

Table 15: How TDM Proposals Support Campus Plan Transportation Strategies

Campus Plan Transportation Strategy	How TDM Proposals Support the Strategy
1. Ensure there is no net increase in parking supply.	The proposed TDM plan will reduce demand of single-occupant vehicles to and from campus, which will reduce pressure on parking supply. The plan includes committed actions of A) increasing parking rates, B) unbundling tenant parking, and C) monitoring and reporting parking occupancy that will support this strategy.
2. Improve pedestrian conditions and connectivity.	The proposed TDM plan includes a discretionary action to implement physical improvements to the campus's pedestrian network.
3. Increase multimodal access and facilities in the campus core.	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.
4. Provide safe, efficient access to the new Howard University Hospital.	N/A
5. Be a good transportation neighbor.	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.

Roadway Impacts

This chapter reviews existing roadway conditions regarding vehicle and loading access and outlines how these conditions will change with the Campus Plan. The chapter then outlines the travel demand assumptions of the Campus Plan. Finally, the chapter provides an analysis of the existing and future roadway capacity surrounding the site, including an analysis of potential vehicular impacts of the Campus Plan and a discussion of potential mitigations.

Existing Conditions

Site access for the main campus is provided by multiple access points around the campus. The primary campus entrance is ornamentally designated at the intersection of Georgia Avenue and Fairmont Street, though it is not the primary vehicular access point due to the one-way configuration of Fairmont Street. Secondary access points to the main campus and parking lots are dispersed along the roadways bordering campus.

Gated entrances/exits for the central portion of campus are provided along Howard Place. The gate at 4th Street and Howard Place is closed in order to decrease traffic cutting through the central campus. Access is provided along 4th Street into campus at College Street and W Street and out of campus at College Street and Bryant Street.

The primary entrance for the Howard University Hospital is located along Georgia Avenue north of the intersection with Florida Avenue. The primary exit is located along Georgia Avenue at the intersection with V Street. Secondary access points are also provided along W Street and 5th Street.

Proposed Conditions

The addition of proposed buildings and the closure and replacement of parking facilities will affect vehicle and loading access locations across the campus. Vehicular access will be removed from surface lots being removed, and will be added to the garage and loading facility entrances of proposed buildings. While the exact locations of these facilities will not be determined until Further Processing, it is possible to determine which existing curbside locations are preferable access points, which are feasible access points, and which cannot accommodate access. Figure 21 shows these designations for potential access locations at proposed buildings, as well as the existing-to-remain access locations.

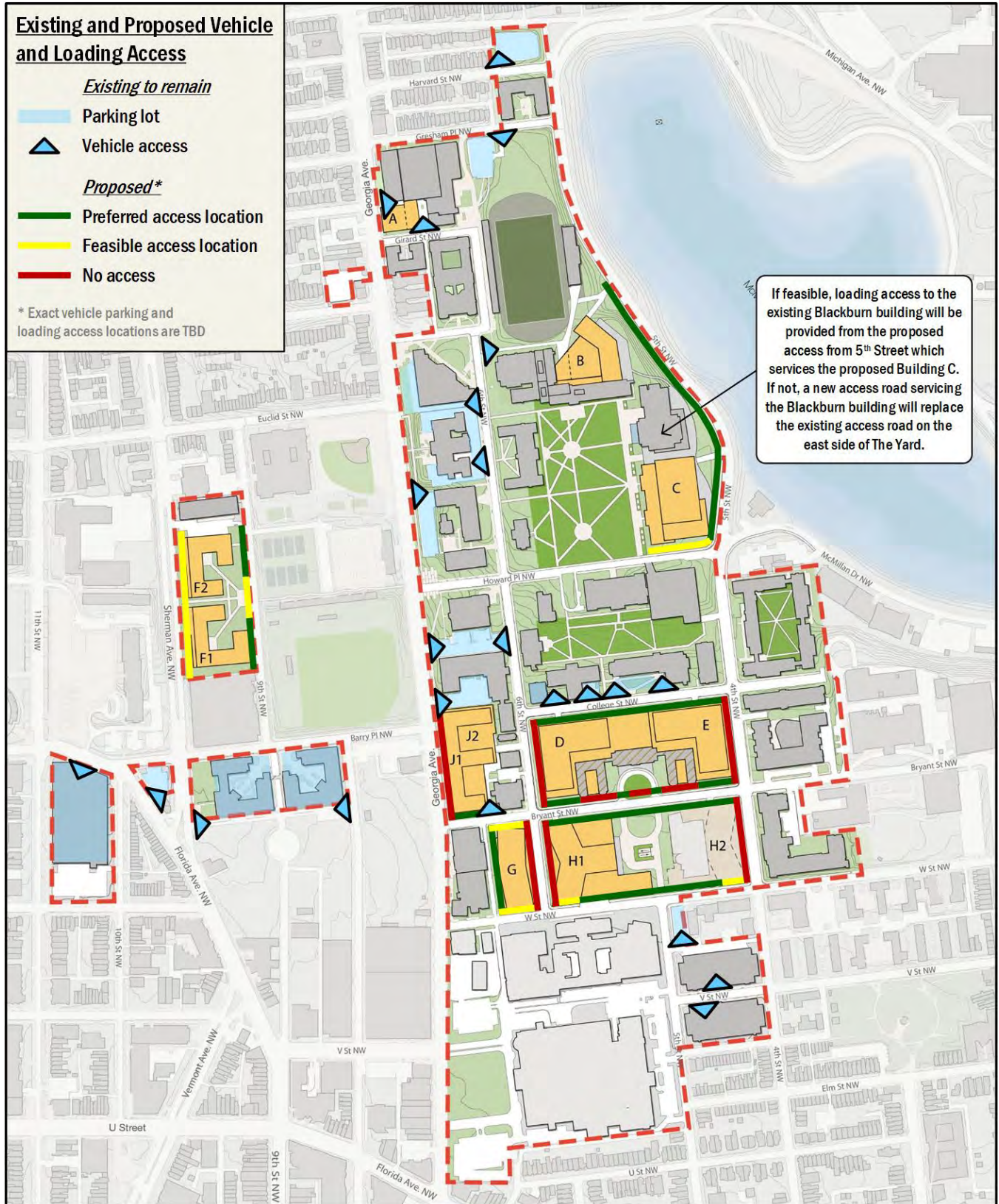


Figure 21: Existing and Proposed Vehicle and Loading Access Locations

Travel Demand Assumptions

This section outlines the vehicular demand assumptions of the Campus Plan. It summarizes the projected vehicular trip generation of the Campus Plan. These assumptions were vetted and approved by DDOT as a part of the scoping process for the study.

The study uses several trip generation methodologies:

- Trips generated by academic parking facilities are calculated by shifting trips from removed parking facilities to proposed parking facilities, while also accounting for population growth;
- Trips generated by hospital parking facilities are calculated by shifting trips from removed parking facilities to proposed parking facilities, except without the population growth factor included in academic parking trips;
- Trips generated by hospital curbside activity are calculated by simply moving all existing curbside activity from the existing hospital location to the proposed hospital location; and
- Trips generated by retail facilities are calculated using traditional ITE trip generation methodology.

This methodologies are presented in detail later in this section.

Mode Split Assumptions

Mode split (also called mode share) is the percentage of travelers using a particular type (or mode) of transportation when traveling. The only land use in the Campus Plan using traditional ITE trip generation methodology (as thus mode split assumptions) is the proposed ground floor retail space at the renovated Wonder Plaza facility. The retail mode split is primarily based on census data provided by the Census Transportation Planning Products (CTPP) program at the Transportation Analysis Zone (TAZ) level for employees that work near the site, the District of Columbia’s 2019 State of the Commute survey, and data contained in the WMATA Ridership Survey. This data is provided in the Technical Attachments.

Table 16 shows the assumed retail mode splits used for this analysis.

Table 16: Retail Mode Split Assumptions

Land Use	Mode			
	Drive	Transit	Bike	Walk
Retail	35%	15%	5%	45%

Trip Generation Methodology

The following is a review of the trip generation methodology used to estimate peak hour vehicular volumes for the following trip types:

- Trips generated by academic parking facilities;
- Trips generated by hospital parking facilities;
- Trips generated by hospital curbside activity; and
- Trips generated by retail facilities.

These trip types and their associated trip generation methodologies are summarized on Figure 22.

Academic Parking Facility Trips

Traditionally, weekday peak hour trip generation is calculated based on the methodology outlined in the Institute of Transportation Engineers’ (ITE) *Trip Generation*, 10th Edition using land use codes corresponding to the land use makeup of the

building(s). However, this methodology was not used for academic facility-based trips because overall trip generation to the University is not based on individual buildings, but the campus as a whole. More specifically, it is based on the location and availability of campus parking facilities. Thus, the proposed peak hour trip generation methodology for academic facilities is based on two (2) factors:

- Changes to campus population levels that would impact how many people are traveling to and from the campus; and
- Changes to the location of parking supplies on campus.

This methodology, which is the same methodology used in the 2011 Campus Plan's Transportation Report, is undertaken using the following steps:

1. Estimate future staff and student peak parking demand by extrapolating existing parking demand per individual to the projected staff and student populations, assuming they grow to the caps proposed in the Campus Plan.
2. Distribute existing and added staff and student parking demand into individual academic parking locations based on proposed lot removals and additions.
3. Convert this parking demand into peak hour trips for each academic parking location using the following rates of trips generated per occupied parking space¹:
 - a. AM peak hour: 0.35 (0.30 inbound and 0.05 outbound)
 - b. PM peak hour: 0.40 (0.05 inbound and 0.35 outbound)

The resulting peak hour trip generation thus reflects both the increase in population and the change in parking supply locations. Regarding population growth, this trip generation takes a conservative approach in assuming that all new students included in the University's projected enrollment growth attend classes in person on the Central Campus, not virtually.

Figure 23 and Figure 24 show a graphical representation of this trip generation methodology. Figure 26 shows the results of this methodology in terms of trips added or removed at each parking facility.

Hospital Parking Facility Trips

Peak hour trip generation for hospital facility-based trips is similar to the methodology used for academic facility-based trips, except it is based only on changes to the location of the hospital (and associated medical office and educational buildings) and its parking facilities, and not on population changes. The relocation of these trips is a one-for-one swap because the hospital population is not expected to increase or decrease over the duration of the Campus Plan.

Like academic facility trips, hospital-based trips are estimated using a rate of trips generated per occupied parking space. However, due to the different usage patterns of the hospital versus academic parking facilities, these rates are different from those of the academic parking facilities². The hospital facility rates are:

- AM peak hour: 1.10 (0.55 inbound and 0.55 outbound)
- PM peak hour: 1.05 (0.45 inbound and 0.60 outbound)

The resulting peak hour trip generation thus reflects the change in parking supply locations. Figure 25 shows a graphical representation of this methodology. Figure 26 shows the results of this methodology in terms of trips added or removed at each parking facility.

¹ These are the same rates used in the 2011 Campus Plan, which were determined using driveway counts at two (2) parking lots. We were not able to conduct similar counts before the current COVID-19 emergency.

² It was possible to determine different and current rates for hospital parking facilities because unlike most of the academic facilities, hospital parking facilities' entrances are located at intersections for which turning movement counts were taken for this analysis. Thus, it was possible to determine exactly which vehicle trips were entering or exiting hospital parking facilities, which in turn determined the rates.

Hospital Curbside Trips

Peak hour trips generated by non-parking curbside activity at the hospital (including ride-hailing vehicles, shuttles, delivery vehicles, ambulances, police vehicles, and maintenance vehicles) are also relocated from the existing hospital site to the proposed hospital site. The total number of peak hour curbside trips at the existing hospital site was determined using video data from every entrance of the existing hospital. Similar to the hospital parking trips, the relocation of curbside trips is a one-for-one swap because the hospital population is not expected to increase or decrease over the duration of the Campus Plan.

Retail Trips

One of the buildings proposed in the Campus Plan is the Howard Wonder Plaza Mixed-use Residential and Recreational project, which would replace the existing Wonder Plaza facility. The existing Wonder Plaza facility contains approximately 50,000 square feet of ground floor retail, which would be replaced by approximately 60,000 square feet of ground floor retail in the proposed Wonder Plaza project.

Since both the existing-to-be-removed and proposed retail spaces generate non-campus trips, it is necessary to use a different trip generation methodology than the campus trips. Therefore, trips generated by the existing-to-be-removed and proposed ground floor retail spaces are calculated based on the methodology outlined in the Institute of Transportation Engineers' (ITE) *Trip Generation*, 10th Edition. Trips are calculated using land use 820 (Shopping Center), applying the mode split assumptions outlined earlier in this chapter.

According to this methodology, the 50,000 square feet of retail at the existing Wonder Plaza facility generates 16 trips in the AM peak hour (10 inbound, 6 outbound) and 67 trips in the PM peak hour (32 inbound, 35 outbound). These trips are to be removed from the overall Campus Plan trip generation totals.

The 60,000 square feet of retail at the proposed Wonder Plaza facility generates 20 trips in the AM peak hour (12 inbound, 8 outbound) and 80 trips in the PM peak hour (38 inbound, 42 outbound). These trips are to be added to the overall Campus Plan trip generation totals.

Detailed trip generation information for this retail portion of the Campus Plan is provided in the Technical Attachments.

Total Campus Plan Trip Generation

Table 17 summarizes the total trips generated by the Campus Plan, including the parking-based trip generation method for academic and hospital facilities, the relocation of hospital curbside trips, and the ITE-based retail trips.

Table 17: Vehicular Trip Generation Summary for Campus Plan

Trip Type	AM Peak Hour (veh/hr)			PM Peak Hour (veh/hr)		
	In	Out	Total	In	Out	Total
Existing trips removed from removed lots	-452	-216	-668	-186	-515	-701
Existing trips relocated to remaining lots	87	14	101	14	101	115
Existing trips relocated to proposed garages	366	202	568	172	414	586
New trips bound for proposed garages	202	33	235	33	236	269
Curbside trips removed from old hospital	-37	-37	-74	-42	-42	-84
Curbside trips added to new hospital	37	37	74	42	42	84
Existing Wonder Plaza retail trips to be removed	-10	-6	-16	-32	-35	-67
New Wonder Plaza retail trips to be added	12	8	20	38	42	80
Net new trips generated by Campus Plan	205	35	240	39	243	282

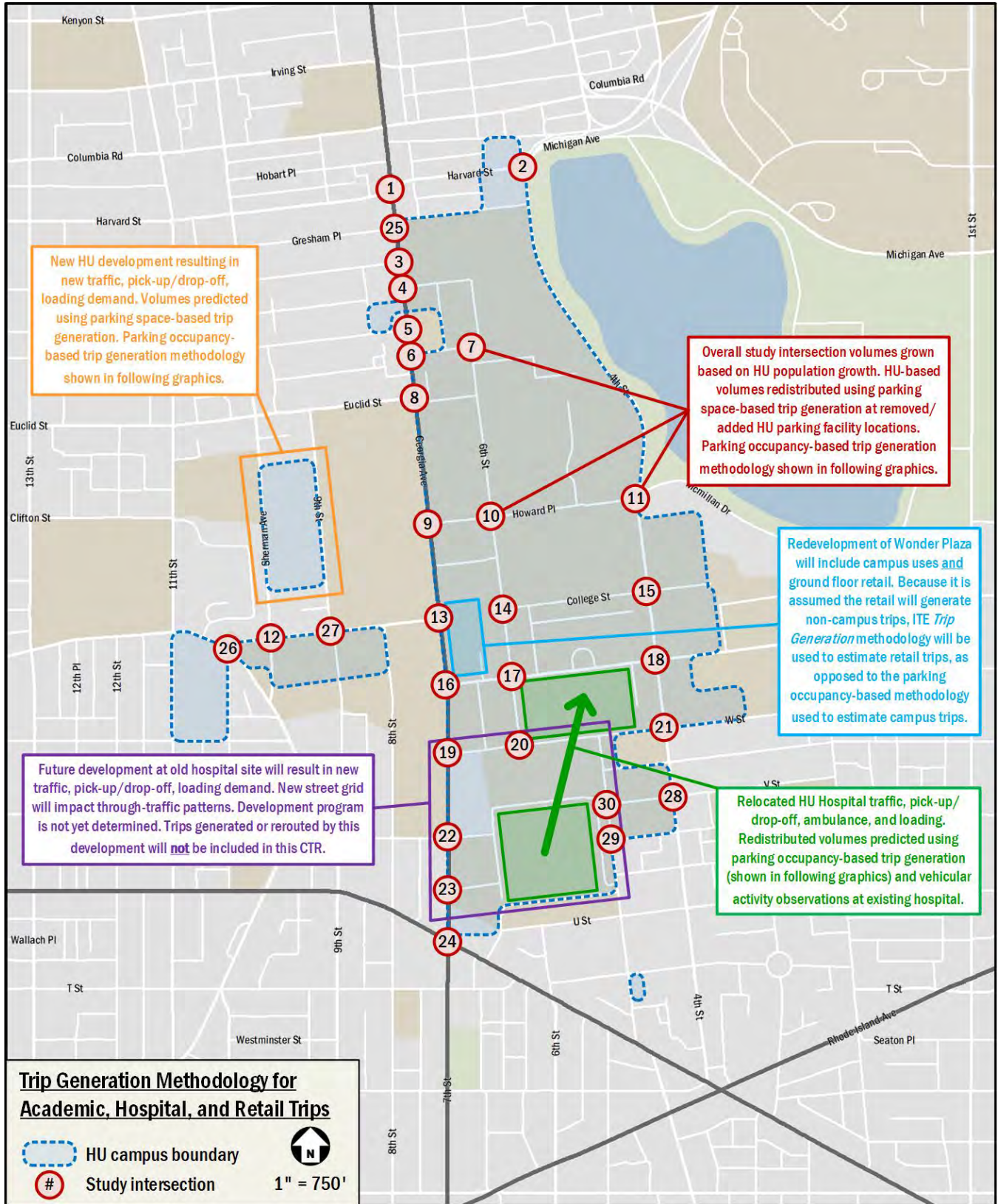
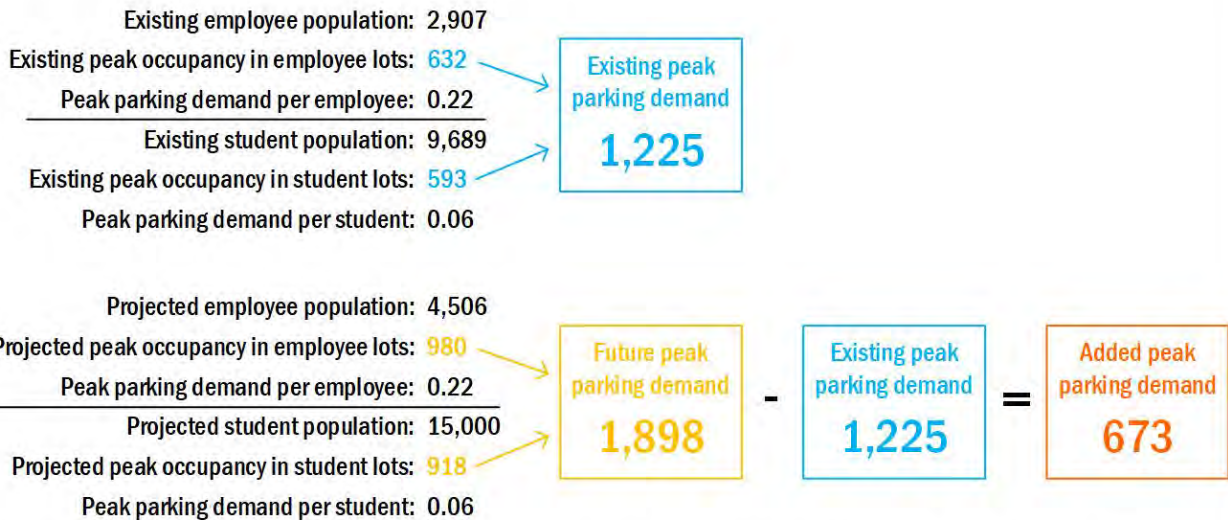


Figure 22: Overview of Trip Generation Methodology for Academic, Hospital, and Retail Trips

Trip Generation Methodology for Academic and Hospital Trips (1 of 3)

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 academic 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

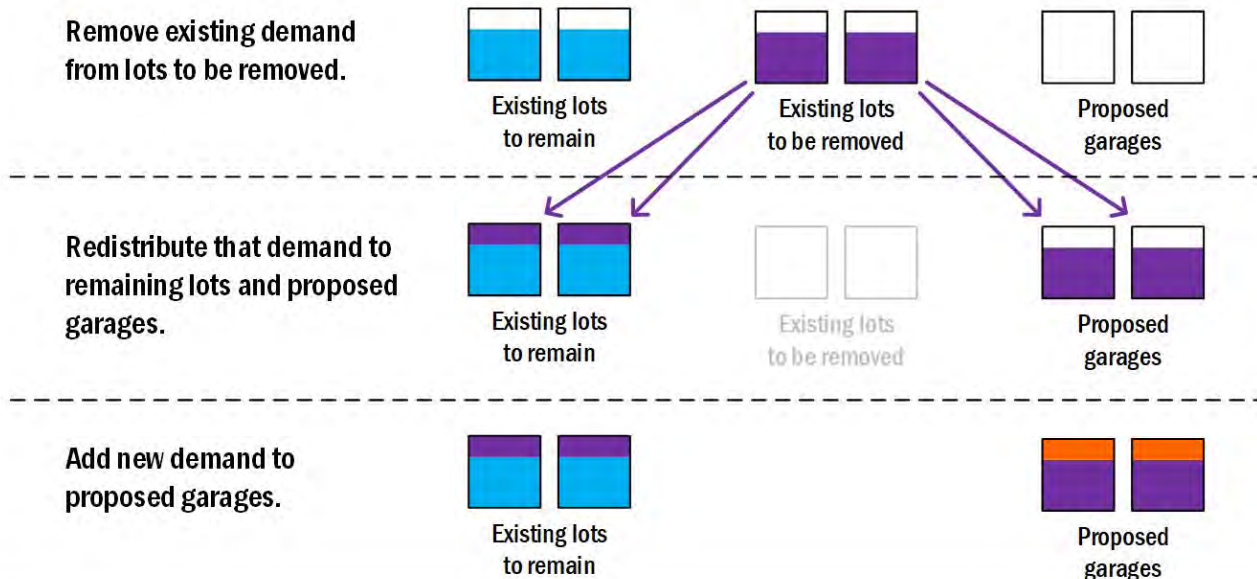


Figure 23: Trip Generation Methodology for Academic and Hospital Trips (1 of 3)

Trip Generation Methodology for Academic and Hospital Trips (2 of 3)

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

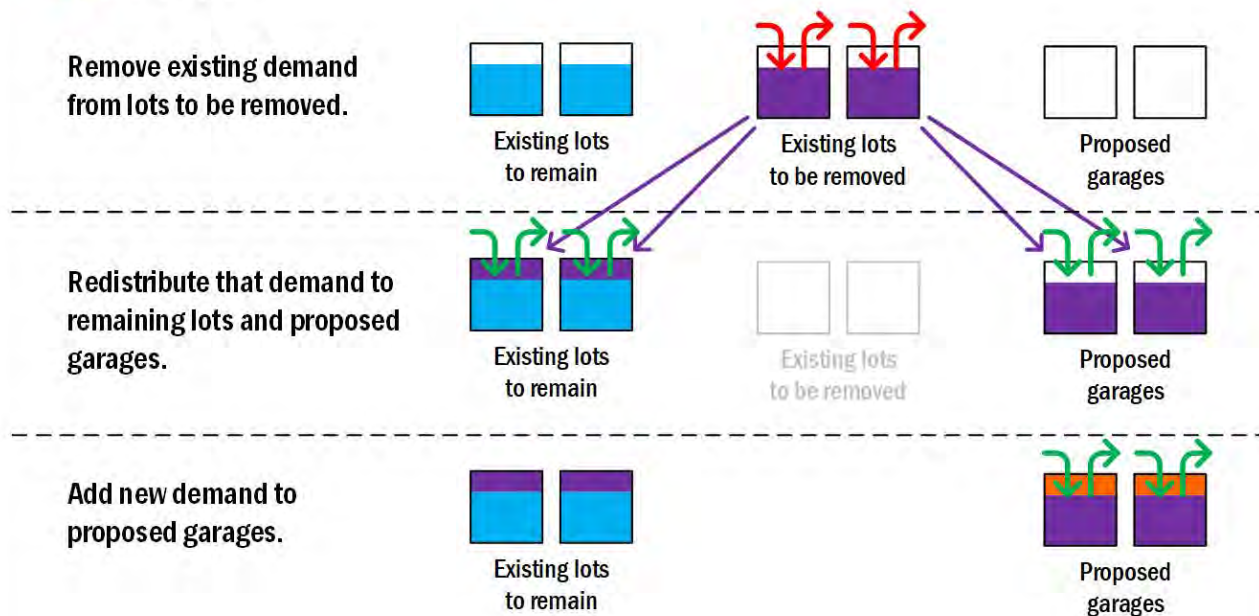


Figure 24: Trip Generation Methodology for Academic and Hospital Trips (2 of 3)