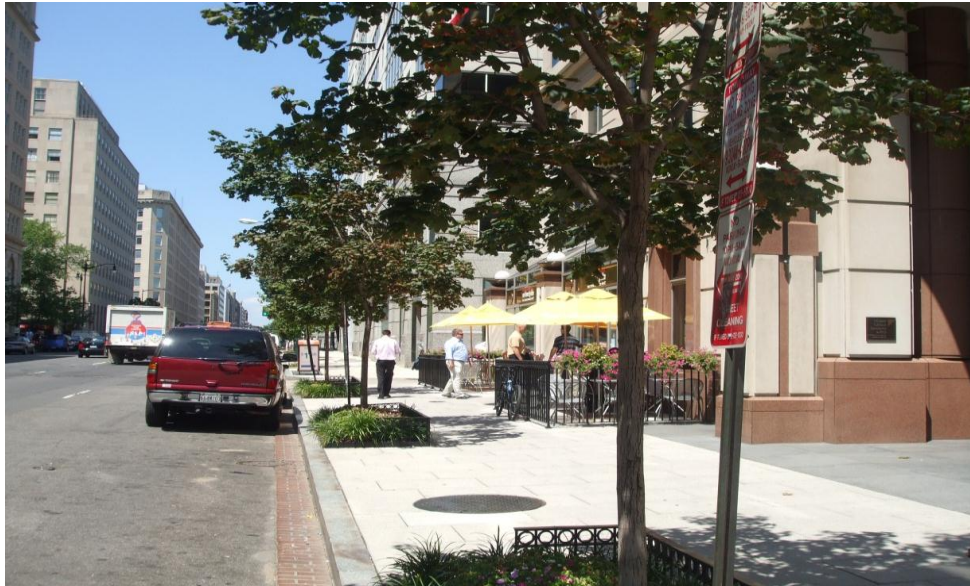


ASSESSMENT OF LOADING ZONES IN THE DISTRICT OF COLUMBIA



DRAFT FINAL REPORT

August 30, 2010

Submitted to:

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Manager, Motor Carrier Division

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d.

DISTRICT DEPARTMENT OF TRANSPORTATION

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10. Abstract <p>The District Department of Transportation (DDOT) determined the need to assess truck loading and unloading zones in order to make parking available, affordable and convenient for commercial vehicles in the City. This project involved the determination of general parking statistics on loading zones which utilized Howard University undergraduate and graduate students to collect field data under the leadership of Faculty. The data compiled during field observations were used to provide the characteristics of 17 loading zones in three areas was the principal objective of the study. The areas were in the Adams Morgan, Central Business District and Southwest Capitol Hill. This report represents summary statistics of parking activities including truck type usage, duration of usage, accumulation, turnover rates and incidences of double parking at the loading zones.</p> <p>The average duration of the trucks using the loading zones in all the three areas was 30 minutes with accumulation of almost 100% during weekdays. There were incidences of double parking at some of the locations and turnover rates ranged from 0 to 5.5 vehicles per space per hour.</p>			
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1.0 EXECUTIVE SUMMARY

The District Department of Transportation (DDOT) determined the need to assess loading and unloading zones for commercial vehicles as part of the development of a comprehensive freight parking management plan for the City. DDOT initiated the study in order to assess the current and future parking needs of commercial vehicles and to recommend a parking management program for implementation by the City. Assessing the characteristics of the loading zones is the principal objective of the study. Seventeen loading zones in three areas in the City were assessed: Adams Morgan Area, Central Business District and Southwest Capitol Hill area. A summary of the baseline measures are presented in the table below.

Summary of Baseline Measures of Loading Zones

Measure	Loading Zone Area	Weekday	Saturday
<i>Average Duration (minutes)</i>	Adams Morgan Area	32	13
	Central Business District	28	28
	Southwest Capitol Hill	31	11
<i>Accumulation (Percentage of Trucks - FHWA Classes 3,5,6 and 8 observed)</i>	Adams Morgan Area	100%	6.5%
	Central Business District	96%	77.7%
	Southwest Capitol Hill	100%	11.1%
<i>Turnover Rate (vehicles per space per hour)</i>	Adams Morgan Area	0.5 - 1.5	1.0 - 3.5
	Central Business District	0.5 - 3.5	0 - 1
	Southwest Capitol Hill	0 - 2.5	3.0 - 5.5
<i>Double Parking</i>	Adams Morgan Area	None observed	Observed at study location at Wyoming Ave
	Central Business District	Observed at study locations on 18th Street, 7th Street and Connecticut Avenue	Observed at study location Connecticut Avenue
	Southwest Capitol Hill	Observed at study location Pennsylvania Avenue and North Capitol Street	Observed at study location Pennsylvania Avenue

The loading zones assessed in this study appeared to be generally adequate in accommodating all the truck classifications. On average, most of the loading zones in all the areas were predominantly utilized by trucks of FHWA Classes 3 through 8 during the weekdays. On Saturdays, most of the loading zones were predominantly utilized by passenger vehicles.

2.0 BACKGROUND AND PROBLEM STATEMENT

Parking needs depend on the magnitude of the parking demands generated by the commercial activities, residents, employees and visitors; the availability of the adequate parking supply; the availability of transit or other alternative modes of transportation; and the extent of a captive-market environment. Managing the balance between parking demand and parking supply is the main issues of this study. The management of commercial vehicle operations in the District of Columbia is essential for the improvement of safety, federal building security and protection of neighborhoods from unnecessary truck traffic. An effective management of motor carrier operations, which includes the provision of adequate loading and unloading parking facilities for commercial vehicles helps to improve and sustain traffic flow. Loading zones are clearly signed areas set aside for short-term use by certain motor carrier operator, commercial vehicles when loading or unloading goods. Extended parking while loading zones are in operation is typically not permitted. Loading zones provide short-term parking for the loading and unloading. All loading zones are typically identified by signage. In the downtown area of Washington DC, loading zones are often identified by parking meters with a red 'top' traffic signs. Loading zones are typically allowed where there is no alley, off-street loading or other alternatives available to motorists. Loading zones are not allowed in "No stopping" areas or on streets abutting residential property. Loading zones are available for vehicles that are principally designed and constructed for carrying goods. The majority of passenger cars, 4WD vehicles, hatchbacks and other coupé and sports type vehicles are not principally designed for carrying goods and are therefore not permitted to use loading zones.

This project assessed loading zones in the District of Columbia for their use, capacity and efficiency. This project identified baseline parameters for assessing loading zones which will help decision-makers to identify the zones that may need to be upgraded (or revised) for operational efficiency.

3.0 LOADING ZONES IN DC

DDOT is seeking to determine the level of use, capacity and efficiency of loading zones within the District of Columbia (DC). These are located primarily in urban areas, which present a challenge for traffic control and the provision of adequate parking facilities. Alleys are typically preferred for loading and unloading goods, as they provide a location off of the major roadways, thus reducing the competition for parking spaces, as well as other vehicles using the roadway. The urban environment in DC does not provide sufficient or large enough alleyways in the Central Business District and its immediate environs that allow for off-street loading or unloading. Therefore, a significant number of designated loading zones are located on the street. The permitted times for loading zones vary from as little as 2 hours to a maximum of 12 hours, and are typically allowed from Monday to Friday/Saturday. A typical on-street truck loading zone (with designated signage – circled) in the District is shown in Figure 1.



Figure 1: Designated Loading Zone in Ward 6: 600 Block (637 – 639) Pennsylvania Avenue, SE

Given the less than ideal location for the loading zones, there is a continual need to determine the effectiveness and efficiency of their locations, in the context of the shared-use described previously. The efficiency has to be taken in the context of the parking, as underutilized loading zones lead to wasted space that can provide additional parking space as well as a source of revenue for the City.

4.0 LOADING ZONES IDENTIFICATION, DATA COLLECTION AND ANALYSIS

In consultation with DDOT, the loading zones earmarked for data collection were grouped into three categories based on their location:

- Group 1: Ward 1 - Adams Morgan Area
- Group 2: Ward 2 - Central Business District
- Group 3: Ward 6 - Southwest Capitol Hill

Table 1 presents the detailed description of the loading zones in each group. There are five loading zones in each group, with loading periods ranging from 7 A.M. to 6:30 P.M., 9:30 A.M. to 4:00 P.M., and 10 A.M. - 5 P.M. for Monday through Saturday, with the exception of the loading zone on K Street (Ward 2) which operates from Monday through Friday. There were no designated loading periods for Sundays.

The project team conducted a series of field data collection on typical weekdays (Monday through Friday) and a Saturday at the identified loading zones. The data collected or obtained for each loading zone included the following:

- Time designation of loading zone
- Digital photographs of loading zones
- Types and number of vehicles using loading zones
- Duration (the individual and average length of time that vehicles remain parked)
- Turnover (the number of different vehicles that can occupy the same parking spaces)
- Double-parking (a count of occurrences to obtain a quantitative measure of the magnitude of this problem; provides a means of determining whether increases in turnover prompt significant decreases in double parking)

- Number and type of businesses within the immediate environs of the loading zones

The data was collected using two to three-person crews at each loading zone. All of the information was recorded by hand on data collection forms.

Table 1: Loading Zones Location

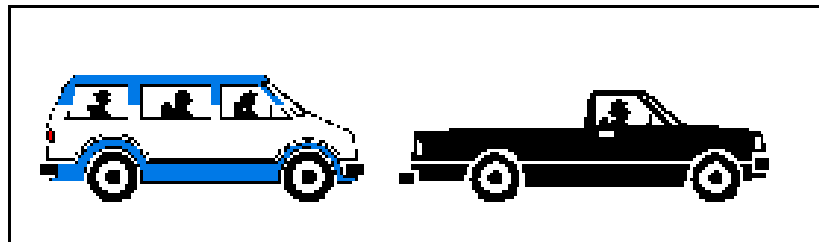
Ward 1: Adams Morgan Area			
NO.	LOCATION	DESIGNATED LOADING PERIOD	DAYS OF WEEK
1	Columbia Road and Wyoming Ave, NW	10:00 AM - 5:00 PM	Monday - Saturday
2	Wyoming Avenue and 18th Street, NW	9:00 AM - 6:30 PM	Monday - Saturday
3	18th Street and Wyoming Ave, NW (Adam's Morgan)	9:00 AM - 6:30 PM	Monday - Saturday
4	Columbia Road, NW (between Ontario Road and 17th Street)	7:00 AM - 6:30 PM	Monday - Saturday
5	Columbia Road and Georgia Avenue, NW	7:00 AM - 6:30 PM	Monday - Saturday
Ward 2: Central Business District			
NO.	LOCATION	DESIGNATED LOADING PERIOD	DAYS OF WEEK
6	Connecticut Avenue and Florida Ave, NW	9:30 AM - 6:30 PM	Monday - Saturday
7	18th Street and Jefferson Place, NW	7:00 AM - 6:30 PM	Monday - Saturday
8	I Street and 14th Street, NW	9:30 AM to 4:00 PM	Monday - Saturday
9	I Street and 18th Street, NW	9:30 AM to 4:00 PM	Monday - Saturday
10	16th Street and R Street, NW	7:00 AM - 6:30 PM	Monday - Saturday
11	7th Street and H Street, NW (Chinatown Area)	7:00 AM - 5:00 PM	Monday - Saturday
12	K Street (Service Road) and 18th Street, NW	7:00 AM - 6:30 PM	Monday - Friday
Ward 6: Southwest Capitol Hill			
NO.	LOCATION	DESIGNATED LOADING PERIOD	DAYS OF WEEK
13	Pennsylvania Avenue and 3rd Street, SE	7:00 AM - 6:30 PM	Monday - Saturday
14	4th Street and C Street, SE	7:00 AM - 6:30 PM	Monday - Saturday
15	635 Pennsylvania Avenue, SE	7:00 AM - 6:30 PM	Monday - Saturday
16	650 Pennsylvania Avenue, SE	7:00 AM - 6:30 PM	Monday - Saturday
17	North Capitol Street and I Street, NW	9:30 AM - 4:00 PM	Monday - Saturday

5.0 VEHICLE CLASSIFICATIONS

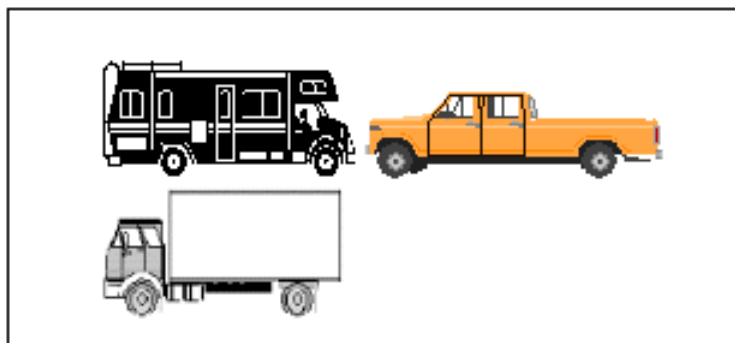
The following are the vehicle classifications used in the data collection efforts:



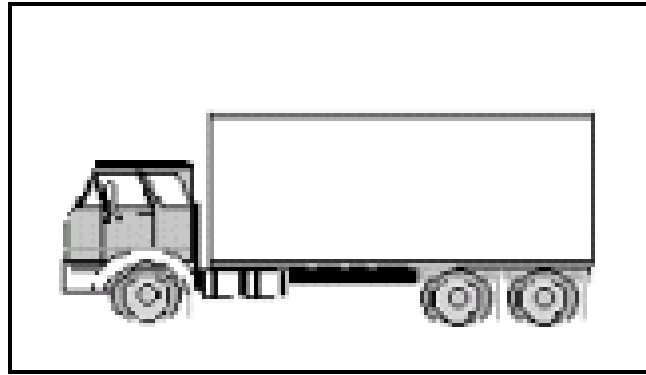
FHWA Class 2 — Passenger Cars (With 1- or 2-Axle Trailers)



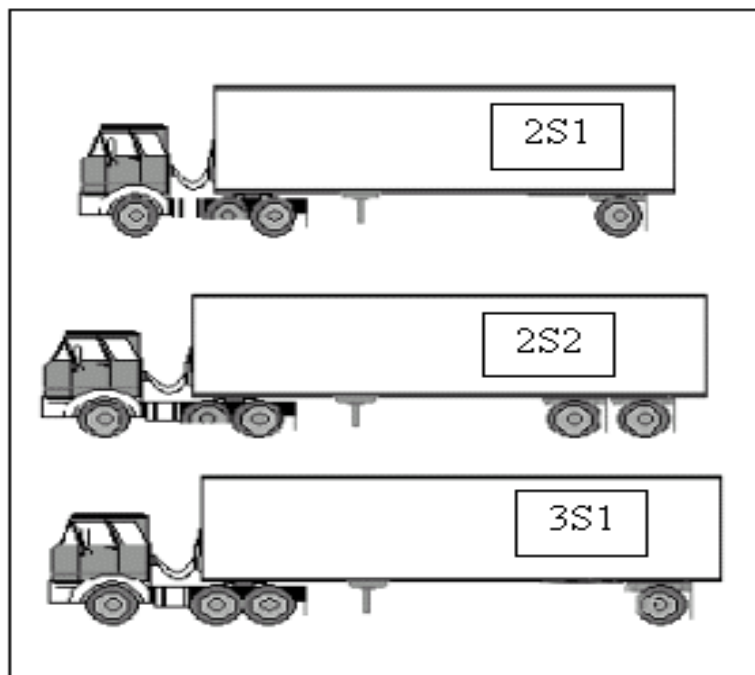
FHWA Class 3 — 2 Axles, 4-Tire Single Units, Pickup or Van (With 1- or 2-Axle Trailers)



FHWA Class 5 — 2D - 2 Axles, 6-Tire Single Units (Includes Handicap-Equipped Bus and Mini School Bus)



FHWA Class 6 — 3 Axles, Single Unit



FHWA Class 8 — 3 to 4 Axles, Single Trailer

6.0 RESULTS

6.1 Loading Zone Locations

Table 2 presents the location addresses or adjacent intersection (including direction) of the loading zones analyzed in this assessment.

Table 2: Location Addressed of Loading Zones

ADJACENT INTERSECTION	LOCATION ADDRESS
<i>Ward 1: Adams Morgan Area</i>	
Columbia Road and Wyoming Ave, NW	1900 Wyoming Ave. NW (EB)
Wyoming Avenue and 18th Street, NW	2122 18th St. NW (EB)
18th Street and Wyoming Ave, NW (Adam's Morgan)	2433 18th St. NW (NB)
Columbia Road, NW (between Ontario Road and 17th St)	1717 Columbia Rd. NW (WB)
Columbia Road and Georgia Avenue, NW	2928 Georgia Ave. NW (SB)
<i>Ward 2: Central Business District</i>	
Connecticut Avenue and Florida Ave, NW	1728-1732 Connecticut Ave., NW (SB)
18th Street and Jefferson Place, NW	1212-1214 18th Street, NW (NB)
I Street and 14th Street, NW	1401 I Street, NW (WB)
I Street and 18th Street, NW	1800 I Street, NW (WB)
16th Street and R Street, NW	1701 16th Street, NW (WB)
7th Street and H Street, NW (Chinatown Area)	737 7th Street, NW (NB)
K Street (Service Road) and 18th Street, NW	1776 K Street, NW (EB)
<i>Ward 6: Southwest Capitol Hill</i>	
Pennsylvania Avenue and 3rd Street, SE	Pennsylvania Ave. and 3rd St., SE (WB)
4th Street and C Street, SE	4th Street and C Street, SE (WB)
637-639 Pennsylvania Avenue, SE	637-639 Pennsylvania Avenue, SE (EB)
650 Pennsylvania Avenue, SE	650 Pennsylvania Avenue, SE (WB)
North Capitol Street and I Street, NW	825 North Capitol Street, NW (NB)

6.2 Land Use of Adjacent Properties

Presented in Table 3 is the summary of the land-use of the adjacent properties and the length of each loading zone. In the Adams Morgan Area, the average length of the loading zones ranged from 30 ft to 75 ft with an average of 49 ft. The properties near the loading zones were predominantly retail with some residential, restaurants and bars.

In the Central Business District (Ward 2), the loading zones assessed varied and included offices, retail, shops, restaurants and mixed-use properties. The loading zone lengths ranged from 30ft to 80ft with an average of approximately 46ft.

Table 3: Summary of the land-use of the adjacent properties

LOCATION ADDRESS	LENGTH OF LOADING ZONE	ADJACENT LAND USE
Ward 1: Adams Morgan Area (AMA)		
1900 Wyoming Ave. NW (EB)	60 ft	Residential and Retail: 7-11 Store
2122 18th St. NW (EB)	30 ft	Retail: Restaurant, Wine Shop
2433 18th St. NW (NB)	75 ft	Retail: Restaurant, Cuisine, Bar, Shops
1717 Columbia Rd. NW (WB)	40 ft	"Retail & Residential: Restaurant, Convenience Store, Assisted Living
2928 Georgia Ave. NW (SB)	40 ft	Retail: Restaurant, Cuisine, Auto Dealership
Ward 2: Central Business District (CBD)		
1728-1732 Connecticut Ave., NW (SB)	40 ft	Retail: Mourayo Restaurant, Carpet & Floor Design, Polo India Club, Bistort Du Coin
1212-1214 18th Street, NW (NB)	40 ft	Retail: Nando's Peri Peri Restaurant, Sprint, The Guitar Shop, Mattress Discounters
1401 I Street, NW (WB)	70ft	Retail and Mixed-Use: Au Bon Pain, Subway Restaurant, Franklin Tower (mixed-use facility)
1800 I Street, NW (WB)	30 ft	Retail and Services: Subway Restaurant, S & R Wine and Liquors, Alteration and Clock Repair, FAST Copy and Printing
1701 16th Street, NW (WB)	30 ft	Residential
737 7th Street, NW (NB)	30 ft	Retail and Office: Restaurants, Urban Outfitters, City Sports
1776 K Street, NW (EB)	80 ft	Offices and Services; Wiley Rein, LLP,
Ward 6: Southwest Capitol Hill (SCH)		
Pennsylvania Ave and 3rd St, SE (WB)	40 ft	Services and Retail: Bank, Restaurant
4th Street and C Street, SE (WB)	30 ft	"Terminal and Retail: Garage,
637-639 Pennsylvania Ave, SE (EB)	40 ft	Convenience Store "
650 Pennsylvania Avenue, SE (WB)	40 ft	"Office, Services, and Retail: Eye Central, Advance Rehab & Wellness Center, Antique Shop, J.J. Mutts Spirits,
825 North Capitol Street, NW (NB)	30 ft	Restaurant, Mattress Discounters"

In the Southwest Capitol Hill area (Ward 6), the length of the loading zones assessed in this study ranges between 30 ft and 40 ft, with an average of 35 ft. The loading zones serve offices, retail stores, businesses, and restaurants.

6.3 Loading Zone Usage Information

Tables 4 and 5 present the various vehicle classes that used the loading zones study locations for a typical weekday and a weekend (Saturday) respectively.

Table 4: Loading Zones Vehicle Usage Information for a Weekday

AREA	LOCATION ADDRESS	2-Hour Weekday Data Collection Information			Loading Zone Data based on FHWA Vehicle Classification					
		Date	Time	Time Period	Class 2	Class 3	Class 5	Class 6	Class 8	Total
AMA	1900 Wyoming Ave. NW (EB)	26-Jul	3:05 PM - 5:05 PM	PM Peak	-	1	-	-	-	1
AMA	2122 18th St. NW (EB)	26-Jul	1:00 PM - 3:00 PM	PM Off Peak	-	-	-	-	-	0
AMA	2433 18th St. NW (NB)	26-Jul	7:30 AM - 9:30 AM	AM Peak	-	1	-	-	-	1
AMA	1717 Columbia Rd. NW (WB)	26-Jul	9:45 AM - 11:45 AM	AM Off Peak	-	2	1	-	-	3
AMA	2928 Georgia Ave. NW (SB)	28-Jul	11:00 AM - 1:00 PM	Midday	-	-	1	-	-	1
CBD	1728-1732 Connecticut Ave., NW (SB)	27-Jul	10:30 AM - 12:30 PM	Midday	-	1	1	1	-	3
CBD	1212-1214 18th Street, NW (NB)	27-Jul	8:35 AM - 10:35 AM	AM Peak	-	2	-	1	-	3
CBD	1401 I Street, NW (WB)	26-Jul	9:45 AM - 11:45 AM	AM Off Peak	-	5	5	-	-	10
CBD	1800 I Street, NW (WB)	26-Jul	12:00 PM - 2:00 PM	Midday	-	3	3	1	-	7
CBD	1701 16th Street, NW (WB)	28-Jul	3:30 PM - 5:30 PM	PM Peak	1	-	-	-	-	1
CBD	737 7th Street, NW (NB)	28-Jul	3:00 PM - 5:00 PM	PM Peak	-	3	1	-	-	4
CBD	1776 K Street, NW (EB)	2-Aug	11:00 AM - 1:00 PM	Midday	-	2	-	-	-	2
SCH	Pennsylvania Ave. and 3rd St., SE (WB)	23-Jul	7:00 AM - 9:00 AM	AM Peak	-	-	-	-	-	0
SCH	4th Street and C Street, SE (WB)	23-Jul	9:00 AM - 11:00 AM	AM Off Peak	-	-	-	1	1	2
SCH	637-639 Pennsylvania Avenue, SE (EB)	23-Jul	11:30 AM - 1:30 PM	Midday	-	1	-	-	-	1
SCH	650 Pennsylvania Avenue, SE (WB)	23-Jul	1:30 PM - 3:30 PM	PM Off Peak	-	1	3	-	-	4
SCH	825 North Capitol Street, NW (NB)	30-Jul	2:00 PM - 4:00 PM	PM Peak	-	3	3	-	-	6

Table 5: Loading Zones Vehicle Usage Information for a Weekend (Saturday)

AREA	LOCATION ADDRESS	2-Hour Data Collection Period		Saturday Loading Zone Data based on FHWA Vehicle Classification					
		Date	Time	Class 2	Class 3	Class 5	Class 6	Class 8	Total
AMA	1900 Wyoming Ave. NW (EB)	31-Jul	9:45 AM - 11:45 AM	17	-	1	-	-	18
AMA	2122 18th St. NW (EB)	31-Jul	11:45 AM - 1:45 PM	2	-	1	-	-	3
AMA	2433 18th St. NW (NB)	31-Jul	1:45 PM - 3:45 PM	2	-	-	-	-	2
AMA	1717 Columbia Rd. NW (WB)	31-Jul	7:40 AM - 9:40 AM	3	-	-	-	-	3
AMA	2928 Georgia Ave. NW (SB)	31-Jul	4:00 PM - 6:00 PM	5	-	-	-	-	5
CBD	1728-1732 Connecticut Ave., NW (SB)	31-Jul	1:30 PM - 3:30 PM	-	1	-	-	-	1
CBD	1212-1214 18th Street, NW (NB)	31-Jul	4:00 PM - 6:00 PM	2	1	1	-	-	4
CBD	1401 I Street, NW (WB)	24-Jul	9:30 AM - 11:30 AM	-	-	-	-	-	0
CBD	1800 I Street, NW (WB)	24-Jul	11:45 AM - 1:45 PM	-	2	-	-	-	2
CBD	1701 16th Street, NW (WB)	24-Jul	7:15 AM - 9:15 AM	-	-	-	-	-	0
CBD	737 7th Street, NW (NB)	31-Jul	7:45 AM - 9:45 AM	-	2	-	-	-	2
CBD	1776 K Street, NW (EB)	31-Jul	N/A	N/A	N/A	N/A	N/A	N/A	0
SCH	Pennsylvania Ave. and 3rd St., SE (WB)	24-Jul	7:00 AM - 9:00 AM	-	-	-	-	-	0
SCH	4th Street and C Street, SE (WB)	24-Jul	9:00 AM - 11:00 AM	-	-	-	-	-	0
SCH	637-639 Pennsylvania Avenue, SE (EB)	31-Jul	12:00 PM - 2:00 PM	7	-	-	-	-	7
SCH	650 Pennsylvania Avenue, SE (WB)	31-Jul	12:00 PM - 2:00 PM	9	2	-	-	-	11
SCH	825 North Capitol Street, NW (NB)	31-Jul	9:50 AM - 11:50 AM	-	-	-	-	-	0

6.4 Loading Zone Duration of Usage

Tables 6 and 7 present the duration of the usage of the loading zones study locations for a typical weekday and a weekend (Saturday) respectively.

Table 6: Loading Zone Duration of Usage for a Weekday

AREA	LOCATION ADDRESS	Time	Total Traffic	Weekday Typical Loading Duration in Minutes		
				Average Duration	Shortest Duration	Longest Duration
AMA	1900 Wyoming Ave. NW (EB)	3:05 PM - 5:05 PM	1	82	82	82
AMA	2122 18th St. NW (EB)	1:00 PM - 3:00 PM	0	-	-	-
AMA	2433 18th St. NW (NB)	7:30 AM - 9:30 AM	1	4	4	4
AMA	1717 Columbia Rd. NW (WB)	9:45 AM - 11:45 AM	3	22	6	44
AMA	2928 Georgia Ave. NW (SB)	11:00 AM - 1:00 PM	1	19	19	19
CBD	1728-1732 Connecticut Ave., NW (SB)	10:30 AM - 12:30 PM	3	13	4	20
CBD	1212-1214 18th Street, NW (NB)	8:35 AM - 10:35 AM	3	81	3	120
CBD	1401 I Street, NW (WB)	9:45 AM - 11:45 AM	10	14	4	36
CBD	1800 I Street, NW (WB)	12:00 PM - 2:00 PM	7	15	1	49
CBD	1701 16th Street, NW (WB)	3:30 PM - 5:30 PM	1	19	19	19
CBD	737 7th Street, NW (NB)	3:00 PM - 5:00 PM	4	21	6	52
CBD	1776 K Street, NW (EB)	11:00 AM - 1:00 PM	2	33	5	61
SCH	Pennsylvania Ave. and 3rd St., SE (WB)	7:00 AM - 9:00 AM	0	-	-	-
SCH	4th Street and C Street, SE (WB)	9:00 AM - 11:00 AM	2	33	8	57
SCH	637-639 Pennsylvania Avenue, SE (EB)	11:30 AM - 1:30 PM	1	65	65	65
SCH	650 Pennsylvania Avenue, SE (WB)	1:30 PM - 3:30 PM	4	13	4	29
SCH	825 North Capitol Street, NW (NB)	2:00 PM - 4:00 PM	6	14	2	30

Table 7: Loading Zone Duration of Usage for a Weekend (Saturday)

AREA	LOCATION ADDRESS	Time	Total Traffic	Saturday Loading Duration in Minutes		
				Average Duration	Shortest Duration	Longest Duration
AMA	1900 Wyoming Ave. NW (EB)	9:45 AM - 11:45 AM	18	10	2	36
AMA	2122 18th St. NW (EB)	11:45 AM - 1:45 PM	3	18	8	27
AMA	2433 18th St. NW (NB)	1:45 PM - 3:45 PM	2	15	15	15
AMA	1717 Columbia Rd. NW (WB)	7:40 AM - 9:40 AM	3	7	2	13
AMA	2928 Georgia Ave. NW (SB)	4:00 PM - 6:00 PM	5	14	6	36
CBD	1728-1732 Connecticut Ave., NW (SB)	1:30 PM - 3:30 PM	1	11	11	11
CBD	1212-1214 18th Street, NW (NB)	4:00 PM - 6:00 PM	4	7	5	10
CBD	1401 I Street, NW (WB)	9:30 AM - 11:30 AM	0	-	-	-
CBD	1800 I Street, NW (WB)	11:45 AM - 1:45 PM	2	120	120	120
CBD	1701 16th Street, NW (WB)	7:15 AM - 9:15 AM	0	-	-	-
CBD	737 7th Street, NW (NB)	7:45 AM - 9:45 AM	2	9	1	16
CBD	1776 K Street, NW (EB)	N/A	0	N/A	N/A	N/A
SCH	Pennsylvania Ave. and 3rd St., SE (WB)	7:00 AM - 9:00 AM	0	-	-	-
SCH	4th Street and C Street, SE (WB)	9:00 AM - 11:00 AM	0	-	-	-
SCH	637-639 Pennsylvania Avenue, SE (EB)	12:00 PM - 2:00 PM	7	11	3	23
SCH	650 Pennsylvania Avenue, SE (WB)	12:00 PM - 2:00 PM	11	11	1	36
SCH	825 North Capitol Street, NW (NB)	9:50 AM - 11:50 AM	0	-	-	-

6.5 Accumulation, Turnover and Double Parking Rates

Presented in Tables 8 and 9 are the accumulation, turnover and double parking observations obtain at the loading zones for a typical weekday and a weekend (Saturday) respectively.

Table 8: Loading Zone Accumulation, Turnover and Double Parking Rates for a Weekday

AREA	LOCATION ADDRESS	Time	Total Traffic	Average Accumulation	Turnover Rate (per hr)	Double Parking
AMA	1900 Wyoming Ave. NW (EB)	3:05 PM - 5:05 PM	1	1	0.5	-
AMA	2122 18th St. NW (EB)	1:00 PM - 3:00 PM	0	-	0	-
AMA	2433 18th St. NW (NB)	7:30 AM - 9:30 AM	1	1	0.5	-
AMA	1717 Columbia Rd. NW (WB)	9:45 AM - 11:45 AM	3	1	1.5	-
AMA	2928 Georgia Ave. NW (SB)	11:00 AM - 1:00 PM	1	1	0.5	-
CBD	1728-1732 Connecticut Ave., NW (SB)	10:30 AM -12:30 PM	3	1	1.0	1
CBD	1212-1214 18th Street, NW (NB)	8:35 AM - 10:35 AM	3	2	1.5	1
CBD	1401 I Street, NW (WB)	9:45 AM - 11:45 AM	10	2	3.5	-
CBD	1800 I Street, NW (WB)	12:00 PM - 2:00 PM	7	1	3.0	-
CBD	1701 16th Street, NW (WB)	3:30 PM - 5:30 PM	1	1	0.5	-
CBD	737 7th Street, NW (NB)	3:00 PM - 5:00 PM	4	1	0.5	1
CBD	1776 K Street, NW (EB)	11:00 AM - 1:00 PM	2	2	1.0	-
SCH	Pennsylvania Ave. and 3rd St., SE (WB)	7:00 AM - 9:00 AM	0	-	0	-
SCH	4th Street and C Street, SE (WB)	9:00 AM - 11:00 AM	2	1	0.5	-
SCH	637-639 Pennsylvania Avenue, SE (EB)	11:30 AM - 1:30 PM	1	1	0.5	-
SCH	650 Pennsylvania Avenue, SE (WB)	1:30 PM - 3:30 PM	4	1	1.5	3
SCH	825 North Capitol Street, NW (NB)	2:00 PM - 4:00 PM	6	1	2.5	2

Table 9: Loading Zone Accumulation, Turnover and Double Parking Rates for a Weekend (Saturday)

AREA	LOCATION ADDRESS	Time	Total Traffic	Average Accumulation	Turnover Rate (per hr)	Double Parking
AMA	1900 Wyoming Ave. NW (EB)	9:45 AM - 11:45 AM	18	2	3.5	17
AMA	2122 18th St. NW (EB)	11:45 AM - 1:45 PM	3	1	1.0	-
AMA	2433 18th St. NW (NB)	1:45 PM - 3:45 PM	2	2	1.0	-
AMA	1717 Columbia Rd. NW (WB)	7:40 AM - 9:40 AM	3	1	1.0	-
AMA	2928 Georgia Ave. NW (SB)	4:00 PM - 6:00 PM	5	1	2.0	-
CBD	1728-1732 Connecticut Ave., NW (SB)	1:30 PM - 3:30 PM	1	1	0.5	-
CBD	1212-1214 18th Street, NW (NB)	4:00 PM - 6:00 PM	4	2	1.0	1
CBD	1401 I Street, NW (WB)	9:30 AM - 11:30 AM	0	-	0	-
CBD	1800 I Street, NW (WB)	11:45 AM - 1:45 PM	2	2	1.0	-
CBD	1701 16th Street, NW (WB)	7:15 AM - 9:15 AM	0	-	0	-
CBD	737 7th Street, NW (NB)	7:45 AM - 9:45 AM	2	1	0.5	-
CBD	1776 K Street, NW (EB)	N/A	0	N/A	N/A	N/A
SCH	Pennsylvania Ave. and 3rd St., SE (WB)	7:00 AM - 9:00 AM	0	-	0	-
SCH	4th Street and C Street, SE (WB)	9:00 AM - 11:00 AM	0	-	0	-
SCH	637-639 Pennsylvania Avenue, SE (EB)	12:00 PM - 2:00 PM	7	1	3.0	-
SCH	650 Pennsylvania Avenue, SE (WB)	12:00 PM - 2:00 PM	11	1	5.5	4
SCH	825 North Capitol Street, NW (NB)	9:50 AM - 11:50 AM	0	-	0	-

7.0 DISCUSSIONS

7.1 Loading Zone Truck Usage

As shown in Table 4, the majority of vehicles that used the loading zones during a typical weekday were trucks of FHWA classes 3, 5, 6 and 8, with the exception of one incidence of a passenger vehicle using the loading zone on 16th Street. During the weekend (Saturday), the majority (approximately 81%) of the vehicles that used the loading zones were those of FHWA Class 2 (passenger cars).

7.2 Loading Zone Duration of Usage

The duration of usage during a typical weekday ranged from 4 minutes to as much as 82 minutes in the Adams Morgan Area. During the weekend (Saturday), the duration of usage of the loading zones ranged from 2 minutes to 36 minutes. The study locations that experienced a considerable number of loading and unloading activities were those at 1900 Wyoming Avenue and 2928 Georgia Avenue. The average duration of usage for all the loading zones in the Adams Morgan Area was determined to be approximately 32 minutes during the weekday and approximately 13 minutes for a Saturday.

In the Central Business District, the minimum and maximum duration of usage were 1 minute and 120 minutes respectively, with an average duration of 28 minutes for both a typical weekday and weekend. The loading zone at 1212-1214 on 18th Street NW (Northbound) experienced the longest loading or unloading activity during the weekday, while the loading zone at 1800 I Street NW (Northbound) experienced the same on a Saturday. The average duration on a Saturday was found to be approximately 37 minutes.

The loading zones assessed in the Southwest Capitol Hill area showed duration of usage ranging from 2 minutes to 65 minutes, with an average of approximately 31 minutes for a typical weekday. On Saturdays, the minimum and maximum durations were respectively 1 minute and 36 minutes, with an average of 11 minutes.

7.3 Accumulation, Turnover Rates and Double Parking

Accumulation is the number of vehicles parked at any moment. Turnover is defined as the number of vehicles per space per unit of time. Double parking refers to the usually illegal practice of parking a vehicle in the travel lane next to a vehicle that is already parked next at the curb or a parking space.

In the Adams Morgan area, the loading zone parking spaces were in high demand with low turnover during a typical weekday and weekend. The loading zones in the area could accommodate one truck at a time with FHWA Classes 3, 5 and 6 being observed. Turnover rates ranged from 1.0 to 3.5 per hour per space for weekends. During the weekend field observations, there were no incidences of double parking in loading zones, except for that at 1900 Wyoming Avenue, which recorded 17 incidences of double parking. The loading zone at this location also recorded the highest turnover rate of 3.5 vehicles per space per hour during the weekend. Incidences of double parking were not observed during the weekday site visits. The weekday turnover rates ranged from 0.5 vehicles per space per hour to 1.5 vehicles per space per hour.

The loading zones in the Central Business District also were also in high demand, with 100% accumulation during weekdays. During the weekend (Saturday) field observations, three of the six loading zones were not utilized during the field visit (See Table 9). Turnover rates ranged from 0.5 to 3.5 vehicles per hour per space for weekdays and from 0 to 1 vehicle per hour per space for weekends. There were a few incidences (1 per loading zone) of double parking at three of the seven loading zones assessed during the weekday observations. During the weekend site visit (Saturday), only one incident of double parking was observed at one loading zone.

In the Southwest Capitol Hill area, the loading zones were all fully utilized during the weekday (100% accumulation) with the exception of one (at Pennsylvania Avenue and 3rd Street, Westbound). During the Saturday observations, only two loading zones were fully utilized, and no loading or unloading activities were observed at the remaining loading zones. The loading zones could accommodate one truck of FHWA Classes 3, 5, 6 or 8 at a time. The turnover rates computed ranged from 0 to 2.5 vehicles per hour per space for weekdays and from 3 to 5.5 vehicles per hour per space for weekends.

Double parking was observed at two of the loading zones during the weekday observations and at one loading zone during the Saturday observation.

8.0 SUMMARY OF MEASURES

A summary of the baseline measures are presented in Table 10. The loading zones assessed in this study appeared to be generally adequate in accommodating all the truck classifications. On average, most of the loading zones in all the areas were predominantly utilized by trucks of FHWA Classes 3 through 8 during the weekdays. On Saturdays, the loading zones were predominantly utilized by passenger vehicles.

Table 10: Summary of Baseline Measures of Loading Zones

Measure	Loading Zone Area	Weekday	Saturday
Average Duration <i>(minutes)</i>	Adams Morgan Area	32	13
	Central Business District	28	28
	Southwest Capitol Hill	31	11
Accumulation <i>(Percentage of Trucks - FHWA Classes 3,5,6 and 8 observed)</i>	Adams Morgan Area	100%	6.5%
	Central Business District	96%	77.7%
	Southwest Capitol Hill	100%	11.1%
Turnover Rate (vehicles per space per hour)	Adams Morgan Area	0.5 - 1.5	1.0 - 3.5
	Central Business District	0.5 - 3.5	0 - 1
	Southwest Capitol Hill	0 - 2.5	3.0 - 5.5
Double Parking	Adams Morgan Area	None observed	Observed at study location at Wyoming Ave
	Central Business District	Observed at study locations on 18th Street, 7th Street and Connecticut Avenue	Observed at study location Connecticut Avenue
	Southwest Capitol Hill	Observed at study location Pennsylvania Avenue and North Capitol Street	Observed at study location Pennsylvania Avenue

APPENDIX: PHOTOGRAPHS OF LOADING ZONES



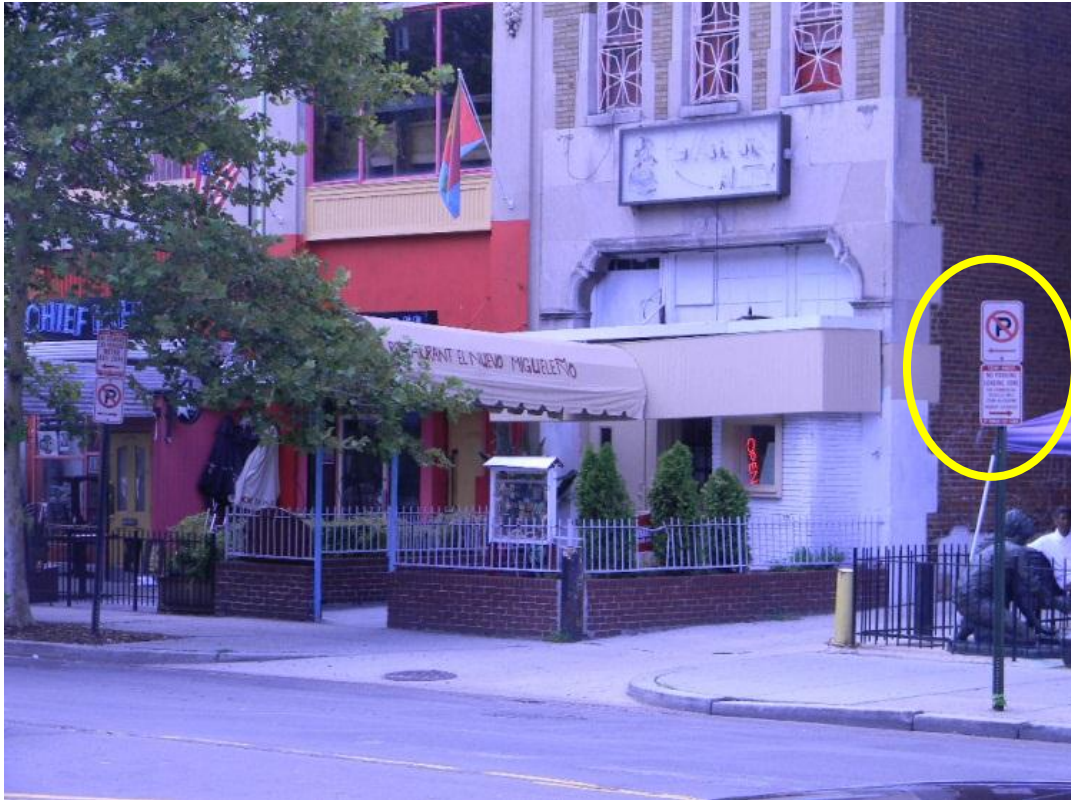
Ward 1: Columbia Road at Wyoming Avenue, NW – Loading Zone Signage and Adjacent Land Use



Ward 1: Wyoming Avenue and 18th Street, NW – Loading Zone Signage and Adjacent Land Use



Ward 1: 18th St and Wyoming Avenue, NW (Adams Morgan Area) – Loading Zone Signage and Adjacent Land Use



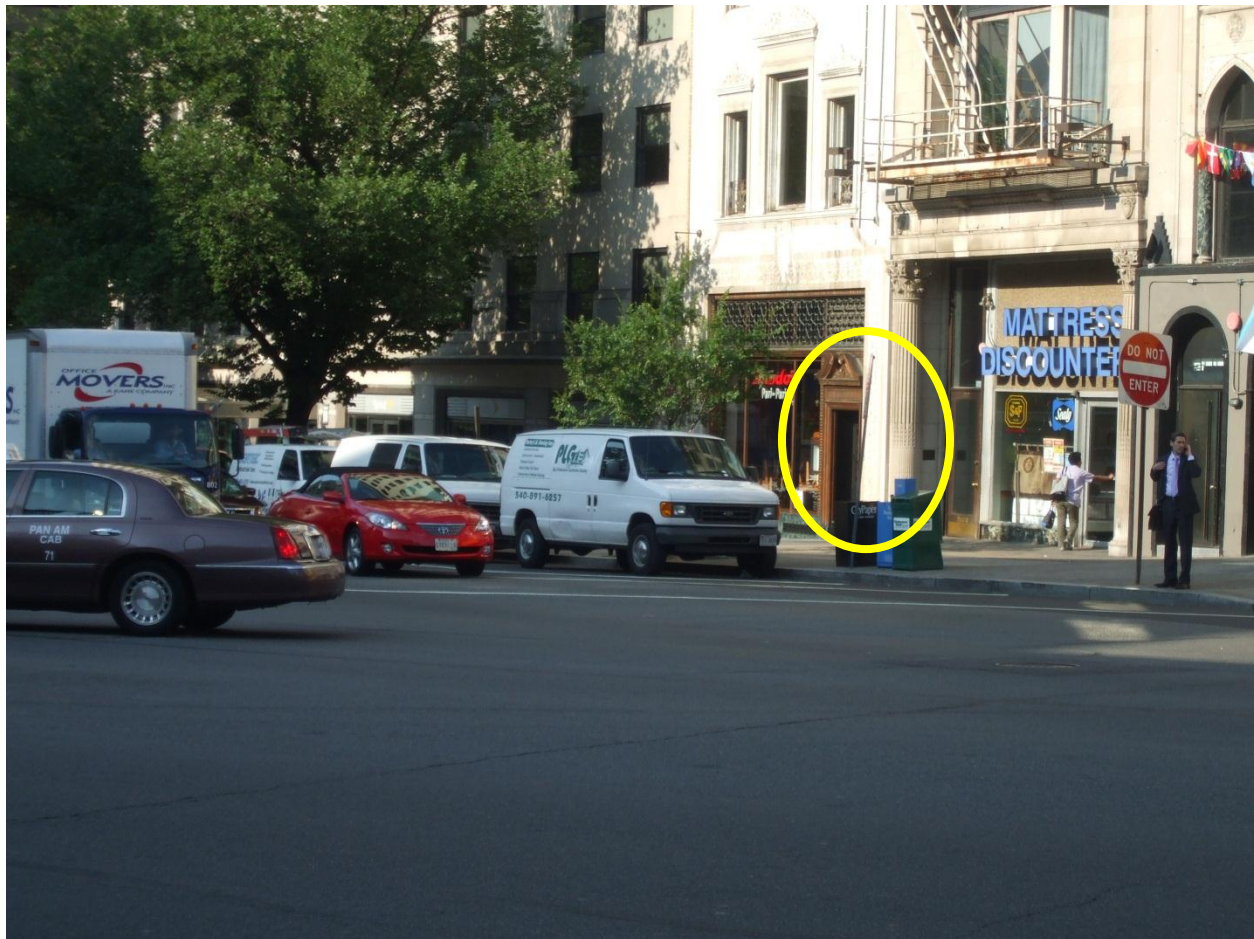
Ward 1: Columbia Road, NW (between Ontario Rd and 17th Street, NW) – Loading Zone Signage and Adjacent Land Use



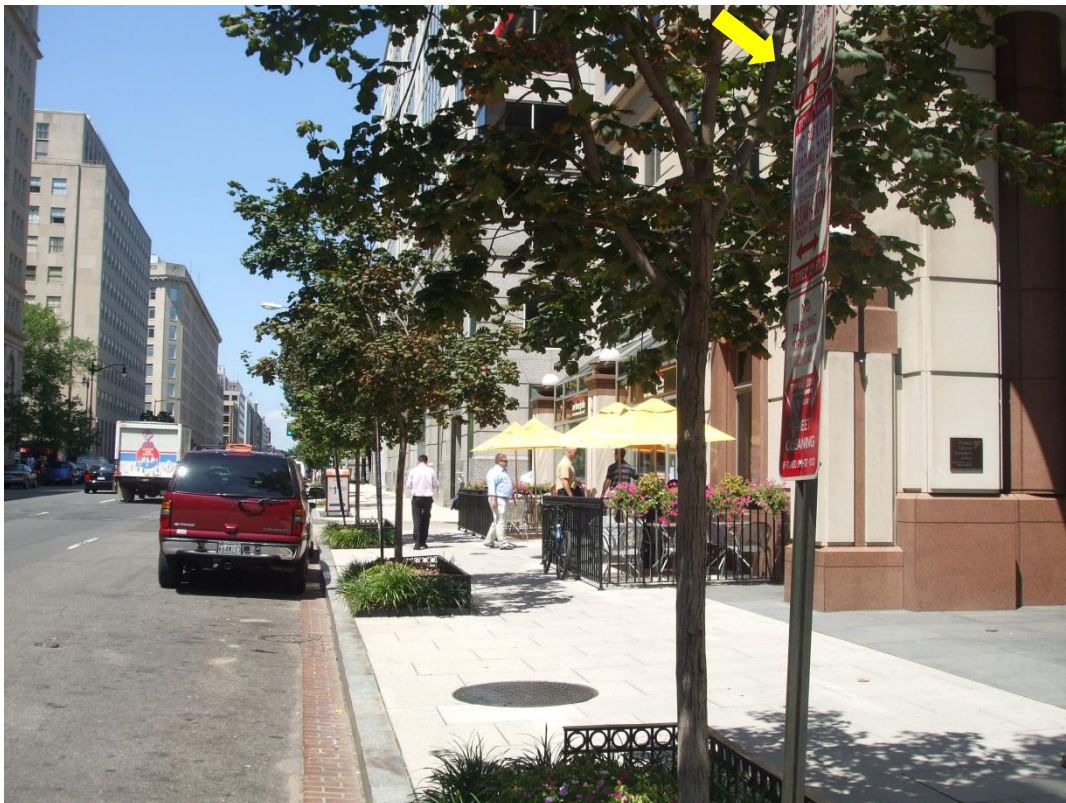
Ward 1: Columbia Road and Georgia Avenue, NW – Loading Zone Signage and Adjacent Land Use



Ward 2: Connecticut Avenue and Florida Avenue, NW – Loading Zone Signage and Adjacent Land Use



Ward 2: 18th Street and Jefferson Place, NW – Loading Zone Signage and Adjacent Land Use



Ward 2: 14th Street and I Street, NW – Loading Zone Signage and Adjacent Land Use



Ward 2: 18th Street and I Street, NW – Loading Zone Signage and Adjacent Land Use



Ward 2: 16th Street and R Street, NW – Loading Zone Signage and Adjacent Land Use



Ward 2: 7th Street and H Street, NW – Loading Zone Signage and Adjacent Land Use



Ward 2: 18th Street and K Street, NW – Loading Zone Signage and Adjacent Land Use



Ward 6: Pennsylvania Avenue and 3rd Street, SE – Loading Zone Signage and Adjacent Land Use



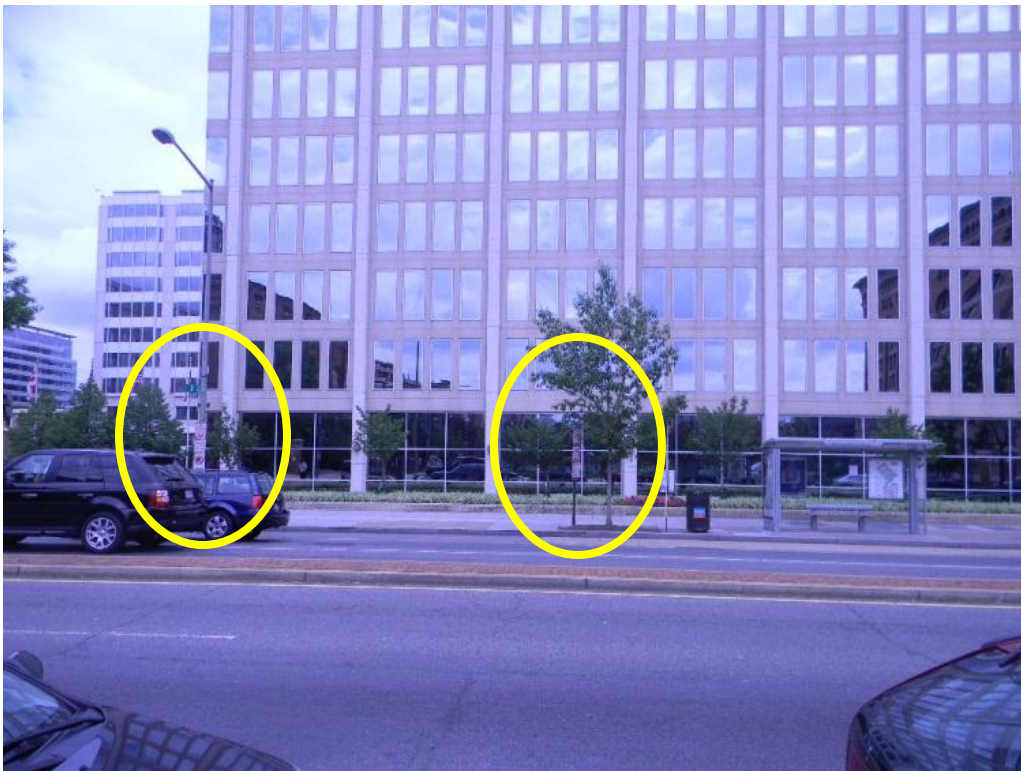
Ward 6: 4th Street and CI Street, SE – Loading Zone Signage and Adjacent Land Use



Ward 6: 600 Block (637 – 639) Pennsylvania Avenue, SE – Loading Zone Signage and Adjacent Land Use



Ward 6: 600 Block (650) Pennsylvania Avenue, SE – Loading Zone Signage and Adjacent Land Use



Ward 6: North Capitol Street and I Street, NW – Loading Zone Signage and Adjacent Land Use