

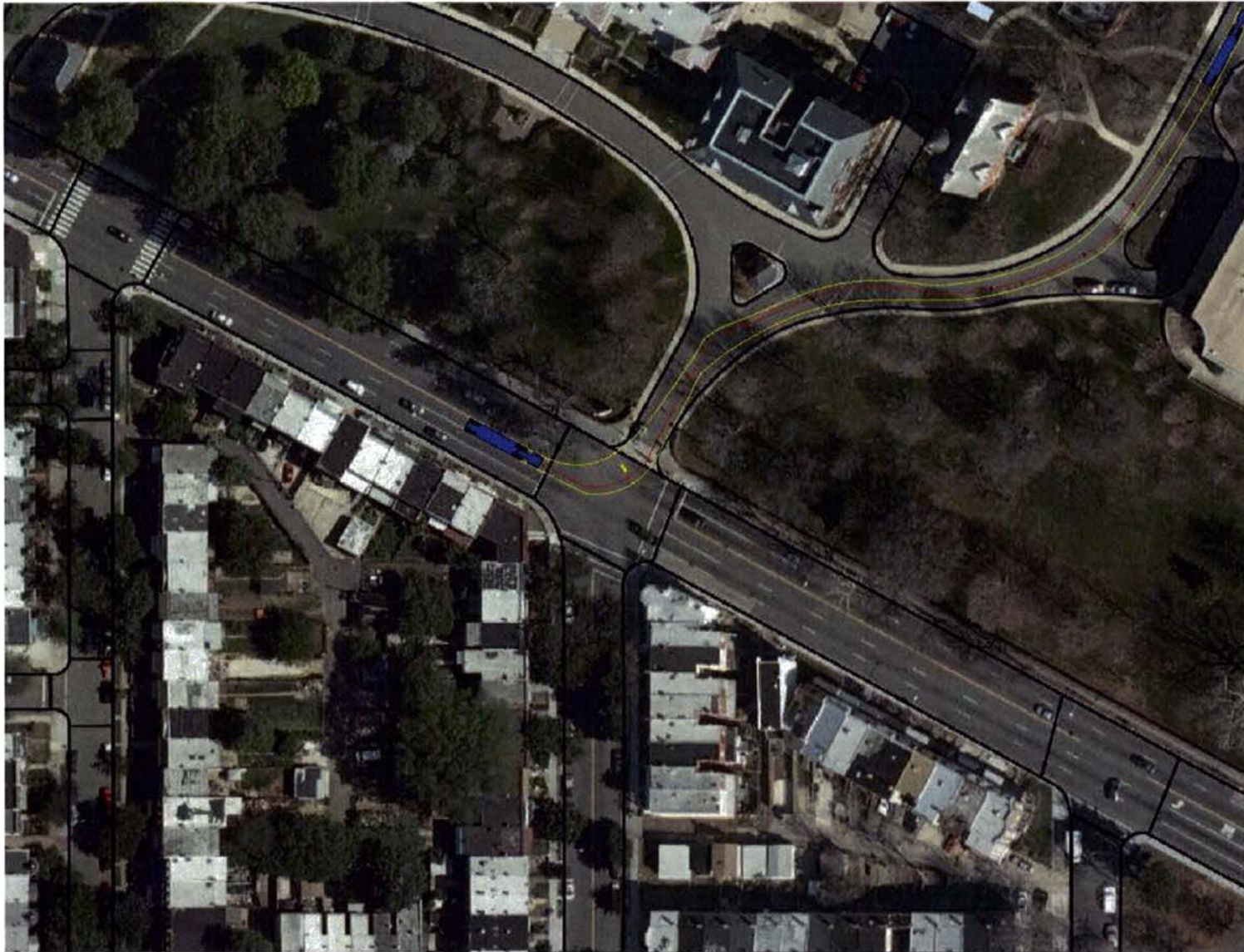


Figure 18: Truck Maneuvering Diagram (55-foot Truck Inbound Left-turn)



Figure 19: Truck Maneuvering Diagram (55-foot Truck Inbound Right-turn)

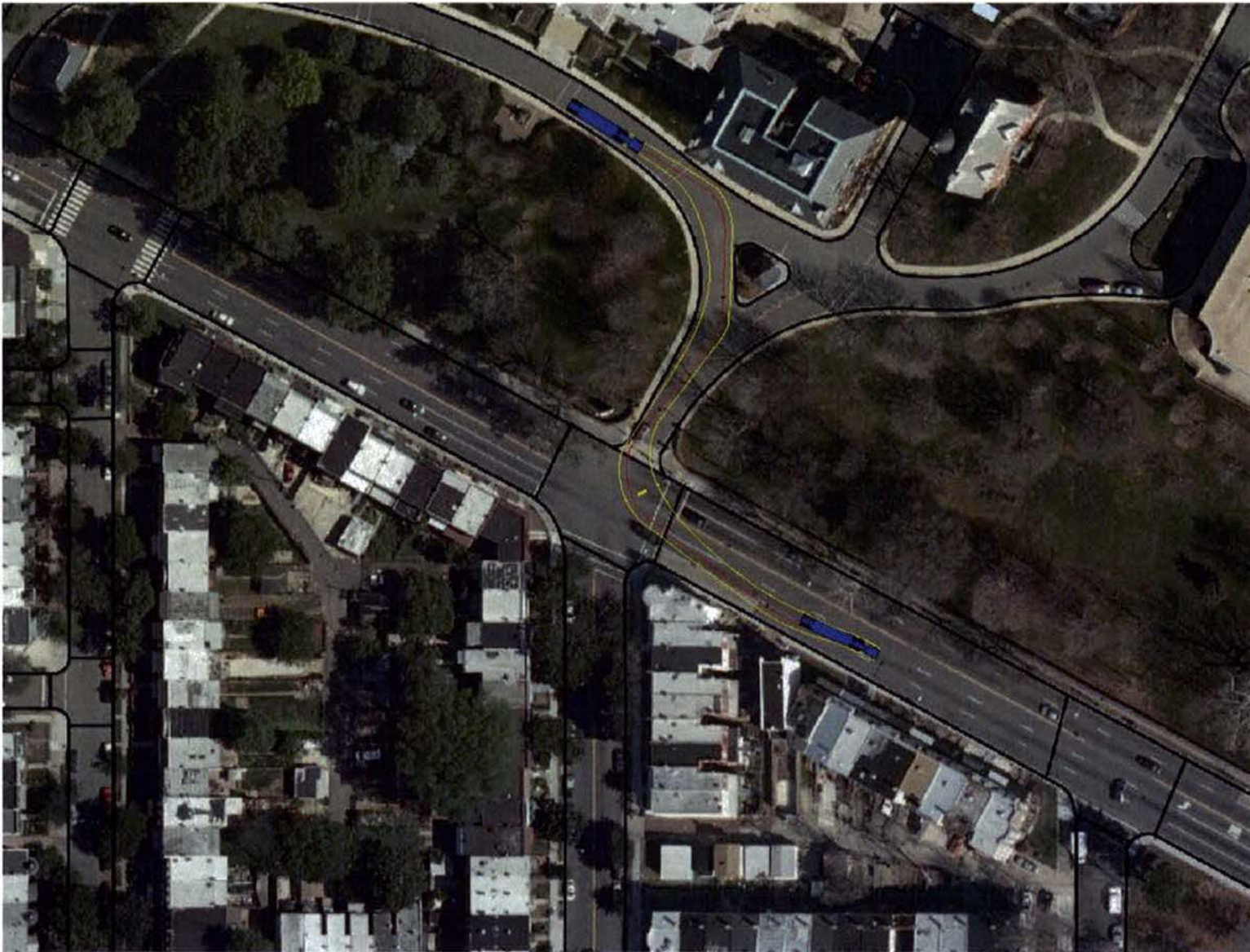


Figure 20: Truck Maneuvering Diagram (55-foot Truck Outbound Left-turn)

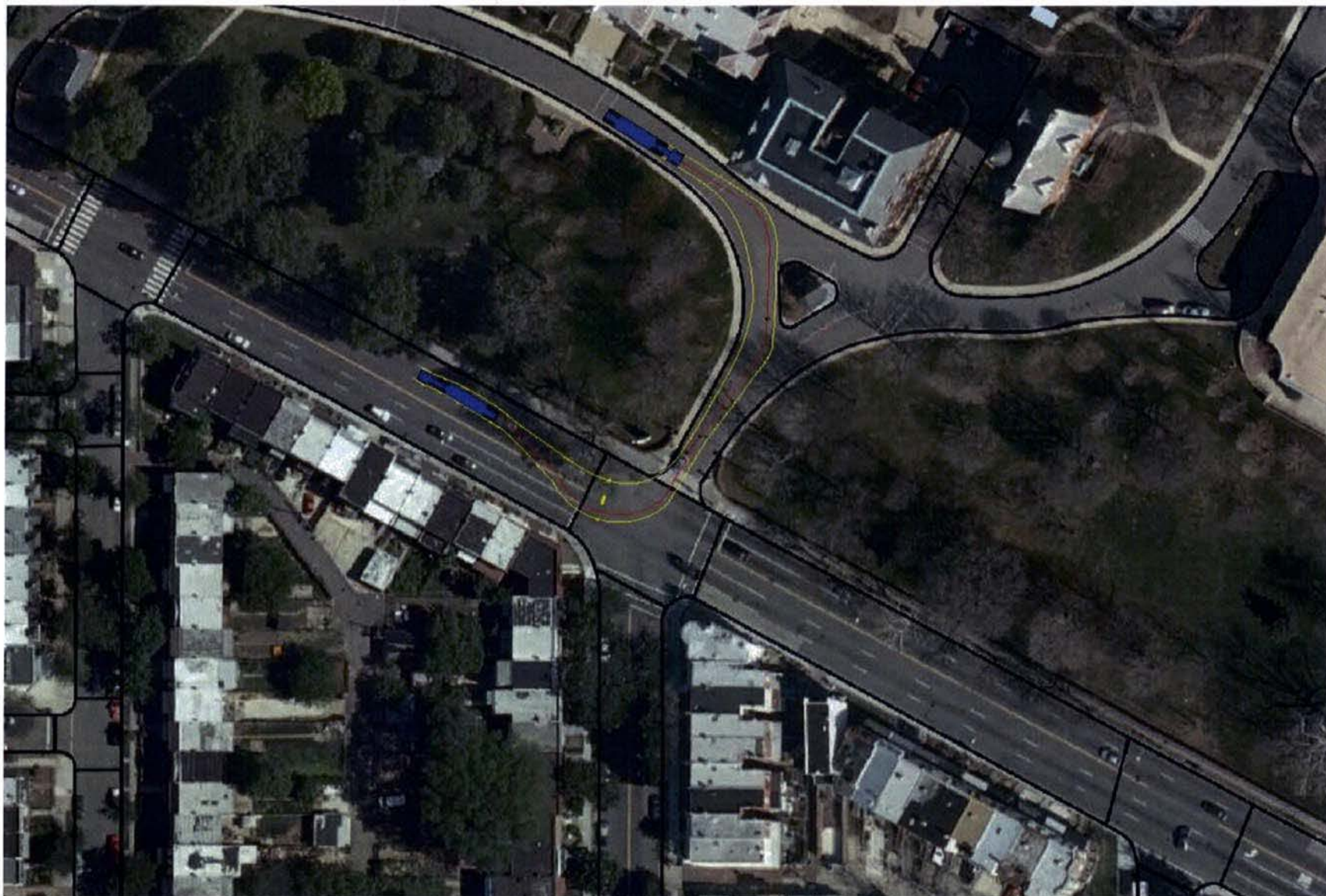


Figure 21: Truck Maneuvering Diagram (55-foot Truck Outbound Right-turn)

The maneuvering diagrams show that 55-foot trucks would have no problem accessing the main campus gate by making a left turn from eastbound Florida Avenue. However, trucks accessing the main campus entrance from westbound Florida Ave would have to turn right into the campus from the far left lane. When performing this maneuver the truck would slightly encroach on the near side curb at the entrance to the campus.

Safety

Table 16 provides a summary of accident history (within a three year period)¹⁰ for the study area intersections. This data is based on statistics received from the DC Department of Transportation Traffic Accident Report and Analysis System.

¹⁰ January 1, 2009 to December 31, 2011

Table 16: Summary of Accident History (Total over a Three Year Period)

Intersection	Total Number of Accidents	Total Number of Injuries	Total Number of Pedestrians Involved	Total Number of Bicycle/Motorcycle Involved	Predominant Types of Accidents
5 th Street & Florida Avenue, NE	9	1	0	0	• 4 Side-Swipes • 1 Right Turn • 1 Rear-End • 1 Parked • 1 Unspecified
6 th Street & Florida Avenue, NE	21	8	1	0	• 8 Rear-Ends • 3 Side-Swipes • 2 Head On • 2 Right Angle • 1 Right Turn • 2 Left Turn • 1 Unspecified

Intersection	Total Number of Accidents	Total Number of Injuries	Total Number of Pedestrians Involved	Total Number of Bicycle/Motorcycle Involved	Predominant Types of Accidents
6 th Street & Neal Place, NE	11	2	2	1	• 3 Rear Ends • 3 Side Swipes • 2 Backing • 1 Right Angle
8 th Street & Florida Avenue, NE	11	6	1	1	• 3 Side Swipes • 3 Unspecified • 1 Rear End • 1 Right Angle • 1 Head On • 1 Parked
West Virginia Avenue & Florida Avenue, NE	27	13	0	3	• 8 Rear End • 5 Right Angle • 5 Side Swipe • 3 Left Turn • 2 Unspecified • 1 Right Turn • 1 Head On • 1 Parked

Intersection	Total Number of Accidents	Total Number of Injuries	Total Number of Pedestrians Involved	Total Number of Bicycle/Motorcycle Involved	Predominant Types of Accidents
West Virginia Avenue & Mount Olivet Road, NE	58	41	3	0	• 19 Left Turns • 9 Side Swipes • 8 Rear Ends • 6 Right Angles • 4 Unspecified • 3 Fixed Object • 2 Backing • 2 Parked • 1 Under/Over Ride • 1 Right Turn
Mount Olivet Road & Brentwood Parkway, NE	44	30	1	1	• 10 Left Turn • 10 Side Swipes • 5 Rear Ends • 5 Fixed Object • 3 Head On • 2 Backing • 2 Unspecified • 2 Ran Off Road • 2 Right Angle • 1 Right Turn • 1 Parked

Intersection	Total Number of Accidents	Total Number of Injuries	Total Number of Pedestrians Involved	Total Number of Bicycle/Motorcycle Involved	Predominant Types of Accidents
9 th Street & Brentwood Parkway, NE	6	2	0	0	• 3 Unspecified • 1 Right Angle • 1 Left Turn • 1 Side Swipe
Penn Street & Brentwood Parkway, NE	13	5	1	0	• 6 Fixed Object • 2 Rear End • 2 Ran Off Road • 1 Head On • 1 Backing

As shown in Table 16, the West Virginia Avenue and Mount Olivet Road intersection experienced 58 accidents, the highest number of accidents from all the study intersections. Of the 58 accidents, three were pedestrian involved. Based on the Crash Report Summary, a majority of the collision types were classified as left turns, side swipes, and rear-ends. According to the Institutes of Transportation Engineer's (ITE's) *Traffic Engineering Handbook*, some potential causal factors for rear end crashes at a signalized intersection are slippery pavement, crossing pedestrians, and inadequate signal timing. In addition, this intersection has been identified as a high crash location by the DDOT and is being studied by the Highway Safety Improvement Program (HSIP) to reduce traffic fatalities and series injuries through the implementation of infrastructure related highway safety improvements.

The Mount Olivet Road/ Brentwood Parkway/ 9th Street T-intersection experienced 44 accidents, the second highest number of accidents from the study intersections. This intersection has recently been reconfigured since construction of the replacement 9th Street Bridge began in 2008. The 9th Street Bridge replacement was completed in 2011 and is now open to both northbound and southbound traffic accessing the bridge from Brentwood Parkway or Mount Olivet Road. From the Crash Report Summary, it can be determined that 20 accidents occurred between 2009 and 2010 and 24 accidents in 2011. Of the 24 accidents that occurred in 2011, 19 were injury related, and 1 was pedestrian involved. The predominant collision types that account for 22.7% each of the total accidents at this intersection (throughout a three-year study period) were left turn and side swipe collisions. According to ITE's *Traffic Engineering Handbook*, potential causal factors for left-turn crashes are large turn volumes, excessive speed, and restricted sight distance.

The intersection of Florida Avenue and West Virginia Avenue experienced 27 accidents, the 3rd highest number of accidents of the 12 study intersections analyzed. This intersection is 0.10 miles from the main campus gate. Of the 27 accidents at this intersection, there were 13 accidents that involved injuries of which two were disabling injuries. No pedestrian injuries were documented at this intersection. Although pedestrian marked crosswalks and countdown signal heads are provided along all approaches of this intersection, it is recommended DDOT assess potential countermeasures to lower accident occurrences. According to Federal Highway Administration (FHWA's) *Desktop Reference for Countermeasures*, possible countermeasures to reduce pedestrian related

accidents for a signalized intersection include improving signal timing (implement a leading pedestrian interval), and installation of pedestrian signing. In 2013, DDOT is slated to begin planning to assess the feasibility of implementing a “road diet” along Florida Avenue. It is recommended the study also considers countermeasures of the crashes be addressed as part of that effort.

The 6th Street and Florida Avenue intersection experienced 21 accidents throughout the three-year study. This intersection is within close proximity of the 6th Street Garage entrance, Historic Campus Gate, and Main Campus Gate. Of the 21 total accidents reported, the predominant collisions types were rear ends and side swipes. About 38% of the 21 accidents at this intersection were injury related with 1 being pedestrian involved. According to FHWA’s *Desktop Reference for Crash Reduction Factors*, potential countermeasures that could be implemented for side swipes at a signalized intersection include installing a left turn lane (double) for approaches which do not have one, and to provide lane-use signage.

Supplemental information on crash rates for the study intersections is provided in Table 17 below. The intersection crash rates¹¹ were calculated based off actual AADT volumes and Accident Summary Reports (R-7)’s supplied by DDOT. The crash rates shown below are expressed in terms of crashes per million entering vehicles (MEV), for instance if an intersection had a crash rate of 1; for every 1 million vehicles entering the intersection, 1 vehicle will be involved in a collision.

¹¹ ITE’s - *Transportation Engineering Handbook*, 6th Edition - R_{spot} Equation

Table 17: Accident Crash Rates for Study Intersections

Intersection	A	T	V	K	Rspot
	# of Reported Crashes	Time Period of Analysis	Annual Average Daily Traffic Volume	K-Factor	Crash Rate for Intersection
5th St / Florida Ave	9	3	28000	0.09	0.026
6th St / Florida Ave	21	3	38400	0.09	0.045
6th St / Neal Pl	11	3	10400	0.09	0.087
8th St / Florida Ave	11	3	33600	0.09	0.027
9th St / Brentwood Pkwy	6	3	36000	0.09	0.014
Mt Olivet Rd / Brentwood Pkwy	44	3	33500	0.09	0.108
Penn St / Brentwood Pkwy	13	3	16400	0.09	0.065
WVA Ave / Florida Ave	27	3	41000	0.09	0.054
WVA / Mt Olivet Rd	58	3	33200	0.09	0.144

Ranking locations by crash rates account for exposure to potential crashes and are generally superior to crash frequency rates as a means of identifying high-hazard locations.

EXISTING TRAFFIC CONDITIONS (2012)

To assess existing traffic conditions, it is necessary to collect traffic data at the intersections during peak periods of traffic flow and operations (i.e. morning and evening rush hour periods). The data collected is in the form of turning movement counts for through, left and right movement at the intersection. This existing data, along with other operational parameters such as the number of lanes, heavy vehicle percentages, and information on traffic signal timing, is entered into traffic analysis software and evaluated to provide a Level of Service (LOS) at each intersection.

Level of Service (LOS) is a measure of the average control (i.e. stop sign or traffic signal) delay experienced by all motorists arriving to an intersection. There are six representative levels of service defined for intersections and they are designated using letters A through F, with LOS A representing the best operating conditions and LOS F representing the worst. LOS “E” is typically accepted by DDOT as the minimum delay threshold limit for intersections.

Level of Service is defined separately for signalized intersections and unsignalized intersections. For signalized intersections, delay is evaluated for the overall intersection; while at unsignalized intersection delay is analyzed for each movement separately (i.e. northbound, southbound, eastbound or westbound traffic). The thresholds for the intersection levels of service are shown in Table 18.

Table 18: Intersection Level of Service Threshold for Delay

Level of Service Threshold for Delay (seconds/vehicle)		
LOS	Signalized	Unsignalized
A	0-10 sec	0-10 sec
B	> 10-20 sec	> 10-15 sec
C	> 20-35 sec	> 15-25 sec
D	> 35-55 sec	> 25-35 sec
E	> 55-80 sec	> 35-50 sec
F	> 80 sec	> 50 sec

Study Intersections

The study area intersections considered were selected by determining intersections that are directly impacted by Gallaudet related site trips. The study area intersections was selected and confirmed with the District Department of Transportation (DDOT) as part of the Comprehensive Scoping Form (see Appendix). This study includes Level of Service (LOS) analysis for AM and PM peak hours for the following roadway intersections:

- 1) Florida Avenue, NE / 5th Street, NE
- 2) Florida Avenue, NE/ 6th Street, NE
- 3) Florida Avenue, NE/ 7th Street, NE (historic campus gate; pedestrians only no capacity assessment provided)
- 4) Florida Avenue, NE/ 8th Street, NE (main campus entrance)
- 5) Florida Avenue, NE/ West Virginia Avenue, NE
- 6) West Virginia Avenue, NE/ Gallaudet Campus Entrance
- 7) West Virginia Avenue, NE/ Mount Olivet Road, NE

- 8) Mount Olivet Road, NE / New York Avenue Ramp
- 9) 9th Street, NE/ Mount Olivet Road, NE / Brentwood Parkway, NE
- 10) Brentwood Parkway, NE/ Gallaudet Campus Entrance
- 11) Brentwood Parkway, NE/ Penn Street, NE
- 12) 6th Street, NE/ Neal Place, NE

Study area intersections are illustrated in Figure 22 and associate lane configuration for each intersection is illustrated in Figure 23.

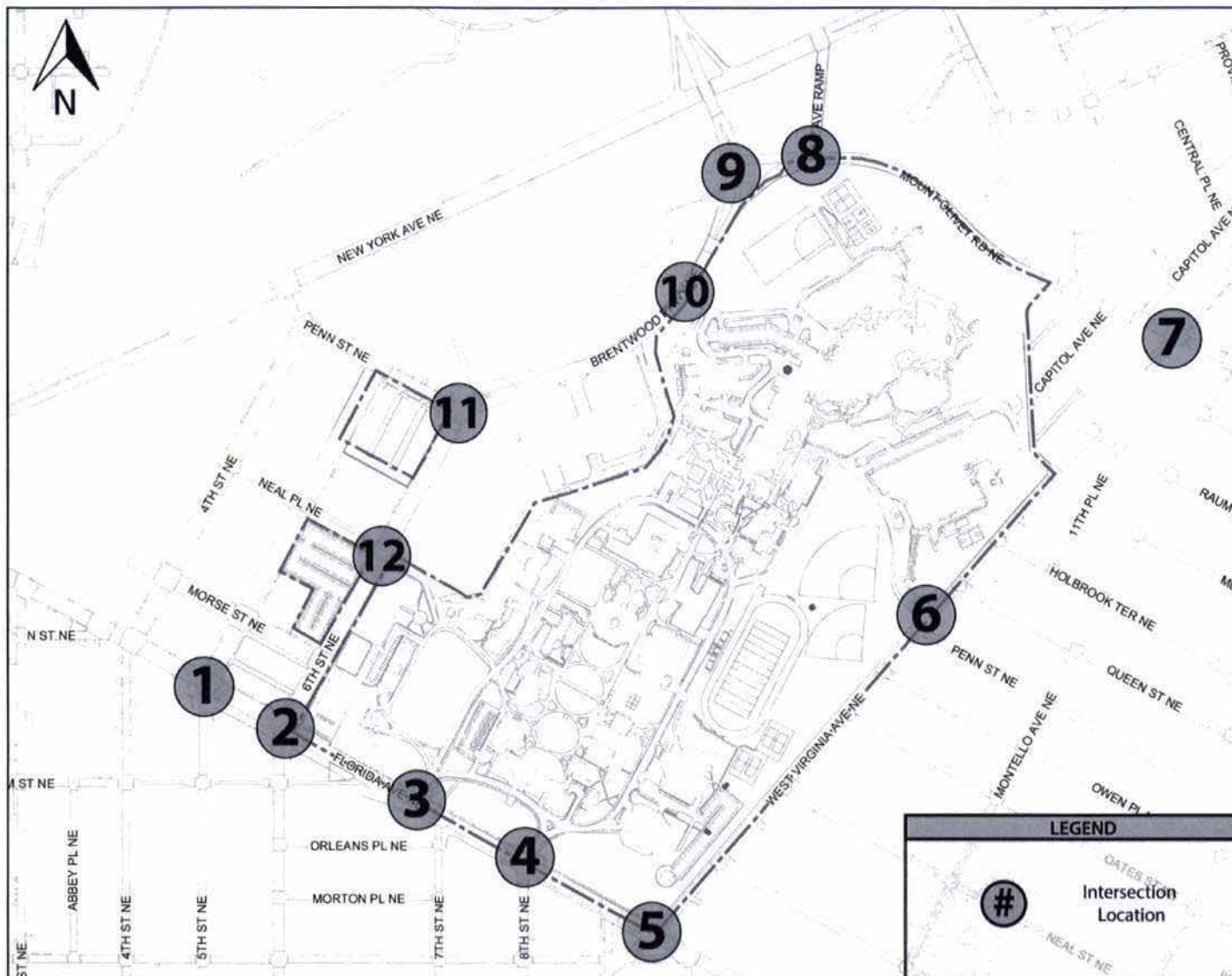


Figure 22: Study Area Intersections

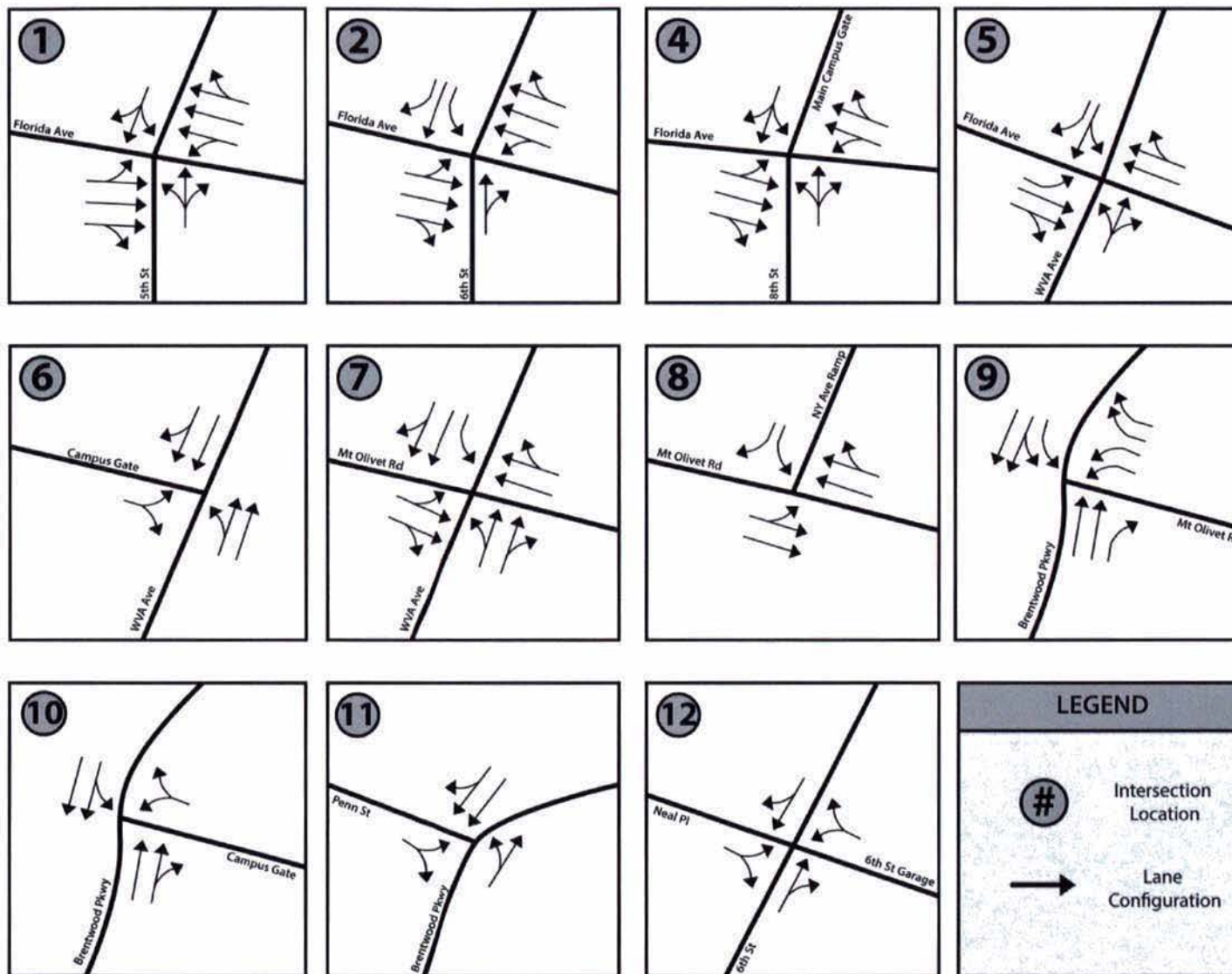


Figure 23: Lane Configuration and Traffic Control

Traffic Volumes and Observations

Traffic data (turning movement counts) and field observations were conducted on Tuesday, April 24 through Thursday, April 26, 2012 from 7:30 AM to 10:30 AM and from 3:30 PM to 6:30 PM. Turning movement counts were also conducted on May 2, 2012 during the same AM and PM time periods.

Existing traffic volumes for the study area intersections during the AM and PM peak hours¹² are shown in Figure 23. See Figure 22 for a reference map that correlates the intersection numbers shown in Figure 24.

¹² The intersection peak hour varied for several of the study area intersection. The figure illustrates peak hour traffic recorded for each individual intersection. The appendix provides the detail turn movement count sheet including the individual intersection AM and PM peak hours.

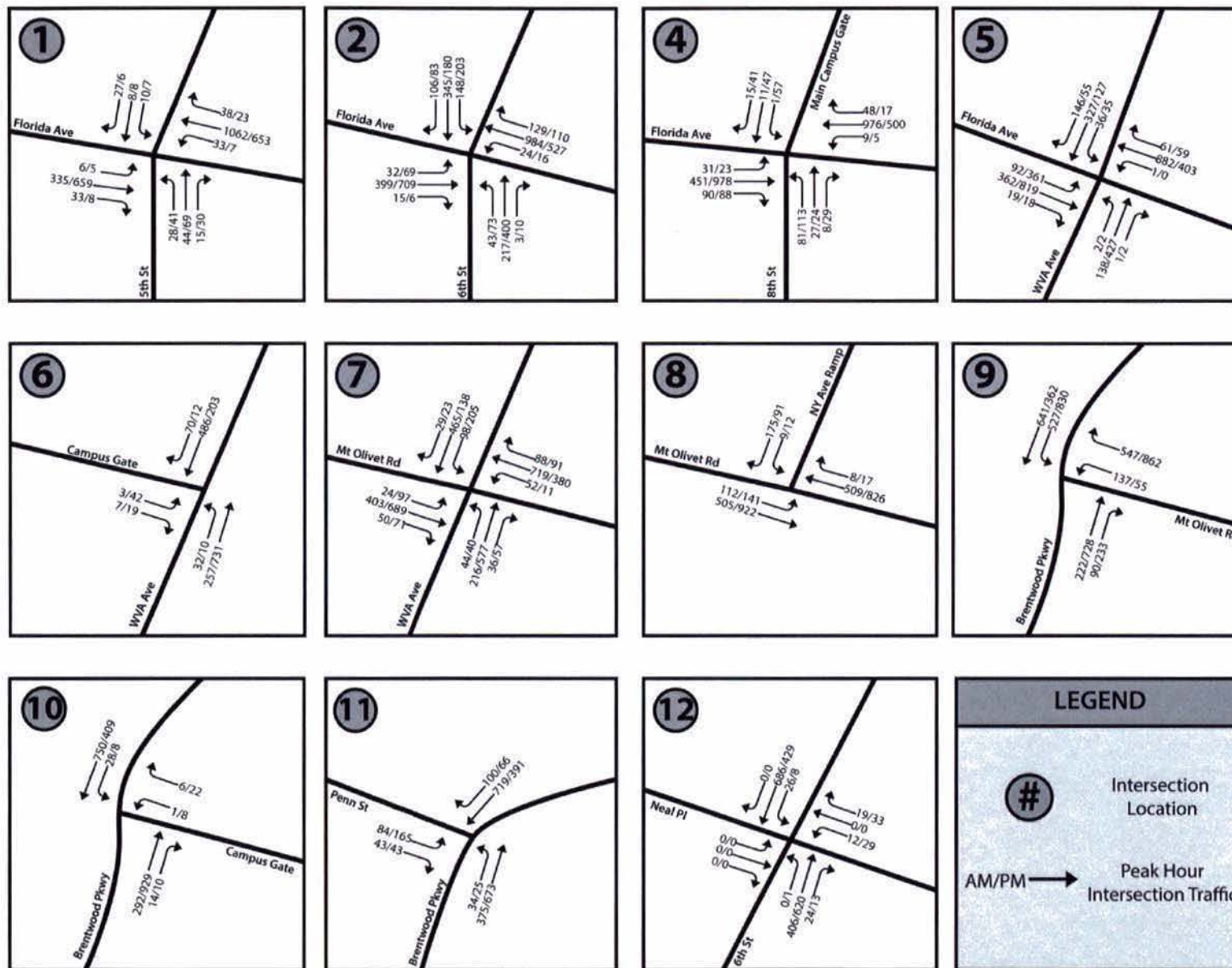


Figure 24: Existing Traffic Volumes

The following is a summary of noteworthy field observations and existing concerns:

- Oversized street widths along 6th Street, NE and speeding vehicular traffic create unsafe conditions for vehicles existing the campus at the 6th Street, NE and Neal Place campus gate
- Several sequential curb cuts at the Florida Avenue, NE and 6th Street, NE intersection (at the entrances to the HESS gas station) increase pedestrian-vehicle conflicts points and narrow deteriorated sidewalks deter pedestrian circulation within the study area and to/from the Metro rail station.

Vehicle Trip Generation

Existing site trips counted at the campus entrances were used to determine existing trip generation during the AM peak (7:45 AM to 8:45 AM) and PM peak (5:00 PM to 6:00 PM) hours. Existing vehicular trip generation to the Gallaudet University is outlined in Table 19.

Table 19: Existing Trip Generation

Existing Vehicle Trip Generation	AM Peak			PM Peak		
	In	Out	Total	In	Out	Total
Florida Ave & Main Campus Gate	106	27	133	64	145	209
West Virginia Ave & Campus Gate	102	10	112	23	65	88
6th St & Neal Place (Campus Entrance)	50	31	81	21	62	83
Brentwood Pkwy & Campus Gate	42	7	49	18	30	48
Total	300	75	375	126	302	428

As indicated in Table 19, a total of 375 and 428 site trips are generated by the University (including the KDES and MSSD) during the AM and PM peak hours, respectively. The directional distribution (shown in Figures 25 and 26) is the assignment of the inbound and outbound Gallaudet site trips along the study area network. This assignment was developed using existing traffic patterns and determining likely travel routes throughout the study area.

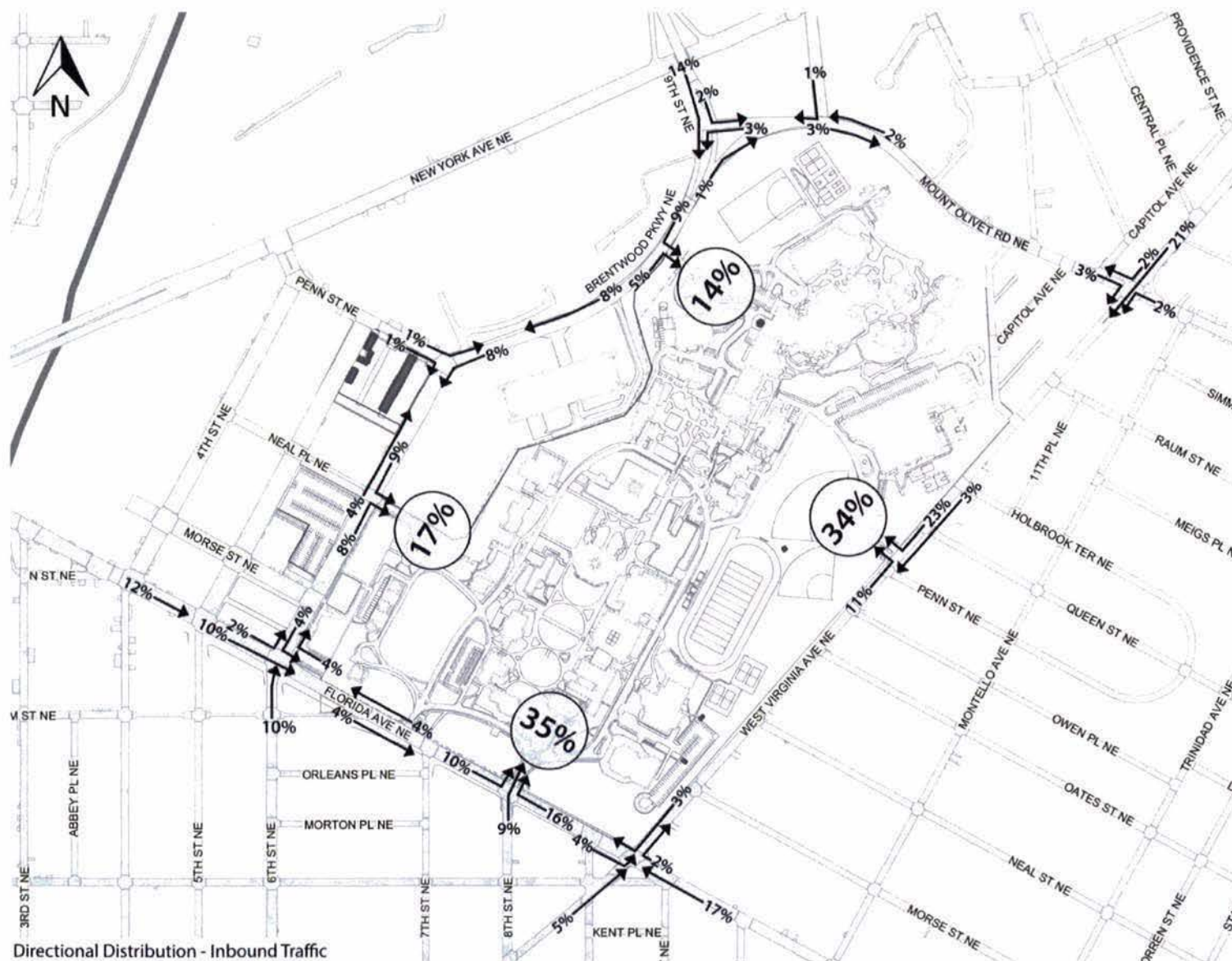


Figure 25: Inbound Directional Distribution



Existing Conditions Capacity Analysis

Existing conditions Level of Service (LOS) capacity analyses and delays were calculated for each of the study area intersections using the existing traffic volumes, lane configurations and traffic control as input in the SYNCHRO 7 software. The results of the LOS analyses are summarized in Table 20.

Table 20: Existing Conditions Level of Service (LOS)

Study Area Intersections		Overall				Approach	AM Peak		PM Peak	
		AM Peak		PM Peak			LOS	Delay	LOS	Delay
		LOS	Delay	LOS	Delay					
1	5th Street /Florida Ave.	A	8.7	B	11.1	EB	B	12.1	B	13.5
						WB	A	6.0	A	5.8
						NB	C	20.9	C	22.1
						SB	B	19.8	B	19.6
2	Florida Ave /6 th Street	B	17.2	B	15.8	EB	A	8.0	B	11.4
						WB	B	14.9	C	21.8
						NB	B	18.2	C	22.4
						SB	C	27.8	A	7.8
4	Florida Avenue /8th Street/ Main Gate	B	12.6	B	12.3	EB	C	26.4	A	6.9
						WB	A	2.1	A	6.5
						NB	C	34.5	D	44.2
						SB	C	29.7	D	36.8
5	Florida Ave & West Virginia Ave	C	25.1	B	18.4	EB	A	9.6	B	10.5
						WB	B	18.0	B	13.5
						NB	C	28.2	D	41.5
						SB	D	51.7	C	26.2
6	West Virginia & Campus Gate*	B	14.2	C	20.1	EB	B	14.2	C	20.1
7	West Virginia & Mt. Olivet	C	32.0	C	33.1	EB	D	36.5	D	43.7
						WB	D	40.8	C	20.2
						NB	C	34.1	C	34.8
						SB	B	14.6	C	21.8

Study Area Intersections		AM Peak		PM Peak		Approach	AM Peak		PM Peak	
		LOS	Delay	LOS	Delay		LOS	Delay	LOS	Delay
8	Mt. Olivet & NY Ave Ramp	B	16.4	B	12.4	EB	A	9.1	A	7.5
						WB	B	18.8	B	15.9
						SB	C	33.7	C	33.3
9	Mt. Olivet & Brentwood Pkwy - 9th Street	D	49.6	C	25.5	WB	F	88.1	B	14.6
						NB	C	27.3	C	28.2
						SB	C	33.0	C	31.7
10	Gallaudet Entrance & Brentwood Pkwy*	B	10.7	C	19.7	NB	B	10.7	C	19.7
11	Penn St & Brentwood Pkwy*	E	39.0	E	39.5	SB	E	39.0	E	39.5
12	Neal Pl & 6th Ave*	C	22.0	D	25.1	EB	A	0.0	A	0.0
						WB	C	22.2	C	25.1
						SB	A	0.7	A	0.3

*Unsignalized Intersection

The Level of Service at all of the study area intersections is LOS “D” or better which is acceptable under the DDOT traffic analysis guidelines except for the following locations:

- Unsignalized intersection of Penn Street and Brentwood Parkway which operates at LOS “E” on its worst approach during both the AM and PM peak hours
- Westbound approach of Mt. Olivet Road/Brentwood Parkway/9th Street intersection which operates at LOS “F” during the AM peak hour.

A queuing analysis was conducted for the existing conditions analysis scenario using the 95th percentile queue lengths from Synchro 7 software. Table 21 provides the 95th percentile queue length at the study area intersections.

Table 21: Existing Conditions 95th Percentile Queue Lengths

Study Intersections		Direction	Available Storage Distance to nearest major intersection	AM Peak Hour	PM Peak Hour
1	Florida Ave & 5th Street	NB	317	69	106
		SB	279	32	23
		EB	165	73	134
		WB	287	56	46
2	Florida Ave & 6th Street	NB	155	177	348
		SBL	752	113	44
		SBT	752	251	33
		SBR	752	69	0
		EB	287	24	189
		WB	1083	197	160
4	Florida Ave & Gallaudet Main Entrance	NB	260	119	173
		SB	170	38	149
		EB	1083	150	84
		WB	496	41	81
5	Florida Ave & West Virginia Ave	NB	590	127	398
		SB	1561	375	161
		SBR	1561	96	10
		EBL	496	86	153
		EBT	496	45	109
		WB	350	290	116
7	Mt. Olivet Rd & West Virginia Ave	NB	1430	129	304
		SBL	410	56	140
		SBT	410	277	89
		SBR	410	13	14
		EB	1570	194	354
		WB	1080	407	151

Study Intersections		Direction	Available Storage Distance to nearest major intersection	AM Peak Hour	PM Peak Hour
8	Mt. Olivet Rd & Ramp	SBL	375	22	26
		SBR	375	30	22
		EBL	366	59	77
		EB	366	29	38
		WB	1570	213	261
9	Mt. Olivet Rd & Brentwood Pkwy	NB	1480	93	275
		NBR	1480	37	73
		SBL	1250	415	415
		SB	1250	333	319
		WBL	366	83	38
		WBR	366	187	330

The 95th percentile queue length for existing conditions is accommodated by the available storage capacity to the closest major intersection at all of the intersections except at the following locations:

- Northbound approach of Florida Ave & 6th Street NB during the AM and PM peak hours. The northbound approach on 6th Street has only 155 feet between the intersection at Florida Avenue and the intersection at M Street due to the diagonal alignment of Florida Avenue. The 95th percentile queue length exceeds the available storage capacity by 22 feet (approximately one car length) during the AM peak hour and 193 feet (approximately 10 car lengths) during the PM peak hour.

FUTURE BACKGROUND CONDITIONS (2022)

Future Background Traffic Projections

The Future Background analysis scenario builds upon existing traffic conditions with the addition of all planned multi-modal projects and development projects within the vicinity of the Gallaudet Campus (expected through the year 2022 and excluding the 2022 Campus Master Plan). This analysis scenario will serve as a baseline for understanding future conditions without the proposed physical development and population growth outlined as part of the Campus Plan.

For this assessment, area traffic growth was based on total growth associated with the NoMA redevelopment plans and traffic projections provided by DDOT.

Multi-modal Transportation Projects

Roadway

A number of potential transportation improvements were outlined in the Florida Avenue Market Study and included in the Synchro analysis prepared for the NoMA study. None of the transportation improvements have been identified in the DDOTs Transportation Improvement Program (TIP) thus, as directed by DDOT, the proposed roadway and lane modifications were not assumed in either the Future Background or Future Conditions analyses of this TIS. The potential transportation projects have not been funded but are listed below for background information only.

Florida Avenue, NE – The FAMS recommended the District explore opportunities to slow traffic, increase pedestrian safety, and improve efficiency. The study suggested avoiding new curb cuts whenever possible. DDOT plans to study the feasibility of road diets along Florida Avenue, NE. Planning for the study is expected to begin in 2013.

6th Street, NE – The FAMS outlined traffic calming measures such as on-street parking on both sides of 6th Street, providing a landscaped median and constructing 5-foot bicycle lanes in both directions. These strategies were suggested to address vehicular speeding as well as improve efficiencies to accommodate higher volumes of traffic.

Transit Improvements

DC Transit Future System Plan (April 2010) – The DC transit Future System Plan was prepared in April of 2010 by DDOT and the Washington Metropolitan Area

Transit Authority (WMATA). The purpose of the plan was to address and propose recommendations to accommodate the recent population growth in the District of Columbia. This report is based on the needs assessment which was a part of the DC Alternatives Analysis completed in 2005 and updated in 2010. A major recommendation of the plan was the addition of a modern streetcar system which will operate 7 days a week. The system will connect employment centers, transportation hubs, neighborhoods, and recreational facilities. The streetcar system segments will be completed through an incremental 3 Phase process.

New York Avenue- Florida Avenue- Gallaudet University Station Improvements–

The New York Avenue- Florida Avenue- Gallaudet University Station Access Improvement Study was conducted by WMATA in June 2010, and focused on the New York Avenue-Florida-Gallaudet University Metrorail station. The study documented existing station area characteristics, analyzed present and future station access needs, reviewed potential access improvements, and, and proposed station area recommendations. The study recommendations included: Improvements to the transportation network, pedestrian safety, overpasses and other infrastructure, wayfinding, station facilities, aesthetics, and land development.

The study called for the transportation network to be improved by widening the station sidewalks and adding new bicycle facilities. Pedestrian safety was an area of concern, and the study made several recommendations to investigate traffic solutions that would alert drivers to pedestrians travelling around the east overpass area along Florida Avenue N.E. Increased lighting, additional police or security, and surveillance cameras were also to be implemented to help users feel more at ease at the station.

Bicycle/Pedestrian

The District Department of Transportation has proposed to include bike lanes on West Virginia Avenue. The plans (provided in the Appendix)include modifying the existing lane configuration to provide for two 5-foot bike lanes with one travel lane in either direction with curbside parking. Timeline for the proposed bicycle improvement was unknown at the time of this study.

Planned Development Project

Future Background traffic projections were obtained from DDOT Synchro files that were prepared in conjunction with the NoMA plan. Additional traffic was

added onto the roadway network by examining Traffic Impact Studies¹³ for a number of Planned Unit Development projects.

Per the FAMS Small Area Plan, there are two projects within the vicinity of the Gallaudet University that have applied for Planned Unit Developments (PUDs). Both projects directly impact the study area intersections and surrounding community and are described below.

- The Washington Gateway Project proposed site is located north and east of the Florida Avenue and New York Avenue, NE intersection and includes Square 3584, Lots 23, 811, 812 and 813. The project is planned to include approximately 600 K square feet of office space, 5,100 square feet of retail and 430 residential units. The project is listed on the February 2012 NoMA development update map and is currently under construction.
- The Gateway Market & Residences site is located at 340 Florida Avenue, Square 3587, which generally is bounded by Florida Avenue, NE on the south, 4th Street, NE on the east and Morse Street, NE on the north. Development plans include 26 K of retail space on two floors, 70 K of office space on three floors and 116 condominium units.

In addition to the proposed development outlined in the FAMS Small Area Plan and the NoMA plan, the Baywood Hotel project is also listed on the District Office of Planning Zoning Map. The proposed site is located at 501 New York Avenue, NE. The applicant proposed to demolish the existing hotel and develop a twin hotel site, serving two different brand hotels with a total of 216 rooms.

Gallaudet 6th Street PUD

Gallaudet anticipates filing a future PUD and Map Amendment application to include development of several parcels on both sides of 6th Street, N.E. The parcels include the Appleby campus building 211 (parcel 129/103), parcel 129/106 which serves as an existing overflow parking lot located on the west side of 6th Street, NE and Square 3951 lot 4.

Traffic impacts associated with the 6th Street PUD filing will be studied in detail as part of a separate Zoning Commission process. However, a preliminary development scenario has been outlined as part of this Campus Plan TIS in order

¹³ O.R. George March 23, 2012 Baywood Hotel TIS Case NO. 11-25
Wells + Associates May 16, 2008 Gateway Market and Residences TIS Case NO. 06-40

to determine potential future impacts. The preliminary development scenario outlined below is subject to change. Access to the Appleby parcel was assumed from 6th Street and access to the Neal Place site was assumed from 5th and 6th Street. The exact location of site access for each parcel will be determined as part of the 6th Street PUD project.

For the Appleby parcel, the preliminary concept plans consists of the following mix of uses totaling 80K to 90K:

- 23,000 to 26,000 academic
- 5,000 to 8,000 of retail uses
- 23 to 26 residential units at 1000 square feet/ unit
- 29,000 to 32,000 square feet of work/flex loft space.

The Neal Place parcel (0004/0106) is proposed to include:

- 40,000 to 45,000 square foot of retail
- 218 to 240 residential units at 1000 square feet/ unit
- 48,000 to 55,000 square feet off work/flex loft space

The location of the planned development projects is shown in Figure 27.

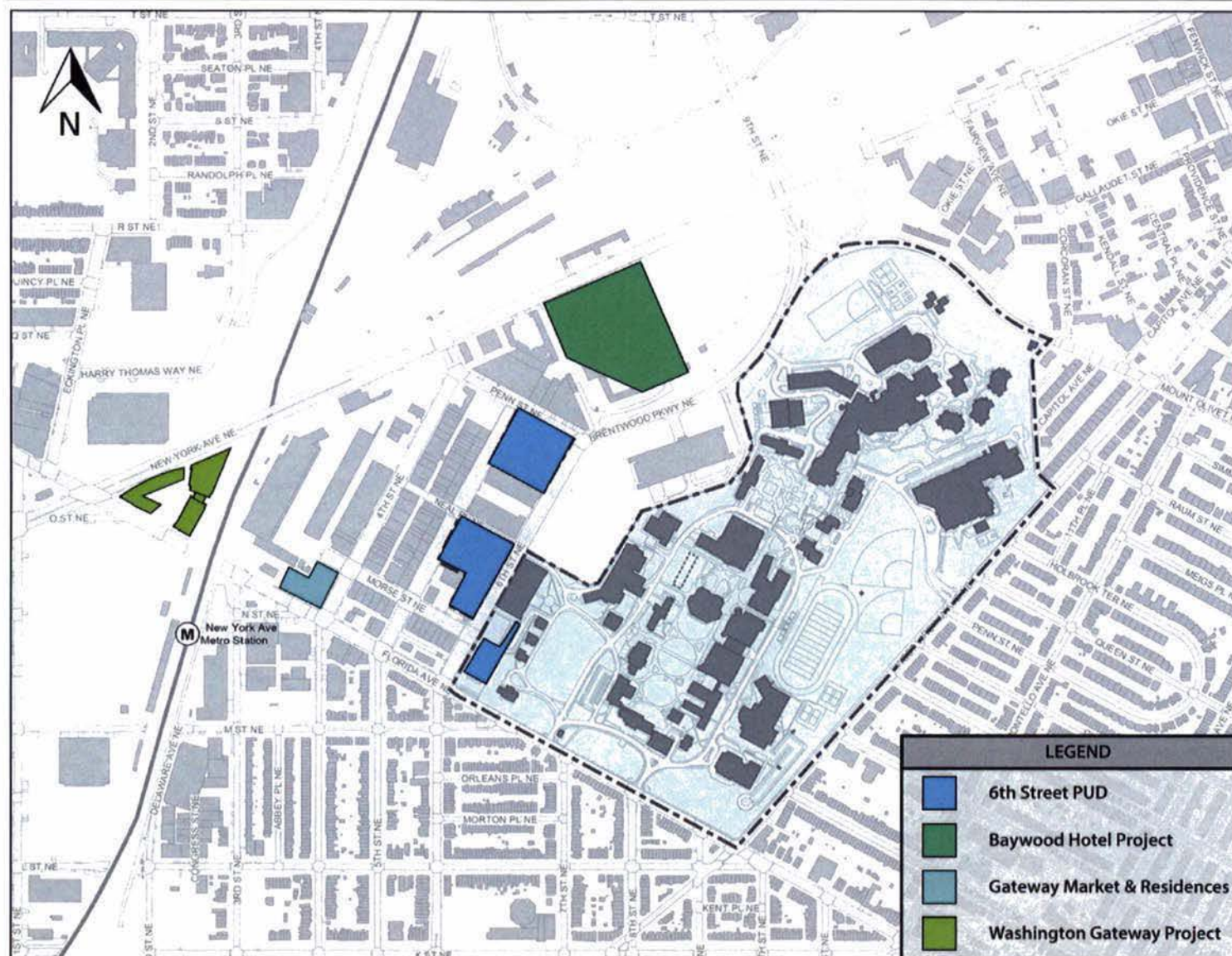


Figure 27: Planned Development Projects

Projected Future Background traffic including existing traffic with the addition of traffic associated with the planned developments is shown in Figure 28.

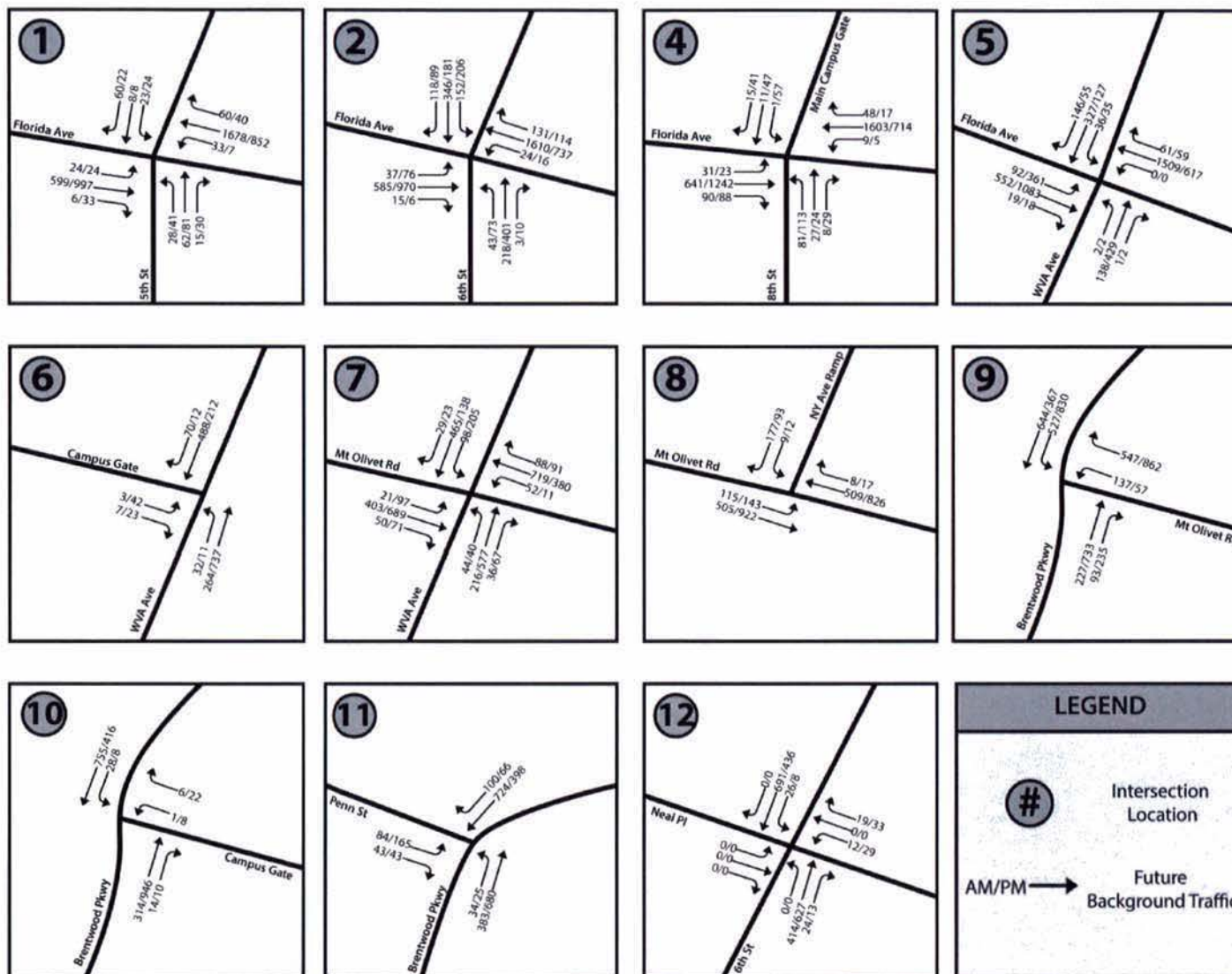


Figure 28: Future Background Peak Hour Traffic

Future Background Conditions Analysis

Tables 22 and 23 provide a comparison of Existing and Future Background intersection Level of Service.

Table 22: Future Background Conditions Level of Service (overall)

Study Area Intersections		Overall							
		Existing				Future Background			
		AM Peak		PM Peak		AM Peak		PM Peak	
		LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay
1	5th Street /Florida Ave.	A	8.7	B	11.1	B	13.1	B	11.5
2	Florida Ave /6 th Street	B	17.2	B	15.8	D	40.9	B	19.1
4	Florida Avenue /8th Street/ Main Gate	B	12.6	B	12.3	B	14.3	B	11.6
5	Florida Ave/West Virginia Ave	C	25.1	B	18.4	D	41.2	C	23.9
6	West Virginia /Campus Gate*	B	14.2	B	20.1	B	14.2	C	20.1
7	West Virginia/Mt. Olivet	C	32.0	C	33.1	C	32.1	C	33.1
8	Mt. Olivet / NY Ave Ramp	B	16.4	B	12.4	B	16.6	B	12.4
9	Mt. Olivet /Brentwood Pkwy - 9th Street	D	49.6	C	25.5	D	49.7	C	25.5
10	Gallaudet Entrance/ Brentwood Pkwy*	B	10.7	C	19.7	B	10.7	C	19.9
11	Penn St /Brentwood Pkwy*	E	39.0	E	39.5	E	40.0	E	41.1
12	Neal Pl /6th Ave*	C	22.0	D	25.1	C	22.6	D	25.7

**Unsignalized Intersection*

The overall level of service at all of the study area intersections would continue to operate at LOS “D” or better excluding the unsignalized intersection of Penn Street and Brentwood Parkway which is projected to operate at LOS “E” on its worst approach during both the AM and PM peak hours. Unsignalized intersections are analyzed according to the worst approach of the intersection

while signalized intersections are analyzed according to the overall level of service of all approaches.

Table 23: Future Background Conditions Level of Service (by approach)

Study Area Intersections		Approach	Existing				Future Background			
			AM Peak		PM Peak		AM Peak		PM Peak	
			LOS	Delay (second/vehicle)	LOS	Delay (second/vehicle)	LOS	Delay (second/vehicle)	LOS	Delay (second/vehicle)
1	5th Street & Florida Ave.	EB	B	12.1	B	13.5	B	13.5	B	15.3
		WB	A	6.0	A	5.8	B	12.2	A	4.8
		NB	C	20.9	C	22.1	C	21.0	C	22.4
		SB	B	19.8	B	19.6	C	21.3	C	20.1
2	Florida Ave & 6 th Street	EB	A	8.0	B	11.4	A	9.9	B	15.3
		WB	B	14.9	C	21.8	E	60.2	C	28.0
		NB	B	18.2	C	22.4	B	18.2	C	22.5
		SB	C	27.8	A	7.8	C	27.4	A	8.0
4	Florida Avenue & 8 th Street (main campus entrance)	EB	C	26.4	A	6.9	C	30.7	A	5.9
		WB	A	2.1	A	6.5	A	5.1	B	9.8
		NB	C	34.5	D	44.2	C	34.5	D	44.2
		SB	C	29.7	D	36.8	C	29.7	D	36.8
5	Florida Ave & West Virginia Ave	EB	A	9.6	B	10.5	B	18.5	C	22.4
		WB	B	18.0	B	13.5	D	48.6	B	15.0
		NB	C	28.2	D	41.5	C	28.2	D	41.5
		SB	D	51.7	C	26.2	D	51.7	C	26.2
6	West Virginia & Campus Gate	EB	B	14.2	C	20.1	B	14.2	C	20.1
7	West Virginia & Mount Olivet	EB	D	36.5	D	43.7	D	36.4	D	43.7
		WB	D	40.8	C	20.2	D	40.8	C	20.2
		NB	C	34.1	C	34.8	D	35.2	D	35.2
		SB	B	14.6	C	21.8	B	14.6	C	21.8

Study Area Intersections		Approach	Existing				Future Background			
			AM Peak		PM Peak		AM Peak		PM Peak	
			LOS	Delay (second/vehicle)	LOS	Delay (second/vehicle)	LOS	Delay (second/vehicle)	LOS	Delay (second/vehicle)
8	Mt. Olivet & NY Ave Ramp	EB	A	9.1	A	7.5	A	9.6	A	7.6
		WB	B	18.8	B	15.9	B	18.8	B	15.9
		SB	C	33.7	C	33.3	C	33.7	C	33.2
9	Mt. Olivet & Brentwood Pkwy - 9th Street	WB	F	88.1	B	14.6	F	87.8	B	14.6
		NB	C	27.3	C	28.2	C	29.2	C	28.0
		SB	C	33.0	C	31.7	C	33.1	C	31.8
10	Gallaudet Entrance. & Brentwood Pkwy	NB								
			B	10.7	C	19.7	B	10.7	C	19.9
11	Penn St & Brentwood Pkwy	SB								
			E	39.0	E	39.5	E	40.0	E	41.1
12	Neal Pl & 6th Ave	WB	C	22.2	C	25.1	C	22.6	D	25.7
		SB	A	0.7	A	0.3	A	0.7	A	0.3

The future background analysis also shows the level of service of the signalized intersections by approach. When each approach is analyzed all of the approaches at the signalized study area intersections are projected to operate at LOS "D" or better except for the westbound approach at the Mt. Olivet Road/Brentwood Parkway/9th Street intersection which is currently operates at a LOS "F" and will continue to operate at LOS "F" during the AM peak hour and the westbound approach at the Florida Avenue/6th Street which is projected to operate at LOS "E" during the AM peak hour. The LOS for the westbound approach at this intersection degrades from LOS "B" with an average vehicle delay 14.9 seconds per vehicle to LOS "E" with an average vehicle delay of 60.2 seconds per vehicle.

A queuing analysis was conducted for future background conditions using the 95th percentile queue lengths from Synchro 7 software. Table 24 provides Future Background 95th percentile queue length at all study area intersections.

Table 24: Future Background 95th Percentile Queue Lengths

Study Intersections		Direction	Available Storage Distance to nearest major intersection	Existing		Future Background	
				AM Peak Hour	PM Peak Hour	AM Peak Hour	PM Peak Hour
1	Florida Ave & 5th Street	NB	317	69	106	82	116
		SB	279	32	23	76	41
		EB	165	73	134	111	197
		WB	287	56	46	119	47
2	Florida Ave & 6th Street	NB	155	177	348	178	354
		SBL	752	113	44	115	45
		SBT	752	251	33	252	34
		SBR	752	69	0	89	0
		EB	287	24	189	35	282
		WB	1083	197	160	594	236
4	Florida Ave & Gallaudet Main Entrance	NB	260	119	173	119	175
		SB	170	38	149	38	150
		EB	1083	150	84	224	83
		WB	496	41	81	35	187
5	Florida Ave & West Virginia Ave	NB	590	127	398	127	398
		SB	1561	375	161	375	160
		SBR	1561	96	10	96	10
		EBL	496	86	153	112	262
		EBT	496	45	109	122	135
		WB	350	290	116	746	184

Study Intersections		Direction	Available Storage Distance to nearest major intersection	1430		Future Background	
				410	PM Peak Hour	AM Peak Hour	PM Peak Hour
7	Mt. Olivet Rd & West Virginia Ave	NB	410	129	304	121	272
		SBL	410	56	140	56	140
		SBT	1570	277	89	277	89
		SBR	1080	13	14	13	14
		EB	375	194	354	193	355
		WB	375	407	151	407	151
8	Mt. Olivet Rd & Ramp	SBL	366	22	26	22	26
		SBR	366	30	22	30	22
		EBL	1570	59	77	61	78
		EB	366	29	38	29	38
		WB	1570	213	261	213	261
9	Mt. Olivet Rd & Brentwood Pkwy	NB	1480	93	275	91	284
		NBR	1480	37	73	34	64
		SBL	1250	415	415	415	415
		SB	1250	333	319	334	321
		WBL	366	83	38	84	39
		WBR	366	187	330	187	330

The 95th percentile queue length for future background conditions is projected to be accommodated by the available storage capacity to the closest major intersection at all of the intersections except Florida Ave & 6th Street NB during the AM and PM peak. The northbound approach on 6th Street has only 155 feet between the intersection at Florida Avenue and the intersection at M Street due to the diagonal alignment of Florida Avenue.

2022 CAMPUS MASTER PLAN

Proposed Buildings and Plans

Gallaudet University's 2022 Campus Plan sets forth guidance for the physical development of campus facilities over the next ten year period. As detailed in the Campus Plan, Gallaudet proposes a three-phase plan of university expansion and renovation. Major projects (by phase) are summarized in Table 25.

Table 25: 2022 Campus Plan Summary (by Phase)

Project	Phase I	Phase II	Phase III
Access and Circulation	6 th Street Gateway/ Olmsted Green – construction of a new main pedestrian entry to the campus at the corner of 6 th Street and Florida Avenue, NE.		Gallaudet Mall Renovations (restoration of site to include new walkways, lighting, landscaping, trees and outdoor furniture)
Housing	Increased student housing capacity with renovation of Ballard and Fay Houses – Ballard, Fay and Denison Houses currently provide administrative office and would be converted to student housing, to create more living/learning communities along the Olmsted Green.	6 th Street PUD including Mixed-Use Student Apartments (with ground floor retail located north of new 6 th Street gateway) and south of exiting 6 th Street parking garage)	Peet Hall Replacement
University Administrative Buildings		New Visitor Center and Museum located adjacent to the new 6 th Street Gateway;	Relocation of Student Center to Hall Memorial Building (relocation of campus life programs including University dining halls, retail dining, bookstore, post office and other support services) Demolition of Merrill Learning Center (to be replaced with Gallaudet Mall improvements)

Project	Phase I	Phase II	Phase III
Academic Use	Renovation of Dawes house- The Dawes house would be total renovated as maintained for academic use.	New Student Learning Commons	Renovation of Kendall Hall; New Academic Building (in place of current Ely Center); Renovation of existing SAC to provide additional classroom space and academic departments
Recreational Use			Recreational Gym
Clerc Center	New Residence Hall for the Model Secondary School for the Deaf (MSSD)		New MSSD School Building; Clerc Center Playing Field
Kellogg Conference Center			The third floor of the Conference Center will be converted to hotel rooms and thus the conference center will be able to accommodate an increase of guest and an increase in the number of large events.

Figure 29 provides an illustration of the 2022 Gallaudet Campus Master Plan.

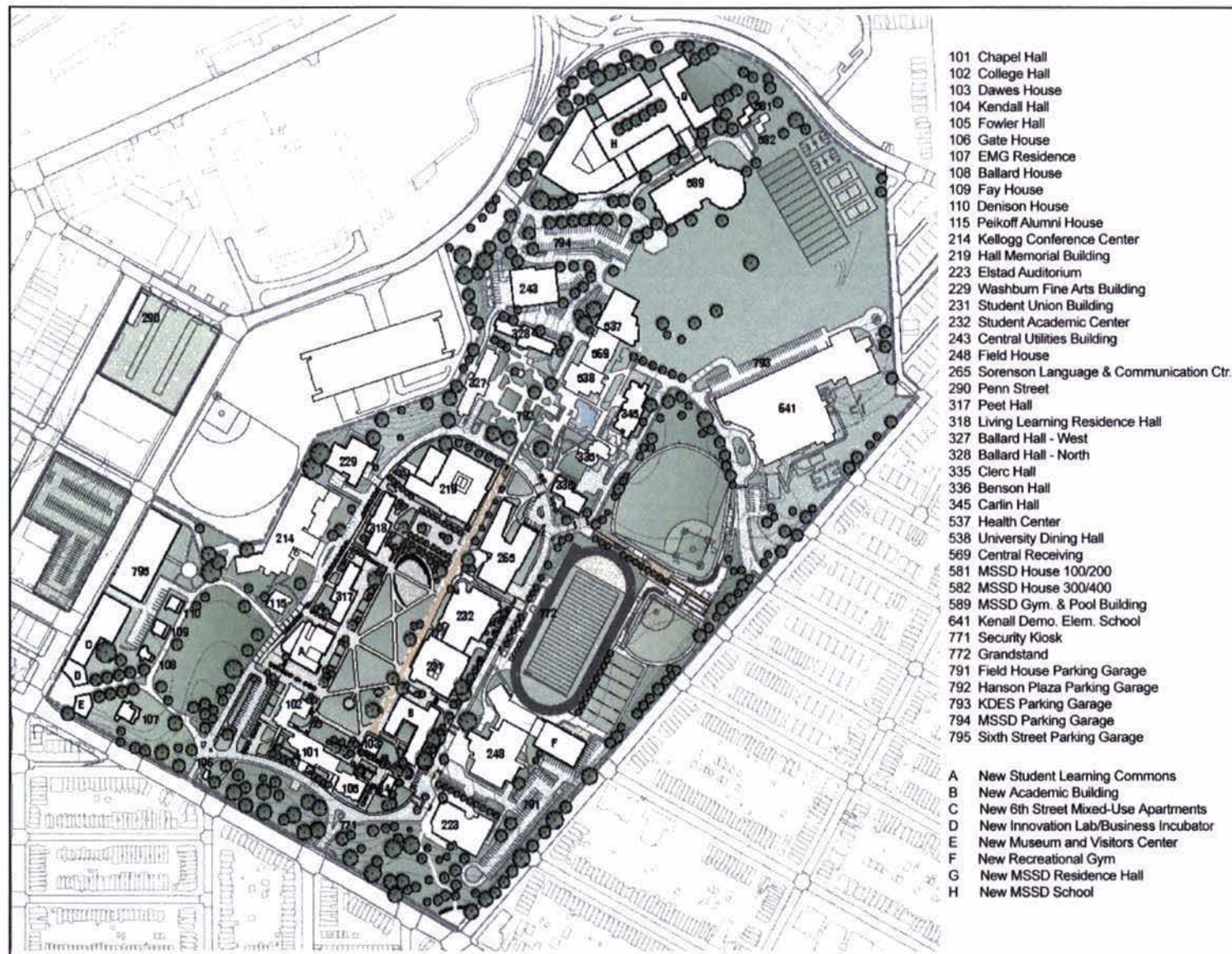


Figure 29: 2022 Gallaudet University Campus Master Plan

Campus Plan Recommendations and Transportation Goals

The Gallaudet University's 2022 Campus plan outlines a number of recommendations in terms of sustainability, accessibility, transportation and parking and campus image. Transportation related recommendations from each category are summarized below:

- Maintaining sustainability transportation options such as bikeshare and Zip Car
- Ensure safe pedestrian and vehicular access and circulation for all and establish wayfinding measure for all abilities. Maintain accessible environment at all times
- Manage parking and traffic needs of the University community and its guest, while promoting a barrier free, pedestrian oriented campus

In keeping with the transportation related recommendations set forth in the campus master plan and the ultimate endeavor to address existing and future transportation related deficiencies, the following are overarching transportation goals:

- Reduce parking demand
- Improve multi-modal access and circulation
- Open Campus to Neighborhood and bring academic experience closer to Florida Avenue, NE
- Enhance core campus pedestrian environment and direct vehicular circulation to the perimeter of the campus

Future Site Access and Circulation

Vehicular access and circulation as described for existing conditions would remain unchanged over the ten year horizon.

Pedestrian access would be modified and improved with the opening of the 6th Street Gateway/ Olmsted Green. The new pedestrian entry would be located at the corner of 6th Street and Florida Avenue, NE. The entry would connect with the circular walking paths around the Olmsted Green and connect to the walkways around Lincoln Circle at College Hall and the future Visitor Center. From there it

would connect inward towards the Gallaudet Mall and ultimately interconnect with the other pedestrian infrastructure system.

The proposed diagonal pedestrian connection from the 6th Street, NE and Florida Avenue, NE would open up the campus to the community and provide a more direct walkable access to/from the Metro station via Florida Avenue. A similar opening at the southeastern corner of the campus at West Virginia and Florida Avenues NE is proposed and would also provide a more direct connection to the community, especially along Florida Avenue, NE and towards the Trinidad neighborhood.

Figures 30 and 31 provide a photograph and illustrative diagram of the existing and proposed 6th Street, Street/ Florida Avenue configuration on the campus.

Figure 32 is an illustration of future on-campus pedestrian circulation.

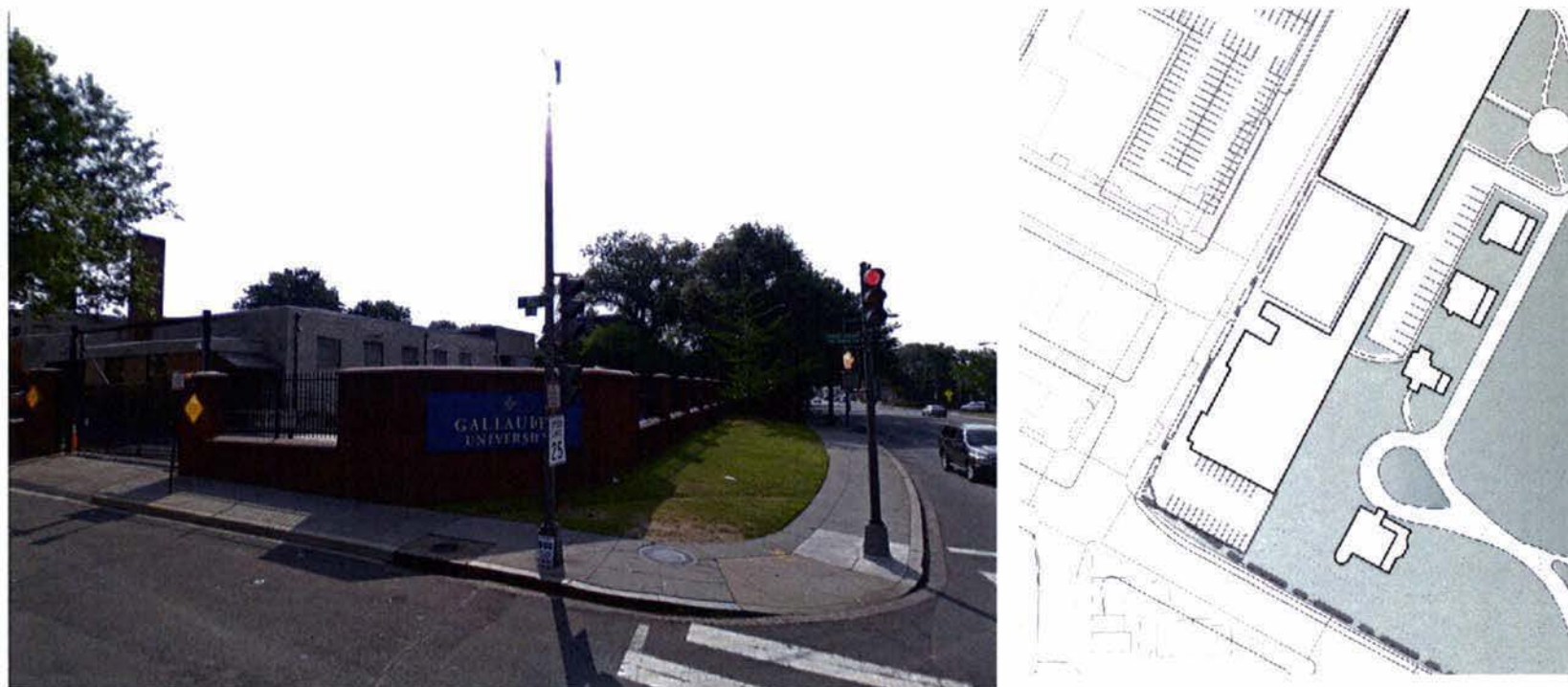


Figure 30: Photograph and Aerial of existing 6th Street and Florida Avenue perimeter area (northeast corner)

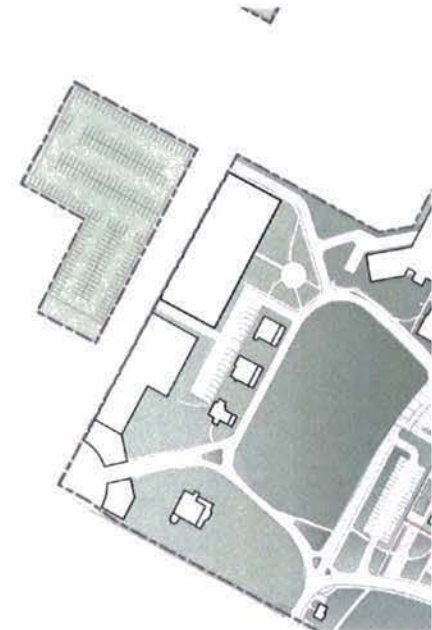


Figure 31: Illustrative Diagram and Aerial of Proposed 6th Street and Florida Avenue perimeter area (northeast corner)

As shown in Figure 31, the 6th Street Gateway is proposed to transform the “first impression” of the University’s campus creating a sense of place and more fluid pedestrian connection between the campus and the surrounding community.

Two new bike share locations are being proposed on-campus to optimize bicycle circulation and providing a commuting alternative for students and faculty who do not own bicycles. Figure 33 provides an illustration of existing and proposed bike racks, bike share location and future bicycle circulation.

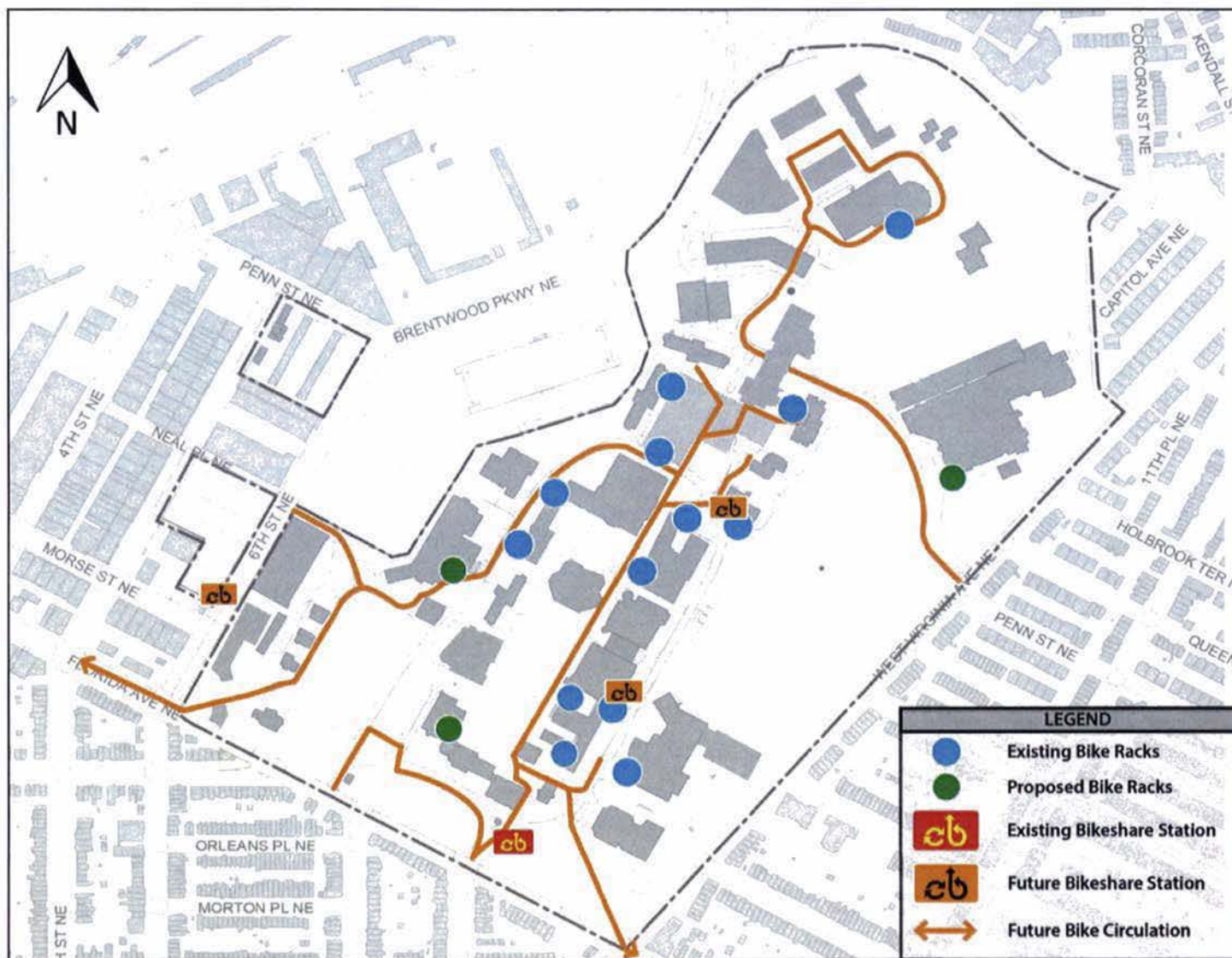


Figure 33: Future Bicycle Facilities and Bicycle Circulation

As shown in Figure 33, there are two new Capital Bikeshare locations proposed on-campus. The proposed locations include Benson Hall and at the 6th Street PUD Neal Place Parcel¹⁴. Benson Hall is a dormitory located centrally within the Gallaudet campus (near Clerc Hall and Carlin Hall to other residential dormitories on-campus). This proposed Capital Bikeshare location would create more accessible bicycle facilities near each residence hall and make bicycling a more attractive transportation mode for students. The proposed 6th Street Capital Bikeshare location could support faculty/staff and student bicycle usage to/from the proposed 6th Street development to the Gallaudet Campus and surrounding attractions.

Enrollment Projections

Table 26 outlines future 2022 enrollment projections. The projections assume a 3% annual growth rate per year in population to academic year 2022.

Table 26: 2022 Student Enrollment Projections

Student Category	Actual Year – 2011		Projected Year 2022	
	Enrollment	FTE's	Enrollment	FTE's
University Full Time	1329	1329	1846	1846
University Part Time	282	113	392	157
University Enrollment Total	1611	1442	2238	2003
Clerc Center: KDES	97	97	125	125
Clear Center: MSSD	165	165	200	200
Clerc Center	262	262	325	325
Gallaudet Enrollment Totals	1873	1704	2563	2328

*FTE- Full Time Equivalent

¹⁴ This Bikeshare location would be considered as part of the planning effort for the 6th Street PUD

As indicated in Table 26, with a 3% annual growth in student enrollment over the next ten years, there would be 2,328 students enrolled at the campus included 325 Clerc Center students.

Future Parking Supply

The 2022 Campus Plan outlines a future parking supply of 1,367 parking spaces. This represents a 221 space decrease (14% reduction) from the current parking supply of 1588 spaces. The University would eliminate the 207 spaces that are located on the off-campus overflow surface lot located accessed from 6th Street. The surface lot is not used on typical day and is currently used for construction staging and overflow parking for special event parking (i.e. graduation). Additionally, 14 spaces would be eliminated from the surface lot in front of College Hall as a result of campus planning and landscaping goals.

Parking Demand Management

Approximately 47% of existing parking demand may be attributable to resident-student and daily student parking. The remaining 53% of existing parking demand is related to faculty/staff, conference center visitors and general visitors. The exact number of daily visitor parkers is not known; however it is reasonable to assume the general visitor parking demand does not exceed 3% of the parking demand considering faculty/staff mode split survey results and conference center data.

The resident-student and daily student parking demand can be reasonably expected to increase by 37% in accordance with Campus Plan student growth rates. Additionally it is reasonable to assume general visitors to campus may increase by up to 37% as well.

Table 27 below outlines the projected increase in parking demand related to student growth and general visitor potential growth:

Table 27: Future Parking Demand

Population	Existing Demand	Future Growth	Future Demand
Students	295	37%	410
Staff	577	0%	577
Conference Center	188	50%	250
Total	1060		1237

Peak future parking demand is projected to increase to approximately 1,237 or approximately 89% of the proposed future parking supply of 1388 spaces. The projected parking demand would be accommodated within the available parking supply.

Loading

Within the ten year time frame of the new campus plan, there are no major changes proposed to the loading areas. It is however noted that as a result of the relocation of the Student Activity Center (SAC) to the Hall Memorial Building, there may be shifted loading demand at the proposed SAC location. Phase III plans include a new addition to the existing Hall Memorial Building to accommodate a new dining hall. The addition would include a loading dock. Major food services deliveries would be relocated from central receiving, where deliveries occur today, to the proposed dining hall and loading at the Hall Memorial Building.

Deliveries will continue to utilize the campus gates as they do today. The number of typical daily deliveries is not expected to increase as a result of projected population increases or conference center growth. It is expected that the supply of food, books, etc may increase but would result in greater loading accommodated within the same number of vehicles.

Proposed Transportation Demand Management

As outlined in the Existing Transportation Demand Management section of this report, only 4% of University students currently drive alone to campus; whereas, 69% of faculty/staff currently drive alone to campus.

The following measurable objectives have been established for maintaining and enhancing traffic impacts over the next ten years:

- Maintain 89% walking mode split for students by maintaining on-campus and/or off-campus housing ratios in conjunction with student growth
- Implement transportation incentives to increase faculty/staff transit usage

Gallaudet University seeks to manage the 2022 vehicular and parking demand by prioritizing the pedestrian realm over vehicular and instating measures to encourage use of green travel choices (i.e. transit, walk and bike). The University will commit to the following TDM measures to be included as part of the 2022 Campus Plan:

General

- Conduct bi-annual on-campus transportation fair to promote alternate transportation choices and enroll faculty/staff in the Commuter Connections program.
- Conduct biennial surveys to determine which programs would incentivize faculty/staff to use alternate modes of transportation to arrive to campus.
- Review cost of a parking permit on annual basis to determine appropriate pricing levels to manage parking.
- Encourage faculty/staff to voluntarily use an alternate mode of travel to campus one day a week to reduce traffic impacts by up to 20%
- Implement a biennial Monitoring Program as outlined in the Monitoring Program section of this report. Monitor campus trip generation and the success of proposed TDM measures to determine appropriate changes to the TDM Plan.
- Publish TDM measures on the University's website
- Identify improved wayfinding opportunities to direct pedestrians to campus. Also improve on-campus wayfinding to direct visitors to visitor parking to avoid unnecessary circulation.
- Continue to explore the use of online courses to promote off-campus educational resources.
- Enhance program to aid at-home work

- Gallaudet's University is a part of the Mayor's city wide sustainability initiative with Universities located in the District of Columbia. As part of this effort, Gallaudet will task its internal Sustainability committee with managing efforts to encourage use of green travel modes.

Transit Incentives

- Construct a new pedestrian gate at the southwest corner of the campus in order to decrease walking distance to the Gallaudet-NoMA Metrorail station.
- Publish Metrorail as the primary mode of transportation for Conference Center guests on the Kellogg Conference Center Website under the Map & Directions link. Also publish the availability of the University's shuttle bus program for Conference Center visitors.
- Continue to monitor shuttle ridership demand to determine if additional shuttles or stops are needed.
- Explore partnerships with local businesses as a means to provide financial support for the University shuttle program and potential expanded service.
- Publish Metrorail and Metrobus as transportation options for Conference Center guests on the Kellogg Conference Center Website under the Map & Directions link.
- Coordinate with DDOT and/or WMATA to advocate for future streetcar service on Florida Avenue.

Pedestrian Incentives

- Construct a new pedestrian gate at the southeast corner of the campus in order to provide enhanced pedestrian connections to existing and potential off-campus housing and destinations.
- Promote the development of off-campus housing as part of the 6th Street PUD project to provide convenient housing for faculty/staff.

- Expand current program offering financial incentive to encourage faculty/staff to reside within walking distance of the campus.
- Examine the opportunity to offer a percentage of off-campus housing, for the 6th Street PUD, to be used by faculty/staff
- Actively advocate for a Florida Avenue Road Diet to improve pedestrian safety.

Work with public safety officials to promote improved personal safety and security in the surrounding neighborhood.

Bicycle Incentives

- Increase the number of bicycle racks to accommodate demand. Ensure one bike rack is stationed at the entry of every academic building and/or residential dormitory; Provide covered bike shelter on campus.
- Provide on-campus lockers for administrative staff at the University and teachers at the Clerc Center to encourage biking to campus.
- Promote the use of on-campus shower facilities and create facilities that's reasonable for mixed users (i.e. mix of student and faculty/staff)

Carpooling

- Promote the use of MW COG's "Rideshare Tuesday" to encourage carpooling one day a week.
- Encourage employees to enroll in MW COG's Rideshare program to find rideshare matches.

Annual Monitoring Program

The University has agreed to monitor its potential transportation impacts created by population growth. The monitoring program will also offer the opportunity to track the success of its current TDM measures and redirect resources, as needed, towards new measures.

The following specific measures will be included in the monitoring plan:

- Conduct biennial transportation surveys to determine population modal split and the success of current programs
- Conduct biennial traffic counts at all campus gates to monitor campus trip generation during peak periods
- Track shuttle ridership participation biennial and the need to increase shuttle capacity

A monitoring report will be submitted at least biennially to District Department of Transportation.

FUTURE TRAFFIC CONDITIONS

Future Conditions Traffic Projections

Future traffic conditions associated with the Campus Plan 2022 were projected by examining potential campus population growth. Based on transportation survey results, approximately 29% of existing peak hour traffic conditions is associated with students and 57% is associated with faculty/staff. Traffic associated with conference center, including day guests and overnight guests, was estimated at 14%.

As part of Campus Plan growth, traffic associated with student traffic can be expected to increase by 37% and conference center traffic can be expected to increase by approximately 20%¹⁵. Traffic associated with faculty/staff is not projected to increase.

Table 28 below outlines future campus trip generation considering student and conference center growth. It should be noted that future campus trips were based on existing trip generation and existing transportation mode split. As the University continues to expand its TDM measures it is reasonable to assume that trip generation outlined in Table 28 could be reduced.

¹⁵ Annual conference center attendance is expected to increase by approximately 50% however the resultant traffic increase is expected to be about 20%. The University does not expect the total number of events to increase but rather the quantity of larger events to increase. The Conference Center will be able to increase attendance per event by converting space to accommodate additional hotel rooms. Overnight hotel guests generate fewer daily trips than daily guests.

Table 28: 2022 Future Trip Generation

	AM			PM		
	In	Out	Total	In	Out	Total
Existing Campus Trip Generation	300	75	375	126	302	428
<i>Trip Generation associated with student & conference center growth</i>	<i>+34</i>	<i>+8</i>	<i>+42</i>	<i>+14</i>	<i>+34</i>	<i>+48</i>
Total 2022 Trip Generation	334	83	417	140	336	476

Additional Gallaudet site trips associated with Campus Plan growth is shown in Figure 34 and total future traffic including planned background projects is shown in Figure 35.



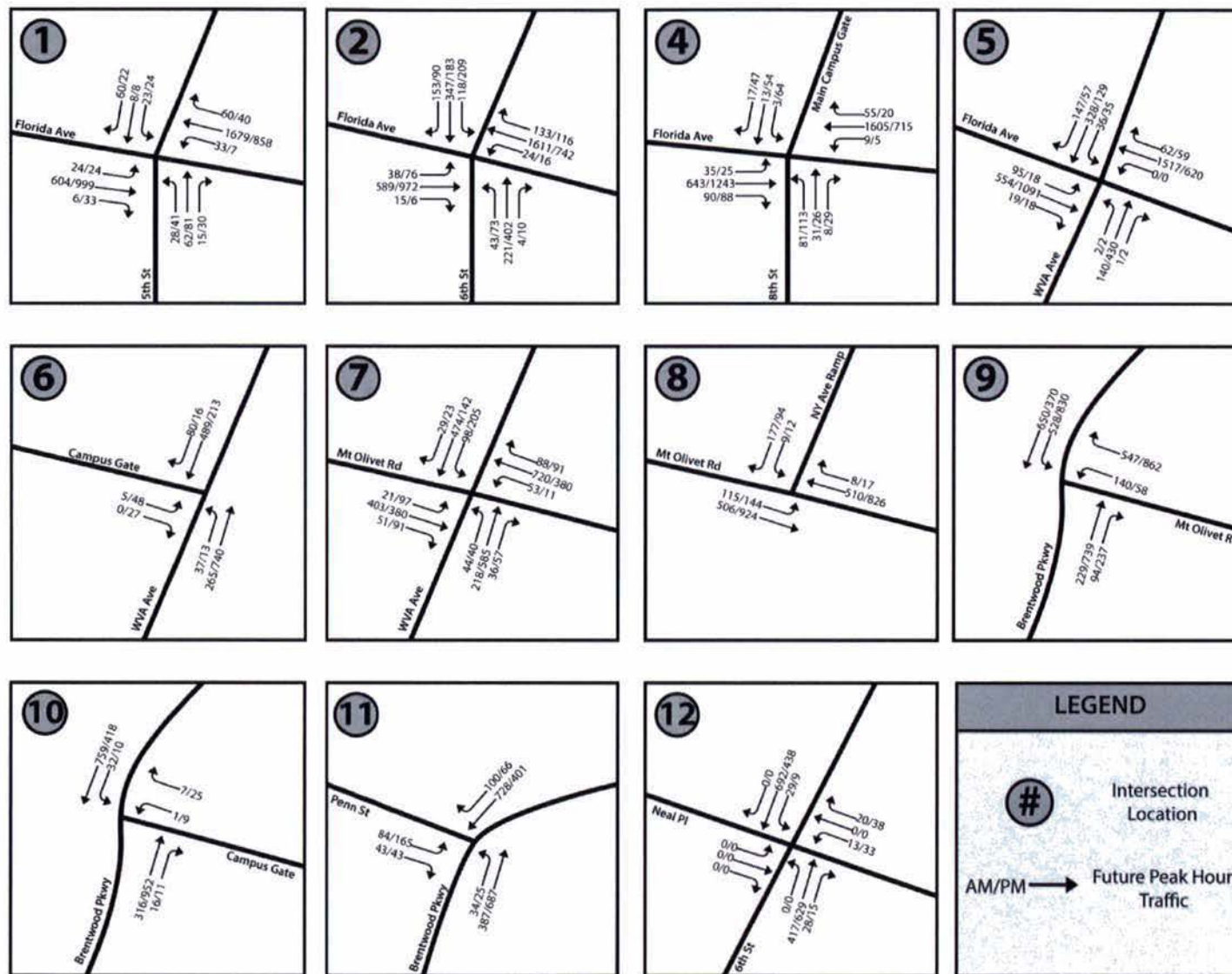


Figure 35: 2022 Total Future Peak Hour Traffic

Future Conditions Intersection Analysis

Tables 29 and 30 provide a comparison of Future Background and Future Conditions intersection Level of Service.

Table 29: Future Conditions Level of Service (overall)

Study Area Intersections		Overall											
		Existing				Future Background				Future			
		AM Peak		PM Peak		AM Peak		PM Peak		AM Peak		PM Peak	
		LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay
1	5th Street /Florida Ave.	A	8.7	B	11.1	B	13.1	B	11.5	B	13.2	B	11.5
2	Florida Ave /6 th Street	B	17.2	B	15.8	D	40.9	B	19.1	D	41.3	B	19.3
4	Florida Avenue /8th Street/ Main Gate	B	12.6	B	12.3	B	14.3	B	11.6	B	14.6	B	12.3
5	Florida Ave/West Virginia Ave	C	25.1	B	18.4	D	41.2	C	23.9	D	42.3	C	24.9
6	West Virginia /Campus Gate*	B	14.2	B	20.1	B	14.2	C	20.1	C	15	D	20.8
7	West Virginia/Mt. Olivet	C	32.0	C	33.1	C	32.1	C	33.1	C	32.3	C	33.3
8	Mt. Olivet / NY Ave Ramp	B	16.4	B	12.4	B	16.6	B	12.4	B	16.6	B	12.5
9	Mt. Olivet /Brentwood Pkwy - 9th Street	D	49.6	C	25.5	D	49.7	C	25.5	D	49.7	C	25.6
10	Gallaudet Entrance/ Brentwood Pkwy*	B	10.7	C	19.7	B	10.7	C	19.9	B	10.6	C	20.4
11	Penn St /Brentwood Pkwy*	E	39.0	E	39.5	E	40.0	E	41.1	E	40.7	E	42.1
12	Neal Pl /6th Ave*	C	22.0	D	25.1	C	22.6	D	25.7	C	23.5	D	27.1

Table 30: Future Conditions Level of Service (by approach)

Study Area Intersections		Approach	Existing				Future Background				Future			
			AM Peak		PM Peak		AM Peak		PM Peak		AM Peak		PM Peak	
			LOS	Delay (second/ vehicle)	LOS	Delay (second/ vehicle)	LOS	Delay (second/ vehicle)	LOS	Delay (second/ vehicle)	LOS	Delay (second/ vehicle)	LOS	Delay (second/ vehicle)
1	5th Street & Florida Ave.	EB	B	12.1	B	13.5	B	13.5	B	15.3	B	13.5	B	15.3
		WB	A	6	A	5.8	B	12.2	A	4.8	B	12.2	A	4.7
		NB	C	20.9	C	22.1	C	21	C	22.4	C	21.3	C	22.4
		SB	B	19.8	B	19.6	C	21.3	C	20.1	C	21.3	C	20.1
2	Florida Ave & 6 th Street	EB	A	8	B	11.4	A	9.9	B	15.3	A	9.9	B	15.5
		WB	B	14.9	C	21.8	E	60.2	C	28	E	60.9	C	28.2
		NB	B	18.2	C	22.4	B	18.2	C	22.5	B	18.3	C	22.5
		SB	C	27.8	A	7.8	C	27.4	A	8	C	27.5	A	8.3
4	Florida Avenue & 8 th Street (main campus entrance)	EB	C	26.4	A	6.9	C	30.7	A	5.9	C	30.9	A	6
		WB	A	2.1	A	6.5	A	5.1	B	9.8	A	5.3	B	10.2
		NB	C	34.5	D	44.2	C	34.5	D	44.2	C	34.8	D	45.9
		SB	C	29.7	D	36.8	C	29.7	D	36.8	C	30	D	38.7
5	Florida Ave & West Virginia Ave	EB	A	9.6	B	10.5	B	18.5	C	22.4	B	19.1	C	24.2
		WB	B	18	B	13.5	D	48.6	B	15	D	50.2	B	15.2
		NB	C	28.2	D	41.5	C	28.2	D	41.5	C	28.2	D	41.6
		SB	D	51.7	C	26.2	D	51.7	C	26.2	D	52.1	C	26.2
6	West Virginia & Campus Gate	EB	B	14.2	C	20.1	B	14.2	C	20.1	C	15	C	20.8

Table 30: Future Conditions Level of Service (by approach) Cont.

Study Area Intersections		Approach	Existing				Future Background				Future			
			AM Peak		PM Peak		AM Peak		PM Peak		AM Peak		PM Peak	
7	West Virginia & Mount Olivet	EB	D	36.5	D	43.7	D	36.4	D	43.7	D	36.3	D	43.7
		WB	D	40.8	C	20.2	D	40.8	C	20.2	D	41.4	C	20.2
		NB	C	34.1	C	34.8	D	35.2	D	35.2	D	35.1	D	35.6
		SB	B	14.6	C	21.8	B	14.6	C	21.8	B	14.8	C	22
8	Mt. Olivet & NY Ave Ramp	EB	A	9.1	A	7.5	A	9.6	A	7.6	A	9.5	A	7.7
		WB	B	18.8	B	15.9	B	18.8	B	15.9	B	18.8	B	15.9
		SB	C	33.7	C	33.3	C	33.7	C	33.2	C	33.7	C	33.2
9	Mt. Olivet & Brentwood Pkwy - 9th Street	WB	F	88.1	B	14.6	F	87.8	B	14.6	F	87.6	B	14.7
		NB	C	27.3	C	28.2	C	29.2	C	28	C	29.2	C	28.3
		SB	C	33	C	31.7	C	33.1	C	31.8	C	33.2	C	31.9
10	Gallaudet Entrance. & Brentwood Pkwy	NB	B	10.7	C	19.7	B	10.7	C	19.9	B	10.6	C	20.4
11	Penn St & Brentwood Pkwy	SB	E	39	E	39.5	E	40	E	41.1	E	40.7	E	42.1
12	Neal Pl & 6th Ave	WB	C	22.2	C	25.1	C	22.6	D	25.7	C	23.5	D	27.1
		SB	A	0.7	A	0.3	A	0.7	A	0.3	A	0.8	A	0.3

As shown in Table 30, all intersections that are projected to operate under acceptable conditions for Future Background would continue to operate within acceptable conditions for 2022 Campus Plan conditions.

The Penn Street/Brentwood Parkway intersection is projected to decrease to an overall LOS “E” for Future Background Conditions (associated with NoMA growth and other planned development projects). The volume/capacity (v/c) ratio from future background to future increases from 0.72 to 0.73, which is a 1.3% increase. The intersection delay would continue to operate at a LOS “E” for Campus Plan conditions with a slight decrease in delay associated with student and conference center growth.

Note: Traffic volumes shown in Figures 38 and 39 and associated future conditions analysis results are based on an earlier iteration of future site trip generation. The earlier version of site trip generation resulted in an increase of 55 AM and 62 PM trips versus 42 AM and 48 PM trips as summarized in Table 26. Thus actual 2022 traffic conditions are expected to be negligibly better than what have been outlined in Tables 29, 30 and 31.

A queuing analysis was conducted to determine the impact that the 2022 Gallaudet Campus enrollment increases would have using the 95th percentile queue lengths from Synchro 7 software. Table 31 provides Future Conditions 95th percentile queue length at all study area intersections.

Table 31: Future Conditions 95th Percentile Queue Lengths

Study Intersections	Direction	Available Storage Distance to nearest major intersection	Future Background		Future	
			AM Peak Hour	PM Peak Hour	AM Peak Hour	PM Peak Hour
1 Florida Ave & 5th Street	NB	317	82	116	82	116
	SB	279	76	41	75	41
	EB	165	111	197	113	197
	WB	287	119	47	119	47
2 Florida Ave & 6th Street	NB	155	178	354	180	356
	SBL	752	115	45	74	47
	SBT	752	252	34	169	35
	SBR	752	89	0	55	0
	EB	287	35	282	35	284
	WB	1083	594	236	596	236
4 Florida Ave & Gallaudet Main Entrance	NB	260	119	175	124	191
	SB	170	38	150	46	170
	EB	1083	224	83	226	83
	WB	496	35	187	35	192
5 Florida Ave & West Virginia Ave	NB	590	127	398	128	400
	SB	1561	375	160	378	163
	SBR	1561	96	10	97	11
	EBL	496	112	262	117	276
	EBT	496	122	135	127	138
	WB	350	746	184	754	186

Study Intersections		Direction	Available Storage Distance to nearest major intersection	Available Storage Distance to nearest major intersection		Future	
				AM Peak Hour	PM Peak Hour	AM Peak Hour	PM Peak Hour
7	Mt. Olivet Rd & West Virginia Ave	NB	410	121	272	122	275
		SBL	410	56	140	56	143
		SBT	1570	277	89	284	90
		SBR	1080	13	14	13	14
		EB	375	193	355	193	355
		WB	375	407	151	411	151
8	Mt. Olivet Rd & Ramp	SBL	366	22	26	22	26
		SBR	366	30	22	30	22
		EBL	1570	61	78	60	79
		EB	366	29	38	30	38
		WB	1570	213	261	212	261
9	Mt. Olivet Rd & Brentwood Pkwy	NB	1480	91	284	91	288
		NBR	1480	34	64	35	84
		SBL	1250	415	415	415	415
		SB	1250	334	321	339	323
		WBL	366	84	39	84	39
		WBR	366	187	330	187	330

The 95th percentile queue length for future conditions is projected to be accommodated by the available storage capacity to the closest major intersection at all of the intersections except Florida Ave & 6th Street NB during the AM and PM peak. The northbound approach on 6th Street has only 140 feet between the intersection at Florida Avenue and the intersection at M Street due to the diagonal alignment of Florida Avenue. Under the

Gallaudet Master Plan, traffic exiting the campus during the PM peak hour is expected to experience a queue length that is 20 feet (approximately 1 vehicle) greater than under future background conditions. This would not present any adverse impacts for on-campus traffic.

CONCLUSIONS

The primary conclusions that were presented in this study are as follows:

Existing Transportation Conditions

- 72% of students live on campus and 90% primarily walk to/from campus (including resident-students).
- Only 4% of students drive.
- The University has adequate parking to accommodate existing demand.
- The study area is well served by WMATA Metrorail and Metrobus. The University also has a shuttle service that connects students and faculty/staff to the New York Avenue – NoMA Metrorail Station and Union Station.
- The majority of the study area intersections operate at an acceptable Level of Service during both AM and PM peak hours except for the unsignalized intersection of Penn Street and Brentwood Parkway which operates at LOS “E”.
- High vehicle speeds along 6th Street, north of Florida Avenue, create unsafe conditions for vehicles exiting the campus at Neal Place.
- The West Virginia Avenue and Mount Olivet Road has been identified as a high crash located by the DDOT and is being studied by the Highway Safety Improvement Program (HSIP) to reduce traffic fatalities and series injuries through the implementation of infrastructure related highway safety improvements.
- The Mount Olivet Road/ Brentwood Parkway/ 9th Street T-intersection experienced 44 accidents over a three year period (between December 2009 and December 2011). According to ITE’s *Traffic Engineering Handbook*, potential causal factors for left-turn crashes are large turn volumes, excessive speed, and restricted sight distance. In May 2011, DDOT completed the 9th Street Bridge replacement which modified the configuration of this intersection. The Mount Olivet Road/Brentwood Parkway/9th Street intersection has recently been reconstructed and reconfigured therefore crash data may not reflect current intersection conditions.

- It is recommended that DDOT assesses potential countermeasures to lower crash occurrence and pedestrian injuries at all study area intersections.

Future Background Conditions

- Proposed plans in the FAMS to narrow roadway width and enhance the pedestrian experience would help mitigate existing safety concerns along 6th Street.
- The majority of study area intersections would continue to operate at an acceptable Level of Service during both the AM and PM peak hours, with the addition of traffic associated with NoMA development, FAMS development and a potential development scenario for the 6th Street PUD.

Future 2022 Gallaudet Campus Plan

- The University has developed a TDM to manage future travel and parking demand.
- Future vehicular access will remain unchanged.
- Future pedestrian access to the Campus is proposed to be improved with the opening of the 6th Street Gateway/ Olmsted Green. The 6th Street Gateway would improve access to/from the campus to the community, promote safety by minimizing the pedestrian/vehicular conflicts on campus and create an improved pedestrian experience.
- Based on Campus Plan student growth projections and projected increase in Conference Center annual attendance, campus peak hour trip generation is expected to increase by 42 during the AM peak and 48 during the PM peak. Trip generation increases are based on current trip generation characteristics and may be reduced based on traffic reductions associated with the University's Transportation Management Plan
- The total parking supply will be reduced from 1588 spaces to 1381 spaces by eliminating the overflow parking lot which is only used for construction staging and special event (i.e. graduation parking). The future projected parking demand of 1256 can be accommodated by the future parking supply. Future parking projections are based on Campus Plan student growth and anticipated growth in annual conference center attendance. The

number of faculty/staff is not projected to increase therefore parking demand associated with this use will not increase.

Future Traffic Conditions

- The majority of study area intersections would continue to operate at an acceptable Level of Service during both AM and PM peak hours with the proposed 2022 Gallaudet Campus Plan enrollment increase and programming. The intersection of 6th Street and Penn Street will operate at LOS “E” on for its worst approach for the PM peak hour under existing, future background, and future conditions. The delay will increase from 41.1 seconds per vehicle to 42.1 seconds per vehicle with the proposed Campus Master Plan.
- The traffic added in accordance with the 2022 Campus Master Plan will not adversely impact the surrounding roadway network.