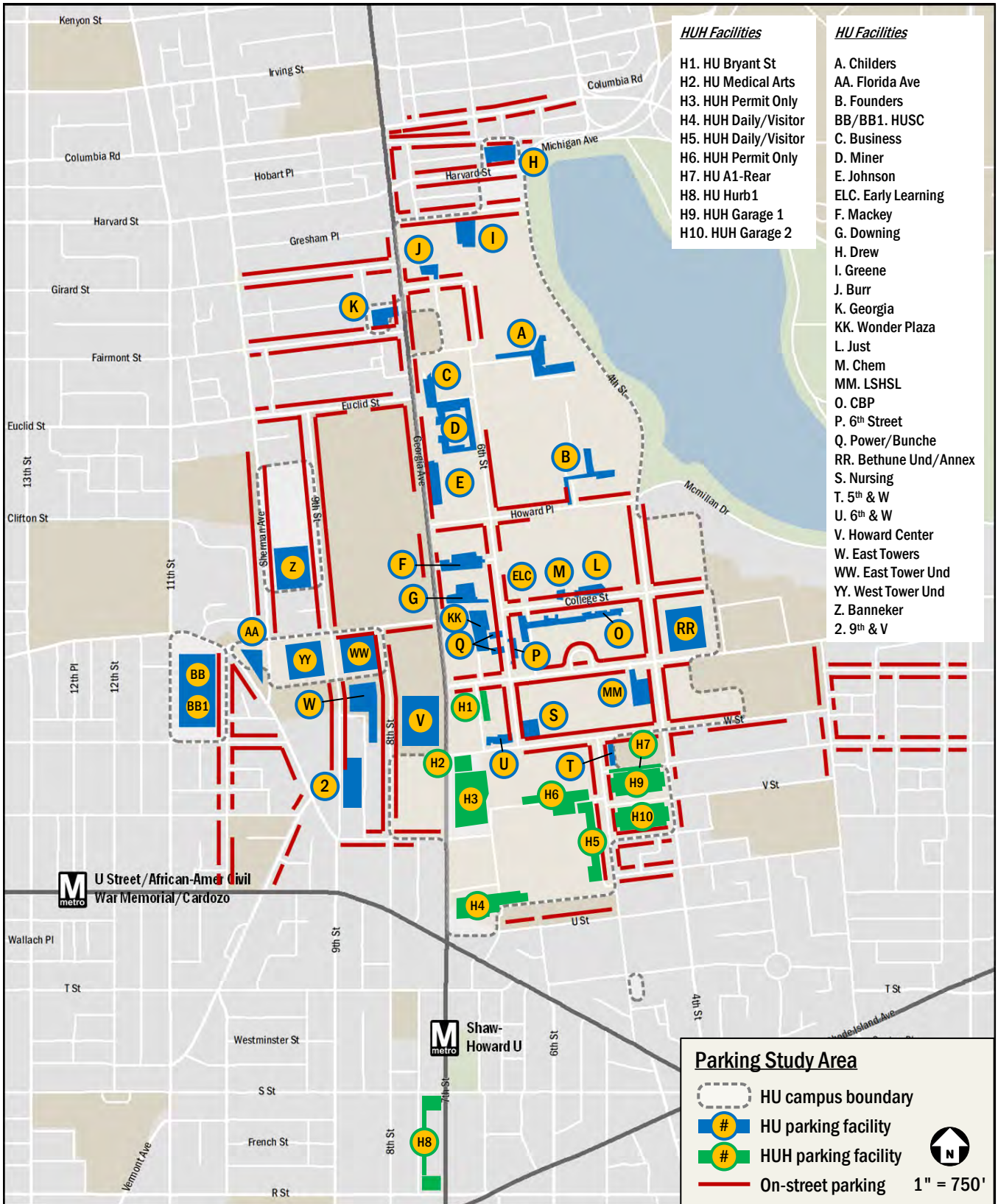
Bus stop amenities based on 2019 WMATA *Bus Stop Amenity Reference Guide*. Not all amenities are recommended for all bus stop types. This graphic reflects how many amenities a bus stop has, not whether it meets the recommended amenity standard for its type.

Only routes stopping within the transit review area are shown.

1" = 1,000'







- HUH Facilities**
- H1. HU Bryant St
 - H2. HU Medical Arts
 - H3. HUH Permit Only
 - H4. HUH Daily/Visitor
 - H5. HUH Daily/Visitor
 - H6. HUH Permit Only
 - H7. HU A1-Rear
 - H8. HU Hurb1
 - H9. HUH Garage 1
 - H10. HUH Garage 2

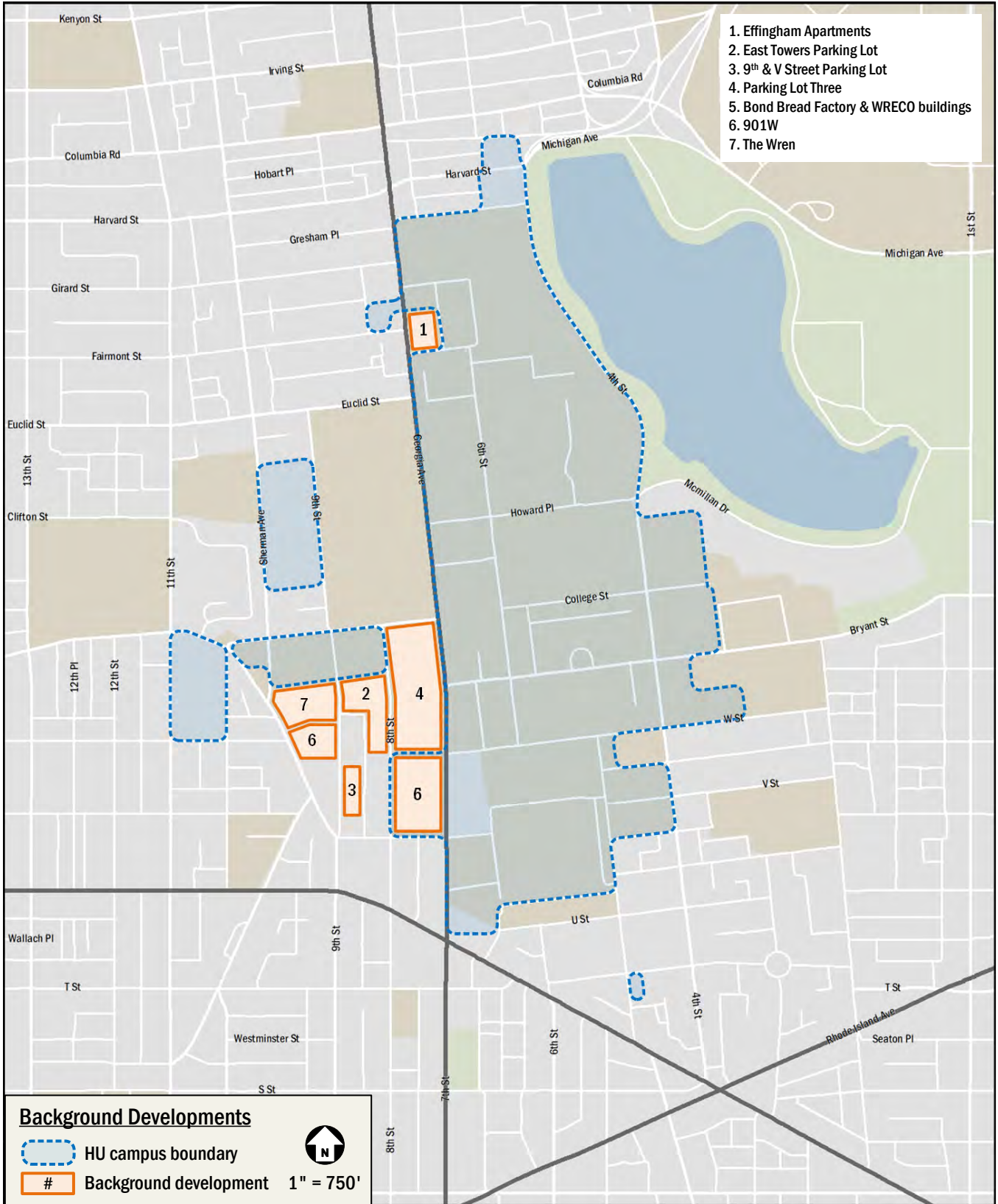
- HU Facilities**
- A. Childers
 - AA. Florida Ave
 - B. Founders
 - BB/BB1. HUSC
 - C. Business
 - D. Miner
 - E. Johnson
 - ELC. Early Learning
 - F. Mackey
 - G. Downing
 - H. Drew
 - I. Greene
 - J. Burr
 - K. Georgia
 - KK. Wonder Plaza
 - L. Just
 - M. Chem
 - MM. LSHSL
 - O. CBP
 - P. 6th Street
 - Q. Power/Bunche
 - RR. Bethune Und/Annex
 - S. Nursing
 - T. 5th & W
 - U. 6th & W
 - V. Howard Center
 - W. East Towers
 - WW. East Tower Und
 - YY. West Tower Und
 - Z. Banneker
 - 2. 9th & V

Parking Study Area

- HU campus boundary
- HU parking facility
- HUH parking facility
- On-street parking



N



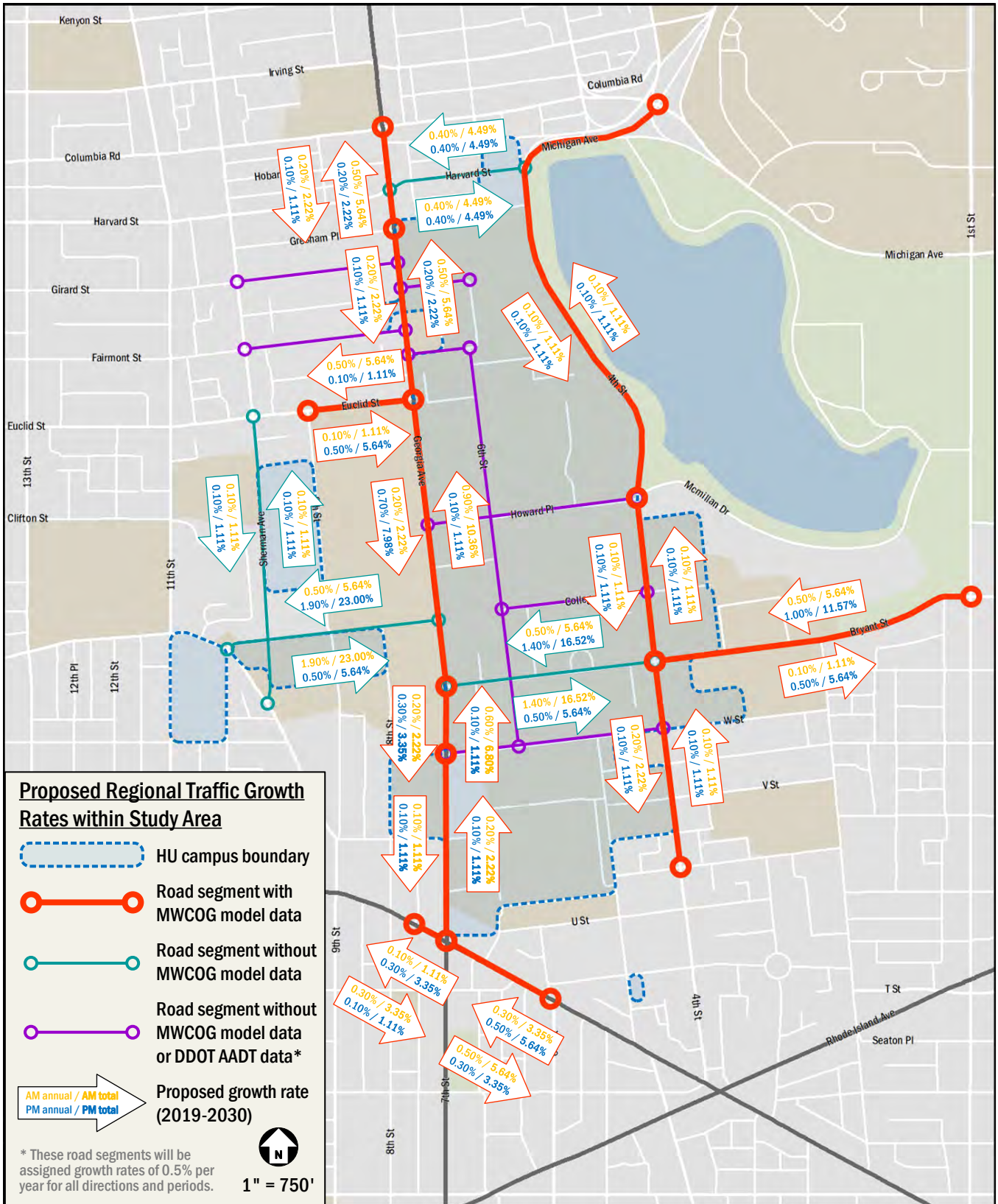


1. Effingham Apartments
2. East Towers Parking Lot
3. 9th & V Street Parking Lot
4. Parking Lot Three
5. Bond Bread Factory & WRECO buildings
6. 901W
7. The Wren

Background Developments

-  HU campus boundary
 -  Background development
- 1" = 750'





Proposed Regional Traffic Growth Rates within Study Area

- HU campus boundary
- Road segment with MWCOG model data
- Road segment without MWCOG model data
- Road segment without MWCOG model data or DDOT AADT data*

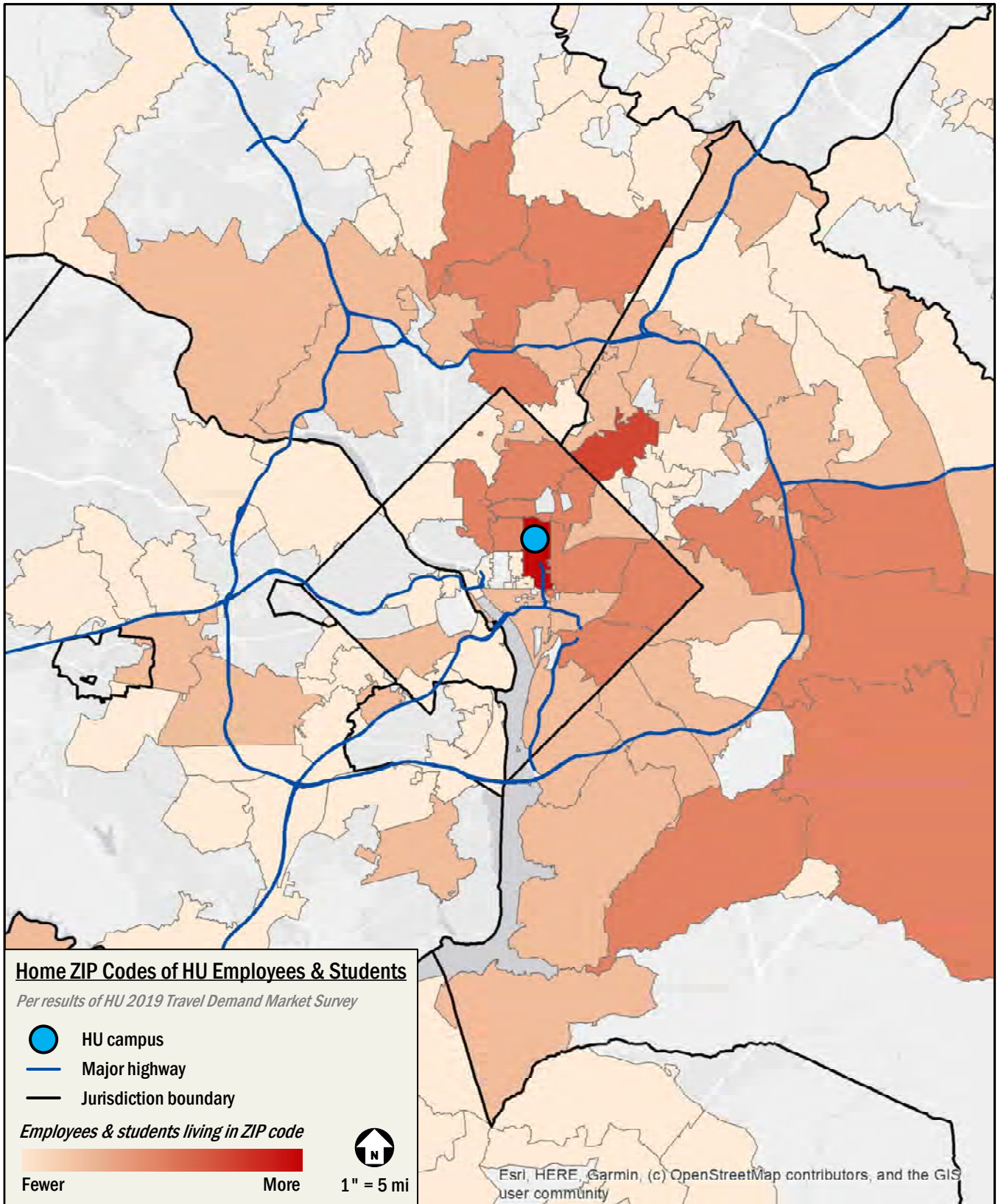
Proposed growth rate (2019-2030)

AM annual / AM total
PM annual / PM total

* These road segments will be assigned growth rates of 0.5% per year for all directions and periods.

1" = 750'







B. 2019 Off-street Parking Occupancy Counts

HOWARD UNIVERSITY PARKING STUDY LOG SHEET

Date: 10/24/2019

LOT CODE	LOT NAME	SPACES	HC SPACES	TOTAL SPACES	7AM	8AM	9AM	10AM	11AM	12PM	1PM	2PM	3PM	4PM	5PM	6PM	7PM	PEAK OCCUPANCY		
																		PARKED SPACES	PERCENTAGE	TIME
A	CHILDERS	70	6	76	24	30	51	59	62	66	66	70	57	42	34	22	29	70	92%	2 PM
AA	FLORIDA AVE	22	1	23	3	6	12	15	19	18	15	19	21	17	11	5	3	21	91%	3 PM
B	FOUNDERS	49	8	57	1	2	6	16	20	17	17	21	20	17	17	22	22	22	39%	6 PM
BB	HUSC	26	0	26	18	22	24	25	22	23	22	21	22	22	21	19	16	25	96%	10 AM
BB1	HUSC	94	0	94	34	33	43	47	62	67	68	61	69	53	46	46	37	69	73%	3 PM
C	BUSINESS	34	2	36	12	19	19	26	24	28	27	15	15	12	10	10	6	28	78%	12 PM
D	MINER	54	2	56	8	22	24	31	32	27	28	32	38	36	22	16	10	38	68%	3 PM
E	JOHNSON	42	1	43	7	15	21	28	30	28	25	26	23	34	16	9	7	34	79%	4 PM
MM	LSHSL	41	2	43	3	8	10	13	17	16	17	17	16	15	12	8	4	17	40%	11 AM
F	MACKAY	55	2	57	2	10	14	22	32	31	30	30	29	22	17	15	12	32	56%	11 AM
G	DOWNING	33	2	35	3	4	16	18	18	19	20	21	18	16	10	5	5	21	60%	2 PM
H	DREW	53	3	56	4	4	6	4	8	5	7	8	8	5	4	4	4	8	14%	11 AM
I	GREENE	44	2	46	11	14	16	19	15	20	22	13	20	22	14	10	19	22	48%	1 PM
J	BURR	11	1	12	7	6	9	15	13	13	13	10	8	8	7	7	5	15	125%	10 AM
K	GEORGIA	33	1	34	0	0	4	10	12	10	7	10	7	4	6	4	4	12	35%	11 AM
KK	WONDER PLAZA	48	2	50														0	0%	N/A
L	JUST	22	1	23	1	6	8	10	11	13	14	16	17	14	11	10	10	17	74%	3 PM
M	CHEM	6	0	6	0	0	0	2	2	2	3	3	3	3	3	2	2	3	50%	1 PM
ELC		7	0	7	4	5	5	5	6	6	6	6	6	5	4	4	4	6	86%	11 AM
O	CBP	49	4	53	6	16	28	37	44	42	43	41	40	38	33	22	13	44	83%	11 AM
P	6TH STREET	10	1	11	0	1	2	4	5	6	6	6	6	6	6	3	1	6	55%	12 PM
Q	POWER/BUNCHE	16	0	16	0	2	3	3	3	3	3	4	4	3	2	1	1	4	25%	2 PM
RR	BETHUNE UNDERGROUND	61	2	63														0	0%	N/A
RR	BETHUNE ANNEX	10	2	12														0	0%	N/A
S	NURSING	60	2	62	2	22	28	33	37	41	38	38	38	35	22	14	5	41	66%	12 PM
T	5TH & W	26	0	26	1	5	7	8	9	10	11	8	7	6	3	2	0	11	42%	1 PM
U	6TH & W	15	1	16	2	7	11	12	14	13	14	14	14	10	9	7	5	14	88%	11 AM
V ¹	HOWARD CENTER	330	4	334	102	155	194	247	272	280	280	282	270	164	157	87	73	282	84%	2 PM
W		138	4	142	45	55	56	75	84	93	87	84	70	63	50	41	39	93	65%	12 PM
WW	EAST TOWER UNDERGROUND	97	2	99														0	0%	N/A
YY	WEST TOWER UNDERGROUND	97	2	99														0	0%	N/A
Z	BANNEKER	178	0	178	50	57	76	87	105	114	114	111	97	102	81	55	52	114	64%	12 PM
2 ¹	9TH & V	63	3	66	47	53	50	52	51	60	49	32	15	8	7	19	49	60	91%	12 PM
TOTAL		1518	50	1568	397	579	743	923	1029	1071	1052	1019	958	782	635	469	437	1129	72%	N/A

Totals exclude lots without occupancy data.

There are some minor discrepancies on number of spaces in lots per HU-provided data versus occupancy count data. In these cases, the higher number was used in the CTR analysis.

¹ Data collected on 11/20/2019.

HOWARD UNIVERSITY HOSPITAL PARKING STUDY LOG SHEET

Date: 11/20/2019

LOT CODE	LOT NAME	SPACES	HC SPACES	TOTAL SPACES	7AM	8AM	9AM	10AM	11AM	12PM	1PM	2PM	3PM	4PM	5PM	6PM	7PM	PEAK OCCUPANCY		
																		PARKED SPACES	PERCENTAGE	TIME
H2	HU Medical Arts Lot	25	4	29	2	6	10	16	14	12	12	12	11	9	5	4	4	16	55%	10 AM
H3	HUH Permit Only Lot	106	0	106	39	53	65	83	87	84	82	78	84	68	51	38	31	87	82%	11 AM
H4	HUH Daily/Visitor Lot	120	4	124	23	29	76	88	104	99	111	102	92	64	48	46	55	111	90%	1 PM
H5	HUH Daily/Visitor Lot	49	8	57	43	44	45	53	51	53	54	54	49	43	42	45	54	54	95%	1 PM
H6	HUH Permit Only Lot	35	0	35	22	18	20	22	27	29	27	28	28	21	20	17	14	29	83%	12 PM
H7	HU A1-Rear Lot	22	0	22	1	1	6	8	8	9	7	11	11	8	7	4	1	11	50%	2 PM
H8	HU Hurb1	49	0	49	11	13	18	33	40	46	40	42	30	33	27	11	5	46	94%	12 PM
H9	HUH Garage 1	593	16	609				485	544	509		521	487	539				544	89%	11 AM
H10	HUH Garage 2	552	28	580				502	492	496		508	503	502				508	88%	2 PM
TOTAL		1551	60	1611	141	164	240	1290	1367	1337	333	1356	1300	1293	201	162	155	1406	87%	N/A

There are some minor discrepancies on number of spaces in lots per HU-provided data versus occupancy count data. In these cases, the higher number was used in the CTR analysis.

C. 2019 On-street Parking Occupancy Counts

D. 2012 Transportation Demand Management (TDM) Plan



Howard University

TDM PLAN FOR THE HOWARD UNIVERSITY CAMPUS MASTER PLAN

Final Report

January 2012



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TDM Plan for the Howard University Campus Master Plan
Howard University

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1 EXISTING CONDITIONS SUMMARY

BACKGROUND

The Howard University Campus Master Plan

Howard University's historic Central Campus is the focus of its 2011 Campus Master Plan (HUCMP). Located in Washington DC's Ward 1, and within five miles of the Nation's Capitol, the 118-acre Central Campus is the setting for most of the University's academic and administrative buildings and activities. The Central Campus Master Plan is a strategic tool and guide for the physical development of the campus over the next ten years. The plan is designed to enhance the physical condition of the campus, to create new opportunities for excellence in the future development of new facilities, and to provide the physical framework within which the University can achieve its academic mission.

The transportation element of the HUCMP identifies potential transportation impacts of the plan and provides recommendations to minimize adverse impacts on the surrounding community. The Transportation Demand Management (TDM) Plan provides a detailed assessment of opportunities to mitigate adverse transportation impacts — primarily by enhancing multimodal Central Campus access and mobility for the extended Howard University community.

The TDM Plan is organized as follows:

1. Projected Campus Growth - An overview of projected physical and demographic expansions planned for the Central Campus in the HUCMP.
2. Alternative Mode Infrastructure Assessment - A qualitative summary of the means by which non-driving faculty/staff and students can access Central Campus destinations, plans for improvements, and comparisons to best practices.

